PReS®
Connect
OL™ Software

User Guide

Version: 1.7.1

PReS® Connect

OL™ Software

User Guide
Version 1.7.1
Last Revision: 2018-05-23

Objectif Lune, Inc.
2030 Pie-IX, Suite 500
Montréal, QC, Canada, H1V 2C8

+1 (514) 875-5863
www.objectiflune.com

All trademarks displayed are the property of their respective owners.

© Objectif Lune, Inc. 1994-2018. All rights reserved. No part of this documentation may be reproduced, transmitted or distributed outside of Objectif Lune Inc. by any means whatsoever without the express written permission of Objectif Lune Inc. disclaims responsibility for any errors and omissions in this documentation and accepts no responsibility for damages arising from such inconsistencies or their further consequences of any kind. Objectif Lune Inc. reserves the right to alter the information contained in this documentation without notice.

Table of Contents

Table of Contents **4**

Welcome to PReS Connect 1.7.1 ..... **13**

Icons used in this guide 13

Setup And Configuration **15**

System and Hardware Considerations 15

System Requirements 15

Environment considerations 16

Database Considerations 18

Network considerations 23

Language and Encoding considerations 23

Performance Considerations 24

Antivirus Exclusions 26

Installation and Activation 28

Where to Obtain the Installers 28

Installation - important information 29

Installation - "How to" guides 29

Activation 29

Installation Prerequisites 29

User accounts and security 30

The Importance of User Credentials on Installing and Running PReS Connect 31

Installing PReS Connect on Machines without Internet Access 33

Installation Wizard 34

Running connect installer in Silent Mode 43

Activating a License 51

Migrating to a new workstation 54

Information about PReS Workflow 8 61

Server Configuration Settings 62

Scheduling Preferences 63

Server Extension Scheduling Preferences 68

Server Clustering 68

Server Security Settings 71

Uninstalling 72

Important Note: Stop any active Anti-Virus software before uninstalling Connect. 72

Impacts upon other Applications and Services ... 72
Uninstallation Wizard ... 73
The DataMapper Module ... 74
Basics ... 74
What's next? ... 75
Data mapping configurations ... 75
Creating a new data mapping configuration ... 76
Opening a data mapping configuration ... 79
Saving a data mapping configuration ... 79
Using the wizard for CSV files ... 80
Using the wizard for databases ... 81
Using the wizard for PDF/VT and AFP files ... 84
Using the wizard for XML files ... 85
Data mapping workflow ... 86
Creating a data mapping workflow ... 87
Testing the extraction workflow ... 88
Data source settings ... 88
Extracting data ... 92
Steps ... 111
The Data Model ... 121
Creating a Data Model ... 122
Editing the Data Model ... 123
Using the Data Model ... 124
Fields ... 125
Detail tables ... 130
Data types ... 137
Data Model file structure ... 146
DataMapper User Interface ... 149
Keyboard shortcuts ... 151
Menus ... 156
Panes ... 159
Example ... 166
Text File ... 189
PDF File ... 190
CSV and Database Files ... 192
XML File ... 194
Text and PDF Files ... 198

CSV and Database Files 200
XML File 201
Text and PDF Files 205
CSV and Database Files 207
XML Files 209
Left operand, Right operand 213
Condition 215
Operators 215
Text file 216
PDF File 217
CSV File 219
XML File 219
JavaScript 221
Toolbar 221
Welcome Screen 223
DataMapper Scripts API 224
Using scripts in the DataMapper 226
Setting boundaries using JavaScript 229
Objects 234
Example 238
Example 240
Examples 243
Example 245
Example 246
Example 248
Examples 251
Examples 254
Example 257
Example 258
Example 262
Text 263
XML 264
Functions 264
The Designer 272
Basic Steps 272
Features 273
Templates 274

PReS. Connect

Contexts 289
Sections 290
Print 294
Creating a Print template with a Wizard 296
Print context 300
Print sections 303
Pages 310
Master Pages 318
Media 321
Email 326
Designing an Email template 327
Creating an Email template with a Wizard 331
Email context 334
Email templates 336
Email header settings 339
Email attachments 346
Web 347
Creating a Web template with a Wizard 348
Web Context 352
Web pages 353
Forms 358
Using Form Elements 363
Using JavaScript 368
Capture OnTheGo 371
COTG Forms 371
Creating a COTG Form 371
Filling a COTG template 372
Testing the template 375
Sending the template to the Workflow tool 375
Using COTG data in a template 375
Designing a COTG Template 378
Capture OnTheGo template wizards 381
Using Foundation 385
COTG Elements 388
Using COTG Elements 393
Testing a Capture OnTheGo Template 397
Content elements 403

Element types 404
Editing HTML 405
Attributes 405
Inserting an element 406
Selecting an element 407
Deleting an element 408
Styling and formatting an element 408
Barcode 409
Boxes 450
Business graphics 453
COTG Elements 456
Date 460
Forms 462
Form Elements 466
Hyperlink and mailto link 470
Images 471
Table 476
Text and special characters 480
Snippets 482
Adding a snippet to the Resources 482
Adding a snippet to a section 483
Creating a snippet 484
JSON Snippets 484
Styling and formatting 484
Local formatting versus style sheets 484
Layout properties 485
Styling templates with CSS files 486
Styling text and paragraphs 494
How to position elements 498
Rotating elements 501
Styling a table 501
Background color and/or image 506
Border 508
Colors 510
Fonts 514
Locale 516
Spacing 517

PReS. Connect

Personalizing Content 518
Variable data 519
Conditional content 519
Dynamic images 519
Dynamic tables 519
Snippets 520
Scripts 520
Loading data 520
Variable Data 530
Formatting variable data 536
Showing content conditionally 539
Dynamic Images 541
Dynamic table 543
Personalized URL 547
Writing your own scripts 548
Script types 549
Creating a new script 550
Writing a script 551
Managing scripts 553
Testing scripts 556
Optimizing scripts 560
Loading a snippet via a script 564
Control Scripts 566
The script flow: when scripts run 581
Designer User Interface 581
Dialogs 583
Keyboard shortcuts 656
Menus 662
Panes 673
Toolbars 689
Welcome Screen 694
Print Options 695
Job Creation Presets 754
Output Creation Settings 763
Script API 782
Designer Scripts API 784
Examples 812

Examples 813
Examples 814
Examples 817
Examples 819
Examples 820
Examples 821
Examples 822
Examples 823
Examples 825
Examples 825
Examples 826
Examples 827
Example 827
Example 828
Example 828
Example 829
Example 829
Examples 830
Creating a table of contents 831
Example 832
Examples 833
Examples 835
Examples 837
Examples 837
Replace elements with a snippet 838
Replace elements with a set of snippets 838
Example 839
Example 839
Control Script API 839
Generating output 857
Print output 857
Email output 857
Web output 858
Optimizing a template 858
Scripts 858
Images 859
Generating Print output 860

PReS. Connect

Saving Printing options in Printing Presets. 861
Connect Printing options that cannot be changed from within the Printer Wizard. 861
Print Using Standard Print Output Settings 862
Print Using Advanced Printer Wizard 863
Adding print output models to the Print Wizard 864
Splitting printing into more than one file 865
Variables available in the Output 865
Generating Fax output 872
Generating Tags for Image Output 873
Generating Email output 874
Email output settings in the Email context and sections 875
Generating Email output from Connect Designer 876
Generating Email output from Workflow 877
Using an ESP with PReS Connect 878
Generating Web output 882
Attaching Web output to an Email template 883
Generating Web output from Workflow 884
Web output settings in the Web context and sections 885
Print Manager 886
Print Manager Introduction Video 886
Print Manager usage 886
Print Manager Interface 887
Menu options 887
Printers pane 888
Printer Queue pane 892
Printer Capabilities pane 895
Job Queue pane 895
Job History pane 897
Printer Status pane 899
Messages pane 900
Print Manager Preferences 900
General Information 906
Connect File Types 906
Additional Information 907
Release Notes 908
Overview 908

Connect 1.7.1 General Enhancements and Fixes 910
Connect 1.7.1 Designer Enhancements and Fixes 916
Connect 1.7.1 DataMapping Enhancements and Fixes 924
Connect 1.7.1 Output Enhancements and Fixes 927
Workflow 8.7 Enhancements and Fixes 935
Known Issues 938
Previous Releases 942
Overview 942
OL Connect Send 945
Connect 1.6.1 General Enhancements and Fixes 947
Connect 1.6.1 Designer Enhancements and Fixes 949
Connect 1.6.1 DataMapping Enhancements and Fixes 950
Connect 1.6.1 Output Enhancements and Fixes 950
Connect Workflow 8.6 Enhancements and Fixes 953
Known Issues 955
Overview 960
Connect 1.4.2 Enhancements and Fixes 961
Connect 1.4.1 New Features and Enhancements 962
Connect 1.4.1 Designer Enhancements and Fixes 963
Connect 1.4.1 DataMapping Enhancements and Fixes 965
Connect 1.4.1 Output Enhancements and Fixes 965
Connect 8.4.1 Workflow Enhancements and Fixes 966
Known Issues 966
Legal Notices and Acknowledgments 972
Copyright Information 977

Welcome to PReS Connect 1.7.1

> **Note**
>
> Since we are always looking for new ways to make your life easier, we welcome your questions and comments about our products and documentation. Use the feedback tool at the bottom of the page or shoot us an email at doc@ca.objectiflune.com.

PReS Connect is a series of four tools designed to optimize and automate customer communications management. They work together to improve the creation, distribution, interaction and maintenance of your communications.

The PReS Connect **Datamapper** and **Designer** is designed to create output for print, email and the web within a single template and from any data type, including formatted print streams. Output presets applied outside the design phase make printing device independent.

The **Designer** has an easy-to-use interface that makes it possible for almost anyone to create multi-channel output. More advanced users may use native HTML, CSS and JavaScript.

PReS Connect also includes a process automation server, called **Workflow**. It is capable of servicing response form web pages and email to provide interactive business communications.

PReS Connect can create documents for tablets and mobile devices that run a free **CaptureOnTheGo** App. Users with a CaptureOnTheGo subscription can then download documents to their own devices, interact with them and send the captured data back to PReS for conversion into additional documents or workflows.

This online documentation covers **PReS Connect** version 1.7.1.

Icons used in this guide

Icons are used throughout this guide to point your attention to certain information.

Note

Complementary information that is not critical, but may help you better use PReS Connect.

Tip

Information that is useful or suggests an easier method.

Warning

Information that is potentially critical to using PReS Connect. Pay close attention.

Setup And Configuration

This chapter describes the PReS Connect installation and the different considerations that are important in regards to the installation and use of PReS Connect.

- "System and Hardware Considerations" below
- "Installation and Activation" on page 28
- "Server Configuration Settings" on page 62
- Uninstalling

System and Hardware Considerations

There are a variety of considerations to be aware of. These are documented in the following pages:

- "System Requirements" below
- "Environment considerations" on the facing page
- "Database Considerations" on page 18
- "Network considerations" on page 23
- "Language and Encoding considerations" on page 23
- "Performance Considerations" on page 24
- "Antivirus Exclusions" on page 26

System Requirements

These are the system requirements for PReS Connect 1.7.1

Operating System (64-bit only)

- Microsoft Windows 2008/2008 R2 Server
- Microsoft Windows 2012/2012 R2 Server
- Microsoft Windows Vista
- Microsoft Windows 7

- Microsoft Windows 8.1
- Microsoft Windows 10 (Pro and Enterprise versions only)

> **Note**
>
> Windows 8.0, Windows XP, Windows 2003 and older versions of Windows are not supported by PReS Connect.

Minimum Hardware Requirements

- NTFS Filesystem (FAT32 is not supported)
- CPU Intel Core i7-5960X @ 3.00GHz (8 core with Hyper-Threading)
- 16GB RAM
- Disk Space: At least 10GB (20GB recommended)

> **Note**
>
> For tips and tricks on performance, see "Performance Considerations" on page 24.

Environment considerations

Virtual Machine Support

PReS Connectsupports VMWare Workstation, VMWare Server, VMWare Player, VMWare ESX (including VMotion), Microsoft Hyper-V and Microsoft Hyper-V/Azure infrastructure environments as software installed on the Guest operating system.

> **Warning**
>
> Copying (duplicating) a Virtual Machine with Connect installed and using both images simultaneously constitutes an infringement of our End-User License Agreement.

Note

While some virtual machine environments (from VMWare and Microsoft) are supported, other virtual environments (such as Parallels, Xen and others) are not supported at this time.

Terminal Server/Service

PReS Connect does not support Terminal Server (or Terminal Service) environment as possible under Windows 2000, 2003 and 2008. This is to say, if Terminal Service is installed on the server where PReS Connect is located, unexpected behaviours may occur and will not be supported by Objectif Lune Inc.. Furthermore, using PReS Connect in a Terminal Service environment is an infringement of our End-User License Agreement.

Remote Desktop

Tests have demonstrated that PReS Connect can be used through Remote Desktop. It is however possible that certain combination of OS could cause issues. If problems are encountered, please contact OL Support and we will investigate.

PReS Connect 1.3 and later have been certified under Remote Desktop.

64-bit Operating Systems

PReS Connect is a 64-bit software and can only be installed on 64-bit operating systems.

Antivirus Considerations

- Antivirus software may slow down processing or cause issues if they are scanning in temporary folders or those used by PReS Connect. Please see KB-002: Antivirus Exclusions for more information.
- Antivirus software might interfere with installation scripts, notably a vbs script to install fonts. McAfee, in particular, should be disabled temporarily during installation in order for MICR fonts to install and the installation to complete successfully.

Windows Search Indexing Service

Tests have concluded that the Windows Search service, used to provide indexing for Windows Search, can interfere with Connect when installing on a virtual machine. If the installation hangs during the last steps, it is necessary to completely disable this service during installation.

- Click on Start, Run.
- Type in **services.msc** and click OK.
- Locate the **Windows Search** service and double-click on it.
- Change the **Startup Type** to **Disable**, and click **Stop** to stop the service.
- Try the installation again.
- Once completely, you may re-enable the service and start it.

Commandline switches and .ini entries

PReS Connect is intended to work stably and reliably, based on Java and the Eclipse framework. To ensure this reliability and robustness, many Java and Eclipse parameters have been tested and tuned, which is reflected in the respective .ini entries and the used command line switches. A collection of valuable settings has been elaborated and found its entry in PReS Connect “good switches list” (called the “whitelist”).

The protection of the end user’s system is one of our main goals and therefore we have implemented a very strict verification mechanism, which ensures, that only these whitelisted ini entries and commandline switches are accepted, when one of Connect components is started and run. Please be therefore advised, that any non-whitelisted ini entry or commandline switch will be accepted and will - if tried to be used - lead to the respective application’s “sudden death”. If you should encounter such a behaviour then please double-check your Connect log file/s for respective entries.

Database Considerations

This page describes the different considerations and pre-requisites for the database back-end used by PReS Connect, whether using the MySQL instance provided by the installer, or pre-existing (*external*) instance.

Using the MySQL Instance from the Installer

The MySQL Instance provided in the Installation Wizard is already pre-configured with options to provide the most stable back-end setup.

These are the specific options that have been changed in our version of "*my.ini*":

- **max_connections = 200** : PReS Connect uses *a lot* of database connections. This number ensures that even in high volume environments, enough connections will be

available.

- **max_allowed_packet = 500M** : In some implementations, especially when using Capture OnTheGo, large packet sizes are required to allow transferring binary files. This substantial packet size maximum setting ensures that the data received by PReS Connect will be able to be stored within the database.
- **character-set-server = utf8 , collation-server = utf8_unicode_ci , default-character-set=utf8** : These indicate database support for UTF-8/Unicode.

Installing / Updating Connect Using an existing local MySQL instance

If MySQL Server is already present and you wish to use it, the following should be taken into consideration:

- The MySQL account must have access to all permissions using the GRANT Command, including creating databases.
- The database configuration must include the options detailed in the "Using the MySQL Instance from the Installer" on the previous page topic above.
- The SQL instance must be open to access from other computers. This means the bind-address option should not be set to 127.0.0.1 or localhost.

> **Warning**
>
> If you chose **not** to install the supplied MySQL database, and instead opt for using a pre-existing (*External*) database then you yourself must ensure that the *External* database is accessible to Connect.
>
> Objectif Lune Inc. will take no responsibility for database connections to any but the supplied MySQL database.

Options available within the installer:

- The Configuration page for the local MySQL is displayed.
- MySQL settings are pre-filled with default values if no existing MySQL db configuration is found.
- MySQL settings are pre-filled with existing db configuration settings, if they point to a MySQL db type.

Installing Connect using an existing Microsoft SQL Server instance

If Microsoft SQL Server is already present and you wish to use it, the following should be taken into consideration:

> **Warning**
>
> If you chose **not** to install the supplied MySQL database, and instead opt for using a pre-existing (*External*) database then you yourself must ensure that the *External* database is accessible to Connect.
>
> Objectif Lune Inc. will take no responsibility for database connections to any but the supplied MySQL database.

> **Note**
>
> Since PReS Connect version 1.6 the minimum required version of the MS SQL Server is **SQL Server 2012**.

- When MS SQL is selected, the default values for root user are **sa** and **1433** for the port.
- If db settings from a previous installation are found, the pre-exising settings will be displayed for the matching db type (for MS SQL settings, this will only work if they were created with Server Config Tool 1.5.0 or later, or the Connect installer 1.6.0 or later). If the db type is changed in the configuration page, the default values for this db type will be displayed. If the pre-existing db settings are set to Hsqldb, the default db type selection will be MySQL.
- Selected db settings are stored in the preferences as usual (C:\ProgramData\Objectif Lune\OI Connect\.settings\ConnectHostScope\com.objectiflune.repository.eclipselink.generic.prefs)

Updating With No Local MySQL Product

- When updating a Connect installation from 1.5.0 which contains a Server Product but no local MySQL Product, the DB Configuration Page will detect which db type was set before (especially if the db configuration was switched from MySQL to MS SQL using the Server Configuration Tool), and default to those settings.

- On Update from 1.4.2 or earlier, the DB Configuration Page will always default to MySQL connection settings, and if the installation was manually tweaked to connect to MS SQL Server, the user has to switch to "Microsoft SQL Server" type and enter connection details again.

When modifying Connect

- If local MySQL is removed from an installation, the DB Configuration page will offer additionally the **Microsoft SQL Server** db type with respective default values.
- If local MySQL is added to an installation, the usual MySQL Configuration page with default values will be displayed.

If the user has installed the Installer Supplied MySQL and then switches to an *external* Microsoft SQL by using the Server Configuration Tool, the supplied MySQL cannot be switched off. By design the installer adds a service dependency between Connect Server and the supplied MySQL service.

> **Note**
>
> The Microsoft SQL selection capability will be available only with 1.6 version and upwards.

To remove this dependency the user needs to do the following

1. Have a foreign Microsoft SQL running, ready for use with Connect Server.
2. Use the **Server Configuration Tool** "Database Connection preferences" on page 615 to switch the database to Microsoft SQL.
3. Re-start the Connect Server Service, so that the modifications become active.
4. Counter check that everything is working properly with Microsoft SQL.
5. Open a command-line prompt with full administration rights.
6. Enter the command `sc config OLConnect_Server depend= /`. This removes the dependency.
   Please be aware: The key word `depend` must be followed immediately by the equal sign, but between the equal sign and the forward slash there must be a space.
   Additional information can be found here: http://serverfault.com/questions/24821/how-to-add-dependency-on-a-windows-service-after-the-service-is-installed#228326.

7. After the dependency has been removed, it is possible to stop the supplied MySQL service (OLConnect_MySQL).

Warning

If a Connect 1.5 user wants to use Microsoft SQL instead of MySQL for the Connect Server, there are several points to be taken care of:

- **IF** there should possibly be available some foreign MySQL instance, which could be used intermediately, then this should be selected during the setup. This ensures, that no stuff gets installed. Otherwise the supplied MySQL needs to be installed and the switch to Microsoft SQL needs to be done as outlined above.
- It is not possible to uninstall the supplied MySQL in this case via a Connect 1.5 modify.

Important

If a Server Product and a MySQL Product were selected to be installed on Connect 1.5.0, and then the Server Configuration Tool is used to switch the database used by the Server to an external Microsoft SQL, then the Update to 1.6 requires an extra step. The procedure is as follows:

1. Run the **Update to Connect 1.6**. This will assume the local MySQL database needs to be updated and configured, so the user has to enter a root password on the MySQL Configuration Page (can be any password matching Connect security rules).
2. After the update, the **Connect 1.6 Setup** needs to be run once more to modify Connect.
3. On the **Product Selection** page, now the MySQL product can be unselected.
4. When stepping forward in the Wizard, the DB Configuration page will be displayed which allows to configure the Microsoft SQL Server with appropriate settings.

After this modification, the local MySQL is removed, and also the service dependency from Server to MySQL is removed.

Note

If Connect was initially installed not containing the local MySQL product (i.e. on 1.5 installation an

external MySQL was configured as database), then the Update to 1.6 will allow to select either external MySQL or external Microsoft SQL on the DB Configuration Page.

Network considerations

The following should be taken into consideration in regards to network settings and communications

- If a local proxy is configured (in the **Internet Explorer Options** dialog), the option **Bypass proxy server for local addresses** must be checked, or some features depending on local communication will not work.

Language and Encoding considerations

Please note the following considerations:

- **Language**:
  - PReS Connect is currently offered in several languages. These languages can be switch between via the Preferences dialog. The current languages include:
    - English
    - French
    - German
    - Spanish
    - Italian
    - Portuguese
    - Chinese (Simplified)
    - Chinese (Traditional)
    - Japanese.

    The default language is English.
    The PReS Connect help system (this document) is currently only available in English.
- **Encoding**:

- Issues can sometimes be encountered in menus and templates when running PReS Connect on a non-English operating system. These are due to encoding issues and will be addressed in a later release.

Performance Considerations

This page is a comprehensive guide to getting the most performance out of PReS Connect as well as a rough guideline to indicate when it's best to upgrade.

Performance Analysis Details

In order to get the most out of PReS Connect, it is important to determine how best to maximize performance. The following guidelines will be helpful in extracting the best performance from PReS Connect before looking into hardware upgrades or extra PReS Connect performance packs.

- **Job Sizes and Speed**: In terms of pure output speed, it's important to first determine what job size is expected, and adjust "Scheduling Preferences" on page 63 accordingly. The basic rules are:
  - If processing a small number of very large records (when each individual record is composed of a large number of pages), more instances with an equal amount of speed units is better. For hardware, RAM and Hard Drive speeds are most important, since the smallest divisible part (the record) cannot be split on multiple machines or even cores.
  - If creating a very large number of small records (hundreds of thousands of 2-3 page individual records, for instance), a smaller number of instances with a large number of speed packs would be better. As for hardware, then the number of cores becomes critical, whereas RAM and hard drive are secondary. Performance Packs, as well as the MySQL instance being separate, would be helpful if your most powerful machine starts struggling.
  - Mix and match. For example, one instance prioritized for large jobs and the rest for smaller, quicker jobs. Or the contrary. Or, whatever you want, really.
- **RAM Configuration**: By default, each instance of the Merge Engine and Weaver Engine is set to use 640MB of RAM. This means that regardless of speed units, if not enough memory is available, output speed might not be as expected. Assuming that the machine itself is not running any other software, the rule of thumb is the following: The total number of used memory in the machine should be pretty much the maximum available (around 95%).

For each engine, it's necessary to modify the .ini file that controls its JAVA arguments. Edit as follows:

- For the Merge Engine: see C:\Program Files\Objectif Lune\OL Connect\MergeEngine\Mergeengine.ini
- For the Weaver Engine: see C:\Program Files\Objectif Lune\OL Connect\weaverengine\Weaverengine.ini
- The parameters are -Xms640m for the minimum RAM size, -Xmx640m for the maximum RAM size. Explaining Java arguments is beyond the scope of this document. Please read references here, here and here for more details (fair warning: these can get pretty technical!).

- **Template and data mapping optimization**: Some functionality offered by the DataMapper and Designer modules are very useful, and sometimes downright awesome, but can cause the generation of records and of contents items to slow down due to their nature. Here are some of them:
  - **Preprocessor and Postprocessor scripts**: manipulating data using a script may cause delays before and after the data mapping action has actually taken place, especially file conversion and data enrichment from other sources.
  - **Loading external and network resources**: In Designer, using images, javascript or css resources located on a slow network or on a slow internet connection will obviously lead to a loss of speed. While we do our best for caching, a document with 100,000 records which queries a page that takes 1 second to return a different image each time will, naturally, slow output generation down by up to 27 hours.
  - **External JavaScript Libraries**: While loading a single JavaScript library from the web is generally very fast (and only done once for the record set), actually running a script on each generated page can take some time. Because yes, JavaScript will run for each record, and often take the same time for each record.
  - **Inefficient Selectors**: Using very precise ID selectors in script wizards can be much faster than using a text selector, especially on very large documents. (more details on this in another upcoming page).
  - **Complex Scripts**: Custom scripts with large, complex or non-optimized loops can lead to slowing down content creation. While it is sometimes difficult to troubleshoot, there are many resources online to help learn about JavaScript performance and coding mistakes. Here, here, and here are a few. Note that most resources on the web are about JavaScript in the *browser*, but the greatest majority of the tips do, indeed, apply to scripts in general, wherever they are used.

Hardware configuration

When processing speed is important, the following is suggested before looking into Performance Packs to enhance performance.

- **Consider using a physical machine** instead of a virtual machine. When running on a Virtual Machine, the machine may report that it has sufficient hardware (cores) available, but in a virtual environment you need to make sure that this hardware is not being shared with lots of other virtual machines.
- For both virtual and non-virtual environments, make sure the machine is not busy with all kinds of other processes.
- **Antivirus exclusions**. Sometimes, virus scanners, other security software or indexing services can interfere. It can help to disable those kinds of tools for the areas where Connect stores intermediate files. You could exclude the entire `C:\Users\<connectuser>\Connect` folder. See also: "Antivirus Exclusions" below.
- Use a **high-performance, low-latency hard drive**. Connect benefits from fast I/O. This is especially true for the DataMapper engine. Preferably use a Solid State Drive (SSD) or similar for storage.
- Use at least **8+ GB High-Quality RAM**. Check memory usage while the Print command is being executed to see if you need more than the minimum of 8GB. Assuming that the Designer and the Connect database need 1GB each, that each Merge engine needs 1GB and the Weaver engine needs 1GB as well, you can roughly estimate how much memory is needed.
- Consider using hardware with more **physical cores**. PReS Connect doesn't limit the number of Merge engines that is used for a print job, so if the number of physical cores is low, it makes sense to see if that can be increased. When running on a virtual machine, this is usually easy. When running on a physical machine, it means that you may have to switch hardware. Make sure to address all issues mentioned in this topic before deciding that you need to invest.

Antivirus Exclusions

The information on this page is designed to assist IT managers and IT professionals decide what anti-virus strategy to follow with consideration to PReS Connect and their internal requirements and needs. This page describes the mode of operation and the files and folders used by PReS Connect as well as the files, folders and executables that are recommended to be ignored for best possible performance and to avoid issues caused by antivirus file locks.

IT managers and IT professionals then may decide the anti-virus strategy to follow for their internal requirements and needs depending on the statements outlined herein.

Directories and folders

Main installation folder

All Connect applications are installed under an arbitrarily selectable main folder. We will speak of the "Installation Target" in the following. This installation target will hold the executables and required files and folders for the operation of the whole product suite. All these files and folders are static after their installation. It depends on the company virus protection strategy, if such files and folders will be monitored or not. A virus protection on these files and folders should, however, not have a big – if even any – impact on the performance of the Connect suite.

Working folders

Working folders for Connect are created and used on a per-user-basis under the respective user's profile folder, accessible on Windows with the standardized system variable %USERPROFILE% in the subfolder "Connect". Working folders are:

- **%USERPROFILE%\Connect\filestore**: This folder will hold non-intermediate files for the operation of Connect. Files in this folder will be used frequently, but not with a high frequency. Supervising this folder with a virus protection system should not have too much of an impact on the speed of the whole Connect suite.
- **%USERPROFILE%\Connect\logs**: As the name implies, log files are created and updated here. These log files are plain text files. Virus protection may have an impact on the speed of the whole Connect suite.
- **%USERPROFILE%\Connect\temp**: Storage folder for temporary data, usually intermittent files in multiple folders. Virus protection on this folder and its subfolders may have a serious impact on the performance of Connect.
- **%USERPROFILE%\Connect\workspace**: Usually containing settings and helper files and folders. Supervising this folder with a virus protection system should not have too much of an impact on the speed of the whole Connect suite.

Database 1

Depending on the components installed, a database instance is created in the system temp folder of Windows. This folder is accessible via the standardized system variable %TMP%. Usually, folders holding such temporary files and folders should be excluded from a virus protection, because this influences the overall performance of the whole system at all. However

the responsible person for the computer protection has to decide about the monitoring of such temporary folders following the company guidelines.

Database 2

Another database instance for Connect will be hold and used under the folder, which is intended to hold data, accessible by and for all users. The path to this folder is stored in the standardized system variable %PROGRAMDATA%. The Connect database instance is located in the subfolder "Connect\MySQL".
As this database will be in extremely strong usage, virus protection on this folder and its subfolders may have a serious impact on the performance of Connect.

Installation and Activation

This topic provides detailed information about the installation and activation of PReS Connect 1.7.1.

> **Note**
>
> A PDF version of this guide is available for use in offline installations. Click here to download it.

PReS Connect 1.7.1 is comprised of 2 different installers: one for the PReS Connect software and one for PReS Workflow 8.

Where to Obtain the Installers

The installers for PReS Connect 1.7.1 and PReS Workflow 8 can be obtained on DVD or downloaded as follows:

- If you are a **Customer**, the installers can be downloaded from the Objectif Lune Web Activations page: http://www.objectiflune.com/activations
- If you are a **Reseller**, the installers can be downloaded from the Objectif Lune Partner Portal: http://extranet.objectiflune.com/

Installation - important information

For important information about the Installation, including requirements and best practices, please see the following topics:

- Installation Prerequisites
- User accounts and security
- The importance of User Credentials when installing and running Connect
- Migrating to a new computer

Installation - "How to" guides

For information on how to conduct the installation itself, chose from the following topics:

- Installation
- Silent Installation
- Installation on machines without Internet access

Activation

For information on licensing, please see Activating your license.

Installation Prerequisites

- Make sure your system meets the System requirements.
- PReS Version 1.7.1 can be installed under a regular user account with Administrator privileges.
- PReS **must** be installed on an NTFS file system.
- PReS requires **Microsoft .NET Framework 3.5** already be installed on the target system.
- In order to use the **automation features** in Version 1.7.1, **PReS Workflow 8** will need to be installed.
  This can be installed on the same machine as an existing PlanetPress® Suite 7.6 installation or on a new computer.
  For more information, please see Information about PReS Workflow 8.
- As with any JAVA application, the more RAM available, the faster PReS will execute!

Users of Connect 1.1

In order for users of PReS Connect 1.1 to upgrade to any later version through the Update Manager it is necessary to install a later version (1.1.8 or later) of the Objectif Lune Update Client.

If you do not have such a version installed already, the next time you run your Update Client it will show that there is an update available of itself to Version 1.1.8 (or later).

Simply click on the download button in the dialog to install the new version of the Update Client. Note that it is no problem to run the update while the Client is open. It will automatically update itself.

Once you have done this, PReS Connect 1.7.1 will become available for download.

> **Note**
>
> From PReS Connect Version 1.2 onwards, the new version (1.1.8) of the Update Client is included by default with all setups.

User accounts and security

Permissions for PReS Connect Designer

PReS Connect Designer does not require any special permissions to run besides a regular program. It does not require administrative rights and only needs permission to read/write in any folder where Templates or Data Mapping Configurations are located.

If generating Print output, PReS Connect Designer requires permission on the printer or printer queue to send files.

Permissions for PReS Connect Server

The PReS Connect Server module, used by the *Automation* module, requires some special permissions to run. These permissions are set during installation, in the *Engine Configuration* portion of the Installation Wizard, but it can also be configured later by modifying permissions for the service. To do this:

- In Windows, open the Control Panel, Administrative Tools, then Services (this may depend on your operating system).
- Locate the service called Serverengine_UUID , where UUID is a series of characters that depend on the machine where the software is installed.
- Right-click on the service and select *Properties*.
- In the *Connection* tab, define the account name and password that the service should use. This can be a local account on the computer or an account on a Windows Domain. The account must have administrative access on the machine. It should also correspond to the user account set up in *PReS Worfklow*.

The Importance of User Credentials on Installing and Running PReS Connect

OL Connect and required credentials depends heavily on the Connect component and respective tasks and what sort of user credentials are needed.

First of all, it is important to distinguish between installation and run-time

Installation

The Connect installer puts all required files, folders, registry entries and much more to their correct places and locations. As many of these locations are protected against malicious accesses, that very user under whose context the Connect installation is started and running, needs very extensive rights on the respective computer. This user must belong to the Local Administrators group on that machine. Here are some required capabilities, this user:

- Must be able to write into the "Programs" folder.
- Must be allowed to check for existing certificates and must also be allowed to install new ones into the global certificate store on that machine.
- Must be able to write into HKLM and any subtree of it in the registry.
- Must be able to INSTALL, START and RUN services and also to MODIFY service settings.
- Must be known in the network the machine belongs to and must also need to be able to use shared network resources like shared drives and/or printers etc.

This list may not be complete, but it gives the extent of the requirements. Generally, the local administrator of the machine will have all these credentials, but there may exist network

restrictions and policies, which will block one or more of these capabilities. In such cases, the respective network administrator should provide a valid user account for the installation.

User Account

The user account shall be used to later RUN one of the Connect Server flavors (Server or Server Extension). This dedicated user account has to be entered on the respective installer dialog page and must be allowed to START, STOP and RUN services on this machine. This is different from the credentials of the installation user account, which additionally requires the right to INSTALL services. Please be aware of this fact!

Additionally, the Server user must be able to access any network resources that are required for OL Connect to function properly. This includes e.g. additional drives, printers, scanners, other computers and, where appropriate, internet resources, URLs, mail servers, FTP servers, database servers and everything else planned to be used for the intended operation of Connect. The Server user is the run-time user.

Connect Components

Usually, a standard end user will only be facing Connect Designer and maybe the License Activation Tool. Designer this does not require administrator rights. Either everything required to create documents or also to run some tasks will be already available (installed by the installer) or be accessible in a way, where no specific credentials are required. However some tasks like starting an email campaign will possibly require a respective account at a mail server. But this has generally nothing to do with the credentials of the Designer user.

Activation Tool

To run the Software Activation Tool, administrator rights are required because this tool needs to write the license file in one of the protected folders of Windows. The tool will however allow to restart it with respective credentials if required.

MySQL

MySQL database service is installed by the install user (thus again the requirement of installing, starting, running and modifying services). Once running it will just work.

Merge and Weaver Engines

These components do run under the Designer (if only Designer is installed) or the Server / Extension service(s) and inherit the rights of their parent application.

Server (Extension) Configuration Tool

This component needs to access the settings of the Server. As these are stored and read by the Server, it should be clear that the user used to run the Configuration tool should be the same as the Server Service user as explained above.

Installing PReS Connect on Machines without Internet Access

Installing PReS Connect1.7.1 in offline mode requires some extra steps. These are listed below.

GoDaddy Root Certificate Authority needs to be installed.
In order to install PReS Connect it is necessary for the GoDaddy Root Certificate Authority to be installed (G2 Certificate) on the host machine and for this to be verified online. When a machine hosting the installation does not have access to the Internet, the installation will fail because the verification cannot be performed. To solve this problem one must first ensure that all Windows updates have been installed on the host machine. Once the Windows updates are confirmed as being up to date, then complete the following steps:

1. Go to https://certs.godaddy.com/repository and download the following two certificates to copy to the offline machine:
   - GoDaddy Class 2 Certification Authority Root Certificate - G2 - the file is gdroot-g2.crt
   - GoDaddy Secure Server Certificate (Intermediate Certificate) - G2 - the file is gdig2.crt
2. Install the certificates: Right mouse click -> Install Certificate, and follow the steps through the subsequent wizard.
3. Now copy the PReS Connect installer to the offline machine and start the installation as normal

Windows certificate validation - Certificate Revocation List retrieval should be switched off

For your security Objectif Lune digitally signs all relevant files with our own name and certificate. The integrity of these files is checked at various times by different, context related,

methods. One of these checks, done during the installation process, uses the Windows certificate validation check. .

The Windows certificate validation process not only checks the integrity of a file against its signature, but also usually checks if the certificate itself is still valid. That check is done against the current Certificate Revocation List (CRL), which needs to be retrieved from the internet. However, if the machine in question does not have internet access, the retrieval of the CRL must fail, which will lead to subsequent validation issues.

To circumvent such issues it is **highly recommended** to switch off the CRL retrieval prior to installing Connect on machines without internet access. There is no security risk associated with this, as the CRLs would never be retrievable without internet access, anyway. Advantage of the switch will not only be found during the installation and operation of Connect, but also in some speed improvements for any application which use signed binaries.

To switch off CRL retrieval on the computer, complete the following steps:

1. Open the “Internet Options” via the Control Panel
2. Select the “Advanced” tab and scroll down to “Security” node.
3. Uncheck the entry “Check for publisher’s certificate revocation” under that node.
4. Click the OK button to close the dialog.
5. Re-start the computer.

Installation Wizard

Starting the PReS Connect installer

The PReS Connect installer may be supplied as an ISO image or on a DVD:

- If an ISO image, either burn the ISO onto a DVD or unzip the contents to a folder (keeping the folder structure)
- If on a DVD, either insert the DVD and initiate the installation from there or copy the contents to a folder (keeping the folder structure)

Navigate to the PReS_Connect_Setup_x64.exe or and double-click on it. After a short while the Setup Wizard will appear as a guide through the installation steps.

Note

PReS Connect **requires** prior installation of Microsoft .NET Framework 3.5

Please refer to https://www.microsoft.com/en-us/download/details.aspx?id=21 for more details on how to install Microsoft .NET Framework 3.5, if this is not already done.

Note

If the same version of PReS Connect is already installed on the target machine, you will be presented with options to either *Uninstall* or *Modify* the existing instance.

If **Modify** is selected, the standard installation Wizard sequence will be followed, but with all options from the existing installation selected.

Selecting the required components

After clicking the Next button, the component selection page appears, where the different components of PReS Connect can be selected for installation. Currently, the following are available:

- **PReS Connect Designer**: The Designer module. It may be used as a standalone with no other installed modules, but it will not have certain capabilities such as automation and commingling.
- **PReS Connect Print Manager**: The Print Manager module required for handling IPDS print output, as also available for managing PCL and PostScript output.
- **PReS Connect Server**: The Server back-end giving capabilities such as automation, commingling, picking. It saves all entities generated from the Automation module into a database for future use.
- **PReS Connect Server Extension**: A slave server for a PReS Connect Server module. When an extension is installed, it communicates with the master server and shares tasks. Only one Server or Server Extension can be installed per machine, not both.
- **MySQL Product**: Install the supplied MySQL database used by PReS Connect. The database is used for referencing shared and temporary Connect files, as well as for sorting temporarily extracted data, and the like.
  A pre-existing MySQL or Microsoft SQL server (referred to as an ***External*** database, in this documentation) *could* be used for the same purpose, however.
  The *external* database could reside on either the same computer or on a separate server.
  If you wish to make use of an *external* database, please make sure the **MySQL Product**

option is not selected.

> **Warning**
>
> If you chose not to install the supplied MySQL database, and instead opt for using a pre-existing *External* database then you must ensure that your *External* database is accessible to Connect, yourself. Objectif Lune Inc. will take no responsibility for database connections to any but the supplied MySQL database.
> See "Database Considerations" on page 18 for more information about setting up *External* databases.

> **Note**
>
> All instances of **PReS Connect Server** and **PReS Connect Server Extension** must use the same instance of MySQL. Although it is possible for each separate Server installation to have its own MySQL instance, doing so will prevent the Servers from functioning together within a "Server Clustering" on page 68 environment. The instance can be on any Server, however, whether it be the Server (master) or Server Extension (slave) machine.

- **Installation Path**: This is the location where modules are to be installed.

> **Note**
>
> To cater for MySQL requirements, the installation path cannot contain any non ASCII characters (such as Asian language Unicode characters). Nor can it contain characters that Windows disallows in filenames (such as '?', ">' or trailing spaces). If an invalid character is entered, the Installation Path entry box will turn red and a description of the error will be displayed in the information area.

The installer can also calculate how much disk space is required for installing the selected components as well as how much space is available:

- **Disk space required**: Displays the amount of space required on the disk by the selected components.
- **Disk space available on drive**: Displays the amount of space available for installation on the drive currently in the Installation Path.
- **Recalculate disk space**: Click to re-check available disk space. This is useful if space has been made available for the installation while the installer was open.
- **Source repository location**: Displays the path where the installation files are located. This can be a local drive, installation media, or a network path.

Selection Confirmation

The next page confirms the installation selections made. Click **Next** to start the installation itself.

End User License Agreement

The next page displays the End User License Agreement, which needs to be read and accepted before clicking **Next**.

Configuring Supplied Database Connection

The **Default Database Configuration** page appears if the supplied *MySQL Product* module was selected for installation in the *Product Selection* screen. It defines the administrative password for the MySQL server as well as which port it uses for communication.

The installer will automatically configure the Connect *Server* to use the supplied password and port.

- **MySQL user 'root' Password**: Enter the password for the 'root', or administration account, for the MySQL server. The password must be at least 8 characters long and contain at least one of each of the following:
  - a lower case character (a, b, c ...)
  - an upper case character (A, B, C ...)
  - a numeric digit (1, 2, 3 ...)
  - a punctuation character (@, $, ~ ...)

  For example: "This1s@K"

> **Note**
>
> When updating from an earlier Connect version, the appropriate MySQL password **must** be entered or the update will fail.
>
> If the password is subsequently forgotten, then the MySQL product must be uninstalled and its database deleted from disk before attempting to reinstall.

- **Confirm 'root' Password**: Re-enter to confirm the password. Both passwords must match for installation to continue.
- **TCP/IP Port Number**: The port on which MySQL will expect, and respond to, requests. A check is run to confirm whether the specified TCP\IP Port Number is available on the local machine. If it is already being used by another service (generally, an existing MySQL installation), the number is highlighted in red and a warning message is displayed at the top of the dialog.

> **Note**
>
> The MySQL Product controlled by the *OLConnect_MySQL* service communicates through port 3306 by default.

- **Allow MySQL Server to accept non-local TCP connections**: Click to enable external access to the MySQL server.

> **Note**
>
> This option is required if setting up clustering, or if MySQL Server will need to be accessed from any other machine.
> It is also required if the MySQL database is on a separate machine to PReS Connect.

> **Tip**
>
> This option may represent a security risk if the machine is open to the internet.
> It is heavily recommended that your firewall is set to block access to port 3306 from

external requests.

Configuring External Database Connection

The **Database Connection** page appears if the supplied MySQL Product module was not selected for installation. This page is for setting up the connection to the existing External database.

- **Database Configuration**: Select the database type to use for the PReS Connect Engine. Currently only MySQL and Microsoft SQL Server are supported.
- **Administrator Username**: Enter the username for a user with administrative rights on the database. Administrative rights are required since tables need to be created in the database.
  If accessing a database on a different machine, the server must also be able to accept non-local TCP connections, and the username must also be configured to accept remote connection. For example, the "root" MySQL user entered as root@localhost is not allowed to connect from any other machine than the one where MySQL is installed.
- **Administrator Password**: Enter the password for the above user. The appropriate MySQL password **must** be entered or the Connect installation will fail.
- **TCP/IP Port Number**: Enter the port on which the database server expects connections. For MySQL, this is **3306** by default.
  For MS SQL it is **1433** by default.
- **Database Host Name**: Enter the existing database server's IP or host name.
- **Server Schema/Table**: Enter the name of the MySQL database into which the tables will be created. The Connect standard name is "objectiflune".
- **Test Connection** button: Click to verify that the information provide into previous fields is valid by connecting to the database.

> **Note**
>
> This test does not check whether the remote user has READ and WRITE permissions to the tables under the objectiflune schema. It is solely a test of database connectivity.

PReS Connect Server/Server Extension Configuration

The **Server Configuration** page is where either the *Connect Server* or *Connect Server Extension* component is configured, depending upon whether the **Connect Server** or **Connect Server Extension** option was selected as part of the installation.

The **Connect Server** settings are as follows:.

- **Run Server as**: Defines the machine username and password that the**PReS Connect Server** module's service uses.

  > **Note**
  >
  > The "Server Security Settings" on page 71 dialog can only ever be executed from the user specified here.

  - **Username**: The account that the service uses to login. If the machine is on a domain, use the format domain\username.
    This account must be an existing Windows profile with local administrator rights.
  - **Password**: The password associated with the selected user.
  - **Validate user** button: Click to verify that the entered username and password combination is correct and that the service is able to login.
    This button *must* be clicked and the user validated before the **Next** button becomes available.

The **Server Extension Configuration** options appear when the **Connect Server Extension** module has been selected in the installation, rather than the **Connect Server** option.

Such an installation assumes that the **Connect Server** (also known as the Connect Master Server) has previously been setup on another machine, and that the option "***Allow MySQL Server to accept non-local TCP connections***" option were selected during that installation.

Note

Before installing the software, make sure that both TCP/IP ports 3306 and 9340 are open on the Connect Master Server and Connect Extension Server, in both the Inbound and Outbound Firewall Rules. Access within the Private and Domain profiles is sufficient.

It is recommended your firewall blocks access to port 3306 from external requests as it may represent a security risk if the machine is open to the internet!

Tip

Before installing the Connect Extension Server it is considered best practice to first setup the Connect Master Server. To do so, follow the **Binding and Root access on the Master server instructions** in "Server Clustering" on page 68.

This page defines the settings which are to be used to connect to that Connect Master Server.

- **Username**: The account that the service uses to login. If the machine is on a domain, use the format domain\username.
  This account must be an existing Windows profile with local administrator rights.

  Note

  This should ideally be the same as the logon domain user account for the *OLConnect_Server* service on the Connect Master Server.
  This account must be a local admin account with existing Windows profile on both servers.

- **Password**: The password associated with the selected user.
- **Hostname**: Enter the machine name or IP Address where the Connect Master Server resides.

> **Note**
>
> There is no requirement for the **Master** and **Extension** servers to belong to the same IP subnet. IP subnetting is beyond the scope of this documentation, but more information can be found here: https://en.wikipedia.org/wiki/Subnetwork

- **Port**: Enter the port to use to communicate with the Connect Server. The Connect Server controlled by the *OLConnect_Server* service communicates through port 9340 by default.
- **Use Server authentication** checkbox: Check this option and enter appropriate User details, if the Server expects authentication.
- **Validate Connection** button: Click to verify that the entered username and password is correct and the service is able to login. This button *must* be clicked and the user validated for the **Next** button to be available.

Click **Next** to start the actual installation process. This process can take several minutes.

Completing the installation

This screen describes a summary of the components that have been installed.

- **Configure Update Check** checkbox: This option is enabled by default. It causes the **Product Update Manager** to run after the installation is complete. This allows configuring PReS Connect to regularly check for entitled updates.
  Note: this checkbox may not be available in the event that an issue was encountered during the installation.
- **Show Log...** : If an issue was encountered during the installation, click this button to obtain details. This information can then be provided to Objectif Lune for troubleshooting.
- When ready, click the **Finish** button to close the installation wizard, and initialize the Product Update Manager, if it was selected.

The Product Update Manager

If the **Configure Update Check** option has been selected, the following message will be displayed after clicking “Finish” in the setup:

Click “Yes” to install or open the Product Update Manager where the frequency with which the updates can be checked and a proxy server (if required) can be specified.
Note: if the Product Update Manager was already installed by another Objectif Lune

application, it will be updated to the latest version and will retain the settings previously specified.

Select the desired options and then click **OK** to query the server and obtain a list of any updates that are available for your software.

- Note that the Product Update Manager can also be called from the “Objectif Lune Update Client” option in the Start menu.
- It can be uninstalled via Control Panel | Programs | Programs and Features.

Product Activation

After installation, it is necessary to activate the software. See Activating your license for more information.

> **Note**
>
> Before activating the software, please wait 5 minutes for the database to initialize. If the software is activated and the services rebooted too quickly, the database can become corrupted and require a re-installation.

Running connect installer in Silent Mode

PReS Connect can be installed in a so called "silent mode" to allow an automated setup during a company wide roll-out or comparable situations. The trigger for the Connect Installer to run in silent mode is a text file with the fixed name **install.properties**, which is located either in the same folder as the PReS_Connect_Setup_x86_64.exe or in the unpacked folder of the **installer.exe**.

> **Note**
>
> Only the installation can be run silently. **Silent Mode** does not apply to uninstalling, modifying, or updating Connect. Any previous version of Connect must be uninstalled before using the Silent Installer.

The required properties file has the following attributes:

- Comment Lines, starting with # (e.g. # The options to configure an external database)
- Key = Value pairs (e.g. install.product.0 = Connect Designer)

For supported keys, please refer to the next paragraph.

> **Note**
>
> **install.properties** file notation must follow commons configuration rules. Please refer to Properties files for more details.

Required and optional properties

Required properties depend on the specified product. Only fields related to that specified product must be entered. If no product is mentioned, properties must be specified for all valid Connect products.

Here is an example of an **install.properties** file.

```
# Verbose logging
logging.verbose = true

# Product selection
install.product.0 = Connect Designer
install.product.1 = Connect Server

# Server settings
server.runas.username = Localadmin
server.runas.password = admin

# Database configuration
database.type = mysql
database.host = 192.168.116.10
database.port = 3308
database.username = root
database.password = admin
database.schema = my_ol
```

Verbose logging (optional)

By default, the **Silent Installer** will log the same way as the GUI installer. That means logging of error and warnings, and certain information during database configuration. A more verbose logging can be switched on by using **logging.verbose = true**.

Product selection (optional)

By default, if nothing is entered for the products to be installed (install.product.X), **Silent Installer** will install all products which are visible to the user for the respective brand (except for the Server Extension, because only Server or Server Extension can be installed at the same time).

PReS defaults

```
install.product.0 = Connect Designer
install.product.1 = Connect Server
install.product.2 = Connect Print Manager
install.product.3 = MySQL Product
```

> **Note**
>
> The values of **install.product** properties must contain the exact product names.

Server configuration (required if Server is selected for install)

For Server, the following properties need to be provided:

```
server.runas.username = <username>
server.runas.password = <password>
```

Server Extension configuration (required if Server Extension is selected for install)

For Server Extension, the following properties need to be provided:

```
server.runas.username = <username>
server.runas.password = <password>
server.master.host = <IP or name>
server.master.port = <port>
server.master.authenticate = true or false
```

```
server.master.username = <username for the Connect Server>
server.master.password = <password>
```

Database configuration

Case 1: MySQL is among the selected Connect products to be installed (new MySQL installation)

If MySQL is selected and there is no previous MySQL configuration on the machine, the following properties should be defined:

```
database.password = <password> (required and must meet the rules)
database.port = <port> (3306 is the default port value)
database.unlocked = true or false (the default value is false,
optional)
```

> **Note**
>
> The **unlocked** option should only be used when the database requires an external access.
>
> If the **Silent Installer** runs with the default product selection, MySQL Product is included, and hence the **database.unlocked = true** property may be optionally set if MySQL on this machine is intended to serve as the central database also for remote machines.
>
> If the **Silent Installer** runs with the explicit installation of a stand-alone (install.product.0 = Connect Server), the **database.unlocked** property is irrelevant.

> **Note**
>
> The port will be defined automatically for the MySQL installation. All connect products selected in the Silent Installer will automatically be configured to use the MySQL running under the port defined by the **database.port** property, regardless of the default port 3306 or any other user defined port.
>
> A different port is required if 3306 is already taken on that machine by another application.

Case 2: The Connect Server or the Connect Server Extension is selected and the MySQL Product is not selected

In this case, an external database must be configured for the Server (and other Connect products included in the Silent installation) to be used.

2a: Configuring an external MySQL database

To configure an external MySQL database, the following properties should be defined:

```
database.type = mysql (required)
database.host = <host> (default value is localhost, otherwise
required)
database.port = <port> (default value is 3306, otherwise required)
database.username = <username> (default value is root, otherwise
required)
database.password = <password> (required)
database.schema = <schema name> (default value is objectiflune,
optional)
```

2b: Configuring an external Microsoft SQL Server database

> **Note**
>
> Since PReS Connect version 1.6 the minimum required version of the MS SQL Server is **SQL Server 2012**.

To configure an external Microsoft SQL Server database, the following properties should be defined:

```
database.type = Microsoft SQL Server (required)
database.host = <host> (default value is localhost, otherwise
required)
database.port = <port> (default value is 1433, otherwise required)
database.username = <username> (default value is sa, otherwise
required)
database.password = <password> (required)
database.schema = <schema name> (default value is objectiflune,
optional)
```

Repository selection

The Connect installation process requires a repository from which the installer copies (locally) or downloads (online installation) all selected Connect products.

In Silent Installer mode, the installation process looks for the property **product.repository** in the **install.properties** file and then proceeds with the following steps:

1. If the property exists, and its value contains an existing file location with a repository, the installer will attempt to install from that repository.
2. If the property exists, and its value starts with http://, the installer will attempt to install from that location. It will fail if no repository can be found at this location.
3. If none of the conditions mentioned in the previous steps are met, the installer will look next for a local "repository" folder (located in the same folder as the running Installer (Setup) executable file). If a repository is found, the installer will attempt to install from that repository.
4. As a last resort, the installer will attempt to install from the default Connect Update Site URL.

Examples

```
product.repository = http://192.168.79.73/Connect/Version_
01/repository
product.repository = C:\\iso\\2.0.0.39695_unpacked\\repository
```

Locale definition

It is possible to define the Locale which affects the installation language and installed locale for Connect products by using the following properties in the **install.properties** file:

```
user.language
user.country
```

Locales supported by Connect

The Connect Setup supports a dedicated list of Locales, which is saved in the preinstall.ini file. Each entry consists of a language tag and a country tag, formatted by the pattern:

```
<language>-<country>
```

The current list of supported Locales is found below, but it may be enhanced in future releases:

- en-US (English, US)
- de-DE (German, Germany)
- fr-FR (French, France)
- ja-JP (Japanese, Japan)
- zh-CN (Chinese, China)
- zh-HK (Chinese, Hongkong)
- zh-MO (Chinese, Macau)
- zh-TW (Chinese, Taiwan)
- it-IT (Italian, Italy)
- pt-BR (Portuguese, Brazil)
- es-419 (Spanish, Latin America)

Locale selection by defining user.language and user.country

If both **user.language** and **user.country** are defined in the **install.properties** file, the combination must match exactly one of the supported locales, otherwise the Installer will exit with an error.

For example, **user.language = fr** and **user.country = CA** will cause an error since fr-CA is not in the list of supported Locales.

Locale selection by defining only user.language

If only **user.language** is defined in the **install.properties** file, the Installer will attempt to find a Locale in the list which starts with the given language code. The first match is selected for installation. If no match is found, the Installer will exit with an error.

For example:

user.language = zh, will result in an installation with the Locale zh-CN

user.language = no, will result in an error

Default Locale selection

If neither user.language nor user.country is defined in the install.properties file, the Installer will select a default Locale:

1. If the System Locale is in the list of supported Locales, it will be selected.
2. Otherwise, if there is an entry in the list of supported Locales, which matches the System language, it will be selected (e.g. on a fr-CA system, fr-FR is selected).
3. As last resort, the first Locale in the preinstall.ini is selected (usually that should be en-US).

Getting the exit code of a silent installation

If getting the exit code of a silent installation is desirable, use the following procedure.

1. Create a new local folder on the machine (or VM) on which Connect shall be installed and copy/extract the contents of the Connect ISO into this folder.
2. Open a command prompt with Administrator privileges and cd into this local folder.
3. Run this command to unpack the contents of the Connect Setup executable (as a sample, we use the PReS Connect brand):
   `PReS_Connect_Setup_x86_64.exe -nr -gm2 -InstallPath=".\\"`
4. In the local folder, the repository subfolder should now be located next to the preinstall.exe, installer.exe and other Installer files.
5. Create the install.properties file for silent installation in the local folder.
6. With a batch file calling preinstall.exe and then querying the %errorlevel%, silent installation can be started and the exit code can be evaluated. See the sample batch file below.

Exit codes

0 = Success

1 = General Error in preinstall (e.g. not supported settings for user.language / user.country, for reason see preinstall_err.log)

2 = Unknown Error in preinstall

10 = General Error in Installer application (for reason see OL_Install_<timestamp>.log)

Sample batch file

```
@echo off
preinstall.exe

if errorlevel 10 goto err_installer
if errorlevel 2 goto err_unknown
if errorlevel 1 goto err_preinstall

echo Success
goto:eof

:err_installer
echo "Installer error - see OL_Install_<timestamp>.log"
goto:eof

:err_unknown
echo "Unknown preinstall error - see preinstall_err.log"
goto:eof

:err_preinstall
echo "Preinstall error - see preinstall_err.log"
goto:eof
```

Activating a License

PReS Connect and PReS Workflow 8 includes separate 30 day trial periods during which it is not necessary to have a license for reviewing basic functionality. If a modification to the license if required, such as to allow an extension to the trial period, or for extra functionality or plugins (e.g., the PReS Plugin for Workflow 8), then a new activation code will need to be requested.

Obtaining the PReS Connect Magic Number

To obtain an activation file the OL™ Magic Number must first be retrieved. The Magic Number is a machine-specific code that is generated based on the computer's hardware and software using a top-secret Objectif Lune family recipe. Each physical computer or virtual computer should have a different Magic Number, thus require a separate license file to be functional.

To get the PReS Connect Magic Number, open the PReS Connect Designer application:

- Open the **Start Menu**
- Click on **All Programs**, then **Objectif Lune**, then **PReS Connect**
- Open the **PReS Connect Designer [version]** shortcut.
- When the application opens, if it has never been activated or the activation has expired, the **Software Activation** dialog appears:
    - **License Information** subsection:
        - **Magic Number**: Displays the PReS Connect Magic Number.
        - **Copy to Clipboard**: Click to copy the Magic Number to the clipboard. It can then be pasted in the activation request email using the CTRL+V keyboard shortcut.
    - **Licensed Products** subsection:
        - **Name**: Displays the name of the application or module relevant to this activation.
        - **Serial Number**: Displays the activation serial number if the product has been activated in the past.
        - **Expiration Date**: Displays the date when the activation will expire (or the current date if the product is not activated)
        - **Web Activations**: Click to be taken to the online activation page (not yet functional).
    - **End-User License Agreement** (Appears only when loading a license file):
        - **License**: This box displays the EULA. Please note that this agreement is legally binding.
        - **I agree**: Select to accept the EULA. This option **must** be selected to install the license.
        - **I don't agree**: Select if you do not accept the EULA. You cannot install the license if this option is selected.
    - **Load License File**: Click to browse to the .olconnectlicense file, once it has been received.
    - **Install License**: Click to install the license and activate the software (only available when a license file is loaded).
    - **Close**: Click to cancel this dialog. If a license file has been loaded, it will not automatically be installed.

Note

The **Software Activation** dialog can also be reached through a shortcut located in **All Programs**, then **Objectif Lune**, then **PReS Connect** and is named **Software Activation**. Since it does not load the software, it is faster to access for the initial activation.

Requesting a license

After getting the Magic Number, a license request must be done for bothPReS Connect (for both Master and Extension Servers, if using a Clustered environment) and Workflow 8:

- **Customers**must submit their Magic Number and serial number to Objectif Lune via the Web Activations page: http://www.objectiflune.com/activations. The OL Customer Care team will then send the PReS Connect license file via email.
- **Resellers**can create an evaluation license via the Objectif Lune Partner Portal by following the instructions there: http://extranet.objectiflune.com/

Note that if you do not have a serial number, one will be issued to you by the OL Activations team.

Accepting the license will activate it, after which the PReS Connect services will need to be restarted. Note that in some case the service may not restart on its own. To resolve this issue, restart the computer, or start the service manually from the computer's Control Panel.

Activating PReS Workflow 8

PReS Workflow 8 uses the same licensing scheme as PReS Connect. There are two ways of activating the license for Workflow 8 after saving it to a suitable location:

- If only PReS Workflow 8 is installed, double-click on the license for the PReS Workflow 8 License Activation dialog to open. Applying the license here activates all of the Workflow 8 components.
- If you have both PReS Workflow 8 and PReS Connect installed, it will not be possible to double-click on the license file as this will always open the PReS Connect Activations Tool. Instead, open PReS Workflow 8 manually and apply the license through the activations dialog within.

Activating PReS Connect

To activate PReS Connect, simply save the license file somewhere on your computer where you can easily find it, such as on your desktop. You can then load the license by double-clicking on it, or through the start menu:

- Open the **Start Menu**
- Click on **All Programs**, then **Objectif Lune**, then **PReS Connect**
- Open the **PReS Connect Designer [version]** shortcut. The “PReS Connect Software Activation” tool displays information about the license and the End-User License Agreement (EULA).
- Click the **Load License File** button.
- Read the EULA and click I agree option to accept it.
- Click **Install License** to activate the license. The license will then be registered on the computer and you will be able to start using the software.

> **Warning**
>
> After installation message will appear warning that the Server services will need to be restarted. Just click OK to proceed.

Migrating to a new workstation

The purpose of this document is to provide a strategy for transferring a Connect installation to a new workstation. The following guide applies to OLConnect v1.x and Workflow v8.x.

Before installing the software

Before upgrading to a new version, even on a new workstation, consult the product's release note to find out about new features, bug fixes, system requirements, known issues and much more. Simply go to the product page and look for "Release notes" in the Downloads area.

You should also consult the following pages for some technical considerations before installing:

- Network Considerations
- Database Considerations

- Environment Considerations
- Installation Pre-Requisites
- Antivirus Exclusions

Downloading and Installing the Software

In order to migrate to a new workstation, the software must already be installed on the new workstation. Follow the Installation and Activation Guide to download and install the newest version of PReS Connect on the new workstation. If using Clustering, please read the Server Clustering page of this documentation for more details relevant to the installation.
Note that in a clustering setup, both the Master and all Extensions must be upgraded to the same version.

Backing Up files from the current workstation

The first step in migrating to a new workstation would be to make sure all necessary production files and resources are backed up and copied over to the new system.

> **Technical**
>
> Although it is not necessary to convert all of your documents when upgrading to the latest version, we strongly recommended doing so. It is considered "Best Practise" to convert the documents to the version installed and then re-send them to the Workflow Tools.

Backing up Workflow files

To save all Workflow-related files, backup the entire working directory:

```
C:\ProgramData\Objectif Lune\PlanetPress Workflow 8
```

Here are a few important points when transferring these files:

- If you are upgrading to the latest version of Connect, it is recommended to open each template in Designer, produce a proof making sure the output is correct. Then send the template with its data mapper, job and output preset files to Workflow by clicking on **File -> Send to Workflow…**
- If you still use PlanetPress 7 legacy documents, PTK files can be imported by clicking on the Workflow tool button at the top left corner of the Workflow tool interface. If copying the

`PlanetPress Workflow 8` folder directly, it's important to delete any file with the .ps7 extension so as to refresh the postscript file for the new workstation.

- The Workflow configuration file itself is named ppwatch.cfg, and is backed up with the folders. However, it needs to be re-sent to the Service to be used. To do this, rename the file to .OL-Workflow, open the file with the Workflow tool, and send the configuration.
- Locate Custom Plugins (.dll) from the below folder on the old workstation and import them onto the new workstation
  `C:\Program Files (x86)\Common Files\Objectif Lune\PlanetPress Workflow 8\Plugins`
  To import the plugins:
  - Start the Workflow Configuration Tool
  - Click on the Plug-in Bar
  - Click on the down pointing triangle under the **Uncategorized** group
  - Select **Import Plug-in** and select the .dll file.
- Import external scripts used by the **Run Script** plugin, making sure they reflect the same paths as on the previous workstation
- Install any external application, executable and configuration files used by the External Program plugin, making sure they reflect the same paths as on the previous workstation
- Reconfigure local ODBC connections. (i.e. create local copies of databases or recreate required DSN entries)
- Backup and import other custom configuration files, Microsoft Excel Lookup files, making sure they reflect the same paths as previously.
- Reinstall required external printer driver and recreate all Windows printer queues and TCPIP ports
- On the new workstation if the "TCP/IP Print Server" service is running in Windows, it is requested to disable that service so that it does not interfere with the Workflow LPD/LPR services.
- Configure the Workflow services account as in the previous installation. If accessing, reading and writing to network shares; it is recommended to use a domain user account and make it a member of the local Administrators group on the new workstation. Once the user account has been chosen:
  - Click on Tools in the Workflow Configuration menu bar
  - Click **Configure Services**
  - Select the user account

- If required, grant permissions to other machines (Designer clients and other servers) to send documents and jobs to the new server.
    - Click on Tools in the Workflow Configuration menu bar
    - Click on **Access Manager**
    - Grant necessary permissions to remote machines
    - Restart the Workflow Messenger service
- Reconfigure the Workflow Preferences as previously by clicking on the Workflow button on top left corner and clicking on Preferences:
    - Reconfigure the **Server Connection Settings** under **Behavior** > **OL Connect**
    - For PlanetPress Capture users, reconfigure the PlanetPress Capture options under **Behavior** > **PlanetPress Capture**
    - Reconfigure each of the plugin, where necessary, under **Plug-in** as previously. Capture OnTheGo users may want to enable the **Use PHP Arrays** option under **Plug-in** > **HTTP Server Input 1**
    - Send the configuration to local Workflow service

Backing up Connect Resources

The following resources are used by Connect and can be backed up from their respective folders:

- **Job Presets** (.OL-jobpreset): `C:\Users\<UserName>\Connect\workspace\configurations\JobCreationConfig`
- **Output Presets** (.OL-outputpreset): `C:\Users\<UserName>\Connect\workspace\configurations\PrinterDefinitionConfig`
- **OL Connect Print Manager Configuration files** (.OL-ipdsprinter) `C:\Users\<UserName>\Connect\workspace\configurations\PrinterConfig`
- **OL Printer Definition Files** (.OL-printerdef) `C:\Users\<UserName>\Connect\workspace\configurations\PrinterDefinitionConfig`
- **OMR Marks Configuration Files** (.hcf) `C:\Users\<UserName>\Connect\workspace\configurations\HCFFiles`

Other Resources

- **OL Connect Designer Templates** , Data Mapper or Package files, copied from the folder where they reside.
- All Postscript, TrueType, Open Type and other **host based fonts** used in templates must be reinstalled on the new workstation.
- Import all **dynamic images** and make sure their paths match those in the old server.
- Make sure the new workstation can also access network or remote images, JavaScript, CSS, JSON, and HTML resources referenced in the Connect templates.

Secondary Software and Licenses

The following only apply for specific secondary products and licenses that interacts or is integrated into the main product.

Image, Fax and Search Modules

- Reconfigure the Image and Fax outputs with the new host information.
- Import the Search Profile and rebuild the database in order to generate the database structure required by the Workflow.

Capture

- Download the latest version of the Anoto PenDirector.
- Before installing the PenDirector, make sure the pen's docking station isn't plugged into the server. Then install the PenDirector.
- Stop the Messenger 8 service on old and new server from the Workflow menu bar > Tools > Service Console > Messenger > right-click and select Stop.
- Import the following files and folders from the old server into their equivalent location on the new server:
  C:\ProgramData\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\capture\PPCaptureDefault.mdb
  C:\ProgramData\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\DocumentManager
  C:\ProgramData\Objectif Lune\PlanetPress Workflow 8\PlanetPress Watch\PGC
- If Capture was previously using an external MySQL or Microsoft SQL Server, reconfigure the ODBC connection details as previously from the Workflow Preferences by clicking on

the Workflow button on top left corner and clicking on Preferences, then reconfigure the PlanetPress Capture options under Behavior >PlanetPress Capture > Use ODBC Database

- Start the Messenger 8 service on new server from the Workflow menu bar > Tools > Service Console > Messenger > right-click and select Start.

OL Connect Send

• Re-install OL Connect Send on the new Workstation. This should reinstall the OL Connect Send plugins in the Workflow Tool

• Reconfigure the Server URL and port during the OL Connect Send Printer Driver setup

• Re-run the OL Connect Send printer driver setup on client system and select the Repair option to point the clients to the new Server URL.

Configuring the Connect Engines

Any changes made to the Server preferences required the OLConnect_Server service to be restarted to take effect.

- Stop the OLConnect_Server service from Control Panel > Administrative Tools > Services > OLConnect_Server > Stop
- Configure the Merge and Weaver Engines scheduling preferences as in the previous installation
  - Open the Server Configuration from : `C:\Program Files\Objectif Lune\OL Connect\Connect Server\Server.exe`
  - Configure the Merge and Weaver engines preferences under Scheduling
  - Configure any other options for the Clean-up Service
- Configure the minimum (Xms) and maximum (Xmx) memory utilization for the Server, Merge and Weaver engines as previously or better:
  - Edit the following Xms and Xmx fields in the following configuration files:
    - `C:\Program Files\Objectif Lune\OL Connect\Connect Server\Server.ini`
    - `C:\Program Files\Objectif Lune\OL Connect\MergeEngine\Mergeengine.ini`

    - `C:\Program Files\Objectif Lune\OL Connect\weaverengine\weaverengine.ini`
- Now start the **OLConnect_Server** service

Configuring the Server Extensions

In the case where the OLConnect MySQL is installed on the new Master Server, it is important to reconnect all Server Extension systems to the new Master Server.

Perform the following action on each Server Extension:

- Stop the OLConnect_ServerExtension service from **Control Panel** > **Administrative Tools** > **Services** > **OLConnect_ServerExtension** > **Stop**
- Open the Server Extension Configuration from: `C:\Program Files\Objectif Lune\OL Connect\Connect Server Extension\ServerExtension.exe`
- Click on Database Connection and configure the JDBC Database connection settings so that the hostname points to the new Master server
- Click on Scheduling and type in the location of the new Master server
- Start the **OLConnect_ServerExtension** service

Transferring Software Licenses

Once all the above resources have been transferred over to the new server, it is recommended to thoroughly test the new system with sample files under normal production load to identify points of improvement and make sure the output match the user's expectation. Output generated at this point will normally bear a watermark which can be removed by transferring licenses from the old server to the new one.

- To transfer Connect and Workflow licenses, the user is usually required to complete a License Transfer Agreement which can be obtained from their local Customer Care department
- Upgrades cannot be activated using the automated Activation Manager. Contact your local Customer Care department.

To apply the license file received from the Activation Team:

- Start the PReS Connect, PlanetPress Connect or PrintShopMail Connect Software Activation module:
  C:\Program Files\Objectif Lune\OL Connect\Connect Software Activation\ SoftwareActivation.exe
- Click on Load License File to import the license.OLConnectLicense
- Start the Software Activation module on the Extension servers, where applicable
- Click on Load License File to import the above same license.OLConnectLicense
- Restart the OLConnect_Server service and restart the OLConnectServer_Extension service on the Extension servers, where applicable
- The number of Expected Remote Merge and Weaver engines should now be configurable in the Connect Server Configuration module (C:\Program Files\Objectif Lune\OL Connect\Connect Server Configuration\ ServerConfig.exe)

To apply the PlanetPress Capture License

- Open the Workflow Configuration
- Click on Help on the Menu Bar and click on PlanetPress Capture License manager to import your license.

Uninstalling PReS Connect from the previous workstation

It is recommended to keep the previous install for a few days until everything is completed. However, once your transition is successful and complete, the OL Connect software must be uninstalled from the original server.

Information about PReS Workflow 8

If you wish to use PReS Workflow (automation) in conjunction with PReS Connect, you will need to install PReS Workflow 8 onto the same machine. Workflow 8 is provided through a separate installer which is available on CD or for download as follows:

- If you are a **Customer**, the installer can be downloaded from the Objectif Lune Web Activations page: http://www.objectiflune.com/activations
- If you are a **Reseller**, the installer can be downloaded from the Objectif Lune Partner Portal: http://extranet.objectiflune.com/

PReS Workflow 8 can be installed in parallel on the same machine as an existing PlanetPress® Suite 7.x installation.

Note however:

- If both versions need to be hosted on the same machine, PReS Workflow 8 must always be installed after the legacy PlanetPress® Suite 7.x installation.
- When uninstalling PReS Workflow 8, you may be prompted to repair your legacy PlanetPress® Suite 7.x installation.
- If PReS Workflow 8 has been installed alongside PlanetPress® Suite 7, Capture can no longer be used with Workflow 7. The plugins are now registered uniquely to Workflow 8 and the messenger for Workflow 7 is taken offline. It is only then possible to use Capture from PReS Workflow 8.
- PReS Workflow 8 and PlanetPress® Suite Workflow 7 cannot run simultaneously, since only one version of the Messenger service can run at a time. In fact, no two versions of Workflow can be run simultaneously on the same machine, regardless of versions.
- It is possible to switch between different versions running by shutting down one version's services and then starting the other. However, this is not recommended. There are no technical limitations that prevent processes from previous PlanetPress Suite Workflow versions (as far back as Version 4) to run on PReS Workflow 8, removing the need to run both versions.

For more information on the licensing of Workflow 8, please see Activating your license.

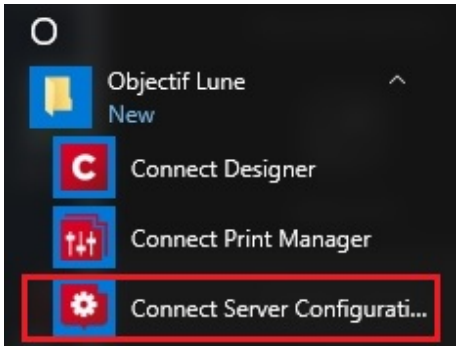
Server Configuration Settings

This chapter describes configuring the PReS Connect Server.

In PReS Connect you can install Servers on multiple machines, in a Master/Slave relationship. To see an overview of these Master/Slave setups, please see the "Server Clustering" on page 68 topic.

The Connect Sever settings are maintained by the **"Connect Server Configuration"** utility tool which is installed alongside PReS Connect.

"Connect Server Configuration" can be launched from the Start Menu, as seen in the following screen-shot:



The **"Connect Server Configuration"** dialog is separated into individual pages, where each page controls certain aspects of the software.

The following pages are available:

- "Clean-up Service preferences" on page 611
- "Database Connection preferences" on page 615
- "Language Setting Preferences" on page 624
- **Scheduling** - These entries differ between the Server Extension (Slave) and main Server module (Master or Standalone) installations.
  The two options are:
  - "Scheduling Preferences" below for the Master Server preferences.
  - "Server Extension Scheduling Preferences" on page 68 for the Slave (Server Extension) preferences.
    - "Merge Engine Scheduling" on the facing page
    - "Weaver Engine Scheduling" on page 66
- "Server Security Settings" on page 71

Scheduling Preferences

The scheduling preferences are a way to control precisely how the PReS Connect services work in the background.

Whenever an operation is scheduled:

- The number of instances to use is determined based on whether the operation is small, medium or large
- If there is a reserved instance for that type of command available then it will use a reserved instance
- If no reserved instances are available then any unreserved instance that is available will be used
- If no instances are available then the command will be blocked until an appropriate instance becomes available

> **Technical**
>
> For more information on instances and performance, see Performance Considerations.

Scheduling Properties

- **Definitions group**: Defines what is considered a small or large job (anything in between is considered "medium" jobs).
  - **Maximum records in a small job**: Enter the maximum number of records for a job to be considered small.
  - **Minimum records in a large job**: Enter the minimum number of records for a job to be considered large.

Additional Scheduling Preferences:

- "Merge Engine Scheduling" below
- "Weaver Engine Scheduling" on page 66

Merge Engine Scheduling

This preferences page defines how different instances and speed units are attributed to different jobs when creating Content Items (Print Content, as well as Web and Email output generation). For information on the terminology and some performance tips, see Performance Considerations. Note that *in this dialog*, the use of the word "Engine" is synonymous to both "Instance" and "Speed Unit" since a single Speed Unit can be used for each Engine.

Email and Web output is generated *only* with the Merge Engine and thus their output speed is limited through this engine. However, the output speed of Print jobs is limited through the Weaver Engine, so when Print Content is generated through the Merge Engine, its speed is not limited. Additionally, you may launch up to 256 engines for Print Content generation, but Email and Web may only use the number of engines permitted by your license.

- **Use one internal engine:** Check to limit to a single instance of the server. Useful for computers that run below the recommended System requirements, or demo machines.
- **Total Engines Available**: Read-only box indicating the current number of engines that are active or available. On the main Server of a cluster, this includes all engines in the cluster (Server Extensions).
- **Engines Launched**: Enter the total number of Merge Engines desired on this server. When changing the number of engines, it is necessary to save this dialog (Apply) and restart the OLConnect_Server service to actually apply the changes.
- **Expected Remote Engines**: Only available when Clustering is active, and on the main Server. Enter the total number of engines available in the other machines of the cluster (the total number of engines in all of the Server Extensions connected to this server).
- **Reserved Count**: Read-only box indicating the total number of "Reserved" engines, as set in the Speed unit reservations area below.
- **Restart After (mins)**: Due to a currently unfixable memory leak in some libraries used by PReS Connect, it is necessary to restart our engines after a certain amount of time. The default is generally sufficient for all our clients. Only change on the advice of a technical support agent.
- **Parallel speed units per job**: This area determines how many engines (speed units) are used for *each* job that runs through it. In short, if any specific type of job has more than one parallel speed unit assigned to it, that many engines will be used to run each of its jobs. This is in fact a *multiplier of speed*, however it is a *divider of the number of jobs* that can be run simultaneously. You cannot attribute more parallel speed units than what you have available for any specific type of job, and you require at least that number of floating speed units, or reservations, for the required parallel speed units required.
- **Speed unit reservations**:This area is used to reserve speed units specifically for certain types of jobs. Reserved speed units *cannot be used* by any other type of job.
    - **Floating**: Read-only box indicating the number of floating speed units that can be used for any type of job. This number is equal to the **Total Engines Available** - **Reservations**. For example if 6 engines are launched and 4 are reserved for small jobs, 2 will be Floating.

- **Small job speed unit reservations**: Enter a number of speed units reserved for small print jobs.
- **Medium job speed unit reservations**: Enter a number of speed units reserved for medium print jobs.
- **Large job speed unit reservations**: Enter a number of speed units reserved for large print jobs.
- **Email speed unit reservations**: Enter a number of speed units reserved for Email jobs.
- **Web speed unit reservations**: Enter a number of speed units reserved for Web jobs.

- **Maximum speed units**: This area defines the maximum possible speed units used for any specific job type. The limit needs to be at least the number of reservations or parallel speed units, whichever is lowest.
  - **Small job limit**: Enter the maximum number of speed units that can run small print jobs.
  - **Medium job limit**: Enter the maximum number of speed units that can run medium print jobs.
  - **Large job limit**: Enter the maximum number of speed units that can run large print jobs.
  - **Email limit**: Enter the maximum number of speed units that can run Email jobs.
  - **Maximum Email limit in license**: Read-only box indicating the maximum number of speed units useable for Email content creation.
  - **Web limit**: Enter the maximum number of speed units that can run Web jobs.
  - **Maximum Web limit in license**: Read-only box indicating the maximum number of speed units useable for Web content creation.

Weaver Engine Scheduling

This preference page determines the number of engines launched, as well as their speed, when generating Print Output of any type. One single engine can only process a single job at a time, at the speed available depending on licence and configuration. Note that *in this dialog*, the use of the term "Speed Unit" is in relation of the available speed for each engine. One speed unit = one unit of speed at the maximum speed your licence and number of Performance Packs allows. With no Performance Pack, PReS Connect's Weaver engine can generate output at 1250ppm (pages per minute). Additional Performance Packs increases this base speed per engine.

- **Use one internal engine**: Check to limit to a single instance of the server. Useful for computers that run below the recommended System requirements, or demo machines.
- **Total Engines Available**: Read-only box indicating the current number of engines that are active or available. On the main Server of a cluster, this includes all engines in the cluster (Server Extensions).
- **Local Engines Launched**: Enter the total number of Weaver Engines desired on this server. When changing the number of engines, it is necessary to save this dialog (Apply) and restart the OLConnect_Server service to actually apply the changes.
- **Expected Remote Engines**: Only available when Clustering is active, and on the main Server. Enter the total number of engines available in the other machines of the cluster (the total number of engines in all of the Server Extensions connected to this server).
- **Speed Units Launched:**
- **Limit in license**: Read-only box indicating the maximum number of speed units useable to produce output.
- **Reserved Count:** Read-only box indicating the total number of "Reserved" engines, as set in the **Speed unit reservations** topic below.
- **Restart after (mins)**: Restarts the Weaver Engines at the selected time interval. If job is in progress at that point, Weaver Engines will await job completion before restarting.
- **Parallel speed units per job:**
    - **Parallel speed units per medium job**: Enter the number of speed units that prioritizes medium print jobs.
    - **Parallel speed units per large job**: Enter the number of speed units that prioritizes large print jobs.
- **Speed unit reservations**:
    - **Floating**: Read-only box indicating the number of floating speed units that can be used for any type of job.
    - **Small job speed unit reservations**: Enter a number of speed units reserved for small print jobs.
    - **Medium job speed unit reservations**: Enter a number of speed units reserved for medium print jobs.
    - **Large job speed unit reservations**: Enter a number of speed units reserved for large print jobs.
- **Maximum speed units**:

- **Small job limit**: Enter the maximum number of speed units that can run small print jobs.
- **Medium job limit**: Enter the maximum number of speed units that can run medium print jobs.
- **Large job limit**: Enter the maximum number of speed units that can run large print jobs.

Server Extension Scheduling Preferences

The Server Extension Scheduling Preferences define the PReS Connect Server Extension (Slave) connection settings to the main PReS Connect Server module (the Master Server).

- **Location of the master server**: Enter the location and port of PReS Connect Master Server module in *hostname:port* format.
  For example, *192.168.100.123:9340* or *connect-master:9340*.
- **Username for the master server**: Enter the username expected by the PReS Connect Master Server.
- **Password for the master server**: Enter the password expected by the PReS Connect Master Server for the selected username.
- Note that **Maximum records in a small job** and **Minimum records in a large job** are not actually used in Server Extensions. All server scheduling is handled by the Master Server.

Additional Scheduling Preferences:

- "Merge Engine Scheduling" on page 64
- "Weaver Engine Scheduling" on page 66

Server Clustering

Server Clustering, available in PReS Connect, enhances the processing capabilities of PReS Connect Server by load-balancing jobs between the main Server module (master) and one or more Server Extension installations.

Setting up Server Clustering requires two or more installations of PReS Connect on separate machines. The Master server is setup by installing the PReS Connect Server module during

the Installation Wizard, while the Slave Server is setup by installing the PReS Connect Server Extension module instead.

Quick Howto

1. Install the Master server (PReS Connect Server module), making sure to select the MySQL module.
2. Set the appropriate bindings in MySQL's my.ini file on the Master server.
3. Grant access to the MySQL root user for the appropriate IP range on the Master server.
4. Restart the MySQL Service on the Master server.
5. Install Slave servers (PReS Connect Server Extension module).
6. Install the license on the Master server (a Performance Pack license is required).
7. Set the preferences for the engines (see Scheduling Preferences) on both the Master and Slaves
8. Install the license on the Slave servers
9. Restart the Master server then, once restarted, restart the Slave servers.

What if MySQL is not on the Master server?

It is possible to setup clustering with a MySQL instance that is on a Slave server instead of on the master. In this case, the Slave server must be installed with the Server Extension and MySQL modules, the MySQL instance configured (steps 2-4 above) then the master and other slaves can be installed. The remainder of the instructions remain the same.

It is also possible to setup clustering with MySQL being installed completely separately from PReS Connect, such as using an existing MySQL instance. In this case, the instructions for the bind address must be followed, but the user does not have to be root. A user for MySQL must, however, be created and have full access (GRANT ALL PRIVILEGES) to a database called "objectiflune" that can be created before Connect is installed.

Binding and Root access on the Master server

- The MySQL server's binding must be set to accept connections from the slave servers. To do this, open C:\Program Files\Objectif Lune\OL Connect\MySQL Product\MySQL\my.ini in a text editor and change the line `bind-address= 127.0.0.1` to `bind-address=0.0.0.0`.

    - Once the changes have been made and saved you need to restart the MySQL services.
- Access must be granted to the `root` user on the IPs from which the Slave server will connect:
    - Open a Command Prompt in the following folder: C:\Program Files\Objectif Lune\OL Connect\MySQL Product\MySQL\bin (tip: navigate to the folder, SHIFT+Right-click and select "Open a command prompt here!).
    - Type in the following command to connect to the database, where <password> is your MySQL password (by default it is **admin**):
      `mysql --user=root --password=<password> objectiflune`
    - You should see the prompt become mysql>. Here, type the command to allow the "root" user to be accessed from a specific IP subnet range. For example, to accept communication on 192.168.*.*, use: `GRANT ALL PRIVILEGES ON objectiflune.* TO 'root'@'192.168.0.0/255.255.0.0' IDENTIFIED BY 'password';` , where `password` is the one provided during installation. (ref: http://dev.mysql.com/doc/mysql-security-excerpt/5.5/en/adding-users.html)

> **Technical**
>
> IP Subnets understanding is beyond the scope of this documentation. If you want to learn more, please see the Subnetwork article on Wikipedia.

Clustering Preferences and Setup

When server extensions are installed and connected to a Master, the following options and settings change in availability or behavior:

- In the Scheduling Preferences of the Slave, both "Maximum Records" are ignored. Scheduling is handled by the Master.
- The "Expected Remote Merge Engine" and "Expected Remote Weaver Engine" in Merge Engine Scheduling and Weaver Engine Scheduling respectively, on the Master, should each equal the *total number of engines in all the slaves combined*.
    - For example, the Expected Remote Merge Engine on the Master should equal the total of "Local Engines Launched" for each slave.

    - If the number of expected remote engines is *lower* than the actual number, performance will not be optimal.
    - If the number of expected remote engines is *higher* than the actual number, jobs may fail and not complete.
- Clean-up Service requires special configuration on Clustering setups:
    - Clean-up service should not run simultaneously on all machines (staggered clean-up). Doing so may cause jobs not to be processed since all servers are busy.
    - Only the machine where the MySQL Server product is installed should attempt to clean-up database items. Essentially server that do not have MySQL should only run Orphan File Clean-up

Server Security Settings

This dialog controls the security settings for external applications connecting to the PReS Connect Server, such as PReS Workflow or scripts communicating through the REST API.

> **Warning**
>
> It is **highly recommended** to keep security enabled and change the password on any server that accessible from the web. If these precautions are not taken, data saved in the server may be accessible from the outside!

- **Enable server security**: Enable to add authentication to the REST server.
  - When enabled, the **same** username and password (which cannot be blank) must be entered in any remote Connect Designer that links to this Server. The Designer username and password entries can be found under the "Print Preferences" on page 624 section of the Designer Preferences dialog.
  - When disabled, a username and password is not required to make REST request, and tasks in PReS Workflow do not require them in the Proxy tab. Nor would a username and password be required on any remote Connect Designer that links to this Server.
- **Administrator's username**: Enter the username for the server security. The default username is **ol-admin**.
- **Administrator's password**: Enter a password for the server security. The default password is **secret**.
- **Confirm password**: Re-enter the password for the server security.

- **Default session length (min)**: Enter a session time (in minutes) that the authentication stays valid for the requested process. This can reduce the number of requests to the server since an authentication request is not necessary during the session.

Uninstalling

This topic provides some important information about uninstalling (removing) PReS Connect1.7.1.

To uninstall PReS Connect select the application from within the Add/Remove programs option under the Control Panel. This will start the **PReS Connect Setup Wizard** in uninstall mode.

> **Note**
>
> The **PReS Connect Setup Wizard** might take some seconds to appear.

Important Note: Stop any active Anti-Virus software before uninstalling Connect.

Some anti-virus systems are known to block the uninstallation of MySQL datafiles, as well as blocking the uninstallation of the MySQL database application itself. Therefore it is **highly recommended** that any anti-virus application be stopped prior to uninstalling PReS Connect, as otherwise the Connect uninstallation might not work correctly.

Impacts upon other Applications and Services

- The Uninstall will terminate the installed Server / MySQL service(s)
- The following applications / services should be stopped in a controlled fashion, before running the PReS Connect Uninstall:
    1. PReS Connect
    2. Connect products on remote systems which refer to this MySQL database.
    3. Any Connect Workflow using PReS Connect plugins which connect to this server.
    4. PReS Connect Server Extensions on remote systems which connect to this machine as the Master Server.

Uninstallation Wizard

The uninstallation is done by running the PReS Connect Setup Wizard in uninstall mode. The Wizard consists of the following pages:

1. **PReS Connect Setup**: An information page, listing what will be uninstalled, and also warning about impacts upon running Applications and Services.
2. **Data Management**: A page that provides options for backing up or deleting Connect data. Selections are as follows:
    - **Delete Connect Workspace Data**: Check this box to delete the Workspace data for the current user, or for selected users (as determined by the "Select Users" button)
        - **Backup Connect Workspace Data for all specified Users**: Check this box to backup the Workspace data for the specified users (as previously determined) into a compressed ZIP file (whose location can be customized), before deletion of the full Workspace data.
    - **Delete MySQL objectlune Data**: Check this box to delete the MySQL database installed with PReS Connect.
        - **Backup MySQL Date**: If the deletion check box is selected, this option appears to allow backing up the MySQL database to a customizable location, prior to uninstallation.

The DataMapper Module

The DataMapper is the tool to create a data mapping configuration.
A data mapping configuration file contains the information necessary for data mapping: the settings to read the source file (Delimiter and Boundary settings), the data mapping workflow with its extraction instructions ('Steps'), the Data Model and any imported data samples.
Data mapping configurations are used to extract data and transpose that data into a format that can be shared amongst different layouts and outputs created with the Connect Designer and Workflow.

The original data, located in a file or database outside of Connect, is called a data source.
The first step in the data extraction process is making settings for the input data (see "Data source settings" on page 88) , including boundaries for each record inside the data sample.
When you define the boundaries, you are actually defining a series of records inside your data sample file.
After configuring these settings you can start working on the logic to extract data from each of those records. You need to identify and extract data from each record. To achieve this, you will create a data mapping workflow, consisting of multiple steps (extractions, loops, conditions and more) (see "Data mapping workflow" on page 86 and "Extracting data" on page 92).

When this process is complete, the result is a Data Model. This model contains the necessary information to add variable data to Connect Designer templates. (see "The Data Model" on page 121 for more information). It has a generic format with an emphasis on content, free from any restrictions imposed by the file types or the origin of the data. This allows a same layout or output to be populated with data from different sources and formats without the need to modify it.

Basics

Connect's DataMapper lets you build a data mapping workflow to extract data from a variety of data sources. The data mapping workflow consists of multiple 'steps' which process and extract data from each record of a data source and store it in a new, extracted record set. The data mapping workflow is saved in a data mapping configuration.

1. **Create a new data mapping configuration**.
   Run the Designer and start creating a data mapping configuration by selecting a data source. See "Data mapping configurations" on the next page.

2. **Configure settings for the data source**.
   The data source can be a file (CSV, PDF, TXT, XML) or a particular database. Configure how the data source is read by the DataMapper and create a record structure. See "Data source settings" on page 88.
3. **Build the data mapping workflow**.
   A data mapping workflow always starts with the **Preprocessor** step and ends with the **Postprocessor** step. You can add as many steps as you like and edit the Data Model of the extracted data as required. See "Data mapping workflow" on page 86 and "The Data Model" on page 121.

What's next?

Use the data mapping configuration in the Designer module to create templates for personalized customer communications. To learn more, see "The Designer" on page 272.

In Workflow, a data mapping configuration can be used to merge extracted data with a template created in the Designer module, to generate output in the form of print, email or a web page. See Workflow and Connect tasks in Workflow.

Data mapping configurations

A data mapping configuration file contains the information necessary for data mapping: the settings to read the source file (Delimiter and Boundary settings), the data mapping workflow with its extraction instructions ('Steps'), the Data Model and any imported data samples.

Using a data mapping configuration

Data mapping configurations are meant to be used by the **Execute Data Mapping** task in Connect Workflow processes, to extract data from a particular type of data file. Typically the extracted data is then merged with a template to generate output in the form of print, email and/or a web page. To make this happen, the data mapping configuration as well as the template and any print presets have to be sent to Workflow; see "Sending files to Workflow" on page 278.

Data mapping configurations are used in the Designer to help add variable data fields and personalization scripts to a template. In fact, only a Data Model would suffice (see "Importing/exporting a Data Model" on page 123). The advantage of a data mapping configuration is that it contains the extracted records to merge with the template, which lets you

preview a template with data instead of field names.
It is also possible to generate output of a data mapping configuration directly from the Designer (see "Generating output" on page 857).

Creating a new data mapping configuration

A new data mapping configuration can be made with or without a wizard. When you open a data file with a DataMapper wizard, the wizard automatically detects a number of settings. You can adjust these settings. Next, the wizard automatically extracts as many data fields (or metadata, in case of a PDF/VT or AFP file) as it can, in one extraction step.
Without a wizard you have to make the settings yourself, and configure the extraction workflow manually.

> **Note**
>
> The DataMapper doesn't use the data source directly, rather it uses a copy of that data: a **data sample**. Although the data sample is a copy, it is updated each time the data mapping configuration is opened or whenever the data sample is selected.
> More samples can be added via the Settings pane; see "Data samples" on page 181.

From a file

To start creating a data mapping configuration without a wizard, first select the data file. There are two ways to do that: from the Welcome screen and from the File menu.

- From the Welcome screen
    1. Click **Create a New Configuration**.
    2. From the **From a file** pane and select a file type (CSV, MS-Access, PDF/VT, Text or XML).
    3. Click the **Browse** button and open the file you want to work with (for a database, you may have to enter a password).
    4. Click **Finish**.
- From the File menu
    1. Click the **File** menu and select **New**.
    2. Click the **Data mapping Configuration** drop-down and select **Files** and then the file (CSV, MS-Access, PDF/VT, Text or XML)..

3. Click **Next**.
4. Click the **Browse** button and open the file you want to work with.
5. Click **Finish**.

> **Note**
>
> PCL and PostScript (PS) files are automatically converted to PDF format. When used in a production environment (a Connect Workflow process) this may influence the processing speed, depending on the available processing power.

After opening the file, you have to make settings for the input data (see "Data source settings" on page 88). Then you can start building the data extraction workflow.

With a wizard

Data mapping wizards are available for PDF/VT, AFP, XML, CSV and database tabular files, because these files are structured in a way that can be used to automatically set record boundaries.
The wizard for PDF/VT and AFP files cannot extract data, only metadata. After opening such a file with the wizard, you can build the data extraction workflow.
The other wizards use the Extract All step to extract data, but they cannot create detail tables, so they are less suitable for files from which you want to extract transactional data.

There are two ways to open a data file with a wizard: from the Welcome screen or from the File menu.

- From the **Welcome** screen
  1. Open the PReS Connect**Welcome** page by clicking the icon at the top right or select the **Help** menu and then **Welcome**.
  2. Click **Create a New Configuration**.
  3. From the **Using a wizard** pane, select the appropriate file type.
- From the **File** menu
  1. In the menu, click **File > New**.
  2. Click the **Data mapping Wizards** drop-down and select the appropriate file type.

The steps to take with the wizard depend on the file type. See:

- "Using the wizard for CSV files" on page 80
- "Using the wizard for databases" on page 81
- "Using the wizard for PDF/VT and AFP files" on page 84
- "Using the wizard for XML files" on page 85

Generating a counter

Instead of creating a data mapping configuration for a certain type of data file, you may create a data mapping configuration that only contains a series of sequential numbers. This is a solution if, for instance, you need to create sequential tickets or anything that has an ID that changes on each record.

> **Note**
>
> You can't join this configuration to another data file. It is just a counter to be applied on a static template.

To generate a counter:

- From the **Welcome** screen
  1. Open the PReS Connect**Welcome** page by clicking the icon at the top right or select the **Help** menu and then **Welcome**.
  2. Click **Create a New Configuration**.
  3. From the **Using a wizard** pane, select **Generate counters**.
- From the **File** menu
  1. In the menu, click **File > New**.
  2. Click the **Data mapping Wizards** drop-down and select **Generate counters**.

You can set the following parameters:

- **Starting Value**: The starting number for the counter. Defaults to 1.

- **Increment Value**: The value by which to increment the counter for each record. For example, an increment value of 3 and starting value of 1 would give the counter values of 1, 4, 7, 10, [...]
- **Number of records**: The total number of counter records to generate. This is not the end value but rather the total number of actual records to generate.
- **Padding character**: Which character to add if the counter's value is smaller than the width.
- **Width**: The number of digits the counter will have. If the width is larger than the current counter value, the padding character will be used on the left of the counter value, until the width is equal to the set value. For example for a counter value of "15", a width of "4" and padding character of "0", the value will become "0015".
- **Prefix**: String to add before the counter, for example, adding # to get #00001. The prefix length is not counted in the width.
- **Suffix**: String to add after the counter. The suffix length is not counted in the width.

Opening a data mapping configuration

To open an existing data mapping configuration, in the Menus, select **File > Open**. Make sure that the file type is either DataMapper files or Connect files. Browse to the configuration file to open, select it and click **Open**.
Alternatively, click on **File > Open Recent** to select one of the recently opened configuration files.

Saving a data mapping configuration

A Data Mapping Configuration file has the extension .OL-datamapper. The file contains the settings, the extraction workflow ('Steps'), the Data Model and the imported Data Samples (excluding database source files such as mySQL, oracle, etc).

To save a data mapping configuration:

- In the Menus, click on **File > Save**, or click on **Save As** to save a **copy** of a data mapping configuration under a different name.
- In the Toolbars, click the **Save** button.

If the data mapping configuration has not been saved before, you have to browse to the location where the data mapping configuration should be saved and type a name, then click **Save**.

Using the wizard for CSV files

The DataMapper wizard for CSV files helps you create a data mapping configuration for a CSV file. The wizard automatically detects delimiters and extracts all data in one extraction step.

The wizard interprets each line in the file as a record. If your data file contains transactional data, you will probably want more lines to go in one record and put the transactional data in detail tables.

The wizard cannot create detail tables. If the file contains transactional data, the data mapping configuration is best created without a wizard (see "Creating a new data mapping configuration" on page 76).

There are two ways to open a CSV file with a wizard: from the Welcome screen or from the File menu.

- From the **Welcome** screen
    1. Open the PReS Connect **Welcome** page by clicking the icon at the top right, or select the **Help** menu and then **Welcome**.
    2. Click **Create a New Configuration**.
    3. From the **Using a wizard** pane, select **CSV**.
    4. Click the **Browse** button and open the CSV file you want to work with.
    5. Click **Next**.
- From the **File** menu
    1. In the menu, click **File > New**.
    2. Click the **Data mapping Wizards** drop-down and select **From CSV File**.
    3. Click **Next**.
    4. Click the **Browse** button and open the CSV file you want to work with.
    5. Click **Next**.

After selecting the file, take a look at the **preview** to ensure that the file is the right one and the encoding correctly reads the data. Click **Next**.

The wizard will then display the different settings it has detected, allowing you to change them:

- **Encoding**: Defines which encoding is used to read the file.
- **Separator**: Defines which character separates each field in the file.
- **Comment Delimiter**: Defines which character starts a comment line.
- **Text Delimiter**: Defines which character surrounds text fields in the file. Separators and comment delimiters within text are not interpreted as separator or delimiter; they are seen as text.
- **Ignore unparseable lines**: Ignores any line that does not correspond to the settings above.
- **First row contains field names**: Uses the first line of the CSV as headers, which automatically names all extracted fields.

Verify that the data is read properly and click **Finish**. All data fields are automatically extracted in one extraction step.

Using the wizard for databases

The DataMapper wizard for database files helps you create a data mapping configuration for a database file. The wizard extracts the data in one extraction step.

The wizard cannot create detail tables. If the file contains transactional data, the data mapping configuration is best created without a wizard (see "Creating a new data mapping configuration" on page 76).

Opening a database file with a wizard

There are two ways to open an XML file with a wizard: from the Welcome screen or from the File menu.

- From the **Welcome** screen
    1. Open the PReS Connect**Welcome** page by clicking the icon at the top right or select the **Help** menu and then **Welcome**.
    2. Click **Create a New Configuration**.
    3. From the **Using a wizard** pane, select **Database**.

4. Use the drop-down to select the database type.
5. Click **Next**.

- From the **File** menu
    1. In the menu, click **File > New**.
    2. Click the **Data mapping Wizards** drop-down and select **From databases**.
    3. Click **Next**.
    4. Use the drop-down to select the database type.
    5. Click **Next**.

Wizard settings for a database file

After opening a database file with a wizard there are a number of settings to make, depending on the database type (see below).
On the last page of the dialog, click **Finish** to close the dialog and open the actual data mapping configuration.

MySQL, SQL Server or Oracle

- **Server**: Enter the server address for the database.
- **Port**: Enter the port to communicate with the server. The default port is 3306.
- **Database name**: Enter the exact name of the database from where the data should be extracted.
- **User name**: Enter a user name that has access to the server and specified database. The user only requires **Read** access to the database.
- **Password**: Enter the password that matches the user name above.
- **Table name**: The selected database is a set of related tables composed of rows and columns corresponding respectively to source records and fields. Select a table from which you want to extract data.
- **Encoding**: Choose the correct encoding to read the file.

Microsoft Access

- **Password**: Enter a password if one is required.
- **Table name**: The selected database is a set of related tables composed of rows and columns corresponding respectively to source records and fields. Select a table from which you want to extract data.
- **Encoding**: Choose the correct encoding to read the file.

ODBC Data Source

- **ODBC Source**: Use the drop-down to select an ODBC System Data Source. This must be a data source that has been configured in the 64-bit ODBC Data Source Administrator, as PReS Connect is a 64-bit application and thus cannot access 32-bit data sources.
- **This ODBC source is MSSQL**: Check this option if the ODBC source is MSSQL (SQL Server). The options below appear under **MSSQL-ODBC advanced configuration**:
    - **Windows authentication**: Select to use the Windows user name and password that are used by the Connect Service.
    - **SQL Server authentication**: Select to use the User name and Password set below to connect to the SQL Server:
        - **User name**: Enter the SQL Server user name.
        - **Password**: Enter the password for the above user name.

JDBC

> **Note**
>
> Since JDBC can connect to multiple types of databases, a specific database driver and path to this driver's JAR file must be specified.

- **JDBC Driver**: Use the drop-down to select which JDBC Driver to use for the database connection.
- **JAR file path**: Enter a path to the JAR file that contains the appropriate driver for the database.
- **Server**: Enter the server address for the database server.

- **Database name**: Enter the exact name of the database from where the data should be extracted.
- **User name**: Enter a user name that has access to the server and specified database. The user only requires **Read** access to the database.
- **Password**: Enter the password that matches the user name above.
- **Advanced mode**: Check to enable the **Connection String** field to manually enter the database connection string.
- **Connection string**: Type or copy in your connection string.

Using the wizard for PDF/VT and AFP files

The pages in PDF/VT and AFP files can be grouped on several levels. Additional information can be attached to each level in the structure. The structure and additional information are stored in the file's metadata.
The DataMapper wizard for PDF files lets you select a level to trigger the start of a new record and it also enables you to extract the additional information from the metadata. You can extract data from the content afterwards.

> **Tip**
>
> To extract information from the metadata in the extraction workflow itself, you have to create a JavaScript extraction (see "Using scripts in the DataMapper" on page 226 and "extractMeta()" on page 249).

If the PDF doesn't contain any metadata, each page is a new record - in other words, a boundary is set at the start of a new page -, which is exactly what happens when you open the file without a wizard.

You can open a PDF/VT file with a wizard using the Welcome screen or the File menu.

- From the **Welcome** screen
    1. Open the PReS Connect**Welcome** page by clicking the icon at the top right or select the **Help** menu and then **Welcome**.
    2. Click **Create a New Configuration**.
    3. From the **Using a wizard** pane, select **PDF/VT**.

4. Click the **Browse** button and open the PDF/VT file you want to work with. Click **Next**.

- From the **File** menu
  1. In the menu, click **File > New**.
  2. Click the **Data mapping Wizards** drop-down and select **From PDF/VT or AFP**.
  3. Click **Next**.
  4. Click the **Browse** button and open the PDF/VT file you want to work with. Click **Next**.

After selecting the file, select the following options in the **Metadata** page:

- **Metadata record levels**: Use the drop-down to select what level in the metadata defines a record.
- **Field List**: This list displays all fields on the chosen level and higher levels in the PDF/VT metadata. The right column shows the field name. The left column displays the level on which it is located. Check any field to add it to the extraction.

Click **Finish** to close the dialog and open the actual Data Mapping configuration.
On the Settings pane, you will see that the boundary trigger is set to **On metadata**. The selected metadata fields are added to the Data Model.

Using the wizard for XML files

The DataMapper wizard for XML files helps you create a data mapping configuration for an XML file. The wizard lets you select the type of node and the trigger that delimit the start of a new record. Next, the wizard extracts the data in one extraction step.

The wizard cannot create detail tables. If the file contains transactional data, the data mapping configuration is best created without a wizard (see "Creating a new data mapping configuration" on page 76).

There are two ways to open an XML file with a wizard: from the Welcome screen or from the File menu.

- From the Welcome screen
    1. Open the PReS Connect**Welcome** page by clicking the icon at the top right or select the **Help** menu and then **Welcome**.
    2. Click **Create a New Configuration**.
    3. From the **Using a wizard** pane, select XML.
    4. Click the **Browse** button and open the XML file you want to work with. Click **Next**.
- From the File menu
    1. In the menu, click **File > New**.
    2. Click the **Data mapping Wizards** drop-down and select **From XML File**.
    3. Click **Next**.
    4. Click the **Browse** button and open the XML file you want to work with. Click **Next**.

After selecting the file, you have to set the split level and trigger type:

- **XML Elements**: This is a list of node elements that have children nodes. Select the level in the data that will define the source record.
- **Trigger**: select **On element** to create a record in the Data mapping for each occurrence of the node element selected in the **XML Elements** field, or select **On change** to create a record each time the element is different. (Check the option to include attributes in the list of content items that can trigger a boundary.)

> **Note**
>
> The DataMapper only extracts elements for which at least one value is defined in the file. Attribute values are not taken into account.
> Attribute values (prefixed with an @ sign in the Data Viewer) are not extracted automatically.

Click **Finish** to close the dialog and open the data mapping configuration.

Data mapping workflow

A **data mapping workflow** is a series of extraction instructions, called **steps**. These steps process and extract the data from the source and store them in records, of which the structure is

determined in the Data Model (see "The Data Model" on page 121). Together with the data source settings, the Data Model, and the sample data, this is what makes a data mapping configuration (See "Data mapping configurations" on page 75).

The data mapping workflow is shown on the Steps pane at the left (see "Steps pane" on page 183).

Creating a data mapping workflow

A data mapping workflow always starts with the **Preprocessor** step and ends with the **Postprocessor** step. These steps allow the application to perform actions on the data file itself before it is handed over to the data mapping workflow ("Preprocessor step" on page 112) and after the Data Mapping workflow has completed ("Postprocessor step" on page 120).
When you create a new data mapping configuration, these steps are added automatically, but they don't actually do anything until you configure these steps.
In between the Preprocessor and Postprocessor step, the workflow can contain as many steps as needed to extract the required data.

Adding steps

Extracting data is the main way to build a data mapping workflow; see "Extracting data" on page 92.
Extract steps, Condition steps and Repeat steps can be added after selecting data in the Data Viewer.
All steps can be added via the Steps pane:

1. In the extraction workflow on the **Steps** pane, select the step after which to add the new step.
2. Right-click on the Steps pane and select **Add a Step**; then select one of the step types.

Editing steps

The properties of each step in the extraction workflow become visible in the **Step properties** pane when you select that step in the Steps pane.

The **name** of each step is shown in the Steps pane. You can change it under **Description** in the Step properties pane.

The other properties are different per step type; see "Steps" on page 111.

Rearranging steps

To rearrange steps, simply drag & drop them somewhere else on the dotted line in the Steps pane.
Alternatively you can right-click on a step and select **Cut Step** or use the Cut button in the **Toolbar**. If the step is **Repeat** or **Condition**, all steps under it will also be placed in the clipboard. To place the step at its destination, right-click the step in the position before the desired location and click **Paste Step**, or use the Paste button in the toolbar.

Keep in mind that steps may influence each other, so you may have to move other steps as well to ensure that the workflow continues to function properly. In a Text file for example, an Extract step may need a Goto step before it that moves the cursor to a certain place in the source data.

Deleting steps

To delete a step, right-click on it in the Steps pane and select **Delete Step**.

Testing the extraction workflow

The extraction workflow is always performed on the current record in the data source. When an error is encountered, the extraction workflow stops, and the field on which the error occurred and all subsequent fields will be greyed out. Click the **Messages** tab (next to the Step properties pane) to see any error messages.

To test the extraction workflow on **all** records, you can:

- Click the **Validate All Records** toolbar button.
- Select **Data > Validate Records** in the menu.

If any errors are encountered in one or more records, an error message will be displayed. Errors encountered while performing the extraction workflow on the current record will also be visible on the **Messages** tab.

Data source settings

After opening a data file you have to make a number of settings to make sure that the source data is interpreted and grouped the way you want. These settings are found on the **Settings** pane at the left.

- **Input Data settings** help the DataMapper read the data source and recognize data correctly.
- **Boundaries** mark the start of a new record. They let you organize the data, depending on how you want to use them.
- **Data format settings** define how dates, times and numbers are formatted in the data source.

Input data settings (Delimiters)

The **Input Data** settings (on the **Settings** pane at the left) specify how the input data must be interpreted. These settings are different for each data type. For a CSV file, for example, it is important to specify the delimiter that separates data fields. PDF files are already delimited naturally by pages, so the input data settings for PDF files are interpretation settings for text in the file.
For an overview of all options, see: "Input Data" on page 173.

For a CSV File

In a CSV file, data is read line by line, where each line can contain multiple fields, separated by a **delimiter**. Even though CSV stands for comma-separated values, fields may be separated using any character, including commas, tabs, semicolons, and pipes.
The **text delimiter** is used to wrap around each field just in case the field values contain the field separator. This ensures that, for example, the field “Smith; John” is not interpreted as two fields, even if the field delimiter is the semicolon.
For an explanation of all the options, see: "CSV file Input Data settings" on page 173.

For a PDF File

PDF files have a clear and unmovable delimiter: pages. So, the Input Data settings are not used to set delimiters. Instead, these options determine how words, lines and paragraphs are detected when you select content in the PDF to extract data from it.
For an explanation of all the options, see: "PDF file Input Data settings" on page 174.

For a database

Databases all return the same type of information. Therefore the Input Data options for a database refer to the tables inside the database. Clicking on any of the tables shows the first line of the data in that table.
If the database supports stored procedures, including inner joins, grouping and sorting, you can use custom SQL to make a selection from the database, using whatever language the database

supports.
For an explanation of all the options, see: "Database Input Data settings" on page 174.

For a text file

Because text files have many different shapes and sizes, there are a lot of input data settings for these files. You can add or remove characters in lines if it has a header you want to get rid of, or strange characters at the beginning of your file, for example; you can set a line width if you are still working with old line printer data; etc.
It is important that pages are defined properly. This can be done either by using a set number of lines or using a text (for example, the character “P”), to detect on the page. Be aware that this is not a Boundary setting; it detects each new page, not each new record.
For an explanation of all the options, see: "Text file Input Data settings" on page 175.

For an XML file

XML is a special file format because these file types can have a theoretically unlimited number of structure types. The input data has two simple options that basically determine at which node level a new record is created. You can either select an element type, to create a new delimiter every time that element is encountered, or choose to use the root node. If there is only one top-level element, there will only be one record before the Boundaries are set.

> **Note**
>
> The DataMapper only extracts elements for which at least one value is defined in the file.

See also: "XML File Input Data settings" on page 176.

Record boundaries

Boundaries are the division between **records**: they define where one record ends and the next record begins. Using boundaries, you can organize the data the way you want.
You could use the exact same data source with different boundaries in order to extract different information. If, for instance, a PDF file contains multiple invoices, each invoice could be a record, or all invoices for one customer could go into a single record.
Keep in mind that when the data is merged with a template, each **record** generates output (print, email, web page) for a **single** recipient.

To set a boundary, a specific **trigger** must be defined.
The trigger can be a natural delimiter between blocks of data, such as a row in a CSV file or a

page in a PDF file.
It can also be something in the data that is either static (for example, the text "Page 1 of" in a PDF file) or changing (a customer ID, a user name, etc).
To define a more complex trigger you could write a script (see "Setting boundaries using JavaScript" on page 229).
A new record cannot start in the middle of a data field, so if the trigger is something in the data, the boundary will be set on the nearest preceding natural delimiter. If for instance in a PDF file the text "Page 1 of" is used as the trigger, the new record starts at the page break before that text.

For an explanation of all Boundaries options per file type, see "Boundaries" on page 177.

Data format settings

By default the data type of extracted data is a String, but each field in the Data Model can be set to contain another data type (see "Data types" on page 137). When that data type is Date, Number or Currency, the DataMapper will expect the data in the data source to be formatted in a certain way, depending on the settings.

The default format for dates, numbers and currencies can be set in three places: in the user preferences, in the data source settings, and per field in the Data Model.

By default, the user preferences are set to the system preferences. These user preferences become the default format values for any newly created data mapping configuration. To change these preferences, select **Window > Preferences > DataMapper > DataMapper default format** (see "Datamapper preferences" on page 618).

Data format settings defined in the data source settings apply to any **new** extraction made in the **current** data mapping configuration. These settings are made on the Settings pane; see "Settings pane" on page 173.

Settings for a field that contains extracted data are made via the properties of the Extract step that the field belongs to (see "Setting the data type" on page 128). Any format settings specified per field are always used, regardless of the user preferences or data source settings.

> **Note**
>
> Data format settings tell the DataMapper how certain types of data are formatted **in the data**

source. They don't determine how these data are formatted in the Data Model or in a template. In the Data Model, data are converted to the native data type. Dates, for example, are converted to a DateTime object in the Data Model, and will always be shown as "year-month-day" plus the time stamp, for example: 2012-04-11 12.00 AM.

Extracting data

Before you start

Data source settings

Data source settings must be made beforehand, not only to make sure that the data is properly read but also to have it organized in a record structure that meets the purpose of the data mapping configuration (see "Data source settings" on page 88). It is important to set the **boundaries** before starting to extract data, especially transactional data (see "Extracting transactional data" on page 97). Boundaries determine which data blocks - lines, pages, nodes - form a record in the source data. Data that are located in different records cannot be put into the same record in the record set that is the result of the extraction workflow.

Preprocessor step

The Preprocessor step allows the application to perform actions on the data file itself before it is handed over to the Data Mapping workflow. In addition, properties can be defined in this step. These properties may be used throughout the extraction workflow. For more information, see "Preprocessor step" on page 112.

Adding an extraction

In an extraction workflow, Extract steps are the pieces that take care of the actual data extractions.
To add an Extract step:

1. In the Data Viewer pane, select the data that needs to be extracted. (See "Selecting data" on page 95.)
2. Choose one of two ways to extract the selected data.
    - Right-click on the selected data and select **Add Extraction** from the contextual menu.

> **Note**
>
> For optimization purposes, it is better to add data to an existing Extract step than to have a succession of extraction steps. To do that, select that step on the Steps pane first; then right-click on the selected data and choose **Add Extract Field**.

- Alternatively, **drag & drop** the selected fields into the Data Model pane.

> **Tip**
>
> In a PDF or Text file, use the Drag icon to drag selected data into the Data Model.

With this method, a new Extract step will only be added to the extraction workflow when no Extract step already present on the Steps pane. Otherwise the field/s will be added to the selected Extract step or to the one that was last added.
Dragging data into an **existing field** in the Data Model will replace the data. The field name stays the same.
Drop data on empty fields or on the **record** itself to add new fields.

Special conditions

The Extract step may need to be combined with another type of step to get the desired result.

- Data can be extracted **conditionally** with a Condition step or Multiple Conditions step; see "Condition step" on page 116 or "Multiple Conditions step" on page 118.
- Normally the same extraction workflow is automatically applied to all records in the source data. It is however possible to **skip records** entirely or partially, using an Action step. Add an Action step in a branch under a Condition step or Multiple Conditions step (see "Action step" on page 119) and set the type of action to Stop Processing Record (see "Text and PDF Files" on page 198).
- To extract **transactional** data, the Extract step must be placed inside a Repeat step. See "Extracting transactional data" on page 97.

Note

Fields cannot be used twice in one extraction workflow.
Different Extract steps can only write extracted data to the **same** field in the Data Model, if:

- The field name is the same. (See: "Renaming and ordering fields" on page 127.)
- The Extract steps are mutually exclusive. This is the case when they are located in different branches of a Condition step or Multiple Conditions step.
- The option **Append values to current record** is checked in the Step properties pane under Extraction Definition.

Extracting data into multiple fields

When you select multiple fields in a CSV or tabular data file and extract them simultaneously, they are put into different fields in the Data Model automatically.
In a PDF or Text file, when multiple lines are extracted at the same time, they are by default joined and put into one field in the Data Model. To split them and put the data into different fields:

1. Select the field in the Data Model that contains the extracted lines.
2. On the **Step properties** pane, under **Field Definition**, click the drop-down next to **Split** and select **Split lines**.

Adding fields to an existing Extract step

For optimization purposes, it is better to add fields to an existing Extract step than to have a succession of extraction steps.

To add fields to an existing Extract step:

1. In the Data Viewer pane, select the data that needs to be extracted. (See "Selecting data" on the next page.)
2. Select an **Extract** step on the **Steps** pane.
3. Right-click on the data and select **Add Extract Field**, or drag & drop the data on the Data Model.

When data are dropped on the Data Model, they are by default added to the last added Extract step.

Editing fields

After extracting some data, you may want to:

- Change the **names** of fields that are included in the extraction.
- Change the **order** in which fields are extracted.
- Set the **data type**, **data format** and **default value** of each field.
- Modify the extracted data through a **script**.
- Delete a field.

All this can be done via the Step properties pane (see "Text File" on page 189), because the fields in the Data Model are seen as properties of an Extract step. See also: "Fields" on page 125.

Testing the extraction workflow

The extraction workflow is always performed on the current record in the data source. When an error is encountered, the extraction workflow stops, and the field on which the error occurred and all subsequent fields will be greyed out. Click the **Messages** tab (next to the Step properties pane) to see any error messages.

To test the extraction workflow on **all** records, you can:

- Click the **Validate All Records** toolbar button.
- Select **Data > Validate Records** in the menu.

If any errors are encountered in one or more records, an error message will be displayed. Errors encountered while performing the extraction workflow on the current record will also be visible on the **Messages** tab.

Selecting data

In order to extract the data, it is necessary to first define the data to be extracted, by selecting it. It depends on the data source file type how this is done. The following paragraphs explain how to create and manipulate a data selection in each different type of file.

Data selections are used to extract promotional data ("Extracting data" on page 92), transactional data ("Extracting transactional data" on the next page) and to apply a condition to an extraction (Condition step).

Right-clicking on a data selection displays a contextual menu with the actions that can be done with that selection or the steps that can be added to them. That menu also displays the keyboard shortcuts.

Text or PDF file

To **select** data in a Text or PDF file, click on a starting point, keep the mouse button down, drag to the end of the data that needs to be selected and release the mouse button. The data selection can contain multiple lines.

To **resize** a data selection, click and hold on one of the resize handles on the borders or corners, move them to the new size and release the mouse button.

To **move** the data selection, click and hold anywhere on the data selection, move it to its new desired location and release the mouse button.

> **Note**
>
> In a Text or PDF file, when you move the selection rectangle directly after extracting data, you can use it to select data for the next extraction.
> However, moving the selection rectangle that appears after clicking on a field in the Data Model actually changes which data is extracted into that field.

CSV file or database data

Tabular data is displayed in the Data Viewer in a table where multiple fields appear for each line or row in the original data.

To select data, click on a field, keep the mouse button down, drag to the last field that you want to select and release the mouse button.
Alternatively you can select fields just like files in the Windows Explorer: keep the Ctrl button pressed down while clicking on fields to select or deselect them, or keep the Shift button pressed down to select consecutive fields.

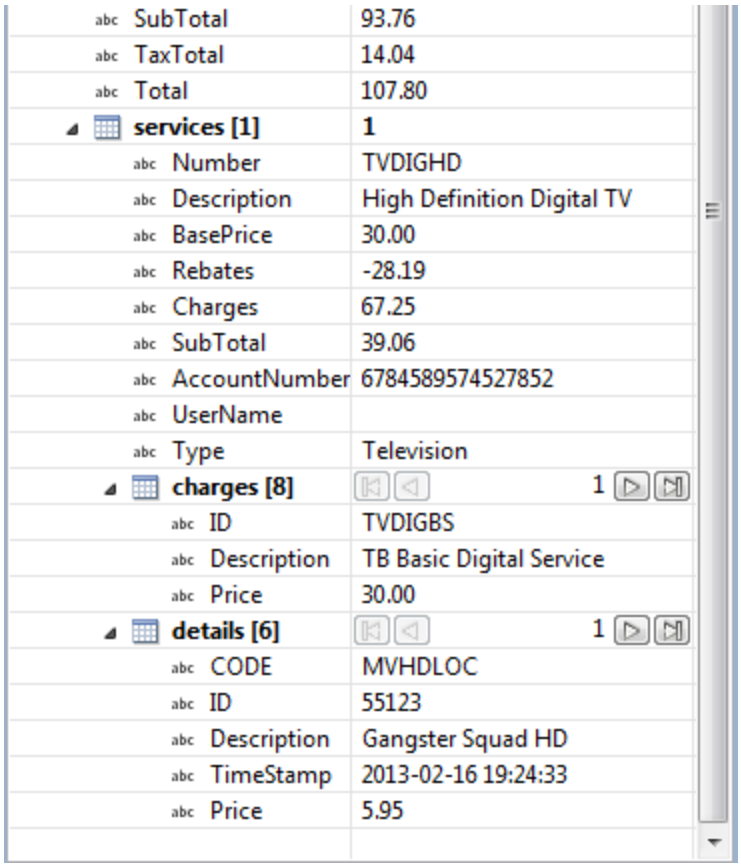
XML File

XML data is displayed as a tree view inside the Data Viewer. To get a better overview you can also collapse any XML level.
In this tree view you can select nodes just like files in the Windows Explorer: keep the Ctrl button pressed down while clicking on nodes to select or deselect them, or keep the Shift button pressed down to select consecutive nodes.
You can select multiple fields even if those fields are in different nodes.

> **Note**
>
> The Goto step isn't used in XML extraction workflows The DataMapper moves through the file using **Xpath**, a path-like syntax to identify and navigate nodes in an XML document.

Extracting transactional data

Promotional data are data about customers, such as addresses, names and phone numbers. In Connect, each record in the extracted record set represents one recipient. The number of fields that contain promotional data is the same in each record. These data are stored on the root level of the extracted record.
Transactional data, on the other hand, are used in communications about transactions between a company and their customers or suppliers: invoices, statements, and purchase orders, for example. Naturally these data differ per customer. They are stored in **detail tables** in the extracted record. The number of fields in a detail table can vary from record to record.



Detail tables are created when an **Extract** step is added within a **Repeat** step. The Repeat step goes through a number of lines or nodes. An Extract step within that loop extracts data from each line or node.
It depends on the type of source data how this loop is constructed exactly.

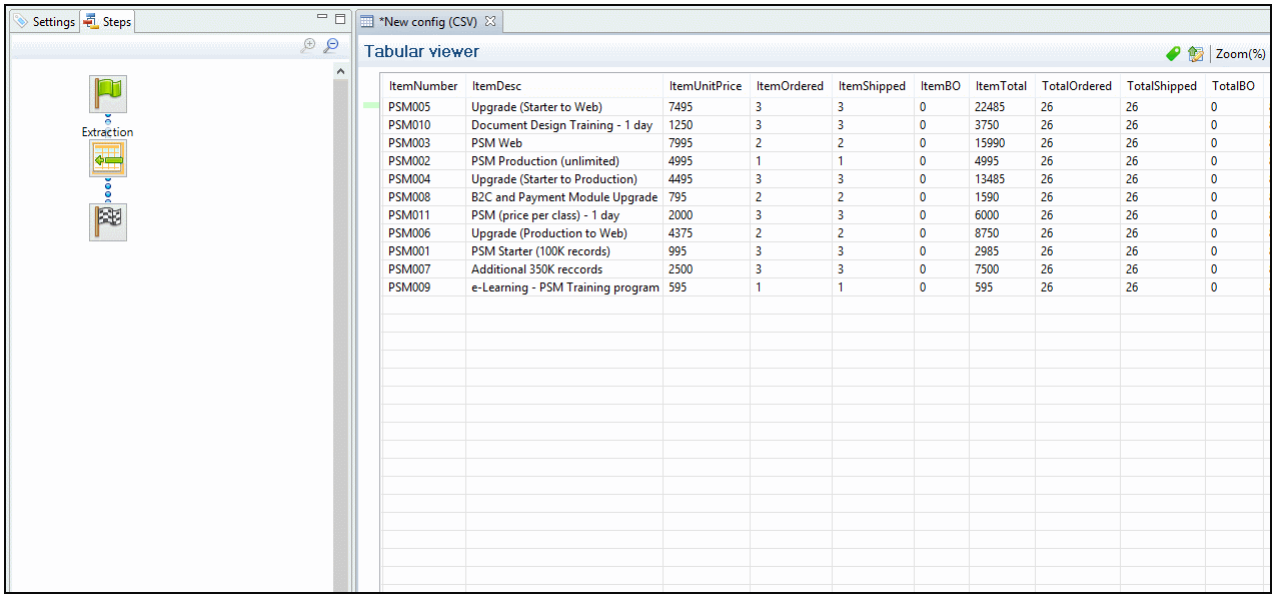
For more information about detail tables, **multiple** detail tables and **nested** detail tables, see "Example " on page 166.

From a CSV file or a Database

The transactional data (also called line items) appear in multiple rows.

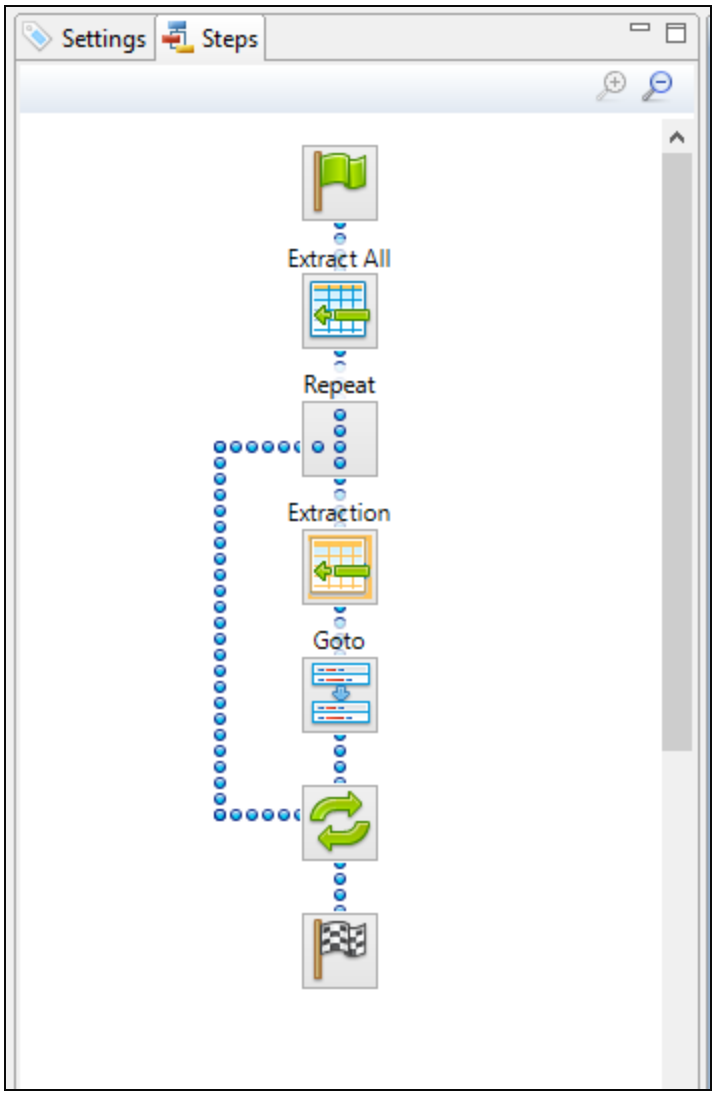
PReS. Connect

1. Select a field in the column that contains the first line item information.
2. Right-click this data selection and select **Add Repeat**.

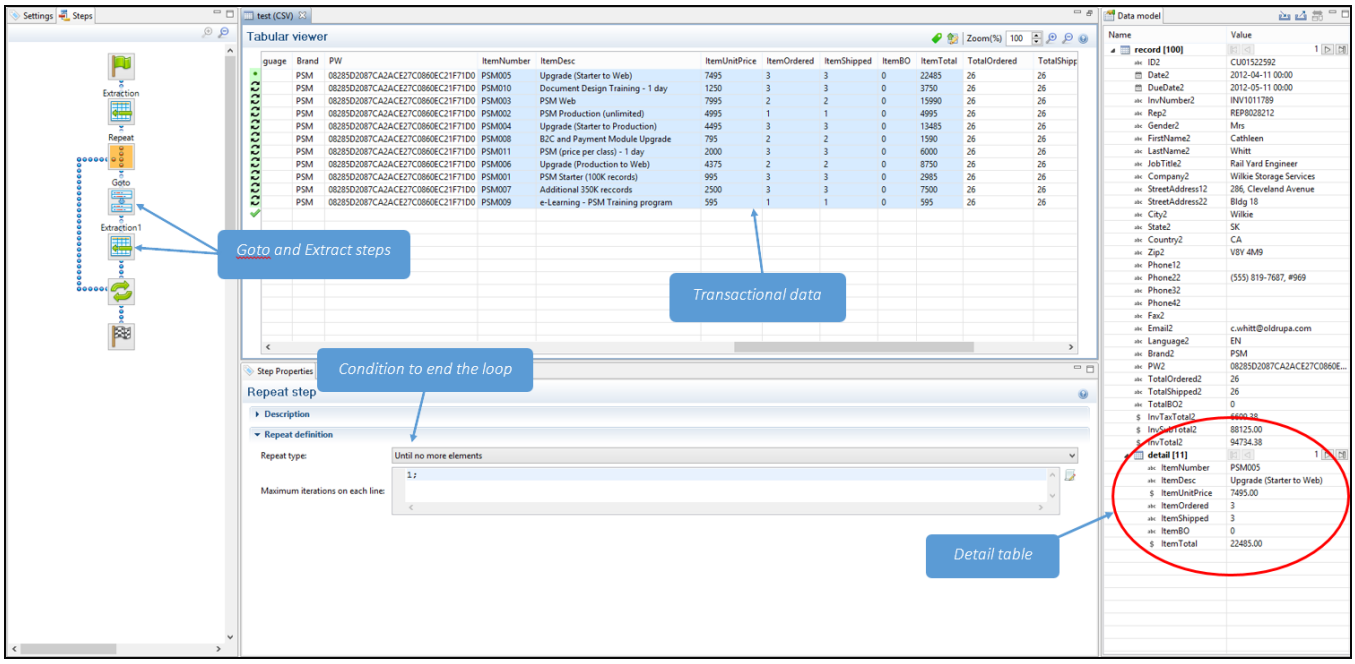


ItemNumber	ItemDesc	ItemUnitPrice	ItemOrdered	ItemShipped	ItemBO	ItemTotal	TotalOrdered	TotalShipped	TotalBO
PSM005	Upgrade (Starter to Web)	7495	3	3	0	22485	26	26	0
PSM010	Document Design Training - 1 day	1250	3	3	0	3750	26	26	0
PSM003	PSM Web	7995	2	2	0	15990	26	26	0
PSM002	PSM Production (unlimited)	4995	1	1	0	4995	26	26	0
PSM004	Upgrade (Starter to Production)	4495	3	3	0	13485	26	26	0
PSM008	B2C and Payment Module Upgrade	795	2	2	0	1590	26	26	0
PSM011	PSM (price per class) - 1 day	2000	3	3	0	6000	26	26	0
PSM006	Upgrade (Production to Web)	4375	2	2	0	8750	26	26	0
PSM001	PSM Starter (100K records)	995	3	3	0	2985	26	26	0
PSM007	Additional 350K reccords	2500	3	3	0	7500	26	26	0
PSM009	e-Learning - PSM Training program	595	1	1	0	595	26	26	0

   This adds a Repeat step with a GoTo step inside it. The GoTo step moves the cursor down to the next line, until there are no more lines (see "Goto step" on page 116).
3. (Optional.) Add an empty detail table via the Data Model pane: right-click the Data Model and select **Add a table**. Give the detail table a name.
4. Select the Repeat step on the Steps pane.
5. Start extracting data (see "Adding an extraction" on page 92).
   When you drag & drop data on the name of a detail table in the Data Model pane, the data are added to that detail table.
   Dropping the data somewhere else on the Data Model pane creates a new detail table, with a default name that you can change later on (see "Renaming a detail table" on page 163).
   The extraction step is placed inside the Repeat step, just before the GoTo step.



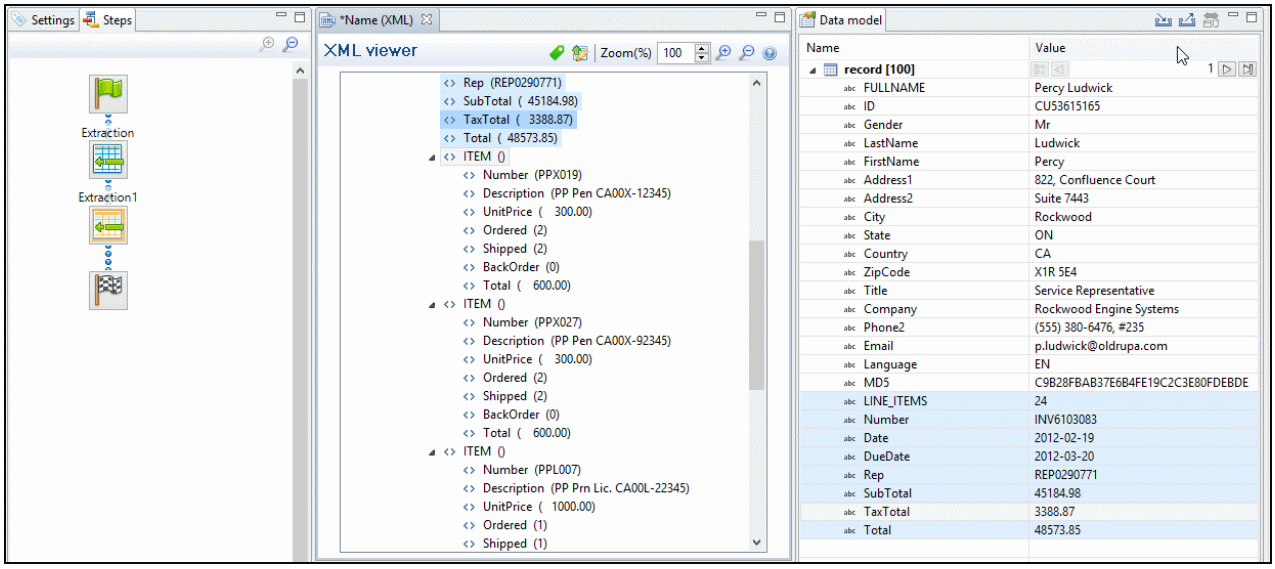
PReS. Connect



From an XML file

The transactional data appears in repeated **elements**.

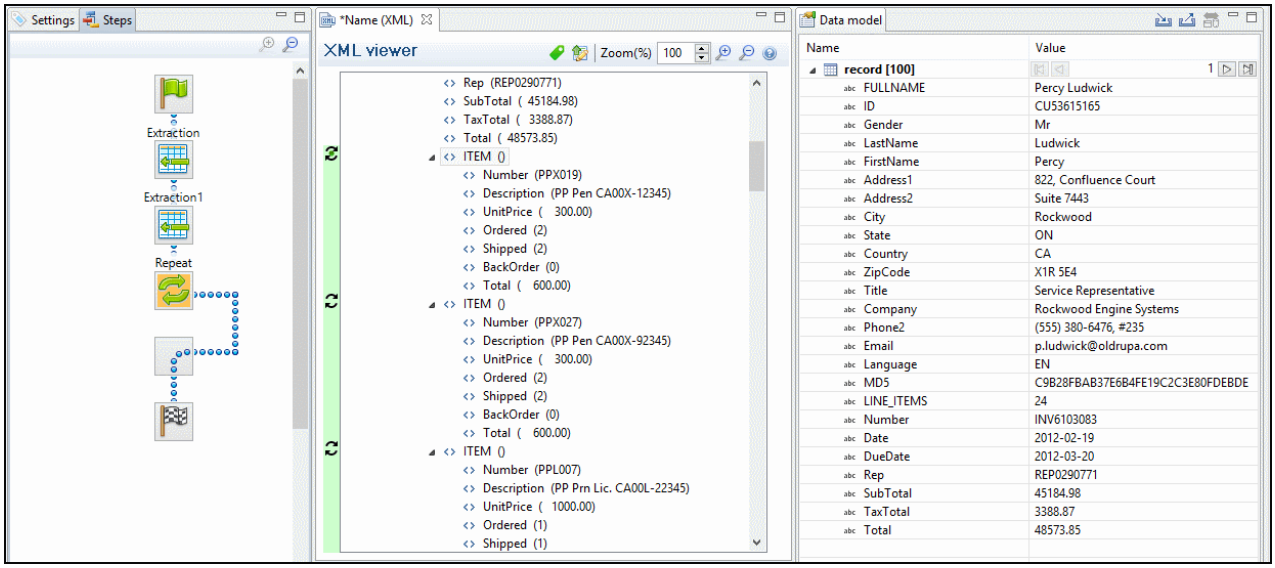
1. Right-click one of the repeating elements and select **Add Repeat**.



This adds a **Repeat step** to the data mapping configuration.
By default, the **Repeat type** of this step is set to **For Each**, so that each of the repeated

elements is extracted. You can see this on the **Step properties** pane, as long as the Repeat step is selected on the Steps pane. In the **Collection** field, you will find the corresponding node path.
The Goto step isn't used in XML extraction workflows The DataMapper moves through the file using **Xpath**, a path-like syntax to identify and navigate nodes in an XML document.

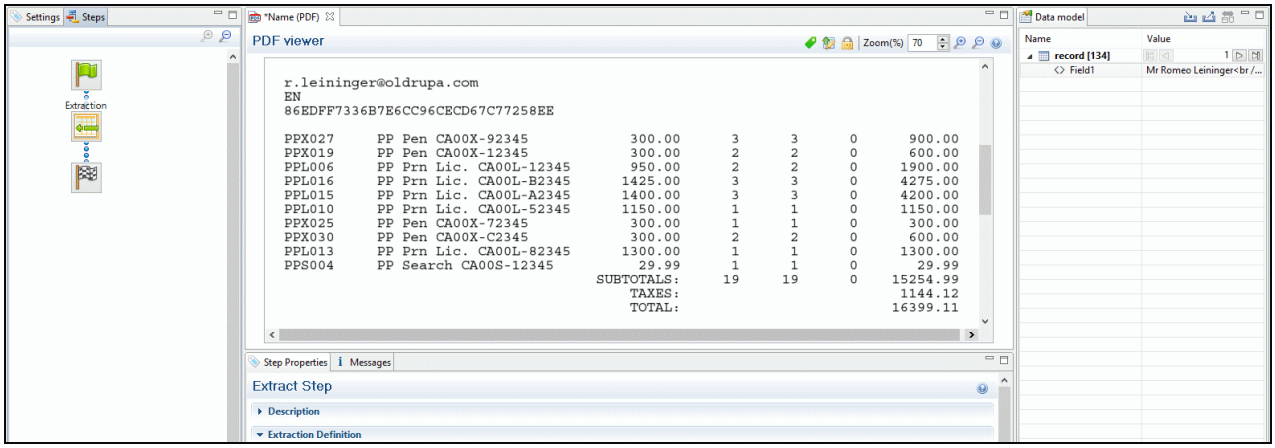
2. (Optional.) Add an empty detail table via the Data Model pane: right-click the Data Model and select Add a table. Give the detail table a name.
3. Select the Repeat step on the Steps pane.
4. Extract the data: inside a repeating element, select the data that you want to extract. Then right-click the selected nodes and select **Add Extraction**, or drag & drop them in the Data Model.
   When you drag & drop data on the name of a detail table in the Data Model pane, the data are added to that detail table.
   Dropping the data somewhere else on the Data Model pane creates a new detail table, with a default name that you can change later on (see "Renaming a detail table" on page 163).
   The new **Extract step** will be located in the Repeat step.



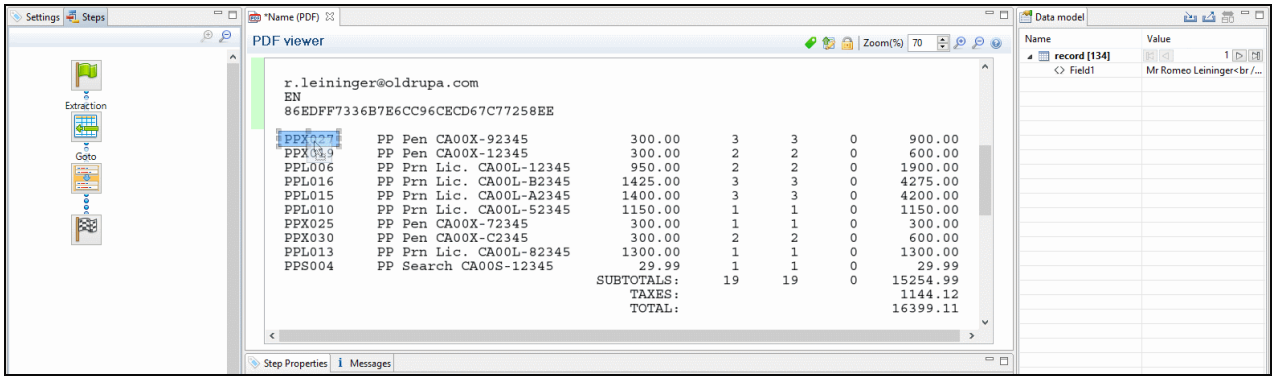
From a Text or a PDF file

In a PDF or Text file, transactional data appears on multiple lines and can be spread over multiple pages.

1. **Add a Goto step if necessary.** Make sure that the cursor is located where the extraction loop must start. By default the cursor is located at the top of the page, but previous steps may have moved it. Note that an Extract step does not move the cursor.
    1. Select something in the first line item.
    2. Right-click on the selection and select **Add Goto**. The Goto step will move the cursor to the start of the first line item.



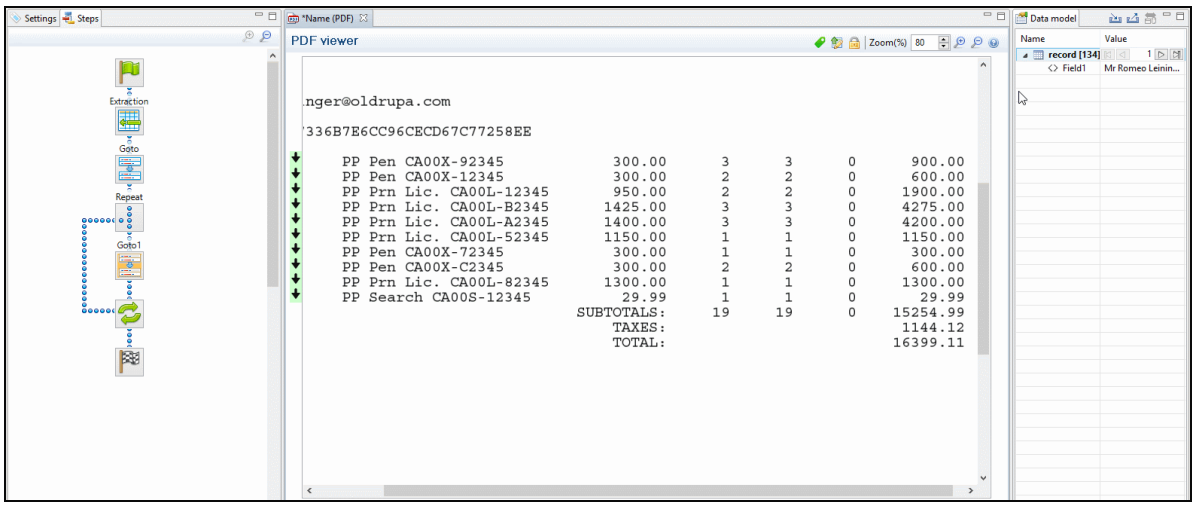
2. Add a **Repeat** step where the loop must stop.
    1. In the line under the last line item, look for a text that can be used as a condition to stop the loop, for example "Subtotals", Total" or "Amount".
    2. Select that text, right-click on it and select **Add Repeat**. The Repeat step loops over all lines **until** the selected text is found.



3. **Include/exclude lines.** Lines between the start and end of the loop that don't contain a line item must be excluded form the extraction. Or rather, all lines that contain a line item

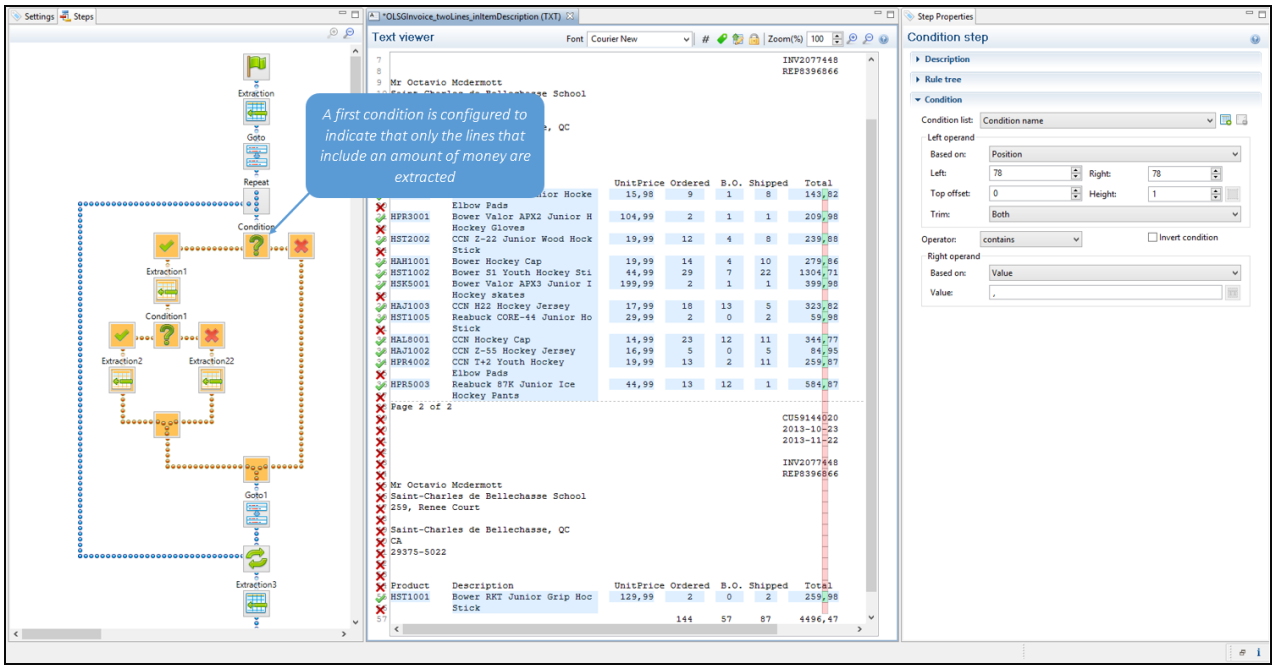
have to be included. This is done by adding a **Condition** step within the Repeat step.

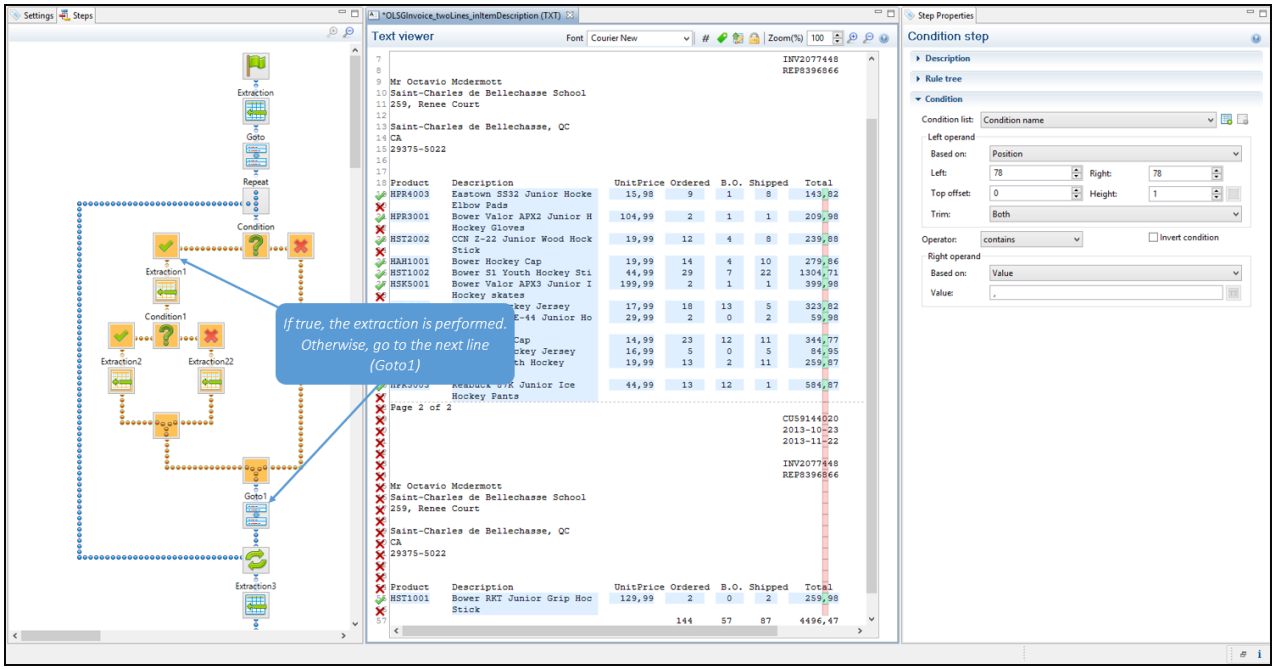
1. Select the start of the Repeat step on the Steps pane.
2. Look for something in the data that distinguishes lines with a line item from other lines (or the other way around). Often, a "." or "," appears in prices or totals at the same place in every line item, but not on other lines.
3. Select that data, right-click on it and select **Add Conditional**.



Selecting data - especially something as small as a dot - can be difficult in a PDF file. To make sure that a Condition step checks for certain data: Type the **value** in the **right operand** (in the Step properties pane).Move or resize the selection rectangle in the **data**.Click the **Use selection** button in the **left operand** (in the Step properties pane).When the Condition evaluates to true, the value is found in the selected region.

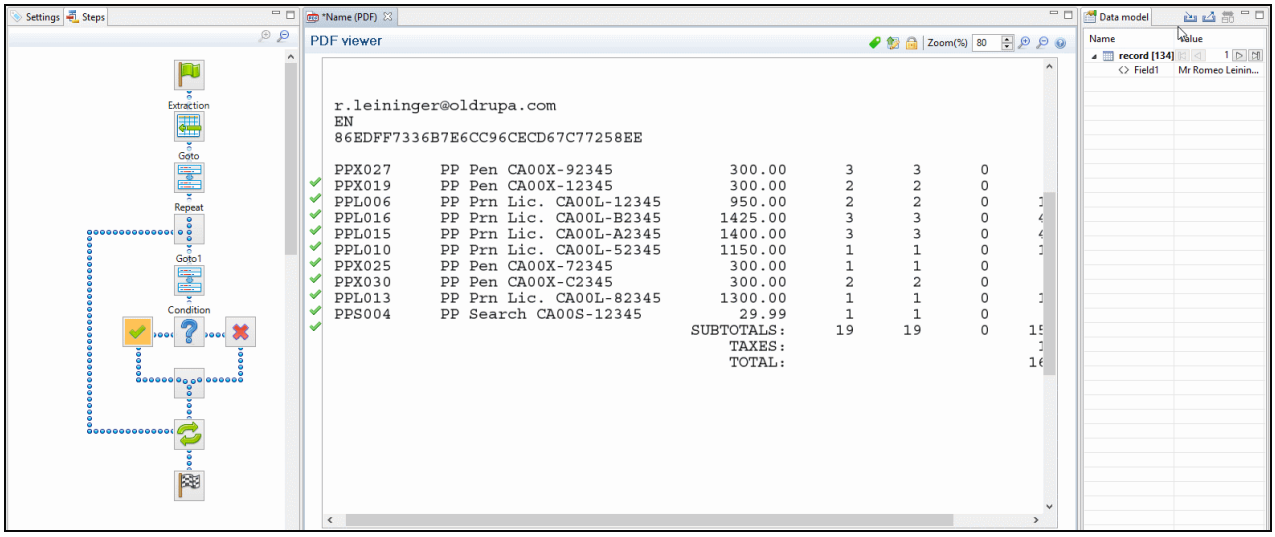
In the Data Viewer, you will see a green check mark in the left margin next to each included line and an X for other lines.

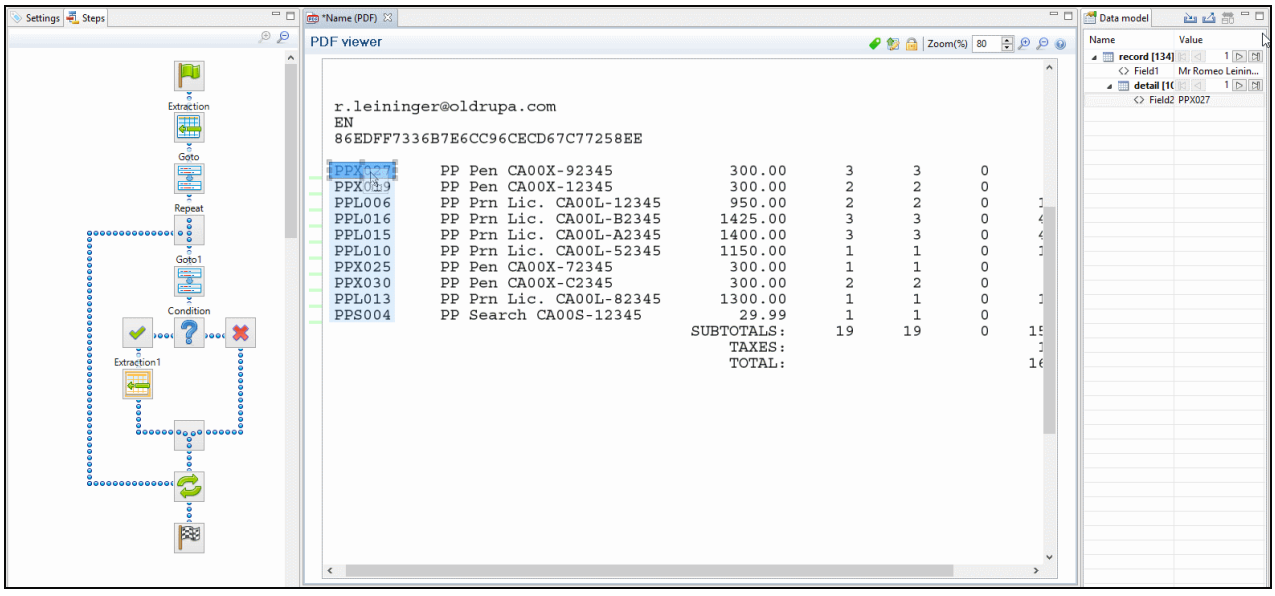




4. (Optional.) **Add an empty detail table** to the Data Model: right-click the Data Model and select **Add a table**. Give the detail table a name.

5. **Extract the data** (see "Adding an extraction" on page 92).
   When you drag & drop data on the name of a detail table in the Data Model pane, the data are added to that detail table.
   Dropping the data somewhere else on the Data Model pane, or using the contextual menu in the Data Viewer, creates a new detail table, with a default name that you can change later on (see "Renaming a detail table" on page 163).





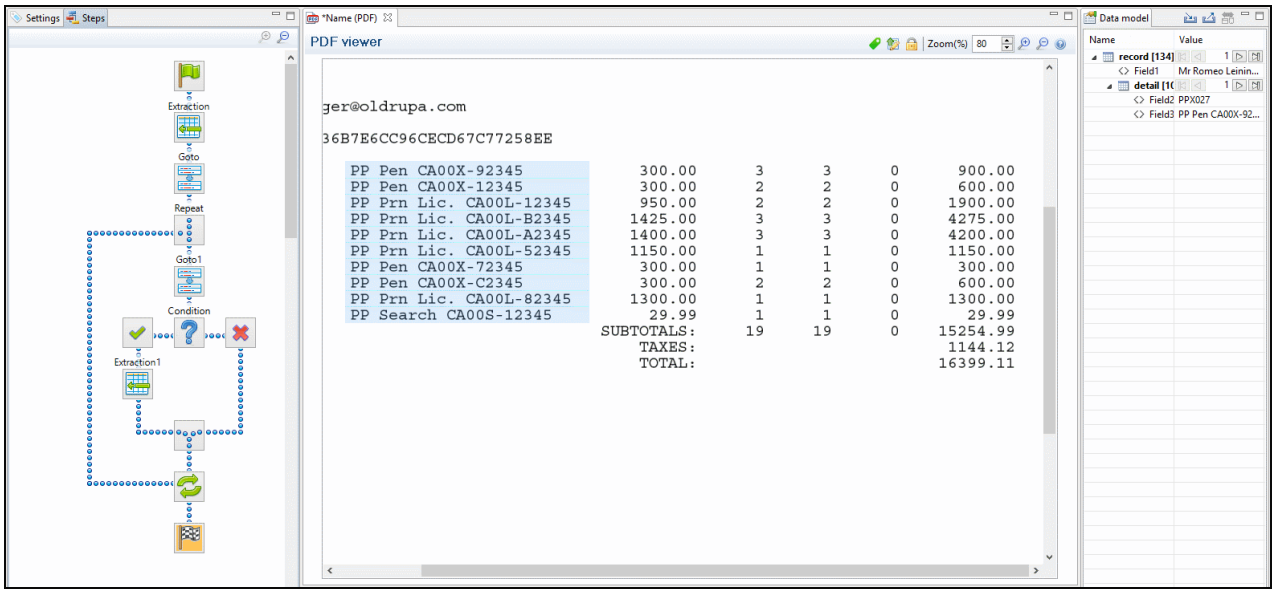
PReS. Connect

Note

In a PDF or Text file, pieces of data often have a variable size: a product description, for example, may be short and fit on one line, or be long and cover two lines. To learn how to handle this, see "Extracting data of variable length" on the facing page.

6. **Extract the sum or totals.** If the record contains sums or totals at the end of the line items list, the end of the Repeat step is a good place to add an Extract step for these data. After the loop step, the cursor position is at the end of line items.
    1. Select the amount or amounts.
    2. Click on the **end** of the Repeat step (🔁) in the Steps panel.
    3. Right-click on the selected data and select **Add Extraction**.

    Alternatively, right-click on the end of the Repeat step in the Steps panel and select **Add a Step > Add Extraction**.



Tip

This how-to describes in detail how to extract an item description that appears in a variable number of lines: How to extract multiline items.

PReS. Connect

Extracting data of variable length

In PDF and Text files, transactional data isn't structured uniformly, as in a CSV, database or XML file. Data can be located **anywhere** on a page. Therefore, data are extracted from a certain **region** on the page. The data can be spread over **multiple** lines and multiple pages, however:

- Line items may continue on the next page, separated from the line items on the first page by a line break, a number of empty lines and a letterhead.
- Data may vary in length: a product description for example may or may not fit on one line.

How to exclude lines from an extraction is explained in another topic: "Extracting transactional data" on page 97 (see From a PDF or Text file).
This topic explains a few ways to extract data with variable lengths.

Finding a condition

The key to extracting data of variable length is to find one or more differences between lines that make clear how big the region is from where data needs to be extracted.
Whilst, for example, a product description may expand over two lines, other data - such as the unit price - will never be longer than one line. Either the line above or below the unit price will be empty when the product description covers two lines.
Such a difference can then be used as a condition in a Condition step or a Case in a Multiple Conditions step.
A Condition step, as well as each Case in a Multiple Conditions step, can only check for one condition. To combine conditions, you would need a script.

Using a Condition step or Multiple Conditions step

Using a Condition step ("Condition step" on page 116) or a Multiple Conditions step ("Multiple Conditions step" on page 118) one could determine how big the region is that contains the data that needs to be extracted.
In each of the branches under the Condition or Multiple Conditions step, an Extract step could be added to extract the data from a particular region. The Extract steps could write their data to the same field.

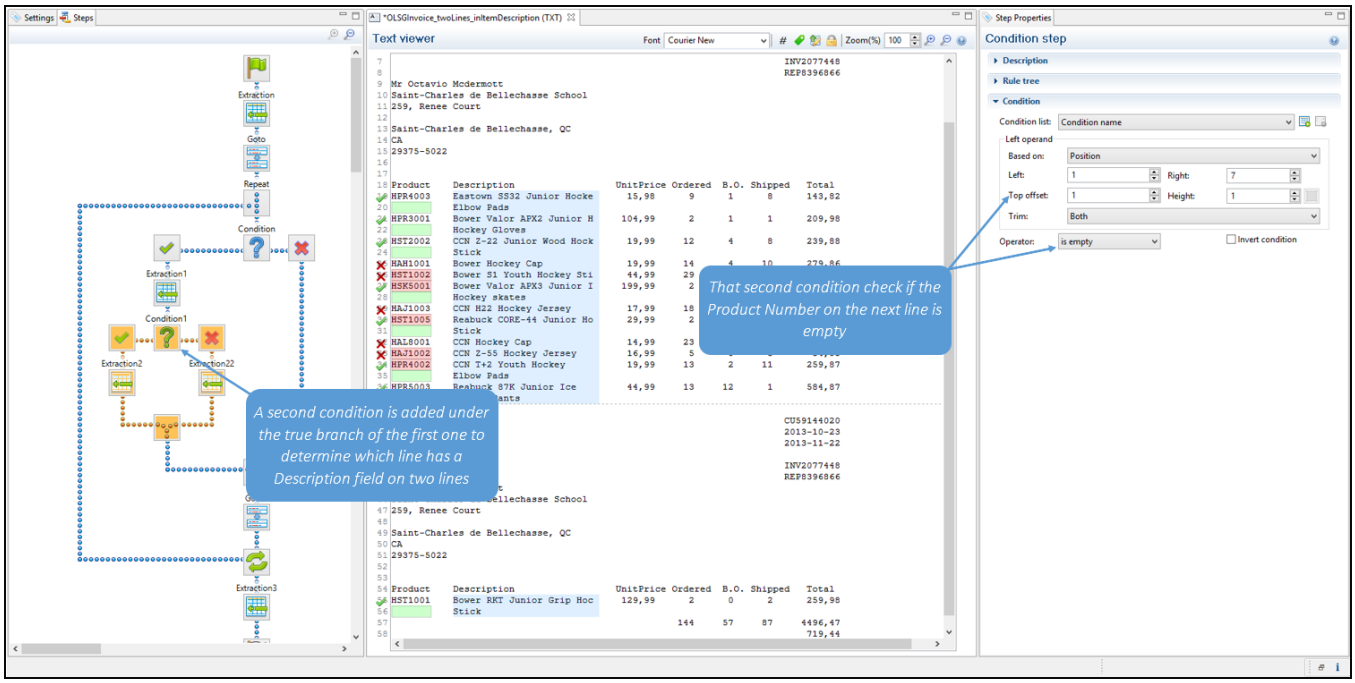
Fields cannot be used twice in one extraction workflow.
Different Extract steps can only write extracted data to the **same** field in the Data Model, if:

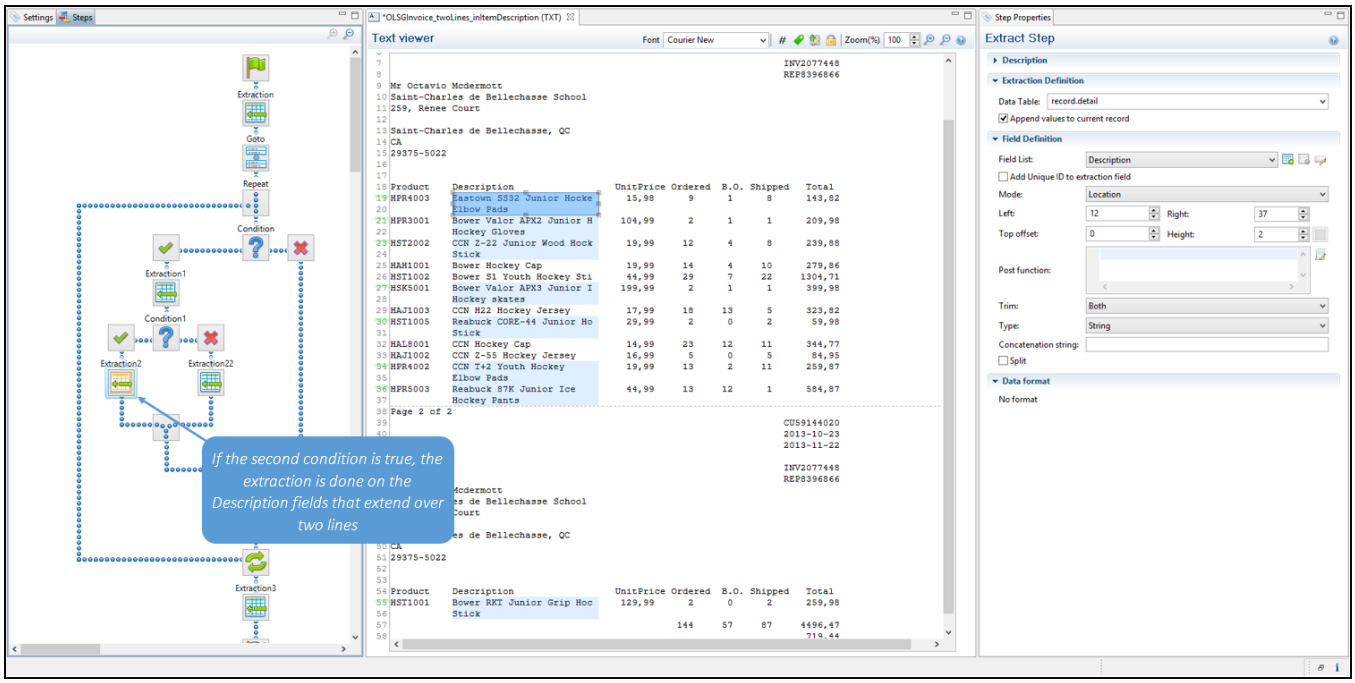
- The field name is the same. (See: "Renaming and ordering fields" on page 127.)
- The Extract steps are mutually exclusive. This is the case when they are located in different branches of a Condition step or Multiple Conditions step.
- The option **Append values to current record** is checked in the Step properties pane under Extraction Definition.

