

PrintShop Mail Connect

OL® Software

User Guide

Version: 2018.2

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Welcome to PrintShop Mail Connect 2018.2

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.

PrintShop Mail Connect is a tool designed to optimize customer communications. It is designed to improve the creation, distribution, interaction and maintenance of your communications.

The PrintShop Mail Connect **Designer** is designed to create output for print and email within a single template and from many data types. Output presets applied outside the design phase make templates 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.

This online documentation covers **PrintShop Mail Connect** version 2018.2.

Setup And Configuration

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

- "System and Hardware Considerations" below
- "Installation and Activation" on page 32
- "Known Issues" on page 83
- "Engine configuration" on page 26

System and Hardware Considerations

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

- "System requirements" on page 31
- "Database Considerations" on page 17
- "Environment considerations" on page 22
- "Known Issues" on page 83
- "Language and Encoding Considerations" on page 24
- "Antivirus Exclusions" on the facing page
- "Performance Considerations" on page 29

Antivirus Exclusions

Article #: INFO-0002A	Product: PrintShop Mail Connect	Version: 1.5 and up
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Description

The information on this page is designed to assist IT managers and IT professionals decide what anti-virus strategy to follow with consideration to OL Connect and their internal requirements and needs. This page describes the mode of operation and the files and folders used by OL 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.

With some exceptions, which are listed below.

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%\Connectfilestore:** 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%\Connectlogs**: 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%\Connecttemp**: 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%\Connectworkspace**: 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 a folder called "**connect.database**" under the Windows system temp folder.. 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 "**ConnectMySQL**".

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.

Database Considerations

This page describes the different considerations and pre-requisites for the database back-end used by PrintShop Mail 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** : PrintShop Mail 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 PrintShop Mail 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 minimum supported MySQL version is 5.1.31.
- 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" above topic above.
- The database configuration must allow the use of mixed case table names. This is particularly an issue on Linux MySQL installations.
- 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 PrintShop Mail 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-existing 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.preferences)

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 321 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.

Environment considerations

Terminal Server/Service Support

PrintShop Mail 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 PrintShop Mail Connect is located, unexpected behaviours may occur and will not be supported by Objectif Lune Inc.. Furthermore, using PrintShop Mail Connect in a Terminal Service environment is an infringement of our End-User License Agreement.

Virtual Machine Support

PrintShop Mail Connect supports the following virtual environments:

- VMWare Environments. This includes VMWare Player, VMWare Workstation as well as VMWare ESX Server.
- VMWare VMotion. This means the virtual machine hosting PrintShop Mail Connect can be automatically moved from one ESX server to another in a clustered installation.
- Microsoft Hyper-V/Azure infrastructure environments.

PrintShop Mail Connect is *not* officially supported on any other virtual machines such as Virtual PC, Parallels, Bochs, Xen, etc.

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.

Remote Desktop Support

Tests have demonstrated that PrintShop Mail 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.

PrintShop Mail Connect 1.3 and later have been certified under Remote Desktop.

32-bit or 64-bit Operating Systems?

PrintShop Mail 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 PrintShop Mail Connect. Please see [Antivirus](#)

[Exclusion](#) 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

PrintShop Mail 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 PrintShop Mail 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 command-line switches are accepted, when one of Connect components is started and run. Please be therefore advised, that any non-whitelisted ini entry or command-line 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.

Language and Encoding Considerations

Please note the following considerations:

- **Language:**

- PrintShop Mail 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
 - Korean
 - Portuguese
 - Chinese (Simplified)
 - Chinese (Traditional)
 - Japanese.

The default language is English.

The PrintShop Mail Connect help system (this document) is currently only available in English.

- **Encoding:**

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

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.

Firewall/Port considerations

For Firewall/Port considerations, please see this article in the Knowledge Base: [Connect Firewall/Port Configuration](#)

Engine configuration

The Designer cooperates with different engines to handle specific tasks. A **Merge engine** merges the template and the data to create Email output, or to create an intermediary file for Printed output. The intermediary file is in turn used by a **Weaver engine** to prepare the Print output. (For more information see: "Connect: a peek under the hood" on page 89).

Settings for these engines are made in the **Scheduling Preferences** (Window > Preferences > Scheduling). This topic explains the principles behind these settings and provides guidelines for configuring the engines in such a way as to achieve the highest possible output speeds.

Tip

Other ways to enhance performance are explained in another topic: "Performance Considerations" on page 29.

Speed quota: ppm and speed units

The highest possible output speed depends first and foremost on your licence. With no Performance Pack, PrintShop Mail Connect can generate output at 250 **ppm** (pages, and/or emails, per minute) for Subscription licence, or 1000ppm for Perpetual licence. Additional Performance Packs increase this quota.

The number of engines that are allowed to operate in parallel to create the **same type** of output are referred to as **speed units**. PrintShop Mail Connect provides 1 speed unit (with both licence types).

It is important to note that only **output operations** are limited by this quota.

- The **Weaver** engine **always** requires a speed unit to run.
- A **Merge** engine **only** requires a speed unit when creating Email output.
- The **Datamapper** engine doesn't need a speed unit.

Merge engines involved in a Print operation don't need a speed unit in order to run. It is therefore possible to launch multiple Merge engines, which in most situations increases PrintShop Mail Connect's performance.

Number of Merge engines

When first installed, PrintShop Mail Connect is configured to use 1 Merge engine. A Merge engine will run mostly single-threaded. To benefit from modern multi-core systems it is recommended that several Merge engines run in parallel.

As a rule of thumb, you will want to run as many Merge engines as the system has cores. The print statistics message