> **Tip**
>
> Create and edit the Extract step in the 'true' branch, then right-click the step on the Steps pane, select Copy Step, and paste the step in the 'false' branch. Now you only have to adjust the region from which this Extract step extracts data.

To learn how to configure a Condition step or a Case in a Multiple Conditions step, see "Configuring a Condition step" on page 117.

PReS. Connect





Using a script

A script could also provide a solution when data needs to be extracted from a variable region. This requires using a Javascript-based field.

1. Add a field to an Extract step, preferably by extracting data from one of the possible regions; see "Extracting data" on page 92. To add a field without extracting data, see "Adding a JavaScript-based field" on page 126.
2. On the Step properties pane, under Field Definition, select the field and change its **Mode** to **Javascript**.
   If the field was created with its Mode set to Location, you will see that the script already contains one line of code to extract data from the original location.
3. Expand the script. Start by doing the check(s) to determine where the data that needs to be extracted is located. Use the `data.extract()` function to extract the data. The parameters that this function expects depend on the data source, see "Examples" on page 243.

Example

The following script extracts data from a certain region in a Text file; let's assume that this region contains the unit price. If the unit price is empty (after trimming any spaces), the product description has to be extracted from two lines; else the product description should be extracted from one line.

```
var s = data.extract(1,7,1,2,"");
if (s.substring(1,3).trim().length == 0)
{ data.extract(12,37,0,2,""); } /* extract two lines */
else { data.extract(12,37,0,1,""); } /* extract one line */
```

The fourth parameter of the `extract()` function contains the height of the region. When working with a Text file, this equals a number of lines.

Note that this script replicates exactly what can be done in a Condition step. In cases like this, it is recommended to use a Condition step. Only use a script when no steps are sufficient to give the expected result, or when the extraction can be better optimized in a script.

Steps

In the DataMapper, **steps** are part of an extraction workflow (see "Data mapping workflow" on page 86). They contain a specific instruction for the DataMapper, for example to extract data, create a loop, or apply a condition. Some types of steps contain other steps.

Steps are executed sequentially, from top to bottom in an extraction workflow.
Inside a Condition step, some steps may be skipped altogether when they are on a particular branch, whereas in a Repeat step - a loop - several steps may be repeated a number of times.

The Preprocessor and Postprocessor steps are special in that the first can be used to modify the incoming data prior to executing the rest of the extraction workflow while the latter can be used to further process the resulting record set after the entire extraction workflow has been executed.

Step types

These are the types of steps that can be added to a data mapping workflow:

- "Preprocessor step" below
- "Extract step" on page 114
- "Repeat step" on page 115
- "Goto step" on page 116
- "Condition step" on page 116
- "Multiple Conditions step" on page 118
- "Action step" on page 119
- "Postprocessor step" on page 120

Preprocessor step

The Preprocessor step allows the application to modify the incoming data prior to executing the rest of the extraction workflow through a number of **preprocessors**. It also lets you define **properties**, to be added to each record or to the data as a whole. A unique ID could be created to be added to each record in the output for integrity checks later on. A time stamp could be added to create reports. A tag could be added to process certain records differently. A preprocessor could remove certain records altogether.

Properties

To add a property:

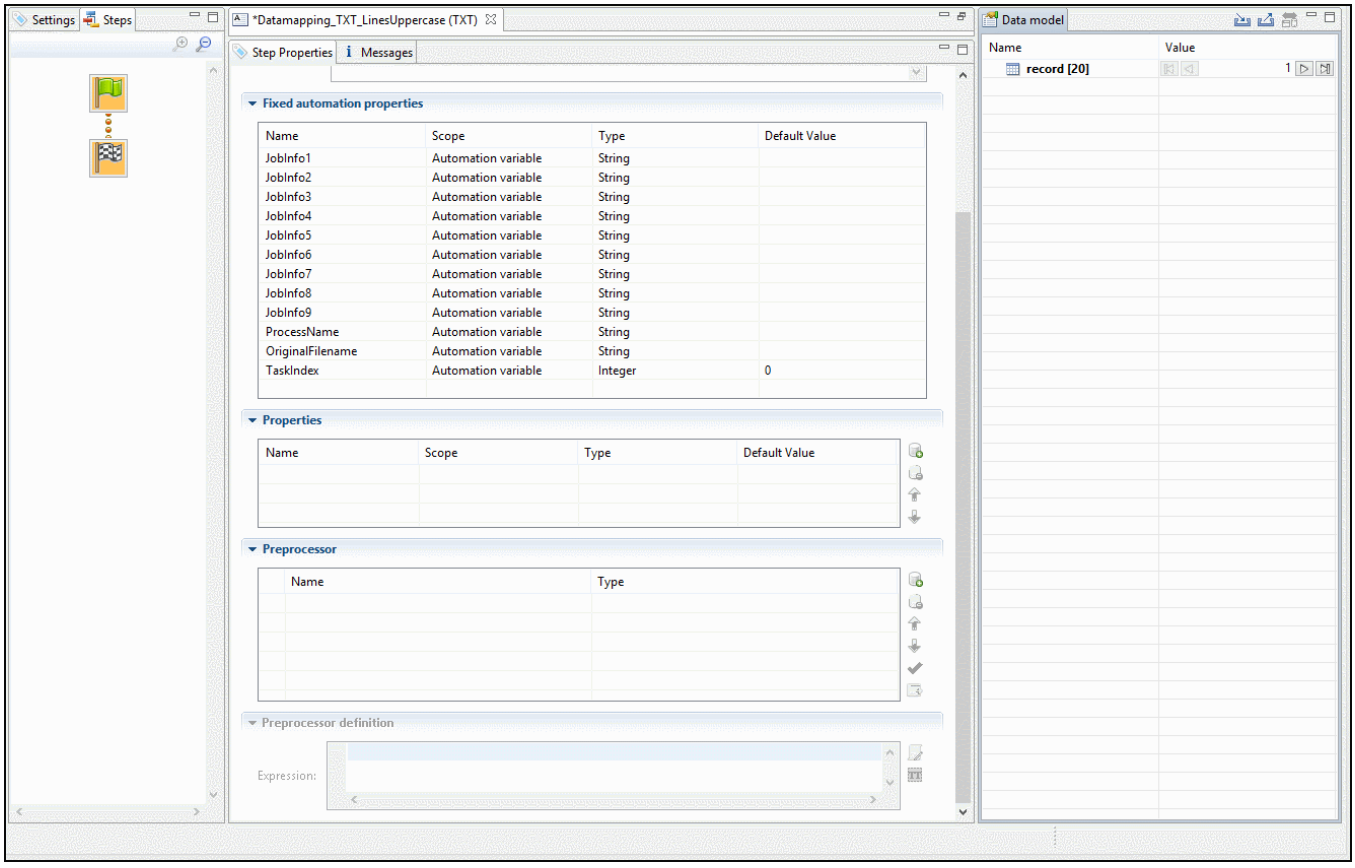
1. Select the **Preprocessor** step on the **Steps** pane.
2. On the **Step properties** pane, under **Properties**, click the **Add** button . See "Properties" on page 187 for an explanation of the settings for properties.

To set the value of a property you can use an Action step (see "Action step" on page 119).

Preprocessors

The Preprocessor step can contain any number of preprocessors. They will be run in sequence before the data is sent to the Data Mapping workflow. To add a preprocessor:

1. Select the **Preprocessor** step on the **Steps** pane.
2. On the **Step properties** pane, under **Preprocessor**, click the **Add** button .
3. Under **Preprocessor definition**, add the script. Preprocessing tasks must be written in JavaScript (see "Using scripts in the DataMapper" on page 226 and "DataMapper Scripts API" on page 224).



PReS. Connect

Configuring the Preprocessor step

For an explanation of the settings for preprocessors, see: "Preprocessor step properties" on page 185.

Extract step

The **Extract** step is essential in each and every data mapping configuration. It extracts data from the data source, based on their location (a row and column in CSV or tabular data, an XPath in XML, or a region of the page in PDF and Text) or on a JavaScript. The data is placed in the record set that is the result of the extraction workflow.

Adding an Extract step

To add an Extract step, first select the step on the Steps pane after which to insert the Extract step. Then:

- In the Data Viewer, select some data, right-click that data and choose **Add Extraction**, or drag & drop the data in the Data Model. For more detailed information and instructions, see: "Extracting data" on page 92.
- Alternatively, right-click the Steps pane and select **Add a Step > Add Extraction**. Make the required settings on the Step properties pane.

If an **Extract** step is added within a **Repeat** step, the extracted data are added to a detail table by default; see "Extracting transactional data" on page 97 and "Example " on page 166.

Configuring an Extract step

The names, order, data type and default value of the fields extracted in an Extract step are properties of that Extract step. These and other properties can be edited via the Step properties pane. For an explanation of all the options, see "Text File" on page 189.

Fields cannot be used twice in one extraction workflow.
Different Extract steps can only write extracted data to the **same** field in the Data Model, if:

- The field name is the same. (See: "Renaming and ordering fields" on page 127.)
- The Extract steps are mutually exclusive. This is the case when they are located in different branches of a Condition step or Multiple Conditions step.

- The option **Append values to current record** is checked in the Step properties pane under Extraction Definition.

Repeat step

The **Repeat** step is a loop that may run 0 or more times, depending on the condition specified. It is used for the extraction of transactional data; see "Extracting transactional data" on page 97.

Repeat steps do not automatically move the pointer in the source file. Therefore a **Goto** step that moves the cursor is added automatically within the loop to avoid an infinite loop, except in XML files. When you select a node in an XML file and add a Repeat step on it, the Repeat step will automatically loop over all nodes of the same type on the same level in the XML file.

Adding a Repeat step

To add a Repeat step:

1. On the Steps pane, select the step after which to insert the Condition step.
2. Make sure that the cursor is located where the extraction loop must start. By default the cursor is located at the top of the page or record, but previous steps in the extraction workflow may have moved it down. If necessary, add a **Goto** step (see "Goto step" on the facing page).
   This step can be skipped when the data source is an XML file.
3. Add the Repeat step:
   - Select data in the line or row where the loop must end, right-click on it and select **Add Repeat**.
   - Right-click the Steps pane and select **Add a Step > Add Repeat**. Make the required settings on the Step properties pane.

Configuring a Repeat step

For information about how to configure the Repeat step, see "Text and PDF Files" on page 205.

How to use it in an extraction workflow is explained in the topic: "Extracting transactional data" on page 97.

Goto step

Although invisible, there is a cursor in the Data Viewer. In an extraction workflow, the cursor starts off at the top-left corner of each record in the source data.
The **Goto** step can move the cursor to a certain location in the current record. The new location can be relative to the top of the record or to the current position.

When the **Goto** step is used within a **Repeat** step, it moves the cursor in each loop of the Repeat step. In this case the new location has to be relative to the current position.

> **Note**
>
> The Goto step isn't used in XML extraction workflows The DataMapper moves through the file using **Xpath**, a path-like syntax to identify and navigate nodes in an XML document.

Adding a Goto step

To add a Goto step:

- On the Steps pane, select the step after which to insert the Goto step. In the Data Viewer, select some data, right-click that data and choose **Add Goto**, to add a Goto step that moves the cursor to that data.
- Alternatively, right-click the Steps pane and select **Add a Step > Add Goto**. Make the required settings on the Step properties pane.

Configuring a Goto step

For information about how to configure the Goto step, see "Text file" on page 216.

Condition step

A **Condition** step is used when the data extraction must be based on specific criteria. The Condition step splits the extraction workflow into two separate branches, one that is executed when the condition is **true**, the other when it is **false**.

Extract steps can be added to both the 'true' and the 'false' branch (see "Extracting data" on page 92 and "Extracting transactional data" on page 97).

In the Data Viewer pane, icons on the left indicate the result of the evaluation in the Condition step: ✔ when true and ✘ when false.

Adding a Condition step

To add a Condition step:

- On the Steps pane, select the step after which to insert the Condition step; then, in the Data Viewer, select some data, right-click that data and choose **Add Conditional**.
  In the **Step properties** pane, you will see that the newly added Condition step checks if the selected **position** (the left operand) **contains** the selected **value** (the right operand). Both operands and the operator can be adjusted.
  Note that the left operand is by default **trimmed**, meaning that spaces are cut off.
  Selecting data - especially something as small as a dot - can be difficult in a PDF file. To make sure that a Condition step checks for certain data: Type the **value** in the **right operand** (in the Step properties pane).Move or resize the selection rectangle in the **data**.Click the **Use selection** button in the **left operand** (in the Step properties pane).When the Condition evaluates to true, the value is found in the selected region.
- Alternatively, right-click the Steps pane and select **Add a Step > Add Conditional**. Enter the settings for the condition on the Step properties pane.

Configuring a Condition step

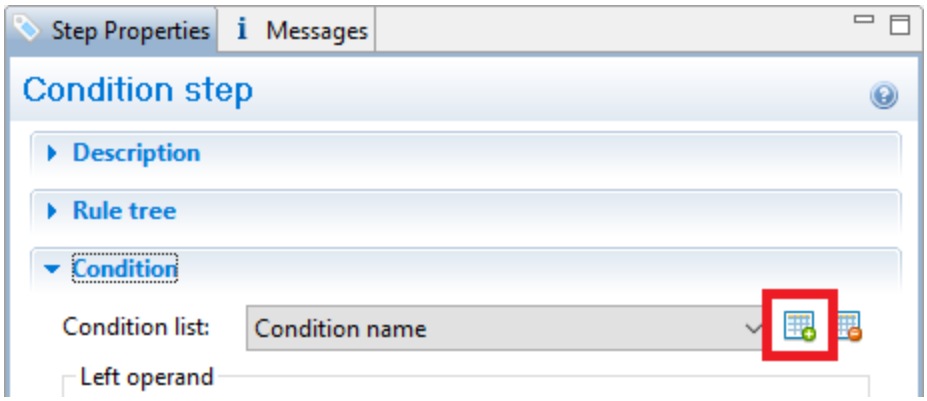
The condition in a Condition step is expressed in a rule or combination of rules. Rules have a left operand, an operand type (for example: contains, is empty) and a right operand.
For an overview of all options on the Step properties pane, see "Condition step properties" on page 210.

Inverting a rule

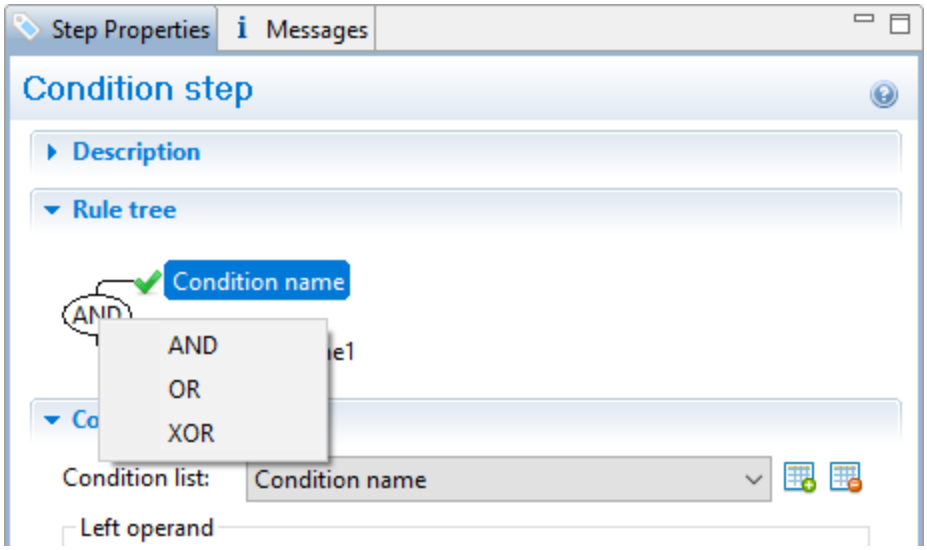
Inverting a rule adds **not** to the operand type. For instance, **is empty** becomes **is not empty**.
To invert a rule, check the **Invert condition** option next to Operator under Condition on the Step properties pane.

Combining rules

One rule is already present in a newly added Condition step. To add another rule, click the **Add condition** button under Condition, next to Condition List, on the Step properties pane.



Rules are by default combined with AND. To change the way rules are combined, right-click "AND" in the Rule Tree, on the Step properties pane, and select OR or XOR instead. (XOR means one or the other, but not both.)



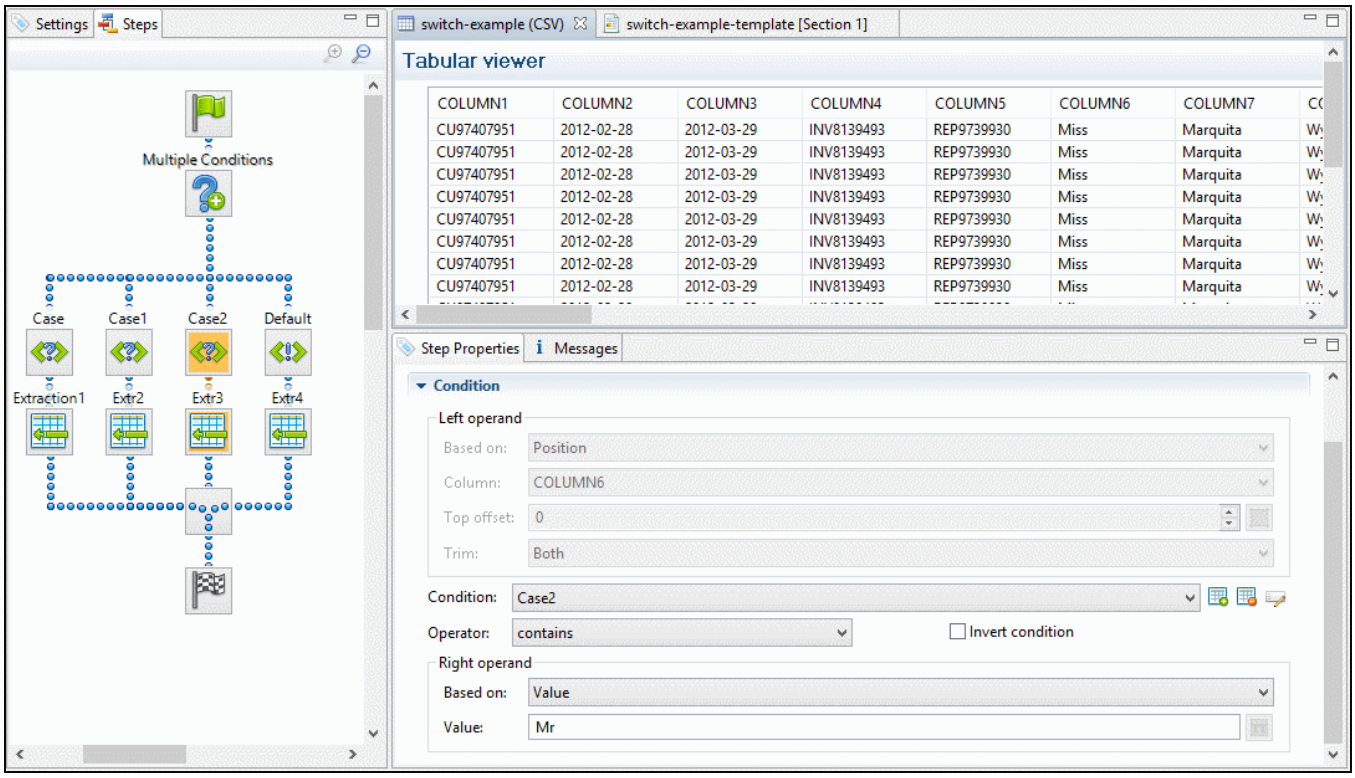
Renaming a rule

To rename a rule, double-click its name in the Rule Tree and type a new name.

Multiple Conditions step

The **Multiple Conditions** step is useful to avoid the use of nested Condition steps: Condition steps inside other Condition steps.
In a **Multiple Conditions** step, conditions or rather **Cases** are positioned side by side.
Each **Case** condition can lead to an extraction.
Cases are executed from left to right.

PReS. Connect



Adding a Multiple Conditions step

To add a Multiple Conditions step, right-click the Steps pane and select **Add a Step > Add Multiple Conditions**.

To add a **case**, click the **Add case** button to the right of the **Condition** field in the Step properties pane.

Configuring a Multiple Conditions step

For information about how to configure the Multiple Conditions step, see "Left operand, Right operand" on page 213. The settings for a Case are the same as for a Condition step; see "Condition step properties" on page 210.

Action step

The **Action** step can:

- Execute JavaScript code.
- Set the value for a record property. Record properties are defined in the Preprocessor step; see "Preprocessor step" on page 112.
- Stop the processing of the current record. Normally an extraction workflow is automatically executed on all records in the source data. By stopping the processing of the current record, you can filter records or skip records partially.

The **Action** step can run multiple specific actions one after the other in order.

Adding an Action step

To add an Action step, right-click on the Steps pane and select **Add a Step > Add Action**.

Configuring an Action step

For information about how to configure the Action step, see "Text and PDF Files" on page 198.

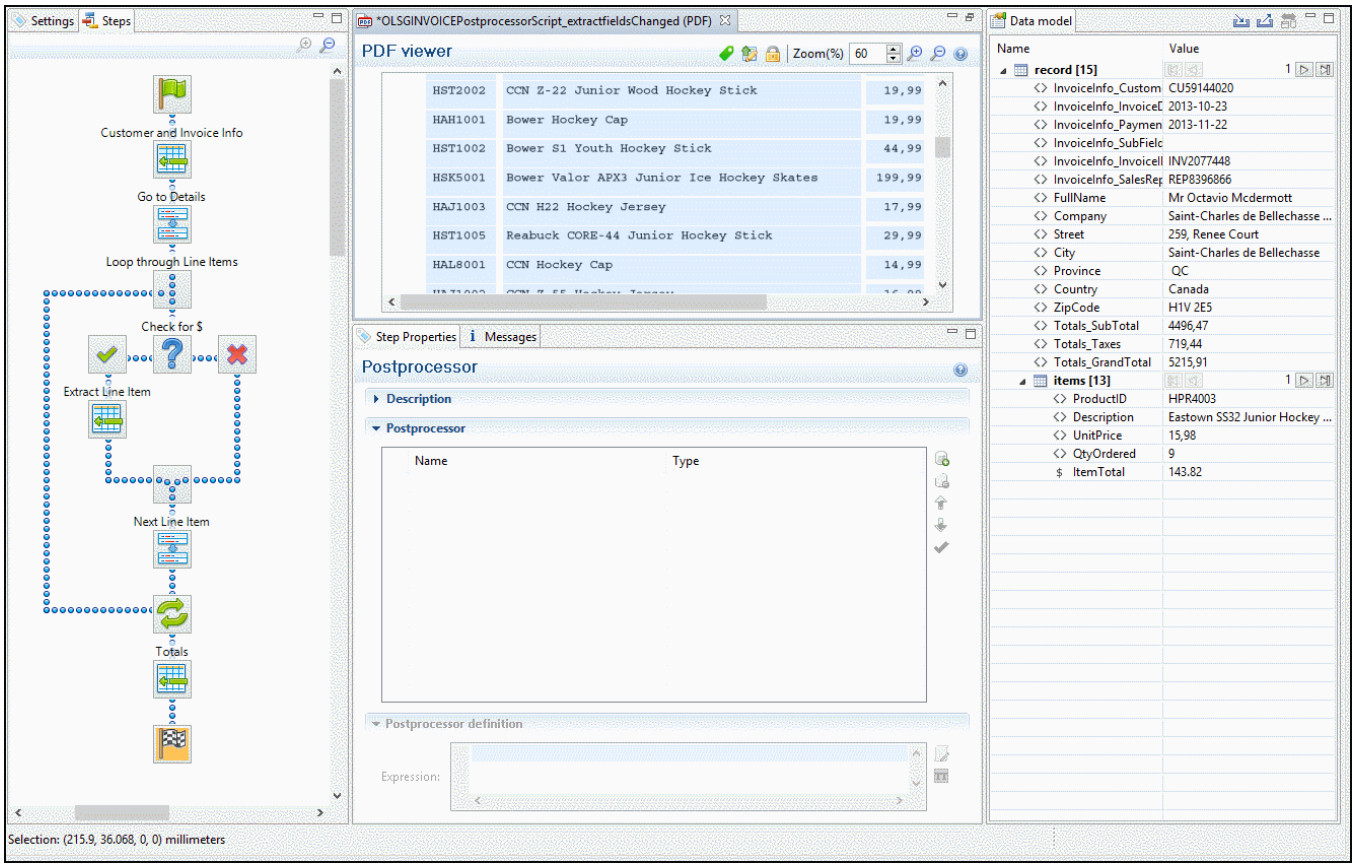
Postprocessor step

The Postprocessor step allows the application to further process the resulting record set after the entire extraction workflow has been executed, using JavaScript.
For example, a postprocessor can export all or parts of the data to a CSV file which can then be used to generate daily reports of the Connect Workflow processes that use this data mapping configuration (see "Data mapping configurations" on page 75).
A postprocessor could also write the results of the extraction process to a file and immediately upload that file to a Workflow process.

The Postprocessor step can contain any number of postprocessors.

To add a postprocessor:

- Select the **Postprocessor** step on the **Steps** pane.
- On the **Step properties** pane, under **Postprocessor**, click the **Add** button .
- Under **Postprocessor definition**, add the script. Postprocessor tasks must be written in JavaScript (see "Using scripts in the DataMapper" on page 226 and "DataMapper Scripts API" on page 224).



Configuring the Postprocessor step

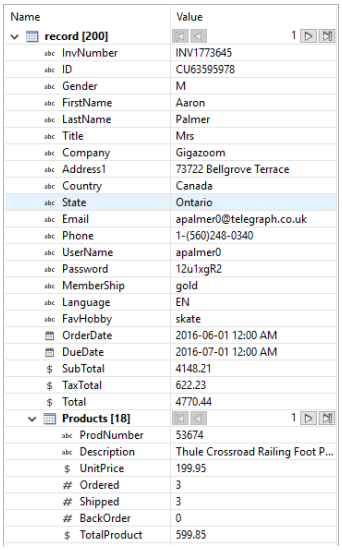
For an explanation of the settings for postprocessors, see "JavaScript " on page 221.

The Data Model

The Data Model is the structure of records into which extracted data are stored. It contains the names and types of the fields in a record and in its detail tables. A detail table is a field that contains a record set instead of a single value. The Data Model is shown in the Data Model

PReS. Connect

pane, filled with data from the current record.



Name	Value
record [200]	1
InvNumber	INV1773645
ID	CU63595978
Gender	M
FirstName	Aaron
LastName	Palmer
Title	Mrs
Company	Gigazoom
Address1	73722 Bellgrove Terrace
Country	Canada
State	Ontario
Email	apalmer0@telegraph.co.uk
Phone	1-(560)248-0340
UserName	apalmer0
Password	12u1xgR2
MemberShip	gold
Language	EN
FavHobby	skate
OrderDate	2016-06-01 12:00 AM
DueDate	2016-07-01 12:00 AM
SubTotal	4148.21
TaxTotal	622.23
Total	4770.44
Products [18]	1
ProdNumber	53674
Description	Thule Crossroad Railing Foot P...
UnitPrice	199.95
Ordered	3
Shipped	3
BackOrder	0
TotalProduct	599.85

The Data Model is not related to the type of data source: whether it is XML, CSV, PDF, Text or a database does not matter. The Data Model is a new structure, designed to contain only the required data.

About records

A **record** is a block of information that may be merged with a template to generate a single *document* (invoice, email, web page...) for a single *recipient*. It is part of the *record set* that is generated by a data mapping configuration.
In each record, data from the data source can be combined with data coming from other sources.

Creating a Data Model

A Data Model is created automatically within each data mapping configuration, but it is empty at the start. To fill it you could use another Data Model (see "Importing/exporting a Data Model" on the next page) or start creating a data mapping workflow (see "Data mapping workflow" on page 86).

To learn how to add and edit fields, see "Fields" on page 125.

PReS. Connect

Importing/exporting a Data Model

To use a Data Model in another data mapping configuration, or to use it in a Designer template without a data mapping configuration, you have to export that Data Model and import it into a data mapping configuration or template.
Importing and exporting Data Models is done from within the Data model Pane, using the top-right icons and .
For information about the structure of the exported Data Model file, see "Data Model file structure" on page 146.

When you import a Data Model, it appears in the Data Model pane where you can see all the fields and their types.
You can delete or add fields, or change their type. Once the data model is imported and all the fields are properly set, all you need to do is extract the information from the active data sample (see "Extracting data" on page 92).

Note

- Imported Data Model fields always overwrite existing field properties when the field name is the same (although they will still be part of the same Extract step). Non-existent fields are created automatically with the appropriate field settings. The import is case-insensitive.
- All imported data model fields are tagged with an asterisk (*).

Editing the Data Model

Empty fields and detail tables, added via the Data Model pane, can be edited (renamed, deleted etc.) via the Data Model pane, using the contextual menu that opens when you right-click on a field.

Fields in a Data Model that are actually used in the extraction workflow cannot be edited via the Data Model pane. They are related to a step in the extraction workflow and are edited via the Step properties pane instead.
The order of the fields can also not be changed via the Data Model pane. It is the Extract step that determines the order in which data are extracted, so the order of the fields has to be changed per Extract step.

To learn how to edit fields and change their order, see "Fields" on page 125.

Using the Data Model

The Data Model is what enables you to create personalized templates in the **Designer** module. You can drag & drop fields from the Data Model into the template that you are creating (see "Variable Data" on page 530). For this, you have to have a template and a data mapping configuration open at the same time, or import a Data Model (see "Importing/exporting a Data Model" on the previous page).

The Data Model is reusable, meaning that it can be shared amongst different template layouts and output types.
Different data mapping configurations could use the same Data Model, allowing a template to be populated with data from different sources and formats, without the need to modify the template (see "Importing/exporting a Data Model" on the previous page).

In **Workflow**, when a data mapping configuration is used to extract data from a data source (see "Data mapping configurations" on page 75), the extracted data is stored in a record set that is structured according to the Data Model.

About adding fields and data via Workflow

The Data Model is not extensible outside of the DataMapper. When it is used in Workflow - as part of a data mapping configuration - the contents of its fields can be updated but not its structure.
There are a number of instances however, where fields may need to be added to the data model after the initial data mapping operation has been performed. For instance, you might need to add a cleansed postal address next to the original address, or retrieve a value from a database and add it to the record.

ExtraData field

You an add empty fields in advance to provide space in the Data Model for Workflow to store data. For convenience, one field called **ExtraData** is automatically created at every level of each data record. That means the record itself gets an **ExtraData** field, and each detail table also gets one.
By default the field is not visible in the DataMapper's Data Model, because it is not meant to be filled via an extraction. It can be made visible using the **Show ExtraData Field** icon at the top of the Data Model.

Workflow process

Data can be added to the Data Model in a PReS Connect **Workflow** process as follows:

1. Use an **Execute Data Mapping** task or **Retrieve Items** task to create a record set. On the General tab select **Outputs records in Metadata**.
2. Add a value to a field **in the Metadata** using the **Metadata Fields Management** task. Data added to the **_vger_fld_ExtraData** field on the Document level will appear in the record's ExtraData field, once the records are updated from the Metadata (in the next step).
   Other fields have the same prefix: **_vger_fld_**.
3. Update the **record/s** from the Metadata. There are several ways to do this. You could, for example:
   - Use the **Update Data Records** plugin.
   - Add an Output task and check the option **Update records with Metadata**.
   - Select Metadata as the data source in the **Create Preview PDF** plugin.

> **Note**
>
> Many of these actions can also be performed using REST calls.

Please refer to PReS Connect Workflow documentation for more information about the plugins involved.

Fields

Extracted data are stored in fields in the Data Model (see "The Data Model" on page 121). Fields can be present on different levels: on the record level or in a detail table (see "Example " on page 166).

Fields always belong to an Extract step. They can be either location-based, meaning that they read data from a certain location in the data source, or JavaScript-based.

Adding fields

Adding a location-based field

Generally **fields** are added to a Data Model by extracting data; see "Extracting data" on page 92. Fields in **detail tables** are created by extracting transactional data; see "Extracting transactional data" on page 97.

Alternatively, you can add fields and detail tables directly in the Data Model pane. Right-click anywhere on the Data Model and a contextual menu will appear. Which menu items are available depends on where you've clicked. If you right-click inside the record itself, you can add a field or a detail table. A field will be added at the end with no extraction, while a detail table will be added with no fields inside.
After adding a field or detail table this way, you can drag & drop data into it. Without data it is not accessible via the Step properties pane.

Adding a JavaScript-based field

JavaScript-based fields are filled by a script: the script provides a value. Note that the last value attribution to a variable is the one used as a result of the expression.

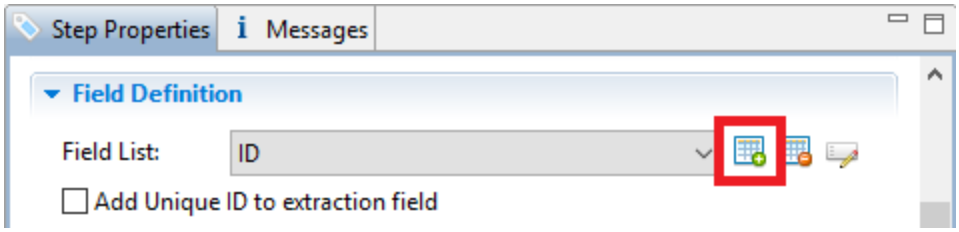
There is a number of ways to add a Javascript based field.

Via the Steps pane

1. Make sure there is **no data selection** in the Data Viewer.
2. Right-click on an Extract step on the Steps pane and select **Add a Step > Add Extract Field**. (To add a new Extract step, select **Add a Step > Add Extraction** first.)
3. On the Step properties pane, under Field Definition, enter the script in the **Expression** field.

Via the Step properties pane

1. Select an Extract step on the Steps pane. (To add a new, empty Extract step, right-click the Steps pane and select **Add a Step > Add Extraction**.)
2. On the Step properties pane, under Field Definition, click the **Add JavaScript Field** button next to the Field List.



3. On the Step properties pane, under Field Definition, enter the script in the **Expression** field.

By changing a field's mode

Alternatively you can change a location-based into a JavaScript-based field.

1. Select the field in the Data Model.
2. On the Step properties pane, under Field Definition, change its **Mode** to JavaScript.
3. Enter the script in the **Expression** field.

Adding fields dynamically

Outside of the DataMapper the Data Model cannot be changed. It isn't possible to add fields to it when using the data mapping configuration in Workflow. It is however possible to add data to existing fields via Workflow; see "About adding fields and data via Workflow" on page 124.

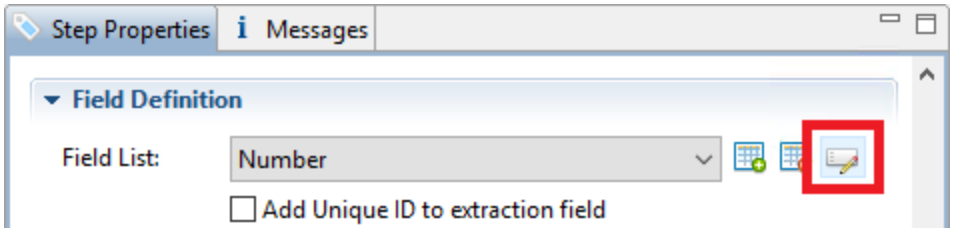
Editing fields

The list of fields that are included in the extraction, the order in which fields are extracted and the data format of each field, are all part of the Extract step's properties. These can be edited via the Step properties pane (see "Text File" on page 189).

Renaming and ordering fields

The order and the names of fields in the Data Model can be changed via the properties of the Extract step that they belong to.

1. Select the Extract step that contains the fields that you want to rename. To do this you could click on one of those fields in the Data Model, or on the step in the Steps pane.
2. On the Step properties pane, under Field Definition, click the **Order and rename fields** button.



See "Order and rename fields dialog" on page 196.

Note

Remember that fields cannot have the same name, unless they are on a different level in the record.

Setting the data type

Fields store extracted data as a String by default. The data type of a field can be changed via the properties of the Extract step that the field belongs to.

1. Select the Extract step that contains the field. You can do this by clicking on the field in the Data Model, or on the step in the Steps pane that contains the field.
2. On the Step properties pane, under Field Definition, set the **Type** to the desired data type. See "Data types" on page 137 for a list of available types.

Changing the type does not only set the data type inside the record. In the case of dates, numbers and currencies, it also means that the DataMapper will expect the data in the data source to be formatted in a certain way. If the actual data doesn't match the format that the DataMapper expects, it cannot interpret the date, number or currency as such. If for example a date in the data source is formatted as "yyyy-mm-dd" but the default format adds the time, the date cannot be read and the DataMapper will stop with an error.

The default format for dates, numbers and currencies can be set in the user preferences ("Datamapper preferences" on page 618), in the data source settings ("Data source settings" on page 88) and per data field (in the Extract step properties, see "Data Format" on page 195).

Setting a default value

You may want to set a default value for a field, in case no extraction can be made. Make sure to set the data type of the field via the step properties (see above). Then right-click the field and select **Default Value**.
The default value must match the selected data type. If the data type of the field is set to Integer, for example, you cannot enter a value of 2,3. A default date must be formatted as a DateTime object ("year-month-day" plus the time stamp, for example: 2012-04-11 12.00 AM); see "Date" on page 140.

Modifying extracted data

To modify extracted data - the contents of a field - you have to write a script. The script can be entered as a Post function in a location-based field or as an Expression in a JavaScript-based

field.

Post function

On the Step properties pane, under Field Definition, you can enter a script in the **Post function** field to be run after the extraction. (Click the **Use JavaScript Editor** button to open the Script Editor dialog if you need more space.)
A Post function script operates directly on the extracted data. Its results replace the extracted data. For example, the Post function script `replace("-", "");` replaces the first dash character that occurs inside the extracted string. The code `toLowerCase();` converts the string to lowercase letters.
Note that the function must be appropriate for the field's data type.

JavaScript Expression

Alternatively you can change a field's **Mode** from Location to Javascript:

1. Select the field in the Data Model.
2. On the Step properties pane, under Field Definition, change its Mode to JavaScript.

You will see that the JavaScript Expression field is not empty; it contains the code that was used to extract data from the location. This code can be used or deleted.

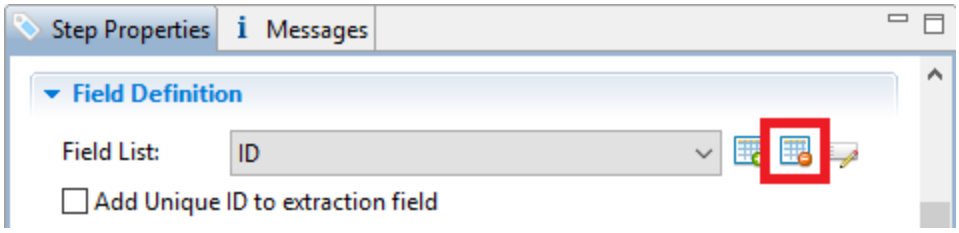
> **Note**
>
> The last value attribution to a variable is the one used as the result of the expression.

Deleting a field

The list of fields that are included in an extraction is one of the properties of an Extract step. To delete a field:

1. Select the field: click on the field in the Data Model, or select the Extract step that contains the field that you want to delete, and in the Step properties pane, under Field Definition, select the field from the Field List.

2. In the Step properties pane, under Field Definition, click the **Remove Extract Field** button next to the Field List drop-down.



Detail tables

A detail table is a field in the Data Model that contains a record set instead of a single value. Detail tables contain transactional data. They are created when an **Extract** step is added within a **Repeat** step; see "Extracting transactional data" on page 97.

In the most basic of transactional communications, a single detail table is sufficient. However, it is possible to create multiple detail tables, as well as nested tables. Detail tables and nested tables are displayed as separate levels in the Data Model (see "The Data Model" on page 121).

Renaming a detail table

Renaming detail tables is especially useful when there are more detail tables in one record, or when a detail table contains another detail table. For this detail table, ‘products’ would be a better name.

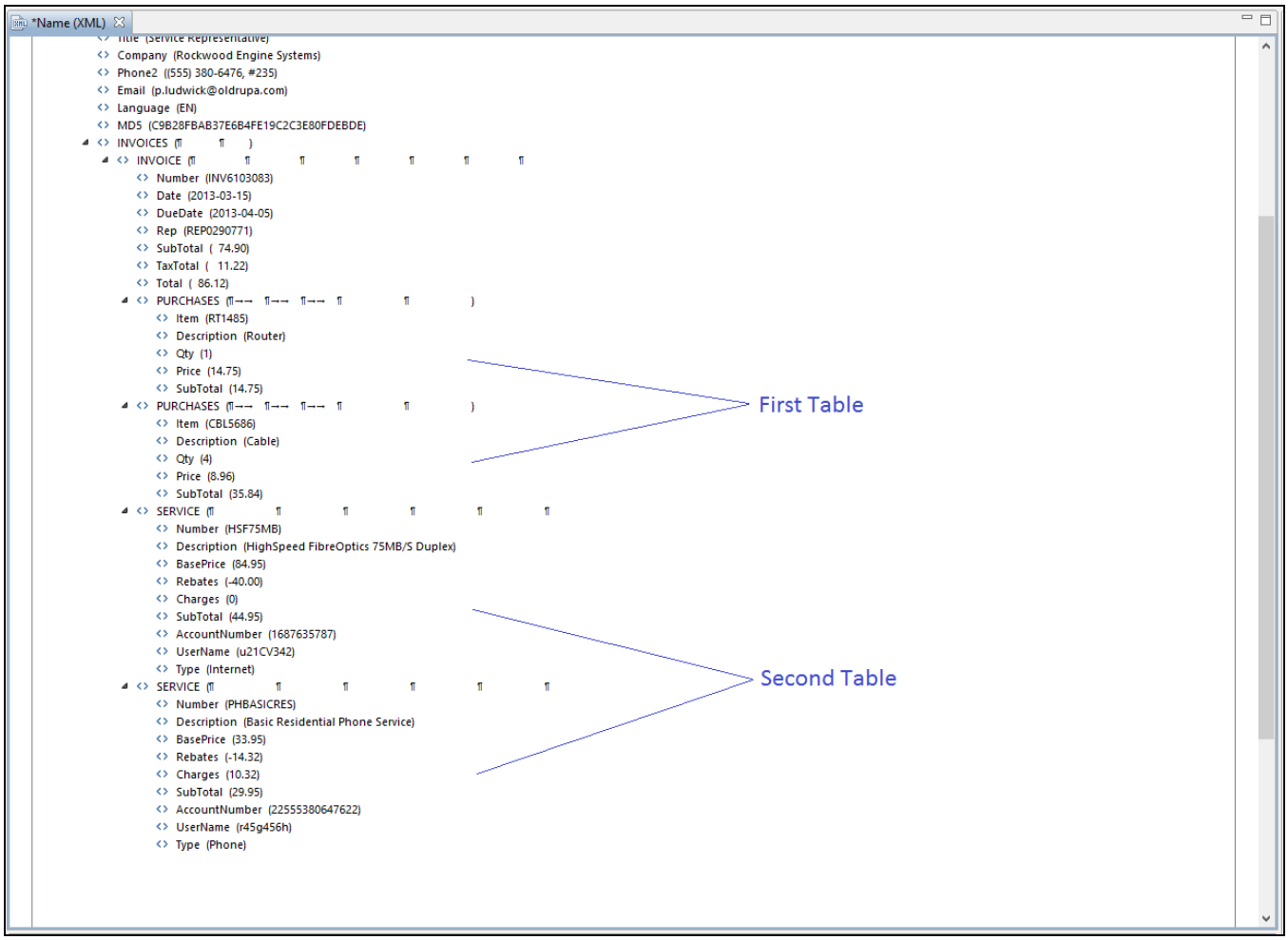
1. On the Data Model pane, click one of the fields in the detail table.
2. On the Step Properties pane, under **Extraction Definition**, in the **Data Table** field, you can find the name of the detail table: **record.detail** by default. Change the **detail** part in that name into something else.

> **Note**
>
> A detail table’s name should always begin with ‘**record.**’.

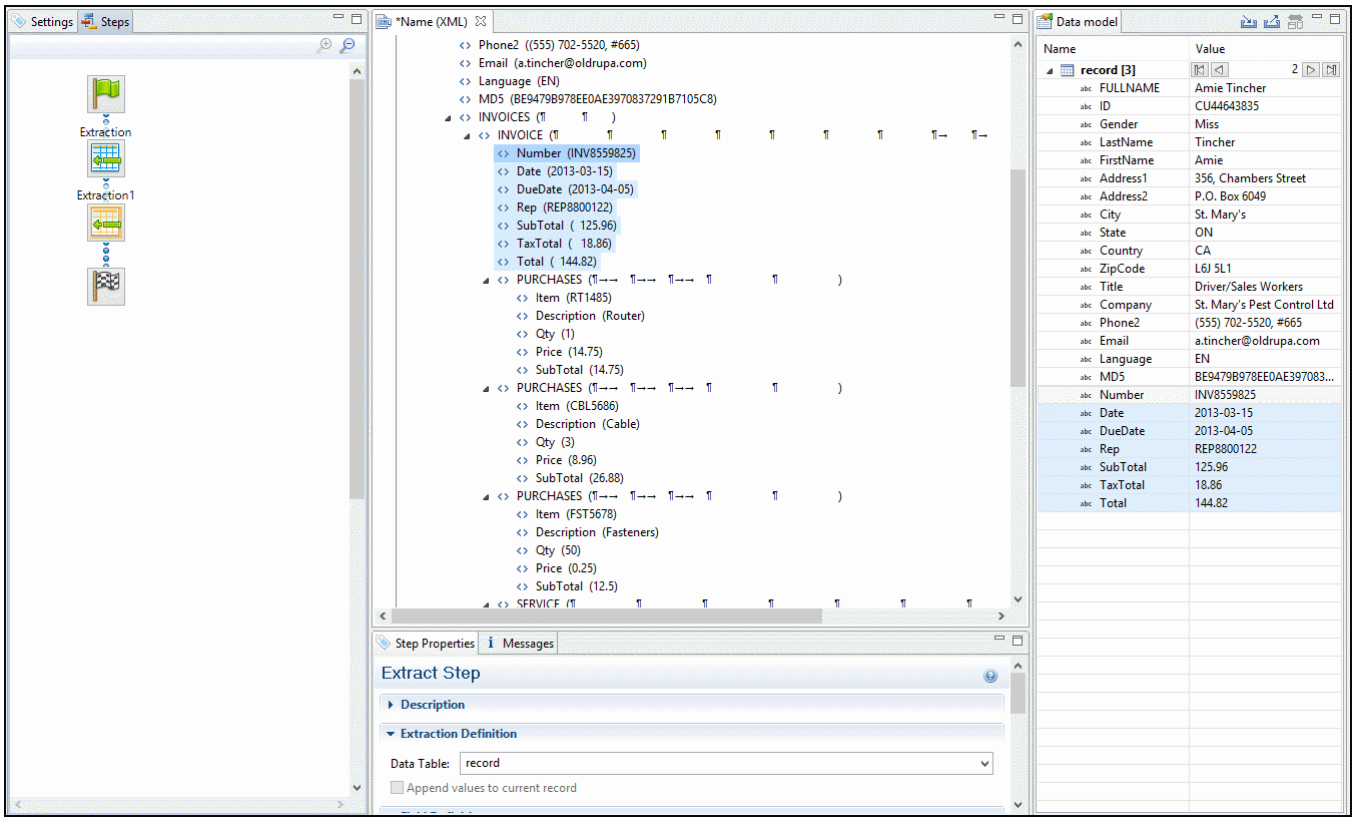
3. Click somewhere else on the Step Properties pane to update the Data Model. You will see the new name appear.

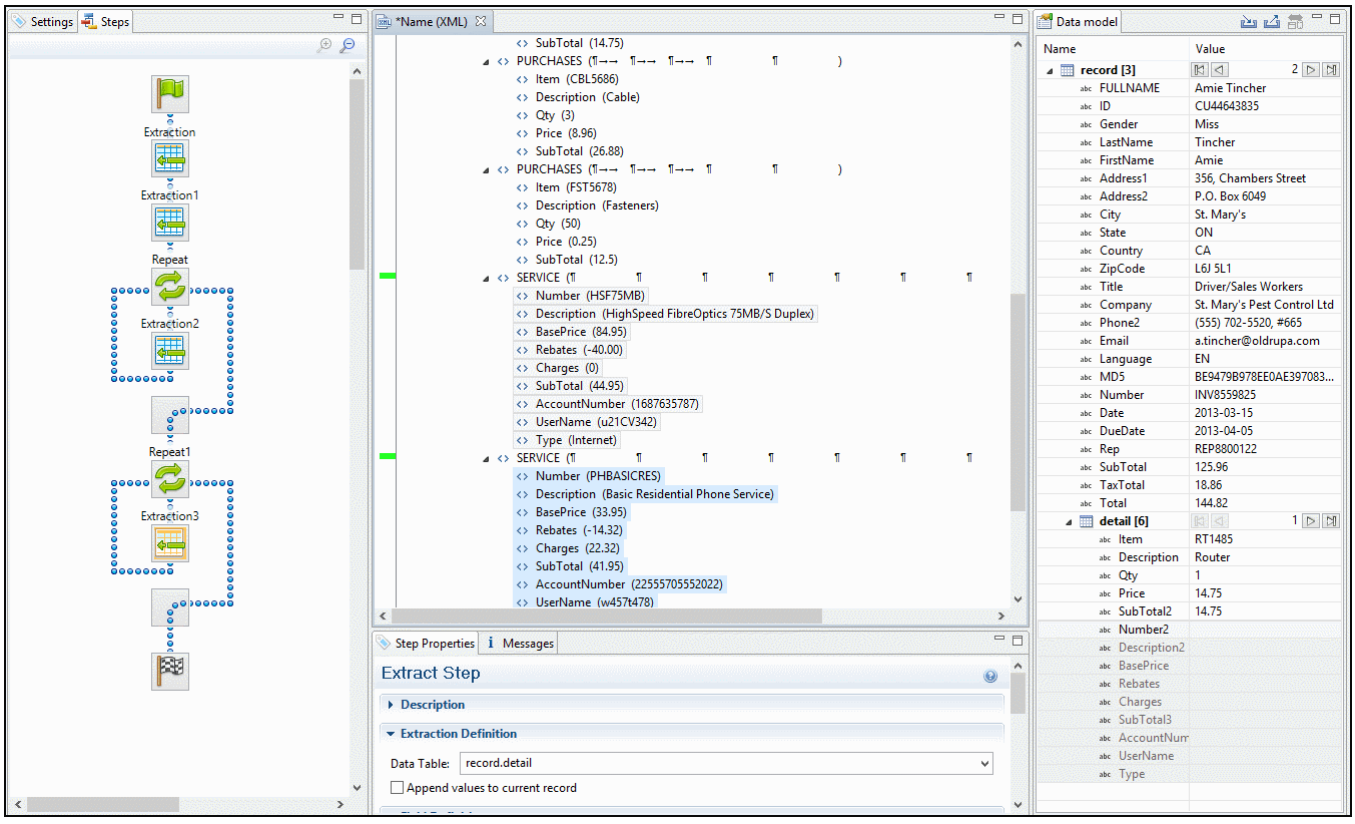
Creating multiple detail tables

Multiple detail tables are useful when more than one type of transactional data is present in the source data, for example purchases (items with a set price, quantity, item number) and services (with a price, frequency, contract end date, etc).



To create more than one detail table, simply extract transactional data in different Repeat steps (see "Extracting transactional data" on page 97).
The best way to do this is to add an empty detail table (right-click the Data Model, select **Add a table** and give the detail table a name) and drop the data on the name of that detail table.
Else the extracted fields will all be added to one new detail table with a default name at first, and you will have to rename the detail table created in each Extract step to pull the detail tables apart (see "Renaming a detail table" on the previous page).





PReS. Connect

Nested detail tables

Nested detail tables are used to extract transactional data that are relative to other data. They are created just like multiple detail tables, with two differences:

- For the tables to be actually nested, the **Repeat** step and its **Extract** step that extract the nested transactional data must be located **within** the **Repeat** step that extracts data to a detail table.
- In their name, the dot notation (record.services) must contain one extra level (record.services.charges).

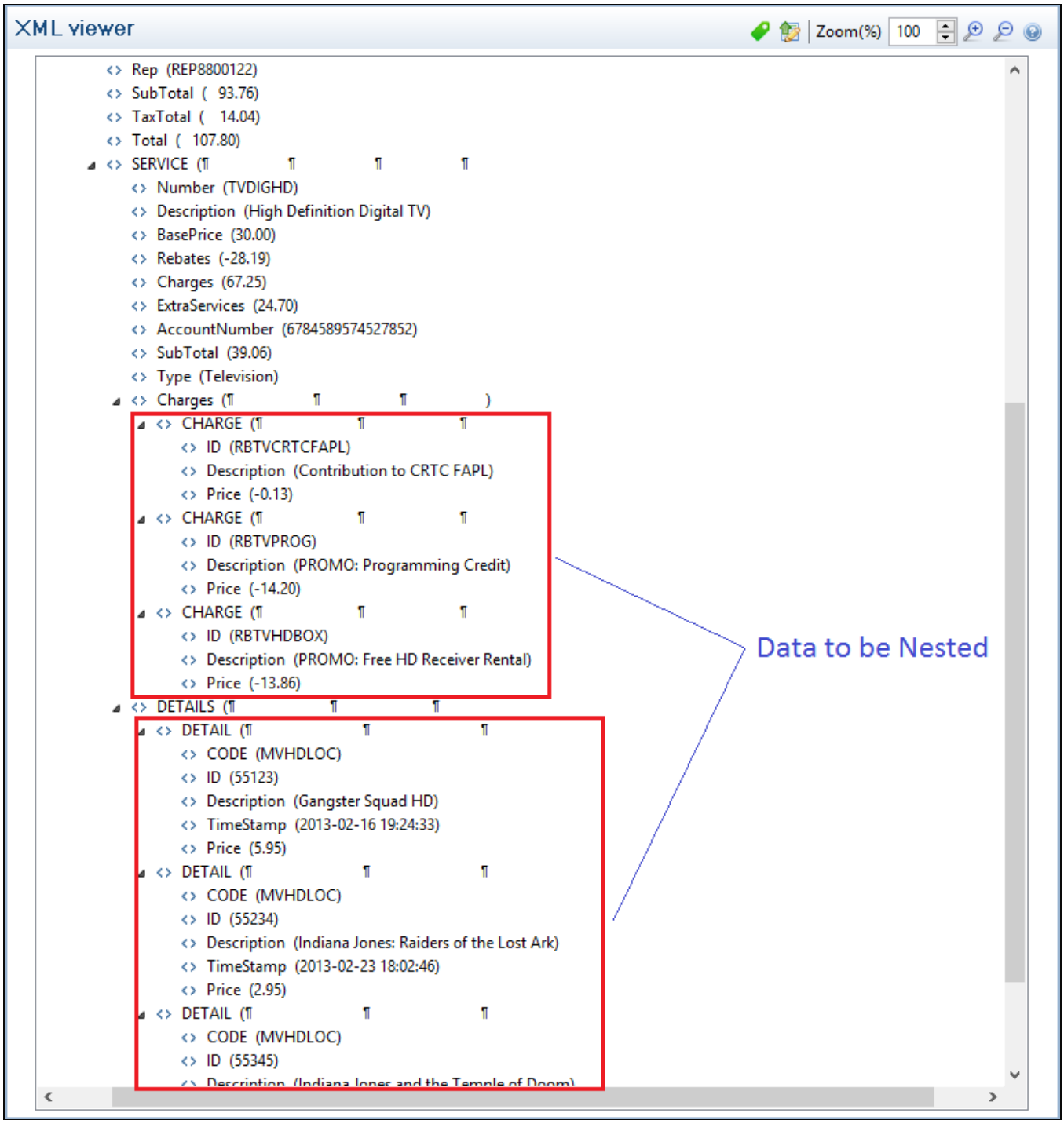
> **Note**
>
> Using nested detail tables in the **Designer** module requires scripting.

Example

An XML source file lists the services of a multi-service provider: Internet, Cable, Home Phone, Mobile. Each service in turn lists a number of "charges", being service prices and rebates, and

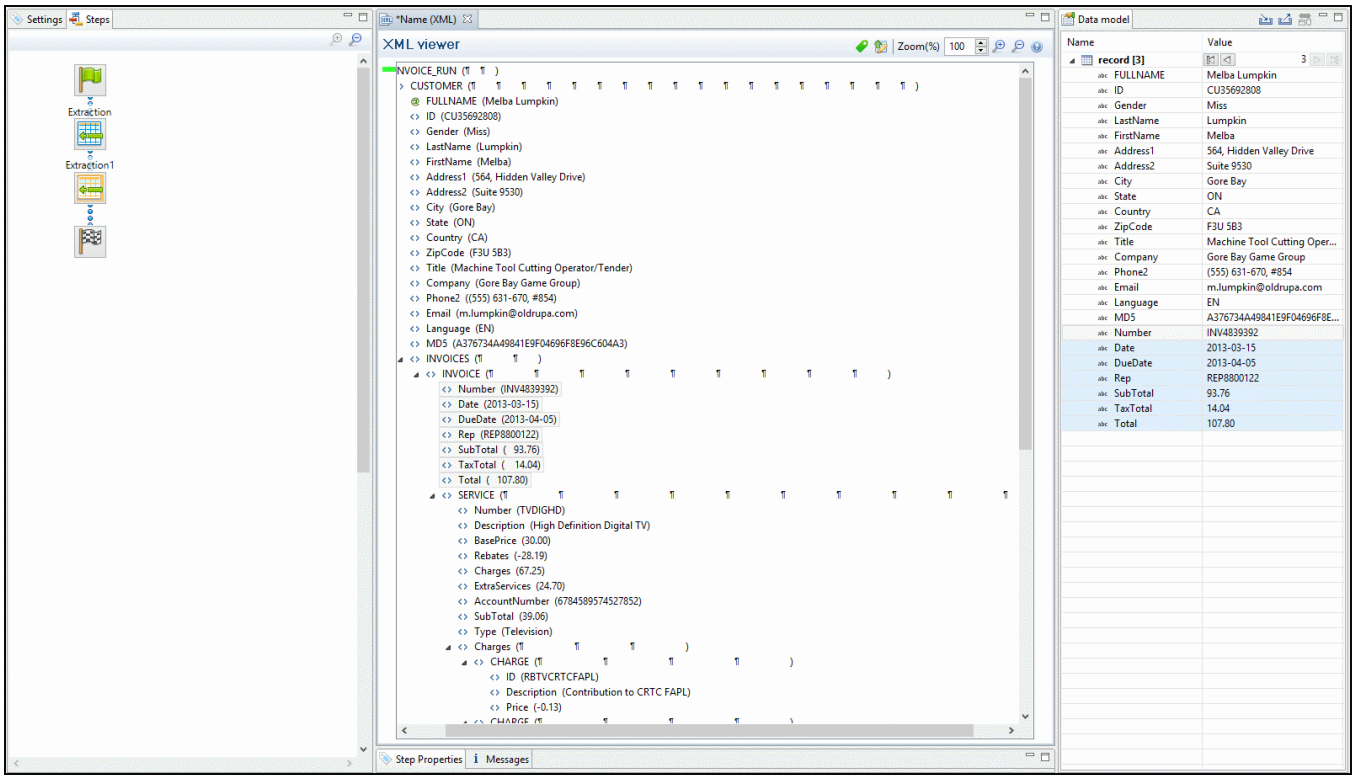
PReS. Connect

a number of "details" such as movie rentals or long distance calls.

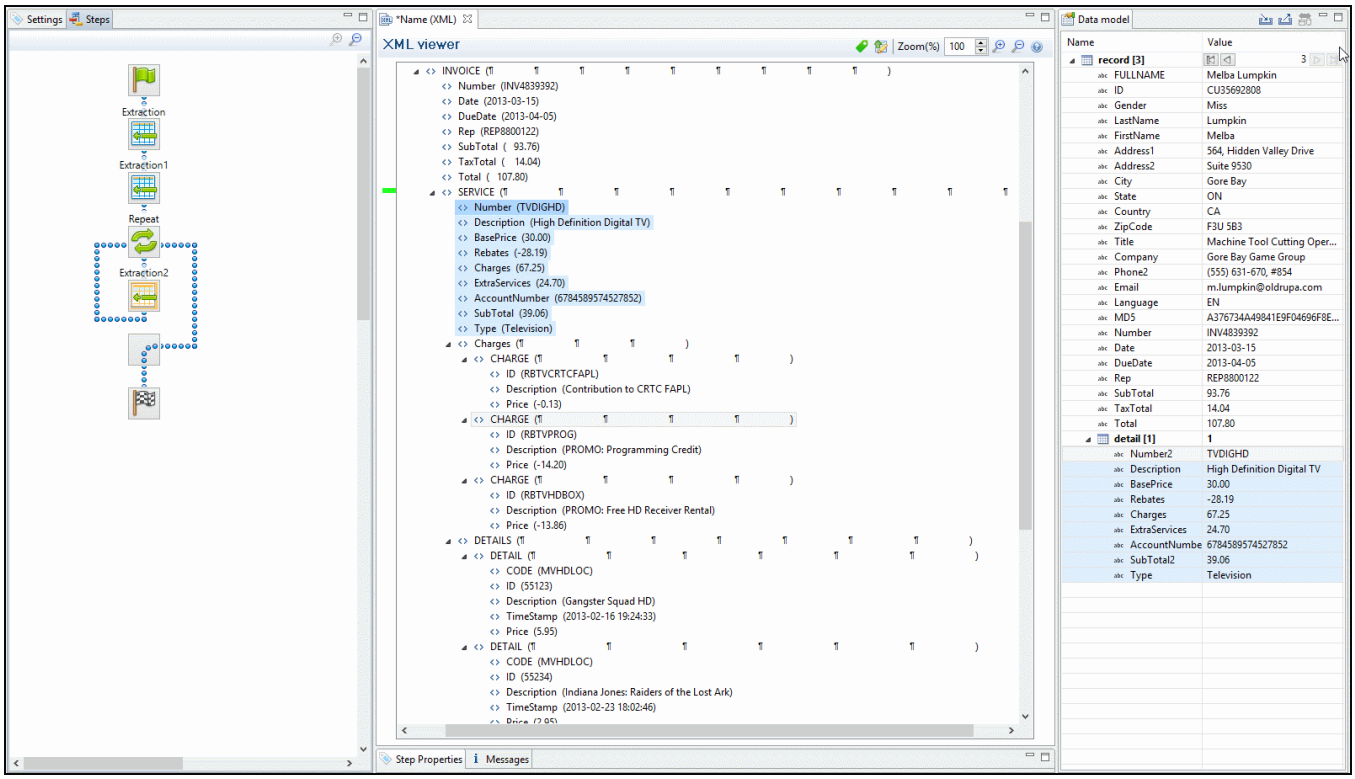


PReS. Connect

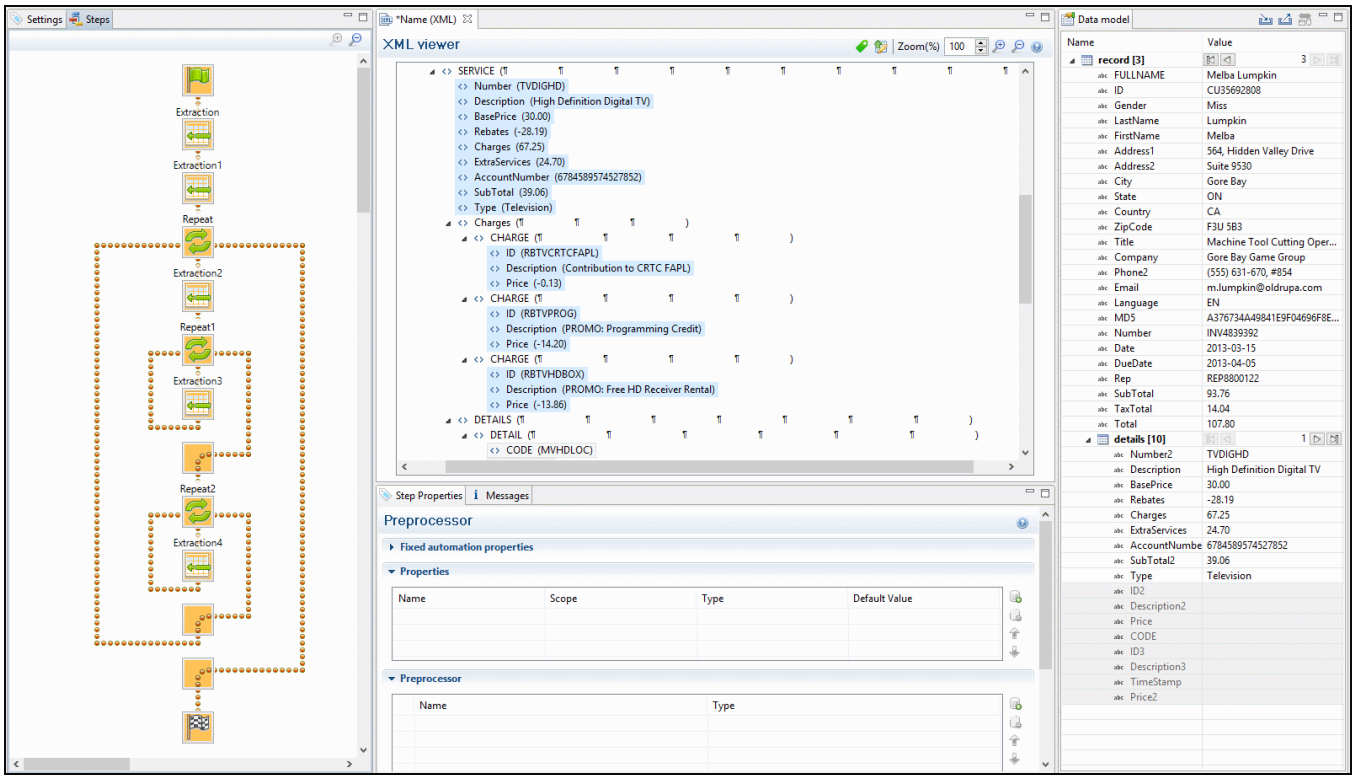
The services can be extracted to a detail table called **record.services**.



The "charges" and "details" can be extracted to two nested detail tables.



The nested tables can be called **record.services.charges** and **record.services.details**.



PReS. Connect

Now one "charges" table and one "details" table are created for each row in the "services" table.

Data types

By default the data type of extracted data is a String, but each field in the Data Model can be set to contain another data type.

To do this:

1. In the **Data Model**, select a field.
2. On the **Step properties** pane, under **Field Definition** choose a data type from the **Type** drop-down.

Changing the type does not only set the data type inside the record. In the case of dates, numbers and currencies, it also means that the DataMapper will expect the data in the data source to be formatted in a certain way. If the actual data doesn't match the format that the DataMapper expects, it cannot interpret the date, number or currency as such. If for example a date in the data source is formatted as "yyyy-mm-dd" but the default format adds the time, the date cannot be read and the DataMapper will stop with an error.

The default format for dates, numbers and currencies can be set in the user preferences ("Datamapper preferences" on page 618), in the data source settings ("Data source settings" on page 88) and per data field (in the Extract step properties, see "Data Format" on page 195).

> **Note**
>
> Data format settings tell the DataMapper how certain types of data are formatted **in the data source**. They don't determine how these data are formatted in the Data Model or in a template. In the Data Model, data are converted to the native data type. Dates, for example, are converted to a DateTime object in the Data Model, and will always be shown as "year-month-day" plus the time stamp, for example: 2012-04-11 12.00 AM.

The following data types are available in PReS Connect.

- "Boolean" on the facing page
- "String" on page 145

- "HTMLString" on page 144
- "Integer" on page 144
- "Float" on page 143
- "Currency" on the next page
- "Date" on page 140
- "Object" on page 145

Note

The Object data type is only available in the DataMapper module. It can be used for properties in the Preprocessor step, but not for fields in the Data Model.

Boolean

Booleans are a simple true/false data type often used in conditions and comparisons.

Defining Boolean values

- **Preprocessor**:
  - In the **Step properties** pane, under **Properties**, add or select a field.
  - Specify the **Type** as **Boolean** and set a default value of either either `true` or `false`, followed by a semicolon.
- **Extraction**:
  - In the **Data Model**, select a field.
  - On the **Step properties** pane, under **Field Definition** set the **Type** to **Boolean**.

  The field value must be `true` or `false`.
- **JavaScript Expression**: Set the desired value to either `true` or `false`. Example: `record.fields["isCanadian"] = true;`

Note

The value must be all in lowercase: `true`, `false`. Any variation in case (True, TRUE) will not work.

PReS. Connect

Boolean expressions

Boolean values can also be set using an expression of which the result is true or false. This is done using operators and comparisons.

Example: `record.fields["isCanadian"] = (extract("Country") == "CA");`

For more information on JavaScript comparison and logical operators, please see w3schools.com or developer.mozilla.org.

Currency

The Currency data type is a signed, numeric, fixed-point 64-bit number with 4 decimals. Values range from -922 337 203 685 477.5808 to 922 337 203 685 477.5808. This data type is routinely used for financial calculations: it is as precise as integers.

Defining Currency values

- **Preprocessor**:
  - In the **Step properties** pane, under **Properties**, add or select a field.
  - Specify the **Type** as **Currency** and set a default value as a number with up to 4 decimal points, followed by a semicolon; such as `546513.8798;`
- **Extraction**:
  - In the **Data Model**, select a field.
  - On the **Step properties** pane, under **Field Definition** set the **Type** to **Currency**.
  - Under **Data Format**, specify how the value is formatted in the data source (see Extract Step; for the default format settings, see "Data source settings" on page 88).

  The field value will be extracted and treated as a Float.
- **JavaScript Expression**: Set the desired value to any Float value. Example: `record.fields["PreciseTaxSubtotal"] = 27.13465;`

> **Note**
>
> While Currency values can be set to up to 4 significant digits, only 2 are displayed on screen.

PReS. Connect

Building Currency values

Currency values can be the result of direct attribution or mathematical operations just like Integer values (see "Integer" on page 144).

Date

Dates are values that represent a specific point in time, precise up to the second. They can also be referred to as `datetime` values. While dates are displayed using the system's regional settings, in reality they are stored unformatted.

> **Note**
>
> The **Date** property is stored in **Connect** database with zero time zone offset, which makes it possible to convert the time correctly in any location. PReS Workflow, however, shows the date/time as it is stored database (with 0 time zone offset). This is expected behavior for the moment and the zone offset must be calculated manually in PReS Workflow.

Extracting dates

To extract data and have that data interpreted as a Date, set the type of the respective field to Date:

1. Select the field in the data model.
2. On the **Step properties** pane, under **Field Definition**, specify the **Type** as **Date**.
3. Make sure that the date in the data source is formatted in a way that matches the expectations of the DataMapper. If the date doesn't match the format that the DataMapper expects, it cannot be interpreted as a date. For example, if a date in the data source is formatted as "yyyy-mm-dd" but the DataMapper expects a time as well, the date cannot be read and the DataMapper will stop with an error.
   The expected date format can be set in three places:
   - In the user preferences ("Datamapper preferences" on page 618).
   - In the data source settings ("Data source settings" on page 88).
   - In the field properties: on the **Step properties** pane, under **Data Format**, specify the **Date/Time Format**.

For the letters and patterns that you can use in a date format, see "Defining a date/time format" below.

Data format settings tell the DataMapper how certain types of data are formatted **in the data source**. They don't determine how these data are formatted in the Data Model or in a template. In the Data Model, data are converted to the native data type. Dates, for example, are converted to a DateTime object in the Data Model, and will always be shown as "year-month-day" plus the time stamp, for example: 2012-04-11 12.00 AM..

Defining a date/time format

A date format is a mask representing the order and meaning of each digit in the raw data, as well as the date/time separators. The mask uses several predefined markers to parse the contents of the raw data. Here is a list of markers that are available in the DataMapper:

- **yy**: Numeric representation of the Year when it is written out with only 2 digits (i.e. 13)
- **yyyy**: Numeric representation of the Year when it is written out with 4 digits (i.e. 2013)
- **M**: Short version of the month name (i.e. Jan, Aug). These values are based on the current regional settings.
- **MM**: Long version of the month name (i.e. January, August). These values are based on the current regional settings.
- **mm**: Numeric representation of the month (i.e. 1, 09, 12)
- **D**: Short version of the weekday name (i.e. Mon, Wed). These values are based on the current regional settings.
- **DD**: Long version of the weekday name (i.e. Monday, Wednesday). These values are based on the current regional settings.
- **dd**: Numeric representation of the day of the month (i.e. 1, 09, 22)
- **hh**: Numeric representation of the hours
- **nn**: Numeric representation of the minutes
- **ss**: Numeric representation of the seconds
- **ms**: Numeric representation of the milliseconds.
- **ap**: AM/PM string.
- In addition, any constant character can be included in the mask, usually to indicate date/time separators (i.e. **/ - :**) . If one of those characters happens to be one of the reserved characters listed above, it must be escaped using the **** symbol.

PReS. Connect

Note

The markers that can be used when **extracting** dates are different from those that are used to **display** dates in a template (see the Designer's "Date and time patterns" on page 790).

Examples of masks

Value in raw data	Mask to use
June 25, 2013	MM dd, YYYY
06/25/13	mm/dd/yy
2013.06.25	yyyy.mm.dd
2013-06-25 07:31 PM	yyyy-mm-dd hh:nn ap
2013-06-25 19:31:14.1206	yyyy-mm-dd hh:nn:ss.ms
Tuesday, June 25, 2013 @ 7h31PM	DD, MM dd, yyyy @ hh\hnnap

Entering a date using JavaScript

In several places in the DataMapper, Date values can be set through a JavaScript. For example:

- In a **field** in the Data Model. To do this, go to the Steps pane and select an Extract step. Then, on the Step properties pane, under Field Definition click the **Add JavaScript Field** button (next to the Field List drop-down). Type the JavaScript in the **Expression** field. (To rename the field, click the Order and rename fields button.)
- In a **Preprocessor property**. To do this, go to the Steps pane and select the Preprocessor step. Then, on the Step properties pane, under Properties add a property, specify its Type as Date and put the JavaScript in the Default Value field.

The use of the JavaScript Date() object is necessary when creating dates through a JavaScript expression. For more information, see w3schools - JavaScript Dates and w3schools - Date Object.

PReS. Connect

Example

The following script creates a date that is the current date + 30 days:

```
function addDays(date, days) {
        var result = new Date(date);
        result.setDate(result.getDate() + days);
        return result;
}
addDays(new Date(), 30);
```

Float

Floats are signed, numeric, floating-point numbers whose value has 15-16 significant digits. Floats are routinely used for calculations. Note that Float values can only have up to 3 decimals. They are inherently imprecise: their accuracy varies according to the number of significant digits being requested.
The Currency data type can have up to 4 decimals; see "Currency" on page 139.

Defining Float values

- **Preprocessor**:
  - In the **Step properties** pane, under **Properties**, add or select a field.
  - Specify the **Type** as **Float** and set a default value as a number with decimal points, followed by a semicolon; for example `546513.879;`.
- **Extraction**:
  - In the **Data Model**, select a field.
  - On the **Step properties** pane, under **Field Definition** set the **Type** to **Float**.

  The field value will be extracted and treated as a Float.
- **JavaScript Expression**: Set the desired value to any Float value.
  Example: `record.fields["PreciseTaxSubtotal"] = 27.134;`

Building Float values

Float values can be the result of direct attribution or mathematical operations just like Integer values (see "Integer" on the facing page).

PReS. Connect

HTMLString

HTMLStrings contain textual data that includes HTML markup. They are essentially the same as String values except in cases where the HTML markup can be interpreted.

Example: Assume that a field has the value `He said <b>WOW!</b>`. If the data type is String and the value is placed in a template, it will display exactly as "He said WOW!" (without the quotes). If the data type is HTMLString, it will display as "He said **WOW!**" (again, without the quotes).

Considering this is the only difference, for more information on how to create and use HTML String values, see "String" on the next page.

Integer

Integers are signed, numeric, whole 64bit numbers whose values range from -(2^63) to (2^63). Integers are the numerals with the highest precision (and the fastest processing speed) of all, since they are never rounded.

Defining Integer values

- **Preprocessor**:
  - In the **Step properties** pane, under **Properties**, add or select a field.
  - Specify the **Type** as **Integer** and set a default value as a number, such as `42`.
- **Extraction**:
  - In the **Data Model**, select a field.
  - On the **Step properties** pane, under **Field Definition** set the **Type** to **Integer**.

  The field value will be extracted and treated as an integer.
- **JavaScript Expression**: Set the desired value to any Integer value. Example: `record.fields["AnswerToEverything"] = 42;`

Building Integer Values

Integers can be set through a few methods, all of which result into an actual integer result.

- **Direct attribution**: Assign an integer value directly, such as `42`, `99593463712` or `data.extract("TotalOrdered");`

PReS. Connect

- **Mathematical operations**: Assign the result of any mathematical operation. For example: `22+51`, `3*6`, `10/5` or `sourceRecord.property.SubTotal`. For more information on mathematics in JavaScript , see w3Schools - Mathematical Operators. For more advanced mathematical functions, see w3schools - Math Object.

> **Note**
>
> When adding numbers that are not integers, for instance `4.5 + 1.2` , a round towards zero rounding is applied after the operation was made. In the previous example, the result, `5.7`, is rounded to `5`. In another example, `-1.5 - 1` results in `-2`

Object

Objects holds addresses that refer to objects. You can assign any reference type (string, array, class, or interface) to an Object variable. An Object variable can also refer to data of any value type (numeric, Boolean, Char, Date, structure, or enumeration).

Defining Object values

- **Preprocessor**:
  - In the **Step properties** pane, under **Properties**, add or select a field.
  - Specify the **Type** as **Object** and set a default value as a semi-colon.

String

Strings contain textual data. Strings do not have any specific meaning, which is to say that their contents are never interpreted in any way.

Defining String values

- **Preprocessor**:
  - In the **Step properties** pane, under **Properties**, add or select a field.
  - Specify the **Type** as **String** and set a default value as any text between quotes, followed by a semicolon, e.g. `"This is my text";`

PReS. Connect

- **Extraction**:
  - In the **Data Model**, select a field.
  - On the **Step properties** pane, under **Field Definition** set the **Type** to **String**.

  The field value will be extracted and treated as a string.
- **JavaScript Expression**: Set the desired value to any string between quotes. Example: `record.fields["countryOfOrigin"] = "Canada";`

Building String values

String values can be made up of more than just a series of characters between quotes. Here are a few tips and tricks to build strings:

- Both single and double quotes can be used to surround strings and they will act in precisely the same manner. So, "this is a string" and 'this is a string' mean the same thing. However, it's useful to have both in order to remove the need for escaping characters. For instance, "I'm fine!" works, but 'I'm fine!' does not since only 'I' is properly interpreted. 'I\'m fine!' works (escaping the ' with a \).
- It is possible to put more than one string, as well as variables containing strings, by concatenating them with the **+** operator. For example, `"Hello " + sourceRecord.property.FirstName + ", nice to meet you!"`.
- Adding more data to an existing string variable or field is possible using a combination of concatenation and assignment. For example, after the statements `var myVar = "Is this the real life";`, and `myVar += " or is this just fantasy?";`, the value of `myVar` will be, obviously `"Is this the real life or is this just fantasy?"`.

For more information on string variables, see quicksmode.org.

Data Model file structure

The Data Model file is an XML file that contains the structure of the Data M model, including each field's name, data type, and any number of detail tables and nested tables.

Example: promotional data

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<datamodel schemaVersion="1.0.0.3" name="Generic Address Block"
version="1"
xmlns="http://www.objectiflune.com/connectschemas/DataModelConfig"
```

```
xsi:schemaLocation="http://www.objectiflune.com/connectschemas/Data
ModelConfig
http://www.objectiflune.com/connectschemas/DataModelConfig/1_0_0_
3.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <field type="string" name="Name" required="true"/>
        <field type="string" name="Organization" required="true"/>
        <field type="string" name="Address1" required="true"/>
        <field type="string" name="Address2" required="true"/>
        <field type="string" name="Address3" required="true"/>
        <field type="string" name="City" required="true"/>
        <field type="string" name="StateOrProvince" required="true"/>
        <field type="string" name="Country" required="true"/>
        <field type="string" name="ZipOrPostalCode" required="true"/>
        <field type="string" name="Extra1" required="true"/>
        <field type="string" name="Extra2" required="true"/>
</datamodel>
```

Example: transactional details, in a simple invoice format

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<datamodel schemaVersion="1.0.0.3" name="Transactional Invoice"
version="1"
xmlns="http://www.objectiflune.com/connectschemas/DataModelConfig"
xsi:schemaLocation="http://www.objectiflune.com/connectschemas/Data
ModelConfig
http://www.objectiflune.com/connectschemas/DataModelConfig/1_0_0_
3.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <field type="string" name="ID" required="true"/>
        <field type="string" name="Gender" required="true"/>
        <field type="string" name="LastName" required="true"/>
        <field type="string" name="FirstName" required="true"/>
        <field type="string" name="Address1" required="true"/>
        <field type="string" name="Address2" required="true"/>
        <field type="string" name="City" required="true"/>
        <field type="string" name="State" required="true"/>
        <field type="string" name="Country" required="true"/>
        <field type="string" name="ZipCode" required="true"/>
        <field type="string" name="Title" required="true"/>
        <field type="string" name="Company" required="true"/>
        <field type="string" name="Phone2" required="true"/>
        <field type="string" name="Email" required="true"/>
        <field type="string" name="Language" required="true"/>
        <field type="string" name="Number" required="true"/>
        <field type="datetime" name="Date" required="true"/>
        <field type="datetime" name="DueDate" required="true"/>
        <field type="string" name="Rep" required="true"/>
        <field type="currency" name="SubTotal" required="true"/>
        <field type="currency" name="TaxTotal" required="true"/>
        <field type="currency" name="Total" required="true"/>
        <table name="detail">
                <field type="string" name="Number2" required="true"/>
               <field type="string" name="Description" required="true"/>
                <field type="currency" name="UnitPrice" required="true"/>
                <field type="integer" name="Ordered" required="true"/>
                <field type="integer" name="Shipped" required="true"/>
                <field type="integer" name="BackOrder" required="true"/>
                <field type="currency" name="Total2" required="true"/>
        </table>
</datamodel>
```

Example: nested tables (one table into another)

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<datamodel schemaVersion="1.0.0.3" name="Nested Table Example"
version="1"
xmlns="http://www.objectiflune.com/connectschemas/DataModelConfig"
xsi:schemaLocation="http://www.objectiflune.com/connectschemas/Data
ModelConfig
http://www.objectiflune.com/connectschemas/DataModelConfig/1_0_0_
3.xsd" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
        <field type="string" name="RecordField" required="true"/>
        <table name="details">
                <field type="string" name="DetailsTableField" required="tru
                <table name="nestedtable">
                        <field type="string" name="NestedTableField" requi
                </table>
        </table>
</datamodel>
```

Example: default values

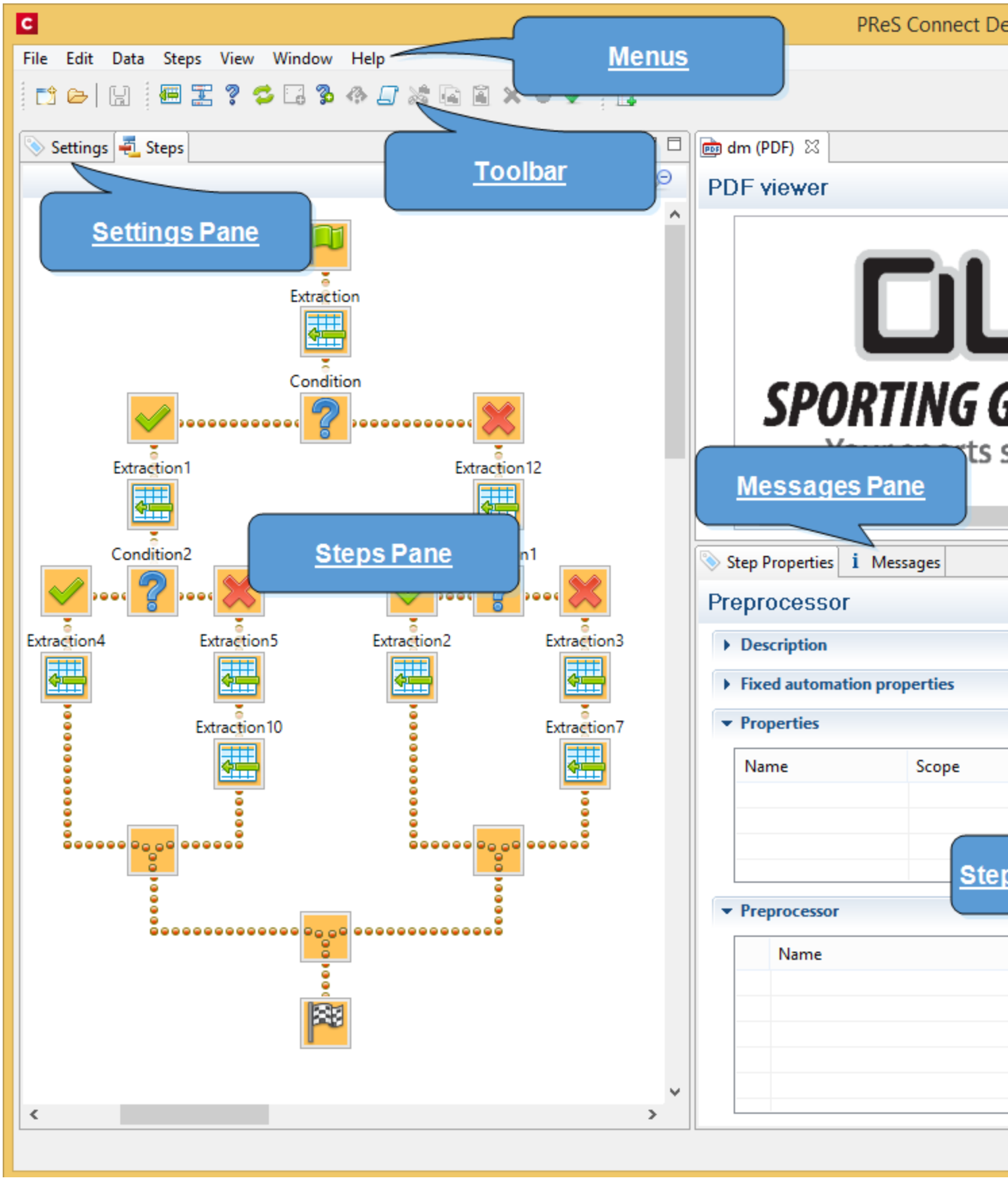
Default values can be added to any field with the defaultValue attribute:

```
<field type="string" name="RecordField" required="true"
 defaultValue="My Default Value">
```

DataMapper User Interface

The DataMapper's user interface gives you several options to work with.

PReS. Connect


PReS Connect De
File
Edit
Data
Steps
View
Window
Help
Menus
Toolbar
Settings
Steps
Settings Pane
Extraction
Condition
Extraction1
Extraction12
Condition2
Steps Pane
Extraction4
Extraction5
Extraction2
Extraction3
Extraction10
Extraction7
dm (PDF)
PDF viewer
Messages Pane
Step Properties
Messages
Preprocessor
Description
Fixed automation properties
Properties
Name
Scope
Preprocessor
Name

See:

- "Menus" on page 156
- "Toolbar" on page 221
- "Steps pane" on page 183
- "Step properties pane" on page 185
- "Data Model pane" on page 160
- "The Data Viewer" on page 170
- "Messages pane" on page 172
- "Settings pane" on page 173

Keyboard shortcuts

This topic gives an overview of keyboard shortcuts that can be used in the DataMapper. Keyboard shortcuts available in the Designer for menu items, script editors and the data model pane can also be used in the DataMapper; see "Keyboard shortcuts" on page 656.
Although some of the keyboard shortcuts are the same, this isn't a complete list of Windows keyboard shortcuts. Please refer to Windows documentation for a complete list of Windows keyboard shortcuts.

Menu items

The following key combinations activate a function in the menu.

Key combination	Function
Alt	Put the focus on the menu. (Alt + the underlined letter in a menu name displays the corresponding menu.) The menu can then be browsed using the Enter key, arrow up and arrow down buttons.
Alt + F4	Exit
Ctrl + C or Ctrl + Insert	Copy

PReS. Connect

Key combination	Function
Ctrl + N	New
Ctrl + O	Open file
Ctrl + Shift + O	Open configuration file
Ctrl + S	Save file
Ctrl + V or Shift + Insert	Paste
Ctrl + X	Cut
Ctrl + W or Ctrl + F4	Close file
Ctrl + Y or Ctrl + Shift + Y	Redo
Ctrl + Z or Ctrl + Shift + Z	Undo
Ctrl + Shift + S	Save all
Ctrl + Shift + W or Ctrl + Shift + F4	Close all

PReS. Connect

Key combination	Function
Ctrl + F5	Revert
Ctrl + F7	Next view
Ctrl + Shift + F7	Previous view
Ctrl + F8	Next perspective
Ctrl + Shift + F8	Previous perspective
Ctrl + F10	Save as
Ctrl + F12	Send to Workflow / Package files
F4	Ignore step
F6	Add an Extract step
F7	Add a Goto step
F8	Add a Condition step
F9	Add a Repeat step
F10	Add an Extract field
F11	Add an Action step
F12	Add a Multiple Conditions step
Alt + F12	Add a Case step (under a Multiple Conditions step)
Home	Go to the first step in the workflow

Key combination	Function
End	Go to the last step in the workflow
Alt + V	Validate records
Shift + F10 or Ctrl + Shift + F10	Open context menu

Viewer pane

The following key combinations activate a function in the **Viewer**.

Key combination	Function
Alt + **-**	Open system menu
Ctrl + **-**	Zoom out
Ctrl + **+**	Zoom in
Ctrl + Shift + E	Switch to Editor
Ctrl + F6	Next editor (when there is more than one file open in the Workspace)
Ctrl + Shift + F6	Previous editor (when there is more than one file open in the Workspace)

Data Model pane

Key combination	Function
PageUp	Go to previous record

PReS. Connect

Key combination	Function
PageDown	Go to next record
Alt + CR	Property page
Alt + PageDown	Scroll down to the last field
Alt + PageUp	Scroll up to the first field

Steps tab

Key combination	Function
Ctrl + **-**	Zoom out
Ctrl + **+**	Zoom in

Edit Script and Expression windows

The following key combinations have a special function in the **Expression** and in the **Edit Script** windows (expanded view).

Key combination	Function
Ctrl + space	Content assist (auto-complete)
Ctrl + A	Select all
Ctrl + D	Duplicate line
Ctrl + I	Indent (Tab)
Ctrl + J	Line break
Ctrl + L	Go to line; a prompt opens to enter a line number.

Key combination	Function
Ctrl + Q	Comment/uncomment; this adds or deletes // before the line.
Ctrl + Shift + D	Delete line
Shift + Tab	Shift selected lines left
Tab	Shift selected lines right

Menus

The following menu items are shown in the DataMapper Module's menu:

File Menu

- **New...**: Opens the Creating a New Data Mapping Configuration dialog.
- **Open**: Opens a standard File Open dialog. This dialog can be used to open Templates and data mapping configurations.
- **Open Recent**: List the most recently opened Templates and configurations. Clicking on a template will open it in the Designer module, clicking on a data mapping configuration will open it in the DataMapper module.
- **Close**: Close the currently open data mapping configuration or Template. If the file needs to be saved, the appropriate Save dialog will open.
- **Close All**: Close any open data mapping configuration or Template. If any of the files need to be saved, the Save Resources dialog opens.
- **Save**: Saves the current data mapping configuration or Template to its current location on disk. If the file is a data mapping configuration and has never been saved, the Save As dialog appears instead.
- **Save As...**: Saves the current data mapping configuration or Template to a new location on disk. In the case of Templates, it is saved to a location that can be different than the local repository.
- **Save All**: Saves all open files. If any of the open files have never been saved, the Save As dialog opens for each new unsaved file.

- **Revert**: Appears only in the Designer module. Reverts all changes to the state in which the file was opened or created.
- **Add Data**: Adds data either to the current data mapping configuration or to the open template. In data mapping configuration
  - **From File...**: Opens the dialog to add a new data file to the currently loaded data mapping configuration. Not available if the currently loaded data mapping configuration connects to a database source.
  - **From Database...**: Opens the Edit Database Configuration dialog. Not available if the currently loaded data mapping configuration is file-based.
- **Send to Workflow**: Opens theSend to Workflow dialog to send files to a local PReS Workflow software installation.
- **Exit**: Closes the software. If any of the files need to be saved, the Save Resources dialog opens.

Edit Menu

- **Undo**: Undoes the previous action.
- **Redo**: Redoes the last action that was undone.
- **Cut Step**: Removes the currently selected step and places it in the clipboard. If the step is a Repeat or a Condition, all steps under it are also placed in the clipboard. If there is already a step in the clipboard, it will be overwritten.
- **Copy Step**: Places a copy of the currently selected step in the clipboard. The same details as the Cut step applies.
- **Paste Step**: Takes the step or steps in the clipboard and places them in the Steps after the currently selected step.
- **Delete Step**: Deletes the currently selected step. If the step is a Repeat or Condition, all steps under it are also deleted.
- **Cut**: Click to remove the currently selected step, or steps, and place them in the clipboard.
- **Copy**: Click to place a copy of the currently selected step, or steps, in the clipboard.
- **Paste**: Click to place any step, or steps, from the clipboard before the currently selected step in the Steps Pane.

Data Menu

- **Hide/Show datamap**: Click to show or hide the icons to the left of the Data Viewer that displays how the steps affect the line.
- **Hide/Show extracted data**: Click to show or hide the extraction selections indicating that data is extracted. This simplifies making data selections in the same areas and is useful to display the original data.
- **Validate All Records**: Runs the Steps on all records and verifies that no errors are present in any of the records. Errors are displayed in the Messages Pane.

Steps

- **Ignore Step**: Click to set the step to be ignored (aka disabled). Disabled steps do not run when in DataMapper and do not execute when the data mapping configuration is executed in Workflow. However, they can still be modified normally.
- **Add Extract Step**: Adds an Extract Step with one or more extract fields. If more than one line or field is selected in the Data Viewer, each line or field will have an extract field.
- **Add Goto Step**: Adds a Goto step that moves the selection pointer to the beginning of the data selection. For instance if an XML node is selected, the pointer moves to where that node is located.
- **Add Condition Step**: Adds a condition based on the current data selection. The "True" branch gets run when the text is found on the page. Other conditions are available in the step properties once it has been added.
- **Add Repeat Step**: Adds a loop that is based on the current data selection, and depending on the type of data. XML data will loop on the currently selected node, CSV loops for all rows in the record. In Text and PDF data, if the data selection is on the same line as the cursor position, the loop will be for each line until the end of the record. If the data selection is on a lower line, the loop will be for each line until the text in the data selection is found at the specified position on the line (e.g. until "TOTAL" is found).
- **Add Extract Field**: Adds the data selection to the selected Extract step, if an extract step is currently selected. If multiple lines, nodes or fields are selected, multiple extract fields are added simultaneously.
- **Add Multiple Conditions**: Adds a condition that splits into multiple case conditions.
- **Add Action Step**: Adds a step to run one or more specific actions such as running a JavaScript expression or setting the value of a Source Record Property.

View Menu

- **Zoom In**: Click to zoom in the Steps Pane.
- **Zoom Out**: Click to zoom out the Steps Pane.

Window Menu

- **Show View**
  - **Messages**: Shows the Messages Pane.
  - **Steps**: Shows the Steps Pane.
  - **Settings**: Shows the Settings Pane.
  - **Record**: Shows the Record Pane.
  - **Detail tables** : Each detail table and nested table is listed here. Click on one to show it in the Data Model Pane.
  - **Step Properties**: Shows the Step Properties Pane.
- **Reset Perspective**: Resets all toolbars and panes to the initial configuration of the module.
- **Preferences**: Click to open the Preferences dialog.

Help Menu

- **Software Activation**: Displays the Software Activation dialog. See Activating your license.
- **Help Topics**: Click to open this documentation.
- **Contact Support**: Click to open the Objectif Lune Contact Page in the default system Web browser.
- **About PReS Connect Designer**: Displays the software's About dialog.
- **Welcome Screen**: Click to re-open the Welcome Screen.

Panes

The DataMapper screen contains the following panes.

- "Settings pane" on page 173. The Settings pane contains settings for the data source.
- "Steps pane" on page 183. The entire extraction workflow is visible in the Steps pane.

- "The Data Viewer" on page 170. The Data Viewer shows one record in the data source.
- "Step properties pane" on page 185. The Step properties pane contains all settings for the step that is currently selected on the Steps pane.
- "Data Model pane" below. The Data Model pane shows one extracted record.
- "Messages pane" on page 172.

Data Model pane

The Data Model pane displays the result of all the preparations and extractions of the extraction workflow. The pane displays the content of a single record within the record set at a time.

Data is displayed as a tree view, with the root level being the record table. On the level below that are detail tables, and a detail table inside a detail table is called a nested table.

The Data Model is also used as a navigation tool between records and in all detail tables.

Data Model toolbar buttons

: **Import** a Data Model.

: **Export** the Data Model.

: **Synchronize** the Data Model and the data sample.

: Show the **ExtraData** field. Note that this field is not meant to be filled via an extraction. It can be used in Workflow to add data to the Data Model; see "About adding fields and data via Workflow" on page 124.

Data Model contextual menu

The Data Model is generally constructed by extracting data; see "Extracting data" on page 92. It is however possible to modify the Data Model, even if no data is present in the pane. To do this, open the contextual menu within the pane itself by right-clicking on something in the Data Model pane. Depending on where you've clicked, it can contain the following options:

- **Add a field**: Click to add a new field at the current level (record or detail table). Enter the field name in the dialog and click OK to add it.
- **Add a table**: Click to add a new detail table at the current level (record or existing detail table). Enter the table name in the dialog and click OK to add it.

- **Default Value**: Click to set the default value for a field. This value is used if no extraction is present, or if an extraction attached to this field returns no value.
- **Collapse Fields**: Collapse the fields in the selected level.
- **Expand Fields**: Clicking the icon that represents collapsed fields (for example:) enables this menu item. It is used to expand the fields on one level.
- **Collapse All Fields**: Collapse the fields on the record level and in all detail tables.
- **Expand All Fields**: Expand the fields on the record level and in all detail tables.

> **Note**
>
> The following options are only available for Data Model fields or detail tables that are **not** filled via an extraction.
> Fields and detail tables that are filled via an Extract step are to be changed (renamed, deleted etc.) via the properties of that Extract step; see: "Editing fields" on page 127 and "Renaming a detail table" on page 163.

- **Rename**: Click to rename the selected table or field. Enter the new name and click OK to rename.
- **Delete**: Click to delete the selected table or field.
- **Set Type**: Use the list to select the field type (see "Data types" on page 137).

Field display

Fields in the Data Model pane are displayed in specific ways to simplify comprehension of the display data:

- **Value**: The current value of the extracted field, based on the record shown in the Data Viewer.
- The column on the left displays the **name** of the field.
- The column on the right displays the current **value** of the extracted field based on the record shown in the Data Viewer, if an Extract step has an extraction for this field (see "Extracting data" on page 92).
- The **icon** to the left of the name indicates the **data Type** of the field (see "Data types" on page 137).

- A field name with an **asterisk** to the right indicates that this field is part of an imported Data Model file.
- A field with a **grey background** indicates this Data Model field does not have any attached extracted data.
- A field with a **white background** indicates that the field has attached extracted data but the step extracting the data is not currently selected.
- A field with a **blue background** indicates that the field has attached extracted data and the step extracting the data is currently selected.

Record navigation

Records can be navigated via the Data Model pane. The default record level navigates between records both in the Data Model pane and the Data Viewer, while each detail table has a similar navigation that influences that table and each detail table under it.

- **Expand/Contract**: Click to hide or show any fields or tables under the current table level.
- **Table Name**: Displays the name of the table as well as the number of records at that level (in [brackets]). At the record level this is the number of records. In other levels it represents the number of entries in a detail table.
- **Number of Records**: The number of available records in the active data sample. This is affected by the Boundary settings (see "Record boundaries" on page 90 and "Settings pane" on page 173) and the Preprocessor step ("Preprocessor step" on page 112).
- **First Record**: Go to the first record in the data sample. This button is disabled if the first record is already shown.
- **Previous Record**: Go to the previous record in the data sample. This button is disabled if the first record is shown.
- **Current Record**: Displays the current record or table entry. Type a record number and press the **Enter** key to display that record. The number has to be within the number of available records in the data sample.
- **Next Record**: Go to the next record in the data sample. This button is disabled if the last record is shown.
- **Last Record**: Go to the last record in the data sample. This button is disabled if the last record is already shown. If a record limit is set in the Settings pane ("Settings pane" on page 173) the last record will be within that limit.

Detail tables

A detail table is a field in the Data Model that contains a record set instead of a single value. Detail tables contain transactional data. They are created when an **Extract** step is added within a **Repeat** step; see "Extracting transactional data" on page 97.

In the most basic of transactional communications, a single detail table is sufficient. However, it is possible to create multiple detail tables, as well as nested tables. Detail tables and nested tables are displayed as separate levels in the Data Model (see "The Data Model" on page 121).

Renaming a detail table

Renaming detail tables is especially useful when there are more detail tables in one record, or when a detail table contains another detail table. For this detail table, ‘products’ would be a better name.

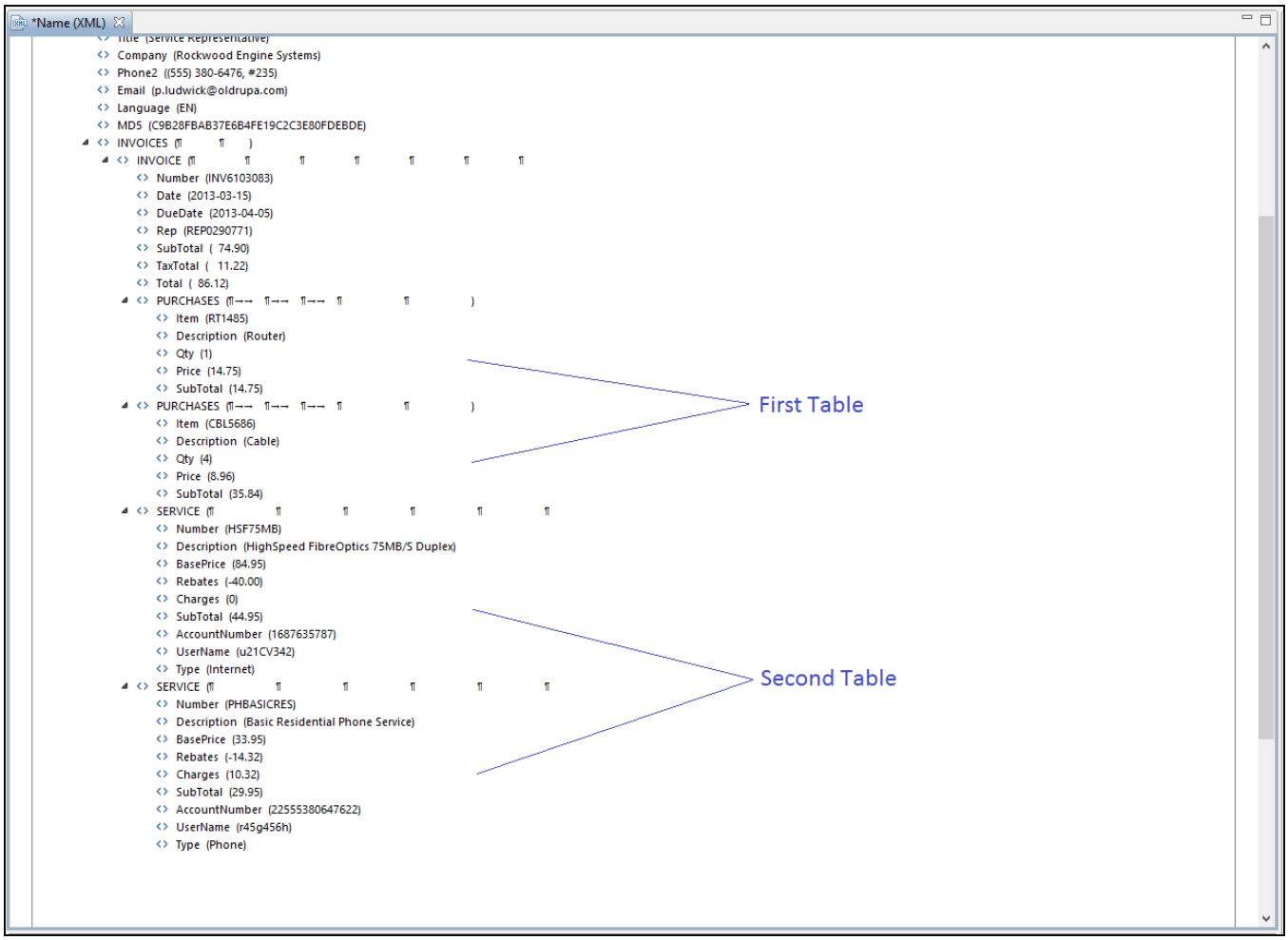
1. On the Data Model pane, click one of the fields in the detail table.
2. On the Step Properties pane, under **Extraction Definition**, in the **Data Table** field, you can find the name of the detail table: **record.detail** by default. Change the **detail** part in that name into something else.

   > **Note**
   >
   > A detail table’s name should always begin with ‘**record.**’.

3. Click somewhere else on the Step Properties pane to update the Data Model. You will see the new name appear.

Creating multiple detail tables

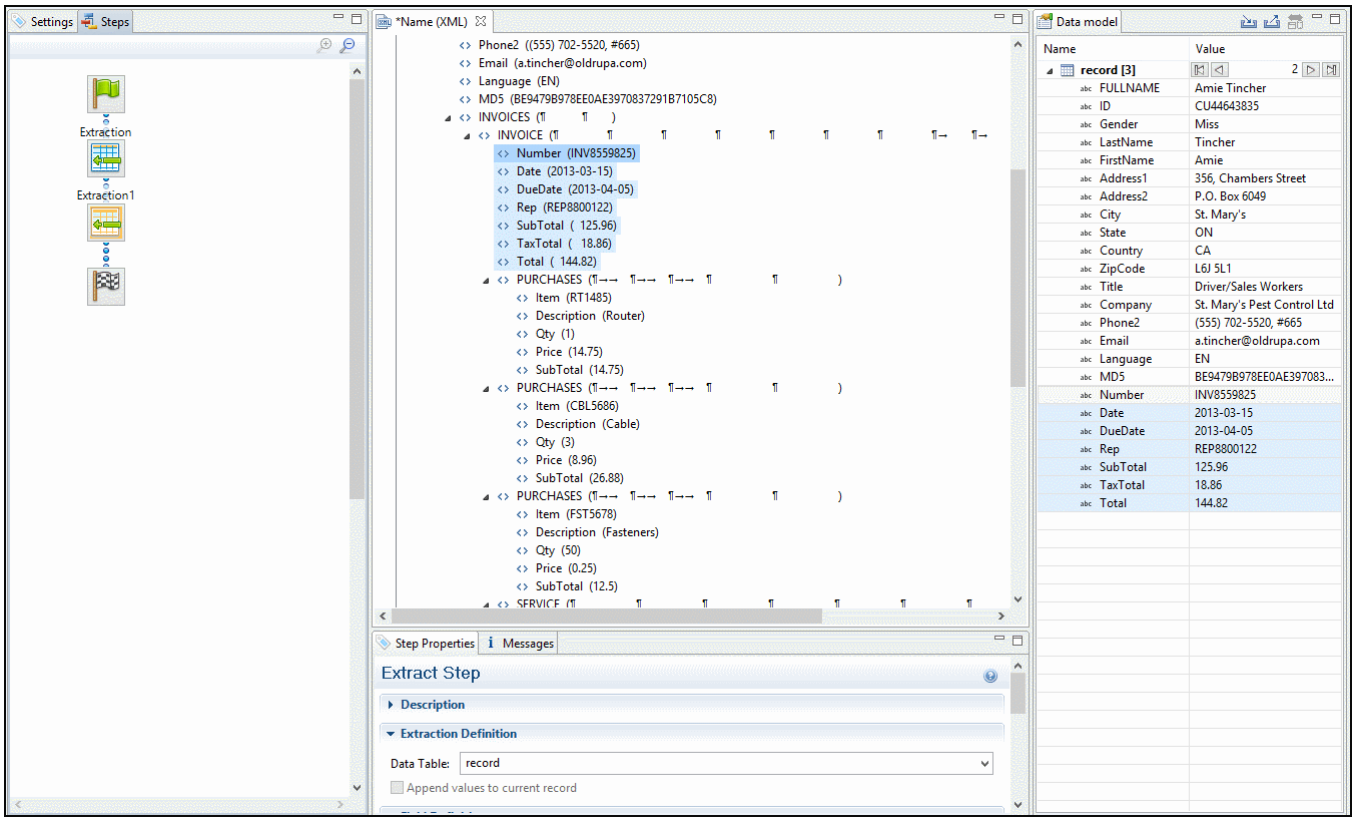
Multiple detail tables are useful when more than one type of transactional data is present in the source data, for example purchases (items with a set price, quantity, item number) and services (with a price, frequency, contract end date, etc).

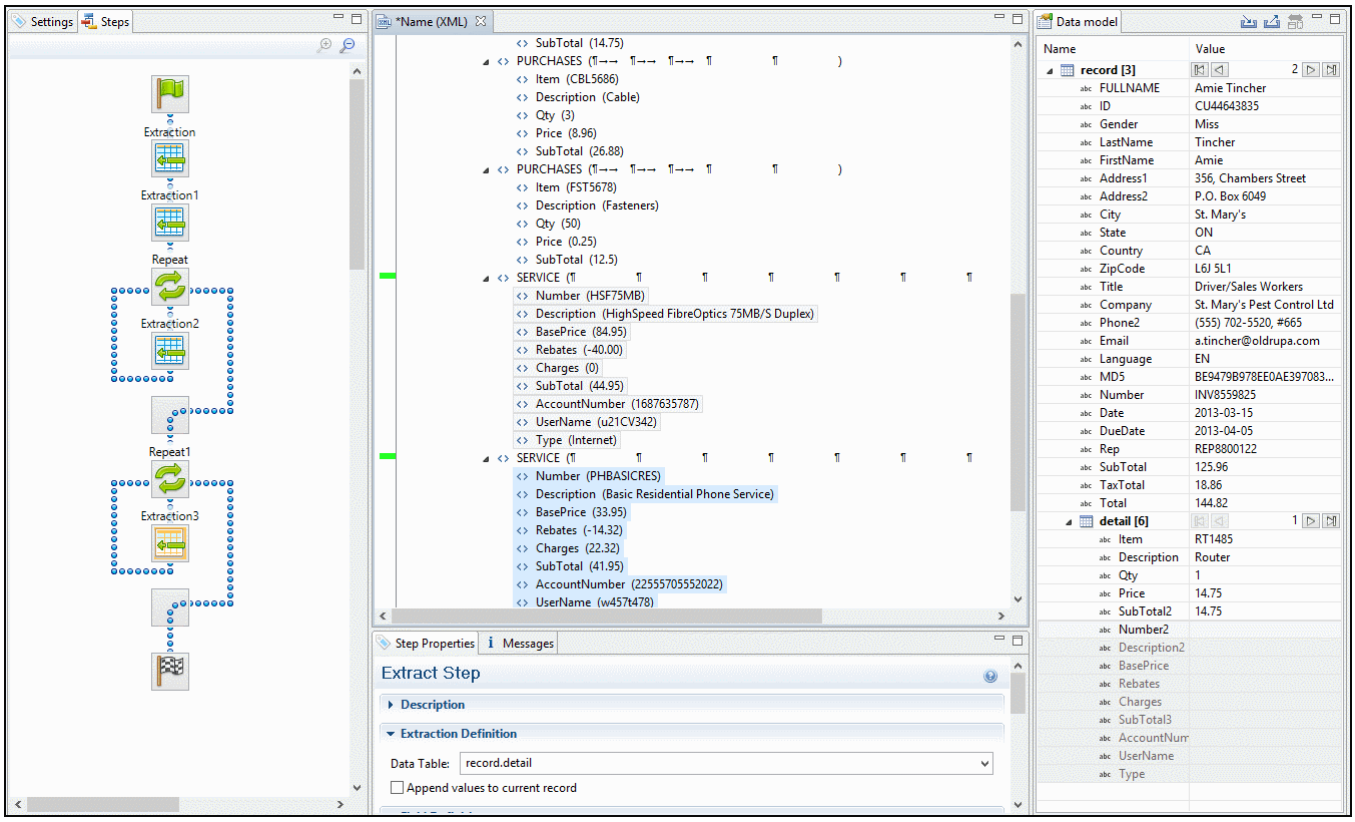


To create more than one detail table, simply extract transactional data in different Repeat steps (see "Extracting transactional data" on page 97).

The best way to do this is to add an empty detail table (right-click the Data Model, select **Add a table** and give the detail table a name) and drop the data on the name of that detail table.

Else the extracted fields will all be added to one new detail table with a default name at first, and you will have to rename the detail table created in each Extract step to pull the detail tables apart (see "Renaming a detail table" on the previous page).





PReS. Connect

Nested detail tables

Nested detail tables are used to extract transactional data that are relative to other data. They are created just like multiple detail tables, with two differences:

- For the tables to be actually nested, the **Repeat** step and its **Extract** step that extract the nested transactional data must be located **within** the **Repeat** step that extracts data to a detail table.
- In their name, the dot notation (record.services) must contain one extra level (record.services.charges).

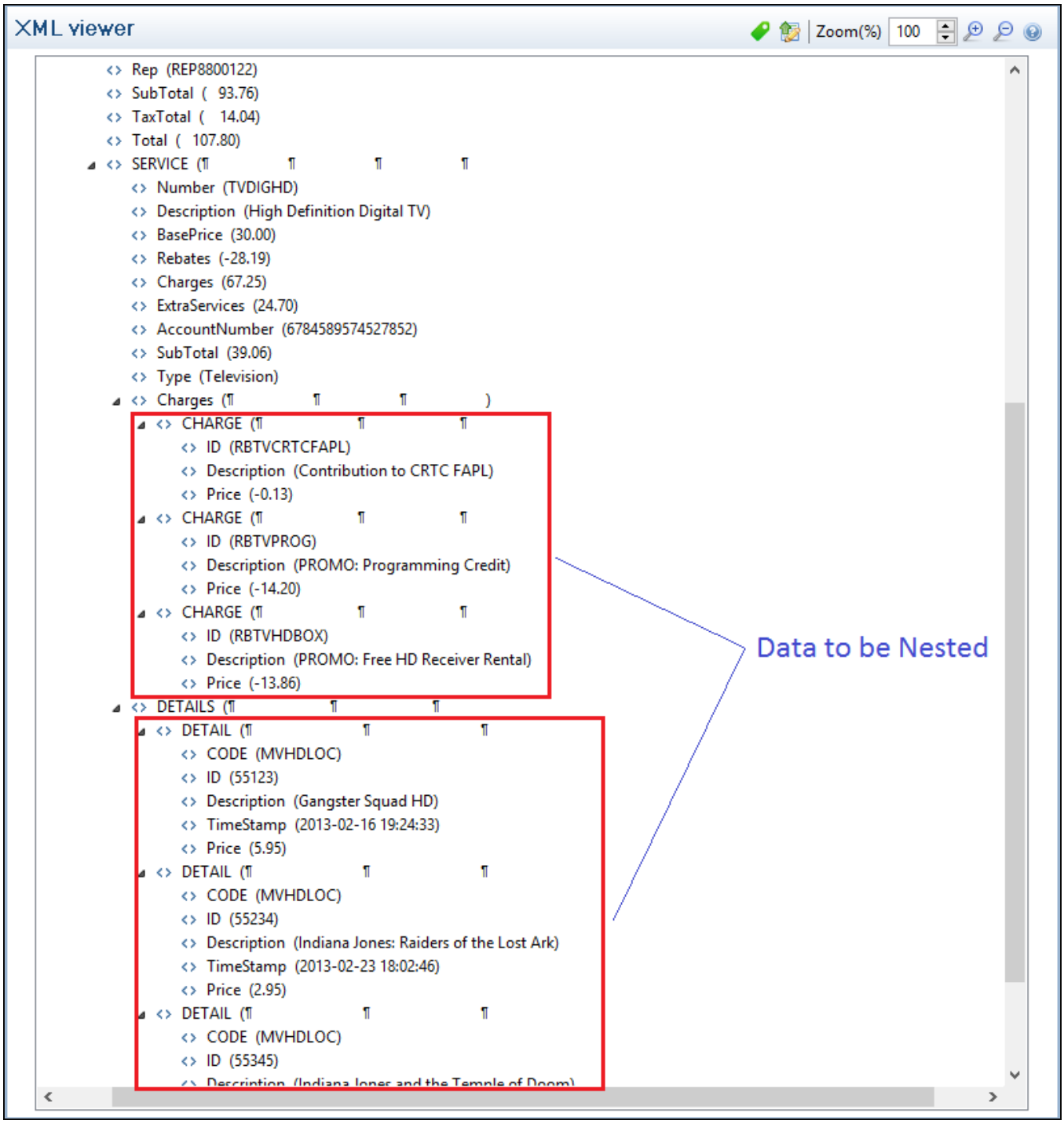
> **Note**
>
> Using nested detail tables in the **Designer** module requires scripting.

Example

An XML source file lists the services of a multi-service provider: Internet, Cable, Home Phone, Mobile. Each service in turn lists a number of "charges", being service prices and rebates, and

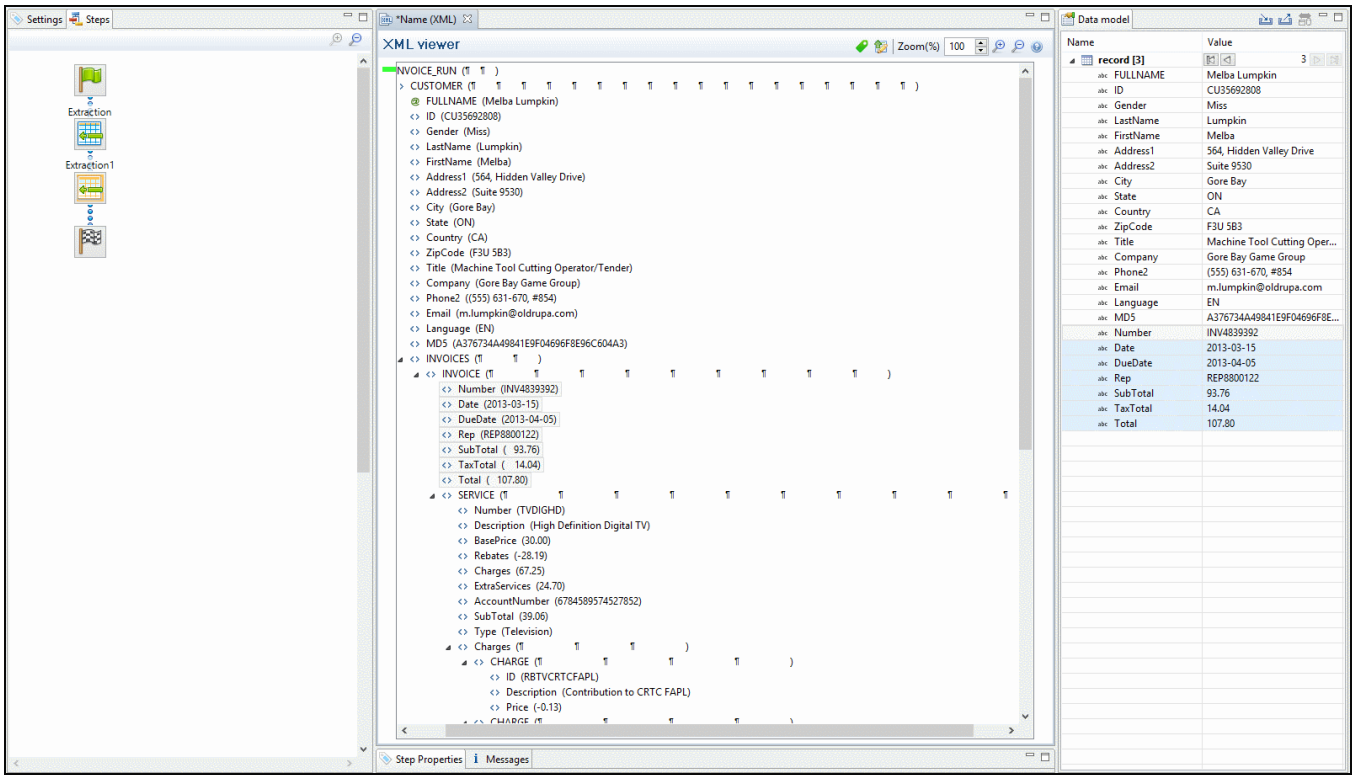
PReS. Connect

a number of "details" such as movie rentals or long distance calls.



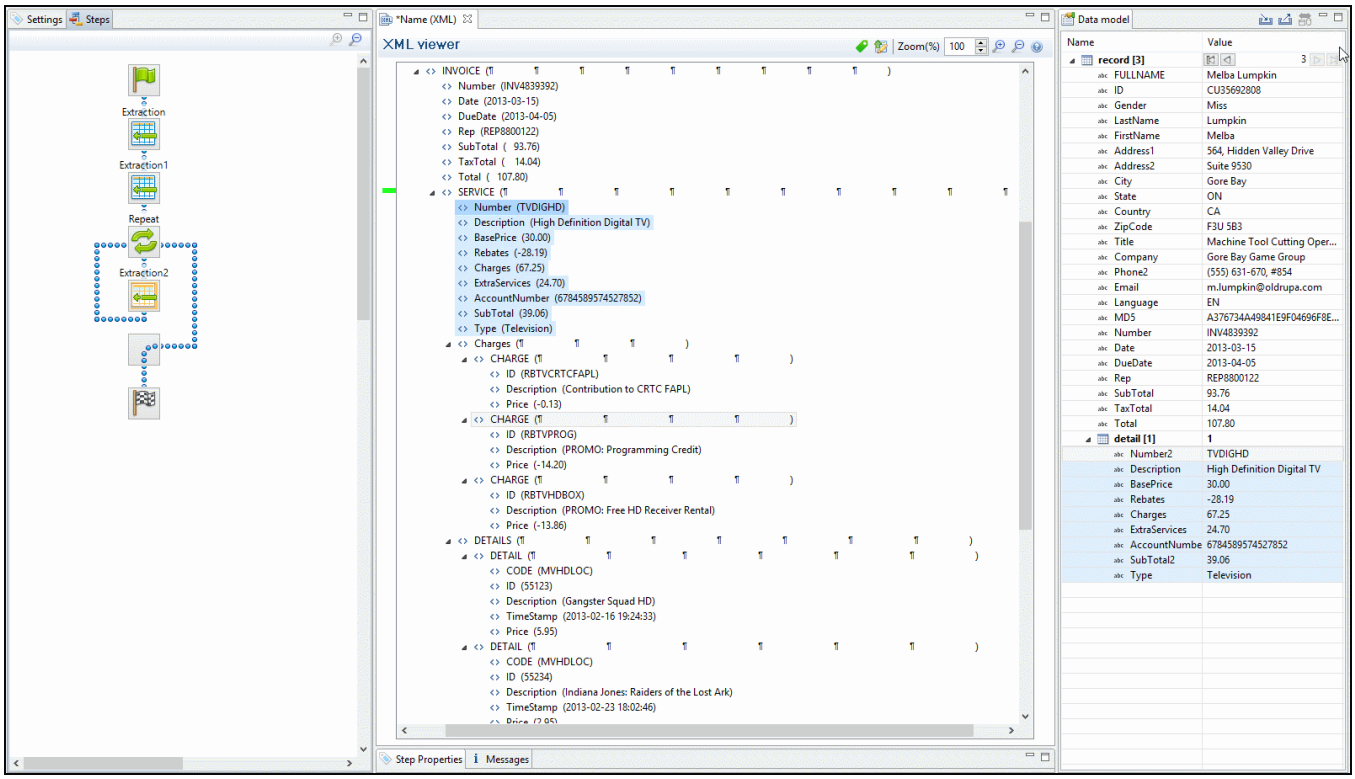
PReS. Connect

The services can be extracted to a detail table called **record.services**.

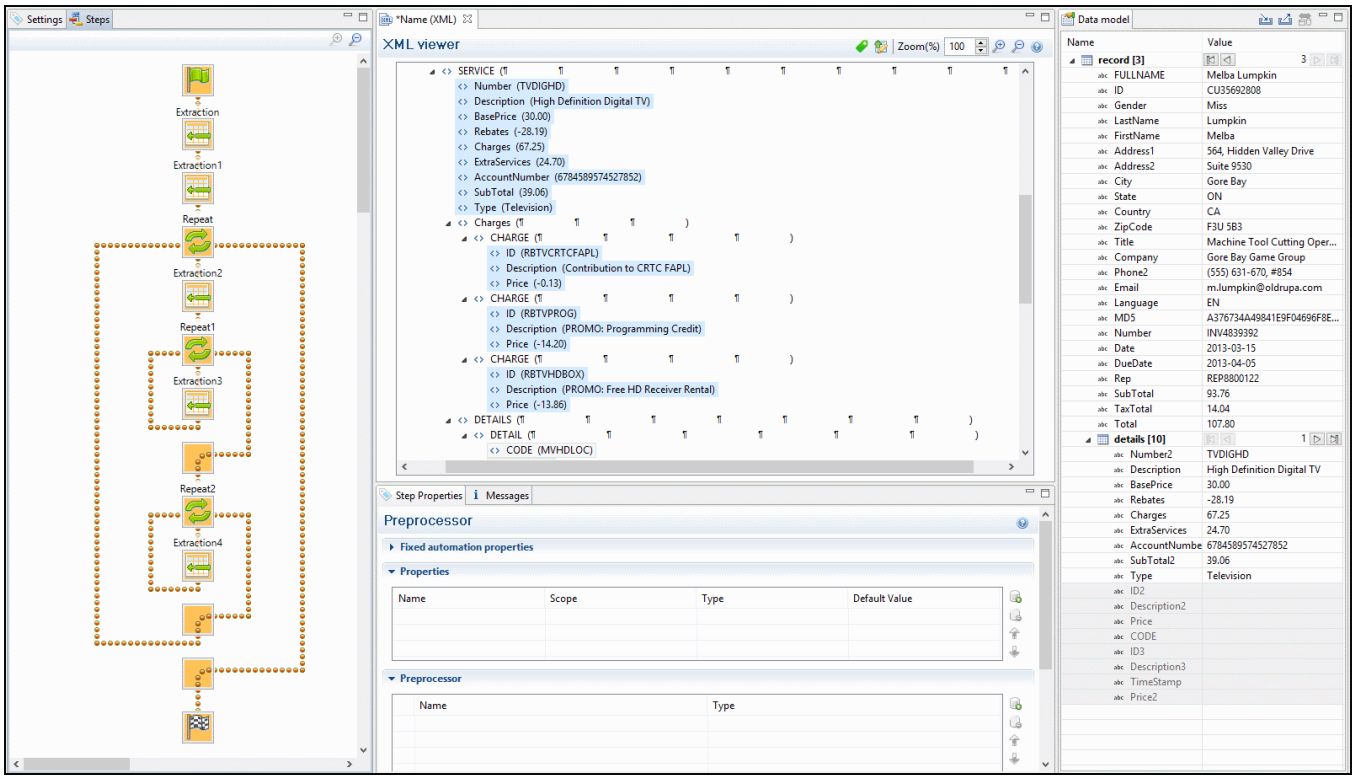


The "charges" and "details" can be extracted to two nested detail tables.

PReS. Connect



The nested tables can be called **record.services.charges** and **record.services.details**.



PReS. Connect

Now one "charges" table and one "details" table are created for each row in the "services" table.

The Data Viewer

The Data Viewer is located in the middle on the upper half of the DataMapper screen. It displays the data source that is currently loaded in the DataMapper, specifically one record in that data. Where one record ends and the next starts, is set in the Data Source settings (see "Record boundaries" on page 90). One record may contain more than one unit: PDF or Text pages, XML nodes, CSV lines, etc.
When the Delimiter or Boundary options are set in the Settings pane, the Data Viewer reflects those changes.

Any modification of the source data by a Preprocessor takes place before the data is displayed in the Data Viewer (see "Preprocessor step" on page 112).

The Data Viewer lets you select data, extract them ("Extracting data" on page 92), and apply a condition where necessary.
How data can be selected depends on the type of source file (see "Selecting data" on page 95).

Once data is extracted, clicking on any Extract step on the **Steps** pane highlights any area from which it extracts data in the Data Viewer. You can click on the Preprocessor step to select all the steps in the extaction workflow and highlight all extracted data.
Clicking on other step types also has a visible effect in the Data Viewer:

- Clicking on a Repeat step shows where the loop takes place.
- Clicking on a Goto step shows where the cursor is moved.
- Clicking on a Condition step shows which data fulfil the condition.

For more information about the different steps that can be added to a data mapping workflow, see "Steps" on page 111.

Data Viewer toolbar

The Data Viewer has a **toolbar** at the top to control options in the viewer. Which toolbar features are available depends on the data source type.

- **Font** (Text file only): Use the drop-down to change the font used to display text. Useful for double-byte data. It is recommended that monospace fonts be used.

PReS. Connect

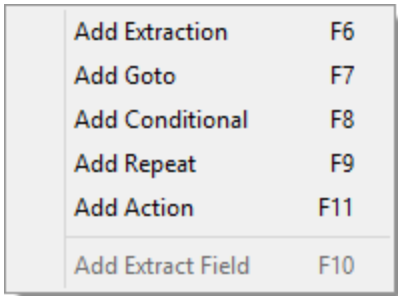
- **Hide/Show line numbers** # (Text file only): Click to show or hide the line numbers on the left of the Data Viewer.
- **Hide/Show datamap**: Click to show or hide the icons to the left of the Data Viewer which displays how the steps affect the line.
- **Hide/Show extracted data**: Click to show or hide the extraction selections indicating that data is extracted. This simplifies making data selections in the same areas and is useful to display the original data.
- **Lock/Unlock extracted data**: Click to lock existing extraction selections so they cannot be moved or resized. This simplifies making data selections in the same area.
- **Zoom Level**: Use the arrows to adjust the zoom level, or type in the zoom percentage.
- **Zoom In (CTRL +)**: Click to zoom in by increments of 10%
- **Zoom Out (CTRL -)**: Click to zoom out by increments of 10%

Additional Keyboard Shortcuts for XML Files:

- **+** (while on an XML node with children): Expand the XML Node
- **-** (while on an XML node with children): Collapse the XML node, hiding all its children nodes.

Contextual Menu

You can access the contextual menu using a right-click anywhere inside the Viewer window.



Note

The **Add Extract Field** item is available only after an **Extract** step has been added to the workflow.

Messages pane

The Messages pane is shared between the DataMapper and Designer modules and displays any warnings and errors from the data mapping configuration or template.

At the top of the Message pane are control buttons:

- **Export Log**: Click to open a Save As dialog where the log file (.log) can be saved on disk.
- **Clear Log Viewer**: Click to remove all entries in the log viewer.
- **Filters**: Displays the Log filter (see "Log filter" below).
- **Activate on new events**: Click to disable or enable the automatic display of this dialog when a new event is added to the pane.

- **Time**: The date and time when the error occurred.
- **Type**: Whether the entry is a warning or an error.
- **Source**: The source of the error. This indicates the name of the step as defined in its step properties.
- **Message**: The contents of the message, indicating the actual error.

Log filter

The log filter determines what kind of events are show in the Messages pane (see "Messages pane" above).

- **Event Types** group:
  - **OK**: Uncheck to hide OK-level entries.
  - **Information**: Uncheck to hide information-level entries.
  - **Warning**: Uncheck to hide any warnings.
  - **Error**: Uncheck to hide any critical errors.
- **Limit visible events to**: Enter the maximum number of events to show in the Messages Pane. Default is 50.

PReS. Connect

Settings pane

Settings for the data source and a list of Data Samples and JavaScript files used in the current data mapping configuration, can be found on the Settings tab at the left. The available options depend on the type of data sample that is loaded.
The Input Data settings (especially Delimiters) and Boundaries are essential to obtain the data and eventually, the output that you need. For more explanation, see "Data source settings" on page 88.

Input Data

The **Input Data** settings specify how the input data must be interpreted. These settings are different for each data type. For a CSV file, for example, it is important to specify the delimiter that separates data fields. PDF files are already delimited naturally by pages, so the input data settings for PDF files are interpretation settings for text in the file.

CSV file Input Data settings

In a CSV file, data is read line by line, where each line can contain multiple fields. The input data settings specify to the DataMapper module how the fields are separated.

- **Field separator**: Defines what character separates each field in the file. Even though CSV stands for comma-separated values, CSV can actually refer to files where fields are separated using any character, including commas, tabs, semicolons, and pipes.
- **Text delimiter**: Defines what character surrounds text in the file, preventing the **Field separator** from being interpreted within those text delimiters. This ensures that, for example, the field “Smith; John” is not interpreted as two fields, even if the field delimiter is the semicolon.
- **Comment delimiter**: Defines what character starts a comment line.
- **Encoding**: Defines what encoding is used to read the Data Source (US-ASCII, ISO-8859-1, UTF-8, UTF-16, UTF-16BE or UTF-16LE).
- **Lines to skip**: Defines a number of lines in the CSV that will be skipped and not used as records.
- **Set tabs as a field separator**: Overwrites the **Field separator** option and sets the Tab character instead for tab-delimited files.
- **First row contains field names**: Uses the first line of the CSV as headers, which automatically names all extracted fields.

- **Ignore unparseable lines**: Ignores any line that does not correspond to the settings above.

PDF file Input Data settings

PDF Files have a natural, static delimiter in the form of pages, so the options here are interpretation settings for text in the PDF file.
The Input Data settings for PDF files determine how words, lines and paragraphs are detected in the PDF when creating data selections.
Each value represents a fraction of the average font size of text in a data selection, meaning "0.3" represents 30% of the height or width.

- **Word spacing**: Determines the spacing between words. As PDF text spacing is somehow done through positioning instead of actual text spaces, text position is what is used to find new words. This option determines what percentage of the average width of a single character needs to be empty to consider a new word has started. The default value is 0.3, meaning a space is assumed if there is a blank area of 30% of the width of the average character in the font.
- **Line spacing**: Determines the spacing between lines of text. The default value is 1, meaning the space between lines must be equal to at least the average character height.
- **Paragraph spacing**: Determines the spacing between paragraphs. The default value is 1.5, meaning the space between paragraphs must be equal to at least 1.5 times the average character height to start a new paragraph.
- **Magic number**: Determines the tolerance factor for all of the above values. The tolerance is meant to avoid rounding errors. If two values are more than 70% away from each other, they are considered distinct; otherwise they are the same. For example, if two characters have a space of exactly the width of the average character, any space of between 0.7 and 1.43 of this average width is considered one space. A space of 1.44 is considered to be 2 spaces.
- **PDF file color space**: Determines if the PDF if displayed in Color or Monochrome in the Data Viewer. Monochrome display is faster in the Data Viewer. This has no influence on the actual data extraction or the data mapping performance.

Database Input Data settings

Databases all return the same type of information. Therefore the Input Data options for a database refer to the database itself instead of to the data.
The following settings apply to any database or ODBC Data Sample.

- **Connection String**: Displays the connection string used to access the Data Source.
- **Table**: Displays the tables and stored procedures available in the database. The selected table is the one the data is extracted from. Clicking on any of the tables shows the first line of the data in that table.
- **Encoding**: Defines what encoding is used to read the Data Source (US-ASCII, ISO-8859-1, UTF-8, UTF-16, UTF-16BE or UTF-16LE).
- **Browse** button : Opens the **Edit Database configuration** dialog, which can replace the existing database data source with a new one. This is the same as using the **Replace** feature in the Data Samples window.
- **Custom SQL** button : Click to open the SQL Query Designer (see "SQL Query Designer" on page 183) and type in a custom SQL query. If the database supports stored procedures, including inner joins, grouping and sorting, you can use custom SQL to make a selection from the database, using whatever language the database supports.

Text file Input Data settings

Because text files have many different shapes and sizes, there are many options for the input data in these files.

- **Encoding**: Defines what encoding is used to read the Data Source (US-ASCII, ISO-8859-1, UTF-8, UTF-16, UTF-16BE or UTF-16LE).
- **Selection/Text is based on bytes**: Check for text files that use double-bytes characters (resolves width issues in some text files).
- **Add/Remove characters**: Defines the number of characters to add to, or remove from, the head of the data stream. The spin buttons can also increment or decrement the value. Positive values add blank characters while negative values remove characters.
- **Add/Remove lines**: Defines the number of lines to add to, or remove from, the head of the data stream. The spin buttons can also increment or decrement the value. Positive values add blank lines while negative values remove lines.
- **Maximum line length**: Defines the number of columns on a data page. The spin buttons can also increment or decrement the value. The maximum value for this option is 65,535 characters. The default value is 80 characters. You should tune this value to the longest line in your input data. Setting a maximum data line length that greatly exceeds the length of the longest line in your input data may increase execution time.
- **Page delimiter type**: Defines the delimiter between each page of data. Multiples of such pages can be part of a record, as defined by the **Boundaries**.

PReS. Connect

- **On lines**: Triggers a new page in the Data Sample after a number of lines.
    - **Cut on number of lines**: Triggers a new page after the given number of lines. With this number set to 1, and the Boundaries set to On delimiter, it is possible to create a record for each and every line in the file.
    - **Cut on FF**: Triggers a new page after a Form Feed character.
- **On text**: Triggers a new page in the Data Sample when a specific string is found in a certain location.
    - **Word to find**: Compares the text value with the value in the data source.
    - **Match case**: Activates a case-sensitive text comparison.
    - **Location**: Choose **Selected area** or **Entire width** to use the value of the current data selection as the text value.
    - **Left/Right**: Use the spin buttons to set the start and stop columns to the current data selection (**Selected area**) in the record.
    - **Lines before/after**: This option places the delimiter a certain number of lines before or after the current line. This is useful if the text that triggers the delimiter is not on the first line of each page.
- **Text from right to left**: Sets the writing direction of the data source to right-to-left.
- **Expand tabs to spaces**: Replaces tabs with the given number of spaces.

XML File Input Data settings

For an XML file you can either choose to use the root node, or select an element type, to create a new delimiter every time that element is encountered.

- **Use root element**: Locks the **XML Elements** option to the top-level element. No other boundaries can be set. If there is only one top-level element, there will only be one record.
- **XML elements**: Displays a list containing all the elements in the XML file. Selecting an element causes a new page of data to be created every time an instance of this element is encountered.

Note

The information contained in all of the selected parent nodes will be copied for each

PReS. Connect

instance of that node. For example, if a client node contains multiple invoice nodes, the information for the client node can be duplicated for each invoice.

The DataMapper only extracts elements for which at least one value or attribute value is defined in the file.

Boundaries

Boundaries are the division between **records**: they define where one record ends and the next record begins; for an explanation see "Record boundaries" on page 90.

CSV or Database file boundaries

Since database data sources are structured the same way as CSV files, the options for these file types are identical.

- **Record limit**: Defines how many records are displayed in the Data Viewer. This does not affect output production; when generating output, this option is ignored. To disable the limit, use the value 0 (zero).
- **Line limit**: Defines the limit of detail lines in any detail table. This is useful for files with a high number of detail lines, which in the DataMapper interface can slow down things. This does not affect output production; when generating output, this option is ignored. To disable the limit, use the value 0 (zero).
- **Trigger**: Defines the type of rule that controls when a boundary is set, creating a new record.
    - **Record(s) per page**: Defines a fixed number of lines in the file that go in each record.
        - **Records**: The number of records (lines, rows) to put in each record.
    - **On change**: Defines a new record when a specific field (**Field name**) has a new value.
        - **Field name**: Displays the fields in the top line. The boundaries are set on the selected field name.
    - **On script:** Defines the boundaries using a custom JavaScript. For more information see "Setting boundaries using JavaScript" on page 229.

- **On field value**: Sets a boundary on a specific field value.
    - **Field name**: Displays the fields in the top line. The value of the selected field is compared with the **Expression** below to create a new boundary.
    - **Expression**: Enter the value or **Regular Expression** to compare the field value to.
    - **Use Regular Expression**: Treats the **Expression** as a regular expression instead of static text. For more information on using **Regular Expressions** (regex), see the Regular-Expressions.info Tutorial.

PDF file boundaries

For a PDF file, Boundaries determine how many pages are included in each record. You can set this up in one of three ways: by giving a static number of pages; by checking a specific area on each page for text changes, specific text, or the absence of text; or by using an advanced script.

- **Record limit**: Defines how many records are displayed in the Data Viewer. To disable the limit, use the value 0 (zero).
- **Trigger**: Defines the type of rule that controls when a boundary is set, creating a new record.
    - **On page**: Defines a boundary on a static number of pages.
        - **Number of pages**: Defines how many pages go in each record.
    - **On text**: Defines a boundary on a specific text comparison.
        - **Start coordinates (x,y)**: Defines the left and top coordinates of the data selection to compare with the text value.
        - **Stop coordinates (x,y)**: Defines the right and bottom coordinates.
        - **Use Selection**: Select an area in the Data Viewer and click the **Use selection** button to set the start and stop coordinates to the current data selection.

> **Note**
>
> In a PDF file, all coordinates are in millimeters.

        - **Times condition found**: When the boundaries are based on the presence of specific text, you can specify after how many instances of this text the

PReS. Connect

boundary can be effectively defined. For example, if a string is always found on the first and on the last page of a document, you could specify a number of occurrences of 2. This way, there is no need to inspect other items for whether it is on the first page or the last page. Having found the string two times is enough to set the boundary.

- **Pages before/after**: Defines the boundary a certain number of pages before or after the current page. This is useful if the text triggering the boundary is not located on the first page of the record.
- **Operator**: Selects the type of comparison (for example, "contains").
- **Word to find**: Compares the text value with the value in the data source.
- **Match case**: Makes the text comparison case-sensitive.

Text file boundaries

For a text file, Boundaries determine how many 'data pages' are included in each record. These don't have to be actual pages, as is the case with PDF files. The data page delimiters are set in the "Text file Input Data settings" on page 175.

- **Record limit**: Defines how many records are displayed in the Data Viewer. This does not affect output production; when generating output, this option is ignored. To disable the limit, use the value 0 (zero).
- **Selection/Text is based on bytes**: Select this option for text records with fixed width fields whose length is based on the number of bytes and not the number of characters.
- **Trigger**: Defines the type of rule that controls when a boundary is set, creating a new record.
  - **On delimiter:** Defines a boundary on a static number of pages.
    - **Occurrences**: The number of times that the delimiter is encountered before fixing the boundary. For example, if you know that your documents always have four pages delimited by the FF character, you can set the boundaries after every four delimiters.
  - **On text**: Defines a boundary on a specific text comparison.
    - **Location**:
      - **Selected area**:
        - **Select the area** button: Uses the value of the current data selection as the text value. Making a new selection and clicking on Select the area will redefine the location.

- **Left/Right**: Defines where to find the text value in the row.
- **Top/Bottom**: Defines the start and end row of the data selection to compare with the text value.

- **Entire width**: Ignores the column values and compares using the whole line.
- **Entire height**: Ignores the row values and compares using the whole column.
- **Entire page**: Compares the text value on the whole page. Only available with `contains`, `not contains`, `is empty` and `is not empty` operators.

- **Times condition found**: When the boundaries are based on the presence of specific text, you can specify after how many instances of this text the boundary can be effectively defined. For example, if a string is always found on the first and on the last page of a document, you could specify a number of occurrences of 2. This way, there is no need to inspect other items for whether it is on the first page or the last page. Having found the string two times is enough to set the boundary.
- **Delimiters before/after**: Defines the boundary a certain number of data pages before or after the current data page. This is useful if the text triggering the boundary is not located on the first data page of the record.
- **Operator**: Selects the type of comparison (for example, "contains").
- **Word to find**: Compares the text value with the value in the data source.
- **Use selected text** button: copies the text in the current selection as the one to compare to it.
- **Match case**: Makes the text comparison case-sensitive.

- **On script:** Defines the boundaries using a custom JavaScript. For more information see "Setting boundaries using JavaScript" on page 229.

XML file boundaries

The delimiter for an XML file is a node. The Boundaries determine how many of those nodes go in one record. This can be a specific number, or a variable number if the boundary is to be set when the content of a specific field or attribute within a node changes (for example when the `invoice_number` field changes in the `invoice` node).

PReS. Connect

- **Record limit**: Defines how many records are displayed in the Data Viewer. This does not affect output production; when generating output, this option is ignored. To disable the limit, use the value 0 (zero).
- **Trigger**: Defines the type of rule that controls when a boundary is set, creating a new record.
    - **On Element**: Defines a new record on each new instance of the XML element selected in the Input Data settings.
        - **Occurrences**: The number of times that the element is encountered before fixing the boundary.
    - **On Change**: Defines a new record when a specific field or attribute in the XML element has a new value.
        - **Field**: Displays the fields and (optionally) attributes in the XML element. The value of the selected field determines the new boundaries.
        - **Also extract element attributes**: Check this option to include attribute values in the list of content items that can be used to trigger a boundary.

Data samples

The Data Sample area displays a list of all the imported Data Samples that are available in the current data mapping configuration. As many Data Samples as necessary can be imported to properly test the configuration.
Only one of the data samples - the active data sample - is shown in the Data Viewer.

Instead of the buttons listed below, you can also right-click to bring up the context menu, which offers the same options.

- **Add** : Add a new Data Sample from an external data source. The new Data Sample will need to be of the same data type as the current one. For example, you can only add PDF files to a PDF data mapping configuration. Multiple files can be added simultaneously.
- **Delete** : Remove the current Data Sample from the data mapping configuration.
- **Replace** : Open a Data Sample and replace it with the contents of a different data source.
- **Reload** : Reload the currently selected Data Sample and any changes that have been made to it.

- **Set as Active** : Activates the selected Data Sample. The active data sample is shown in the Data Viewer after it has gone through the **Preprocessor** step as well as the **Input Data** and **Boundary** settings.

External JS Libraries

Right-clicking in the box brings up a control menu, with the same options as are available through the buttons on the right.

- **Add** : Add a new external library. Use the standard **Open** dialog to browse and open the .js file.
- **Delete** : Remove the currently selected library from the data mapping configuration.
- **Replace** : Open a library and replace it with the contents of a different js file.
- **Reload** : Reload the currently selected library and any changes that have been made to it.

Default Data Format

The Default Data Format settings defined here apply to any new extraction in made in the current data mapping configuration. Any format already defined for an existing field remains untouched.
It is also possible to set a default format for dates and currencies in the user preferences ("Datamapper preferences" on page 618).
Specific settings for a field that contains extracted data are made via the properties of the Extract step that the field belongs to (see "Editing fields" on page 127).

- **Negative Sign Before** : A negative sign will be displayed before any negative value.
- **Decimal Separator** : Set the decimal separator for a numerical value.
- **Thousand Separator** : Set the thousand separator for a numerical value.
- **Currency Sign** : Set the currency sign for a currency value.
- **Date Format** : Set the date format for a date value.
- **Date Language** : Set the date language for a date value (ex: If English is selected, the term May will be identified as the month of May).
- **Treat empty as 0** : A numerical empty value is treated as a 0 value.

Note

Default data formats tell the DataMapper how certain types of data are formatted **in the data source**. They don't determine how these data are formatted in the Data Model or in a template. In the Data Model, data are converted to the native data type. Dates, for example, are converted to a DateTime object in the Data Model, and will always be shown as "year-month-day" plus the time stamp, for example: 2012-04-11 12.00 AM.

SQL Query Designer

The SQL Query Designer is used to design a custom SQL query to pull information from a database. It can be opened via the Settings pane when extracting data from a database.

- **Tables**: Lists all tables and stored queries in the database.
- **Custom Query**: Displays the query that retries information from a database. Each database type has their own version of the SQL query language. To learn how to build your own query, please refer to your database's user manual.
- **Test Query** button ✔: Click to test the custom query to ensure it will retrieve the appropriate information.
- **Results**: Displays the result of the SQL query when clicking on **Test Query**.

Steps pane

The Steps tab displays the data mapping workflow: the process that prepares and extracts data. The process contains multiple distinct steps and is run for each of the records in the source data. For more information about the steps and how to use them, please refer to Steps and "Data mapping workflow" on page 86.

Moving a step

To rearrange steps, simply drag & drop them somewhere else on the dotted line in the Steps pane.
Alternatively you can right-click on a step and select **Cut Step** or use the Cut button in the **Toolbar**. If the step is **Repeat** or **Condition**, all steps under it will also be placed in the clipboard. To place the step at its destination, right-click the step in the position before the desired location and click **Paste Step**, or use the Paste button in the toolbar.

Viewing step details

Hovering over the task shows a tooltip that displays some of the details of that step. To see all details for a step, click on the step and take a look at the Step properties pane ("Step properties pane" on the next page.
Clicking on any Extract step in the Steps pane highlights any area in the Data Viewer from which it extracts data.
You can also click on the Preprocessor step to select all the steps in the workflow to show a complete map of all the extracted data.

Window controls

The following controls appear at the top of the Steps pane:

- **Zoom In (CTRL +)**: Click to zoom in by increments of 10%
- **Zoom Out (CTRL -)**: Click to zoom out by increments of 10%

Contextual menu

You can access the contextual menu using a right-click anywhere inside the **Steps** pane.

- **Add a Step**: Adds a step to the process. More options are available when a **Repeat** or a **Condition** step is selected:
  - **Add Step in Repeat**: Adds a step to a **Repeat** loop.
  - **Add Step in True**: Adds a step to the True branch of a **condition** step.
  - **Add Step in False**: Adds a step under the False branch of a **condition** step.
  - **Add Multiple Conditions Step**: Adds a **Multiple Conditions** step.
  - **Add Case Step**: Adds a Case condition under the selected **Multiple Conditions** step.
- **Ignore Step**: Click to set the step to be ignored (aka disabled). Disabled steps are grayed and do not run, neither in the DataMapper nor when the data mapping configuration is executed in Workflow. However, they can still be modified normally.
- **Delete Step**: To remove a step, right-click on it and select **Delete step** from the contextual menu or use the Delete button in the **Toolbar**. If the step to be deleted is **Repeat** or **Condition**, all steps under it will also be deleted.
- **Copy/Paste Step**: To copy a step, right-click on it and select **Copy Step** or use the button in the Toolbar. If the step is **Repeat** or **Condition**, all steps under it will also be

placed in the clipboard. To paste the copied step at its destination, right-click the step in the position before the desired location and select **Paste Step**, or use the button in the **Toolbar**.

Step properties pane

The Step Properties pane is used to adjust the properties of each step in the process. The pane is divided in a few subsections depending on the step and the data type. It always contains a subsection to name and document the selected step.

> **Note**
>
> Step properties may also depend on the data sample's file type.

- "Preprocessor step properties" below
- "Text File" on page 189
- "Text and PDF Files" on page 198
- "Text and PDF Files" on page 205
- "Condition step properties" on page 210
- "Left operand, Right operand" on page 213
- "Text file" on page 216
- "JavaScript " on page 221

Preprocessor step properties

The **Preprocessor** step does not run for every record in the source data. It runs once, at the beginning of the extraction workflow, before anything else; see "Preprocessor step" on page 112.

The properties described below become visible in the Step properties pane when the Preprocessor step is selected in the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Fixed Automation Properties

The **Fixed automation properties** subsection lists all the fixed properties available from the PReS Workflow automation module. These properties are equivalent to data available within the PReS Workflow process. For each property, the following is available:

- **Name**: A read-only field displaying the name of the property.
- **Scope**: A read-only field indicating that the scope of the property is **Automation**.
- **Type**: A read-only field indicating the data type for each property.
- **Default Value**: Enter a default value for the property. This value is overwritten by the actual value coming from PReS Workflow when the data mapping configuration is run using the **Execute Data Mapping** task.

There are currently the following automation properties available:

- **JobInfoX**: These properties are the equivalent of the JobInfo values available in the PReS Workflow process. They can be set using the Set Job Info and Variables task. To access these properties inside of any JavaScript code within the Data Mapping Configuration, use the automation.jobInfos.JobInfoX (where X is the job info number, from 0 to 9).
- **OriginalFilename**: This property contains the original file name that was captured by the PReS Workflow process and is equivalent to the %o variable in the process. To access these property inside of any JavaScript code within the Data Mapping Configuration, use automation.properties.OriginalFilename.
- **ProcessName**: This property contains the name of the process that is currently executing the data mapping configuration and is equivalent to the %w variable in the process. To access this property inside of any JavaScript code within the Data Mapping Configuration, use automation.properties.ProcessName.
- **TaskIndex**: This property contains the index (position) of the task inside the process that is currently executing the data mapping configuration but it has no equivalent in PReS

Workflow. To access this property inside of any JavaScript code within the Data Mapping Configuration, use automation.properties.ProcessName.

Properties

The **Properties** subsection is used to create specific properties that are used throughout the workflow. Properties can be accessed through some of the interface elements such as the **Condition** and **Repeat** step properties, or in scripts, through the "DataMapper Scripts API" on page 224.

> **Note**
>
> Properties are evaluated in the order they are placed in the list, so properties can use the values of previously defined properties in their expression.

- **Name**: The name of the property used to refer to its value.
- **Scope**: What this property applies to:
  - **Entire Data**: These properties are static properties that cannot be changed once they have been set, in other words they are **Global constants**.
  - **Each Record**: These properties are evaluated and set at the beginning of each Source Record. These properties can be modified once they have been set, but are always reset at the beginning of each Source Record.
  - **Automation variable**: These properties initialize variables coming from the PReS Workflow automation tool. The name of the property needs to be the same as the variable name in Workflow, and they can be either a Local variable or a Global variable. For either one, only the actual name is to be used, so for %{MyLocalVar} use only MyLocalVar , and for %{global.MyGlobalVar} use MyGlobalVar. If a global and a local variable have the same name (%{myvar} and %{global.myvar}), the local variable's value is used and the global one is ignored. To access a workflow variable inside of any JavaScript code within the Data Mapping Configuration, use automation.variables.variablename
- **Type**: The data type of the property. For more information see "Data types" on page 137.
- **Default Value**: The initial value of the property. This is a JavaScript expression. See "DataMapper Scripts API" on page 224.

Note

Entire **Data Properties** are evaluated before anything else, such as **Preprocessors**, **Delimiters** and **Boundaries** in the Settings pane (see "Data source settings" on page 88). This means these properties cannot read information from the data sample or from any records. They are mostly useful for static information such as folder locations or server addresses.

Preprocessor

The **Preprocessor** subsection defines what preprocessor tasks are performed on the data file before it is handed over to the data mapping workflow. Preprocessor tasks can modify the data file in many ways, and each task runs in turn, using the result of the previous one as an input.

- **Name**: The name to identify the **Preprocessor** task.
- **Type**: The type of **Preprocessor** task. Currently there is only one type available: script.

Preprocessor definition

- **Expression**: Enter the JavaScript code to be performed on the data file. See "DataMapper Scripts API" on page 224.

Extract step properties

The **Extract** step takes information from the data source and places it in the record set that is the result of the extraction workflow. For more information see "Extract step" on page 114 and "Extracting data" on page 92.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Extraction Definition

- **Data Table**: Defines where the data will be placed in the extracted record. The root table is record, any other table inside the record is a detail table. For more information see "Extracting transactional data" on page 97.
- **Append values to current record**: When the **Extract** step is inside a loop, check this to ensure that the extraction will be done in the same **detail table** as any previous extractions within the same loop. This ensures that, if multiple extracts are present, only one detail table is created.

Field Definition

Text File

- **Field List**: The **Field List** displays each of the single fields that are being extracted in a drop-down. Fields can be re-ordered and re-named within the Order and rename fields dialog (see "Order and rename fields dialog" on page 196). Select one of the fields to make further settings for that field.
- **Add Unique ID to extraction field**: Check to add a unique numerical set of characters to the end of the extracted value. This ensures no two values are identical in this field in the record set.
- **Mode**: Determines the origin of the extracted data.
    - **Location**: The contents of the data selection set below will determine the value of the extracted field.
        - **Left**: Defines the start of the data selection to extract.
        - **Right**: Defines the end of the data selection to extract.
        - **Top offset**: The vertical offset from the current pointer location in the Data Viewer).
        - **Height**: The height of the selection box.
        - **Use selection**: Click to use the value (Left, Right, Top offset and Height) of the current data selection (in the Data Viewer) for the extraction.

> **Note**
>
> If the selection contains multiple lines, only the first line is extracted.

  - **Post Function**: Enter a JavaScript expression to be run after the extraction. A Post function script operates directly on the extracted data, and its results replace the extracted data. For example, the Post function script `replace("-", "");` would replace the first dash character that occurs inside the extracted string.
    - **Use JavaScript Editor**: Click to display the Script Editor dialog.
  - **Trim**: Select to trim empty characters at the beginning or the end of the field.
  - **Concatenation string**:
  - **Split**: Separate the selection into individual fields based on the **Concatenation string** defined above.
- **JavaScript** : The result of the JavaScript Expression written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See DataMapper API.

- **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" on page 195.

PDF File

- **Field List**: The **Field List** displays each of the single fields that are being extracted in a drop-down. Fields can be re-ordered and re-named within the Ordering and Renaming Fields dialog. Select one of the fields to make further settings for that field.
  - **Add JavaScript Field**: Click to add a new extract field. By default, the field will be a JavaScript -defined field rather than a data extraction, of **String** data type.
  - **Remove Extract Field**: Click to delete the selected extract field from the list.
  - **Order and rename fields**: Click to open Ordering and Renaming Fields.
- **Add Unique ID to extraction field**: Check to add a unique numerical set of characters to the end of the extracted value. This ensures no two values are identical in the Record Set.

- **Mode**: Determines the origin of the data.
    - **Location**: The contents of the data selection set below will be the value of the extracted field. The data selection settings are different depending on the data sample type.
        - **Left**: Defines the start of the data selection to extract.
        - **Right**: Defines the end of the data selection to extract.
        - **Top offset**: The vertical offset from the current pointer location in the Data Sample (Viewer).
        - **Height**: The height of the selection box.
        - **Use selection**: Click to use the value (Left, Right, Top offset and Height) of the current data selection for the extraction.

          > **Note**
          >
          > If the selection contains multiple lines, the lines are by default joined and extracted into one field. To split the lines, select the option Split lines (see below).

        - **Post Function**: Enter a JavaScript expression to be run after the extraction. For example `replace("-","")` would replace a single dash character inside the extracted string.
        - **Trim**: Select to trim empty characters at the beginning or the end of the field.
        - **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" on page 195.
        - **Split**:
            - **Split lines**: Separate a multi-line selection into individual fields .
            - **Join lines**: Join the lines in the selection with the Concatenation string defined below.
            - **Concatenation string**: The (HTML) string used to concatenate lines when they are joined.

- **JavaScript** : The result of the JavaScript **Expression** written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See DataMapper API.
    - **Use JavaScript Editor**: Click to display the Script Editor dialog.
    - **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
    - **Use selection**: Click to use the value of the current data selection for the extraction.

      > **Note**
      >
      > If the selection contains multiple lines, only the first line is selected.

    - **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" on page 195.

CSV and Database Files

- **Field List**: The **Field List** displays each of the single fields that are being extracted in a drop-down. Fields can be re-ordered and re-named within the Ordering and Renaming Fields dialog. Select one of the fields to make further settings for that field.
    - **Add JavaScript Field**: Click to add a new extract field. By default, the field will be a JavaScript -defined field rather than a data extraction, of **String** data type.
    - **Remove Extract Field**: Click to delete the selected extract field from the list.
    - **Order and rename fields**: Click to open Ordering and Renaming Fields.
- **Add Unique ID to extraction field**: Check to add a unique numerical set of characters to the end of the extracted value. This ensures no two values are identical in the Record Set.
- **Mode**: Determines the origin of the data.
    - **Location**: The contents of the data selection set below will be the value of the extracted field. The data selection settings are different depending on the data sample type.

- **Column**: Drop-down listing all fields in the Data Sample, of which the value will be used.
- **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
    - **Use selection**: Click to use the value of the current data selection for the extraction.

      > **Note**
      >
      > If the selection contains multiple lines, only the first line is selected.

- **Post Function**: Enter a JavaScript expression to be run after the extraction. For example replace("-","") would replace a single dash character inside the extracted string.
    - **Use JavaScript Editor**: Click to display the Script Editor dialog.
- **Trim**: Select to trim empty characters at the beginning or the end of the field.
- **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" on page 195.

- **JavaScript** : The result of the JavaScript **Expression** written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See DataMapper API.
    - **Expression**:
        - **Use JavaScript Editor**: Click to display the Script Editor dialog.
        - **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
        - **Use selection**: Click to use the value of the current data selection for the extraction.

PReS. Connect

> **Note**
>
> If the selection contains multiple lines, only the first line is selected.

- **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" on the next page.

XML File

- **Field List**: The **Field List** displays each of the single fields that are being extracted in a drop-down. Fields can be re-ordered and re-named within the Ordering and Renaming Fields dialog.
  - **Add JavaScript Field**: Click to add a new extract field. By default, the field will be a JavaScript -defined field rather than a data extraction, of **String** data type.
  - **Remove Extract Field**: Click to delete the selected extract field from the list.
  - **Order and rename fields**: Click to open Ordering and Renaming Fields.
- **Add Unique ID to extraction field**: Check to add a unique numerical set of characters to the end of the extracted value. This ensures no two values are identical in the Record Set.
- **Based on**: Determines the origin of the data.
  - **Location**: The contents of the data selection set below will be the value of the extracted field. The data selection settings are different depending on the data sample type.
    - **XPath**: The path to the XML field that is extracted.
      - **Use selection**: Click to use the value of the current data selection for the extraction.

> **Note**
>
> If the selection contains multiple lines, only the first line is selected.

PReS. Connect

- **Post Function**: Enter a JavaScript expression to be run after the extraction. For example replace("-","") would replace a single dash character inside the extracted string.
    - **Use JavaScript Editor**: Click to display the Script Editor dialog.
- **Trim**: Select to trim empty characters at the beginning or the end of the field.
- **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" below.

- **JavaScript** : The result of the JavaScript **Expression** written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See DataMapper API.
    - **Expression**:
        - **Use JavaScript Editor**: Click to display the Script Editor dialog.
        - **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
        - **Use selection**: Click to use the value of the current data selection for the extraction.

        > **Note**
        >
        > If the selection contains multiple lines, only the first line is selected.

    - **Type**: The data type of the selected data; see "Data types" on page 137. Make sure that the data format that the DataMapper expects matches the actual format of the data in the data source; see "Data Format" below.

Data Format

Format settings can be defined in three places: in the user preferences ("Datamapper preferences" on page 618), the current data mapping configuration ("Data format settings" on page 91) and per field via the Step properties.
Any format settings specified per field are always used, regardless of the user preferences or data source settings.

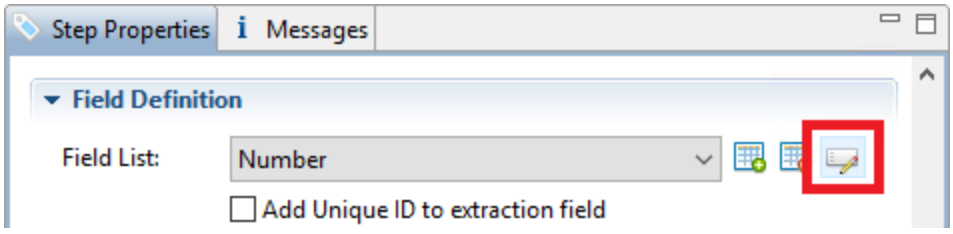
Note

Data format settings tell the DataMapper how certain types of data are formatted **in the data source**. They don't determine how these data are formatted in the Data Model or in a template. In the Data Model, data are converted to the native data type. Dates, for example, are converted to a DateTime object in the Data Model, and will always be shown as "year-month-day" plus the time stamp, for example: 2012-04-11 12.00 AM.

- **Negative Sign Before** : A negative sign will be displayed before any negative value.
- **Decimal Separator** : Set the decimal separator for a numerical value.
- **Thousand Separator** : Set the thousand separator for a numerical value.
- **Currency Sign** : Set the currency sign for a currency value.
- **Date Format** : Set the date format for a date value.
- **Date Language** : Set the date language for a date value (ex: If English is selected, the term May will be identified as the month of May).
- **Treat empty as 0** : A numerical empty value is treated as a 0 value.

Order and rename fields dialog

The **Order and rename fields** dialog displays the extracted fields in the currently selected **Extract** step.
To open it, first select an Extract step on the Steps pane. Then, on the Step properties pane, under Field Definition, click the **Order and Rename Fields** button next to the Field List drop-down.



Field extractions are executed from top to bottom.
In **JavaScript-based** fields, it is possible to refer to previously extracted fields if they are extracted higher in this list or in previous **Extract** steps in the extraction workflow.

PReS. Connect

- **Name**: The name of the field. Click the field name and enter a new name to rename the field.

> **Note**
>
> If you intend to use the field names as metadata in a PReS Workflow process, do not add spaces to field names, as they are not permitted in metadata field names.

- **Value**: Displays the value of the extract field in the current Record.
- **Remove** button : Click to remove the currently selected field.
- **Move Up** button : Click to move the selected field up one position.
- **Move Down** button : Click to move the selected field down one position.

Action step properties

The **Action** step can run multiple specific actions one after the other in order; see "Action step" on page 119 for more information.

The properties of an Action step become visible in the Step properties pane when the Action step is selected on the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Actions

This subsection lists all actions executed by the step, and their types.

- **Name**: A name by which to refer to the action. This name has no impact on functionality.
- **Type**:
    - **Set property**: Sets the value of a record property which was created in the Preprocessor step (see "Preprocessor step" on page 112).
    - **Run JavaScript** : Runs a JavaScript expression, giving much more flexibility over the extraction process.
    - **Stop Processing Record**: When this option is selected, the extraction workflow stops processing the current record and moves on to the next one.
      If fields were already extracted prior to encountering the Action step, then those fields are stored as usual.
      If no fields were extracted prior to encountering the Action step, then no trace of the record is saved in the database at run time.

Set Property

Text and PDF Files

- **Property**: Displays a list of record properties set in the Preprocessor step (see "Preprocessor step" on page 112).
- **Type**: Displays the type of the property. This is a read-only field.
- **Based on**: Determines the origin of the data.
    - **Location**: The contents of the data selection set below will be the value of the extracted field. The data selection settings are different depending on the data sample type.
        - **Left**: Defines the start of the data selection to extract
        - **Right**: Defines the end of the data selection to extract
        - **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
        - **Height**: The height of the selection box.
        - **Use selection**: Click to use the value of the current data selection for the extraction.

> **Note**
>
> If the selection contains multiple lines, only the first line is selected.

    - **Trim**: Select to trim empty characters at the beginning or the end of the field
- **JavaScript** : The result of the JavaScript **Expression** written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See "DataMapper Scripts API" on page 224.
    - **Expression**: The JavaScript expression to run.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog (see "Using scripts in the DataMapper" on page 226 and "DataMapper Scripts API" on page 224).
    - **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
    - **Use selection**: Click to use the value of the current data selection for the extraction.

> **Note**
>
> If the selection contains multiple lines, only the first line is selected.

- **Data Format**: Data format settings tell the DataMapper how certain types of data are formatted **in the data source**. Make sure that this format matches the actual format of the data in the data source.
    - **Negative Sign Before** : A negative sign will be displayed before any negative value.
    - **Decimal Separator** : Set the decimal separator for a numerical value.
    - **Thousand Separator** : Set the thousand separator for a numerical value.
    - **Currency Sign** : Set the currency sign for a currency value.
    - **Date Format** : Set the date format for a date value.

PReS. Connect

- **Date Language** : Set the date language for a date value (ex: If English is selected, the term May will be identified as the month of May).
- **Treat empty as 0** : A numerical empty value is treated as a 0 value.

CSV and Database Files

- **Property**: Displays a list of record properties set in the Preprocessor step (see "Preprocessor step" on page 112).
- **Type**: Displays the type of the property. Read only field.
- **Based on**: Determines the origin of the data.
  - **Location**: The contents of the data selection set below will be the value of the extracted field. The data selection settings are different depending on the data sample type.
    - **Column**: Drop-down listing all fields in the Data Sample, of which the value will be used.
    - **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
    - **Use selection**: Click to use the value of the current data selection for the extraction.

      > **Note**
      >
      > If the selection contains multiple lines, only the first line is selected.

    - **Trim**: Select to trim empty characters at the beginning or the end of the field
  - **JavaScript** : The result of the JavaScript **Expression** written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See "DataMapper Scripts API" on page 224.
    - **Expression**: The JavaScript expression to run.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog (see "Using scripts in the DataMapper" on page 226 and "DataMapper Scripts API" on page 224).

- **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
- **Use selection**: Click to use the value of the current data selection for the extraction.

> **Note**
>
> If the selection contains multiple lines, only the first line is selected.

- **Data Format**: Data format settings tell the DataMapper how certain types of data are formatted **in the data source**. Make sure that this format matches the actual format of the data in the data source.
  - **Negative Sign Before** : A negative sign will be displayed before any negative value.
  - **Decimal Separator** : Set the decimal separator for a numerical value.
  - **Thousand Separator** : Set the thousand separator for a numerical value.
  - **Currency Sign** : Set the currency sign for a currency value.
  - **Date Format** : Set the date format for a date value.
  - **Date Language** : Set the date language for a date value (ex: If English is selected, the term May will be identified as the month of May).
  - **Treat empty as 0** : A numerical empty value is treated as a 0 value.

XML File

- **Property**: Displays a list of Source Record properties set in the Preprocessor step (see "Preprocessor step" on page 112).
- **Type**: Displays the type of the Source Record property. Read only field.
- **Based on**: Determines the origin of the data.
  - **Location**: The contents of the data selection set below will be the value of the extracted field. The data selection settings are different depending on the data sample type.

- **XPath**: The path to the XML field that is extracted.
    - **Use selection**: Click to use the value of the current data selection for the extraction.

      > **Note**
      >
      > If the selection contains multiple lines, only the first line is selected.

    - **Trim**: Select to trim empty characters at the beginning or the end of the field
- **JavaScript** : The result of the JavaScript **Expression** written below the drop-down will be the value of the extracted field. If the expression contains multiple lines, the last value attribution (variable = "value";) will be the value. See "DataMapper Scripts API" on page 224.
    - **Expression**: The JavaScript expression to run.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog (see "Using scripts in the DataMapper" on page 226 and "DataMapper Scripts API" on page 224).
    - **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
    - **Use selection**: Click to use the value of the current data selection for the extraction.

      > **Note**
      >
      > If the selection contains multiple lines, only the first line is selected.

PReS. Connect

- **Data Format**: Data format settings tell the DataMapper how certain types of data are formatted **in the data source**. Make sure that this format matches the actual format of the data in the data source.
    - **Negative Sign Before** : A negative sign will be displayed before any negative value.
    - **Decimal Separator** : Set the decimal separator for a numerical value.
    - **Thousand Separator** : Set the thousand separator for a numerical value.
    - **Currency Sign** : Set the currency sign for a currency value.
    - **Date Format** : Set the date format for a date value.
    - **Date Language** : Set the date language for a date value (ex: If English is selected, the term May will be identified as the month of May).
    - **Treat empty as 0** : A numerical empty value is treated as a 0 value.

Run JavaScript

Running a JavaScript expression offers many possibilities. The script could, for example, set record properties and field values using advanced expressions and complex mathematical operations and calculations.

- **Expression**: The JavaScript expression to run (see "DataMapper Scripts API" on page 224).
- **Use JavaScript Editor**: Click to display the Edit Script dialog.
- **Use selected text**: Inserts the text in the current data selection in the JavaScript Expression. If multiple lines or elements are selected, only the first one is used.
- **Use selection**: Click to use the value of the current data selection.

> **Note**
>
> If the selection contains multiple lines, only the first line is selected.

Repeat step properties

The **Repeat** step adds a loop to the extraction workflow; see "Steps" on page 111 and "Extracting transactional data" on page 97.

The properties described below become visible in the Step properties pane when the Repeat step is selected in the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Repeat Definition

- **Repeat type**:
  - **While statement is true**: The loop executes while the statement below is true. The statement is evaluated after the loop so the loop will always run at least once.
  - **Until statement is true**: The loop executes until the statement below is true. The statement is evaluated before the loop so the loop may not run at all.
  - **Until no more elements (for Text, CSV, Database and PDF files only)**: The loop executes as long as there are elements left as selected below.
  - **For Each (for XML files only)**: The loop executes for all nodes on a specified level.

> **Note**
>
> When using an XML **For Each** loop, it is not necessary to skip to the repeating node or to have a **Goto**step to jump to each sibling, as this loop takes care of it automatically.

- **Maximum iterations on each line**: Defines the maximum number of iterations occurring at the same position. This expression is evaluated once when entering the loop. The value returned by the expression must be an integer higher than 0.
  - **Use JavaScript Editor**: Click to display the Edit Script dialog.

Rule Tree

The **Rule tree** subsection displays the full combination rules (defined below under **Condition**) as a tree, which gives an overview of how the conditions work together as well as the result for each of these conditions for the current record or iteration.

Condition

First, the **Condition List** displays the conditions in list form, instead of the tree form above. Three buttons are available next to the list:

- **Add condition**: Click to create a new condition in the list. This will always branch the current condition as an "AND" operator.
- **Delete condition**: Delete the currently selected condition.
- To rename a **Condition**, double click on its name from the **Rule tree** subsection .

Conditions are made by comparison of two operands using a specific **Operator**.

> **Note**
>
> Both the **Left** and **Right** operands have the same properties.

Text and PDF Files

- **Based On**:
  - **Position**: The data in the specified position for the comparison.
    - **Left**: The start position for the data selection. Note that conditions are done on the current line, either the current cursor position, or the current line in a **Repeat** step.
    - **Right**: The end position for the data selection.
    - **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
    - **Height**: The height of the selection box.
    - **Use Selection**: Click to use the value of the current data selection for the

extraction.

- **Trim**: Select to trim empty characters at the beginning or the end of the field.

- **Value**: A specified static text value.
  - **Value**: The text value to use in the comparison.
  - **Use selected text**: Uses the text in the current data selection as the **Value**. If multiple lines or elements are selected, only the first one is used.
- **Field**: The contents of a specific field in the **Extracted Record**.
  - **Field**: The **Extracted Record** field to use in the comparison.
- **JavaScript** : The result of a JavaScript **Expression**.
  - **Expression**: The JavaScript line that is evaluated. Note that the last value attribution to a variable is the one used as a result of the expression.
  - **Use JavaScript Editor**: Click to display the Edit Script dialog.
  - **Use selected text**: Inserts the text in the current data selection in the JavaScript **Expression**. If multiple lines or elements are selected, only the first one is used.
- **Data Property**: The value of a data-level property set in the Preprocessor step (see "Preprocessor step" on page 112).
- **Record Property:** One of the local variables that you can create and that are reset for each document as opposed to data variables that are global because they are initialized only once at the beginning of each job.
- **Automation Property**: The current value of a Document-level property set in the Preprocessor step (see "Preprocessor step" on page 112).
- **Extractor Property**: The value of an internal extractor variable:
  - **Counter**: The value of the current counter iteration in a **Repeat** step.
  - **Vertical Position**: The current vertical position on the page, either in Measure (PDF) or Line (Text and CSV).

- **Operators**:
  - **is equal to**: The two specified value are identical for the condition to be **True**.
  - **contains**: The first specified value contains the second one for the condition to be **True**.

- **is less than**: The first specified value is smaller, numerically, than the second value for the condition to be **True**.
- **is greater than**: The first specified value is larger, numerically, than the second value for the condition to be **True**.
- **is empty**: The first specified value is empty. With this operator, there is no second value.
- **Invert condition**: Inverts the result of the condition. For instance, **is empty** becomes **is not empty**.

CSV and Database Files

- **Based On**:
  - **Position**: The data in the specified position for the comparison.
    - **Column**: Drop-down listing all fields in the Data Sample, of which the value will be used.
    - **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
    - **Use Selection**: Click to use the value of the current data selection for the extraction.
    - **Trim**: Select to trim empty characters at the beginning or the end of the field.
  - **Value**: A specified static text value.
    - **Value**: The text value to use in the comparison.
    - **Use selected text**: Uses the text in the current data selection as the **Value**. If multiple lines or elements are selected, only the first one is used.
  - **Field**: The contents of a specific field in the **Extracted Record**.
    - **Field**: The **Extracted Record** field to use in the comparison.
  - **JavaScript** : The result of a JavaScript **Expression**.
    - **Expression**: The JavaScript line that is evaluated. Note that the last value attribution to a variable is the one used as a result of the expression.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog.

        - **Use selected text**: Inserts the text in the current data selection in the JavaScript **Expression**. If multiple lines or elements are selected, only the first one is used.
    - **Data Property**: The value of a data-level property set in the **Preprocessor** step.
    - **Record Property:** One of the local variables that you can create and that are reset for each document as opposed to data variables that are global because they are initialized only once at the beginning of each job.
    - **Automation Property**: The current value of a Document-level property set in the **Preprocessor** step.
    - **Extractor Property**: The value of an internal extractor variable:
        - **Counter**: The value of the current counter iteration in a **Repeat** step.
        - **Vertical Position**: The current vertical position on the page, either in Measure (PDF) or Line (Text and CSV).
- **Operators**:
    - **is equal to**: The two specified value are identical for the condition to be **True**.
    - **contains**: The first specified value contains the second one for the condition to be **True**.
    - **is less than**: The first specified value is smaller, numerically, than the second value for the condition to be **True**.
    - **is greater than**: The first specified value is larger, numerically, than the second value for the condition to be **True**.
    - **is empty**: The first specified value is empty. With this operator, there is no second value.
    - **Invert condition**: Inverts the result of the condition. For instance, **is empty** becomes **is not empty**.

XML Files

- **Based On**:
  - **Position**: The data in the specified position for the comparison.
    - **XPath**: The path to the XML field that is extracted.
    - **Use Selection**: Click to use the value of the current data selection for the extraction.
    - **Trim**: Select to trim empty characters at the beginning or the end of the field.
  - **Value**: A specified static text value.
    - **Value**: The text value to use in the comparison.
    - **Use selected text**: Uses the text in the current data selection as the **Value**. If multiple lines or elements are selected, only the first one is used.
  - **Field**: The contents of a specific field in the **Extracted Record**.
    - **Field**: The **Extracted Record** field to use in the comparison.
  - **JavaScript** : The result of a JavaScript **Expression**.
    - **Expression**: The JavaScript line that is evaluated. Note that the last value attribution to a variable is the one used as a result of the expression.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog.
    - **Use selected text**: Inserts the text in the current data selection in the JavaScript **Expression**. If multiple lines or elements are selected, only the first one is used.
  - **Data Property**: The value of a data-level property set in the **Preprocessor** step.
  - **Record Property:** One of the local variables that you can create and that are reset for each document as opposed to data variables that are global because they are initialized only once at the beginning of each job.
  - **Automation Property**: The current value of a Document-level property set in the **Preprocessor** step.
  - **Extractor Property**: The value of an internal extractor variable:
    - **Counter**: The value of the current counter iteration in a **Repeat** step.
    - **Vertical Position**: The current vertical position on the page, either in Measure (PDF) or Line (Text and CSV).

- **Operators**:
    - **is equal to**: The two specified value are identical for the condition to be **True**.
    - **contains**: The first specified value contains the second one for the condition to be **True**.
    - **is less than**: The first specified value is smaller, numerically, than the second value for the condition to be **True**.
    - **is greater than**: The first specified value is larger, numerically, than the second value for the condition to be **True**.
    - **is empty**: The first specified value is empty. With this operator, there is no second value.
    - **Invert condition**: Inverts the result of the condition. For instance, **is empty** becomes **is not empty**.

Condition step properties

A **Condition** step is used when the data extraction must be based on specific criteria. See "Condition step" on page 116 for more information.

The properties of a Conditon step become visible in the Step properties pane when the Condition step is selected on the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Rule tree

The **Rule tree** subsection displays the full combination of rules (defined below under **Condition**) as a tree, which gives an overview of how the conditions work together as well as the result for each of these conditions for the current record or iteration.

- To rename a rule, double click on its name from the **Rule tree** subsection.
- To change the way rules are combined, right-click "AND". Select OR or XOR instead. XOR means one or the other, but not both.

Condition

First, the **Condition List** displays the conditions in list form, instead of the tree form above. Three buttons are available next to the list:

- **Add condition**: Click to add a new rule. This will always branch the current condition as an "AND" operator.
- **Delete condition**: Delete the currently selected condition.

Conditions are made by comparison of two operands using a specific **Operator**.

> **Note**
>
> Both the **Left** and **Right** operands have the same properties.

- **Based On**:
  - **Position**: The data in the specified position for the comparison.
    - **Left** (Txt and PDF only): The start position for the data selection. Note that conditions are done on the current line, either the current cursor position, or the current line in a **Repeat** step.
    - **Right** (Txt and PDF only): The end position for the data selection.
    - **Height** (Txt and PDF only): The height of the selection box.
    - **Column** (CSV and Database only): Drop-down listing all fields in the Data Sample, of which the value will be used.
    - **XPath** (XML only): The path to the XML field that is extracted.
    - **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
    - **Use Selection**: Click to use the value of the current data selection for the extraction.
    - **Trim**: Select to trim empty characters at the beginning or the end of the field.

- **Value**: A specified static text value.
    - **Value**: The text value to use in the comparison.
    - **Use selected text**: Uses the text in the current data selection as the **Value**. If multiple lines or elements are selected, only the first one is used.
- **Field**: The contents of a specific field in the **Extracted Record**.
    - **Field**: The **Extracted Record** field to use in the comparison.
- **JavaScript** : The result of a JavaScript **Expression**.
    - **Expression**: The JavaScript line that is evaluated. Note that the last value attribution to a variable is the one used as a result of the expression.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog (see "Using scripts in the DataMapper" on page 226).
    - **Use selected text**: Inserts the text in the current data selection in the JavaScript **Expression**. If multiple lines or elements are selected, only the first one is used.
- **Data Property**: The value of a data-level property set in the Preprocessor (see "Preprocessor step" on page 112).
- **Record Property:** One of the local variables that you can create and that are reset for each document as opposed to data variables that are global because they are initialized only once at the beginning of each job.
- **Automation Property**: The current value of a Document-level property set in the Preprocessor step (see "Preprocessor step" on page 112).
- **Extractor Property**: The value of an internal extractor variable:
    - **Counter**: The value of the current counter iteration in a **Repeat** step.
    - **Vertical Position**: The current vertical position on the page, either in Measure (PDF) or Line (Text and CSV).

- **Operators**:
    - **is equal to**: The two specified value are identical for the condition to be **True**.
    - **contains**: The first specified value contains the second one for the condition to be **True**.
    - **is less than**: The first specified value is smaller, numerically, than the second value for the condition to be **True**.

- **is greater than**: The first specified value is larger, numerically, than the second value for the condition to be **True**.
- **is empty**: The first specified value is empty. With this operator, there is no second value.

Invert condition: Inverts the result of the condition. For instance, **is empty** becomes **is not empty**.

Multiple Conditions step properties

The **Multiple Conditons** step contains a number of Case conditions (one to start with) and a Default, to be executed when none of the other cases apply. Cases are executed from left to right. For more information see "Steps" on page 111.

The properties described below become visible in the Step properties pane when the Multiple Conditions step is selected in the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Condition

Left operand, Right operand

The **Left and right operand** can be **Based on**:

- **Position**: The data in the specified position for the comparison.
  - **Left** (Txt and PDF only): The start position for the data selection. Note that conditions are done on the current line, either the current cursor position, or the current line in a **Repeat** step.
  - **Right** (Txt and PDF only): The end position for the data selection.

    - **Height** (Txt and PDF only): The height of the selection box.
    - **Column** (CSV and Database only): Drop-down listing all fields in the Data Sample, of which the value will be used.
    - **XPath** (XML only): The path to the XML field that is extracted.
    - **Top offset**: The vertical offset from the current pointer location in the Data Sample (**Viewer**).
    - **Use Selection**: Click to use the value of the current data selection for the extraction.
    - **Trim**: Select to trim empty characters at the beginning or the end of the field.
- **Value**: A specified static text value.
    - **Value**: The text value to use in the comparison.
    - **Use selected text**: Uses the text in the current data selection as the **Value**. If multiple lines or elements are selected, only the first one is used.
- **Field**: The contents of a specific field in the **Extracted Record**.
    - **Field**: The **Extracted Record** field to use in the comparison.
- **JavaScript** : The result of a JavaScript **Expression**.
    - **Expression**: The JavaScript line that is evaluated. Note that the last value attribution to a variable is the one used as a result of the expression. See also: "DataMapper Scripts API" on page 224.
    - **Use JavaScript Editor**: Click to display the Edit Script dialog (see "Using scripts in the DataMapper" on page 226).
    - **Use selected text**: Inserts the text in the current data selection in the JavaScript **Expression**. If multiple lines or elements are selected, only the first one is used.
- **Data Property**: The value of a data-level property set in the Preprocessor step (see "Steps" on page 111).
- **Record Property:** One of the local variables that you can create and that are reset for each document as opposed to data variables that are global because they are initialized only once at the beginning of each job.
- **Automation Property**: The current value of a Document-level property set in the Preprocessor step (see "Steps" on page 111).

- **Extractor Property**: The value of an internal extractor variable:
  - **Counter**: The value of the current counter iteration in a **Repeat** step.
  - **Vertical Position**: The current vertical position on the page, either in Measure (PDF) or Line (Text and CSV).

Condition

The **Condition** drop-down displays the cases in list form. Three buttons are available next to the list:

- **Add case**: Click to add a new case to the step. It will be placed next to any existing cases.
- **Remove case**: Delete the currently selected case.
- **Order Cases**: Under the **Name** column, select a case, then click one of the buttons on the right (**Delete**, **Move Up**, **Move Down**) to delete or change the order of the cases in the list.

Operators

Case conditions are made by comparison of the two operands, left and right, using a specific **Operator**.

- **is equal to**: The two specified value are identical for the condition to be **True**.
- **contains**: The first specified value contains the second one for the condition to be **True**.
- **is less than**: The first specified value is smaller, numerically, than the second value for the condition to be **True**.
- **is greater than**: The first specified value is larger, numerically, than the second value for the condition to be **True**.
- **is empty**: The first specified value is empty. With this operator, there is no second value.
- **Invert condition**: Inverts the result of the condition. For instance, **is empty** becomes **is not empty**.

Goto step properties

The **Goto** step moves the pointer within the source data to a position that is relative to the top of the record or to the current position. See also: "Steps" on page 111.

The properties of the Goto step described in this topic become visible in the Step properties pane when you select the Goto step on the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Goto Definition

With each type of source data, the movement of the cursor is defined in a specific way.

Text file

- **Target Type**: Defines the type of jump .
  - **Line**: Jumps a certain number of lines or to a specific line.
    - **From**: Defines where the jump begins:
      - **Current Position**: The **Goto** begins at the current cursor position.
      - **Top of record**: The **Goto**begins at line 1 of the source record.
    - **Move by**: Enter the number of lines or pages to jump.
  - **Page**: Jumps between pages or to a specific page.
    - **From**: Defines where the jump begins:
      - **Current Position**: The **Goto**begins at the current cursor position.
      - **Top of record**: The **Goto**begins at line 1 of the source record.
    - **Move by**: Enter the number of lines or pages to jump.
  - **Next line with content**: Jumps to the next line that has contents, either anywhere on the line or in specific columns.
    - **Inspect entire page width**: When checked, the **Next line with content** and **Next occurrence of** options will look anywhere on the line. If unchecked,

PReS. Connect

options appear below to specify in which area of each line the **Goto**step checks in:

- **Left**: The starting column, inclusively.
- **Right**: The end column, inclusively.
- **Use selection**: Click while a selection is made in the Data Viewer to automatically set the left and right values to the left and right edges of the selection.

- **Next occurrence of**: Jumps to the next occurrence of specific text or a text pattern, either anywhere on the line or in specific columns.
  - **Inspect entire page width**: When checked, the **Next line with content** and **Next occurrence of** options will look anywhere on the line. If unchecked, options appear below to specify in which area of each line the **Goto**step checks in:
    - **Left**: The starting column, inclusively.
    - **Right**: The end column, inclusively.
    - **Use selection**: Click while a selection is made in the Data Viewer to automatically set the left and right values to the left and right edges of the selection.
  - **Expression**: Enter the text or **Regex** expression to look for on the page.
  - **Use selection**: Click while a selection is made in the Data Viewer to copy the contents of the first line of the selection into the **Expression** box.
  - **Use regular expression**: Check so that the **Expression** box is treated as a regular expression instead of static text. For more information on using **Regular Expressions (regex)**, see the Regular-Expressions.info Tutorial.

PDF File

- **Target Type**: Defines the type of jump .
  - **Physical distance**:
    - **From**: Defines where the jump begins:
      - **Current Position**: The **Goto** begins at the current cursor position.
      - **Top of record**: The **Goto**begins at line 1 of the source record.
    - **Move by**: Enter distance to jump.

PReS. Connect

- **Page**: Jumps between pages or to a specific page.
    - **From**: Defines where the jump begins:
        - **Current Position**: The **Goto**begins at the current cursor position.
        - **Top of record**: The **Goto**begins at line 1 of the source record.
    - **Move by**: Enter the number pages to jump.
- **Next line with content**: Jumps to the next line that has contents, either anywhere on the line or in specific columns.
    - **Inspect entire page width**: When checked, the **Next line with content** and **Next occurrence of** options will look anywhere on the line. If unchecked, options appear below to specify in which area of each line the **Goto**step checks in:
        - **Left**: The starting column, inclusively.
        - **Right**: The end column, inclusively.
        - **Use selection**: Click while a selection is made in the Data Viewer to automatically set the left and right values to the left and right edges of the selection.
- **Next occurrence of**: Jumps to the next occurrence of specific text or a text pattern, either anywhere on the line or in specific columns.
    - **Inspect entire page width**: When checked, the **Next line with content** and **Next occurrence of** options will look anywhere on the line. If unchecked, options appear below to specify in which area of each line the **Goto**step checks in:
        - **Left**: The starting column, inclusively.
        - **Right**: The end column, inclusively.
        - **Use selection**: Click while a selection is made in the Data Viewer to automatically set the left and right values to the left and right edges of the selection.
    - **Expression**: Enter the text or **Regex** expression to look for on the page.
    - **Use selection**: Click while a selection is made in the Data Viewer to copy the contents of the first line of the selection into the **Expression** box.

PReS. Connect

- **Use regular expression**: Check so that the **Expression** box is treated as a regular expression instead of static text. For more information on using **Regular Expressions (regex)**, see the Regular-Expressions.info Tutorial.

CSV File

- **From (CSV files)**: Defines where the jump begins:
  - **Current Position**: The **Goto** begins at the current cursor position.
    - **Move by**: Enter the number of lines or pages to jump.
  - **Top of record**: The **Goto**begins at line 1 of the source record.
    - **Move to**: Enter the number of lines or pages to jump.

XML File

- **Destination (XML files)**: Defines what type of jump to make:
  - **Sibling element**: Jumps the number of siblings (nodes at the same level) defined in the **Move by**option.
  - **Sibling element with same name**: Jumps the number of same name siblings (nodes at the same level of which the node is the same name) defined in the **Move by**option.
  - **Element, from top of record**: Jumps to the specified node. The XPATH in the **Absolute XPATH**option starts from the root node defined by **/**.
  - **Element from current position**: Jumps to a position relative to the current position of the cursor. The XPATH in the **Relative XPATH**option defines where to go,**../**goes up a level,**./**refers to the current level.
  - **Level Up/Down**: Jumps up or down one node level (up to the parent, down to a child). The number of levels to change is defined in the **Move by**option.

Postprocessor step properties

The Postprocessor step does not run for every Source Record in the Data Sample. It runs once, at the end of the Steps, after all records have been processed. For more information see "Postprocessor step" on page 120.

The properties described below become visible in the Step properties pane when the Postprocessor step is selected in the Steps pane.

Description

This subsection is collapsed by default in the interface, to give more screen space to other important parts.

Name: The name of the step. This name will be displayed on top of the step's icon in the **Steps** pane.

Comments: The text entered here will be displayed in the tooltip that appears when hovering over the step in the **Steps** pane.

Postprocessor

The Postprocessor subsection defines what postprocessors run on the Data Sample at the end of the data mapping workflow. Each Postprocessor runs in turn, using the result of the previous one as an input.

- **Name**: The name to identify the Postprocessor.
- **Type**: The type of Postprocessor. Currently there is a single type available.
    - **JavaScript** : Runs a JavaScript Expression to modify the Data Sample. See "DataMapper Scripts API" on page 224.
        - **Use JavaScript Editor**: Click to display the Edit Script dialog (see "Using scripts in the DataMapper" on page 226).
- **Add Postprocessor**: Click to add a new Postprocessor. Its settings can be modified once it is added.
- **Remove Postprocessor**: Click to remove the currently selected Postprocessor.
- **Move Up**: Click to move the Postprocessor up one position.
- **Move Down**: Click to move the Postprocessor down one position.
- **Export**: Click to export the current Postprocessor configuration and content to a file.
- **Import**: Click to import a Postprocessor configuration and content from an external file.

Postprocessor definition

JavaScript

- **Expression**: The JavaScript expression that will run on the Data Sample. See "DataMapper Scripts API" on page 224.
- **Use JavaScript Editor**: Click to display the Script Editor dialog.
- **Use selected text**: Uses the text in the current data selection as the Value. If multiple lines or elements are selected, only the first one is used.

Toolbar

In the DataMapper module, the following buttons are available in the top toolbar.

File manipulation

- **New** : Displays the **New** wizard where a new data mapping configuration or a new template can be created.
- **Open** : Displays the **Open** dialog to open an existing data mapping configuration.
- **Save** : Saves the current data mapping configuration. If the configuration has never been saved, the **Save As...** dialog is displayed.

Step manipulation

> **Note**
>
> All steps except the Action step require an active data selection in the Data Viewer (see "Selecting data" on page 95 and "The Data Viewer" on page 170).

- **Add Extract Step** : Adds an Extract Step with one or more extract fields. If more than one line or field is selected in the Data Viewer, each line or field will have an extract field.
- **Add Goto Step** : Adds a Goto step that moves the selection pointer to the beginning of the data selection. For instance if an XML node is selected, the pointer moves to where that node is located.

PReS. Connect

- **Add Condition Step** : Adds a condition based on the current data selection. The "True" branch gets run when the text is found on the page. Other conditions are available in the step properties once it has been added.
- **Add Repeat Step** : Adds a loop that is based on the current data selection, and depending on the type of data. XML data will loop on the currently selected node, CSV loops for all rows in the record. In Text and PDF data, if the data selection is on the same line as the cursor position, the loop will be for each line until the end of the record. If the data selection is on a lower line, the loop will be for each line until the text in the data selection is found at the specified position on the line (e.g. until "TOTAL" is found).
- **Add Extract Field** : Adds the data selection to the selected **Extract** step, if an extract step is currently selected. If multiple lines, nodes or fields are selected, multiple extract fields are added simultaneously.
- **Add Multiple Conditions** : Adds a condition that splits into multiple case conditions.
- **Add Action Step** : Adds a step to create a custom JavaScript snippet. See "DataMapper Scripts API" on page 224 for more details.
- **Cut Step** : Removes the currently selected step and places it in the clipboard. If the step is a Repeat or a Condition, all steps under it are also placed in the clipboard. If there is already a step in the clipboard, it will be overwritten.
- **Copy Step** : Places a copy of the currently selected step in the clipboard. The same details as the Cut step applies.
- **Paste Step** : Takes the step or steps in the clipboard and places them after the currently selected step.
- **Delete Step** : Deletes the currently selected step. If the step is a Repeat or Condition, all steps under it are also deleted.
- **Ignore Step** : Click to set the step to be ignored (aka disabled). Disabled steps do not run when in DataMapper and do not execute when the data mapping configuration is executed in Workflow. However, they can still be modified normally.
- **Validate All Records** : Runs the process on all records and verifies that no errors are present in any of the records. Errors are displayed in the Messages pane ("Messages pane" on page 172).
- **Add Data Sample** : Displays a dialog to open a new Data Source to add it as a Data Sample in the data mapping configuration. Data Samples are visible in the Settings pane ("Settings pane" on page 173).

Welcome Screen

The **Welcome Screen** appears when first starting up PReS Connect. It offers some useful shortcuts to resources and to recent documents and data mapping configurations.

The Welcome Screen can be brought back in two ways:

- The **Welcome Screen** button in the "Toolbars" on page 689.
- From the Menus in **Help**, **Welcome Screen**.

Contents

- **Activation**: Click to open the **Objectif Lune Web Activation Manager**.
- **Release Notes**: Opens the current **Release Notes** for PReS Connect.
- **Website**: Opens the PReS Connect website.
- **Take A Tour**: Click to open the YouTube Playlist giving you a tour of the software.
- **Use the DataMapper to...**:
  - **Create a New Configuration**: Opens the Creating a New Configuration screen.
  - **Open an Existing Configuration**: Click to open the standard **Browse** dialog to open an existing data mapping configuration.
  - **Recent Configurations**: Lists recently used configurations. Click any configuration to open it in the DataMapper module.
- **Use the Designer to...**:
  - **Create a New Template**: Lets you choose a Context to create a new template without a Wizard.
  - **Browse Template Wizards**: Displays a list of available Template Wizards, producing premade templates with existing demo content; see "Creating a template" on page 274.
  - **Open an Existing Template**: Click to open the standard **Browse** dialog to open an existing template.
  - **Recent Templates**: Lists recently used templates. Click any template to open it in the Designer module.
- **Other Resources**:

- **Documentation**: Opens this documentation.
- **Courses (OL Learn)**: Opens the Objectif Lune e-Learning Center.
- **User Forums**: Opens the Questions & Answer forums.

DataMapper Scripts API

This page describes the different features available in scripts created inside DataMapper. See "Using scripts in the DataMapper" on page 226.

Objects

Name	Description	Available in scripts of type
"Objects" on page 234	A ScriptableAutomation object encapsulating the properties of the PReS Workflow process that triggered the current operation.	Boundaries, all steps except Goto
"boundaries" on page 236	An object encapsulating properties and methods allowing to define the boundaries of each document in the job.	Boundaries
"data" on page 241	A data object encapsulating properties and methods pertaining to the original data stream.	Boundaries, all steps except Goto
"db" on page 254	An object that allows to connect to a database.	Boundaries, all steps except Goto
"logger" on page 255	An object that allows to log error, warning or informational messages.	Boundaries, all steps except Goto

Name	Description	Available in scripts of type
"record" on page 255	The current record in the main data set.	Extract, Condition, Repeat and Multiple Conditions steps
"region" on page 256	An object that defines a subsection of the input data.	Boundaries
"sourceRecord" on page 258	An object containing properties specific to the current source record being processed.	Boundaries, all steps except Goto and Postprocessor
"steps" on page 259	An object encapsulating properties and methods pertaining to the current data mapping configuration.	Extract, Condition, Repeat and Multiple Conditions steps

Functions

These functions are available in Boudaries and Steps scripts.

Name	Description
copyFile()	Copies a file to the target file path, replacing it if it already exists.
createHTTPRequest()	Creates a new HTTP Request Object.

Name	Description
createTmpFile()	Creates a file with a unique name in the temporary work folder and returns a **file** object.
deleteFile()	Deletes a file.
execute()	Calls an external program and waits for it to end.
newByteArray()	Returns a new byte array.
newCharArray()	Returns a character array.
newDoubleArray()	Returns a double array.
newFloatArray()	Returns a float array.
newIntArray()	Returns an integer array.
newLongArray()	Returns a long array.
newStringArray()	Returns a string array.
openBinaryReader()	Opens a file as a binary file for reading purposes.
openBinaryWriter()	Opens a file as a binary file for writing purposes.
openTextReader()	Opens a file as a text file for reading purposes.
openTextWriter()	Opens a file as a text file for writing purposes.

Using scripts in the DataMapper

In the DataMapper every part of the extraction process can be customized using scripts.

A script can be used to set **boundaries** for a data source (see "Setting boundaries using JavaScript" on page 229). The script determines where a new record starts.

Scripts can also be used in different steps in the extraction workflow. You can:

- Modify the incoming data prior to executing the rest of the extraction workflow, via a **Preprocessor** (see "Preprocessor step" on page 112).
- Edit extracted data in a field of the Data Model using a **Post function** script (entered on the Step properties pane, under Field Definition; see "Modifying extracted data" on page 128 and "Text File" on page 189).
- Enter a script in a **JavaScript-based field** (see "Adding a JavaScript-based field" on page 126). Note that the last value attribution to a variable is the one used as the result of the expression.
  It is possible to refer to previously extracted fields if they are extracted higher in this list or in previous **Extract** steps in the extraction workflow.
- Let an **Action** step run a JavaScript, or use JavaScript to add a value to a property defined in the Preprocessor step.
- Change the left and right operands in a **Condition** step to a JavaScript expression. (On the Step properties pane, under Condition, set Based on to Javascript; see "Condition step properties" on page 210 and "Left operand, Right operand" on page 213.)
- Further process the resulting record set after the entire extraction workflow has been executed, via a **Postprocessor** (see "Postprocessor step" on page 120).

The script can always be written directly in a small script area or in the **Edit script** dialog. To invoke this dialog click the **Use JavaScript Editor** button .

> **Tip**
>
> In the **Edit script** dialog, press **Ctrl** + **Space** to bring up the list of available JavaScript objects and functions (see Datamapper API). Use the arrow keys to select a function or object and press enter to insert it. Type a dot after the name of the function or object to see which features are subsequently available.

Keyboard shortcuts for the script editor are listed in the following topic: "Keyboard shortcuts" on page 656.

PReS. Connect

Syntax rules

In the DataMapper, all scripts must be written in **JavaScript**, following JavaScript syntax rules. For example, each statement should end with **;** and the keywords that can be used, such as **var** to declare a variable, are JavaScript keywords. There are countless tutorials available on the Internet to familiarize yourself with the JavaScript syntax. For a simple script all that you need to know can be found on the following web pages: http://www.w3schools.com/js/js_syntax.asp and http://www.w3schools.com/js/js_if_else.asp. A complete JavaScript guide for beginners can be found here: https://developer.mozilla.org/en-US/docs/Web/JavaScript.

DataMapper API

Certain features that can be used in a DataMapper script do not exist in the native JavaScript library. These are additional JavaScript features, designed for use in Connect only. All features designed for use in the DataMapper are listed in the DataMapper API (see DataMapper API).

External JavaScript libraries

The External JS Libraries box on the Settings pane lets you add JavaScript libraries to your configuration and displays all the libraries that have been imported (see "Settings pane" on page 173).
You can use JavaScript libraries to add more JavaScript functionality to your data mapping configuration. Any functions included in a JavaScript library that is imported in a data mapping configuration will be available in Preprocessor scripts as well as Action tasks, Post functions and JavaScript-based extraction steps.

Take the following JavaScript function, for example:

```
function myAddFunction(p1, p2) {
    return p1 + p2;
};
```

If this is saved as myFunction.js and imported, then the following would work anywhere in the configuration:

```
var result = myAddFunction(25, 12); // returns 37!
```

Setting boundaries using JavaScript

As soon as you select the **On Script** option as the trigger for establishing record boundaries (see "Record boundaries" on page 90), you are instructing the DataMapper to read the source file sequentially and to trigger an event each and every time it hits a delimiter. (What a delimiter is, depends on the source data and the settings for that data; see "Input data settings (Delimiters)" on page 89).
In other words, the script will be executed - by default - as many times as there are delimiters in the input data.

If you know, for instance, that a PDF file only contains documents that are 3 pages long, your script could keep count of the number of times it's been called since the last boundary was set (that is, the count of delimiters that have been encountered). Each time the count is a multiple of 3, it could set a new record boundary. This is basically what happens when setting the trigger to **On Page** and specifying 3 as the Number of Pages.

> **Note**
>
> Remember that a boundary script is being called on each new delimiter encountered by the DataMapper parsing algorithm. If for instance a database query returns a million records, the script will be executing a million times! Craft your script in such a way that it doesn't waste time examining all possible conditions. Instead, it should terminate as soon as any condition it is evaluating is false.

Accessing data

Data available inside each event

Every time a delimiter is encountered, an event is triggered and the script is executed. The event gives the script access to the data between the current location - the start of a row, line or page - and the next delimiter. So at the beginning of the process for a PDF or text file, you have access to the first page only, and for a CSV or for tabular data, that would be the first row or record.

This means that you can:

- Examine the data found in between delimiters for specific conditions.
- Examine specific regions of that data, or the available data as a whole.

PReS. Connect

- Compare the contents of one region with another.
- Etc.

To access this data in the script, use the **get()** function of the **boundaries** object. This function expects different parameters depending on the type of source file; see "Example" on page 238.

Getting access to other data

Data that is not passed with the event, but that is necessary to define the record boundaries, can be stored in the **boundaries** object using the **setVariable** function (see "boundaries" on page 236 and "Example" on page 240). The data can be retrieved using the boundaries' **getVariable** function (see "getVariable()" on page 238).
This way the script can access values that were evaluated in previous pages or rows, across delimiters, so you can easily set record boundaries that span over multiple delimiters.

For more information on the syntax, please refer to "DataMapper Scripts API" on page 224.

Examples

Basic example using a CSV file

Imagine you are a classic rock fan and you want to extract the data from a CSV listing of all the albums in your collection. Your goal is to extract records that change whenever the artist OR the release year changes.

Here's what the CSV looks like:

```
"Artist","Album","Released"
"Beatles","Abbey Road",1969
"Beatles","Yellow Submarine",1969
"Led Zeppelin","Led Zeppelin 1",1969
"Led Zeppelin","Led Zeppelin 2",1969
"Beatles","Let it be",1969
"Rolling Stones","Let it bleed",1969
"Led Zeppelin","Led Zeppelin 3",1970
"Led Zeppelin","Led Zeppelin 4",1971
"Rolling Stones","Sticky Fingers",1971
```

Note

The first line is just the header with the names of the CSV columns. The data is already sorted per year, per artist, and per album.

Your goal is to examine two values in each CSV record and to act when either changes. The DataMapper GUI allows you to specify a **On Change** trigger, but you can only specify a single field. So for instance, if you were to set the record boundary when the "Released" field changes, you'd get the first four lines together inside a single record. That's not what you want since that would include albums from several different artists. And if you were to set it when the "Artist" field changes, the first few records would be OK but near the end, you'd get both the Led Zeppelin 3 and led Zeppelin 4 albums inside the same record, even though they were released in different years.

Essentially, we need to combine both these conditions and set the record boundary when EITHER the year OR the artist changes.

Here's what the script would look like:

```
/* Read the values of both columns we want to check */
var zeBand = boundaries.get(region.createRegion("Artist"));
var zeYear = boundaries.get(region.createRegion("Released"));

/* Check that at least one of our variables holding previous values
has been initialized already, before attempting to compare the
values */

if (boundaries.getVariable("lastBand")!=null) {
        if (zeBand[0] != boundaries.getVariable("lastBand") || zeYear[0]
!= boundaries.getVariable("lastYear") )
        {
        boundaries.set();
        }
}
boundaries.setVariable("lastBand",zeBand[0]);
boundaries.setVariable("lastYear",zeYear[0]);
```

- The script first reads the two values from the input data, using the createRegion() method (see: "Example" on page 257). For a CSV/database data type, the parameter it expects is

PReS. Connect

simply the column name. The region is passed as a parameter to the get() method, which reads its contents and converts it into an array of strings (because any region, even a CSV field, may contain several lines).

- To "remember" the values that were processed the last time the event was triggered, we use variables that remain available in between events. Note that these variables are specific to the Boundary context and not available in any other scripting context in the DataMapper.
- The script first checks if those values were initialized. If they weren't, it means this is the first iteration so there's no need to compare the current values with previous values since there have been none yet. But if they have already been initialized, then a condition checks if either field has changed since last time. If that's the case, then a boundary is created through the set() method.
- Finally, the script stores the values it just read in the variables using the setVariables() method. They will therefore become the "last values encountered" until the next event gets fired. When called, setVariables() creates the specified variable if it doesn't already exist and then sets the value to the second parameter passed to the function.

You can try it yourself. Paste the data into the text editor of your choice and save the file to Albums.csv. Then create a new DataMapper configuration and load this CSV as your data file. In the Data Input Settings, make sure you specify the first row contains field names and set the **Trigger** to **On script**. Then paste the above JavaScript code in the **Expression** field and click the **Apply** button to see the result.

Basic example using a text file

This example is similar to the previous example, but now the data source is a plain text file that looks like this:

Beatles	Abbey Road	1969
Beatles	Yellow Submarine	1968
Led Zeppelin	Led Zeppelin 1	1969
Led Zeppelin	Led Zeppelin 2	1969
Beatles	Let it be	1970
Rolling Stones	Let it bleed	1969
Led Zeppelin	Led Zeppelin 3	1970
Led Zeppelin	Led Zeppelin 4	1971
Rolling Stones	Sticky Fingers	1971

PReS. Connect

The purpose of the script, again, is to set the record boundary when EITHER the year OR the artist changes.

The script would look like this:

```
/* Read the values of both columns we want to check */
var zeBand = boundaries.get(region.createRegion(1,1,30,1));
var zeYear = boundaries.get(region.createRegion(61,1,65,1));

/* Check that at least one of our variables holding previous values
have been initialized already, before attempting to compare the
values */

if (boundaries.getVariable("lastBand")!=null) {
        (zeBand[0]!=boundaries.getVariable("lastBand") || zeYear
[0]!=boundaries.getVariable("lastYear"))
        {
        boundaries.set();
        }
}
boundaries.setVariable("lastBand",zeBand[0]);
boundaries.setVariable("lastYear",zeYear[0]);
```

This script uses the exact same code as used for CSV files, with the exception of parameters expected by the createRegion() method. The get method adapts to the context (the data source file) and therefore expects different parameters to be passed in order to achieve the same thing. Since a text file does not contain column names as a CSV does, the API expects the text regions to be defined using physical coordinates. In this instance: Left, Top, Right, Bottom.

To try this code, paste the data into a text editor and save the file to Albums.txt. Then create a new DataMapper configuration and load this Text file as your data file. In the Data Input Settings, specify **On lines** as the **Page delimiter** type with the number of lines set to 1. When you now set the boundary **Trigger** to **On script**, the file will be processed line per line (triggering the event on each line). Paste the above code in the JavaScript expression field and click the **Apply** button to see the result.

> **Note**
>
> The PDF context also expects physical coordinates, just like the Text context does, but since PDF

PReS. Connect

pages do not have a grid concept of lines and columns, the above parameters would instead be specified in millimeters relative to the upper left corner of each page. So for instance, to create a region for the Year, the code might look like this:

region.createRegion(190,20,210,25)

which would create a region located near the upper right corner of the page.

That's the only similarity, though, since the script for a PDF would have to look through the entire page and probably make multiple extractions on each one since it isn't dealing with single lines like the TXT example given here.

For more information on the API syntax, please refer to "DataMapper Scripts API" on page 224.

Objects

automation

Returns a **ScriptableAutomation** object encapsulating the properties of the PReS Workflow process that triggered the current operation.

Note

The `automation` object available in Designer scripts is not of the same type. It has different properties.

Properties

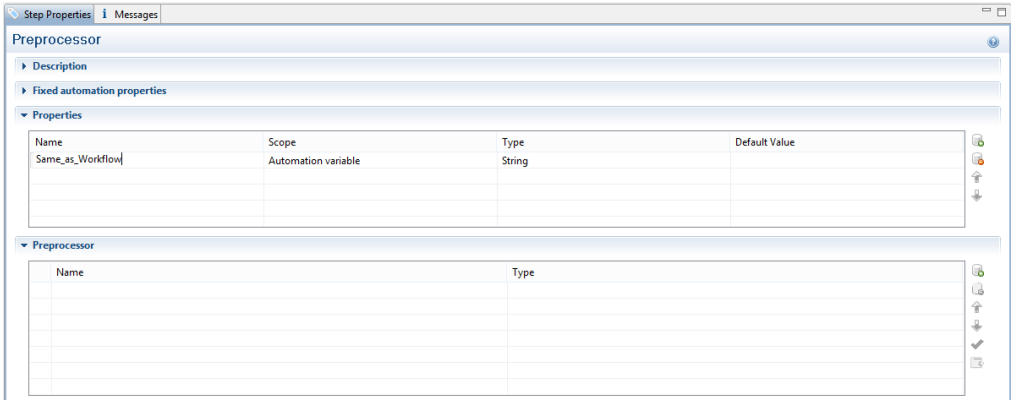
The following table lists the properties of the **automation** object.
These are available in Boundaries scripts, with all file types.

Property	Description
jobInfo	Returns a ScriptableAutomation object containing JobInfo 1 to 9 values from PReS Workflow.

Property	Description
properties	Returns a ScriptableAutomation object containing additional information (file name, process name and task ID) from PReS Workflow.
variables	Returns a ScriptableAutomation object containing the list of local and global variables defined by the user in PReS Workflow. Note that there is no way to distinguish local variables from global ones (local variables take precedence over global variables). To be used in the DataMapper, variables must have already been defined in the Preprocessor step as Automation variables. The Preprocessor step attempts to match variable names passed by the Workflow process to those defined inside the step.

Accessing automation properties

To make a Workflow **variable** accessible in scripts, it must first be declared in the Properties of the Preprocessor step (see "Properties" on page 187). Both the name and type of the variable must be the same as the variable in Workflow.



The other properties are accessible as they are.

Examples

To access JobInfo 1 to 9 from Workflow:

automation.jobInfo.JobInfo1;

To access ProcessName, OriginalFilename or TaskIndex from Workflow:

automation.properties.OriginalFilename;

To access Workflow variables (declared in the Preprocessor properties):

automation.variables.Same_as_workflow;

boundaries

Returns a **boundaries** object encapsulating properties and methods allowing to define the boundaries of each document in the job.

This object is available when triggering document boundaries **On script**.

Properties

The following table lists the properties of the boundaries object.

Property	Return Type
currentDelim	A read-only 1-based index (number) of the current delimiter in the file. In other words, the Beginning Of File (BOF) delimiter equals 1. It indicates the position of the current delimiter relative to the last document boundary

Methods

The following table describes the functions of the boundaries object. They are available with all file types.

Method	Description	Script type
"find()" on the next page	Finds the first occurrence of a string starting from the current position.	Boundaries Preprocessor, Extract, Condition, Repeat, Action, and Postprocessor steps
get()	Retrieves an array of strings.	Boundaries

PReS. Connect

Method	Description	Script type
getVariable()	Retrieves a value of a variable stored in the `boundaries` object.	Boundaries
set()	Sets a new record boundary. (See: "Record boundaries" on page 90.)	Boundaries
setVariable()	Sets a `boundaries` variable to the specified value, automatically creating the variable if it doesn't exist yet.	Boundaries

find()

Method of the `boundaries` object that finds a string in a region of the data source file. The method returns a smaller region which points to the exact location where the match was found.

find(stringToFind, in_Region)

Finds the string stringToFind in a rectangular region defined by inRegion.

stringToFind

String to find.

in_Region

The inRegion can be created prior to the call to find() with the region.createRegion() method. It depends on the type of data source how a region is defined; see "Example" on page 257.

The `find()` method returns a different `region` object whose `range` property is adjusted to point to the exact physical location where the match was found. This will always be a subset of the `in_Region.range` property. It can be used to determine the exact location where the match occurred.

Use `boundaries.get()` to retrieve the actual text from the resulting region; see "Example" on the facing page.

PReS. Connect

get()

The `get()` method reads the contents of a `region` object and converts it into an array of strings (because any region may contain several lines).
How the `region` is defined, depends on the type of source data; see "region" on page 256 and "Example" on page 257.

get(in_Region)

in_Region

A region object. What type of object this is depends on the type of source data, however in any case the `region` object can be created with a call to `region.createRegion()`; see "Example" on page 257.

Example

This script retrieves all text from the Email_Address field in a CSV or database file.

```
boundaries.get(region.createRegion("Email_Address"));
```

getVariable()

Method that retrieves the value currently stored in a variable.

> **Note**
>
> Boundary variables are carried over from one iteration of the Boundaries script to the next, while native JavaScript variables are not.

getVariable(varName)

varName

String name of the variable from which the value is to be retrieved. If the variable does not exist, the value `null` is returned. It is considered good practice (almost mandatory, even) to always check whether a variable is defined before attempting to access its value.

set()

Sets a new DataMapper record boundary.

PReS. Connect

set(delimiters)

delimiters

Sets a new record boundary. The **delimiters** *parameter is an offset from the current delimiter, expressed in an integer that represents a number of delimiters.*
If this parameter is not specified, then a value of 0 is assumed. A value of 0 indicates the record boundary occurs on the current delimiter.
A negative value of -n indicates that the record boundary occurred -n delimiters before the current delimiter.
A positive value of n indicates that the record boundary occurs +n delimiters after the current delimiter.

> **Note**
>
> Specifying a positive value not only sets the DataMapper record boundary but it also advances the current delimiter to the specified delimiter. That's where the processing resumes. This allows you to skip some pages/records when you know they do not need to be examined. Negative (or 0) values simply set the boundary without changing the current location.

Example

This script sets a boundary when the text TOTAL is found on the current page in a PDF file. The number of delimiters is set to 1, so the boundary is set on the next delimiter, which is the start of the next page.

```
if (boundaries.find("TOTAL", region.createRegion
(10,10,215,279)).found) {
        boundaries.set(1);
}
```

Assume you want to set record boundaries whenever the text "TOTAL" appears in a specific region of the page of a PDF file, but the PDF file has already been padded with blank pages for duplexing purposes. The boundary should therefore be placed at the end of the page where the match is found if that match occurs on an even page, or at the end of the next blank page, if the match occurs on an odd page. Recall that for PDF files, the natural delimiter is a PDF page. The JavaScript code would look something like the following:

```
var myRegion = region.createRegion(150,220,200,240);
if(boundaries.find("TOTAL", myRegion).found) {
        /* a match was found. Check if we are on a odd or even page and
```


PReS. Connect

```
set the Boundary accordingly */
        if((boundaries.currentDelim % 2) !=0 ) {
                /* Total is on odd page, let's set the document Boundary or
delimiter further, thereby skipping the next blank page */
                boundaries.set(1);
                } else {
                /* Total is on an even page, set the document Boundary to t
current delimiter */
                boundaries.set();
                }
        }
}
```

setVariable()

This method sets a variable in the `boundaries` to the specified value, automatically creating the variable if it doesn't exist yet.

> **Note**
>
> Boundary variables are carried over from one iteration of the Boundaries script to the next, while native JavaScript variables are not.

setVariable(varName, varValue)

Sets variable **varName** to value **varValue**.

varName

String name of the variable of which the value is to be set.

varValue

Object; value to which the variable has to be set.

Example

This script examines a specific region and stores its contents in a variable in the boundaries.

```
var addressRegion = region.createRegion(10, 30, 100, 50);
var addressLines = boundaries.get(addressRegion);
boundaries.setVariable("previousLines",addressLines);
```


PReS. Connect

data

Returns a data object encapsulating properties and methods pertaining to the original data stream.

Properties

The following table lists the properties of the data object.

Property	Description	Return type
filename	The path of the input file.	Returns the fully qualified file name of the temporary work file being processed.
properties	Contains properties declared in the preprocessor step (see Preprocessor Step Properties for details).	Returns an array of properties defined in the **Preprocessor** step with the data scope (i.e. statically set at the start of the job).

Methods

The following table lists the methods of the data object.

Method	Description	Script type	File type
"Examples" on page 243	Extracts the text value from a rectangular region.	Extract, Condition, Repeat, and Action steps	All
"extractMeta()" on page 249	Extracts the value of a metadata field.	Extract, Condition, Repeat, and Action steps	All
"fieldExists()" on page 249	Method that returns **true** if the specified metadata field, column or node exists.	Boundaries Preprocessor, Extract, Condition, Repeat, Action,	All

PReS. Connect

Method	Description	Script type	File type
		and Postprocessor steps	
"Examples" on page 251	Finds the first occurrence of a string starting from the current position.	Boundaries Preprocessor, Extract, Condition, Repeat, Action, and Postprocessor steps	All
"Examples" on page 254	Finds the first match for a regular expression pattern starting from the current position.	Extract, Condition, Repeat, Multiple Conditions and Action steps	Text, PDF

extract()

Extracts the text value from selected data: a node path, column, or rectangular region, depending on the type of data source.
This method always returns a String.

extract(left, right, verticalOffset, regionHeight, separator)

Extracts a value from a position in a **text** file. Coordinates are expressed as characters (horizontally) or lines (vertically).

left

Number that represents the distance, measured in characters, from the left edge of the page to the left edge of the rectangular region. The leftmost character is character 1.

right

Number that represents the distance, measured in characters, from the left edge of the page to the right edge of the rectangular region.

verticalOffset

Number that represents the current vertical position, measured in lines.

regionHeight

Number that represents the total height of the region, measured in lines.

separator

String inserted between all lines returned from the region. If you don't want anything to be inserted between the lines, specify an empty string ("").

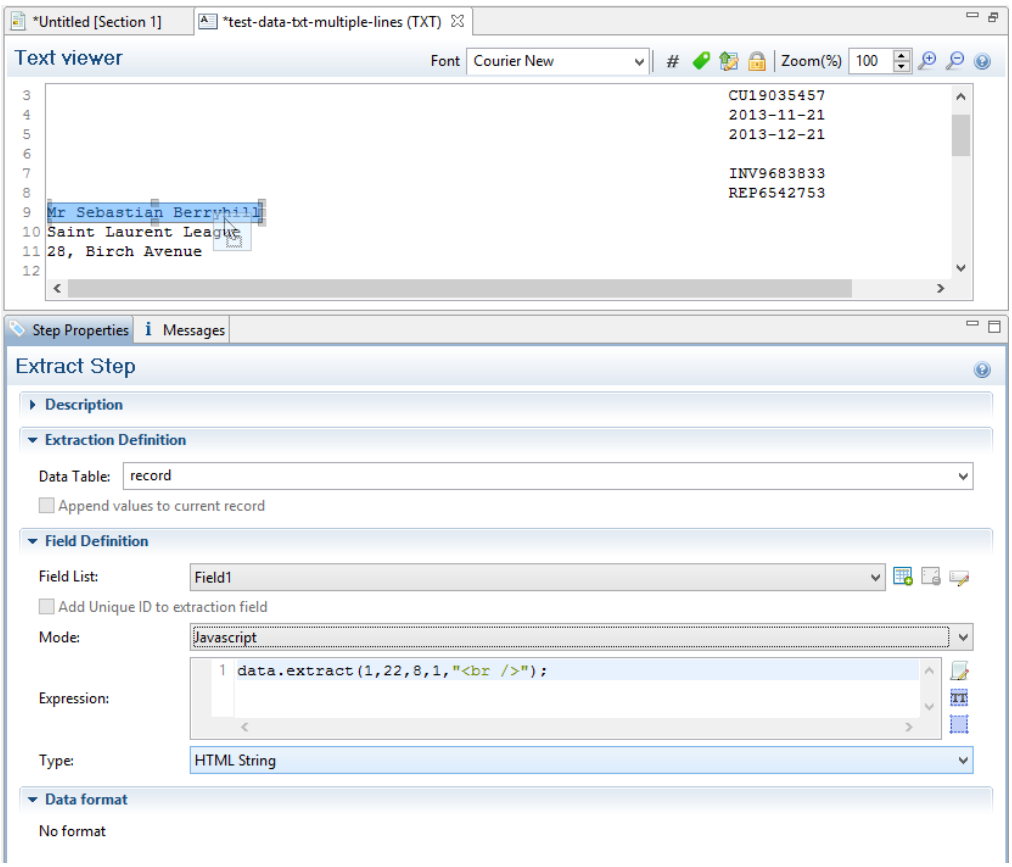
> **Tip**
>
> "<br/>" is a very handy string to use as a separator. When the extracted data is inserted in a Designer template, "<br/>" will be interpreted as a line break, because <br/> is a line break in HTML and Designer templates are actually HTML files.

Examples

Example 1:

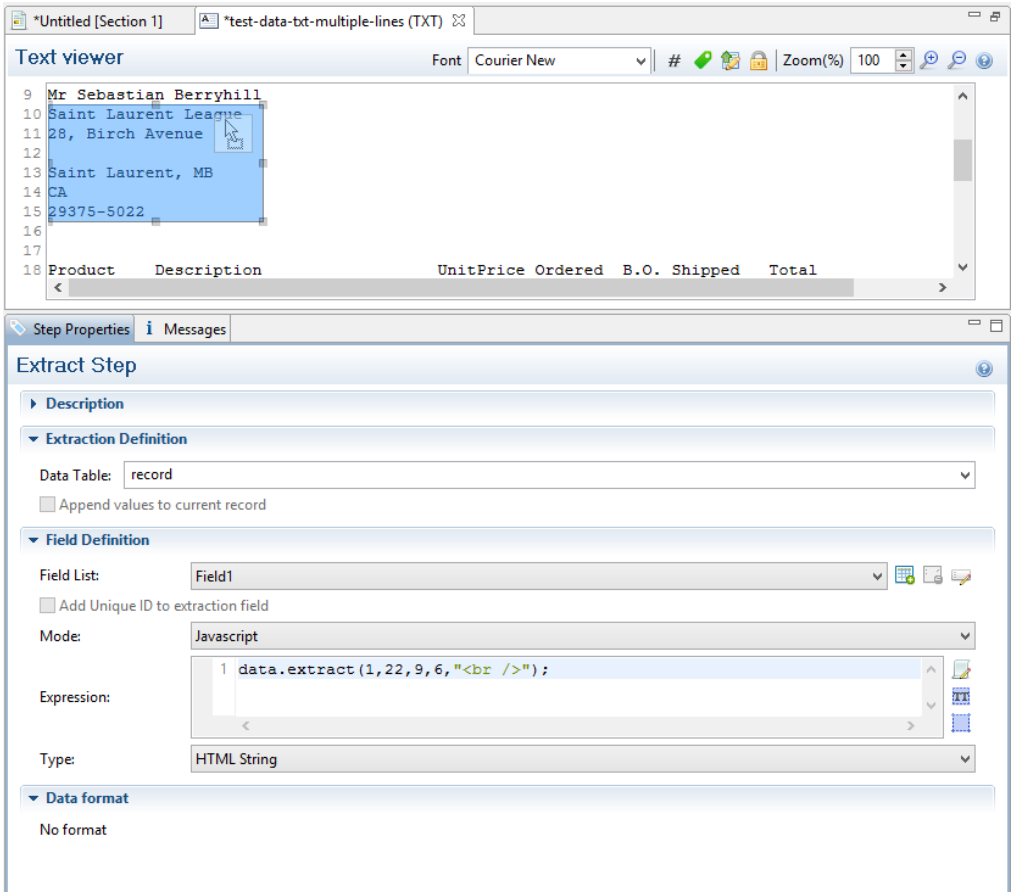
The script command `data.extract(1,22,8,1,"<br />");` means that the left position of the extracted information is located at character 1, the right position at character 22, the offset position is 8 (since the line number is 9) and the regionHeight is 1 (to select only 1 line). Finally, the "<br/>" string is used for concatenation.

PReS. Connect



Example 2:

The script command **data.extract(1,22,9,6,"<br />");** means that the left position of the extracted information is located at 1, the right position at 22, the offset position is 9 (since the first line number is 10) and the regionHeight is 6 (6 lines are selected). Finally, the "<br/>" string is used for concatenation.



extract(xPath)

Extracts the text value of the specified node in an **XML** file.

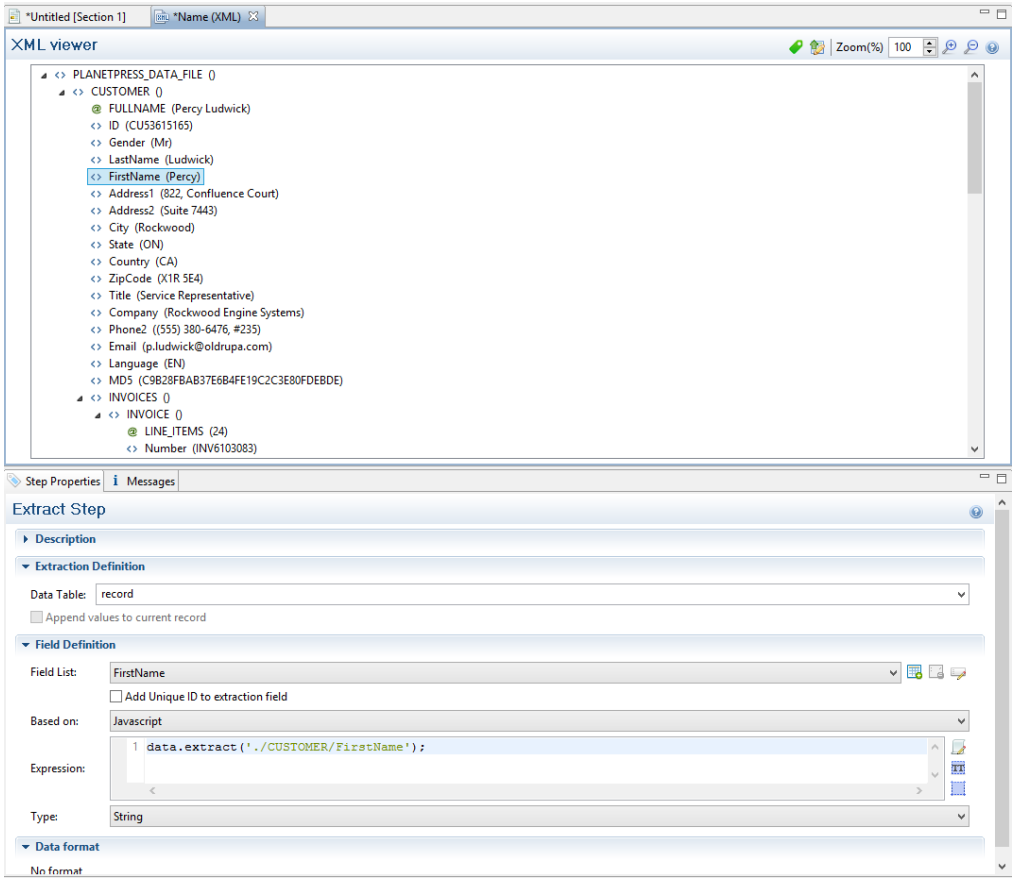
xPath

String that can be relative to the current location or absolute from the start of the record.

Example

The script command **data.extract('./CUSTOMER/FirstName');** means that the extraction is made on the **FirstName** node under **Customer**.

PReS. Connect



extract(columnName, rowOffset)

Extracts the text value from the specified column and row.

columnName

String that represents the column name.

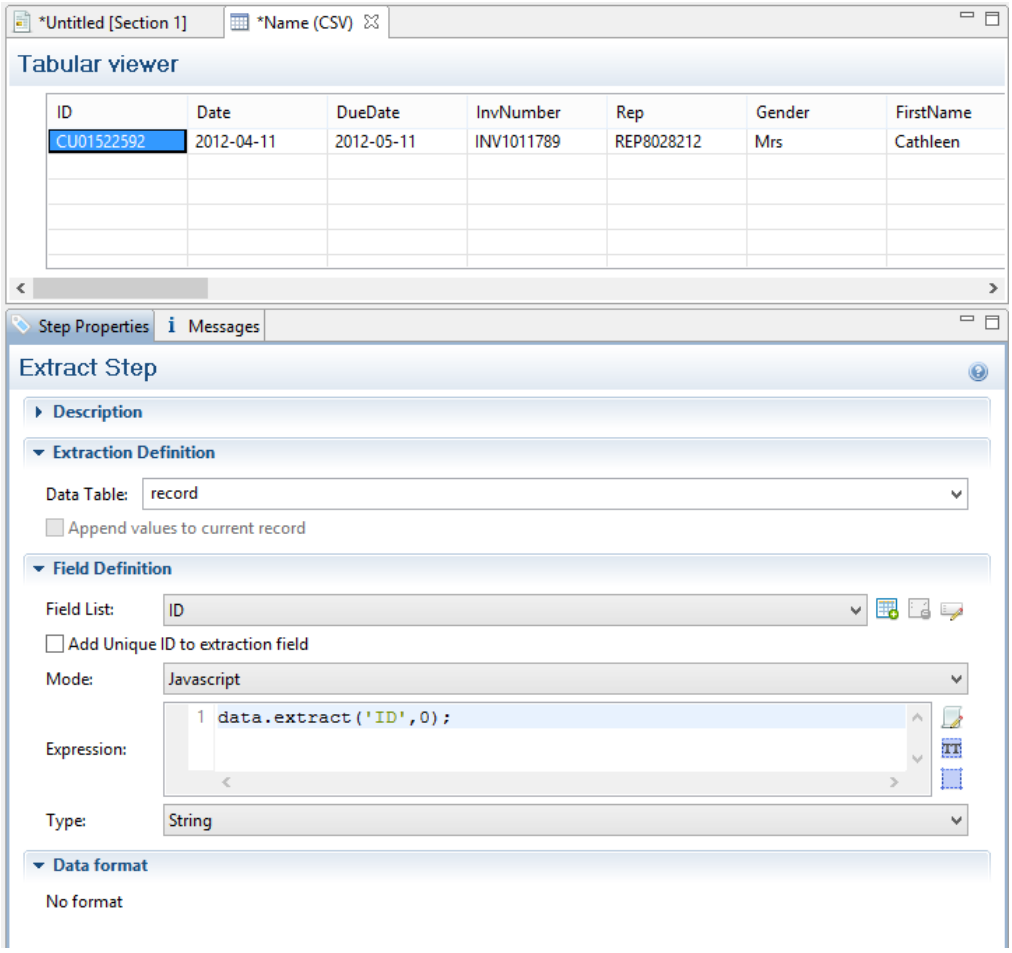
rowOffset

Number that represents the row index (zero-based), relative to the first row in the record. To extract the first row, specify 0 as the rowOffset.

Example

The script command **data.extract('ID',0);** means that the extraction is made on the **ID** column in the first row.

PReS. Connect



extract(left, right, verticalOffset, lineHeight, separator)

Extracts the text value from a rectangular region in a **PDF** file. All coordinates are expressed in millimeters.

left

Double that represents the distance from the left edge of the page to the left edge of the rectangular region.

right

Double that represents the distance from the left edge of the page to the right edge of the rectangular region.

verticalOffset

Double that represents the distance from the current vertical position.

PReS. Connect

lineHeight

Double that represents the total height of the region.

separator

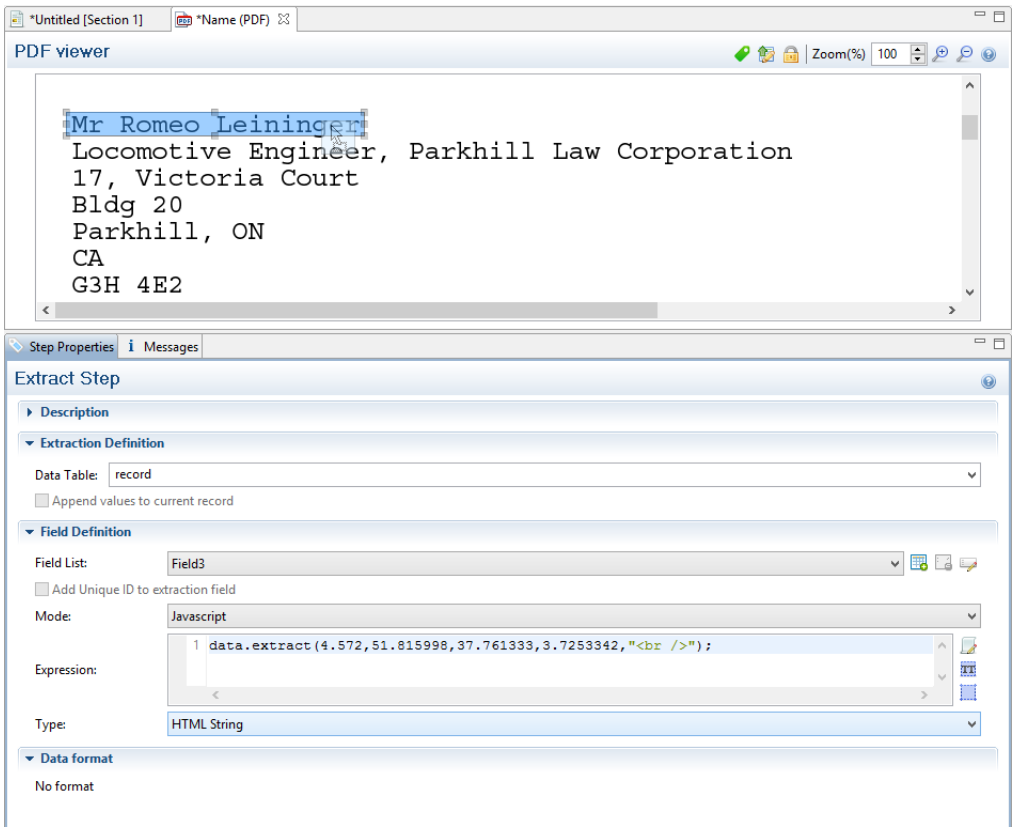
String inserted between all lines returned from the region. If you don't want anything to be inserted between the lines, specify an empty string ("").

> **Tip**
>
> "<br/>" is a very handy string to use as a separator. When the extracted data is inserted in a Designer template, it will be interpreted as a line break, because <br/> is a line break in HTML and Designer templates are actually HTML files.

Example

The script command **data.extract(4.572,51.815998,37.761333,3.7253342,"<br />");** means that the left position of the extracted information is located at 4.572mm, the right position at 51.815998mm, the vertical offset is 37.761333mm and the line height is 3.7253342mm. Finally, the "<br/>" string is used for concatenation.

PReS. Connect



extractMeta()

Method that extracts the value of a metadata field on a certain level in a PDF/VT. This method always return a String.

extractMeta(levelName String, propertyName String)

levelName

String, specifying the PDF/VT's level. Case-sensitive.

propertyName

String, specifying the metadata field.

fieldExists()

Method of the `data` object that returns **true** if a certain metadata field, column or node exists. (See "data" on page 241.)

PReS. Connect

fieldExists(levelName, propertyName)

This method returns **true** if the given metadata field exists at the given level in a **PDF** file.

levelName
String that specifies the metadata field.

propertyName
String that specifies the level.

fieldExists(fieldName)

This method returns **true** if the specified column exists in the current record in a **CSV** file.

fieldName
String that represents a field name (column) in a CSV file.

fieldExists(xPath)

This method returns **true** if the specified node exists in the current record in an **XML** file.

xPath
String that specifies a node.

find()

Method of the data object that finds the first occurrence of a string starting from the current position.

find(stringToFind, leftConstraint, rightConstraint)

Finds the first occurrence of a string starting from the current position. The search can be constrained to a series of characters (in a text file) or to a vertical strip (in a PDF file) located between the given constraints.
The method returns `null` if the string cannot be found. Otherwise it returns a RectValueText (if the data source is a text file) or RectValuePDF (if the data source is a PDF file) object. This object contains the absolute Left, Top, Right and Bottom coordinates of the smallest possible rectangle that completely encloses the first occurrence of the string. The coordinates are expressed in a number of characters if the data source is a text file, or in millimetres if the data source is a PDF file.

Partial matches are not allowed. The entire string must be found between the two constraint parameters.

The `data.find()` function only works on the current page. If the record contains several pages, you must create a loop that will perform a jump from one page to another to do a `find()` on each page.

> **Note**
>
> Calling this method does not move the current position to the location where the string was found. This allows you to use the method as a look-ahead function without disrupting the rest of the data mapping workflow.

stringToFind

String to find.

leftConstraint

Number indicating the left limit from which the search is performed. This is expressed in characters for a text file, or in millimetres for a PDF file.

rightConstraint

Number indicating the right limit to which the search is performed. This is expressed in characters for a text file, or in millimetres for a PDF file.

Examples

To look for the word "text" on an entire Letter page (8 1/2 x 11 inch), the syntax is:

```
data.find("text", 0, 216);
```

The numbers 0 and 216 are in millimeters and indicate the left and right limits (constraints) within which the search should be performed. In this example, these values represent the entire width of a page. Note that the smaller the area is, the faster the search is. So if you know that the word "text" is within 3 inches from the left edge of the page, provide the following:

```
data.find("text", 0, 76.2); //76.2mm =  3*25.4 mm
```

The return value of the function is:

PReS. Connect

```
Left=26,76, Top=149.77, Right=40,700001, Bottom=154.840302
```

These values represent the size of the rectangle that encloses the string in full, in millimeters relative to the upper left corner of the current page.

findRegExp()

Finds the first occurrence of a string that matches the given regular expression pattern, starting from the current position.

findRegExp (regexpToFind, flags, leftConstraint, rightConstraint): rectValueText)

Finds the first match for a given regular expression pattern starting from the current position. Regular expression flags (**i,s,L,m,u,U,d**) are specified in the flags parameter. The search can be constrained to a vertical column of characters located between the left and right constraint, each expressed in characters (in a text file) or millimeters (in a PDF file).
Partial matches are not allowed. The entire match for the regular expression pattern must be found between the two constraints.

The method returns `null` if the regular expression produces no match. Otherwise it returns a RectValueText object, containing the Left, Top, Right and Bottom coordinates - expressed in characters (in a text file) or millimeters (in a PDF file), relative to the upper left corner of the current page - of the smallest possible rectangle that completely encloses the first match for the regular expression.

> **Note**
>
> Calling this method does not move the current position to the location where the match occurred. This allows you to use the method as a look-ahead function without disrupting the rest of the data mapping workflow.

regexpToFind

Regular expression pattern to find.

flags

i*: Enables case-insensitive matching. By default, case-insensitive matching assumes that only characters in the US-ASCII charset are being matched. Unicode-aware case-insensitive*

PReS. Connect

*matching can be enabled by specifying the UNICODE_CASE flag (**u**) in conjunction with this flag.*

s*: Enables dotall mode. In dotall mode, the expression* **.** *matches any character, including a line terminator. By default this expression does not match line terminators.*

L*: Enables literal parsing of the pattern. When this flag is specified, then the input string that specifies the pattern is treated as a sequence of literal characters. Metacharacters or escape sequences in the input sequence will be given no special meaning. The CASE_ INSENSITIVE (**i**) and UNICODE_CASE (**u**)flags retain their impact on matching when used in conjunction with this flag. The other flags become superfluous.*

m*: Enables multiline mode. In multiline mode, the expressions ^ and $ match just after or just before, respectively, a line terminator or the end of the input sequence. By default, these expressions only match at the beginning and the end of the entire input sequence.*

u*: Enables Unicode-aware case folding. When this flag is specified, then case-insensitive matching, when enabled by the CASE_INSENSITIVE flag (**i**), is done in a manner consistent with the Unicode Standard. By default, case-insensitive matching assumes that only characters in the US-ASCII charset are being matched.*

U*: Enables the Unicode version of Predefined character classes and POSIX character classes. When this flag is specified, then the (US-ASCII only) Predefined character classes and POSIX character classes are in conformance with Unicode Technical Standard #18: Unicode Regular Expression Annex C: Compatibility Properties.*

d*: Enables Unix lines mode. In this mode, only the '\n' line terminator is recognized in the behavior of ., ^, and $.*

leftConstraint

Number indicating the left limit from which the search is performed. This is expressed in characters for a text file, or in millimeters for a PDF file.

rightConstraint

Number indicating the right limit to which the search is performed. This is expressed in characters for a text file, or in millimeters for a PDF file.

PReS. Connect

Examples

```
data.findRegExp(/\d{3}-[A-Z]{3}/,"gi",50,100);
```

or

```
data.findRegExp("\\d{3}-[A-Z]{3}","gi",50,100);}}
```

Both expressions would match the following strings: 001-ABC, 678-xYz.

Note how in the second version, where the regular expression is specified as a string, some characters have to be escaped with an additional backslash, which is standard in JavaScript.

db

Object that allows to connect to a database.

Methods

The following table describes the methods of the db object.

Method	Description	Available in	File type
connect()	Method that returns a new database connection object.	Boundaries Preprocessor, Extract, Condition, Repeat, Action, and Postprocessor steps	all

connect()

Method that returns a new database connection object.

connect(url, user, password)

This method returns a new database connection object after connecting to the given URL and authenticating the connection with the provided user and password information.

url

String that represents the url to connect to.

user

String that represents the user name for authentication.

password

String that represents the password for authentication.

logger

Global object that allows logging messages such as error, warning or informational messages.

Methods

The following table describes the methods of the logger object.

Method	Parameters	Description
error()	message: string	Logs an error message
info()	message: string	Logs an informational message
warn()	message: string	Logs a warning message

record

The current record in the main data set.

Properties

Property	Return Type
fields	The field values that belong to this record. You can access a specific field value using either a numeric index or the field name,
index	The one-based index of this record, or zero if no data is available.
tables	The details table that belong to this record. You can access a specific table using a numeric index or the table name.

PReS. Connect

region

The region object defines a sub-section of the input data. Its properties vary according to the type of data.

This object is available when triggering document boundaries **On script**; see "Setting boundaries using JavaScript" on page 229.

Methods

The following table describes the methods of the region object. This object is available in Boundaries scripts, with all file types.

Method	Description	Return Type
found	Field that contains a boolean value indicating if the last call to `boundaries.find()` was successful. Since the `find()` method always returns a region, regardless of search results, it is necessary to examine the value of `found` to determine the actual result of the operation.	Boolean
range	Read-only object containing the physical coordinates of the region.	Physical location of the region: x1 (left), y1 (top), x2 (right), y2 (bottom), expressed in characters for a text file or in millimeters for a PDF file. For a CSV file, it is the name of the column that defines the region.
createRegion()	Creates a `region` by setting the physical coordinates of the region object.	A `region` that has the specified coordinates.

PReS. Connect

createRegion()

This method sets the physical coordinates of the `region` object. The `region` is available when setting document boundaries using a script (see "region" on the previous page).

PDF and Text: createRegion(x1, y1, x2, y2)

Creates a region from the data, using the specified **left** (x1), **top** (y1), **right** (x2) and **bottom** (y2) parameters, expressed in characters for a text file or in millimeters for a PDF file.

x1

Double that represents the left edge of the region.

y1

Double that represents the top edge of the region.

x2

Double that represents the right edge of the region.

y2

Double that represents the bottom edge of the region.

Example

The following script attempts to match `((n,m))` or `((n))` against any of the strings in the specified region and if it does, a document boundary is set.

```
var myRegion = region.createRegion(170,25,210,35);
var regionStrings=boundaries.get(myRegion);
if (regionStrings) {
        for (var i=0;i<regionStrings.length; i++) {
                if (regionStrings[i].match(/(\({2}n,*m*\){2})/gi)){
                        boundaries.set();
                }
        }
}
```

(The match() function expects a regular expression; see w3schools.)

PReS. Connect

CSV or database: createRegion(columnName)

Creates a region from the data in a CSV file, using the specified **columnName** parameter.

columnName

String containing the name of the column where the region is to be created.

Example

This script checks the first value in a certain column. If it is not the same value as in the previous record(s), a document boundary is set.

```
if(!(boundaries.Eof || boundaries.Bof)){
        var recordValue = boundaries.get(region.createRegion('ID'))[0];
        if(!(recordValue==boundaries.getVariable('lastValue'))){
                boundaries.setVariable('lastValue',recordValue);
                boundaries.set(0);
        }
}
```

sourceRecord

Returns a **sourceRecord** object containing properties specific to the current source record being processed.

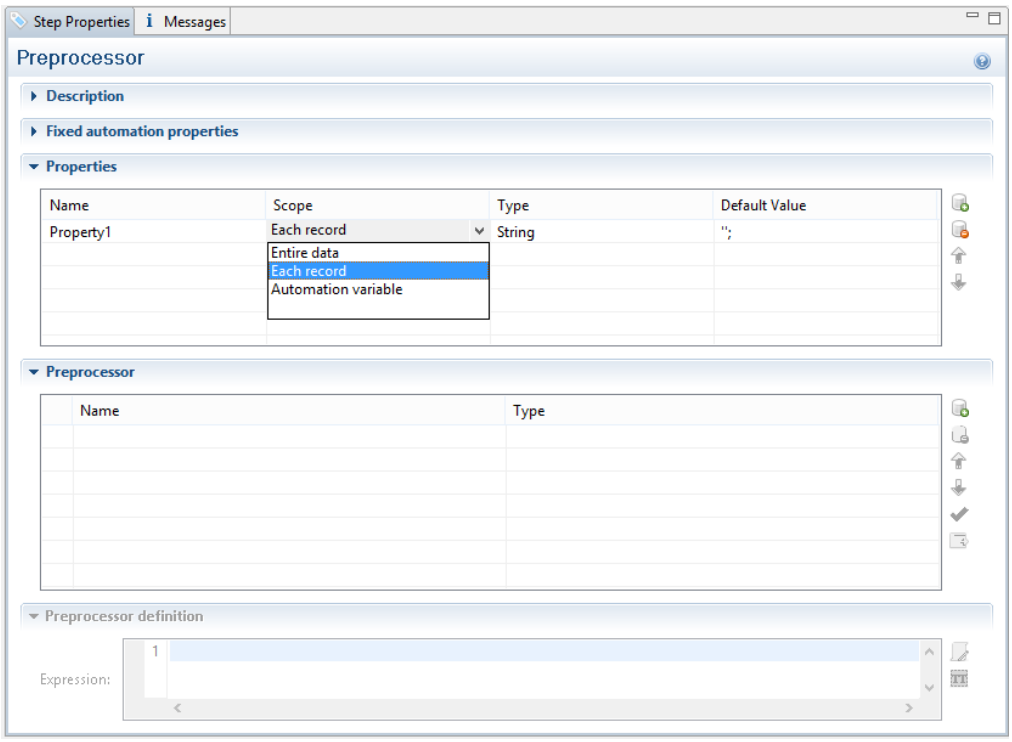
Properties

```
sourceRecord.properties.property;
```

Property	Return Type
properties	Returns an array of properties defined in the Preprocessor step with the Record Scope (i.e. dynamically reset with each new record).

Example

The **property**, used by the object Source Record, must first be declared in a **Preprocessor** step:



1. Enter the property **Name**.
2. Select **Each record** from the Scope drop-down list.
3. Select a **Type** for the Property.

steps

Returns a **steps** object encapsulating properties and methods pertaining to the current DataMapper process.

This object is available in an Extract, Condition, Repeat or Multiple Conditions step script.

Methods and properties

The following table lists the methods and properties of the **steps** object. These are available in Extract, Condition, Repeat, and Action steps, depending on the file type.

PReS. Connect

Method	Description	File type
currentPosition	Returns the current position of the pointer in the data. Depending on the type of data being processed, the return value may be a string (e.g. XPath value in XML), an integer (e.g. line numbers in text ot tabular data), or a measure in millimeters(e.g. PDF data).	All
currentLoopCounter	An integer value representing the current iteration of the containing loop. When loops are nested, you have access to the iteration for the current loop but not to any of the parent loops.	All
currentPage	Returns an integer value representing the current page where the current position is located, inside the current record.	Text, PDF
currentPageHeight	The height of the current page in millimeters.	PDF
currentPageWidth	The width of the current page in millimeters.	PDF
moveTo()	Moves the pointer in the source data file to another position.	All
moveToNext()	Moves the position of the pointer in the source data file to the next line, row or node. The behavior and arguments are different for each emulation type: text, PDF, tabular (CSV), or XML.	All
totalPages	An integer value representing the total number of pages inside the current record.	Text, PDF

Example

```
if(steps.currentPage > curPage) {
        steps.moveTo(0, steps.currentPosition+14); /* Moves the current
position to 14 lines below the current position of the pointer in
the data */
        curPage++;
} else if(curLine.startsWith("LOAD FACTOR")) { /* Extracts data to
the curLine variable until the string "LOAD FACTOR" is encountered
*/
        break;
} else {
        lineArray.push(curLine); /* Adds the current line value
(extraction) to the array */
}
```

moveTo()

Moves the position of the pointer in the source data file. This is a method of the steps object (see "steps" on page 259).

moveTo(scope, verticalPosition)

Moves the current position in a **text file** to `verticalPosition` where the meaning of `verticalPosition` changes according to the value specified for `scope`.

scope

Number that may be set to:

- 0 or `steps.MOVELINES`
- 1 or `steps.MOVEDELIMITERS`
- 2: next line with content

verticalPosition

Number. What it represents depends on the value specified for `scope`.

With the scope set to 0 or `steps.MOVELINES`, `verticalPosition` represents the **index of the line** to move to **from the top of the record**.

PReS. Connect

With the scope set to 1 or `steps.MOVEDELIMITERS`, `verticalPosition` represents the **index of the delimiter** (as defined in the Input Data settings) to move to **from the top of the record**.

With the scope set to 2, `verticalPosition` is not used. The position is moved to the next line after the current position that contains any text.

Example

The following line of code moves the current position in a text file 14 lines down from the current vertical position (`steps.currentPosition`) of the pointer in the data, as long as it is on the same page.

```
if(steps.currentPage > curPage) {
        steps.moveTo(0, steps.currentPosition+14);
        curPage++;
}
```

moveTo(scope, verticalOffset)

Moves the current position in a **PDF file** to `verticalOffset` where the meaning of `verticalOffset` changes according to the value specified for `scope`.

scope

Number that may be set to:

- 0 or `steps.MOVEMEASURE`
- 1 or `steps.MOVEPAGE`

verticalOffset

Double. What it represents depends on the value specified for `scope`.

With the scope set to 0 or `steps.MOVEMEASURE`, `verticalOffset` represents the number of **millimeters** to move the current position, relative to the top of the record (NOT the top of the current page).

With the scope set to 1 or `steps.MOVEPAGES`, `verticalOffset`represents the **index of the target page**, relative to the top of the record.

PReS. Connect

moveTo(xPath)

Moves the current position in a XML file to the first instance of the given node, relative to the top of the record.

xPath

String that defines a node in the XML file.

> **Tip**
>
> The **XML elements** drop-down (on the Settings pane, under Input Data) lists xPaths defining nodes in the current XML file.

moveTo(row)

Moves the current position in a **CSV file** to the given row number.

row

Number that represents the index of the row, relative to the top of the record.

moveToNext()

Moves the position of the pointer in the source data file to the next line, row or node. The behavior and arguments are different for each emulation type: text, PDF, tabular (CSV), or XML.

This is a method of the steps object (see "steps" on page 259).

moveToNext(scope)

Moves the current position in a **text file** or **XML file** to the next instance of `scope`. What `scope` represents depends on the emulation type: text or XML.

Text

scope

Number that may be set to:

PReS. Connect

- 0 or `steps.MOVELINES`: the current position is set to the next line.
- 1 or `steps.MOVEDELIMITERS`: the current position is set to the next delimiter (as defined in the Input Data settings).
- 2 (next line with content): the current position is set to the next line that contains any text.

Example

The following line of code moves the current position to the next line that contains any text.

```
steps.moveToNext(2);
```

XML

scope

Number that may be set to:

- 0 or `steps.MOVENODE`: the current position is set to the next parent node in the XML hierarchy.
- 1 or `steps.MOVESIBLING`: the current position is set to the next sibling node in the XML hierarchy.

moveToNext(left, right)

Moves the current position in a **PDF file** to the next line that contains any text, the search for text being contained within the **left** and **right** parameters, expressed in millimeters.

left

Double that represents the left edge (in millimeters) of the text to find.

right

Double that represents the right edge (in millimeters) of the text to find.

moveToNext()

Moves the current position in a **CSV file** to the next row, relative to the current position.

Functions

copyFile()

Function that copies a file to the target file path, replacing it if it already exists.

copyFile(source, target)

source

String that specifies the source file path and name.

target

String that specifies the target file path and name.

Example

This script copies the file test.txt from c:\Content into the c:\out folder.

```
copyFile("c:\Content\test.txt","c:\out\")
```

createTmpFile()

Function that creates a file with a unique name in the temporary work folder and returns a **file** object. This file stores data temporarily in memory or in a buffer. It is used to prevent multiple input/output access to a physical file when writing. In the end, the contents are transferred to a physical file for which only a single input/output access will occur.

Example

In the following script, the contents of the data sample file are copied in uppercase to a temporary file.

```
try{
        // Open a reader
        var reader = openTextReader(data.filename);
        // Create a temporary file
        var tmpFile = createTmpFile();
        // Open a writer on the temporary file
        var writer = openTextWriter(tmpFile.getPath());
        try{
                var line = null; // Current line
                /* read line by line and readLine will return null at the e
the file */
                while( (line = reader.readLine()) != null ){
                        // Edit the line
                        line = line.toUpperCase();
                        // Write the result in the temporary file
                        writer.write(line);
                        // add a new line
```


PReS. Connect

```
                        writer.newLine();
                }
        }
        finally{
                // Close the writer of the temporary file
                writer.close();
        }
}
finally{
        // Close the reader
        reader.close();
}
deleteFile(data.filename);
tmpFile.move(data.filename);
```

createHTTPRequest()

Function that creates a new ScriptableHTTPRequest object, in order to issue REST/AJAX calls to external servers.
This feature allows the data mapping process to complement its extraction process with external data, including data that could be provided by an HTTP process in Workflow, for instance a process that retrieves certain values from Workflow's Data Repository. Another possible use is to have a Postprocessor that writes the results of the extraction process to a file and immediately uploads that file to a Workflow process.

The returned ScriptableHTTPRequest has the same properties and methods as the standard JavaScript XMLHTTPRequest object (see https://developer.mozilla.org/en-US/docs/Web/API/XMLHttpRequest).

> **Note**
>
> It is not possible to use the `async` mode, which can be set via the `open()` function of the ScriptableHTTPRequest (see https://developer.mozilla.org/en-US/docs/Web/API/XMLHttpRequest/open) in a data mapping configuration. Async-related properties and methods of the ScriptableHTTPRequest object are not supported.
> The reason for this is that by the time the response comes back from the server, the DataMapper script may have finished executing and gone out of scope.

deleteFile()

Function that is used to delete a file.

PReS. Connect

deleteFile(filename)

filename

String that specifies the path and file name of the file to be deleted.

Examples

1. Deleting a file in a local folder:
   ```
   deleteFile("c:\Content\test.txt");
   ```
2. Deleting the sample data file used in the DataMapper:
   ```
   deleteFile(data.filename);
   ```

execute()

Function that calls an external program and waits for it to end.

execute(command)

Calls an external program and waits for it to end.

command

String that specifies the path and file name of the program to execute.

newByteArray()

Function that returns a new byte array.

newByteArray(size)

Returns a new byte array of of the specified number of elements.

size

Integer that represents the number of elements in the new array.

newCharArray()

Function that returns a new Char array.

newCharArray(size)

Returns a new Char array of the specified number of elements.

PReS. Connect

size

Integer that represents the number of elements in the new array.

newDoubleArray()

Function that returns a new double array.

newDoubleArray(size)

Returns a new Double array of the specified number of elements.

size

Integer that represents the number of elements in the new array.

newFloatArray()

Function that returns a new float array.

newFloatArray(size)

Returns a new Float array of the specified number of elements.

size

Integer that represents the number of elements in the new array.

newIntArray()

Function that returns a new array of Integers.

newIntArray(size)

Returns a new Integer array of the specified number of elements.

size

Integer that represents the number of elements in the new array.

newLongArray()

Function that returns a new long array.

PReS. Connect

newLongArray(size)

Returns a new Long array of the specified number of elements.

size

Integer that represents the number of elements in the new array.

newStringArray()

Function that returns a new string array.

newStringArray(size)

Returns a new String array of the specified number of elements.

size

Integer that represents the number of elements in the new array.

openBinaryReader()

Function that opens a file as a binary file for reading purposes. The function returns a BinaryReader object.

openBinaryReader(filename)

filename

String that represents the name of the file to open.

openBinaryWriter()

Function that opens a file as a binary file for writing purposes. The function returns a BinaryWriter object.

openBinaryWriter(filename, append)

filename

String that represents the name of the file to open.

append

Boolean parameter that specifies whether the file pointer should initially be positioned at the end of the existing file (append mode) or at the beginning of the file (overwrite mode).

PReS. Connect

openTextReader()

Function that opens a file as a text file for reading purposes. The function returns a TextReader object. Please note that the temporary file must be closed at the end.

openTextReader(filename,encoding)

filename

String that represents the name of the file to open.

encoding

String that specifies the encoding of the file to read (UTF-8, ISO-8859-1, etc.).

Example

In the following example, the `openTextReader()` function is used to open the actual data sample file in the Data Mapper for reading.

```
var fileIn = openTextReader(data.filename);
var tmp = createTmpFile();
var fileOut = openTextWriter(tmp.getPath());
var line;

while((line = fileIn.readLine())!=null){
        fileOut.write(line.replace((subject),""));
        fileOut.newLine();
}

fileIn.close();
fileOut.close();
deleteFile(data.filename);
tmp.move(data.filename);
tmp.close();
```

OpenTextWriter()

This function opens a file as a text file for writing purposes. The function returns a TextWriter object. This must be closed at the end.

OpenTextWriter(filename, encoding, append)

filename

String that represents the name of the file to open.

PReS. Connect

encoding

String specifying the encoding to use (UTF-8, ISO-8859-1, etc.)..

append

Boolean parameter that specifies whether the file pointer should initially be positioned at the end of the existing file (append mode) or at the beginning of the file (overwrite mode).

Example

In the following example, the **openTextWriter** function is used to open the newly created temporary file for writing:

```
var fileIn = openTextReader(data.filename);
var tmp = createTmpFile();
var fileOut = openTextWriter(tmp.getPath());
var line;

while ((line = fileIn.readLine())!=null){
   fileOut.write(line.replace((subject),""));
   fileOut.newLine();
}

fileIn.close();
fileOut.close();
deleteFile(data.filename);
tmp.move(data.filename);
tmp.close();
```


PReS. Connect

The Designer

The Designer is a WYSIWYG (what you see is what you get) editor that lets you create templates for various output channels: Print, Email and Web. A template may contain designs for multiple output channels: a letter intended for print and an e-mail variant of the same message, for example. Content, like the body of the message or letter, can be shared across these contexts. Templates are personalized using scripts and variable data extracted via the DataMapper.More advanced users may use native HTML, CSS and JavaScript.

The following topics will help to quickly familiarize yourself with the Designer.

- "Basic Steps" below. These are the basic steps for creating and developing a template.
- "Features" on the next page. These are some of the key features in the Designer.
- "Designer User Interface" on page 581. This part gives an overview of all elements in the Designer User Interface, like menus, dialogs and panes.

More help can be found here:

- Tutorials On Video: watch an introductory video, overview tutorials or practical how-to videos.
- Forum: Browse the forum and feel free to ask questions about the use of Connect software
- Demo site. Download demonstrations of OL products.

...

Basic Steps

With the Designer you can create templates for personalized letters, emails and web pages, and generate output from them.

These are the basic steps for creating and developing a template:

1. **Create a template**

   Create a template, using one of the Template Wizards. See "Creating a template" on page 274.

2. **Fill the template**

   Add text, images and other elements to the template and style them. See "Content elements" on page 403 and "Styling and formatting" on page 484.

3. **Personalize the content**

   Personalize the content using variable data. See "Personalizing Content" on page 518.

4. **Generate output**

   Adjust the settings, test the template and generate output: letters, emails, and/or web pages. See "Generating output" on page 857.

5. **What's next**

   Use Workflow to automate your customer communications.

> **Note**
>
> Steps 2 and 3 are not necessarily to be followed in this order. For example, as you add elements to a template, you may start personalizing them right away, before adding other elements to the template.

Features

The Designer is Connect's module to create templates for personalized customer communications. These are some of the key features in the Designer:

"Templates" on the facing page. Start creating, using and sharing templates.

"Contexts" on page 289. A context contains one or more designs for one output channel:

- "Print" on page 294. This topic helps you design and fill sections in the Print context.
- "Email" on page 326. This topics helps you design an email template.
- "Web" on page 347. This topic helps you design a web page.

"Sections" on page 290. Sections in one context are designed for the same output channel.

"Content elements" on page 403. Elements make up the biggest part of the content of each design.

"Snippets" on page 482. Snippets help share content between contexts, or insert content conditionally.

"Styling and formatting" on page 484. Make your Designer templates look pretty and give them the same look and feel with style sheets.

"Personalizing Content" on page 518. Personalize your customer communications using variable data.

"Writing your own scripts" on page 548. Scripting can take personalization much further. Learn how to script via this topic.

"Generating output" on page 857. Learn the ins and outs of generating output from each of the contexts.

Templates

The Designer is a WYSIWYG (what you see is what you get) tool to create templates. This topic gets you started. It explains how to create a template, what is found in a template file, and how output can be generated.

Creating a template

In the **Welcome** screen that appears after startup, get off to a flying start choosing **Browse Template Wizards**. Scroll down to see all the Template Wizards. After deciding which output channel – print, email or web – will be prevalent in your template, select a template.

The Template Wizards can also be accessed from the menu: click **File**, click **New**, expand the **Template** folder, and then expand one of the **templates** folders.

There are Wizards for the three types of output channels, or **contexts** as they are called in the Designer: Print, Email and Web.
See:

- "Creating an Email template with a Wizard" on page 331
- "Creating a Print template with a Wizard" on page 296
- "Creating a Web template with a Wizard" on page 348

PReS. Connect

After creating a template you can add the other contexts (see "Contexts" on page 289), as well as extra sections (see "Sections" on page 290), to the template.
It is, however, not possible to use a Template Wizard when adding a context or section to an existing template.

> **Tip**
>
> If an Email context is going to be part of the template, it is recommended to start with an Email Template Wizard; see "Creating an Email template with a Wizard" on page 331. After creating a template, contexts can be added to it, but that can not be done with a wizard.

Opening a template

To open a template from the Welcome screen, select **Open an Existing Template**.
To open a template from the menu, select **File > Open**.
Then select the template file. A template file has the extenstion .OL-template.

> **Warning**
>
> If a template was created in an older version of the software, opening it in a newer version of the software will convert the template to the newest file format. Once you save this template you will not be able to open the converted template in older versions of the software.

Saving a template

A Designer template file has the extension **.OL-template**. It is a zip file that includes up to 3 contexts, all the related resources and scripts, and (optionally) a link to a Data Mapping Configuration.

To save a template for the first time, select **File > Save as**. After that you can save the template by selecting **File > Save** or pressing **Ctrl**+**S**.

> **Tip**
>
> To quickly copy the name of any other file, set **Save as type** to **Any file (*.*)** in the Save dialog.

PReS. Connect

Select a file to put its name in the File name field. Then set Save as type to Template files (*.OL-template) and save the template.

When more than one resource (template or data mapping configuration) is open and the Designer software is closed, the Save Resources dialog appears. This dialog displays a list of all open resources with their names and file location. Selected resources will be saved, deselected resources will have all their changes since they were last saved dismissed.

Auto Save

After a template has been saved for the first time, Connect Designer can auto save the template with a regular interval. To configure Auto Save:

1. Select the menu option **Window > Preferences > Save**.
2. Under **Auto save**, check the option **Enable** to activate the Auto Save function.
3. Change how often it saves the template by typing a number of minutes.

Auto Backup

Connect Designer can automatically create a backup file when you **manually** save a template. To configure Auto Backup:

1. Select the menu option **Window > Preferences > Save**.
2. Under **Auto backup**, check the option **Enable** to activate the Auto Backup function.
3. Type the number of revisions to keep.
4. Select the directory in which the backups should be stored.

Backup files have the same name as the original template with two underscores and a progressive number (without leading zeros) at the end: **originalname__1.OL-template**, **originalname__2.OL-template**, etc.

Note

The Auto Save function does **not** cause backup files to be created.

File properties

On the menu, select **File > Properties** to view and complement the file properties. See File Properties.
The file properties can also be used in scripts; see "template" on page 851. If you are not familiar with writing scripts, refer to "Writing your own scripts" on page 548.

Sharing a template

To share a template, you can send the template file itself, or save the template to a package file, optionally together with a Data Mapping Configuration, a Job Creation Preset and an Output Creation Preset. (See "Job Creation Presets" on page 754 and "Output Creation Settings" on page 763 for more details.)

To create a package file, select **File > Send to Workflow** and choose **File** in the **Destination** box. For the other options, see "Sending files to Workflow" on the facing page. The package file has the extension .OL-package.

Exporting a template report

A template report can be used for archiving purposes or to provide information about the template to people who do not have access to Connect. Such a report can be exported in PDF or XML format. By default it contains a summary of the template with an overview of all the settings and resources that are used in the template: media, master pages, contexts, sections, images, scripts etc. The file properties are included as well (see File Properties).

To open the Export Template Report wizard, select **File > Export Report**. For a description of all options, see Export Template Report wizard.

Creating a custom template report

The Export Template Report wizard also offers the possibility to export custom template reports (in PDF format only). A custom template report could contain another selection of information and present that differently, e.g. with the logo of your company.

To create a custom template report, you need two files:

- A template design with the desired layout and variable data. This .OL-TEMPLATE file has to be made in the Designer.

- A data mapping configuration that provides the variable data. You could use the data mapping configuration made for the standard template report, or create another one in the DataMapper module, using the standard XML template report as data sample.
  Data mapping configurations have the extension .OL-DATAMAPPER.

The following zip file contains both the template and data mapping configuration that are used to generate the standard template report: http://help.objectiflune.com/en/archive/report-template.zip.

Generating output from the Designer

Output can be generated directly from the Designer; see "Generating Print output" on page 860, "Generating Email output" on page 874 and "Generating Web output" on page 882.

To test a template first, select **Context > Preflight**. Preflights executes the template without actually producing output and it displays any issues once it's done (see also: "Testing scripts" on page 556).

Sending files to Workflow

Workflow can generate output from a template as well. For this, the template has to be sent to Workflow.

The Send to Workflow dialog sends templates, Data Mapping Configurations and print presets to the Workflow server, or saves them as a package file. Print presets make it possible to do such things as filtering and sorting records, grouping documents and splitting the print jobs into smaller print jobs, as well as the more standard selection of printing options, such as binding, OMR markings and the like. See "Job Creation Presets" on page 754 and "Output Creation Settings" on page 763 for more details.

To send one or more templates to Workflow:

1. Select **File > Send to Workflow**.
2. Select the template to send. By default the currently active template is listed. Click **Browse** to select another template. You may select more than one template in the Browse dialog, and each of them is sent to Workflow (or added to a package file). A template file has the extension .OL-template.
3. Select the Data Mapping Configuration to send. By default the current configuration is listed. Click **Browse** to select another configuration. You may select more than one

configuration file in the Browse dialog, and each of them is sent to Workflow (or added to a package file). A Data Mapping Configuration file has the extension .OL-datamapper.

4. Use the drop-down to select a Job Creation Preset to send. Click **Browse** to select a preset that is not in the default location for presets. A Job Creation Preset file has the extension .OL-jobpreset.
5. Use the drop-down to select an Output Creation Preset. Click **Browse** to select a preset that is not in the default location for presets. An Output Creation Preset file has the extension .OL-outputpreset.
6. Finally, choose the **Destination**: use the drop-down to select where to send the files. The option **Workflow machines** lists all the PReS Workflow installations detected on the network. Select **File** to save the files as a package that can be loaded within the Workflow tool.

Creating a Web template with a Wizard

With the Designer you can design Web templates and output them through Workflow or as an attachment to an email when generating Email output.

Capture On The Go templates are a special kind of Web templates; see "Capture OnTheGo template wizards" on page 381.

A Web Template Wizard helps you create a Web page that looks good on virtually any browser, device and screen size.

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" on page 385.

After creating a Web template, the other contexts can be added, as well as other sections (see "Adding a context" on page 290 and "Adding a Web page" on page 354).

To create a Web template with a Template Wizard:

1.
   - In the **Welcome** screen that appears after startup, choose **Browse Template Wizards**.
     Scroll down until you see the **Foundation Web Page Starter** Template Wizards.
   - Alternatively, on the **File** menu, click **New**, expand the **Template** folder, and then expand the **Foundation Web Page Starter** folder.
2. Select a template. There are 4 types of Web Template Wizards :
   - Blank
   - Contact Us
   - Jumbotron
   - Thank You

   If you don't know what template to choose, see "Web Template Wizards" on page 282 further down in this topic, where the characteristics of each kind of template are described.
3. Click **Next** and make adjustments to the initial settings.
   - **Section**:
     - **Name**: Enter the name of the Section in the Web context. This has no effect on output.
     - **Description**: Enter the description of the page. This is the contents of a <meta name="description"> HTML tag.
   - **Top bar** group:
     - **Set width to Grid**: Check this option to limit the width of the top bar contents to the Foundation Grid, instead of using the full width of the page.
     - **Stick to the top of the browser window**: Check to lock the top menu bar to the top of the page, even if the page has scroll bars. This means the menu bar will always be visible in the browser.
     - **Background color**: Enter a valid hexadecimal color code for the page background color (see w3school's color picker) , or click the colored circle to the right to open the Color Picker.
   - **Colors** group: Enter a valid hexadecimal color code (see w3school's color picker) or click the colored square to open the Color Picker dialog (see "Color Picker" on page 589), and pick a color for the following elements:

- **Primary**: links on the page.
- **Secondary**: secondary links on the page.
- **Text**: text on the page contained in paragraphs (<p>).
- **Headings**: all headings (<h1> through <h6>) including the heading section's subhead.

4. Click **Finish** to create the template.

The Wizard creates:

- A Web context with one web page template (also called a **section**) in it. The web page contains a Header, a Section and a Footer element with dummy text, and depending on the type of web page, a navigation bar, button and/or Form elements.
- Resources related to the Foundation framework (see "Web Template Wizards" on the facing page): style sheets and JavaScript files. The style sheets can be found in the **Stylesheets** folder on the **Resources** pane. The JavaScript files are located in the **JavaScript** folder on the **Resources** pane, in a **Foundation** folder.
- A collection of Snippets in the **Snippets** folder on the Resources pane. The Snippets contain ready-to-use parts to build the web page. Double-click to open them. See "Snippets" on page 482 for information about using Snippets.
- Images: icons, one picture and one thumbnail picture. Hover your mouse over the names of the images in the **Images** folder on the **Resources** pane to get a preview.

The Wizard opens the Web section, so that you can fill it with text and other elements; see "Content elements" on page 403, "Web Context" on page 352 and "Web pages" on page 353.

Web pages can be personalized just like any other type of template; see "Variable Data" on page 530 and "Personalizing Content" on page 518.

> **Tip**
>
> Use the **Outline** pane at the left to see which elements are present in the template and to select an element.
>
> Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.

PReS. Connect

Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

Tip

Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

Web Template Wizards

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" on page 385.

Jumbotron

The name of the Jumbotron template is derived from the large screens in sports stadiums. It is most useful for informative or marketing-based websites. Its large banner at the top can display important text and its "call to action" button invites a visitor to click on to more information or an order form.

Contact Us

The Contact Us template is a contact form that can be used on a website to receive user feedback or requests. It's great to use in conjunction with the Thank You template, which can recap the form information and thank the user for feedback.

Thank You

The Thank You template displays a thank you message with some text and media links.

Blank web page

The Blank Web Page template is a very simple Foundation template that contains a top bar menu and some basic contents to get you started.

Capture OnTheGo template wizards

With the Designer you can create Capture OnTheGo (COTG) templates. COTG templates are used to generate forms for the Capture OnTheGo mobile application. For more information about this application, see the website: Capture OnTheGo.

A Capture OnTheGo Form is actually just a Web Form, that you could add without a wizard, but the COTG Template Wizards include the appropriate JavaScript files for the Capture OnTheGo app, and styles to create user-friendly, responsive forms. They are built upon the Foundation framework.

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" on page 385.

After creating a COTG template, the other contexts can be added, as well as other sections (see "Adding a context" on page 290 and "Adding a Web page" on page 354).

> **Tip**
>
> If the COTG Form replaces a paper form, it can be tempting to stick to the original layout. Although that may increase the recognizability, it is better to give priority to the user-friendliness of the form. Keep in mind that the COTG form will be used on a device and don't miss the chance to make it as user-friendly as possible. See "Designing a COTG Template" on page 378.

Creating a COTG template using a Wizard

To create a COTG template with a Template Wizard:

1.
   - In the **Welcome** screen that appears after startup and when you click the Home icon at the top right, choose **Browse Template Wizards**. Scroll down until you see the **Capture OnTheGo Starter** Template Wizards.
   - Alternatively, on the **File** menu, click **New**, expand the **Template** folder, and then expand the **Capture OnTheGo Starter** folder.
2. Select a template. There are 8 types of Web Template Wizards:
   - **Blank**. The Blank COTG Template has some basic design and the appropriate form, but no actual form or COTG elements.
   - **Bill of Lading**. The Bill of Lading Template is a transactional template that includes a detail table with a checkmark on each line, along with Signature and Date COTG elements. Use this wizard as a way to quickly start any new Zurb Foundation based form for Capture OnTheGo.
   - **Event Registration**. The Event Registration Template is a generic registration form asking for name, phone, email, etc.
   - **Event Feedback**. The Event Feedback Template is a questionnaire containing different questions used to rate an experience.
   - **Membership Application**. The Membership Application Template is a signed generic request form that can be used for memberships such as gyms, clubs, etc.
   - **Patient Intake**. The Patient Intake Template is a generic medical questionnaire that could potentially be used as a base for insurance or clinic form.
   - **Kitchen Sink**. The Kitchen Sink Template includes a wide range of basic form and COTG form elements demonstrating various possibilities of the software.
   - **Time Sheet**. The Time Sheet Template is a single page application used to add time entries to a list. This template demonstrates the dynamic addition of lines within a COTG template, as the Add button creates a new time entry. There is no limit to the number of entries in a single page.
3. Click **Next** and make adjustments to the initial settings.
   - **Create Off-Canvas navigation menu**: an Off-Canvas menu is a Foundation component that lets you navigate between level 4 headings (<h4>) in the form. Check this option to add the menu automatically.

- **Submit URL**: enter the URL where the form data should be sent. The URL should be a server-side script that can accept COTG Form data.
- The **Title** and the **Logo** that you choose will be displayed at the top of the Form.
- **Colors**: Click the colored square to open the Color Picker dialog (see "Color Picker" on page 589) and pick a color, or enter a valid hexadecimal color code (see w3school's color picker) for the page background color.
  Do the same for the background color of the navigation bar at the top and for the buttons on the Form.

4. Click **Next** to go to the next settings page if there is one.
5. Click **Finish** to create the template.

The Wizard creates:

- A **Web context** with one web page template (also called a section) in it. The web page contains an 'off-canvas' Div element, Header, a Section and a Footer element with dummy text, and depending on the type of web page, a navigation bar, button and/or Form elements.
- **Style sheets** and **JavaScript files** related to the COTG form itself and others related to the Foundation framework (see above). The style sheets can be found in the Stylesheets folder on the Resources pane. The JavaScript files are located in the JavaScript folder on the Resources pane.
- A collection of **snippets** in the Snippets folder on the Resources pane. The snippets contain ready-to-use parts to build the web form. Double-click to open them. See "Snippets" on page 482 and "Loading a snippet via a script" on page 564 for information about using Snippets.

The Wizard opens the Web section, so that you can fill the Capture OnTheGo form.

6. Make sure to set the action and method of the form: select the form and then enter the action and method on the Attributes pane.

The **action** of a Capture OnTheGo form should specify the Workflow HTTP Server Input task that receives and handles the submitted data. The action will look like this: **http://127.0.0.1:8080/action** (8080 is Workflow's default port number; 'action' should be replaced by the HTTP action of that particular HTTP Server Input task).

The **method** of a Capture OnTheGo form should be **POST** to ensure that it doesn't hit a data limit when submitting the form. The GET method adds the data to the URL, and the length of a URL is limited to 2048 characters. Especially forms containing one or more Camera inputs may produce a voluminous data stream that doesn't fit in the URL. GET also leaves data trails in log files, which raises privacy concerns. Therefore POST is the preferred method to use.

Filling a COTG template

Before inserting elements in a COTG Form, have the design ready; see "Designing a COTG Template" on page 378.

In a Capture OnTheGo form, you can use special Capture OnTheGo Form elements, such as a Signature and a Barcode Scanner element; see "COTG Elements" on page 456 and "Using COTG Elements" on page 393.

Foundation, the framework added by the COTG template wizards, comes with a series of features that can be very useful in COTG forms; see "Using Foundation" on page 385.

Naturally, Web Form elements can also be used on COTG Forms (see "Forms" on page 462 and "Form Elements" on page 466) as well as text, images and other elements (see "Content elements" on page 403).

Capture OnTheGo templates can be personalized just like any other type of template; see "Variable Data" on page 530 and "Personalizing Content" on page 518.

Tip

Use the **Outline** pane at the left to see which elements are present in the template and to select an element.

Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.

Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

PReS. Connect

Tip

Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

Resources

This page clarifies the difference between Internal, External and Web resources that may be used in a template, and explains how to refer to them in HTML and in scripts.

Internal resources

Internal resources are files that are added to and saved with the template. To add images, fonts, style sheets, and snippets to your template, you can drag or copy/paste them into the Resources Pane. See also: "Images" on page 471, "Snippets" on page 482, "Styling templates with CSS files" on page 486 and "Fonts" on page 514.

Resource files can also be dragged or copy/pasted **out** of the the application to save them on a local hard drive.

Once imported, internal resources are accessed using a relative path, depending where they're called from. Resources can be located in the following folders:

- images/ contains the files in the Images folder.
- fonts/ contains the files in the Fonts folder.
- css/ contains the files in the StyleSheets folder.
- js/ contains the files in the JavaScripts folder.
- snippets/ contains the files in the Snippets folder.

When refering to them, normally you would simply use the path directly with the file name. The structure within those folders is maintained, so if you create a "signatures" folder within the "Images" folder, you need to use that structure, for example in HTML: <img src="images/signatures/johnsmith.gif">. In scripts, you can refer to them in the same way, for example:

```
results.loadhtml("snippets/en/navbar.html");
```

See also: "Loading a snippet via a script" on page 564 and "Writing your own scripts" on page 548.

> **Note**
>
> When referring to images or fonts from a CSS file, you need to remember that the current path is css/, meaning you can't just call images/image.jpg. Use a relative path, for example: #header { background-image: url('../images/image.jpg'); }

External resources

External resources are not stored in the template, but on the local hard drive or on a network drive. They are accessed using a path. The path must have forward slashes, for example <img src="file:///c:/resources/images/signatures/johnsmith.gif"> or `var json_variables = loadjson ("file:///d:/jsondata/variables.json");`. The complete syntax is: file://<host>/<path>. If the host is "localhost", it can be omitted, as it is in the example, resulting in **file:///<path>**. The empty string is interpreted as `the machine from which the URL is being interpreted'.

Network paths are similar: `results.loadhtml ("file://servername/sharename/folder/snippet.html");` (note that in this case **file** is followed by 2 slashes only).

Some limitations

- Style sheets cannot refer to external resources.
- The Connect Server user needs access to whichever network path is used. If the network path is on a domain, the Connect Server must be identified with domain credentials that have access to the domain resources.

For more information on network paths, please see this Wikipedia entry: file URI scheme.

Web resources

Web resources are simply accessed using a full URL. This URL needs to be publicly accessible: if you type in that URL in a browser on the server, it needs to be visible. Authentication is possible only through URL Parameters (http://www.example.com/data.json?user=username&password=password) or through HTTP Basic Auth (http://username:password@www.example.com/data.json).

Resources can also be called from a PReS Workflow instance:

- "Static Resources", as set in the preferences, are accessed using the resource path, by default something like http://servername:8080/_iRes/images/image.jpg. (For guidance on setting the preferences, search for 'HTTP Server Input 2' in the PReS Workflow help files on OL Help).
- Resources can also be served by processes: http://servername:8080/my_process?filename=image.jpg (assuming "my_process" is the action in the HTTP Server Input).

Contexts

Contexts are parts of a template that are each used to generate a specific type of output: Web, Email or Print.

- The Print context outputs documents to either a physical printer a PDF file; see "Print context" on page 300.
- The Email context outputs HTML email, composed of HTML code with embedded CSS. See "Email context" on page 334.
- The Web context outputs an HTML web page. See "Web Context" on page 352.

When a new template is made, the Context appropriate to that new template is automatically created, including one section. After a template has been created, the other two contexts can be added to it; see "Adding a context" on the facing page.

> **Tip**
>
> If an Email context is going to be part of the template, it is recommended to start with an Email Template Wizard; see "Creating an Email template with a Wizard" on page 331. After creating a template, contexts can be added to it, but that can not be done with a wizard.

Outputting and combining contexts

All three contexts can be present in any template and they can all be used to output documents; see "Generating Email output" on page 874, "Generating Print output" on page 860 and "Generating Web output" on page 882.

They can even be combined in output.

If present in the same template, a Print context and a Web context can be attached to an Email context.

Outputting other combinations of contexts, and selecting sections based on a value in the data, can be done via a Control Script; see "Control Scripts" on page 566.

Adding a context

To add a context, right-click the **Contexts** folder on the **Resources** pane and click **New print context**, **New email context** or **New web context**. Only one context of each type can be present in a template. Each context, however, can hold more than one section; see "Sections" below.

Deleting a context

To delete a context, right-click the context on the **Resources** pane and click **Delete**.

> **Warning**
>
> No backup files are maintained in the template. The only way to recover a deleted section, is to click **Undo** on the **Edit** menu, until the deleted section is restored. After closing and reopening the template it is no longer possible to restore the deleted context this way.

Sections

Sections are parts of one of the contexts in a template: Print, Email or Web. They contain the main text flow for the contents. In each of the contexts there can be multiple sections. A Print context, for example, may consist of two sections: a covering letter and a policy.

Adding a section

To add a section to a context, right-click the context (Email, Print or Web) on the **Resources** pane, and then click **New section**.
The new section has the same settings as the first section in the same context. However, custom style sheets and JavaScript files aren't automatically included in the new section.

It is not possible to use a Template Wizard when adding a section to an existing template.

Tip

If an Email context is going to be part of the template, it is recommended to start with an Email Template Wizard; see "Creating an Email template with a Wizard" on page 331. After creating a template, contexts can be added to it, but that can not be done with a wizard.

Editing a section

To open a section, expand the **Contexts** folder on the **Resources** pane, expand the respective context (**Print**, **Email** or **Web**) and double-click a section to open it.

Each section can contain text, images and many other elements (see "Content elements" on page 403), including variable data and other dynamic elements (see "Personalizing Content" on page 518).

Copying a section

Copying a section, either within the same template or from another template, can only be done manually. You have to copy the source of the HTML file:

1. Open the section that you want to copy and go to the **Source** tab in the workspace.
2. Copy the contents of the **Source** tab (press **Ctrl+A** to select everything and then **Ctrl+C** to copy the selection).
3. Add a new section (see Adding a section).
4. Go to the **Source** tab and paste the contents of the other section here (press **Ctrl+V**).
5. When copying a section to another template, add the related source files, such as images, to the other template as well.

Deleting a section

To delete a section:

- On the **Resources** pane, expand the **Contexts** folder, expand the folder of the respective context, right-click the name of the section, and then click **Delete**.

Warning

No backup files are maintained in the template. The only way to recover a deleted section, is to click **Undo** on the **Edit** menu, until the deleted section is restored. After closing and reopening the template it is no longer possible to restore the deleted context this way.

Renaming a section

To rename a section:

- On the **Resources** pane, expand the **Contexts** folder, expand the folder of the respective context, right-click the name of the section, and then click **Rename**.

Note

Sections cannot have an integer as name. The name should always include alphanumeric characters.

Section properties

Which properties apply to a section, depends on the context it is part of. See also: "Print sections" on page 303, "Email templates" on page 336, and "Web pages" on page 353.

To change the properties for a section:

- On the **Resources** pane, expand the **Contexts** folder, expand the folder of the respective context, right-click the name of the section, and then click one of the options.

Applying a style sheet to a section

In order for a style sheet to be applied to a specific section, it needs to be included in that section. There are two ways to do this.

Drag & drop a style sheet

1. Click and hold the mouse button on the style sheet on the **Resources** pane.
2. Move the mouse cursor within the **Resources** pane to the section to which the style sheet should be applied.
3. Release the mouse button.

Using the Includes dialog

1. On the Resources pane, right-click the section, then click **Includes**.
2. From the **File types** dropdown, select **Stylesheets**.
3. Choose which CSS files should be applied to this section. The available files are listed at the left. Use the arrow buttons to move the files that should be included to the list at the right.
   You can also change the order in which the CSS files are read. Note that moving a style sheet up in the list gives it **less** weight. In case of conflicting rules, style sheets read later will override previous ones; see "Determining the order in which style sheets are read" on page 493.

Arranging sections

Changing the order of the sections in a context can have an effect on how they are outputted; see: "Print sections" on page 303, "Email templates" on page 336 and "Web pages" on page 353.

To rearrange sections in a context:

- On the **Resources** pane, expand the Contexts folder, expand the folder of the respective context, and then drag and drop sections to change the order they are in.
  Alternatively, right-click a section and click **Arrange**. In the Arrange Sections dialog you can change the order of the sections in the same context by clicking the name of a section and moving it using the **Up** and **Down** buttons.

Outputting sections

Which sections are added to the output, depends on the type of context they are in.

When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record. The sections are added to the output in the order in which they appear on the **Resources** pane. See "Generating Print output" on page 860.

In email and web output, only one section can be executed at a time. The section that will be output is the section that has been set as the 'default'. See "Generating Web output" on page 882 and "Web pages" on page 353 and "Generating Email output" on page 874 and "Email templates" on page 336. The 'default' section is always executed when the template is run using the Create Email Content task in Workflow (see Workflow Help: Create Email Content).

It is, however, possible to include or exclude sections when the output is generated, or to set another section as the 'default', depending on a value in the data. A Control Script can do this; see "Control Scripts" on page 566.

See "Generating output" on page 857 to learn how to generate Print documents, Web pages or Email.

Print

With the Designer you can create one or more Print templates and merge the template with a data set to generate personal letters, invoices, policies etc.

The Print **context** is the folder in the Designer that can contain one or more Print sections.

Print templates, also called Print *sections*, are part of the Print context. They are meant to be printed to a printer or printer stream, or to a PDF file (see "Generating Print output" on page 860).
The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 874. When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record.

When a Print template is created (see "Creating a Print template with a Wizard" on page 296), or when a Print context is added to an existing template (see "Adding a context" on page 290) the Print context folder is created along with other folders and files that are specific to a Print context (see "Print context" on page 300).

Only one Print section is created at the start, but you can add as many Print sections as you need; see "Print sections" on page 303.

Pages

Unlike emails and web pages, Print sections can contain multiple *pages*. Pages are naturally limited by their size and margins. If the content of a section doesn't fit on one page, the overflow goes to the next page. This happens automatically, based on the section's page size and margins; see "Page settings: size, margins and bleed" on page 311.

Although generally the same content elements can be used in all three contexts (see "Content elements" on page 403), the specific characteristics of pages make it possible to use special elements, such as page numbers; see "Page numbers " on page 313.

See "Pages" on page 310 for an overview of settings and elements that are specific for pages.

Headers, footers, tear-offs and repeated elements (Master page)

In Print sections, there are often elements that need to be repeated across pages, like headers, footers and logos. In addition, some elements should appear on each first page, or only on pages in between the first and the last page, or only on the last page. Examples are a different header on the first page, and a tear-off slip that should show up on the last page.

This is what Master Pages are used for. Master Pages can only be used in the Print context.

See "Master Pages" on page 318 for an explanation of how to fill them and how to apply them to different pages.

Stationery (Media)

When the output of a Print context is meant to be printed on paper that already has graphical and text elements on it (called stationery, or preprinted sheets), you can add a copy of this media, in the form of a PDF file, to the Media folder.

Media can be applied to pages in a Print section, to make them appear as a background to those pages. This ensures that elements added to the Print context will correspond to their correct location on the preprinted media.

When both Media and a Master Page are used on a certain page, they will both be displayed on the Preview tab of the workspace, the Master Page being 'in front' of the Media and the Print

section on top. To open the Preview tab, click it at the bottom of the Workspace or select **View > Preview View** on the menu.

The Media will not be printed, unless this is specifically requested through the printer settings in the Print Wizard; see "Generating Print output" on page 860.

See "Media" on page 321 for further explanation about how to add Media and how to apply them to different pages.

Creating a Print template with a Wizard

A Print template may consist of various parts, such as a covering letter and a policy. Start with one of the Template Wizards for the first part; other parts can be added later.

To create a Print template with a Template Wizard:

1. - In the **Welcome** screen that appears after startup:
     - Choose **Browse Template Wizards** and scroll down until you see the Print Template wizards and select the Postcard or Formal Letter wizard.
     - Or choose **Create a New Template** and select the PDF-based Print wizard.
   - Alternatively, on the **File** menu, click **New**, expand the **Template** folder, and then:
     - Select the PDF-based Print wizard.
     - Or expand the **Basic Print templates** folder, select Postcard or Formal Letter and click **Next**.

   See "Print Template Wizards" on the next page for information about the various types of Template wizards.
2. Make adjustments to the initial settings (the options for each type of template are listed below). Click **Next** to go to the next settings page if there is one.
3. Click **Finish** to create the template.

See "Print context" on page 300 and "Print sections" on page 303 for more information about Print templates.

Tip

Use the **Outline** pane at the left to see which elements are present in the template and to select an element.

Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.

Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

Print Template Wizards

There are three Print Template wizards: one for a formal letter, one for a postcard and one for a Print template based on a PDF that you provide.

Postcard

The Postcard Wizard lets you choose a page size and two background images, one for the front and one for the back of the postcard.

When you click **Finish**, the Wizard creates:

- A Print context with one section in it, that has duplex printing (printing on both sides) enabled. See "Printing on both sides" on page 302.
- Two Master Pages that each contain a background image. The first Master Page is applied to the front of every page in the Print section. The second Master Page is applied to the back of every page in the Print section. See "Master Pages" on page 318.
- **Scripts** and **selectors** for variable data. The **Scripts** pane shows, for example, a script called "first_name". This script replaces the text "@first_name@" on the front of the postcard by the value of a field called "first_name" when you open a data set that has a field with that name. See "Variable Data" on page 530.
- A script called Dynamic Front Image Sample. This script shows how to toggle the image on the front page dynamically. See also "Writing your own scripts" on page 548.
- One empty Media. Media, also called Virtual Stationery, can be applied to all pages in the Print section. See "Media" on page 321.

The Wizard opens the Print section, so that you can fill it with text and other elements; see "Content elements" on page 403. It already has two Positoned Boxes on it: one on the front, for text, and one on the back, for the address.

See "Print context" on page 300 and "Print sections" on page 303 for more information about Print templates.

Formal letter

The Formal Letter Wizard first lets you select the page settings, see "Page settings: size, margins and bleed" on page 311.

These settings are fairly self-explanatory, except perhaps these:

- Duplex means double-sided printing.
- The margins define where your text flow will go. The actual printable space on a page depends on your printer.
- The bleed is the printable space **around** a page. It can be used on some printers to ensure that no unprinted edges occur in the final trimmed document. Printers that can't print a bleed, will misinterpret this setting. Set the bleed to zero to avoid this.
- The number of sections is the number of parts in the Print context. Although this Template wizard can add multiple Print sections to the Print context, it will only add content to the first section.

On the next settings page (click **Next** to go there), you can type a subject, the sender's name and the sender's title. These will appear in the letter. You can also:

- Click the **Browse** button to select a signature image. This image will appear above the sender's name and title.
- Select Virtual Stationery: a PDF file with the letterhead stationery. Also see Media.

When you click **Finish**, the Wizard creates:

- A Print context with one section in it; see "Print context" on page 300 and "Print sections" on page 303.
- One empty Master Page. Master Pages are used for headers and footers, for images and other elements that have to appear on more than one page, and for special elements like tear-offs. See "Master Pages" on page 318.

- One Media. You can see this on the **Resources** pane: expand the **Media** folder. **Media 1** is the Virtual Stationery that you have selected in the Wizard. It is applied to all pages in the Print section, as can be seen in the Sheet Configuration dialog. (To open this dialog, expand the **Contexts** folder on the **Resources** pane; expand the **Print** folder and right-click "Section 1"; then select **Sheet Configuration**.) See "Media" on page 321.
- **Selectors** for variable data, for example: @Recipient@. You will want to replace these by the names of fields in your data. See "Variable Data" on page 530.

The Wizard opens the Print section. You can add text and other elements; see "Content elements" on page 403.

The formal letter template already has an address on it. The address lines are paragraphs, located in one cell in a table with the ID **address-block-table**. As the table has no borders, it is initially invisible. The address lines will stick to the bottom of that cell, even when the address has fewer lines. See "Styling and formatting" on page 484 to learn how to style elements.

> **Tip**
>
> Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

PDF-based Print template

The PDF-based Print template wizard creates a document from an existing PDF file: a brochure, voucher, letter, etc. The PDF is used as the background image of the Print section (see "Using a PDF file as background image" on page 307). Variable and personalized elements, like a reseller address, voucher codes and so on, can be added in front of it (see "Personalizing Content" on page 518 and "Variable Data" on page 530).

By default, the PDF itself is added to the **Image** folder located in the **Resources** pane. Uncheck the option **Save with template** if the PDF should not be imported in the template. If not saved with the template, the image will remain external. Note that external images need to be available when the template is merged with a record set to generate output, and that their location should be accessible from the machine on which the template's output is produced. External images are updated (retrieved) at the time the output is generated.

After clicking **Next**, you can change the settings for the page. The initial page size and bleed area are taken from the selected PDF.

When you click **Finish**, the Wizard creates:

- A Print context with one section in it; see "Print context" below and "Print sections" on page 303. The selected PDF is used as the background of the Print section; see "Using a PDF file as background image" on page 307. For each page in the PDF one page is created in the Print section.
- One empty Master Page. Master Pages are used for headers, footers, images and other elements that have to appear on more than one page, and for special elements like tear-offs. See "Master Pages" on page 318.
- One empty Media. Media, also called Virtual Stationery, can be applied to all pages in the Print section. See "Media" on page 321.

Print context

The Print context is the folder in the Designer that can contain one or more Print templates.

Print templates, also called Print *sections*, are part of the Print context. They are meant to be printed to a printer or printer stream, or to a PDF file (see "Generating Print output" on page 860).
The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 874. When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record.

Creating the Print context

You can start creating a Print template with a Wizard (see "Creating a Print template with a Wizard" on page 296), or add the Print context to an existing template (see "Adding a context" on page 290).

> **Tip**
>
> Editing PDF files in the Designer is not possible, but when they're used as a section's background, you can add text and other elements, such as a barcode, to them. To create a new Print template from a PDF file, use the PDF-based Print template (see "Creating a Print template with a Wizard" on page 296). To use a PDF file as background image for an existing section, see "Using a PDF file as background image" on page 307.

When a Print template is created, the following happens:

- The Print context is created and one **Print section** is added to it. You can see this on the **Resources** pane: expand the **Contexts** folder, and then expand the **Print** folder.
  The Print context can contain multiple sections: a covering letter and a policy, for example, or one section that is meant to be attached to an email as a PDF file and another one that is going to be printed out on paper. Only one Print section is added to it at the beginning, but you can add as many print sections as you need; see "Adding a Print section" on page 304.
  See "Print sections" on page 303 to learn how to fill a Print section.
- One **Master Page** is added to the template, as can be seen on the **Resources** pane, in the **Master Page** folder.

  In Print sections, there are often elements that need to be repeated across pages, like headers, footers and logos. In addition, some elements should appear on each first page, or only on pages in between the first and the last page, or only on the last page. Examples are a different header on the first page, and a tear-off slip that should show up on the last page.

  This is what Master Pages are used for. Master Pages can only be used in the Print context.
  See "Master Pages" on page 318.
  Initially, the (empty) master page that has been created with the Print context will be applied to all pages in the Print section, but more Master Pages can be added and applied to different pages.

- One **Media** is added to the template, as is visible on the **Resources** pane, in the **Media** folder. This folder can hold the company's stationery in the form of PDF files. When applied to a page in a Print section, Media can help prevent the contents of a Print section from colliding with the contents of the stationery. See "Media" on page 321 to learn how to add Media and, optionally, print them.
  Initially, the (empty) media that has been created with the Print context, is applied to all pages in the Print section. You can add more Media and apply them each to different pages.
- One **Stylesheet**, named context_print_styles.css, is added to the template, as you can see on the Resources pane, in the **Stylesheets** folder. This stylesheet is meant to be used for styles that are only applied to elements in the Print context. See also "Styling templates with CSS files" on page 486.

Print settings in the Print context and sections

The following settings in the Print context and Print sections have an impact on how the Print context is printed.

Arranging and selecting sections

The Print context can contain one or more Print sections. When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record. The sections are added to the output in the order in which they appear on the **Resources** pane. This order can be changed; see "Print sections" on the next page.

It is also possible to exclude sections from the output, or to include a section only on a certain condition that depends on a value in the data. This can be done using a Control Script; see "Control Scripts" on page 566.

Printing on both sides

To print a Print section on both sides of the paper, that Print section needs to have the Duplex printing option to be enabled; see "Enabling double-sided printing" on page 309. This setting can not be changed in a Job Creation Preset or an Output Creation Preset.

> **Note**
>
> Your printer must support duplex for this option to work.

Setting the binding style for the Print context

The Print context , as well as each of the Print sections, can have its own Finishing settings. In printing, Finishing is the way pages are bound together after they have been printed. Which binding styles can be applied depends on the type of printer that you are using.

To set the binding style of the Print **context**:

1. On the **Resources** pane, expand the **Contexts** folder, and right-click the **Print** context.
2. Click **Properties**.
3. Choose a Binding style and, if applicable, the number of holes.

To set the binding style of a Print **section**, see "Setting the binding style for a Print section" on page 309.

Overriding binding styles in a job creation preset

A *Job Creation Preset* can override the binding styles set for the Print sections and for the Print context as a whole. To bind output in another way than defined in the template's settings:

1. Create a Job Creation Preset that overrides the settings of one or more sections: select **File > Presets** and see "Job Creation Presets" on page 754 for more details.
2. Select that Job Creation Preset in the Print wizard; see "Generating Print output" on page 860.

Setting the bleed

The **bleed** is the printable space around a page. It can be used on some printers to ensure that no unprinted edges occur in the final trimmed document. The bleed is one of the settings for a section. See "Page settings: size, margins and bleed" on page 311.

Print sections

Print templates, also called Print *sections*, are part of the Print context. They are meant to be printed to a printer or printer stream, or to a PDF file (see "Generating Print output" on page 860).
The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 874. When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record.

Pages

Unlike emails and web pages, Print sections can contain multiple *pages*. Pages are naturally limited by their size and margins. If the content of a section doesn't fit on one page, the overflow goes to the next page. This happens automatically, based on the section's page size and margins; see "Page settings: size, margins and bleed" on page 311.

Although generally the same content elements can be used in all three contexts (see "Content elements" on page 403), the specific characteristics of pages make it possible to use special elements, such as page numbers; see "Page numbers " on page 313.

See "Pages" on page 310 for an overview of settings and elements that are specific for pages.

Using headers, footers, tear-offs and repeated elements

In Print sections, there are often elements that need to be repeated across pages, like headers, footers and logos. In addition, some elements should appear on each first page, or only on pages in between the first and the last page, or only on the last page. Examples are a different header on the first page, and a tear-off slip that should show up on the last page.

This is what Master Pages are used for. Master Pages can only be used in the Print context.

See "Master Pages" on page 318 for an explanation of how to fill them and how to apply them to different pages.

Using stationery (Media)

When the output of a Print context is meant to be printed on paper that already has graphical and text elements on it (called stationery, or preprinted sheets), you can add a copy of this media, in the form of a PDF file, to the Media folder.

Media can be applied to pages in a Print section, to make them appear as a background to those pages. This ensures that elements added to the Print context will correspond to their correct location on the preprinted media.

> **Note**
>
> When both Media and a Master Page are used on a certain page, they will both be displayed on the Preview tab of the workspace, the Master Page being 'in front' of the Media and the Print section on top. To open the Preview tab, click it at the bottom of the Workspace or select **View > Preview View** on the menu.

See "Media" on page 321 for a further explanation about how to add Media and how to apply them to different pages.

Note: The Media will not be printed, unless this is specifically requested through the printer settings; see "Generating Print output" on page 860.

Adding a Print section

The Print context can contain multiple sections: a covering letter and a policy, for example, or one section that is meant to be attached to an email as a PDF file and another one that is meant

to be printed out on paper. When a Print template is created (see "Creating a Print template with a Wizard" on page 296 and "Print context" on page 300), only one Print section is added to it, but you can add as many print sections as you need.

To add a section to a context:

- On the **Resources** pane, expand the **Contexts** folder, right-click the **Print** context , and then click **New section**.

The first Master Page (see "Master Pages" on page 318) and Media (see "Media" on page 321) will automatically be applied to all pages in the new section, but this can be changed, see "Applying a Master Page to a page in a Print section" on page 320 and "Applying Media to a page in a Print section" on page 324.

> **Tip**
>
> Editing PDF files in the Designer is not possible, but when they're used as a section's background, you can add text and other elements, such as a barcode, to them. To create a new Print template from a PDF file, use the PDF-based Print template (see "Creating a Print template with a Wizard" on page 296). To use a PDF file as background image for an existing section, see "Using a PDF file as background image" on page 307.

> **Note**
>
> Via a Control Script, sections can be added to a Print context dynamically; see "Dynamically adding sections (cloning)" on page 576.

Deleting a Print section

To delete a Print section:

- On the **Resources** pane, expand the **Contexts** folder, expand the **Print** context, right-click the name of the section, and then click **Delete**.

Warning

No backup files are maintained in the template. The only way to recover a deleted section, is to click **Undo** on the **Edit** menu, until the deleted section is restored. After closing and reopening the template it is no longer possible to restore the deleted context this way.

Arranging Print sections

When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record. The sections are added to the output in the order in which they appear on the **Resources** pane, so changing the order of the sections in the Print context changes the order in which they are outputted to the final document.

To rearrange sections in a context:

- On the **Resources** pane, expand the **Print** context and drag and drop sections to change the order they are in.
- Alternatively, on the **Resources** pane, right-click a section in the **Print** context and click **Arrange**. In the Arrange Sections dialog you can change the order of the sections by clicking the name of a section and moving it using the **Up** and **Down** buttons.

Styling and formatting a Print section

The contents of a Print section can be formatted directly, or styled with Cascading Style Sheets (CSS). See "Styling and formatting" on page 484.

In order for a style sheet to be applied to a specific section, it needs to be included in that section. There are two ways to do this.

Drag & drop a style sheet

1. Click and hold the mouse button on the style sheet on the **Resources** pane.
2. Move the mouse cursor within the **Resources** pane to the section to which the style sheet should be applied.
3. Release the mouse button.

Using the Includes dialog

1. On the Resources pane, right-click the section, then click **Includes**.
2. From the **File types** dropdown, select **Stylesheets**.
3. Choose which CSS files should be applied to this section. The available files are listed at the left. Use the arrow buttons to move the files that should be included to the list at the right.
   You can also change the order in which the CSS files are read. Note that moving a style sheet up in the list gives it **less** weight. In case of conflicting rules, style sheets read later will override previous ones; see "Determining the order in which style sheets are read" on page 493.

Using a PDF file as background image

In the Print context, a PDF file can be used as a section's background. It is different from the Media in that the section considers the PDF to be content, so the number of pages in the section will be the same as the number of pages taken from the PDF file.

With this feature it is possible to create a Print template from an arbitrary PDF file or from a PDF file provided by the DataMapper. Of course, the PDF file itself can't be edited in a Designer template, but when it is used as a section's background, text and other elements, such as a barcode, can be added to it.

To use a PDF file as background image:

1. On the **Resources** pane, expand the **Print** context, right-click the print section and click **Background**.
2. Click the downward pointing arrow after **Image** and select either **From Datamapper input** or **From PDF resource**.
   From Datamapper input uses the active Data Mapping Configuration to retrieve the PDF file that was used as input file, or another type of input file, converted to a PDF file. With this option you don't need to make any other settings; click OK to close the dialog.
3. For a PDF resource, you have to specify where it is located. Click the **Select Image** button.
   Click **Resources**, **Disk** or **Url**, depending on where the image is located.
   - **Resources** lists the images that are present in the **Images** folder on the **Resources** pane.
   - **Disk** lets you choose an image file that resides in a folder on a hard drive that is accessible from your computer. Click the **Browse** button to select an image.
     As an alternative it is possible to enter the path manually. The complete syntax

is: file://<host>/<path>. Note: if the host is "localhost", it can be omitted, resulting in file:///<path>, for example: file:///c:/resources/images/image.jpg.
Check the option **Save with template** to insert the image into the **Images** folder on the **Resources** pane.

- **Url** allows you to choose an image from a specific web address. Select the protocol (**http** or **https**), and then enter the web address (for example, http://www.mysite.com/images/image.jpg).

> **Note**
>
> It is not possible to use a remotely stored PDF file as a section's background, because the number of pages in a PDF file can not be determined via the http and http protocols. Therefor, with an external image, the option **Save with template** is always checked.

4. Select the PDF's **position**:
   - **Fit to page** stretches the PDF to fit the page size.
   - **Centered** centers the PDF on the page, vertically and horizontally.
   - **Absolute** places the PDF at a specific location on the page. Use the **Top** field to specify the distance between the top side of the page and the top side of the PDF, and the **Left** field to specify the distance between the left side of the page and the left side of the PDF.
5. Optionally, if the PDF has more than one page, you can set the range of **pages** that should be used.

> **Note**
>
> The number of pages in the Print section is automatically adjusted to the number of pages in the PDF file that are being used as the section's background image.

6. Finally, click **OK**.

Note

To set the background of a section in script, you need a Control Script; see "Control Scripts" on page 566 and "Control Script API" on page 839.

Setting the binding style for a Print section

In printing, Finishing is the binding style, or the way pages are bound together. Each Print section can have its own Finishing settings, as well as the Print context as a whole; see "Setting the binding style for the Print context" on page 302.

To set the binding style of a Print **section**:

1. On the **Resources** pane, expand the **Contexts** folder, expand the **Print** context and right-click the Print section.
2. Click **Finishing**.
3. Choose a Binding style and, if applicable, the number of holes.

To set the binding style of the Print **context**, see "Setting the binding style for the Print context" on page 302.

Overriding binding styles in a job creation preset

A *Job Creation Preset* can override the binding styles set for the Print sections and for the Print context as a whole. To bind output in another way than defined in the template's settings:

1. Create a Job Creation Preset that overrides the settings of one or more sections: select **File > Presets** and see "Job Creation Presets" on page 754 for more details.
2. Select that Job Creation Preset in the Print wizard; see "Generating Print output" on page 860.

Enabling double-sided printing

To print a Print section on both sides of the paper, that Print section needs to have the Duplex printing option to be enabled. This is an option in the Sheet Configuration dialog. (See "Sheet Configuration dialog" on page 645.)

PReS. Connect

> **Note**
>
> Your printer must support duplex for this option to work.

To enable duplex printing:

1. On the **Resources** pane, expand the **Print** context, right-click the print section and click **Sheet configuration**.
2. Check **Duplex** to enable content to be printed on the back of each sheet.
3. When duplex printing is enabled, further options become available.
    - Check **Tumble** to duplex pages as in a calendar.
    - Check **Facing pages** to have the side margins switched alternately, so that after printing and binding the pages, they look like in a magazine or book. See "Pages" below to find out how to set a left and right margin on a page.
    - If an odd page count is generated, the last page (which is a duplex backside) has only the master page. To suppress the master page on this last page and exclude this page from page counting, check the option **Omit Master Page Back in case of an empty back page**.

Pages

Unlike emails and web pages, Print sections can contain multiple *pages*. Pages are naturally limited by their size and margins. If the content of a section doesn't fit on one page, the overflow goes to the next page. This happens automatically, based on the section's page size and margins; see "Page settings: size, margins and bleed" on the next page.

Although generally the same content elements can be used in all three contexts (see "Content elements" on page 403), the specific characteristics of pages make it possible to use special elements, such as page numbers; see "Page numbers " on page 313.

The widow/orphan setting lets you control how many lines of a paragraph stick together, when content has to move to another page; see "Preventing widows and orphans" on page 315. You can also avoid or force a page break before or after an entire element, see "Page breaks" on page 316.

Each page in a print section has a natural position: it is the first page, the last page, a 'middle' page (a page between the first and the last page) or a single page. For each of those positions, a different Master Page and Media can be set. A Master Page functions as a page's background, with for example a header and footer. A Media represents preprinted paper that a page can be printed on. See "Master Pages" on page 318 and "Media" on page 321.

Page specific content elements

The specific characteristics of pages make it possible to use these special elements:

- **Page numbers** can only be used in a Print context. See "Page numbers " on page 313 to learn how to add and change them.
- Conditional content and dynamic tables, when used in a Print section, may or may not leave an empty space at the bottom of the last page. To fill that space, if there is any, an image or advert can be used as a **whitespace element**; see "Whitespace elements: using optional space at the end of the last page" on the facing page.
- Dynamic tables can be used in all contexts, but **transport lines** are only useful in a Print context; see "Dynamic table" on page 543.

Positioning and aligning elements

Sometimes, in a Print template, you don't want content to move up or down with the text flow. To prevent that, put that content in a Positioned Box. See "Content elements" on page 403.

When it comes to positioning elements on a page, Guides can be useful, as well as Tables. See "How to position elements" on page 498.

Page settings: size, margins and bleed

On paper, whether it is real or virtual, content is naturally limited by the page size and margins.

These, as well as the bleed, are set per Print section, as follows:

- On the **Resources** pane, right-click a section in the **Print** context and click **Properties**.

For the **page size**, click the drop-down to select a page size from a list of common paper sizes. Changing the width or height automatically sets the page size to Custom.

Margins define where your text flow will go. Static elements can go everywhere on a page, that is to say, within the printable space on a page that depends on the printer.

The **bleed** is the printable space around a page. It can be used on some printers to ensure that no unprinted edges occur in the final trimmed document. Note: Printers that can't print a bleed, will misinterpret this setting. Set the bleed to zero to avoid this.

> **Tip**
>
> By default, measurements settings are in inches (in). You could also type measures in centimeters (add 'cm' to the measurement, for example: 20cm) or in millimeters (for example: 150mm).
> To change the default unit for measurement settings to centimeters or millimeters: on the **Window** menu, click **Preferences**, click **Print**, and then click **Measurements**.

Whitespace elements: using optional space at the end of the last page

Print sections with conditional content and dynamic tables (see "Personalizing Content" on page 518) can have a variable amount of space at the bottom of the last page. It is useful to fill the empty space at the bottom with transpromotional material, but of course you don't want extra pages created just for promotional data. 'Whitespace elements' are elements that will only appear on the page if there is enough space for them.

To convert an element into a whitespace element:

1. Import the promotional image or snippet; see "Images" on page 471 and "Snippets" on page 482.
2. Insert the promotional image or snippet in the content.

> **Note**
>
> - Only a top-level element (for example, a paragraph that is not inside a table or div) can function as a whitespace element.

- Do not place the promotional image or snippet inside an absolute positioned box. Whitespacing only works for elements that are part of the text flow, not for absolute-positioned boxes.

3. Select the image or the element that holds the promotional content: click it, or use the breadcrumbs, or select it on the **Outline** tab; see "Selecting an element" on page 407.
4. On the **Attributes** pane, check the option **Whitespace element**.
5. (Optional.) Add extra space at the top of the element: on the menu **Format**, click the option relevant to the selected element (Image for an image, Paragraph for a paragraph, etc.) and adjust the spacing (padding and/or margins).
   Do not add an empty paragraph to provide space between the whitespace element and the variable content. The extra paragraph would be considered content and could end up on a separate page, together with the whitespace element.

Page numbers

Inserting page numbers

Page numbers can be added to a Print section, but they are usually added to a Master Page, because headers and footers are designed on Master Pages; see also: "Master Pages" on page 318.

To insert a page number, select **Insert > Special character > Markers** on the menu, and then click one of the options to decide with what kind of page number the marker will be replaced:

- **Page number**: The current page number in the document. If a page is empty or does not display a page number, it is still added to the page count.
- **Page count**: The total number of pages in the document, including pages with no contents or without a page number.
- **Content page number**: The current page number in the document, counting only pages with contents that are supplied by the Print section. A page that has a Master Page (as set in the Sheet Configuration dialog, see "Applying a Master Page to a page in a Print section" on page 320) but no contents, is not included in the Content page count.
- **Content page count**: This is the total number of pages in the current document that have contents, supplied by the Print section. A page that has a Master Page but no contents, is not included in the Content page count.

- **Sheet number**: The current sheet number in the document. A sheet is a physical piece of paper, with two sides (or pages). This is equivalent to half the page number, for example if there are 10 pages, there will be 5 sheets.
- **Sheet count**: This marker is replaced by the total number of sheets in the document, whether or not they have contents.

> **Note**
>
> When a marker is inserted, a class is added to the element in which the marker is inserted. Do not delete that class. It enables the software to quickly find and replace the marker when generating output. The respective classes are: `pagenumber`, `pagecount`, `contentpagenumber`, `contentpagecount`, `sheetnumber`, and `sheetcount`.

Creating a table of contents

A table of contents can only be created in a template script. The script should make use of the `pageRef()` function. For an example, see "Creating a table of contents" on page 831. If you don't know how to write a script, see "Writing your own scripts" on page 548.

Configuring page numbers

By default the page numbers are Arabic numerals (1, 2, 3, etc.) without leading zeros nor prefix, and page numbering starts with page 1 for each section. But this can be changed. To do that:

1. On the **Resources** pane, right-click a section in the **Print** context and click **Numbering**.
2. Uncheck **Restart Numbering** if you want the page numbers to get consecutive page numbers, instead of restarting the page numbering with this section.

> **Note**
>
> Even if a section is disabled, so it doesn't produce any output, this setting is still taken into account for the other sections. This means that if Restart Numbering is checked on a disabled section, the page numbering will be restarted on the next section.
> Disabling a section can only be done in a Control Script (see "Control Scripts" on page 566). Control Scripts can also change where page numbers restart.

3. Use the **Format** drop-down to select uppercase or lowercase letters or Roman numerals instead of Arabic numerals.
4. In **Leading Zeros**, type zeros to indicate how many digits the page numbers should have. Any page number that has fewer digits will be preceded by leading zeros.
5. Type the **Number prefix**. Optionally, check Add Prefix to Page Counts, to add the prefix to the total number of pages, too.
6. Close the dialog.

Preventing widows and orphans

Widows and orphans are lines at the beginning or at the end of a paragraph respectively, dangling at the bottom or at the top of a page, separated from the rest of the paragraph.

By default, to prevent orphans and widows, lines are moved to the next page as soon as two lines get separated from the rest of the paragraph.

This setting can be changed for the entire Print context, per paragraph and in tables.

> **Note**
>
> Widows and orphans are ignored if the **page-break-inside** property of the paragraph is set to **avoid**.

In the entire Print context

To prevent widows and orphans in the entire Print context:

1. On the menu, select **Edit > Stylesheets**.
2. Select the **Print** context.
3. Click **New** (or, when there are already CSS rules for paragraphs, click the selector **p** and click **Edit**).
4. Click **Format**.
5. After **Widows and Orphans**, type the minimum number of lines that should be kept together.

Alternatively, manually set the set the **widows** and **orphans** properties in a style sheet:

1. Open the style sheet for the Print context: on the **Resources** pane, expand the **Styles** folder and double-click context_print_styles.css.
2. Add a CSS rule, like the following:
   ```
   p { widows: 4; orphans: 3 }
   ```

Per paragraph

To change the widow or orphan setting for one paragraph only:

1. Select the paragraph, using the breadcrumbs or the **Outline** pane (next to the **Resources** pane).
2. Select **Format > Paragraph**, on the menu.
3. After **Widows** and **Orphans**, type the number of minimum number of lines that should be kept together.

In tables

The CSS properties **widows** and **orphans** can be used in tables. They are not available in the Table Formatting dialog, however, so they must be added manually, either directly in the `style` attribute of the <table> element (on the **Source** tab in the Workspace) or in a style sheet rule, as follows:

1. On the menu, select **Edit > Stylesheets**.
2. Select the **Print** context.
3. Click **New** (or, when there are already CSS rules for tables, click the selector **table** and click **Edit**).
4. Click the **Advanced** button.
5. Add a rule for widows and/or orphans, typing the name of the CSS property in the left column and the value in the right column.
6. Close the dialogs.

Page breaks

A page break occurs automatically when the contents of a section don't fit on one page.

PReS. Connect

Inserting a page break

To insert a page break before or after a certain element, set the `page-break-before` property or the `page-break-after` property of that element (a paragraph for example; see also "Styling text and paragraphs" on page 494):

1. Select the element (see "Selecting an element" on page 407).
2. On the **Format** menu select the respective element to open the Formatting dialog.
3. In the Breaks group, set the **before** or **after** property.
    - **Before**: Sets whether a page break should occur **before** the element. This is equivalent to the **page-break-before** property in CSS; see CSS page-break-before property for an explanation of the available options.
    - **After**: Sets whether a page break should occur **after** the element. Equivalent to the page-break-after property in CSS; see CSS page-break-after property for an explanation of the available options.

Click the button **Advanced** to add CSS properties and values to the inline style tag directly.

> **Note**
>
> You cannot use these properties on an empty or on absolutely positioned elements.

Preventing a page break

To prevent a page break inside a certain element, set the page-break-inside property of that element to **avoid**:

- Select the element (see "Selecting an element" on page 407).
- On the **Format** menu, select the respective element to open the Formatting dialog.
- In the **Breaks** group, set the **inside** property to **avoid**, to prevent a page break inside the element. This is equivalent to the **page-break-inside** property in CSS; see CSS page-break-inside property for an explanation of all available options.

Adding blank pages to a section

How to add a blank page to a section is described in a how-to: Create blank page on field value.

Master Pages

In Print sections, there are often elements that need to be repeated across pages, like headers, footers and logos. In addition, some elements should appear only on specific pages, such as only the first page, or the last page, or only on pages in-between. Examples are a different header on the first page, and a tear-off slip that shows up on the last page.

This is what Master Pages are used for. Master Pages can only be used in the Print context (see "Print context" on page 300).

Master Pages resemble Print sections, and they are edited in much the same way (see "Editing a Master Page" on the next page) but they contain a single page and do not have any text flow. Only one Master Page can be applied per page in printed output. Then a Print template is created, one master page is added to it automatically. You can add more Master Pages; see "Adding a Master Page" below. Initially, the original Master Page will be applied to all pages, but different Master Pages can be applied to different pages; see "Applying a Master Page to a page in a Print section" on page 320.

Examples

This how-to demonstrates the use of Master Pages to show terms and conditions on the back of the first page of a Print section only:

- Showing a Terms and Conditions on the back of the first page only.

How to use Master Pages to add a tear-off slip to the first page of an invoice is explained in the following how-to :

- A tear-off section on the first page of an invoice.

Adding a Master Page

When a Print template is created, one master page is added to it automatically. Adding more Master Pages can be done as follows:

- On the **Resources** pane, right-click the **Master pages** folder and click **New Master Page**.
- Type a name for the master page.
- Optionally, set the margin for the header and footer. See "Adding a header and footer" on

the next page.

- Click **OK**.

Initially, the master page that has been created together with the Print context will be applied to all pages in the Print section. After adding more Master Pages, different Master Pages can be applied to different pages; see "Applying a Master Page to a page in a Print section" on the facing page.

Editing a Master Page

Master Pages are edited just like sections, in the workspace. To open a Master Page, expand the **Master pages** folder on the **Resources** pane, and double-click the Master Page to open it.

A Master Page can contain text, images and other elements (see "Content elements" on page 403), including variable data and dynamic images (see "Personalizing Content" on page 518). All elements on a Master Page should have an absolute position or be inside an element that has an absolute position. It is good practice to position elements on a Master Page by placing them in a Positioned Box (see "Content elements" on page 403).

Keep in mind that a Master Page always remains a single page. Its content cannot overflow to a next page. Content that doesn't fit, will not be displayed.

> **Note**
>
> Editing the Master Page is optional. One Master Page must always exist in a Print template, but if you don't need it, you can leave it empty.

Adding a header and footer

Headers and footers are not designed as part of the contents of a Print section, but as part of a Master Page, which is then applied to a page in a print section.

To create a header and footer:

1. First insert elements that form the header or footer, such as the company logo and address, on the Master Page; see "Editing a Master Page" above.
2. Next, define the margins for the header and footer. The margins for a header and footer are set in the Master Page properties. This does not change the content placement within

the Master Page itself; in Master Pages, elements can go everywhere on the page. Instead, the header and footer of the Master Page limit the text flow on pages in the Print sections to which this Master Page is applied. Pages in a Print section that use this Master Page cannot display content in the space that is reserved by the Master Page for the header and footer, so that content in the Print section does not collide with the content of the header and footer. To set a margin for the header and/or footer:

1. On the **Resources** pane, expand the **Master pages** folder, right-click the master page, and click **Properties**.
2. Fill out the height of the header and/or the footer. The contents of a print section will not appear in the space reserved for the header and/or footer on the corresponding master page.

3. Finally, apply the master page to a specific page in a print section. See "Applying a Master Page to a page in a Print section" below.

Applying a Master Page to a page in a Print section

Every page in a print section has a natural position: it can be the first page, the last page, one of the pages in between (a 'middle page'), or a single page. For each of those positions, you can set a different Master Page and Media (see "Media" on the next page). It can even have two master pages, if printing is done on both sides (called duplex printing).

To apply Master Pages to specific page positions in a Print section:

1. On the **Resources** pane, expand the **Print** context; right-click the Print section, and click **Sheet configuration**.
2. Optionally, check **Duplex** to enable content to be printed on the back of each sheet. Your printer must support duplex for this option to work. If Duplex is enabled, you can also check **Tumble** to duplex pages as in a calendar, and **Facing pages** to have the margins of the section switch alternately, so that pages are printed as if in a magazine or book.
3. If the option **Same for all positions** is checked, the same Master Page will be applied to every page in the print section (and to both the front and the back side of the page if duplex printing is enabled). Uncheck this option.
4. Decide which Master Page should be linked to which sheet (position): click the downward pointing arrow after **Master Page Front** and select a Master Page. If Duplex is enabled, you can also select a Master Page for the back of the sheet and consequently, check **Omit Master Page Back in case of an empty back page** to omit the specified Master

Page on the last backside of a section if that page is empty and to skip that page from the page count.

5. Optionally, decide which Media should be linked to each sheet.
6. Click OK to save the settings and close the dialog.

Deleting a Master Page

To delete a Master Page, expand the **Master pages** folder on the **Resources** pane, right-click the master page, and click **Delete**.

Note that one Master Page as well as one Media must always exist in a Print template. Just leave it empty if you don't need it.

Media

When the output of a Print context is meant to be printed on paper that already has graphical and text elements on it (called stationery, or preprinted sheets), you can add a copy of this media, in the form of a PDF file, to the Media folder.

Media can be applied to pages in a Print section, to make them appear as a background to those pages. This ensures that elements added to the Print context will correspond to their correct location on the preprinted media.

For further explanation about how to apply Media to different pages, see "Applying Media to a page in a Print section" on page 324.

Media will not be printed, unless you want them to; see below.

Per Media, a front and back can be specified and you can specify on what kind of paper the output is meant to be printed on. This includes paper weight, quality, coating and finishing; see "Adding Media" below.

Adding Media

To add a Media, right-click the **Media** folder on the **Resources** pane and select **New Media**.

The new Media is of course empty. You can specify two PDF files for the Media: one for the front, and, optionally, another for the back.

Specifying and positioning Media

Specifying a PDF for the front: the fast way

To quickly select a PDF file for the front of a Media, import the PDF file by dragging it from the Windows Explorer to the **Images** folder on the **Resources** pane.
Then drag that the PDF file from the **Images** folder and drop it on one of the Media in the **Media** folder. With this method you can not set any options.

To be able to specify a PDF file for both the front and the back of the Media, and to specify a position for the Media's PDF files, you have edit the properties of the Media.

Setting Media properties

Media have a number of properties that you can set. You can change the Media's page size and margins (as long as it isn't applied to a section), you can specify a PDF file (or any other type of image file) for both the front and the back of the Media, and you can determine how the virtual stationery should be positioned on the page. This is done as follows:

1. On the **Resources** pane, expand the **Contexts** folder, expand the **Media** folder, right-click the Media and click **Properties**.
2. Now you can change the name and page size of the Media. Note that it isn't possible to change the page size once the Media is applied to a section. Media can only be applied to sections that have the same size.
3. On the **Virtual Stationery** tab, you can click the **Select Image** button to select a PDF image file.

1. Click **Resources**, **Disk** or **Url**, depending on where the image is located.
    - **Resources** lists the PDF files that are present in the **Images** folder on the **Resources** pane.
    - **Disk** lets you choose an image file that resides in a folder on a hard drive that is accessible from your computer. Click the **Browse** button to select an image.
      As an alternative it is possible to enter the path manually. The complete syntax is: file:///<host>/<path>. Note: if the host is "localhost", it can be omitted, resulting in file:///<path>, for example: file:///c:/resources/images/image.jpg.
      Check the option **Save with template** to insert the image into the **Images** folder on the **Resources** pane.

- **Url** allows you to choose an image from a specific web address. Select the protocol (**http** or **https**), and then enter the web address (for example, http://www.mysite.com/images/image.jpg).

> **Note**
>
> It is not possible to use a remotely stored PDF file as virtual stationery, because the number of pages in a PDF file can not be determined via the http and http protocols. Therefor, with an external image, the option **Save with template** is always checked.

2. Select a PDF file.
3. If the PDF file consists of more than one page, select the desired page.
4. Click **Finish**.
5. For each of the PDF files, select a position:
   - **Fit to page** stretches the PDF to fit the page size.
   - **Centered** centers the PDF on the page, vertically and horizontally.
   - **Absolute** places the PDF at a specific location on the page. Use the **Top** field to specify the distance between the top side of the page and the top side of the PDF, and the **Left** field to specify the distance between the left side of the page and the left side of the PDF.
6. Finally, click **OK**.

Setting the paper's characteristics

To set a Media's paper characteristics:

1. On the **Resources** pane, expand the **Contexts** folder, expand the **Media** folder, and right-click the Media. Click **Characteristics**.
2. Specify the paper's characteristics:
   - **Media Type**: The type of paper, such as Plain, Continuous, Envelope, Labels, Stationery, etc.
   - **Weight**: The intended weight of the media in grammage (g/m2).

- **Front Coating**: The pre-process coating applied to the front surface of the media, such as Glossy, High Gloss, Matte, Satin, etc.
- **Back Coating**: The pre-process coating applied to the back surface of the media.
- **Texture**: The intended texture of the media, such as Antique, Calenared, Linen, Stipple or Vellum.
- **Grade**: The intended grade of the media, such as Gloss-coated paper, Uncoated white paper, etc.
- **Hole Name**: A predefined hole pattern that specifies the pre-punched holes in the media, such as R2-generic, R2m-MIB, R4i-US, etc.

3. Click **OK**.

Rename Media

To rename Media:

- On the **Resources** pane, expand the **Contexts** folder, expand the **Media** folder, right-click the Media and click **Rename**. Type the new name and click **OK**.
- Alternatively, on the **Resources** pane, expand the **Contexts** folder, expand the **Media** folder, right-click the Media and click **Properties**. Type the new name in the **Name** field and click **OK**.

Applying Media to a page in a Print section

Every page in a print section has a natural position: it can be the first page, the last page, one of the pages in between (a 'middle page'), or a single page. For each of those positions, you can set different Media.

To apply Media to specific page positions in a Print section:

1. On the **Resources** pane, expand the **Print** context; right-click the Print section, and click **Sheet configuration**.
2. Optionally, check **Duplex** to enable content to be printed on the back of each sheet. Your printer must support duplex for this option to work. If Duplex is enabled, you can also check **Tumble** to duplex pages as in a calendar, and **Facing pages** to have the margins of the section switch alternately, so that pages are printed as if in a magazine or book.
3. If the option **Same for all positions** is checked, the same Media will be applied to every page in the print section. Uncheck this option.

4. Decide which Media should be linked to each sheet position: click the downward pointing arrow after **Media** and select a Media.
5. Optionally, decide which Master Page should be linked to each sheet; see "Master Pages" on page 318.

> **Note**
>
> When both Media and a Master Page are used on a certain page, they will both be displayed on the Preview tab of the workspace, the Master Page being 'in front' of the Media and the Print section on top. To open the Preview tab, click it at the bottom of the Workspace or select **View > Preview View** on the menu.

Dynamically switching the Media

In addition to applying Media to sheets via the settings, it is possible to change Media dynamically, based on a value in a data field, in a script. The script has already been made; you only have to change the name of the Media and the section in the script, and write the condition on which the Media has to be replaced.

1. On the **Resources** pane, expand the **Contexts** folder, expand the **Print** context, right-click the print section and click **Sheet configuration**.
2. Decide which pages should have dynamically switching media: every first page in the Print section, every last page, one of the pages in between (a 'middle page'), or a single page. (Uncheck the option **Same for all positions**, to see all page positions.)
3. In the area for the respective sheet position, click the **Edit script** button next to **Media**. The Script Wizard appears with a standard script:
   ```
   results.attr("content","Media 1");
   ```
   Media 1 will have been replaced with the name of the media selected for the chosen sheet position.
   The field **Selector** in the Script Wizard contains the name of the section and the sheet position that you have chosen.
4. Change the script so that on a certain condition, another media will be selected for the content. For instance:
   ```
   if(record.fields.GENDER === 'M') {
               results.attr("content","Media 2");
               }
   ```

This script changes the media to Media 2 for male customers.
See "Writing your own scripts" on page 548 if you are not familiar with how scripts are written.

5. Click **Apply**, open the tab **Preview** and browse through the records to see if the script functions as expected.
6. When you click **OK**, the script will be added to the **Scripts** pane.

Printing virtual stationery

Media are not printed, unless you want them to. Printing the virtual stationery is one of the settings in a Job Creation Preset. To have the virtual stationery printed as part of the Print output:

1. Create a job creation preset that indicates that Media has to be printed: select **File > Presets** and see "Job Creation Presets" on page 754 for more details.
2. Select that job creation preset in the Print Wizard; see "Generating Print output" on page 860.

Email

With the Designer you can create one or more Email templates and merge the template with a data set to generate personalized emails.

The Email **context** is the folder in the Designer that can contain one or more Email templates, also called Email **sections**. The HTML generated by this context is meant to be compatible with as many clients and as many devices as possible.

Email template

It is strongly recommended to start creating an Email template with a Wizard; see "Creating an Email template with a Wizard" on page 331. Designing HTML email that displays properly on a variety of devices and screen sizes is challenging. Building an email is not like building for the web. While web browsers comply with standards (to a significant extent), email clients do not. Different email clients interpret the same HTML and CSS styles in totally different ways.

When an Email template is created, either with a Wizard or by adding an Email context to an existing template (see "Adding a context" on page 290), the Email context folder is created along with other files that are specific to an Email context; see "Email context" on page 334.

Only one Email section is created at the start, but you can add as many Email sections as you need; see "Email templates" on page 336. However, when the Designer merges a data set to generate output from the Email context, it can merge only one of the templates with each record; see "Generating Email output" on page 874.

Email templates are personalized just like any other template; see "Variable Data" on page 530.

Sending email

When the template is ready, you can change the email settings (see "Email header settings" on page 339) and send the email directly from the Designer or via Workflow. To test a template, you can send a test email first.

Output, generated from an Email template, can have the following attachments:

- The contents of the Print context, in the form of a single PDF attachment.
- The output of the Web context, as an integral HTML file.
- Other files, an image or a PDF leaflet for example.

Attaching the Print context and/or the Web context is one of the options in the Send (Test) Email dialog.

See "Email attachments" on page 346 and "Generating Email output" on page 874.

Designing an Email template

With the Designer you can design Email templates. It is strongly recommended to start creating an Email template with an Email Template Wizard, because it is challenging to design HTML email that looks good on all email clients, devices and screen sizes that customers use when they are reading their email.

This topic explains why designing HTML email design is as challenging as it is, which solutions are used in the Email Template Wizards and it lists good practices, for example regarding the use of images in HTML email. It will help you to create the best possible Email templates in the Designer.

HTML email challenges

Creating HTML email isn't like designing for the Web. That's because email clients aren't like web browsers. Email clients pass HTML email through a preprocessor to remove anything that could be dangerous, introduce privacy concerns or cause the email client to behave unexpectedly. This includes removing javascript, object and embed tags, and unrecognized tags. Most preprocessors are overly restrictive and remove anything with the slightest potential to affect the layout of their email client. Next, the HTML has to be rendered so that it is safe to show within the email client. Unfortunately, desktop, webmail, and mobile clients all use different rendering engines, which support different subsets of HTML and CSS. More often than not, the result of these operations is that they completely break the HTML email's layout.

Designing HTML email in PReSDesigner

The problem of HTML email is that preprocessing and rendering engines break the HTML email's layout. HTML tables, however, are mostly left untroubled. As they are supported by every major email client, they are pretty much the only way to design HTML emails that are universally supported. That's why Tables are heavily used to position text and images in HTML email.

Nesting tables (putting tables in table cells) and applying CSS styles to each table cell to make the email look good on all screen sizes is a precision work that can be a tedious and demanding. Connect's Designer offers the following tools to make designing HTML email easier.

Email templates: Slate and others

The most obvious solution offered in the Designer is to use one of the templates provided with the Designer; see "Creating an Email template with a Wizard" on page 331. The layout of these templates has been tested and proven to look good in any email client, on any device and screen size. The Tables in these templates are nested (put inside another table) and they have no visible borders, so readers won't notice them.

> **Tip**
>
> Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab or in the output.

Emmet

Emmet is a plugin that enables the lightning-fast creation of HTML code though the use of a simple and effective shortcut language. The Emmet functionality is available in the HTML and CSS source editors of Connect Designer. Emmet transforms abbreviations for HTML elements and CSS properties to the respective source code. The expansion of abbreviations is invoked with the **Tab** key.

In the Source tab of the Workspace, you could for example type `div.row`. This is the abbreviation for a element with the class `row`. On pressing the Tab key, this abbreviation is transformed to:

```
<div class="row"></div>
```

To quickly enter a table with the ID 'green', one row, and two cells in that row, type:

```
table#green>tr>td*2
```

On pressing the Tab key, this is transformed to:

```
<table id="green">
	<tr>
		<td></td>
		<td></td>
	</tr>
</table>
```

All standard abbreviations can be found in Emmet's documentation: Abbreviations.

To learn more about Emmet, please see their website: Emmet.io and the Emmet.io documentation: http://docs.emmet.io/.

Preferences

To change the way Emmet works in the Designer, select **Window > Preferences**, and in the Preferences dialog, select **Emmet**; see "Emmet Preferences" on page 621.

Using CSS files with HTML email

Email clients do not read CSS files and some even remove a <style> tag when it is present in the email's header. Nevertheless, CSS files can be used with the Email context in the

Designer. When generating output from the Email context, the Designer converts all CSS rules that apply to the content of the email to inline style tags, as if local formatting was applied.

Using images in email campaigns: tips

Host images on a public server

In the Designer you can add images as resource to the template document. When used in email messages these images are automatically embedded on sending the email. These embedded images appear instantly when viewing the message in your email client.
There is, however, a downside to this method: embedded images can't be used to track email open rates. Email services like mandrillapp.com embed a tiny tracer image at the bottom of your message. Each time a recipient opens the email the tracer image (aka beacon image) is downloaded and yet another 'open' is registered. On mobile devices this happens when the user clicks the Display Images button.
So, when tracking open rates in your email campaigns, store your images on a publicly-accessible server (preferably your own server - you could set up a process in Workflow to serve images and track open rates) or a reputable image hosting service, like photobucket.com. Don't forget to set the Alternate Text for your images on the Attributes pane.

Do not capture your email in one big image

Most e-mail clients do not automatically download images, so do not capture your email in one big image. The recipient initially sees a blank message and probably deletes it right away.

Do not resize images in your email

Many mail clients do not support image resizing and will show the image in its original dimensions. Resize the images before you link to or embed them.

Use background images wisely

Most mail clients do not support background images: a very good reason to stay away from them in your mainstream email campaign. There is one situation in which they do come in handy. Both iPhone and Android default mail have solid CSS support and cover most of the mobile marketspace. You could use background images to substitute images when viewed on these devices. This is done by hiding the actual image and showing a mobile-friendly image as background image instead. This is a technique used in Responsive Email Design.

Creating an Email template with a Wizard

With the Designer you can design Email templates as well as PDF attachments. PDF attachments are designed in the Print context; see "Print context" on page 300.

It is strongly recommended to start creating an Email template with a Wizard, because designing HTML email that displays properly on a variety of devices and screen sizes is challenging. Email clients can, and will, interpret the same HTML and (inline) CSS in totally different ways (see "Designing an Email template" on page 327).

With an Email Template Wizard you can easily create an Email template that outputs emails that look good on virtually any email client, device and screen size.

After creating an Email template, the other contexts can be added to it, as well as other sections (see "Contexts" on page 289 and "Email templates" on page 336).

To create an Email template with a Template Wizard:

1. In the **Welcome** screen that appears after startup:
    - Choose **Browse Template Wizards**.
      Scroll down until you see the Email Template Wizards. There are three types of Email Template Wizards:
        - Basic Email templates
        - Banded Email templates
        - Slate: Responsive Email templates by Litmus.
    - Or choose **Create a New Template** and select the Email template. This starts the Basic Action Email wizard.

    Alternatively, on the **File** menu, click **New**, and:

    - Select Email Template. This starts the Basic Action Email wizard.
    - Or expand the **Template** folder, and then expand the **Basic Email templates** folder, the **Banded Email templates** folder, or the **Slate: Responsive Email Templates by Litmus** folder.

    See "Email Template Wizards" on page 333 for information about the various types of Template Wizards.

2. Select a template and click **Next**. If you don't know what template to choose, see below; the characteristics of each kind of template are described further down in this topic.
3. Make adjustments to the initial settings (the options for each type of template are listed below). Click **Next** to go to the next settings page if there is one.
4. Click **Finish** to create the template.

The Wizard creates:

- An Email context with one section in it. The section contains dummy text and one or more **selectors** for variable data, for example: "Hello @first@". You will want to replace those by the names of fields in your data. See "Variable Data" on page 530.
  The Invoice email template also contains a Dynamic Table; see "Dynamic table" on page 543.
- One **script**, named "To". Double-click that script on the **Scripts** pane to open it. This script ensures that the email is sent to an email address that is specified in a data field called "email-to". After loading data or a data mapping configuration, you can change the script so that it uses the actual field in your data that holds the customer's email address. See "Email header settings" on page 339
- A style sheet, named context_htmlemail_styles.css, and another style sheet depending on which Template Wizard was used. The style sheets can be found in the **Stylesheets** folder on the **Resources** pane.

The Wizard opens the Email section, so that you can fill it with text and other elements; see "Content elements" on page 403, "Email context" on page 334, and "Email templates" on page 336.

Tip

Use the **Outline** pane at the left to see which elements are present in the template and to select an element.

Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.

Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

Note that the contents of the email are arranged in tables. The many tables in an Email template ensure that the email looks good on virtually any email client, device and screen size. As the tables have no borders, they are initially invisible.

> **Tip**
>
> Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

Email Template Wizards

There are Wizards for three kinds of Email templates: for **Basic Email**, for **Banded Email**, and **Slate** templates for responsive email designed by Litmus.

Slate: Responsive Email Templates by Litmus

Scroll past the Web Template Wizards to see the Slate: Responsive Email templates, created by Litmus (see https://litmus.com/resources/free-responsive-email-templates).

More than 50% of emails are opened on mobile. These five responsive HTML email templates are optimized for small screens and they look great in any inbox. They've been tested in Litmus and are completely bulletproof.

> **Tip**
>
> After creating the email template, click the Responsive Design View icon at the top of the workspace to see how the email looks on different screen sizes.

The only thing you can set in advance for a Slate template is the color of the call-to-action button. Click the small colored square, right next to the field that holds the default color value, to open the Color dialog and pick a color (see "Color Picker" on page 589).
The color can be changed later; see "Colors" on page 510.

Basic Email and Banded Email

The difference between Basic and Banded email is that the contents of a Basic email extend to the email's margin, rather than to the edge of the window in which it is read, as the contents of

PReS. Connect

Banded emails do.
The Banded Email **Action** Template is a simple call-to-action email with a message, header and a button linking to a website, such as an informational or landing page.
The Banded Email **Invoice** Template is an invoice with an optional Welcome message and Pay Now button.

Settings

For a **Blank** email you can not specify any settings in the Wizard.

For an **Action** or **Invoice** email, the Email Template Wizard lets you choose:

- The subject. You can change and personalize the subject later, see "Email header settings" on page 339.
- The text for the header. The header is the colored part at the top. The text can be edited later.
- The color of the header and the color of the button. Click the small colored square, right next to the field that holds the default color value, to open the Color dialog and pick a color (see "Color Picker" on page 589). The color can be changed later; see "Colors" on page 510.
- The web address where the recipient of the email will be taken after clicking the button in the email. Type the URL in the **Link** field.

In addition, for an **Invoice** email you can change the following content settings:

- **Show Welcome Message**. Check this option to insert a salutation and one paragraph with dummy text in the email.
- **Detail Table Name**. Type the name of a detail table to fill the lines of the invoice with data. In the Designer, a detail table is a field in the Data Model that contains a variable number of items (usually transactional data).

Email context

In the Designer the Email context is the folder that contains Email templates. From the Email context, output can be generated in the form of email (see below).

When an Email template is created (see "Creating an Email template with a Wizard" on page 331) or when an Email context is added to a template (see "Adding a context" on page 290) the following happens:

- The Email context is created and one **Email section** is added to it. You can see this on the **Resources** pane: expand the **Contexts** folder, and then expand the **Email** folder. See "Email templates" on the facing page to learn how to fill an Email section. Although only one email can be sent per record when generating Email output, the Email context can contain multiple sections. One Email section is created at the start, but you can add more; see "Adding an Email template" on page 337.
- A style sheet, named context_htmlemail_styles.css, is added to the template. Depending on which Template Wizard was used to create the template, another style sheet can be added as well. Style sheets are located in the folder **Stylesheets** on the **Resources** pane. These style sheets are meant to be used for styles that are only applied to elements in the Email context.

The Wizard opens the Email section, so that you can fill it with text and other elements; see "Content elements" on page 403 and "Email templates" on the facing page.

Sending email

When the template is ready, you can generate Email output; See "Generating Email output" on page 874. To test a template, you can send a test email first.

Output, generated from an Email template, can have the following attachments:

- The contents of the Print context, in the form of a single PDF attachment.
- The output of the Web context, as an integral HTML file.
- Other files, an image or a PDF leaflet for example.

Attaching the Print context and/or the Web context is one of the options in the Send (Test) Email dialog.

> **Note**
>
> To split the Print context into multiple attachments, or to attach multiple Web sections as separate attachments, you need to create a Control Script that specifies **parts**; see "Parts: splitting and renaming email attachments" on page 572.

See "Email attachments" on page 346.

Email output settings

The following settings in an Email context influence how the Email output is generated.

Compressing PDF attachments

For PDF attachments, generated from the Print context, you can set the Print Context Image Compression to determine the quality of the files, and with that, the size of the files.

To set the Print Context Image Compression:

1. On the **Resources** pane, expand the **Contexts** folder, and right-click the **Email** context.
2. Click **Properties**.
3. Change the properties of the PDF file that will be attached when the Print context is attached to the email.
   Lossless is the maximum quality. Note that this will produce a larger PDF file. Uncheck this option to be able to set a lower quality.
   The **quality** is set in a percentage of the maximum quality.
   Tile Size is the size of the files in which the image that is being compressed is divided. (If the image height or width is not an even multiple of the tile size, partial tiles are used on the edges.) Image data for each tile is individually compressed and can be individually decompressed. When low Quality values are used to optimize images smaller than 1024 x 1024 pixels, using the largest tile size will produce better results.

Setting a default section for output

When generating output from the Email context, only one of the Email templates can be merged with each record. One of the Email sections is the 'default'; see "Setting a default Email template for output" on page 339.

Email templates

Email templates (also called Email **sections**) are part of the Email context in a template. The Email context outputs HTML email with embedded formatting to an email client through the use of an email server. Since email clients are numerous and do not support same features, the HTML generated by this context is not optimized for any specific client - rather, it's meant to be compatible with as many clients and as many devices as possible.

In Email templates, many content elements can be used; see "Content elements" on page 403. However, special attention must be paid to the way elements are positioned. In Email sections, it is advisable to position elements using Tables and to put text in table cells.

Email templates are personalized just like any other template; see "Variable Data" on page 530.

The subject, recipients (To, CC and BCC), sender and reply-to address are specified with Email Script Wizards; see "Email header settings" on page 339.

An Email context can contain multiple templates. When generating output from the Email context, however, only one of the Email templates can be merged with each record. Set the 'default' Email section (see below) before generating Email output; see also "Generating Email output" on page 874.

Adding an Email template

When an Email template is created (see "Creating an Email template with a Wizard" on page 331), only one Email section is added to it. An Email context may contain various templates, but per record only one of those can be sent when you generate Email output.

It is not possible to add an Email section to an existing Email context with the help of a Template Wizard.

To provide alternative content for your email, you could use Conditional Content (see "Showing content conditionally" on page 539), or Snippets and a script (see "Snippets" on page 482 and "Loading a snippet via a script" on page 564).

If you would like to start with a template that is identical to the one you already have, consider copying it (see "Copying a section" on page 291).

To add a section to the Email context:

- On the **Resources** pane, expand the **Contexts** folder, right-click the **Email** folder, and then click **New Email**.

Deleting an Email template

To delete an Email section:

PReS. Connect

- On the **Resources** pane, expand the **Contexts** folder, expand the **Email** context, right-click the name of the section, and then click **Delete**.

> **Warning**
>
> No backup files are maintained in the template. The only way to recover a deleted section, is to click **Undo** on the **Edit** menu, until the deleted section is restored. After closing and reopening the template it is no longer possible to restore the deleted context this way.

Styling and formatting an Email template

The contents of an Email section can be formatted directly, or styled with Cascading Style Sheets (CSS). See "Styling and formatting" on page 484.

Email clients do not read CSS files and some even remove a <style> tag when it is present in the email's header. Nevertheless, CSS files can be used with the Email context in the Designer. When generating output from the Email context, the Designer converts all CSS rules that apply to the content of the email to inline style tags, as if local formatting was applied.

> **Tip**
>
> Before you can style an element, you have to select it. In an Email context it can be difficult to select an element by clicking on it. Use the **breadcrumbs** at the top and the **Outline** pane at the left, to select an element. See "Selecting an element" on page 407.

In order for a style sheet to be applied to a specific section, it needs to be included in that section. There are two ways to do this.

Drag & drop a style sheet

1. Click and hold the mouse button on the style sheet on the **Resources** pane.
2. Move the mouse cursor within the **Resources** pane to the section to which the style sheet should be applied.
3. Release the mouse button.

Using the Includes dialog

1. On the Resources pane, right-click the section, then click **Includes**.
2. From the **File types** dropdown, select **Stylesheets**.
3. Choose which CSS files should be applied to this section. The available files are listed at the left. Use the arrow buttons to move the files that should be included to the list at the right.
   You can also change the order in which the CSS files are read. Note that moving a style sheet up in the list gives it **less** weight. In case of conflicting rules, style sheets read later will override previous ones; see "Determining the order in which style sheets are read" on page 493.

Setting a default Email template for output

An Email context can contain multiple templates. When generating output from the Email context, however, only one of the Email templates can be merged with each record.

To select the Email section that will be output by default:

- On the **Resources** pane, expand the **Email** context, right-click a section and click **Set as Default**.

> **Note**
>
> The Default section is executed when the template is merged using the Create Email Content task in Workflow (see Workflow Help: Create Email Content).

> **Tip**
>
> Use a Control Script to dynamically select an Email section for output depending on the value of a data field.

Email header settings

An email header contains routing information, such as the sender, recipient/s and subject of the message. This topic explains how to make settings for the header of an email that is generated from an Email template.

PReS. Connect

The default Email **SMTP** settings and the **sender**'s name and address are defined in the Connect Designer preferences. They can be adjusted per run in the Send Email and Send Test Email dialogs.

The **subject**, the **recipients** (To, Cc and Bcc), the **sender** and the **Reply to** address can be entered in the **Email Fields** at the top of the workspace. If the fields are not visible, click the words 'Email Fields' (or the small plus before them) to expand the Email Fields area.
To use a variable email address in any of the fields, simply **drag and drop** a data field into the email field.
The specified subject and addresses will be visible when viewing the email in the workspace in Preview mode.
The To address must always be variable. This field is not used when you send a test email (see "Generating Email output" on page 874).

> **Note**
>
> Using a variable email address requires you to load data or a data mapping configuration first; see "Loading data" on page 520.

Using the Email Script Wizard

In addition to the drag and drop method, you can use the Email Script Wizard to add data to an email header field. It lets you choose one or more data fields and enter a prefix and/or suffix (per data field).
There are two ways to open the Email Script Wizard:

- Via the **Email Fields**. Open the email section and expand the Email Fields at the top by clicking **Email Fields**. Click the word before the email field that you want to set. If there already is a script for that field, that script will be opened. Otherwise, a new script will be created and opened.
- Via the **Scripts** pane. Click the black triangle on the **New** button and select the respective email script. A new script will be added to the Scripts pane. Double-click the new script to open it.

The default script adds the content of the selected data field to the header field.
If you want to write a more complex script, click the **Expand** button. The result of the script should be a valid, fully-formed email address.

The language in which the script has to be written is JavaScript. For more information on writing scripts, see "Writing your own scripts" on page 548.

Other header fields

At some point you may need to define a header field that isn't available in the Preferences or in the Email Fields. This can be done in a Control Script. For a few examples of such scripts, see "Adding custom ESP handling instructions" on page 879. To get started with Control Scripts, refer to "Control Scripts" on page 566.

Email SMTP settings

Simple Mail Transfer Protocol (SMTP) is the standard protocol for sending emails across the Internet.

Default SMTP settings can be specified in the Preferences dialog: select **Window > Preferences**, expand the **Email** preferences and click **SMTP**.

You can add as many presets as needed, for example for different Email Service Providers (see "Using an ESP with PReS Connect" on page 878). To do this, click the Add button at the right. Then fill out the following settings:

- **Name**: The name of the preset. This will show up in the Send Email dialog.
- **Host**: The SMTP server through which the emails are to be sent. This can be a host (mail.domain.com) or an IP address.
- **Port**: You can specify a port number. This will be added to the host name, for example: smtp.mandrillapp.com:465.
- **Use authentication**: Check this option and fill in the user name if a user name and password are needed to send emails through the host. (The password has to be specified in the Send Email or Send Test Email dialog.)
- **Start TLS**: This option is enabled if authentication is checked. It sends emails through Transport Layer Security (TLS), which is sometimes referred to as SSL.

When you click the **Restore** button, the presets for a number of Email Service Providers will appear.

Note

When updating the software from a version prior to version 1.5, pre-existing presets will be maintained in the new version.

In the "Send Email" on page 641 and "Send Test Email" on page 642 dialogs you will be able to choose one of the presets and adjust the settings to your needs.

Subject

To specify a subject for an email template:

1. Open the email section and expand the Email Fields by clicking **Email Fields** at the top of the section.
2. Type the subject in the **Subject** field.

To add **variable data** to the subject of an email section, **drag and drop** a data field into the Subject field at the top of the workspace. Two things will happen:

- A placeholder for the data field appears in the subject line (for example: @email@).
- A new script, named Subject, is added to the Scripts pane.

You can add as many data fields to the subject as you like. When you do add more than one data field, the existing Subject script will be modified to include all data fields that are added to the subject.

The result of the script will be visible in the Subject field in Preview mode: click the Preview tab at the bottom of the workspace.

Note

By default, the Subject script targets one email section specifically. You can see this when you double-click the script on the Scripts pane. The selector of the Subject script contains the name of a particular email section, for example: html[section="Content"] (in this case, Content is the name of the email section). If you remove the `html[...]` part from the selector, the script will work for all email sections.

Subject scripts made with earlier versions of the software are **not** specific to one email section.

Writing a custom Subject script

The default script replaces all @field@ placeholders in the subject line with field values. This script can be modified, for example to create a subject that depends on the value of a data field. Open the Script Wizard (see "Using the Email Script Wizard" on page 340), click the **Expand** button and modify the script.
If you don't know how to write a script, see "Writing your own scripts" on page 548 first.

Note

A Subject script created by clicking Subject in the Email Fields always targets one email section specifically. Remove the `html[...]` part from the **selector** of the script to make the script work for all email sections.

Recipients: To, CC and BCC

To specify recipients for Email output, you can simply **drag and drop** a data field that contains an email address into the **To** field at the top of the workspace. A new script, named To, will be added to the Scripts pane.
Note that you can add only one data field to the email field this way. When you drag another data field into the email field the existing script will be replaced..

Email addresses can be added to the **Cc** and **Bcc** fields in the same manner, but it is also possible to type an email address directly in the Cc or Bcc field (as long as no script is present for that field).
Email addresses in the Bcc ('blind carbon copy') field will not be visible to any other recipient of the email.

Alternatively, you could use the Script Wizard to create the scripts; see "Using the Email Script Wizard" on page 340.

Sender

From address

A default **From** name and email address can be specified in the Preferences dialog: select **Window > Preferences**, expand the **Email** preferences and click **General**.
This name and email address will appear as the default in the "Send Email" on page 641 and "Send Test Email" on page 642 dialogs.

The default can be overwritten by typing an email address directly in the From field (as long as no script is present for this field).

Using the Script Wizard you can create a **dynamical** From address; see "Using the Email Script Wizard" on page 340. It is also possible to drag and drop one data field into the From field directly.

> **Tip**
>
> A dynamical From address is often used when sending email campaigns and to do tracking of email replies. Include the recipient's email address in a dynamic From address to enable automatic detection and removal of undeliverable e-mail addresses. (This technique is called VERP; see Wikipedia.)

> **Note**
>
> When sending emails with a variable From address through PReS Workflow, check the option **Precedence to template address** in the Create Email Content task properties to make sure that the dynamic address gets precedence over the email address specified in the task properties (see Create Email Content task).

Reply To address

The Reply To address is used by mail clients, when the recipient clicks the Reply To (or Reply All) button.

You can type an email address directly in the Reply To field (as long as no script is present for this field).

Alternatively, you can drag and drop one data field into the field, or use the Email Script wizard (see "Using the Email Script Wizard" on page 340), to specify the Reply To address in a script.

Email PDF password

The Email PDF Password Script Wizard defines a password with which to protect the PDF generated when using the Print context as PDF Attachment option in the Send Email or Send Test Email dialogs (see "Generating Email output" on page 874). The result of the script will be the password necessary to open the PDF when it is received by email.

To define a password to protect the generated PDF attachment:

1. On the Scripts pane, click the black triangle on the **New** button and click **Email PDF password Script**. A new script is added to the Scripts pane.
2. Double-click the new script to open it.
3. Select a data field and optionally, type a prefix and/or suffix.

Password types

PDF allows for two types of passwords to be set on a secured PDF file: a user password and owner password. The user password allows a limited access to the file (e.g. printing or copying text from the PDF is not allowed). The owner password allows normal access to the file. The Email PDF password script sets both the user and owner password to the same value, so that when the recipient provides the password, he can manipulate the file without limitations.

Note

If a template has a Control Script that creates multiple PDF attachments, all the attachments are secured by the same password.

Note

Via a Control Script it is possible to set a different user password and owner password, see "Control Script: Securing PDF attachments" on page 579, "Control Scripts" on page 566 and "Control Script API" on page 839.

Email attachments

Output, generated from an Email template, can have the following attachments:

- The contents of the Print context, in the form of a single PDF attachment.
- The output of the Web context, as an integral HTML file.
- Other files, an image or a PDF leaflet for example.

Attaching the Print context and/or the Web context is one of the options in the Send (Test) Email dialog.

By default, when adding the Print context to an email, all Print sections are output to a single PDF file, named after the email subject, which is then attached to the email. The PDF can be protected with a password (see "Email PDF password" on the previous page).

When adding the Web context to an email, only the default Web section is generated and added to the email as an HTML file that is named after the email subject.

> **Note**
>
> To split the Print context into multiple attachments, or to attach multiple Web sections as separate attachments, you need to create a Control Script that specifies **parts**; see "Parts: splitting and renaming email attachments" on page 572.

This topic explains how to attach files other than those generated by the Print or Web context.

Attaching external files

To attach files other than those generated by the Print or Web context to Email output:

1. Add the files to the template; see Adding images, or put them in a folder that is available to the machine that outputs the emails.
2. Create a script: on the **Scripts** pane at the bottom left, click **New**. A new script appears in the list. Double-click on it to open it. If you are not familiar with scripts, see "Writing your own scripts" on page 548 for an explanation of how scripts work.
3. Change the name of the script, so that it reflects what the script does.
4. Choose the option **Selector** and in the **Selector** field, type **head**.

5. Write a script that appends a <link> element to the `results` (the selector is `head`, so the `results` contain the <head> of the email).
    - Make sure to set the **rel** attribute to **related**.
    - The **href** attribute determines where the file comes from. For resources inside of the template, use `'images/file.extension'` , or `'fonts/myfont.otf'`, etc. For external resources, you need the full path to the file, such as `'file:///c:/resources/attachments/instructions.pdf'`. Of course, you can also use dynamic calls such as `'file:///c:/clientfiles/' + record.fields.client_id + '/invoices/' + record.fields.invoice_number + '.pdf'`.

Examples

The following script attaches a PDF file named letter-CU00048376.pdf to each generated email. The PDF file is located in the Images folder on the Resources panel.

```
results.append("<link rel='related' href='images/letter-
CU00048376.pdf'>");
```

If that same file would be located on the C: drive, the script should refer to it as follows: `href='file:///C:/letter-CU00048376.pdf'`.

The link doesn't have to be static; you could use data from the record set to build the link, for example:

```
var customerID = record.fields.ID;
results.append('<link rel="related" href="images/letter-' +
customerID + '.pdf">');
```

Web

With the Designer you can create one or more Web templates and merge the template with a data set to generate personal web pages.

The **Web** context is the Web output channel and the folder in the Designer that can contain one or more Web templates. CaptureOnTheGo templates are a special kind of Web templates. They are stored in the Web folder as well.

The Web context outputs one HTML web page that contains the HTML text and all the resources necessary to display it. JavaScript files are added to the <head> in the generated HTML file. They are useful to add special features such as those offered by jQuery and its plugins, or MooTools. Style sheets are also added to the <head> and are used just as they would be used in a regular web page.

It is advisable to follow design guidelines for web pages, so that they are likely to look good in different browsers and on different devices and screen sizes. When you start with a Web Template Wizard, the Foundation framework is added to the template, to guarantee just that; see "Creating a Web template with a Wizard" below and "Capture OnTheGo template wizards" on page 381.

When a Web template is created, either with a Wizard or by adding the Web context to an existing template (see "Adding a context" on page 290), the Web context folder is created along with other files that are specific to an Web context; see "Web Context" on page 352.

Many of the content elements that are available for all three contexts are particularly suitable for web pages; see "Content elements" on page 403. Web templates are personalized just like any other template; see "Variable Data" on page 530.

Only one Web section is created at the start, but you can add as many Web sections as you need; see "Web pages" on page 353. Note that when the Designer merges a data set to generate output from the Web context, it can merge only one of the templates with each record; see "Generating Web output" on page 882.

Creating a Web template with a Wizard

With the Designer you can design Web templates and output them through Workflow or as an attachment to an email when generating Email output.

Capture On The Go templates are a special kind of Web templates; see "Capture OnTheGo template wizards" on page 381.

A Web Template Wizard helps you create a Web page that looks good on virtually any browser, device and screen size.

PReS. Connect

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" on page 385.

After creating a Web template, the other contexts can be added, as well as other sections (see "Adding a context" on page 290 and "Adding a Web page" on page 354).

To create a Web template with a Template Wizard:

1. - In the **Welcome** screen that appears after startup, choose **Browse Template Wizards**.
     Scroll down until you see the **Foundation Web Page Starter** Template Wizards.
   - Alternatively, on the **File** menu, click **New**, expand the **Template** folder, and then expand the **Foundation Web Page Starter** folder.
2. Select a template. There are 4 types of Web Template Wizards :
   - Blank
   - Contact Us
   - Jumbotron
   - Thank You

   If you don't know what template to choose, see "Web Template Wizards" on page 351 further down in this topic, where the characteristics of each kind of template are described.
3. Click **Next** and make adjustments to the initial settings.
   - **Section**:
     - **Name**: Enter the name of the Section in the Web context. This has no effect on output.
     - **Description**: Enter the description of the page. This is the contents of a <meta name="description"> HTML tag.
   - **Top bar** group:

- **Set width to Grid**: Check this option to limit the width of the top bar contents to the Foundation Grid, instead of using the full width of the page.
- **Stick to the top of the browser window**: Check to lock the top menu bar to the top of the page, even if the page has scroll bars. This means the menu bar will always be visible in the browser.
- **Background color**: Enter a valid hexadecimal color code for the page background color (see w3school's color picker) , or click the colored circle to the right to open the Color Picker.

- **Colors** group: Enter a valid hexadecimal color code (see w3school's color picker) or click the colored square to open the Color Picker dialog (see "Color Picker" on page 589), and pick a color for the following elements:
  - **Primary**: links on the page.
  - **Secondary**: secondary links on the page.
  - **Text**: text on the page contained in paragraphs (<p>).
  - **Headings**: all headings (<h1> through <h6>) including the heading section's subhead.

4. Click **Finish** to create the template.

The Wizard creates:

- A Web context with one web page template (also called a **section**) in it. The web page contains a Header, a Section and a Footer element with dummy text, and depending on the type of web page, a navigation bar, button and/or Form elements.
- Resources related to the Foundation framework (see "Web Template Wizards" on the next page): style sheets and JavaScript files. The style sheets can be found in the **Stylesheets** folder on the **Resources** pane. The JavaScript files are located in the **JavaScript** folder on the **Resources** pane, in a **Foundation** folder.
- A collection of Snippets in the **Snippets** folder on the Resources pane. The Snippets contain ready-to-use parts to build the web page. Double-click to open them. See "Snippets" on page 482 for information about using Snippets.
- Images: icons, one picture and one thumbnail picture. Hover your mouse over the names of the images in the **Images** folder on the **Resources** pane to get a preview.

PReS. Connect

The Wizard opens the Web section, so that you can fill it with text and other elements; see "Content elements" on page 403, "Web Context" on the facing page and "Web pages" on page 353.

Web pages can be personalized just like any other type of template; see "Variable Data" on page 530 and "Personalizing Content" on page 518.

> **Tip**
>
> Use the **Outline** pane at the left to see which elements are present in the template and to select an element.
>
> Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.
>
> Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

> **Tip**
>
> Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

Web Template Wizards

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" on page 385.

Jumbotron

The name of the Jumbotron template is derived from the large screens in sports stadiums. It is most useful for informative or marketing-based websites. Its large banner at the top can display

important text and its "call to action" button invites a visitor to click on to more information or an order form.

Contact Us

The Contact Us template is a contact form that can be used on a website to receive user feedback or requests. It's great to use in conjunction with the Thank You template, which can recap the form information and thank the user for feedback.

Thank You

The Thank You template displays a thank you message with some text and media links.

Blank web page

The Blank Web Page template is a very simple Foundation template that contains a top bar menu and some basic contents to get you started.

Web Context

In the Designer the Web context is the folder that contains Web page templates.

When a Web template is created (see "Creating a Web template with a Wizard" on page 348) or when a Web context is added to a template (see "Adding a context" on page 290) the following happens:

- The Web context is created and one Web page or **section** is added to it. You can see this on the **Resources** pane: expand the **Contexts** folder, and then expand the **Web** folder. See "Web pages" on the next page to learn how to fill a web page template in the Designer.
  Although only one web page can be generated per record when generating Web output, the Web context can contain multiple sections. One section is created at the start, but you can add more; see "Adding a Web page" on page 354.
- A style sheet, named context_web_styles.css, is added to the template. If a Template Wizard was used to create the template, Foundation style sheets are added as well. Style sheets are located in the folder **Stylesheets** on the **Resources** pane. These style sheets

are meant to be used for styles that are only applied to elements in the Web context; see "Styling and formatting" on page 484.

When the template is ready, you can:

- Output the web page as an as an integral HTML file attached to an Email context in the same template.
- Output the Web context in an automated Workflow using the Create Web Content task (see Workflow Help: Create Web Content).

See "Generating Web output" on page 882

The Web context outputs one HTML web page that contains the HTML text and all the resources necessary to display it. JavaScript files are added to the <head> in the generated HTML file. They are useful to add special features such as those offered by jQuery and its plugins, or MooTools. Style sheets are also added to the <head> and are used just as they would be used in a regular web page.

Web pages

Web pages (also called Web **sections**) are part of the Web context (see "Web Context" on the previous page) in a template.

The Web context outputs one HTML web page that contains the HTML text and all the resources necessary to display it. JavaScript files are added to the <head> in the generated HTML file. They are useful to add special features such as those offered by jQuery and its plugins, or MooTools. Style sheets are also added to the <head> and are used just as they would be used in a regular web page.

A Web context can contain multiple templates. When generating output from the Web context, however, only one of the Web templates can be merged with each record. Set the 'default' Web section (see "Setting a default Web page for output" on page 356) before generating Web output; also see "Generating Web output" on page 882.

Creating a Web page

When creating a Web page, it is advisable to follow design guidelines for web pages, so that they are likely to look good in different browsers and on different devices and screen sizes. When you start with a Web Template Wizard, the Foundation framework is added to the

PReS. Connect

template, to guarantee just that; see "Creating a Web template with a Wizard" on page 348. Other approaches are described below, in "Adding a Web page" on the facing page.

Adding a Web page

When a Web template is created (see "Creating a Web template with a Wizard" on page 348), only one Web section is added to it. A Web context may contain various templates, but per record only one of those can be used to generate output.

It is not possible to add a Web section to an existing Web context with the help of a Template Wizard.

To provide alternative content for the web page, you could use Conditional Content (see "Showing content conditionally" on page 539), or Snippets and a script (see the Help topics "Snippets" on page 482 and "Loading a snippet via a script" on page 564, and this how-to: Multi-page Web template.)

> **Tip**
>
> For an example of how to serve different web pages using snippets, see the following how-to: Creating a multi-page Web template.

If you would like to start with a template that is identical to the one you already have, consider copying it (see "Copying a section" on page 291).

To add a blank section to the Web context:

- On the **Resources** pane, expand the **Contexts** folder, right-click the **Web** folder, and then click **New Web page**.

Deleting a Web page

To delete a Web section:

- On the **Resources** pane, expand the **Contexts** folder, expand the **Web** context, right-click the name of the section, and then click **Delete**.

> **Warning**
>
> No backup files are maintained in the template. The only way to recover a deleted section, is to click **Undo** on the **Edit** menu, until the deleted section is restored. After closing and reopening the template it is no longer possible to restore the deleted context this way.

Filling a Web page

Many of the content elements that are available for all three contexts are particularly suitable for web pages; see "Content elements" on page 403. Do not use Positioned Boxes and Tables to position elements, however; use Inline Boxes instead.

Forms and Form elements are only available in a Web context; see "Forms" on page 462 and "Form Elements" on page 466.

Using variable data on a Web page

Web templates are personalized just like any other template; see "Variable Data" on page 530. There are a few extra possibilities, though: variable data can be used in Form elements and they can be passed to client-side JavaScript.

Using Variable Data in Form elements

Variable data may be used in form elements, such as a drop-down list (a Select element). How to do that, is described in this how-to: Dynamically add options to a dropdown.

Passing Variable Data to client-side JavaScript

When serving Web pages using Workflow, the HTML is first personalized and then served to the web browser by a Workflow process. At that stage custom JavaScripts do not have access to the information stored in the Data Model. To enable a client-side script to use variable data, you need to create a Text Script that produces a JSON string and stores that in the attribute of an HTML element, the `value` attribute of a hidden field for example. The custom JavaScript can than retrieve that information and use it to create dynamic page elements. Producing a JSON string and storing the results in the attribute of an HTML element are both options in the Text Script wizard; see "Using the Text Script Wizard" on page 533.

Styling and formatting a Web page

The contents of a Web section can be formatted directly, or styled with Cascading Style Sheets (CSS). See "Styling and formatting" on page 484.

In order for a style sheet to be applied to a specific section, it needs to be included in that section. There are two ways to do this.

Drag & drop a style sheet

1. Click and hold the mouse button on the style sheet on the **Resources** pane.
2. Move the mouse cursor within the **Resources** pane to the section to which the style sheet should be applied.
3. Release the mouse button.

Using the Includes dialog

1. On the Resources pane, right-click the section, then click **Includes**.
2. From the **File types** dropdown, select **Stylesheets**.
3. Choose which CSS files should be applied to this section. The available files are listed at the left. Use the arrow buttons to move the files that should be included to the list at the right.
   You can also change the order in which the CSS files are read. Note that moving a style sheet up in the list gives it **less** weight. In case of conflicting rules, style sheets read later will override previous ones; see "Determining the order in which style sheets are read" on page 493.

> **Note**
>
> Which style sheets are included can also be set for the **Web context** as a whole: in step 1, right-click the Web context, instead of a section.

Setting a default Web page for output

When generating output from the Web context, only one of the Web templates can be merged with each record.

To select the Web section that will be output by default:

- On the **Resources** pane, expand the **Web** context, right-click a section and click **Set as Default**.

> **Tip**
>
> Use a Control Script to dynamically select a Web section for output depending on the value of a data field. See "Control Scripts" on page 566.

Including JavaScript files

Which JavaScript files are included in the a Web section, depends on a setting for that section. To change this:

1. On the **Resources** pane, right-click a section in the **Web** context and click **Includes**.
2. Choose which JavaScript files should be included in this section.

For more information about using JavaScript files, see "Using JavaScript" on page 368.

Setting the title, meta data and a shortcut icon

Each Web section has a set of properties to define the title of the web page, the shortcut icon and the meta tags appearing in the web page's head (with the HTML tag: <head>, see http://www.w3schools.com/tags/tag_head.asp).

To change these properties:

1. On the **Resources** pane, expand the **Web** context, right-click the section and click **Properties**.
2. Enter the **Page Title**. The contents of this field will go in the <title> HTML tag. (**Name** is the name of the section in the Web context; this has no effect on output.)
3. Add a **Shortcut Icon** by entering the path to the favicon.ico file, for instance images/favicon.ico.

> **Tip**
>
> If a valid favicon image is dragged to the Web section, it will automatically be set as a shortcut icon.

4. The **Meta Information Group** lists all <meta> tags that will be added to the header of the HTML file generated in the output. Click the **Add** button to add a new <meta> tag to the list. Then you can select the type of <meta> tag, which is either name or http-equiv, and enter the value (for a name-type meta tag) or the content (for a . For more information on <meta> tags, see W3Schools - HTML meta tag.

Adding information to the <head> via script

When generating Web output, the Designer automatically adds the included resources to the <head>. To add other tags to the <head>, such as a <base> tag to set a default base URL/target for all relative URLs in a document, you need to write a script. If you are not familiar with scripts, see "Writing your own scripts" on page 548 for an explanation of how scripts work.

1. Create a script: on the **Scripts** pane at the bottom left, click **New**. A new script appears in the list. Double-click on it to open it.
2. Change the name of the script, so that it reflects what the script does.
3. Choose the option **Selector** and in the **Selector** field, type `head`.
4. Write a script that appends an element to the <head> of the web page.

Example

The following script adds a <base> element to the head of a web page.

```
results.append("<base href='http://www.w3schools.com/images/'
target='_blank'>");
```

Forms

Web templates can contain Forms. Capture OnTheGo templates always contain a Form.

PReS. Connect

Tip

To create a Capture OnTheGo template, preferably use a Template Wizard (see "Capture OnTheGo template wizards" on page 381). The Wizard doesn't just add the form, it also adds the necessary Capture OnTheGo form elements (see), style sheets and JavaScript files, and extra pre-made elements.

Adding a Form

This procedure describes how to add a Form element to an existing Web context.

1. On the **Resources** pane, expand the **Web** context and double-click a Web page to open it.
2. To use the Form Wizard, select the **Insert > Form Wizard** menu option. The Form Wizard adds a Form to the Web page including the specified fields.
   Alternatively, you can select **Insert > Form** on the menu to open a dialog that lets you set the Form's properties, validation method and location, but doesn't allow you to specify fields. If you choose this method, skip step 8 and 9 of this procedure and add fields after inserting the Form (see "Adding elements to a Form" on page 363).
3. Add an **ID** and/or a **class**. ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).
4. In the **Action** field, enter the URL where the form data should be sent. The URL should be a server-side script that can accept form data. The **action** of a Capture OnTheGo form should specify the Workflow HTTP Server Input task that receives and handles the submitted data. The action will look like this: **http://127.0.0.1:8080/action** (8080 is Workflow's default port number; 'action' should be replaced by the HTTP action of that particular HTTP Server Input task).The **method** of a Capture OnTheGo form should be **POST** to ensure that it doesn't hit a data limit when submitting the form. The GET method adds the data to the URL, and the length of a URL is limited to 2048 characters. Especially forms containing one or more Camera inputs may produce a voluminous data stream that doesn't fit in the URL. GET also leaves data trails in log files, which raises privacy concerns. Therefore POST is the preferred method to use.
5. Using the the **Method** drop-down, select whether the form should be sent using the GET or POST method.

6. Using the next drop-down, select the form's Encryption Type (**enctype**):
    - **application/x-www-form-urlencoded**: Default. All characters are encoded before they are sent. Spaces are converted to "+" symbols, and special characters are converted to ASCII HEX values.
    - **multipart/form-data**: No characters are encoded. This value is required when you are using forms that have a file upload control.
    - **text/plain**: Spaces are converted to "+" symbols, but no special characters are encoded.
7. Select a **validation** method:
    - The **Browser** validation method leaves it up to the browser to validate the user input. When adding fields to the Form (see the next step) you can only make fields required and set the maximum length as an additional requirement for some fields.
    - Select **JQuery Validation** to validate using JQuery scripts. This allows you to specify stricter requirements per field and type a different message for each field to display to the user if the input is not valid. This method ensures a more consistent validation as it is browser independent. The necessary JQuery files will be added to the JavaScript folder on the Resources pane when the form is inserted.
8. Under **Fields**, click the **Add** button and click on the desired field type to add a field of that type; see "Form Elements" on page 466.

> **Note**
>
> A Fieldset is not available in the Form Wizard, because a Fieldset itself can contain multiple different fields. Add the Fieldset after inserting the Form; see "Adding elements to a Form" on page 363.

9. Double-click each field in the Fields list and change its settings. For an explanation of the settings, see "Adding elements to a Form" on page 363.
10. The order of the elements in the list under **Fields** determines in which order the elements will be added to the Form. Use the **Move Up** and **Move Down** buttons to change the order of the elements in the list.

11. Use the **Location** drop-down to select where to insert the element.
    - **At cursor position** inserts it where the cursor is located in the template.
    - **Before element** inserts it before the HTML element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be before the tag.*
    - **After start tag** inserts it within the current HTML element, at the beginning, just after the start tag.*
    - **Before end tag** inserts it within the current HTML element, at the end, just before the end tag.*
    - **After element** inserts it after the element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be after the end tag of the paragraph ( ).*

    * If the current element is located inside another element, use the **Elements** drop-down to select which element is used for the insertion location. The list displays every element in the breadcrumbs, from the current selection point until the root of the body.
12. Close the dialog. Now you can start adding elements to the Form (see "Using Form Elements" on page 363, "Form Elements" on page 466, and "COTG Elements" on page 456).

Changing a Form's properties and validation method

Once a Form has been added, you can of course edit its HTML code directly in the Source view of the workspace. Apart from that, there are a number of dialogs to change a Form's properties and validation settings.

Changing a Form's properties

1. Select the form (see "Selecting an element" on page 407).
2. On the **Attributes** pane you can change:
    - The **ID** and/or **class**. ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).
    - An **Action**: the URL where the form data should be sent. The URL should be a server-side script that can accept form data.
    - A **Method**: this defines whether the form should be sent using the GET or POST method.

- An Encryption Type (**enctype**):
    - **application/x-www-form-urlencoded**: Default. All characters are encoded before they are sent. Spaces are converted to "+" symbols, and special characters are converted to ASCII HEX values.
    - **multipart/form-data**: No characters are encoded. This value is required when you are using forms that have a file upload control.
    - **text/plain**: Spaces are converted to "+" symbols, but no special characters are encoded.

Changing a Form's validation method

In Connect PReS Connect, there are two ways in which a Form's input can be validated:

- The **Browser** validation method leaves it up to the browser to validate the user input. When adding fields to the Form (see the next step) you can only make fields required and set the maximum length as an additional requirement for some fields.
- **JQuery Validation** validates input using JQuery scripts. This allows for stricter requirements per field and a different message for each field to display to the user if the input is not valid. This method ensures a more consistent validation, as it is browser independent. The necessary JQuery files will be added to the JavaScript folder on the Resources pane when this option is chosen.

To change a Form's validation method:

1. **Right-click** on the Form element and choose **Validation settings**.
2. Choose a validation type (see above).
3. Double-click each field in the list to edit their validation settings:
    - **Required**: Check if the field is required to submit the form. If a field is required but contains no data, a message will be shown to the user.
    - **Minimum length**: Enter a numerical value for the minimum character length required for this field.
    - **Maximum length**: Enter a numerical value for the minimum character length accepted for this field.
    - **Equal to**: Use the drop-down to select another field that is already added to the same Form. The contents of both fields must match for the data to be validated. This is useful for confirmation fields such as for passwords, email addresses etc.

    Which of these options are available depends on the validation method of the form: with

Browser validation you can only make a field required and set a maximum length.

Changing a Form's validation in HTML

In HTML, the validation method is stored in the `data-validation-method` attribute of the <form> element, with the value "browser" or "jquery-validation".
A custom message to be shown when validation of a particular Form element has failed, can be stored in the `data-custom-message` attribute of the Form element, for example:
<input id="email1" name="email1" data-custom-message="Enter a valid email address." type="email" required="">

Validation in Connect 1.0.0

In Connect 1.0.0, the validation method of the template was stored using the names "standard" and "custom". Standard has changed to "browser" and custom is now "jquery-validation". When you open a template made with that version of the software, the template will be migrated to use the new attribute values for the `data-validation-method` attribute of the <form> element. The JavaScript file web-form-validation.js will not be migrated: delete that file and then change the Form's validation method to jQuery Validation, as described above. When you click OK, the new version of the web-form-validation.js file will be added.

Submitting a Form

When a form is submitted, by clicking or touching the Submit button, the **name** and **value** of form elements are sent to the address that is specified in the Form's action (see "Adding a Form" on page 359 or "Changing a Form's properties" on page 361). If the `name` attribute is omitted, the data of that input field will not be sent at all.

The Form's validation should ensure that the data that the user submits is valid.

Using Form Elements

Web Form elements can be used in a Web Form or in a Capture OnTheGo Form (see "Forms" on page 462 and "Capture OnTheGo" on page 371). This topic explains how to add these elements to a Form and how to prepare them so that when the Form is submitted, they provide valid data that can be handled easily.

For a list of Form elements, see "Form Elements" on page 466.
For a list of the extra elements that can be used in a Capture OnTheGo form, see "COTG Elements" on page 456.

Adding elements to a Form

To add an element to a Form or Fieldset, click inside the Form or Fieldset, select **Insert > Form elements**, and choose the respective element on the menu. (When the element isn't available via the menu, see the tip below.) Now you can change the element's settings:

1. Add an **ID** (required) and, optionally, a **class**.

   > **Note**
   >
   > The ID will be copied to the `name` attribute of the element. The `name` attribute is what identifies the field to the receiving server-side script. To change the name, select the element after inserting it and type the new name on the **Attributes** pane.

   ID's and classes are also useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).
2. Type a label, or choose No label under Style, to omit the label. (For Label elements there are no other options to be set.)
3. If applicable, choose a style for the label (for the label of a Checkbox, for example, you can't set a style).
   - **Wrap input with label** places the input element inside the Label element.
   - **Attach label to input** ties the label to the input element using the `for` attribute of the Label element.
   - **Use label as placeholder** inserts the given label text in the placeholder attribute of the field.
   - **No style** omits the label altogether.

     > **Note**
     >
     > The first two label styles ensure that when the user clicks the label, the input element gets the focus.

PReS. Connect

4. The following options are only available for specific elements:
    - For a **Text Area** you can specify a **number of rows**.
    - For a **Radio Button**, the **submit name** indicates to which Radio Button Group the Radio Button belongs.
    - For a **Button**, **Checkbox**, **Hidden Field**, and **Radio Button** you can set the **value**. The value is associated with the input and will be sent on submitting the Form.

      > **Tip**
      >
      > For other Form elements, you can set the **default value** to be the value of a field in the record set; see "Specifying a default value" on the facing page.

    - For a **Checkbox** or **Radio Button** you can check **checked** or **selected** respectively for the element to initially be checked/selected when the web page is shown.
    - For a **Button**, you can set the **button type**:
        - **Submit**: The button will validate the form data and if validation is successful, send the data to the provided URL (the action specified for the Form; see "Changing a Form's properties" on page 464).
        - **Reset**: The button will reset the form to its original configuration, erasing any information entered and options provided. **Note**: This cannot be undone!
5. Depending on the validation method of the form (see "Changing a Form's validation method" on page 465) and the type of element there are a number of options to set under **Validation**. With Browser validation you can only make a field required and set a maximum length.
    - **Required**: Check if the field is required to submit the form. If a field is required but contains no data, a message will be shown to the user.
    - **Minimum and maximum length**: Enter a numerical value for the minimum and maximum character length required for this field.
    - **Equal to**: Use the drop-down to select another field that is already added to the same Form. The contents of both fields must match for the data to be validated. This is useful for confirmation fields such as for passwords, email addresses etc.
6. Under **Warnings**, type the message that will be displayed to the user if the input is not valid.

The **name** attribute of Form elements is sent to the server (together with the input value) after the form has been submitted. When adding an element to a Form or Fieldset, you cannot specify a `name`; the ID will be copied to the element's `name` attribute. After adding the element to the Form or Fieldset you can change the `name` on the Attributes pane.

Adding new HTML5 elements

HTML5 added several new input element types that can't be found in the Designer menu. To add such an element to a template you can do the following:

1. Add an input element from the menu, for example a Text or Button.
2. Select the element in the template.
3. On the **Attributes** pane, select the desired input type from the **Type** drop-down list.

Changing a form element

Once an element has been added to a Form, it can easily be changed: simply select the element in the template, go to the the **Attributes** pane, and edit the element. An input element can even be changed to another type of input element by selecting the desired input type from the **Type** drop-down list.

Specifying a default value

Attribute a default value to a Text, Textarea and other Form elements by dragging a field from the Data Model pane directly onto the field, once it has been created. This also works when dragging a field from a detail table in a record set into a Form element that is contained within a Dynamic Table.
Note that the default value doesn't disappear when the user clicks the field, as placeholders do. To insert a placeholder in a field, type a label and choose **Use label as placeholder** as its style when adding the element to the form; see "Adding elements to a Form" on page 363.

Making elements required

To change the validation of a COTG or Form element, right-click the element and choose **Validation settings**. Now you can change the Form's validation method and set the requirements per field; see "Changing a Form's validation method" on page 465.

Grouping data using arrays

A Job Data File is an XML file created by a Workflow process on submitting a Web Form or COTG Form. Grouping data in a Job Data File greatly simplifies both the Data Mapping workflow and looping over data in Designer scripts. A simple method to create arrays in that data file is to use two pairs of square brackets in the name of the form inputs. Put the name of the array between the first pair of square brackets. Between the second pair of square brackets, define the key to which the value belongs. Consider the following HTML form inputs:

```
<input type="hidden" name="user_account"
value="pparker@eu.objectiflune.com">
<input type="text" name="name" value="Peter Parker">
<input type="text" name="company" value="Objectif Lune">
<input type="text" name="pinElm1[pin_0][left]" value="122">
<input type="text" name="pinElm1[pin_0][top]" value="253">
<input type="text" name="pinElm1[pin_0][type]" value="dent">
<input type="text" name="pinElm1[pin_1][left]" value="361">
<input type="text" name="pinElm1[pin_1][top]" value="341">
<input type="text" name="pinElm1[pin_1][type]" value="dent">
```

The above HTML results in the following XML:

```
<values count="4">
       <user_account>pparker@eu.objectiflune.com</user_account>
       <name>Peter Parker</name>
       <company>Objectif Lune</company>
       <pinElm1>
              <pin_0>
                     <left>122</left>
                     <top>253</top>
                     <type>dent</type>
              </pin_0>
              <pin_1>
                     <left>361</left>
                     <top>341</top>
                     <type>dent</type>
              </pin_1>
        </pinElm1>
</values>
```


PReS. Connect

Note

To enable submitting arrays, you need to check this option in the HTTP Server user preferences in (PlanetPress or PreS) Watch.

In case multiple fields with the same name are encountered the previous value is overwritten. This way only a single occurrence of that field name will we available in the data containing the value of the last encountered occurrence of that field. This behaviour is also seen in the PHP language.

For a detailed explanation of how to use this feature, see: Using The PHP Array Option.

Getting the status of unchecked checkboxes and radio buttons

Unchecked checkboxes and radio buttons are not submitted (as per standard HTML behavior), so how to get the state of those checkboxes and radio buttons? A common approach to get the state of unchecked checkboxes and radio buttons is to add a hidden field to the Form with the same name as the checkbox or radio button, for example:

```
<input type="hidden" name="status_1" value="0" />
<input type="checkbox" id="status_1" name="status_1" value="1" />
```

When multiple fields with the same name are encountered, the previous value is overwritten. This way the values for unchecked checkboxes and radio buttons can be processed easily.

Using JavaScript

JavaScript files, libraries and frameworks can be added to a template, primarily for use in Web pages and Capture OnTheGo Forms. Before doing this, you need to choose which kind of library or framework you want to work with, depending on the type of features you really desire. For a bit of help with that and a few examples, see this how-to: Using external libraries.

Tip

It is possible to open and edit any JavaScript file in the Designer: select **File > Open**, select **All files (*.*)** as the file type and then select a JavaScript file.

Adding JavaScript files to the resources

To add a JavaScript file to the resources:

- Right-click the **Javascript** folder on the **Resources** pane, and click **New Javascript**. Double-click it to open and edit it.
- Alternatively, drag and drop the JavaScript file from the Windows Explorer to the JavaScript folder on the Resources pane.

Next, include it in a Web page; see below.

Adding a remote JavaScript file

A Remote Javascript Resource is a file that is not located within your template but is hosted on an external web server (generally called a **CDN**). When generating Web output, these files are referenced in the web page's header and are served by the remote server, not by the Connect Server module.

There are a few advantages to using remote resources:

- These resources are not served by your server, saving on space, bandwidth and processing.
- Using a popular CDN takes advantage of caching - a client having visited another website using that same CDN will have the file in cache and not re-download it, making for faster load times for the client.

To add a remote javascript:

1. Right-click the **Javascript** folder on the **Resources** pane, and click **New Remote Javascript**.
2. Enter a name for the file as it appears in the Javascript resources. For better management, it's best to use the same filename as the remote resource.
3. Enter the URL for the remote resource. This must be a full URL, including the http:// or https:// prefix, domain name, path and filename.
4. Optionally, check **defer** or **async**to add the async or defer attribute to the <link> element in the <head> of the segment.
   Defer postpones the execution of the script until the page has finished parsing. This attribute is required by APIs like Google Maps.

When **async** is checked, the script executes asynchronously with the rest of the page (while the page continues the parsing).
When neither option is checked, the script is fetched and executed immediately, while the parsing of the page is paused.

6. Optionally, for a Capture OnTheGo Form, you can check **Use cached Capture OnTheGo resource**, to prevent downloading a remote JavaScript file again if it has been downloaded before. The file should be available on a publicly accessible location, for example: a folder location on a corporate website, hosted by a CDN (Content Delivery Network) or shared via a Workflow process.

> **Note**
>
> In Workflow, when using the Create Web Content task, check the **Embed All Resources** option to download and embed all remote resources. (See Workflow Help: Create Web Content.)

Popular hosted frameworks on CDN networks are:

- jQuery on MaxCDN
- Zurb Foundation on CDNJS
- Bootstrap on MaxCDN
- Multiple frameworks on Google Developers

Including a JavaScript file in a Web context

To link a JavaScript file to the Web context, or to a certain Web page template or COTG template:

1. On the **Resources** pane, expand the **Contexts** folder, and then right-click the Web context, or expand the Web context and right-click a Web section.
2. Click **Includes**.
3. From the **File types** dropdown, select **JavaScripts**.
4. The available JavaScript files are listed at the left. Use the arrow buttons to move the JavaScript files that should be included to the right-hand list. Using the **Up** and **Down** buttons you can change the order of the files, too.
5. Click **OK**.

Using JavaScript in other Contexts

Email clients do not support JavaScript. Therefore, Email contexts cannot include JavaScript resources.

When a JavaScript file is included in a Print section, the Designer itself acts as the browser. When generating Print output, it runs the JavaScript after generating the main page flow contents and the pagination. So, it is possible to change the Print output by a JavaScript; you could, for example, add a barcode that includes the page number to each document. A warning is appropriate, however: changing the DOM may change the page flow and doing so at this point may result in bad output and/or serious errors or a crash of the software.

Capture OnTheGo

With the Designer you can create Capture OnTheGo templates. COTG templates are used to generate forms for the Capture OnTheGo mobile application. For more information about the application refer to these websites: Capture OnTheGo and Capture OnTheGo in the Resource Center.

COTG Forms

A Capture OnTheGo Form is actually just a Web Form that has a number of characteristic features:

- Its **action** always specifies a Workflow HTTP Server Input task, so that when the Form is submitted, the form data is sent to the Workflow server. (See: "Specifying an action" on the facing page.)
- It may contain special **COTG Input elements**, like a Signature, Geolocation, or Camera element. These require the COTG JavaScript library to be added to the template. This happens automatically when the Form is created with a COTG Template Wizard.
- Thanks to the mobile app, it may be used **offline**. The app will submit the Form data when a connection to the internet is available. Just make sure, if the Form uses remotely stored style sheets or JavaScript files, that the option 'Use cached Capture OnTheGo resource' is enabled when adding the resources to the template. This prevents that the app tries to download a file again that has already been downloaded.
- It may be **reusable**. This depends on a setting in the Output to Capture OnTheGo plug-in (found on the Connectors tab) in Workflow (see the Workflow Help: Output to

CaptureOnTheGo). A reusable COTG Form is not deleted from the app's form library when it is submitted, so it can be used again.

Creating a COTG Form

A Capture OnTheGo Form is actually just a Web Form, so you could add a Form element to a Web page in the Web context without the use of a Template Wizard. It is strongly recommended however, to start the COTG Template using one of the COTG Template Wizards. They all include the appropriate JavaScript files and style sheets to create user-friendly, responsive forms; see "Capture OnTheGo template wizards" on page 381.

Before starting to create a COTG Form, take some time to structure the design process and to get familiar with the principles of form design, as explained in the topic "Designing a COTG Template" on page 378.

Reusable forms

Capture OnTheGo forms can be single-use or reusable. This doesn't depend on the design (although, of course, this should be reflected in the design). What makes a form reusable is a setting in the Output to Capture OnTheGo plugin in Workflow; see Output to CaptureOnTheGo. In the Capture OnTheGo app a reusable form is called a 'template'.

Forms for offline use

Capture OnTheGo forms can be used offline. This is the case even when the form relies on remotely stored source files like JavaScript files and style sheets, provided that the option **Use cached Capture OnTheGo resource** is checked when adding them to the form.

Specifying an action

The **action** of the Capture OnTheGo Form element should specify a Workflow HTTP Server Input task (see Workflow Help: HTTP Server Input) that receives and handles the submitted data. The action will look similiar to this: **http://192.168.175.1:8080/actionname** (where **actionname** is the HTTP action of the HTTP Server Input task).
For information about specifying an **action** for a Form, see "Adding a Form" on page 462 or "Changing a Form's properties" on page 464.

Note

For testing purposes, it is possible to use another URL for the Form's action or not to specify an action at all; see "Testing a Capture OnTheGo Template" on page 397.

Filling a COTG template

Before inserting elements in a COTG Form, have the design ready; see "Designing a COTG Template" on page 378.

In a Capture OnTheGo form, you can use special Capture OnTheGo Form elements, such as a Signature and a Barcode Scanner element; see "COTG Elements" on page 456 and "Using COTG Elements" on page 393.

Foundation, the framework added by the COTG template wizards, comes with a series of features that can be very useful in COTG forms; see "Using Foundation" on page 385.

Naturally, Web Form elements can also be used on COTG Forms (see "Forms" on page 462 and "Form Elements" on page 466) as well as text, images and other elements (see "Content elements" on page 403).

Capture OnTheGo templates can be personalized just like any other type of template; see "Variable Data" on page 530 and "Personalizing Content" on page 518.

Tip

Use the **Outline** pane at the left to see which elements are present in the template and to select an element.

Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.

Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

Tip

Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

Using JavaScript

JavaScript files, libraries and frameworks can be added to a template, to add widgets and other functionality to your Capture OnTheGo Forms; see "Using JavaScript" on page 368.

For COTG templates created with a COTG Template wizard, lots of features are already available through the Foundation framework; see "Using Foundation" on page 385.

Note

When you add a COTG element to a template that you didn't start with a COTG template wizard, the Designer will automatically add the jQuery library and the JavaScript file cotg.js, so that the element works well. The Foundation JavaScript files and style sheets will not be added. You only get those automatically when you start creating a COTG template with a template wizard.

Custom save and restore functions

It is possible to save custom information when the COTG app saves the Form, and to influence what the Form looks like when it is reopened. To do this, register for the **olcotgsavestate** and the **olcotgrestorestate** event, respectively, in the usual way (see the addEventListener documentation by Mozilla and w3schools, and the below example). The first event gets fired when all the COTG widgets have saved their state. The second event gets fired when the COTG widgets have restored their state.

Example

The following JavaScript code saves the value "test: " when the Form is saved. On reopening the Form, the code gets the restored URL of the COTG Image element, appends it to the saved "test: " string and puts the result in a <p> element at the top of the form.

```
window.addEventListener("olcotgsavestate", function(event) {
        event.detail.state["mywidget"] = "test: ";
}, false);
window.addEventListener("olcotgrestorestate", function(event) {
```


PReS. Connect

```
        var value = event.detail.state["mywidget"];
        value = value + $("#camera1 img").attr("src");
        $("form p").html(value);
}, false);
```

With jQuery you must use **event.originalEvent** in the handler functions, for example:

```
$(window).on("olcotgsavestate", function(event) {
        event.originalEvent.detail.state["mywidget"] = "test: ";
});
```

Note that you should register for the event directly in the JavaScript file (a separate JavaScript file, preferably, not cotg-1.2.1.js). You should not do this on the document ready event.

The order of JavaScript file includes in the template does not matter.

Testing the template

A Capture OnTheGo (COTG) template will be used to create a form that can be downloaded, filled out and submitted using the COTG app. Before starting to actually use the template, you will want to make sure that it produces a form that looks good and functions as expected. How to preview the form, how to submit data and how to preview the submitted data is described in another topic: "Testing a Capture OnTheGo Template" on page 397.

Sending the template to the Workflow tool

After testing the template (see "Testing a Capture OnTheGo Template" on page 397) the template must be sent to the Workflow module. Templates sent to the Workflow module can be used in any process within it.

How to send the template and the corresponding Data Mapping Configuration to the Workflow tool is explained in another topic: "Sending files to Workflow" on page 278.

Next, you can start building a Workflow configuration that receives and handles the submitted data. The configuration should start with a HTTP Server Input task (see Workflow Help: HTTP Server Input) of which the HTTP action is the one specified in the COTG Form's action.

PReS. Connect

Using COTG data in a template

When a user submits a COTG Form, a Workflow configuration may store the information in a database and/or push it into other Workflows, for example to send a letter or an email receipt. To be able to use the submitted data in a template for that letter or email receipt, follow these steps:

1. **Get the data**
   First create a Data Mapping Configuration for the data that is submitted from a certain COTG Form. This means you have to get access to a sample of that data. There are two ways to do this:
   - Using the option **Get Job Data File on Submit** in Connect Designer; see "Testing a Capture OnTheGo Template" on page 397. This way you don't have to create a Workflow configuration first. Once the Job Data File is received by the Connect server, a dialog appears asking where to store it.
   - Using a Workflow configuration. When a user submits a Capture OnTheGo Form, the data are received by a Workflow HTTP Server Input task (see Workflow Help: HTTP Server Input) that receives and handles the submitted data. Even when no other tasks are present in that Workflow configuration, Workflow can output an XML file that contains the submitted data, in a location specified for the Send To Folder plugin in Workflow.

   Note

   When a COTG Form is submitted, by clicking or touching the Submit button, the `name` and `value` of form elements are submitted. If a Checkbox or Radio Button is not checked, its name and value are not sent when the form is submitted. Fortunately, there is a workaround for this; see "Using COTG Elements" on page 393.
   The Form's validation should ensure that the data that the user submits is valid (see "Changing a Form's validation method" on page 465 and "How to make COTG elements required" on page 395).

2. **Create a Data Mapping Configuration**
   Use the resulting XML file to create a Data Mapping Configuration (see "Data mapping configurations" on page 75).

1. Choose **File > New > Data mapping Wizards > From XML file**.
2. Select the XML data file as its source and click **Next**.
3. Set the XML Elements option to **/request/values**. This will automatically add an extraction step for the submitted form fields.
4. Click **Finish**. The file is opened in the DataMapper and the form fields are automatically extracted including the data for the signature and camera object.
5. Save the Data Mapping Configuration.

3. **Create a template**
   Create a Designer template and personalize it using the Data Mapping Configuration (see "Personalizing Content" on page 518). Strings, base64-encoded strings and SVG data, stored in data fields using the DataMapper can be added to the template just like any other variable data; see "Variable Data" on page 530. They will show up in the template **as they are**.
   SVG data will be interpreted and displayed as an image. Strings and base64-encoded strings show up as strings.

Adding Camera data to the template

The Camera widget submits a base64-encoded string, which can be put in a data field using the DataMapper. When this data field is dragged into a template, the string will show up in the content, instead of the image.
To make the image appear in a template, the data has to be used as the URL of an image.
The below procedure describes how to use Camera data as an image inside a container. The benefit of this approach is that the image automatically scales to the size of the container.

1. Click the **Insert Inline Box** icon on the toolbar. The **Insert Inline Box** dialog appears.
2. Enter an ID for the box (anything will do, as long as it helps you identify the box) and click **OK**. The box is added to the text flow and can be resized if needed.
3. Switch to the **Source** tab and replace the content of the box:
   ```
   <p>
           Div content goes here
   </p>
   ```
   by this text:
   ```
   <img id="camera" src="" width="100%">
   ```
4. Switch back to the **Design** tab. You will see a small, empty rectangle inside at the top of the inline box.

5. Right-click the empty rectangle and choose **New Script**... in the contextual menu. The **Edit Script** dialog appears. The selector of the script is automatically set to the ID of the selected element (#camera).
   Alternatively, you could add a new script on the Scripts pane and make sure that the Selector field is set to #camera.
6. Enter the following script code:
   `results.attr("src", record.fields.photo);`
   The name of the data field (in this case: photo) must be that of the Camera data in your data model.
   This script updates the attribute “src” with the field containing the base64 image.
7. Click **OK** to save the script and toggle to the **Preview** mode to see the result. You should see your image. When you resize the inline box that surrounds the image, the image should be resized as well.

   If the inline box isn't visible, click the Show Edges button in the toolbar.

Designing a COTG Template

Designing a Capture OnTheGo template is more than adding elements to a Web form. This topic shares some insights regarding the design process and principles.

Design process

Ideally, the design process consists of the following steps.

1. **Gathering information**. It is often tempting to skip this step, especially when a Capture OnTheGo form replaces a paper form, but the research that you do to find out what the company actually needs will prove to be well worth your time. Creating specifications up front prevents discussions, reduces rework and therefore saves time.
2. **Listing the input fields** that are needed, their type, and possible input constraints. Think of how the information should be visually grouped. To get an overview of all the elements and features that can be used in a Capture OnTheGo form, check out the following pages:
   - "COTG Elements" on page 456, about elements that were specially designed for COTG.
   - "Form Elements" on page 466, about elements that can be used on COTG forms and on any other Web form.
   - "Using Foundation" on page 385, about elements and features that come with the Foundation framework that is added automatically by COTG Template wizards.

- After creating a Capture OnTheGo template using a wizard, you can find more ready-made elements in the Snippets folder on the Resources pane.

3. **Creating mockups**. A mockup or wire frame will help you to layout the form and allows your customer to provide feedback early in the project. This will save you a lot of time: typically it is easier to change the sketch than to rework the code. In addition, mockups provide a way to do usability testing before actually creating the form.
   Note that mobile devices come in various sizes. It is important to adapt the form design to these screen sizes. There are various free and commercial mockup applications (both online and offline), but a sketch on paper will do too. Check out the free mockup templates from www.interfacesketch.com. Their templates are designed to help you sketch your designs for different devices on paper. Sketching tools and related techniques can be found on Zurb's website: Sharpies, Shaders and Highlighters.
4. **Creating the form**. Create the form in accordance with web design principles; see "Form design" on the next page.
5. **Testing the form**. Even if you did proper research and showed a mockup, customers or users will likely come up with new requirements once they've seen the initial live version. Be prepared and plan for this, too.

Form design

Paper forms and web forms are very different in nature. For example, paper forms have a fixed size: the size of the paper they are printed on. Web forms can be viewed on screens with different sizes, in portrait or landscape format. Paper forms are filled out with a pen, while web forms are filled out using one's fingers or a stylus. Good form design requires an understanding on how users enter information on a mobile device and how they expect the form to look and behave.

> **Tip**
>
> If the COTG Form replaces a paper form, it can be tempting to stick to the original layout for the sake of recognizability. Don't fall into that trap. In the end, the users - customers and employees - will be happier with a user-friendly form that adapts to different screen sizes and looks like it was designed for the web.

Most design guidelines for web forms apply to COTG forms as well. Two key concepts are responsive design and usability.

PReS. Connect

Responsive design

Responsive Design is "an approach to web design aimed at crafting sites to provide an optimal viewing and interaction experience - easy reading and navigation with a minimum of resizing, panning, and scrolling — across a wide range of devices". (Source: Wikipedia.).
With the COTG app for Android or iOS, COTG forms can be viewed on a wide variety of mobile devices, with different screen sizes. A responsive design will adapt to the size and orientation of the screen, to avoid navigation tasks like zooming in or out and scrolling horizontally. The layout may change to optimize the user experience on that device: information that is shown side by side on a larger tablet may be stacked when viewed on a smaller device.
It is complicated and time consuming to create a responsive design all by yourself. Therefore it is advisable to start creating a COTG form with a COTG Template Wizard (see "Capture OnTheGo template wizards" on page 381). All Web and COTG Template Wizards in Connect Designer make use of the Zurb Foundation front-end framework to make the templates responsive (see "Using Foundation" on page 385 and http://foundation.zurb.com/learn/about.html).

> **Tip**
>
> In the Designer, you can test the responsiveness of a form using the Responsive Design button at the top right of the workspace.
> Some browsers also let you test the responsiveness of a form. In Firefox, for example, select Developer > Responsive Design to view a form in different sizes.

Usability

Usability defines the ease of use of a form. Is the layout intuitive? Are the form elements easy to tap on a mobile device? A visually consistent design allows the user to follow the flow while filling out the form. Below are some key usability aspects to keep in mind when designing forms.

Provide clear labels. Many modern web sites show labels inside the actual form inputs while they are empty. This saves space on the form, but once the user has entered data the label is no longer visible. Show a label at all times to help the user review his input.

Use font sizes that are big enough. On paper, smaller fonts are easier to read than on a web form. Of course, on a touch screen you can zoom in and out, but a user-friendly form doesn't force the user to do that.

Provide touch areas that are large enough. COTG forms are used on a mobile device (in the COTG app). Make sure that the user can easily tap the form elements, hyperlinks and buttons. The index finger of most adults covers an area that is between 45 and 55 pixels wide. There should be enough white space between the form inputs so the user won't accidentally put focus on the wrong element.

Visually group related information. Use headers to mark a section. This makes it easier to navigate the form. Applying a large font size and background color will make them standout. You can use Foundation's off-canvas menu and accordeon (collapse) functionality to make it easier to navigate groups of input fields.

Provide feedback. Show what input data is expected, clearly identify which fields are required and show errors when the entered data doesn’t meet the required format.

Capture OnTheGo form characteristics

Reusable forms

Capture OnTheGo forms can be single-use or reusable. This doesn't depend on the design (although, of course, this should be reflected in the design). What makes a form reusable is a setting in the Output to Capture OnTheGo plugin in Workflow; see Output to CaptureOnTheGo. In the Capture OnTheGo app a reusable form is called a 'template'.

Forms for offline use

Capture OnTheGo forms can be used offline. This is the case even when the form relies on remotely stored source files like JavaScript files and style sheets, provided that the option **Use cached Capture OnTheGo resource** is checked when adding them to the form.

Capture OnTheGo template wizards

With the Designer you can create Capture OnTheGo (COTG) templates. COTG templates are used to generate forms for the Capture OnTheGo mobile application. For more information about this application, see the website: Capture OnTheGo.

A Capture OnTheGo Form is actually just a Web Form, that you could add without a wizard, but the COTG Template Wizards include the appropriate JavaScript files for the Capture OnTheGo app, and styles to create user-friendly, responsive forms. They are built upon the Foundation framework.

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" on page 385.

After creating a COTG template, the other contexts can be added, as well as other sections (see "Adding a context" on page 290 and "Adding a Web page" on page 354).

> **Tip**
>
> If the COTG Form replaces a paper form, it can be tempting to stick to the original layout. Although that may increase the recognizability, it is better to give priority to the user-friendliness of the form. Keep in mind that the COTG form will be used on a device and don't miss the chance to make it as user-friendly as possible. See "Designing a COTG Template" on page 378.

Creating a COTG template using a Wizard

To create a COTG template with a Template Wizard:

1.
   - In the **Welcome** screen that appears after startup and when you click the Home icon at the top right, choose **Browse Template Wizards**. Scroll down until you see the **Capture OnTheGo Starter** Template Wizards.
   - Alternatively, on the **File** menu, click **New**, expand the **Template** folder, and then expand the **Capture OnTheGo Starter** folder.
2. Select a template. There are 8 types of Web Template Wizards:
   - **Blank**. The Blank COTG Template has some basic design and the appropriate form, but no actual form or COTG elements.
   - **Bill of Lading**. The Bill of Lading Template is a transactional template that includes a detail table with a checkmark on each line, along with Signature and Date COTG elements. Use this wizard as a way to quickly start any new Zurb Foundation based form for Capture OnTheGo.

- **Event Registration**. The Event Registration Template is a generic registration form asking for name, phone, email, etc.
- **Event Feedback**. The Event Feedback Template is a questionnaire containing different questions used to rate an experience.
- **Membership Application**. The Membership Application Template is a signed generic request form that can be used for memberships such as gyms, clubs, etc.
- **Patient Intake**. The Patient Intake Template is a generic medical questionnaire that could potentially be used as a base for insurance or clinic form.
- **Kitchen Sink**. The Kitchen Sink Template includes a wide range of basic form and COTG form elements demonstrating various possibilities of the software.
- **Time Sheet**. The Time Sheet Template is a single page application used to add time entries to a list. This template demonstrates the dynamic addition of lines within a COTG template, as the Add button creates a new time entry. There is no limit to the number of entries in a single page.

3. Click **Next** and make adjustments to the initial settings.
   - **Create Off-Canvas navigation menu**: an Off-Canvas menu is a Foundation component that lets you navigate between level 4 headings (<h4>) in the form. Check this option to add the menu automatically.
   - **Submit URL**: enter the URL where the form data should be sent. The URL should be a server-side script that can accept COTG Form data.
   - The **Title** and the **Logo** that you choose will be displayed at the top of the Form.
   - **Colors**: Click the colored square to open the Color Picker dialog (see "Color Picker" on page 589) and pick a color, or enter a valid hexadecimal color code (see w3school's color picker) for the page background color.
     Do the same for the background color of the navigation bar at the top and for the buttons on the Form.
4. Click **Next** to go to the next settings page if there is one.
5. Click **Finish** to create the template.

The Wizard creates:

- A **Web context** with one web page template (also called a section) in it. The web page contains an 'off-canvas' Div element, Header, a Section and a Footer element with dummy text, and depending on the type of web page, a navigation bar, button and/or Form elements.

- **Style sheets** and **JavaScript files** related to the COTG form itself and others related to the Foundation framework (see above). The style sheets can be found in the Stylesheets folder on the Resources pane. The JavaScript files are located in the JavaScript folder on the Resources pane.
- A collection of **snippets** in the Snippets folder on the Resources pane. The snippets contain ready-to-use parts to build the web form. Double-click to open them. See "Snippets" on page 482 and "Loading a snippet via a script" on page 564 for information about using Snippets.

The Wizard opens the Web section, so that you can fill the Capture OnTheGo form.

6. Make sure to set the action and method of the form: select the form and then enter the action and method on the Attributes pane.

The **action** of a Capture OnTheGo form should specify the Workflow HTTP Server Input task that receives and handles the submitted data. The action will look like this: **http://127.0.0.1:8080/action** (8080 is Workflow's default port number; 'action' should be replaced by the HTTP action of that particular HTTP Server Input task).

The **method** of a Capture OnTheGo form should be **POST** to ensure that it doesn't hit a data limit when submitting the form. The GET method adds the data to the URL, and the length of a URL is limited to 2048 characters. Especially forms containing one or more Camera inputs may produce a voluminous data stream that doesn't fit in the URL. GET also leaves data trails in log files, which raises privacy concerns. Therefore POST is the preferred method to use.

Filling a COTG template

Before inserting elements in a COTG Form, have the design ready; see "Designing a COTG Template" on page 378.

In a Capture OnTheGo form, you can use special Capture OnTheGo Form elements, such as a Signature and a Barcode Scanner element; see "COTG Elements" on page 456 and "Using COTG Elements" on page 393.

Foundation, the framework added by the COTG template wizards, comes with a series of features that can be very useful in COTG forms; see "Using Foundation" on the next page.

Naturally, Web Form elements can also be used on COTG Forms (see "Forms" on page 462 and "Form Elements" on page 466) as well as text, images and other elements (see "Content elements" on page 403).

Capture OnTheGo templates can be personalized just like any other type of template; see "Variable Data" on page 530 and "Personalizing Content" on page 518.

Tip

Use the **Outline** pane at the left to see which elements are present in the template and to select an element.

Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.

Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

Tip

Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

Using Foundation

This topic explains how to use the Foundation Grid and other Foundation components in a Web Form or COTG Form.

Foundation

All Web Template Wizards in Connect Designer make use of the Zurb **Foundation** front-end framework. A front-end framework is a collection of HTML, CSS, and JavaScript files to build upon. Foundation is a **responsive** framework: it uses CSS media queries and a mobile-first approach, so that websites built upon Foundation look good and function well on multiple devices including desktop and laptop computers, tablets, and mobile phones. Foundation is tested across many browsers and devices, and works back as far as IE9 and Android 2. See http://foundation.zurb.com/learn/about.html and "Using Foundation" above.

Capture OnTheGo and Jumbotron template wizards automatically add the Foundation files v. 5.5.1 to the resources of the template. In a future version of PReS Connect, Foundation 6 will be included. If you'd rather start using the newest Foundation files right away, you have two options:

- Download the Foundation files (from http://foundation.zurb.com/sites/download.html/) and add them to the template manually.
- Use remote Foundation files from a CDN, such as https://cdnjs.com/ (search for Foundation).

See "Using JavaScript" on page 368 and "Adding CSS files" on page 488 for further instructions.

Once the Foundation files have been added to a template, you can use the Grid, as well as many other Foundation components, in your template.

> **Tip**
>
> Take a look in the Snippets folder on the Resources pane. After creating a template with a Capture OnTheGo or Jumbotron template wizard, this folder contains a number of ready-made elements that make use of Foundation.

The Grid

Use the **Grid** to ensure the responsiveness of a form. Using the Grid essentially means building a form or web page with Div elements (a Div is a container element, see "Div" on page 453) that have the following `classes`:

- **row**: This class identifies a Div as a horizontal block (a row) that can contain up to 12 columns.
- **columns**: This class should be used for a Div inside a Div with the class `row`. It identifies a Div as part of a row Div.
- **small-n**, **medium-n**, **large-n**: These classes indicate the number of columns that this Div occupies within in the row, on a small, medium or large screen, respectively. Replace `n` with a number, for example: small-2, large-4. If the numbers declared in one 'row' for one screen size, added together, exceed the maximum of 12, they don't fit in one row on that screen size. In that case the Div elements will appear below each other instead of next to each other.

These classes can be combined, so that depending on the screen size, a Div can take more or less space in a row. Separate the class names with a space.

> **Tip**
>
> Start with the class for small screens. For example: <div class="small-3 large-6" columns>. Larger devices will inherit those styles (thanks to the mobile-first approach of Foundation's style sheet). Customize for larger screens as necessary.

Example

This very simple layout has only one row:

```
<div class="row">
        <div class="small-2 large-4 columns">Content goes
here</div>
        <div class="small-4 large-4 columns">Content goes
here</div>
        <div class="small-6 large-4 columns">Content goes
here</div>
</div>
```

The Div elements inside the row take up 2, 4 and 6 parts of the total amount of screen size (divided in 12 parts) on a small screen. On a large screen they each take one third of the available space. If the class `large-4` would have been left out, the Divs would take up 2, 4 and 6 parts of the available space, regardless of the screen size.

There's more that you can do with the Grid, for example, you could center columns, or switch columns depending on the screen size they are viewed on. For information about all these possibilities, see this website:
http://foundation.zurb.com/sites/docs/v/5.5.3/components/grid.html.

Adding Divs and classes to a Connect Form template

To insert a Div, select **Insert > Structural Elements > Div** on the menu. To add a class to the Div, select the Div (see "Selecting an element" on page 407) and type the class in the Class field on the Attributes pane.

To add Grid rows and columns quickly, you could also use the **Grid** snippets or **Row** snippets, found in the **Snippets** folder on the **Resources** pane after using a wizard to create a Foundation web page or a Capture OnTheGo template. For more information about Snippets, see "Snippets" on page 482. For more information about template wizards, see "Creating a Web template with a Wizard" on page 348 and "Capture OnTheGo template wizards" on page 381.

Alternatively, If you are familiar with HTML, you can open the Source tab of the Workspace and simply type the HTML to add the Div elements and classes.

> **Tip**
>
> Use Emmet to create a Grid layout on the source tab really fast. See "Emmet" on page 329.

Other Foundation components

Foundation comes with many other components to improve and embellish Web forms and pages . A few examples:

- An **Accordion** can be used to expand and collapse content that is broken into logical sections, much like tabs. It can be very useful on long forms.
- An **Off-Canvas menu** lets the user navigate between level 4 headings (<h4>) in a Web page or form. Capture OnTheGo Template wizards offer the option to add this menu automatically.
- **Switches** are toggle elements that switch between an Off and On state on tap or click. They make use of checkbox inputs (or radio buttons) and require no javascript. Their size can be adapted, to make them easy to use on a touch screen.

For a full overview and explanation of all Foundation components (v. 5), see this web page: http://foundation.zurb.com/sites/docs/v/5.5.3/.

COTG Elements

With the Designer you can create Capture OnTheGo templates. COTG templates are used to generate forms for the Capture OnTheGo mobile application. This topic is about Capture

PReS. Connect

OnTheGo form elements. For more information about the application refer to these websites: Capture OnTheGo and Capture OnTheGo in the Resource Center.

Capture OnTheGo (COTG) elements can only be added within a Form element in a Web context; see "COTG Forms" on page 371. For information about how to add and use COTG Elements, see "Using COTG Elements" on page 393.

Barcode Scanner

The Barcode Scanner element adds a button to trigger the device to scan a barcode. A very large variety of barcode types are supported. Once the barcode has been scanned, the data from the barcode will be added to the COTG Form and submitted along with it.

> **Note**
>
> Using the Barcode Scanner element requires the installation of the ZXing Barcode Scanner application on Android devices. The application returns the barcode data after scanning.

Camera

The Camera element adds a group of buttons to capture or select an image. Once the image is selected via the camera or the device's library (aka "gallery"), it is saved within the Form data.

When the form is submitted, the image is sent in a base64-encoded string format. To learn how to add Camera data to a template, see "Adding Camera data to the template" on page 377.

Buttons

By default, the Camera element adds three buttons to the form:

- **Take now**: Opens the device's default Camera application to take a picture using the device's camera. Capture OnTheGo has no impact on the device's applications, so the features available (quality, orientation, filters) are dependent on the device itself. You can, however, set the format, quality and scaling for images that are submitted by the Camera element, as explained below.
- **Library**: Opens the device's default library or gallery application to select a single image that is then saved in the form data. The accessible images and navigation depend on the

device itself.

- **Clear**: Removes any existing image data from the Camera element.

To omit the Take now or Library button, edit the Camera element's properties: right-click the Camera element after adding it to the form, select **Camera properties** and then use the **Source** drop-down to select which buttons will be available: Take, Pick from library, or both.

Annotations

Annotations can make a picture much more informative: an arrow, showing in which direction a car was driving; a circle, where the car has been damaged... To allow the user to make annotations, right-click the Camera element after adding it to the form, select **Camera properties**, and then check **Allow annotations**.
Clicking (or rather, touching) the image will bring up the annotation dialog. Annotations can be made in a Marker (semi-transparent) or Pencil (solid) style, in different colors and with different widths.
Annotations are submitted in SVG format by a hidden input added to the Camera element. The name of that input is the ID of the Camera element, followed by "-note-data", for example **camera1-note-data**.

Cropping/editing/deskewing

To allow the user to crop, edit and deskew the image after taking or selecting it, select **Camera properties**, and then check **Edit Image** and/or **Allow Deskew**. Which editing options the user actually gets and how they are presented to the user depends on the operating system of the device. On an Android device for example, the user may be able only to crop the image, while the user of an iOS device may select part of the image and rotate that selection.

Image format

You can set the format, quality and scaling for images that are submitted by the Camera element. Right-click the Camera element after adding it to the form, select **Camera properties** and edit the Image properties:

- **Format**: The image format can be PNG or JPG.
- **Quality**: Set the compression in a percentage.
- **Scale Image**: Check this option to enable image scaling. Then set the maximum width and height of images before they are sent to the server. Note that only the smallest of these is applied and the size ratio is always maintained.

How to use the captured or selected image in a template

When the user has submitted the form, you may want to use the captured or selected image in a Designer template, for example in a letter or on a web page. To do this, insert a dummy image in the template, right-click it and select **Dynamic Image**. The Text Script Wizard appears. Under **Field** select the field that contains the base64-encoded string. The script puts the given string in the source (**src**) attribute of the image (**<img>**).
Instead of using the Text Script Wizard, you could also write a script yourself; see "Writing your own scripts" on page 548.

Date and Formatted Date

The Date element and the Formatted Date element display the current date on the device when the form is first opened. When the element is touched, a date selector appears so the user can modify this date. The Formatted Date element displays dates in a format that depends on the locale of the device on which the user is viewing the form. A Date Element displays dates in the ISO 8601 format: YYYY-MM-DD.

When the form is submitted, the date data is sent as plain text. A Formatted Date element submits the date in two formats: in the format that depends on the device's regional and language settings and in the ISO format mentioned above (using a hidden field). A Date element sends the date in the ISO format only.

Device Info

The Device Info Element adds a field that contains some information about the device (phone or tablet) that is submitting the COTG Form. This includes the device's type (Android or iOS), operating system version, device model and its UUID (Universally Unique Identifier). This information can be useful for both troubleshooting, if errors occur on specific device types for example, as well as for security validation: it is possible to maintain a list of device UUIDs that are allowed access, to prevent unauthorized use even if someone has a user name and password to a repository.

Fields Table

The Fields Table element adds a table with two rows, a delete button at the end of the first row and an add button at the end of the second row. Inside the rows you can put whatever elements you need. The user can click (or rather, touch) the Add button to add a row to the table. The new row will contain the same elements as the first row. The names of all elements in the first row will be extended with __0, while the names of the elements in the second row will be extended with __1, etc.

Geolocation

The Geolocation Element adds a button to read the device's current GPS coordinates and save them in a form field. When the button is pressed, the GPS coordinates are requested and saved. When the form is submitted, the Geolocation data is sent in plain text.

Image & Annotation

The Image & Annotation element is meant to be used with an image that needs input from the user. When inserting an Image & Annotation element you have to select the image. The user can simply click (or rather, touch) the image to bring up the annotation dialog. Annotations can be made in a Marker (semi-transparent) or Pencil (solid) style, in different colors and with different widths.
Annotations are submitted in SVG format by a hidden input. The name of that input is the ID of the Image & Annotation element, followed by "-note-data", for example **image_annotation1-note-data**.

Locale

The Locale Element does not have a UI element in the form. Inserting it adds a hidden input field that will contain the device's set locale when the form is submitted. This data is sent in plain text format and is available when processing the form data. The format is defined by the device.

Signature

The Signature Element adds a signature box to a COTG form. These signatures are filled in via touch input, either with a finger or capacitive pen. Touching the signature box opens up a fullscreen box used to sign (generally more useful in Landscape mode depending on the device); after confirming, the dialog saves the data into the Form.
Signature data is transmitted in SVG plain text format. This type of data can be stored in a data field in a Data Mapping and dragged from the Data Model into a template as is. In Preview mode it will be displayed as an image because the Designer, just like web browsers, knows how to display this kind of data.

Time and Formatted Time

The Time element and the Formatted Time element display the current time on the device when the form is first opened. When the element is touched, a time selector appears so the user can modify this time. The Formatted Time element displays times in a format that depends on

the locale of the device on which the user is viewing the form. A Time Element displays dates in the ISO 8601 format: HH:MM.

When the form is submitted, the time data is sent as plain text. A Formatted Time element submits the time in both the ISO format mentioned above and in the format that depends on the device's regional and language settings. A Time element sends the time in the ISO format only.

User Account

The User Account Element adds a hidden field that contains the Capture OnTheGo user account (an email address) that was used to submit the form to the server. This is useful if a form is available to many different users, to detect who submitted it.

Using COTG Elements

Capture OnTheGo (COTG) elements are Web Form elements that are specially designed to be used in a Capture OnTheGo Form (see "Capture OnTheGo" on page 371). This topic explains how to add these elements to a Capture OnTheGo Form or and how to prepare them so that when the Form is submitted, they provide valid data that can be handled easily.

For a description of all COTG elements, see "COTG Elements" on page 456.

Adding COTG elements to a Form

To add a COTG element to a Form or Fieldset, click inside the Form or Fieldset, select **Insert > COTG elements**, and choose the respective element on the menu. Now you can change the element's settings:

1. Add an **ID** (required) and, optionally, a **class**.

   Note

   The ID will be copied to the `name` attribute of the element. The `name` attribute is what identifies the field to the receiving server-side script. To change the name, select the element after inserting it and type the new name on the **Attributes** pane.

   ID's and classes are also useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).

2. Type a label, or choose No label under Style, to omit the label. (For Label elements there are no other options to be set.)
3. If applicable, choose a style for the label (for the label of a Checkbox, for example, you can't set a style).
    - **Wrap input with label** places the input element inside the Label element.
    - **Attach label to input** ties the label to the input element using the `for` attribute of the Label element.
    - **Use label as placeholder** inserts the given label text in the placeholder attribute of the field.
    - **No style** omits the label altogether.

    > **Note**
    >
    > The first two label styles ensure that when the user clicks the label, the input element gets the focus.

> **Note**
>
> When you add a COTG element to a template that you didn't start with a COTG template wizard, the Designer will automatically add the jQuery library and the JavaScript file cotg.js, so that the element works well. The Foundation JavaScript files and style sheets will not be added. You only get those automatically when you start creating a COTG template with a template wizard.

Element specific settings

After inserting them, certain COTG elements, such as the Camera element, some important settings have to be made. These will appear when you **right-click** the element and select it from the short-cut menu.

Attributes

The attributes (which aren't the same as the settings mentioned above) of a COTG element can be seen on the **Attributes** pane, after selecting the element (see "Selecting an element" on page 407).

All COTG elements have a `role` attribute. This attribute is not supposed to be edited: without the correct role attribute, the element won't function.

As noted, the `name` attribute is what identifies the element after submitting the form.

> **Tip**
>
> Use the **Outline** pane at the left to see which elements are present in the template and to select an element.
>
> Use the **Attributes** pane at the right to see the current element's ID, class and some other properties.
>
> Use the **Styles** pane next to the Attributes pane to see which styles are applied to the currently selected element.

> **Tip**
>
> Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

How to make COTG elements required

To make a COTG element required, or to change the validation of a COTG Form, right-click the element and choose **Validation settings**. Set the Form's validation method to jQuery and set the requirements and a message per field. For an explanation see "Changing a Form's validation method" on page 465.

Grouping data using arrays

A Job Data File is an XML file created by a Workflow process on submitting a Web Form or COTG Form. Grouping data in a Job Data File greatly simplifies both the Data Mapping workflow and looping over data in Designer scripts. A simple method to create arrays in that data file is to use two pairs of square brackets in the name of the form inputs. Put the name of the array between the first pair of square brackets. Between the second pair of square brackets, define the key to which the value belongs. Consider the following HTML form inputs:

```
<input type="hidden" name="user_account"
value="pparker@eu.objectiflune.com">
```

```
<input type="text" name="name" value="Peter Parker">
<input type="text" name="company" value="Objectif Lune">
<input type="text" name="pinElm1[pin_0][left]" value="122">
<input type="text" name="pinElm1[pin_0][top]" value="253">
<input type="text" name="pinElm1[pin_0][type]" value="dent">
<input type="text" name="pinElm1[pin_1][left]" value="361">
<input type="text" name="pinElm1[pin_1][top]" value="341">
<input type="text" name="pinElm1[pin_1][type]" value="dent">
```

The above HTML results in the following XML:

```
<values count="4">
       <user_account>pparker@eu.objectiflune.com</user_account>
       <name>Peter Parker</name>
       <company>Objectif Lune</company>
       <pinElm1>
              <pin_0>
                     <left>122</left>
                     <top>253</top>
                     <type>dent</type>
              </pin_0>
              <pin_1>
                     <left>361</left>
                     <top>341</top>
                     <type>dent</type>
              </pin_1>
        </pinElm1>
</values>
```

> **Note**
>
> To enable submitting arrays, you need to check this option in the HTTP Server user preferences in (PlanetPress or PreS) Watch.

In case multiple fields with the same name are encountered the previous value is overwritten. This way only a single occurrence of that field name will we available in the data containing the value of the last encountered occurrence of that field. This behaviour is also seen in the PHP language.

For a detailed explanation of how to use this feature, see: Using The PHP Array Option.

Getting the status of unchecked checkboxes and radio buttons

Unchecked checkboxes and radio buttons are not submitted (as per standard HTML behavior), so how to get the state of those checkboxes and radio buttons? A common approach to get the state of unchecked checkboxes and radio buttons is to add a hidden field to the Form with the same name as the checkbox or radio button, for example:

```
<input type="hidden" name="status_1" value="0" />
<input type="checkbox" id="status_1" name="status_1" value="1" />
```

When multiple fields with the same name are encountered, the previous value is overwritten. This way the values for unchecked checkboxes and radio buttons can be processed easily.

Testing a Capture OnTheGo Template

A Capture OnTheGo (COTG) template will be used to create a form, that can be downloaded, filled out and submitted using the COTG app. Before starting to actually use the template, you will want to make sure that it produces a form that looks good and functions as expected. This topic explains how to preview the form, and how to submit data and preview the submitted data.

Previewing the form

On a PC

A Capture OnTheGo template can be previewed on a PC in two different ways. Note that Capture OnTheGo form elements will not be functional unless they are sent to a device.

- Within PReS Connect Designer. You can open the **Preview** tab or the **Live** tab in the Workspace. This displays the output HTML along with any variable data being added. On the **Live** tab you can even fill out the form and submit it, and if the Get Job Data File on Submit option is enabled (via the toolbar of the same name), the Designer will receive an XML with the submitted data (see "Get Job Data File on Submit " on page 399). However, remember that COTG Form elements are only functional in the COTG app, so they won't submit any data.
- Within the default browser on your computer. Click the **Preview HTML** button in the toolbar. This opens your operating system’s default browser and displays the form in that context.

Tip

In the Designer, you can test the responsiveness of a form using the Responsive Design button at the top right of the workspace.
Some browsers also let you test the responsiveness of a form. In Firefox, for example, select Developer > Responsive Design to view a form in different sizes.

Previewing a COTG Template in the app

A COTG Template cannot only be previewed on a PC; it can also be previewed on a mobile device. This will show the template within the Capture OnTheGo mobile application, and all widgets will be functional.

In order to test or use any Capture OnTheGo features you need to have a **Repository** account (also called a COTG Server account or the Store ID). You can get a trial account for this purpose; please see this page for more details: http://www.captureonthego.com/en/promotion/.

Once you have your Store ID and Password, you also need to create a **user** account:

1. Go to the Capture OnTheGo Repository Login: https://config-us.captureonthego.com/.
2. Login with your Store ID and Password.
3. Go to the Users page.
4. Add a new user. The user name should be in the form of an email address.

Next, make sure that the Capture OnTheGo mobile application is installed and that it is logged on as a known user of the Capture OnTheGo Repository.

Now, with your Capture OnTheGo template open in the Connect Designer module, click on the **Send COTG Test…** button in the toolbar.

Enter the appropriate information in the Send Test dialog (see "Send COTG Test" on page 640).

Click **Finish** to send the document. It should automatically appear in the app's Repository and remain accessible for 2 days from the moment it is sent.

Submitting and previewing data

When you hit the Submit button in a template in the **Designer** (on the Live tab), the submitted data can be sent back to the Designer in the form of an XML file (see below). The advantage of this is that you can immediately start creating a Data Mapping Configuration and use the data in a template.

Data submitted from the Capture OnTheGo **app** can be sent to you in the form of an email or saved via a Workflow configuration. Both options are explained below.

> **Note**
>
> The Form's validation should ensure that the submitted data is valid. Set the Form's validation method to jQuery and set the requirements and a message per field (see "Changing a Form's validation method" on page 465 and "How to make COTG elements required" on page 395).

Get Job Data File on Submit

It is possible to test a COTG Form **in the Designer** and get access to an **XML file** that contains the submitted data, without having a Workflow configuration to handle the data.

This option requires that:

- Workflow has been installed on the local machine, and the Workflow HTTP/Soap Service has been started. To do this, in the Workflow menu, click **Tools > Service Console**, then right-click **HTTP/Soap Server** and start it.
- In the Designer menu **Window > Preferences > Web**, the **Workflow URL** has been set to the correct host. The default is **http://127.0.0.1:8080/_getSampleFormData_**. This points to an internal process of the Workflow component running at that host.

If these conditions are met, you can get the XML file as follows:

1. Open the Form in the Designer, toggle to Live mode and fill out the form. Click the **Add Dummy Data** button (found on the toolbar and only available in the Live view) to populate empty form fields with dummy data. This adds dummy data to standard HTML form inputs as well as COTG inputs like the camera and signature widgets. Inputs that already contain data are left untouched. For a list of dummy data values, see the table below.

2. Click the **Get Job Data File on submit** toolbar button. This replaces the default form submit action and will send the form data to the Workflow's HTTP Service (which needs to be running in the background).

> **Note**
>
> Workflow's HTTP Service must be running, but not necessarily the Workflow Service itself.

3. Hit the **Submit** button. Now the data file will be sent directly to the Designer. Once the Job Data File is received by the Connect server, a dialog appears asking where to store it.
4. Save the XML file to disk. You can view it, create or update a Data Mapping Configuration for it (see "Data mapping configurations" on page 75), and insert the data in a template, using the Data Mapping Configuration (see "Personalizing Content" on page 518).

> **Note**
>
> Checkboxes and Radio buttons that are unchecked will not be submitted to the job data. This is standard behavior in HTML. One can work around that by adding a hidden field before the respective checkbox with the same name and for example value 0 (see "Using COTG Elements" on page 393).

Standard Form input dummy data values

Input	Dummy Value
Text	"Lorem ipsum dolor sit amet"
Textarea (multi-line text field)	"Lorem ipsum dolor sit amet"
Email	"pparker@localhost.com"
Number	random integer

Input	Dummy Value
Password	1234567890
URL	"http://www.localhost.com"
Checkbox	Checkboxes in detail tables and in the Fields Table control (time sheet) are checked.
Radio button	Selects the first radio button that is not disabled in each radio group. The radio group will be left untouched when there is a selected radio button.

Capture On The Go input dummy data values

Input	Dummy Value
Signature	Receives SVG signature data and the onscreen presentation of that data.
Camera	A dummy foto is added, and a (SVG) annotation if that option is set for the widget. Note that the script doesn't look at the PNG/JPG or resolution options, the only option it considers is the annotation option.
Geolocation widget	A geo location
Date Picker (formatted and standard)	Today's date*
TimePi	Now*

Input	Dummy Value
cker (formatted and standard)	
Device Info widget	"{"available":true,"platform":"Android","version":"9.9.9","uuid":"17206724b8077491","cordova":"3.6.4","model":"Connect Designer"}"
User Account widget	"user@localhost.com"
Locale widget	en-US

* Note that the **formatted** date and time can be different from the values that the COTG app provides. In the COTG app the formatted date comes from the COTG API, and the formatted date and time normally depend on the locale/region settings on the mobile device. The **ISO** date and time should be the same as when using the COTG app.

Get submitted data via email

Getting submitted data via email requires the Form's action to be set to a test URL that contains an **API Key**. You can obtain an API Key as follows.

1. Go to http://learn.objectiflune.com/.
2. Create an account, or log in to your account.
3. Go to your Profile Page, and click the API Key link.

Now, when creating or editing a COTG Form, you can use the API Key in the Form's action:

1. Select the Form (see "Selecting an element" on page 407).
2. On the **Attributes** pane, paste the following URL in the **action** field: http://learn.objectiflune.com/services/cotg-debug?__ol__auth_key={{APIKEY}}.
3. Replace {{APIKEY}} by your API Key.

When you submit the form in the COTG app (see "Previewing a COTG Template in the app" on page 398), the debug service will compose an HTML email that contains the form element names and the submitted values. Image files, like pictures and signatures, are added to the email as attachments. The email will be sent to the email address that you provided via your Learn profile.

For a more detailed description of this test procedure, see this how-to: Testing a COTG template.

Get submitted data via Workflow

Eventually, when a user submits a Capture OnTheGo Form, the data are received by the Workflow HTTP Server Input task (see Workflow Help: HTTP Server Input) that has the same HTTP action as the one specified in the Form's action (see "COTG Forms" on page 371). The Workflow configuration should then handle the submitted data. But even if it doesn't, when no other tasks are present in that Workflow configuration, Workflow can output an XML file that contains the submitted data and save it in a location specified for the **Send To Folder** plugin in Workflow.
This XML file contains the actual data submitted by all Form elements, including COTG elements, such as a signature or barcode.

Content elements

Once you have created template, it can be filled with all kinds of elements, from text to barcodes and from tables to fields on a web form. All types of elements are listed on this page; see below.

There are several ways to insert elements, see "Inserting an element" on page 406.

Each element can have an ID and a class, as well as a number of other properties, depending on the element's type. When an element is selected, its properties can be changed; see "Selecting an element" on page 407, "Attributes" on page 405 and "Styling and formatting an element" on page 408.

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file. It is possible to edit the source of the HTML file directly in the Designer; see "Editing HTML" on page 405.

Element types

The following types of content can be added to the content of a template:

- "Images" on page 471 and "Dynamic Images" on page 541
- "Text and special characters" on page 480
- "Date" on page 460
- "Table" on page 476and "Dynamic table" on page 543
- "Boxes" on page 450: Positioned Box, Inline Box, Div and Span

> **Tip**
>
> Wrapping elements in a box (see "Boxes" on page 450) or in a semantic HTML element makes it easier to target them in a script or a style sheet. Place the cursor in the element or select multiple elements. Then, on the menu, click **Insert > Wrap in Box**. You can now use the wrapper element as a script's or style's `selector`; see "Using the Text Script Wizard" on page 533 and "Styling and formatting" on page 484.

- "Hyperlink and mailto link" on page 470
- "Barcode" on page 409
- Web "Forms" on page 462 and Web "Form Elements" on page 466
- "Whitespace elements: using optional space at the end of the last page" on page 312 (Print context only)
- "Page numbers " on page 313 (Print context only)
- Article, Section, Header, Footer, Nav and Aside are HTML5 semantic elements; see http://www.w3schools.com/html/html5_semantic_elements.asp
- Other HTML elements: Heading, Address and Pre
- "Snippets" on page 482: a Snippet is a small, ready-to-use piece of content in a file
- Business graphics

Most elements are suitable for use in all contexts. There are a few exceptions, however. Forms and Form elements can be used on web pages only, whereas Whitespace elements and Page numbers can only be used in a Print context. Positioned boxes are well suited for Print sections, but are to be avoided in the Email and Web context.

Whether it is best to use a Table or Box to position text, images and other elements, depends on the context in which they are used; see "How to position elements" on page 498 for more information.

Editing HTML

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file.

To see this, toggle to the **Design** tab in the workspace. Click anywhere in the content. Take a look at the *breadcrumbs* at the top of the workspace. The breadcrumbs show the HTML tag of the clicked element, as well as the HTML tags of other elements to which the clicked element belongs. The clicked element is at the end of the line.

To edit the HTML text directly:

- In the workspace, toggle to the **Source** tab.

On this tab you can view and edit the content of the template in the form of plain text with HTML tags (note the angle brackets: <>). You may add and edit the text and the HTML tags, classes, ID's and other attributes.

To learn more about HTML, see for example https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/Introduction and http://www.w3schools.com/html/default.asp.

Many video courses and hands-on courses about HTML (and CSS) are offered on the Internet as well, some for free. Go, for example, to www.codeschool.com or www.codeacademy.com and look for HTML (and CSS) courses.

Attributes

ID and class

Every element in the content of a template can have an **ID** and a **class**. ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).

You can specify an ID and/or class when you add the element to the content.

To add an ID and/or class to an element that has already been added to a template, select the element (see "Selecting an element" on the next page) and type an ID and/or a class in the respective fields on the **Attributes** pane at the top right.

Other attributes

Apart from the ID and class, elements can have a varying number of properties, or 'attributes' as they're called in HTML (see "Editing HTML" on the previous page). Which properties an element has, depends on the element itself. An image, for example, has at least four attributes: `src` (the image's URL), `alt` (alternate text), `width` and `height`. These attributes are visible on the **Attributes** pane when you click an image in the content.

For each type of element, a small selection of attributes is visible on the **Attributes** pane at the top right.

Changing attributes via script

Many attributes can be changed via the user interface. Another way to change attributes is by using a script.

Any of the Script Wizards can produce a script that changes an attribute of an HTML element. Set the **Options** in the Script Wizard to **Attribute**, to output the script's results to the value of a specific attribute. See "Using the Text Script Wizard" on page 533.

In code, you can change an element's attribute using the function `attr()`; see "Writing your own scripts" on page 548 and "Designer Scripts API" on page 784.

Inserting an element

To insert an element in the content of a template:

PReS. Connect

1. Click the respective toolbar button. Alternatively, click the element on the **Insert** menu.
2. Add an ID and/or a class. ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).
3. Use the **Location** drop-down (if available) to select where to insert the element.
    - **At cursor position** inserts it where the cursor is located in the template.
    - **Before element** inserts it before the HTML element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be before the tag.*
    - **After start tag** inserts it within the current HTML element, at the beginning, just after the start tag.*
    - **Before end tag** inserts it within the current HTML element, at the end, just before the end tag.*
    - **After element** inserts it after the element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be after the end tag of the paragraph ( ).*

    * If the current element is located inside another element, use the **Elements** drop-down to select which element is used for the insertion location. The list displays every element in the breadcrumbs, from the current selection point until the root of the body.

Selecting an element

When an element is selected, the **Attributes** pane shows the attributes of that element, and the **Styles** pane, next to the **Attributes** pane, shows which styles are applied to it.

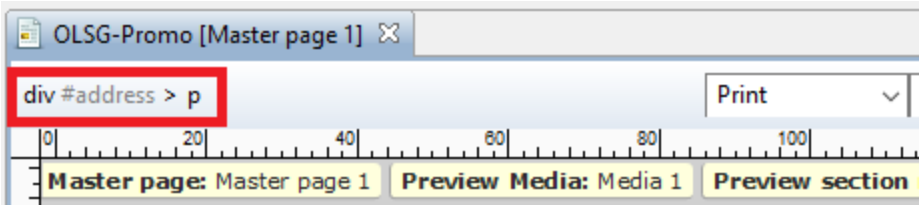
To select an element in the content, you can of course click on it, but this isn't always as easy as it seems, especially when the element has elements inside it.

> **Tip**
>
> Click the **Edges** button on the toolbar to make borders of elements visible on the Design tab. The borders will not be visible on the Preview tab.

There are two more ways to select an element in the content:

PReS. Connect

- Using the *Breadcrumbs* at the top of the workspace.



  Breadcrumbs show the HTML tag of the clicked element, as well as the HTML tags of 'parent elements': elements inside of which the clicked element is located. The clicked element is at the end of the line.
  Elements with classes or IDs show these details next to them, for instance `div #contents > ol.salesitems > li`. Click any of the elements in the Breadcrumbs to select that element.
  If an element is selected in the Breadcrumbs and the Backspace key is pressed, that element is deleted.

- Using the **Outline** pane. You can find this pane next to the **Resources** pane. It displays a tree view of the elements in the file. Click an element in the tree view to select it.

Deleting an element

To delete an element, select it - as described above - and press the Delete key.
If the deleted element was targeted by a script, you will be asked if you want to delete the script as well.

Styling and formatting an element

Format elements directly

Images and other graphical elements can be resized by clicking on them and dragging the resize handles. There are toolbar buttons to color, indent or style text. Other toolbar buttons can left-align, right-align, or rotate graphical elements.

The toolbar buttons only represent a selection of the formatting options for each element. There are no toolbar buttons to change an element's margins, or to add a border to it, for example. To access all formatting properties of an element, you have to open the Formatting dialog. There are two ways to do this:

PReS. Connect

- Right-click the element and select the type of element on the shortcut menu.
- Select the element (see "Selecting an element" on page 407) and select the type of element on the **Format** menu.

See "Styling and formatting" on page 484 for more information about the formatting options.

Format elements via Cascading Style Sheets (CSS)

It is highly recommended to use style sheets in templates right from the start. Even more so if the communications are going to be output to different output channels, or if they consist of different sections (for example, a covering letter followed by a policy). Using CSS with templates allows a consistent look and feel to be applied. A style sheet can change the look of multiple elements, making it unnecessary to format each and every element in the template, time and again, when the company's layout preferences change. See "Styling templates with CSS files" on page 486.

Barcode

In PReS Connect Designer, you can add a variety of barcodes to your template. The supported Barcode types include 1d barcodes (the striped ones) and 2d barcodes (encoded horizontally and vertically).

Adding a Barcode

> **Note**
>
> When generating Print output, you can add extra barcodes and OMR marks. The reason why you would do this, is that at merge time more information is available about the actual output document. The page count, for example, is not available at design time.
> To add barcodes and OMR marks on the fly when generating Print output, select **File > Print** and check the option **Add additional content** (see "Additional Content" on page 713) in the Print Wizard. To have this done automatically, save this and other output options in an Output Creation Preset: select **File > Print presets > Output Creation Settings** (see "Output Creation Settings" on page 763) and send the preset to Workflow.

Before adding a Barcode, load data or at least a Data Model; see "Loading data" on page 520. You will need the field names when adding the Barcode. Then, to add a Barcode to a section, Master Page or snippet:

1. Select **Insert > Barcode** on the menu or click the **Barcode** toolbar button
2. Choose the desired barcode type. The list is divided between 1d and 2d barcodes.
3. An **ID** is required. You can change the given ID and, optionally, add a class.
4. Check the option **Absolute** to insert the barcode in an absolute-positioned box inside the <body> of the HTML, but outside other elements. Alternatively, use the **Location** drop-down to select where to insert the Barcode.
    - **At cursor position** inserts it where the cursor is located in the template.
    - **Before element** inserts it before the HTML element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be before the tag.*
    - **After start tag** inserts it within the current HTML element, at the beginning, just after the start tag.*
    - **Before end tag** inserts it within the current HTML element, at the end, just before the end tag.*
    - **After element** inserts it after the element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be after the end tag of the paragraph ( ).*

    * If the current element is located inside another element, use the **Elements** drop-down to select which element is used for the insertion location. The list displays every element in the breadcrumbs, from the current selection point until the root of the body.

5. Under **Script**, select the field that contains the barcode value. The barcode type dictates the length and exact format of the required value. For a detailed description or for background information on a specific barcode, please refer to the documentation provided by the individual barcode supplier. Note that some barcode readers may require specific parameters as well.
   If it is necessary to concatenate fields to compose the barcode value, edit the script after adding the barcode; see "Barcode script" on the next page.

> **Note**
>
> For barcodes that require a Checksum, the Designer can calculate a Checksum if that isn't provided by your data. In that case the field should contain the required

value minus the Checksum. To include a calculated Checksum in the barcode value, edit the barcode properties after adding the barcode to the template; see below.

6. Click **OK** to close the dialog.

In the template the barcode shows up as a gray box. The associated barcode script is added to the Scripts pane. To see the barcode script working, toggle to the **Preview** tab in the Workspace.

A barcode is always added with the barcode type's default properties and dimensions, but they can easily be changed; see "Barcode type and properties" below.

Changing a barcode

Barcode script

The barcode script determines which value is fed to the barcode generator. Double-click the script on the **Scripts** pane to change which field or fields are added to the barcode value. When you select more than one field, the script puts the values of the selected fields in one string and passes that to the barcode generator.

> **Tip**
>
> If you don't know which script matches the barcode, click the box that contains the barcode and check the ID of that box on the Attributes pane. Then take a look at the Scripts pane: the selector of the associated script is the same as the ID of the barcode box.

Barcode type and properties

A barcode is always added with the barcode type's default properties and dimensions.

To change the barcode type or the barcode's properties such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select **Barcode** on the shortcut menu.

The barcode properties set via the properties dialog are written to the `data-params` attribute on the barcode element in JSON format. (To see this, select the barcode and open the document in the Source view.)

Click the barcode type below for information about its properties.

- "Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5" on page 434
- "Code 39, Code 39 extended" on page 419
- "UPC-A, UPC-E, EAN-8, EAN-13" on page 448
- "OneCode, KIX Code, Royal Mail, Australia Post" on page 445
- "Code 128" on page 422
- "GS1-128" on page 427
- "Codabar" on page 415
- "MSI" on page 437
- "IMPB" on page 430
- "Postnet" on page 441
- "QR Code" on page 443
- "Data Matrix" on page 423
- "Royal Mail Mailmark" on page 447
- "PDF417" on page 440
- "Aztec Code" on page 414
- "MaxiCode" on page 436

OneCode, KIX Code, Royal Mail, Australia Post

OneCode, KIX Code, Royal Mail and Australia Post are some of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

PReS. Connect

Barcode properties

This topic lists the properties of the barcode types OneCode, KIX Code, Royal Mail and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Height, width and spacing

The height, width and spacing of the barcode are all measured in pixels (38 dpi).

- **Bar height**: the height of the (shorter) bars
- **Extended bar height**: the total height of the extended bars
- **Bar width**: the width of the bars
- **Spacing**: the distance between the bars

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Aztec Code

Aztec is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type Aztec. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module size

Enter the size of the square modules in pixels

Configuration type

Use the drop-down to select the format type used when creating the barcode: only full range format, only compact formats, or any format.

Preferred configuration

Use the drop-down to select the preferred format for the barcode. Note that the barcode generator may choose a different format if the data cannot be represented by the preferred format.

Encoding

Use the drop-down to select the encoding type:

- **Normal** can encode any character but is not very efficient for encoding binary values (above 128)
- **Binary** is to be used only if the data contains many bytes/characters above 128.

PReS. Connect

Error Correction Level

This option reserves a percentage of the symbol capacity for error correction. The recommended percentage for this type of barcode is 23.

Rune

When set to a value between 0 and 255, an Aztec Rune corresponding to the selected value is created. Set the Rune to -1 to disable this feature.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Codabar

Codabar is one of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the Codabar barcode. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Start Char and Stop Char

Use the drop-down to select the start and stop character for the barcode, which defines the encoding mode. Available characters are A, B, C.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, and Matrix 2 of 5 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the following barcode types :

- Code 11
- Code 93
- Code 93 extended
- Industrial 2 of 5
- Interleaved 2 of 5
- Matrix 2 of 5

For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 39, Code 39 extended

Code 39 and Code 39 extended are two of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode types Code 39 and Code 39 extended. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Inter Character Gap

Two adjacent characters are separated by an inter-character gap. A value of 1 means that the separator will have the same length as the width of the narrow bars (in centimeters).

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, and Matrix 2 of 5 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the following barcode types :

- Code 11
- Code 93
- Code 93 extended

- Industrial 2 of 5
- Interleaved 2 of 5
- Matrix 2 of 5

For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 128

Code 128 is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type Code 128. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Code set

Set of characters to be used:

- **A**: ASCII characters 00 to 95 (0–9, A–Z and control codes), special characters, and FNC 1–4
- **B**: ASCII characters 32 to 127 (0–9, A–Z, a–z), special characters, and FNC 1–4
- **C**: 00–99 (encodes each two digits with one code) and FNC 1

In Auto mode, the barcode generator will automatically select the correct encoding mode (set A, B or C) according to the input data.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Data Matrix

Data Matrix is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the QR barcode. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Hex Input

For optimized mailings, German Post requires the supplied data for the Data Matrix barcode to be hexadecimal input.
Check this option if your input data is a hexadecimal code. The incoming data will be interpreted as hexadecimal input and decoded to ASCII before passing the string to the Barcode library.

Dots Per Pixels

Type the number of dots per pixel. To optimize barcode quality a Data Matrix symbol should not be printed with dots smaller than 4 pixels.

Encoding

The data represented in the symbol can be compressed using of the following algorithms.

- **ASCII** is used to encode data that mainly contains ascii characters (0-127)
- **C40** is used to encode data that mainly contains numbers and uppercase characters.
- **Text** is used to encode data that mainly contains numbers and lowercase
- **Base256** is used to encode 8 bit values
- **Auto Detect** automatically detects the data content and encodes using the most appropriate method.
- **None** does not use any encoding.

Preferred format

Use the drop-down to select the size of the Data Matrix.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

UPC-A, UPC-E, EAN-8, EAN-13

UPC-A, UPC-E, EAN-8 and EAN-13 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode types UPC-A, UPC-E, EAN-8 and EAN-13. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Show guardbars

Checking this option adds guardbars to the barcode. Guardbars are bars at the start, in the middle and at the end that help the barcode scanner to scan the barcode correctly.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Supplement

UPC-A, UPC-E, EAN-13, and EAN-8 may all include an additional barcode to the right of the main barcode.

- **Type**: The supplement type can be 2-digit (originally used to indicate the edition of a magazine or periodical) or 5-digit (used to indicate the suggested retail price for books). In case this option is set to None, and the data includes digits for the 2 or 5 supplement, the supplement data will be skipped and the additional barcode will not be rendered.

> **Note**
>
> When the chosen supplement type doesn't match the data, the supplement data will be skipped and the additional barcode will not be rendered.

- **Height Factor**: This is the relative height of the supplement's bars compared to the normal bars.
- **Space Before** : Defines the space between the main symbol and the supplement, in cm.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

GS1-128

GS1-128 is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type GS1-128. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

OneCode, KIX Code, Royal Mail, Australia Post

OneCode, KIX Code, Royal Mail and Australia Post are some of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode types OneCode, KIX Code, Royal Mail and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Height, width and spacing

The height, width and spacing of the barcode are all measured in pixels (38 dpi).

- **Bar height**: the height of the (shorter) bars
- **Extended bar height**: the total height of the extended bars
- **Bar width**: the width of the bars
- **Spacing**: the distance between the bars

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

IMPB

IMPB is one of the barcode types that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type IMPB. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example

w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, and Matrix 2 of 5 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the following barcode types :

- Code 11
- Code 93
- Code 93 extended
- Industrial 2 of 5
- Interleaved 2 of 5
- Matrix 2 of 5

For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

PReS. Connect

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, and Matrix 2 of 5 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the following barcode types :

- Code 11
- Code 93
- Code 93 extended
- Industrial 2 of 5
- Interleaved 2 of 5
- Matrix 2 of 5

For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check

character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5

Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, and Matrix 2 of 5 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the following barcode types :

- Code 11
- Code 93

- Code 93 extended
- Industrial 2 of 5
- Interleaved 2 of 5
- Matrix 2 of 5

For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

MaxiCode

MaxiCode is one of the barcode types that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the MaxiCode barcode. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Resolution

Select the printer output definition for the barcode (200, 300, 400, 500 or 600 dpi).

Mode

PReS Connect supports several modes; for an explanation of these modes see the MaxiCode page on Wikipedia.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

MSI

MSI is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type MSI. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Add Checksum

When checked, PReS Connect will calculate a Checksum character and add that to the result of the Barcode script. If the value to be encoded is longer than 10 digits, a second check character will be calculated.

Checksum Type

The Checksum type can be MSI10, MSI11, MSI1010 or MSI1110; see https://en.wikipedia.org/wiki/MSI_Barcode.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

OneCode, KIX Code, Royal Mail, Australia Post

OneCode, KIX Code, Royal Mail and Australia Post are some of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode types OneCode, KIX Code, Royal Mail and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Height, width and spacing

The height, width and spacing of the barcode are all measured in pixels (38 dpi).

- **Bar height**: the height of the (shorter) bars
- **Extended bar height**: the total height of the extended bars
- **Bar width**: the width of the bars
- **Spacing**: the distance between the bars

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

PDF417

PDF417 is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type PDF417. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Mode

Use the drop-down to set the compaction mode:

- **Binary**: allows any byte value to be encoded
- **Text**: allows all printable ASCII characters to be encoded (values from 32 to 126 and some additional control characters)
- **Numeric**: a more efficient mode for encoding numeric data

Error Correction Level

Use the drop-down to select the built-in error correction method based on Reed-Solomon algorithms. The error correction level is adjustable between level 0 (just error detection) and level 8 (maximum error correction). Recommended error correction levels are between level 2 and 5, but the optimal value depends on the amount of data, printing quality of the PDF417 symbol and decoding capabilities of the scanner.

Nr. of Columns

The number of data columns can vary from 3 to 30.

Nr. of Rows

A PDF417 bar code can have anywhere from 3 to 90 rows.

PReS. Connect

Bar height

Defines the height of the bars for a single row measured in pixels drawn.

Compact

Check this option to use Compact PDF417 instead of the PDF417 barcode. This shortened form of the PDF417 barcode is useful where the space for the symbol is restricted.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Postnet

Postnet is one of the barcode types that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type Postnet. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Bar height

You can set the height (in cm) of the short bars and the tall bars in the Postnet barcode.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

QR Code

A QR Code is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Instead of using the Script wizard (see "Adding a Barcode" on page 409) you could write your own script to get the data for the QR Code; see this how-to: QR Codes in Designer.

Barcode properties

This topic lists the properties of the QR barcode. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module size

Enter the size of the square modules in pixels.

Auto configure

When this option is checked, the barcode generator overwrites the selected Preferred version (see below) and defines the barcode version based on the supplied data.

Preferred version

There are 40 sizes of QR codes. Select the preferred version for the QR code.

Encoding

This option defines the encoding of the barcode. When **Auto** is selected, the barcode generator determines the encoding based on the supplied string. The other options are:

- **Numeric**: 10 bits per 3 digits, with a maximum of 7089 numerical characters.
- **Alphanumeric**: 11 bits per 2 characters, with a maximum of 4296 alphanumerical characters.
- **Byte**: 8 bits per character, with a maximum of 2953 characters.
- **Kanji**: 13 bits per character, with a maximum of 1817 characters.

Extended Channel Interpretation (ECI)

This setting enables data using character sets other than the default set. Select **Latin-1**, **Shift JIS** or **UTF-8**, or select **None** to disable extended channel interpretation.

Correction level

Part of the robustness of QR codes in the physical environment is their ability to sustain 'damage' and continue to function even when a part of the QR code image is obscured, defaced or removed. A higher correction level duplicates data within the QR Code to that effect, making it larger.

FNC

Use the drop-down to either disable FNC or select a FNC option:

- **First**: This mode indicator identifies symbols encoding data formatted according to the UCC/EAN Application Identifiers
- **Second**: This mode indicator identifies symbols formatted in accordance with specific industry or application specifications previously agreed with AIM International. You must then set a value for the Application Indicator property.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.

- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Barcode Data

QR Codes can have many different types of data, which determines how the code will be generated. On top of just straightforward data, special data structures are used to trigger actions on the device that reads them. This can include contact cards, phone numbers, URLs, emails, etc.

To learn more about the specifications of the different QR code types, see the ZXing Project barcode contents page.

OneCode, KIX Code, Royal Mail, Australia Post

OneCode, KIX Code, Royal Mail and Australia Post are some of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode types OneCode, KIX Code, Royal Mail and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Height, width and spacing

The height, width and spacing of the barcode are all measured in pixels (38 dpi).

- **Bar height**: the height of the (shorter) bars
- **Extended bar height**: the total height of the extended bars
- **Bar width**: the width of the bars
- **Spacing**: the distance between the bars

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Royal Mail Mailmark

Royal Mail Mailmark is one of the types of barcodes that can be added to a template; see "Barcode" on page 409.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode type Royal Mail Mailmark. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

The recommendation is to print these barcodes with a module size of 0.5 mm, which equates to 6 dots when printed at 300dpi. The maximum module size for printing is 0.7 mm.

Preferred version

Use the drop-down to select the size of the barcode, in a number of modules. The actual size of the barcode can be 12 mm x 12 mm up to 22.4 mm x 22.4 mm, depending on the preferred version and the module width.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

UPC-A, UPC-E, EAN-8, EAN-13

UPC-A, UPC-E, EAN-8 and EAN-13 are a few of the barcode types that can be added to a template.

The barcode can be added either using the Barcode toolbar button or through selecting **Insert > Barcode** on the menu; see "Adding a Barcode" on page 409.

Initially the barcode will have the barcode type's default properties. To change those properties, such as the scale and color, open the Barcode properties dialog: right-click the barcode (on the **Design** tab in the Workspace) and select the barcode type on the shortcut menu.

Barcode properties

This topic lists the properties of the barcode types UPC-A, UPC-E, EAN-8 and EAN-13. For the properties of other barcode types, see "Barcode type and properties" on page 411.

Module width

Specifies the width of the narrow bars in centimeters. Changing this value to a higher value will make the barcode bigger when Scale is set to None.

Show guardbars

Checking this option adds guardbars to the barcode. Guardbars are bars at the start, in the middle and at the end that help the barcode scanner to scan the barcode correctly.

Scale

Defines if and how the rendered barcode is scaled in relation to the parent element:

- **None**: The barcode is rendered based on the module width.
- **Fit to box**: The barcode is stretched to fit the parent box in both width and height.
- **Proportionally**: The barcode is stretched up to where it fits either the width or height of the parent box, whichever requires the less stretching.

Supplement

UPC-A, UPC-E, EAN-13, and EAN-8 may all include an additional barcode to the right of the main barcode.

- **Type**: The supplement type can be 2-digit (originally used to indicate the edition of a magazine or periodical) or 5-digit (used to indicate the suggested retail price for books). In case this option is set to None, and the data includes digits for the 2 or 5 supplement, the supplement data will be skipped and the additional barcode will not be rendered.

  > **Note**
  >
  > When the chosen supplement type doesn't match the data, the supplement data will be skipped and the additional barcode will not be rendered.

- **Height Factor**: This is the relative height of the supplement's bars compared to the normal bars.
- **Space Before** : Defines the space between the main symbol and the supplement, in cm.

Human Readable Message

When this option is checked, PReS Connect shows a human readable text below or above the barcode, as defined using the Text Position, using the specified font and font size. The font size is given in points (pt).

Color

The **Color** property allows you to choose a different **Barcode** color (instead of black) and **Background** color (instead of white), by typing a hexadecimal color value (see for example

w3school's color picker).

Output format

Defines how the barcode is output on the page. There are two possible formats:

- **SVG**: Vector format. This is smaller in size, but not compatible with Email output.
- **PNG**: Binary rasterized format. This is slightly larger than SVG but will display properly in Email output.

Boxes

Boxes are elements that are used to surround other elements, either to style them, to find them, or to place them in specific locations.

> **Tip**
>
> Wrapping elements in a box (see "Boxes" above) or in a semantic HTML element makes it easier to target them in a script or a style sheet. Place the cursor in the element or select multiple elements. Then, on the menu, click **Insert > Wrap in Box**. You can now use the wrapper element as a script's or style's `selector`; see "Using the Text Script Wizard" on page 533 and "Styling and formatting" on page 484.

Positioned Box

A Positioned Box is one that can be freely moved around the page and does not depend on the position of other elements. A positioned box is actually a element that has an **absolute position**; in other words, it has its CSS property `position` set to `absolute`.

Positioned Boxes are suitable for use in Print templates only.

Adding a Positioned Box

To insert a Positioned Box, use the ▭ icon on the toolbar.

PReS. Connect

Moving and resizing a Positioned Box

Positioned Boxes can be moved by dragging the borders, and resized using the handles on the sides and the corners. Alternatively the size and position can be set on the Attributes pane. Note that the size and offset values will be displayed in the default print units as defined in the preferences.

Dynamically changing the position

A Positioned Box has the following attributes:

- **anchor** defines the page number (starting by 0) the box is placed on
- **offset-x** defines the horizontal position of the box relative to its container
- **offset-y** defines the vertical position of the box relative to its container.

These attributes can be set in a script. The following script dynamically changes the position of a Positioned Box in a Print context by setting the offset-x and offset-y values.

```
results.attr('offset-x','96');
results.attr('offset-y','96');
```

The measurements are in pixels (e.g. 96px = 1in). Note that you do not need to set the units.

> **Note**
>
> Do not set the `top` or `left` property of a Positioned Box in a style sheet. The position of a Positioned Box in a Print context is handled via its attributes to take the page (or Master Page) and page margins into account. Attributes cannot be overwritten from within a style sheet: style sheets specify style properties, not values of attributes.

Styling a positioned box

A Positioned Box can be styled using the **Format > Box** menu item, through the CTRL+M keyboard shortcut, or through CSS; see "Styling and formatting" on page 484 and "Styling templates with CSS files" on page 486.

Inline Box

An Inline Box is one that is placed within the text flow, where other elements (including text) can wrap around it. An inline box is actually a element that is **floating**; in other words, it has its CSS property `float` set to `left`, `right` or `no float`.

Inline Boxes can be used in Print context and in Web pages. It is common to do entire web layouts using the `float` property. In Email templates, it is best to use Tables to position elements.

Adding an Inline Box

To insert an inline box, use the icon on the toolbar. Inline Boxes can be resized using the handles on the sides and corner. They can be styled using the **Format > Box** menu item, through the CTRL+M keyboard shortcut or through the CSS files; see "Styling and formatting" on page 484 and "Styling templates with CSS files" on page 486.

Positioning an Inline Box

Initially an Inline Box will float to the left. Use the (Float left), (No float) and (Float right) icons on the toolbar to change the position of an Inline Box within the text.

- The **Float left**button aligns the Inline Box to the left. The text is positioned to the right of it and is wrapped around the box.
- The **Float right**button aligns the Inline Box to the right, with the text wrapped around it to the left.
- The **No float** button positions the Inline Box where it occurs in the text.

It is not possible to move an Inline Box using drag and drop. To move the Inline Box to another position in the text, you have to edit the HTML on the Source tab in the Workspace, moving the element using cut and paste. To open the Source tab, click it (at the bottom of the Workspace) or select **View > Source View**.

Span

The Span element (in HTML code) is used to group inline elements, such as text in a paragraph. A Span doesn't provide any visual change by itself, but it provides a way to target its content in a script or in a style sheet.

PReS. Connect

To wrap content in a span, select the text and other inline elements and click **Insert > Wrap in Span** on the menu. Give the span an ID, if you are going to add a style rule or script for it that is unique to this span; or give the span a class, if this span can be targeted by a style or script along with other pieces of content. Now you can use the wrapper's ID or class as a script's or style's `selector`; see "Using the Text Script Wizard" on page 533 and "Styling and formatting" on page 484.

Div

The Div is the element used to create both Positioned Boxes and Inline Boxes. By default, a Div element reacts pretty much like a paragraph (<p>) or an inline box set to 'no float' except that it can be resized directly. Just like Positioned Boxes and Inline Boxes, Div elements can be styled using the **Format > Box** menu item, through the CTRL+M keyboard shortcut or through the CSS files; see "Styling and formatting" on page 484 and "Styling templates with CSS files" on page 486.

Adding a Div element

To add a Div, select **Insert > Structural Elements > Div** on the menu. For an explanation of the options, see "Inserting an element" on page 406.

HTML tag: div, span

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file. It is possible to edit the source of the HTML file directly in the Designer; see "Editing HTML" on page 405.

In HTML, boxes are elements. Spans are elements. To learn how to change the attributes of elements, see "Attributes" on page 405.

Business graphics

Business graphics display variable data, originating from one record, in a graphical way. Three types of business graphics are available: Pie Charts, Bar Charts and Line Charts.

Adding a business graphic

To add a business graphic to the template:

PReS. Connect

1. Place the cursor where the graphic should be added.
2. Click the toolbar button of the type of chart you want to add, or select **Insert > Business graphic** and choose the chart type.
3. An **ID** is required. You can change the given ID and, optionally, add a class.
4. Use the **Location** drop-down to select where to insert the graphic:
    - **At cursor position** inserts it where the cursor is located in the template.
    - **Before element** inserts it before the HTML element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be before the tag.*
    - **After start tag** inserts it within the current HTML element, at the beginning, just after the start tag.*
    - **Before end tag** inserts it within the current HTML element, at the end, just before the end tag.*
    - **After element** inserts it after the element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be after the end tag of the paragraph ( ).*

    * If the current element is located inside another element, use the **Elements** drop-down to select which element is used for the insertion location. The list displays every element in the breadcrumbs, from the current selection point until the root of the body.
5. Use the **Input format** drop-down to select the source of the data for the Chart:
    - With **Static Labels** the chart has the same number of items for each record. Select the data fields (with a numerical value) and type a label for those fields.

    All other options fill the chart dynamically, using data from a detail table. At least one detail table must be available in the Data Model for this option to be functional.
    - **Dynamic labels** (Pie Charts only). The chart uses **one color per record** in the detail table. Select the data field under **Values**.
    - **Columns are series** (Bar Charts and Line Charts only). The chart uses **one color per data field** selected under **Columns**. For each data field, a series of bars or lines in one colour is added to the chart.
    - **Rows are series** (Bar Charts and Line Charts only). The chart uses **one color per record** in the detail table. For each data field selected under **Columns**, a series of bars or lines in different colours is added to the chart.

With the options to fill a chart dynamically you also have to select a **detail table** and a **(row) label**: a data field of which the value appears near the parts in a pie chart or under the bars or points of the line in a bar chart or line chart. The label is also used for the legend. Note that initially the legend is not visible. To make it visible, check the option **Show legend** in the chart's properties (see "Business graphic properties" below).

6. Close the dialog and go in Preview mode in the Workspace to view the result.

Changing a business graphic

Chart script

The script related to a business graphic determines which values are used to generate the graphic. Double-click the script on the **Scripts** pane to change this.

> **Tip**
>
> To find the script that fills the chart, hover over the names of the script in the Scripts pane. That script will highlight the chart in the template and its selector is the same as the ID of the business graphic (preceded by #).

For an explanation of the options in the Script wizard, see **step 5** of "Adding a business graphic" on page 453.

Business graphic properties

A chart is always added with the chart's default properties. To change those properties, such as the colors and the legend, open the Chart properties dialog: right-click the business graphic (on the **Design** tab in the Workspace) and select the respective business graphic on the shortcut menu.

For an overview of all properties, see:

- "Bar Chart Properties dialog" on page 583
- "Line Chart Properties dialog" on page 599
- "Pie Chart Properties dialog" on page 607.

PReS. Connect

COTG Elements

With the Designer you can create Capture OnTheGo templates. COTG templates are used to generate forms for the Capture OnTheGo mobile application. This topic is about Capture OnTheGo form elements. For more information about the application refer to these websites: Capture OnTheGo and Capture OnTheGo in the Resource Center.

Capture OnTheGo (COTG) elements can only be added within a Form element in a Web context; see "COTG Forms" on page 371. For information about how to add and use COTG Elements, see "Using COTG Elements" on page 393.

Barcode Scanner

The Barcode Scanner element adds a button to trigger the device to scan a barcode. A very large variety of barcode types are supported. Once the barcode has been scanned, the data from the barcode will be added to the COTG Form and submitted along with it.

> **Note**
>
> Using the Barcode Scanner element requires the installation of the ZXing Barcode Scanner application on Android devices. The application returns the barcode data after scanning.

Camera

The Camera element adds a group of buttons to capture or select an image. Once the image is selected via the camera or the device's library (aka "gallery"), it is saved within the Form data.

When the form is submitted, the image is sent in a base64-encoded string format. To learn how to add Camera data to a template, see "Adding Camera data to the template" on page 377.

Buttons

By default, the Camera element adds three buttons to the form:

- **Take now**: Opens the device's default Camera application to take a picture using the device's camera. Capture OnTheGo has no impact on the device's applications, so the features available (quality, orientation, filters) are dependent on the device itself. You can, however, set the format, quality and scaling for images that are submitted by the Camera element, as explained below.

PReS. Connect

- **Library**: Opens the device's default library or gallery application to select a single image that is then saved in the form data. The accessible images and navigation depend on the device itself.
- **Clear**: Removes any existing image data from the Camera element.

To omit the Take now or Library button, edit the Camera element's properties: right-click the Camera element after adding it to the form, select **Camera properties** and then use the **Source** drop-down to select which buttons will be available: Take, Pick from library, or both.

Annotations

Annotations can make a picture much more informative: an arrow, showing in which direction a car was driving; a circle, where the car has been damaged... To allow the user to make annotations, right-click the Camera element after adding it to the form, select **Camera properties**, and then check **Allow annotations**.
Clicking (or rather, touching) the image will bring up the annotation dialog. Annotations can be made in a Marker (semi-transparent) or Pencil (solid) style, in different colors and with different widths.
Annotations are submitted in SVG format by a hidden input added to the Camera element. The name of that input is the ID of the Camera element, followed by "-note-data", for example **camera1-note-data**.

Cropping/editing/deskewing

To allow the user to crop, edit and deskew the image after taking or selecting it, select **Camera properties**, and then check **Edit Image** and/or **Allow Deskew**. Which editing options the user actually gets and how they are presented to the user depends on the operating system of the device. On an Android device for example, the user may be able only to crop the image, while the user of an iOS device may select part of the image and rotate that selection.

Image format

You can set the format, quality and scaling for images that are submitted by the Camera element. Right-click the Camera element after adding it to the form, select **Camera properties** and edit the Image properties:

- **Format**: The image format can be PNG or JPG.
- **Quality**: Set the compression in a percentage.

- **Scale Image**: Check this option to enable image scaling. Then set the maximum width and height of images before they are sent to the server. Note that only the smallest of these is applied and the size ratio is always maintained.

How to use the captured or selected image in a template

When the user has submitted the form, you may want to use the captured or selected image in a Designer template, for example in a letter or on a web page. To do this, insert a dummy image in the template, right-click it and select **Dynamic Image**. The Text Script Wizard appears. Under **Field** select the field that contains the base64-encoded string. The script puts the given string in the source (**src**) attribute of the image (**<img>**).
Instead of using the Text Script Wizard, you could also write a script yourself; see "Writing your own scripts" on page 548.

Date and Formatted Date

The Date element and the Formatted Date element display the current date on the device when the form is first opened. When the element is touched, a date selector appears so the user can modify this date. The Formatted Date element displays dates in a format that depends on the locale of the device on which the user is viewing the form. A Date Element displays dates in the ISO 8601 format: YYYY-MM-DD.

When the form is submitted, the date data is sent as plain text. A Formatted Date element submits the date in two formats: in the format that depends on the device's regional and language settings and in the ISO format mentioned above (using a hidden field). A Date element sends the date in the ISO format only.

Device Info

The Device Info Element adds a field that contains some information about the device (phone or tablet) that is submitting the COTG Form. This includes the device's type (Android or iOS), operating system version, device model and its UUID (Universally Unique Identifier). This information can be useful for both troubleshooting, if errors occur on specific device types for example, as well as for security validation: it is possible to maintain a list of device UUIDs that are allowed access, to prevent unauthorized use even if someone has a user name and password to a repository.

Fields Table

The Fields Table element adds a table with two rows, a delete button at the end of the first row and an add button at the end of the second row. Inside the rows you can put whatever elements

you need. The user can click (or rather, touch) the Add button to add a row to the table. The new row will contain the same elements as the first row. The names of all elements in the first row will be extended with __0, while the names of the elements in the second row will be extended with __1, etc.

Geolocation

The Geolocation Element adds a button to read the device's current GPS coordinates and save them in a form field. When the button is pressed, the GPS coordinates are requested and saved. When the form is submitted, the Geolocation data is sent in plain text.

Image & Annotation

The Image & Annotation element is meant to be used with an image that needs input from the user. When inserting an Image & Annotation element you have to select the image. The user can simply click (or rather, touch) the image to bring up the annotation dialog. Annotations can be made in a Marker (semi-transparent) or Pencil (solid) style, in different colors and with different widths.
Annotations are submitted in SVG format by a hidden input. The name of that input is the ID of the Image & Annotation element, followed by "-note-data", for example **image_annotation1-note-data**.

Locale

The Locale Element does not have a UI element in the form. Inserting it adds a hidden input field that will contain the device's set locale when the form is submitted. This data is sent in plain text format and is available when processing the form data. The format is defined by the device.

Signature

The Signature Element adds a signature box to a COTG form. These signatures are filled in via touch input, either with a finger or capacitive pen. Touching the signature box opens up a fullscreen box used to sign (generally more useful in Landscape mode depending on the device); after confirming, the dialog saves the data into the Form.
Signature data is transmitted in SVG plain text format. This type of data can be stored in a data field in a Data Mapping and dragged from the Data Model into a template as is. In Preview mode it will be displayed as an image because the Designer, just like web browsers, knows how to display this kind of data.

Time and Formatted Time

The Time element and the Formatted Time element display the current time on the device when the form is first opened. When the element is touched, a time selector appears so the user can modify this time. The Formatted Time element displays times in a format that depends on the locale of the device on which the user is viewing the form. A Time Element displays dates in the ISO 8601 format: HH:MM.

When the form is submitted, the time data is sent as plain text. A Formatted Time element submits the time in both the ISO format mentioned above and in the format that depends on the device's regional and language settings. A Time element sends the time in the ISO format only.

User Account

The User Account Element adds a hidden field that contains the Capture OnTheGo user account (an email address) that was used to submit the form to the server. This is useful if a form is available to many different users, to detect who submitted it.

Date

The Date element inserts the current system date, optionally making it dynamic so that it updates whenever the template is viewed or produces output.

Adding a date

To add a Date element, use the **Insert > Date** option in the menus. A dialog appears with the following controls:

- **Language**: Use the drop-down to select which language the date should be displayed in.
- **Update Automatically**: Check to update the date automatically when the template is viewed or produces output. When this option is checked, a placeholder is inserted in the template and a script is created to update it automatically, otherwise a static text with the date is inserted.
- **Available Formats**: Select the date/time format in which to display the date.

Click OK to insert the date or Cancel to close the dialog.

Tip

If you are looking to add a date, originating from a record set, to a template, see: "Variable Data" on page 530. To insert a date you could use either the drag and drop method or the Text Script Wizard, however the latter lets you set the date/time format.

Changing the date

Once inserted, a date can be modified directly in the template (if it does not update automatically) or through the **date** script (if it does update automatically). To modify the date in the script:

1. Double-click the **date** script in the **Scripts** pane.
2. Between the round brackets after Date, enter the desired date in the following order: year, month, day, and optionally hours, minutes, seconds, milliseconds (see http://www.w3schools.com/js/js_dates.asp and https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date.) When the time is omitted, it defaults to 12:00:00 AM.

Formatting an automatically updating date

The script added to automatically update the date uses the short date format. To change this:

1. Double-click the **date** script in the **Scripts** pane.
2. Delete the first line of the script.
3. On the second line, delete what comes after `format` and change `format` to `formatter` (see "formatter" on page 795).
4. Now type a dot after `formatter`, press **Ctrl** + **space** and choose one of the functions to format a date and time; see "Date, date/time and time functions" on page 786.

Note

The Locale, set in the **Edit > Locale** dialog, has an influence on the formatting of a date. The Locale can be the system's locale, a specific locale, or it can depend on the value of a data field; see "Locale" on page 516.

Forms

Web templates can contain Forms. Capture OnTheGo templates always contain a Form.

> **Tip**
>
> To create a Capture OnTheGo template, preferably use a Template Wizard (see "Capture OnTheGo template wizards" on page 381). The Wizard doesn't just add the form, it also adds the necessary Capture OnTheGo form elements (see), style sheets and JavaScript files, and extra pre-made elements.

Adding a Form

This procedure describes how to add a Form element to an existing Web context.

1. On the **Resources** pane, expand the **Web** context and double-click a Web page to open it.
2. To use the Form Wizard, select the **Insert > Form Wizard** menu option. The Form Wizard adds a Form to the Web page including the specified fields.
   Alternatively, you can select **Insert > Form** on the menu to open a dialog that lets you set the Form's properties, validation method and location, but doesn't allow you to specify fields. If you choose this method, skip step 8 and 9 of this procedure and add fields after inserting the Form (see "Adding elements to a Form" on page 363).
3. Add an **ID** and/or a **class**. ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).
4. In the **Action** field, enter the URL where the form data should be sent. The URL should be a server-side script that can accept form data. The **action** of a Capture OnTheGo form should specify the Workflow HTTP Server Input task that receives and handles the submitted data. The action will look like this: **http://127.0.0.1:8080/action** (8080 is Workflow's default port number; 'action' should be replaced by the HTTP action of that particular HTTP Server Input task).The **method** of a Capture OnTheGo form should be **POST** to ensure that it doesn't hit a data limit when submitting the form. The GET method adds the data to the URL, and the length of a URL is limited to 2048 characters. Especially forms containing one or more Camera inputs may produce a voluminous data stream that doesn't fit in the URL. GET also leaves data trails in log files, which raises privacy concerns. Therefore POST is the preferred method to use.

5. Using the the **Method** drop-down, select whether the form should be sent using the GET or POST method.
6. Using the next drop-down, select the form's Encryption Type (**enctype**):
    - **application/x-www-form-urlencoded**: Default. All characters are encoded before they are sent. Spaces are converted to "+" symbols, and special characters are converted to ASCII HEX values.
    - **multipart/form-data**: No characters are encoded. This value is required when you are using forms that have a file upload control.
    - **text/plain**: Spaces are converted to "+" symbols, but no special characters are encoded.
7. Select a **validation** method:
    - The **Browser** validation method leaves it up to the browser to validate the user input. When adding fields to the Form (see the next step) you can only make fields required and set the maximum length as an additional requirement for some fields.
    - Select **JQuery Validation** to validate using JQuery scripts. This allows you to specify stricter requirements per field and type a different message for each field to display to the user if the input is not valid. This method ensures a more consistent validation as it is browser independent. The necessary JQuery files will be added to the JavaScript folder on the Resources pane when the form is inserted.
8. Under **Fields**, click the **Add** button and click on the desired field type to add a field of that type; see "Form Elements" on page 466.

    Note

    A Fieldset is not available in the Form Wizard, because a Fieldset itself can contain multiple different fields. Add the Fieldset after inserting the Form; see "Adding elements to a Form" on page 363.

9. Double-click each field in the Fields list and change its settings. For an explanation of the settings, see "Adding elements to a Form" on page 363.
10. The order of the elements in the list under **Fields** determines in which order the elements will be added to the Form. Use the **Move Up** and **Move Down** buttons to change the order of the elements in the list.

11. Use the **Location** drop-down to select where to insert the element.
    - **At cursor position** inserts it where the cursor is located in the template.
    - **Before element** inserts it before the HTML element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be before the tag.*
    - **After start tag** inserts it within the current HTML element, at the beginning, just after the start tag.*
    - **Before end tag** inserts it within the current HTML element, at the end, just before the end tag.*
    - **After element** inserts it after the element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be after the end tag of the paragraph ( ).*

    * If the current element is located inside another element, use the **Elements** drop-down to select which element is used for the insertion location. The list displays every element in the breadcrumbs, from the current selection point until the root of the body.
12. Close the dialog. Now you can start adding elements to the Form (see "Using Form Elements" on page 363, "Form Elements" on page 466, and "COTG Elements" on page 456).

Changing a Form's properties and validation method

Once a Form has been added, you can of course edit its HTML code directly in the Source view of the workspace. Apart from that, there are a number of dialogs to change a Form's properties and validation settings.

Changing a Form's properties

1. Select the form (see "Selecting an element" on page 407).
2. On the **Attributes** pane you can change:
    - The **ID** and/or **class**. ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 518) and styling (see "Styling templates with CSS files" on page 486).
    - An **Action**: the URL where the form data should be sent. The URL should be a server-side script that can accept form data.
    - A **Method**: this defines whether the form should be sent using the GET or POST method.

- An Encryption Type (**enctype**):
    - **application/x-www-form-urlencoded**: Default. All characters are encoded before they are sent. Spaces are converted to "+" symbols, and special characters are converted to ASCII HEX values.
    - **multipart/form-data**: No characters are encoded. This value is required when you are using forms that have a file upload control.
    - **text/plain**: Spaces are converted to "+" symbols, but no special characters are encoded.

Changing a Form's validation method

In Connect PReS Connect, there are two ways in which a Form's input can be validated:

- The **Browser** validation method leaves it up to the browser to validate the user input. When adding fields to the Form (see the next step) you can only make fields required and set the maximum length as an additional requirement for some fields.
- **JQuery Validation** validates input using JQuery scripts. This allows for stricter requirements per field and a different message for each field to display to the user if the input is not valid. This method ensures a more consistent validation, as it is browser independent. The necessary JQuery files will be added to the JavaScript folder on the Resources pane when this option is chosen.

To change a Form's validation method:

1. **Right-click** on the Form element and choose **Validation settings**.
2. Choose a validation type (see above).
3. Double-click each field in the list to edit their validation settings:
    - **Required**: Check if the field is required to submit the form. If a field is required but contains no data, a message will be shown to the user.
    - **Minimum length**: Enter a numerical value for the minimum character length required for this field.
    - **Maximum length**: Enter a numerical value for the minimum character length accepted for this field.
    - **Equal to**: Use the drop-down to select another field that is already added to the same Form. The contents of both fields must match for the data to be validated. This is useful for confirmation fields such as for passwords, email addresses etc.

    Which of these options are available depends on the validation method of the form: with

Browser validation you can only make a field required and set a maximum length.

Changing a Form's validation in HTML

In HTML, the validation method is stored in the `data-validation-method` attribute of the <form> element, with the value "browser" or "jquery-validation".
A custom message to be shown when validation of a particular Form element has failed, can be stored in the `data-custom-message` attribute of the Form element, for example:
<input id="email1" name="email1" data-custom-message="Enter a valid email address." type="email" required="">

Validation in Connect 1.0.0

In Connect 1.0.0, the validation method of the template was stored using the names "standard" and "custom". Standard has changed to "browser" and custom is now "jquery-validation". When you open a template made with that version of the software, the template will be migrated to use the new attribute values for the `data-validation-method` attribute of the <form> element. The JavaScript file web-form-validation.js will not be migrated: delete that file and then change the Form's validation method to jQuery Validation, as described above. When you click OK, the new version of the web-form-validation.js file will be added.

Submitting a Form

When a form is submitted, by clicking or touching the Submit button, the **name** and **value** of form elements are sent to the address that is specified in the Form's action (see "Adding a Form" on page 462 or "Changing a Form's properties" on page 464). If the `name` attribute is omitted, the data of that input field will not be sent at all.

The Form's validation should ensure that the data that the user submits is valid.

Form Elements

This topic lists the elements that can be added to a form in a Web page or in a Capture OnTheGo template and explains how to add them to a Form, set a default value or change their validation. For more information about Forms, see "Forms" on page 462.

For more information about elements in Forms, see http://www.w3schools.com/html/html_forms.asp.

Fieldset

A fieldset is a group of related elements in a form. The elements don't have to be of the same type. After inserting and selecting the Fieldset (see "Selecting an element" on page 407) you can add elements to it in the same way you add elements to a Form; see "Adding elements to a Form" on page 363.

Text

The Text element is a simple <input> element with the type `text`. It accepts any alphanumerical characters, including special characters. The string is HTML-encoded before it is submitted to the server.

Email

The Email element is a text input field that accepts only email addresses in a valid format.

URL

The URL element is a text input field that accepts only URLs (a web page address) in a valid format.

Password

The Password element is a password field that accepts any alphanumerical characters. When the user types in this field, characters are shown as asterisks only.

Number

The Number element is a text field accepting only numbers.

Date

The Date element is a text field accepting only dates in a valid format.

Text area

The Text area element is a text field accepting multiple paragraphs. You can set a number of rows when adding the Text Area to the Form, and change it on the Attributes pane.

PReS. Connect

Hidden field

A hidden field can contain specific data used by the server-side script. It is not visible to the user. When adding a Hidden Field you can set the value that will be sent on submit.

Label

A Label element is a text displaying informative text within the form. Labels are non-interactive. Note that this type of label is not tied to an input element. At the same time you add an input element, you can add a label to that element; see "Adding elements to a Form" on page 363.
To change a label after inserting the Form, simply click it and start typing.

Checkbox

A Checkbox element sends information to the server whether it is checked (true) or not (false). When adding a Checkbox you can set its initial state and its value. The contents of the value property do not appear in the user interface. If a Checkbox is in checked state when the form is submitted, the `name` of the checkbox is sent along with its value.

If a Checkbox is not checked, no information is sent when the form is submitted. Fortunately, there is a workaround to submit the status of an unchecked checkbox; see "Using Form Elements" on page 363.

Radio Button Group

A Radio Button Group is not an input element itself. Rather it is a group of Radio Buttons that have the same `submit name`, indicating that they belong to the same group. Multiple Radio Buttons in the same group only accept one option to be selected. Only the value of the selected Radio Button will be sent to the server on submitting the form. If more options are to be allowed at the same time you should use Checkboxes instead.
The option to add a Radio Button Group is only available in the Form Wizard; see "Forms" on page 462. You could also create a Radio Button Group by specifying the same submit name for a number of Radio Buttons when adding them to a Form.

Radio Button

A radio button sends information to the server whether it is selected (true) or not (false). When adding a Radio Button you can set its initial state and its value. The contents of the value property do not appear in the user interface. If a Radio Button is in selected state when the form is submitted, the `name` of the Radio Button is sent along with its value.

PReS. Connect

If a Radio Button is not checked, no information is sent when the form is submitted. Fortunately, there is a workaround to submit the status of the unchecked radio button, see "Using Form Elements" on page 363.

The `submit name` of a Radio Button indicates to which Radio Button Group the Radio Button belongs.

Select

A Select element is a drop-down list with multiple entries from which the user can select only one option. When adding a Select to a Form you can type the options to be given in the drop-down list and the values related to them. Only the value of the selected option will be sent to the server on submitting the form.

To learn how to dynamically add options to a Select element, see this how-to: to Dynamically add options to a dropdown.

Button

The Button element is an element that can be clicked. When adding a Button to a Form you can set the button's **type**:

- A **submit** button will validate the form data and if validation is successful, send the data to the provided URL (by the Action specified for the Form; see "Changing a Form's properties" on page 464).
- A **reset** button will reset the form to its original configuration, erasing any information entered and options provided. **Note**: This cannot be undone!

The button's type can also be changed on the Attributes pane.

There may be multiple submit buttons on a Form. If this is the case, specify a different `name` and/or `value` for each of the buttons.

Note: When adding a Button to a Form, you can specify a value, but no name. The Button's ID will be copied to the element's `name` attribute. However, after inserting the Button you can change its `name` on the Attributes pane.

PReS. Connect

Hyperlink and mailto link

Links can be added to any template but they only work in electronic output (web pages, email and PDF files). They can be a regular hyperlink pointing to a web page or a mailto link that will open the default email client when clicked.

HTML element: a

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file. It is possible to edit the source of the HTML file directly in the Designer; see "Editing HTML" on page 405.

The HTML tag of a hyperlink or mailto-link is <a>. This is sometimes called an `anchor` tag. For a list of attributes, see http://www.w3schools.com/tags/tag_a.asp.

Adding a hyperlink or mailto link

1. Select text or an image.

   > **Note**
   >
   > Although it is possible, it is not advisable to add a Hyperlink to other elements, such as a Paragraph or Div. HTML 4 specifies that hyperlinks and mailto-links may only contain inline elements. Block elements, such as a Div, may not appear inside a link. HTML 5 states that the link "may be wrapped around entire paragraphs, lists, tables, and so forth, even entire sections, so long as there is no interactive content within (e.g. buttons or other links)"; see https://www.w3.org/TR/html5/text-level-semantics.html.

2. Click the **Insert hyperlink** button on the toolbar, or on the menu, select **Format > Hyperlink > Insert**.
3. Select URL to create a regular hyperlink pointing to a web page, or select Email to create a mailto-link that will open the default email client when clicked.
4. For a **URL**:
   - **URL**: enter a valid, well-formed URL to link to. It must start with the protocol, such as http:// or https://.

PReS. Connect

- **Target**: use the drop-down or type in the target for the link.When the target is `_blank` the link will open in a new browser window or tab.

For a **mailto link**:

- **Email**: enter a valid email address that appears by default in the To: field of the email client.
- **Subject**: type a default subject that appears in the Subject: field of the email client.
- **Message**: type a message that appears by default in the Message field of the email client.

Note that all these can be changed within the email client once the link is clicked.

Dynamically inserting or modifying a hyperlink

You may wish to adjust a hyperlink depending on a value in a record that is merged to the template when generating output, for example, to provide a different mailto link for different customers.

How to add or modify a hyperlink is described in a how-to; see How to dynamically insert a hyperlink. This implies writing a script. For information about scripts, see "Writing your own scripts" on page 548.

Adding a personalized link

Personalized URLs (pURLs) are links that are tailor-made for a specific purpose, generally for individual clients. Typically, a pURL in a Connect template takes the user to a personalized landing page, for example, to download an invoice or get access to specific products or services. For more information, see "Personalized URL" on page 547.

Images

Images are a powerful ingredient in all of your templates. This topic explains how to add and use them. Supported image formats are: **BMP**, **PNG**, **GIF**, **JPG/JPEG**, **TIF/TIFF**, **PDF**, **EPS** and **SVG**.

Ways to use images

In templates, both **imported** images and **external** images can be used (see "Adding images" on page 473 and "Resources" on page 287). Once added to the content of a template, an image can be resized (see Resizing an image) and alternate text can be linked to it (see "Setting an alternate text" on page 475).

Tip

Using images in an Email template? See "Using images in email campaigns: tips" on page 330.

Dynamic images

Images can be switched dynamically, so that a letter, email or web page can include one image or another, depending on a value in the data set. Read "Dynamic Images" on page 541 to find out how to add such switching images.

Background images

Several parts of templates, such as sections and media, and elements such as positioned boxes, can have a background image. Right-click the element and click the **Background** tab to select an image to be used as the element's background image. See "Background color and/or image" on page 506 and "Using a PDF file as background image" on page 307.

Tip

Editing PDF files in the Designer is not possible, but when they're used as a section's background, you can add text and other elements, such as a barcode, to them. To create a new Print template from a PDF file, use the PDF-based Print template (see "Creating a Print template with a Wizard" on page 296). To use a PDF file as background image for an existing section, see "Using a PDF file as background image" on page 307.

Filling optional whitespace

Conditional content and dynamic tables, when used in a Print section, may or may not leave an empty space at the bottom of the last page. To fill that space, if there is any, an image or advert can be used as a 'whitespace element'; see "Whitespace elements: using optional space at the end of the last page" on page 312.

HTML tag: img

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file. It is possible to edit the source of the HTML file directly in the Designer; see "Editing HTML" on page 405.

In the section's source file, images are <img> elements. The <img> tag has at least four attributes: `src`, `alt`, `width` and `height`. `src` specifies the URL of the image. `alt` contains the alternate text; see "Setting an alternate text" on page 475.

The value of the attributes can be changed via a script; see "Attributes" on page 405.

Adding images

Imported or external images

In templates, both **imported** images and **external** images can be used.

Imported images are images that are saved within the template file. To import images into a template and add them to the content, you can use the drag-and-drop method or the Select Image dialog (both are explained below).

External images are either located on a specific website (URL), or in a folder on a hard drive that is accessible from your computer. Note that external images need to be available at the time the template is merged with a record set to generate output, and that their location should be accessible from the machine on which the template's output is produced. External images are updated (retrieved) when the output is generated. External images can not be added via the drag-and-drop method. Use the Select Image dialog instead (see below).

For information about referring to images in HTML or in a script, see "Resources" on page 287.

Via drag-and-drop

The drag-and-drop method is a quick way to import one or more images into a template.

1. Look up the image file or image files on your computer using the Windows Explorer.
2. Select the image (or images, using Shift+click or Ctrl+click) and drag the image file from the Explorer to the **Images** folder on the **Resources** pane at the top left.
3. To place an image in the content, drag it from the **Images** folder on the **Resources** pane to the content and drop it. The image will be inserted in the template at the position of the cursor.

PReS. Connect

Via the Select Image dialog

To either import an image into a template or use an external image in a template, the Select Image dialog can be used:

1. Position the cursor in the content where you want the image to be inserted.
2. On the **Insert** menu, click **Image**. Or, click the **Insert Image** button on the toolbar. The Select Image dialog appears.
3. Click **Resources**, **Disk** or **Url**, depending on where the image is located.
    - **Resources** lists the images that are present in the **Images** folder on the **Resources** pane.
    - **Disk** lists image files that reside in a folder on a hard drive that is accessible from your computer. Click the **Browse** button to select a folder (or an image in a folder). As an alternative it is possible to enter the path manually. The complete syntax is: file://<host>/<path>. Note: if the host is "localhost", it can be omitted, resulting in file:///<path>, for example: file:///c:/resources/images/image.jpg.
    - **Url** lists image files from a specific web address. Select the protocol (**http** or **https**), and then enter a web address (for example, http://www.mysite.com/images/image.jpg).
4. With an external image, you can check the option **Save with template**. If this option is checked, the file will be inserted in the **Images** folder on the **Resources** pane at the top left.
   If not saved with the template, the image will remain external. Note that external images need to be available when the template is merged with a record set to generate output, and that their location should be accessible from the machine on which the template's output is produced. External images are updated (retrieved) at the time the output is generated.
5. Select the image from the list.
6. If the image is a PDF file that consists of more than one page, select the desired page.
7. Click **Finish**. The image will be inserted at the position of the cursor.

Using one file that contains a collection of images

When a template that contains lots of images is merged with a large record set, the many file requests may slow down the process of output generation. The solution is simple: combine the images into a single image file and display the part that holds the image. This reduces the number of file requests and can improve the output speed significantly.

For an explanation of how to do this, see "Optimizing a template" on page 858.

Styling an image

Images can be resized using the handles on the sides and the corners, or via the Image Formatting dialog, which opens when you right-click the image and select **Image...**, or select the **Format > Image** menu item.
Images can be styled using the same dialog, or through the CSS files; see "Styling templates with CSS files" on page 486.

A number of issues related to image styling are discussed in a separate topic: Styling an image.

Just like many other elements, images can be given borders and rounded corners, they can have inner and outer margins and they can be rotated. How to do this is described in general formatting topics, such as "Border" on page 508 and "Spacing" on page 517. All general formatting topics are listed under "Styling and formatting" on page 484.

Setting an alternate text

Once an image has been inserted in the content of a template, it can have an alternate text. The alternate text will be shown in emails and on web pages at the position of the image while the image is loading and when the image is not found. On web pages, alternate texts are also used for accessibility.

To set an alternative text, click the image and enter the alternate text in the **Alternate text** field on the **Attributes** pane at the top right.

Using a CSS gradient to create an image

CSS gradients are a new type of image added in the CSS3 Image Module. CSS gradients let you display smooth transitions between two or more specified colors, while repeating gradients let you display patterns. This way, using images for these effects can be avoided, thereby reducing download time and bandwidth usage. In addition, objects with gradients look better when zoomed in a browser, and you can adjust your layout with much more flexibility.

For more information about the various types of CSS gradients and how to use them, see https://developer.mozilla.org/docs/Web/CSS/CSS_Images/Using_CSS_gradients.

PReS. Connect

Note

When CSS repeating gradients are displayed in a PDF reader, artifacts, like very thin lines may occur. When this happens, try setting the gradient's position a little bit different.

Table

Tables serve two different purposes: they are a way to display data in a tabular format, and they are also a way to position elements on a page.
In HTML email, Tables are the most reliable way to position text and images; see "Designing an Email template" on page 327. In web pages, on the other hand, Inline Boxes are the preferred way to position elements. Tables should only be used to display data in a tabular format, not to position text and images. Tables used in web pages to position elements make those pages less accessible to users with disabilities and to viewers using smaller devices.
In print, Tables can be used for both purposes.

There are two types of tables: standard tables which are static in nature, and Dynamic Tables which have a variable number of rows depending on a detail table in the record; see "Dynamic table" on page 543.

HTML element: table

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file. It is possible to edit the source of the HTML file directly in the Designer; see "Editing HTML" on page 405.

The HTML tag of a Table is <table>. Tables are divided into table rows with the <tr> tag. Table rows are divided into table data with the <td> tag. A table row can also be divided into table headings with the <th> tag.

The tags <thead>, <tbody> and <tfoot> can be used to group the header, body, or footer content in a table, respectively.

For information about HTML tables and a list of attributes, see http://www.w3schools.com/html/html_tables.asp.

PReS. Connect

Inserting a Table

1. On the toolbar, click the **Insert table** button, or on the menu select **Insert > Table > Standard**.
2. Enter the table's desired attributes:
    - **ID**: a unique identifier for the table. IDs are used to access the Table from scripts and as CSS selectors for style rules.
    - **Class**: A class identifier for the table. Classes can be shared between elements and are used to access the table from scripts and as CSS selectors for style rules.
    - The number of **rows** for the header, body and footer of the table.
    - The number of **columns**
    - The **width** of the table.
3. Check the option **Absolute** to give the Table an absolute position or use the **Location** drop-down to select where to insert the table:
    - **At cursor position** inserts it where the cursor is located in the template.
    - **Before element** inserts it before the HTML element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be before the tag.*
    - **After start tag** inserts it within the current HTML element, at the beginning, just after the start tag.*
    - **Before end tag** inserts it within the current HTML element, at the end, just before the end tag.*
    - **After element** inserts it after the element in which the cursor is currently located. For example if the cursor is within a paragraph, the insertion point will be after the end tag of the paragraph ( ).*

    * If the current element is located inside another element, use the **Elements** drop-down to select which element is used for the insertion location. The list displays every element in the breadcrumbs, from the current selection point until the root of the body.

PReS. Connect

> **Note**
>
> Tables on a Master Page have to have an absolute position, unless they are located inside another element with an absolute position.

4. Click **Next** and select which fields should show up in the Dynamic Table.
   The order of the fields indicates in which order columns are displayed in the dynamic table, from left to right. Select a line and then use the **Up** and **Down** buttons to change the order of the columns.
   You could change the placeholder for each data field as well; just click a placeholder to edit it.
5. Click **Next** and use the drop-down to select the desired table style.
6. Uncheck the box **Resizable columns** if the columns should not be resizable from the Design and Preview modes in the workspace. This is useful if the column size is determined in the Source mode or in a style sheet.
7. Click **Finish** to add the table to the section.

Header and footer

Adding a header or footer

To add a header or footer to an existing table, right-click the table and then select **Table > Insert thead** or **Insert tfoot**, on the shortcut menu.

Alternatively, click in one of the cells and select **Insert > Table > Insert thead** or **Insert tfoot**, on the menu.

Deleting a header or footer

To delete a header or footer, simply right-click the header or footer and select **Row > Delete** on the shortcut menu.
If the deleted element was targeted by a script, you will be asked if you want to delete the script as well.

Rows and columns

Adding a row or column

To add a row or column to an existing table, click in a cell. Then click the black triangle next to the **Insert Row Above** button on the toolbar, and click one of the **Insert** buttons, or select one of the options in the **Insert > Table Elements** menu.

Alternatively, right-click the table and on the shortcut menu, select **Row > Insert Above** or **Insert Below**, or select **Column > Insert Before** or **Insert After**.

Deleting a row or column

To delete a row or column, simply right-click the row or column and select **Row > Delete** or **Column > Delete** on the shortcut menu. If the deleted row was targeted by a script, you will be asked if you want to delete the script as well.

Styling a Table

Tables can be styled using the **Format > Table** menu item, while individual selected cells can be styled using the **Format > Table Cell** menu item.

Resizing and moving a Table

Before you can resize or move a Table:

- Make sure that the position of the Table is absolute. If it's not, right-click the Table and on the shortcut menu, select **Convert to absolute**. (This option isn't available for Tables on a Master Page, as they must always have an absolute position, or be located inside another element with an absolute position.)
- Select the Table (see "Selecting an element" on page 407) and then, on the **Attributes** pane, check the option **Allow resizing**.

Resizing a Table

- Click in the table and drag the handles to resize it. Press the **Shift** key while dragging, to scale the table proportionally.
- Select the Table (see "Selecting an element" on page 407) and type the desired width and height in the respective fields on the **Attributes** pane.

- Select the Table and select **Format > Table**, on the menu. On the **Table** tab, change the **width** and **height** of the Table.

Moving a Table

- Click in the table and then drag the border to move the Table.
- Select the Table (see "Selecting an element" on page 407) and type the desired Y-offset and X-offset in the respective fields on the **Attributes** pane.
- Select the Table and select **Format > Table**, on the menu. On the **Table** tab, change the **Y-offset** and **X-offset** of the image.

Hiding the border

When using a Table to position other elements, you will want to hide the borders of the table. To do this, set the width of the border to 0; see "Border" on page 508.

Text and special characters

The vast majority of templates for personalized customer communications contain, of course, text. While the most common text element is a <p> or paragraph, other elements such as Headings (<h1> through <h6>) are also considered text elements. Text elements can be present within other types of elements such as table cells (<td>), boxes ( ), etc.

Adding text

To add text, simply type in the workspace in the middle.

- Press **Enter** to insert a new paragraph.
- Press **Shift+Enter** to insert a line break.

Alternatively, copy-paste text into a template, or use the **Insert Lorem Ipsum** toolbar button to insert dummy text.

Text that precedes or follows the value of a **data field** can be added by the Text Script Wizard; see "Using the Text Script Wizard" on page 533.

Note: it is not possible to open a Word file in the Designer. When you copy text from a Word document, however, basic style characteristics travel with the content to PReS

ConnectDesigner. Formatting options like bold, italic and formats like Heading 1, Heading 2 are maintained.

Extra spaces

In HTML, extra spaces are generally removed. In Designer templates this is the same, because they are HTML files. In some cases however, you want extra spaces to be shown in your output. Read this how-to to learn how to maintain extra spaces in the text: Maintain extra spaces in text.

Adding special characters

To add special characters:

1. Position the cursor where the character should be inserted.
2. On the **Insert** menu, point to **Special Characters** click **Symbols**, **Dashes and Spaces**, **Arrows**, or **Geometric Shapes**, and click one of the available special characters.

Adding page numbers

Page numbers can only be used in the Print context. See "Page numbers " on page 313.

HTML element: p, h, li and others

When adding elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file; see "Editing HTML" on page 405.

In HTML text can be contained in many different elements: paragraphs, span elements, line items and table cells, for example.

The HTML tag of a paragraph is . The paragraph should be followed by a closing tag: .

A line break looks like this in HTML: <br>.

Formatting text

Text can be styled, colored, centered, indented etc. It can even be displayed so that it reads from right to left. See "Styling text and paragraphs" on page 494.

In all templates you can use the fonts that are provided with the Designer, as well as imported fonts; see "Fonts" on page 514.

Snippets

A snippet is a small, ready-to-use piece of content in a file. Snippets can be re-used within the same template, in all contexts and sections. They can contain any contents that a section can have, such as text, images, variable data, dynamic tables, etc.
Normally, a snippet is an HTML file, but it can also be a JSON file.

When a snippet is added to different sections or contexts, it is displayed according to the section's or context's style sheet. This means that the same content can look different depending on the styles applied to the section or context, without changing the content.

> **Tip**
>
> It is possible to open and edit any HTML or JSON file in the Designer: select **File > Open**, select **All files (*.*)** as the file type and then select a HTML or JSON file.

Adding a snippet to the Resources

Before adding a snippet:

- Import the resource files that are related to the snippet, such as image files and CSS files, into the template file. Drag and drop the files to the corresponding folders (**Images** and **Stylesheets**, respectively) on the **Resources** pane. If you want to use external images, see "Images" on page 471.
- Drag the snippet itself to the **Snippets** folder on the **Resources** pane, or create a new snippet from an existing piece of content in the template (see "Creating a snippet" on page 484).

Remote snippets

A remote snippet is an HTML file that is not located within your template file but is hosted on a Content Management System or other location.

To add a remote snippet:

PReS. Connect

1. Right-click the **Snippets** folder on the **Resources** pane, and click **New Remote Snippet**.
2. Enter a name for the file as it appears in the Snippets folder. This name is shown in the Snippets folder with the **.rhtml** file extension.
3. Enter the URL for the remote resource. This must be a full URL, including the http:// or https:// prefix, domain name, path and file name.

> **Note**
>
> Remote snippets may contain other resources, such as images. There is one limitation though: only **absolute** paths are supported inside remote snippets. Images and other resources referred to with a relative path (for example: images/img.gif) or root-relative path (any path starting with a slash, for example: /base/images/img.gif) won't be available in the template.

Adding a snippet to a section

Drag-and-drop

To add the snippet to the content of a section, drag the snippet from the **Snippets** folder on the **Resources** pane to the desired location in a section.
Check the option **Insert as shared content** to insert a **reference** to the original snippet in the template, rather than a **copy** of the original snippet.
When a snippet is being used as shared content, the contents of the snippet itself are not added to the page. Modifying the snippet on the page actually modifies the snippet's source. If a snippet is used in multiple locations (such as different contexts and sections), modifying one instance will modify all of them at once.

> **Note**
>
> Remote snippets inserted as shared content cannot be changed from within the Designer. Of course, their source file can be edited outside of the Designer. When that happens, the changes will become visible in remote snippets that are inserted as shared content.

Via a script

In addition to the drag-and-drop method, it is possible, and often useful, to insert a snippet or part of it, using a **script**; for remote snippets this is normal practice. See "Loading a snippet via a script" on page 564.

Tip

To **export** a snippet from your template, drag or copy/paste it out of the Snippets folder to a folder on the local hard drive.

Creating a snippet

To turn a parts of a letter, email or web page into a snippet for reuse in the content of a template:

1. Select the part that should be saved in a snippet.
2. Right-click the selection, point to **Snippet** and click **Create**.
3. Right-click the new snippet on the **Resources** pane in the **Snippets** folder and rename it.

JSON Snippets

JSON Snippets are snippets that contain pieces of JSON data instead of HTML. Just like HTML snippets, JSON snippets are stored in the **Snippets** folder on the **Resources** pane, but their file name should end in '.json'.

JSON Snippets cannot be inserted into the content directly, but they can be accessed via a script using the function **loadjson()**:

```
var json_data = loadjson("snippets/snippet.json");
results.html(json_data.field1);
```

See also: "Writing your own scripts" on page 548.

Styling and formatting

In the Designer you have everything at hand to make your templates look good: colors, fonts and all the tools to position, align and embellish elements in your designs. This topic informs about the ways to style a template.

Local formatting versus style sheets

There are in general two ways to style elements:

PReS. Connect

- Using **local formatting**. Local formatting means styling an element directly, using a toolbar button or one of the formatting dialogs.
- Using **Cascading Style Sheets** (CSS). Style sheets can determine the appearance of individual elements, as well as the appearance of elements that have the same class or HTML tag.

Whether applied through style sheets or through local formatting, behind the scenes all layout properties in the Designer are CSS properties. When you format an element locally, an **inline** style rule is added to the element.

Note that where local formatting conflicts with a formatting rule for the same element in one of the style sheets, the local formatting rule gets priority; the rule in the style sheet will be ignored.

It is highly recommended to use style sheets in templates right from the start. Even more so if the communications are going to be output to different output channels, or if they consist of different sections (for example, a covering letter followed by a policy). Using CSS with templates allows a consistent look and feel to be applied. A style sheet can change the look of multiple elements, making it unnecessary to format each and every element in the template, time and again, when the company's layout preferences change. See "Styling templates with CSS files" on the facing page.

Layout properties

Colors and fonts make an important contribution to the look and feel of your template. See "Colors" on page 510 and "Fonts" on page 514.

Text and paragraphs have a number of formatting options that are not available for other elements: font styles and line height, for example. See "Styling text and paragraphs" on page 494.

Boxes and a number of other elements can have a background color and/or background image; see "Background color and/or image" on page 506.

Several elements, such as boxes, images, paragraphs, and tables, can have a border; see "Border" on page 508.

Boxes, images, tables, text and other elements can be rotated; see "Rotating elements" on page 501.

Spacing (padding and margin) helps to position elements relative to other elements in the template; see "Spacing" on page 517.

The best way to position elements depends on the output channel for which the template is intended; see "How to position elements" on page 498.

The locale setting influences how dates, numbers and amounts of money are displayed; see "Locale" on page 516.

Styling templates with CSS files

The Layout toolbar and the Format menu offer many possibilities to style every piece of a template. However, styling every single element, one after another, is a lot of work and, more importantly, can result in a template with a messy mix of styles that isn't easy to maintain and lacks consistent design. Therefore the preferred way to style templates is with CSS: Cascading Style Sheets.

The basic idea behind CSS is to separate the structure and contents of a (HTML) document as much as possible from the presentation of that document.

Cascading Style Sheets were originally designed for use with web pages, or HTML files. Since every template in the Designer is constructed in HTML, CSS files can also be used in the Designer.
Instead of setting the font size, line height, color etc. for each and every paragraph in the template itself, you can define a layout for all paragraphs, and for all output channels, in a CSS file.

The benefit of this is that you can quickly and easily change the look and feel of all contexts in one template, without having to change the contents. In the event that your company chooses to use another font or to adjust its corporate colors, you only have to change the style sheets.

You are writing HTML

When you add elements, such as text, images or a table, to the content of a template, you are actually constructing an HTML file.

To see this, toggle to the **Design** tab in the workspace. Click anywhere in the content. Take a look at the *breadcrumbs* at the top of the workspace. The breadcrumbs show the HTML tag of

PReS. Connect

the clicked element, as well as the HTML tags of other elements to which the clicked element belongs. The clicked element is at the end of the line.

To edit the HTML text directly:

- In the workspace, toggle to the **Source** tab.

On this tab you can view and edit the content of the template in the form of plain text with HTML tags (note the angle brackets: <>). You may add and edit the text and the HTML tags, classes, ID's and other attributes.

To learn more about HTML, see for example https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/Introduction and http://www.w3schools.com/html/default.asp.

Many video courses and hands-on courses about HTML (and CSS) are offered on the Internet as well, some for free. Go, for example, to www.codeschool.com or www.codeacademy.com and look for HTML (and CSS) courses.

Included Cascading Style Sheets

When you create a template, a number of style sheets is automatically included:

- One style sheet that applies to all document types: context_all_styles.css.
- One or more style sheets specific to the context (Print, Email, Web). For example, when you create an action email using the Wizard, the files context_htmlemail_styles.ccs and basic_email_action.css are automatically added to the **Stylesheets** folder on the **Resources** pane.
- A style sheet that defines default styles for tables: default.css. It contains the styles that you can choose from when you insert a table via the **Insert** menu or the **Insert table** toolbar button.

> **Note**
>
> Do not change the default.css style sheet. Use the global style sheet or the style sheet for the relevant context to define your own styles for tables.

Adding CSS files

To add a CSS file of your own, open an Explorer window, **drag** the file to the **Resources** pane and drop it on the **Stylesheets** folder.

To create a new CSS file, right-click the **Stylesheet** folder on the **Resources** pane and select **New Stylesheet**.

> **Note**
>
> The order in which style sheets are executed, can affect the actual output. This sequence can be set per section; see "Determining the order in which style sheets are read" on page 493.

> **Tip**
>
> - To export a CSS file from your template, drag or copy/paste it out of the Stylesheets folder to a folder on the local hard drive.
> - It is possible to open and edit any CSS file in the Designer: select **File > Open**, select **All files (*.*)** as the file type and then select a CSS file.

Using a remote style sheet

A remote style sheet is not located within your template but is rather hosted on an external web server (generally called a **CDN**). When generating Web output, these files are referenced in the web page's header and are served by the remote server, not by the PReS Connect Server module.

To add a remote style sheet:

1. Right-click the **Stylesheet** folder on the **Resources** pane, and click **New Remote Stylesheet**.
2. Enter a name for the file as it appears in the Stylesheet resources. For better management, it's best to use the same filename as the remote resource.
3. Enter the **URL** for the remote resource. This must be a full URL, including the http:// or https:// prefix, domain name, path and filename.

4. Optionally, for a Capture OnTheGo Form, you can check **Use cached Capture OnTheGo resource**, to prevent downloading a remote style sheet again if it has been downloaded before. The file should be available on a publicly accessible location, for example: a folder location on a corporate website, hosted by a CDN (Content Delivery Network) or shared via a Workflow process.

There are a few advantages to remote resources:

- These resources are not served by your server, saving on space, bandwidth and processing.
- Using a popular CDN takes advantage of caching - a client having visited another website using that same CDN will have the file in cache and not re-download it making for faster load times for the client.

Styling your templates with CSS files

> **Note**
>
> Email clients do not read CSS files and some even remove a <style> tag when it is present in the email's header. Nevertheless, CSS files can be used with the Email context in the Designer. When generating output from the Email context, the Designer converts all CSS rules that apply to the content of the email to inline style tags, as if local formatting was applied.

Step 1: edit CSS

Editing CSS using a property sheet

1. Select **Edit > Stylesheets**.
2. Click the downward pointing arrow next to **Global** and select the context that you want to edit styles for, or select the Global CSS file to edit CSS rules that apply to all contexts.
3. Click **New**, or click one of the selectors that are already listed and click **Edit**.
4. Type a CSS selector. This can be:
    - A class: `.class`. Class rules apply to all HTML elements with that class. When you create a class, choose a name that indicates what the class is used for, e.g. ‘small’ for a class that gives elements the font size ‘small’. The class name has to be preceded by a dot, e.g. `.small`.

- An ID: `#id`. An ID is always preceded by #, e.g. `#sender`. When you create an ID, choose a name that indicates what the ID is used for, e.g. #sender would refer to the HTML element with information about the sender.

  > **Note**
  >
  > Each ID should be unique and can only be used once in each section.

- An HTML element: p, h1, table, etc. Type the tag name without the angle brackets.
- A combination of HTML elements, separated by a comma. The CSS rule will apply to all HTML elements that are listed in the selector. For instance, a CSS rule with the selector “h1, p” applies to first level headings as well as paragraphs.
- HTML elements inside other HTML elements. For instance, a rule for all paragraphs inside a div element has the selector: div p.
- Etcetera. See http://www.w3schools.com/cssref/css_selectors.asp for more CSS selectors and combinations of CSS selectors.

5. Select the layout options that should apply to selected elements; see "Styling and formatting" on page 484. Note: where a width can be set as a percentage, it is a percentage of the space between the margins.
6. Click **OK**.
7. In the Stylesheets dialog, click the selector that you chose. All CSS rules for that selector will become visible in a box below the list of selectors.

Edit plain CSS

- Click the button **Advanced** in any property sheet to open a CSS property editor. Type CSS properties at the left and values at the right.
- In the **Resources** pane at the left, double-click the global stylesheet or the stylesheet for the relevant context. The file opens in the workspace in the middle.

A list of all CSS properties and their possible values can be found here: http://www.w3schools.com/cssref/.

PReS. Connect

Step 2: apply CSS to the content

After editing the CSS file(s), make sure that the CSS rules actually apply to one or more elements in the template.

CSS rules for HTML elements, such as paragraphs, are automatically applied to all elements with the corresponding HTML tag.

To make a CSS rule for a certain class or ID work for an element in your document, you have to add the class or ID to that HTML element.

> **Note**
>
> Classes may be reused throughout one section, but a specific ID should not be used more than once in each section. CSS layout rules for an element with a certain ID only apply to the first element with that ID in each section. If you have two sections inside of a Print context, then you can have the same ID on two sections; t hey will both be affected by the CSS rules for the element with that ID.

Adding a class or ID to an HTML element

1. Select the element (see "Selecting an element" on page 407).
2. On the **Attributes** pane, type the **ID** and/or **class**. Type the ID **without** the preceding # and class names **without** a dot.

> **Note**
>
> Note: Elements can have multiple classes. Separate the class names with a space (eg. “red small”).

Alternatively, after selecting an element, you can click the **Source** tab at the bottom of the workspace. The selected element will be highlighted in the source. Add the class or classes and/or the ID to the opening tag of the HTML element, for example: `<p class=”intro”>`.

PReS. Connect

How to determine which styles are applied

To see which styles are applied to an element, select the element (see "Selecting an element" on page 407) and take a look at the Styles pane that sits next to the Attributes pane.

The Styles pane shows which CSS style rules apply to the currently selected element.
A link next to a style rule will open the file where that particular style is defined. This can be either a CSS file or the source file of a section if local formatting was used (see "Styling and formatting" on page 484).

A crossed-out style rule signals that it was overruled by another style rule. This happens when:

- A more specific, and therefore more important rule, is encountered for the same element. See "Using a more specific CSS rule" below to learn more about the specificity of style rules.
- A rule with the same importance is read after the first rule. Not only is the order of the rules in a CSS file important, but also the order in which the style sheets are read. The style sheets that are included with a section are read in the specified order; see "Determining the order in which style sheets are read" on the next page.

Using a more specific CSS rule

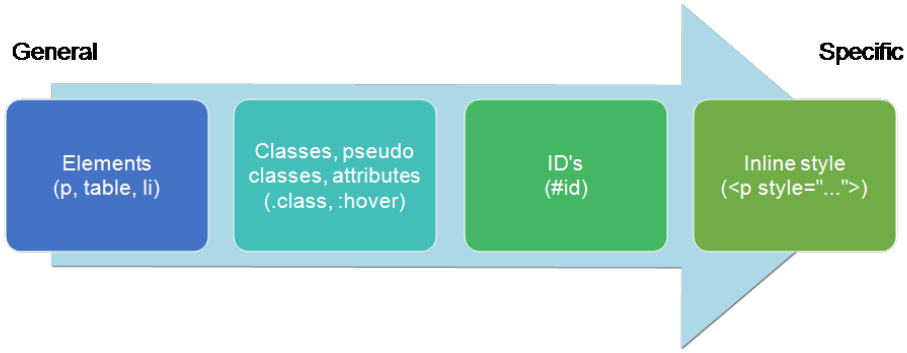
By default, many CSS properties of an HTML element also apply to the elements inside that element. For example, a CSS rule that specifies a certain font-type for a box is also applied to paragraphs in that box. In this example the box is the 'parent' element and the paragraphs are the 'child' elements that inherit the font-type property of the box.

> **Note**
>
> Although the background color property seems to be inherited, it isn't. Most elements are transparent; therefore the background color of the parent element shines through.

To replace inherited style properties, you need to add a more specific CSS rule for that (type of) element. In case of a conflict between a general rule and a more specific rule, the more specific rule will be applied.

The following diagram shows the order of specificity.

PReS. Connect



Rules for HTML elements (p, table, li etc.) are general rules. Rules for classes, pseudo classes, and elements with a certain attribute (.class, :hover, [target]) are more specific. Rules for elements with a certain ID are even more specific. The most specific are inline styles.

Example

A more specific rule for cells in a table that has the CSS property “color: red” (which colors text in the cells red) could be, for example:

- A rule for the text color of all table cells (td elements), for example:`td { color: green; }`.
- A rule for the text color of table cells with a certain class, for example `.green { color: green; }`
- A rule for the text color of a table cell with a certain ID, for example:`#greentext { color: green; }`
- An inline style rule (local formatting) added to the HTML tag of a particular table cell, for example:<td style="color: green;">...</td>

Each of these rules is more specific than the previous rules. All of these rules are more specific than the rule that applies to the table as a whole.

Determining the order in which style sheets are read

For each section, the style sheets are applied in a certain order. The styles in each following style sheet add up to the styles found in previously read style sheets. When style sheets have a conflicting rule for the same element, class or ID, the last style sheet ‘wins’ and overrides the rule found in the previous style sheet.

The order in which style sheets are applied, can be changed per section in any context, and for the Web context as a whole:

PReS. Connect

1. On the **Resources** pane, expand the **Contexts** folder, expand the folder of the corresponding context and then right-click the section (or right-click the Web context).
2. Click the tab **Includes**.
3. From the **File types** dropdown, select **Stylesheets**.
4. The list at the left displays the style sheets that are present in the template's resources. The list at the right shows the style sheets that will be included in the output of the current section (or Web sections, if you have selected the Web context). Use the **Include** and **Exclude** buttons to move files from one list to the other.
5. Click one of the included CSS files and use the **Up** and **Down** buttons to change the order in which the style sheets are read.
   Note: Moving a style sheet up in the list gives it **less** weight, because style sheets read later will override previous ones in case of conflicting rules.

Styling text and paragraphs

There are numerous ways to format text in a template. You can apply a certain font, make text bold, transform it to uppercase, center it, color it, etc.

This topic explains how to apply local formatting to text. It is recommended though, to format text using style sheets; see "Styling and formatting" on page 484 and "Styling templates with CSS files" on page 486.

Formatting text and paragraphs locally

An intuitive way of formatting text locally is by using the toolbar buttons: select some text, or an element that contains text (see: "Selecting an element" on page 407) and click one of the toolbar buttons to make it bold, center it, create a numbered or bulleted list, etc.

To quickly change a paragraph into a Heading, Address or Pre element, select the paragraph (see: "Selecting an element" on page 407) and on the **Format** menu, select the appropriate element.

More local formatting options are available in the Formatting dialogs; see below.

Formatting text

To open the Text Formatting dialog, select some text and then select **Format > Text**. In the Text Formatting dialog you can set:

- The font, font size, color and background color:
  - **Font**: see also: "Fonts" on page 514. This is equivalent to setting the `font-family` property in CSS.
  - **Font size**. Enter the size in a measure, named size or percentage. This is equivalent to setting the `font-size` property in CSS.
  - **Color**: this the color of the text. Select a named font color as defined in the Edit Colors dialog (see "Colors" on page 510) or click the colored square to create a new color or to enter a color manually. The color value must be a valid HTML color name or hexadecimal color code. This setting is equivalent to the `color` property in CSS.
  - **Background color**: this is the background color of the text. Select a named font color as defined in the Edit Colors dialog (see "Colors" on page 510) or click the colored square to create a new color or to enter a color value manually. a valid HTML color name or hexadecimal color code. This setting is equivalent to the `background-color` property in CSS.
- The spacing between letters and words and the way the text is wrapped:
  - **Letter Spacing**: The space between characters in a text in measure or percentage. This is equivalent to the letter-spacing property in CSS.
  - **Word Spacing**: Set the space between each word in a text in measure or percentage. This is equivalent to the `word-spacing` property in CSS.
  - **Whitespace**: Specify how the text wraps. See CSS White-Space for details. This is equivalent to the `white-space` property in CSS.
- The style of the text:
  - **Bold**: Sets the `font-weight` to `700`.
  - **Italic**: Sets the `font-style` to `italic`.
  - **Underline**: Sets the `text-decoration` to `underline`.
  - **Strikethrough**: Sets the `text-decoration` to `line-through`.
  - **Subscript**: Sets the `vertical-align` to `super`.
  - **Superscript**: Sets the `vertical-align` to `sub`.
  - **Capitalize**: Sets the `text-transform` to `capitalize`.
  - **Uppercase**: Sets the`text-transform` to `uppercase`.

PReS. Connect

- **Lowercase**: Sets the`text-transform` to `lowercase`.
- **Small-caps**: Sets the `font-variant` to `small-caps`.

> **Note**
>
> All settings in the Text Formatting dialog are in fact CSS style rules. When you change one or more settings, the selected text gets wrapped in a Span element that has an **inline** style tag containing the selected setting(s). Click the **Advanced** button to add CSS properties and values to the inline style tag of the Span directly. For more information about CSS, see "Styling and formatting" on page 484.

Formatting a paragraph

Through the Paragraph Formatting dialog you can set the line height and first indent, among other things. It also lets you add spacing and a border; see "Spacing" on page 517 and "Border" on page 508.

To open the Paragraph Formatting dialog, select a paragraph (see: "Selecting an element" on page 407) or place the cursor in a paragraph, and then select **Format > Text**.

On the **Formats** tab you can set:

- **Line-height**: Specify the height of each line in the paragraph's text, in a measure or percentage. Note that this is not the spacing between lines, but rather the complete height of the line itself including the text. This is equivalent to the `line-height` property in CSS.
- **Align**: Select how text should be aligned, such as left, center, right or justify. Equivalent to the `align` property in CSS.
- **First Indent**: Specify the indentation of the first line of the paragraph. Equivalent to the `text-indent` property in CSS.
- **Display**: Select how to display the element. This can also be used to hide an element completely using the none option. See CSS Display. Equivalent to the `display` property in CSS.
- **Direction**: Select in which direction text should be displayed (left to right, right to left, or auto). Useful for certain languages such as Arabic, Hebrew, etc. This is equivalent to the `dir` HTML attribute.

PReS. Connect

- **(Page) breaks**: these settings are only useful in Print sections, as only Print sections have pages.
  - **Before**: Sets whether a page break should occur **before** the paragraph. This is equivalent to the `page-break-before` property in CSS; see CSS page-break-before property for an explanation of the available options.
  - **Inside**: Sets whether a page break is allowed inside the paragraph. Equivalent to the `page-break-inside` property in CSS; see CSS page-break-inside property for an explanation of the available options.
  - **After**: Sets whether a page break should occur **after** the paragraph. Equivalent to the page-break-after property in CSS; see CSS page-break-after property for an explanation of the available options.
  - **Widows** and **orphans**: Keeps lines of text together; see "Preventing widows and orphans" on page 315 for an explanation.

> **Note**
>
> For more information on page breaks, widows and orphans, see the W3 Paged Media reference.

Click the **Advanced** button to add CSS properties and values to the inline style tag directly.

Remove local formatting from text

Layout buttons and options on the Format menu add **inline** style tags to the text. Style tags can look like this: **...** or like this: **<p style= "color: red;" >**.

Inline style tags have priority over styles defined in a CSS file. For example, when a formatting rule in a style sheet colors all paragraphs green, a paragraph with an inline style tag to color it red would still stay red. So, when a rule in a style sheet doesn't seem to work, an inline style tag can be the culprit. In that case you might want to remove the local formatting.

To remove local formatting:

- Select the formatted text and click the toolbar button **Remove Formatting**. Doing this removes inline style tags from the selection.

- Alternatively, click the **Source** tab at the bottom of the workspace (or select **View > Source View**) to manually remove style tags.

> **Tip**
>
> When you select an element in the template, the **Styles** pane will show which styles are applied to that element. The link behind the style will take you to the place (the Source tab, or a CSS file) where that style is defined.

How to position elements

To position elements in relation to each other in a template, wrap those elements in a Table or Box (see "Table" on page 476 and "Boxes" on page 450) and/or use the Spacing property of the elements. The Spacing property can also be used to indent elements or create a hanging paragraph or image; see "Spacing" on page 517. Guides help to align elements as well; see below.

Where to use Tables and Boxes

Tables, Positioned Boxes and Inline Boxes can help position elements in relation to other elements. It depends on the context which element is best to use.

In the Email context, Tables are the most reliable way to position text and images; see "Designing an Email template" on page 327 and "Table" on page 476.

In the Web context, Inline Boxes are the preferred way to position elements; see "Boxes" on page 450. Tables should only be used to display data in a tabular format, not to position text and images. Tables used in web pages to position elements (and often, Positioned Boxes) make those pages less accessible to users with disabilities and to viewers using smaller devices.

In the Print context, Tables can be used to position elements, as well as both types of Boxes; see "Table" on page 476 and "Boxes" on page 450.

Spacing

Boxes, tables, paragraphs and many other elements have a **margin** and **padding**.
The margin is the white space around an element, outside the border. It is used to position an

element in relation to the other elements, by putting more space between the element and its surrounding elements.
The padding is the space between an element's content and its border. It is used to position the content of the element inside the border.

To learn how to set an element's spacing properties, see "Spacing" on page 517.

> **Tip**
>
> Use a negative left margin to create a hanging paragraph or image.

Guides

Guides are horizontal and vertical lines used to help in designing templates, for example when positioning absolute positions boxes over a PDF background. They can only be used in Print sections.

- Select **View > Guides > Show guides** to show or hide the guides and margins.

To add a guide, press the **Insert Horizontal Guide** or **Insert Vertical Guide** buttons on the Toolbar.

To move a guide, click and drag it to a new location. Double-clicking the guide brings up its Edit dialog where its exact position can be adjusted.

- Select **View > Guides > Lock guides** to lock the guides in their current position.
- Select **View > Guides > Snap to guides** to make Positioned Boxes (and any other objects that have their **position** set to **absolute**) snap to guides when moved within a few pixels of them.

To delete a guide, double-click on it and press the **Delete** button.

Using the CSS `position` property

An element can be positioned independently of the text flow by changing its `position` property to `absolute` or to `relative` (to its parent).
When an element is placed inside another element, such as a Box, changing its `position` property to `absolute` positions the element absolutely inside its 'parent'.
With the `position` property of an element set to `absolute`, the `top` or `bottom` and `left` or `right`

PReS. Connect

properties position the element inside its parent with exact values: pixels (px), centimeters (cm), etc. Negative values are allowed.

For an explanation of all values that the `position` property can possibly have, see http://www.w3schools.com/css/css_positioning.asp.

Where to use it

In Print sections, setting the `position` property to `absolute` can be very useful. It takes the element out of the text flow, so that the element stays where it is on the page. On Master Pages (which are only used in Print sections) elements are always positioned absolutely; if not, they must be located inside an element that has an absolute position.

In Web sections, setting the `position` property to `absolute` may sometimes be useful for elements inside a Div element, but in general, elements should not be positioned absolutely. Designs for the Web should be flexible so that they display nicely on a variety of devices and screen sizes.

In Email sections, do not use this property. Use Tables instead (see "Designing an Email template" on page 327 and "Table" on page 476).

How to use it

In the Formatting dialog the `position` property can often be found on the first tab, under **Positioning**. To open the Formatting dialog, right-click the element and click the respective element on the shortcut menu. Alternatively, select the element (see "Selecting an element" on page 407) and on the **Format** menu click the respective element.

This property isn't present in one of the tab menus of the style rule editor, but you can add it and specify a value after clicking the Advanced button in the style rule editor (see "Styling templates with CSS files" on page 486).

About the CSS `display` property

The `display` property is one of the most important CSS properties for controlling layout. Yet it is unlikely that you will use it often to position elements in a template: in most cases, the initial value of the `display` property for an element will be the right one.
It is more likely that you will use this property in style sheets and scripts to hide certain elements, by setting the value of this property to `none`(`display: none;`). (See "Styling templates with CSS files" on page 486 and "Writing your own scripts" on page 548.)
For an online tutorial about this property, see w3schools website.

PReS. Connect

Rotating elements

In any type of template, boxes, images, tables, text and other elements can be rotated.

The toolbar buttons **Rotate Clockwise** and **Rotate Counter Clockwise** rotate the element in which the cursor is located 90 degrees at a time.

To rotate an element into another angle position, use the 'angle' CSS property of the element. In most cases, this can be done in the element's Formatting dialog. In other cases, such as with text, you have to enter the CSS property and value manually. Both methods are explained in the following procedure.

1. Right-click the element and click the respective element on the shortcut menu. Alternatively, select the element (see "Selecting an element" on page 407) and click the respective element on the **Format** menu.
2. On the first tab, look for the **angle** property. If it is available, type the number of degrees the element should be rotated. A positive number will rotate the element clockwise, a negative number rotates it counter-clockwise. Skip steps 3 to 6.
   If the angle property is not available, proceed with the following step.
3. Click the **Advanced** button to open the Advanced Formatting dialog.
4. Click in the first blank field under **Property** and type **transform**.
5. Click in the field next to it, under **Value** and type **rotate(**, followed by the number of degrees the element should rotate, and then **deg)**, for example: rotate(20deg). A positive number will rotate the element clockwise, a negative number rotates it counter-clockwise.
6. Close the Advanced Formatting dialog.
7. Close the Formatting dialog, or click the Apply button to see the effect without closing the dialog.

> **Note**
>
> It is also possible to rotate elements by creating a style rule in a style sheet; see "Styling templates with CSS files" on page 486.

Styling a table

Just as other elements, tables can be styled in two ways:

- With **local formatting**. This means styling the table directly, using the Formatting dialog.
- Via **Cascading Style Sheets** (CSS). In a style sheet, style rules are declared for elements with different HTML tags, ID's and classes.

These two methods are described below. See "Styling and formatting" on page 484 for background information about these two methods.

Selecting a table, row or cell

There are several ways to select a table or row:

- Click in the table or row. Then, in the **breadcrumbs** (see "Selecting an element" on page 407) click **table** to select the table, or **tr** to select the row.
- Right-click a cell and from the shortcut menu, choose **Table > Select** or **Row > Select**.
- Click in a cell and then use the toolbar: click the **Select Table** button or click the black triangle next to that button and then click **Select Table** or **Select Row**.

Selecting one cell is easy: just click in it.

> **Tip**
>
> Use the Styles pane to see which styles apply to the currently selected table, row or cell.

Via the Formatting dialog

The Formatting dialog allows you to change the font, font size and color (see "Fonts" on page 514), the borders (see "Border" on page 508), the cell padding (the distance between the edge of the cell and its content, see "Spacing" on page 517), and the background color or image of the table and its cells ("Background color and/or image" on page 506).

To open the Formatting dialog for **one cell** or for the **table as a whole**:

- Click in a cell and choose **Format > Table** or **Format > Table Cell**.
- Right-click it and choose **Cell...** or **Table...** from the shortcut menu.

Note that in this case **Table** styles the table as a whole. When you choose **Table** and change the border, for example, the borders of the cells inside it will not be changed.

PReS. Connect

To style **all cells** in a table or row at the same time via the Formatting dialog, you have to select the table or row first; see "Selecting a table, row or cell" on the previous page

Next, to open the Formatting dialog, choose **Format > Table Cell**. The settings that you make now will be applied to all cells in the selected row or table.

Via a style sheet

Cascading Style Sheets (CSS) offer more ways to style a table and its contents, than the Formatting dialog does. This is especially true for Dynamic Tables. With local formatting, all rows that are added on the fly (in Preview mode and in output) will look exactly the same as the first one. Alternating row colors, for example, in dynamically added rows can only be done via CSS. How to do this is described below

Another good reason to prefer style sheets over local formatting for Dynamic Tables, is that the output from a Dynamic Table is created slightly faster when it's styled via Cascading Style Sheets than when it's styled with local formatting.

How to use style sheets is explained in another topic; see "Styling templates with CSS files" on page 486.

Note that to make a style rule apply to a **specific** table, row or cell, you have to add an ID or class to that table, row or cell.

Adding an ID or class to a table, row or cell

A style sheet contains a bunch of style rules for different elements, that are identified via a CSS **selector**. This can be the element's HTML tag (without the angle brackets), ID or class.

When used as a CSS selector, the HTML tag for a table is **table**. For a row, it is **tr** and for a cell, **td**. A style rule that uses one of these, however, would apply to **all** tables, rows, or cells. For a rule to be more specific you need to add an ID (for a unique element) or a class (for a set of similar elements) to the table, row or cell, and use that as the style rule's selector.

Before you can add an ID or class to a table, row or cell, you have to select that table, row or cell (see "Selecting a table, row or cell" on the previous page). After selecting the cell, row or table, type the ID or class in the respective field on the **Attributes** pane.

In CSS, refer to the table, row or cell with `#ID` (where ID should be replaced with the actual ID) or with `.class` (where class should be replaced with the actual class).

Styling the first, last and nth rows

The CSS pseudo-classes `:first-child`, `:last-child` and `:nth-child()` are very useful for styling table rows (especially in Dynamic Tables).

A CSS **pseudo-class** follows a selector to specify a special state of that selector. It always starts with a colon.

The pseudo-classes `:first-child`, `:last-child` and `:nth-child()` select an element only if it is the first, last or nth child element respectively. (In HTML and CSS, the word **child** refers to an element inside another element.)

The following CSS style rule selects the table row (tr) that comes first (:first-child) in its parent (which naturally is a table), and colors its background red:

```
tr:first-child {
        background: red;
}
```

Selecting a specific row, odd or even rows, or every nth row

The pseudo-class `:nth-child()` lets you select a specific row, all odd or even rows, or every **n**th row.

Between the round brackets in `:nth-child()` you can fill in a number, `odd` or `even`, or a formula: `an+b`. In the formula, `a` represents a cycle size (every...), `n` is a counter (for the child elements), and `b` is an offset value ('start at b'). The following examples will make this clear.

`:nth-child(3)` matches just one element: the third child element.

`:nth-child(odd)` matches child elements 1, 3, 5, 7, etc. The keyword `odd` substitutes the expression `2n+1`, which in other words says: 'take every second element, starting at 1'.

`:nth-child(even)` matches child elements 2, 4, 6, 8, etc. The keyword `even` substitutes the expression `2n+0`, or simply `2n`.

`:nth-child(3n)` matches child elements 3, 6, 9, 12 etc.

PReS. Connect

`:nth-child(3n+1)` matches child elements 1, 4, 7, 10 etc., so every third element, starting at 1.

Via script (based on a data field value)

To style a table, row or cell based on a data field value, you have to write a script (see "Writing your own scripts" on page 548).

First add an ID or class to the table, row or cell that needs to be styled: select the element (see "Selecting a table, row or cell" on page 502) and add an ID on the **Attributes** pane. Then create a script, using that ID or class as the script's selector. The script can be very simple:

```
if (record.fields.COUNTRY == 'CANADA') {
        results.css('color','green');
}
```

The Designer Scripts API provides several functions to style elements, for example `css()`, `hasClass()` and `addClass()` (see "Designer Scripts API" on page 784).

Styling based on a value in a detail table

Styling rows or cells in a detail table based on a value in the detail table goes a bit different.

First set an ID on the detail table as a whole and create a script that uses `thatID tbody` as the script's selector. If for example the ID is `table_1`, the selector will be: `#table_1 tbody`. Then write a script like the following:

```
for(var i = 0; i < record.tables.detail.length; i++){
        if(record.tables.detail[i].fields['Shipped'] == 1)
        query("tr:nth-child(" + (i+1) + ")", results).css
('color','green');
}
```

This script loops over a detail table, evaluating the field `Shipped`. If the value of that field is 1, it looks up the corresponding row in the `results` (the object that contains the selected detail table) and colors the text of that row green. (See also: "query()" on page 804 and "Examples" on page 825.)

PReS. Connect

Number	Description	Unit Price	Quantity
53674	Thule Crossroad Railing Foot Pack M450	199.95	3
62516	CamelBak Arete 18 Hydration Pack 2016 Black	65.00	1
117653	Swix Carving Kit 1	44.99	1
148080	Swix Alpine Racing Straps Ski Strap	9.99	4

To keep all CSS style rules together you could add the style rules to a class in the CSS file (see "Styling templates with CSS files" on page 486) and assign that class to the a row or cell using `addClass` (see "Examples" on page 813).

For another example, see this how-to: Change detail line formatting based upon a data field value.

Background color and/or image

In any type of template, boxes, tables and table cells can have a background color and/or a background image.

To select a background image or color:

1. Right-click the box and click **Box** on the shortcut menu.
2. Alternatively, select the box (see "Selecting an element" on page 407; note that a Box is a element) and on the **Format** menu click **Box**.
3. Click the **Background** tab.

To select a **background color**: click the downward pointing arrow next to **Color** to select a color from the list of predefined colors (see "Defining colors, spot colors and tints" on page 510), or click the colored rectangle to open the Color Picker dialog; see "Color Picker" on page 589. In this dialog you can select a color from the color wheel or using the eye dropper tool, set RGB or CMYK color values or enter a hexadecimal color code.

To select a **background image**:

1. Click the **Select Image** button.
2. Click **Resources**, **Disk** or **Url**, depending on where the image is located.

- **Resources** lists the images that are present in the **Images** folder on the **Resources** pane.
- **Disk** lists image files that reside in a folder on a hard drive that is accessible from your computer. Click the **Browse** button to select a folder (or an image in a folder). As an alternative it is possible to enter the path manually. The complete syntax is: file://<host>/<path>. Note: if the host is "localhost", it can be omitted, resulting in file:///<path>, for example: file:///c:/resources/images/image.jpg.
- **Url** lists image files from a specific web address. Select the protocol (**http** or **https**), and then enter a web address (for example, http://www.mysite.com/images/image.jpg).

3. With an external image, you can check the option **Save with template**. If this option is checked, the file will be inserted in the **Images** folder on the **Resources** pane.
   If not saved with the template, the image will remain external. Note that external images need to be available when the template is merged with a record set to generate output, and that their location should be accessible from the machine on which the template's output is produced. External images are updated (retrieved) at the time the output is generated.
4. Select an image from the list.
5. If the image is contained in a PDF file that consists of more than one page, select the desired page.
6. Click **OK**.
7. Set the size of the image. The options are explained here: http://www.w3schools.com/cssref/css3_pr_background-size.asp.
8. Set the position of the image in the box.
9. Finally, click **OK**.

Note

It is also possible to set an element's background in a style sheet; see "Styling templates with CSS files" on page 486. When referring to images or fonts from a CSS file, refer to a path that is relative to the current path, which is css/. For example: **#header { background-image: url('../images/image.jpg'); }**.

PReS. Connect

Border

In any type of template, boxes, tables and table cells, paragraphs, images and other elements can have a border.

Elements have a rectangular shape, so their border has four sides. Each side of the border can have a different layout.

Adding a border

1. Right-click the element and click the respective element on the shortcut menu. Alternatively, select the element (see "Selecting an element" on page 407) and on the **Format** menu click the respective element.
2. Click the **Border** tab.
3. Uncheck the option **Same for all sides** to be able to style each side of the border separately.
4. Specify the width of the border (side). This is equivalent to the `border-width` property in CSS.
5. Specify the style of the border (side), such as solid, dashed or dotted. This is equivalent to the `border-style` property in CSS.
6. Specify the color of the border (side): click the downward pointing arrow next to **Color** to select a color from the list of predefined colors (see "Defining colors, spot colors and tints" on page 510), or click the colored rectangle to open the Color Picker dialog. In this dialog you can select a color from the color wheel, set RGB or CMYK color values or enter a hexadecimal color code. This setting is equivalent to the `border-color` property in CSS.

> **Note**
>
> It is also possible to set an element's border in a style sheet; see "Styling templates with CSS files" on page 486.

Rounding corners

Any element in a template can have rounded corners. For boxes and images, this option is available in the Formatting dialog. For other elements, you have to create a CSS rule to set the `border-radius` of the element (or class of elements).

PReS. Connect

Boxes, images and tables

To round the corners of a box, image or table:

1. Select a Box, Image or Table element (see "Selecting an element" on page 407) and on the **Format** menu click the respective element. Alternatively, right-click the element and click the respective element on the shortcut menu.
2. On the first tab in the Formatting dialog (the **Box**, **Image** or **Table** tab respectively) specify the **corner radius** in a measure (10mm, 5px, 0.5in) or percentage (0 - 90%).
3. For a Box or Image, click **Apply** to see the effect without closing the dialog or **OK** to close the dialog.

For a Table, you have to take yet another step. Tables can't have rounded corners and collapsed borders at the same time. All built-in table styles in the Designer have collapsed borders. For the rounded corners to show, you must create a CSS rule that sets the table's `border-collapse` property to `separate` instead of `collapse`.

1. Click the **Advanced** button at the bottom of the Formatting dialog.
2. Under **Property**, type **border-collapse**.
3. Under **Value**, type **separate**.
4. Add a padding to keep the table cells from sticking out of the rounded corners: under **Property** type **padding** and under **Value** type a measure for the padding.
5. Click OK, and click OK again to close the Formatting dialog.

If the table's rounded corners are still not (fully) visible, check the styles for table cells. Table cells can have their own background color and by that, hide the table's background color - including the rounded corners. Table cells can have rounded corners as well, just as any other elements; see below.

Other elements

To round the corners of elements other than boxes and images, or to have different roundings on different corners, you have to make use of the CSS property: `border-radius`; see http://www.w3schools.com/css/css3_borders.asp.

This is, for example, how you could round the corners of a paragraph:

PReS. Connect

1. Select the paragraph (see "Selecting an element" on page 407) and then select **Format > Paragraph** on the menu, or right-click the paragraph and select **Paragraph** on the shortcut menu.
2. Click the **Advanced** button at the bottom of the Formatting dialog.
3. Under **Property**, type **border-radius**.
4. Under **Value**, type the value of the corner radius in a measure (10mm, 5px, 0.5in) or percentage (0 - 90%).
5. Click OK, and click OK again to close the Formatting dialog.

Using a CSS file

Of course you could also add this rule to a CSS file; see "Styling templates with CSS files" on page 486. The following rule sets the border-radius of the corners of all paragraphs to 5 pixels: `p { border-radius: 5px; }`.

To make this rule apply to one specific paragraph, first give the paragraph an ID (select the paragraph and type the **ID**, for example **rounded**, on the **Attributes** pane). Then add the ID to the selector of the CSS rule, for example `p#rounded { border-radius: 5px; }`.

To make the CSS rule apply to a set of paragraphs with the same class, first give the paragraphs the same **class** (for example **rounded**). Then add that class to the selector of the CSS rule, for example `p.rounded { border-radius: 5px; }`.

Colors

Colors make an important contribution to the look and feel of your templates. This topic explains how to define and apply colors and how to keep them consistent in different output channels.

Defining colors, spot colors and tints

Color selectors, such as the drop-down list on the toolbar, initially contain a small set of colors. Add your own colors so that they can be used throughout the templates, in all contexts and in color selector dialogs as well as with their names in style rules (see "Styling and formatting" on page 484).

Defining colors

To define colors:

PReS. Connect

1. Select **Edit > Colors** on the menu.
2. Add a color. There are two ways to do this:
   - Click the **New** button (the green plus).
   - Select an existing color from the list and copy it using the **Duplicate** button . (The Filter drop-down limits the list to colors of a certain type.) Select the new color and click the **Edit** button .
3. In the Edit color dialog, type a name for the color (or let the Designer create a name based on the values that you select). The color's name can be used in style sheets. This name should not contain spaces or special characters.

   Tip

   Working with style sheets? Choose a name that informs about the purpose of the color, rather than a name that describes the color. This way you won't have to change the color's name in the style sheets when you change the color.

4. Click **Color**. (Tint is used for transparent colors.)
5. Select the color type: **CMYK** or **RGB**.
   The letters **CMYK** stand for Cyan (a greenish-blue color), Magenta (reddish-purple), Yellow and Key (black). In color printing, these are the usual primary colors.
   RGB stands for Red, Green and Blue. In the RGB color model, red, green, and blue light are added together in various ways to reproduce a broad array of colors. This model is typically used for electronic devices.
   If applicable, check **Spot color**. Note that spot colors can only be used on certain printers.
6. Drag the slider bars to set the values for the color and click OK or Apply.

Defining a spot color

A spot color is any color generated by an ink (pure or mixed). If your printer can use spot colors and you want a spot color to be used in a Print context, you can define the color as described above, with two differences:

- Check the option **Spot color** instead of **Color**.
- Make sure that the color's name matches that of the spot color used in the printer.

PReS. Connect

Defining a tint

A tint is a transparent color, based on another color in the template. To define a tint:

1. Select **Edit > Colors** on the menu.
2. Click the **New** button (the green plus) to add the tint.
3. Click the Type drop-down and select **Tint**.
4. In the Edit color dialog, type a name for the color (or let the Designer create a name based on the values that you select). The color's name can be used in style sheets. This name should not contain spaces or special characters.
5. Select one of the existing colors in the template as t the **Source** of the color. The tint or opacity will be applied to this color.
6. Check **Use opacity** if you want to set the Tint slider to use Opacity instead.
7. Use the slider to set the percentage of the tint or opacity, or type the percentage directly in the input box and finally click OK.

Applying a color

Colors can be applied to elements in your templates locally or through style sheets.

Using colors in style sheets

It is highly recommended to use style sheets in templates right from the start. Even more so if the communications are going to be output to different output channels, or if they consist of different sections (for example, a covering letter followed by a policy). Using CSS with templates allows a consistent look and feel to be applied. A style sheet can change the look of multiple elements, making it unnecessary to format each and every element in the template, time and again, when the company's layout preferences change. See "Styling templates with CSS files" on page 486.

In style sheets, you can color every type of element that has a CSS color property, such as **color**, **background-color** or **border-color**. Use the color's name as it is defined in the Designer, or any legal color value: a valid color name (see color names on w3schools), hexadecimal color code (see w3school's color picker), RGB color value, for example `rgb(216,255,170)` or CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`.
The following CSS rule applies `MyColor`, which is a custom color (see "Defining colors, spot colors and tints" on page 510), to the text of all paragraphs:

PReS. Connect

```
p {
color: MyColor;
}
```

CMYK colors

You may use the custom cmyk() CSS function to assign a CMYK color to any element, or a series of elements. The following example assigns a steel blue color as a background for all H1 elements:

```
h1 {
background-color: cmyk(33%, 17%, 0%, 20%);
}
```

Coloring text

Instead of using a style sheet (see above), you can color text locally:

1. Select text or an HTML element that contains text (see "Selecting an element" on page 407).
2. On the menu, select **Format > Color**, or click the black triangle on the **Text color** toolbar button.
3. Select one of the colors in the list, or click **Other** to set all aspects of the text style, including text color and/or background color.

Coloring backgrounds and borders

Instead of using a style sheet (see above), you can color a background or border locally. This is how:

1. Select an HTML element (see "Selecting an element" on page 407).
2. On the **Format** menu, click the element. For a **div** element, click **Box**. The Formatting dialog opens up.
3. Click the **Border** or **Background** tab.
4. Click the downward pointing arrow next to **Color** to select a color from the list of predefined colors (see "Defining colors, spot colors and tints" on page 510). Alternatively, click the small rectangle to the right of the color list to open the Color Picker dialog. In this dialog you can select a color from the color wheel. You can also choose the color mode: RGB or CMYK. For an explanation of these two modes, see "Defining colors, spot colors and tints" on page 510; for an explanation of the other options in this dialog,

PReS. Connect

see "Color Picker" on page 589.
You could also type a name or value in the Color field directly. It must be a valid color name (see color names on w3schools), a hexadecimal color code (see w3school's color picker), RGB color value, for example `rgb(216,255,170)` or CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`.

5. Click **OK** or **Apply**.

Color management

Color profiles can keep colors consistent across different outputs. To manage color profiles, select **Edit > Color settings**; for an explanation of the options in the Color settings dialog, see "Color Settings" on page 592.

Fonts

In templates for personalized customer communications you can use the fonts that are provided with the Designer, as well as imported fonts.

Applying a font

To apply a particular font to a piece of text, you can:

- Select some text, or an element that contains text (see: "Selecting an element" on page 407) and select a font from the **Fonts** drop-down on the toolbar.
- Use the name of the font in a CSS rule, for example:
  ```
  body {
  font-family: Verdana, Arial, sans-serif;
  }
  ```
  Instead of the body tag, any element that can have the CSS property 'font-family' can be used.
  Make sure that the rule is applied to the text that you wanted to apply the font to; see Styling with CSS.
  Note: The reason for specifying more than one fonts in a style sheet for web pages is that the font might not be available on the device on which the web page is viewed. Order the font names by preference. The last one should be generic font family (either serif or sans-serif).

Importing a font

To import a font into a template:

PReS. Connect

- Drag the appropriate font files into the **Fonts** folder on the **Resources** pane.

When text is displayed in an imported font, the Designer can mimic the bold and italic versions of that font. If you have separate files for the bold, italic and possibly other versions of a font, you can make the Designer use the appropriate files to style text. To do this:

1. Import the files for the bold, italic and/other versions of the font into the Fonts folder.
2. On the **Edit** menu, click **Fonts**, to open the Font Manager.
3. Select the normal version of the imported font and duplicate it using the **Duplicate** button, once for each version of the font.
4. For each of the duplicates, combine a font effect with a file:
    - Click a duplicate and click the button Edit. Note: don’t change the duplicate’s name!
    - Select the appropriate font effect (font-weight and/or font-style).
    - Check the file or files the Designer should use for that effect. Per file type, one file can be checked.
5. Close the Font Manager.

The Designer currently supports 4 font types: TTF, OTF, WOFF, EOT and SVG.

When you are creating a **Web** template, keep in mind that the different font types are not supported by all clients; for instance, EOT and SVG are used only by Explorer and Safari, respectively.

If you're creating an **Email** template, it's better to import several types of the same font, in order for any client to see the appropriate fonts.

In the case of a **Print** context you do not need to provide alternative fonts, because the output is not displayed using a font from the device on which the output is read.

> **Note**
>
> Font software may have specific restrictions for copying and redistribution. Please consult the license agreement for each font vendor before using it in a template. It is your responsibility to comply with the requirements of third-party agreements.

PReS. Connect

Applying an imported font

Once a font is imported, it is automatically added to the Fonts drop-down on the toolbar.

It can also be used in the style sheets, even in combination with other fonts, for example:

```
body {
font-family: 'MyWebFont', Arial, sans-serif;
}
```

Locale

The locale is a setting that can affect date, time and currency output, and other formatting that depends on location and language. This setting is specific to each template, so changing it for one template will not affect other templates.

Assume that a record set has a `Date` field that contains the following date: `4/11/12`, and that this field has been added to the template using the Text Script Wizard with the Long Date format (see "Using the Text Script Wizard" on page 533 and "Formatting variable data" on page 536). If the locale is set to `en-US`, the date appears on the page as **April 1, 2016**. Setting the locale to `fr-CA` makes this text appear as **1 avril 2016**. Setting it to `zh-CN` will print **2016年4月1日** .

The locale can also be used in scripts; see "Writing your own scripts" on page 548 and "Designer Scripts API" on page 784.

Changing the locale

By default, the locale is the same as the operating system's locale setting. To change this setting for the currently open template:

1. On the menu, select **Edit > Locale**.
2. Use the drop-down to select how the locale is to be set for the current template:
    - Select **System Locale** to use the operating system's locale settings. The operating system's locale is set in the **Region** settings of the control panel. Note that when output is generated on a different operating system, that operating system's locale will be used.
    - Select **Explicit Locale** to specify a static locale which will remain static for this template, whichever server the template is used on. Use the **Locale** drop-down to select a specific locale. The locales comprise a language code followed by a 2-

PReS. Connect

letter country code (`de-DE`, `zh-CN`, `fr-CA`, `fr-FR`, etc), as defined by the international standards ISO-639-1 and ISO 3166.

- Select **Data Field** to use a data field from the record. The locale will be record-specific in this case. Use the drop-down to select a field within the current Data Model that contains the locale. This field must be a string and contain the exact locale to be used, such as "en" or "fr-CA". It cannot be an alias such as "english" or "french". The locale supports language codes (`en`, `fr`, etc), as well as language codes followed by a 2-letter country code (`de-DE`, `zh-CN`, `fr-CA`, `fr-FR`, etc). The language codes are defined by ISO-639-1. The 2-letter country code as defined by ISO 3166.

3. Click **OK** to apply the setting. The setting will be saved with the template.

Spacing

Boxes, tables, paragraphs and many other elements have a **margin** and **padding**.
The margin is the white space around an element, outside the border. It is used to position an element in relation to the other elements, by putting more space between the element and its surrounding elements.
The padding is the space between an element's content and its border. It is used to position the content of the element inside the border.

Elements have a rectangular shape, so they have four sides. The margin and padding have be different on all sides.

> **Tip**
>
> Use a negative left margin to create a hanging paragraph or image.

To set the spacing:

1. Right-click the element and click the respective element on the shortcut menu. Alternatively, select the element (see "Selecting an element" on page 407) and on the **Format** menu click the respective element.

PReS. Connect

2. Click the **Spacing** tab.

> **Note**
>
> All settings in the Formatting dialog are in fact CSS style rules. Click the **Advanced** button to manually add CSS properties (at the left) and values (at the right). For more information about CSS, see "Styling and formatting" on page 484.
>
> It is also possible to change an element's formatting via a style sheet; see "Styling templates with CSS files" on page 486.

3. Set the value for the **padding** in measure or percentage. You can do this for each side separately, which is equivalent to the **padding-top**, **padding-bottom**, **padding-left** or **padding-right** property in CSS. To set the same padding for all sides, check the option **Same for all sides**. This is equivalent to the **padding** property in CSS.
4. Set the value for the margin in measure or percentage. You can do this for each side separately, which is equivalent to the **margin-top**, **margin-bottom**, **margin-left** or **margin-right** property in CSS. To set the same margin for all sides, check the option **Same for all sides**. This is equivalent to the **margin** property in CSS.
5. Click **OK**, or click **Apply** to apply the changes without closing the dialog.

Personalizing Content

Variable-data printing is a form of digital printing in which elements such as text and graphics may be changed using information from a database or data file. It prints unique documents with customized messages for each customer. This is exactly what you can do with Connect: using variable data you can personalize your company's communications.

Before you can start personalizing the content of a template, you must open a Data Mapping Configuration, data file or database; see: "Loading data" on page 520.

The most common ways to personalize templates are listed below.

Variable data

Variable data are data from a database or data file that are used to personalize documents for each customer. Variable data fields can be inserted in the text directly. For example, if a person's last name can be found in your data, the field that holds the last name can be used in the text of a web page, letter or email. Scripts in PReS Connect Designer are the basis of Variable Data Printing.

The easiest, quickest and most direct way to add customer data to content is via drag and drop; see "Variable Data" on page 530.

The drag-and-drop method results in a Text Script. Another way to create a Text Script is to use the Text Script Wizard. Often it is better to use the Text Script Wizard than the drag-and-drop method.
The Text Script Wizard gives you more control over the way data is displayed. It can insert one or more data fields, each with an optional prefix and suffix. For blocks of data, such as addresses, the Text Script Wizard definitely is the better choice. See "Using the Text Script Wizard" on page 533.

Conditional content

In a template you may want to reveal content - text or images - to one group of recipients, but hide it from others. You can use a Conditional Script Wizard to achieve this, if you have a data field in your data on the basis of which a condition can be set. See "Showing content conditionally" on page 539.

Dynamic images

Dynamic Images are dynamic in the sense that they are replaced by another image when a data field contains a certain value. Think of a signature image being swapped based on the sender's name, for example. You can use the Dynamic Image Script Wizard to make this happen; see "Dynamic Images" on page 541.

Dynamic tables

A Dynamic Table is a table with a variable number of rows that can overflow on one or more pages. It can also display subtotals on transport lines. In invoices, a Dynamic Table is an essential element. Read "Dynamic table" on page 543 to learn how to insert a dynamic table.

Snippets

Snippets are pieces of content that can be re-used within the same template, in all contexts and sections. Snippets can contain any contents that a section can have, such as text, images, variable data, dynamic tables, etc. They are often very useful to personalize content, especially in combination with variable data and scripts. See "Snippets" on page 482 and "Loading a snippet via a script" on page 564.

Scripts

Self-made scripts

As soon as you want to do more than what can be done with the available (Text, Conditional) Script Wizards, self-made scripts are the solution. You could, for example, combine data of two or more data fields in a condition for conditional text. Or you could load a part of a snippet depending on the value of a data field. With a self-made script you can achieve anything that can be done by any of the Script Wizards, and much more. For an introduction on this, see "Writing your own scripts" on page 548.

Control Scripts

When output is generated from a template, Control Scripts run **before** all other scripts, when a record is merged with a context. They determine how different sections of the context are handled. They can, for example, make the page numbering continue over all Print sections, split Email attachments, or omit Print sections from the output.

Some knowledge of JavaScript is needed to edit Control Scripts, just as for any other self-made scripts, because there is no Control Script Wizard; see "Writing your own scripts" on page 548.

See "Control Scripts" on page 566.

Loading data

Before you can add variable data fields to a template in the Designer, you need to have a Data Model and a sample of customer data. At the design stage the Designer doesn't have to have access to all data; it just needs to know which data fields exist in your data and it needs some data to be able to display a preview of the output.

To get access to a Data Model and data, you can open:

- a Data Mapping Configuration, see "Loading a Data Mapping Configuration" on the facing page
- a data file, see "Adding data from a data file" on page 523
- a database, see "Adding data from a database" on page 525.

A Data Model and sample data are part of a Data Mapping Configuration.

When you open a data file or a database, the Data Model will be derived from it **unless** there already is an open Data Mapping Configuration; in that case, the current Data Mapping Configuration will try to retrieve data from the file or database, using its own Data Model and extraction logic.

After opening a Data Mapping Configuration or opening a data file or database, the **Data Model** pane at the right hand bottom shows the data fields that occur in the data.
The **Value** column displays data from the first record in the data file. Use the **First**, **Previous**, **Next** and **Last** buttons to browse through the records, or use the Page Up, Page Down, Home and End keys.

Note

Although it is possible to load data from a data file or database in the Designer without creating a Data Mapping Configuration for it, generally the best way to extract data is by creating a Data Mapping Configuration. With a Data Mapping Configuration you can, among other things:

- Use the same data file with a different template, or use different kinds of data files with the same template.
- Load transactional or structured data. If there are detail lines, transactions, or any variable number of items to put into the template, you need to a Data Mapping Configuration to extract them.
- Format, transform, conditionally include/exclude and enhance data from the source file.
- Use Workflow to automate the extraction of data from this kind of data file.

Tip

If you have no data at hand, download a demo from http://demo.objectiflune.com and open a dummy data file to test with.

Loading a Data Mapping Configuration

If you have used the DataMapper first, you probably already have an open Data Mapping Configuration. Its Data Model and sample data will automatically be used when you start creating a template. You might have to click the **Synchronize Model** button on the **Data Model** pane, to update the fields.

To open a Data Mapping Configuration:

1. Open the Welcome screen: click the Home icon at the top right or select **Help > Welcome** on the menu.
2. Click **Open an existing configuration**.
3. Select the Data Mapping Configuration and open it.
4. At the top of the workspace, click the tab with the name of the template's section to go back to the template.
5. Click the button **Synchronize model** at the top of the **Data Model** pane to reload the data model.

Note

The EXTRADATA field that appears as the first field in each record and in each detail table is automatically added to the Data Model by the DataMapper. It offers the possibility to add extra data to an existing Data Model, for example when Workflow has to perform a lookup to retrieve a value from a database and add that value to a new field in the Data Model.
The EXTRADATA field can be added to the template just like any other data field (see "Variable Data" on page 530). When it contains a JSON string, this value can be read with a script (see "loadjson()" on page 799).

Note

When generating output with just a Data Mapping Configuration, the template is merged with the

complete sample data file that is part of the Data Mapping Configuration. The output is **not** limited to the number of records shown in the Data Model pane (which is one of the settings in the DataMapper).

Adding data from a data file

1. Click **File**, select **Add Data** and then click **From file data source**. Browse to the location of the file and select it.
   The Designer can open the following types of data files:
   - CSV files (.csv)
   - Microsoft Access Database (.mdb, .accddb)
   - XML files (.XML)
   - PDF/VT files
   - AFP files.
2. Review the options presented, to ensure that the data will be interpreted correctly. The options available depend on the type of data file (see below).

CSV file options

- **Encoding**: the Designer can not infer from a CSV file what encoding it is in. The default is right in the large majority of cases, but when it isn't, it can be very difficult to figure out the correct encoding. Ask your source what the encoding of the file is.
- **Field separator**: choose the character that separates the fields in the file.
- **Comment delimiter**: if there are comment lines in the file, type the character that starts a comment line.
- **Text Delimiter**: type the character that surrounds text fields in the file. Other delimiters will not be interpreted within these text delimiters.
- **Ignore unparsable lines**: when checked, any line that does not correspond to the above settings will be ignored.
- **First row contains field names**: check this option to use the first line of the CSV as headers. This option automatically names all extracted fields.

PReS. Connect

MDB file options

- **File**: Include the full path to the file.
- **Password**: If the file isn't password protected, you can click **Next** without filling out this field.
- **Table name**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
- **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.

XML File options

Select what level of XML elements defines a record.

The **Trigger** is what triggers the creation of a new record. It can be set to:

- **On element**: this defines a new record when a new element occurs on the selected XML level.
- **On change**: this defines a new record when a specific field under the chosen XML level has a new value. After selecting this option, you have to select the field that triggers the creation of a new record.

PDF/VT file options

After selecting a file, use the drop-down to select what level in the PDF/VT file defines a record in your data. The names of the levels are taken from the PDF/VT file itself. (See "About PDV/VT files" below.)
All metadata fields that belong to the chosen level and levels higher up in the tree structure will be listed. The lower the chosen level is in the tree structure, the more records you will get and the more metadata fields will appear in the list.
Select metadata fields to add them to your data. Their property names will be used as field names in the Designer's data model.

About PDV/VT files

The pages in PDF/VT files can be grouped on several levels. PDF/VT files can have a variable number of levels in their tree structure. The level's names are variable as well, with the exception of the lowest level, which is always called the **page** level. Metadata can be attached to each level in the structure.

PReS. Connect

AFP file options

After selecting a file, use the drop-down to select what level in the AFP file defines a record in your data. The levels are defined in the AFP file itself. (See "About AFP files" below.)
All metadata fields that belong to the chosen level and higher levels in the tree structure will be listed. The lower the chosen level is in the tree structure, the more records you will get and the more metadata fields will appear in the list.
Select metadata fields to add them to your data. Their property names will be used as field names in the Designer's data model.

About AFP files

Pages in AFP files are arranged in a tree structure, comprising one **document** at the top of the structure, **pages** at the bottom of the structure and one or more levels of **page groups** in between. (Unlike in PDF/VT files, the names of levels in AFP files can not be chosen freely.) In other words, an AFP file always consists of one document, that can contain page groups, of which each can be divided in page groups, and so on; the page groups at the lowest level contain pages.
Metadata can be attached to each level in the structure.

Adding data from a database

1. Click **File**, select **Add Data** and then click **From database data source**. Browse to the location of the file and select it.
   The Designer can open databases from the following types of data sources:
   - MySQL
   - Microsoft Access Database (.mdb, .accddb)
   - SQL Server
   - ODBC DataSource
   - JDBC
   - Oracle.
2. Review the options presented. The options available depend on the type of database data source; see below.

MySQL

1. Enter the appropriate information to connect to the database:
    - **Server**: Enter the server address for the MySQL database.
    - **Port**: Enter the port to communicate with the MySQL server. The default port is *3306*.
    - **Database name**: Enter the exact name of the database from where the data should be extracted.
    - **User name**: Enter a user name that has access to the MySQL server and specified database. The user only requires *Read* access to the database.
    - **Password**: Enter the password that matches the username above.
2. Click **Next** and enter the information for the source table.
    - **Connection string**: Displays the full path to the database.
    - **Table**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
    - **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.
3. Click **Finish** to open the database.

Microsoft Access

1. Enter the appropriate information to connect to the database:
    - **File name**: Browse to your Microsoft Access database file (.mdb)
    - **Password**: Enter a password if one is required.
2. Click **Next** and enter the information for the source table.
    - **Connection string**: Displays the full path to the database.
    - **Table**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
    - **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.
3. Click **Finish** to open the database.

PReS. Connect

SQL Server

1. Enter the appropriate information to connect to the database:
    - **Server**: Enter the server address for the SQLServer database.
    - **Port**: Enter the port to communicate with the SQLServer. The default port is *1433*.
    - **Database name**: Enter the exact name of the database from where the data should be extracted.
    - **User name**: Enter a username that has access to the SQLServer and specified database. The user only requires *Read* access to the database.
    - **Password**: Enter the password that matches the username above.
2. Click **Next** and enter the information for the source table.
    - **Connection string**: Displays the full path to the database.
    - **Table**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
    - **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.
3. Click **Finish** to open the database.

ODBC DataSource

1. Select the ODBC system data source. Note: Only 32-bit data sources are currently shown in this dialog, even if your system is 64-bits.
2. Click **Next** and enter the information for the source table.
    - **Connection string**: Displays the full path to the database.
    - **Table**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
    - **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.
3. Click **Finish** to open the database

JDBC

1. Enter the appropriate information to connect to the database:
    - **JDBC Driver**: Use the drop-down to select which JDBC Driver to use for the database connection.
    - **JAR file path**: Enter a path to the JAR file that contains the appropriate driver for the database below.
    - **Server**: Enter the server address for the database server.
    - **Port**: Enter the port to communicate with the server.
    - **Database name**: Enter the exact name of the database from where the data should be extracted.
    - **User name**: Enter a username that has access to the server and specified database. The user only requires *Read* access to the database.
    - **Password**: Enter the password that matches the username above.
    - **Advanced mode**: check to enable the Connection String to manually enter the database connection string.
    - **Connection string**: Type or copy in your connection string.
2. Click Next and enter the information for the source table.
    - **Connection string**: Displays the full path to the database.
    - **Table**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
    - **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.
3. Click **Finish** to open the database.

Oracle

1. Enter the appropriate information to connect to the database:
    - **Server**: Enter the server address for the Oracle database.
    - **Port**: Enter the port to communicate with the Oracle server.
    - **Database name**: Enter the exact name of the database from where the data should be extracted.

PReS. Connect

- **User name**: Enter a username that has access to the Oracle server and specified database. The user only requires *Read* access to the database.
- **Password**: Enter the password that matches the username above.

2. Click **Next** and enter the information for the source table.
    - **Connection string**: Displays the full path to the database.
    - **Table**: Use the drop-down to select the appropriate table or stored query to retrieve the appropriate data set.
    - **Encoding**: Use the drop-down to select the encoding with which to read the data in the table.
3. Click **Finish** to open the database.

After adding data from a database, the **Data Model** pane at the right hand bottom shows the data fields that occur in the data.

The **Value** column displays data from the first record in the data file. Use the **First**, **Previous**, **Next** and **Last** buttons to browse through the records.

Add a counter using the Generate Counter Wizard

Generating a counter is useful for numbered tickets or any other template requiring sequential numbers but no variable data.

The Generate Counter Wizard creates a record set with a Counter field and in that field, the current counter value for each record. The Counter starts and stops at set values and is incremented by a set value as well.

1. To open the Generate Counter Wizard, select **File > Add data > Generate counters**.
2. Adjust the settings:
    - **Starting value**: The starting number for the counter. Defaults to 1.
    - **Increment value**: The value by which to increment the counter for each record. For example, an increment value of 3 and starting value of 1 would give the counter values of 1, 4, 7, 10, [...]
    - **Number of records**: The total number of counter records to generate. This is not the end value but rather the total number of actual records to generate.

- **Padding character**: Which character to add if the counter's value is smaller than the width.
- **Width**: The number of digits the counter will have (prefix and suffix not included). If the width is larger than the current counter value, the padding character will be used on the left of the counter value, until the width is equal to the set value. For example for a counter value of "15", a width of "4" and padding character of "0", the value will become "0015".
- **Prefix**: String to add before the counter, for example, adding # to get #00001. The prefix length is not counted in the width.
- **Suffix**: String to add after the counter. The suffix length is not counted in the width.

3. Click **Finish** to generate the Counter record set.

> **Tip**
>
> While the Generate Counter script is really useful for things like raffle tickets, it's unusable in combination with a data file or database, as it cannot complement that data automatically. This can only be done with a script. A script that adds a counter to data, using the current record index to calculate the current counter value, can be found in this how-to: Manual counter in designer.

Variable Data

Variable data are data from a database or data file that are used to personalize documents for each customer. Variable data fields can be inserted in the text directly. For example, if a person's last name can be found in your data, the field that holds the last name can be used in the text of a web page, letter or email. Scripts in PReS Connect Designer are the basis of Variable Data Printing.

After loading a Data Mapping Configuration or data from a data file or database (see "Loading data" on page 520), you can add variable data fields to the contents of your template. You can do this via the drag-and-drop method, or using the Text Script Wizard.

Use the **Text Script Wizard** when there are empty fields in the data, and the value of a data field needs to be preceded or followed by a space, line break or text in the template. Otherwise, empty data fields will cause empty lines and superfluous white spaces to show up in the text. You should also use this method for blocks of data, such as address blocks, and when you want to format data differently, for example, when you want a number to be displayed as a currency.

You can use the **drag-and-drop** method for simple fields that do not need to be preceded or followed by a space, line break or text.

> **Note**
>
> Web templates are personalized just like any other template. There are a few extra possibilities, though; see "Using variable data on a Web page" on page 355.

Inserting variable data directly (drag-and-drop)

An easy, quick and direct way to insert variable data in the content is via drag and drop:

1. Open the section you want to add the data field to.
2. Drag and drop a data field from the **Data Model** pane at the bottom right into the content of your template.
   To select and insert multiple data fields at the same time, press **Shift** or **Ctrl**, whilst selecting fields in the **Data Model** pane.

What happens is that:

- A **placeholder** for the value of the data field shows up in the text. It looks as follows: @FIELDNAME@.
- A **text script** appears in the **Scripts** pane at the bottom left.

A **text script** replaces placeholders in the content with the value of a data field in the current record.

Switch to the **Preview** tab at the bottom of the workspace to see the script in operation. The value of the corresponding data field in the first record appears instead of the placeholder, everywhere where the placeholder is found in the text. This value will be refreshed when you browse through the records in the Data Model pane.
When the output (the letter, email, etc.) is generated, the text script executes for each record in the record set, and each time it replaces the placeholders by the value of the field in the current record.

In the **Scripts** pane you can see that the script has a **name** and a **selector**.

PReS. Connect

The drag-and-drop method automatically generates a script that is named after the data field (see the first column of the **Scripts** pane).

The **selector** (in the second column in the **Scripts** pane) is the text that the script will replace. The selector that the drag-and-drop method generates for a script, is the same as the placeholder that is placed in the text.

When you drag the same field to the content again, a second placeholder appears in the text, but no new script is added. The existing script will find and replace all placeholders that match its selector.

Tip

Press the **Alt** key while dragging, to wrap the placeholder in a **span**, give the span an **ID** and have that ID used as the script's selector.

Press the **Ctrl** key while dragging, to wrap the placeholder in an absolute positioned box (a **div**) at the cursor position. A unique ID is assigned to the box and used as the script's selector. This method is particularly useful when the document mainly consists of a PDF used as the background image of a section (see "Using a PDF file as background image" on page 307).

Tip

Drag the data field directly to the **Scripts** pane to create a script without adding a placeholder to the template.

Note

Looking for text in a text is a less optimized operation and may impact output speeds in longer documents. To speed up the output process, put the placeholder(s) in a Box or Span (see "Boxes" on page 450), give that Box or Span an ID and use that ID as the script's selector. See "Using the Text Script Wizard" on the next page for an explanation about the various types of selectors. For more tips to make a template generate output faster, see "Optimizing scripts" on page 560.

Using the Text Script Wizard

The Text Script Wizard can insert one or more data fields into your template, each with an optional prefix and suffix. It is recommended to use the Text Script Wizard for blocks of data, such as address blocks, and when data fields can be empty or need to be formatted differently.

1. Create a new text script and open the Text Script Wizard. There are two ways to do this:
   - On the **Scripts** pane at the bottom left, click the black triangle on the **New** button and click **New Text Script**. A new script appears in the list. Double-click the new script to open it.
   - Select a word in the content. Right-click the selection and on the shortcut menu, choose **Text Script**.

   The Text Script Wizard appears.
2. Change the name of the script to make clear what it does.
3. The **selector** states the text to be found in the template. The results can be replaced by the script.

> **Tip**
>
> Hover over the name of a script in the **Scripts** pane to highlight parts of the template that are affected by the script.

- **Text**, for example: @lastname@, or {sender}. The text doesn't have to have any special characters, but special characters do make it easier to recognize the text for yourself. In the Text Script Wizard, click **Text** and type the text to find.

> **Note**
>
> A script made with the Text Script Wizard for a block of data already runs faster than a series of individual scripts, because it only has one selector. However, searching for text can be a lengthy operation, compared to searching for an element with an ID. When speed matters, select one of the two remaining options: **Selector** or **Selector and Text**. See also: "Testing scripts" on page 556 and "Optimizing scripts" on page 560.

- An **HTML/CSS selector**:
  - HTML elements, such as a paragraph. In the Text Script Wizard, click **Selector** and type the HTML tag without the angle brackets, for example: **p**.
  - HTML elements with a specific class. In the Text Script Wizard, click **Selector** and type the class name, including the preceding dot, for example: **p.green** for all paragraphs with the class 'green' or **.green** for all kinds of HTML elements that have the class 'green'. See "Styling and formatting" on page 484 for an explanation about CSS (Cascading Style Sheets).
  - An HTML element with a specific ID. In the Script Wizard, click **Selector** and type the ID, including the preceding #, for example: **#intro**.

    > **Note**
    >
    > Each ID should be unique. An ID can be used once in each section.

  - Etcetera. See http://www.w3schools.com/cssref/css_selectors.asp for more selectors and combinations of selectors.
- A **selector and text**. This is text inside an HTML element (or several HTML elements) with a specific HTML tag, class or ID. In the Text Script Wizard, click **Selector and text** and type the selector and the text in the respective fields.

4. Click the the downward pointing arrow in the first row in the column **Field**. Select a data field from the list that appears.
5. Add a **Prefix** and/or a **Suffix**. The prefix and suffix can contain text and/or HTML tags. If a field is empty, the prefix and suffix will be ignored, which means you can add line returns and static text, such as:
   - with a Number field, Prefix: Your invoice (one space at the end), Suffix: is now ready to be viewed!
   - with a field LastName, Suffix
 (which adds a line break)
   - with a field State, Prefix: , (comma then space).

   For a comma between fields, use the Prefix of the second field, if you don't want a comma when the second field has no value.
6. The Wizard allows you to reformat the data (for example, apply uppercase, apply thousand separators to numbers, etc.). Click the column **Format**, click the downward

PReS. Connect

pointing arrow and select one of the formats. See "Formatting variable data" on the facing page.

7. Add as many data fields as you need, following the same procedure.
8. Optionally, you can click **Options** to specify where and how the script inserts its results:
    - As **HTML**. HTML elements in the results are processed and displayed as HTML elements. For instance, `<b>this is bold</b>` will be displayed as **this is bold**. This is the default setting.
    - As **text**. This inserts the results as-is, meaning HTML tags and elements are displayed as text in the output. In this scenario, "<br>" shows up in the text and does not insert a line break.
    - As the value of an **attribute** of an HTML element. The selector of the script should be an HTML element. Which attributes are available depends on the selected HTML element. If the script's selector is an image (<img> element) for example, and the attribute is `src`, the script will modify the image's source. The script's results should be a valid value for the chosen attribute.

    > **Note**
    >
    > When checked, the option **Convert fields to JSON string** writes the results from the script into an attribute or text as a JSON string. This is useful for web contexts where a front-end script can read this value easily.

9. Close the Text Script Wizard and type the placeholder for the results of the script in the content of your template, or make sure that there is at least one element that matches the selector of the script.
10. Hover over the name of the script in the **Scripts** pane. In the workspace you will see which parts of the template are affected by the script. If the script produces an error, the error message will be displayed in a hint on the **Scripts** pane.

> **Tip**
>
> When one of the included data fields is empty, the respective line, including the prefix and suffix, is skipped. The result of the script will be shorter, causing the rest

PReS. Connect

of the content to move up or down. If, in a Print context, you don't want the result of the script to be part of the text flow (for example, when a letter is going to be sent in an envelope with a window), put the placeholder for the script in a positioned box (see "Boxes" on page 450 and "How to position elements" on page 498).

Tip

An example of how to create an address block using the Text Script Wizard is described in a how-to; see How to create an Address Block.

Formatting variable data

When a Text Script, made with the Text Script Wizard (see "Using the Text Script Wizard" on page 533) adds variable data to a template, it can easily change the way the data are formatted as well. This is done in the Text Script Wizard through a special formatting modifier or a format mask for each field that the script adds to the template.

The available formatting functions depend on the data type of the corresponding field in the Data Model. In a Data Mapping Configuration you can set the data type of each field. When you open a data file or database without a Data Mapping Configuration, all fields are text fields (fields of the type `string`).

You could also format data in a script using the `formatter` ; see "Designer Scripts API" on page 784.

Date

Dates in variable data can be displayed as long, medium and short dates with different time displays. There are quite a few presets, but you can also enter a custom format mask.

1. Open the Text Script Wizard: double-click to open an existing script in the Scripts pane or create a new Text Script using the Text Script Wizard; see "Using the Text Script Wizard" on page 533.
2. Click a data field that contains text, or add such a data field to the script with the Add field button on the right.

PReS. Connect

3. Under **Format** you can choose one of the following options:
    - **Short Date** displays the day, month and year in two digits each, for example **01.04.16**.
    - **Medium Date** displays the day and month in two digits each and the year in four digits, for example **01.04.2016**. (This is also the value of the Default Date.)
    - **Long Date** displays the day as a number, the month's full name and the year in four digits, for example **1. April 2016**.
    - **Short Time** displays a time in hours and minutes in two digits each, for example **00:00**.
    - **Medium Time** displays a time in hours, minutes and seconds in two digits each, for example **00:00:00**. (This is also the value of the Default Time.)
    - **Long Time** displays a time in hours, minutes and seconds in two digits each, and adds a time zone, for example **00:00:00 EDT**.
    - **Short Date/Time** displays the date as a short date and the time as a short time, for example **01.04.16 00:00**.
    - **Medium Date/Time** displays the date as a medium date and the time as a medium time, for example **01.04.2016 00:00:00** (This is also the value of the Default Date/Time.)
    - **Long Date/Time** displays the date as a medium date and the time as a medium time, for example **1. April 2016 00:00:00 EDT**.

    Alternatively, you can enter a **custom format mask**: click in the **Format** column for the corresponding field and start typing a **pattern** to format the date (and optionally, the time). Do not put the pattern in quotes. For possible patterns see "Date and time patterns" on page 790.
    Note that this will only work if the type of the field has been set to Date in the Data Mapping Configuration and if the field contains a valid date.

    Note

    The locale influences the way dates, times, numbers and currencies are formatted; see "Locale" on page 516.

4. Close the Script Wizard. For a new script, don’t forget to add the selector to the template.

Font style

Text originating from variable data can be displayed in uppercase, lowercase or proper case.

1. Open the Text Script Wizard: double-click to open an existing script in the Scripts pane or create a new Text Script using the Text Script Wizard; see "Using the Text Script Wizard" on page 533.
2. Click a data field that contains text, or add such a data field to the script with the Add field button on the right.
3. Under **Format** choose the correct setting:
    - **Uppercase** transforms all characters to uppercase.
    - **Lowercase** displays transforms all characters to lowercase.
    - **Propercase** transforms the first character of each word to uppercase and all other characters to lowercase.
    - **None** leaves the text as is.
4. Close the Script Wizard. For a new script, don’t forget to add the selector to the template.

Numbers and currencies

Numbers, and strings existing of digits, can be displayed as a number with a certain formatting or as an amount of money. There are a few presets, but you can also type a format mask.

1. Open the Script Wizard: in the Scripts pane, double-click the script, or create a new Text Script using the Text Script Wizard; see "Using the Text Script Wizard" on page 533.
2. Click the data field that contains the numeric value that you want to display differently, or add the data field to the script with the Add field button on the right.
3. Under **Format** choose one of the following settings:
    - **Grouped** displays a number with three decimal places and sets the thousands separator for the value based on the current locale; see "Locale" on page 516.
    - **Currency** displays a number as an amount of money, with a thousands separator and rounded to two decimal places, based on the current locale; see "Locale" on page 516.
    - **Currency no symbol** does the same as Currency, but omits the currency symbol.
    - **Leading zero** adds a leading zero to a floating value between 0 and 1. This format is only available for fields that contain a `float` value. Note that when you open a

PReS. Connect

data file or database without a Data Mapping Configuration, all fields are of the type `string`.

- ∑ **(Sum)** and ∑↑ **(Sum Up)** are used in Dynamic Tables in a Print context. ∑ is for transport rules at the end of a page and ∑↑ shows the subtotal of the previous page.

Alternatively, you can enter a **custom format mask**: click in the **Format** column for the corresponding field and start typing a **pattern**. For example, the pattern `000000` means that the number should count six digits; leading zeros are added to numbers shorter than six digits. For an overview of pattern symbols see "Number patterns" on page 802 and http://docs.oracle.com/javase/7/docs/api/java/text/DecimalFormat.html. Note that for this to work, in the DataMapper the field that contains the value must be set to SmallInteger, BigInteger, Float, SmallCurrency or LargeCurrency.

4. Close the Script Wizard. For a new script, don't forget to add the selector to the template.

Showing content conditionally

One way to personalize content is to show or hide one or more elements depending on a field's value. For example, a paragraph written for Canadian customers could be hidden when the recipient of the letter is not living in Canada, if that can be derived from the data.

Use the Conditional Script Wizard to show or hide one element – a paragraph, image or other HTML element - based on the value of a data field.

Showing or hiding elements using the Conditional Script Wizard

1. Right-click the element and click **Make Conditional**. Alternatively click the black triangle on the **New** button on the **Scripts** pane at the bottom left of the window, and click **Conditional Content Script**. The Conditional Script Wizard opens.
2. Rename the script so that it reflects what the script does.
3. If you have started creating the script from the **Scripts** pane, you have to type a **Selector**. The selector selects one or more pieces of text or elements from the template, so that the conditional content script can hide or show those pieces. An ID (for example: #conditional-script) is best if you want to show or hide one element only. Use a class selector (for example: .conditional) if the script should show or hide more than one element. See "Using the Text Script Wizard" on page 533 for further explanation on selectors.
   If you have started the Conditional Script Wizard by right-clicking an element, you don't have to set a selector. If the element didn't have an ID, a new ID has been generated

automatically. The new ID functions as the selector of the script.
You can change the selector after closing and reopening the script (double-click the name of the script in the **Scripts** pane).

4. Set the **Action**: use the drop-down to select whether to **Show** or **Hide** the element when the condition below is true.
5. Click the downward pointing arrow next to **Field**, to select the data field that should be evaluated.
6. Click the downward pointing arrow next to **Condition** to expand the list of conditions with which the data field can be evaluated. The options are: **Equal to**, **Not equal to**, **Contains**, **Does not contain**, **Begins with**, **Ends with**.
7. Type the **Value** that should be used for the conditional check.
   For example, you could check whether the data field **Gender** is 'Equal To' the value 'M', in order to show a paragraph or an image applying to male customers only.
   If the condition evaluates to **true**, the selected action will be performed. If, conversely, the condition evaluates to **false**, and the option **Toggle Visibility** is checked, the opposite action will be performed. By default, this option is checked.

   > **Note**
   >
   > To combine the values of two or more data fields, you have to click **Expand** and edit the code of the script. See "Writing your own scripts" on page 548.

8. Click **Apply** or **OK**.
9. To see the result, toggle to the **Preview** tab at the bottom of the workspace (or select **View > Preview View** on the menu).

Showing or hiding several elements with one conditional script

To apply one conditional content script to several elements, you have to use a CSS **class** or HTML element as the selector of the script. When using a CSS class, apply that class to the elements in question:

1. Double-click the conditional script in the **Scripts** pane to reopen it, or create a new conditional content script and follow the actions described in "Showing or hiding elements using the Conditional Script Wizard" on the previous page.

2. Change the selector to a CSS class (for example, .male) or to an HTML element with a certain CSS class (for example, p.male). See "Using the Text Script Wizard" on page 533 for further explanation on selectors.
3. Apply the same CSS class to all elements that should be shown or hidden under the condition that you have set in the conditional script. Click each element and type the class (without the preceding dot) in the **Class** field.

Showing or hiding a text selection

When you right-click on an element and make it conditional, the element as a whole will be made conditional. This happens even when you select a few words in a paragraph and right-click those words; the paragraph as a whole will be made conditional.
It is, however, possible to partially show or hide a paragraph or a line item in a list. Before you can do that, you have to select the text that you want to be shown or hidden and wrap it in a span element first:

1. Select the part of the text that you want to make conditional.
2. Right-click the selected text and click **Wrap in span**.
3. Type an **ID** and/or a **class**. An ID is fine if this is the only thing that should be shown or hidden on a given condition. Use a class if there is more that should be shown or hidden on the same condition.
4. Start creating a conditional content script from the **Scripts** pane. Use the ID or class as the selector of the script. See "Showing or hiding elements using the Conditional Script Wizard" on page 539.

Dynamic Images

Dynamic images are called dynamic because they are switched, depending on the value of a data field. This way, a template can be adjusted to different customers.

Adding dynamic images

Dynamic images can be added to the template using the Dynamic Image Script Wizard only if you have:

- One or more data fields that contain values on the basis of which the images can be switched.
- An appropriate image for each group of customers. All files should be of the same type and they need to be stored in one folder (the **Images** folder on the **Resources** pane, or

an external folder). It is important that they are named after the various possible values of the related data field. Adding dynamic images that are not named after a data field value requires a self-made script.

To use the Dynamic Image Script Wizard:

1. Add one image to the template. See "Adding images" on page 473.
2. Right-click the image and click **Dynamic Image**. Or select the image and click **Source** (not the field, but the label before the field) in the Attributes pane.
   The Dynamic Image Script Wizard opens.
   The image's ID is used as the script's selector. If the image did not have an ID, it is automatically generated.
   The Dynamic Image Script Wizard composes a file name (including the path) based on the value of a data field, a prefix and a suffix:
   - The prefix shows the path of the image.
   - The suffix states the file extension of the image.
   - The file name is the value of the data field(s) in the **Field** column.

   The prefix and suffix are derived from the current image.
3. If necessary, enter another **Prefix** and/or **Suffix**.
4. Click the first field in the column **Field**, and then click the downward pointing arrow. Select the data field to be evaluated.
   Click the button **Add**, to add more fields if you want the file name to be composed of the value of several data fields. Note that only the suffix of the last data field should hold the file extension.
   The resulting file name, including the path and file extension, is assigned to the **src** (source) attribute of the image. You can click **Options** to verify this.
5. Click **Apply** or **OK**. Now click the **Preview** tab and browse through the records to verify that the script works as expected.

Tip

The dynamic images feature can be used to insert dynamic signatures, as described in this how-to: Dynamic signatures.

How to insert dynamic images if there are no data fields with the actual names of the images is described in another how-to: Dynamic image that doesn't contain the data field value.

Editing a Dynamic Image

To edit dynamic images added to the template earlier, right-click the image, or the space reserved for the dynamic images. Then click **Dynamic Image** to open the Dynamic Image Script Wizard again.

Dynamic table

In invoice templates, a Dynamic Table is an essential element. A Dynamic Table is different from a standard table in that it has a **variable** number of rows. In a Print context it will automatically overflow into as many pages as necessary to output all rows and it can display a transport line.

Dynamic Tables are only available when the loaded record set or Data Mapping Configuration contains transactional data in one or more **detail tables** (see "Loading data" on page 520).

Creating a Dynamic Table

To create a Dynamic Table:

1. Open the Insert Detail Table dialog. There are several ways to do that:
    - Drag the data field that contains the name of the detail table into the template.
    - On the menu select **Insert > Table > Dynamic**.
    - On the toolbar, click the **Insert detail table** button.
2. Enter the table's desired attributes:
    - **ID**: A unique identifier for the table. IDs are used to access the table from scripts and as CSS selectors for style rules.
    - **Class**: A class identifier for the table. Classes can be shared between elements and are used to access the table from scripts and as CSS selectors for style rules.

- **Detail Table**: Use the drop-down to select which detail table to display within the dynamic table.
- **Width**: Enter the width of the table.

A Dynamic Table is always inserted at the cursor position.

3. Click **Next** and select which fields should show up in the Dynamic Table.
   The order of the fields indicates in which order columns are displayed in the dynamic table, from left to right. Select a line and then use the **Up** and **Down** buttons to change the order of the columns.
   You could change the placeholder for each data field as well; just click a placeholder to edit it.
4. Click **Next** and check **Calculate Subtotals** to enable the options for a (sub)total at the end and (in Print sections) transport lines. The options are:
   - **Column**: Use the drop-down list to select the field that contains the currency value to be used to calculate the subtotal of the table. This field generally contains the result of item prices multiplied by the quantity.
   - **Field name**: Type the name to display in the footer when displaying that page's subtotal.
   - **Show in footer**: Check to display the subtotal in the footer of the table at the bottom of each page **and** at the end of the table.
   - **Show in header** (transportline): Check to display the subtotal of the previous page at the top of the table.
5. Click **Next** and select the styling attributes. Use the drop-down to select the desired table style. Choose **No Style** if you want to style the table yourself.
6. Check the option **Hide when empty** to make the table invisible when there are no data to display in it.
7. Click **Finish** to add the table to the section.

When a Dynamic Table is added, a script is created for each of the columns containing a placeholder for a field that is to be replaced. These scripts are placed inside a folder named after the table's ID, on the **Scripts** pane.

Adding a row at the bottom or the top of a Dynamic Table

Sometimes you'll want to add one or more rows to the header or footer of a Dynamic Table: to add taxes and/or the total of the invoice to the table, for example, or to add a custom message. A header or footer row can be added to a Dynamic Table as follows:

PReS. Connect

1. In the workspace, open the **Design** tab. Right-click the first line of the table if you want to add a header row, or the last line if you want to add a footer row.
2. On the shortcut menu select **Row > Insert below** or **Insert above**. The new row will be added to either the header or footer.
3. Right-click the row and choose **Row > Show**. Now you have the following options:
    - A header row marked as a **Transport line** will not appear at the very top of the table, but only on following pages if the table gets split over multiple pages. Note that only the first row that is marked as Transport line will be taken into account. To make a header row appear at the start of the table and on following pages, make sure that it is not marked as Transport line.
    - A footer row can appear before each page break (**Before page break**), if the table gets split over multiple pages, or only at the end of the table (**At end of table**), or before each page break *and* at the end (**Always**).

You can fill additional rows as usual. You could for example drag a data field to the new row (see "Variable Data" on page 530) or type in the cells.

Examples

For a few examples of how to adjust the default subtotals footer and (transport line) header, see the following how-to: Custom table overflow footers.

Styling a Dynamic Table

The Insert Detail Table wizard lets you select a style, but if you want to apply a different style to the table, choose **No Style** when creating the table. Then the style of a Dynamic Table is completely customizable: you can change the font, font size and color, the borders, the cell padding (the distance between the edge of the cell and its content), and the background color or image of the table and its cells. See "Styling a table" on page 501.

> **Note**
>
> When generating output from a template, a Dynamic Table is created slightly faster when it's styled via Cascading Style Sheets than when it's styled with local formatting. Therefore the preferred way to style a dynamic table is via style sheets.

Change detail line formatting based upon a data field value

An example of how to change the formatting of a line in a Dynamic Table, based upon a data field value, is given in the following how-to: Change detail line formatting based upon a data field value.

Resizing a Dynamic Table

To change the width of a Dynamic Table or of a column in a Dynamic Table, select it (see "Selecting an element" on page 407) and type the desired width as a percentage in the respective field on the **Attributes** pane.

The height of the Dynamic Table is adjusted automatically to the amount of data added to it in Preview mode or when generating output.

It is however possible to change the height of the rows: click in the row and type the desired height in the respective field on the **Attributes** pane. All line item rows will have the same height.

Hiding an empty Dynamic Table

The number of rows in a Dynamic Table is variable, as it depends on a detail table in the data. You might want the Dynamic Table to be hidden when there are no data to display. There are two ways to achieve that.

- When creating a Dynamic Table, you can check the option **Hide when empty**. (See "Creating a Dynamic Table" on page 543.)
- For an existing Dynamic Table you can check the option **Hide when empty** on the **Attributes** pane.

HTML elements and attributes

In HTML, a Detail Table is just a normal <table> element with rows and cells (see "HTML element: table" on page 476). But apart from the native attributes of a table, row and cell element, some `data-` attributes can be seen in detail tables:

- `data-detail`: The name of the detail table in the data, for example: `data-detail="products"`.
- `data-repeat`: The row will be repeated if it has this attribute: `data-repeat=""`.

PReS. Connect

- `data-showin`: This attribute determines the visibility of the row in different situations, if the table gets split over multiple pages:
  - `header` will make the row show up at the top of the table on the first page only.
  - `footer` will make the row show up in the footer of the table on the last page only.
  - `break` used in a row in the <thead> section of a table indicates that the row should not be displayed at the top of the table on the first page, but only on following pages. Used on a row in the <tfoot> section, it indicates that the row should be displayed before each page-break. This value may be combined with `footer` or `header`, for example: `data-showin="footer, break"`, to make the row show up on every page.

  Note that these options can also be set via the user interface: right-click on the row and select **Row > Show**; see "Adding a row at the bottom or the top of a Dynamic Table" on page 544.
- `data-breakable`: this attribute is added to every copied row (in preview mode or when creating output), in each of them with a unique ID as its value. This is required by the pagination routines of Connect to split the table across pages.
- `data-column-resize`, if present, indicates that the columns may be resized (`data-column-resize=""`).

Personalized URL

Personalized URLs (pURLs) are links that are tailor-made for a specific purpose, generally for individual clients. They can serve multiple purposes, for instance:

- **Click Tracking**: A unique ID in the link makes it possible to track the source of the click (for example, a link in an email campaign).
- **User Tracking**: A user-specific ID reveals who clicked the link and at what time.
- **Landing Pages**: Information in the link invokes a unique landing page with specific products or services.
- **Personalized User Pages**: Using information from a database, a user is served a completely personalized web page with their name and information tailored to them, enhancing user response.

Typically, a pURL in a Connect template takes the user to a personalized landing page, for example, to download an invoice or get access to specific products or services.

In addition to the pURL, to generate a personalized landing page the Connect Server needs a template with a Web context and a Workflow process with the following tasks:

- A HTTP Server Input task to capture incoming web requests (see Workflow Help: HTTP Server Input).
- An Execute Data Mapping task to create the record set appropriate for the template (see Workflow Help: Execute DataMapping Task).
- A Create Web Content task that generates the HTML files (see Workflow Help: Create Web Content).

Creating a personalized URL

Creating a personalized URL implies writing a script. See "Writing your own scripts" below.

It also requires some planning, because the pURL needs to contain data that is necessary to create the web page. For instance, creating a personalized URL for a client's invoice may require the Invoice Number to be present in the URL, which is then used to retrieve the invoice data, generate the invoice in PDF or HTML format using a template, and then return it to the browser. The trick is then to add the designated information to a hyperlink. How to do this is described in a how-to; see How to dynamically insert a hyperlink.

Writing your own scripts

Personalization can be taken a lot further than just inserting names and addresses, and hiding or showing text or images. Every bit of information in your communications can be made entirely personal, using scripts.

A script is a small set of instructions to the program, written in JavaScript.
When Connect generates the actual output – letters, web pages or emails -, it opens a record set and merges it with the template. It takes each record, one by one, and runs all scripts for it (in a specific order, see "The script flow: when scripts run" on page 581).

Most scripts can be made using one of the Script Wizards. For a block of variable data, such as an address, the Text Script Wizard is a perfect fit. Paragraphs can be made conditional with a Conditional Script Wizard. For dynamic images, you can use the Dynamic Image Script Wizard. In an Email context, you are provided with a number of Script Wizards to set the sender, the recipients and the subject of the email.

However, when you want to do something that goes beyond what you can do with a Wizard, like creating a conditional paragraph with a condition that is based on a combination of data fields, you have to write the script yourself.

This topic explains how scripts work and how you can create and write a script.

Script types

There are generally two types of scripts: Control Scripts and template scripts.

Control Scripts don't touch the content of the sections themselves, but they change the way a template is outputted, for example by selecting or omitting sections from the output. For more information about Control Scripts and their use, see "Control Scripts" on page 566.

Template scripts can change the contents of sections in a template. This type of script must have a **selector**. The selector can be text, an HTML element and/or a CSS selector. Running a template script starts with looking for pieces of content in the template that match the script's selector.
The results of this query can vary from one occurrence of a simple text (for example: @EMAIL@) to a large collection of HTML elements. For example, when the selector is **p**, the HTML tag for a paragraph, all paragraphs will be collected and passed to the script.

> **Tip**
>
> Hover over the name of a script in the **Scripts** pane to highlight parts of the template that are affected by the script.

Next, the script can modify the selected pieces of content, using values from the record that is merged to the template at the time the script runs. It can, for example, hide, replace or add text or change the style of those pieces of content. This is how scripts personalize documents.

> **Note**
>
> In a Print context, the scripts in the Scripts pane run once for each section and then once for each Master Page (see "Master Pages" on page 318).

Creating a new script

Writing a template script starts with this procedure:

1. On the **Scripts** pane at the bottom left, click **New**. A new script appears in the list. Double-click on it to open it.
2. Change the name of the script, so that it reflects what the script does.
3. Choose which kind of **selector** you want to use. Running a script starts with searching the template for pieces of content that match the script's selector. The collected pieces of content are passed on to the script, so that the script can modify them.
   The selector can be:
   - **Text**, for example: @lastname@, or {sender}. The text doesn't have to have any special characters, but special characters do make them easier to recognize for yourself. In the Script Wizard, click **Text** and type the text to find.
   - A **selector** (HTML/CSS):
     - HTML elements of a certain type, such as a paragraph: <p>. In the Script Wizard, click **Selector** and type the HTML tag without the angle brackets: p.
     - HTML elements with a specific CSS class (.green). In the Script Wizard, click **Selector** and type the class name, including the preceding dot: .green.
     - An HTML element with a specific ID (#intro). In the Script Wizard, click **Selector** and type the ID, including the preceding #: #intro.
       In an HTML file, each ID should be unique. This means that a particular ID can be used only once in each section.
     - Etcetera. See http://www.w3schools.com/cssref/css_selectors.asp for more selectors and combinations of selectors.
   - A **selector and text**. This is text inside an HTML element (or several HTML elements) with a specific HTML tag, CSS class or ID. In the Script Wizard, click **Selector and Text**.

> **Tip**
>
> When output speed matters, choose **selector** or **selector and text**. Searching text is a rather lengthy operation, compared to searching for HTML elements and/or

PReS. Connect

CSS selectors. See also: "Testing scripts" on page 556.

There is a shorter route to create a script for an element with a specific ID:

1. In the template, click the element for which you want to create a script.
2. On the **Attributes** pane at the top right, type an ID. (In HTML, IDs start with #, but in this field you should type it without the preceding #).
3. Click the label to the left of the ID input field (ID)to make a new script with the ID that you typed as a selector.

Writing a script

1. Create a new script (see: "Creating a new script" on the previous page), or double-click an existing script in the **Scripts** pane on the bottom left.
   If the script was made with a Script Wizard, you have to click the **Expand** button before you can start writing code. This will change the Script Wizard into an editor window.

   Warning

   When you change an expanded text script and save it, it becomes impossible to edit the script using the Script Wizard again.

2. Write the script. Click **Apply** from time to time to see if the script works as expected. This will be visible on the **Preview** tab in the main workspace.
   Syntax rules

   Every script in the Designer must follow JavaScript syntax rules. For example, each statement should end with **;** and the keywords that can be used, such as **var** to declare a variable, are JavaScript keywords. There are countless tutorials available on the Internet to familiarize yourself with the JavaScript syntax. For a simple script all that you need to know can be found on the following web pages: http://www.w3schools.com/js/js_syntax.asp and http://www.w3schools.com/js/js_if_else.asp.

PReS. Connect

Tip

In the editor window, press **Ctrl** + **Space** to see the available features and their descriptions.
Use the arrow keys to select a function or object and press Enter to insert it in the script.
Type a **dot** after the name of the function or object and press Ctrl + space again to see which features are subsequently available.
For more keyboard shortcuts, see "Keyboard shortcuts" on page 656.

Two basic code examples

Writing a script generally comes down to modifying the piece(s) of content collected from the template with the script's selector, using values, or depending on values of the record that is being merged to the template at the moment the script runs.
Modifying the template

To access and change the results of the query that is carried out with the selector (in other words: to modify the output), use the object **results**.
The following script (with the selector **p**) changes the text color of all paragraphs to red with a single line of code:

```
results.css('color', 'red')
```

It does this for each and every customer, because it does not depend on a value from the record that is being merged to the template.
Using values from the record in a script

To access the record that is being merged to the template when the script runs, use the object **record**.
Suppose you want to display negative amounts in red and positive amounts in green. Assuming that there is an AMOUNT field in your customer data, you could write the following script (with the selector: **td.amount**, that is: table cells with the class 'amount').

```
var amount = record.fields.AMOUNT;
if (amount >= 0)
        {results.css('color', 'green');}
else if (amount < 0) {
        results.css('color', 'red');
}
```

When this script executes, it stores the value of the AMOUNT field from the current record in a variable and evaluates it. If the value is zero or higher, the color of text in the **results** - the table cells in this case - will be set to green; if the value is below zero, the text color will be set to red.

> **Tip**
>
> For more examples of using conditions, see this how-to: Combining record-based conditions.

Designer API

Features like **results** and **record** do not exist in the native JavaScript library. These are additional JavaScript features, designed for use in Connect scripts only. All features designed for use in the Designer are listed in the Designer's API, with a lot of examples; see "Designer Scripts API" on page 784.

Managing scripts

Changing the order of execution

When a record set is merged with a template to generate output, all scripts are executed once for every record in the record set, in the order in which they appear in the **Scripts** pane at the bottom left.

The order in which scripts are executed is particularly important when one script produces content that contains a selector for another script. If the other script has already been executed, it will not run again automatically. So, scripts that produce content that contains one or more selectors for other scripts, need to come first.

To change the order in which scripts are executed:

- Click a script or a folder in the **Scripts** pane at the bottom. Drag it up or down and drop it.

> **Note**
>
> Control scripts are always executed first, regardless of where they are in the Scripts pane.

They can not be excluded from execution for a specific context or section, using the execution scope of a folder; see "Execution scope" on the next page. What you can do is disable the script or the containing folder; see "Enable/disable scripts" on the next page.

Script folders

Scripts can be organized in folders. Why would you do that? For three reasons:

- Folders have an execution scope. You can specify for which contexts and sections the scripts in a folder have to run.
- Folders provide a better overview than a long unorganized list of scripts.
- Folders make it easier to change the order of execution for a bunch of scripts (see: "Changing the order of execution" on the previous page to learn why the order of execution is important). Dragging a folder up or down will cause all the scripts in that folder to be executed earlier or later, respectively.

To make a new folder on the **Scripts** pane:

1. In the **Scripts**pane, click the black triangle on the**New**button.
2. Click **Folder**. The folder will appear in the list of scripts.
3. Change the name of the new folder: right-click the folder and click **Rename**.
4. Drag scripts to the folder.

Tip

It may be helpful to put scripts that have an effect on the same context or section in one folder, because you can set the execution scope of scripts per folder (see: "Execution scope" on the next page).

Note

Control scripts are always executed first, regardless of where they are in the Scripts pane. They can not be excluded from execution for a specific context or section, using the

PReS. Connect

execution scope of a folder; see "Execution scope" below. What you can do is disable the script or the containing folder; see "Enable/disable scripts" below.

Execution scope

A particular script may be used in one context or section, but not in other contexts or sections. Nevertheless, when processing the template, the Designer tries to find the selector of each script in all contexts and sections – unless the script is located in a scripts folder for which the execution scope has been set to the relevant contexts or sections. So, setting the execution scope of a folder saves processing time.

To change the execution scope of a script:

1. Put the script in a folder; see "Script folders" on the previous page.
2. Right-click the folder, and then click **Properties**.
3. Check the contexts and sections for which the scripts in this folder should run.

Note

Control scripts are always executed first, regardless of where they are in the Scripts pane. They can not be excluded from execution for a specific context or section, using the execution scope of a folder; see "Execution scope" above. What you can do is disable the script or the containing folder; see "Enable/disable scripts" below.

Tip

For more ways to optimize scripts, see "Optimizing scripts" on page 560.

Enable/disable scripts

A disabled script will not run at all when the template is merged with a record set to generate output. Disabling script execution in certain contexts or sections helps with performance, since scripts normally run, whether or not their placeholder or selector is present in your template. It is highly recommended to disable any script that is not relevant to specific sections or contexts.

When you disable a folder, all scripts in the folder will be disabled.

To enable or disable a script or a folder:

- On the **Scripts** pane, right-click the script or the folder and click **Disable** (if the script or folder was enabled) or **Enable** (if the script or folder was disabled).

> **Tip**
>
> For more ways to optimize scripts, see "Optimizing scripts" on page 560.

Import/export scripts

Scripts can be exported - one at a time - for use in other templates. To do this:

1. On the **Scripts**pane, click on a script, and then click the**Export**button, or right-click a script and select**Export**.
2. Give the script a name and click **OK**.

To import a script in a template:

- On the **Scripts**pane, click the**Import**button. Find the script and click**OK**

Files that a script may refer to, such as images, snippets and fonts, are not exported or imported together with a script.

Test the script to make sure that all files are present in the template and that the script's selector matches something in the content of the template; see "Testing scripts" below.

Testing scripts

The quickest way to test that scripts work as expected, is to click the **Preview** tab at the bottom of the workspace.

You can even do this while creating a new script, either with a Script Wizard or in the expanded script editor. Click **Apply** at the bottom of the script editor to see the effect of the script on the **Preview** tab of the Designer.

PReS. Connect

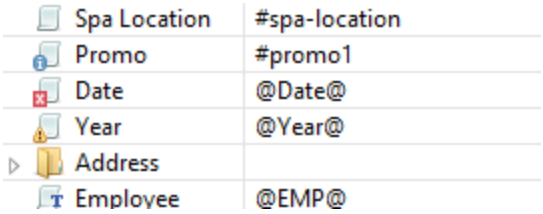
Note that scripts that use values of data fields can only be effective when a data file or Data Mapping Configuration is open. See "Loading data" on page 520.

Test for errors

Another way to 'test' a script is to take a look at the Scripts pane.

> **Tip**
>
> Hover over the name of a script in the **Scripts** pane to highlight parts of the template that are affected by the script.

Icons on the name of scripts in the **Scripts** pane can show a warning, information or error icon.



- The information icon (i) shows that the selector of the script does not produce a result in the current section.
- The warning icon (!) appears, for example, when a script refers to an unknown field in the record set, or when ; is missing after a statement.
- The error icon (x) displays when the script results in an error, for example, when it uses an undeclared variable.

In addition to the icons and messages in the Scripts pane, there is another way to see if your scripts function as expected before generating output:

- On the **Context** menu, click **Preflight**.

Preflight executes the template without actually producing output and it displays any issues once it's done.

It will tell, for example, which selectors were not encountered in the template.

PReS. Connect

Tip

Be aware that scripts run in a specific order (see "The script flow: when scripts run" on page 581). When one script unintentionally influences the results of another script, changing the order of the scripts in the Scripts pane may help (see "Changing the order of execution" on page 553).

Testing for speed issues

To measure the time that the execution of scripts will take:

- On the **Context** menu, click **Profile scripts**.

Profiling means running the scripts in the template, with the current record, to see how fast scripts in the **Scripts** pane execute. It helps greatly in troubleshooting performance issues caused by scripts.

After running the Script Profiler you can see in which sections the script has run:

- Hover the mouse over a value in the column **Count** to see the number of times that the script has run, per section.

You can also see the breakdown of the execution time across different execution stages:

- Hover the mouse over a value in the column **Elapsed** to see the time elapsed (in milliseconds) since the start of the session. In the Scripts Profiler, the scripts are by default sorted based on the values in the **Elapsed** column, from high to low.
- Hover the mouse over a value the column **Delta** to see the difference between the time elapsed (in milliseconds) in the previous session and in the current session.

The script execution stages are:

Query: the time it takes to find the selector in the template.

Tip

Looking for text is a rather lengthy operation. Use an ID (possibly in combination with a text) instead of a text selector to make the query faster. For more tips, see "Optimizing scripts" on

PReS. Connect

›age 560.

Execution: the time it takes to execute the script. If you are an experienced JavaScript coder you may be able to optimize the code to speed up the execution of the script.

> **Tip**
>
> Functions that actually change the content of the template (for example,**append()**) are comparatively time consuming. Avoid using such functions in a loop. For more tips, see "Optimizing scripts" on the facing page.

Note that the times vary slightly per run of the Script Profiler. Run the Script Profiler a number of times and calculate an average from the results, before trying to speed up the execution of a script.

Script Profiler settings

Number of runs

By default, the Script Profiler runs on 1000 instances of all the scripts. To test on a higher or lower number of instances:

1. On the menu, select **Window > Preferences**.
2. Click **Scripting**.
3. Set a number of iterations (maximum one billion) and click OK.

Sorting

In the Scripts Profiler, the scripts are by default sorted based on the values in the **Elapsed** column, from high to low. Click any of the columns to sort the scripts according to the values in that column.

Script timeout

When testing scripts, either by toggling to Preview mode or by using the Script Profiler, a script timeout is active in the Designer, so that scripts that need a very long time to run are stopped after a set time. You can adapt this timeout to your needs, as follows:

PReS. Connect

1. On the menu, select **Window > Preferences.**
2. Click **Scripting**.
3. Set a timeout in seconds (for example: 2s) and click OK. The minimum timeout is 1 second.

> **Note**
>
> The script timeout is not active when generating output.

Optimizing scripts

In the process of output generation, the execution of scripts may take up more time than necessary. To optimize a template, it helps to disable scripts that don't have an effect on the output; see "Managing scripts" on page 553.

This topic presents a number of other ways to speed up script execution by optimizing the scripts.

Use an ID as selector

Scripts (except control scripts) start with a query. The **selector** in the second column in the **Scripts** pane is what a script looks for in the template. If you've used the drag-and-drop method (without pressing the Alt or Ctrl key) to insert a data field in a template, the selector is a small text: the name of the data field surrounded by @ signs, `@firstname@` for example.

Looking for text in a text is a less optimized operation and may impact output speeds in longer documents. To speed up the output process, point the script to the element that contains the placeholder, by using its ID as selector. This narrows the scope of the search and results in a very fast query, as elements with an ID are indexed by Connect Designer's layout engine.

To learn how to put a placeholder or placeholders inside an element that has an ID, see "Boxes" on page 450. To use that ID as the script's selector: double-click the script in the Scripts pane and change the Find method to **Selector and Text**, or to **Selector** if the placeholder is the only content of the container. Enter the ID of the wrapper element in the **Selector** field, preceded by **#**, for example: #firstname.

Tip

When using the drag-and-drop method to insert data fields in a template:

- Press the **Alt** key while dragging, to wrap the placeholder in a **span**, give the span an **ID** and have that ID used as the script's selector.
- Press the **Ctrl** key while dragging, to wrap the placeholder in an absolute positioned box (a **div**) at the cursor position. A unique ID is assigned to the box and used as the script's selector.

Avoid DOM manipulations

The Scripting API of the Designer is a very powerful tool to manipulate and personalize your document. But keep in mind that DOM manipulation commands like append(), prepend(), before() and after() are resource intensive.

Try avoiding DOM modifications, especially within loops. Storing the content in a variable and appending the information after the loop is more efficient: this way, the template will be touched only once.

Example

The following example loads a snippet into a variable and uses the find() and text() commands of the Designer scripting API.

```
var labelElm = loadhtml('snippets/label.html');
for(var i = 0; i < record.tables.products.length; i++) {
       var label = labelElm.clone();
       label.find('@ProductLabel@').text(record.tables.products
[i].ProductDescription);
       results.after(label);
}
```

What's wrong with this code is that it inserts the personalized information **within** the loop. The after() command runs as many times as there are records in the detail table 'products'.

The script below is much more efficient: it adds the personalized content to a string called labelStr and only calls after() after the `for` loop.

PReS. Connect

```
var labelElm = loadhtml('snippets/label.html');
var labelStr = "";
for( var i = 0; i < record.tables.products.length); i++) {
       var label = labelElm.clone();
       label.find('@ProductLabel@').text(record.tables.products
[i].ProductDescription);
       labelStr += label;
}
results.after(labelStr);
```

Use replace()

When personalizing HTML fragments retrieved from a snippet or from the template itself, JavaScript's replace() method shows the best performance.

Replace() can only be used on Strings, while the commands loadhtml() and query() return or a QueryResult, which is a set of strings, like the results object.

A QueryResult allows you to perform DOM manipulations like adding and removing elements, adding and removing CSS classes etc. When the required manipulations are limited to find/replace actions, you could change the QueryResult into a string. This allows you to replace text using the replace() method.

For this, you could use toString():

var labelSnippet = loadhtml('snippets/label.html').toString();

Or you could copy the HTML of the QueryResults to a variable:

var block = results.html();

Example

```
var labelSnippet = loadhtml('snippets/label.html').toString();
var labelStr = "";
for( var i = 0; i < record.tables.detail.length; i++) {
       var label = labelSnippet;
       label = label.replace('#', i);
       label = label.replace('@product@', record.tables.detail[i].fields
['product']);
       label = label.replace('@notes@', record.tables.detail[i].fields
['notes']);
```


PReS. Connect

```
        label = label.replace('@netweight@', record.tables.detail
[i].fields['netweight']);
        labelStr += label;
}
results.after(labelStr);
```

Tip

The replace() method as used in the above example replaces only the first occurrence of the search string. To **replace every occurrence** of a search string in a given string, use a **regular expression**. In the following line of code, the regular expression `/@product@/g` makes replace() search for all occurrences of the string @product@ in the `label` string:

```
label = label.replace(/@product@/g, record.tables.detail
[i].fields['product']);
```

In this example, @product@ is a pattern (to be used in a search) and g is a modifier (to find all matches rather than stopping after the first match). For more information about possible regular expressions, see http://www.w3schools.com/js/js_regexp.asp.

Replace several placeholders in one script

Suppose there are 20 different placeholders in a postcard (for the address, account and customer details, a promo code, the due date, discounts, a link to a personalized landing page etc.). Typically this would require 20 queries. Even after optimizing these scripts by using an ID as selector for those scripts, there are still 20 scripts, 20 queries to run.

If there was only one query, one single script to do all the work, the output could be generated much faster. Reducing the number of scripts improves the performance of the template. How to do this?

First, wrap the content that contains all of the placeholders in one (inline) Box and give that Box or Span an ID (on the Attributes pane). Next, create a script that uses that ID as selector. Then replace all placeholders in the script and put the content back in the template.

This is similar to working with snippets, but in this case the element is extracted from the actual template.

PReS. Connect

Example

The following script replaces all of the placeholders on a postcard. It takes advantage of the JavaScript replace() command. Assuming that the ID of the block that requires personalization is `promoblock`, the script has to have its selector set to `#promoblock`.

```
var block = results.html();
var data = record.fields;
block = block.replace('@name@',data.first + ' ' + data.last);
block = block.replace('@address@',data.address);
block = block.replace('@zip@',data.zip);
block = block.replace('@city@',data.city);
block = block.replace('@country@',data.country);
block = block.replace('@saldo@',data.saldo);
block = block.replace('@promo@',data.promo);
block = block.replace('@customercode@', data.customercode);
…
results.html(block);
```

The first line retrieves the HTML of the promo block and stores it in a variable called block. To make the code more readible, the fields from the record are stored in a variable named `data`. After replacing the placeholders by values, the script replaces the HTML of the promoblock with the personalized string.

Loading a snippet via a script

Instead of dragging it into the content directly, it is possible, and often very useful, to load a snippet dynamically. Create a script (see "Writing your own scripts" on page 548) and in the code, use the following function:

```
results.loadhtml('snippets/nameofthesnippet.html')
```

Remote snippets are retrieved in the same way, except that the file extension should be `.rhtml` instead of `.html`.
Note that the name of the snippet must be exactly the same as in the Snippets folder.

This function will insert the snippet in the content at any position where the script's selector is encountered.

For more examples, see "loadhtml()" on page 797.

PReS. Connect

Note

Make sure that the file name is exactly the same as the file in the **Snippets** folder. If the file name isn't correct, the snippet will not appear in the template.

Loading part of a snippet

When a snippet contains a part that can be identified by a selector, that selector can be used to load that part of the snippet into a template.

In script, use the following code:

```
results.loadhtml('snippets/nameofthesnippet.html', 'selector')
```

See "loadhtml()" on page 797 for more information about this function.

Loading a snippet, depending on the value of a data field

To load a snippet depending on the value of a data field, you have to add a condition to the script.

Example

The following script evaluates if the value of the LANGUAGE field in the record is 'En'. If so, the snippet is added to the content.

```
if (record.fields.LANGUAGE == 'En') {
results.loadhtml('snippets/nameofthesnippet.html');
}
```

Another example is given in a how-to; see Load a snippet based on a data field value.

Loading part of a snippet, based on the value of a data field

When a snippet contains a part that can be identified by a selector, that selector can be used to load that part of the snippet into a template. It is possible to do this, based on the value of the data field. This is easiest when the selector matches the value of a data field.

Example

The following script reads the value of the LANGUAGE field in the record and uses that value as the selector in the function loadhtml(). If the snippet contains an HTML element with this ID (for example,), that HTML element will be added to the content:

```
var language = record.fields.LANGUAGE;
results.loadhtml('snippets/nameofthesnippet.html', '#'+ language)
```

Another example is given in the following how-to: Using a selector to load part of a snippet.

See also: "Designer Scripts API" on page 784.

Tip

An easy way to group content in a snippet is putting each part in a container and giving that container an ID, for example:
This is text for English customers.
Use the function `.children()` to load the contents of the container, and not the container itself. For example:

```
results.loadhtml('Snippets/myfooter.html', '#EN').children()
```

This script loads the paragraph of the example ( ), but not the container itself ( ).

Load a snippet and insert variable data into it

The following script loads part of a snippet based on the value of a field, and then finds/replaces text by the value of a field before inserting the content into the document.

```
var promoTxt = loadhtml('snippets/promo-en.html', '#' +
record.fields['YOGA']);
promoTxt.find('@first@').text(record.fields['FIRSTNAME']);
results.html(promoTxt);
```

Control Scripts

When output is generated from a template, Control Scripts run **before** all other scripts, when a record is merged with a context. They determine how different sections of the context are handled. They can, for example, make the page numbering continue over all Print sections, split Email attachments, or omit Print sections from the output.

PReS. Connect

Some knowledge of JavaScript is needed to edit Control Scripts, just as for any other self-made scripts, because there is no Control Script Wizard; see "Writing your own scripts" on page 548.

This topic explains how to add a Control Script and it gives an overview of what Control Scripts can do. It will also tell you where you will find information about each feature, including examples.

What Control Scripts are

Control Scripts are a special kind of Designer script. They can manipulate the way output is generated from a template. They allow you, for example, to change the page numbering in Print output, to split one generated Print document into multiple Email attachments, or to set a Print section's background dynamically. (These are only a few examples; for more uses of Control Scripts see "What to use a Control Script for" on the facing page.)

Control Scripts differ from template scripts in two ways:

- Control Scripts run before all other scripts. When a template consists of several contexts, and these contexts are combined in the output - for example, when an Email is generated with the Print context as attachment - all scripts run once before each context; Control Scripts first.
- Control Scripts don't have a selector, like the other scripts do. A selector selects parts of the content of a section and stores them in the results object, so that they can be modified in the script. As Control Scripts don't have a selector, the results object can't be used there. Control Scripts don't touch the content - meaning, the text flow - of the sections.

Adding a Control Script

To add a Control Script:

1. On the **Scripts** pane at the bottom left, click the black triangle on the **New** button and click **New Control Script**. A new script appears in the list.
2. Double-click the new script to open it. The script editor appears.
3. Change the name of the script so that it reflects what the script does.
4. Write the script; see the "Control Script API" on page 839. If you are not familiar with scripting, also see "Writing your own scripts" on page 548.

PReS. Connect

> **Tip**
>
> New Control Scripts added to the template contain code to continue the page numbering over all print sections, and two examples: one to select different sections of a Print context for email and print output, and one to select a web section.

What to use a Control Script for

Control Scripts let you change the way a template is merged, by giving access to the template with all its contexts and sections in a script. A Control Script may, for example, omit, group and clone sections; add a background to a Print section; or add a header to an email. A number of the things that you can do with them is listed in the table below, with a link to a topic that explains how to do them and that shows what the script should look like.

Control Scripts differ from template scripts in two ways:

- Control Scripts run **before** all other scripts. When a template consists of several contexts, and these contexts are combined in the output - for example, when an Email is generated with the Print context as attachment - all scripts run once for each context, but Control Scripts always go first.
- Control Scripts **don't** touch the content - meaning, the text flow - of the sections. They don't have a selector, like the other scripts do. A selector selects parts of the content of a section and stores them in the `results` object, so that they can be modified in the script. As Control Scripts don't have a selector, the `results` object can't be used there.

In a Control Script, `section` usually is the most important object. To get a quick overview and lots of examples, see "section" on page 844. For help on specific tasks, see the table below.

Task	See topic	Field/function of `section` object
Change the page numbering of Print sections	"Control Script: Page numbering" on page 570	`restartPageNumbering`
Set the background image of a Print section	"Control Script: Setting a Print section's background" on	`background.source`, `background.url`, `background.position`

Task	See topic	Field/function of `section` object
	page 574	
Split Email attachments and rename them	"Parts: splitting and renaming email attachments" on page 572	`part`
Dynamically set a password on PDF attachments	"Control Script: Securing PDF attachments" on page 579	`password`, `ownerPassword`
Include/exclude sections: • Conditionally omit sections • Output one section or another, based on the value of a data field • Select one print section as PDF attachment if the output is to be emailed, and another print section if the output is to be printed.	"section" on page 844, take a look at the examples.	`enabled`
Add sections dynamically	"Dynamically adding sections (cloning)" on page 576.	`clone()`
Add a header to an email	"section" on page 844, example: "Adding custom ESP handling instructions" on page 879.	`headers`

Control Script: Page numbering

This topic explains how to write a Control Script that changes the page numbering in Print sections. Note that when you add a Control Script, it already contains a script to make the page numbering continue over all Print sections.

For information about Control Scripts in general, see "Control Scripts" on page 566 and "Control Script API" on page 839. If you don't know how to write scripts, see "Writing your own scripts" on page 548.

How to change page numbering in a control script

A Control Script can make the page numbering continue over all Print sections or let it restart on a section. This is done by setting the `restartPageNumber` field on a `section` to `true` or `false`. For example: `merge.template.contexts.PRINT.sections['Section 2'].restartPageNumber = true;`. (Also see "section" on page 844 and "Control Script API" on page 839.)

Page numbering starts with page 1 for each section. If for a section `restartPageNumber` is set to `false`, that section will start with the page number following the last page of the previous section.

Note that even if a section is not enabled (so it will not be outputted), its `restartPageNumber` flag is still taken into account for composing the page number sequences.

By default, each section has `restartPageNumber = false` when the first control script runs.

> **Tip**
>
> If you are looking to create a table of contents, add a template script that uses the `pageRef()` function. For an example, see "Creating a table of contents" on page 831.

Examples

Restarting the page numbers several times

Assume that a template has four sections (of 1 page each) in the Print context and a Control Script sets the page numbering as follows:

PReS. Connect

1. Section A (1 page) restartPageNumber = true
2. Section B (1 page) restartPageNumber = true
3. Section C (1 page) restartPageNumber = false
4. Section D (1 page) restartPageNumber = true

The code would look like this:

```
if (merge.context.type == ContextType.PRINT) {
        merge.context.sections['Section A'].restartPageNumber = true;
        merge.context.sections['Section B'].restartPageNumber = true;
        merge.context.sections['Section C'].restartPageNumber = false;
        merge.context.sections['Section D'].restartPageNumber = true;
}
```

The page numbering in the output will be:

1. Section A page 1
2. Section B page 1
3. Section C page 2
4. Section D page 1

Disabled section

When a section is disabled, it will not be outputted, but its `restartPageNumber` flag will still be taken into account for composing the page number sequences. So, if the `restartPageNumber` flags are set as follows:

1. Section A (1 page) restartPageNumber = true
2. Section B (2 pages) restartPageNumber = false
3. Section C (3 pages) restartPageNumber = true, enabled = false
4. Section D (4 pages) restartPageNumber = false

In code:

```
if (merge.context.type == ContextType.PRINT) {
        merge.context.sections['Section A'].restartPageNumber = true;
        merge.context.sections['Section B'].restartPageNumber = false;
        merge.context.sections['Section C'].restartPageNumber = true;
        merge.context.sections['Section C'].enabled = false;
```


PReS. Connect

```
        merge.context.sections['Section D'].restartPageNumber = false;
}
```

The page numbering in the output will be:

1. Section A page 1
2. Section B page 2
3. Section D page 1 (page numbering is restarted due to section C's restartPageNumber = true)

Parts: splitting and renaming email attachments

In a Control Script, **parts** can be defined to determine which sections should be output to the same file. This way it is possible to split the Print context or the Web context into multiple email attachments. This topic shows how to do that.

For information about Control Scripts in general, see "Control Scripts" on page 566 and "Control Script API" on page 839. If you don't know how to write scripts, see "Writing your own scripts" on page 548.

Defining parts

Defining parts is done by setting the `part` field on a `section`, for example: `merge.template.contexts.PRINT.sections['Section 2'].part = "PDF_Attachment2";`. (Also see "section" on page 844 and "Control Script API" on page 839.)

- If a part name is given, then that delimits the start of a new part (even if the part name is the same as the previous one). Following sections that don't define a part name, will be added to the previous part.
- A part ends at the last enabled* section or at the last section before the start of a new part. *When a Control Script has set the `enabled` field of a `section` to `false`, it will not be outputted.

If no part name is set on any section, it is assumed that there is only one part, consisting of the default section (for Web output) or of all sections (for Print output). The attachment(s) will be named after the email subject.

PReS. Connect

Examples

No parts defined

Assume there are three Print sections: sections A, B and C. When generating Email output with the Print context as attachment, all three Print sections will be put together in one file and attached to the email. If the email's subject is 'Take action', the name of the attached file will be 'Take action.PDF'.

Splitting and renaming a Print attachment

Assume there are three Print sections: sections A, B and C. In a Control Script a part name is defined for section C:

```
var section = merge.template.contexts.PRINT.sections['Section C'];
section.part = 'Part2';
```

When generating Email output with the Print context as attachment, the email will have two attachments:

- attachment 1: Section A, Section B
- attachment 2: "part2", which is Section C. The file name of this attachment is the part name.

> **Note**
>
> For Web sections, a part always consists of only the given section. Web pages cannot be appended to form a single part. It is however possible to attach multiple Web pages to one email; see the following example.

Controlling multiple Email attachments

The following script attaches the following sections to an email:

- Print section 3 + 4 as attachment with continued page numbers
- Print section 6 as separate attachment
- Web sections A and B as separate attachments

```
if (channel == Channel.EMAIL) { // only when generating Email
output
if (merge.context.type == ContextType.PRINT) {
```


PReS. Connect

```
        merge.context.sections['Section 1'].enabled = false;
        merge.context.sections['Section 2'].enabled = false;
        merge.context.sections['Section 3'].enabled = true;
        merge.context.sections['Section 3'].part = "PDFAttach1";
        merge.context.sections['Section 4'].enabled = true;
        merge.context.sections['Section 4'].restartPageNumber = false;
        merge.context.sections['Section 5'].enabled = false;
        merge.context.sections['Section 6'].enabled = true;
        merge.context.sections['Section 6'].part = "PDFAttach2";
} else if (merge.context.type == ContextType.WEB) {
        merge.context.sections['default Section'].enabled = false; //
disable whatever is the default section
        merge.context.sections['Section A'].enabled = true;
        merge.context.sections['Section A'].part = "WebPartA";
        merge.context.sections['Section B'].enabled = true;
        merge.context.sections['Section B'].part = "WebPartB";
}
}
```

Note

For another example, see this how-to: Output sections conditionally.

Control Script: Setting a Print section's background

In the Print context, a PDF file can be used as a Print section's background. To learn how to do this without a Control Script, see "Using a PDF file as background image" on page 307.
With a Control Script, a Print section's background can be set dynamically. You could for example specify a particular PDF file as a section's background depending on the value of a field in the current record. This topic shows how.

For information about Control Scripts in general, see "Control Scripts" on page 566 and "Control Script API" on page 839. If you don't know how to write scripts, see "Writing your own scripts" on page 548.

Setting a background in script

The Control Script should first enable a background on the section, in case an initial background wasn't set via the user interface. This is done by setting the source type for the

PReS. Connect

background of the section to either DataMapper PDF or Resource PDF (see "BackgroundResource" on page 852). For example:

```
merge.template.contexts.PRINT.sections['Policy'].background.source
= BackgroundResource.RESOURCE_PDF;
```

A DataMapper PDF is, as you would expect, a PDF generated by the DataMapper. A Resource PDF is a PDF from another source.

For a DataMapper PDF, nothing else has to be done to set the background. For a PDF from another source, the Control Script should specify a path, for example:

```
var resourceUrl = 'images/policy-' + record.fields.policy + '.pdf';
merge.template.contexts.PRINT.sections['Policy'].background.url =
resourceUrl;
```

Positioning the background

After that, the background can be positioned, setting the section's `background.position`:

```
activeSection.background.position = MediaPosition.FIT_TO_MEDIA;
```

For all possible positions, see "MediaPosition" on page 855.

Setting a page range in script

When a PDF that serves as a dynamic section background has multiple pages, you can specify a range of pages to be used, in a control script.
Put the number of the first page in the range in the section's `background.start` field and the last page in `background.end`.
This requires you to set the `background.allPages` option to `false`, first. This option is `true` by default and takes precedence, so when it is `true`, the entire PDF will be used, even if a page range has been set.

The following script sets the page range from 2 to 5:

```
merge.template.contexts.PRINT.sections
['Policy'].background.allPages = false;
merge.template.contexts.PRINT.sections['Policy'].background.start =
2;
merge.template.contexts.PRINT.sections['Policy'].background.end =
5;
```


PReS. Connect

Example

This scripts sets a background on a Print section using absolute positioning.

```
var activeSection = merge.template.contexts.PRINT.sections['Section
1'];
activeSection.background.source = BackgroundResource.RESOURCE_PDF;
activeSection.background.url = "images/somepage.pdf";
activeSection.background.position = MediaPosition.ABSOLUTE;
activeSection.background.left = "10mm";
activeSection.background.top = "10mm";
```

You could replace the last three lines of the previous script by the following line to scale the Print section background to Media size:

```
activeSection.background.position = MediaPosition.FIT_TO_MEDIA;
```

Dynamically adding sections (cloning)

This topic explains how to clone a section in a Control Script, Print sections can be cloned, so that a document can have a dynamic number of sections, based on data. This is particularly useful when the record set defines one or more PDFs (e.g. insurance policies) per recipient. Via a Control Script, for each PDF a section can be cloned and each clone can be given one of the PDFs as background (see "Control Script: Setting a Print section's background" on page 574). For each page in the PDF, a page will be added to the section.

For information about Control Scripts in general, see "Control Scripts" on page 566 and "Control Script API" on page 839. If you don't know how to write scripts, see "Writing your own scripts" on page 548.

Cloning a section

To clone a section, first use the `clone()` function and then add the clone to the Print context before or after a specific section, using `addAfter()` or `addBefore()`:

```
var printSections = merge.template.contexts.PRINT.sections;
var clone = printSections["Section 1"].clone();
printSections["Section 1"].addAfter(clone);
```

Cloned sections have the same properties as normal sections, but they cannot call `section` functions.

Note

Due to resource constraints, the number of unique clones that can be created throughout a job is limited to around 20. A clone is considered unique if it has a different name. This is a rough estimate; if the template is simple, up to 60 clones may be created.
The limit only applies to the amount of unique clones. There is no limit to the amount of `clone()` function calls.

Renaming a clone

By default, clones receive the name of their source section with a "Clone {sequence}" suffix, for example:
Source: "Section 1"
Clone Name: "Section 1 Clone 1"

Use the `name` property to assign the cloned section another name, for example:

```
clone.name = "my_section_clone";
```

The section name must be unique within the scope of a single record.

Note

It is recommended not to use a random value or a time stamp in the name of a section. Although section names must be unique within the scope of a record, *across records* it is advisable to keep using the same name for the same clone, to avoid hitting the limit of the number of unique clones that can be created throughout a job (see the previous note).

Targeting elements in a cloned section

As each clone receives a unique section name, one could use CSS style sheets (see "Styling and formatting" on page 484) and personalization scripts (see "Variable Data" on page 530 and "Writing your own scripts" on page 548) to further personalize the cloned sections.

The following CSS style rules target the <h1> element in a number of clones and assigns the respective text a different color:

PReS. Connect

```
[section="my_section_clone_0"] h1 { color: red; }
[section="my_section_clone_1"] h1 { color: green; }
[section="my_section_clone_2"] h1 { color: blue; }
```

The same selectors could be used in personalization scripts:

Selector: `[section="my_section_clone_0"] h1`
Script: `results.css('color','red');`

In a template script, cloned sections can be found using `merge.section`:

```
if (merge.section == "my_section_clone_0") {
        results.html("Clone!");
} else {
        results.html("Original.");
}
```

Note that in a Control Script, `merge.section` is only defined when the output channel is WEB; see "merge" on page 843.

Examples

Cloning a section based on the number of records in a detail table

This script creates as many clones of a section as there are records in a detail table. It assigns the new sections a unique name.

```
var printSections = merge.template.contexts.PRINT.sections;
var numClones = record.tables['detail'].length;
for( var i = 0; i < numClones; i++){
       var clone = printSections["Section 1"].clone();
       clone.name = "my_section_clone_" + i;
       printSections["Section 1"].addAfter(clone);
}
```

Cloning a section based on data and assigning a background PDF

This script clones a section based on data fields. It disables the source section first and then calls the `addPolicy` function. `addPolicy` clones the section, renames it and sets a PDF from the resources as its background. It explicitly enables the clone and then adds it to the Print context.

```
var printSections = merge.template.contexts.PRINT.sections;
merge.template.contexts.PRINT.sections["Policy"].enabled = false;
```


PReS. Connect

```
if(record.fields.policy_a == 1) {
	addPolicy('a');
}
if(record.fields.policy_b == 1) {
	addPolicy('b');
}
function addPolicy(policy){
	var resourceUrl = 'images/policy-' + policy + '.pdf';
	var clone = printSections["Policy"].clone();
	clone.name = "policy_" + policy;
	clone.background.url = resourceUrl;
	clone.enabled = true;
	printSections["Policy"].addAfter(clone);
}
```

Control Script: Securing PDF attachments

The Print context can be attached to an email in the form of a PDF file and secured with a password. This can be done without a Control Script, see "Email attachments" on page 346 and "Email PDF password" on page 345.
With a Control Script, you can do the same, and more: the attachment can be split into multiple attachments (see Parts). Each attachment may have a different (or no) set of passwords, so you could mix secured and unsecured attachments in a single email. This topic shows how.

For information about Control Scripts in general, see "Control Scripts" on page 566 and "Control Script API" on page 839. If you don't know how to write scripts, see "Writing your own scripts" on page 548.

Setting passwords in script

To set a password on a Print section in a Control Script, the script should first retrieve the Print section/s using `merge.template.contexts.PRINT.sections` or `merge.context.sections` (also see the example below).
Next, the script can split the attachments, if needed (see "Parts: splitting and renaming email attachments" on page 572), and it can set a password on each `section`. For example:

- `merge.template.contexts.PRINT.sections['Section 2'].password = 'secret';`
- `merge.template.contexts.PRINT.sections['Section 2'].ownerPassword = 'secret';`

When producing a **single** attachment, the password(s) should be set on the first Print section. When producing **multiple** attachments, it should be set on the first section of each part.

Password types

PDF allows for two types of passwords to be set on a secured PDF file: a user password and owner password. The user password allows a limited access to the file (e.g. printing or copying text from the PDF is not allowed). The owner password allows normal access to the file. The Email PDF password script sets both the user and owner password to the same value, so that when the recipient provides the password, he can manipulate the file without limitations.

In a Control Script:

- `password` is used to set the user password and owner password for a PDF attachment to the same value.
- `ownerPassword` is used to set the owner password for a PDF attachment. Setting only the owner password creates a secured PDF that can be freely viewed, but cannot be manipulated unless the owner password is provided. Note that the recipient needs Adobe Acrobat to do this, because the Acrobat Reader does not allow users to enter the owner password.

Removing a password

Passwords set in the Control Script override the password set through the Email PDF password script (see "Email PDF password" on page 345). This allows you to change or remove the password from a specific part. Removal is done by setting the `password` field to `null` or an empty string ("").

Example

This scripts splits the Print output into two PDF attachments and sets a password for the second attachment.

```
var printSections;
if (channel == Channel.EMAIL) { // only when generating Email
output
if (merge.context.type == ContextType.PRINT) {
printSections = merge.template.contexts.PRINT.sections;
        printSections['Section 1'].part = 'PDFAttach1';
        printSections['Section 2'].part = 'PDFAttach2'
        printSections['Section 2'].password = 'secret';
```

```
            }
}
```

The script flow: when scripts run

When Connect generates the actual output – letters, web pages or emails -, it opens a record set and merges it with the template. It takes each record, one by one, and runs all scripts for it, in a specific order, as explained below.

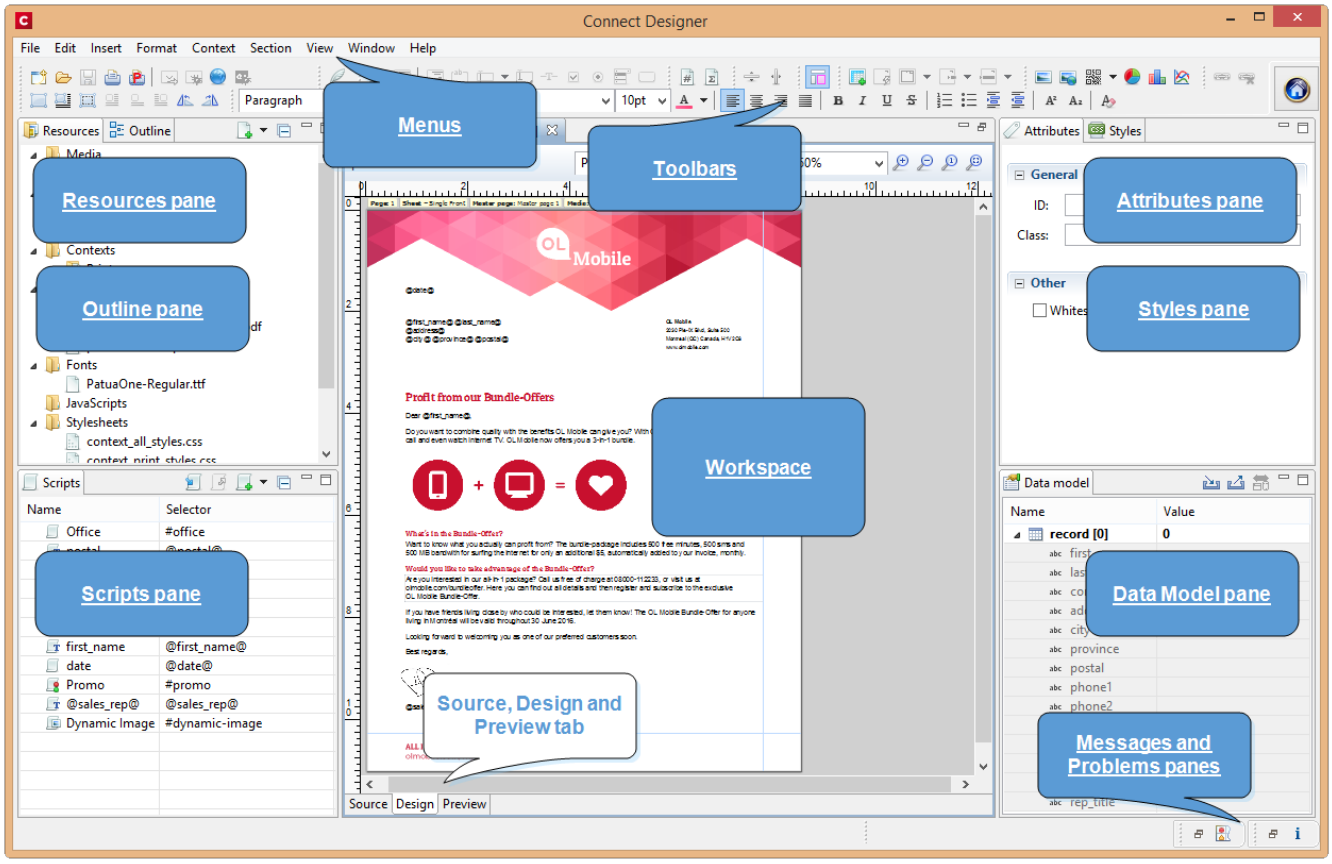
First all Control Scripts are executed, in the order in which they appear in the Scripts pane. Control scripts don't touch the content of the sections themselves, but they change the way a template is outputted, for example by selecting or omitting sections from the output (see "Control Scripts" on page 566).

Then the template scripts are executed, once for each section, in the order in which they appear in the Scripts pane.
Template scripts can change the contents of the current section in a template.
This type of script must have a **selector**: text, an HTML element and/or a CSS selector (see "Writing your own scripts" on page 548).
Running a template script starts with looking in the current section for pieces of content that match the script's selector.
Important to note is that **if nothing matches the selector, the script is not executed.**

In a **Print context**, the template scripts in the Scripts pane run once for each section and then for each Master Page (see "Master Pages" on page 318). Next, each processed Master Page is put behind every page to which it should be applied.
Scripts are NOT executed again for every page. Post-pagination scripts currently don’t exist in Connect.

Designer User Interface

The Designer's user interface gives you several options to work with.



See:

- "Menus" on page 662
- "Toolbars" on page 689
- "Resources Pane" on page 679
- "Outline Pane" on page 679
- "Attributes Pane" on page 673
- "Styles pane" on page 686
- "Workspace" on page 686
- "Data Model Pane" on page 676
- "Scripts pane" on page 684
- "Problems and messages" on page 677

PReS. Connect

Dialogs

Dialogs can allow you to perform a command or make settings. They can also ask you a question or provide you with information or progress feedback.

Here is a list of all panes:

Bar Chart Properties dialog

The Bar Chart dialog appears when a Bar Chart object is right-clicked and the Bar Chart... option is clicked. It determines how the Bar Chart is displayed when generating output and in Preview mode.

General Tab

- **General Group**:
  - **Display grid above graph**: Check to display the grid on top of the bars so that it is always visible.
  - **Rotate**: Check to rotate the graph 90 degrees so that the bars are horizontal starting from the left.
  - **Stack Series**: [TBD]
- **Text Group**: Determines how text is displayed in labels and legends.
  - **Font**: Type in the font-face to use to display text. The font must be installed on the system and defaults to Verdana if the font is not found. Equivalent to the `font-family` property.
  - **Size**: Type in the size of the font. For example, 12pt or 20px. Defaults to 11px. Equivalent to the `font-size` property.
  - **Color**: Type in the color in which to display text. The color value must be a valid HTML Hex Color. Equivalent to the `color` property.
- **Fill Group**:
  - **Color**: Enter a color for the bars. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. This color replaces all initial colors.
  - **Opacity**: Enter the percentage for the opacity of the bars. Does work on the initial colors, if no fill color is entered in this dialog.
- **Line Group**:

PReS. Connect

- **Show Line**: Adds a line around each bar (or fills the bar if the bar has no fill color).
- **Color**: Enter a color for the line. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
- **Opacity**: Enter the percentage for the opacity of the line.

Value Axis Tab

- **Title group**:
  - **Label**: Enter a label for the Y axis (X axis if the graph is rotated).
  - **Bold**: Check if you want the label to be in bold style.
  - **Color**: Enter a custom color for the label (Default is Black). The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Font Size**: Enter a font size for the label, in pt.
- **Grid group**:
  - **Show Grid**: Displays a grid behind the bars.
  - **Color**: Enter a color for the grid that displays in the graph. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity percentage of the grid. Default is 15%.
  - **Thickness**: Enter a thickness for the grid, in pixels. Default is 1px.
  - **Tick Length**: The distance between each vertical line in the grid.
- **Axis group**:
  - **Show Axis**: Check to show the value axis (the line between the chart and the values).
  - **Color**: Enter a color for the value axis. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity in percentage for the axis.
  - **Thickness**: Enter the thickness, in pixels, for the axis.

PReS. Connect

Category Axis Tab

- **Title group**:
  - **Label**: Enter a label for the X axis (Y axis if the graph is rotated).
  - **Bold**: Check if you want the label to be in bold style.
  - **Color**: Enter a custom color for the label (Default is Black). The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Font Size**: Enter a font size for the label, in pt.
- **Grid group**:
  - **Color**: Enter a color for the grid that is displays in the graph. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity percentage of the grid. Default is 15%.
  - **Thickness**: Enter a thickness for the grid, in pixels. Default is 1px.
  - **Position**: Choose Middle to centre the grid over the graph, or choose Start to make the first vertical grid lign match the value axis.
  - **Tick Length**: The distance between each vertical line in the grid.
- **Axis group**:
  - **Show Axis**: Check to show the value axis (the line between the chart and the values).
  - **Color**: Enter a color for the value axis. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity in percentage for the axis.
  - **Thickness**: Enter the thickness, in pixels, for the axis.

Chart Tab

- **3D group**:
  - **Apply 3D Effect**: Check to apply a 3D effect to the bars.
  - **Depth**: Enter a thickness of the 3D effect, in pixels.
  - **Angle**: Enter angle for the 3D effect, in degrees.

PReS. Connect

Legend tab

- **Show Legend**: Check to show the legends in the chart object.
- **Legend Group**: Defines how the legends are shown.
    - **Equal label widths**: Check so that all labels are of equal width in the Legends box. The Legend's width will accommodate the largest value.
    - **Position**: Use the drop-down to select where the labels are shown: Right, Left, Top or Bottom.
    - **Align**: Use the drop-down to select how to align the text in the labels: Left, Middle or Right.
    - **Horizontal Space**: When multiple columns appear, enter a numerical value (in pixels) to define horizontal spacing between the columns.
    - **Vertical Space**: Enter a numerical value (in pixels) to define vertical spacing between legends.
    - **Max Columns**: Enter a numerical value to define the maximum number of columns allowed in the Legends box.
- **Values Group**: Defines if and how values are shown in the Legends box.
    - **Show Values**: Check to show values besides the Legend's label.
    - **Text**: Enter the text used to display the values. Variables can be used to display specific data, <br> can be used to create a new line:
        - [[percents]] : Contains the percentage of the chart the value represents.
        - [[value]] : Contains the numerical value of the field.
        - Any Text: Adding text (such as a dollar sign or column, etc) will make it appear in each label.
- **Markers Group**: Defines how the Legends Markers. Markers are icons with a color matching the Legend with its corresponding bar.
    - **Type**: Use the drop-down to select in which shape the Markers are displayed. Select None to hide the Markers completely.
    - **Size**: Enter the size (in pixels) for the Markers to be displayed.
    - **Label Gap**: Enter the distance (in pixels) between the Markers and the Legends text.
    - **Border Width**: Use the drop-down to define the thickness of the border added to the Markers. Default is 0pt.

PReS. Connect

- **Border Color**: Enter a valid HTML Hex Color for the border's color.
- **Border Opacity**: Enter a numerical value between 0 and 100 to define the opacity (in percentage) of the border.

Box Formatting dialog

The Text Formatting dialog is accessible by clicking inside a positioned box in the template and then selecting **Format > Box** in the menu.

> **Note**
>
> When no unit is added to a geometry value, such as the width, height, top or margin, the default unit will be added to the value; see "Print Preferences" on page 624.

Box Tab

- **General group**:
  - **Width**: Set the width of the box in measure or percentage. When no unit is entered, the default unit will be added to the value (see "Print Preferences" on page 624). Equivalent to the CSS `width` property.
  - **Height**: Set the height of the box in measure or percentage. When no unit is entered, the default unit will be added to the value (see "Print Preferences" on page 624). Equivalent to the CSS `height` property.
  - **Angle**: Set the rotation angle of the box in clockwise degrees. Equivalent to the CSS `transform:rotate` property.
  - **Corner radius**: Set the radius of rounded border corners in measure or percentage. Equivalent to the CSS `border-radius` property.
  - **Display**: Use the drop-down or type in the value for how to display the box. Equivalent to the CSS `display` property.
  - **Overflow**: Use the drop-down or type in the value for how to handle overflow (text that does not fit in the current size of the box). Equivalent to the `overflow` property.
- **Text wrap group**:
  - **Float**: Use the drop-down or type in the value for how to float the box, if the box is not in an absolute position. Equivalent to the CSS `float` property.

PReS. Connect

- **Clear**: Use the drop-down or type in the value for clearing pre-existing alignments. Equivalent to the CSS `clear` property.

- **Positioning**:
  - **Position**: Use the drop-down or type in the value for the type of positioning for the box. Equivalent to the CSS `position` property.
  - **Top**: Set the vertical offset between this box and its parent's top position. Equivalent to the CSS `top` property.
  - **Left**: Set the horizontal offset between this box and its parent's left position. Equivalent to the CSS `left` property.
  - **Bottom**: Set the vertical offset between this box and its parent's bottom position. Equivalent to the CSS `bottom` property.
  - **Right**: Set the horizontal offset between this box and its parent's left position. Equivalent to the CSS `right` property.
  - **Z-index**: Set the z-index of the box. The z-index defines in which order elements appear. Equivalent to the CSS `z-index` property.

Background Tab

- **General group**:
  - **Color**: Specify the color of the box background. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `background-color` property.
- **Background image group**:
  - **Source**: click the **Select Image** button to select an image via the "Select Image dialog" on page 644. Equivalent to the CSS `background` property.
  - **Size**: select `auto`, `cover` or `contain` (for an explanation see http://www.w3schools.com/cssref/css3_pr_background-size.asp), or type the width and height of the image in a measure (e.g. `80px 60px`) or as a percentage of the box size (e.g. `50% 50%`). Equivalent to the CSS `background-size` property.
  - **Position**: select the position for the background-image. Equivalent to the CSS `background-position` property.

PReS. Connect

Spacing Tab

- **Padding group**: Defines padding (spacing inside the element) in measure or percentage:
    - **All sides**: Check to set all padding to use the Top value. Equivalent to the CSS `padding` property.
    - **Top, Left, Bottom, Right**: Set padding for each side. Equivalent to the CSS `padding-left`, `padding-top`, `padding-right` and `padding-bottom` properties.
- **Margin group**: Defines margins (spacing outside the element) in measure or percentage:
    - **All sides**: Check to set all margins to use the Top value. Equivalent to the CSS `margin` property.
    - **Top, Left, Bottom, Right**: Set the margin for each side. Equivalent to the CSS `margin-left`, `margin-top`, `margin-right` and `margin-bottom` properties.

Border Tab

- **Same for all sides**: Defines the border properties for all sides using the Top properties. Equivalent to the CSS `border` property.
- **Top, Left, Bottom, Right**: Each group defines the following properties:
    - **Width**: Specify the thickness of the border. Equivalent to the CSS `border-width`property.
    - **Style**: Specify the style of the border such as `solid`, `dashed` or `dotted`. Equivalent to the CSS `border-style` property.
    - **Color**: Specify the color of the border. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `border-color` property.

Color Picker

The Color Picker dialog appears when creating a color in the formatting dialogs of certain elements, for example border colors in boxes and paragraphs.

The dialog consists of two main parts. On the left is the color wheel that can be used to select a color **hue** by clicking anywhere on that wheel. To the right of the color wheel there is a vertical bar used to select the color **saturation**. At the top-right, two colors are shown: the **New** box

PReS. Connect

displays the currently selected color, while the **Original** shows the color currently attributed to the element.

The rest of the dialog has various options for choosing colors:

- **Color Mode**: Use the drop-down to select whether the color is set as **RGB**, **CMYK** or **HEX**. The color mode determines how the color is saved in the formatting properties, and how they are printed or output; see "Colors" on page 510.
- **RGB group**: Enter the Red, Green and Blue color values from 0 to 255.
- **HEX**: Enter a valid HTML Hex Color.
- The **eye dropper** lets you select a color from anywhere on your desktop. To open it, click the eye dropper button next to the HEX color field.
- **CMYK group** (suitable for Print output only): Enter the Cyan, Magenta, Yellow and Black color values from 0 to 100 percent.

> **Note**
>
> Whenever one value within this dialog is changed, all the other values are adjusted to their equivalent.

Colors Properties

The Colors Properties defines and sets named colors used in the template; see "Colors" on page 510. Named colors can be used throughout the templates, in all contexts. They are visible in color selector dialogs and useable with their names in style sheets; see "Styling and formatting" on page 484.

- **Color Type Selector**: Click and use the drop-down to display which color types to show in the list: All, RGB, CMYK or Spot colors.
- **Color List**: Displays the colors, filtered using the Color Type Selector.
- **New**: Create a new color using the **Edit Color** dialog (see below and see "Colors" on page 510).
- **Edit**: Edit the currently selected color using the **Edit Color** dialog (see below and see "Colors" on page 510).

- **Delete**: Delete the currently selected color.
- **Duplicate**: Duplicate the currently selected color using the name [color]CopyX.

Edit color

You can edit the following color properties.

- **Name**: Enter the name of the color. This name should not contain spaces or special characters.
- **Create name based on values**: Check so that the name is automatically based on the color slider values below.
- **Type**: Use the drop-down to specify which type of color this should be: either a Tint or a Color.
- **Option group**: contains the options for the chosen type. Options change depending on the selected type.
    - **Color**:
        - **Model**: This can be either CMYK or RGB.
        - **Spot Color**: Check to set the color as Spot Color. When Spot Colors are used, the Name must match that of the spot color used in the printer.
        - **Cyan/Magenta/Yellow/Black** (CMYK): Each slider sets a percentage for the color. Set the values using the sliders, or type in the percentage directly in the input boxes.
        - **Red/Green/Blue** (RGB): Each slider sets the values of 0-255 for the color. Set the value using the sliders or type in the value directly in the input boxes.
        - **Color Preview**: Box displaying the preview of the color (converted to RGB when relevant).
    - **Tint**:
        - **Source**: Select an existing *Color* in the template. The *tint* or *opacity* will be applied to this color.
        - **Tint/Opacity**: The slider sets the percentage of tint or opacity. Set the value using the slider, or type the percentage directly in the input box.
        - **Use Opacity**: Check to set the Tint slider to use Opacity instead.

Color Settings

Color Management can keep colors consistent across different outputs by using Color Profiles. When producing output to a new device, color adjustments are made to present the color as accurately as possible on this new device.

- **Enable Color Management**: Check to disable color management and ignore embedded color profiles when importing images (with the exception of imported PDF files as it might contain a multiple tagged sub images).
- **Working Space Group**: Defines the color profiles for the current template.
  - **RGB**: Use the drop-down to select a color profile for RGB colors. The list displays ICC profiles located in "%USERPROFILE%\Connect\color-profiles\rgb".
  - **CMYK**: Use the drop-down to select a color profile for CMYK colors. The list displays ICC profiles located in "%USERPROFILE%\Connect\color-profiles\cmyk"
  - **Gray**: Use the drop-down to select a color profile for Grayscale. The list displays ICC profiles located in "%USERPROFILE%\Connect\color-profiles\gray"
- **Untagged Images Group**: Defines color profiles for any image that does not specifically have color profiles or color settings enabled.
  - **RGB**: Use the drop-down to select a color profile for RGB colors. The list displays ICC profiles located in "%USERPROFILE%\Connect\color-profiles\rgb".
  - **CMYK**: Use the drop-down to select a color profile for CMYK colors. The list displays ICC profiles located in "%USERPROFILE%\Connect\color-profiles\cmyk"
  - **Gray**: Use the drop-down to select a color profile for Grayscale. The list displays ICC profiles located in "%USERPROFILE%\Connect\color-profiles\gray"
- **Options Group**:
  - **Rendering intent**: Use the drop-down to specify how colors are converted that are out of range of a profile. For example, you may use tricks like reducing the saturation of the entire print so that a color that is out of range still appears a bit more vibrant than ones that are in range. Rendering intents use different methods to trick the eye into believing that the print can reproduce irreproducible colors.

Context Properties dialog

Which properties are available in the Context Properties dialog depends on the context: Web, Email or Print.

To open this dialog, right-click the context on the **Resources** pane and select **Properties**.

Email Context Properties

For the Email context, the Context Properties dialog defines options that are used when generating email output (see "Generating Email output" on page 874).

- **Print Context Image Compression**: Defines the properties of the PDF when attaching the Print context to email output.
  - **Lossless**: Enables maximum quality in the PDF. Note that this will produce a larger PDF.
  - **Quality**: Disabled when Lossless is checked. Determines the quality (aka compression) of the attached PDF.
  - **Tile Size**: Use the drop-down to select the size of the tiles used in the image. When low Quality values are used to optimize images smaller than 1024 x 1024 pixels, using the largest tile size will produce better results.

Print Context Finishing Options

For the Print context, the Context Properties dialog defines finishing options for when it is printed (see "Generating Print output" on page 860). These options affect the context as a whole including all sections.

For an explanation of all Binding and Hole making options, see "Finishing Options" on page 755.

Web context includes

For the Web context, the Includes dialog defines which files are included in the output of all Web sections.

1. From the **File types** dropdown, select **Stylesheets**, **JavaScripts** or **all**.
2. The list at the left displays the style sheets and/or JavaScript files that are present in the template's resources. The list at the right shows the style sheets and or JavaScript files that will be included in the output of the current section (or Web sections, if you have selected the Web context). Use the **Include** and **Exclude** buttons to move files from one list to the other.
3. Click one of the included files and use the **Up** and **Down** buttons to change the order in which the files are included.

See: "Styling templates with CSS files" on page 486 and "Using JavaScript" on page 368.

Edit Label Properties

The Edit Label Properties defines how a Pie Chart Label displays its title and data. It contains two options:

- **Label**: Enter a title for Labels and Legends when they are shown (see "Pie Chart Properties dialog" on page 607).
- **Value**: Use the drop-down to select which Value to use as data within the Pie Chart as well as for Label and Legend values.

Find/Replace Dialog

The Find/Replace dialog can replace text within the current template. The scope of the replacement depends on the currently selected tab in the Workspace. If the Source tab is selected, the replace will affect the HTML source code. If the Design tab is selected, the replace will affect the text on the page. If the Preview tab is selected, the Replace feature is inactive.

> **Note**
>
> When replacing text in the Design tab, formatting in the replaced text will be removed. If formatting is necessary in the new text, select the Source tab before opening the Find/Replace dialog and include the required HTML tags in the replacement text.

Here are the options available in this dialog

- **Find**: The source string to find.
- **Replace with**: The string to replace the source with.
- **Direction**
  - **Forward**: Look forward from the current position of the pointer in the template or source.
  - **Backward**: Look backward from the current position of the pointer in the template or source.
- **Scope**
  - **All**: Searches in the complete text of the template or source.
  - **Selected lines**: Searches in the currently selected text or source.

PReS. Connect

- **Options**
  - **Case sensitive**: Use a case-sensitive search, which differentiates **TEXT** from **text** or **TexT**.
  - **Wrap search**: Loop back from the end of the template or selection to its beginning, when the Search is at the end of the template or the selection.
  - **Whole word**: Searches for the source string as a whole word.
  - **Incremental**: With this option selected, each letter you type in the Find field causes the editor focus to move to the first complete occurrence of the text you are typing.
  - **Regular expressions**: Enables regular expressions for a search in the **Source** view of the workspace. After checking this option, you can type Ctrl + Space in either text box to view a list of regular expressions.

    > **Tip**
    >
    > The Find/Replace dialog can fill in regular expressions in the Find field by itself. Open the dialog, check the option Regular expressions and close the dialog again. Select the text you want to search for and reopen the dialog: the Find field will now contain the regular expression for the text to find.

- **Find**: Click to find the next instance of the source string.
- **Replace/Find**: Click to replace the current instance with the replacement text and go to the next instance of the source string.
- **Replace**: Click to replace the current instance with the replacement text.
- **Replace All**: Click to replace all instances of the source string with the replacement text.
- **Close**: Close the dialog.

Font Manager

The Fonts Manager contains the fonts that were added to the template manually. It essentially lists the fonts located in the **Fonts** folder of the Resources pane (see "Fonts" on page 514).

Fonts with the same file name with a different extension are considered variations of the same font. For example, if there are three files, named gotham-book-webfont.eot, gotham-book-webfont.ttf, gotham-book-webfont.woff, only "gotham-book-webfont" appears in the Name column of this dialog.

PReS. Connect

The following buttons appear to the right of the list of fonts:

- **New**: Click to open the Edit Font dialog to add a new font.
- **Edit**: Click to open the Edit Font dialog to edit the currently selected font.
- **Remove**: Click to delete the currently selected font entry.
- **Duplicate**: Click to create a copy of the currently selected font entry.

Edit Font

The Edit Font dialog appears when clicking New or Edit from the Fonts Dialog.

- **Name**: Enter the name that should be used to refer to the font. This is equivalent to the `font-family` property of the @font-face CSS rule (see http://www.w3schools.com/cssref/css3_pr_font-face_rule.asp).
- **Font Weight**: Use the drop-down to select the default font weight (the thickness, see http://www.w3schools.com/cssref/pr_font_weight.asp):
  - **None**: Does not define the property.
  - **Normal**: Defines font-weight as normal
  - **Bold**: Defines the font-weight as bold (equivalent to a numerical value of 700).
  - **Numerical values**: Defines the line thickness; 400 is normal, 700 is bold.
- **Font Style**: Use the drop-down to select the font style (see http://www.w3schools.com/cssref/pr_font_font-style.asp:
  - **None**: Does not define the property.
  - **Normal**: Defines font-style as normal
  - **Italic**: Makes the font italic.
  - **Oblique**: Makes the font oblique (this is generally the same as italic but does not require a special italic version of the font).
- **Name**: Check the fonts in the list to include them in the font definition.

Image Formatting dialog

The Image Formatting dialog is accessible by selecting an image in the template and then selecting **Format > Image** in the menu.

PReS. Connect

Image Tab

- **General group**:
  - **Width**: Set the width of the image in measure or percentage. Equivalent to the CSS `width` property.
  - **Height**: Set the height of the image in measure or percentage. Equivalent to the CSS `height` property.
  - **Angle**: Set the rotation angle of the image in clockwise degrees. Equivalent to the CSS `transform:rotate` property.
  - **Corner radius**: Set the radius of rounded border corners in measure or percentage. Equivalent to the CSS `border-radius` property.
  - **Display**: Use the drop-down or type in the value for how to display the image. Equivalent to the CSS `display` property.
  - **Overflow**: Use the drop-down or type in the value for how to handle overflow (the part of the image that does not fit in the current size of the box). Equivalent to the CSS `overflow` property.
  - **Source**: Enter the web address or local file address of the image. Equivalent to the HTML `src` attribute.
  - **Alternate text**: Enter an alternate text for the image. This is displayed in browsers and email clients when the image is loading or if the image cannot be displayed. It is also used for accessibility. Equivalent to the HTML `alt` attribute.
- **Text wrap group**:
  - **Float**: Use the drop-down or type in the value for how to float the image, if the image is not in an absolute position. Equivalent to the CSS `float` property.
  - **Clear**: Use the drop-down or type the value to clear pre-existing alignments. Equivalent to the CSS `clear` property.
- **Positioning**:
  - **Position**: Use the drop-down or type in the value for the type of positioning for the image. Equivalent to the CSS `position` property.
  - **Top**: Set the vertical offset between this image and its parent's top position. Equivalent to the CSS `top` property.
  - **Left**: Set the horizontal offset between this image and its parent's left position. Equivalent to the CSS `left` property.

PReS. Connect

- **Bottom**: Set the vertical offset between this image and its parent's bottom position. Equivalent to the CSS `bottom` property.
- **Right**: Set the horizontal offset between this image and its parent's left position. Equivalent to the CSS `right` property.
- **Z-index**: Set the z-index of the image. The z-index defines in which order elements appear. Equivalent to the CSS `z-index` property.

Spacing Tab

- **Padding group**: Defines padding (spacing inside the element) in measure or percentage:
  - **All sides**: Check to set all padding to use the Top value. Equivalent to the CSS `border` property.
  - **Top, Left, Bottom, Right**: Set padding for each side. Equivalent to the CSS `border-left`, `border-top`, `border-right` and `border-bottom` properties.
- **Margin group**: Defines margins (spacing outside the element) in measure or percentage:
  - **All sides**: Check to set all margins to use the Top value. Equivalent to the CSS `margin` property.
  - **Top, Left, Bottom, Right**: Set the margin for each side. Equivalent to the CSS `margin-left`, `margin-top`, `margin-right` and `margin-bottom` properties.

Border Tab

- **Same for all sides**: Defines the border properties for all sides using the Top properties. Equivalent to the CSS `border` property.
- **Top, Left, Bottom, Right**: Each group defines the following properties:
  - **Width**: Specify the thickness of the border. Equivalent to the CSS `border-width`property.
  - **Style**: Specify the style of the border such as `solid`, `dashed` or `dotted`. Equivalent to the CSS `border-style` property.
  - **Color**: Specify the color of the border. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `border-color` property.

PReS. Connect

Line Chart Properties dialog

The Line Chart dialog appears when a Line Chart object is right-clicked and the Line Chart... option is clicked. It determines how the chart is displayed when generating output and in Preview mode.

General Tab

- **General Group**:
  - **Display grid above graph**: Check to display the grid on top of the lines so that it is always visible.
  - **Rotate**: Check to rotate the graph 90 degrees so that the lines are vertical starting from the top.
  - **Stack Series**: Stack the lines so that lines representing the same value do not overlap.
- **Text Group**: Determines how text is displayed in labels and legends.
  - **Font**: Type in the font-face to use to display text. The font must be installed on the system and defaults to Verdana if the font is not found. Equivalent to the `font-family` property.
  - **Size**: Type in the size of the font. For example, 12pt or 20px. Defaults to 11px. Equivalent to the `font-size` property.
  - **Color**: Type in the color in which to display text. The color value must be a valid HTML Hex Color. Equivalent to the `color` property.
- **Fill Group**:
  - **Color**: Enter a color for the lines. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. This color replaces all initial colors.
  - **Opacity**: Enter the percentage for the opacity of the bars. Does work on the initial colors, if no fill color is entered in this dialog.
- **Line Group**:
  - **Show Line**: Adds a line around each line part (or fills the line part if it has no fill color).
  - **Color**: Enter a color for the line. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the percentage for the opacity of the line.

PReS. Connect

Value Axis Tab

- **Title group**:
  - **Label**: Enter a label for the Y axis (X axis if the graph is rotated).
  - **Bold**: Check if you want the label to be in bold style.
  - **Color**: Enter a custom color for the label (Default is Black). The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Font Size**: Enter a font size for the label, in pt.
- **Grid group**:
  - **Color**: Enter a color for the grid that is displays in the graph. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity percentage of the grid. Default is 15%.
  - **Thickness**: Enter a thickness for the grid, in pixels. Default is 1px.
  - **Tick Length**: The distance between each vertical line in the grid.
- **Axis group**:
  - **Show Axis**: Check to show the value axis (the line between the chart and the values).
  - **Color**: Enter a color for the value axis. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity in percentage for the axis.
  - **Thickness**: Enter the thickness, in pixels, for the axis.

Category Axis Tab

- **Title group**:
  - **Label**: Enter a label for the X axis (Y axis if the graph is rotated).
  - **Bold**: Check if you want the label to be in bold style.
  - **Color**: Enter a custom color for the label (Default is Black). The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Font Size**: Enter a font size for the label, in pt.
- **Grid group**:

PReS. Connect

- **Color**: Enter a color for the grid that is displays in the graph. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
- **Opacity**: Enter the opacity percentage of the grid. Default is 15%.
- **Thickness**: Enter a thickness for the grid, in pixels. Default is 1px.
- **Position**: Choose Middle to centre the grid over the graph, or choose Start to make the first vertical grid lign match the value axis.
- **Tick Length**: The distance between each vertical line in the grid.

- **Axis group**:
  - **Show Axis**: Check to show the value axis (the line between the chart and the values).
  - **Color**: Enter a color for the value axis. The color value must be a valid HTML Color Name, or a valid HTML Hex Color.
  - **Opacity**: Enter the opacity in percentage for the axis.
  - **Thickness**: Enter the thickness, in pixels, for the axis.

Legend tab

- **Show Legend**: Check to show the legends in the chart object.
- **Legend Group**: Defines how the legends are shown.
  - **Equal label widths**: Check so that all labels are of equal width in the Legends box. The Legend's width will accommodate the largest value.
  - **Position**: Use the drop-down to select where the labels are shown: Right, Left, Top or Bottom.
  - **Align**: Use the drop-down to select how to align the text in the labels: Left, Middle or Right.
  - **Horizontal Space**: When multiple columns appear, enter a numerical value (in pixels) to define horizontal spacing between the columns.
  - **Vertical Space**: Enter a numerical value (in pixels) to define vertical spacing between legends.
  - **Max Columns**: Enter a numerical value to define the maximum number of columns allowed in the Legends box.

- **Values Group**: Defines if and how values are shown in the Legends box.
    - **Show Values**: Check to show values besides the Legend's label.
    - **Text**: Enter the text used to display the values. Variables can be used to display specific data, <br> can be used to create a new line:
        - [[percents]] : Contains the percentage of the chart the value represents.
        - [[value]] : Contains the numerical value of the field.
        - Any Text: Adding text (such as a dollar sign or column, etc) will make it appear in each label.
- **Markers Group**: Defines how the Legends Markers. Markers are icons with a color matching the Legend with its corresponding line.
    - **Type**: Use the drop-down to select in which shape the Markers are displayed. "none" hides the Markers completely.
    - **Size**: Enter the size (in pixels) for the Markers to be displayed.
    - **Label Gap**: Enter the distance (in pixels) between the Markers and the Legends text.
    - **Border Width**: Use the drop-down to define the thickness of the border added to the Markers. Default is 0pt.
    - **Border Color**: Enter a valid HTML Hex Color for the border's color.
    - **Border Opacity**: Enter a numerical value between 0 and 100 to define the opacity (in percentage) of the border.

Locale Settings

The Locale dialog box sets the locale used inside the template. The Locale can affect time, currency output, and other formatting that depends on location and language (see "Locale" on page 516).

- **Use**: Use the drop-down to select how the Locale is set for the current template.
    - **System Locale**: Select this to use the operating system's locale settings. This is set in the Region settings of the control panel.
    - **Explicit Locale**: Select this option to specify a static locale which will remain static for this template, whichever server the template is used on.
    - **Data Field**: Select this to use a data field from the record. The locale will be record-specific in this case.

- **Locale**: Use the drop-down to select a specific locale. Only enabled when **Explicit Locale** is selected above.
- **Data Field**: Use the drop-down to select a field within the current data model that contains the locale. This field must be a string and contain the exact locale to be used, such as "en" or "fr-CA". It cannot be an alias such as "english" or "french". The locale supports both ISO-639-1 alone ("en", "fr", etc) or ISO-639-1 followed by a 2-letter country code ("de-DE", "zh-CN", "fr-CA", "fr-FR", etc).

Master Page Properties

Master Pages can only be used in a Print context; see "Master Pages" on page 318.

The following properties are available for Master Page resources:

- **Name**: The name of the master page, displayed in all drop-downs where the Master Page is shown as well as in the "Resources Pane" on page 679.
- **Margins** group:
  - **Header**: The space at the top of the Master Page where no content will print, when this Master Page is used in a Section.
  - **Footer**: The space at the bottom of the Master Page where no content will print, when this Master Page is used in a Section.

Media Properties

Media can only be used in a Print context; see "Media" on page 321.

Media are not printed, unless you want them to; see "Printing virtual stationery" on page 326.

The following properties are available for Media resources.

Properties Tab

- **Name**: The name of the media, displayed in all drop-downs where the Media is shown as well as in the Resources Pane.
- **Size** group: This group is read-only and only used to display the size selected in the linked Print section's properties (see "Print Section Properties" on page 634).

- **Page Size**: The named page size.
- **Width**: The width of the page.
- **Height**: The height of the page.
- **Orientation**: Whether the page is portrait or landscape.

Virtual Stationery Tab

- **Front/Back group**: Defines the preprinted media used for the front and back of the Virtual Stationery.
  - **PDF**: Click the Select Image button to open the "Select Image dialog" on page 644 and select which PDF (and optionally, which page of the PDF) to display as a background for the page.
  - **Position**: Use the drop-down to select how the PDF is displayed on the page:
    - **Fit to Media**: Select to stretch the PDF to fit the media size.
    - **Centered**: Select to center the PDF on the page, vertically and horizontally.
    - **Absolute**: Select to place the PDF at a specific location on the page. Use the Top and Left options below to specify the positioning of the PDF.
      - **Top**: The distance between the top side of the page and the top side of the PDF.

        Left: The distance between the left side of the page and the left side of the PDF.
- **Front side**: Select the image that is shown as a background for all "front" sides in the template.
- **Back side**: Select the image that is shown as a background for all "back" sides in the template.

Characteristics tab

The characteristics define the type of paper on which the Print context is meant to be printed on.

- **Media Type**: The type of paper, such as *Continuous*, *Envelope*, *Labels*, *Stationery*, etc.
- **Weight**: The weight of the media in grammage (g/m2).
- **Front Coating**: The pre-process coating applied to the front surface of the media, such as *Glossy*, *High Gloss*, *Matte*, *Satin*, etc.

- **Back Coating**: The pre-process coating applied to the front surface of the media.
- **Texture**: The texture of the media, such as *Antique*, *Calenared*, *Linen*, *Stipple* or *Vellum*.
- **Grade**: The grade of the media, such as *Gloss-coated paper*, *Uncoated white paper*, etc.
- **Hole Name**: Pre-defined hole pattern that specifies the pre-punched holes in the media, such as *R2-generic*, *R2m-MIB*, *R4i-US*, etc.

Paragraph Formatting dialog

The Paragraph formatting controls how the selected paragraph is formatted. It is accessed by placing the cursor within a paragraph then going in the Format menu, then Paragraph...

Formats Tab

- **General group**:
  - **Line-height**: Specify the height of each line in the element's text, in measure or percentage. Note that this is not spacing between lines, but rather the complete height of the line itself including the text. Equivalent to the `line-height` property.
  - **Align**: Select how text should be aligned, such as `left`, `center`, `right` or `justify`. Equivalent to the `align` property.
  - **First Indent**: Specify the indentation of the first line of each paragraph in the element. Equivalent to the `text-indent` property.
  - **Display**: Select how to display the element. This can also be used to hide an element completely using the `none` option. See CSS Display. Equivalent to the `display` property.
  - **Direction**: Select in which direction text should be displayed (ltr, rtl, auto). Useful for certain languages such as arabic, hebrew, etc. Equivalent to the `dir` HTML attribute.
- **Breaks group**:
  - **Before**: Specifies how to handle page breaks before the element. Equivalent to the `page-break-before` property.
  - **Inside**: Specifies whether to accept page breaks within the paragraph. Equivalent to the `page-break-inside` property.
  - **After**: Specifies how to handle page breaks after the element. Equivalent to the `page-break-after` property.

PReS. Connect

- **Widows**: Specifies how to handle widows within the paragraph (lines appearing alone on the next page if the paragraph does not fit on the current one). Equivalent to the `widows` property. Widows and orphans are ignored if the `page-break-inside` property is set to `avoid`.
- **Orphans**: Specifies how to handle orphans within the paragraph (lines appearing alone at the end of a page if the paragraph does not fit on the current one). Equivalent to the `orphans` property.

> **Note**
>
> For more information on page breaks, widows and orphans, see the W3 Paged Media reference.

Spacing Tab

- **Padding group**: Defines padding (spacing inside the element) in measure or percentage:
  - **All sides**: Check to set all padding to use the Top value. Equivalent to the CSS `padding` property.
  - **Top, Left, Bottom, Right**: Set padding for each side. Equivalent to the CSS `padding-left`, `padding-top`, `padding-right` and `padding-bottom` properties.
- **Margin group**: Defines margins (spacing outside the element) in measure or percentage:
  - **All sides**: Check to set all margins to use the Top value. Equivalent to the `margin` property.
  - **Top, Left, Bottom, Right**: Set the margin for each side. Equivalent to the `margin-left`, `margin-top`, `margin-right` and `margin-bottom` properties.

Border Tab

- **Same for all sides**: Defines the border properties for all sides using the Top properties. Equivalent to the `border` property.
- **Top, Left, Bottom, Right**: Each group defines the following properties:
  - **Width**: Specify the thickness of the border. Equivalent to the `border-width` property.

PReS. Connect

- **Style**: Specify the style of the border such as `solid`, `dashed` or `dotted`. Equivalent to the `border-style` property.
- **Color**: Specify the color of the border. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the `border-color` property.

Pie Chart Properties dialog

The Pie Chart dialog appears when a Pie Chart object is right-clicked and the **Pie Chart...** option is clicked. It determines how the Pie Chart is displayed when generating output and in Preview mode (see "Business graphics" on page 453).

General tab

- **Text Group**: Determines how text is displayed in labels and legends.
  - **Font**: Type in the font-face to use to display text. The font must be installed on the system and defaults to Verdana if the font is not found. Equivalent to the `font-family` property.
  - **Size**: Type in the size of the font. For example, 12pt or 20px. Defaults to 11px. Equivalent to the `font-size` property.
  - **Color**: Type in the color in which to display text. The color value must be a valid HTML Hex Color. Equivalent to the `color` property.
- **Slice Colors Group**: Determines which colors are used to display the Pie Chart.
  - **Apply**: select which set of colors to use for the chart: **standardColors**, **baseColor** (a set of colors based on the color defined in the Base Color option) or **colors** (a set of colors defined in the Color Array option).
  - **Base Color**: Enter a valid HTML Hex Color. When a Base Color is set, it will be the color of the first slice and the colors of all other slices are based on this color.
  - **Brightness Step**: Enter the amount of brightness to change on each new slice. Positive values increase brightness (max: 100), minimum values decrease brightness (minimum: -100). Default is 10.
  - **Color Array**: Enter a comma separated list of hex colors to specify the colors of the slices. If there are more slices than colors in this list, the chart picks random colors. Example: `#FF3300, #FFFF00, #33CC33, #FFCC00`.
  - **Gradient Ratio**: Enter a start and end point gradient to be applied to each slice (for example: `-0.5,0.5`).

PReS. Connect

- **Slice Outline Group**: Determines whether an outline should be added to each slice of the chart.
    - **Width**: Use the drop-down to select the width of the outline for each pie slice. Values are 0pt, 0.5pt, 1pt, 1.5pt, 2pt or 3pt.
    - **Color**: Enter a valid HTML Hex Color for the outline to appear.
    - **Opacity**: Enter the opacity of the outline. 100 is fully opaque, 0 is transparent.

Pie tab

- **Pie Group**: Defines how the pie chart is displayed in the template.
    - **Automatically calculate radius**: Check to automatically calculate the radius of the Pie Chart, determined by the size of the object it is contained in. The radius, by default, is 50% of the shortest length of the containing object.
    - **Radius**: Enter the radius of the Pie Chart in percentage of the shortest length of the containing object.
    - **Hole Radius**: Enter the radius of the center of the Pie Chart to remove, between 0% and 100%. The hole radius removes the center of the chart, creating a doughnut hole pie chart.
    - **Start Angle**: Enter the starting angle of the first slice of the chart, between 0 and 360. This essentially rotates the Pie Chart. Note that if a 3D effect is added to the chart, the only accepted values are 90 or 270 degrees.
- **3D Group**: Defines 3D effects of the Pie Chart.
    - **Apply 3D effect**: Check to enable the Pie Chart to be displayed in a 3D fashion.
    - **Depth**: Enter a numerical value for the thickness of the Pie Chart. Must be in steps of 10 (0, 10, 20, etc).
    - **Angle**: Enter the angle at which the Pie Chart is rotated to create the 3D effect. Default is 20 degrees of rotation.

Labels tab

- **Hide Labels**: Check to disable the label's display.
- **Labels Group**: Defines how the label text is shown.
    - **Custom label text**: Check to enable custom text for the labels. The default display is [[title]]: [[percents]].

PReS. Connect

- **Text**: Enter the text to use to display labels. Variables can be used to display specific data, <br> can be used to create a new line:
    - [[title]] : Contains either the contents the Label column if Static Labels are used, or the Field Name if Dynamic Labels are used.
    - [[percents]] : Contains the percentage of the Pie Chart the value represents.
    - [[value]] : Contains the numerical value of the field.
    - Any Text: Adding text (such as a dollar sign or column, etc) will make it appear in each label.
- **Radius**: Enter a numerical value representing the percentage of the Pie Chart's radius to add as a space between the pie and the labels. The value can be negative, in which case labels are shown within the Pie Chart. If a positive value is used, a line (called a "tick") from each slice of the pie to its label is added.

- **Tick Group**: Defines how ticks (line between the Pie Chart and its labels) is shown.
    - **Color**: Enter a valid HTML Hex Color for the color of the tick.
    - **Opacity**: Enter a percentage of opacity for the tick to be displayed. Default 20 (20% opacity).
- **Grouping Group**: Defines how smaller percentage are grouped together into an individual "Other" category.
    - **Apply slice grouping**: Check to enable grouping.
    - **Less than %**: Enter a percentage below which values are placed within the "Other" category.
    - **Slice Title**: Enter a name for the label of the "Other" category. Defaults to "Other".
    - **Color**: Enter a valid HTML Hex Color for the slice. Defaults to the colors set in the General tab.

Legend tab

- **Show Legend**: Check to show the legend in the Pie Chart object.
- **Legend Group**: Defines how the legend is shown.
    - **Equal label widths**: Check so that all labels are of equal width in the Legend box. The Legend's width will accommodate the largest value.
    - **Position**: Use the drop-down to select where the labels are shown: Right, Left, Top or Bottom.

- **Align**: Use the drop-down to select how to align the text in the labels: Left, Middle or Right.
- **Horizontal Space**: When multiple columns appear, enter a numerical value (in pixels) to define horizontal spacing between the columns.
- **Vertical Space**: Enter a numerical value (in pixels) to define vertical spacing between legends.
- **Max Columns**: Enter a numerical value to define the maximum number of columns allowed in the Legends box.

- **Values Group**: Defines if and how values are shown in the Legends box.
  - **Show Values**: Check to show values besides the Legend's label.
  - **Text**: Enter the text used to display the values. Variables can be used to display specific data, <br> can be used to create a new line:
    - [[percents]] : Contains the percentage of the Pie Chart the value represents.
    - [[value]] : Contains the numerical value of the field.
    - Any Text: Adding text (such as a dollar sign or column, etc) will make it appear in each label.
- **Markers Group**: Defines how the Legends Markers. Markers are icons with a color matching the Legend with its corresponding Pie Chart slice.
  - **Type**: Use the drop-down to select in which shape the Markers are displayed. "none" hides the Markers completely.
  - **Size**: Enter the size (in pixels) for the Markers to be displayed.
  - **Label Gap**: Enter the distance (in pixels) between the Markers and the Legends text.
  - **Border Width**: Use the drop-down to define the thickness of the border added to the Markers. Default is 0pt.
  - **Border Color**: Enter a valid HTML Hex Color for the border's color.
  - **Border Opacity**: Enter a numerical value between 0 and 100 to define the opacity (in percentage) of the border.

Preferences

The Preferences dialog is used to modify the general software preferences. Changes made in this dialog affect the software globally, not individual templates and data mapping configurations.

The Preferences dialog is separated into individual tabs, where each tab controls certain aspects of the software.

To open the Preferences dialog, select **Window > Preferences**.

General preferences

The General Preferences are as follows:

- **Always run in background**: This option correlates with the "Always run in background" option selectable in the "Document Boundaries Refresh" dialog and "Print via Print Server" dialog. When either of these dialogs is used and the option is checked, it will also be checked here. To prevent the refresh boundaries and print via print server dialogs to automatically run as background, uncheck this option.

Clean-up Service preferences

The Clean-up Service defines how the Connect database and the temporary files created during Connect production runs are cleaned up after the production run has finished.

> **Note**
>
> As part of the job production process PReS Connect uses a database for intermediate storage and also creates various temporary "managed" files. These files include data extractions, configuration files and any intermediate files created during the production process. Connect keeps track of all these files through references held within the Connect database.

All the files created and the database references to them are stored for a set amount of time in order to allow Connect to reuse them. However, we do not want to store these indefinitely, because the database would run out of space. The solution is to use the "Clean-up Service" to remove the temporary data and files once they are no longer needed. This clean up service is usually managed by the Server Engine.

> **Tip**
>
> The more items that are present in the database, and the larger they are, the more time

and processing power (CPU) that will be required for cleaning them up. Thus a regular Clean-up of the database (as often as possible) is recommended.

This is especially the case if items are not going to be retrieved from the database at a later date.
i.e. If the Connect job is not going to be re-run.

The clean-up can always be set to run outside of business hours (see the **Run according to the cron schedule** option below), to reduce impact upon Production systems.

The values below define when the specified targets are to be *set* as being ready for deletion, not *when* they are actually deleted. The actual deletion occurs only when PReS Connect is started (if **Run at application start up** is selected), or when the **Run Now** button is pressed, or as per the cron job scheduling.

- **Enable clean-up service**: Check to enable the Clean-up services. When checked, either or both of the *Database clean-up* and *File clean-up* services can be set individually.
  If the box is not checked, then no Clean-up will occur.
- **Run at application start up**: Click to start the clean-up service when the Designer module is opened, or the Managing Service is started.
- **Run according to the cron schedule**: Enter the interval at which the Clean-up service runs.
  To understand how to write a cron job schedule, please refer to the excellent Quartz Scheduler reference page.

  Note

  If the **Product managing the service** is set to Designer, then the Designer *must be running* at the time that the cron job is scheduled, for the Clean-up to run.

- **Product managing the service**: Select which of the applications will run the service.

> **Note**
>
> The **Server Engine** is set as the default as it is generally considered the best option.
> This is particularly the case when using a scheduled cron job, as the Sever Engine is always running, whilst the Designer might well not be at the scheduled time (in which case the clean-up will fail to run).

- **Database Clean-up Service**:
  - **Allow database clean-up service**: Select this checkbox to enable the database Clean-up settings, and enable the actual clean-up.
    - **Threads to use for database deletions**: The number of Threads to be used in the clean-up. PReS Connect is a multi-threaded application, and the clean-up is likewise.

> **Tip**
>
> The default number of threads is considered the best compromise for running both clean-up and production jobs simultaneously. If experience suggests that the clean-up is not running efficiently, then upping the number of threads here would be recommended. Conversely, if production appears to be suffering courtesy of the clean-up process, then reduce the number of threads here.
>
> In general, higher end machines (those with multiple cores) will allow a higher numbers of threads, whilst low end machines will perform better with a lower number of threads.

    - **Number of entities in each deletion batch**: The number of entities to be deleted at a time. This is done to break the clean-up into smaller chunks. This improves PReS Connect clean-up responsiveness, whilst the clean-up is occurring.
      The number selected here applies to all the following settings.

i.e. a selection of 1,000 would delete 1,000 data records within a **Data Set**, 1,000 content items within a **Content Set**, and so on.

- **Minimum time to retain Data Sets**: The minimum time a Data Set (and all the records it contains) is retained within the database before being set for deletion.

> **Tip**
>
> In order to prevent attempts at deleting database objects which might still be in use, it is recommended that all **Minimum time** retention values *should always be set to at least the length of your longest job*. Preferably with some extra time added, for good measure.
>
> For example, if your longest job takes 45 to 50 minutes to run, then set the retention time to 55 minutes (or 1 hour) to ensure that all the database objects created during job processing survive for the duration of the job.

- **Minimum time to retain Content Sets**: The minimum time a Content Set (and all the content items it contains) is retained within the database before being set for deletion.
- **Minimum time to retain Job Sets**: The minimum time a Job Set (and all the jobs information it contains) is retained within the database before being set for deletion.
- **Minimum time to retain Managed Files**: The minimum time file references (to files such as data mapping configurations and templates) are retained within the database before being set for deletion.
- **Minimum time to retain other entities**: The minimum time any orphaned data (such as Finishing tables, Media tables, DataModels and Properties tables) are retained within the database before being set for deletion.

- **Database Partition Settings**:
  - **Use Database Partitioning**: Select to use Database Partitioning.
    - **Empty partition count**: The number of empty partitions that are created each clean up run. This defaults to 24.

- **Partition Size**: Enter the length of time before partitions are switched. This can be entered in minutes, hours, days, weeks or months.

- **File Clean-up Service**:
  - **Allow file clean-up service**: Check to automatically detect orphan files and set them for deletion. Orphan files could be resources and internal files used by Connect, but which are not needed by any running job.
    - **Minimum time to retain orphaned files**: The minimum time during which orphaned files are kept in the database before being set for deletion.

> **Note**
>
> Only a server that has the MySQL module installed should run any of these options, with the exception of Allow orphan file clean-up. This option refers to local files and should be run on each machine in the cluster (however, not at the same time). See "Server Clustering" on page 68.

Database Connection preferences

Dialog to allow changing the PReS Connect back-end Database. This screen supports swapping the back-end database between vendor database. The alternate vendor database(s) must already be installed and available in order to swap to them.

> **Note**
>
> This is not a migration tool. It is a connection tool, that enables swapping between back-end databases. Any existing data will **not** be transferred/ migrated between the databases, and any existing Filestores will be cleansed by the Clean-up Service after the swap.

> **Note**
>
> When a different back-end database is selected, the changes won't apply until after PReS Connect is restarted, including the Connect services. A full machine restart would

be recommended, as this provides the cleanest restart.

- **Basic Connection Settings** selections:
  - **Database vendor**: Select the back-end database vendor type from drop down list.

    Note

    Moving from one vendor database to another will revert all screen selections to defaults, regardless of what may have been previously selected.

  - **Database URL**: This is a read-only summation of the current database connection settings.

    Tip

    If the **Test Connection** button shows that the database cannot be successfully connected to using the selected settings, then the contents of this field could be used to try to connect to the database outside of PReS Connect, to allow refining of acceptable connection options.

  - **Hostname**: Enter the IP Address or alias of the server where database resides.
  - **Port**: Enter Port number. The defaults are those which the vendors use by default.
  - **Schema**: The individual database schema, within the vendor database.

    Note

    If a previously non-existent schema were chosen here, then a new schema of that name will be created within the database when the back-end database swap is applied. The tables within that schema will not be created until Connect is restarted.

- **Username**: Enter the database login username.

> **Note**
>
> It is considered best practice for this user to have root privileges.

- **Password**: Enter the password associated with selected username.
- **Confirm password**: Re-enter the user password.

- **Advanced Connection Settings** selections:
  - **Maximum concurrent threads** (1.7.2) or **Maximum concurrent connections** (1.7.1): This option was updated in Connect 1.7.2 when it went from applying to maximum database connections, to maximum database threads. The connections being a multiple of the maximum database threads.
    The maximum setting is determined by the specific capabilities of the machine Connect is installed upon (CPU speed and the amount of cores being the major determinants).
    The default maximum *should* be the best option in most circumstances.
  - **Custom database parameters** table: These are extra parameters which are appended to the database connection URL. The default values are those which have been determined to be useful in connecting to specific vendor databases.
    - **Property**: These are free field text fields.

> **Note**
>
> These fields and their associated values get appended to the JDBC connection and therefore must follow all rules regarding acceptable URL addresses for such.

    - **Value**: The value applied to the associated Property.
    - **Add**: Used to add extra Property values to the table.
    - **Delete**: Used to remove existing Property values from the table.
- **Test Connection**: Use to test if current connection settings will connect to the specified database.

- **Restore Defaults**: Will restore the settings to PReS Connect HyperSQL standard defaults.
- **Apply**: When a database connection is confirmed as correct this button becomes active, and is used to actually apply the database swap.

Datamapper preferences

Datamapper XML Preferences

- **Display New Line Character as ¶** : Check to show line returns as ¶ in the Data Viewer, when XML files are shown. If the option is unchecked, you will not see spaces and line returns after element names in the Data Viewer.

Datamapper Default Format Settings

Datamapper stores user preferences for the Date, Number and Currency formats. By default, the user preferences are set to the system preferences. These user preferences become the default format values for any newly created data mapping configuration.
Format settings can also be defined at the data mapping configuration level ("Data mapping configurations" on page 75) and/or per field in the Data Model. Any format settings specified in an existing field are always used, regardless of the user preferences or data source settings.

- **Negative Sign Before** : A negative sign will be displayed before any negative value.
- **Decimal Separator** : Set the decimal separator for a numerical value.
- **Thousand Separator** : Set the thousand separator for a numerical value.
- **Currency Sign** : Set the currency sign for a currency value.
- **Date Format** : Set the date format for a date value.
- **Date Language** : Set the date language for a date value (ex: If English is selected, the term May will be identified as the month of May).
- **Treat empty as 0** : A numerical empty value is treated as a 0 value.

Editing preferences

These preferences define different editing options in the Designer module.

- Object Resizing for elements: This defines in which contexts to enable the resizing of elements (including Positioned and Inline boxes). Resizing elements may cause layouts to produce undesirable results especially when using Foundation

templates.

- **Enable for Print Context**: Check to enable resizing in the Print contexts.
- **Enable for Web Context**: Check to enable resizing in the Web contexts.
- **Enable for Email Context**: Check to enable resizing in the Email contexts.

Color options

Many of the colors in the user interface of Connect Designer can be adjusted. Click the small colored square next to the field that holds the default color value, to open the Color dialog and pick a color (see "Color Picker" on page 589).

- **Show edges**: The edges around elements in a section in the Workspace. Click the Show Edges icon to toggle the visibility of these edges.
  - **Box Objects**: This color highlights positioned boxes, inline boxes and Div elements; see "Boxes" on page 450.
  - **Table**: This color highlights tables, and the rows and columns in tables; see "Table" on page 476.
  - **Resizable Table**: This color highlights tables for which the option Allow resizing has been checked when adding the table; see "Table" on page 476.
  - **Forms**: This color highlights forms; see "Forms" on page 462.
  - **Shared Content**: This color highlights shared content, such as shared snippets; see "Snippets" on page 482.
- **Margin and guides**: These settings only apply to Print sections.
  - **Guides**: This is the color for rulers that can help position content correctly; see "Guides" on page 499.
  - **Margins**: This color delineates the content area on a page; see "Pages" on page 310.
  - **Bleed box**: This color delineates the printable area on a page; see "Page settings: size, margins and bleed" on page 311.
- **Master pages**: These edges are only visible on Master pages; see "Master Pages" on page 318.
  - **Header and Footer Margin**: This color highlights the header and footer margin set for the Master page; see "Adding a header and footer" on page 319.
  - **Objects**: This color highlights all elements on the Master page.

- **Script Result Highlighter**:
    - **Results**: Hovering over a script in the Scripts pane highlights content that will be affected by the script; see "Personalizing Content" on page 518.

Images preferences

- **Transparent PDF image preview**: Check this option so that PDF resources added to the template (including in the Master Page and Media) display using transparency. Note that this can affect display performance (showing transparent PDFs is slower) but will not affect output speed.

Email Preferences

Email (General) Preferences

- **Default From Group**:
    - **Name**: Enter the name that is set by default in the "From name" field in the "Send Email" on page 641 and "Send Test Email" on page 642 dialogs.
    - **Email Address**: Enter the email that is set by default in the "From Email" field in the "Send Email" on page 641 and "Send Test Email" on page 642 dialogs.
- **Litmus account Group**:
    - **Email Test address**: If you have a Litmus account, enter the test address to use when using the "Send Test Email" on page 642 dialog. For more information on Litmus, please see http://litmus.com/

Email (SMTP) Preferences

SMTP server presets can be selected when sending emails using either the "Send Email" on page 641 or "Send Test Email" on page 642 dialogs. See also: "Email header settings" on page 339. For all presets, the password is not saved and must be re-entered when sending emails.

- The **Add**, **Edit** and **Delete** buttons let you create and manage the presets.
- **SMTP Host Settings**: These settings can be made or edited after clicking the Add or Edit button.

    - **Name**: The name of the preset. This will show up in the Send Email dialog.
    - **Host**: The SMTP server through which the emails are to be sent. Can be a host (mail.domain.com) or an IP address.
    - **Port**: The specified port number will be added to the host name, for example: smtp.mandrillapp.com:465.
    - **Use authentication**: Check if a user name and password are needed to send emails through the host.
    - **Start TLS**: Enabled if authentication is checked. Sends emails through Transport Layer Security (TLS), which is sometimes referred to as SSL.
    - **User**: Enter the user name used to connect to the SMTP server.
- **Restore Defaults**: There are three default presets, each for working with a different Email Service Provider (ESP): Mandrilapp.com, Sendgrid and Mailgun (see "Using an ESP with PReS Connect" on page 878).
- **Apply**: Apply the new settings without closing the Preferences dialog.

Emmet Preferences

Emmet is a framework that enables the lightning-fast creation of HTML code though the use of a simple and effective shortcut language resembling CSS Selectors (see "Emmet" on page 329). The Emmet functionality is available in the HTML and CSS source editors of Connect Designer. Emmet transforms abbreviations for HTML elements and CSS properties to the respective source code.

This is, for example, the abbreviation for a element with the class `row`:

```
div.row
```

On pressing the Tab key, this abbreviation is transformed to:

```
<div class="row"></div>
```

To learn more about Emmet itself, please see their website Emmet.io and the Emmet.io documentation.

> **Note**
>
> Emmet is a plugin. All options listed below are Emmet's default options. They are not specifically adjusted for Connect.

Common Emmet preferences

- **Expand abbreviations by Tab key**: Check to enable the Expand Abbreviation function.
- **... in files with extension**: Enter a comma-separated list of all file extensions in which expand abbreviation will work.
- **Upgrade web editors**: This Emmet option doesn't affect how Emmet works in Connect Designer.
- **Extensions Path**: Choose a folder where to put json and js files to extend Emmet. This includes custom snippets, preferences and syntax profiles. For more information see Customization.

Emmet Abbreviation Preferences

This Preferences tab lets you add and manage custom abbreviations. All standard abbreviations can be found in Emmet's documentation: Abbreviations.

If there is no need to transform the text while expanding it, create an Emmet snippet instead (see below).

- **New**: Add a new abbreviation.
  - **Name**: The name of the abbreviation is also its trigger.
  - **Context**: The context in which the abbreviation is enabled (HTML, CSS, etc.).
  - **Description**: A short description of the abbreviation .
  - **Pattern**: This defines what an abbreviation expands to. Since Emmet is mostly used for writing HTML/XML tags, abbreviation definition uses XML format to describe elements; see Abbreviation types.
  - **Automatically insert**: This standard option doesn't affect how Emmet works in Connect Designer.
- **Edit**: Edit the currently selected abbreviation.
- **Remove**: Remove the currently selected abbreviation.

- **Import**: Click to open a browse dialog to import an XML file containing exported abbreviations. The imported abbreviations are added to the current list.
- **Export**: Click to open a Save as dialog to export all the abbreviations in an XML file that can be shared and re-imported.
- **Preview box**: Shows what the selected abbreviation is expanded to.
- **Restore Defaults**: clear all custom abbreviations.
- To temporarily disable an abbreviation, uncheck the checkbox next to the name of the abbreviation in the list.

Emmet Output Preferences

The Output Preferences dialog is used to control how the expanded (output) code behaves when expanding abbreviations and snippets. There are 6 different dialogs to control output and, while they all have identical options, they control different output types: CSS, HAML, HTML, XML, XSL and the "Default" one controlling the rest of the types.

These options are equivalent to Emmet's syntaxProfiles.json feature.

Emmet Snippets Preferences

Emmet Snippet are similar to abbreviations in that they are expanded when the Tab key is pressed, but they are just blocks of plain text. Anything in a snippet will be outputted “as is”, without any transformation.

- **New**: Click to create a new snippet.
  - **Name**: The name of the abbreviation is also its trigger.
  - **Context**: The context in which the snippet is enabled (HTML, CSS, etc.).
  - **Description**: A short description of the snippet.
  - **Pattern**: The pattern defines what a snippet expands to.
  - **Automatically insert**: This option doesn't affect how Emmet works in Connect Designer.
- **Edit**: Modify the currently selected snippet.
- **Remove**: Remove the currently selected snippet from the list.
- **Import**: Click to open a browse dialog to import an XML file containing exported snippets. The imported snippets are added to the current list.

- **Export**: Click to open a Save as dialog to export all the snippets in an XML file that can be shared and re-imported.
- **Preview box**: Shows what the selected snippet is expanded to.
- To temporarily disable a snippet, uncheck the checkbox next to the name of the snippet in the list.

Emmet Variables Preferences

Variables are placeholders used in Emmet snippets to output predefined data. For example, the `html:5` snippet of HTML syntax has the following definition:

```
<!doctype html>\n<html lang="${lang}">...</body>\n</html>
```

In the example above, `${lang}` is used to refer `lang` variable defined in `variables` below. If your primary language is, for example, Russian, you can simply override `lang` variable with `ru` value and keep the original snippets. Also, you can override variable values with inline abbreviation attributes: `html:5[lang=ru]`.

- **Name**: The name of the variable. This should be a single alphanumeric string with no spaces or special characters. For example, the myVar name is referred to as ${myVar}.
- **Value**: The value of the variable when the snippet is expanded.
- **New**: Click to create a new variable and define its name and value.
- **Edit**: Click to modify the currently selected Variable.
- **Remove**: Click to delete the currently selected Variable.

Language Setting Preferences

The Language Setting preferences are used for selecting the language used in the User Interface.

- **Language**: Select a language from the options available in the drop down list.

Print Preferences

Available Printers Preferences

The Available Printers preferences control which printer definitions are available when generating print output or creating Output Presets. Any printer that is unchecked in this dialog

PReS. Connect

will not be visible in the "Model" drop-down of the Print Options dialog; see "Print Options" on page 764.

Available Printer Preferences:

- **Selected Printers**: Lists the available Printer Definition Files in the system. Note that these are not installed Windows printers or printer queues, but PReS Connect Printer Definition Files.
- **Printer checkbox**: This checkbox selects/deselects all printers in the list. Click to check all, click again to uncheck all.

General Print Preferences

The General Print Preferences are used to set communication settings with the PReS Connect Server module that does the actual generation of print output. The Server module can be located on the same computer (hostname: localhost) or on a different machine. Multiple Designer modules can use a single Server module to generate Print output, as long as the appropriate hostname, username and password are provided. In essence, this can be used to create a single Print Server.

- **Print Server Settings group:**
  - **Protocol**: Use the drop-down to select whether to use the HTTP or the secure HTTPS protocol to connect to the Print Server.
  - **Hostname**: Enter the IP, machine name or URL of the Print Server. Default is `localhost`.
  - **Port**: Enter the port through which to communicate with the Print Server. Default is `9340`.
  - **Username**: Enter the username to authenticate to the Print Server. Default is `ol-admin`. This is set on the server's "Server Security Settings" on page 71.
  - **Password**: Enter the password to authenticate to the Print Server. Default is `secret`.
  - **Confirm Password**: Re-enter the password above.
- **External sort command timeout (seconds)**: Enter the number of seconds to wait for an external sort command before giving up. External sort commands are set up in the Sorting Options page of the Output module.

Print Measurements Preferences

- **Units**: Use the dropdown to specify the default measurements system used for dimensions of the template and boxes. In addition it defines the coordinates/position of box elements.
  The default unit will be added automatically when geometry values are entered without a unit in the Attributes pane or in the Box Properties dialog.
- **Flip insert guide axis**: Check this option to flip the axis on which guides are inserted. Normally, dragging a guide from a horizontal ruler inserts a horizontal guide (see "Guides" on page 499). With this option checked, dragging a guide from a horizontal ruler inserts a vertical guide.

Saving Preferences

The saving preferences are a way control if and how often PReS Connect saves your work in the background, and if how many backup files it creates when you save the template or data mapping configuration. See also: "Saving a template" on page 275.

Auto Save

After a template or data mapping configuration has been saved for the first time, Connect Designer can auto save it with a regular interval.

- **Enable**: activate the Auto Save function.
- **Interval (minutes)**: enter a number of minutes, e.g. 3 to auto-save the template or data mapping configuration every 3 minutes.

Auto Backup

Connect Designer can automatically create a backup file when you **manually** save a template or data mapping configuration. The Auto Save function does **not** cause backup files to be created.

- **Enable**: activate the Auto Backup function.
- **Revisions to keep**: Enter the maximum number of backup files. When the maximum is reached, Auto Backup will overwrite the oldest file.

- **Destination**: Select the directory in which the backups should be stored.
  - **Original**: the directory in which the original file is stored.
  - **Other directory**: use the **Browse** button to select another directory.

Backup files have the same name as the original file with two underscores and a progressive number (without leading zeros) at the end: **originalname__1.OL-template**, **originalname__2.OL-template**, etc.

Scheduling Preferences

The scheduling preferences are a way to control precisely how the PReS Connect services work in the background.

Scheduling options

This preference page defines what is considered a small or large job (anything in between is considered "medium" jobs). For a detailed description of all options, see "Scheduling Preferences" on page 63.

Scheduling - Merge engine

This preferences page defines how different instances and speed units are attributed to different jobs when creating output documents. For a detailed description of all options, see "Merge Engine Scheduling" on page 64.

Scheduling - Weaver engine

This preference page determines the number of engines launched, as well as their speed, when generating Print Output of any type. For a detailed description of all options, see "Weaver Engine Scheduling" on page 66.

Scripting Preferences

The Scripting preferences define different options related to scripting within PReS Connect .

- **General**:
  - **Script timeout at design time (sec)**: In Preview mode or when running the Script Profiler (see the Profile Scripts dialog), a long running script is stopped after the amount of time set here. The default is 2 seconds, the minimum is 1 second.

- **Designer scripting profiling group**:
  - **Number of iterations**: Enter the number of times to run scripts when running the Profile Scripts dialog. The default is 1000. Accepted values are 1 to 1000000000. Yes, that's 1 billion - which would take a *long* time to run!

Web Preferences

Web Form Preferences

These preferences define the default behavior of some form elements.

The preferences are as follows:

- **Insert Form Field Defaults**:
  - **Style**: Defines how labels are added to input form elements:
    - **Wrap input with label**: The label is wrapped around the element, such as <label>First Name <input type="text" name="first_name"></label>
    - **Attach label to input**: The label is placed before the input, and refers to it: <label for="first_name">First Name</label> <input type="text" name="first_name">
    - **Use label as placeholder**: The label is removed and the text is put as a placeholder, such as: <input type="text" name="first_name" placeholder="First Name">
    - **No label**: The label value is ignored.
  - **Insertion Point**: Defines how new elements are inserted, by default:
    - **At cursor position**: The element is inserted where the cursor is located in the template.
    - **Before element**: The element is inserted before the current element where the cursor is located. For example if the cursor is within a paragraph, insertion occurs before the <p> tag.
    - **After start tag**: The element is inserted within the current element, at the beginning, just after the start tag.
    - **Before end tag**: The element is inserted within the current element, at the end, just before the end tag.

- **After element**: The element is inserted after the current element where the cursor is located. For example if the cursor is within a paragraph, insertion occurs after the <p> tag.

- **Get Job Data File**: Defines the Workflow URL to be used when the **Get Job Data File on submit** toolbar button is active. This simplifies the process of creating and testing COTG Forms (see "Capture OnTheGo" on page 371).
    - **Workflow URL**: The default URL is: http://127.0.0.1:8080/_ getSampleFormData_

Profile Scripts dialog

The Script Profiler is accessible through the **Context > Profile Scripts** menu option. It runs the scripts in the template, using the current record, in order to verify the speed at which scripts in the "Scripts pane" on page 684 execute. It helps greatly in troubleshooting performance issues caused by scripting (see also: "Testing scripts" on page 556).

When the dialog opens, the script profiler runs automatically, on 1000 instances of all the scripts by default (this can be changed through the "Scripting Preferences" on page 627).

> **Note**
>
> The script profiler can take a while, so please be patient.

The results are shown as follows (the first in the line is indicated as **Total** and represents the totals of all the scripts underneath, representing a good overview of the scripts performance in the template):

- **Name**: The name of the script being executed.
- **Count**: As the profiler runs, Count shows the current number of iterations that have been run. This goes up to the total number of set instances and then stops. Hover with your mouse to display a tooltip indicating in which sections the scripts has run (and in which contexts).
- **Elapsed**: Displays the total elapsed time since the start of the session. The table entries are initially sorted based on the values in this column, from high to low. Hovering the mouse over it will display a tooltip that indicates the breakdown of the execution time across different execution stages.

- **Delta**: Displays the estimated difference in performance between the current session and the previous session. Uses average values, so should still work if the previous session was stopped after a different number of iterations. Will be empty if no previous data is available. Hover with your mouse to display a tooltip indicating the breakdown of the execution time across different execution stages.

Script wizards

Wizard types

Script wizards are simplified interfaces for common scripts in templates:

- **Text Script**: This is the default script that is created when a data field is dragged from the Data Model onto the page. See "Variable Data" on page 530.
- **Dynamic Image Script**: Provided that its selector refers to an image, this script dynamically changes the image for each record. See "Dynamic Images" on page 541.
- **Email Scripts**. The Email To Script is automatically added to any new Email context; it defines where the email should be sent for each record. Other Email scripts define other recipients, the subject of the email that is sent, and the PDF password. See "Email header settings" on page 339.
- **Barcode Script**: This script controls the contents of a Barcode. It is automatically added when a barcode is added to a template. See "Barcode" on page 409
- **Business Graphic Script**: This script controls the contents of a Pie Chart, Bar Chart or Line Chart.

The result of the script can be either text appearing on the page, an email address or subject, the barcode data, or a JSON string that is written to the attribute of an HTML element.

Options

Here are the options visible in Script wizards:

- **Name**: The name of the script, making it easier to identify it.
- **Find**: The Selector or Text to apply the result of the script to.
- **Selector**: Uses CSS selectors to find the element to which the script applies
- **Text**: Uses text as a trigger for the script. The script applies to all instances of the text found in the template.

- **Wizard Results**: Displays a list of the data that is sent to replace the content that matches the script's selector:
    - **Prefix**: Static text to use before the set field. For example in Dynamic Image scripts, the default prefix is **images/**.
    - **Field**: A drop-down to select which field contents to use in the script. The field should contain a valid value. For an email script, for example, the field would have to contain an email address. Note that you can't select a field that belongs to a detail table.
    - **Format**: A special formatting modifier applied to the Field; see "Formatting variable data" on page 536.
    - **Suffix**: Static text to use after the set field. For Dynamic Image Scripts, the default suffix is **.jpg**and refers to the file extension.
- **[+]**: Adds a new line to the Wizard Results. Note that by default there is no line return between fields in the list. Adding <br> in the Suffix or Prefix field can establish a line return.
- **[-]**: Removes the currently selected line in the Wizard Results list.
- **Arrow Up**: Moves the currently selected line up one position.
- **Arrow Down**: Moves the currently selected line down one position.
- **Options** (only available in the Text Script wizard and the Dynamic Image wizard): specifies where and how the script inserts its results:
    - As **HTML**. HTML elements in the results are processed and displayed as HTML elements. For instance, `<b>this is bold</b>` will be displayed as **this is bold**. This is the default setting.
    - As **text**. This inserts the results as-is, meaning HTML tags and elements are displayed as text in the output. In this scenario, "<br>" shows up in the text and does not insert a line break.
    - As the value of an **attribute** of an HTML element. The selector of the script should be an HTML element. Which attributes are available depends on the selected HTML element. If the script's selector is an image (<img> element) for example, and the attribute is `src`, the script will modify the image's source. The script's results should be a valid value for the chosen attribute.

PReS. Connect

    - When checked, the option **Convert fields to JSON string** writes the results from the script into an attribute or text as a JSON string. This is useful for Web contexts where a front-end script can read this value easily.
- **OK**: Click to save any changes made to the script, apply the changes in the template, and close the dialog.
- **Cancel**: Click to close the dialog without saving changes.
- **Expand**: Click to convert the script generator to a regular script. Note that this action is not reversible once the regular script has been saved.
- **Apply**: Saves changes made to the script and applies the changes in the template without closing the dialog.

Epanded Script window

When expanded, the Script window replaces all parts of the wizard below the Selector by a box in which the script can be typed. See "Writing your own scripts" on page 548.

For an overview of keyboard shurtcuts that can be used in this script editor, see "Keyboard shortcuts" on page 656.

Chart Script dialog

These are the options in the Chart Script dialog:

- **Name**: The name of the script, making it easier to identify it.
- **Find**: The Selector or Text to apply the result of the script to.
    - **Selector**: Uses CSS selectors to find the element to which the script applies.
    - **Text**: Uses text as a trigger for the script. The script applies to all instances of the text found in the template.
    - **Selector and Text**: Uses text as a trigger for the script but only applies to text within the specified Selector.
- **Input Type**: Use the drop-down to select the source of the data to add to the Chart. The selection changes the options below:
    - **Static Labels**: Select to use a static number of data lines below. The chart will always have the same number of items.
        - **Data List**: Lists the data lines that are part of the Chart. Each line represents a segment of the pie as well as a label if they are shown.

PReS. Connect

        - **Labels**: The text of the label to display next to the Chart or within the legends.
        - **Values**: The value that will be used to create the Chart. This is the name of a field within the Data Model.
    - **Add**: Click to add an entry to the Data List. Opens the Edit Label Properties dialog.
    - **Delete**: Click to delete the currently selected line in the Data List.
    - **Move Up**: Click to move the currently selected line up one position.
    - **Move Down**: Click to move the currently selected line down one position.
- **Dynamic Labels**: Select to use data from a detail table to fill the Chart dynamically. At least one detail table must be available in the Data Model Pane for this option to be functional.
    - **Details**: Use the drop-down to select which detail table provides the data for the Chart.
    - **Labels**: Use the drop-down to select which field within the detail table contains the text for the labels shown in the Chart.
    - **Values**: Use the drop-down to select which field within the detail table contains the numerical values used to build the Chart.

Conditional script dialog

Conditional script generators can show or hide elements on the page depending on certain conditions and values. They can be added by right-clicking any element in a template and clicking **Make Conditional**. If the current element does not have an ID, one will be automatically generated. See "Showing content conditionally" on page 539.

The options in the Conditional Script wizard are:

- **Name**: The name of the script, making it easier to identify it.
- **Selector**: The Selector or Text to apply the result of the script to.
    - **Selector**: Uses CSS selectors to find the element to which the script applies.
    - **Text**: Uses text as a trigger for the script. The script applies to all instances of the text found in the template.
    - **Selector and Text**: Uses text as a trigger for the script but only applies to text within

the specified Selector.

For more information about Selectors see "Using the Text Script Wizard" on page 533.

- **Action**: Use the drop-down to select whether to **Show** or **Hide** the element when the condition below is true.
- **Data Field**: Use the drop-down to select which data field in the record the condition will be based on.
- **Condition**: Select which kind of condition is applied. Possible options are: **Equal to**, **Not equal to**, **Contains**, **Does not contain**, **Begins with**, **Ends with**.
- **Value**: The value used for the conditional check.

For example, you could check whether the value in the data field "Gender" is "Equal To" the value `Mr`, in order to show a paragraph or an image applying only to male customers.

Section properties dialogs

Email Section Properties

Properties Tab

The properties for an Email section are minimal and contain the following options:

- **Name**: Enter the name of the Section in the Email Context. This has no effect on output.

Includes Tab

This tab lists the style sheets that can be applied to the email section when producing the output. Style sheets are loaded in the order shown, and styles in later style sheets overwrite earlier ones when the same selector is used.

- **Up**: Move the selected style sheet up in priority.
- **Down**: Move the selected style sheet down in priority.

Print Section Properties

The Section Properties dialog is separated in a few separate tabs depending on the Context in which it resides:

General tab (all Contexts)

- **Section** group:
  - **Name**: The name of the Section.
  - **Show PDF data mapping input as background image**: Check this option to display each page of a PDF data source when using a PDF data mapping configuration. Each page of the PDF is shown, separated by the appropriate records. Note that as many pages as there are in the PDF will be created in the section.
- **Page** group:
  - **Size**: The named page size.
  - **Width**: The width of the page.
  - **Height**: The height of the page.
  - **Portrait**: Whether the page is portrait (otherwise, it's landscape).
- **Margins** group: Defines the margins where contents will not appear on the page.
  - **All sides**: Check to use the same margin setting for all sides. Note that this will copy the *Top* value to all margins, overwriting existing values.
  - **Top**: The top margin.
  - **Left**: The left margin.
  - **Bottom**: The bottom margin.
  - **Right**: The right margin.
- **Bleed group**: This group defines the bleeds for the sections added within the print context.
  - **All sides**: Check to define all bleeds identically using the **Top** value.
  - **Top**: The bleed at the top of the page.
  - **Left**: The bleed at the left of the page.
  - **Bottom**: The bleed at the bottom of the page.
  - **Right**: The bleed at the right of the page.

Includes Tab

This tab defines what other resources are included in the output

- **File types**:
  - **Stylesheets**: What CSS stylesheets to use in producing the output. Stylesheets are loaded in the order shown, and styles in later Stylesheets overwrites earlier ones when the same selector is used.
  - **JavaScript**: Which JavaScript resources are included in the HTML header of the web output.
- **Up**: Move the selected StyleSheet or JavaScript up in priority.
- **Down**: Move the selected StyleSheet or JavaScript down in priority.

Finishing tab

This tab defines finishing options for this section when it is printed.

- **Binding** group:
  - **Style**: What type of binding to request on the printer. This includes Stapled, Glued, Stitched, etc.
  - **Side**: On which side the binding occurs, such as Bottom, Left, top, etc.
  - **Location**: The location of the binding, such as Saddle, Side, Corner, etc.
  - **Angle**: If the binding should be done horizontally, vertically, or at an angle.
  - **Item count**: When certain binding styles are selected which require multiple items (such as Stapled or Stiched), use the Count option to specify the number of items the printer should use, or select Default to let the printer decide how many items to use.
  - **Area**: The area where the binding can be applied.
- **Hole making** group:
  - **Number of holes**: When certain binding styles are selected which require the printer to create holes in the paper, use this drop-down to select the number of holes that should be created, or use Default to let the printer decide.
  - **Pattern Catalog ID**: When the Number of Holes is not the default in the option above, use the drop-down to select the Pattern Catalog ID for the hole making.

Sheet Configuration Tab

This tab defines how different Print Context Sections output on different Media and using different Master Pages.

PReS. Connect

There are multiple groups, each defining the settings for individual *position* within the section as it outputs: **First**, **Middle** and **Last** sheet, as well as a group for **Single** sheets.

This tab contains the following options:

- **Duplex**: Check to enable content to be printed on the back of each sheet. Your printer must support duplex for this option to work.
- **Tumble**: Check to enable tumble mode so pages are duplexed as in a notebook (on Portrait output, this would be equivalent to short-edge duplex).
- **Same for all positions**: Check to enable a single group below, which defines the same options for all positions in the document. If unchecked, individual position options are available.

The next options are identical for all positions, but of course only affects the position where you change the options:

- **Allow content on**: Selects on which face of the sheet content is allowed. If "Front only" or "Back Only" is selected, the other page may contain a Master Page, but no contents will be printed on it. As such it does not count in the "Content Page Number" and "Content Page Count" markers which can be inserted via the Insert menu.
- **Media**: Defines the media that is used. If the Media has *Preprinted Media* defined, the selected preprinted media image is shown as a background to each page that correspond to the media's sheet position.
    - **Edit Script**: Click to open a Script Editor dialog. The script defines what Media is used, so it can be dynamically defined using data from the source record or the extracted record.
- **Master Page Front**: Defines the Master Page used for the front of the selected sheet's position. Disabled if "Back Only" is selected under Allow content on.
- **Master Page Back**: Defines the Master Page used for the front of the selected sheet's position. Disabled if "Back Only" is selected under Allow content on, or if Duplex is unchecked.

Background Tab

This tab defines the background for the current Print Context Section. It contains the following options:

- **General**group:
  - **PDF**: Select the PDF to use as the section's background: a PDF Datamapper Input or a PDF Resource.
  - **Path**: The path to a PDF Resource. Enter a path and file name or click the Browse button to open the Select Image dialog; see "Select Image dialog" on page 644.
  - **Position**:
    - **Centered**: The PDF will be centered on the page and will not be resized.
    - **Fit to Media**: The PDF will be resized to fit the Media.
    - **Absolute**. Set a position for the top left corner of the PDF. The PDF will not be resized.
    - **Top**: the distance between the top of the page and the top of the PDF
    - **Left**: the distance between the left side of the page and the left side of the PDF.
- **Pages** group:
  - **All**: Use all pages in the PDF file as the section's background. For each page in the PDF file one page will be added to the Print section.
  - **Pages**: Select a number of pages from the PDF file. For each page in the range, one page will be added to the Print section.

Web Section Properties

The Web Section Properties defines some of the web page properties, especially details appearing in the header.

Properties Tab

- **Section Group**:
  - **Name**: Enter the name of the Section in the Web Context. This has no effect on output.
  - **Page Title**: Enter the title for the page. This is the contents of the <title> HTML tag.
  - **Shortcut Icon**: Enter the path to the favicon.ico file, for instance *images/favicon.ico*. If a valid favicon image is dragged to the Web Section, it will automatically be set as a shortcut icon.

- **Meta Information Group**: This lists all <meta> tags that are added to the header of the HTML file generated in the output. For more information on <meta> tags, see W3Schools - HTML meta tag.
    - **Type**: Select the type of <meta> tag. This is either *name* or *http-equiv*.
    - **Value**: Enter the value of the <meta> tag, for instance when *name* is selected, this could be *keywords* or *description*.
    - **Content**: Enter the desired contents of the <meta> tag.
    - **Add**: Click to add a new <meta> tag. to the list.
    - **Delete**: Click to delete the currently selected <meta> tag.
    - **Move up**: Click to move the currently selected <meta> tag up one position.
    - **Move down**: Click to move the currently selected <meta> tag down one position.

Includes Tab

This tab defines what other resources are included in the output

- **Stylesheets**: What CSS stylesheets to use in producing the output. Stylesheets are loaded in the order shown, and styles in later Stylesheets overwrites earlier ones when the same selector is used.
- **JavaScript** (Web and Print only): Which JavaScript resources are included in the HTML header of the web output.
- **Up**: Move the selected StyleSheet or JavaScript up in priority.
- **Down**: Move the selected StyleSheet or JavaScript down in priority.

Arrange Sections

The Arrange dialog is used to change the order of sections within a context. To access the Arrange dialog, right-click on any section or the context containing them, and click Arrange.

- **Name**: Displays the name of each section within the context.
- **Move Up**: Click to move the currently selected section up one position.
- **Move Down**: Click to move the currently selected section down one position.

Section Includes

This dialog defines what other resources are included in the output

PReS. Connect

- **Stylesheets**: What CSS stylesheets to use in producing the output. Stylesheets are loaded in the order shown, and styles in later Stylesheets overwrites earlier ones when the same selector is used.
- **JavaScript** (Web and Print only): Which JavaScript resources are included in the HTML header of the web output.
- **Up**: Move the selected StyleSheet or JavaScript up in priority.
- **Down**: Move the selected StyleSheet or JavaScript down in priority.

Send COTG Test

The Send COTG Test dialog is used to send a document to the Capture OnTheGo application, without the need to go through the Output to Capture OnTheGo task in PReS Workflow (see Workflow Help: Output to Capture OnTheGo).

Note that to the contrary of the Send to Capture OnTheGo task in Workflow, when using the Send COTG Test dialog, the *contents* of the file will be sent to the Nu-Book server. The Send to Capture OnTheGo task only sends document meta data to the Nu-Book server. The contents of the file are transmitted (by Workflow) when requested by the COTG app.

For more information about testing a COTG template, see this how-to: Testing a COTG template.

> **Note**
>
> The dialog is only available on templates containing a Web context. It does not, however, verify whether any Capture OnTheGo form elements have been added to the page.

The dialog contains the following options:

- **General group**:
  - **Store ID**: The Nu-Book Store ID. If you don't have one, you can get a trial account for this purpose; please see this page for more details: http://www.captureonthego.com/en/promotion/.
  - **Password**: The password to the above Nu-Book Store.
  - **Recipient(s)**: The user name(s) that should receive the document. One or more emails and/or user groups, separated by a comma.

- **Category**: The category under which the document appears. If the category does not exist, it will be created on the server.

- **Document Information group**:
  - **Title**: The title that appears both on the Nu-Book management interface, as well as on the Capture OnTheGo application on the mobile device. Defaults to the name of the template and the currently active section.
  - **Author**: The name of the author or company.
  - **Description**: The title that appears both on the Nu-Book management interface, as well as on the Capture OnTheGo application on the mobile device when looking at the document's details.

Send Email

The Send Email dialog is used to generate mail output and send it to each recipient in the Record Set. To open this dialog, select **File > Send Email**, on the menu.
Note that the subject, recipients etc. must be specified before sending the email; see "Email header settings" on page 339.
For more information about the process of sending out email and the possible settings, see "Generating Email output" on page 874.

Options for this dialog:

- **From** group:
  - **Name**: Enter the name that should appear when sending emails. The name is optional.
  - **Email**: Enter the email address that will appear as a Sender to the email recipient. A single email address should be written.
- **Records** group:
  - **All**: Select to send to all records in the Record Set.
  - **Selection**: Select this open and enter a range of records that should be sent.
- **Attachments**:
  - **Print context as PDF**: If a Print Context exists in the template, its output will be generated and a PDF version of it will be attached to the outgoing email.
  - **Web Page context as HTML**: If a Web Page Context exists in the template, its output will be generated as a single HTML file with all required resources

embedded in the file. This HTML file is then added as an attachment to the outgoing email.

- **Outgoing mail settings:**
  - **Presets**: Use the drop-down to select a preset. These presets are configured in the Email (SMTP) preferences; see "Email SMTP settings" on page 341.

    > **Note**
    >
    > It is recommended to use an Email Service Provider to get access to tools that give you full control over your mailings, like open rates, click through rates etc. See "Using an ESP with PReS Connect" on page 878.

  - **Host**: The SMTP server through which the emails are to be sent. Can be a host (mail.domain.com) or an IP address. You can specify a port number as part of the host name, for example: smtp.mandrillapp.com:465.
  - **Use authentication**: Check if a username and password are needed to send emails through the host.
  - **Start TLS**: Enabled if authentication is checked. Sends emails through Transport Layer Security (TLS), which is sometimes referred to as SSL.
  - **User**: Enter the username used to connect to the SMTP server.
  - **Password**: Enter the password for the above username.

Send Test Email

The Send Test Email dialog is used to generate mail output of a certain number of records and send them to one recipient. To open this dialog, select **File > Send Test Email**, on the menu. For more information about the process of sending out email and the possible settings, see "Generating Email output" on page 874.

Options for this dialog:

- **From**group:
  - **Name**: Enter the name that should appear when sending emails. The name is optional.

    - **Email**: Enter the email address that will appear as a Sender to the email recipient. A single email address should be written.
- **To**group:
    - **Email address(es)**: Enter one or more email addresses where the test emails are sent. Multiple emails can be separated by semicolons (;), and can be in the same format as above. Note that every email here will receive all the emails for the record-range below.
    - **Use Litmus**: Check to also send the emails to the Litmus test email set in the Email Preferences (to go to the Email Preferences, select **Window > Preferences**, click the arrow next to **Email**, and then click **General**). Disabled if no Litmus email is set. Also see this how-to: Test your emails with Litmus.
- **Records**:
    - Select **All**, or click **Selection** and enter the range of records that should be sent. Removing the range disables the selection and sends emails to all records in the record set.
- **Attachments**:
    - **Print context as PDF**: If a Print context exists in the template, its output will be generated and a PDF version of it will be attached to the outgoing email.
    - **Web Page context as ZIP archive**: If a Web context exists in the template, its output will be generated as an HTML file. A ZIP archive, containing the HTML file and all required resources, will be attached to the outgoing email.
- **Outgoing mail settings**:
    - **Host**: The SMTP server through which the emails are to be sent. Can be a host (mail.domain.com) or an IP address. You can specify a port number as part of the host name, for example: smtp.mandrillapp.com:465.
    - **Use authentication**: Check if a user name and password are needed to send emails through the host.
    - **Start TLS**: Enabled if authentication is checked. Sends emails through Transport Layer Security (TLS), which is sometimes referred to as SSL.
    - **User**: Enter the user name used to connect to the SMTP server.
    - **Password**: Enter the password for the above user name.

Send to Workflow/Files dialog

The Send to Workflow dialog sends templates, data mapping configurations and print presets to the PReS Workflow server, or saves it as a package file. Package files can be sent to other users of the Connect Designer. They cannot be loaded from PReS Workflow.

- **Files to Package** group:
  - **Template**: Select the template to send. By default the currently active template is listed. Click Browse to select another template. In version 1.3 you may select more than one template in the Browse dialog, and each of them is sent to Workflow or added to a package file.
  - **Data mapping configuration**: Select the data mapping configuration to send. By default the current configuration is listed. Click **Browse** to select another configuration. You may select more than one configuration file in the Browse dialog, and each of them is sent to Workflow or added to a package file.
  - **Job Creation Preset**: Use the drop-down to select a Job Creation Preset to send. Click **Browse** to select a preset that is not in the default save location.
  - **Output Creation Preset**: Use the drop-down to select an Output Creation Preset. Click **Browse** to select a preset that is not in the default save location.
- **Destination** group:
  - **Send files to**: Use the drop-down to select where to send the files.
    - **Workflow machines**: Send the files to a PReS Workflow installation. This lists all the detected PReS Workflow installations detected on the network.
    - **File...**: Click to save the files as a package. This package can be loaded within the Workflow tool.

Select Image dialog

The Select Image dialog lets you select an image, depending on where the image is located.

Resources: lists the images that are present in the Images folder on the Resources pane. A preview of the selected image will be shown at the right.

Disk: lets you select an image file that resides in a folder on a hard drive that is accessible from your computer. A preview of the selected image will be shown below.

- **Path**. The complete syntax of the path is: file:///<host>/<path>. Note: if the host is "localhost", it can be omitted, resulting in file:///<path>, for example: file:///c:/resources/images/image.jpg.
- **Browse**: opens an explorer window to browse folders and select an image.

Url lets you select an image file from a specific web address. Select the protocol and then enter the URL (for example, http://www.mysite.com/images/image.jpg). A preview of the selected image will be shown below.

- **Protocol**: **http** or **https**.

The option **Save with template**, available when choosing an image from disk or by URL, inserts the file in the **Images** folder on the **Resources** pane. If not saved with the template, the image will remain external.

> **Note**
>
> External images need to be available when the template is merged with a record set to generate output, and their location should be accessible from the machine on which the template's output is produced. External images are updated (retrieved) at the time the output is generated.

Sheet Configuration dialog

The Sheet Configuration dialog defines how different Print context sections output on different Media (see "Media" on page 321) and using different Master Pages (see "Master Pages" on page 318).

There are multiple groups, each defining the settings for pages grouped by their position within the section as it outputs: **First**, **Middle**, **Last** and **Single** sheets.

The first option defines **Duplex** printing, which also enables or disable the **Back** side of each sheet.

If Duplex is enabled, you can also check **Tumble** to duplex pages as in a calendar, and **Facing pages** to have the margins of the section switch alternately, so that pages are printed as if in a magazine or book.

If the option **Same for all positions** is checked, the same Master Page and Media will be applied to every page in the Print section.

Each group defines:

- **Allow content on**: Selects on which face of the sheet content is allowed. If **Front only** or **Back only** is selected, the page acts as a Simplex page even if Duplex printing is enabled.
- **Media**: Defines the media that is used. If the Media has Virtual Stationery defined, the selected image is shown as a background to each page that corresponds to the media's sheet position.
- **Master Page Front**: Defines the Master Page used for the front of the selected sheet's position.
- **Master Page Back**: Defines the Master Page used for the back of the selected sheet's position.

Style sheets dialog

The Stylesheet editor dialog is used to edit CSS style sheet resources. For information on the use of style sheets, see "Styling and formatting" on page 484 and "Styling templates with CSS files" on page 486.
This dialog lets you edit the Global style sheet (context_all_styles.css, which by default applies to all contexts), and the style sheet that applies to the context that is currently being edited in the workspace: Print (context_print_style.css),Email (context_email_style.css) or Web (context_web_style.css).
To open this dialog, select **Edit > Stylesheets...**.

- **Context**: Use the drop-down to select **Global** (all contexts) or the context that is open in the workspace, such as **Print**. Selecting a context shows all it's CSS rules in the **Rule List**.
- **Show**: Use the drop-down to select whether to show all CSS rules or limit to certain types: **Class**, **ID** or **Element** rules.
- **Rule List**: Displays the list of rules in the currently selected style sheet.
- **Rule Display**: Displays the contents of the currently selected rule in the **Rule List**.
- **New**: Click to create a new rule with the Edit Rule dialog. See "New/Edit Rule dialog" on the next page.

- **Edit**: Click to edit the currently selected rule in the *Rule List* using the Edit Rule dialog. See "New/Edit Rule dialog" below.
- **Delete**: Click to delete the currently selected rule in the *Rule List*.
- **Duplicate**: Click to create a duplicate of the currently selected rule in the *Rule List* using the Edit Rule dialog. The default name for the new rule is the name of the current one plus "-duplicated". See "New/Edit Rule dialog" below.
- **Move Up**: Move the currently selected rule in the *Rule List* up one position in the list.
- **Move Down**: Move the currently selected rule in the *Rule List* down one position in the list.
- **Save**: Click to save all changes to the stylesheet and close the dialog.
- **Cancel**: Click to close the dialog without saving any changes.

New/Edit Rule dialog

The New/Edit Rule dialog shows the properties for a specific CSS selector and how it affects all elements subject to that selector.

At any point you can click on the **Advanced** button to see the Advanced Stylesheet Rule. See "Advanced Stylesheet Rule" on page 650.

- **Name**: The CSS Selector to which this rule applies. Since CSS selectors are not specific to PReS Connect, any selector used in regular CSS can also be used here. See CSS Selectors on W3Schools for a simple reference page.

Type Tab

- **General group**:
  - **Font**: Select the font used to display text. This is equivalent to the CSS `font-family` property.
  - **Size**: Enter the size in measure, named size or percentage. This is equivalent to the CSS `font-size` property.
  - **Color**: Select a named font color as defined in the Colors Editor, create a new color or enter a color manually for text to be displayed. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. This is equivalent to the CSS `color` property.

- **Background Color**: Select a named font color as defined in the Colors Editor, create a new color or enter a color manually for the background color of the element. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. This is equivalent to the CSS `background-color` property.

- **Spacing group**:
  - **Letter Spacing**: Set the space between characters in a text in measure or percentage. This is equivalent to the CSS `letter-spacing` property.
  - **Word Spacing**: Set the space between each word in a text in measure or percentage. This is equivalent to the CSS `word-spacing` property.
  - **Whitespace**: Specify how to handle white spaces inside of an element. See CSS White-Space for details. This is equivalent to the CSS `white-space` property.
- **Style group**: Check any option to apply the selected style to text within the element. This list shows the CSS property and value for each of the options.
  - **Bold**: Sets the `font-weight` to `700`.
  - **Italic**: Sets `font-style` to `italic`.
  - **Underline**: Sets `text-decoration` to `underline`.
  - **Strikethrough**: Sets `text-decoration` to `line-through`.
  - **Subscript**: Sets `vertical-align` to `super`.
  - **Superscript**: Sets `vertical-align` to `sub`.
  - **Capitalize**: Sets `text-transform` to `capitalize`.
  - **Uppercase**: Sets `text-transform` to `uppercase`.
  - **Lowercase**: Sets `text-transform` to `lowercase`.
  - **Small-caps**: Sets `font-variant` to `small-caps`.

Formats Tab

- **General group**:
  - **Line-height**: Specify the height of each line in the element's text, in measure or percentage. Note that this is not spacing between lines, but rather the complete height of the line itself including the text. Equivalent to the `line-height` property.
  - **Align**: Select how text should be aligned, such as `left`, `center`, `right` or `justify`. Equivalent to the `align` property.

PReS. Connect

- **First Indent**: Specify the indentation of the first line of each paragraph in the element. Equivalent to the `text-indent` property.
- **Display**: Select how to display the element. This can also be used to hide an element completely using the `none` option. See CSS Display. Equivalent to the `display` property.

- **Breaks group**:
  - **Before**: Specifies how to handle page breaks before the element. Equivalent to the `page-break-before` property.
  - **Inside**: Specifies whether to accept page breaks within the paragraph. Equivalent to the `page-break-inside` property.
  - **After**: Specifies how to handle page breaks after the element. Equivalent to the `page-break-after` property.
  - **Widows**: Specifies how to handle widows within the paragraph (lines appearing alone on the next page if the paragraph does not fit on the current one). Equivalent to the `widows` property. Widows and orphans are ignored if the `page-break-inside` property is set to `avoid`.
  - **Orphans**: Specifies how to handle orphans within the paragraph (lines appearing alone at the end of a page if the paragraph does not fit on the current one). Equivalent to the `orphans` property.

Spacing Tab

- **Padding group**: Defines padding (spacing inside the element) in measure or percentage:
  - **All sides**: Check to set all padding to use the Top value. Equivalent to the `border` property.
  - **Top, Left, Bottom, Right**: Set padding for each side. Equivalent to the `border-left`, `border-top`, `border-right` and `border-bottom` properties.
- **Margin group**: Defines margins (spacing outside the element) in measure or percentage:
  - **All sides**: Check to set all margins to use the Top value. Equivalent to the `margin` property.
  - **Top, Left, Bottom, Right**: Set the margin for each side. Equivalent to the `margin-left`, `margin-top`, `margin-right` and `margin-bottom` properties.

PReS. Connect

Border Tab

- **Same for all sides**: Defines the border properties for all sides using the Top properties. Equivalent to the `border` property.
- **Top, Left, Bottom, Right**: Each group defines the following properties:
  - **Width**: Specify the thickness of the border. Equivalent to the `border-width` property.
  - **Style**: Specify the style of the border such as `solid`, `dashed` or `dotted`. Equivalent to the `border-style` property.
  - **Color**: Specify the color of the border. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the `border-color` property.

Advanced Stylesheet Rule

The Advanced editor is used to manually input rules. Note that to use this dialog, basic knowledge of CSS rules is a pre-requisite, as no check is currently done to verify that properties and values are correct.

- Property List: Lists all the currently available properties for the selector.
  - **Property**: The name of the property. This must correspond exactly to a known property (see CSS Reference). An autocompletion drop-down displays to show possible values when typing.
  - Value: The value for the given property. The values must be valid for that property, see the CSS Reference link above and check the property for valid values.
- **New**: Click to create a new line and type in the property.
- **Delete**: Click to delete the currently selected property in the *Property List*.
- **Move Up**: Move the currently selected property in the *Property List* up one position in the list.
- **Move Down**: Move the currently selected property in the *Property List* down one position in the list.

Table Formatting dialog

The Table Formatting dialog defines how the table looks and reacts.

PReS. Connect

Table Tab

- **General group**:
  - **Width**: Set the width of the table in measure or percentage. Equivalent to the CSS `width` property.
  - **Height**: Set the height of the table in measure or percentage. Equivalent to the CSS `height` property.
  - **Angle**: Set the rotation angle of the table in clockwise degrees. Equivalent to the CSS `transform:rotate` property.
  - **Corner radius**: Set the radius of rounded border corners in measure or percentage. Equivalent to the CSS `border-radius` property.
  - **Display**: Use the drop-down or type in the value for how to display the table. Equivalent to the CSS `display` property.
  - **Overflow**: Use the drop-down or type in the value for how to handle overflow (text that does not fit in the current size of the box). Equivalent to the CSS `overflow` property.
- **Text wrap group**:
  - **Float**: Use the drop-down or type in the value for how to float the table, if the table is not in an absolute position. Equivalent to the CSS `float` property.
  - **Clear**: Use the drop-down or type in the value for clearing pre-existing alignments. Equivalent to the CSS `clear` property.
- **Positioning**:
  - **Position**: Use the drop-down or type in the value for the type of positioning for the table. Equivalent to the CSS `position` property.
  - **Top**: Set the vertical offset between this table and its parent's top position. Equivalent to the CSS `top` property.
  - **Left**: Set the horizontal offset between this table and its parent's left position. Equivalent to the CSS `left` property.
  - **Bottom**: Set the vertical offset between this table and its parent's bottom position. Equivalent to the CSS `bottom` property.
  - **Right**: Set the horizontal offset between this table and its parent's left position. Equivalent to the CSS `right` property.

PReS. Connect

- **Z-index**: Set the z-index of the table. The z-index defines in which order elements appear. Equivalent to the CSS `z-index` property.

- **Breaks group**:
  - **Before**: Specifies how to handle page breaks before the table. Equivalent to the CSS `page-break-before` property.
  - **Inside**: Specifies whether to accept page breaks within the table. Equivalent to the CSS `page-break-inside` property.
  - **After**: Specifies how to handle page breaks after the table. Equivalent to the CSS `page-break-after` property.
  - **Widows**: Specifies how to handle widows within the table (rows appearing alone on the next page if the table does not fit on the current one). Equivalent to the CSS `widows` property. Widows and orphans are ignored if the `page-break-inside` property is set to `avoid`.
  - **Orphans**: Specifies how to handle orphans within the tables (rows appearing alone at the end of a page if the table does not fit on the current one). Equivalent to the CSS `orphans` property.

Spacing Tab

- **Padding group**: Defines padding (spacing inside the element) in measure or percentage:
  - **All sides**: Check to set all padding to use the Top value. Equivalent to the CSS `padding` property.
  - **Top, Left, Bottom, Right**: Set padding for each side. Equivalent to the CSS `padding-left`, `padding-top`, `padding-right` and `padding-bottom` properties.
- **Margin group**: Defines margins (spacing outside the element) in measure or percentage:
  - **All sides**: Check to set all margins to use the Top value. Equivalent to the CSS `margin` property.
  - **Top, Left, Bottom, Right**: Set the margin for each side. Equivalent to the CSS `margin-left`, `margin-top`, `margin-right` and `margin-bottom` properties.

PReS. Connect

Border Tab

- **Same for all sides**: Defines the border properties for all sides using the Top properties. Equivalent to the CSS `border` property.
- **Top, Left, Bottom, Right**: Each group defines the following properties:
  - **Width**: Specify the thickness of the border. Equivalent to the CSS `border-width`property.
  - **Style**: Specify the style of the border such as `solid`, `dashed` or `dotted`. Equivalent to the CSS `border-style` property.
  - **Color**: Specify the color of the border. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `border-color` property.

Background Tab

- **General group**:
  - **Color**: Specify the color of the table background. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `background-color` property.
- **Background image group**:
  - **Source**: click the **Select Image** button to select an image via the "Select Image dialog" on page 644. Equivalent to the CSS `background` property.
  - **Size**: select `auto`, `cover` or `contain` (for an explanation see http://www.w3schools.com/cssref/css3_pr_background-size.asp), or type the width and height of the image in a measure (e.g. `80px 60px`) or as a percentage of the parent element's size (e.g. `50% 50%`). Equivalent to the CSS `background-size` property.
  - **Position**: select the position for the background-image. Equivalent to the CSS `background-position` property.

Table Cell Formatting dialog

Cell Tab

- **Width**: Set the width of the table in measure or percentage. Equivalent to the CSS `width` property.

PReS. Connect

- **Height**: Set the height of the table in measure or percentage. Equivalent to the CSS `height` property.
- **Vertical Align**: Specify how text is vertically aligned in the cell: top, middle, bottom or baseline. With the baseline value all the table data share the same baseline. Often this has the same effect as the bottom value. However, if the fonts are in different sizes, baseline looks better.

Type Tab

- **General group**:
  - **Font**: Select the font used to display text, equivalent to the CSS `font-family` property.
  - **Size**: Enter the size in measure, named size or percentage, equivalent to the CSS `font-size` property.
  - **Color**: Select a named font color as defined in the Colors Editor, create a new color or enter a color manually for text to be displayed. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `color` property.
- **Spacing group**:
  - **Letter Spacing**: Set the space between characters in a text in measure or percentage. Equivalent to the CSS `letter-spacing` property.
  - **Word Spacing**: Set the space between each word in a text in measure or percentage. Equivalent to the CSS `word-spacing` property.
  - **Whitespace**: Specify how to handle white spaces inside of an element. Equivalent to the CSS `white-space` property. See CSS White-Space for details.
- **Style group**: Check any option to apply the selected style to text within the element:
  - **Bold**: Sets the `font-weight` to `700`.
  - **Italic**: Sets the `font-style` to `italic`.
  - **Underline**: Sets the `text-decoration` to `underline`.
  - **Strikethrough**: Sets the `text-decoration` to `line-through`.
  - **Subscript**: Sets the `vertical-align` to `super`.
  - **Superscript**: Sets the `vertical-align` to `sub`.
  - **Capitalize**: Sets the `text-transform` to `capitalize`.

PReS. Connect

- **Uppercase**: Sets the `text-transform` to `uppercase`.
- **Lowercase**: Sets the `text-transform` to `lowercase`.
- **Small-caps**: Sets the `font-variant` to `small-caps`.

Spacing Tab

- **Padding group**: Defines padding (spacing inside the element) in measure or percentage:
  - **All sides**: Check to set all padding to use the Top value. Equivalent to the CSS `border` property.
  - **Top, Left, Bottom, Right**: Set padding for each side. Equivalent to the CSS `padding-left`, `padding-top`, `padding-right` and `padding-bottom` properties.

Border Tab

- **Same for all sides**: Defines the border properties for all sides using the Top properties. Equivalent to the `border` property.
- **Top, Left, Bottom, Right**: Each group defines the following properties:
  - **Width**: Specify the thickness of the border. Equivalent to the CSS `border-width` property.
  - **Style**: Specify the style of the border such as `solid`, `dashed` or `dotted`. Equivalent to the CSS `border-style` property.
  - **Color**: Specify the color of the border. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `border-color` property.

Background Tab

- **General group**:
  - **Color**: Specify the color of the table cell background. The color value must be a valid HTML Color Name, or a valid HTML Hex Color. Equivalent to the CSS `background-color` property.
- **Background image group**:

PReS. Connect

- **Source**: click the **Select Image** button to select an image via the "Select Image dialog" on page 644. Equivalent to the CSS `background` property.
- **Size**: select `auto`, `cover` or `contain` (for an explanation see http://www.w3schools.com/cssref/css3_pr_background-size.asp), or type the width and height of the image in a measure (e.g. `80px 60px`) or as a percentage of the parent element's size (e.g. `50% 50%`). Equivalent to the CSS `background-size` property.
- **Position**: select the position for the background-image. Equivalent to the CSS `background-position` property.

Keyboard shortcuts

This topic gives an overview of keyboard shortcuts that can be used in the Designer.

Although some of the keyboard shortcuts are the same, this isn't a complete list of Windows keyboard shortcuts. To find that, refer to the documentation of the Windows version that you are using.

Menu items

The following key combinations activate a function in the menu.

Key combination	Function
Alt	Put the focus on the menu. (Alt + the underlined letter in a menu name displays the corresponding menu.) The menu can then be browsed using the Enter key, arrow up and arrow down buttons.
Alt + F4	Exit
Alt + Shift + D	Design view
Alt + Shift + E	Preview HTML
Alt + Shift +L	Live view
Alt + Shift + P	Preview view

PReS. Connect

Key combination	Function
Alt + Shift + S	Source view
Ctrl + C or: Ctrl + Insert	Copy
Ctrl + F	Find
Ctrl + I	Properties
Ctrl + N	New
Ctrl + O	Open file
Ctrl + P	Print
Ctrl + R	Show/hide rulers
Ctrl + S	Save file
Ctrl + V or: Shift + Insert	Paste
Ctrl + X or: Shift + Delete	Cut
Ctrl + W	Close file
Ctrl + Y or: Ctrl + Shift + Z	Redo
Ctrl + Z	Undo
Ctrl + Alt + ;	Lock guides

PReS. Connect

Key combination	Function
Ctrl + Shif + R	Clear preview cache
Ctrl + Shift + S	Save all
Ctrl + Shift + W	Close all
Ctrl + Shift + ;	Snap to guides
Ctrl + ;	Show guides
Ctrl + '	Show/hide virtual stationery
Ctrl + \	Highlight master page items
Ctrl + F5	Revert
Ctrl + F10	Save as
Ctrl + F11	Send COTG test
Ctrl + F12	Send to Workflow / Package files

Workspace

The following key combinations activate a function in the Workspace.

Key combination	Function
Alt + **-**	Open system menu
Alt + F7 or: Alt + Page Down	Next tab
Alt + Shift + F7 or: Alt + Page Up	Previous tab

Key combination	Function
Ctrl + A	Select all
Ctrl + Shift + E	Switch to Editor
Ctrl + F	Find (opens the Find and Replace dialog: "Find/Replace Dialog" on page 594)
Ctrl + F6	Next editor (when there is more than one file open in the Workspace)
Ctrl + Shift + F6	Previous editor (when there is more than one file open in the Workspace)
Shift + F10 or: Ctrl + Shift + F10	Open context menu

Design and Preview tab

In addition to the keyboard shortcuts for menu items and the Workspace, the following key combinations have a special function in the **Design** tab and **Preview** tab of the Workspace.

Key combination	Function
Ctrl + B	Bold (works on a text selection)
Ctrl + E	Open Paragraph formatting dialog
Ctrl + I	Italic (works on a text selection)
Ctrl + H	Show Edges
Ctrl + K	Delete browser element
Ctrl + M	Open Box formatting dialog

Key combination	Function
Ctrl + T	Open Text formatting dialog
Ctrl + U	Underline ((works on a text selection)
Ctrl + **+** or: Ctrl + Shift + **+** or: Ctrl + = or: Ctrl + Shift + =	Zoom in
Ctrl + **-** or: Ctrl + Shift + **-**	Zoom out
Ctrl + 0	Zoom to page width
Ctrl + 1	Zoom to page content width
Ctrl + arrow up	Select parent
Ctrl + Shift + R or: F5	Refresh

Text editors: Source tab, JavaScript, CSS, Script Editor

The following key combinations have a special function in the **Source** tab of the Workspace (see also: "Source Tab" on page 688), and when editing a JavaScript or CSS file in the Workspace, and in the Script Editor (expanded view).

Key combination	Function
Ctrl + space	Content assist (auto-complete)
Ctrl + A	Select all
Ctrl + D	Duplicate line

Key combination	Function
Ctrl + F	Find
Ctrl + I	Indent (Tab)
Ctrl + J (not in Script Editor)	Incremental find; start typing a search string directly after pressing this key combination. (Not in the Script Editor.)
Ctrl + K	Find next
Ctrl + L	Go to line; a prompt opens to enter a line number.
Ctrl + Shift + D	Delete line
Tab	Expand Emmet abbreviation (see "Emmet Preferences" on page 621)
Shift + Tab	Shift selected lines left
Tab	Shift selected lines right

Script Editor

There are a few different key combinations in the **Script Editor** (expanded view).

Key combination	Function
Ctrl + J	Line break
Ctrl + Q	Comment/uncomment; this adds or deletes // before the line.

Scripts pane and Resources pane

The following keys or key combinations have a special function when a file is selected in the **Resources** pane and when a script is selected in the **Scripts** pane.

PReS. Connect

Key combination	Function
F2	Rename
Alt + Enter	Open Properties dialog
Delete	Delete

Data Model pane

You can use the following keys to browse records in the Data Model pane:

- Page Up: next record
- Page Down: previous record
- Home: first record
- End: last record.

Menus

The following menu items are shown in the Designer menu. For a list of keyboard shortcuts, see "Keyboard shortcuts" on page 656.

File Menu

- **New...**: Opens the **New (Select a Wizard)** dialog. You can choose from the Email, Print or Web Template Wizards. See "Templates" on page 274.
- **Open**: Opens a standard File Open dialog. This dialog can be used to open Templates and Data Mapping Configurations. See "Templates" on page 274 and "Data mapping configurations" on page 75.
- **Open Recent**: List the most recently opened Templates and configurations. Clicking on a template will open it in the Designer module, clicking on a Data Mapping Configuration will open it in the DataMapper module.
- **Close**: Close the currently active Data mapping configuration or Template. If the file needs to be saved, the appropriate Save dialog will open.

- **Close All**: Close any open Data Mapping Configuration or template. If any of the files needs to be saved, the Save Resources dialog opens.
- **Close Others**: Close all Data mapping configuration and templates except the one that is currently active in the workspace.
- **Save**: Saves the current Data mapping configuration or Template to its current location on disk. If the file has never been saved, the Save As dialog appears instead.
- **Save All**: Saves all open files. If any of the open files have never been saved, the Save As dialog opens for each new unsaved file.
- **Save As...**: Saves the current file to a new location on disk.
- **Revert**: Appears only in the Designer module. Reverts all changes to the state in which the file was opened or created.
- **Add Data**: Adds data either to the current data mapping configuration or to the open template. See "Loading data" on page 520 .
    - **From File Data Source...**: Opens the dialog to add a new data file to the currently loaded data mapping configuration. Not available if the currently loaded data mapping configuration connects to a database source.
    - **From Database Data Source...**: Opens the Edit Database Configuration dialog. Not available if the currently loaded data mapping configuration is file-based.
    - **Generate Counters**: Opens the Generate Counter Wizard to create a custom counter as a data source.
- **Send to Workflow...**: Opens the "Send to Workflow/Files dialog" on page 644 to send files to a local Workflow software installation.
- Export report: opens the wizard to save a template report. See "Exporting a template report" on page 277.
- **Properties**: opens the File Properties dialog.
- **Print**: Opens the "Print Options" on page 764 dialog.
- **Print Presets**: Selecting this option allows you to create or modify Printing Presets, which can be saved and used in print runs thereafter.
    - **Job Creation Presets**: Click to open the"Job Creation Presets" on page 754 dialog.
    - **Output Creation Presets**: Click to open the "Output Creation Settings" on page 763 dialog.

PReS. Connect

- **Proof Print**: Opens the "Print Options" on page 764 dialog as a Proof Print dialog which limits the number of records output. The options themselves are identical to the regular Print Output dialog.
- **Send Email**: Opens the "Send Email" on page 641 dialog; see "Generating Email output" on page 874.
- **Send Test Email**: Click to open the "Send Test Email" on page 642 dialog.
- **Send COTG Test**: Click to open the "Send COTG Test" on page 640 dialog, to send the current Web Context to the Capture OnTheGo Application.
- **Exit**: Closes the software. If any of the files needs to be saved, the Save Resources dialog opens.

Edit Menu

- **Undo <action>**: Undoes the previous action that was done.
- **Redo <action>**: Redoes an action that was previously undone.
- **Cut**: Cuts the currently selected text, object or element and puts it on the clipboard.
- **Copy**: Copies the the currently selected text, object or element to the clipboard.
- **Copy to snippet**: Creates a new snippet from the selected text, object or element.
- **Paste**: Takes the current clipboard content and pastes it at the pointer location.
- **Delete Browser Element**: Removes the currently selected element in the workspace.
- **Find/Replace**: Only active while inside the Workspace. Opens the Find/Replace dialog.
- **Stylesheets...**: Open the "Style sheets dialog" on page 646. See "Styling and formatting" on page 484 and "Styling templates with CSS files" on page 486.
- **Colors...**: Opens the Colors Editor dialog. See "Colors" on page 510.
- **Fonts...**: opens the "Font Manager" on page 595. See "Fonts" on page 514.
- **Locale...**: Opens the Locale Settings dialog. See "Locale" on page 516.
- **Color Settings...**: Opens the Color Settings dialog. See "Colors" on page 510.

Insert Menu

- **Image**: Inserts an image using a resource that is local to the template, a resource on disk or a URL. See "Images" on page 471.

- **Text**:
    - **Wrap in span**: Wraps selected text in a element. The ID or class of the span can be used as a selector for scripts and styles.
- **Special Characters**: Displays a categorized list of special HTML characters that can be inserted at the current pointer location. When a character is clicked, its HTML Entity is inserted. This includes:
    - **Symbols**: Use the list to insert a special symbol such as Copyright, Trademark, or Ellipsis.
    - **Markers**: Use the list to insert pagination markers that are replaced with specific page numbering:
        - **Page Number**: This marker is replaced by the current page number in the document. Even if the page number is not used on certain pages, those page are still added to the page count.
        - **Page Count**: This marker is replaced by the total number of pages in the document, including pages with no contents.
        - **Content Page Number**: This marker is replaced by the current page number (with contents) in the document.
        - **Content Page Count**: This marker is replaced by the total number of pages that have contents in them, in the document. A page with contents is a page that is part of a section that has variable data on it. A page with a Master Page but no contents (set in the Sheet Configuration tab of the "Print Section Properties" on page 634) is not included in the Content Page Count.
        - **Sheet Number**: This marker is replaced by the current sheet number (physical piece of paper with two sides, or pages) in the document. This is equivalent to half the page number, for example if there are 10 pages, there will be 5 sheets.
        - **Sheet Count**: This marker is replaced by the total number of sheets in the document, whether or not they have contents.
    - **Dashes and Spaces**: Use the list to insert special dashes, such as an em-dash, and spaces, such as non-breaking spaces or an en-space. (The HTML code inserted for the dash or space is visible on the Source tab of the workspace.)
    - **Arrows**: Use the list to insert directional arrows (in one of four directions).
    - **Geometric Shapes**: Use the list to insert a special geometric shape, such as circles, triangles and squares.

- **Date**: Click to open the "Date" on page 460 dialog to add a date to the template based on the current system's date and time.
- **Wrap in box**: Puts the element in which the cursor is located in an inline box (a).
- **Table**
  - **Thead, tbody, tfoot**: Insert a header, body or footer (if not already present) in the current table.
  - **Standard**: Inserts a table with a specific number of columns and rows through the Standard Table Wizard; see "Table" on page 476.
  - **Dynamic**: Inserts a dynamic table where the number of rows is determined by a Details table, through the Dynamic Table Wizard; see "Dynamic table" on page 543.
- **Table Elements**:
  - **Insert Row Above**: Inserts a row above the current one. The row configuration, such as merged cells and cell styles, is duplicated, but contents is not.
  - **Insert Row Below**: Inserts a row below the current one. The row configuration, such as merged cells and cell styles, is duplicated, but contents is not.
  - **Insert Column Before**: Inserts a column to the left of the current one. The column configuration, such as merged cells and cell styles, is duplicated, but contents is not.
  - **Insert Column After**: Inserts a column to the right of the current one. The column configuration, such as merged cells and cell styles, is duplicated, but contents is not.
- **Common Elements**:
  - **Paragraph...**: Click to open a dialog to add a <p> element; see "Text and special characters" on page 480.
  - **H1 through H6...**: Click to open a dialog to add a <h1> to <h6> element; see "Text and special characters" on page 480.
  - **Address...**: Click to open a dialog to add an <address> element.
  - **Preformatted...**: Click to open a dialog to add a <pre> element.
- **Structural Elements**:
  - **Div**...: Click to open a dialog to add a element; see "Boxes" on page 450
  - **Span**...: Click to open a dialog to add a element; see "Boxes" on page 450
  - **Article**...: Click to open a dialog to add an <article> element

PReS. Connect

- **Section**...: Click to open a dialog to add a <section> element (the HTML element, not a section in a context).
- **Header**...: Click to open a dialog to add a <header> element.
- **Footer**...: Click to open a dialog to add a <footer> element.
- **Nav**...: Click to open a dialog to add a <nav> element.
- **Aside**...: Click to open a dialog to add an <aside> element.

> **Note**
>
> Article, Section, Header, Footer, Nav and Aside are HTML5 semantic elements; see http://www.w3schools.com/html/html5_semantic_elements.asp

- **Form Elements** (see "Form Elements" on page 466)
  - **Form...**: Click to open a dialog to add a Form Element; see "Forms" on page 462.
  - **Fieldset...**: Click to open a dialog to add a Fieldset Element; see "Fieldset" on page 467.
  - **Text Field...**: Click to open a dialog to add a Text Field; see "Text" on page 467.
  - **Email Field...**: Click to open a dialog to add an Email Field; see "Email" on page 467.
  - **URL Field...**: Click to open a dialog to add a URL Field; see "URL" on page 467.
  - **Password Field...**: Click to open a dialog to add a Password Field; see "Password" on page 467.
  - **Text Area...**: Click to open a dialog to add a Text Area; see "Text area" on page 467.
  - **Date Field...**: Click to open a dialog to add a Date Field; see "Date" on page 467.
  - **Number Field...**: Click to open a dialog to add a Number Field; see "Number" on page 467.
  - **Hidden Field...**: Click to open a dialog to add a Hidden Field; see "Hidden field" on page 468.
  - **Label...**: Click to open a dialog to add a Label; see "Label" on page 468.

- **Checkbox Field...**: Click to open a dialog to add a Checkbox; see "Checkbox" on page 468.
- **Radio Button...**: Click to open a dialog to add a Radio Button; see "Radio Button" on page 468.
- **Select Field...**: Click to open a dialog to add a Select (drop-down); see "Select" on page 469.
- **Button...**: Click to open a dialog to add a Button; see "Button" on page 469.
- **Help text**: Click to open a dialog to insert a paragraph (<p>) for help text.

- **COTG Form Elements** (see)
  - **Signature...**: Click to open a dialog to add a Signature Element, see "Signature" on page 459.
  - **Date...**: Click to open a dialog to add a Date Element, see "Date and Formatted Date" on page 458.
  - **Date Formatted...**: Click to open a dialog to add a Formatted Date Element, see "Date and Formatted Date" on page 458.
  - **Time...**: Click to open a dialog to add a Time Element, see "Time and Formatted Time" on page 460.
  - **Time Formatted...**: Click to open a dialog to add a Formatted Time Element, see "Time and Formatted Time" on page 460.
  - **Geolocation...**: Click to open a dialog to add a Geolocation Element, see "Geolocation" on page 459.
  - **Locale...**: Click to open a dialog to add a Locale Element, see "Locale" on page 459.
  - **Camera...**: Click to open a dialog to add a Camera Element, see "Camera" on page 456.
  - **Image and annotation**: Click to open a dialog to add an image that can be annotated by the user; see "Image & Annotation" on page 459.
  - **Barcode Scanner...**: Click to open a dialog to add a Barcode Scanner Element, see "Barcode Scanner" on page 456.
  - **User Account...**: Click to open a dialog to add a User Account Element, see "User Account" on page 460.

    - **Device Info...**: Click to open a dialog to add a Device Info Element, see "Device Info" on page 458.
- **Form Wizard**: Click to open the Form Wizard to add a form to a Web context; see "Forms" on page 462
- **Validation Wizard**: Click to open the Validation Settings dialog to change the validation settings on the currently selecting tools; see "Changing a Form's validation method" on page 465.
- **Business Graphic**: Displays a list of available business graphic object to be inserted:
    - **Insert Pie Chart**: Click to insert a new Pie Chart and open the Pie Chart script dialog.
    - **Insert Bar Chart**: Click to insert a new Bar Chart and open the Bar Chart script dialog.
    - **Insert Line Chart**: Click to insert a new Line Chart and open the Line Chart script dialog.
- **Barcode**: Displays a list of available barcodes. Click on one to insert it in the page. See "Barcode" on page 409.

Format Menu

- **Size**: When text is selected, choose a predefined or custom font size in this submenu to change the size of the selected text.
    - **Other...**: Opens the Text Formatting dialog for advanced style selection; see "Styling text and paragraphs" on page 494.
    - **7pt - 72pt**: Sets the size of the selected text to the chosen font size.
- **Style**: When text is selected, sets the text style by applying or removing the following attributes: Plain, Bold, Italic, Underline, Strikethrough, Subscript, Superscript, Capitalize, Uppercase, Lowercase, Small-caps. This is the same as opening the Text Formatting dialog (**Format > Text**) and checking the appropriate style. See "Styling text and paragraphs" on page 494.
- **Color**: When text is selected, sets the text color by applying the color attribute to the text. The color submenu lists all the colors in the Colors Editor.
- **Text...**: Opens the Text Formatting dialog to modify the current text selection. See "Styling text and paragraphs" on page 494.
- **Align**: When an element is selected, determines how its contents is aligned inside the element. Options are Align Left, Align Right, Align Center and Justify.

- **Paragraph...**: Opens the "Paragraph Formatting dialog" on page 605 to modify the paragraph where the cursor is located. See "Styling text and paragraphs" on page 494.
- **Paragraph Format**: Displays a list of generic element types that can be used for a text element. Selecting one of them converts the element where the cursor is located into the appropriate element (for example <p> for Paragraph, <h3> for Heading 3, etc).
- **Float**
  - **Left**: Floats the current element to the left. This is equivalent to setting the CSS `float` property to `left`.
  - **Right**: Floats the current element to the right. This is equivalent to setting the CSS `float` property to `right`.
  - **None**: Removes any float style applied to the currently selected element.
- **Box...**: Opens the "Box Formatting dialog" on page 587 to modify the box where the cursor is located.
- **Image...**: Opens the "Image Formatting dialog" on page 596 to modify the image that is currently selected.
- **Table...**: Opens the "Table Formatting dialog" on page 650 to modify the table in which the cursor is located. If the cursor is within a table embedded within another, the innermost table's formatting is the one modified.
- **Table Cell...**: Opens "Table Cell Formatting dialog" on page 653 to modify the cell where the cursor is located.
- **Hyperlink**
  - **Insert...**: Creates a hyperlink on the currently selected text or element and opens its properties; see "Hyperlink and mailto link" on page 470.
  - **Edit...**: Opens the properties for the currently selected hyperlink; see "Hyperlink and mailto link" on page 470.
  - **Remove**: Removes the currently selected hyperlink. The text or element that was the hyperlink is not removed.

Context Menu

- **Add**:
  - **Print Context**: Click to add a new Print context to the template if one does not exist.
  - **HTML Email Context**: Click to add a new Email context to the template if one does not exist.

PReS. Connect

    - **Web Page Context**: Click to add a new Web context to the template if one does not exist.
- **Delete**: Click to delete the currently selected context. The last remaining context cannot be deleted.
- **Go to**: Click to open the first section in the selected context. This is the same as double-clicking on the first section of any context in the Resource Pane.
- **Properties**: Click to open the currently selected context's properties; see "Context Properties dialog" on page 592.
- **Preview HTML**: Click to preview the currently open section in the default system browser to preview it. This feature works in all contexts.
- **Profile Scripts**: Click to open the "Profile Scripts dialog" on page 629 to test script performance (see "Testing scripts" on page 556).
- **Preflight**: Click to preflight the document and open the Preflight dialog. Preflight verifies the template for common errors (see "Testing scripts" on page 556).

Section Menu

- **Add**: Click to create a new section to the currently selected context.
- **Delete**: Click to delete the currently selected section.
- **Arrange**: Click to open the "Arrange Sections" on page 639 dialog.
- **Go to**: Click to list the sections in the currently selected context and open one by clicking it.
- **Properties...**: Click to open the appropriate section properties: Email , Print or Web. See "Section properties dialogs" on page 634.
- **Includes...**: Click to open the "Section Includes" on page 639 dialog.
- **Finishing...** (Print Sections only): Click to open the Finishing tab in the "Print Section Properties" on page 634.
- **Sheet Configuration...** (Print Sections Only): Click to open the "Sheet Configuration dialog" on page 645.
- **Master Pages**: Click to list the available Master Pages in the template, and open one by clicking it (see "Master Pages" on page 318).
- **Master Page Properties**...: Click to open the currently selected Master Page's properties dialog; see "Master Pages" on page 318.

View Menu

- **50/75/100/150/200%**: Click to zoom the Workspace at the selected level.
- **Source View**: Click to show the HTML source for the template, including CSS and HTML code.
- **Design View**: Click to show the template including all styles, text and images as well as the placeholders used for variable data.
- **Preview View**: Click to show the template as it will output with the current record, with the personalized content (see "Personalizing Content" on page 518).
- **Show Edges**: Click to show or hide a colored border around elements on the page.
- **Rulers**: Click to show or hide the rulers in the Workspace. Rulers only appear for Print contexts.
- **Guides**:
    - **Show Guides**: Click to show or hide the margin lines and guides in a Print section (see "Print" on page 294, "Page settings: size, margins and bleed" on page 311 and "Guides" on page 499). The colors of margin lines and guides are adjustable; see "Editing preferences" on page 618.
    - **Lock Guides**: Click to lock the guides, so that they cannot accidentally be moved while working on the Print context.
    - **Snap to Guides**: Click to enable or disable snapping to guides and to margins when moving objects.
- **Virtual Stationery**: Click to enable or disable the visibility of the PDF Background image set in the Media.
- **Highlight Master Page Items**: Click to enable or disable a yellow border around Master Page items in a section.
- **Object Resizing**: Click to enable or disable the ability to resize elements on the page. See "Editing preferences" on page 618 for more fine-tuned control.

Window Menu

- **Show View**>: Use the options in this menu to show or hide different panes of the UI.
    - **Properties > Attributes**: Shows the Attributes pane
    - **Messages**: Shows the Messages pane, see "Problems and messages" on page 677.

PReS. Connect

- **Problems**: Shows the Problems pane, see "Problems and messages" on page 677.
- **Resources**: Shows the Resources pane
- **Outline**: Shows the Outline pane
- **Data Model**: Shows the Data Model pane
- **Scripts**: Shows the Scripts pane

- **Reset Perspective**: Resets all toolbars and panes to the initial configuration of the module.
- **Preferences**: Click to open the Preferences dialog.

Help Menu

- **Software Activation**: Displays the Software Activation dialog. See "Activating a License" on page 51.
- **Help Topics**: Click to open the help system in the default web browser.
- **Contact Support**: Click to open the Objectif Lune Contact Page in the default system web browser.
- **About PReS Connect Designer**: Displays the software's About dialog.
- **Welcome Screen**: Click to re-open the Welcome Screen.

Panes

Panes are windows containing user interface elements (such as information or properties), which can be docked and undocked, moved around and merged together through tabbed panes.

Here is a list of all panes:

Attributes Pane

The Properties Pane displays all of the properties of the currently selected object in the Workspace. These properties vary greatly depending on the object that has been selected.

General

These attributes are common to all elements in the template and will always appear.

- **ID**: A unique identifier for the selected element. Used for CSS selections as well as JavaScript expressions affecting single elements.
- **Class**: One or more classes that can be common to more than one elements. Used for CSS selections and JavaScript expressions that can affect multiple elements.

Other

These attributes are available depending on the item selected (in parenthesis).

- **Whitespace element** : Check to make the element a whitespace element, meaning it will only appear on the page if there is enough space for it. This is useful for templates with variable height elements or conditional elements, to fill empty spaces with transpromotional material. Note that only top-level elements (a paragraph not inside a table or a div) will function at whitespace elements.
- **Source (image)**: The location of the image file. For image resources in the template, the image path is often `images/<imagefile>.<extension>`
  When the source is a PDF, an addition button appears next to this box that opens the "Select Image dialog" on page 644.
- **Alternate text (image)**: The "Alt" text used when hovering over the image in a browser. Also used for accessibility.
- **Cell Spacing (table only)**: Defines the *cellspacing* attribute of the table which controls the spacing between cells in the table.
- **Cell Padding (table only)**: Defines the *cellpadding* attribute of the table which controls the padding inside each cell of the table.
- **Column Resizing (table only)**: Check to enable columns to be resized directly within the Workspace.
- **Detail Table (table only)**: Defines which detail table the repeat of the table is based on. The number of detail lines in the table is the number of the time the repeating row (see below) is repeated.
- **Title (table only)**: Defines the title of the table. This has no impact on the table's displays, only on accessibility of HTML pages and screen readers.
- **Repeat (table row not in <tfoot> or <thead> only)**: Defines if the row is affected by the detail table calculation. This row is the one repeated in a Dynamic Table.
- **Show Row (table row only)**: Use the drop-down to determine when the selected row appears when a dynamic table overflows. This option is only available in a row manually added inside of a Dynamic Table.

    - **Before page break**: The row will appear on all pages except the last one.
    - **At end of table**: The row will appear only on the last page.
    - **Always**: The row will appear on every page of the table.
- **Subtotal Line (table row inside a <tfoot> only)**: Defines the footer row as the place where the SubTotal is displayed. This is the row where a subtotal script is expected to display the result.
- **Type (form input element)**: Use the drop-down to select an input type. The drop-down lists all input types, including HTML5 input types (see http://www.w3schools.com/html/html_form_input_types.asp).

Geometry

These attributes are available for certain elements that have position or size attributes such as images and boxes.

- **X-Offset**: The horizontal distance from the top-left of the object to the left position of its parent. This is used only for relative and absolute positioned elements.
- **Y-Offset**: The vertical distance from the top-left of the object to the top position of its parent.
- **Width**: The width of the element, by default in pixels. For an image, this defaults to the original image width in pixels.
- **Height**: The height of the element, by default in pixels. For an image, this defaults to the original image height in pixels.

> **Note**
>
> When no unit is added to a geometry value, the default unit will be added to the value; see "Print Preferences" on page 624.

Page

These attributes appear when selecting the *Page* node in the Outline Pane.

- **Master Page**: Which of the "Master Pages" on page 318 to use for the template.

PReS. Connect

Data Model Pane

The Data Model Pane displays a Data Model used to help design the template, along with (optional) extracted data. When executing a data mapping configuration or directly loading data (see "Loading data" on page 520), the resulting record set is loaded in the Data Model Pane. The information shown is the extracted information for the current record within the record set.

Data is displayed as a tree view, with the root level being the record table, levels below it being detail tables, and any level below being called "nested tables".

Pane Options

- **Minimize/Maximize**: Click to minimize or maximize the pane. See Moving and Merging Panes.
- **Import Data Model**: Click to browse to a Data Model File and import it. Importing a Data Model File displays the file's data model structure into the Data Model Pane, with optional sample data for each field.
- **Export Data Model**: Click to browse to a location to save the Data Model File and save it.
- **Synchronize Data Model**: Click to synchronize the data model with the one currently loaded in the open Data Mapping Configuration. Disabled if no configuration is currently open.

Using the Data Model

When a Data Model is loaded inside of the Data Model Pane, it can be used to design templates by dragging the fields directly into the template; see "Variable Data" on page 530. If data is present (from a Data Model File or a Data Mapping Configuration), it is possible to preview the resulting data in the template using the **Preview** tab (see Workspace).

You can use the following keys to browse records in the Data Model pane:

- Page Up: next record
- Page Down: previous record
- Home: first record
- End: last record.

PReS. Connect

Problems and messages

Messages Pane

The **Messages** pane is shared between the **DataMapper** and **Designer** modules and displays any warnings and errors from the data mapping configuration or template.

To open it in the Designer module, click the Messages button at the bottom right of the window (see "Designer User Interface" on page 581).

Buttons

- **Export Log** : Click to open a **Save As** dialog where the log file (.log) can be saved on disk.
- **Clear Log Viewer** : Click to remove all entries in the log viewer.
- **Filters** : Displays the Log Filter.
- **Activate on new events** : Click to disable or enable the automatic display of this dialog when a new event is added to the pane.

Field Headers

- **Message**: The contents of the message, indicating the actual error.
- **Component**: Whether the entry is a warning or an error.
- **Source**: The source of the error. This indicates the name of the step as defined in its step properties.
- **Date**: The date and time when the error occurred.

Problems Pane

The Problems pane displays any notifications or errors related to the template, its scripts, its code or output generation.

Log Filter

The log filter determines what kind of events are show in the Messages Pane.

PReS. Connect

- **Event Types** group:
  - **OK**: Uncheck to hide OK-level entries.
  - **Information**: Uncheck to hide information-level entries.
  - **Warning**: Uncheck to hide any warnings.
  - **Error**: Uncheck to hide any critical errors.
- **Limit visible events to**: Enter the maximum number of events to show in the Messages Pane. Default is 50.

Moving and merging panes

The PReS Connect interface for both the Designer and DataMapper module is highly configurable. Each panel in the application can be moved, with the exception of the "The Data Viewer" on page 170 and"Workspace" on page 686 which area always in a static location. All panels can be minimized or maximized.

To move a panel:

- Click and hold the left mouse button on the panel title (tab) to move and keep the button pressed.
- Start moving the mouse to the new location. A grey outline shows where the tab will show up:
  - A small grey outline next to a current panel tab indicates that both tabs will be at the same location and only the active tab will display its content.
  - At larger grey outline at one of the edges of the Workspace or Data Viewer indicates that the separate will be separate and always visible.
- When the grey outline displays the location where the panel should be, release the mouse button.

To minimize a panel:

- Click the **Minimize panel** button at the top-right corner of the panel.

A minimized panel displays only as its icon wherever it was docked, generally on the left or right side, or the bottom.

To restore a minimized or maximized panel:

- Click the **Restore** button next to the panel's display icon.

The restored panel will return to its original docked location.

To temporarily display a minimized panel:

- Click the panel's display icon.

When another panel, menu or toolbar is clicked, the panel will be minimized again.

To maximize a panel:

- Click the **Maximize** button at the top-right corner of the panel.

A maximized panel takes the full available size for the panels. All other panels are minimized.

Outline Pane

The Outline Pane displays the current structure of the template, including all HTML tags present in each page.

- The display is in a treeview, the root being the *Page*node.
- At the top of the pane, a Text Filter box appears. Enter text in this box to only show elements which correspond to this inclusive filter. This can be class names, IDs, or element types (div, table, etc).
- Under the **Page** node, all top-level page elements are displayed. Each element under them is accessible by expanding (with the [+]) elements with children.
- Clicking on any element will select it in the Workspace, whether it displays the Source, Design or Preview tab.
- Dragging an element inside the Outline Pane re-orders it in the actual HTML. Elements are executed top-to-bottom with lower elements appearing on top of previous elements (unless a CSS Z-Index is used).
- Right-clicking an element displays a contextual menu offering the following options:
    - **Delete Element**: Click to delete the element from the outline view. This also removes it in the template itself for the current section.

Resources Pane

The Resource Pane displays the resources that affect the template and its output.

PReS. Connect

> **Tip**
>
> Images, fonts, stylesheets and snippets can be dragged or copied and pasted into the Resources Pane to add them to your template.

Media

Media resources define paper handling configurations for Print output (see "Generating Print output" on page 860 and "Print Options" on page 764) including page size and paper type. See "Media" on page 321 for more information.

Contextual menu

- **New Media**: Click to create a new media and open its properties.
- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.
- **Properties**: Click to open the media properties.

Master Pages

Master Pages are layers of content that can be used by multiple Print Contexts to provide a reusable static background of content. Only one Master Page can be selected for each page position in the context. See "Master Pages" on page 318 for more information.

Contextual menu

- **New Master Page**: Click to create a new Master Page and open its properties.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.
- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.
- **Properties**: Click to open the Master Page properties; see "Master Pages" on page 318 for more information.

Contexts

Contexts hold the actual content of the template that is used to generate output. See "Contexts" on page 289 for more information.

Contextual menu (Context folder or individual contexts)

- **New Print Context**: Click to create a new Print Context with a single section.
- **New Web Page Context**: Click to create a new Web Page Context with a single section.
- **New HTML Email Context**: Click to create a new HTML Email context with a single section.
- **Properties...** (Print and Email Contexts): Click to open the Context's properties. See "Contexts" on page 289 for more information.

Sections

Sections hold part of the contents within a specific context. See "Sections" on page 290 for more information.

Contextual menu

- **Set as Default** (Email and Web contexts only): Click to set the default section that is output if none is selected in the output generation.
- **New Section**: Click to add a new section within the context.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.
- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.
- **Properties...**: Click to open the appropriate section properties: Email, Print or Web. See "Section properties dialogs" on page 634.
- **Includes...**: Click to open the "Section Includes" on page 639 dialog.
- **Finishing...** (Print Sections only): Click to open the Finishing tab in the "Print Section Properties" on page 634
- **Sheet Configuration...** (Print Sections Only): Click to open the Sheet Configuration dialog; see "Master Pages" on page 318 and "Media" on page 321.

Images

Images are graphical elements that can be added to the page for display, either statically or dynamically. See "Images" on page 471 for more information.

Contextual menu

- **New Folder**: Click to create a new folder to organize resources more easily.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.
- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.

Fonts

Font Resources included in a template are transported with it, so they can be accessed even if the template is moved to a different computer. Currently, fonts must be set through the CSS Stylesheet and do not appear in the fonts drop-down menu.

Currently supported font types: otf, woff, ttf, svg. Fonts must be set to *installable* to be useable in the output.

Please see the Tips & Tricks post for details on how to embed the fonts.

JavaScripts

JavaScripts are scripted programs that can run on Web output when added to the page header. See "Using JavaScript" on page 368 for more information.

Contextual menu

- **New Javascript**: Click to create a new JavaScript resource.
- **New Remote Javascript**: Click to add a Remote JavaScript resource. See "Using JavaScript" on page 368 for more information.
- **New Folder**: Click to create a new folder to organize resources more easily.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.

- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.

Stylesheets

Stylesheets control how contents appears on the page. It defines spacing, color, size and other properties of elements on the page. See "Styling templates with CSS files" on page 486 for more information.

Contextual menu

- **New Stylesheet**: Click to create a new Stylesheet resource. Adding a new stylesheet will automatically include it in the currently active section.
- **New Remote Stylesheet**: Click to add a Remote Stylesheet resource. See "Styling templates with CSS files" on page 486 for more information.
- **New Folder**: Click to create a new folder to organize resources more easily.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.
- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.

Snippets

Snippets are pieces of HTML or JSON code that can be inserted within sections and master pages, dynamically or statically. See "Snippets" on page 482 for more information.

Contextual menu

- **New HTML Snippet**: Click to create a new HTML Snippet resource.
- **New JSON Snippet**: Click to create a new JSON Snippet resource.
- **New Folder**: Click to create a new folder to organize resources more easily.
- **Rename**: Click to open the resource's Rename. This is the same as pressing the F2 key while the resource is selected.
- **Delete**: Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.

PReS. Connect

Scripts pane

The Scripts pane contains all of the scripts that are used to replace data in a template, or to modify its look; see "Personalizing Content" on page 518.
Scripts can be exported and imported via the buttons or through drag & drop between the Scripts pane and any location on the computer.

> **Note**
>
> Scripts included on the Scripts pane are completely distinct from the JavaScript resources found in the "Resources Pane" on page 679 (see "Using JavaScript" on page 368).
> Think of scripts as server-side in the sense that they are executed through the Connect modules (Server and Content Creation especially). Scripts have access to the whole PReS Connect JavaScript API (see "Designer Scripts API" on page 784), such as the `record` object.
> JavaScript resources, on the other hand, are only executed **after** the content creation is done, generally in a browser.

> **Note**
>
> The scripts in the Scripts pane are always executed top-to-bottom. They can be dragged up or down in the pane to change their order of execution. For example, content loading scripts (snippets with variable data, for instance) must come before scripts that replace data within that loaded contents.

Buttons

- **Import...**: Click to open a standard Open dialog to import a script. The script must have the .OL-script extension.
- **Export...**: Click to open a standard Save As dialog to save the currently selected scripts to disk. These scripts can be re-used in other templates. If more than one script is selected, they are all saved to a single file. If some scripts are inside folders, this folder structure is kept and will be restored when the scripts are imported.
- **New**: Displays a drop-down that shows the following options:
  - **Script**: Adds a new empty basic script.
  - **Text Script**: The default script that is created when adding variable data to a template. See "Variable Data" on page 530.

    - **Dynamic Image script**: Provided that its selector refers to an image, this script dynamically changes the image for each record. See "Dynamic Images" on page 541.
    - **Email scripts**: Email scripts define the sender, recipients, subject etc. of the email that is sent, and the PDF password. See "Email header settings" on page 339.
    - **Control script**: A Control script affects the output of a template per record as a whole, instead of parts of the content. See "Control Scripts" on page 566 and "Control Script API" on page 839.
    - **Conditional Content Script**: This script can conditionally show or hide any element in the template. See "Showing content conditionally" on page 539 and "Conditional script dialog" on page 633.
    - **Folder**: Adds a folder in which scripts can be placed for easier management. See "Script folders" on page 554.
- **Collapse All**: Collapses all the folders, hiding the scripts inside of them.

Scripts Pane column

- **Name**: The name added to better identify the script.
- **Selector**: Displays the initial text or selector that the script applies to.

> **Note**
>
> Fields from the Data Model pane can be dragged directly into the Scripts pane to create a Text Script. Additionally, Text scripts can be dragged into any section to add the script's placeholder at the insert location. See "Variable Data" on page 530.

Contextual menu options

- **Duplicate**: Click to create an exact copy of the script.
- **Delete**: Click to delete the selected script. This does not delete any element or text in the template itself.
- **Rename**: Click to open a dialog to rename the script. This is the same as changing the **Name** field in the Edit Script window, which can be opened by double-clicking the script.

- **Enable/Disable**: Click to trigger the script to be enabled or disabled. Disabled scripts are greyed out and italic and will not be executed. See "Enable/disable scripts" on page 555
- **Import**: load a script from a Scripts file (*.OL-script).
- **Export**: save the script to a Scripts file (*.OL-script).
- **Properties** (Script folders only): edit the **name** and **execution scope** of the folder. See "Execution scope" on page 555.

Styles pane

The Styles pane shows which CSS style rules apply to the currently selected element.
A link next to a style rule will open the file where that particular style is defined. This can be either a CSS file or the source file of a section if local formatting was used (see "Styling and formatting" on page 484).

A crossed-out style rule signals that it was overruled by another style rule. This happens when:

- A more specific, and therefore more important rule, is encountered for the same element. See "Using a more specific CSS rule" on page 492 to learn more about the specificity of style rules.
- A rule with the same importance is read after the first rule. Not only is the order of the rules in a CSS file important, but also the order in which the style sheets are read. The style sheets that are included with a section are read in the specified order; see "Determining the order in which style sheets are read" on page 493.

Workspace

The Workspace pane is where everything comes together. It is the contents of the page, the WYSIWYG editor that shows what the output will look like.

The Workspace contains three or, when a Web section is open, four tabs. To switch between the tabs, click on the tab at the bottom, or select **View > Design View**, **Preview View** or **Source View** on the menu.

For an overview of keyboard shortcuts, see "Keyboard shortcuts" on page 656.

PReS. Connect

Design Tab

The design tab show the template including all styles, text and images as well as the placeholders used for variable data. In this tab, the template's scripts are not executed and only placeholders are shown.

The top of the Design tab contains an area with the following options:

- **Breadcrumbs**: Displays the element type where the cursor is located and any of its parent elements. Elements with classes or IDs show these details next to them, for instance `div #contents > ol.salesitems > li`. Click on an element in the Breadcrumbs to select it.
  When an element is selected in the breadcrumbs and the Backspace or Delete key is pressed, that element is deleted.
  If the deleted element was targeted by a script, you will be asked if you want to delete the script as well.
- **Context Selector**: Displays the current context. The drop-down lists available contexts. Clicking on a context switches to that context.
- **Section Selector**: Displays the currently active section. Clicking on another section switches to that section.
- **Media Selector** (Master Page editor only): Displays a list of Media resources. Clicking on a media will display its Virtual Stationery background while in Preview mode.
- **Zoom Level**: Displays the current zoom level and drops-down to change the level.
- **Zoom in**: Zooms in by 25%
- **Zoom out**: Zooms out by 25%
- **Actual Size**: Zooms to 100%.
- **Fit Width**: Adjusts zoom to fit the exact width of the template to the available workspace.
- **Responsive Design View**: Use the drop-down to select a specific screen width, to test the design for different devices. Not available in Print contexts.

Preview Tab

The preview tab shows the template as it will output with the current record (see "Loading data" on page 520), with the personalized content (see "Personalizing Content" on page 518). Although it is possible to edit the template in Preview mode to a certain extent, it is recommended to do all editing in the Design mode.

Source Tab

The source tab displays the HTML source for the template, including HTML Headers, CSS and HTML code. The source is displayed in a color-coded text editor, to quickly visualize the code. In this tab changes and adjustments can be made to the code.

To the left of the Source tab, a bar helps visually identify the start and stop of an element. For example when clicking on the opening <table> element, this bar marks the whole <table> and all its contents, until the ending </table> tag.

Pretty print options

In the Source view the HTML source of the template is "pretty printed" (that is: formatted, adding new lines and indentation) to make it more readable.
When this is undesirable, the Source view formatting can be turned off for (parts of) a section by adding `<!-- format:off -->` in Source view, at the beginning of the text or in between two HTML elements. From that point on, pretty printing will be disabled for that section. Use `<!-- format:smart -->` or `<!-- format:auto -->` to turn the formatting back on.

These are all `format` options:

- `<!-- format:off -->` turns the formatting off.
- `<!-- format:smart -->` or `<!-- format:auto -->` turns the formatting back on.
- `<!-- format:collapse -->` forces the following HTML elements to be collapsed.
- `<!-- format:expand -->` forces the following HTML elements to be expanded.

Example

This example shows how to turn pretty printing off for one specific HTML element: a Div element.

```
<p>In a "pretty printed" paragraph
        <br>text is indented automatically on the Source tab.
</p>
<!-- format:off --><div anchor="page_media_0" style="font-family:
Lucida Console,monospace; line-height: 1.2; white-space: pre-wrap;
position: absolute; overflow: hidden; -moz-box-sizing: border-box;
width: 675px; height: 68px; top: 209.967px; left: 65.4px;" offset-
x="103.19999694824219" offset-y="247.76666259765625">@Header1@
</div><!-- format:auto-->
```


PReS. Connect

Live tab

The Live tab shows the result of the template as rendered by the Gecko rendering engine. It is a good indication of how an HTML template would display in a visitor's browser, especially if they are using FireFox (which uses the Gecko engine).

Toolbars

In the Designer module, the following buttons are available in the top toolbar:

- **File Manipulation**
  - **New**: Displays the New Wizard where a new data mapping configuration or a new template can be created.
  - **Open**: Displays the Open dialog to open an existing template.
  - **Save**: Saves the current template. If the template has never been saved, the Save As... dialog is displayed.
  - **Print**: Opens the Print Output dialog.
  - **Proof Print**: Opens the "Print Options" on page 764 dialog as a "Proof Print" which limits the number of records output. The options themselves are identical to the regular Print Output dialog.
- **Output**
  - **Send Email**: Opens the Send Email dialog.
  - **Send Test Email**: Opens the "Send Test Email" on page 642 dialog.
  - **Preview HTML**: Opens the current template's Preview in the system default browser. Useful for testing scripts and HTML output.
  - **Send COTG Test**: Click to open the Send COTG Test dialog, to send the current Web Context to the Capture OnTheGo Application. See this how-to: Testing a COTG template.
  - **Get Job Data File on submit**: Click to enable/disable. When enabled, the Job Data File will be returned to Connect Designer directly after a COTG Form has been submitted (see also: "Using COTG data in a template" on page 375).
- **Forms**
  - **Insert Form**: Inserts a <form> element.
  - **Insert Fieldset**: Insert a <fieldset> element.

- **Insert Text Field**: Inserts a <input type="text" /> element. A drop-down is available to insert other fields, such as a URL, Password etc.
- **Insert Text Area Field**: Inserts a <textarea> element.
- **Insert Label**: Inserts a <label> element.
- **Insert Checkbox**: Inserts a <input type="checkbox"> element.
- **Insert Radio Button**: Inserts a <input type="radio"> element.
- **Insert Select Field**: Inserts a <select> element and add multiple possible options to it.
- **Insert Button**: Inserts a <button type="submit"> element at the current cursor location.

For information about Forms and Form elements, see "Forms" on page 462 and "Form Elements" on page 466.

- **Pagination** (Print Context only)
  - **Page Number**: Inserts a placeholder for the current page number
  - **Page Count**: Inserts a placeholder for the total number of pages in the current section.
- **Guides**
  - **Insert Horizontal Guide**: Click to insert a new horizontal guide; see "How to position elements" on page 498.
  - **Insert Vertical Guide**: Click to insert a new horizontal guide; see "How to position elements" on page 498.
- **Miscellaneous**
  - **Insert Lorem Ipsum**: Inserts a paragraph of generic lorem ipsum text, useful for placeholder or template design.
  - **Show Edges**: Shows a colored border around elements on the page and the type of element that is highlighted.
- **Form Wizard**
  - **Form Wizard**: Click to open the Form Wizard to add a form to a Web Context. See "Forms" on page 462 and "Form Elements" on page 466.
  - **Validation Settings**: Click to open the Validation settings dialog to change the validation settings on the currently selecting tools. See "Forms" on page 462.

- **Table Manipulation**
  - **Insert Standard Table...**: Inserts a table with a specific number of columns and rows through the "Table" on page 476 Wizard.
  - **Insert Dynamic Table...**: Inserts a dynamic table where the number of rows is determined by a Details table, through the "Dynamic table" on page 543 Wizard.
  - **Select**
    - **Select Table**: Selects the table where the cursor is located. If the cursor is within a table embedded within another, the innermost table is the one selected.
    - **Select Row**: Selects the innermost row where the cursor is located.
    - **Select Cell**: Selects the innermost cell where the cursor is located.
  - **Delete**
    - **Delete Table**: Deletes the innermost table where the cursor is located.
    - **Delete Row**: Deletes the innermost row where the cursor is located.
    - **Delete Column**: Deletes the innermost cell where the cursor is located.
  - **Insert**
    - **Insert Row Above**: Inserts a row above the current one. The row configuration, such as merged cells and cell styles, are duplicated, but contents is not.
    - **Insert Row Below**: Inserts a row below the current one. The row configuration, such as merged cells and cell styles, are duplicated, but contents is not.
    - **Insert Column Before**: Inserts a column to the left of the current one. The column configuration, such as merged cells and cell styles, are duplicated, but contents is not.
    - **Insert Column After**: Inserts a column to the right of the current one. The column configuration, such as merged cells and cell styles, are duplicated, but contents is not.
- **Objects**
  - **Insert Image...**: Inserts an Image using a resource that is local to the template, at the current location of the pointer and opens its properties. See "Images" on page 471.

PReS. Connect

- **Insert Image from Address...**: Inserts an Image using a URL instead of a resource, at the current location of the pointer and opens its properties. See "Images" on page 471.
- **Insert Barcode**: Displays a list of available barcodes. Click on one to insert it on the page. See "Barcode" on page 409.
- **Insert Pie Chart**: Click to insert a new Pie Chart object and open the Chart Script wizard.
- **Insert Bar Chart**: Click to insert a new Bar Chart object and open the Chart Script wizard.
- **Insert Line Chart**: Click to insert a new Line Chart object and open the Chart Script wizard.

- **Hyperlinks**
  - **Insert Hyperlink...**: Creates a Hyperlink or mailto link on the currently selected text or element and opens its properties. See "Hyperlink and mailto link" on page 470.
  - **Remove Hyperlink**: Removes the currently selected hyperlink. The text or element that was the hyperlink is not removed.
- **Boxes**
  - **Insert Positioned Box**: Inserts an absolute-positioned box on the page, which can be moved around freely.
  - **Insert Inline Box**: Inserts an inline box that is set to float to the left, at the position of the cursor.
  - **Wrap in Box**: Takes the current selection and wraps it inside a new box.
  - **Float Left**: Floats the current element to the left using a *float:left* style.
  - **No Float**: Removes any *float* style applied to the currently selected element.
  - **Float Right**: Floats the current element to the right using a *float:right* style.
  - **Rotate Counter Clockwise**: Rotates the currently selected box 90° counter-clockwise.
  - **Rotate Clockwise**: Rotates the currently selected box 90° counter-clockwise.
- **Styles**
  - **Element Type**: Displays the element type of the selected element and drops down to show other element types in which it can be changed.

- **Style**: Displays the style of the selected element and drops down to show other available styles which can be applied to it.
- **Font Face**: Displays the font face of the selected text or element where the cursor is located and drops down to show other available font faces which can be applied to it.
  Fonts added to the Fonts folder of the Resources pane are shown automatically in the Fonts drop-down.
- **Font Size**: Displays the font size of the selected text or element where the cursor is located and drops down to show other available sizes which can be applied to it.
- **Font Color**: When text is selected, click to apply the shown color to the selected text, or use the drop-down to change the color and apply it.

- **Alignment**
  - **Align Left**: Aligns the currently selected element to the left.
  - **Align Center**: Aligns the currently selected element to the center.
  - **Align Right**: Aligns the currently selected element to the right.
  - **Justify**: Aligns the currently selected element to stretch text lines to fill all available width.
- **Text Decoration**
  - **Bold**: Makes the currently selected text **bold**.
  - **Italic**: Makes the currently selected text *italic*.
  - **Underline**: Makes the currently selected text underline.
  - **Strikethrough**: Makes the currently selected text ~~strikethrough~~.
- **Indentation**
  - **Create Numbered List**: Makes the selected text element a numbered list (<ol>). If multiple paragraphs are selected, each becomes a list item (<li class="Bullet">).
  - **Create Bulleted List**: Makes the selected text element a bullet list (<ul>). If multiple paragraphs are selected, each becomes a list item (<li class="Bullet">).
  - **Indent**: Increases indentation of the selected text element. If the element is a paragraph, it is wrapped in a <blockquote> element. If it is a list item, it is moved to a child level, creating a new list if necessary.

PReS. Connect

    - **Outdent**: Decreases indentation of the selected text element. If the element is wrapped in a blockquote element, one blockquote is removed. If the element is a list item, it is removed from one surrounding list.
- **Position**
    - **Superscript**: Makes the currently selected text a $^{\text{superscript}}$.
    - **Subscript**: Makes the currently selected text a $_{\text{subscript}}$.
- **Remove Formatting**: Remove any and all styles, text decorations and other formatting from the selected text. Indentation is not affected.
- **Welcome Screen**: Click to re-open the Welcome Screen.

Welcome Screen

The **Welcome Screen** appears when first starting up PReS Connect. It offers some useful shortcuts to resources and to recent documents and data mapping configurations.

The Welcome Screen can be brought back in two ways:

- The **Welcome Screen** button in the "Toolbars" on page 689.
- From the Menus in **Help**, **Welcome Screen**.

Contents

- **Activation**: Click to open the **Objectif Lune Web Activation Manager**.
- **Release Notes**: Opens the current **Release Notes** for PReS Connect.
- **Website**: Opens the PReS Connect website.
- **Take A Tour**: Click to open the YouTube Playlist giving you a tour of the software.
- **Use the DataMapper to...**:
    - **Create a New Configuration**: Opens the Creating a New Configuration screen.
    - **Open an Existing Configuration**: Click to open the standard **Browse** dialog to open an existing data mapping configuration.
    - **Recent Configurations**: Lists recently used configurations. Click any configuration to open it in the DataMapper module.
- **Use the Designer to...**:

- **Create a New Template**: Lets you choose a Context to create a new template without a Wizard.
- **Browse Template Wizards**: Displays a list of available Template Wizards, producing premade templates with existing demo content; see "Creating a template" on page 274.
- **Open an Existing Template**: Click to open the standard **Browse** dialog to open an existing template.
- **Recent Templates**: Lists recently used templates. Click any template to open it in the Designer module.

- **Other Resources**:
  - **Documentation**: Opens this documentation.
  - **Courses (OL Learn)**: Opens the Objectif Lune e-Learning Center.
  - **User Forums**: Opens the Questions & Answer forums.

Print Options

The Print Options page is the first page of both the **Advanced Print Wizard** and the Output Creation Settings Preset .

This page is the most important of the Advanced Print Wizard.
The other pages that appear throughout the Wizard are determined by the selections made on this page.

The choices can be broken down as follows:

- **Printer** group:
  - **Model**: Use the drop-down to select the printer language / output type that will be generated.
    Connect output options cover a range of industry standard print output types. These include AFP, IPDS, PCL, PDF and PostScript (including PPML, VIPP and VPS variants), with a range of quality settings available.

> **Note**
>
> By default, Connect displays only the PDF output option, but other print output

types can be added to the Printer Model drop down list via the Settings button

For more information on how to do this, see "Adding print output models to the Print Wizard" on page 864.

- **Output Options** group:
  - **Output Local** checkbox: Select to have the output created using the local Print Server.
  - **Output Type** choices:
    - **Prompt for file name**: Select to output to a local file on the hard drive. When this option is selected, no other configuration is necessary. A Save As dialog will appear to allow selection of the folder and filename.
    - **Directory** : Select to output to a local folder on the machine.
      Selecting this will open the **Directory Options** sub-group, which has these options:
      - **Job Output Mask**: The name of the file that will output.
        You can use the default ${template} (the name of the Designer Template used for generating the output), or create your own Mask via the Options button. This opens the custom Job Output Mask Dialog dialog.
      - **Job Output Folder**: The path on the disk where the file is produced. Please note that the folder must exist, or output will fail when produced through the server.
    - **LPR Queue**: Select to send the print job to an LPR queue. It is assumed that the print technology is supported by the system receiving the LPR job.
      - **Local Printer**: The IP or host name of the printer or machine where the LPD is installed and will receive
      - **Queue Name**: The queue name that will accept the job on the LPD. Default is generally "auto".
      - **Job Owner Name**: Optional entry for adding the name of the job owner.

        - **Job Name**: The name of the output file. You can use ${template} as a variable for the name of the Designer Template used to generate the output.
    - **Windows Printer**: Select to send the Print Job to a Printer Queue. The job is rendered as a PDF before being printed through the Windows driver.
        - **Windows Printer**: Use the drop-down to select the windows printer queue where the job will be sent.
        - **Job Owner Name**: Optional entry for adding the name of the job owner.
        - **Job Name**: The name of the output file. You can use ${template} as a variable for the name of the Designer Template used to generate the output.
    - **PDF Rendering Options (PDF output only)**:
        - **Auto-rotate and center**: Check to automatically select the page orientation that best matches the content and paper.
        - **Choose paper source by page size**: Check to use the PDF page size to determine the output tray rather than the page setup option. This option is useful for printing PDFs that contain multiple page sizes on printers that have different-sized output trays.
        - **Scale**:
            - **None**: Select to not scale any page, whether it fits or not.
            - **Expand to printable area**: Select to expand any page to fit the page area. Pages larger than the paper size are not resized.
            - **Shrink to printable area**: Select to shrink any page to fit the page area. Pages smaller than the paper size are not resized.
- **Production Options:**
    - **Booklet Imposition** checkbox: Check to tell the printer to generate a booklet for the print output. Booklet options are set in the "Booklet Options" on page 770 page. This option is unselected by default unless selected in the Designer "Print Section Properties" on page 634.
    - **Cut and Stack Imposition** checkbox: Check to enable Cut & Stack Imposition, which is set in the "Imposition Options" on page 771 page.

- **Add Inserter marks** checkbox: Check to enable inserter mark functionality, which is set in the "Inserter Options" on page 775 page.
- **Override Finishing options** checkbox: Check to configure custom "Finishing Options" on page 755, such as binding.
- **Print virtual stationery** checkbox: Check to enable virtual stationery in the output.
- **Use grouping** checkbox: Check to configure grouping of output into jobs, job segments or document sets. See "Grouping Options" on page 760.
- **Include meta data** checkbox: Check to add meta data to the output. This can be done at Job, Job Segment, Document, Document Set and Page level. See "Metadata Options " on page 762.
- **Separation**: Check to activate the "Separation Options" on page 769 page of the wizard.
- **Add additional content** checkbox: Check to activate the "Additional Content" on page 713 page of the wizard.

- **Records** group:
  - **Record Range**: Allows selection of a range of records or a custom selection.
    You can specific individual records separated by semi-colons (;) or ranges using dashes.
    For example: 2;4;6-10 would print pages 2, 4, 6, 7, 8, 9 and 10.
- **Copies** section:
  - **Copies**: Enter the number of copies to print, of each record.
  - **Collate**: When printing multiple copies you can check this checkbox to have the record copies printed together.
    For example in a three record job the records would print out as 1-1-2-2-3-3, rather than 1-2-3-1-2-3.
- **Pure Color Thresholds** group:
  This section is valid for AFP, IPDS and PCL only. It applies to elements within the record that are shades of gray, rather than black or white.
  - **Black Threshold Percentage**: The percentage of shading at which the element will appear as full black, rather than dark gray.
  - **White Threshold Percentage**: The percentage at which the element will appear as full white, rather than light gray.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 695 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 695 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Printer Settings

The Printer Settings page defines options on the printer. It is available for PostScript (and the VIPP and VPS variants of PostScript) only.

- **Map media by** options: Select from following choices:
  - **Media Attribute** displays all Media details, except the Tray selection.
  - **Tray** displays just the Media name and Tray selections.
  - **Both** displays all Media details.

- Tray selection columns:
  - **Media**: Lists the Media name, as defined in the template.
  - **Tray**: Use the drop-down to select in which tray to send any page using the media.
  - **Position**: Enter a MediaPosition option on the printer to define the media to use.
  - **Weight**: Enter a weight for the paper.
  - **Type**: Use the drop-down to select which type of stock to use on the printer.
  - **Color**: Use the drop-down to select which color the paper should be on the printer.

Booklet Options

The Booklet Options page defines how to generate booklets in the output. It is used in conjunction with Imposition settings, which will appear after the Booklet entries have been made.

This page includes a handy illustration that displays how the final binding would look, based upon the current selections.

Options:

- **Configuration**: Use the drop-down to select the type of binding to use:
  - **Saddle Binding**: This binding places all the pages in a stack, binds the middle and folds the stack as one.
  - **Perfect Binding**: This binding type is often used for books. Pages are folded in the middle and then set side by side. The pages are then bound along the folded "spine".
  - **1 up Perfect Binding**: This binding does not contain any folding. The pages are lined up side by side and bound along one edge.
- **Booklet Binding Edge**: Use the drop-down to select the side on which to bind the booklet.

Optional **Cover Page** selections are available to Saddle Binding only.

- **Cover Page** checkbox: Check to enable cover pages to be created with the options below:
  - **Media** selections:
    - **Cover Media Size**: Use the drop-down to select the media size for the cover page, or use a Custom size and select **Width** and **Height** values.
  - **Front Cover** selections:
    - **Blank**: Select to add no data to the front cover.
    - **First page on outside and second page on inside**: Select to use the first 2 pages as the inside and outside of the front cover.
  - **Back Cover** selections:

PReS. Connect

- **Blank**: Select to add no data to the back cover.
- **Last two pages on inside and outside**: Select to use the final 2 pages as the inside and outside of the back cover.

Imposition Options

Imposition refers to the printing of multiple pages on a single sheet. This is also known as N-Up printing.
The options on this page allow for the setting of imposition repetition, order, margins and markings.

The display box shows a representation of the current Imposition selections. This is a dynamic display, that will change to reflect selections made within the page. You can adjust the display to suit your needs, including the amount of pages to show. It will cope with a sample sizes of up to 1,000 pages. The page numbers appear on each page in the display, and change dynamically, like everything else.

- **Sheet Size** group:
  - **Final Media Size**: Use the drop-down to select the size of the media where the output is printed. The size of the media should be equivalent to the initial Section size multiplied by the number of repetitions, added with the margins and spaces between the repetitions.

    If *Custom* media size is selected, enter the custom **Width** and **Height** values.

    > **Note**
    >
    > The Sheet Size cannot be altered if a Cover Page was selected in the "Booklet Options" on page 770 Page.

  - **Orientation**: Select orientation (aspect ratio) of media (Landscape or Portrait), or allow Connect to automatically determine the proper aspect ratio (Auto-Rotate).

- **Position**: Select from following options:

> **Note**
>
> If "Booklet Options" on page 770 were selected, then the **Position** settings are pre-set and cannot be altered here.

  - **Auto-positioned**: This option creates unscaled imposition-ed pages.
  - **Scale to fit**: Scales the imposition-ed pages so they fit on the N-Up stock. The scaled pages are then auto-positioned as usual.
  - **Offset**: Allows for the selection of an offset position. The imposition-ed pages will be laid out so that the top left corner of the top left imposition-ed page is located at the selected offset.
    If Offset is chosen, then the **Left Offset** and **Top Offset** selection boxes become active.

> **Note**
>
> The offset measures from the top left of the physical N-Up sheet to the top left imposition-ed page. If Auto-Rotate is selected (causing the N-Up stock to be rotated to fit the imposition-ed pages) then the measurement becomes the top left position of the rotated stock. i.e. The top left corner does not rotate with the stock.

  - **Rotate final output Sheet 180 degrees (upside down)**: Select to flip the output upside down.
- **Repetition** group:
  Allows selection of how many Sections are to be placed, both Horizontally and Vertically. This is the total number of items, not the number of additional items being placed.

> **Note**
>
> If *Booklet Binding* were selected, some of these settings will be determined by the

PReS. Connect

options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

- **Gap** group:
  Allows selection of the amount of blank space (either **Horizontal** and/or **Vertical**) to add between each page.

  Note

  If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

- **Order** group:

  Note

  If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

  - **Page Order**: Select in which direction to go when adding sections to the output:
    - **Left to right, then top to bottom**
    - **Right to left, then top to bottom**
    - **Top to bottom, then left to right**
    - **Top to bottom, then right to left**
  - **Stack Depth**: Enter a stack depth or use the arrows to increment or decrement.
  - **Reverse Pages**: Select this option to reverse the order of pages.
    This would print the final record on the first page and the first record on the last page.

PReS. Connect

- **Force simplex**: Select this option to make the output Simplex, rather than the Imposition default of Duplex.

> **Note**
>
> If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

- **CropMarks** group:
  - **Type**: Use the drop-down to select the type of Crop Marks to add to the page.
  - **Page side**: What side(s) of the page to put the Crop Marks.
  - **Width**: Select the width of the crop mark lines.
  - **Offset**: How much separation (if any) to leave between the vertical and horizontal corner markings.
  - **Length**: Select the Length of the crop mark lines.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

PReS. Connect

Inserter Options

The Inserter Options page allows the selection of a High Capacity Feeder (HCF) model. These machines are also commonly referred to as Inserters or Folder-Inserters.
The options available on this page are dependent upon the model selected.
The options selected on this page influence the position of the markings set on the next page: **"Mark Position Options" on page 777**.

- **Model**: Use the drop-down to select from any previously loaded Inserter model, or use the Browse button to select a HCF file to load a new Inserter model.
  An image representing the chosen folder-inserter is displayed under the list, along with the HCF file details.
- **Options Group:**
  The options available here are all Inserter dependent, and thus will change based upon the Inserter model selection.
  To see how the selected Inserter markings would look on the printed page, click the Next button to move to the "Mark Position Options" on page 777 page, which has a preview of the page. You can move back and forward between these two pages until you are entirely satisfied with the selections made.
  - **Mark Configuration**: Use the drop-down to select the type of markings to add. This selection basically equates to the amount of area the markings will take up on the printed page.
  - **Fold Type**: Use the drop-down to select the type of fold to apply to the paper. This will impact upon where on the page the markings will be placed.
  - **Collation level**: Select whether the markings will be made at Document level, or Document Set level.
  - **Print marks on back**: Check to place the Inserter Marks on the rear of the page.
  - **Selective Inserts**: If selective inserts are supported by the chosen Mark Configuration you can select what markings to include and whether those markings are to included based upon some conditional setting.
    For example, you could add a marking to the third page of a document by making the selection Conditional and then setting the Condition entry to "page.nr = 3".
- **Clear Background Area** Tab:
  Check the **Clear Background Area** checkbox to add a white background to the OMR, preventing background colors or elements interfering with the OMR Markings when they are read by the Inserter.

- **Margins**:
  - **Same for all sides**: Check so that the Left margin selection is used to set all sides identically.
  - **Left, top, right, bottom**: Enter measurements for the margins on each side of the OMR Marks.

- **Custom OMR mark sizing** Tab:
  If supported by the currently chosen Mark Configuration you can select a Custom OMR size by checking the **Custom OMR mark sizing** checkbox.
  Select from any of the following, or leave the entries blank to use default values:
  - **Line length**: Enter a value between 10.16mm and 20mm.
  - **Line thickness**: Enter a value between 0.254mm and 0.63mm.
  - **Gap distance**: Enter a millimeter value 2.91mm and 4.2mm.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Mark Position Options

This page displays a Preview of the output and the possible locations to place the inserter marks. The initial settings are determined by the selections made within the "Inserter Options" on page 775 page.
You can move back and forward between these two pages to perfect the settings, or you could move the inserter mark box to the desired location on the preview.

Preview box:

- The *pink area* displays the areas of the page where inserter marks can be positioned.
- The *small checkered box* displays the current location of the inserter marks. This box is selectable and can be dragged to the desired location within the printable (pink) areas. If the box is placed outside the printable areas the page will display an error and prevent attempts at leaving the page.

Below the Preview box are buttons which allow control of the Preview box. The selections that can be made are:

- **First Page**: Click to jump to the first page.
- **Previous Page**: Click to move to the previous page.
- **Next Page**: Click to move to the next page.
- **Last Page**: Click to jump to the last page.
- **Show Page**: Use the up and down arrows or type a page number to display a specific page within the document.
- **Zoom in/out**: Click to zoom in or out by 25%
- **Zoom Level**: Use the drop-down to select a predefined level or enter a zooming percentage.

Finishing Options

Use this dialog to force specific finishing options, instead of using finishing options that were set in the Template's Media and Section options.
This is only applied when producing print output. It does not modify the original finishing options in either the Section or the Template.

- **Ignore section level finishing**: Check to override finishing options at the document level only.
- **Section to edit**: Use the drop-down to select which Section to apply the options below. The Document level is also listed to edit document-level finishing.
    - **Settings:** Click the settings button to bring up control options:
        - **Reload:** Restores the current Section's properties to the default values set in the template for this Section

PReS. Connect

- **Reload All:** Restores all Section properties to the default values set in the template for each Section.
- **Apply finishing from:** Displays a list of available Sections. Clicking on a Section name loads that Section's properties into the current Section to edit.
- **Apply current finishing to all sections:** Applies the current properties to all Sections.

- **Binding** group:
  - **Style**: What type of Binding to request on the printer. This includes Stapled, Glued, Stitched, Ring, and various other options..
  - **Side**: Sets the side of the paper that the Binding is to occur.
  - **Location**: Sets where the binding is to occur, if applicable.
    The selections available here are dependent upon the selection made in the Binding **Style**. Only Stapled and Stitched bindings have a **Location** option available to them.
  - **Angle**: Set Stapling or Stitching binding either horizontally, vertically, or at an angle (as supported by printer).
  - **Item count**: Select the amount of Staples or Stitches to use. The choice is between the default amount or selecting a specific number using the Count option.

    > **Tip**
    >
    > The options actually available to you at print time will be printer dependent, so you will need to know the capabilities of your printer, or leave the value set to Default.

  - **Area**: The area where the binding can be applied.
- **Hole making** group:
  Hole making options are available only to Ring, Comb (wire and plastic) and Coil Binding **Styles**. The selections will need to be made at run-time based upon the types of binding options available that the printer supports.
  - **Number of holes**: The number of holes to punch for the selected Binding option.
  - **Style**The style of hole punches for the selected Binding option.
  - **Pattern Catalog ID**: The Catalog ID of the selected Binding option.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Grouping Options

The Grouping options separates the job output into multiple blocks that can then be physically separated using split sheets in the printer.

- **Grouping Tabs**: Jobs can be grouped at three different levels, each of which is contained in a tab in this area. The groups/tabs are:
  - **Job** Grouping Fields
  - **Job Segment** Grouping Fields
  - **Document Set** Grouping Fields

  All the Fields available to be used for Grouping are contained within the *Available Fields* box in each tab. Fields that you want to use for Grouping need to be added to the *Selected Fields* box via the arrows between the two boxes. Simply select the Field(s) you want to move and click the arrow. Any fields that you decide don't need to be used in Grouping can be returned to the Available Fields box in the same fashion.

- **Page Break Grouping**: Check this check box to enable page break grouping, which separates Documents into different groups, based on the number of pages they contain. For example, enabling the *Document Set Grouping* Level and creating a page range from 1-5 and 6 to Largest, will create two Document Set groups. The first will contain all

Documents of 1 to 5 pages length, the second will contain any document of 6 or more pages.

> **Note**
>
> Page Break Grouping works only on Document page counts.

- **Grouping Level**: Use the drop-down to select which grouping level to use, between **Job**, **Job Segment** or **Document Set**. Only one grouping level can be selected.
- **Grouping list**: Add (or remove) entries to this list to create new groups based upon the number of pages in the level selected above. All groups must be contiguous from 1-to-Largest and they must not contain any gaps.
  - **Range Name**: Enter a name identifying the range. It must be unique, but otherwise bears no impact on the range feature.
  - **From**: Enter the starting page number of the range. The first range must start with 1, all other ranges must be contiguous (the "From" range must be one higher than the previous "To" value).
  - **To**: Enter the last page number for the range. The last range must end with a selection of "Largest".
- **Generate page break ranges in reverse order**: Reverses the order of the groups created.
  By default, grouping is done from smallest to largest. Checking this option instead creates groups from largest to smallest.
- **Generate page break range groups after normal grouping**: Check this option to first group using the levels above, following which page break grouping are applied. This creates two different levels of grouping, applied in order.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way

through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.

- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Metadata Options

The Metadata Option page defines metadata tags that will be added to the output file when producing PDF and AFP output in the Output Creation Presets.

Metadata tags are ignored in all other output types, except when they are associated with "Additional Content" on page 713 in the Print Wizard.

The tags can be added to any of these levels, as indicated by the tabs on top: **Job**, **Job Segment**, **Document**, **Document Set**, and **Page** Tags.

In each of these levels, a list of tags is available:

- **Always create meta data for this level even when fields are selected**: Select to create a blank meta data entry if no fields are selected. Done to ensure that a metadata store is always available, if required.
- **Tag Name**: Name of the metadata tag added to this level. Once a tag has been added, its name can be edited by double-clicking on the Tag Name.
- **Source Type**: Displays the type of field being used - either Text or Data Field.
- **Source**: For Data Fields only. The Field name from the data mapping configuration whose value will be used for this tag.
- **Add Field**: Click to add a new tag to the current level. The Field Selection dialog appears. Select either **Add field meta data** or **Add text meta data**.
  When adding field meta data select a field name from the Field List and click OK to add it as a tag of the same name.
- **Delete Field**: Click to delete the currently selected tag.
- **Move Up**: Click to move the currently selected tag one position up.
- **Move Down**: Click to move the currently selected tag one position down.

PReS. Connect

Separation Options

This page defines how to separate the jobs using subsets, slip sheets, or jogging.

- **Sheet Count Splitting** group.
  This group allows for the splitting of output based upon a pre-determined number of pages
  - **Split**: Use the drop-down to select how to split.
    - **None**: Select to ignore sheet count splitting entirely.
    - **At exactly**: Select to create a split at a specific sheet number.
  - **Every**: Enter the number of sheets at which to split the output.
- **Separation Settings** group.
  This setting is only available if no Sheet Count Split were specified.
  - **Separation**: Use the drop-down to select when a job separation occurs, which is either **None** (no separation) or at the **Job**, **Job Segment**, **Document** or **Document Set** level.
- **Slip Sheets** group
  - **Add slip sheet**: Use the drop-down to select whether to add a slip sheet before or after a specific separation, or whether to use none.
  - **Every**: Use the drop-down to select at which separation to add a slip sheet, at the **Job**, **Job Segment**, **Document** or **Document Set** level.
  - **Media Size**: Use the drop-down to select the media size of the slip sheet.
    If a custom Media Size was chosen:
    - **Width**: enter slip sheet page width.
    - **Height**: enter slip sheet page height.
- **Jog** group
  - **Jog after every**: Use the drop-down to select when to jog the printer, which is either **None** (no forced jogging) or at the **Job**, **Job Segment**, **Document** or **Document Set** level.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Additional Content

There are four different types of additional content that can be added at print time. **Text**, **Images**, **Barcodes** and **OMR Marks**. They are used to add static or variable content when generating output. This is useful when driving custom processes on machines using either Barcodes or OMR Marks, as well as allowing the addition of last minute information through text and images.

Additional Text

Text is added to the output at specific positions. This dialog displays all the text settings:

- **Left**: Displays the distance between the left margin of the page and the text.
- **Bottom**: Displays the distance between the bottom margin of the page and the text .
- **Orientation**: Displays the orientation of the text.
- **Text**: Displays the actual text.

> **Note**
>
> The entered text might have been entered over multiple lines, so not all of the text

will be displayed here. You might consider this a text entry preview of the text, rather than the complete text entry.

- **Condition**: Displays the condition which is used to determine if text element is to be included or not.
- **Add**: Click to open the Additional Text Settings dialog to add a new text entry.
- **Delete**: Click to delete the currently selected entry.
- **Edit**: Click to edit the currently selected entry using the Additional Text Settings dialog.
- **Duplicate**: Click to create a copy of the entry.

Additional Images

Images are added at specific positions, with optional dimension constrains. This dialog displays all the configured additional image settings:

- **Left**: Displays the distance between the left margin of the page and the image.
- **Bottom**: Displays the distance between the bottom margin of the page and the image .
- **Orientation**: Displays the orientation of the picture.
- **Filename**: Displays the selected image filename.
- **Condition**: Displays the condition which is used to determine if the image is to be included or not.
- **Add**: Click to open the "Image Settings" on page 717 dialog to add a new text entry.
- **Delete**: Click to delete the currently selected entry.
- **Edit**: Click to edit the currently selected entry using the "Image Settings" on page 717 dialog.
- **Duplicate**: Click to create a copy of the entry.

Additional Barcodes

Barcodes are added at specific positions. This dialog displays all the configured additional Barcode settings:

- **Left**: Displays the distance between the left margin of the page and the Barcode .
- **Bottom**: Displays the distance between the bottom margin of the page and the Barcode .
- **Orientation**: Displays the orientation of the Barcode .
- **Type**: Displays the type of Barcode that's added.
- **Text**: Displays the data used for generating the barcode content.
- **Condition**: Displays the condition which is used to determine if the barcode is to be included or not.
- **Add**: Click to add a Barcode. Select from the list of Barcode types that appears. The Additional Barcode Settings page lists all the available Barcodes, and links to their options..
- **Delete**: Click to delete the currently selected Barcode entry.
- **Edit**: Click to edit the currently selected Barcode entry using the Additional Barcode Settings dialog.
- **Duplicate**: Click to create a copy of the barcode entry.

Additional OMR Marks

Optical Mark Recognition (OMR) marks are added at specific positions, with optional dimension constrains. This dialog displays all the configured additional image settings:

- **Left**: Displays the distance between the left margin of the page and the OMR mark.
- **Bottom**: Displays the distance between the bottom margin of the page and the OMR mark.
- **Orientation**: Displays the orientation of the OMR mark.
- **Condition**: Displays the condition which is used to determine if the OMR mark is to be included or not.
- **Add**: Click to open the "OMR Mark Settings" on page 744 dialog to add a new text entry.
- **Delete**: Click to delete the currently selected entry.
- **Edit**: Click to edit the currently selected entry using the "OMR Mark Settings" on page 744 dialog.
- **Duplicate**: Click to create a copy of the entry.

PReS. Connect

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Additional Text Settings

The Additional Text Settings dialog displays the property of Text added in the "Additional Content" on page 713 page.

- **Position group**:
  - **Orientation**: Use the drop-down to select the orientation of the Text added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Text printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Text, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.

- **Bottom**: Enter the distance between the bottom margin of the page and the Text, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.

- **Font group**:
  - **Font Name**: Use the drop-down to select which font type to apply to the Text. The drop-down displays all the fonts installed on the system.
  - **Font Size**: Enter the font size in points (pt).
  - **Bold**: Check to make the Text **bold**.
  - **Italic**: Check to make the Text *italic*.
  - **Color**: Select what color the Text will be.
- **Text**: Enter the actual Text to appear on the page in the selected location. The Text can be spread over multiple lines, but no additional formatting can be added within this edit box. The entire Text will be printed use the formatting options selected in the **Font group**.
  - **Add**: Click to display a list of variable data that can be added to the Text. This includes metadata fields added in the Metadata Options, as well as some document information fields.
- **Condition**: Enter the condition which determines whether or not the Text will be added to the document at print time.
  For details on how to create a conditional, see the Conditionals page.

Image Settings

The Image dialog displays the properties of the image added in the "Additional Content" on page 713 page.

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the image.
  - **Layer**: Whether this image will appear behind the text (the text will print over the image) or in front of the text (the text behind will be blanked out by the image, as transparent images are not supported)
  - **Ouput once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Image printed once per sheet rather than once per document page.

> **Note**
>
> If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the image, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the image, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
- **Filename**: Use the browse button to select an image.

> **Note**
>
> Transparent images are not supported.

- **Scaling** group:
  Scaling the image expands the image but keeps the aspect ratio. The amount of scale and specific limitations can be applied used a combination of the following options:
  - **Max Width**: Enter the absolute maximum width the image can be scaled to, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
  - **Max Height**: Enter the absolute maximum height the image can be scaled to, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
  - **Scale**: What scale to apply to the image. The maximum scale is 10.0 to 1. Decimal values are allowed for this field.
- **Condition**: Enter the condition which determines whether or not the image will be added to the document at print time.
  For details on how to create a conditional, see Conditionals page.

Barcode Options

When adding Barcodes in the "Additional Content" on page 713 page you can select from a series of predetermined Barcode types.

Note

To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

The options for each of these types is described on the following pages:

- Australia Post 4 State Settings
- "Codabar Settings" below
- "Code 128 Settings" on page 721
- "Code 39 Settings" on page 723
- "Data Matrix Settings" on page 726
- "EAN-128 Settings" on page 727
- "EAN-13 Settings" on page 729
- "EAN-8 Settings" on page 731
- "Interleaved 2 of 5 Settings" on page 733
- KIX Code (Dutch Post) Settings
- "PDF417 Settings" on page 735
- "QR Code Settings" on page 737
- Royal Mail Settings
- Royal Mail 2D Settings
- "UPC-A Settings" on page 740
- "UPC-E Settings" on page 742
- US Postal Service IMB Settings
- US Postal Service IMPB Settings

Codabar Settings

Codabar barcodes support the following data: 0-9 - $: / . + plus the optional specification of start/stop characters.

PReS. Connect

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **Codabar Properties** group:
  - **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
  - **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
  - **Bar width ratio**: Set the Barcode bar width.

- **Default start symbol**: Use the drop-down to select the optional Barcode start character, which defines the encoding mode.
- **Default stop symbol**: Use the drop-down to select the Barcode stop character, which defines the encoding mode.
- **Print human readable text:** Check to add a textual version of the Barcode data.
    - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
    - **Font name**: Use the drop-down to select the font with which to display the human readable text.
    - **Font size**: Enter a font size for the human readable text.
    - **Display start/stop symbols** check box: Adds the stop/start symbols to the Barcode text.

- **Text**: Enter the text used to generate the Barcode.
    - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
      This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
    - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Code 128 Settings

Code 128 is a high-density barcode, used for alphanumeric or numeric-only barcodes. It supports all 128 ASCII characters.

PReS. Connect

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **Code 128 Properties** group:
- **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
- **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
- **Print human readable text:** Check to add a textual version of the Barcode data.

- **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
- **Font name**: Use the drop-down to select the font with which to display the human readable text.
- **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Code 39 Settings

Code 39 is a discrete, self-checking barcode that is also known as "Alpha39", "Code 3 of 9" (often abbreviated to "3 of 9"), "Code 3/9", "Type 39", "USS Code 39" and "USD-3".

Code 39 data should contain no more than 20 digits from within the following range: Numeric digits: (0-9), upper-case letters (A-Z), seven special characters (- . space $ / + %) and the start/stop asterisk (*) character.

If the Extended character set is chosen, then lower-case letters (a-z) and other special ASCII characters can also be included.

PReS. Connect

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **Code 39 Properties** group:
  - **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
  - **Use extended character set**: Check to use the Code 39 Extended character set. This extends the range of supported data to include the full ASCII character set.

This adds support for lower case letters (a-z) and the full range of ASCII punctuation and special characters.

- **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger. The smallest Module Width is 0.19mm (high density).
- **Bar width ratio**: Set the Barcode bar width.
- **Checksum**: Use the drop-down to select how to deal with the Barcode checksum:
  - **Ignore**: Ignore checksum calculations.
  - **Auto**: Add a checksum character to the Barcode if the initial value does not validate. This is the default value.
  - **Check**: Verify the Barcode has a valid checksum.
  - **Add**: Calculate and add a checksum character to Barcode, regardless of current value.
- **Print human readable text:** Check to add a textual version of the Barcode data.
  - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
  - **Font name**: Use the drop-down to select the font with which to display the human readable text.
  - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

PReS. Connect

Data Matrix Settings

A Data Matrix barcode is a high-density, two-dimensional (2D) matrix barcode which supports encoded text, numbers, files and digital data.

> **Note**
>
> > **Note**
> >
> > To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.

- **Datamatrix Properties** g:
  - **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
  - **Encoding**: The data represented in the symbol can be compressed using one of the following algorithms:
    - **Auto**: Automatically detect the data content and encodes using the most appropriate method. This is the default option.
    - **ASCII**: is used to encode data that mainly contains ASCII alphanumeric characters (ASCII 0-127). Use where Barcode size is a concern and where the data is alphanumeric.
    - **Base 256**: used to encode 8-bit values.
    - **C40**: used for data that mainly consists of numbers and upper-case alphabetic letters.
    - **Text**: used for data that mainly consists of numbers and lower-case alphabetic letters.
    - **None**: Does not use any encoding.
  - **Format**: select the Barcode size format from the drop-down list .

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

EAN-128 Settings

EAN128 is also known as "EAN/UCC 128", "UCC 128" and "GS1-128". This barcode type not only encodes data, but also provides a mechanism for defining the meaning (or format) of that data. It supports alphanumeric data and some predefined Function Codes. See the Wikipedia

GS1-128 entry for more information.

> **Note**
>
> > **Note**
> >
> > To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **EAN 128 Properties** group:
  - **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.

- **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
- **Check Digit marker**: This character is used as a placeholder for the check digit, which we be calculated at runtime. The character must be expressed in Hex.
- **Group separator**: This character is used to define group separation points. The character must be expressed in Hex.
- **Template**: Specify an optional Barcode "template".
  Examples:
  - `n13` defines a numeric field with exactly 13 digits.
  - `n13+cd` defines a numeric field with exactly 13 digits plus a check digit.
  - `an1-9` defines an alpha-numeric field with 1 to 9 characters.

  Elements can be combined using the '+' symbol.
- **Print human readable text:** Check to add a textual version of the Barcode data.
  - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
  - **Font name**: Use the drop-down to select the font with which to display the human readable text.
  - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

EAN-13 Settings

EAN-13 barcodes are composed entirely of numerical data. The first 12 digits representing country/economic area, manufacturer and product codes + 1 following checksum digit.

PReS. Connect

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **EAN 13 Properties** group:
  - **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
  - **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger. The EAN-13 barcode employs a module width between 0.27mm and 0.66mm.

- **Checksum**: Use the drop-down to select how to deal with the Barcode checksum:
  - **Ignore**: Ignore checksum calculations.
  - **Auto**: Add a checksum character to the Barcode if the initial value does not validate. This is the default value.
  - **Check**: Verify the Barcode has a valid checksum.
  - **Add**: Calculate and add a checksum character to Barcode, regardless of current value.
- **Print human readable text:** Check to add a textual version of the Barcode data.
  - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
  - **Font name**: Use the drop-down to select the font with which to display the human readable text.
  - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

EAN-8 Settings

An EAN-8 barcodes are composed entirely of numerical data. It is comprised of 7 data digits containing the country/economic area code and an item reference code, with 1 following checksum digit.

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **EAN 8 Properties**:
  - **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
  - **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger. The EAN-8 barcode employs a module width between 0.27mm and 0.66mm.

- **Checksum**: Use the drop-down to select how to deal with the Barcode checksum:
  - **Ignore**: Ignore checksum calculations.
  - **Auto**: Add a checksum character to the Barcode if the initial value does not validate. This is the default value.
  - **Check**: Verify the Barcode has a valid checksum.
  - **Add**: Calculate and add a checksum character to Barcode, regardless of current value.
- **Print human readable text:** Check to add a textual version of the Barcode data.
  - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
  - **Font name**: Use the drop-down to select the font with which to display the human readable text.
  - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Interleaved 2 of 5 Settings

Interleaved 2 of 5 barcodes are also known as "ITF" and "2/5 Interleaved". It is a numeric only barcode whose data must contain an even number of digits, as the barcode uses sequences of two digits interleaved with each other to create a single symbol. If the numeric data contains an odd number of digits, then a leading zero must be added to the beginning of the data.

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **Interleaved 2 of 5 Properties** group:
  - **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
  - **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
  - **Bar width ratio**: Set the Barcode bar width.

- **Print human readable text:** Check to add a textual version of the Barcode data.
    - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
    - **Font name**: Use the drop-down to select the font with which to display the human readable text.
    - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
    - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
      This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
    - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

PDF417 Settings

PDF417 is a two-dimensional, multi-row Barcode. It is used for encoding large amounts of data, with hundreds or even thousands of characters. It encodes alphabetic text, numbers, binary files and actual data bytes.

Note

Note

To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

PReS. Connect

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
- **PDF417 Properties** group:
  - **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
  - **Row height**: Defines the height of the bars for a single row, measured in pixels, points or metric.
  - **Width to height ratio**: Select the ratio of column width to row height.
  - **Mode**: Use the drop-down to set the compaction mode.
    - **Binary**: allows any byte value to be encoded.
    - **Text**: allows all printable ASCII characters to be end coded (ASCII values 32 to 126 and some additional control characters).
    - **Numeric**: more efficient mode for encoding numeric data.
    - **Auto**: Automatically detect the data content and encodes using the most appropriate method. This is the default option.
  - **Error Correction Level**: Enter the error correction level for the built-in error correction method based on Reed-Solomon algorithms. The error correction level is adjustable between level 0 (just error detection, without correction) and level 8

PReS. Connect

(maximum error correction). Recommended error correction levels are between level 2 and 5, but the optimal value depends on the amount of data, printing quality of the PDF417 symbol and decoding capabilities.

- **Rows**: A PDF417 bar code can have anywhere from 3 to 90 rows.
- **Columns**: The number of data columns can vary from 1 to 30.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

QR Code Settings

QR Code (Quick Response Code) is a 2D Barcode format that supports alphanumeric, numeric, byte/binary, and Kanji (Japanese-Chinese character) data.

Note

Note

To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

PReS. Connect

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.

QRCode Properties group:

- **Size by**: Select size from the two options available:
  - **By area**: Connect will try to size the Barcode to fit the specified area by dynamically changing the module width to the **Size** selection. The lower module width limit is governed by the **Minimum module width** selection.
    Enter the sizes in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
  - **By module width**: Connect will try to size the Barcode to the module width of the characters. Large Barcode values will result in larger Barcode and vice versa.
    Enter the **Module width**in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
- **Encoding**: Define the encoding of the Barcode:
  - **Auto**: Automatically detect the data content and encodes using the most appropriate method. This is the default option.
  - **Numeric**: 7089 numerical characters.
  - **Alphanumeric**: 4296 alphanumerical characters.

- **Byte**: 2953 characters.
- **Kanji**: 1817 Japanese/Chinese characters.

- **Version**: Select the preferred QR code version (which sets the data length field) from the 40 available.

> **Note**
>
> The Encoding and Version fields work together to determine how many characters are encoded within a *length field*. The following table shows the number of bits in a length field, based upon the selections made:

Encoding	Ver. 1-9	Ver. 10-23	Ver. 27-40
Numeric	10	12	14
Alphanumeric	9	11	13
Byte	8	16	16
Kanji	8	10	12

- **Error Correction Level**: Part of the robustness of QR codes is their ability to sustain “damage” and continue to function even when a part of the QR code image is obscured, defaced or removed. A higher correction level duplicates data within the QR Code to allow for damaged areas. The higher the Error Correction Level, the larger the Barcode will be. The choices are (in order from lowest to highest): **L**ow, **M**edium, **Q**uartile and **H**igh.
- **Use ECI for encoding messages as bytes**: Selecting Extended Channel Interpretations (ECI) allows encoding multiple character sets (e.g. Arabic, Cyrillic, Greek, Hebrew) and other data interpretations, into one QR Code symbol.
- **Multi-part QR Code (structured append)**: Select to append a QR Code symbol in a structured format.
  - **Part**: indicates the position of the QR Code symbol within the group of Structured Append symbols.
  - **of**: indicates how many Structured Append symbols exist.

PReS. Connect

> **Note**
>
> The Structured Append symbols Part number can never exceed the sum total of Structured Append symbols available (the "of" value). Thus selecting a Part number beyond the existing sum total will increase the sum total to the same value.

- **Use FNC1**: Check to enable Application Identifiers. These are often used to encode links to websites, or to encode production/batch details.
  - **Position**: Select between the two methods for encoding FNC1 characters within QR Codes:
    - **First** Position - uses the GS1 QR Code standard.
    - **Second** Position - uses the AIM QR Code standard. If this option is chosen then the appropriate Application Indicator will also need to be set.
      - **Application ID**: Enter the appropriate QR-Code Application Indicator in accordance with the specific industry or application specifications (as provided by AIM International).
- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

UPC-A Settings

The Universal Product Code (UPC-A) Barcode is widely used for tracking trade items in stores and at the point-of-sale. It consists of 12 numerical digits which are uniquely assigned to each trade item.

PReS. Connect

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.

UPC A Properties group:

- **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
- **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
- **Checksum**: Use the drop-down to select how to deal with the Barcode checksum:

- **Ignore**: Ignore checksum calculations.
- **Auto**: Add a checksum character to the Barcode if the initial value does not validate. This is the default value.
- **Check**: Verify the Barcode has a valid checksum.
- **Add**: Calculate and add a checksum character to Barcode, regardless of current value.

- **Print human readable text:** Check to add a textual version of the Barcode data.
  - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
  - **Font name**: Use the drop-down to select the font with which to display the human readable text.
  - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

UPC-E Settings

The Universal Product Code (UPC-E) Barcode is widely used for tracking trade items in stores and at the point-of-sale. It consists of 6 numerical digits which are uniquely assigned to each trade item.

PReS. Connect

Note

> **Note**
>
> To create dynamic barcodes, "Metadata Options " on page 762 must first have been set. Metadata fields are required to create the association between the dynamic data used in the print run and the barcode.

Use the following options to configure the output Barcode settings:

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the Barcode printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the Barcode, in either metric (cm/mm), inch (in) or point (pt) values.

UPC A Properties group:

- **Height**: Enter the Barcode height in either metric (cm/mm), inch (in) or point (pt) values.
- **Module Width**: Specifies the width of the narrow bars. Changing this value to higher value will generally make the Barcode bigger.
- **Checksum**: Use the drop-down to select how to deal with the Barcode checksum:

- **Ignore**: Ignore checksum calculations.
- **Auto**: Add a checksum character to the Barcode if the initial value does not validate. This is the default value.
- **Check**: Verify the Barcode has a valid checksum.
- **Add**: Calculate and add a checksum character to Barcode, regardless of current value.

- **Print human readable text:** Check to add a textual version of the Barcode data.
  - **Placement**: Use the drop-down to select whether to place the human readable text above or below the Barcode.
  - **Font name**: Use the drop-down to select the font with which to display the human readable text.
  - **Font size**: Enter a font size for the human readable text.

- **Text**: Enter the text used to generate the Barcode.
  - **Add** button: Click to display a list of variable data that could be used for generating the Barcode.
    This includes metadata fields which must previously have been added in the Metadata Options (likely at the *Document Tags* level), as well as some information fields.
- **Condition**: Enter the condition which determines whether or not the Barcode will be added to the document at print time. For details on how to create a conditional, see the Conditionals page.
  - **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

OMR Mark Settings

The **Add OMR** dialog displays the properties of an OMR Mark that was added in the "Additional Content" on page 713 page.

These OMR marks differ from High Capacity Feeder (HCF) generated inserter marks. Those marks are specific to the inserter machine they were created for, whereas these additional OMR marks are completely independent and customizable. These custom OMR marks can be used to cater for inserter machines not currently support by a HCF, or they can be used for any non-inserter related post processing driven by OMR marks

- **Position** group:
  - **Orientation**: Use the drop-down to select the orientation of the OMR Mark added to the page.
  - **Page Side**: Select whether the OMR Mark will print on the front or back of page.
  - **Output once per sheet**: Option relates to Imposition (also known as N-Up) printing. Select this box to have the OMR Mark printed once per sheet rather than once per document page.

    > **Note**
    >
    > If Imposition options such as auto-positioning and scaling were selected, these options won't apply to the Additional Content added to the physical N-Up sheet.

  - **Left**: Enter the distance between the left margin of the page and the OMR Mark, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
  - **Bottom**: Enter the distance between the bottom margin of the page and the OMR Mark, in either metric (cm/mm), inch (in), pixel (px) or point (pt) values.
- **Options Tab**:
  - **Collation Level**: Choices are:
    - **Document**: Treats each document as a group and the group and match marks will be set based upon the start and end of a document.
    - **Document Set**: Treats each document set as a group and the group and match marks will be set based upon the start and end of a document set.
  - **Draw Hot Spots**: This adds a red rectangle around the location of each individual mark in the output, allowing easier checking of the OMR mark logic.
  - **Line Options** group:
    - **Line Thickness**: Sets the thickness of each OMR mark line.
    - **Line Length**: Sets the lenght of each OMR mark line.
    - **Line Spacing**: Determines how the spacing between each OMR mark line will be determined. The associated control beneath the combination box will be

enabled, based upon this selection.

- **Line Per Inch**: If **Line Spacing** is set to *Lines Per Inch* this option will be enabled. It defines how many lines will print per inch.
- **Gap Distance**: If **Line Spacing** is set to *Gap Distance* this option will be enabled. It defines the size of the gap between lines.
  i.e. the distance from the bottom of one OMR mark line to the top of the next.
- **Line Distance**: If **Line Spacing** is set to *Line Distance* this option will be enabled. It defines the distance from the top one line to the top of the next.

- **Sequence Number Range** group: Allows selection of Start and Stop points for the wrapping page sequence number in a group.
  For example, a range of 2-10 would cause the sequence numbers to iterate as follows: 2, 3, 4, 5, 6, 7, 8, 9, 10, 2, 3, 4 ...

> **Note**
>
> The Sequence Number iterates per page within a group and is used to identify missing pages in a group.

  - **Start**: The starting point for the range
  - **Stop**: The end point of the range
  - **Start number**: The number to start from (from within the selected range).
- **Match Number Range** group: Allows selection of Start and Stop points for the wrapping match number for a group.
  For example, a range of 1-6, with a Start number of 2 would cause the matched numbers to be as follows: 2, 3, 4, 5, 6, 2, 3, 4, 5, 6, 2, ...

> **Note**
>
> The Match Number iterates per group and is used to identify missing groups

    - **Start**: Start number
    - **Stop**: Stop number
  - **Condition**: Enter the condition which determines whether or not the OMR Mark will be added to the document at print time.
    For details on how to create a conditional, see the Conditionals page.
- **OMR Marks Tab**:
  - **#**: OMR Mark number (display only).
  - **Type**: Type of OMR Mark (display only).
  - **Value**: OMR Mark Value. These can be selected and altered for Sequence, Match and Parity marks, as described below.
  - **Add**: Add an OMR Mark entry to the table.
    Choices are between:
    - **On**: This represents a mark that is always printed
    - **Off**: This represents a mark that is never printed.
      i.e. it pads the marks out with an empty position
    - **Group Start**: This represents a mark that is printed on the first page of a group
    - **Group End**: This represents a mark that is printed on the last page of a group

      Note

      In a single page group both Group Start and End marks will print if defined since the page is both the start and end of the group.

    - **Sequence**: This represents a mark that is printed when the specified bit is set in the sequence number of the page.
      For example, if the bit for the mark is set to 2 and the sequence number for the page is 5 then it will not print since the value 5 consists of the bits 1 and 4.
      Use the drop down box to select the entry.
    - **Match**: This represents a mark that is printed when the specified bit is set in the match number of the group.
      For example, if the bit for the mark is set to 2 and the match number for the group is 3 then it will print since 3 consists of the bits 1 and 2.
      Use the drop down box to select the entry.

> **Note**
>
> The match number is the same for all pages in a group

- **Parity**: This mark prints in order to maintain the parity of the number of lines printed on the page. If set to *Even* then it will print if the total count of the other printed marks in the printed is odd.
  For example, by printing the parity mark it will create an even number of marks on the page. And vice versa with *Odd* parity - the parity mark will print if the total number of other printed marks on the page is even in order to keep the overall count odd.
  Use the drop down box to select the entry.
- **Conditional**: Enter the condition which determines whether or not this OMR Mark will be added to the document at print time.
  For details on how to create a conditional, see the Conditionals page

- ❌**Delete**: Delete an entry from the table
- 🔼**Move up**: Move a entry up the table
- 🔽**Move down**: Move a entry down the table
- 🖊**Edit**: Edit a **Conditional** entry within the table.

> **Tip**
>
> You can also double click a **Conditional** entry within the table to edit it.

PDF Options

The PDF Options page is shown only when a PDF Print output type is selected in the Print Options dialog.

- **PDF Options Group**
  - **PDF Type**: Use the drop-down to specify which format the PDF should be generated in. These options are standard PDF, archive format PDF (PDFA-1b), graphics format PDF (PDF-X4) and variable data printing format PDF (PDF-VT).

PReS. Connect

- **Embed standard fonts**: Click to embed the 14 standard system fonts within the PDF output. This increases the output filesize but makes the PDF output truly portable. Such PDFs print as displayed on screen, regardless of whether the 14 standard fonts are present on the target printing system or not.

  > **Note**
  >
  > This box is ignored for PDFA and PDF-X4 output, as fonts are always embedded in those output types.

- **Add Digital Signature Group**: Check to enable the integration of a digital signature into the PDF.
  A digital signature identifies the person signing a document, similarly to a conventional handwritten signature. Unlike a handwritten signature, a digital signature is difficult to forge as it contains encrypted information which is unique to the signer and which can be password protected and verifiable.
  - **All Keystores**:
    Here you can choose from existing digital signatures, or select new ones.
    - **Name**: The user-defined name of the keystore.
    - **File**: The file path and name to the keystore file.

    This is where you select keystore values.

    - **New**: Click to open the Key Store dialog to add a new keystore to the list.
    - **Duplicate**: Click to make a copy of the currently selected keystore.
    - **Edit**: Click to edit the currently selected keystore in the Key Store dialog.
    - **Delete**: Click to delete the currently selected keystore.
    - **Move Up**: Click to move the currently selected keystore up.
    - **Move Down**: Click to move the currently selected keystore down.
  - **All Signatures**: Displays a list of signatures to add to the PDF output.
    - **Name**: The user-defined name of the signature.
    - **File**: The file path and name to the signature file.
    - **Alias**: The user-defined alias for the signature.

- **New**: Click to open the PDF Signature dialog to add a new signature to the list.
- **Duplicate**: Click to make a copy of the currently selected signature.
- **Edit**: Click to edit the currently selected signature in the PDF Signature dialog.
- **Delete**: Click to delete the currently selected signature.
- **Move Up**: Click to move the currently selected signature up.
- **Move Down**: Click to move the currently selected signature down.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Keystore

The security certificate Keystore dialog appears when adding or editing a keystore from the "PDF Options" on page 777 page.

This dialog allows you to select a keystore with a private key.
The keystores currently supported by Connect are:

- JKS (Java Key Store) format.
- PKCS#12

- PKCS#11

> **Note**
>
> PKCS#11 requires an extra plug-in not included in the PReS Connect installation.

These are the options available in this dialog:

- **Name**: Enter a name for the keystore to describe it within Connect.
- **File**: Enter the path to the keystore file, or use the Browse button to locate the file.
- **Keystore properties group**:
  - **Type**: Use the drop-down to select the appropriate type of the keystore format the file is: JKS, PKCS11, PKCS12.
  - **Provider**: Enter the provider of the keystore.
    - "SUN" for JKS
    - "SunJSSE" for PKCS#12
    - "IAIK PKCS#11:1" for PKCS#11
  - **Password**: Type in the password that secures the keystore, if the keystore is password protected.
  - **Repeat Password**: Re-type in the password that secures the keystore. Once this is done the two Password entry boxes will no longer have the red cross icon (indicating incomplete or unselected) flag beside them.
- **Properties file group**:
  - **File**: Load optional keystore properties file. Could be used to store the password in a file.

PDF Signature

The PDF Signature dialog appears when adding or editing a signature from the "PDF Options" on page 777 page.

- **Name**: Enter a name that describes the signature entry.

- **Keystore**: Use the drop-down to select which keystore the signature is pulled from. These keystores are set in the "Keystore" on page 781 dialog, called from the "PDF Options" on page 777 page.
- **Signature Properties group**: These are optional Metadata fields associated with the signature, which can be omitted.
    - **Location**: The CPU host name or physical location of the signing.
    - **Reason**: Records the reason for the signing.
    - **Contact**: Information to enable a recipient to contact the signer to verify the signature. For example: a phone number.
    - **Handler**: The PDF reader plugin used to interpret the signature data. It should be left at its default setting (Adobe.PPKLite) unless time-stamping is desired, in which case "Adobe.PPKMS" is likely the best option.
- **Key group**: Refers to a key from the keystore.
    - **Alias**: The user-friendly name of the key
    - **Password**: Enter the password for the key (the same password as was entered in Key Store).
    - **Repeat Password**: Re-enter the password for the key (same as previous).
- **Apply Time Stamping Authentication group**: Check to enable time stamping authentication.

    Note

    Not available for signatures set to use Adobe.PPKLite Handler.

    - **URL**: Select the Time Stamp Authority (TSA) URL address.
    - **Account**: Account name specific to the TSA server chosen.
    - **Password**: Password specific to the TSA server chosen.
    - **Repeat Password**: Repeat of password.
- **Visible Signature group**: Check to add a visible signature to the PDF file.
    - **X**: Enter the horizontal distance between the left side of the page and the left side of the signature, in points (pt).

PReS. Connect

- **Y**: Enter the vertical distance between the top of the page and the top of the signature, in points (pt).
- **Width**: Enter the desired width of the signature, in points (pt).
- **Height**: Enter the desired height of the signature, in points (pt).

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Spot Color Settings

The Spot Color Settings page is used to match Spot Colors contained within a job to the color settings available on the printer.
This option is only available for AFP and IPDS print outputs, and requires a Printer Definition File (see "Print Preferences" on page 624) that supports Spot Colors.

- **SpotColor Mapping** table:
  - **SpotColor Name** column: This contains the names of the Spot Colors used within the job.
    If the Spot Color were added to the job within Connect Designer, then those Spot Colors will be automatically included in the table.
  - **SpotColor Number** column: This lists which Spot Color available on the printer is to be associated with the named Spot Color.
- **Add**: Add a new association between a Spot Color in the job, and the Spot Colors options available on the printer.

> **Note**
>
> If the Spot Color was not added to the job within Connect Designer itself but are instead included within a external file (such as a PDF) added into the job, then care must be taken to ensure the Name added here is identical to the name reference used within that included file.

- **Delete**: Delete a Spot Color association.
- **Edit**: Edit an existing Spot Color association.

Job Creation Presets

The Job Creation Setting dialog displays a list of available presets and a summary of their settings. Presets can also be edited from this dialog.

- **Data Mapping Configuration**: Use the drop-down to select which data mapping configuration this job creation preset will be based on. The data mapping configuration's model is used for field names in sorting, etc.
- **Configuration Name**: Use the drop-down to select the presets saved in the default location Click the Gear icon for more options:
  - Click the **Reload** option to look for new presets.
  - Click the **Import Configuration...** option to import one or more Job Presets using a Browse dialog.
- **Properties**: Displays a summary of the settings for this Job Creation Preset.
  - **Has Custom Job Creation Options**: Indicates if any job creation settings have been added. Becomes Yes if any setting in any of the below windows have been added:
    - **Has Data Selection Filter**: Becomes Yes if Data Filtering Options are set.
    - **Has Sorting**: Becomes Yes if any Sorting Options are set.
    - **Has Grouping**: Becomes Yes if grouping options are set in the Grouping and Splitting Options.
    - **Page Count Splitting**: Becomes Yes if page count splitting is used in the Grouping and Splitting Options.

        - **Slip Sheets**: Becomes Yes if a slip sheet is set in the Grouping and Splitting Options.
- **Options Group**: These options are checked, or not, depending on the selected preset chosen in the Configuration name.
    - **Use Grouping**: Check to activate the Grouping and Splitting Options page of the wizard.
    - **Apply filtering and sorting to record selection**: Check to activate the Data Filtering Options page of the wizard.
    - **Include Metadata (PDF and AFP only)**: Check to activate the Metadata Options page of the wizard.
    - **Override Finishing Options**: Check to activate the Finishing Options.
- **Next**: Click to go to the next page of the Job Creation Wizard, Data Filtering Options
- **Finish**: At any point during the wizard, click to save the current configurations, whatever page you are on.
- **Cancel**: At any point during the wizard, click to exit the wizard without saving changes.

Finishing Options

Use this dialog to force specific finishing options, instead of using finishing options that were set in the Template's Media and Section options.
This is only applied when producing print output. It does not modify the original finishing options in either the Section or the Template.

- **Ignore section level finishing**: Check to override finishing options at the document level only.
- **Section to edit**: Use the drop-down to select which Section to apply the options below. The Document level is also listed to edit document-level finishing.
    - **Settings:** Click the settings button to bring up control options:
        - **Reload:** Restores the current Section's properties to the default values set in the template for this Section
        - **Reload All:** Restores all Section properties to the default values set in the template for each Section.
        - **Apply finishing from:** Displays a list of available Sections. Clicking on a Section name loads that Section's properties into the current Section to edit.

PReS. Connect

- **Apply current finishing to all sections:** Applies the current properties to all Sections.

- **Binding** group:
  - **Style**: What type of Binding to request on the printer. This includes Stapled, Glued, Stitched, Ring, and various other options..
  - **Side**: Sets the side of the paper that the Binding is to occur.
  - **Location**: Sets where the binding is to occur, if applicable.
    The selections available here are dependent upon the selection made in the Binding **Style**. Only Stapled and Stitched bindings have a **Location** option available to them.
  - **Angle**: Set Stapling or Stitching binding either horizontally, vertically, or at an angle (as supported by printer).
  - **Item count**: Select the amount of Staples or Stitches to use. The choice is between the default amount or selecting a specific number using the Count option.

    > **Tip**
    >
    > The options actually available to you at print time will be printer dependent, so you will need to know the capabilities of your printer, or leave the value set to Default.

  - **Area**: The area where the binding can be applied.
- **Hole making** group:
  Hole making options are available only to Ring, Comb (wire and plastic) and Coil Binding **Styles**. The selections will need to be made at run-time based upon the types of binding options available that the printer supports.
  - **Number of holes**: The number of holes to punch for the selected Binding option.
  - **Style**The style of hole punches for the selected Binding option.
  - **Pattern Catalog ID**: The Catalog ID of the selected Binding option.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.

PReS. Connect

- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Data Filtering Options

The data filtering page is used to filter records and prevent them from being printed. Conditions are evaluated on each record.

Data Selection Filter

- **Grouping**: Displays the type of line, either a Rule or a rule Grouping. The root of each group of rule is a drop-down selector that defines how the rules inside the grouping work together, which is either to make *any of the rules*or*all of the rules*have to be true for the group to be true.
- **Field**: Use the drop-down to select the field on which to make the comparison.
- **Operator**: Use the drop-down to select the comparison operator for the condition.
- **Value**: Type in a value for the comparison.
- **Add**: Click to add a new line to list. Different options are available in this menu, such as filtering by field, media and finishing properties, or document length.
- **Add a new nested rule group**: Click to add a new grouping at the current level.
- **Delete**: Click to delete the currently selected rule or group. **Note**: deleting a group deletes all rules under it, and this action cannot be undone.
- **Group selected rules as nested rules**: Click to create a group with the currently selected rules.
- **Merge selected rules/ruleset to parent rules**: Click to move the currently selected rule (s) to the parent group.

Preview

This box displays a textual representation of the conditions set in the data filtering.

Sorting Options

The sorting options page is used to sort the records in the output. Sorting is done from the top to the bottom, one after the other.

Sorting Settings

- **Use standard sort**: Sort using the fields below:
  - **Field Name**: Use the drop-down to select which field to sort on.
  - **Order**: Use the drop-down to choose Ascending or Descending.
  - **Add**: Click to add a new row to the sort list. The list that appears contains all the fields in the Data Model, as well as a special <Document Length> option which is used to sort by the number of pages in each document.
  - **Delete**: Click to delete the currently selected row in the list.
  - **Move up**: Click to move the currently selected row up in the list.
  - **Move down**: Click to move the currently selected row down in the list.
- **Use external sort**: Sort the records using some external sorting software. A CSV file is exported, sorted by the external application and the sorted CSV file is returned and integrated, with the records now sorted according to the new order in the CSV file.

> **Warning**
>
> ***External Sort commands must return a non-zero error code if an error occurs.***
>
> An external sort command could easily fail part way through processing and generate only a partial output file. Without receiving a return code from the external sort process, PReS Connect cannot know if the sort has successfully completed or not. Thus the sort program must generate a return code, with a code of zero ('0') indicating success, and all non-zero results indicating failure.

- **Command**: Enter either:
  - The full path to the executable that will sort the CSV file.
  - A valid Windows command line instruction to sort the records.
    This instruction should do the following:
    1. Do some processing of the input CSV file which PReS Connect will pass through in the position of the ${input} placeholder.
    2. Generate an output file that contains the sorted data and must be named according the file name PReS Connect will pass through in the position of the ${output} placeholder

    For example: `cmd /C sort /R ${input} ${output}`
    This would reverse the order of the `${input}` file, and sent the output to the `${output}` file.
- **Separator**: Enter the field separator used in the CSV file, such as a comma (,), pipe (|), semicolon (;), etc.
- **Quote Character**: Enter the quoting character that wraps around any field that contains the separator.
- **Escape Character**: Enter the character use to escape the Quote character if it appears in the field value.
- **Line Ending**: Use the drop-down to select which line ending to use. The selections are: Windows *Carriage Return/Line Feed* combination (CRLF), Linux *Line Feed* (LF) or Apple Macintosh *Carriage Return* (CR).
- **Character Set**: Use the drop-down to select which character set to use when encoding the CSV file. This always defaults to UTF-8, as this caters for all possible characters, is relatively compact (in terms of Unicode character sets) and is compatible with standard ASCII.
- **Exported sort data** group:
  - **First row of sort data has field names** checkbox: select to have field names placed on the first line of the exported CSV file.
  - **Fields to export**: Lists the fields to export in the CSV file. The buttons to the right of the table provide the following functionality:
    - Click to select from available datatfields. The Field Selection dialog will appear, which allows selection of one or several fields from those available.

- Click to remove a field from the list.
- / Click to move fields up or down in the order of output.

- **Record ID Field**: The Record ID field is a database *Primary Key* field, which is automatically added to the exported data file. The Record ID field name defaults to *RecID*, but can be changed here as desired.

- **Processing returns data** group: This allows the external sort application to introduce new data for each record. This data can be embedded in the metadata and used as the source for additional content within PReS Connect.
  An example usage would be generating a postcode or postal barcode data from address details, making it available for use in PReS Connect.
  - **Processing returns data** checkbox: Select this if the sort processing will be returning data. This activates the whole optional **Processing returns data** subsection.
  - **First row of return data has field names** checkbox: select to have field names placed on the first line of the returning datafile.
  - **Return Fields**: Lists the fields available in the selected data mapping configuration that can be used to sort the records. Fields can be added or removed by use of the add datafield () and remove datafield () buttons, or re-arranged with the arrow buttons (/).
    Field names can be altered by selecting the field in the table, and editing the name.
    Fields can be made available to PReS Connect via the "Include in meta data" checkbox. Click the checkbox beside the field name to make that datafield available as meta data.
  - **Record ID Field** selection box: Select which return field is to be the Record ID field.
  - **Sorting by** selection box: Select whether the sorting will be by the returned sort order or whether it is to be sorted on a selected datafield.
    - **Sequence Field** selection box: Select the datafield to be sorted on, if such was chosen in the **Sorting by** entry.

Grouping Options

The Grouping options separates the job output into multiple blocks that can then be physically separated using split sheets in the printer.

- **Grouping Tabs**: Jobs can be grouped at three different levels, each of which is contained in a tab in this area. The groups/tabs are:
  - **Job** Grouping Fields
  - **Job Segment** Grouping Fields
  - **Document Set** Grouping Fields

  All the Fields available to be used for Grouping are contained within the *Available Fields* box in each tab. Fields that you want to use for Grouping need to be added to the *Selected Fields* box via the arrows between the two boxes. Simply select the Field(s) you want to move and click the arrow. Any fields that you decide don't need to be used in Grouping can be returned to the Available Fields box in the same fashion.

- **Page Break Grouping**: Check this check box to enable page break grouping, which separates Documents into different groups, based on the number of pages they contain. For example, enabling the *Document Set Grouping* Level and creating a page range from 1-5 and 6 to Largest, will create two Document Set groups. The first will contain all Documents of 1 to 5 pages length, the second will contain any document of 6 or more pages.

  > **Note**
  >
  > Page Break Grouping works only on Document page counts.

  - **Grouping Level**: Use the drop-down to select which grouping level to use, between **Job**, **Job Segment** or **Document Set**. Only one grouping level can be selected.
  - **Grouping list**: Add (or remove) entries to this list to create new groups based upon the number of pages in the level selected above. All groups must be contiguous from 1-to-Largest and they must not contain any gaps.
    - **Range Name**: Enter a name identifying the range. It must be unique, but otherwise bears no impact on the range feature.
    - **From**: Enter the starting page number of the range. The first range must start with 1, all other ranges must be contiguous (the "From" range must be one higher than the previous "To" value).
    - **To**: Enter the last page number for the range. The last range must end with a selection of "Largest".

- **Generate page break ranges in reverse order**: Reverses the order of the groups created.
  By default, grouping is done from smallest to largest. Checking this option instead creates groups from largest to smallest.
- **Generate page break range groups after normal grouping**: Check this option to first group using the levels above, following which page break grouping are applied. This creates two different levels of grouping, applied in order.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Metadata Options

The Metadata Option page defines metadata tags that will be added to the output file when producing PDF and AFP output in the Output Creation Presets.

Metadata tags are ignored in all other output types, except when they are associated with "Additional Content" on page 713 in the Print Wizard.

The tags can be added to any of these levels, as indicated by the tabs on top: **Job**, **Job Segment**, **Document**, **Document Set**, and **Page** Tags.

In each of these levels, a list of tags is available:

- **Always create meta data for this level even when fields are selected**: Select to create a blank meta data entry if no fields are selected. Done to ensure that a metadata store is always available, if required.
- **Tag Name**: Name of the metadata tag added to this level. Once a tag has been added, its name can be edited by double-clicking on the Tag Name.
- **Source Type**: Displays the type of field being used - either Text or Data Field.
- **Source**: For Data Fields only. The Field name from the data mapping configuration whose value will be used for this tag.
- **Add Field**: Click to add a new tag to the current level. The Field Selection dialog appears. Select either **Add field meta data** or **Add text meta data**.
  When adding field meta data select a field name from the Field List and click OK to add it as a tag of the same name.
- **Delete Field**: Click to delete the currently selected tag.
- **Move Up**: Click to move the currently selected tag one position up.
- **Move Down**: Click to move the currently selected tag one position down.

Output Creation Settings

The Output Creation Settings dialog displays a list of available presets and a summary of their settings. Presets can also be edited from this dialog.

Configuration Selection section:

- **Configuration Name**: Use the drop-down to select the presets saved in the default location.
  Click the Settings button for more options:
  - Click the **Reload** option to look for new presets.
  - Click the **Import Configuration...** option to import one or more Output Presets using a Browse dialog.
- **Properties**: Displays a summary of the settings for this Output Creation Preset.
  - Output Type: Displays the print technology used, as defined in the Print Options
  - Inserter: Indicates whether Inserter Marks have been added in the Inserter Marks dialog. Expand to see which High Capacity Feeder (HCF) model is loaded.

- Imposition: Indicates if Imposition has been set in the "Imposition Options" on page 771 dialog. Expand to see the specific imposition settings.
- Has custom printer settings: Indicates if custom printer settings have been set in the Printer Settings dialog. Expand to see the list of settings.
- Output to: Indicates where the output will be done, either to a file or a printer.
- Has Custom Finishing: Indicates that the output creation settings contain custom finishing overrides.

Optional Job Creation Configuration section:

- **Configuration Name**: Use the drop-down to select a preexisting Job Preset that can then be used as the source of Metadata and Grouping information in the output file mask dialog.
  Click the Reload button to refresh the list of available configurations.

Click Next in this dialog to see the Print Options window where output creation settings are selected.

Print Options

The Print Options page is the first page of both the **Advanced Print Wizard** and the Output Creation Settings Preset .

This page is the most important of the Advanced Print Wizard.
The other pages that appear throughout the Wizard are determined by the selections made on this page.

The choices can be broken down as follows:

- **Printer** group:
  - **Model**: Use the drop-down to select the printer language / output type that will be generated.
    Connect output options cover a range of industry standard print output types. These include AFP, IPDS, PCL, PDF and PostScript (including PPML, VIPP and VPS variants), with a range of quality settings available.

> **Note**
>
> By default, Connect displays only the PDF output option, but other print output types can be added to the Printer Model drop down list via the Settings button

For more information on how to do this, see "Adding print output models to the Print Wizard" on page 864.

- **Output Options** group:
  - **Output Local** checkbox: Select to have the output created using the local Print Server.
  - **Output Type** choices:
    - **Prompt for file name**: Select to output to a local file on the hard drive. When this option is selected, no other configuration is necessary. A Save As dialog will appear to allow selection of the folder and filename.
    - **Directory** : Select to output to a local folder on the machine.
      Selecting this will open the **Directory Options** sub-group, which has these options:
      - **Job Output Mask**: The name of the file that will output.
        You can use the default ${template} (the name of the Designer Template used for generating the output), or create your own Mask via the Options button. This opens the custom Job Output Mask Dialog dialog.
      - **Job Output Folder**: The path on the disk where the file is produced. Please note that the folder must exist, or output will fail when produced through the server.
    - **LPR Queue**: Select to send the print job to an LPR queue. It is assumed that the print technology is supported by the system receiving the LPR job.
      - **Local Printer**: The IP or host name of the printer or machine where the LPD is installed and will receive
      - **Queue Name**: The queue name that will accept the job on the LPD. Default is generally "auto".
      - **Job Owner Name**: Optional entry for adding the name of the job owner.

        - **Job Name**: The name of the output file. You can use ${template} as a variable for the name of the Designer Template used to generate the output.
    - **Windows Printer**: Select to send the Print Job to a Printer Queue. The job is rendered as a PDF before being printed through the Windows driver.
        - **Windows Printer**: Use the drop-down to select the windows printer queue where the job will be sent.
        - **Job Owner Name**: Optional entry for adding the name of the job owner.
        - **Job Name**: The name of the output file. You can use ${template} as a variable for the name of the Designer Template used to generate the output.
    - **PDF Rendering Options (PDF output only)**:
        - **Auto-rotate and center**: Check to automatically select the page orientation that best matches the content and paper.
        - **Choose paper source by page size**: Check to use the PDF page size to determine the output tray rather than the page setup option. This option is useful for printing PDFs that contain multiple page sizes on printers that have different-sized output trays.
        - **Scale**:
            - **None**: Select to not scale any page, whether it fits or not.
            - **Expand to printable area**: Select to expand any page to fit the page area. Pages larger than the paper size are not resized.
            - **Shrink to printable area**: Select to shrink any page to fit the page area. Pages smaller than the paper size are not resized.
- **Production Options:**
    - **Booklet Imposition** checkbox: Check to tell the printer to generate a booklet for the print output. Booklet options are set in the "Booklet Options" on page 770 page. This option is unselected by default unless selected in the Designer "Print Section Properties" on page 634.
    - **Cut and Stack Imposition** checkbox: Check to enable Cut & Stack Imposition, which is set in the "Imposition Options" on page 771 page.

- **Add Inserter marks** checkbox: Check to enable inserter mark functionality, which is set in the "Inserter Options" on page 775 page.
- **Override Finishing options** checkbox: Check to configure custom "Finishing Options" on page 755, such as binding.
- **Print virtual stationery** checkbox: Check to enable virtual stationery in the output.
- **Use grouping** checkbox: Check to configure grouping of output into jobs, job segments or document sets. See "Grouping Options" on page 760.
- **Include meta data** checkbox: Check to add meta data to the output. This can be done at Job, Job Segment, Document, Document Set and Page level. See "Metadata Options " on page 762.
- **Separation**: Check to activate the "Separation Options" on page 769 page of the wizard.
- **Add additional content** checkbox: Check to activate the "Additional Content" on page 713 page of the wizard.

- **Records** group:
  - **Record Range**: Allows selection of a range of records or a custom selection.
    You can specific individual records separated by semi-colons (;) or ranges using dashes.
    For example: 2;4;6-10 would print pages 2, 4, 6, 7, 8, 9 and 10.
- **Copies** section:
  - **Copies**: Enter the number of copies to print, of each record.
  - **Collate**: When printing multiple copies you can check this checkbox to have the record copies printed together.
    For example in a three record job the records would print out as 1-1-2-2-3-3, rather than 1-2-3-1-2-3.
- **Pure Color Thresholds** group:
  This section is valid for AFP, IPDS and PCL only. It applies to elements within the record that are shades of gray, rather than black or white.
  - **Black Threshold Percentage**: The percentage of shading at which the element will appear as full black, rather than dark gray.
  - **White Threshold Percentage**: The percentage at which the element will appear as full white, rather than light gray.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Printer Settings

The Printer Settings page defines options on the printer. It is available for PostScript (and the VIPP and VPS variants of PostScript) only.

- **Map media by** options: Select from following choices:
  - **Media Attribute** displays all Media details, except the Tray selection.
  - **Tray** displays just the Media name and Tray selections.
  - **Both** displays all Media details.

- Tray selection columns:
  - **Media**: Lists the Media name, as defined in the template.
  - **Tray**: Use the drop-down to select in which tray to send any page using the media.
  - **Position**: Enter a MediaPosition option on the printer to define the media to use.
  - **Weight**: Enter a weight for the paper.
  - **Type**: Use the drop-down to select which type of stock to use on the printer.
  - **Color**: Use the drop-down to select which color the paper should be on the printer.

Separation Options

This page defines how to separate the jobs using subsets, slip sheets, or jogging.

- **Sheet Count Splitting** group.
  This group allows for the splitting of output based upon a pre-determined number of pages
  - **Split**: Use the drop-down to select how to split.
    - **None**: Select to ignore sheet count splitting entirely.
    - **At exactly**: Select to create a split at a specific sheet number.
  - **Every**: Enter the number of sheets at which to split the output.
- **Separation Settings** group.
  This setting is only available if no Sheet Count Split were specified.
  - **Separation**: Use the drop-down to select when a job separation occurs, which is either **None** (no separation) or at the **Job**, **Job Segment**, **Document** or **Document Set** level.
- **Slip Sheets** group
  - **Add slip sheet**: Use the drop-down to select whether to add a slip sheet before or after a specific separation, or whether to use none.
  - **Every**: Use the drop-down to select at which separation to add a slip sheet, at the **Job**, **Job Segment**, **Document** or **Document Set** level.
  - **Media Size**: Use the drop-down to select the media size of the slip sheet.
    If a custom Media Size was chosen:
    - **Width**: enter slip sheet page width.
    - **Height**: enter slip sheet page height.
- **Jog** group
  - **Jog after every**: Use the drop-down to select when to jog the printer, which is either **None** (no forced jogging) or at the **Job**, **Job Segment**, **Document** or **Document Set** level.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Booklet Options

The Booklet Options page defines how to generate booklets in the output. It is used in conjunction with Imposition settings, which will appear after the Booklet entries have been made.

This page includes a handy illustration that displays how the final binding would look, based upon the current selections.

Options:

- **Configuration**: Use the drop-down to select the type of binding to use:
  - **Saddle Binding**: This binding places all the pages in a stack, binds the middle and folds the stack as one.
  - **Perfect Binding**: This binding type is often used for books. Pages are folded in the middle and then set side by side. The pages are then bound along the folded "spine".
  - **1 up Perfect Binding**: This binding does not contain any folding. The pages are lined up side by side and bound along one edge.
- **Booklet Binding Edge**: Use the drop-down to select the side on which to bind the booklet.

Optional **Cover Page** selections are available to Saddle Binding only.

PReS. Connect

- **Cover Page** checkbox: Check to enable cover pages to be created with the options below:
    - **Media** selections:
        - **Cover Media Size**: Use the drop-down to select the media size for the cover page, or use a Custom size and select **Width** and **Height** values.
    - **Front Cover** selections:
        - **Blank**: Select to add no data to the front cover.
        - **First page on outside and second page on inside**: Select to use the first 2 pages as the inside and outside of the front cover.
    - **Back Cover** selections:
        - **Blank**: Select to add no data to the back cover.
        - **Last two pages on inside and outside**: Select to use the final 2 pages as the inside and outside of the back cover.

Imposition Options

Imposition refers to the printing of multiple pages on a single sheet. This is also known as N-Up printing.
The options on this page allow for the setting of imposition repetition, order, margins and markings.

The display box shows a representation of the current Imposition selections. This is a dynamic display, that will change to reflect selections made within the page. You can adjust the display to suit your needs, including the amount of pages to show. It will cope with a sample sizes of up to 1,000 pages. The page numbers appear on each page in the display, and change dynamically, like everything else.

- **Sheet Size** group:
    - **Final Media Size**: Use the drop-down to select the size of the media where the output is printed. The size of the media should be equivalent to the initial Section size multiplied by the number of repetitions, added with the margins and spaces between the repetitions.

      If *Custom* media size is selected, enter the custom **Width** and **Height** values.

> **Note**
>
> The Sheet Size cannot be altered if a Cover Page was selected in the "Booklet Options" on page 770 Page.

- **Orientation**: Select orientation (aspect ratio) of media (Landscape or Portrait), or allow Connect to automatically determine the proper aspect ratio (Auto-Rotate).
- **Position**: Select from following options:

> **Note**
>
> If "Booklet Options" on page 770 were selected, then the **Position** settings are pre-set and cannot be altered here.

  - **Auto-positioned**: This option creates unscaled imposition-ed pages.
  - **Scale to fit**: Scales the imposition-ed pages so they fit on the N-Up stock. The scaled pages are then auto-positioned as usual.
  - **Offset**: Allows for the selection of an offset position. The imposition-ed pages will be laid out so that the top left corner of the top left imposition-ed page is located at the selected offset.
    If Offset is chosen, then the **Left Offset** and **Top Offset** selection boxes become active.

    > **Note**
    >
    > The offset measures from the top left of the physical N-Up sheet to the top left imposition-ed page. If Auto-Rotate is selected (causing the N-Up stock to be rotated to fit the imposition-ed pages) then the measurement becomes the top left position of the rotated stock. i.e. The top left corner does not rotate with the stock.

- **Rotate final output Sheet 180 degrees (upside down)**: Select to flip the output upside down.

- **Repetition** group:
  Allows selection of how many Sections are to be placed, both Horizontally and Vertically. This is the total number of items, not the number of additional items being placed.

  > **Note**
  >
  > If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

- **Gap** group:
  Allows selection of the amount of blank space (either **Horizontal** and/or **Vertical**) to add between each page.

  > **Note**
  >
  > If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

- **Order** group:

  > **Note**
  >
  > If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

  - **Page Order**: Select in which direction to go when adding sections to the output:
    - **Left to right, then top to bottom**
    - **Right to left, then top to bottom**

PReS. Connect

        - **Top to bottom, then left to right**
        - **Top to bottom, then right to left**
    - **Stack Depth**: Enter a stack depth or use the arrows to increment or decrement.
    - **Reverse Pages**: Select this option to reverse the order of pages.
      This would print the final record on the first page and the first record on the last page.
    - **Force simplex**: Select this option to make the output Simplex, rather than the Imposition default of Duplex.

> **Note**
>
> If *Booklet Binding* were selected, some of these settings will be determined by the options made within the "Booklet Options" on page 770 Page and they cannot be altered here.

- **CropMarks** group:
    - **Type**: Use the drop-down to select the type of Crop Marks to add to the page.
    - **Page side**: What side(s) of the page to put the Crop Marks.
    - **Width**: Select the width of the crop mark lines.
    - **Offset**: How much separation (if any) to leave between the vertical and horizontal corner markings.
    - **Length**: Select the Length of the crop mark lines.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.

- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Inserter Options

The Inserter Options page allows the selection of a High Capacity Feeder (HCF) model. These machines are also commonly referred to as Inserters or Folder-Inserters.
The options available on this page are dependent upon the model selected.
The options selected on this page influence the position of the markings set on the next page: **"Mark Position Options" on page 777**.

- **Model**: Use the drop-down to select from any previously loaded Inserter model, or use the Browse button to select a HCF file to load a new Inserter model.
  An image representing the chosen folder-inserter is displayed under the list, along with the HCF file details.
- **Options Group:**
  The options available here are all Inserter dependent, and thus will change based upon the Inserter model selection.
  To see how the selected Inserter markings would look on the printed page, click the Next button to move to the "Mark Position Options" on page 777 page, which has a preview of the page. You can move back and forward between these two pages until you are entirely satisfied with the selections made.
  - **Mark Configuration**: Use the drop-down to select the type of markings to add. This selection basically equates to the amount of area the markings will take up on the printed page.
  - **Fold Type**: Use the drop-down to select the type of fold to apply to the paper. This will impact upon where on the page the markings will be placed.
  - **Collation level**: Select whether the markings will be made at Document level, or Document Set level.
  - **Print marks on back**: Check to place the Inserter Marks on the rear of the page.
  - **Selective Inserts**: If selective inserts are supported by the chosen Mark Configuration you can select what markings to include and whether those markings are to included based upon some conditional setting.
    For example, you could add a marking to the third page of a document by making the selection Conditional and then setting the Condition entry to "page.nr = 3".

- **Clear Background Area** Tab:
  Check the **Clear Background Area** checkbox to add a white background to the OMR, preventing background colors or elements interfering with the OMR Markings when they are read by the Inserter.
  - **Margins**:
    - **Same for all sides**: Check so that the Left margin selection is used to set all sides identically.
    - **Left, top, right, bottom**: Enter measurements for the margins on each side of the OMR Marks.
- **Custom OMR mark sizing** Tab:
  If supported by the currently chosen Mark Configuration you can select a Custom OMR size by checking the **Custom OMR mark sizing** checkbox.
  Select from any of the following, or leave the entries blank to use default values:
  - **Line length**: Enter a value between 10.16mm and 20mm.
  - **Line thickness**: Enter a value between 0.254mm and 0.63mm.
  - **Gap distance**: Enter a millimeter value 2.91mm and 4.2mm.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Mark Position Options

This page displays a Preview of the output and the possible locations to place the inserter marks. The initial settings are determined by the selections made within the "Inserter Options" on page 775 page.
You can move back and forward between these two pages to perfect the settings, or you could move the inserter mark box to the desired location on the preview.

Preview box:

- The *pink area* displays the areas of the page where inserter marks can be positioned.
- The *small checkered box* displays the current location of the inserter marks. This box is selectable and can be dragged to the desired location within the printable (pink) areas. If the box is placed outside the printable areas the page will display an error and prevent attempts at leaving the page.

Below the Preview box are buttons which allow control of the Preview box. The selections that can be made are:

- **First Page**: Click to jump to the first page.
- **Previous Page**: Click to move to the previous page.
- **Next Page**: Click to move to the next page.
- **Last Page**: Click to jump to the last page.
- **Show Page**: Use the up and down arrows or type a page number to display a specific page within the document.
- **Zoom in/out**: Click to zoom in or out by 25%
- **Zoom Level**: Use the drop-down to select a predefined level or enter a zooming percentage.

PDF Options

The PDF Options page is shown only when a PDF Print output type is selected in the Print Options dialog.

PReS. Connect

- **PDF Options Group**
  - **PDF Type**: Use the drop-down to specify which format the PDF should be generated in. These options are standard PDF, archive format PDF (PDFA-1b), graphics format PDF (PDF-X4) and variable data printing format PDF (PDF-VT).
  - **Embed standard fonts**: Click to embed the 14 standard system fonts within the PDF output. This increases the output filesize but makes the PDF output truly portable. Such PDFs print as displayed on screen, regardless of whether the 14 standard fonts are present on the target printing system or not.

    > **Note**
    >
    > This box is ignored for PDFA and PDF-X4 output, as fonts are always embedded in those output types.

- **Add Digital Signature Group**: Check to enable the integration of a digital signature into the PDF.
  A digital signature identifies the person signing a document, similarly to a conventional handwritten signature. Unlike a handwritten signature, a digital signature is difficult to forge as it contains encrypted information which is unique to the signer and which can be password protected and verifiable.
  - **All Keystores**:
    Here you can choose from existing digital signatures, or select new ones.
    - **Name**: The user-defined name of the keystore.
    - **File**: The file path and name to the keystore file.

    This is where you select keystore values.

    - **New**: Click to open the Key Store dialog to add a new keystore to the list.
    - **Duplicate**: Click to make a copy of the currently selected keystore.
    - **Edit**: Click to edit the currently selected keystore in the Key Store dialog.
    - **Delete**: Click to delete the currently selected keystore.
    - **Move Up**: Click to move the currently selected keystore up.
    - **Move Down**: Click to move the currently selected keystore down.
  - **All Signatures**: Displays a list of signatures to add to the PDF output.

- **Name**: The user-defined name of the signature.
- **File**: The file path and name to the signature file.
- **Alias**: The user-defined alias for the signature.
- **New**: Click to open the PDF Signature dialog to add a new signature to the list.
- **Duplicate**: Click to make a copy of the currently selected signature.
- **Edit**: Click to edit the currently selected signature in the PDF Signature dialog.
- **Delete**: Click to delete the currently selected signature.
- **Move Up**: Click to move the currently selected signature up.
- **Move Down**: Click to move the currently selected signature down.

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

PDF Digital Signature Options

PDF Signature

The PDF Signature dialog appears when adding or editing a signature from the "PDF Options" on page 777 page.

PReS. Connect

- **Name**: Enter a name that describes the signature entry.
- **Keystore**: Use the drop-down to select which keystore the signature is pulled from. These keystores are set in the "Keystore" on the next page dialog, called from the "PDF Options" on page 777 page.
- **Signature Properties group**: These are optional Metadata fields associated with the signature, which can be omitted.
    - **Location**: The CPU host name or physical location of the signing.
    - **Reason**: Records the reason for the signing.
    - **Contact**: Information to enable a recipient to contact the signer to verify the signature. For example: a phone number.
    - **Handler**: The PDF reader plugin used to interpret the signature data. It should be left at its default setting (Adobe.PPKLite) unless time-stamping is desired, in which case "Adobe.PPKMS" is likely the best option.
- **Key group**: Refers to a key from the keystore.
    - **Alias**: The user-friendly name of the key
    - **Password**: Enter the password for the key (the same password as was entered in Key Store).
    - **Repeat Password**: Re-enter the password for the key (same as previous).
- **Apply Time Stamping Authentication group**: Check to enable time stamping authentication.

> **Note**
>
> Not available for signatures set to use Adobe.PPKLite Handler.

    - **URL**: Select the Time Stamp Authority (TSA) URL address.
    - **Account**: Account name specific to the TSA server chosen.
    - **Password**: Password specific to the TSA server chosen.
    - **Repeat Password**: Repeat of password.
- **Visible Signature group**: Check to add a visible signature to the PDF file.

PReS. Connect

- **X**: Enter the horizontal distance between the left side of the page and the left side of the signature, in points (pt).
- **Y**: Enter the vertical distance between the top of the page and the top of the signature, in points (pt).
- **Width**: Enter the desired width of the signature, in points (pt).
- **Height**: Enter the desired height of the signature, in points (pt).

Advanced Print Wizard navigation options

- **Load** button: Click to select a previously created Output Creation Preset. This will change the Advanced Print Options to match the entries contained within the Preset.
- **Preview** button: Click to launch a Proof Preview window, which displays how the printed output would look based upon the currently chosen selections.
- **Back** and **Next** buttons: Used to navigate back and forth through all the selected options within the Wizard. Up until the Print button is pressed, one can reverse all the way through the wizard to return to the main selection page (the "Print Options" on page 764 page) and add or remove printing options from the print run.
- **Print** button: Click to produce print output according to the current settings. This can be done at any point within the Wizard, whether or not the options selected in the the "Print Options" on page 764 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Keystore

The security certificate Keystore dialog appears when adding or editing a keystore from the "PDF Options" on page 777 page.

This dialog allows you to select a keystore with a private key.
The keystores currently supported by Connect are:

- JKS (Java Key Store) format.
- PKCS#12

- PKCS#11

> **Note**
>
> PKCS#11 requires an extra plug-in not included in the PReS Connect installation.

These are the options available in this dialog:

- **Name**: Enter a name for the keystore to describe it within Connect.
- **File**: Enter the path to the keystore file, or use the Browse button to locate the file.
- **Keystore properties group**:
  - **Type**: Use the drop-down to select the appropriate type of the keystore format the file is: JKS, PKCS11, PKCS12.
  - **Provider**: Enter the provider of the keystore.
    - "SUN" for JKS
    - "SunJSSE" for PKCS#12
    - "IAIK PKCS#11:1" for PKCS#11
  - **Password**: Type in the password that secures the keystore, if the keystore is password protected.
  - **Repeat Password**: Re-type in the password that secures the keystore. Once this is done the two Password entry boxes will no longer have the red cross icon (indicating incomplete or unselected) flag beside them.
- **Properties file group**:
  - **File**: Load optional keystore properties file. Could be used to store the password in a file.

Script API

In Designer templates, every bit of information can be tailor-made, using scripts. When Connect generates actual output – letters, web pages or emails -, it opens a record set and merges it with the template. It takes each record, one by one, and runs all scripts for it (in a specific order, see "The script flow: when scripts run" on page 581).

Most scripts can be made using one of the Script Wizards (see "Personalizing Content" on page 518).
However, when you want to do more than what you can do with a Wizard, you may write a script yourself. If you are not familiar with writing scripts, please read "Writing your own scripts" on page 548 first.

All scripts in the Designer have to be written in JavaScript.
If you don't know JavaScript, the many examples given in this API will help you get started.
It is worth the effort, however, to familiarize yourself with the JavaScript syntax. For a simple script all you need to know can be found on the following web pages:
http://www.w3schools.com/js/js_syntax.asp and http://www.w3schools.com/js/js_if_else.asp.

In the editor window, press **Ctrl** + **Space** to see the available features and their descriptions.
Use the arrow keys to select a function or object and press Enter to insert it in the script.
Type a **dot** after the name of the function or object and press Ctrl + space again to see which features are subsequently available.
For more keyboard shortcuts, see "Keyboard shortcuts" on page 656.

Designer API

The "Designer Scripts API" on the facing page describes the objects and functions that are available in **template scripts**, created inside the Scripts pane. Template scripts change the contents of sections in a template.

> **Note**
>
> In a Print context, the scripts in the Scripts pane run once for each section and once for each Master Page (see "Master Pages" on page 318).

Control Script API

Control Scripts are a special kind of Designer Scripts. They don't touch the content of the sections themselves, but they change the way a template is outputted, for example by selecting or omitting sections from the output.
For more information about Control Scripts and their use, see "Control Scripts" on page 566.
Features that are specific to Control Scripts are listed in the "Control Script API" on page 839.

PReS. Connect

Designer Scripts API

This page lists the global objects and functions that are available in scripts, created inside the Scripts pane. Click through to an object or function to get a description and examples.

If you are not familiar with writing scripts, see "Writing your own scripts" on page 548.

Control Scripts

Control Scripts are a special kind of Designer Scripts. They don't touch the content of the sections themselves, but they change the way a template is outputted, for example by selecting or omitting sections from the output. For more information about Control Scripts and their use, see "Control Scripts" on page 566. Features that are specific to Control Scripts are listed in the "Control Script API" on page 839.

Objects

Object	Description
"results" on page 808	This object is used to manipulate the content of the template. It contains the HTML element or set of HTML elements that match the selector of the script, specified in the script editor. This object is not available in Control Scripts, because that type of script doesn't have a selector (see "Control Scripts" on page 566).
"record" on page 806	The record in the main data set that is currently being merged. To get the value of a field in the record, use `record.fields['fieldname']` or `record.fields.fieldname`.
"logger" on page 800	Global object that allows you to log messages.
locale	Defines which locale to use. See "Locale" on page 516.
"formatter" on page 795	Global object that allows you to format values (such as a date or number).
"automation"	This object encapsulates the properties of the Workflow process that

Object	Description
on page 841	triggered the current operation. Not available in PrintShopMail Connect.
"merge" on page 843	The `merge` object is mainly used in Control Scripts. It gives access to the template with all of its contexts and sections. It doesn't give access to the content of the sections. To change the content of a section, you would create a script with a selector and use the `results` object in the script (see "results" on page 808).

Global functions

Function	Description
"loadhtml()" on page 797	Loads HTML data from a HTML (snippet). The returned HTML can be placed into a variable or into a set of HTML elements.
"loadjson()" on page 799	Loads json data from a URL. This is a simple way to retrieve content from external systems.
"query()" on page 804	Performs a query in the template's contents and creates a new result set containing the HTML elements that match the given CSS selector.

Examples of iterator functions

Function	Description
"Each" on page 792	A generic iterator function, to iterate over the elements in the result set
"For...in" on page 794	Iterates over the enumerable properties of an object, in arbitrary order. For each distinct property, statements can be executed.

Date, date/time and time functions

- date()
- dateLong()
- dateMedium()
- dateShort()
- dateTime()
- dateTimeLong()
- dateTimeMedium()
- dateTimeShort()
- time()
- timeLong()
- timeMedium()
- timeShort()

> **Note**
>
> The locale also influences the output of the different Date functions; see "Locale" on page 516.

> **Tip**
>
> To format a date from a `date` field in the record set, you can enter a formatting pattern directly in the Text Script Wizard; see "Using the Text Script Wizard" on page 533, "Formatting variable data" on page 536 and "Date and time patterns" on page 790).

date(value, pattern)

Formats a date object using a custom pattern.

value

A Date object. A Date can contain a date and time.

pattern

PReS. Connect

String. The custom pattern may consist of pattern letters, separating symbols and quoted text, for example: "MMMM dd, yyyy"; see "Date and time patterns" on page 790. Note that the repetition of pattern letters determines the exact presentation.

dateLong(value)

Formats a date as long string representation, for example **April 1, 2016**.

value

A Date object. A Date can contain a date and time.

dateMedium(value)

Formats a date as medium string representation, for example **01/04/16**.

value

A Date object. A Date can contain a date and time.

dateShort(value)

Formats a date as short string representation, for example **1-Apr-2016**.

value

A Date object. A Date can contain a date and time.

dateTime(value, pattern)

Formats a date and time object using a custom pattern.

value

A Date object. A Date can contain a date and time.

pattern

String. The custom pattern may consist of pattern letters, separating symbols and quoted text, for example: "yyyy.MM.dd G 'at' HH:mm:ss z"; see "Date and time patterns" on page 790. Note that the repetition of pattern letters determines the exact presentation.

PReS. Connect

dateTimeLong(value)

Formats a date and time as long string representation, for example **April 1, 2016 12:00:00 EDT AM**.

value

A Date object. A Date can contain a date and time.

dateTimeMedium(value)

Formats a date and time as medium string representation, for example **1-Apr-2016 12:00:00 AM**.

value

A Date object. A Date can contain a date and time.

dateTimeShort(value)

Formats a date and time as short string representation, for example **01/04/16 12:00 AM**.

value

A Date object. A Date can contain a date and time.

time(value, pattern)

Formats a time using a custom pattern.

value

A Date object. A Date can contain a date and time.

pattern

String. The custom pattern may consist of pattern letters, separating symbols and quoted text, for example: "'at' HH:mm:ss z"; see "Date and time patterns" on page 790. Note that the repetition of pattern letters determines the exact presentation.

timeLong(value)

Formats a time as long string representation, for example **12:00:00 EDT AM**.

value

PReS. Connect

A Date object. A Date can contain a date and time.

timeMedium(value)

Formats a time as medium string representation, for example **12:00:00 AM**.

value

A Date object. A Date can contain a date and time.

timeShort(value)

Formats a time as short string representation, for example **12:00 AM**.

value

A Date object. A Date can contain a date and time.

Examples

The following script passes the value of a field in the record set to the date() function. This will only work if the type of the field has been set to Date in the Data Mapping Configuration and if the field contains a valid date.

```
var myDate = formatter.date(records.fields.DATE, "MM/dd/yyyy");
```

The custom pattern that the script provides, outputs the month and day in two digits each and the year in four digits: 05/21/2016. For more examples of formatting patterns, see "Date and time patterns" on the facing page.

Creating a Date object from a string

In a Data Mapping Configuration you can set the type of a field to Date, but when you open a data file or database in the Designer without a Data Mapping Configuration, all fields are text fields (fields of the type `string`). The `formatter` cannot be used to format a string with a particular date format. The solution is to store the string in a variable as a Date object, and use the `formatter` with that variable.

The following sample script demonstrates this solution. It splits a string into parts and then creates a new Date object with the parts in the correct order. To construct a Date, the parts of the date must be put in the following order: year, month, day, and optionally hours, minutes, seconds, milliseconds (see http://www.w3schools.com/js/js_dates.asp and

PReS. Connect

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date.)
When the time is omitted, it defaults to 12:00:00 AM.

```
/* Convert the string 21-12-1997 into a valid JavaScript date */
       var strDate = record.fields["date"];
       var dateParts = strDate.split("-");
       var date = new Date(dateParts[2], (dateParts[1] - 1), dateParts
[0]);
```

> **Note**
>
> JavaScript counts months from 0 to 11. January is 0. December is 11.

Another way to put a string in a Date is to use the `Date.parse` function; see https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Date/parse.

The `date` variable can be used as the value in the date, dateTime or time functions of the `formatter`.

```
var myDate = formatter.date(date, "MM/dd/yyyy");
```

Date and time patterns

Dates and times in a template originating from a `date` field in a record set can be displayed using a custom pattern. You can type the pattern directly in the Format field in the Text Script Wizard, lest the field type is set to Date in a Data Mapping Configuration and the field contains a valid date; see "Using the Text Script Wizard" on page 533 and "Formatting variable data" on page 536. In the Script Editor, the pattern can be passed to a date, dateTime or Time function of the `formatter`; see "formatter" on page 795.

The custom pattern may consist of pattern letters (see below), for example: "MM/dd/yyyy". The components can be separated with a space or a symbol, e.g. `.`, `/`, `-`. Text must be put in quotes.

The repetition of pattern letters determines the exact presentation. For example, if the number of pattern letters for a month is less than 3 (M or MM), the month is displayed as a number. If the number of pattern letters is 3 (MMM), it will be displayed as text; if available, a short or abbreviated form of the month's name will be used. If the number of pattern letters is 4 or more (MMMM), the month's full name is displayed.

PReS. Connect

Note

The pattern letters and patterns on this page are only suitable for **displaying** dates and times in templates, not for extracting dates in the DataMapper module. For pattern letters and patterns available in the DataMapper, see "Date" on page 140.

Pattern letters

Letter	Component	Presentation	Examples
G	Era designator	Text	AD
y	Year	Year	1996; 96
Y	Week year	Year	2009; 09
M	Month in year	Month	July; Jul; 07
w	Week in year	Number	27
W	Week in month	Number	2
D	Day in year	Number	189
d	Day in month	Number	10
F	Day of week in month	Number	2
E	Day name in week	Text	Tuesday; Tue
u	Day number of week (1 = Monday, ..., 7 = Sunday)	Number	1
a	Am/pm marker	Text	PM
H	Hour in day (0-23)	Number	0
k	Hour in day (1-24)	Number	24
K	Hour in am/pm (0-11)	Number	0
h	Hour in am/pm (1-12)	Number	12
m	Minute in hour	Number	30
s	Second in minute	Number	55
S	Millisecond	Number	978
z	Time zone	General time zone	Pacific Standard Time; PST; GMT-08:00
Z	Time zone	RFC 822 time zone	-0800
X	Time zone	ISO 8601 time	-08; -0800; -08:00

PReS. Connect

zone

> **Note**
>
> These date and time pattern letters and patterns conform to standard Java notation. For more information, see http://docs.oracle.com/javase/7/docs/api/java/text/SimpleDateFormat.html.

Each

A generic iterator function, to iterate over the elements in the result set.

each(callback)

Iterates over the elements in a set, such as the enumerable properties of an object, in arbitrary order. For each distinct property, statements can be executed.

callback

A function. The callback function is passed the iteration index and the current element. In the scope of the callback function, `this` *refers to the current element.*

Examples

The following two scripts demonstrate a simple iteration over the elements in the `results` (the set of HTML elements that match the selector of the script).

This script sets the background color of each of the elements to red. (This is just to demonstrate how this function works. It is easier to change the style of a set of HTML elements using the css () function; see "Examples" on page 825.)

```
results.each(function(index){
        results[index].css('background-color','red');
});
```

The following script adds a random integer to each element in the result set.

```
results.each(function(index){
        var test = Math.floor((Math.random() * 10) + 1);
        this.html(test);
});
```


PReS. Connect

Selector	Matched element	Matched element after script execution
p	 	3 1 7

This script gets the row index (of the current element in the set) and puts it in a paragraph.

```
results.each(function(index){
        this.text(index);
}
```

Selector	Matched element	Matched element after script execution
p	 	0 1 2

Using `each()` in a translation script

The following script first loads a snippet containing translation strings, depending on the value of a field. Then it inserts translations by iterating over elements in the `results` (the set of HTML elements that match the selector of the script) and setting the HTML of each element with a value from the array of translation strings.

```
var strings = loadjson('snippets/' + record.fields.locale +
'.html');
results.each(function(index){
        if( strings[this.attr('data-translate')])
        this.html(strings[this.attr('data-translate')]);
});
```

Note: for documentation on the `data-*` attribute, see http://www.w3schools.com/tags/att_global_data.asp.

PReS. Connect

Selector	Matched element	Matched element after script execution
p	 	primero último dirección de correo electrónico

For...in

Can be used to iterate over fields in a data set or rows in detail table. Also see https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Statements/for...in.

for(`variable` in `object`) { ... }

Iterates over the enumerable properties of an object, in arbitrary order. For each distinct property, statements can be executed.

Examples

This script iterates over field names in the current record and adds them to a paragraph.

```
for(var i in record.fields){
        results.after("<p>" + i + "</p>");
}
```

Selector	Matched element	Matched element after script execution
#test	<h1 id="test">Fields</h1>	<h1 id="test">Fields</h1> first last email

This script iterates over fields in the current record, retrieving their values. Then it adds the values to a paragraph.

```
for(var i in record.fields){
        results.after("<p>" + record.fields[i] + "</p>");
}
```


PReS. Connect

Selector	Matched element	Matched element after script execution
#test	<h1 id="test">Fields</h1>	<h1 id="test">Fields</h1> Peter Parker pparker@localhost.com

This script iterates over rows in a detail table and adds the contents of the 'country' field to a paragraph.

```
for(var i in record.tables['countries']) {
        results.after("<p>" + record.tables['countries'][i].fields
['country'] + "</p>");
}
```

Selector	Matched element	Matched element after script execution
#countries	<h1 id="countries">Countries</h1>	<h1 id="countries">Countries</h1> The Netherlands Canada Australia

This script iterates over rows in a detail table and adds the contents of the 'ItemID2' field to an option. The <option> tag defines an option in a select list in an HTML form.

```
for(var i in record.tables['detail']) {
        var str = record.tables['detail'][i].fields["ItemID2"];
        results.append("<option value='" + str + "'>" + str +
"</option>");
}
```

formatter

The `formatter` is a global object that allows you to format values in a script.

The Text Script Wizard also allows you to format variable data; see "Using the Text Script Wizard" on page 533 and "Formatting variable data" on page 536.

PReS. Connect

Note

The TextFormatter object is now deprecated and will eventually be removed.

Functions

Function	Description
• currency() • currencyNoSymbol() • grouped() • integer() • integerUngrouped() • number() • numberUngrouped()	The `currency()`, `grouped()`, `integer()` and `number()` functions allow you to format a number, possibly with a custom pattern. See "Number functions" on page 801.
• date() • dateLong() • dateMedium() • dateShort() • dateTime() • dateTimeLong() • dateTimeMedium() • dateTimeShort() • timeLong() • timeMedium() • timeShort()	The `date()`, `dateTime()` and `time()` functions allow you to format a date and/or time in different ways. See "Date, date/time and time functions" on page 786.
• lowerCase() • upperCase()	The text formatting functions are used on Strings. `lowerCase()` transform all characters to lowercase, `upperCase()` transforms all characters to uppercase and `properCase()` transforms the

PReS. Connect

Function	Description
• properCase()	first character of each word to uppercase and all other characters to lowercase.

loadhtml()

Global function that replaces the content (inner html) of each matched element in the result set, alternatively load the data into a variable. The location should be an URL or a relative file path.

> **Note**
>
> Loadhtml() is cached per batch run (based on the URL) in print/email.

loadhtml(location)

Loads all HTML from the specified HTML file.

location

String containing a path that can be absolute or relative to the section/context. Use: snippets/<snippet-name> to retrieve the content from a HTML file residing in the Snippets folder on the Resources panel.

Examples

This script loads a local HTML snippet (from the Resources panel) directly into the matched elements

```
results.loadhtml("snippets/snippet.html");
```

The following script loads a local HTML snippet (Resources panel) into a variable. The replaceWith() command is used to replace the element(s) matched by the script's selector with the contents of the snippet.

```
var mysnippet = loadhtml('snippets/snippet.html');
results.replaceWith(mysnippet);
```

Same result as the previous script, but a different notation:

```
results.replaceWith(loadhtml('snippets/snippet.html'));
```


PReS. Connect

The following script loads a snippet into a variable and finds/replaces text in the variable before inserting the content into the page. The second find command also adds formatting to the replacing text.

```
var mysnippet = loadhtml('snippets/snippet.html');
mysnippet.find('@var1@').text('OL Connect 1');
mysnippet.find('@var2@').html('<i>OL Connect 2</i>').css('text-
decoration','underline');
results.replaceWith(mysnippet);
```

This last script loads a snippet into a variable and retrieves an element from the snippet using query().

```
var mysnippet = loadhtml('snippets/text-root-wrapped.html');
var subject = query("#subject", mysnippet).text();
results.append("<p style='font-weight: bold;'>" + subject +
"</p>");
```

loadhtml(location, selector)

Retrieves specific content from the specified HTML file.

location

String; the location can be absolute or relative to the section/context. Use: snippets/<snippet-name> to retrieve the content from a HTML file residing in snippets folder of the Resources panel.

selector

String. The supplied selector should conform to CSS selector syntax and allows you to retrieve only the content of matching elements.

Examples

This script loads a **specific element** from a snippet and uses that to replace the `results` (the HTML element or set of HTML elements matched by the selector of the script; see "results" on page 808).

```
var mysnippet = loadhtml('snippets/snippet-
selectors.html','#item3');
results.replaceWith(mysnippet);
```

This script loads the **children** of the selected element.

```
var snippet = loadhtml('snippets/snippet.html','foobar').children
();
results.replaceWith(snippet);
```

The next script loads a **remote** snippet, looks for an H1 heading and uses that text.

```
var post = loadhtml('snippets/post.rhtml');
var h1 = query('h1', post).text();
results.text(h1);
```

Another example is given in the following how-to: Using a selector to load part of a snippet.

loadjson()

Creates a JSON object based on the text retrieved from the supplied location. The function lets you retrieve content from an JSON enabled server using a standard HTTP request. Popular content management systems, like WordPress (requires JSON API plug-in) and Drupal provide a JSON service/API to retrieve content.

> **Note**
>
> Loadjson() is cached per batch run (based on the URL) in print/email.
>
> This online JSON viewer is handy to debug JSON data: http://jsonviewer.stack.hu

loadjson(location)

Loads json data from a remote location.

location

String; the supplied location should be either a URL or a relative file path.

Examples

This sample script retrieves JSON data from a snippet.

```
var localJSON = loadjson('snippets/jsonsnippet.json');
if(localJSON.post){
        results.html("<h3>" + localJSON.post.title + "</h3><p>" +
localJSON.post.modified + "</p>");
}
```


PReS. Connect

This script retrieves a post from a WordPress site.

```
var wpPost = loadjson('http://192.168.101.58/2013/06/leave-the-
third-dimension-behind-and-focus-on-real-printing-
innovation/?json=1');
if(wpPost.post){
      results.html("<h1>" + wpPost.post.title + "</h1>"
                + wpPost.post.content);
}
```

This script retrieves multiple posts from a WordPress site.

```
var numPosts = 3;
var wpPost = '';
var wpRecentPosts = loadjson('http://192.168.101.58/?json=get_
recent_posts&count=' + numPosts);
if(wpRecentPosts.posts){
        for (var i = 0; i < numPosts ; i++) {
                wpPost += "<p>" + wpRecentPosts.posts[i].title + "</p>";
        }
}
results.after(wpPost)
```

logger

This is a global `ScriptLogger` object that allows logging messages such as error, warning or informational messages. The messages will appear in the **Messages** pane (see "Problems and messages" on page 677 and "Designer User Interface" on page 581).

Methods

These are the methods of the logger object.

Method	Parameters	Description
error()	message: string	Logs an error message
info()	message: string	Logs an informational message

PReS. Connect

Method	Parameters	Description
warn()	message: string	Logs a warning message

Number functions

> **Note**
>
> The locale also influences the output of some Number functions; see "Locale" on page 516.

> **Tip**
>
> For fields that contain a number, you can also enter a formatting pattern directly in the Text Script Wizard; see "Using the Text Script Wizard" on page 533, "Formatting variable data" on page 536 and "Number patterns" on the facing page).

currency(value)

Formats a number as an amount of money. Which currency symbol and which thousands separator are used depends on the Locale; see "Locale" on page 516.

value

A number. This can be a value from a field that contains a SmallInteger, BigInteger, Float, SmallCurrency or LargeCurrency.

currency(value, pattern)

Formats a number as an amount of money using a custom pattern. Which currency symbol and which thousands separator are used depends on the Locale; see "Locale" on page 516. For available patterns, see "Number patterns" on the facing page.

value

A number. This can be a value from a field that contains a SmallInteger, BigInteger, Float, SmallCurrency or LargeCurrency.

pattern

PReS. Connect

A custom pattern that may consist of symbols; see "Number patterns" below. Note that the repetition of pattern letters plays a part in determining the exact presentation.

currencyNoSymbol(value)

Formats a number as a currency whilst omitting the currency symbol.

value

A number. This can be a value from a field that contains a SmallInteger, BigInteger, Float, SmallCurrency or LargeCurrency.

grouped(value)

Formats a number using a thousands separator. Which separator is used depends on the Locale, see "Locale" on page 516.

value

A number. This can be a value from a field that contains a SmallInteger, BigInteger, Float, SmallCurrency or LargeCurrency.

Number patterns

Numbers, used in a template and originating from a field in a record set, can be displayed using a custom pattern. You can type the pattern directly in the Format field in the Text Script Wizard; see "Using the Text Script Wizard" on page 533 and "Formatting variable data" on page 536. Note that for this to work, in the DataMapper the field that contains the value must be set to SmallInteger, BigInteger, Float, SmallCurrency or LargeCurrency.

In the Script Editor, the pattern can be passed to a function of the `formatter`; also see "formatter" on page 795. The custom pattern may consist of pattern characters (see below), a prefix and a suffix.
Note that strings need to be converted to a number before they can be formatted this way.

The repetition of pattern letters determines the exact presentation. For example, the pattern "00000" limits the number to 5 digits and adds leading zeros to any numbers that are not 5 digits long.

Pattern characters

Symbol	Location	Localized?	Meaning
0	Number	Text	Digit
#	Number	Year	Digit, zero shows as absent
.	Number	Year	Decimal separator or monetary decimal separator
-	Number	Month	Minus sign
,	Number	Number	Grouping separator
E	Number	Number	Separates mantissa and exponent in scientific notation. Need not be quoted in prefix or suffix.
;	Subpattern boundary	Number	Separates positive and negative subpatterns
%	Prefix or suffix	Number	Multiply by 100 and show as percentage
\u2030	Prefix or suffix	Number	Multiply by 1000 and show as per mille value
¤ (\u00A4)	Prefix or suffix	Number	Currency sign, replaced by currency symbol. If doubled, replaced by international currency symbol. If present in a pattern, the monetary decimal separator is used instead of the decimal separator.
'	Prefix or suffix	Text	Used to quote special characters in a prefix or suffix, for example, "'#'#" formats 123 to "#123". To create a single quote itself, use two in a row: "# o''clock".

Source: http://docs.oracle.com/javase/7/docs/api/java/text/DecimalFormat.html.

PReS. Connect

query()

This function creates a new result set, containing the HTML elements in the current section that match the supplied CSS selector. The context (optional) allows you to restrict the search to descendants of one or more context elements.

The new result set is of the type `QueryResults`, just like the `results` object which is also the result of a (hidden) query. All functions that can be used with the `results` object can also be used with this result set; see "results" on page 808.

query(selector)

Creates a new result set containing the HTML elements in the current section that match the supplied CSS selector.

selector

A String containing a CSS selector. See http://www.w3schools.com/cssref/css_selectors.asp *for CSS selectors and combinations of CSS selectors.*

Examples

Look for an element with a certain ID

This scripts applies a style rule to the queried elements.

```
query("#test1").css("color", "yellow");
```

Matched element;	Matched element after script execution
foo	foo

Look for an element in a snippet

The following script loads a snippet. Then it looks up an element in a snippet and sets its text. Finally, it replaces the elements matched by the script's selector by the snippet.

```
var snippet = loadhtml('snippets/mysnippet.html');
query("#foo", snippet).text("bar");
results.replaceWith(snippet);
```


PReS. Connect

query(selector, context)

Creates a new result set containing the HTML elements that match the supplied CSS selector. The context (optional) allows you to restrict the search to descendants of one or more context elements.

selector

A String containing a CSS selector. See http://www.w3schools.com/cssref/css_selectors.asp *for CSS selectors and combinations of CSS selectors.*

context

A result set (the result of another query) or an HTML string. If the passed context is not a result set or HTML string it will be coerced to a String and interpreted as HTML.

Examples

This script performs a query in the results of another query.

```
var table = query("table");
var rows = query("tr", table);
var cells = query("td", rows);
```

Since the `results` object also is the result of a query (for elements that match the selector of the script), it can be passed as context. For example in a script with the selector “table”.

```
var rows = query("tr", results);
```

query(html)

Creates a new HTML element on the fly from the provided string of raw HTML, and returns the new element.

html

A String containing a HTML element. Tags that can contain other elements should be paired with a closing tag.

Example

The following script adds a paragraph to the `results` (elements that match the selector of the script).

PReS. Connect

```
results.append("<p>This is a new paragraph.</p>');
```

> **Tip**
>
> The Dynamic Attachment script uses this function to add an attachment to an Email section; see "Email attachments" on page 346.

record

The `record` object gives access to the record that is currently being merged with the template.

Properties

Field	Type	Description
fields	Array	The field values that belong to this record. You can access a specific field value using either a numeric index or the field name: `record.fields['fieldname']` or `record.fields.fieldname`.
id	Number	The id of this record.
index	Number	The one-based index of this record, or zero if no data is available.
tables	Array	The detail tables that belong to this record. You can access a specific table using either a numeric index or the table name, followed by a numeric index for a record inside that detail table. For example, to access the value of the field `prod_id` in the first record of a detail table called `detail`, use: `record.tables["detail"][0].fields["prod_id"]`.

Examples

The following template script evaluates the data field `Country` in the current `record`. If the value is 'CANADA' it will show the `results`, otherwise it will hide them. (The `results` object contains the elements that match the script's selector; see "results" on page 808 and "Writing your own scripts" on page 548.)

PReS. Connect

```
if (record.fields["Country"] == "CANADA") {
        results.show();
} else {
        results.hide();
}
```

In a Control Script, an entire section could be enabled or disabled based on the same condition:

```
if (record.fields["Country"] == "CANADA") {
        merge.template.contexts.PRINT.sections["Section 1"].enabled =
true;
} else {
        merge.template.contexts.PRINT.sections["Section 1"].enabled =
false;
}
```

(For more information about Control Scripts, see "Control Scripts" on page 566.)

The next script looks up a value in the first record in a detail table and shows or hides the results depending on that value.

```
if (record.tables["detail"][0].fields["prod_id"] == "10") {
        results.show;
} else {
        results.hide;
}
```

Note that indexes start counting at 0, so `tables["detail"][0]` refers to the first record in the detail table.

resource()

The `resource()` function returns information about an image resource. It can also be used to check if a file exists.

resource(location, pageNumber)

location

The location should be a URL relative to the template root or an absolute file-based URL (without protocol), e.g. "C:/myfile.pdf".

pageNumber (optional)

PReS. Connect

The desired page. Counting starts at 1. If no page number is given, information about the first page will be retrieved.

The returned object is of the type ImageInfo. It has the following fields:

Field	Type	Description
height	float	**The height of the current page (in points).**
page	Number	Current page number (counting from 1) within the resource.
pages	Number	The total number of pages in the resource.
width	float	The width of the current page (in points)

Examples

This script retrieves the second page of a PDF that is present in the template's resources.

```
var pdf = resource("images/stamp.pdf", 2);
var height = pdf.height;
var width = pdf.width;
var numberOfPages = pdf.pages;
```

In this script, the function is used to check if a file exists.

```
if(resource("C:/paw.pdf")){
        //exists
} else {
        //oops
}
```

results

The `results` object (type: `QueryResults`) is the result of the query for HTML elements that match the selector of the script. The selector of a script can be specified in the Script Editor and is visible in the second column of the Scripts pane, next to the name of the script.

If, for example, a script would have the selector `p.onlyCanada`, the script would apply to all paragraphs that have the class `onlyCanada`. (Classes can be defined in the **Attributes** pane at

the right: select the element in the content and type the class(es) in the **Class** field.)
The script could then use the `results` object to hide or show those paragraphs, depending on the value of the data field `Country` in the current record:

```
if (record.fields["Country"] == "CANADA") {
results.show();
} else {
results.hide();
}
```

> **Note**
>
> This object can't be used in Control Scripts, because they don't have a selector.

Property

Field	Type	Description
length	Number	Number of elements in this result set. Equivalent to calling size().

Functions

The functions below can be called by the `results` object and by any other result set that is returned by a query, see "query()" on page 804.

Function	Description
"Examples" on page 812	Adds elements to a set of HTML elements.
"Examples" on page 813	Adds the specified class to each element in a set of HTML elements. Has no effect if the class is already present.
"Examples" on page 814	Inserts content after each element in a set of HTML elements..

PReS. Connect

Function	Description
"Examples" on page 817	Inserts content at the end of each element in a set of HTML elements.
"Examples" on page 819	Change the given attribute of the element or set of HTML elements with the given value.
" Examples" on page 821	Inserts content before an element or before each element in a set of HTML elements.
"Examples" on page 822	Returns the immediate children of an HTML element.
"Examples" on page 823	Returns a new result set containing a copy of each element in a set of HTML elements.
"Examples" on page 825	For each element in a set, this function gets the first parent element that matches a selector, by testing the element itself and traversing up through its ancestors in the DOM tree.
"Examples" on page 825	Gets the value of a style property for the first element in set of HTML elements or sets one or more CSS properties for every element in a set of HTML elements.
"Example" on page 827	Removes the contents (child elements and inner HTML) from one element or a set of elements in the template.
"Example" on page 828	Returns a subset of the current result set.
"Example" on page 829	Performs a search for a text in the children of each element in a set of HTML elements, and returns a new result set with elements that surround the occurrences.
"Example" on page 829	Returns `true` if the first element in this result set has the specified class.

Function	Description
"hide()" on page 830	Hides the HTML element or set of HTML elements.
"Examples" on page 830	Replaces the inner HTML of the element or of each element in a set of HTML elements with the supplied value, or returns the HTML of the first element if no value is supplied.
is(selector)	Returns true if at least one of the elements in a set of HTML elements matches the supplied CSS selector.
"Creating a table of contents" on page 831	Returns a **marker** that will be replaced with the element's page number after pagination. This only works for elements in the section that is currently being merged.
"Example" on page 832	Returns the parents of the elements in a set of HTML elements.
"Examples" on page 833	Inserts content at the beginning of an HTML element or of each element in a set of HTML elements.
"Examples" on page 835	Removes an HTML element or a set of HTML elements from the document.
"Examples" on page 837	Removes the specified attribute from each element in this result set.
"Examples" on page 837	Removes the specified class from an element or from each element in a set of HTML elements. Has no effect if the class is not present.
"Replace elements with a snippet" on page 838	Replaces an HTML element or a set of HTML elements (with a snippet, for example). Returns the result set.
"show()" on	Shows the HTML element or a set of HTML elements.

Function	Description
page 838	
size()	Gets the number of elements in this result set. Equivalent to the `length` property.
"Example" on page 839	Replaces the text content of an HTML element or of each element in a set of HTML elements with the supplied value, or returns the text content of the first element if no value is supplied.

add()

The add() function allows you to add elements to a set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804).

add(content)

Returns the union of this result or result set and other content.

content

A query result. This can be an HTML string or a result set.

Examples

Add one result set to another

This script adds one query result to another and sets the background color to yellow.

```
query("#test1").add(query("#test2")).css("background", "yellow");
```

Note: the way the functions add() and css() are used in this script is called 'chaining'. Chaining is optional; the same could be achieved by storing the results of the queries in a variable:

```
var myResult = query("#test1");
myResult.add(query("#test2");
myResult.css("background", "yellow");
```


PReS. Connect

Creating an empty result set and adding elements to it

The following script loads snippets in an iteration and adds their elements to an empty result set (using `query()`). Then it replaces a placeholder in the template with the new result.

```
var chapters = query();
for ( var i = 1; i <= 4; i++) {
chapters = chapters.add(loadhtml('snippets/Chapter' + i +
'.html'));
}
results.replaceWith(chapters);
```

Selector	Matched element	Matched element after script execution
#chapters	{{chapters}}	Chapter 1 Lorem ipsum... Chapter 2 Lorem ipsum... Chapter 3 Lorem ipsum... Chapter 4 Lorem ipsum...

addClass()

Adds the specified class(es) to each element in a set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). This has no effect if the class is already present.

addClass(classname)

Adds the specified class(es) to each element in a result set. Has no effect if the class is already present.

classname

String, space separated list of class names.

Examples

This script adds a class name to a paragraph.

PReS. Connect

```
results.addClass("foo");
```

Selector	Matched element	Matched element after script execution
p	Hello world	Hello world

The following script adds two class names to a paragraph.

```
results.addClass("foo bar");
```

Selector	Matched element	Matched element after script execution
p	Hello world	Hello world

after()

Insert content after each element in the set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). See also: " Examples" on page 821.

after(content)

Insert content after each element in the set of HTML elements that match the selector of the script, or of another query in the template (see "query()" on page 804). After creates a new result set.

content

String, HTML string or result set to insert after the matched elements. In case a plain text string is provided, it is automatically wrapped in a element to avoid orphan text nodes to appear in the <body> element.

Examples

This script looks up an element with the ID #salesrep and inserts a paragraph after it.

```
query("#salesrep").after("<p>Lorem ipsum</p>");
```


PReS. Connect

Matched element	Matched element after script execution
Peter Parker	Peter Parker Lorem ipsum

This script looks up an element with the ID #salesrep, sets its text color to red and inserts a paragraph after it.

```
query("#salesrep").after("<p>Lorem ipsum</p>").css("color","red");
```

Matched element	Matched element after script execution
Peter Parker	Peter Parker Lorem ipsum

Note: the way the functions after() and css() are used in this script is called 'chaining'. Chaining is optional; the same could be achieved by storing the result of the query in a variable:

```
var salesrep = query("#salesrep");
salesrep.after("<p>Lorem ipsum</p>");
salesrep.css("color","red");
```

The following script inserts a paragraph after the elements in the `results` (the set of HTML elements that match the selector of the script).

```
results.after("<p>Lorem Ipsum</p>");
```

Matched element	Matched element after script execution
Peter Parker	Peter Parker Lorem ipsum

This script looks for the string "Lorem " in the `results` (the set of HTML elements that match the selector of the script).and inserts the string "ipsum" right after that text. The string is automatically enclosed in a span.

```
results.find("Lorem ").after("ipsum");
```


PReS. Connect

Matched element	Matched element after script execution
Lorem dolor sit amet, consectetur adipiscing elit.	Lorem ipsum dolor sit amet, consectetur adipiscing elit.

This script looks up an element with the ID #salesrep and inserts a string after it. The string is automatically enclosed in a span.

```
query("#salesrep").after("Lorem Ipsum");
```

Matched element	Matched element after script execution
Peter Parker	Peter Parker Lorem Ipsum

append()

Insert content at the end of each element in the set of each element in a set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). See also: "Examples" on page 833.

append(content)

Insert content as the last element to each element in the set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). `Append` creates a new result set.

content

String, HTML string or result set to insert after the elements. In case a plain text string is provided, it is automatically wrapped in a element to avoid orphan text nodes to appear in the <body> element.

Examples

This script appends a paragraph to the `results` (the set of HTML elements that match the selector of the script).

```
results.append("<p>Peter Parker</p>");
```

Selector	Matched element	Matched element after script execution
#box	 Personal information 	 Personal information Peter Parker

This script appends a string to the `results` (the HTML elements that match the selector of the script). The string is added to the end of the matched element(s) and wrapped in a Span element.

```
results.append("Peter Parker");
```

Selector	Matched element	Matched element after script execution
.name	 Personal information Name: 	 Personal information Name: Peter Parker

This script's selector is , so the script appends a paragraph to all Div elements in the template.

```
results.append("<p>Peter Parker</p>");
```

Selector	Matched element	Matched element after script execution
div		

PReS. Connect

Selector	Matched element	Matched element after script execution
	Personal information Personal information 	Personal information Peter Parker Personal information Peter Parker

The following script appends a snippet to a Div element with the ID `box`.

```
var a = loadhtml('snippets/snippet_name.html');
results.append(a);
```

Selector	Matched element	Matched element after script execution
#box	 Personal information 	 Personal information Peter Parker

This script looks for an element with the ID `box` and appends a paragraph to it.

```
query("#box").append("<p>Peter Parker</p>");
```

Matched element	Matched element after script execution
  Personal information 	 Personal information Peter Parker

This script looks for an element with the ID `box`, appends a paragraph to it and colors all text inside the box red.

```
query("#box").append("<p>Peter Parker</p>").css("color","red");
```


PReS. Connect

Matched element	Matched element after script execution
  Personal information 	 Personal information Peter Parker

Note: the way the functions append() and css() are used in this script is called 'chaining'. Chaining is optional; the same could be achieved by storing the result of the query in a variable:

```
var box = query("#box");
box.append("<p>Peter Parker</p>");
box.css("color","red");
```

attr()

Returns the value of the specified attribute of the first element in a result set, or sets the value of the specified attribute of each element in a result set.

attr(attributeName) : String

Returns the value of the specified attribute of the first element in a result set.

attributeName

String; the name of the attribute.

Examples

This script - with the selector `img` - stores the source of the first image in a variable.

```
var src = results.attr("src");
```

The following script looks up an image with the ID #image1 and stores its background color in a variable.

```
var imgURL = query("#image1").attr("src");
```

attr(attributeName, value)

Sets the value of the specified attribute of each element in a result set.

PReS. Connect

attributeName

String; the name of the attribute.

value

String; value for the attribute.

Examples

This script looks up an image in an element with the ID #calloutbox and sets its alternative text to a value from a data field

```
var altText = record.fields.FavHobby;
query("#callout img").attr('alt', altText);
```

The following script sets the background color of a specific table cell in an email to red if the value of the field TOTAL has a negative value in the current record.

```
if(record.fields.TOTAL<0) {
        query("#total").attr("bgcolor","red");
}
```

before()

Insert content before each element in the set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). See also: "Examples" on page 814.

before(content)

Before(content) inserts content before each element in the set of elements that match the script's selector. Before() creates a new result set.

content

String, HTML string or result set to insert after the elements. In case a plain text string is provided, it is automatically wrapped in a element to avoid orphan text nodes to appear in the <body> element.

PReS. Connect

Examples

This script looks for an element with the ID `salesrep`and inserts a paragraph before that element.

```
results.before("<p>Lorem Ipsum</p>");
```

Selector	Matched element	Matched element after script execution
#salesrep	Peter Parker	Lorem ipsum Peter Parker

This script does the same, but it uses the query() function to look up the element.

```
query("#salesrep").before("<p>Lorem ipsum</p>");
```

Matched element	Matched element after script execution
Peter Parker	Lorem ipsum Peter Parker

The following script looks for an element with the ID salesrep, inserts a paragraph before that element and colors that element red.

```
query("#salesrep").before("<p>Lorem ipsum</p>").css("color","red");
```

Matched element	Matched element after script execution
Peter Parker	Lorem ipsum Peter Parker

Note: the way the functions `before()` and `css()` are used in this script is called 'chaining'. Chaining is optional; the same could be achieved by storing the result of the query in a variable:

```
var salesrep = query("#salesrep");
salesrep.before("<p>Lorem ipsum</p>");
salesrep.css("color","red");
```


PReS. Connect

The following script searches the results for the string "ipsum" and puts "Lorem " before it. "Lorem " is automatically wrapped in a Span element.

```
results.find("ipsum").before("Lorem ");
```

Matched element	Matched element after script execution
ipsum dolor sit amet, consectetur adipiscing elit.	Lorem ipsum dolor sit amet, consectetur adipiscing elit.

The following script looks for an element with the ID salesrep and inserts the text "Lorem Ipsum" before that element. "Lorem Ipsum" is automatically wrapped in a Span element.

```
query("#salesrep").before("Lorem Ipsum");
```

Matched element	Matched element after script execution
ipsum dolor sit amet, consectetur adipiscing elit.	Lorem Ipsum Peter Parker

children()

Returns the immediate children (inner HTML) of the elements in a result set.

Examples

This script retrieves the inner HTML of an element selected from a snippet.

```
var snippet = loadhtml('snippets/snippet.html','#foobar').children
();
results.append(snippet);
```

The following script retrieves the inner HTML of the elements and then performs a find/replace.

```
var snippet = loadhtml('snippets/snippet.html','#foobar').children
();
snippet.find('@firstname@').text('foobar');
results.append(snippet);
```


PReS. Connect

clone()

This function returns a new set containing a copy of each element in a set; see "Dynamically adding sections (cloning)" on page 576.

> **Note**
>
> Due to resource constraints, the number of unique clones that can be created throughout a job is limited to around 20. A clone is considered unique if it has a different name. This is a rough estimate; if the template is simple, up to 60 clones may be created.
> The limit only applies to the amount of unique clones. There is no limit to the amount of `clone()` function calls.

To duplicate an existing template element, clone it before calling append(); see "Examples" on page 817.

Examples

This script performs an iteration over the elements in the `results` (the elements that match the selector of the script).

```
var row = query("tbody tr", results).clone();
query("tbody", results).append(row);
```

The following script clones an existing table row to match the number of rows in a detail table. Afterwards it iterates over the rows to populate the fields.

```
// Create the number of rows based on the records in the detail
table
// We start at 1 so the boilerplate row is used too and there is no
need to delete that row
for(var r = 1; r < record.tables['detail'].length; r++) {
results.parent().append(results.clone());
}

// Iterate over the rows and populate them with the data from the
accompanying data row
query("#table_2 > tbody > tr").each(function(i) {
this.find('@ItemNumber@').text( record.tables['detail'][i].fields
["ItemNumber"]);
this.find('@ItemOrdered@').text( record.tables['detail'][i].fields
```


PReS. Connect

```
["ItemOrdered"]);
this.find('@ItemTotal@').text( record.tables['detail'][i].fields
["ItemTotal"]);
this.find('@ItemDesc@').text( record.tables['detail'][i].fields
["ItemDesc"]);
this.find('@nr@').text(i);
});
```

The following script clones and populates a boilerplate row. Once completed you will need to hide the boilerplate row.

```
for(var i = 0; i < record.tables['detail'].length; i++) {

var row = results.clone(); //Clone our boilerplate row

row.find('@ItemNumber@').text( record.tables['detail'][i].fields
["ItemNumber"]);
row.find('@ItemOrdered@').text( record.tables['detail'][i].fields
["ItemOrdered"]);
row.find('@ItemTotal@').text( record.tables['detail'][i].fields
["ItemTotal"]);
row.find('@ItemDesc@').text( record.tables['detail'][i].fields
["ItemDesc"]);
row.find('@nr@').text( i );

results.parent().append(row);
}

// Hide our boilerplate row (note that this doesn't really delete
the row).
results.hide();
```

closest()

For each element in a set, this function gets the first parent element that matches a selector, by testing the element itself and traversing up through its ancestors in the DOM tree. (In HTML, a parent is an element that contains another element.)

To get a child element or all child elements, use `children()` (see "Examples" on page 822).

The `closest()` command is based on the `closest()` command found in the jQuery library: https://api.jquery.com/closest/.

PReS. Connect

closest(selector)

For each element in a set, this function gets the first element that matches the selector by testing the element itself and traversing up through its ancestors in the DOM tree.

selector

A String containing an HTML tag (without the angle brackets, <>).

Examples

The following script looks up all table rows in the template that contain an <input> element.

```
query("input").closest("tr");
```

This code gets the closest 'parent' row for each element that matches the selector of the script (collected in the `results` object):

```
results.closest("tr");
```

The rows could be coloured red within the same statement:

```
results.closest("tr").css('background-color','red');
```

css()

Gets the value of a style property for the first element in the set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804), or sets one or more CSS properties for every element in the set.

css(styleName) : String

Returns the value of the specified CSS property.

propertyName

String; the name of the CSS property.

Examples

This script stores the text color of the `results` (the HTML elements that match the selector of the script) in a variable.

```
var textcolor = results.css("color");
```


PReS. Connect

The following script looks up an element with the ID #calloutbox and stores its background color in a variable.

```
var backgroundcolor = query("#calloutbox").css("background-color");
```

css(styleName, value)

Function to set a CSS property.

propertyName
String; the name of the CSS property.

value
String; value for the CSS property or a map of property-value pairs to set.

Examples

This script looks up an element with the ID #calloutbox and sets its text color to red.

```
query("#callout p").css('color' , 'red');
```

The following script does the same, but it only sets the text color to red if in the current record the value of the field 'accounttype' is 'PRO'.

```
if(record.fields.accounttype == "PRO") {
query("#callout p").css("color","red");
}
```

This script sets the text color of the results to a hexadecimal color code.

```
results.css('color' , '#669900');
```

This script loads a snippet into a variable. Then it finds/replaces text in the snippet and applies a css property to the replacing text.

```
var mysnippet = loadhtml('snippets/snippet vars.html');
mysnippet.find('@var@').text('OL Connect').css('text-
decoration','underline');
results.replaceWith(mysnippet);
```


PReS. Connect

css(properties)

Function to set one or multiple CSS properties.

properties

Array; map of property-value pairs to set.

Examples

This script colors the text of the `results` (the set of HTML elements that match the selector of the script) red and makes it bold.

```
results.css({'color' : 'red', 'font-weight' : 'bold'});
```

empty()

Remove the contents (child elements and inner HTML) from one element or a set of elements in the template.
Use remove() to remove the elements themselves.

Example

This script empties all Span elements found in the template.

```
results.empty();
```

Selector	Paragraph before script execution	Paragraph after script execution
span	Lorem ipsum dolor sit amet, consectetuer adipiscing elit.	Lorem ipsum amet, consectetuer adipiscing elit.

PReS. Connect

filter()

filter(callback)

Returns a subset of a set. All elements for which the callback function returns `true` will be included in the result.

callback

A function used as a test for each element in the set. Filter() passes the iteration index and the current element to the callback function. In the scope of the callback function, `this` refers to the current element.

Example

The selector of the following script is **li** (list item), so the `results` object contains all list items in the template. The scripts filters the third and sixth line items from the `results`, taking advantage of the index that is passed to the filter function, and colors them red. It uses the modulus operator (%) to select every item with an index value that, when divided by 3, has a remainder of 2. (The index starts counting at zero.)

```
results.filter(function(index) {
        return index % 3 === 2;
}).css( "background-color", "red" );
```

filter(selector)

Returns a subset of a set. All elements matching the selector will be included in the result.

The difference between `results.filter(selector)` and `query(selector, results)` is that query() searches throughout the entire `results` while filter() only takes the top-level elements into account.

selector

A String containing a CSS selector. See http://www.w3schools.com/cssref/css_selectors.asp for CSS selectors and combinations of CSS selectors.

Example

The selector of the following script is **tr** (table row), so the object `results` contains all rows in the template. The scripts filters all even rows from the `results` and colors them red.

PReS. Connect

```
results.filter(":nth-child(even)").css("background-color", "red");
```

find()

find(textToFind)

Performs a deep search for textToFind in the children of each element, and returns a new result set with elements that surround the occurrences.

textToFind

A String that contains the search text.

Example

The following piece of code loads a snippet, then looks for placeholders using find(), and replaces them with a text.

```
var mysnippet = loadhtml('snippets/snippet.html');
mysnippet.find('@var1@').text('OL Connect 1');
mysnippet.find('@var2@').html('<i>OL Connect 2</i>').css('text-
decoration','underline');
results.replaceWith(mysnippet);
```

hasClass()

hasClass(classname) : Boolean

Returns true if the first element in this result set has the specified class.

classname

String containing one class name.

Example

This script checks if the first of the `results` (the set of elements matching the selector of the script) has the class 'green'. If so, it colors the text of all the elements in the `results` green.

```
if (results.hasClass('green')) {
        results.css('color', 'green');
}
```


PReS. Connect

hide()

Hides the elements in a set. This doesn't remove the elements; to make them visible again, use the function "show()" on page 838.

These functions are used by the Conditional Script Wizard, as you can see when you open a Conditional Script and click the **Expand** button; see "Showing content conditionally" on page 539.

Example

This script hides or shows the elements matched by the selector of the script (which are stored in the `results` object), depending on the value of the data field `Country` in the current record.

```
if (record.fields["Country"] == "CANADA") {
results.show();
} else {
results.hide();
}
```

html()

html() : String

Returns the inner HTML of the first element in this result set.

html(value)

Replaces the inner HTML of each element in this result set by the supplied value.

value

A String that may contain HTML tags.

Examples

The following script loads part of a snippet based on the value of a field, and then inserts the content into the document using `html()`.

```
var promoTxt = loadhtml('snippets/promo-en.html', '#' +
record.fields['YOGA']);
results.html(promoTxt);
```


PReS. Connect

The following script loads a snippet. Then it looks for a placeholder (@var2@) in the text of that snippet and replaces every found placeholder by the text 'OL Connect 1'. It uses html() so the HTML formatting (and) will indeed be interpreted as HTML. Finally, it places the snippet in the template.

```
var mysnippet = loadhtml('snippets/snippet.html');
mysnippet.find('@var1@').html('<i>OL Connect 1</i>');
results.replaceWith(mysnippet);
```

pageRef()

Returns a **marker** that will be replaced with the element's page number after pagination. This only works for elements in the section that is currently being merged.

Example

Creating a table of contents

The following script creates a table of contents for all level 1 headings (<h1> elements) with the class `title` in one section.

```
var toc = '<ul ID="toc">';
query('h1.title').each(function()
{toc += '<li>' + this.text() + ' <span class="li_toc">' +
this.pageref() + '</span></li>';
});
toc += '</ul>';
results.after(toc);
```

The first line creates a variable for the table of contents, which will be a list (a <ul> element with the ID `toc`). The start tag of the list is added to the variable.
The next line does a query for all level 1 headings (<h1> elements) with the class `title` in the current section. With `each()` the script loops through them. For each of the headings it adds a line item to the list, with the text (`this.text()`) and the page reference of the respective heading.
After the loop, the end tag of the list is added to the variable.
Finally, the script adds the variable - that now contains the table of contents - after the `results`. The `results` object contains the elements that match the selector of the script. So, if the script's selector selects the title of the table of contents, the table of contents will be added after that.

The following style rules, added to the style sheet, will align the chapter titles to the left and the page numbers to the right:

```
#toc li {
text-align:left;
}
#toc span {
float: right;
}
```

Note that these styles use the list's ID, that was defined in the first line of code. For information about style sheets, see "Styling templates with CSS files" on page 486.

parent()

Returns the parents of the elements in a set. (In HTML, a parent is an element that contains another element.)
To get an ancestor that matches a particular selector, use `closest()` (see "Examples" on page 825).

Example

Assume that there are three paragraphs in a Box and that one of those paragraphs matches the selector of this script. The paragraph is stored in the `results` object (see "results" on page 808). The script retrieves the Box (which is the parent of the paragraph) using `results.parent()`, and then changes its background color to red.

```
results.parent().css('background-color' , 'red');
```

prepend()

Insert content at the beginning of each element in the set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). See also: "Examples" on page 817.

prepend(content)

Insert content as the first element to each element in the set of HTML elements that match the selector of the script or of another query in the template (see "query()" on page 804). `Append` creates a new result set.

content

PReS. Connect

HTML string, string or HTML string to insert after the matched elements. In case a plain text string is provided, it is automatically wrapped in a element to avoid orphan text nodes to appear in the <body> element.

Examples

This script inserts a heading as the first element in an element that has the ID `#box`.

```
results.prepend("<h1>Personal information</h1>");
```

Selector	Matched element	Matched element after script execution
#box	 Peter Parker 	 Personal information Peter Parker

This script inserts a heading as the first element in an element that has the class `name`.

```
results.prepend("<b>Name: </b>");
```

Selector	Matched element	Matched element after script execution
.name	 Personal information Peter Parker 	 Personal information Name: Peter Parker

This script inserts content in multiple elements at the same time.

```
results.prepend("<h1>Personal information</h1>");
```

Selector	Matched element	Matched element after script execution
div	 Peter Parker	 Personal information

PReS. Connect

Selector	Matched element	Matched element after script execution
	    Peter Parker 	Peter Parker Personal information Peter Parker

This script prepends a snippet that contains the text "<h1>Personal information</h1>".

```
var a = loadhtml('snippets/snippet.html');
results.prepend(a);
```

Selector	Matched element	Matched element after script execution
div	 Peter Parker 	 Personal information Peter Parker

This script uses the function query() to find a box. Then it inserts a heading as the first element in that box.

```
query("#box").prepend("<h1>Personal information</h1>");
```

Matched element	Matched element after script execution
  Peter Parker 	 Personal information Peter Parker

This script uses the function query() to find a box, prepends a heading and sets the text color of the entire box to red.

PReS. Connect

```
query("#box").prepend("<h1>Personal information</h1>").css
("color","red");
```

Matched element	Matched element after script execution
  Peter Parker 	 Personal information Peter Parker

Note: the way the functions prepend() and css() are used in this script is called 'chaining'. Chaining is optional; the same could be achieved by storing the result of the query in a variable:

```
var box = query("#box");
box.prepend("<p>Peter Parker</p>");
box.css("color","red");
```

remove()

Removes each element in a set from the DOM.

This function returns a new result set containing each removed element. These can be changed and inserted in the document. This could be beneficial in terms of performance, as manipulating elements inside the DOM is relatively time consuming.

Examples

This script removes all Span elements found in the template.

```
results.remove();
```

Selector	Paragraph before script execution	Paragraph after script execution
span	Lorem ipsum dolor sit amet,	Lorem ipsum amet, consectetuer adipiscing elit.

PReS. Connect

Selector	Paragraph before script execution	Paragraph after script execution
	consectetuer adipiscing elit.</p>	

The selector of the following sample script is `tbody`. Before this script runs, the table body consists of a single placeholder row with three cells. After running the script, it contains thirty rows. To improve performance, most of the DOM manipulation takes place on detached elements.

```
// Detach the placeholder row from the DOM
var row = query("tr", results).remove();

// Modify the cells of this row
var cells = row.children();
cells[0].html("some text").css("background-color", "yellow");
cells[1].html("some text").css("font-weight", "bold");
cells[2].html("some text");

// Create a number of copies
var rows = row.clone();
for (var i = 0; i < 30; i++) {
       rows = rows.add(row.clone());
}

// Attach all copies to the DOM as children of tbody
results.append(rows);
```

removeAttr()

Removes the specified HTML attribute from an element or from each element in a set of elements. To add or change an attribute, use `attr()` (see "Examples" on page 819).

removeAttr(attributeName)

attributeName

PReS. Connect

String; the name of the attribute.

Examples

This script looks up an email field in a form (which is an <input> with the ID #email1) and removes its `readonly` attribute.

```
query("#email1").removeAttr('readonly');
```

removeClass()

Removes the specified class from each element in this result set. Has no effect if the class is not present.

removeClass(classname)

classname

String, space separated list of class names.

Examples

This script removes the class name "foo" from all elements in the results that have this class.

```
results.addClass("foo");
```

Selector	Matched element	Matched element after script execution
p	Hello world	Hello world

replaceWith()

Replaces each element in a set of HTML elements.

replaceWith(content)

Replaces each element in a set of HTML elements. Returns the result set.

content

A query result. This can be an HTML string or a result set.

PReS. Connect

Examples

Replace elements with a snippet

The following script loads a snippet and then replaces the elements matched by the script's selector with the snippet.

```
var snippet = loadhtml('snippets/mysnippet.html');
results.replaceWith(snippet);
```

Replace elements with a set of snippets

The following script loads snippets and adds their elements to a new, empty result set (using `query()`). Then it replaces a placeholder in the template with the set of snippets.

```
var chapters = query();
for ( var i = 1; i <= 4; i++) {
chapters = chapters.add(loadhtml('snippets/Chapter' + i +
'.html'));
}
results.replaceWith(chapters);
```

show()

Shows the elements in a set. To hide elements (again), use the function "hide()" on page 830.

These functions are used by the Conditional Script Wizard, as you can see when you open a Conditional Script and click the **Expand** button; see "Showing content conditionally" on page 539.

Example

This script hides or shows the elements matched by the selector of the script (which are stored in the `results` object), depending on the value of the data field `Country` in the current record.

```
if (record.fields["Country"] == "CANADA") {
results.show();
} else {
results.hide();
}
```


PReS. Connect

text()

text() : String

Returns the text content of the first element in a result set.

Example

This script loads a snippet into a variable and retrieves an element from the snippet using query () and text().

```
var mysnippet = loadhtml('snippets/text-root-wrapped.html');
var subject = query("#subject", mysnippet).text();
results.append("<p style='font-weight: bold;'>" + subject +
"</p>");
```

text(value)

Replaces the text content of each element in a result set by the supplied value.

Example

This script loads a snippet, then looks for placeholders using find(), and replaces them using text(value).

```
var mysnippet = loadhtml('snippets/snippet.html');
mysnippet.find('@var1@').text('OL Connect 1');
mysnippet.find('@var2@').html('<i>OL Connect 2</i>').css('text-
decoration','underline');
results.replaceWith(mysnippet);
```

Control Script API

The table below lists the objects that are the most important in Control Scripts. Click through to the object to find a description and sample scripts.
See "Control Scripts" on page 566 for information about this kind of scripts, how to insert them and what you can do with them.

Object	Usage
"section"	Much of the Control Script magic is performed by setting one of the fields of

Object	Usage
on page 844	the `section` object. Via the `section` object you can omit, select and clone sections; add a background to a Print section; add a header to an email; etc. A section can be retrieved via the context that it belongs to, using `merge.template.contexts.ContextType.sections["section name"]`. For example: `merge.template.contexts.PRINT.sections["Section EN"]`.
"context" on page 842	Object that contains one context and its sections. It is accessed through the `template` object: `merge.template.contexts`. To get access to one context, you have to specify the ContextType (see "ContextType" on page 854), for example: `var printContext = merge.template.contexts.PRINT;`. Through the `merge` object you can find out which context is currently being merged: `merge.context`.
"template" on page 851	The `template` object contains all contexts and sections. It is accessed through the `merge` object: `merge.template`.
"merge" on page 843	The `merge` object gives access to the template with all of its contexts and sections .
channel (see "Channel" on page 853)	The channel for which output is generated. This is registered in the `merge` object: `merge.channel`. Note that the channel doesn't change when the output consists of different contexts. When generating email, for example, the channel is EMAIL, even when merging the Print context to attach it to the email.
"record" on page 806	The current record in the main data set. To get the value of a field in the record, use `record.fields['fieldname']` or `record.fields.fieldname`.

Other objects that are available to Control Scripts

The list above isn't exhaustive: most of the objects listed in the Designer API (see "Designer Scripts API" on page 784) are also available in Control Scripts. Not all of those objects can be used in Control Scripts, however. This is because Control Scripts differ from template scripts in two ways:

- Control Scripts don't have a selector, like template scripts do.
  A selector selects parts of the content of a section and stores them in the `results` object, so that they can be modified in the script. As Control Scripts don't have a selector, the `results` object can't be used there. Control Scripts don't touch the content - meaning, the text flow - of the sections.
- Control Scripts run before all other scripts.
  When a template consists of several contexts, and these contexts are combined in the output - for example, when an Email is generated with the Print context as attachment - all scripts run once for each context, but Control Scripts always go first.

automation

This object (of the type: Automation) encapsulates the properties of the PReS Workflow process that triggered the current operation.

> **Note**
>
> This object is only available in a **Web** context.

> **Note**
>
> The `automation` object available in DataMapper scripts is not of the same type. It has different properties.

Properties

The following table lists the properties of the **Automation** object.

Property	Description
jobInfos	Returns an object containing JobInfo 1 to 9 values from PReS Workflow.
Properties	Returns an object containing additional information (file name, process name and task ID) from PReS Workflow.

Accessing automation properties

To access JobInfo 1 to 9 (defined in Workflow):

automation.jobInfos.JobInfo1;

To access ProcessName, OriginalFilename or TaskIndex (defined in Workflow):

automation.properties.OriginalFilename;

Example

Assume that a Workflow process can be triggered when an XML file appears in a certain folder. The XML file contains data that you want to show on a web page.

Add a Set Job Infos and Variables Task to the Workflow process. Define a Job Info (see Set Job Infos), say, %9, and fill it with data from the XML, for example:

```
xmlget('/request[1]/values[1]/first[1]',Value,KeepCase,NoTrim)
```

In Connect Designer, you can use the automation object to retrieve the value in a script, like this:

```
var my_var = automation.jobInfos.JobInfo9;
```

context

In a Control Script, the `context` object represents one context in the template.

Which contexts are available in the template can be queried using `merge.template.contexts`.

The context being merged can be queried using `merge.context`.

Field	Type	Description
sections	Array	Array of sections (see "section" on page 844) inside a particular context defined in the template. **Note**: When using `merge.context.sections` keep in mind that for example 'Section X' might only exist in your Print context, so using `merge.context.sections['Section X']` without enclosing it in the `if` statement `if (merge.context.type == ContextType.PRINT) {}` will yield an error when the script runs for other contexts.

Field	Type	Description
		Alternatively, use the `template` object to access a specific context: `merge.template.contexts.PRINT.sections['Section X']`.
type	ContextType	The context type: PRINT, EMAIL or WEB (see "ContextType" on page 854).

Example

This script checks if the output channel is EMAIL and if the context to be merged is the Print context (which happens if the Print context is attached to an email). If this is the case, it includes and excludes certain Print sections from the output.

```
if (channel == Channel.EMAIL) {
        if (merge.context.type == ContextType.PRINT) {
                merge.context.sections['Section 1'].enabled = false;
                merge.context.sections['Section 2'].enabled = false;
                merge.context.sections['Section 3'].enabled = true;
        }
}
```

merge

In Control Scripts, the root level instance of the object `merge` is the entry point from where you can query and change the way contexts are merged. It gives access to the template with all its contexts and sections.
For sample scripts, follow the links to the respective objects.
For more information about Control Scripts, see "Control Scripts" on page 566 and "Control Script API" on page 839.

Field	Type	Description
channel	"Channel" on page 853	The final output channel: EMAIL, PRINT or WEB. The channel doesn't change when the output consists of different contexts. When generating an email, for example, the channel is EMAIL, even when merging the Print context to attach it to the email.

Field	Type	Description
"context" on page 842	Context	The context rendered by this merge run. If for one record, different contexts need to be output (for example, when the Print context is attached to an email) a record is merged multiple times: once per context. Per merge run, `merge.context` shows with which context the record is merged.
"section" below	Section	In template scripts, this object defines the section that is being merged. **Note!** In Control Scripts, `merge.section` is **only** available when the output channel is WEB. To make sure that it is defined, use the following statement: `if (merge.channel == Channel.WEB && merge.context.type == ContextType.WEB) { ... }`. To retrieve any section in a Control Script, use: `merge.template.contexts.ContextType.Section['Section name'];` (for example: `merge.template.contexts.PRINT.sections["Section EN"]`).
"template" on page 851	Template	This object contains the template and all of its contexts. It can be used to find out which contexts are available in the template, using `merge.template.contexts` (see "context" on page 842) and to manipulate the sections in those contexts (see "section" below).

section

The `section` object can be used to query and modify how the section (and the related context) will be outputted. It is one of the most important objects in Control Scripts (see "Control Scripts" on page 566 and "Control Script API" on page 839).

Retrieving a section

A section can be retrieved using `merge.template.contexts.ContextType.sections["section name"]`, for example: `merge.template.contexts.PRINT.sections["Section EN"]`.

A section can also be retrieved via `merge.context.sections['section name']`. Remember, however, that when several contexts need to be merged (for example, when the Print context is attached to an email), the script needs to check if the current context is of the type that contains the desired section (for example: `if (merge.context.type == ContextType.PRINT) {}`). When sections in different contexts have the same name, it is safer to use `merge.template.contexts.ContextType.sections["section name"]`.

Fields

Field	Type	Description
background	String	**Print sections only.** Used to set a PDF background on a Print section. See "Control Script: Setting a Print section's background" on page 574 and "BackgroundResource" on page 852.
enabled	boolean	Enables or disables this section for output (see "Examples" on page 848). Note that even if a section is disabled, the `part` and `restartPageNumber` fields are still effective to define the parts division and page numbering over multiple sections when applicable. The default enabled state for sections (before any control script runs) is as follows: For **Web** channel requests, the requested web section is enabled by default. It is possible to redirect to another section by disabling the requested section and enabling another section. For **Email** channel requests on the **Web** context, only the default section is enabled by default. It is possible to enable different or multiple sections, to control which sections will be attached to the email. For **Email** channel requests on the **Print** context **all** Print sections are enabled by default. It is possible to enable different or multiple sections to control which sections will be attached to the email. For **Print** channel requests on the **Print** context **all** sections are enabled by default.

Field	Type	Description
headers	String	**Email sections only**. Used to set custom email headers. For examples, see "Adding custom ESP handling instructions" on page 879.
name	String	Used to get or set the name of the section. Note that section names must be unique and that sections cannot have an integer as its name. The name should always include alphanumeric characters. To rename email attachments, use the field `part`.
ownerPassword	String	**Print sections only**. Used to set the owner password for a PDF attachment.* Setting only the owner password creates a secured PDF that can be freely viewed, but cannot be manipulated unless the owner password is provided. (Note that the recipient needs Adobe Acrobat to do this, because the Acrobat Reader does not allow users to enter the owner password.) See "Control Script: Securing PDF attachments" on page 579.
part	String	Name for the part. `part` is used to specify where a new part starts and the title for the part. This is used to split Email attachments. The Email output can, for example, attach 3 PDFs generated from the Print context. The part name will be used as the file name for the attachment. See "Parts: splitting and renaming email attachments" on page 572.
password	String	**Print sections only**. Used to set the user password and owner password for a PDF attachment to the same value. See "Control Script: Securing PDF attachments" on page 579.*
restartPageNumber	boolean	**Print sections only**. Enables or disables a restart of the page numbering. When generating Print output this can be used to let page numbering continue over multiple

Field	Type	Description
		sections. The default value is `false`, meaning that each section will start with page 1 (to emulate behavior of previous versions).

*The password(s) should be set on the first Print section when producing a single attachment, or on the first section of each part when producing multiple attachments. Each of the parts (attachments) may have a different (or no) set of passwords.
Passwords set in the Control Script override the password set through the Email PDF password script (see "Email PDF password" on page 345). This allows you to change or remove the password from a specific part. Removal is done by setting the `password` field to `null` or "" (empty string).

Functions

> **Note**
>
> For cloned sections, functions are not available.

Function	Description
clone()	Clone this section. See "Dynamically adding sections (cloning)" on page 576.
addAfter()	Add a cloned section after this section.
addBefore()	Add a cloned section before this section.

Examples

Conditionally skipping or printing Print sections

This script disables all Print sections and then re-enables one of them, depending on a value in the current record.

```
var printSections = merge.template.contexts.PRINT.sections;
printSections['Section EN'].enabled = false;
printSections['Section FR'].enabled = false;

if(record.fields.Language === 'FR'){
	printSections['Section FR'].enabled = true;
} else {
	printSections['Section EN'].enabled = true;
}
```

Selecting different sections for Print output and Email PDF attachment

This script selects a different Print section for output, depending on the output channel (Email or Print).

```
var printSections = merge.template.contexts.PRINT.sections;

if(merge.channel === Channel.EMAIL){
	printSections['Section 1'].enabled = false;
	printSections['Section 2'].enabled = true;
}

if(merge.channel === Channel.PRINT){
	printSections['Section 1'].enabled = true;
	printSections['Section 2'].enabled = false;
}
```

Setting the name of Email PDF attachments

This script renames the file name of an attachment by setting the part name of a section (see "Parts: splitting and renaming email attachments" on page 572).

```
var section = merge.template.contexts.PRINT.sections['Section 1'];
section.part = 'Invoice ' + record.fields['InvoiceNo'];
```

Controlling multiple Email attachments

The following script attaches the following sections to an email:

- Print section 3 + 4 as attachment with continued page numbers
- Print section 6 as separate attachment (also see "Parts: splitting and renaming email attachments" on page 572)
- Web sections A and B as separate attachment

```
if (channel == Channel.EMAIL) { // only when generating Email
output
if (merge.context.type == ContextType.PRINT) {
        merge.context.sections['Section 1'].enabled = false;
        merge.context.sections['Section 2'].enabled = false;
        merge.context.sections['Section 3'].enabled = true;
        merge.context.sections['Section 3'].part = "PDFAttach1";
        merge.context.sections['Section 4'].enabled = true;
        merge.context.sections['Section 4'].restartPageNumber = false;
        merge.context.sections['Section 5'].enabled = false;
        merge.context.sections['Section 6'].enabled = true;
        merge.context.sections['Section 6'].part = "PDFAttach2";
} else if (merge.context.type == ContextType.WEB) {
        merge.context.sections['default Section'].enabled = false; //
disable whatever is the default section
        merge.context.sections['Section A'].enabled = true;
        merge.context.sections['Section A'].part = "WebPartA";
        merge.context.sections['Section B'].enabled = true;
        merge.context.sections['Section B'].part = "WebPartB";
}
}
```

Note

For another example, see this how-to: Output sections conditionally.

Note

If the Email PDF Password Script Wizard defines a password, and a template has a Control Script that creates multiple PDF attachments, all the attachments are secured by the same password by default. Using a Control Script, you can set set different passwords for attachments; see "Control Script: Securing PDF attachments" on page 579.

PReS. Connect

Positioning the background of a Print section

These scripts both set the background of a Print section to the same PDF, but they position it differently.

Using abolute positioning

```
var activeSection = merge.template.contexts.PRINT.sections['Section
1'];
activeSection.background.source = BackgroundResource.RESOURCE_PDF;
activeSection.background.position = MediaPosition.ABSOLUTE;
activeSection.background.left = "10mm";
activeSection.background.top = "10mm";
activeSection.background.url = "images/somepage.pdf";
```

Scaling to Media size

```
var activeSection = merge.template.contexts.PRINT.sections['Section
1'];
activeSection.background.source = BackgroundResource.RESOURCE_PDF;
activeSection.background.position = MediaPosition.FIT_TO_MEDIA;
activeSection.background.url = "images/somepage.pdf";
```

See also: "BackgroundResource" on page 852, "MediaPosition" on page 855 and "Control Script: Setting a Print section's background" on page 574.

Cloning Print sections

For background information on cloning Print sections, see: "Dynamically adding sections (cloning)" on page 576.

Cloning a section based on the number of records in a detail table

This script creates as many clones of a section as there are records in a detail table. It assigns the new sections a unique name.

```
var printSections = merge.template.contexts.PRINT.sections;
var numClones = record.tables['detail'].length;
for( var i = 0; i < numClones; i++){
       var clone = printSections["Section 1"].clone();
       clone.name = "my_section_clone_" + i;
       printSections["Section 1"].addAfter(clone);
}
```

Cloning a section based on data and assign a background PDF

This script clones a section based on data fields. It disables the source section first and then calls the `addPolicy` function. `addPolicy` clones the section, renames it and sets a PDF from the resources as its background. It explicitly enables the clone and then adds it to the Print context.

```
var printSections = merge.template.contexts.PRINT.sections;
merge.template.contexts.PRINT.sections["Policy"].enabled = false;
if(record.fields.policy_a == 1) {
	addPolicy('a');
}
if(record.fields.policy_b == 1) {
	addPolicy('b');
}
function addPolicy(policy){
	var resourceUrl = 'images/policy-' + policy + '.pdf';
	var clone = printSections["Policy"].clone();
	clone.name = "policy_" + policy;
	clone.background.url = resourceUrl;
	clone.enabled = true;
	printSections["Policy"].addAfter(clone);
}
```

template

The `template` object represents the template with all its contexts and sections. It is used frequently in Control Scripts (see "Control Scripts" on page 566 and "Control Script API" on page 839).

It is retrieved via the merge object: `merge.template` (see "merge" on page 843).

Which contexts are available in the template can be queried using `merge.template.contexts`. To get access to a specific context, you have to specify the ContextType (see "ContextType" on page 854).

Field	Type	Description
contexts	Array	Array of contexts (see "context" on page 842) available in the template. The contexts contain the sections (see "section" on page 844).

PReS. Connect

Field	Type	Description
media	Array	Media available to this template (see "Media" on page 321).
properties	Properties	This object contains all default properties of the template as well as any custom properties. (On the menu, select **File > Properties** to view and complement the file properties. See File Properties).

Example

The following Control Script retrieves two Print sections. Then, depending on a value in the current record, it enables one section or the other, so that only one of the two sections appears in the output.

```
var printSections = merge.template.contexts.PRINT.sections;
printSections['Section EN'].enabled = false;
printSections['Section FR'].enabled = false;

if(record.fields.Language === 'FR'){
	printSections['Section FR'].enabled = true;
} else {
	printSections['Section EN'].enabled = true;
}
```

BackgroundResource

BackgroundResource is an enumeration for the types of background resources for a Print section (see "section" on page 844).

A Print section can be retrieved in script using `merge.template.contexts.ContextType.sections["section name"]`, for example `merge.template.contexts.PRINT.sections["Section EN"]`.

Field	Description
DATAMAPPER_	A PDF file retrieved via the active Data Mapping Configuration. This

Field	Description
PDF	can be the PDF file that was used as input file, or another type of input file, converted to PDF.
NONE	No PDF background.
RESOURCE_ PDF	A PDF file stored in the template or on the network. Note that it isn't possible to use a remotely stored PDF file as a section's background.

Example

The following script sets the background for a section called 'Policy' to `RESOURCE_PDF` and specifies a path for it, using a data value:

```
// Enable the section background and specify that the PDF should be
read
// from a resource file rather than using a PDF DataMapper
background
merge.template.contexts.PRINT.sections['Policy'].background.source
= BackgroundResource.RESOURCE_PDF;

// Specify the path
var resourceUrl = 'images/policy-' + record.fields.policy + '.pdf';
merge.template.contexts.PRINT.sections['Policy'].background.url =
resourceUrl;
```

> **Note**
>
> To learn how to set a PDF file as a background image on a Print section without a Control Script, see "Using a PDF file as background image" on page 307.

Channel

`Channel` is an enumeration for the output channels. The active output channel is registered in `merge.channel`.

The channel doesn't change when the output consists of different contexts. When generating email, for example, the channel is EMAIL, even when merging the Print context to attach it to the email.

Value	Description
EMAIL	The merge request is for output to Email.
PRINT	The merge request is for output to Print.
WEB	The merge request is for output to Web.
THUMBNAIL	The merge request is for generating a template preview.

Example

The following Control Script selects different sections for Print output and for Email with the Print context attached to it.

```
var printSections = merge.template.contexts.PRINT.sections;

if(merge.channel === Channel.EMAIL){
       printSections['Section 1'].enabled = false;
       printSections['Section 2'].enabled = true;
}

if(merge.channel === Channel.PRINT){
       printSections['Section 1'].enabled = true;
       printSections['Section 2'].enabled = false;
}
```

ContextType

ContextType is an enumeration for the context types.

The type of the context that is going to be merged next can be retrieved via `type`: `merge.context.type`.

The context type needs to be specified when retrieving a section with `merge.template.contexts.ContextType.sections["section name"]`, for example `merge.template.contexts.PRINT.sections["Section EN"]`.

Value	Description
HTML_EMAIL	The context is the Email context.
PRINT	The context is the Print context.
WEB	The context is the Web context.

Example

This script retrieves two Print sections. Then, depending on a value in the current record, it enables one section or the other, so that only one of the two sections appears in the output.

```
var printSections = merge.template.contexts.PRINT.sections;
printSections['Section EN'].enabled = false;
printSections['Section FR'].enabled = false;

if(record.fields.Language === 'FR'){
	printSections['Section FR'].enabled = true;
} else {
	printSections['Section EN'].enabled = true;
}
```

MediaPosition

In a Control Script, the `position` is an enumeration for the position of background resources for a Print section. It is retrieved and set via `background.position`.

Field	Description
ABSOLUTE	Places the PDF at a specific location on the page. Set the background's top (`background.top`) and left (`background.left`) measured from the top and left side of the section.

Field	Description
CENTERED	Centers the PDF on the page, vertically and horizontally.
FIT_TO_ MEDIA	Stretches the PDF to fit the page size.

Examples

This script applies **absolute positioning** to the background of a Print section.

```
var activeSection = merge.template.contexts.PRINT.sections['Section
1'];
activeSection.background.source = BackgroundResource.RESOURCE_PDF;
activeSection.background.position = MediaPosition.ABSOLUTE;
activeSection.background.left = "10mm";
activeSection.background.top = "10mm";
activeSection.background.url = "images/somepage.pdf";
```

The next script scales the background of a Print section to the size of the **Media**.

```
var activeSection = merge.template.contexts.PRINT.sections['Section
1'];
activeSection.background.source = BackgroundResource.RESOURCE_PDF;
activeSection.background.position = MediaPosition.FIT_TO_MEDIA;
activeSection.background.url = "images/somepage.pdf";
```

Generating output

When merged with a record set, the templates made in the Designer can generate three types of output: Print, Email and Web.

Print output

Print templates, also called Print *sections*, are part of the Print context. They are meant to be printed to a printer or printer stream, or to a PDF file (see "Generating Print output" on page 860).
The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 874. When generating output from the Print context, each of the Print sections is added to the output document, one after the other in sequence, for each record.

To dynamically select a section for output, use a Control Script; see "Control Scripts" on page 566.

There is a number of settings in the Print context and Print sections that have an impact on how the Print context is printed; see "Print settings in the Print context and sections" on page 302.

To split the Print output into several files, see "Splitting printing into more than one file" on page 865.

Email output

The Email context outputs HTML email with embedded formatting to an email client through the use of an email server. The HTML generated by this context is meant to be compatible with as many clients and as many devices as possible.

Although the Email context can contain multiple Email templates, only one of them can be merged with each record. Which one is used, depends on a setting; see "Email output settings in the Email context and sections" on page 875.

Email Output can be generated in two different ways: from the Designer or via Workflow. In both cases, email is sent in a single batch for the whole record set.

To test a template, you can test the scripts (see "Testing scripts" on page 556) and send a test email first (see "Send Test Email" on page 642), before actually sending the email (see "Generating Email output" on page 874).

Attachments

Output, generated from an Email template, can have the following attachments:

- The contents of the Print context, in the form of a single PDF attachment.
- The output of the Web context, as an integral HTML file.
- Other files, an image or a PDF leaflet for example.

Attaching the Print context and/or the Web context is one of the options in the Send (Test) Email dialog.

To learn how to attach other files, see "Email attachments" on page 346.

Web output

The Web context outputs an HTML web page that contains the HTML text and all the resources necessary to display it.

Web output can be generated in two different ways: it can be attached to an Email template when generating Email output (see above), or it can be generated using Workflow; see "Generating Web output" on page 882.

Although the Web context can contain multiple Web pages, only one of them can be merged with each record. Which one is used, depends on a setting; see "Web output settings in the Web context and sections" on page 885.

Optimizing a template

Scripts

In the process of output generation, the execution of scripts may take up more time than necessary. To optimize a template, it helps to disable scripts that don't have an effect on the context that you're generating output from; see "Managing scripts" on page 553.

Other ways to speed up script execution are described in another topic: "Optimizing scripts" on page 560.

Images

When a template that contains lots of images is merged with a large record set, the many file requests may slow down the process of output generation. The solution is simple: combine the images into a single image file and display the part that holds the image. This reduces the number of file requests and can improve the output speed significantly.

Step 1. Create a file that contains a collection of images.

Static images may go in any type of image file. Store images that need be added dynamically to the template, in one PDF file, one image per page.

There are several tools to combine image files into a singe PDF. **ImageMagick** is one of them. You could use the convert command of the ImageMagick library:

```
convert C:/myimages/*.jpg C:/myimages/image-collection.pdf
```

You could also use **Connect Designer** itself: create a print template with the size of your images and set the page margins to 0. Create a script that loops over your images and adds them to the text flow of the template. Subsequently generate PDF output and use the resulting file as your collection file.

Step 2. Add the file that contains the collection of images to the template's Resources (see "Adding images" on page 473).

Step 3. Display part of the collection file as an image in the template.

- **Static images** that are part of an image file can be displayed via Cascading Style Sheets (CSS). This technique is much used in web design. In this technique, the file that contains a collection of images is called an **image sprite**. The trick is to create a Box (or Div) for each image and give that box an ID (see "Boxes" on page 450). Then use the ID in a style sheet to select the Box and write a style rule (see "Styling templates with CSS files" on page 486) that sets its background image to the image sprite and positions the image. For an explanation and examples of this style rule, see http://www.w3schools.com/css/css_image_sprites.asp.
- **Dynamically added images** are loaded in a script. To retrieve one page from a PDF file

in a script, add the page parameter to the file path and set that as the source of the image. Here is an example (assuming that the page number is stored in a variable `pageNumber`):

```
var imageStr = "";
var imagePath = "file:///C:/image-collection.pdf?page=" +
pageNumber;
imageStr += '<img src="' + imagePath + '">';
results.after(imageStr);
```

Generating Print output

Print output can only be generated from the Designer when a data set is available (see Loading_Data). The Designer merges all sections in the Print context (see Print_Context) with the data set, and generates the output using those data values.

To generate Print output, select File from the menu and choose Print or Proof Print. .

> **Note**
>
> **Proof Print** generates output directly from the Designer, without using the Print Service. A Proof Print run won't impact upon production printing

- **File > Print...** allows the following printing options:
  - Using the **Default** output settings.
    For more details, see "Print Using Standard Print Output Settings" on page 862
  - Using the same settings that were **last used** to produce printed output.
    For more details, see "Print Using Standard Print Output Settings" on page 862
  - Using **entirely new output settings** set via the Advanced option, which allows selection from a myriad of print output options.

    > **Note**
    >
    > These settings cannot be saved for later re-use. To do that, one should instead create printing Presets, which are designed to allow just this behavior.

    For a detailed description see "Print Using Advanced Printer Wizard " on page 863.

- Using previously saved **Printing Preset** options.
  See "Job Creation Presets" on page 754 and Output Creation Presets for more details.

- **File > Proof Print...** allows either the default output settings; the last used output settings or previously saved output Presets.
  For more information on this option see "Print Using Standard Print Output Settings" on the facing page. for more details.

Saving Printing options in Printing Presets.

Selecting **File > Print Presets** allows you to create or modify printing Presets (which contain all the printing options), which can be saved for re-use in later print runs. This can be particularly handy when creating special print runs, that need to be run periodically.

These presets make it possible to do such things as filtering and sorting records, grouping documents and splitting the print jobs into smaller print jobs, as well as the more standard selection of printing options, such as binding, OMR markings and the like.

See "Job Creation Presets" on page 754 and "Output Creation Settings" on page 763 for more details.

Connect Printing options that cannot be changed from within the Printer Wizard.

There are a number of settings for the Print context and Print sections that have an impact on how Print sections are printed, which **cannot** be influenced through either a job creation preset or output creation preset.

These settings are:

- **Duplex printing**. Duplex printing has to be enabled for a Print section, in order to print that section on both sides of the paper. See "Enabling double-sided printing" on page 309.

- **Finishing**. The Print context , as well as each of the Print sections, can have its own **Finishing** settings. In printing, Finishing is the way pages are bound together after they are printed. See "Setting the binding style for the Print context" on page 302 and "Setting the binding style for a Print section" on page 309. Also see "Finishing Options" on page 755 for an explanation of the Finishing options.
- **Bleed**. The margins *around* a page are called the Bleed. It can be used on some printers to ensure that no unprinted edges occur in the final trimmed document. See "Page settings: size, margins and bleed" on page 311.

Print Using Standard Print Output Settings

When using the **File > Print...** option, the Print Configuration dialog appears. This dialog allows you to print the template using **Default** printer settings, or the **Last Used** printer settings or by using previously created Printing Presets.
To learn how to create Printing Presets please see Job Creation Presets and Output Creation Presets.

- **Configuration Selection** Group:
  - **Output Creation**: Use the drop-down to select existing Output Creation Presets. Use the Gear button to edit the currently selected Preset or to reload the list of Presets from the system.
  - **Job Creation**: Use the drop-down to select existing Job Creation Presets. Use the Gear button to edit the currently selected Preset or to reload the list of Presets from the system.
  - **Preset Summary**: Displays a summary of the settings for the currently selected Presets.

> **Note**
>
> The Default output type of PDF Output is actually a built in system Preset, whilst the Last Used settings can likewise be considered an un-named and un-saved Preset.

- **Records** Group:

- **All**: Outputs all records in the active dataset.
- **Selection**: Allows selection of a range of records or a custom selection.
  You can specific individual records separated by semi-colons (;) or ranges using dashes.
  For example: 2;4;6-10 would print pages 2, 4, 6, 7, 8, 9 and 10.
- **Apply filtering and sorting to record selection** checkbox: Check o filter and/or sort records. Selecting this will open both the "Data Filtering Options" on page 757 and "Sorting Options" on page 758 pages.

- **Copies** Group :
  - **Copies**: Enter the number of output copies you want.
  - **Collate**: When printing multiple copies you can check this checkbox to have the record copies printed together.
    For example in a three record job the records would print out as 1-1-2-2-3-3, rather than 1-2-3-1-2-3.

Wizard navigation buttons

- **Advanced** button: Click to open the "Print Using Advanced Printer Wizard " belowwhere you can manually change the printing options.

> **Note**
>
> Any settings made within the **Advanced Print Wizard** do not permanently update any Preset(s) being used.

- **Print** button: Click to produce print output according to the current settings.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Print Using Advanced Printer Wizard

The **Advanced Printer Wizard** allows you to select from any and all output settings.

The Wizard can be used to generate once-off print runs (either entirely from scratch, or based upon selected pre-existing Presets).

Note: These print runs cannot be saved as presets and can only be replicated in the following print run, using the **Last Used** option.

The output settings are determined by selections made throughout the Wizard. For example, if you want to add Inserter Marks to the output, you select the Add Inserter Marks option on the first page of the Wizard, and the Inserter Options page will then appear later in the Wizard.

The first page of the Advanced Printer Wizard is the "Print Options" on page 764 page.

Adding print output models to the Print Wizard

Connect comes with several pre-prepared print output models. These include Advanced Function Presentation (AFP), Intelligent Printer Data Stream (IPDS), Printer Control Language (PCL), Portable Document Format (PDF) and PostScript (including the PostScript variants of PPML, VIPP and VPS).

To keep the Print Wizard interface manageable only a limited range of print output models are available by default. Additional print output models can be added to the list at any time, though. They can be selected from the range of pre-prepared models that come with Connect. The following topic describes how to do this.

After they have been added, the newly selected print output models will be available in the Print Wizard thereafter.

How to add print output models from within the Print Wizard

Here is how to add print output options from within the Print Wizard dialog itself.

1. Select **File > Print...** from the menu. The Print dialog will be launched.
2. Click on the **Advanced** button. The Print Wizard will be launched.
3. Click the settings button at the end of the Model selection.
4. Select **Edit available printers** from options.
5. In the **Preferences** dialog, select the print output models to be added to the Print Wizard, then click OK.

How to add print output models from within the Designer

Here is how to add print output models from within the main Designer interface itself.

1. Select **Window > Preferences...** from the menu. Preference dialog is launched.
2. Select **Print > Available Printers** from the options.
3. In the **Available Printers** area, select the print output options to be added to the Print Wizard, then click OK.

Splitting printing into more than one file

By default, when Connect saves the print output spool file to a directory, it creates one spool file that contains all the generated documents. It is, however, possible to output one spool file per document, or to create groups of documents and store those in separate spool files.

Where the output should go, and how documents should be grouped, is set in a *Job Creation Preset*.

To make one document or a group of documents go into a separate file, the print job needs to be 'separated'. Separation is one of the options to set in an *Output Creation Preset*.

See "Generating Print output" on page 860 for a further explanation about Job Creation Presets and Output Creation Presets.

Variables available in the Output

In the Output Module, there are some variables available that offer more control over how templates are generated, or the data added to them.

Templates can be used in the following locations:

- The **Job Output Mask** field in the Print Options, when using the **Directory** option.
- The Text, Barcodes, OMR and Image data available in the Additional Content Options page.

Available Variables

The following is a list of variables that can be used independently of any job options loaded.

The Template object

${template}

Contains information about the template. The default use of `${template}` expands to a name based on the template name. A four digit sequence number is added at the end of the basename. The file extension is determined by the selected output technology. `${template}` is basically a short hand for `${template.base}_${template.nr,0000}.${template.ext}`

The `0000` in `${template.nr,0000}` is a format pattern that takes care of formatting the number with at least four digits and leading zero's. See "Formatting date and number values " on page 871, below.

Example

If the template file is `C:\Data\My-Invoices-EN.OL-template` which gets printed to PDF, then `${template}` expands to `My-Invoices-EN_0001.pdf`

${template.base}

Returns the base name of the template, which is the name of the template file without its path and without the trailing file extension.

Example

If the template file is C:\Data\My-Invoices-EN.OL-template, then `${template.base}` expands to My-Invoices-EN

${template.name}

Returns the name of the template file without the path.

Example

If the template file is C:\Data\My-Invoices-EN.OL-template, then `${template.name}` expands to My-Invoices-EN.OL-template

Note, that `${template.name}` this still includes the extension of the template file (.OL-template in the example above).

${template.nr}

An automatic sequence number belonging to the current output file. It is automatically incremented for each new output file that gets created.

PReS. Connect

Note, that multiple output files are created, for example, when output separation has been selected for output creation.

It is possible to format the number using a pattern and locale. See "Formatting date and number values " on page 871, below.

${template.ext}

The extension that corresponds to the chosen output technology.

For example, for PDF output, `${template.ext}` would be PDF, for PostScript output, `${template.ext}` would return PS

Note, that `${template.ext}` does not include a leading dot.

The File object

${file}

`${file}` is basically a short hand for `${file.base}_ ${file.nr,0000}.${file.ext}` where `0000` in `${file.nr,0000}` is a format pattern that takes care of formatting the number with at least four digits including leading zero's. See "Formatting date and number values " on page 871, below.

Server context:

On the Server, ${file} expands to a file name based on the job name. A four digit sequence number is added at the end of the basename. The suffix (the extension) is defined by the selected output technology.

Example

If the job name is my-invoices-reprint and is printed to PDF, then `${file}` expands to my-invoices-reprint_0001.pdf

Designer context:

In the Designer, `${file}` returns a generated name based on the current template name. A four digit sequence number is added at the end of the basename. The suffix is defined by the selected output technology.

Example

PReS. Connect

If the template file is `my-invoices.OL-template` and is printed to PostScript, then `${file}` expands to `my-invoices_0001.ps`
The name of the template without dot extension (designer context) or the name of the job without dot extenstion (server context)

${file.base}

Example (Designer context)

If the template file is C:\Data\my-invoices.OL-template, then `${file.base}` returns my-invoices
The extension that corresponds to the chosen output technology.

${file.ext}

For example, for PDF output, `${file.ext}` would be PDF, for PostScript output, `${file.ext}` would return PS

Note, that `${file.ext}` does not include a leading dot.
The name of the template (designer context) or the name of the job (server context)

${file.name}

Example

If the template file is C:\Data\my-invoices.OL-template, then `${file.name}` returns my-invoices.OL-template
An automatic sequence number belonging to the current output file. It is automatically incremented for each new output file that gets created. Note, that multiple output files are created, for example, when output separation has been selected for output creation.

${file.nr}

It is possible to format the number using a pattern and locale. See "Formatting date and number values " on page 871, below.
This variable is intended for internal use only.
It was introduced for use in Printer Definitions for PostScript printers.

${file.pageCount}

Usage of this variable in an Output Preset or in the Print Wizard is discouraged and it should be regarded as deprecated.

The Job object

${job}

`${job}` expands to a name based on the job name. A four digit sequence number is added at the end of the basename. The file

	extension is determined by the selected output technology. `${job}` is basically a short hand for `${job.base}_ ${job.nr,0000}.${job.ext}` The `0000` in `${job.nr,0000}` is a format pattern that takes care of formatting the number with at least four digits including leading zero's. See "Formatting date and number values " on page 871, below. **Example** If the job name My-Invoices-Reprint.XY2016 gets printed to PDF, then `${job}` expands to My-Invoices-Reprint_0001.pdf
${job.base}	Returns the base name of the job without any extension. **Example** If the job name is My-Invoices-Reprint.XY2016, then `${job.base}` expands to My-Invoices-Reprint
${job.name}	Returns the name of the job. **Example** If the job name is My-Invoices-Reprint.XY2016, then `${job.name}` expands to My-Invoices-Reprint.XY2016
${job.nr}	An automatic sequence number belonging to the current output file. It is automatically incremented for each new output file that gets created. Note, that multiple output files are created, for example, when output separation has been selected for output creation. It is possible to format the number using a pattern and locale. See "Formatting date and number values " on page 871, below.
${job.ext}	The extension that corresponds to the chosen output technology. For example, for PDF output, `${job.ext}` would be PDF, for PostScript output, `${job.ext}` would return PS Note, that `${job.ext}` does not include a leading dot.
${job.metadata.	Value of a meta data property of the job.

	The *propertyname* must have been defined as a *Tag Name* on the *Job Tags* tab of the Metadata Options page in the *Advanced Print Wizard*.
propertyname}	Note: this is only available if separation is disabled or if *Separation* based on *Job* has been selected on the Separation page in the *Advanced Print Wizard*.
${job.count.pages}	The total number of pages in the *Job*.

Other available properties

These are various properties available to the Output module that are not part of a larger object:

${system.time}	Displays the current system data and/or time. Can be formatted using the "Formatting date and number values " on the next page, as seen below.
${page.nr}	Page number, within *Document*.
${page.sequence.job}	Page number, within the *Job*.
${page.sequence.segment}	Page index, within the *Job Segment*.
${page.sequence.set}	Page index, within the *Document Set*.
${document.metadata. *propertyname*}	Value of a meta data property of the document. The *propertyname* must have been defined as a *Tag Name* on the *Document Tags* tab of the Metadata Options page in the *Advanced Print Wizard*. Note: this is only available if *Separation* based on *Document* has been selected on the Separation page in the *Advanced Print Wizard*.
${document.sequence.job}	Document index, within the *Job*.
${document.sequence.set}	Document index, within the *Document Set*.
${document.count.pages}	Total pages within the *Document*.
${set.metadata. *propertyname*}	Value of a meta data property of the document set. The *propertyname* must have been defined as a *Tag Name* on the *Document Set Tags* tab of the Metadata Options page in the *Advanced Print Wizard*. Note: this is only available if *Separation* based on *Document Set*

PReS. Connect

	has been selected on the Separation page in the *Advanced Print Wizard*.
${set.count.pages}	Total pages of the *Document Set*.
${set.count.documents}	Number of Documents within the *Document Set*.
${segment.metadata. *propertyname***}**	Value of a meta data property of the job segment. The *propertyname* must have been defined as a *Tag Name* on the *Job Segment Tags* tab of the Metadata Options page in the *Advanced Print Wizard*. Note: this is only available if *Separation* based on *Job Segment* or *Split At Exactly n Sheets* has been selected on the Separation page in the *Advanced Print Wizard*.
${segment.count.pages}	Total pages within *Job Segment*.

Formatting date and number values

Date and number values can be formatted using an optional pattern and/or locale.

Form	Description	Example	Result
${*expression*}	Do not format.	`${system.time}`	July 4, 2009 12:30:55 PM
${*expression,pattern*}	Apply pattern with system locale	`${system.time, yyyyMMdd-HH:mm:ss}`	20090704-12:30:55
${ *expression,pattern,locale* }	Apply pattern with the specified country locale	`${system.time, "dd MMMM yyyy", nl}`	4 juli 2009
${*expression,,locale*}	Apply a default format with the specified country locale	`${system.time,,nl}`	4 juli 2009 12:30:55

It is possible to enclose the values of the pattern and locale in single or double quotes. This is required for including whitespace in a pattern, or when the ${expression} would otherwise be ambiguous.

At run-time, the output engine determines the type of the value yielded by the expression. If this is a number, a number pattern is expected. For date/time-like types, a date pattern is expected.

PReS. Connect

When no pattern is specified, some default format is applied. For other types, it is not possible to specify a pattern or locale.

Generating Fax output

It is possible to generate Fax output from PReS Connect through the use of PDF/VT output. Here are the details on how to implement such a process.

Required Components

The following components are required in order to output to Fax:

- A PReS Image license which includes PReS Fax.
- A Job Preset adding the appropriate metadata fields
- An Output preset generating a PDF/VT file.
- A PReS Workflow process outputting to the PReS Fax task.

Job Preset Configuration

The following metadata fields must be added to the Metadata Options page:

- **FaxNumber**: The phone number where the fax will be sent. Often part of the data.
- **FaxInfo**: The description of the fax in both the PReSFax dialog box and the fax log file.

Output Preset Configuration

The following settings must be used in the Output Preset:

- In the Print Options, a PDF type should be selected, such as Generic PDF.
- In the PDF Options, the PDF Type should be set to PDF/VT

PReS Workflow Process

The following Workflow will produce Fax output:

- The four regular Connect tasks to generate print output:
  - **Execute Data Mapping**
  - **Create Print Content**

- **Create Job** using the above *Job Preset*
- **Create Output** using the above *Output Preset*. The task's **Output Management** must be set to be *Through Workflow*.

- The **PReS Fax** connector task set to Passthrough (the first "Document" on the list).

Generating Tags for Image Output

It is possible, even easy, to generate specific tags and indexes for PReS Image. This can be used to send email, archive with Search or output to image formats.

Required Components

The following components are required in order to output to Image:

- A PReS Imaging license.
- A Job Preset adding the appropriate metadata fields
- An Output preset generating a PDF/VT file.
- A PReS Workflow process outputting to the PReS Image task.

Job Preset Configuration

For email output, the following metadata fields must be added to the Metadata Options page:

- **ImageSendTo**: Add to have PReS Image use the specified field as the E-mail address to which to send the PDF file.
- **ImageSendCc**: Add to have PReS Image use the specified field as the E-mail address to which to send the PDF file as a carbon copy (CC).
- **ImageSendBcc**: Add to have PReS Image use the specified field as the E-mail address to which to send the PDF file as a blind carbon copy (BCC).
- **ImageSubject**: Add to have PReS Image use the specified field as the subject of the email that is sent.
- **ImageBody**: Add to have PReS Image use the specified field as the body of the email that is sent.

Note that the PDF file generated by the Print context is sent as an attachment to the email sent using the information above.

PReS Search Indexing

For PReS Search indexing, you can add your own custom fields. Each field that is not included in the above or in Generating Fax output is added as an index for PReS Search. For example you could add CustomerID and this would appear as the CustomerID index in Search. Yes, it's that easy!

Output Preset Configuration

The following settings must be used in the Output Preset:

- In the Print Options, a PDF type should be selected, such as Generic PDF.
- In the PDF Options, the PDF Type should be set to PDF/VT

PReS Workflow Process

The following Workflow will produce Image output:

- The four regular Connect tasks to generate print output:
  - **Execute Data Mapping**
  - **Create Print Content**
  - **Create Job** using the above *Job Preset*
  - **Create Output** using the above *Output Preset*. The task's **Output Management** must be set to be *Through Workflow*.
- The **PReS Image** connector task set to Passthrough (the first "Document" on the list). If sending Email, choose the "Send Email" option of the Output group. Otherwise, choose Archive Output, ensure the output type is PDF, and optionally fill in the PReS Search Database tab appropriately.

Generating Email output

The Email context outputs HTML email with embedded formatting to an email client through the use of an email server. The HTML generated by this context is meant to be compatible with as many clients and as many devices as possible.

Email Output can be generated in two different ways: from the Designer or via Workflow. In both cases, email is sent in a single batch for the whole record set.

To test a template, you can send a test email first.

Output, generated from an Email template, can have the following attachments:

- The contents of the Print context, in the form of a single PDF attachment.
- The output of the Web context, as an integral HTML file.
- Other files, an image or a PDF leaflet for example.

Attaching the Print context and/or the Web context is one of the options in the Send (Test) Email dialog.

To learn how to attach other files, see "Email attachments" on page 346.

Before generating Email output

- Decide on the use of an Email Service Provider; see "Using an ESP with PReS Connect" on page 878.
- Make sure that a data set is loaded, that any necessary files, such as images and attachments, are in place, and that the correct settings are selected (see below).
- You may want to **rasterize** certain elements, such as elements, business graphics, or headings with a special font type. Rasterizing converts the element to a JPG or PNG image. This is very useful to support as many clients as possible. For example, some email clients may not support SVG, so converting a resource to JPG instead would ensure that most email clients would actually see the output.
  To rasterize an element, right-click it and select **Rasterize options**. For a JPG image you can set the quality of the resulting image in a percentage.

Email output settings in the Email context and sections

The following settings for the Email context and Email sections have an impact on how the actual emails are sent.

- An Email To Script must be available in the template and refer to a valid email address; see "Email header settings" on page 339. If any record does not have a valid email, this record is skipped automatically when generating email output.

Note

When you send a test email, the Email To Script will not be used; instead, the email will be sent to the address that you specify in the Send Test Email dialog.

- The sender(s), recipient(s) and the subject can be set using Script Wizards; see "Email header settings" on page 339.
- Default SMTP settings can be set in the preferences; see "Email header settings" on page 339.
- If there are multiple Email sections, only one of them can be merged with each record. Make sure that the correct section has been set as the default; see "Setting a default Email template for output" on page 339.
  To dynamically select a section for output, use a Control Script; see "Control Scripts" on page 566.
- PDF attachments can be compressed to make the files smaller; see "Compressing PDF attachments" on page 336.

Generating Email output from Connect Designer

To generate Email output from the Designer:

1. Open a template with an Email context.
2. Load a data file or database compatible with this template, or open a Data Mapping Configuration. See "Loading data" on page 520.
   If you have an open Data Mapping Configuration and open another data file, the current Data Mapping Configuration will try to retrieve data from the file or database using its own Data Model and extraction logic.

Note

When generating output with just an open Data Mapping Configuration, the template is merged with the complete sample data file that is part of the Data Mapping Configuration. The output is **not** limited to the number of records shown in the Data Model pane (which is one of the settings in the DataMapper).

3. On the **File** menu, click **Send Email** or **Send Test Email**. In the dialog that appears you can, among other things, attach the Print context or the Web context to the email. See "Send Email" on page 641 or "Send Test Email" on page 642 for a description of all the options. Finally, click OK.

> **Note**
>
> About testing emails
>
> When you send a test email, the Email To Script will not be used; instead, the email will be sent to the address that you specify in the Send Test Email dialog. If you have a Litmus account, you can enter your Litmus test address. To make the test address appear by default, you can set the default test address in the Email Preferences: select **Window > Preferences**, click the arrow next to **Email**, click **General** and type the test address next to **Email Test address**.
>
> For a description of how to test your email for different email clients, see this how-to: Test your emails with Litmus. For more information on Litmus, please see http://litmus.com/

> **Tip**
>
> For a detailed description of how to use Mandrill with Connect to send and track emails, see the following how-to: Using Mandrill.

Generating Email output from Workflow

1. Open a template with an Email context.
2. Send the template to PReS Workflow; see "Sending files to Workflow" on page 278.
3. Create a process in PReS Workflow containing at least the following steps:
   - Any input that will capture a job file that is compatible with the data mapping configuration that is used.
   - An Execute Data Mapping task to generate a valid record set (see Workflow Help: Execute DataMapping Task).
   - A Create Email Content task with the appropriate settings (see Workflow Help: Create Email Content).

Using an ESP with PReS Connect

An email service provider (ESP) is a company that offers email marketing or bulk email services.

This topic explains why and how to use an ESP with PReS Connect

Reasons to use an ESP

These are a number of reasons why you would need an ESP:

- ESPs ensure a high deliverability, as most ESPs are whitelisted or approved by ISPs (Internet Service Providers) as legitimate email delivery service. So they help you to avoid having mail detected as spam.
- ESPs provide comprehensive tracking options to measure open rates and they log which links were clicked and by who. Typically this information is available via an online dashboard.
- Most ESPs provide Bounce Management options. They will stop sending messages to addresses that return a hard bounce and retry for soft bounces before removing that address.
- EPSs can handle unsubscribes and prevent accidental sends in the future.

Choosing an ESP

The first thing to do to use an ESP with PReS Connect is to choose an ESP and create an account.

Mandrillapp.com, a popular ESP, used to have a free account but now requires a paid MailChimp account. Luckily there are plenty of alternatives that provide free accounts (often capped to a max number of emails per month and sometimes having throttled output).

PReS Connect has been tested with: Mandrillap.com, SendGrid (easy user management), MailGun (nearly instant statistics) and MailJet (shows best performance on the free account).

Adding an SMTP Preset for an ESP

After creating an account, add a SMTP settings preset in PReS Connect for the chosen ESP, via the Preferences dialog of the Designer (see "Email SMTP settings" on page 341).

Make sure **Use authentication** is checked, and put in your SMTP Username in the box below.

Note

Presets for different ESPs are already available in the list of default presets.

Sending an email with an ESP

To send an email or test email with the use of an ESP, start generating the email as usual (see "Generating Email output" on page 874). In the Send (Test) Email dialog, pay attention to the following settings:

- In the **Outgoing mail settings** area, select the preset for your ESP in the Presets drop-down.
- In the **Password** box, type the password provided by the ESP.

Note

The ESP might also have a test function you can use. Check the options of your ESP.

Tip

For a detailed description of how to use Mandrill to send and track emails, see the following how-to: Using Mandrill.

Adding custom ESP handling instructions

Most ESPs allow you to provide custom handling instructions as part of the email message, via custom headers. Typically these include instructions to enable open rate tracking, click through rate tracking and assign tags/categories to messages. Assigning a tag/category allows you to view statistics per email type in the dashboard of the ESP. Note that each ESP has its own notation and instructions.

In a Connect template, adding these custom headers is handled through a Control Script (see "Control Scripts" on page 566, "Control Script API" on page 839 and "section" on page 844). The following samples show how to assign a tag or category to a message (e.g. ‘invoice’, ‘confirmation’, ’newsletter-jan-2017’) for various ESPs.

SendGrid

Dashboard: https://app.sendgrid.com/

Documentation: https://sendgrid.com/docs/API_Reference/SMTP_API/using_the_smtp_api.html

Sample Control Script to assign a category:

```
var headerObj = {
        "category": ["invoices"]
};
merge.context.sections["Content"].headers = {
        "X-SMTPAPI": JSON.stringify(headerObj)
};
```

Note

Sendgrid strips out their mail headers. The results need to be verified via their Dashboards (e.g. the Stats section lets you verify the stats for specific categories). Alternatively one can use their Web API to retrieve stats in JSON format. To view the category stats, log in to Sendgrid and choose: Stats > Category Stats > your category name.

PReS. Connect

MailGun

Dashboard: https://mailgun.com/cp/stats

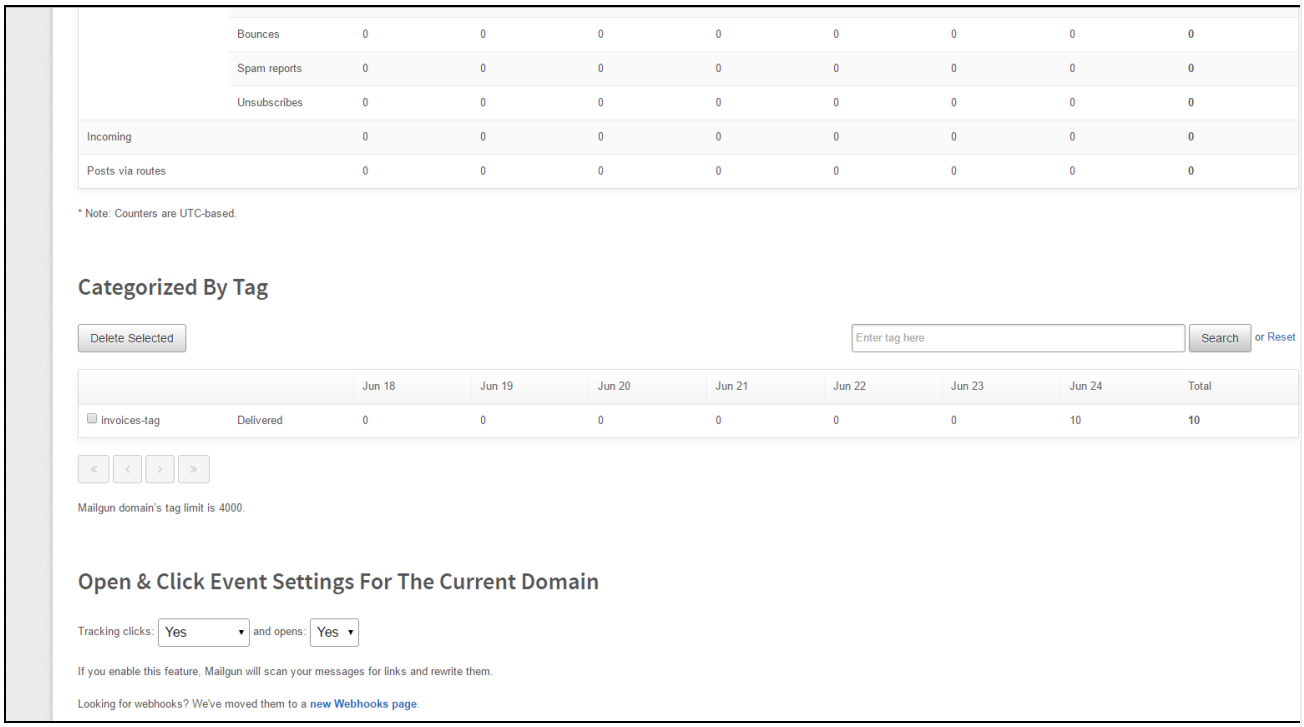
Documentation: https://documentation.mailgun.com/api-sending.html#sending

Sample Control Script to assign a tag:

```
merge.context.sections["Content"].headers = {
        "X-Mailgun-Tag": "invoices"
};
```

Note

The Mailgun tag allows you to view the stats per tag. Mailgun has a quick refresh and stats are available almost instantly.



MailJet

Dashboard: https://app.mailjet.com/dashboard

PReS. Connect

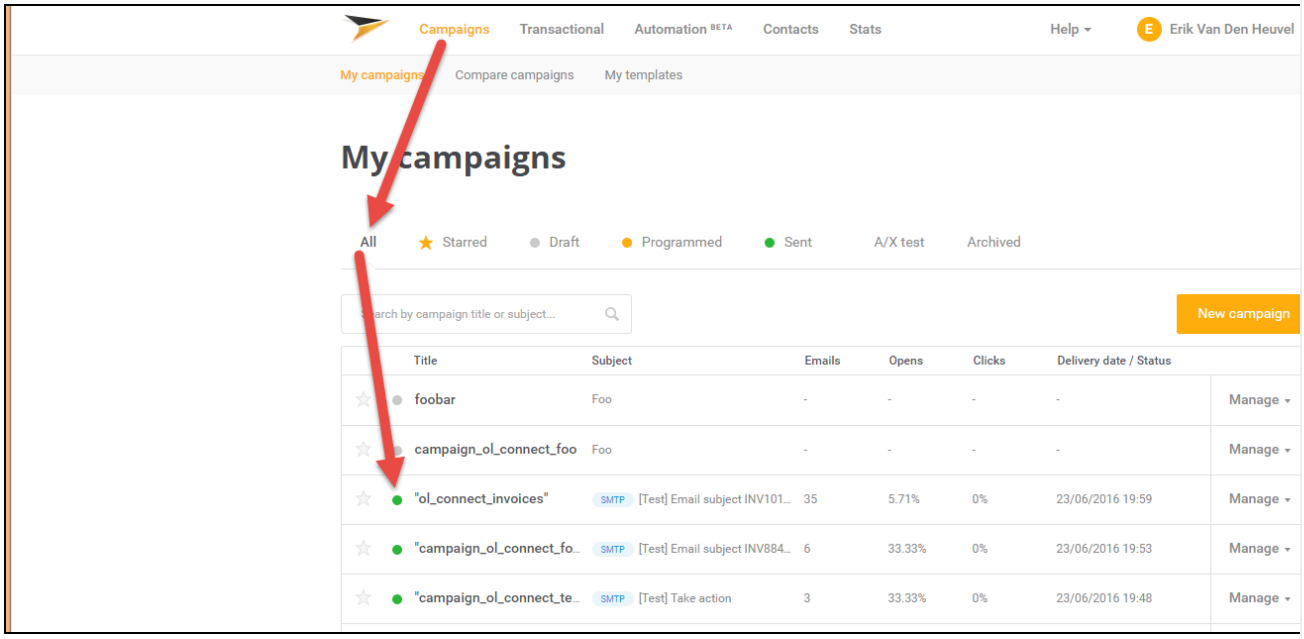
Documentation: https://app.mailjet.com/docs/emails_headers

Sample Control Script to assign a campaign:

```
merge.context.sections["Content"].headers = {
        "X-Mailjet-Campaign": "invoices"
};
```

Note

Mailjet strips out their own mailheaders like X-Mailjet-Campaign. The results can only be verified via the respective campaign stats page in the Mailjet dashboard. There is no need to pre-create the campaign: adding it to the email header via a Control Script auto-generates the campaign. To view the campaign, login to Mailjet and choose: Campaigns > All.



Generating Web output

The Web context outputs one HTML web page that contains the HTML text and all the resources necessary to display it. JavaScript files are added to the <head> in the generated HTML file. They are useful to add special features such as those offered by jQuery and its

PReS. Connect

plugins, or MooTools. Style sheets are also added to the <head> and are used just as they would be used in a regular web page.

Web output can be generated in two different ways: it can be attached to an Email template when generating Email output, or it can be generated using Workflow.

Web output can be generated from the Designer when a data set is available. The data can be retrieved from a database or data file, or from a Data Mapping Configuration.

If you have an open Data Mapping Configuration and open another data file, the current Data Mapping Configuration will try to retrieve data from the file or database using its own Data Model and extraction logic.

> **Note**
>
> When generating output with just an open Data Mapping Configuration, the template is merged with the complete sample data file that is part of the Data Mapping Configuration. The output is **not** limited to the number of records shown in the Data Model pane (which is one of the settings in the DataMapper).

Before generating Web output

Before actually generating the Web output, you may want to **rasterize** certain elements, such as elements, business graphics, or headings with a special font type. Rasterizing converts the element to a JPG or PNG image. This is very useful to support as many clients as possible. For example, when a heading uses a font type that is not a Web font, converting the heading to JPG instead would ensure that the heading looks the same in all browsers.
To rasterize an element, right-click it and select **Rasterize options**. For a JPG image you can set the quality of the resulting image in a percentage.

Attaching Web output to an Email template

To attach the Web context to Email output:

1. Open a template with a Web context and an Email context.
2. Check the output settings for both contexts; see "Email output settings in the Email context and sections" on page 875 and "Web output settings in the Web context and sections" on page 885.

> **Note**
>
> When adding the Web context to an email, only the default Web section is generated and added to the email as an HTML file. To attach multiple Web sections as separate attachments, you need to create a Control Script that specifies **parts**; see "Control Scripts" on page 566 and "Control Script API" on page 839.

3. Load a data file or database compatible with this template. See "Loading data" on page 520.
4. On the **File** menu, click **Send Email** or **Send Test Email**. In the dialog that appears, check the option to attach the Web context to the email. See "Send Email" on page 641 or "Send Test Email" on page 642 for a description of all options.

> **Note**
>
> When you send a test email, the Email To Script will not be used; instead, the email will be sent to the address that you specify in the Send Test Email dialog.

5. Fill in the dialog and send the emails.

Generating Web output from Workflow

1. Open a template with a Web context.
2. Send it to Workflow using the Package Files dialog; see "Sending files to Workflow" on page 278.
3. Create a process in Workflow containing at least the following steps:
   - Any input that will capture a job file that is compatible with the Data Mapping Configuration that is used. To capture incoming web requests, such as from a personalized URL (see "Personalized URL" on page 547), use a HTTP Server Input task (see Workflow Help: HTTP Server Input).
   - An Execute Data Mapping task to generate a valid record set (see Workflow Help: Execute DataMapping Task).
   - A Create Web Content task with the appropriate settings, to generate the HTML output (see Workflow Help: Create Web Content).

Web output settings in the Web context and sections

There are a few settings for the Web context and Web sections that have an impact on the actual web page that is generated.

These settings are:

- Which Web section is the 'default'; see "Setting a default Web page for output" on page 356. When generating Web output, if there are multiple Web sections, only one of them can be merged with each record.
- The title, shortcut icon and meta tags appearing in the web page's header. See "Setting the title, meta data and a shortcut icon" on page 357

PReS. Connect

Print Manager

The **Print Manager** provides a means of managing print jobs in a print production environment. It provides the ability to queue jobs, to set hot-folders to allow jobs to run the instant they arrive in a live hot-folder, to re-print jobs, to preview job output, to halt job printing, to organise or re-organise the sequence of production printing, to monitor the current state of printers, to restart paused printers, and such like.

It *must* be used when generating output for IPDS printers, but can also be used in conjunction with PCL and PostScript outputs.

IPDS printing requires a *print stream* and PReS Connect only produce *files*, thus the intermediary **Print Manager** is *required* to bridge the communication divide to IPDS printers. The **Print Manager** feeds IPDS output directly to the printer as a print stream, rather than as a file.

Neither PCL nor PostScript printers require a *print stream*, so both those output types can be sent directly to a printer from within Connect. However, you could opt to generate spool files from Connect, and then use the **Print Manager** application to provide extra print management functionality, such as organizing job priorities, printer queues and job reprints.

Print Manager Introduction Video

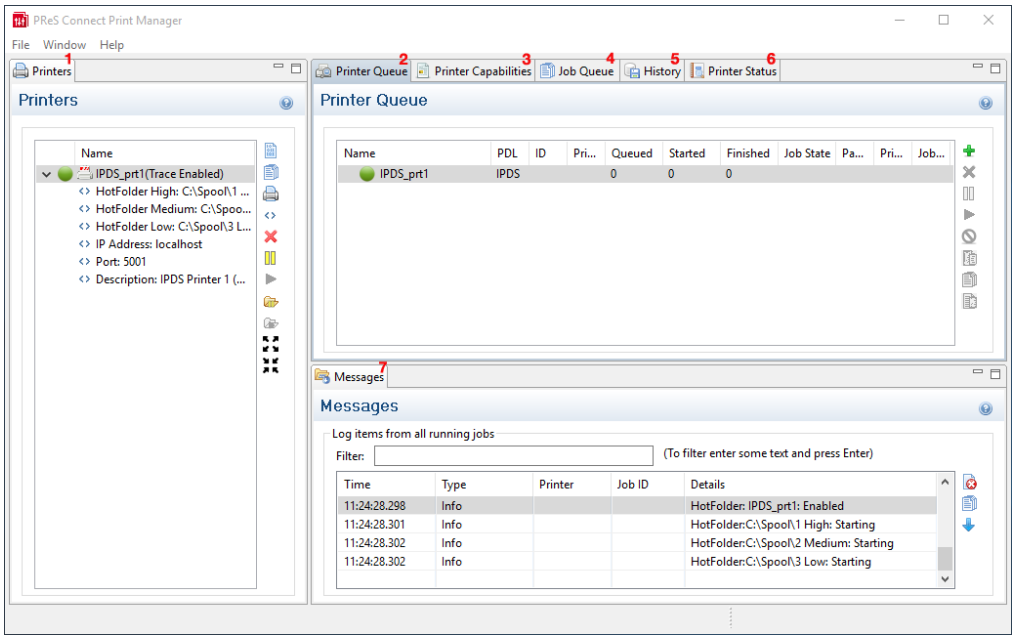
Print Manager usage

For a full description of how to use **Print Manager**, see the "Print Manager Interface" on the next page

Print Manager Interface

The Connect Print Manager Interface is broken up into multiple tabs. These can be re-organised and moved around and re-sized as desired.

The Print Manager initially appear as in the following image (and can be re-set to this view at any time, via the **Windows > Reset Perspective** menu option):



1. "Printers pane" on the facing page
2. "Printer Queue pane" on page 892
3. "Printer Capabilities pane" on page 895
4. "Job Queue pane" on page 895
5. "Job History pane" on page 897
6. "Printer Status pane" on page 899
7. "Messages pane" on page 900

Menu options

- **Windows > Preferences ...**: A variety of Print Manager settings can be changed through this menu option. Information about the available preferences can be found here: "Print Manager Preferences" on page 900.
- **Windows > Reset Perspective**: Reset the Print Manager perspective. This returns all the Print Manager panes (which can be moved around or re-sized as desired) to their original default positions and sizes.

Printers pane

The Printers pane displays a list of printers that have been added to the Print Manager.

The following information (all editable via the "Printer Settings Dialog" on the next page) is displayed for each printer:

- **Printer Name**: Displays the name of the printer.
  The background color and the icon to the left of the printer indicates the current status of the queue. The two options are:
  - **Green**: The queue is active and any job sent to it is immediately streamed to the printer.
  - **Yellow**: The queue is paused and jobs will wait before being streamed to the printer.
  - **Red**: The printer is stopped due to a physical error (such as running out of toner) on the printer.
- **Hot Folders**: Displays the paths of any hot folders.
- **IP Address**: Displays either the IP Address or machine name of the IPDS printer.
- **Port (IPDS Only)**: Displays the port the printer communicates on.
- **LPR (PCL and PostScript Only)**: Displays the printing file type.
- **Description**: Displays printer description.

To the right of the printer list, the following controls are available, as well as in right-mouse click context menus:

- **Add job to selected printer**: Click to load an file directly and add it to the printer queue.

- **Add job with Page Range**: Click to load an file directly and add it to the printer queue while specifying the page range to print.
- **Add Printer**: Click to add a new printer using the "Printer Settings Dialog" below.
- **Edit Printer**: Click to edit the currently selected printer using the "Printer Settings Dialog" below.
- **Delete**: Click to delete the currently selected printer.
- **Pause**: Click to pause the currently selected printer's queue, which prevents any new jobs from being printed.
- **Resume**: Click to resume the currently selected printer's queue. Any job within the queue will start being printed.
- **Pause HotFolder**: Click to pause the hot folder for the currently selected printer. This does not prevent jobs in the printer queue from generating output - only new jobs will stop being captured in the Hot Folder. This button is only activated when the Hot Folder is currently active.
- **Resume HotFolder**: Click to resume capturing new jobs in the Hot Folder for the currently selected printer. This button is only activated when the Hot Folder is paused.
- **Expand**: Click to expand the current printer details within the Printer pane, if not already expanded.
- **Collapse**: Click to hide the current printer details within the Printer pane, if they were currently expanded.

Printer Settings Dialog

This dialog allows you to add printers to the Print Manager, or to modify settings for those already available. The settings differ between printer types, with IPDS printers having more options than the others.

Each logical grouping of printer setting appears in their own subsection in the dialog. These can be folded up or down (to make them visible, or hidden) by clicking on the blue title bar atop every subsection.

Once the settings are complete, press the Finish button to apply the new settings.

In the case of **Add Printer**, this adds the newly entered printer to the Print Manager and automatically makes it available in the "Job Queue pane" on page 895.

If modifying an existing printer (via **Edit Printer** option) the printer settings are then updated

throughout the Print Manager.

To test the printer settings, one can run **Check Printer Capabilities** in the "Printer Capabilities pane" on page 895.

The printer options that can be set include:

- **Printer Details**:
  - **Enable Printer**: Check to enable the printer settings.
    - **Printer Type**: Select the type of printer to add, from the drop down list.
    - **Name**: Enter a name that describes the printer in the list.
    - **IP Address**: Enter the IP Address or machine name of the printer.
    - **Port (IPDS Only)**: Enter the port on which the printer communicates.
    - **LPR (PCL and PostScript Only)**: Enter the printer queue.

      > **Tip**
      >
      > RAW will work as a generic queue option for most PCL and PostScript printers.
      >
      > Those PCL and PostScript printers that support multiple queues can have multiple entries in the Print Manager. One for each Queue.

    - **Hot Folder** subsection: Defines folders from which print output files are *automatically* captured and sent to the appropriate printer queue.
      - **Enable Hot Folders**: Check to enable hot folders. Then enter the folders from which the Print Manager will capture print files automatically and send them to the appropriate Priority queue on the printer. There are **High**, **Medium** and **Low** priority queues available and each can be set here.
    - **Extended Options (IPDS only)** subsection: Defines logging of printer activities.

PReS. Connect

- **Ack Pages:** The number of pages to send to the printer for printing before sending an acknowledgement request.
  Acknowledgement requests slow the printing process down, as the printer needs to process the request and return the information.
  The default Ack Pages number is 100 pages which means the Print Manager will send an acknowledgement request to the printer in 100 page increments until the end of the job. Given the overhead in processing such requests, the smaller the Page number, the slower the printing becomes.
- **Create Trace File:** Select this to log all communications to a log file. This log file will appear in the same folder as the Spool file.
- **SNMP:** Select this option to allow IPDS printer(s) and Print Manager to communicate back and forth.
  This option is enabled by default, as it provides the greatest functionality.

  > **Note**
  >
  > Not all IPDS printers will support SNMP, but most contemporary printers are likely to.

- **End of Job Preferences (IPDS only)** subsection: Select from these options to determine job end processing.
  - **Edge Marks:** Select this to add an Edge Mark to the final page of a job. Used to indicate job separation in Continuous Form printing.
  - **Stack Receive Pages:** Add blank pages to the end of the job in order to push the completed job to the stacker.
- **Error Handling Preferences (IPDS only)** subsection: Select these to **STOP** printing upon encountering the following errors:
  - **Undefined Character Check:** If an undefined character is encountered in the job. For example, the Euro symbol might be present in the job, but missing from the printer.

- **Report Page Position Check:** When printed beyond the edge of the page boundaries. For example, an image that extends beyond the edge of the page.
- **Handle Errors:** Stops on all other optional errors.

- **Description** subsection: An optional printer description can be entered here, if desired.

- **Finish** button: Click to apply the selected settings to the printer. This applies to both new printers, plus updated existing printers.
- **Cancel** button: Click to cancel the selection of printer settings. This exits the dialog, without any changes being made.

Printer Queue pane

The Printer Queue pane displays all the printers available for printing (as set through the "Printers pane" on page 888), their status and the job queues associated with each printer. This pane allows you to add or remove print jobs to the printer's queue; to pause printing (at either the individual job, or entire printer job queue level); to reprint jobs: to print selected page ranges and such like.

This pane would be the main screen used by print operators to control production printing.

It has the following options:

- **Printer Queue** table. This displays the information about printers (which can be added or removed via the "Printers pane" on page 888) and their associated queues. The fields are:
  - **Name**: Displays the name of the printer and underneath it, the names of all print jobs currently residing the printer's job queue.
  - **PDL**: Displays the type of printer language.
  - **ID**: The generated ID for the job. The first 2 letters of the ID indicate the origin of that job:
    - **HF**: Hot Folder capture.
    - **DR**: Dragged and dropped directly into the Print Manager.
    - **BR**: Added via a Browse button.
    - **RS**: Resubmitted to the printer.

- **Priority**: Displays the priority with which the job is to be printed: Low, Medium or High.
- **Queued**: Displays the number of jobs queued to the printer (at the printer level) and the time the job was added to the printer queue (at the individual print job level).
- **Started**: Displays the total number of jobs that were started on this printer (at the printer level) and the time an individual job started printing (at the individual print job level).
  Please note, at the moment there is no way to re-set the Pinter level Start total value. This will be added in a later version.
- **Finished**: Displays the total number of jobs that have finished on this printer (at the printer level) and the time an individual job finished printing (at the individual print job level).
  Please note, at the moment there is no way to re-set the Pinter level Finish total value. This will be added in a later version.
- **Job State**: Displays the individual print job status. These could be Queued, Finished, Started, etc.
- **Page Range**: Displays the range of pages to be printed. The default is to print the entire page range, but this can be cut down to a specific sub-set of pages via the **Resubmit Range of Pages** option.
- **Printed Pages**: Displays the current number of printed pages in the current job, or the total number of pages printed on the printer.
- **Job Pages**: Displays the total number of pages in the job.

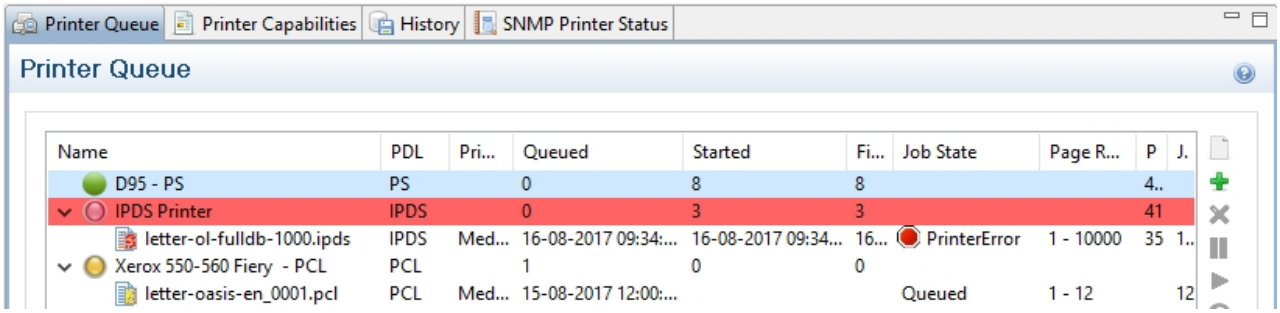
To the right of the table and also via right-mouse click context menu within the table, the following options are available:

> **Note**
>
> The options will only be made selectable when they are actually currently available. If an option is not available to the current selection or setting, it will not be accessible.

- **Preview** button / context menu option: This launches a "Printer Queue pane" on the previous page that displays what the print job looks like.
- **Add Job** button / context menu option: Click to add a new job to the selected printer in the list.

PReS. Connect

- **Remove Job** button / context menu option: Click to delete the currently selected job.
- **Pause Job** button / context menu option: Click to temporarily pause the current job on the printer queue.
- **Resume Job** button / context menu option: Click to resume a job that has been paused.
- **Cancel Job** button / context menu option: Click to cancel a currently active job.
- **Resubmit Job** button / context menu option: Click to restart a job from the beginning.
- **Resubmit Range of Pages** button / context menu option: Click to resubmit a selection of pages.
- **Re-assign to Job Queue** button / context menu option: Takes the job out of the Printer Queue and places it back in the generic Job Queue.
  This option is only available when the print Job has yet to be processed. Either when the Printer is in a paused state, or if the Printer is active but has not yet processing this Job in the Printer Queue.
- **Pause Printer** button / context menu option: Click to pause an active printer. This sets the printer status button to yellow.
- **Resume Printer** button / context menu option: Click to start a printer which has been paused. This sets the printer status button to green.
- **Re-Start Printer** button / context menu option: Click to re-start a printer which has been stopped. Printers are stopped when they encounter hard errors that physically disable them.
  The IPDS printer entry in the following image shows how a printer stopped state is represented within Print Manager:



  Once the printer has been physically re-started, then it can be logically re-started here in the Print Manager, using this **Re-Start Printer** option.
- **Remove Finished Jobs** button / context menu option: Click to remove finished jobs from the Printer Queue display, making the visual monitoring of active and scheduled jobs easier.

- **Refresh Printer** button / context menu option: Click to refresh the connection to a printer. Handy when the communication between printer and Print Manager has encountered issues..

Printer Capabilities pane

The Printer Capabilities pane displays the technical capabilities of any printer that has been added to the "Printers pane" on page 888.

- **Filter**: Type in a filter for a specific capability name and press Enter to filter the results below.
  To clear the filter, delete the contents of Filter edit box, and press Enter.
- **Name**: Displays the list of printers and their capabilities. By default, capabilities are not displayed for performance reason. To display the capabilities, right-click on the printer and select **"Check Printer Capabilities"** or click on the button on the right.

> **Note**
>
> Requesting a printer's capabilities can take some time, and not all printers will support it.
>
> For PostScript and PCL printers you should first set up monitoring of the printer, in the "Printer Status pane" on page 899.

  - **Capabilities**: Each printer capability is listed under the Printer, in separate divisions. Capabilities are read directly from the printer.
  - **Export Printer Capabilities**: Export the printer capabilities to JSON file. This contains all the relevant printer capabilities, in a text file format.
  - / **Expand / Collapse**: Expand or contract the printer details.

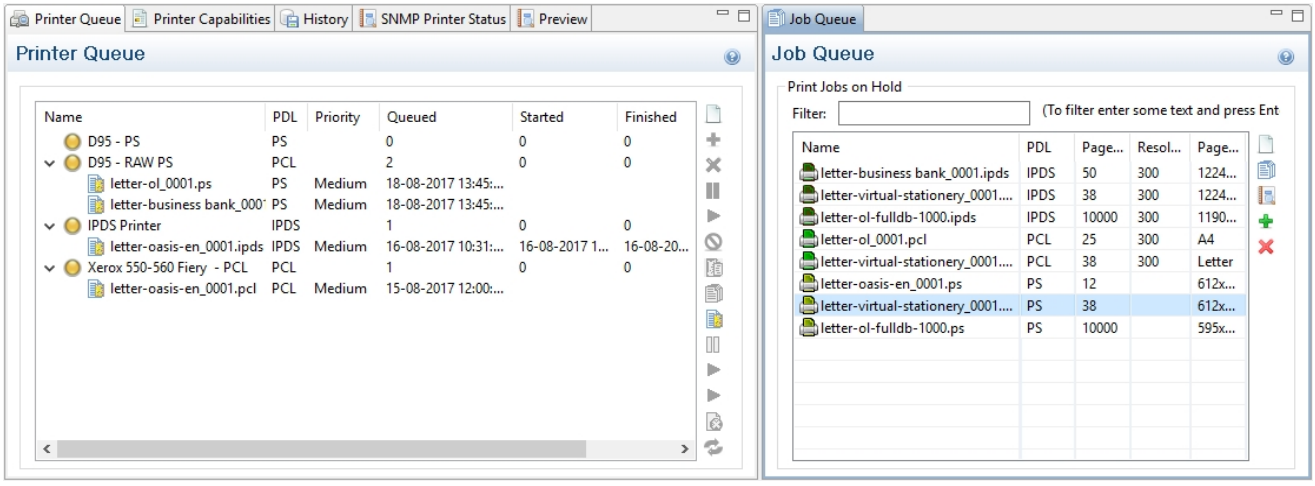
Job Queue pane

The Job Queue pane is a centralized location designed to allow the management of print Jobs.

Jobs can be added or removed from the Job Queue, but they are not printed from here. You can add Jobs to the queue by "dragging and dropping" them in from Windows Explorer window, or

by using the Add Job option.

Once in the Job queue, jobs can be previewed to confirm the contents are correct, and selected for printing by "dragging and dropping" the print Job into the "Printer Queue pane" on page 892. To do this, you must have both screens visible at once, as seen here:



Note

Print Jobs aren't actually scheduled for printing from within this queue. That is done within the Printer Queue.

- **Filter**: Type in a search word and hit Enter to filter the job queue using that search word. For example, select "business" to display only jobs that feature the text "business" in the job name.
  To clear the filtering, delete the contents of the Filter box and press Enter.
- **Job Queue** table:
  - **Name**: The name of the job filename, as captured or added to the Print Manager.
  - **ID**: The generated ID for the job. The first 2 letters of the ID indicate the origin of that job:
    - **HF**: Hot Folder capture.
    - **DR**: Dragged and dropped directly into the Print Manager.

    - **BR**: Added via a Browse button.
    - **RS**: Resubmitted to the printer.
  - **PDL**: Displays the job printer language.
  - **Page Count**: Displays the total number of pages in the job.
  - **Resolution**: Displays the resolution, in DPI, of the job.
  - **Page Size**: Displays the dimensions of the job.

To the right of the table and also via right-mouse click context menu within the table, the following options are available:

- **Preview** button / context menu option: This launches a "Job Queue pane" on page 895 that displays what the print job looks like.
- **Copy selected items to clipboard** button / **Copy** context menu option: This copies job information (job name and folder path) to the clipboard.
- **Properties** button / context menu option: This launches a job Details Window that displays detailed information about the makeup of the print job. Once the Details Window is open it remains atop the Print Manager thereafter, to allow simple comparisons between jobs.
  To close the Details Window, put the focus upon the Details Window by clicking anywhere within it, and then press the Escape key ("Esc").
- **Add Job** button / context menu option: Click this to add a print Job to the Job Queue.
- **Remove Job** button / context menu option: Click this to remove a print Job from the Job Queue.

Job History pane

The Job History pane displays a list of all the print jobs that have been processed through the Print Manager (except for those which have been explicitly removed).

- **Filter**: Use to search through the job history.
  Type in a search word and hit Enter to filter the job history using that search word. For example, select "business" to display only jobs that feature the text "business" in the Job name.
  To clear the filtering, delete the contents of the Filter box and press Enter.

PReS. Connect

Note

The Filter applies to the entire data set, so if you were to search for the text "Med" the filter would return all those jobs that featured "Med" in the title, plus all those that in any hot folders that featured "Med", plus all jobs whose priority had been set to "Medium".

The search is case insensitive. Thus a search for "med" would return "Medium", as well as "medium" values.

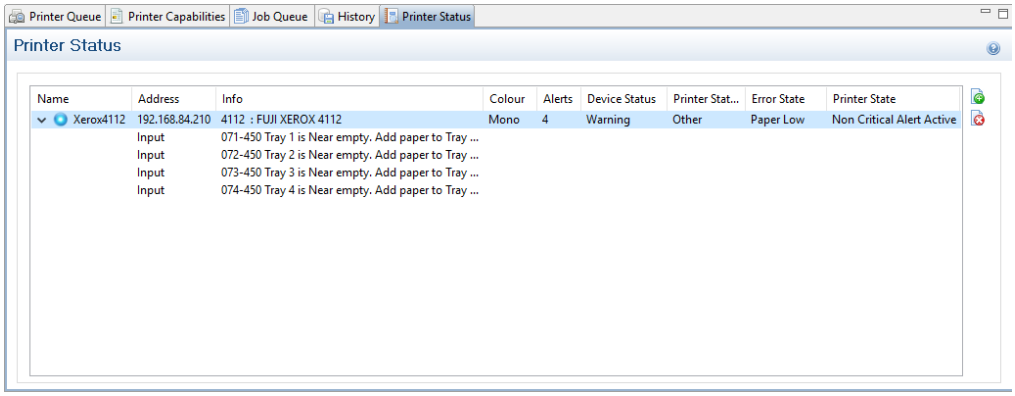
- **History Log**: Displays details on jobs run through the Print Manager. The history can be sorted by either processing date or printer, by selecting the column title.
  - **Date**: The date and time when the job was started.
  - **Printer**: The name of the printer the job was printed to.
  - **ID**: The internal ID of the job.
  - **Job**: The name of the print spool file.
  - **Path**: The path from where the job was captured or added.
  - **Pages**: The pages printed and the total number of pages in the job.
  - **Status**: The final status of the job, such as Cancelled or Finished.
  - **Priority**: The job queue priority the job was printed with.

To the right of the table and also via right-mouse click context menu within the table, the following options are available:

- **Preview** button / context menu option: This launches a "Job History pane" on the previous page that displays what the print job looks like.
- **Copy selected items to clipboard** button / **Copy** context menu option: Click to copy all messages to the clipboard to paste them in an external software.
- **Always select last log entry** button / **Tail** context menu option: Click to toggle auto-scrolling so that the last message is always displayed when it appears.
- **Remove Job** button / context menu option: Click to delete job from history.

Printer Status pane

This pane can be used to monitor the state of PostScript and PCL printers. It contains general printer information, such as the printer's B&W/color settings as well as the quantity of paper in trays, any outstanding alerts or errors and whether the printer is currently in use, or awaiting a job. An example of this can be seen in the following image:

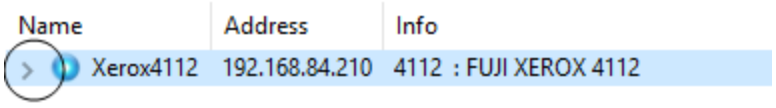


To **Start monitoring a printer** select the start icon to the right of the status display:

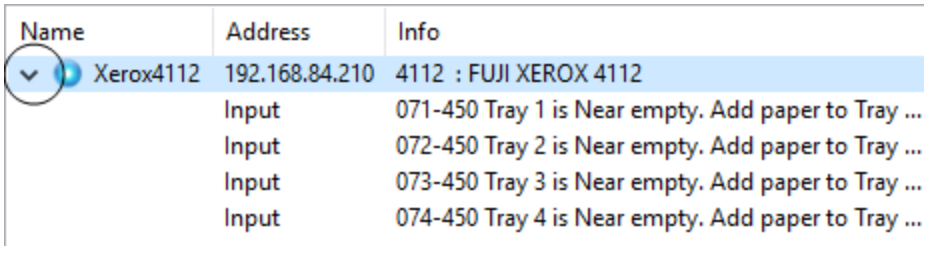
To **Stop monitoring a printer** select the stop icon to the right of the status display:

Once a printer is being monitored, the details can expanded and the individual printer trays displayed. These can be done as follows:

- **To expand the printer details**, press the right arrow besides the printer Name, as seen in the following image.



- **To reduce the printer details**, press the down arrow besides the printer Name, as seen in the following image.



PReS. Connect

Messages pane

The Messages pane displays any notice, warning or error message that is generated by the Print Manager. This may include indications that jobs have finished or started, that errors have occurred, etc.

- **Filter**: Type in a search word and hit Enter to filter the messages. Clear and press Enter to remove the filtering.
- **Messages** table:
  - **Time**: Displays the timestamp for the message.
  - **Type**: Displays the type of message.
  - **Printer**: Displays the name of the relevant printer, if applicable.
  - **Job ID**: Displays the relevant Job ID, if applicable.
  - **Details**: Displays the message itself.

To the right of the Messages table, the following controls are available:

- **Clear Log Items**: Click to clear the current log. This does not delete log files, but it does delete the messages displayed onscreen.
- **Copy selected items to clipboard**: Click to copy all messages to the clipboard. Useful for pasting messages into external software.
- **Always select last log entry**: Click to toggle auto-scrolling so that the last message is always displayed when it appears.

Print Manager Preferences

The Print Manager **Windows > Preferences ...** menu option allows the adjustment of Print Manager preferences.

There are three groups of preferences which can be altered, or set back to default settings at any time. These groups are:

1. "Database Connection preferences" on the next page
2. "Language Choice" on page 903

3. "General Settings" on page 904
4. "SNMP Connection Settings" on page 904

Database Connection preferences

Dialog to allow changing the PReS Connect back-end Database. This screen supports swapping the back-end database between vendor database. The alternate vendor database(s) must already be installed and available in order to swap to them.

> **Note**
>
> This is not a migration tool. It is a connection tool, that enables swapping between back-end databases. Any existing data will **not** be transferred/ migrated between the databases, and any existing Filestores will be cleansed by the Clean-up Service after the swap.

> **Note**
>
> When a different back-end database is selected, the changes won't apply until after PReS Connect is restarted, including the Connect services. A full machine restart would be recommended, as this provides the cleanest restart.

- **Basic Connection Settings** selections:
  - **Database vendor**: Select the back-end database vendor type from drop down list.

    > **Note**
    >
    > Moving from one vendor database to another will revert all screen selections to defaults, regardless of what may have been previously selected.

  - **Database URL**: This is a read-only summation of the current database connection settings.

> **Tip**
>
> If the **Test Connection** button shows that the database cannot be successfully connected to using the selected settings, then the contents of this field could be used to try to connect to the database outside of PReS Connect, to allow refining of acceptable connection options.

- **Hostname**: Enter the IP Address or alias of the server where database resides.
- **Port**: Enter Port number. The defaults are those which the vendors use by default.
- **Schema**: The individual database schema, within the vendor database.

> **Note**
>
> If a previously non-existent schema were chosen here, then a new schema of that name will be created within the database when the back-end database swap is applied. The tables within that schema will not be created until Connect is restarted.

- **Username**: Enter the database login username.

> **Note**
>
> It is considered best practice for this user to have root privileges.

- **Password**: Enter the password associated with selected username.
- **Confirm password**: Re-enter the user password.

- **Advanced Connection Settings** selections:
  - **Maximum concurrent threads** (1.7.2) or **Maximum concurrent connections** (1.7.1): This option was updated in Connect 1.7.2 when it went from applying to maximum database connections, to maximum database threads. The connections being a multiple of the maximum database threads.
    The maximum setting is determined by the specific capabilities of the machine

Connect is installed upon (CPU speed and the amount of cores being the major determinants).
The default maximum *should* be the best option in most circumstances.

- **Custom database parameters** table: These are extra parameters which are appended to the database connection URL. The default values are those which have been determined to be useful in connecting to specific vendor databases.
    - **Property**: These are free field text fields.

> **Note**
>
> These fields and their associated values get appended to the JDBC connection and therefore must follow all rules regarding acceptable URL addresses for such.

    - **Value**: The value applied to the associated Property.
    - **Add**: Used to add extra Property values to the table.
    - **Delete**: Used to remove existing Property values from the table.
- **Test Connection**: Use to test if current connection settings will connect to the specified database.
- **Restore Defaults**: Will restore the settings to PReS Connect HyperSQL standard defaults.
- **Apply**: When a database connection is confirmed as correct this button becomes active, and is used to actually apply the database swap.

Language Choice

Select the display language.
As of PReS Connect version 1.7.1 the languages supported are:

- German (DE)
- English (EN)
- Spanish (ES)
- French (FR)

- Italian (IT)
- Japanese (JA)
- Chinese Simplified (ZH)
- Chinese Traditional (ZH_HK, ZH_MO or ZH_TW)

General Settings

- **Hot Folder**: Defines a global hot folder that captures jobs and places them in the Job Queue pane. This does not automatically print the jobs, however.
  - **Enable Hot Folder**: Check to enable the global hot folder.
  - **Monitored Folder**: Enter a path for the hot folder, or click Browse to browse for it.
- **Session Retries**: The number of times Print Manager will try to reconnect to the printer before it stops trying and produces a timeout error in the messages.
- **Printer Timeout (sec)**: The startup time of the printer before the timeout is reported in the messages.
- **Printer Ack Timeout (sec)**: This is the time that Print Manager waits for a response (an **Ack**nowledgement) from the printer after sending a response request.
- **Retry Delay**: This is the time in second that the Print Manager waits before retrying a job after the timeout.
- **Log Level**: Use the drop-down to select which log level to save. Higher log levels such as "Debug" give more helpful messages and details in the log but can impact processing time and resources.
- **Printer Preferences** group:
  - **Hide disabled printers**: Check box to have any printers that have been set to disabled in the "Printer Settings Dialog" on page 889 not appear in the "Printers pane" on page 888.

SNMP Connection Settings

Options for printers that support Simple Network Management Protocol (SNMP) connection. Not all IPDS printers do, but most PostScript and PCL printers will. This protocol allows the printers to communicate their status to the Print Manager.

All the SNMP settings relate to SNMP connection and re-connection attempts. They are:

- **Connection attempts** entry: Defines the number of times the Print Manager will attempt to connect to a printer before abandoning the attempt. This setting applies only when the Print Manager is started.
- **Polling interval (secs)** entry: Defines the polling interval in seconds.
  This determines how often the Print Manager attempts to communicate with the printer, and applies to all communications with the printer. It applies both to the initial **Connect attempts** (setting the interval between those connection attempts) as well as how often the printer is polled after a connection has been established.
  Each time the printer is polled the printer status is updated in the "Printer Status pane" on page 899.
- **SNMP keep retrying after timeout** checkbox. Tick this if you would like to attempt to reconnect to the printer if a connection fails (or times out). Once ticked, you can set the retry interval amount.
  - **Retry interval on Timeout (secs)** entry: Enter the length of time between connection retries. This interval period applies only to attempts at reconnecting to printers.

General Information

Connect File Types

This article describes the different File Types that are related to PReS Connect and its different modules. These are files that are generally transferable between machines, can be sent via email or other means.

- **.OL-template** : A Designer Template file, including up to 3 contexts. Is linked to a data mapping configuration by default, but not necessarily.
- **.OL-datamapper**: A Data Mapping Configuration file, which can include sample data (excluding database source files such as mySQL, oracle, etc).
- **.OL-datamodel**: A data model file which can be imported or exported into either a data mapping configuration or a template. Contains a list of fields and their data type (date, currency, string, etc).
- **.OL-jobpreset**: A job preset file, used when generating a job (ready for output) from Designer or through automation (Create Job task). Does sorting, splitting, adding metadata fields.
- **.OL-outputpreset**: An output preset file, used to generate the actual print output in the appropriate format (pcl, afp, pcl, ipds, pdf, etc). Includes print settings such as imposition (n-up, cut & stack), inserter marks, tray settings, etc.
- **.OL-package**: A transfer file used to package one or many of the above files (the data model being part of both the template and the data mapping configuration). Created by using the File -> Send to Workflow dialog, and choosing "File..." in the Destination box.
- **.OL-script**: One or more designer "Scripts". Can be imported or exported from the Scripts pane in Designer when a template is open.
- **.OL-printerdef**: A Printer Definition File. Used by the Output Preset to determine what type of output to produce. These are generated by an internal application that is not currently distributed outside of OL, but the definition files themselves can be provided.
- **.OL-workflow**: A Workflow file used by PReS Workflow. Equivalent to .pp7 files (they are, in fact, essentially the same format), containing the processes and such used by Workflow.

Additional Information

You can find additional information that complement the user manuals about PReS Connect Workflow in the knowledge base.

Release Notes

Overview

This document provides an overview of the new features and enhancements in PReS Connect 1.7.1 and PReS Workflow 8.7.

Installing PReS Connect1.7.1 and PReS Workflow 8.7

- PReS Connect is released as a 64 Bit version only (with the exception of the Workflow, Fax, Search and Imaging modules).
- Full details on installing and licensing PReS Connect and PReS Workflow can be found in the online help in the installer.
- Note that both PReS and PReS Connect Workflow come with 30 day trial licenses by default.

Upgrading from PReS Connect 1.1

In order to upgrade from Connect Version 1.1 to Version 1.7.1 via the Update Manager, it is necessary to install a new version of the Objectif Lune Update Client. The next time you run your current Update Client it will show that there is an update available for itself. Simply click on the download button in the dialog to install the new version of the Update Client. Note that it is no problem to run the update while the Client is open. It will automatically update itself.

Once you have done this, PReS Connect 1.7.1 will become available for download.

From Connect Version 1.2 onwards, the newer version of the Update Client was included with the Connect installation.

Updating stand-alone Workflow Messenger installations

If Workflow Messenger were installed stand alone, with no other Workflow components installed, the Update Client will be unable to find the Messenger component and thus it will not automatically update to the Workflow 8.7 version. To get around this, download and run the Workflow 8.7 installer manually.

Templates Used in Workflow

For improved performance we recommend re-saving Workflow templates set up in the previous versions to run with PReS Connect 1.7.1\Workflow 8.7.

Reduced Memory Version

> **Note**
>
> This is **not** recommended for production.

It is now possible to install PReS Connect on a machine with a minimum of 2 GB of RAM. The PReS Connect Designer will automatically detect whether it has been installed on a machine with less than 4 GB of RAM and default to only using one internal Weaver and one internal merge engine on that system. The Server will also run using internal engines.

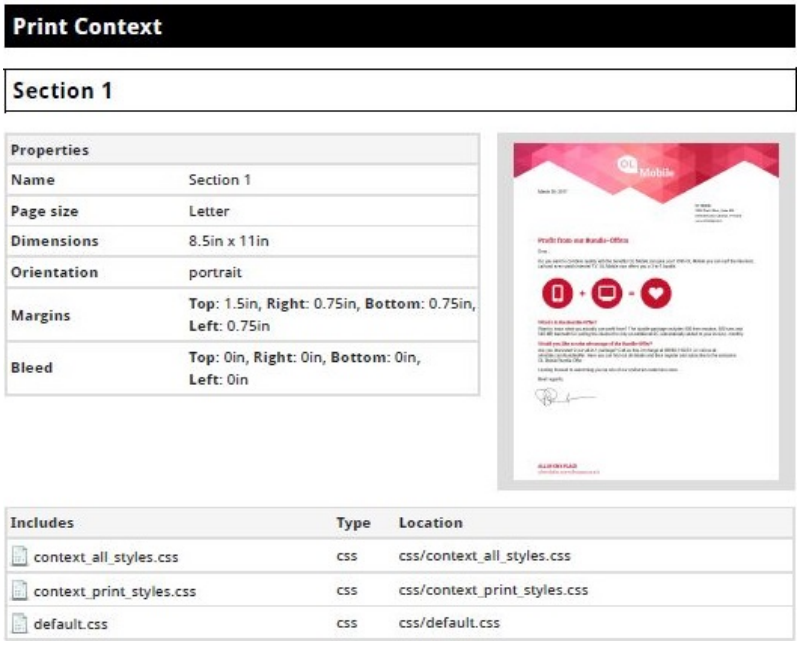
Connect 1.7.1 General Enhancements and Fixes

Template Reports added to Connect

Generate a report in PDF format containing the most important information about your template. The report lists contexts, sections, master pages, scripts, the data model, graphic files, and any other resources used, along with their properties. This report can be added as part of your project documentation.

The report is created using Connect technology, and it generates an XML file and thumbnails, allowing you to create your own custom report structure and corporate styling. This can be achieved by altering the underlying Connect Template and Data Mapper configuration.

The following screen-shot shows an extract from a sample report that was created for the *OL Mobile Letter* template:



Print Context

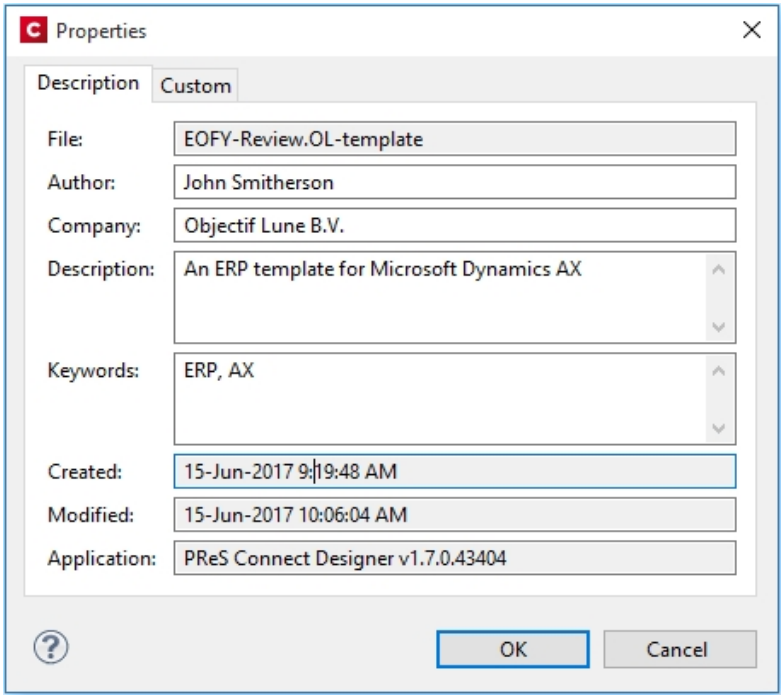
Section 1

Properties	
Name	Section 1
Page size	Letter
Dimensions	8.5in x 11in
Orientation	portrait
Margins	**Top**: 1.5in, **Right**: 0.75in, **Bottom**: 0.75in, **Left**: 0.75in
Bleed	**Top**: 0in, **Right**: 0in, **Bottom**: 0in, **Left**: 0in

Includes	Type	Location
context_all_styles.css	css	css/context_all_styles.css
context_print_styles.css	css	css/context_print_styles.css
default.css	css	css/default.css

Document Properties

Document Properties can now be added to both Templates and Data Mapper Configurations. This allows you to specify properties such as the document author, the customer name and other important references. You can also add custom key/value pairs. The respective properties can be retrieved in scripting and are thus available as content in your documents. The information is also included in the *Template Report* feature. (SHARED-47780)



Stability improvements

- Improvements made to the Clean-up service. In some production environments the database Clean-up could not keep pace with database growth, leading to the database gradually filling up. This has been fixed through an improved internal database structure and more efficient queries and deletions. (SHARED-46465/52345)
- The PReS Connect server was experiencing communication problems with the engines in some circumstances, after data mapping or content creation errors were encountered. These issues have now been resolved. (SHARED-55165)

"Enhance with Connect" option added for PDF files in Windows Explorer

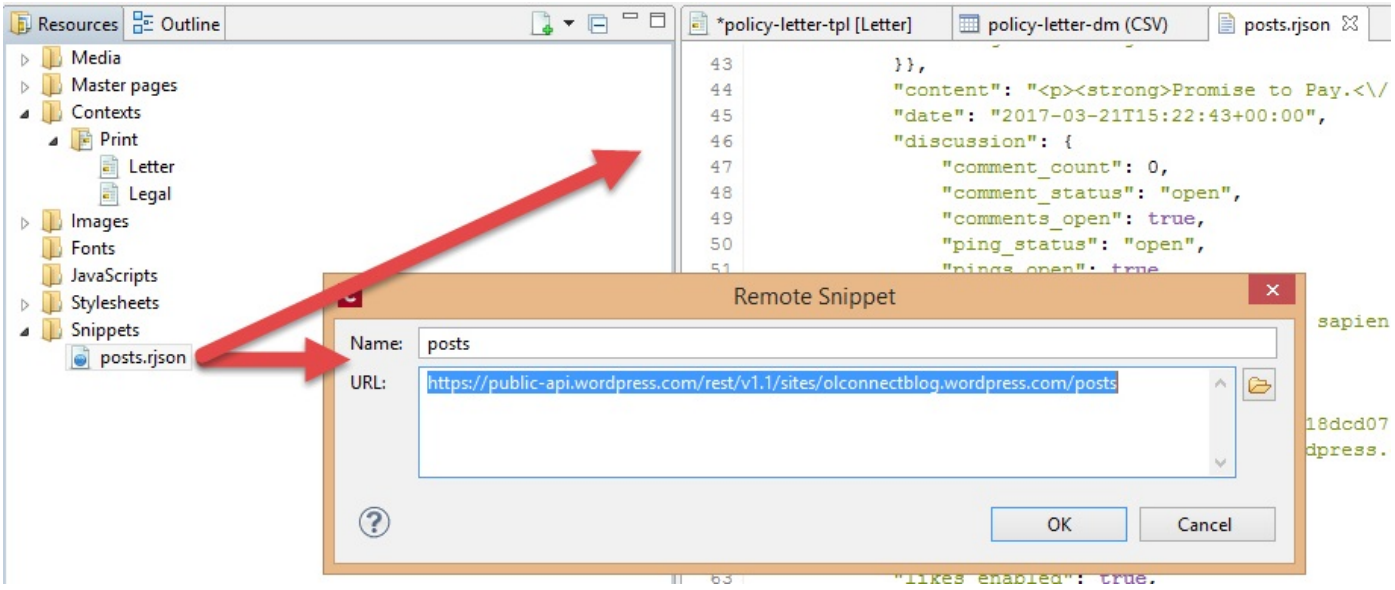
A Windows Explorer context menu entry "**Enhance with Connect**" has been added for PDF files. When a user selects this context menu entry, PReS Connect Designer opens with a prefabricated template, that uses the selected PDF file as the background. (SHARED-15350/47156)

Support added for Remote HTML and JSON Snippets

In PReS Connect 1.7.1 we introduce the concept of remote snippet resources. These snippet entries have a Name and URL property (e.g., the hyperlink to the endpoint) and reside in the Snippets folder located in the Resources panel.

In scripts these snippet entries are referenced just like regular snippets, e.g., `loadhtml ('snippets/my_content.rhtml')` or `loadjson('snippets/posts.rjson')`. Note the "r" in the file extension.

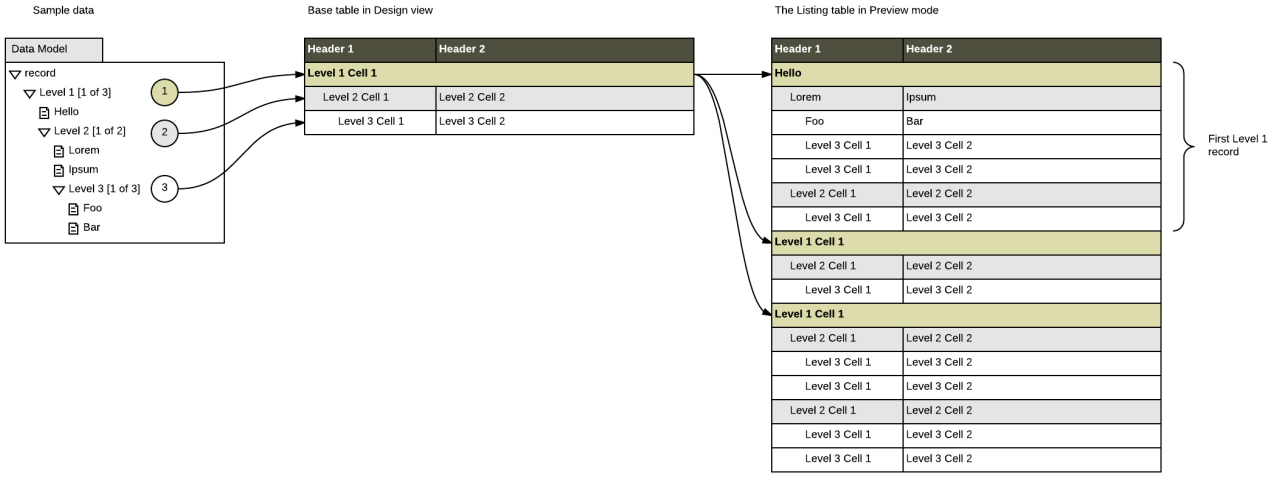
Having the snippet entry in the **Snippets** folder within the **Resources** folder allows us the simplest overview of the resources used. In previous versions this behaviour would have had to be captured in script and therefore would not have been directly visible as part of the resources. This new approach greatly simplifies maintenance of the URL, as it can now simply be updated in the Resources panel rather than by browsing through all the scripts. (SHARED-42314/52591)



Handling Nested Detail Data

Simplifying the handling nested detail data has been on our agenda for some time. As part of our research into this we have looked at an approach that repeats table rows for nested detail data. This doesn't create HTML tables in HTML tables but rather clones a base row specified for each level.

Consider the following image:



At this stage there is no user interface to configure this type of dynamic table but in a separate Technical article. It can be achieved by setting some HTML attributes in the *Source* view and adding scripting to populate the cells.

A user interface (table wizard) to set things more elegantly will be introduced in a future version, along with additional functionality, such as subtotal calculations.

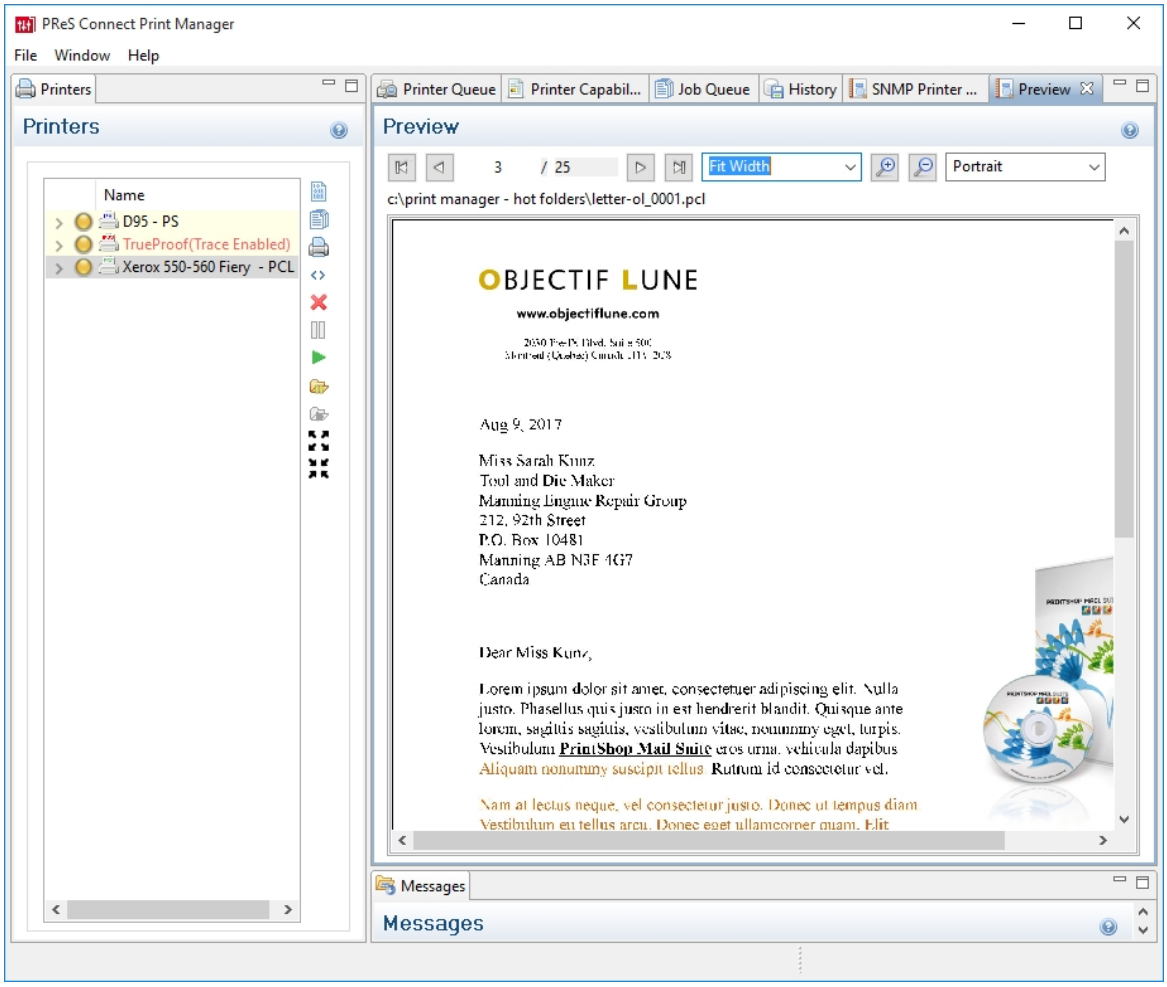
As we are rather excited about this approach we wanted to share the current state with you in PReS Connect 1.7.1. (SHARED-43047)

Installer improvements

- The PReS Connect 1.7.0 installation did not work on machines running Windows 10 build 1703 (i.e. the "Creators Update", released March 2017). This has been fixed for PReS Connect 1.7.1. (SHARED-56800)
- The **silent installation** process has been enhanced, and now supports the following:
  - **Setting the repository**. This can be configured via the "*product.repository*" entry in "*install.properties*". (SHARED-17841)
  - **Selecting a dedicated locale** (language and country code) for the Connect applications. These can be configured by the "*user.language*" and "*user.country*" entries. (SHARED-18381)
  - Improved reporting of Silent Installation success or failure. (SHARED-17723)
- Microsoft SQL server connection settings added to Connect Installer. (SHARED-36866)
- The Update Client will now run the installation in the same language as the original installation. (SHARED-37868)
- Installer has been made more robust, and will now continue (with warning messages, if applicable) when it encounters any of the following scenarios:
  - If Server start-up was unsuccessful during installation. (SHARED-39398/46837)
  - If no Database connection could be established. (SHARED-39400)
  - The Installer now checks if the OL Connect MySQL service is in the proper state and resident in the expected folder. If is not, instructional warning messages are now displayed. (SHARED-40309/45431)
  - If Connect folders that should have been deleted were found upon re-installation. (SHARED-41420)
  - Passwords for running the Connect Service/s (Server and Server Extension), which are entered as part of the installation process, would cause errors in the installer if the passwords contained angled brackets ("<" or ">"). This error has been fixed and those characters are now correctly supported. (SHARED-42546)

Print Manager improvements

- A document preview has been added to the Print Manager, for IPDS, PCL and PostScript documents. (SHARED-43959)



NOTE: The Postscript viewer requires manual installation of the free Ghostscript application.

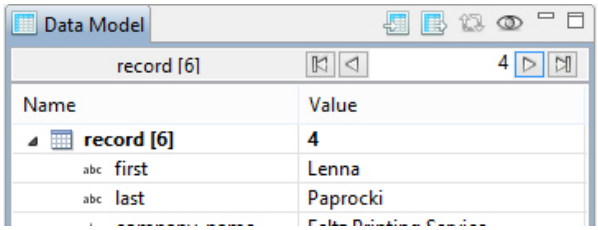
Connect 1.7.1 Designer Enhancements and Fixes

Edit and Save CSS, HTML, JavaScript and JSON files within the Designer

Ever needed to quickly edit an external CSS, HTML, JavaScript or JSON file? The PReS Connect 1.7.1 Designer now allows you to open and save these file types via the **File** menu. (SHARED-42094)

Data Model Panel Enhancements

Various enhancements have been made to the **Data Model** panel. The browse options of the main record are now *sticky* and do not move out of view when working with a large number of data fields. An eye icon has been added to the toolbar, and is used to toggle the visibility of the *ExtraData* field. In addition, you can select and group multiple fields in order to collapse them out of view (and expand them back, obviously), which is particularly useful when dealing with large data models that force you to constantly scroll up and down to bring a specific field into view. (SHARED-45370/54106)



The Data Model panel has also been enhanced to allow alphabetical sorting of detail tables. (SHARED-47169)

Simpler Invocation of Email Script Wizards

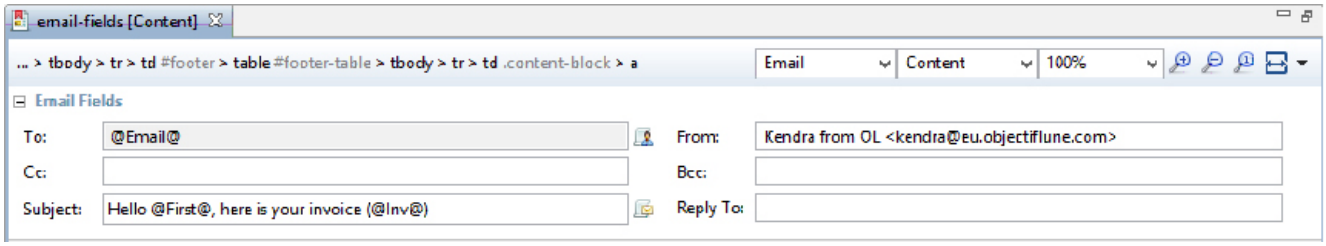
Invoke email related script wizards simply by clicking the labels in the email information bar. (SHARED-47329)

Simplified Email fields User Interface

Create *To*, *CC*, *BCC*, *From* and *Reply To* email scripts by dragging and dropping a data field to the respective input field or type a static address directly in the input fields. (SHARED-9178)

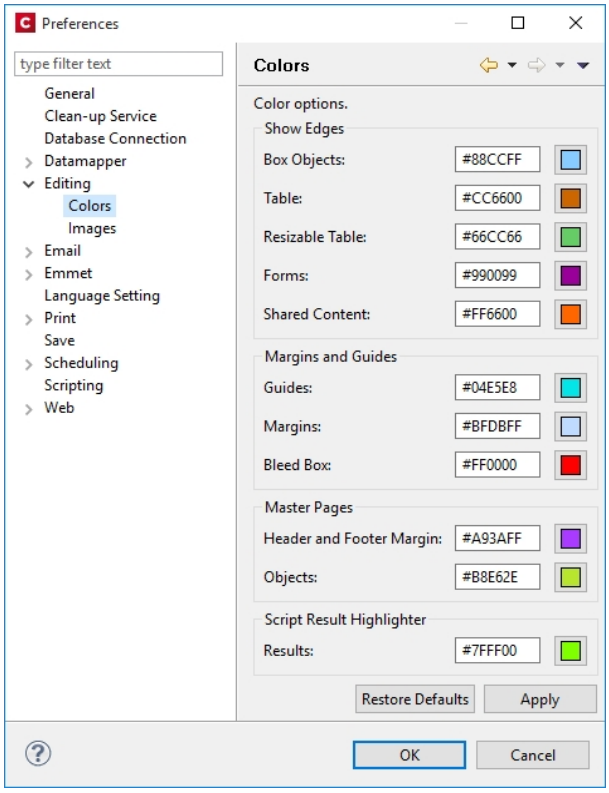
Type the subject in the Subject email field and drag and drop data field(s) to positions in that

string to make a personalized email subject without any scripting. (SHARED-51475)



Improved Customization of the Designer interface

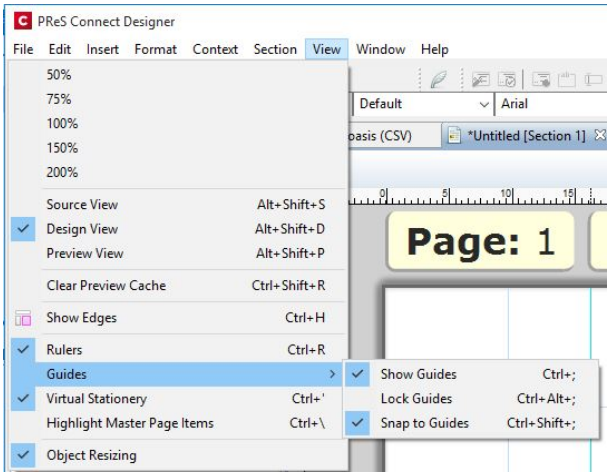
Customize your interface by selecting your own colours for object edges, margins, guidelines, etc. (SHARED-49841)



PReS. Connect

Guideline behaviour improved

Along with visible/invisible settings, Guidelines can now be locked in place or set to snap to objects, using the new **Guides** option in the View menu. (SHARED-47159).



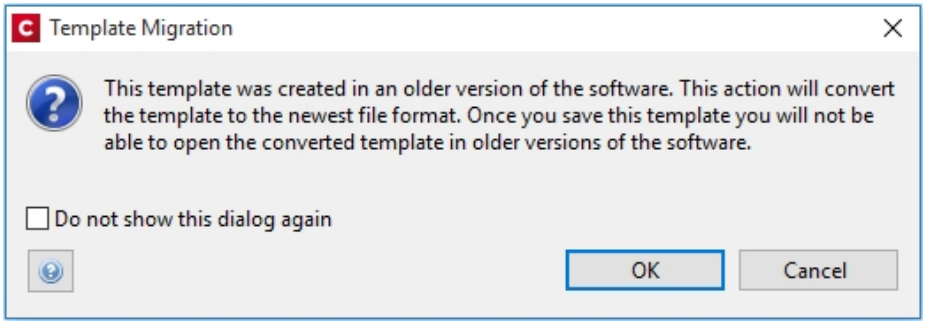
Warning now displayed when opening templates created in an older version

When PReS Connect opens an older template file it is automatically migrated to the template structure of the current version. Saving the file in the new version would thus update the file format and prevent the document opening in an older version.

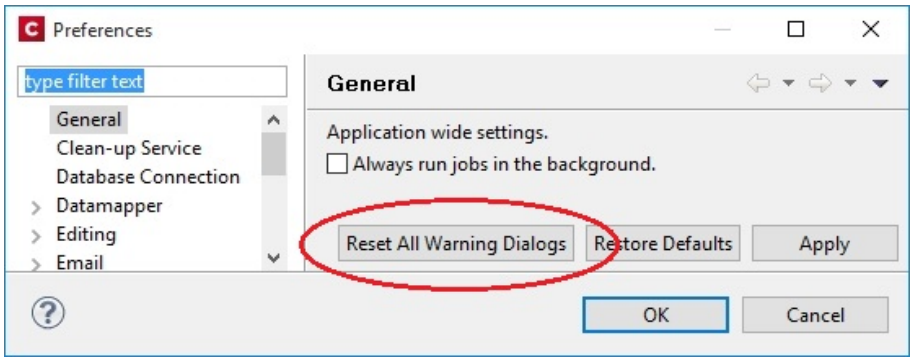
A warning is now shown when opening a Template created in an older PReS Connect version, allowing you the chance to save the Template to a new file, leaving the original intact. (SHARED-51912)

Turn Warning dialogs Off/On

A "**Do not show this warning again**" check-box option has been added to many PReS Connect Warning dialog boxes:

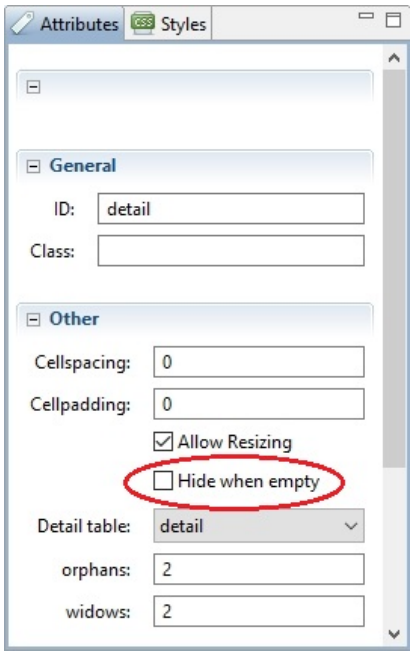


These Warnings can be switched on again at any time thereafter, via the "**Reset All Warning Dialogs**" button in the General Preferences dialog. (SHARED-16962)



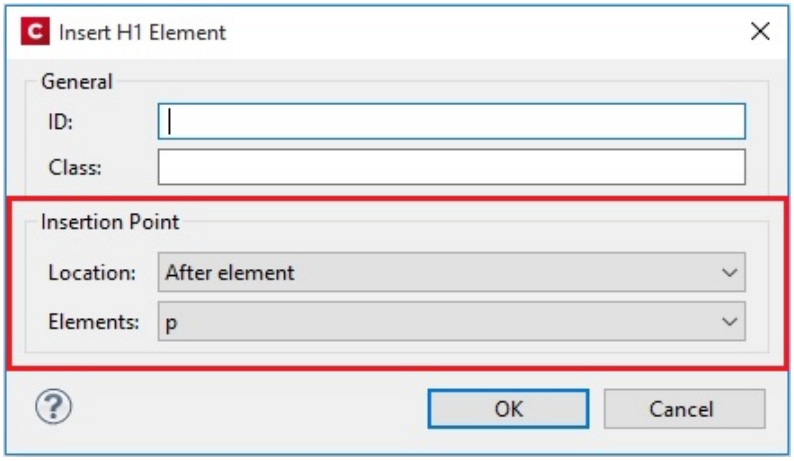
Option to automatically Delete a dynamic table when the table is empty

An option has been added to allow you to automatically delete a dynamic table when the data table is empty. To do so, select the entire table, and then tick the "**Hide when empty**" checkbox in the Attributes panel. (SHARED-43537)



Replace elements with data-insert-location when inserting HTML elements

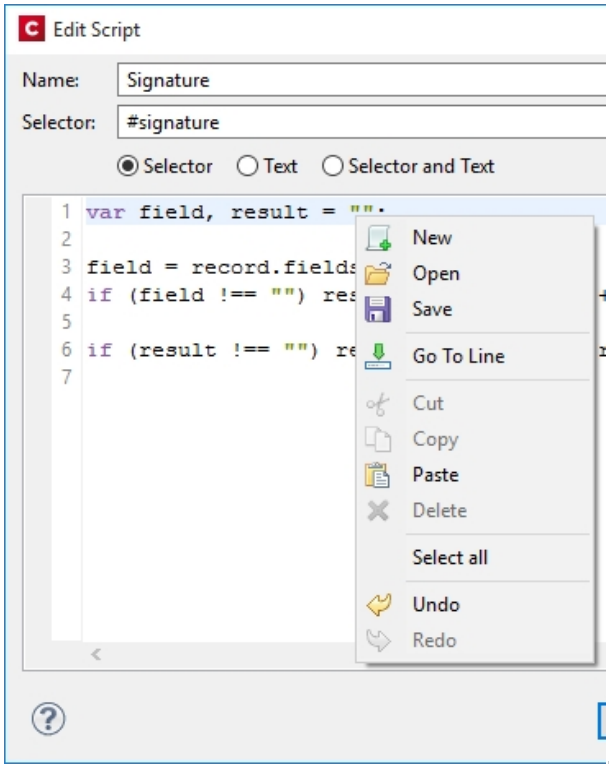
When inserting an element from an **Insert dialog**, Connect now checks the *data-insert-placeholder* attribute. The value of the attribute is then used to set the default value for the *Insert Location* option within the Insert dialog. If the attribute is not found, things behave as in previous versions.



This ticket also introduces the Replace option for the Insert Location drop down. When selected the to-be-inserted element(s) will replace the currently selected element(s). (SHARED-52369)

Scripting improvements

- Context menu added to the **Edit Script** dialog. (SHARED-45381)



- **Find and Replace** functionality has been added to Script editors. (SHARED-48424)
- New menu option to **rename** Scripts or Folders has been added to the Context Menu within the Script panel. (SHARED-48607)
- Support added for **copy and paste** of folders and scripts within the Scripts panel. (SHARED-49299)
- The JavaScript **parseInt()** method now defaults to using base 10 arithmetic rather than base 8, as defined in the ECMASCRIPT specifications. (SHARED-49010)

PReS. Connect

General Designer improvements

- **Duplicate and Delete line(s)** using shortcuts in the Stylesheet, JavaScript and HTML editors. Use `Ctrl+D` to **duplicate** and `Ctrl+Shift+D` to **delete** the currently selected lines. (SHARED-46928)
- Entering **geometry values** without stating a specific unit type will now automatically assign the default unit type to the entry. (SHARED-50656)
- When **deleting an element** (such as a Barcode or a Chart) on a page, a check will now be made for associated scripts. If any are found, the deletion step will provide an option to delete those scripts as well. (SHARED-45675)
- An "**All Files (*.*)**" filter was added to Save/Save-as dialogs. (SHARED-28237)
- **Icons** have been added for JS and CSS files in the Includes dialog to make it easier to distinguish between local and remote resources. (SHARED-47936)
- **Abs box** grippers and borders now display at a consistent thickness regardless of zoom level. (SHARED-50175)
- Support added for **dynamically setting the media background image** and its options via a Control Script. This only works for PDF files residing in the template at the moment. (SHARED-53524)

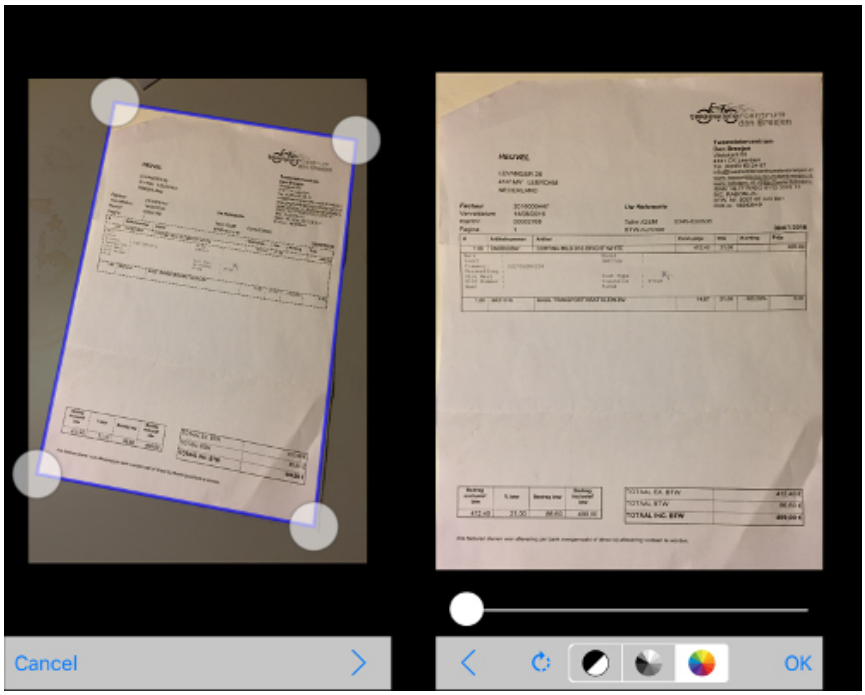
Web form improvements

- Includes (JavaScript and CSS) can now be set for the entire Web context, rather than just per single web pages. These files are automatically linked to all web page sections and act as **global includes**. This is ideal when working with framework and library files that are used by all web page sections (for example jQuery or Foundation).
  One can still add additional includes on a per web page basis, if desired. (SHARED-48708)

PReS. Connect

Capture OnTheGo (COTG) improvements

- **Two new form inputs** have been introduced to facilitate the retrieval of the document ID and the store ID. (SHARED-53987/54054)
- Improvements made to **updating the COTG library** within existing templates. The user will now be prompted as to whether they wish to switch to the new version or not. (SHARED-46920)
- Ability added to **insert dummy data** for the form inputs (including special COTG inputs such as the signature) upon retrieving the Job Data file from within the Designer. (SHARED-48676)
- Workflow "**Output to COTG**" task can now be run as an action and return Document IDs. (SHARED-48951)
- **Deskew (straighten) pictures.**
  A new option is added to the Camera Properties allowing the user of the COTG app to deskew or straighten images taken with their mobile device. Deskewing optimizes the image for further processing of the image, such as through an OCR process. (SHARED-53982)



Connect 1.7.1 DataMapping Enhancements and Fixes

DataMapper can now fetch or update data from remote sources

New in PReS Connect 1.7.1 is the ability to create an XMLHTTPRequest object (aka XHR) in DataMapper scripts in order to issue REST/AJAX calls to external servers. This feature allows the datamapping process to complement the extraction process with external data, including data that could be provided by a HTTP process in Workflow.

For instance, the DataMapper could issue calls to a Workflow process that retrieves certain values from the Workflow's Data Repository.

Also, one could imagine a DataMapper postprocessor that writes the results of the extraction process to a file and then uploads that file to a Workflow process. (SHARED-43502)

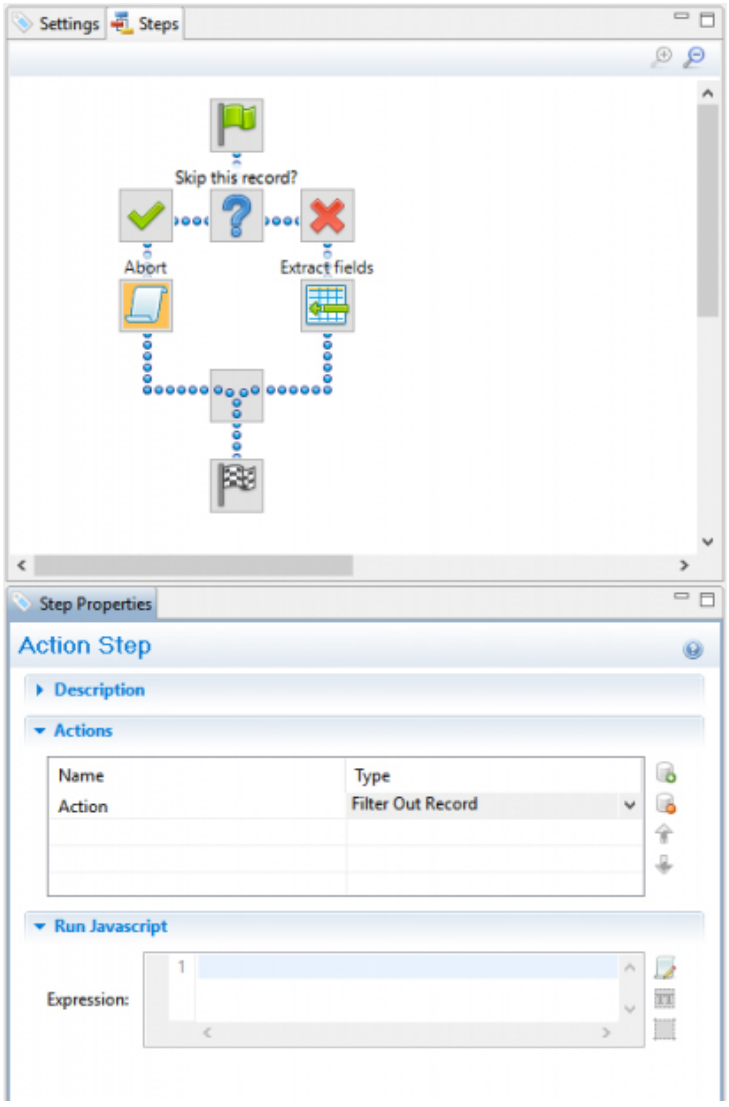
> **Tip**
>
> As always with powerful features like this one, you need to be careful how you design your solution. For example it is possible to create an endless circular process, whereby a Workflow process calls a data mapping process, which in turn calls the same Workflow process, which calls the DataMapper again, and so on.

Skip over Source Data Records

Another very important new feature implemented in the DataMapper is the ability to skip over some of the source data records without writing anything to the database. This allows you to quickly filter out some records from the data source without having to extract them to the database first, while still extracting others. (SHARED-24548)

Let's say for instance that your data source contains postal addresses from many countries, but you only want to extract the data for Portugal. You can now create a condition that examines the country field to determine if the source record is for a country *other* than Portugal. If the condition is *False* (i.e. the country IS indeed Portugal), you can extract the data as per usual. But in the *True* branch of the condition (i.e. the country *is anything but* Portugal), you can now

add an Action Step and specify the new “**Stop processing record**” action type. This basically discards this data record and instructs the DataMapper to immediately skip to the next source record.



This yields two immediate and major benefits:

- Data Extraction is much faster since you are only extracting the records you actually want
- The database will not be cluttered with useless records (potentially numbering in the thousands) that you were not going to use anyway. As a consequence, the automated clean-up process will have much less work to perform when the time comes to delete obsolete entries from the database. This should result in a lighter workload and better overall performance.

PReS. Connect

Note

If you stop processing any record *after* you've already extracted some data from it, then the record will still be stored in the database, with un-extracted fields being assigned whatever default value (if any) you defined for them. So if your goal is to completely prevent unwanted records from being stored in the database, you should make sure to implement your filtering conditions early in the data mapping process.

Improved naming of default fields

The default field naming scheme has been enhanced to allow duplicate field names to be generated automatically as long as they are on different levels (or in different detail tables). This is especially useful with XML data sources where field names (e.g., ID, NAME) are often re-used through different levels of the structure.
With the new, more flexible naming scheme, the DataMapper checks for duplicates at the same level before deciding whether or not to create or increment a numeric suffix that is appended to the field name. (SHARED-42645)

Improvements made to XML File Processing

Issues were encountered with repeated nodes in XML datasets. In XML when adding an Extraction step, the XPath was not generated with an index, which resulted in only the first node being returned. This has been fixed, and repeated nodes are now catered for. (SHARED-28107/32238)

Improved support for Multi-Byte Encoding

Added support for byte based positioning in addition to the existing character based positioning for MultiByte (Big5, GB18030, UTF-8 and Shift-JIS) text files. (SHARED-53174)

General DataMapper Enhancements and Fixes

- **XML Wizard**: option added to extract Attributes and to set boundaries on Attribute changes. (SHARED-42251)
- Improved support for **UNC paths** to image files. (SHARED-44316)
- The **Extradata** fields are now available in the DataMapper to more easily allow setting of field default values. The display of the Extradata fields can be toggled on or off directly from the Data Model panel. (SHARED-51426)
- New **data.findRegExp()** function added. This function is similar to the existing data.find() function, but with Regular Expression support added. (SHARED-51694)
- Repeat Step conditions can now be set to **evaluate operands as integers or as strings** to make it easier to compare numeric values without having to cast them first. (SHARED-49786)

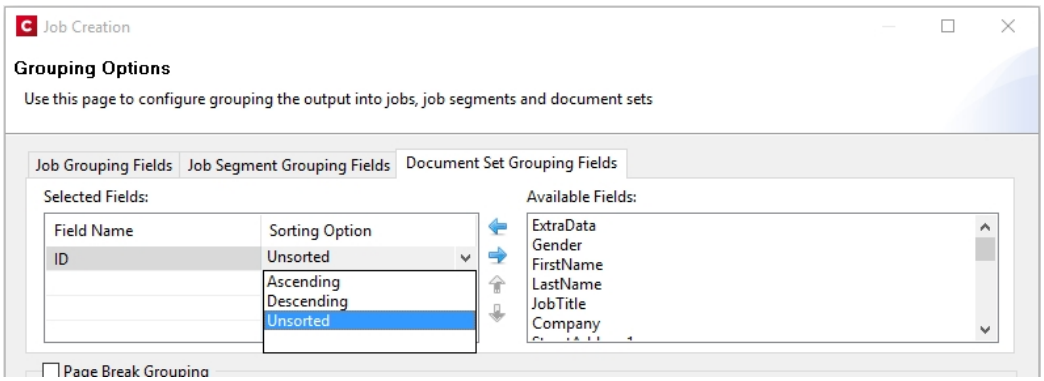
Connect 1.7.1 Output Enhancements and Fixes

Grouping With and Without Sorting

Sometimes the data used for generating documents is already pre-sorted, but you may still need to group documents into sets or segments. In those cases, the grouping process should not reorder the documents. This has now been implemented in PReS Connect 1.7.1.

Consider the following example: data has been pre-sorted for postal sorting, which means that documents for the same customer will also be in consecutive order in the job (assuming a customer has a single postal address). If we want documents for the same customer to go into the same job, we can use grouping to create document sets and we might use the customer number for this grouping. When the customer number changes, we want a new document set to begin. If grouping by customer number also sorts by customer number, our pre-sorted order will get messed up.

The Job Creation settings have been improved to allow this kind of grouping. Sorting ascending, descending or not sorting at all can be set per field used for grouping. (SHARED-45125)



This means that, apart from straightforward cases where we are grouping with or without sorting, it is also possible to create combinations where some fields do alter the sort order and others have no effect.

Please note that grouping without sorting also means that any documents that have the same value for the same grouping field (i.e., customer number in the example above), but which are not consecutive in the input data, will not end up in the same group.

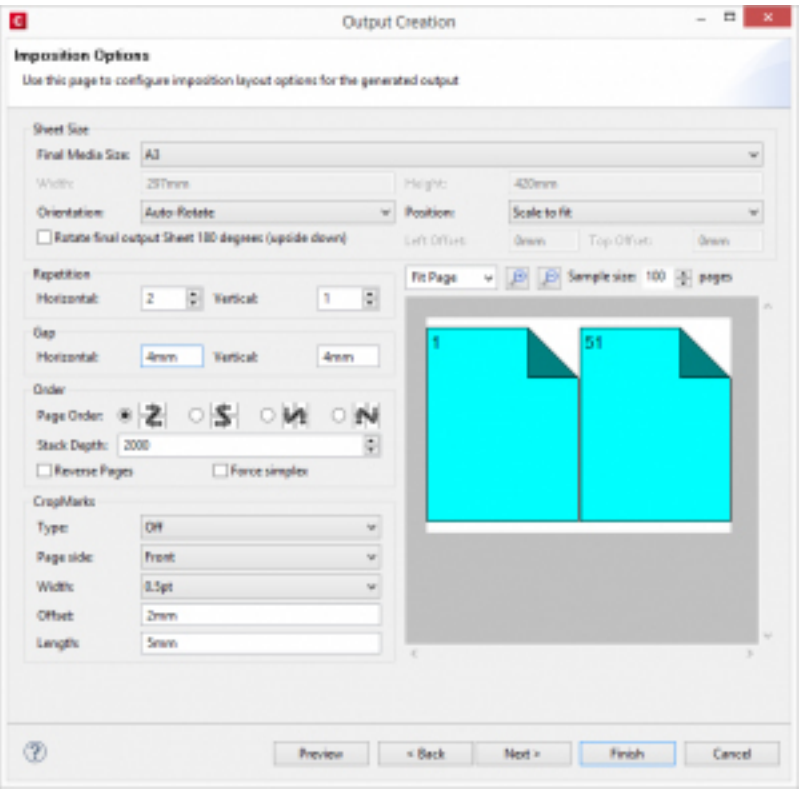
The settings for **Grouping** are available both in the **Job Creation Settings** dialog and the **Advanced** mode of the **Print Wizard**.

Progress of External Sort now displayed

When using an external sort, there was no feedback about how the external sort program was progressing. A new dialog control has now been added to Connect which displays the progress of the external sort in real time. (SHARED-53601)

Improvements made to Imposition Options dialog

The settings page for Cut and Stack Impositioning has been improved to show a sample of the chosen imposition settings.



Additionally, some settings on the Imposition Options page affect the way that booklets are created. These settings are now editable, so settings such as the gap between pages can now also be set for booklets. (SHARED-31097)

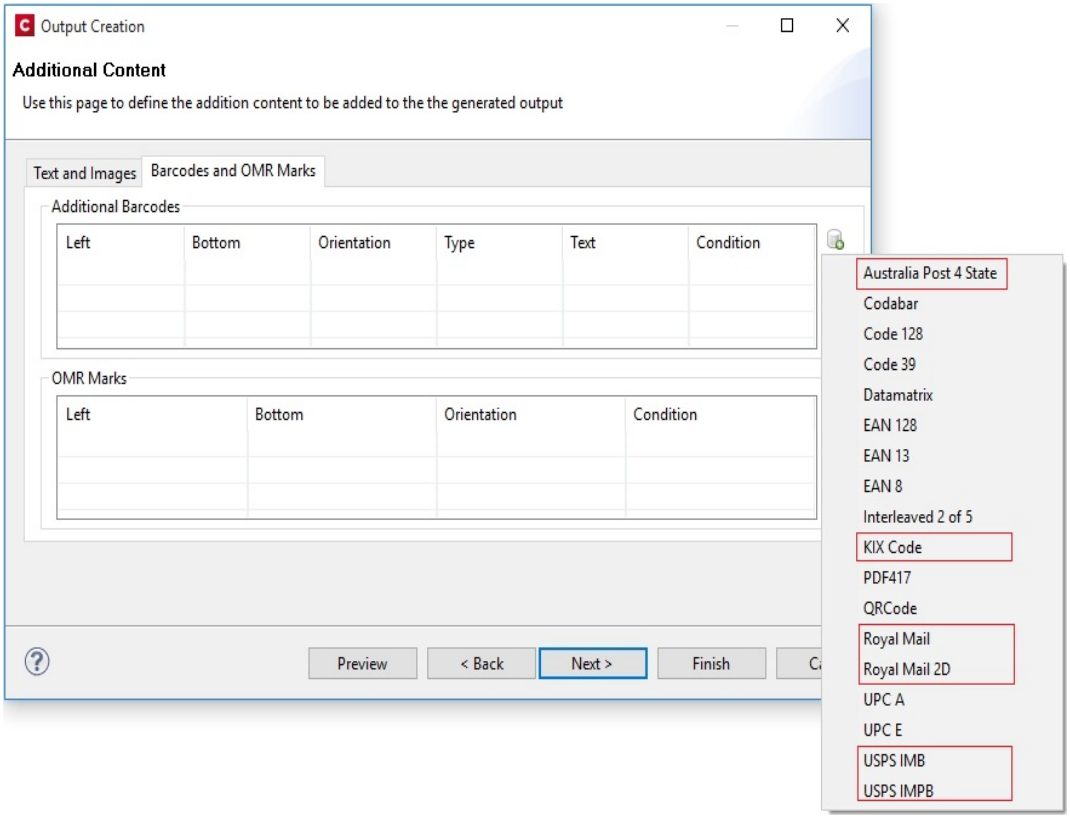
Additional Postal Services Barcodes added to Output Creation

Barcodes for postal services are excellent candidates for adding during the Output Creation steps, rather than during Content Creation.

Reasons for this include:

- They often cannot be added during Content Creation because they depend on document size (or weight) and on a sort order that is determined during Job Creation.
- They need to go in a fixed position, dependent upon the envelope window, rather than document design.
- It can be desirable to have templates independent from the postal service doing the delivery, in cases where there is a choice between postal services. This makes it relatively easy to switch to whichever service is offering the better rates.

To support these scenarios better, a number of postal service specific barcodes have been added to Output Creation, in addition to Content Creation. (SHARED-54755/54962/55046)



The new barcodes include:

- Australia Post 4 State
- KIX Code (Dutch postal service - Post.NL)
- Royal Mail (UK)
- Royal Mail 2D (UK)
- USPS IMB (US)
- USPS IMPB (US)

Some of these barcodes have specific requirements in order for them to be usable. The respective postal services provide specifications and sometimes also the tools for generating the content of these barcodes.

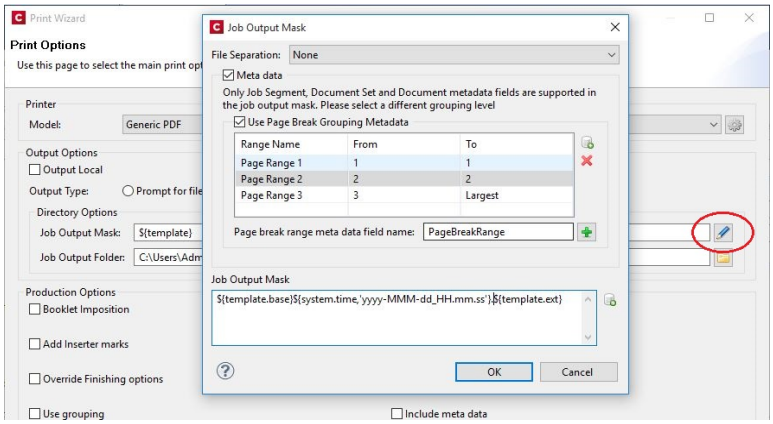
The checksums needed for Australia Post 4 State and IMPB are calculated automatically.

Fixed issue with Merge Engine memory usage

The Merge Engine would slow down when running some jobs that used external JavaScript files. These memory issues have now been resolved. (SHARED-47242)

Job Output Mask improvements, to simplify working with output file names

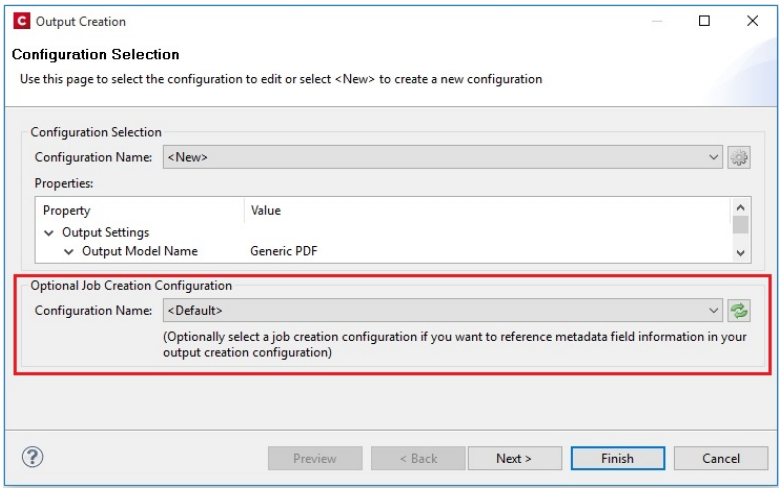
We have improved the way that output file names can be specified. A new dialog box has been added to the Print Wizard, to simplify the creation of Job Output Masks. While it is still possible to directly type a file name with placeholders in the Output File Mask box, it is now also possible to use the dialog to pick the metadata fields and other variables that can be used to create dynamic file names. (SHARED-12173)



A typical use case for using place holders in an Output File Mask is while generating PDF's for archiving purposes. This can require generating one PDF per document and often the files have to be named in a meaningful manner, by using an invoice number in the file name for instance. This requires one to define the invoice number as metadata in a Job Preset and then this metadata field can be used in the Output File Mask of the output preset. In addition, the Separation setting of the Output Preset has to be set to separate at the document level.

So the next time you need a dynamically generated output file name like `inv-${document.metadata.InvNumber}.pdf` or `${document.metadata.ID}-${system.time,'yyyy-MMM-dd'}.${template.ext}`, you can use this dialog to help you get what you need.

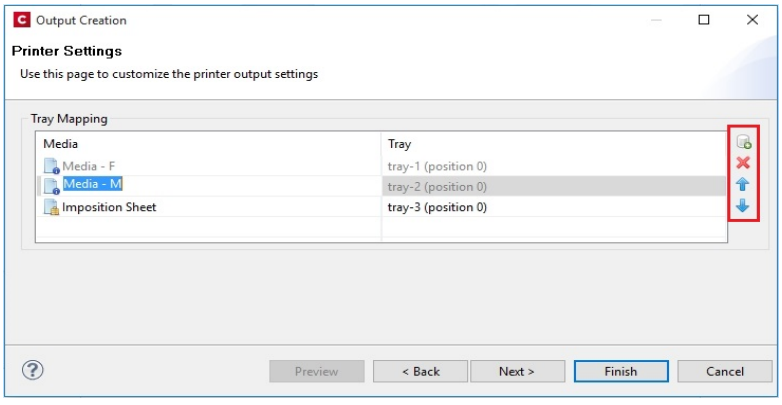
For the Output Preset to know what metadata is available, you can select a Job Preset when creating or modifying an Output Preset:



In the Advanced mode of the Print Wizard this new dialog works a bit different, because the metadata can be directly edited in the same wizard instead of having to refer to a Job Preset.

Tray Mapping for Multiple Templates

For printing to a cutsheet printer, the Output Preset allows mapping of media defined in a template to trays and media known by the printer. To make it easier to use an Output Preset for multiple templates, the list of media shown on the Tray Mapping page is no longer fixed. So now it is possible to easily define a tray mapping for all media used on a certain printer. (SHARED-49357)



This doesn't mean that all these media have to be used in every job, so one might even map multiple media types to the same tray. In such cases, a Job Preset could be used to filter jobs in

such a way that no conflicting tray mappings can occur within a job, as Job Presets allow filtering by media type.

Print Output

- **Improvements made to the Print Wizard**
  These include:
  - Improved usability in Inserter dialog. (SHARED-38279)
  - Data Filtering dialog usability improved. (SHARED-38281/38283)
  - Support added for manually setting both the horizontal and vertical gutter settings in Booklets (SHARED-53769)
  - The Additional Text and Barcode dialogs did not allow many of the available system fonts to be used. This issue has been fixed. (SHARED-46825)
- **Improved PDF comparison** implementation has improved output creation times. (SHARED-44097)
- **PostScript** Tray mapping configurations can now be made independent of the loaded template. (SHARED-49357)
- **IPDS and AFPDS** improvements:
  - Improved colour support. (SHARED-49554)
  - Extra image compression options added. (SHARED-51222)
- Improve output creation speed when **outputting with separation**. (SHARED-52088)
- **Soft masked images** were not handled correctly when writing to PDF/VT, causing errors. This issue has now been fixed. (SHARED-32335)

Workflow 8.7 Enhancements and Fixes

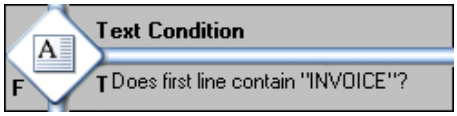
Custom Task descriptions

The Comments section of each Workflow Task can now be used as the task's description in the Workflow Configuration tool, allowing users to better document the process without having to resort to numerous Comment Tasks. (SHARED-39120)

Workflow processes can sometimes become rather complex and thus they require some documentation in order to allow subsequent users to know why they were implemented in one fashion or another. *Comment tasks* are already available but they use up some valuable real estate in Workflow processes, which sometimes adds to the clutter, rather than making things clearer.

Each task in a process also has a *Comments* section that allows you to properly document what you want, but requires you to click each task in order to view the comments associated with each (and you have to remember to display the *Task Comments* panel, which also robs you of valuable on-screen real estate).

To cure these issues in Workflow 8.7 we introduced a new checkbox located below the Comments field: *Use as step description*. Ticking this box instructs the Configuration tool to use the task's Comments as the description for the task in the Process panel, which allows you to put in more descriptive text than the default value without having to click on each Task to visualize it:



Option to bypass Record Persistence added to plugins

A new checkbox option has been added to both the **Create PDF Preview** task and the DataMapper tab of the **All-In-One** task, allowing you to specify that the data should not be stored in the database. This feature is specifically tailored for one-off jobs, to prevent data from being written needlessly to the database. Instead, records are streamed directly into the Content Creation process for immediate merging. Turning the feature on in the All-In-Task can improve data mapping performance significantly, as well as the time required for the clean-up process.

Note that checking this option in the All-In-Task means that if you ever need the data for any

reason (reprints, produce additional jobs, etc.), you will have to perform the data mapping configuration from scratch. So make sure you only tick the box for true one-off jobs. (SHARED-48956/56420)

Retrieve Items task now has a JSON Output option

The **Retrieve Items** task can now output the results of its query as a JSON string instead of storing them within the metadata. This allows easy handling of the results either through Workflow Scripting or directly in the Designer.

The Retrieve Items task is often used in circular Workflows where data that has already been extracted, output and presented to the user is sent back by the user for further processing. Think, for instance, of a Proof-Of-Delivery Workflow where the delivery person makes the recipient sign a **Capture OnTheGo** document and dynamically makes adjustments to the quantities that were actually shipped out. Both the signature and the modified values are sent back to a Workflow process whose purpose is to generate a PDF version of the document with those modified values.

With the new option to retrieve existing items in JSON format (including the detail tables), you can now retrieve the original record as a JSON object and use a simple script to update all the detail line values using those posted by the end-user. You can then provide that JSON object directly to the Create PDF Preview task without having to perform the data mapping operation once again, thus saving some valuable resources (both in terms of time and database space). (SHARED-50426)

New Create Preview PDF plugin added

A new **Create Preview PDF** plugin has been added to the Connect Workflow. The Plugin retrieves the resulting PDF from the file store and makes it available to the process as the job data file. (SHARED-47860)

Create Email Content task now has an option to test the SMTP settings

The **Create Email Content** task now has an option to test the SMTP settings entered before saving the configuration. (SHARED-44332/46165)

Note

The "Test SMTP Settings" does not work when using TLS. This limitation will be addressed in a later release.

General Workflow fixes and enhancements

- **Improved datamapping speed** when outputting records in metadata. (SHARED-38455)
- **Improved performance** when creating metadata after Content Creation. (SHARED-47150)
- Processing a **Secure PDF** *as passthrough* through CreatePDF will retain the Security options. (SHARED-47951)
- The **Create Email Content** task now validates the format of the sender's address to prevent typos/mistakes from being saved to the configuration. (SHARED-47947)
- The **OL Connect Send Plug-In** now stores user name and IP along with Job Info. (SHARED-49421)
- The **Create Web Content** task can now be added to processes as an Output task. This helps make processes leaner and easier to understand. (SHARED-50083)
- Drop down list added to the **HTTP Server Input** task to set the application/json mime type. (SHARED-50085)
- **OL Connect Send related plugins** now all grouped together. (SHARED-50126)
- An issue has been fixed where the **wrong document** was attached to email output. This occurred when generating email output with a PDF attachment based on a print context and generating print output of that same template in a single Workflow process. (SHARED-51396)
- The **Output to SharePoint** task was hard coded to use MSXML 4, which was installed along with Workflow. This hard-coded dependency has now be removed from any task that uses MSXML so that they can now automatically use the latest version installed on the PC. (SHARED-53831)

Known Issues

Memory Usage in Clustered Environments

In high speed clustered environments, PReS Connect will fill the database faster than the Clean-up service can clear it (the ratio is approximately 3:1). Therefore if the system needs to run for some time under a considerable load, a larger database should be used to prevent production from being interrupted.

We also recommend only the Master Server performing the database clean-up, or the local Server Extension if the database is not installed with the Master, to maximize performance. For **all** Designers, Server and Server Extensions except one, set the cleanup of the database entities to run every 100 months and disable the cleanup for any Designer which also has a Server or Server Extension on that machine.
Note that if the Designer is a stand-alone then it is not connected to the central database for clean-up purposes.

Issues with Microsoft Edge browser

The Microsoft Edge browser fails to display web pages when the Workflow's CORS option (in the HTTP Server Input 2 section) is set to "*". This issue will be resolved in a future release.

Installation Paths with Multi-Byte Characters

When installing the Chinese (Traditional or Simplified) or Japanese versions of Connect, if the user specifies an alternative installation path containing multi-byte/wide-char characters it can break some of the links to the Connect-related shortcuts in the Start Menu and cause an error to appear at the end of the installer. The workaround for the moment is to use the default installation path. The problem will be addressed in a later release.

Switching Languages

Changing the language using the **Window>Preferences>Language Setting** menu option does not currently change all of the strings in the application to the selected language. This is a known issue and will be fixed in a later release.

In the meantime we offer the following workaround for anyone who needs to change the language:

1. Go to the .ini files for the Designer and Server Config:
    - C:\Program Files\Objectif Lune\OL Connect\Connect Designer\Designer.ini
    - C:\Program Files\Objectif Lune\OL Connect\Connect Server Configuration\ServerConfig.ini
2. Change the language parameter to the required one under Duser.language=en | es | de | fr | it | ja | pt | tw | zh

Only one of the above language tags should be selected. Once saved, Connect will appear in the selected language at next start-up.

GoDaddy Certificates

When installing Connect offline, dialogs allow installing the GoDaddy certificates. Most users should use the default settings and click **Next**. In some cases, however, this may not work correctly. For this reason those users should activate **Place all certificates in the following store** and then select the **Trusted Root Certification Authorities** as the target certificate store.

MySQL Compatibility

After installing Connect 1.7.1 a downgrade to a Connect version earlier than Connect 1.3 or to a MySQL version earlier than 5.6.25 is not seamlessly possible. This is because the database model used in Connect 1.3 and later (MySQL 5.6) is different to that used in earlier versions. If you need to switch to an older version of Connect / MySQL, it is first necessary to remove the Connect MySQL Database folder from "%ProgramData%\Connect\MySQL\data" before installing the older version.

PostScript Print Presets

The print presets for PostScript were changed from Version 1.1 onwards meaning that some presets created in Version 1.0 or 1.0.1 may no longer work.

Any PostScript print preset from Version 1.0 that contains the following will not work in Version 1.7.1: *.all[0].*

Any preset containing this code will need to be recreated in Version 1.7.1.

Available Printer Models

Note that only the single Printer Model (Generic PDF) will appear on the **Advanced** page of the **Print Wizard** by default.

To add additional printer models click on the settings button next to the Model selection entry box.

External Resources in Connect

There are certain limitations on how external resources can be used in Connect. For example if you want to link a file (e.g., CSS, image, JavaScript etc.) from a location on the network but you do not want to have a copy of the file saved with the template you need to do the following:

1. The resource must be located where it can be accessed by all Servers/Slaves run as users. Failure to do this will cause the image to appear as a Red X in the output for all documents which were merged by engines which could not access the file. The job will terminate normally and the error will be logged.
2. The file must be referenced via a UNC path e.g., file:////w2k8r2envan/z%20images/Picture/Supported/JPG/AB004763.jpg
    - UNC paths are required because the services will be unable to access mapped network drives (Windows security feature).
    - The engine processing the job will look on the local file system for the direct file path leading to the “resource not found” issue mentioned above.

> **Warning**
>
> Important Note: The Designer itself and Proof Print do not use processes that run as services and they may find local files with non-UNC paths which can lead to the false impression that the resources are correct.

Using Capture After Installing Workflow 8

If PReS Connect Workflow 8 is installed alongside PlanetPress Suite Workflow 7, Capture can no longer be used within Workflow 7. The plugins are now registered uniquely to Workflow 8 and the Messenger for Workflow 7 is taken offline. It is only possible to use Capture from PReS Connect Workflow 8 thereafter.

Capturing Spool Files After Installing Workflow 8

If PReS Connect Workflow 8 is installed alongside PlanetPress Suite Workflow 7, the PlanetPress Suite 7 option to capture spool files from printer queues will no longer function. The solution is to use PReS Connect Workflow 8 to capture spool files from printer queues.

Colour Model in Stylesheets

The colour model of colours defined in a stylesheet can sometimes change after editing the stylesheet. This is a known issue and will be addressed in a subsequent release.

Online Help Links Point to Introductory Page

Context sensitivity for the online help is not yet enabled in Connect. All links and F1 calls point to the introductory page, where you can Search on keywords to bring up Help pages relating to the topic.

Context sensitivity will be introduced in a subsequent release of Connect.

Image Preview in Designer

If in the Windows Internet settings (**Connection Settings > LAN configuration**) a proxy is enabled, but "Bypass proxy settings for local addresses" is not checked, the image preview service, conversion service and live preview tab in the Designer will not work and exhibit the following issues:

- Images will be shown as 0 size boxes (no red 'X' is displayed)
- Live preview does not progress, and when re-activated reports "browsers is busy"

To fix the issue you must check the "Bypass proxy settings for local addresses" option.

Merge\Weaver Engines when Printing

The print operation in the Designer will automatically detect whether the Merge\Weaver engines are available and display a message for the user to retry or cancel if not. Once the Merge\Weaver engine becomes available and the user presses retry the print operation will proceed as normal. This message can also occur in the following circumstances:

- If the server is offline and you are not using Proof Print
- On some occasions before the Print Wizard opens

REST Calls for Remote Services

The Server will now accept REST calls for all remote services and will make commands wait indefinitely until the required engines become available. The Server will log when it is waiting for an engine and when it becomes available. Note that there is no way to cancel any commands other than stopping the Server.

Print Content and Email Content in PReS Workflow

In PReS Workflow's Print Content and Email Content tasks, the option to Update Records from Metadata will only work for fields whose data type is set to String in the data model. Fields of other types will not be updated in the database and no error will be raised. This will be fixed in a later release.

Print Limitations when the Output Server is located on a different machine

The following limitation may occur when using the Print options from a Designer located on a different machine to the Output Server:

- The file path for the prompt and directory output modes is evaluated on both the client AND server side. When printing to a network share it must be available to BOTH the Designer and Server for the job to terminate successfully.
- The Windows printer must be installed on both the Server and Designer machines.
- When printing via the Server from a remote Designer, the output file remains on the Server machine. This is remedied by selecting "Output Local" in the Output Creation configuration.

VIPP Output

Some templates set up with landscape orientation are being produced as portrait in VIPP. It can also sometimes be the case that text and images can be slightly displaced. These are known issues and will be addressed in a later release of Connect.

Previous Releases

Overview

This document provides an overview of the new features and enhancements in PReS Connect 1.6.1 and PReS Workflow 8.6.

The major focus of Connect 1.6 has been to improve performance and increase stability, as well as launching a new option for the PReS Connect and PlanetPress Connect brands called **OL Connect Send**.
A description of the the new **OL Connect Send** can be found here: "OL Connect Send" on page 945.

Installing PReS Connect 1.6.1 and PReS Workflow 8.6

- PReS Connect is released as a 64 Bit version only (with the exception of the Workflow, Fax, Search and Imaging modules).
- Full details on installing and licensing PReS Connect and PReS Workflow can be found in the online help in the installer.
- Note that both PReS and PReS Connect Workflow come with a 30 day trial licenses by default.

Upgrading from PReS Connect 1.1

In order to upgrade from Connect Version 1.1 to Version 1.6.1 via the Update Manager it is necessary to install a new version of the Objectif Lune Update Client. The next time you run your current Update Client it will show that there is an update available for itself. Simply click on the download button in the dialog to install the new version of the Update Client. Note that it is no problem to run the update while the Client is open. It will automatically update itself.

Once you have done this, PReS Connect 1.6.1 will become available for download.

From Connect Version 1.2.0 onwards, the newer version of the Update Client was included with the Connect installation.

Updating stand-alone Workflow Messenger installations

If Workflow Messenger were installed stand alone, with no other Workflow components installed, the Update Client cannot find the Messenger component and thus it will not automatically update the component to the Workflow 8.6 version of Messenger. To get around this, download and run the Workflow 8.6 installer manually.

Templates Used in Workflow

For improved performance we recommend re-saving Workflow templates set up in the previous versions to run with PReS Connect1.6.1\Workflow 8.6.

Updating Connect 1.5 installations using Microsoft SQL Server as back-end

If a Microsoft Server and MySQL were installed with Connect 1.5, and the Server Configuration Tool used to switch the back-end database to Microsoft SQL, then an extra step is required in the Update to Connect 1.6.1. The procedure is documented in the installation guide.

Reduced Memory Version

> **Note**
>
> This is **not** recommended for production.

It is now possible to install PReS Connect on a machine with a minimum of 2 GB of RAM. The PReS Connect Designer will automatically detect whether it has been installed on a machine with less than 4 GB of RAM and default to only using one internal Weaver and one internal merge engine on that system. The Server will also run using internal engines.

OL Connect Send

OL Connect Send is an application of two components. The first is a Windows printer driver and the second is a set of Workflow plug-ins.

In its most basic form, OL Connect Send allows the transmission of print files over the Internet from any Windows Desktop application.

OL Connect Send flavors

OL Connect Send comes in three flavors. These are:

- **Free of charge**: No license required; any user; any domain; no usage limits; no web interaction.
- **User mode**: user-domain license required for each client domain; no usage limits, web interaction. OL Care at POP sold separately. Packages are available for 10, 25, 50, 100, 200 or Enterprise (Unlimited) users.
- **Credit mode**: credit license required; any user; any client (allows all domains) ; limited by credits only, web interaction. Includes OL Care at POP. Credits packages available for 20,000, 50,000, 100,000, 200,000 credits, 400,000 and 1,000,000 credits.

With the licensed version, OL Connect Send has the ability to requests a web page, displayed in the user's browser that allows them to enter job specific information. The information from this web page tells Workflow what to do next. OL Connect Send can be used to create custom interactive workflows from a centralized location, yet has the ability to be deployed and installed very easily.

OL Connect Send Verticals and applications

OL Connect Send has many applications. These include:

- **Print-for-Pay market**: Enables the consolidation of incoming jobs for further processing, printing and mailing.
- **Insurances and Financial market**: Desktop capture over the Internet of print jobs, (remote workers and branches), for centralized processing, printing and mail.
- **Law firms**: Desktop capture over the Internet of print jobs requiring complex mail merge and stationery management.

- **Supply Chain**: Inbound document processing, such as capturing inbound invoices or POs for publication in an ECM. Print to EDI for outbound documents such as invoices.

For further information on Connect Send, please refer to the OL Connect Send website and standalone User Guide.

Connect 1.6.1 General Enhancements and Fixes

Performance improvements

- Changes to the handling of **transparency in PDF backgrounds** has not only cured some job failures, but has also led to substantial improvements to both output speeds and filesizes. (49680)
- Improved processing speed for **multiple large detail table** documents. (47252/48537)
- Improvements made to the **clean-up** processes, improving overall production speed.
- Some **memory leaks plugged**, improving overall production speed.
- Improved reliability when using **MS-SQL** as back-end database.

Further Performance improvements can be found detailed in the Output Enhancements and Fixes section.

Documentation improvements

- Help layout changed to allow **easier navigation**, and the content improved.
- Broken links within the **Welcome Screen** have been fixed. (39077/47964)

Installer improvements

- **Microsoft SQL Server** can now be setup as the back-end database during the installation process. (47546)

Print Manager improvements

- Support added for **IPDS printer status (SNMP)**. (51629)
- Improvements with **handling and deleting of overlays** for some IPDS printers. (48961/49508)
- Disable printer capabilities check when the printer is busy, to reduce connection problems with **older printers**. (51589)
- Improved support for **Xerox IPDS 495** printers. (48774)

- Improved error handling when **IPDS structural errors are encountered** in IPDS resources. The Print Manager now reports the error and ceases sending the job to the printer. (50138)
- Print Manager would hang when **unexpected errors encountered on IPDS printers**. The Print Manager now checks for fatal errors and exits the running job when one is encountered. (50135)
- Improved robustness when encountering **Communications Errors**. For example, the errors previously encountered when removing a job whilst Print Manager was retrying a connection. (49757)

PReS. Connect

Connect 1.6.1 Designer Enhancements and Fixes

General Designer improvements

- **Interface improvements** such as inclusion of icons for different types of files (js and CSS).
- Provided option to configure the **script timeout period**. (48639)
- Minor issues with non-English language **translations** fixed.
- Display issues that were sometimes encountered when changing **section background images** have been fixed.
- Issue with Virtual Stationery not being enabled when adding VS PDF in **Formal Letter Template** wizard now fixed. (47268)
- Fixed an issue in which **resizing an abs box** in some scenarios would result in an additional box being displayed. (47858)
- When **typing in a non-English input language** (such as Hebrew), the keyboard input would periodically switch to English. This issue has been fixed. (49566)
- Saving a template when in Source view would erroneously **show snippet content** within the Source view thereafter. This has been fixed. (50131)
- HEX encoding option added to **DataMatrix** barcodes. (47897)

Capture On The Go (COTG) and Web form improvements

- **Dummy data** can now be added, to help when designing COTG forms. (47835)
- Improvements made to the COTG **Kitchen Sink** template Wizard. Added Image Annotation and Fields Table controls. (47817)
- Visible container added to **Geolocation** objects.
- Added support for **blank forms**, for multiple submissions. (50483)
- Workflow "**Output to COTG**" task now returns Document ID. (50487)
- Fixed picture issues with **iOS** sometimes causing image to be displayed as a red "X". (45231)
- Fixed Geolocation coordinates on **Android** devices. (46831)

Connect 1.6.1 DataMapping Enhancements and Fixes

- Support for **Regular Expressions** added to database searches. (51694)
- Improved Datamapping process **reliability**.
- Improved data record reliability when handling **large jobs** (those in excess of 50,000 records).
- Improved **PDF extraction** avoids character duplication.
- Improved **marking of data fields** in extraction steps.
- New option added to **support multibyte** (variable length) encoded data such as Big5, GBK, UTF-8 and Shift-JIS. (46813)
- Fixed issue whereby post-function for **extracted fields containing several lines** would only replace characters on the first line. (47949)
- Fixed issue with **Identically named datafields** in different detail tables causing issues with data extraction.
- Fixed issues with **Right-To-Left text concatenation**. (48712)
- Fixed issues with **PlanetPress Suite PDFs** not working consistently within Connect. (50355)

Connect 1.6.1 Output Enhancements and Fixes

General

- Merge Engine **memory leaks** fixed. (50188)
- Improved creation of **Metadata** after content creation.
- Improved conditional content for **Email and Web output**.
- Fixed issue with PDF Pass-through jobs, whereby **hidden features of the PDF** input were being included in the output. (49373)
- Some templates containing JPG or Bitmap graphics could trigger the **flatten.exe** program (used for flattening external files) to repeatedly open, causing performance degradation or even failure. (51251)

Email Output

- Fixed issue with the **email Subject field** not being encoded properly when using characters other than Latin characters. (48781)
- To **improve privacy** certain Meta tags that were embedded in the output email HTML have been removed. These include "email-reply-to", "email-from", "sender-name" and "sender-address". (49864)
- The **Date field** was not always included in the email header. This has been fixed and the Date field should now be present in all email headers. (48706)

Print Output

- Improved processing speed for jobs involving **separation** that create multiple output files. (49167)
- Improvements made in the **conversion of PDFs** to other formats have made such conversions significantly faster and the output smaller, in PCL, AFP and IPDS output. (50140)
- Improved **page range handling** on last page.
- Improved **N-Up** positioning.
- **Improved color support** on older AFPDS and IPDS printers.
- **PDF and TIF objects** are now marked for optimization in AFPDS output
- **Vector graphic** processing improved, resulting in much faster output, and smaller file sizes. (50140)
- Issues with **AFPDS Highlight colors** have been resolved. (48397)
- Issues resolved with **missing non-Latin characters** (such as the dyet "Đ" character) in IPDS PDF Pass-through jobs. (51509)
- Errors were encountered in **Connect Master/Slave environments**, when printing to a directory via a Job Output Mask that contained a directory structure. (49479)
- Fixed issue with **missing PDF backgrounds** in output from Master/Slave (Server Clustered) environments. These errors were due to merge engine concurrency issues. (51551)
- If an image file were replaced on disk between runs then a subsequent **Proof printing** would display the old image, . This has been fixed. (47567)

- Merge engine no longer slows down when using **external JavaScript** files in print sections. (48447)
- Fixed "**ApplicationException: Null**" errors encountered in some PCL outputs. (50868)
- Added support for **shaded bitmap fonts** to allow printing of grey text on supported IPDS and AFPDS printers. (49702)
- Fixed issues with output to IPDS Printers that do not support **FS45**. (48967)
- Fixed issues with imported PDF graphics that were **inverted in IPDS output**. (51504)
- Conversion of certain **FS10 G4 encoded images** in IPDS output was causing Xerox 495 Printers to crash. This printer specific issue has now been fixed. (51308)
- In IPDS and AFPDS output **lines and boxes** would be drawn using "Graphics Object Content Architecture" (GOCA) processing, rather than the more efficient Write Text (WT) processing. This has now been fixed, and the more efficient process is now used. (51127)
- New PrinterDef designed for **Nipson 7000** IPDS printer, which does not support Extended OVL. (50154)
- When converting a PDF in IPDS processing, if the **final item** could not be converted it was lost. This has now been fixed. (51325)

Connect Workflow 8.6 Enhancements and Fixes

General improvements

- A multitude of changes and enhancements made to support new **OL Connect Send** functionality within Workflow.
- Support for **password protection** added to "Create PDF" task. (48380)
- **Generic Data Repository** field length extended beyond previous limit of 32 characters. (47734)
- Added new "**Create PDF Preview**" task for lightning fast creation of single record PDF. (49497)
- Minor issues with some **language translations** fixed.
- Fixed issue with **control script tags** not being set correctly in email headers, in emails sent via Workflow. (51708)
- Fixed issue with the HTTP Server Input plug-in not receiving any data when a **webform contains the *enctype="multipart/form-data"* instruction** and no files were attached to the form. (35751)
- When running a process that produces an email with a PDF attachment along with a print output in the same process, the **email attachment would be incorrect** (that of the previous run). This issue has been fixed. (51879)

Performance and Stability improvements

- Improved **Print Content Creation** speed in both stand-alone and "All-In-One" tasks. (49589)
- Improved reliability in **simultaneous (multi-threaded)** COTG uploading. (47146)
- Option added to "***All-In-One***" plug-in to disable the storing of temporary data if not needed.
  This speeds up both output and the cleanup afterward. (50713)
- Fixed issues with **inconsistent PDF output** when calling the *Get Result* method (REST API) in the *All-In-One* process. (49413)
- Fixed issue with Connect (Merge Engines) losing performance when **large numbers of smaller jobs** were processed through Workflow. (50863)

- Fixed potential out-of-memory error with **very large Workflow configuration** files. (51621)
- Fixed crashes encountered when **large numbers of data selection calls** were issued in highly threaded processes. (50569)

HTTP and SMTP Server improvements

- Support added for **cross-origin HTTP** (CORS HTTP) requests, to facilitate the development and testing of web templates. (47014)
- Added option to **specify SMTP port number** in "Create Email Content" task. (49887)
- Documentation on **how to retrieve attachments from SMTP input** improved. (49473)
- Fixed corruption of **large uploaded files**. (47901)
- Fixed the timeouts encountered when the option "**Do not include XML envelope**" were selected. (49186)
- Fixed the **HTTP 501 error** when receiving Authorization headers other than Basic. (48387)

Capture On The Go (COTG) improvements

- "*Output to COTG*" task now returns **Document ID**. (50487)
- Fixed issue with "*Output to COTG*" task that could sometimes cause memory corruption, requiring a restart of the services. (47804)

PReS. Connect

Known Issues

Installing OL Connect Send on a machine with Connect installed.

When OL Connect Send Plug-Ins are installed (either standalone or via a Workflow installation) on the same machine as Connect, an interference between OL Connect Send's internal Database and that of Connect may occur, which will block a browser popup on that same machine.
This issue can be fixed by applying a startup wait to the Connect Server Service.
If the issue occurs during runtime, restarting the Connect Server Service will fix the issue.

OL Connect Send issues under Microsoft Edge browser.

- Issues with using the built-in Windows 10 default "Administrator" account and the OL Connect Send Client. This is due to Windows disallowing the opening an Edge browser whilst running under this account. This blocks interaction with the printer driver.
- The Microsoft Edge browser fails to display web pages when Workflow's CORS option (in the HTTP Server Input 2 section) is set to "*". This issue will be resolved in a future release.

Disk Drive Usage in Clustered Environments

In high speed clustered environments, PReS Connect will fill the database faster than the clean-up service can clear it (the ratio is approximately 3:1). Therefore if the system needs to run for some time under a considerable load, a larger database should be used to prevent production from being interrupted.

We also recommend only the Master Server performing the database clean-up or the local Server Extension if the database is not installed with the Master to improve performance. For ALL Designers, Server and Server Extensions except one, set the clean-up of the database entities to run every 100 months and disable the clean-up for any Designer which also has a Server or Server Extension on that machine.

Note that if the Designer is a stand-alone then it is not connected to the central DB for clean-up purposes.

Note that this is not an issue with fresh Connect installations, which have the correct settings by default.

Installation Paths with Multi-Byte Characters

When installing the Chinese (Traditional or Simplified) or Japanese versions of Connect, if the user specifies an alternative installation path containing multi-byte/wide-char characters it can break some of the links to the Connect-related shortcuts in the Start Menu and cause an error to appear at the end of the installer. The workaround for the moment is to use the default installation path. The problem will be addressed in a later release.

Switching Languages

Changing the language using the **Window>Preferences>Language Setting** menu option does not currently change all of the strings in the application to the selected language. This is a known issue and will be fixed in a later release.

In the meantime we offer the following workaround for anyone who needs to change the language:

1. Go to the .ini files for the Designer and Server Config:
    - C:\Program Files\Objectif Lune\OL Connect\Connect Designer\Designer.ini
    - C:\Program Files\Objectif Lune\OL Connect\Connect Server Configuration\ServerConfig.ini
2. Change the language parameter to the required one under Duser.language=en | es | de | fr | it | ja | pt | tw | zh

Only one of the above language tags should be selected. Once saved, Connect will appear in the selected language at next start-up.

GoDaddy Certificates

When installing Connect offline, dialogs allow installing the GoDaddy certificates. Most users should use the default settings and click **Next**. In some cases, however, this may not work correctly. For this reason those users should activate **Place all certificates in the following store** and then select the **Trusted Root Certification Authorities** as the target certificate store.

MySQL Compatibility

After installing Connect 1.6.1 a downgrade to a Connect version earlier than Connect 1.3 or to a MySQL version earlier than 5.6.25 is not seamlessly possible. This is because the database model used in Connect 1.3 and later (MySQL 5.6) is different to that used in earlier versions. If

you need to switch to an older version of Connect / MySQL, it is first necessary to remove the Connect MySQL Database folder from "%ProgramData%\Connect\MySQL\data" before installing the older version.

PostScript Print Presets

The print presets for PostScript were changed from Version 1.1 onwards meaning that some presets created in Version 1.0 or 1.0.1 may no longer work.

Any PostScript print preset from Version 1.0 that contains the following will not work in Version 1.6.1: *.all[0].*

Any preset containing this code will need to be recreated in Version 1.6.1.

Available Printer Models

Note that only the single Printer Model (Generic PDF) will appear on the **Advanced** page of the **Print Wizard** by default.

To add additional printer models click on the settings button next to the Model selection entry box.

External Resources in Connect

There are certain limitations on how external resources can be used in Connect. For example if you want to link a file (e.g., CSS, image, JavaScript etc.) from a location on the network but you do not want to have a copy of the file saved with the template you need to do the following:

1. The resource must be located where it can be accessed by all Servers/Slaves run as users. Failure to do this will cause the image to appear as a Red X in the output for all documents which were merged by engines which could not access the file. The job will terminate normally and the error will be logged.
2. The file must be referenced via a UNC path e.g., file:////w2k8r2envan/z%20images/Picture/Supported/JPG/AB004763.jpg
    - UNC paths are required because the services will be unable to access mapped network drives (Windows security feature).
    - The engine processing the job will look on the local file system for the direct file path leading to the “resource not found” issue mentioned above.

> **Warning**
>
> Important Note: The Designer itself and Proof Print do not use processes that run as services and they may find local files with non-UNC paths which can lead to the false impression that the resources are correct.

Using Capture After Installing Workflow 8

If PReS Connect Workflow 8 is installed alongside PlanetPress Suite Workflow 7, Capture can no longer be used within Workflow 7. The plugins are now registered uniquely to Workflow 8 and the messenger for Workflow 7 is taken offline. It is only possible to use Capture from PReS Connect Workflow 8 thereafter.

Capturing Spool Files After Installing Workflow 8

If PReS Connect Workflow 8 is installed alongside PlanetPress Suite Workflow 7, the PlanetPress Suite 7 option to capture spool files from printer queues will no longer function. The solution is to use PReS Connect Workflow 8 to capture spool files from printer queues.

Colour Model in Stylesheets

The colour model of colours defined in a stylesheet can sometimes change after editing the stylesheet. This is a known issue and will be addressed in a subsequent release.

Online Help Links Point to Introductory Page

Context sensitivity for the online help is not yet enabled in Connect. All links and F1 calls point to the introductory page, where you can Search on keywords to bring up Help pages relating to the topic.

Context sensitivity will be introduced in a subsequent release of Connect.

Image Preview in Designer

If in the Windows Internet settings (**Connection Settings > LAN configuration**) a proxy is enabled, but "Bypass proxy settings for local addresses" is not checked, the image preview service, conversion service and live preview tab in the Designer will not work and exhibit the following issues:

- Images will be shows as 0 size boxes (no red 'X' is displayed)
- Live preview does not progress, and when re-activated reports "browsers is busy"

To fix the issue you must check the "Bypass proxy settings for local addresses" option.

Merge\Weaver Engines when Printing

The print operation in the Designer will automatically detect whether the Merge\Weaver engines are available and display a message for the user to retry or cancel if not. Once the Merge\Weaver engine becomes available and the user presses retry the print operation will proceed as normal. This message can also occur in the following circumstances:

- If the server is offline and you are not using Proof Print
- On some occasions before the Print Wizard opens

REST Calls for Remote Services

The Server will now accept REST calls for all remote services and will make commands wait indefinitely until the required engines become available. The Server will log when it is waiting for an engine and when it becomes available. Note that there is no way to cancel any commands other than stopping the Server.

Print Content and Email Content in PReS Workflow

In PReS Workflow’s Print Content and Email Content tasks, the option to Update Records from Metadata will only work for fields whose data type is set to String in the data model. Fields of other types will not be updated in the database and no error will be raised. This will be fixed in a later release.

VIPP Output

Some templates set up with landscape orientation are being produced as portrait in VIPP. It can also sometimes be the case that text and images can be slightly displaced. These are known issues and will be addressed in a later release of Connect.

Print Limitations when the Output Server is located on a different machine

The following limitation may occur when using the Print options from a Designer located on a different machine to the Output Server:

- The file path for the prompt and directory output modes is evaluated on both the client AND server side. When printing to a network share it must be available to BOTH the Designer and Server for the job to terminate successfully.
- The Windows printer must be installed on both the Server and Designer machines.
- When printing via the Server from a remote Designer, the output file remains on the Server machine. This is remedied by selecting “Output Local” in the Output Creation configuration.

Overview

This document provides an overview of the new features and enhancements in PReS Connect 1.4.n and PReS Workflow 8.4.

Installing PReS Connect 1.4.n and PReS Workflow 8.4

- PReS Connect is released as a 64 Bit version only (with the exception of the Workflow, Fax, Search and Imaging modules).
- Full details on installing and licensing PReS Connect and PReS Workflow can be found in the online help in the installer.
- Note that both PReS and PReS Connect Workflow come with 30 day trial licenses by default.

Updating from PReS Connect 1.1

In order to upgrade from Connect Version 1.1 to Version 1.4.n via the Update Manager it is necessary to install a new version of the Objectif Lune Update Client. The next time you run your current Update Client it will show that there is an update available for itself. Simply click on the download button in the dialog to install the new version of the Update Client. Note that it is no problem to run the update while the Client is open. It will automatically update itself.

Once you have done this, PReS Connect 1.4.n will become available for download.

From Connect Version 1.2.0 onwards, the newer version of the Update Client was included with the Connect installation.

Templates Used in Workflow

For improved performance we recommend resaving Workflow templates set up in the previous versions to run with PReS Connect 1.4.n\Workflow 8.4.

Reduced Memory Version

> **Note**
>
> This is **not** recommended for production.

It is now possible to install PReS Connect on a machine with a minimum of 2 GB of RAM. The PReS Connect Designer will automatically detect whether it has been installed on a machine with less than 4 GB of RAM and default to only using one internal Weaver and one internal merge engine on that system. The Server will also run using internal engines.

Connect 1.4.2 Enhancements and Fixes

Designer

- A blank page is no longer added to beginning of templates that use scripting to add pages from PDF files. This problem only appeared when saving to a new file from within Preview mode, or when generating output from Preview mode. (SHARED-44564)
- Image elements (`<img>`) referencing a PDF image would multiply when switching back and forth between Live and Preview modes, in both email and web contexts. This has now been fixed. (SHARED-44066)

Email and Web Output

- Elements whose style was set to `display: none` would be removed from HTML output, rather than just not being displayed. This error has been fixed. (SHARED-44151)

  > **Note**
  >
  > Elements hidden via the Conditional Script wizard are removed from the output.

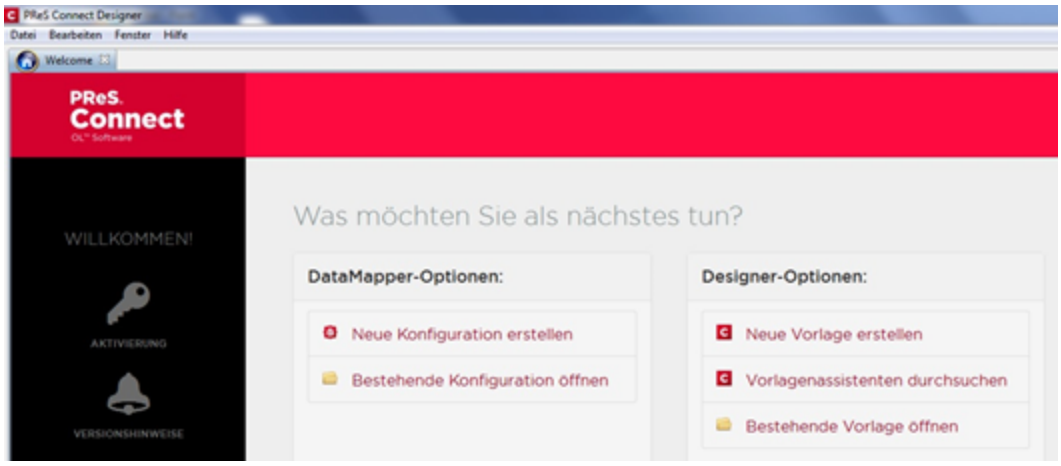
Print Manager

- IPDS - Printing a range of pages with Trace On would lead to errors. This has now been fixed. (SHARED-44291)

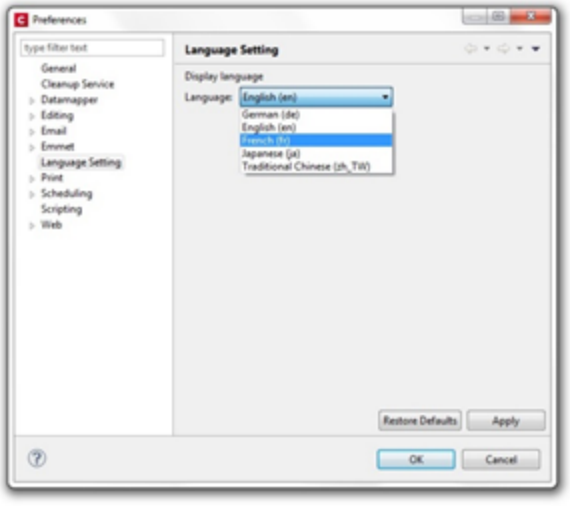
Connect 1.4.1 New Features and Enhancements

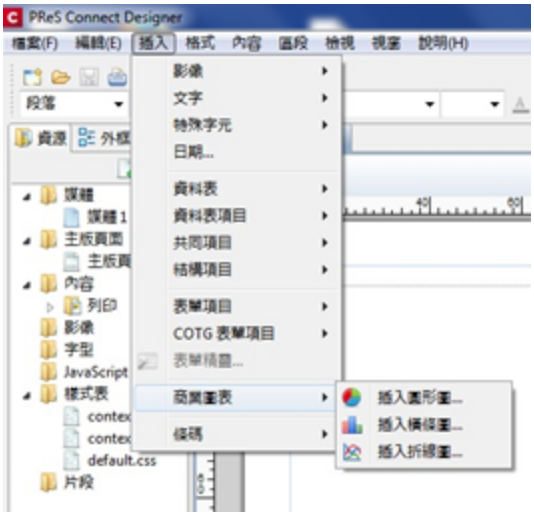
New Languages Added

The Connect user interface is now supported in Spanish, Italian, Portuguese and Chinese (Simplified) as well as English, French, German, Japanese and Chinese (Traditional). The default language remains English. Further languages will be introduced in later releases.



The language can be selected during the installation of Connect or via the Language Setting options in the Preferences dialog (note that Connect needs to be restarted in order to apply the selected language).

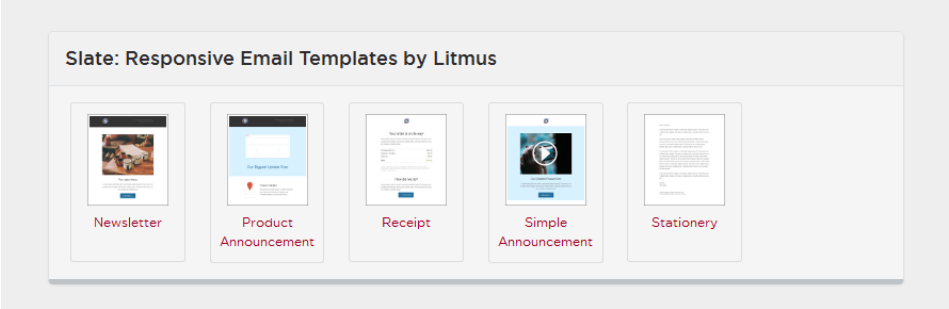




At present only the Connect user interface has been translated. Error messages and warnings will be translated for a later release.

Welcome Screen Extended

- The Printer Definition Configs and HCF files available on the OL Connect website are now grouped by manufacturer, to simplify selection.
- Connect 1.4.1 also introduces **Responsive Email Templates**.



Virtualisation

- Connect is now supported on the Microsoft Hyper-V and Hyper-V/Azure environments as well as the VMWare Workstation, Server, Player and ESX infrastructure environments.

Modifying Connect Installations

- Connect 1.4.1 introduces the ability to Modify Connect installations, once Connect 1.4.1 has been installed.

Connect 1.4.1 Designer Enhancements and Fixes

Capture OnTheGo

- **Remote CSS** and **Javascript** resources can now be pre-fetched and shared between documents to avoid having to embed them in every template. (SHARED-39095)
- **Signature widgets** can now be marked as required. (SHARED-39833)
- **Annotations** can now be added to static images (not the picture widget). (SHARED-40369)

Email Context

- Email context sections can be **enabled or disabled based upon data value**. (SHARED-33656)
- Email **port number** can now be specified as part of the host name. (SHARED-38008)
- **New template wizard** for Slate templates by Litmus. (SHARED-36843)

Print Context

- Ability added to **mirror margins on back pages of Duplex jobs**, via Facing Pages selection added in Sheet Configuration dialog. (SHARED-40505)
- Can now suppress Master Page on duplex back pages, if there are no contents.

Scripting

- Result can now be written as a JSON string into an attribute or text (instead of the field value). Useful for web contexts where a front-end script can easily read the value.
- User-defined formatting masks can now be used when outputting dates and numerical values.
- Conditional script set to "Show if Condition is true" will hide the object by default.
- Page range can be specified via scripting when setting PDF as background. (SHARED-36998)
- Matched elements are highlighted when hovering over scripts. (SHARED-38293)

General

- Numerous improvements to Designer GUI and user-experience. These include:
  - A new "**Styles**" pane that displays the styles applied to the selected object.
  - **Image Selection** Dialog now inserts from resources, files or URL.
  - **Line number** option now available from any source view.
  - View menu now has entries to **switch between views** within the Workspace.
- Set any **PDF as background** for a Section. (SHARED-39880)
- Specify a **background image** and control its size, position and repeat mode. (SHARED-14522)

- Option to **generate JSON string from data model fields** to pass data record information to client side script. (SHARED-39337)
- **CSS Class name completion** suggests CSS classes based upon the current section. (SHARED-36870)
- **CSS Style inspector** allows full control over styles. (SHARED-22929)

Connect 1.4.1 DataMapping Enhancements and Fixes

- **All fields can now be renamed** through the Data Model view. (SHARED-40116)
- SQL Server data mapping can now use **Windows Authentication** credentials. (SHARED-38999)
- Support added for **MS SQL Server** as the backend database. (SHARED-39959)

Connect 1.4.1 Output Enhancements and Fixes

Print Output

- Images, barcodes, OMRs and text can now all be added to the page at time of output generation.
- Ability to **add Metadata** to any output type (previously only PDF and AFP), for use within output Presets.
- **Static strings** can now be added to Metadata in job Presets.
- The **Output Path** in the Output Preset can now be set dynamically.
- New Color setting for the **Add Text** option. (SHARED-40830)
- **Monochrome** and **Dithering** support added to PCL output. (SHARED-39937)
- **Dithering** and **B&W threshold** values now supported in the Print Wizard. (SHARED-39520)
- New option to control **Compact Font Format** settings within PostScript. (SHARED-39902)
- Support for Simple Network Management Protocol **(SNMP) queries** added to Print Manager. (SHARED-39213)

Email Output

- **SMTP port** can now be customized when sending email.

Connect 8.4.1 Workflow Enhancements and Fixes

- Major performance improvements when updating data records. (SHARED-38897)
- Stand-alone **Update Data Record** task allows data records to be updated in the database without having to create content. (SHARED-38867)
- **Update Records** operations performed in batches, allowing for unlimited number of records. (SHARED-38948)
- **All-In-One task** can now return the output file to the Workflow, to allow customising output destination(s). (SHARED-39434)
- **Job information** (such as Owner and Job Name) now sent to the printer in PostScript and Windows Driver output.

Known Issues

Memory Usage in Clustered Environments

In high speed clustered environments, PReS Connect will fill the database faster than the clean-up service can clear it (the ratio is approximately 3:1). Therefore if the system needs to run for some time under a considerable load, a larger database should be used to prevent production from being interrupted.

We also recommend only the Master Server performing the database clean-up or the local Server Extension if the database is not installed with the Master to improve performance. For ALL Designers, Server and Server Extensions except one, set the clean-up of the database entities to run every 100 months and disable the clean-up for any Designer which also has a Server or Server Extension on that machine. Note that if the Designer is a stand-alone then it is not connected to the central DB for clean-up purposes.

Installation Paths with Multi-Byte Characters

When installing the Chinese (Traditional or Simplified) or Japanese versions of Connect, if the user specifies an alternative installation path containing multi-byte/wide-char characters it can break some of the links to the Connect-related shortcuts in the Start Menu and cause an error to

appear at the end of the installer. The workaround for the moment is to use the default installation path. The problem will be addressed in a later release.

Switching Languages

Changing the language using the **Window>Preferences>Language Setting** menu option does not currently change all of the strings in the application to the selected language. This is a known issue and will be fixed in a later release.

In the meantime we offer the following workaround for anyone who needs to change the language:

1. Go to the .ini files for the Designer and Server Config:
    - C:\Program Files\Objectif Lune\OL Connect\Connect Designer\Designer.ini
    - C:\Program Files\Objectif Lune\OL Connect\Connect Server Configuration\ServerConfig.ini
2. Change the language parameter to the required one under Duser.language=en | fr | de | ja | zh

Only one of the above language tags should be selected. Once saved, Connect will appear in the selected language at next start-up.

GoDaddy Certificates

When installing Connect offline, dialogs allow installing the GoDaddy certificates. Most users should use the default settings and click **Next**. In some cases, however, this may not work correctly. For this reason those users should activate **Place all certificates in the following store** and then select the **Trusted Root Certification Authorities** as the target certificate store.

MySQL Compatibility

After installing Connect 1.4.n a downgrade to a Connect version older than Connect 1.3 or to a MySQL version earlier than 5.6.25 is not seamlessly possible. This is because the database model used in Connect 1.3 and 1.4.n (MySQL 5.6) is different to earlier versions. If you need to switch to an older version of Connect / MySQL, it is necessary to remove the Connect MySQL Database folder from "%ProgramData%\Connect\MySQL\data" before installing the older version.

PostScript Print Presets

The print presets for PostScript were changed from Version 1.1 onwards meaning that some presets created in Version 1.0 or 1.0.1 may no longer work.

Any PostScript print preset from Version 1.0 that contains the following will not work in Version 1.4: *.all[0].*

Any preset containing this code will need to be recreated in Version 1.4.

Available Printer Models

Note that only the single Printer Model (Generic PDF) will appear on the **Advanced** page of the **Print Wizard** by default.

To add additional printer models click on the settings button next to the Model selection entry box.

External Resources in Connect

There are certain limitations on how external resources can be used in Connect. For example if you want to link a file (e.g., CSS, image, JavaScript etc.) from a location on the network but you do not want to have a copy of the file saved with the template you need to do the following:

1. The resource must be located where it can be accessed by all Servers/Slaves run as users. Failure to do this will cause the image to appear as a Red X in the output for all documents which were merged by engines which could not access the file. The job will terminate normally and the error will be logged.
2. The file must be referenced via a UNC path e.g., file:////w2k8r2envan/z%20images/Picture/Supported/JPG/AB004763.jpg
    - UNC paths are required because the services will be unable to access mapped network drives (Windows security feature).
    - The engine processing the job will look on the local file system for the direct file path leading to the “resource not found” issue mentioned above.

> **Warning**
>
> Important Note: The Designer itself and Proof Print do not use processes that run as services and they may find local files with non-UNC paths which can lead to the false impression that the resources are correct.

Using Capture After Installing Workflow 8

If PReS Connect Workflow 8 is installed alongside PlanetPress Suite Workflow 7, Capture can no longer be used within Workflow 7. The plugins are now registered uniquely to Workflow 8 and the messenger for Workflow 7 is taken offline. It is only possible to use Capture from PReS Connect Workflow 8 thereafter.

Capturing Spool Files After Installing Workflow 8

If PReS Connect Workflow 8 is installed alongside PlanetPress Suite Workflow 7, the PlanetPress Suite 7 option to capture spool files from printer queues will no longer function. The solution is to use PReS Connect Workflow 8 to capture spool files from printer queues.

Colour Model in Stylesheets

The colour model of colours defined in a stylesheet can sometimes change after editing the stylesheet. This is a known issue and will be addressed in a subsequent release.

Online Help Links Point to Introductory Page

Context sensitivity for the online help is not yet enabled in Connect. All links and F1 calls point to the introductory page, where you can Search on keywords to bring up Help pages relating to the topic.

Context sensitivity will be introduced in a subsequent release of Connect.

Image Preview in Designer

If in the Windows Internet settings (**Connection Settings > LAN configuration**) a proxy is enabled, but "Bypass proxy settings for local addresses" is not checked, the image preview service, conversion service and live preview tab in the Designer will not work and exhibit the following issues:

- Images will be shows as 0 size boxes (no red 'X' is displayed)
- Live preview does not progress, and when re-activated reports "browsers is busy"

To fix the issue you must check the "Bypass proxy settings for local addresses" option.

Merge\Weaver Engines when Printing

The print operation in the Designer will automatically detect whether the Merge\Weaver engines are available and display a message for the user to retry or cancel if not. Once the Merge\Weaver engine becomes available and the user presses retry the print operation will proceed as normal. This message can also occur in the following circumstances:

- If the server is offline and you are not using Proof Print
- On some occasions before the Print Wizard opens

REST Calls for Remote Services

The Server will now accept REST calls for all remote services and will make commands wait indefinitely until the required engines become available. The Server will log when it is waiting for an engine and when it becomes available. Note that there is no way to cancel any commands other than stopping the Server.

Print Content and Email Content in PReSWorkflow

In PReS Workflow's Print Content and Email Content tasks, the option to Update Records from Metadata will only work for fields whose data type is set to String in the data model. Fields of other types will not be updated in the database and no error will be raised. This will be fixed in a later release.

VIPP Output

Some templates set up with landscape orientation are being produced as portrait in VIPP. It can also sometimes be the case that text and images can be slightly displaced. These are known issues and will be addressed in a later release of Connect.

Print Limitations when the Output Server is located on a different machine

The following limitation may occur when using the Print options from a Designer located on a different machine to the Output Server:

- The file path for the prompt and directory output modes is evaluated on both the client AND server side. When printing to a network share it must be available to BOTH the Designer and Server for the job to terminate successfully.
- The Windows printer must be installed on both the Server and Designer machines.
- When printing via the Server from a remote Designer, the output file remains on the Server machine. This is remedied by selecting “Output Local” in the Output Creation configuration.

Legal Notices and Acknowledgments

PReS Connect, Copyright © 2018, Objectif Lune Inc.. All rights reserved.

The license agreements for the associated open source third party components can be downloaded here.

This application uses the following third party components:

- **Adobe PDF Library** which is either a registered trademark or trademark of Adobe Systems Incorporated in the United States and\or other countries.
- **Adobe XMP Core** Copyright © 1999 - 2010, Adobe Systems Incorporated. All rights reserved.
- **Eclipse Persistence Services Project (EclipseLink)**, Copyright © 2007, Eclipse Foundation, Inc. and its licensors. All rights reserved. This is distributed under the terms of the Eclipse Public License Version 1.0 and Eclipse Distribution License Version 1.0.
- **Fugue Icons** by Yusuke Kamiyamane which are distributed under the terms of the Creative Commons Attribution 3.0 License.
- **Gecko** which is distributed under the terms of the Mozilla Public License Version 2.0. Information on obtaining Gecko can be found on the following page: https://wiki.mozilla.org/Gecko:Getting_Started
- **Glassfish Java Mail** which is licensed under the terms of the Common Development and Distribution License (CDDL) Version 1.0. Information on how to download the Glassfish source can be obtained from here: https://wikis.oracle.com/display/GlassFish/Java+EE+7+Maven+Coordinates
- **Hamcrest Matchers** Copyright © 2000-2006, www.hamcrest.org. All rights reserved.
- **HyperSQL**, Copyright © 2001-2010, The HSQL Development Group. All rights reserved.
- **ICU4J 4.4.2** Copyright © 1995-2013 International Business Machines Corporation and others. All rights reserved.
- **J2V8** which is distributed under the terms of the Eclipse Public License Version 1.0. The source code for J2V8 can be obtained from the following location: https://github.com/eclipsesource/j2v8
- **Jacob Java Com Bridge** which is licensed under the terms of the GNU Lesser General Public License Version 2. The source code for this can be obtained from the following location: http://sourceforge.net/projects/jacob-project/files/jacob-project/

- **JavaCraft JSch** Copyright © 2002 - 2012 Atsuhiko Yamanaka, JCraft Inc. All rights reserved.
- **JavaSysMon** Copyright © 2009 ThoughtWorks, Inc. All rights reserved.
- **JavaX Mail** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. The source code for this can be obtained from the following location: https://java.net/projects/javamail/downloads/directory/source
- **Jersey** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. Information on how to obtain the source code can be found at the following location: http://repo1.maven.org/maven2/org/glassfish/jersey/jersey-bom
- **jersey-json-1.13** which is licensed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. Information on how to obtain the source code can be found at the following location: http://mvnrepository.com/artifact/com.sun.jersey/jersey-json/1.13-b01
- **Jersey Multipart** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. Information on how to obtain the source code can be found at the following location: http://repo1.maven.org/maven2/org/glassfish/jersey/jersey-bom
- **JGoodies Forms, JGoodies Binding and JGoodies Looks**, Copyright © 2002-2013 JGoodies Software GmbH. All rights reserved.
- **JNA Version 3.5.1** which is distributed under the terms of the GNU Lesser General Public License Version 2.1. The source code for this can be obtained from the following location: https://github.com/twall/jna/releases
- **Junit** which is distributed under the terms of the Eclipse Public License Version 1.0. The source code for Junit can be obtained from the following location: https://github.com/junit-team/junit/tree/master/src
- **Mimepull** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.1. The source code for this can be obtained from the following location: https://maven.java.net/content/repositories/releases/org/jvnet/mimepull/mimepull/
- **Objectweb ASM**, Copyright © 2000-2011 INRIA, France Telecom. All rights reserved.
- **Relique CSV Driver** which is licensed under the terms of the Lesser General Public License Version 2.0. This can be obtained from the following location: http://sourceforge.net/p/csvjdbc/code/ci/master/tree/

PReS. Connect

- **Rhino 1.7R4 and 1.7.7.1** which are licensed under the terms of the Mozilla License Version 2.0. The source code for these can be obtained from the following location: https://developer.mozilla.org/en-US/docs/Mozilla/Projects/Rhino/Download_Rhino
- **Saxon** which is distributed under the terms of the Mozilla Public License Version 2.0. The source code for this can be obtained from the following location: http://sourceforge.net/projects/saxon/files/Saxon-HE/9.6/
- **Servlet API** developed by Sun as part of the Glassfish project and licensed under the terms of the Common Development and Distribution License (CDDL) Version 1.0. Information on how to download the Glassfish source (as part of Java EE platform) can be obtained from here: https://wikis.oracle.com/display/GlassFish/Java+EE+7+Maven+Coordinates
- **Spring Framework** which is distributed under the terms of the Apache Software License Version 2.0. This product includes subcomponents with separate copyright notices and license terms.
- **Springsource JavaX Mail** which is distributed under the terms of the Common Development and Distribution License (CDDL) Version 1.0. The source code for this can be obtained from the following location: http://ebr.springsource.com/repository/app/bundle/version/detail?name=com.springsource.javax.mail&version=1.4.5&searchType=bundlesByName&searchQuery=mail
- **Springsource SLF4J 1.6.1**, Copyright © 2004-2008 QOS.ch. All rights reserved.
- **Web Services Description Language for Java** which is distributed under the terms of the Common Public License v 1.0. The source code for this can be obtained from the following location: http://wsdl4j.cvs.sourceforge.net/viewvc/wsdl4j/
- **XULRunner** which is distributed under the terms of the Mozilla Public License Version 2.0. The source code for this can be obtained from the following location: http://ftp.mozilla.org/pub/mozilla.org/xulrunner/releases/latest/source/
- **zziplib** which is licensed under the terms of the Mozilla License Version 1.1. The source code for this can be obtained from the following location: http://sourceforge.net/projects/zziplib/files/zziplib13/
- **7-Zip SFX** which is licensed under the terms of the GNU Lesser General Public License Version 2.1. The source code for this can be obtained from the following location: http://www.7zsfx.info/files/7zsd_src_160_2712.7z

Portions of certain libraries included in this application which are distributed under the terms of the Mozilla Public License have been modified. To obtain copies of the modified libraries please contact your local Objective Lune Support team.

This application also uses the following components which are distributed under the terms of the **Apache Software License Version 2.0**:

- Apache Ant
- Apache Axis
- Apache CFX
- Apache Commons Beanutils
- Apache Commons CLI
- Apache Commons Codec
- Apache Commons Collections
- Apache Commons Configuration
- Apache Commons DBCP
- Apache Commons Digester
- Apache Commons Discovery
- Apache Commons FileUpload
- Apache Commons Imaging
- Apache Commons IO
- Apache Commons Lang
- Apache Commons Logging
- Apache Commons Net
- Apache Commons Pool
- Apache Commons Validator
- Apache Commons VFS
- Apache Derby
- Apache Felix and dependencies
- Apache Geronimo
- Apache Jakarta HttpClient
- Apache Log4j
- Apache Neethi
- Apache OpenCMIS
- Apache POI
- Apache ServiceMix

PReS. Connect

- Apache Tomcat
- Apache WSS4J
- Apache Xalan
- Apache Xerces2 Java Parser
- Apache XMLGraphics
- Apache XML-RPC
- Barcode4j
- Google Collections
- Google GSON
- Jetty
- LMAX Disruptor
- OPS4J Pax Web
- org.json.simple
- Spring Dynamic Modules
- StAX
- XMLBeans

Eclipse Technology:

This Software includes unmodified Eclipse redistributables, which are available at www.eclipse.org. The Eclipse redistributables are distributed under the terms of the Eclipse Public License - v 1.0 that can be found at https://www.eclipse.org/legal/epl-v10.html.

VSS Java FreeMarker:

This product includes software developed by the Visigoth Software Society (http://www.visigoths.org/).

This includes the following subcomponents that are licensed by the Apache Software Foundation under the Apache License, Version 2.0:

- freemarker/ext/jsp/web-app_2_2.dtd
- freemarker/ext/jsp/web-app_2_3.dtd
- freemarker/ext/jsp/web-app_2_4.xsd

PReS. Connect

- freemarker/ext/jsp/web-app_2_5.xsd
- freemarker/ext/jsp/web-jsptaglibrary_1_1.dtd
- freemarker/ext/jsp/web-jsptaglibrary_1_2.dtd
- freemarker/ext/jsp/web-jsptaglibrary_2_0.xsd
- freemarker/ext/jsp/web-jsptaglibrary_2_1.xsd

Java SE framework and platform:

This application uses the Java SE framework and platform which is distributed under the terms of the Oracle Binary Code License Agreement for the Java SE Platform Products and Java FX. Copyright 2013, Oracle America ,Inc. All rights reserved.

Use is subject to license terms. ORACLE and JAVA trademarks and all ORACLE- and JAVA-related trademarks, service marks, logos and other brand designations are trademarks or registered trademarks of Oracle in the U.S. and other countries.

Use of the Commercial Features for any commercial or production purpose requires a separate license from Oracle. "Commercial Features" means those features identified Table 1-1 (Commercial Features In Java SE Product Editions) of the Java SE documentation accessible at http://www.oracle.com/technetwork/java/javase/documentation/index.html.

Further Components:

- This product includes software developed by the **JDOM Project** (http://www.jdom.org/).
- Portions of this software are copyright © 2010 **The FreeType Project** (www.freetype.org). All rights reserved.
- This product includes software developed by **JSON.org** (http://www.json.org/java/index.html).

Copyright Information

Copyright © 1994-2018 Objectif Lune Inc. All Rights Reserved.

No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any other language or computer language in whole or in part, in any

form or by any means, whether it be electronic, mechanical, magnetic, optical, manual or otherwise, without prior written consent of Objectif Lune Inc.

Objectif Lune Inc.disclaims all warranties as to this software, whether expressed or implied, including without limitation any implied warranties of merchantability, fitness for a particular purpose, functionality, data integrity or protection.

PlanetPress, PReS and PrintShop Mail are registered trademarks of Objectif Lune Inc.

Click to download the EULA as PDF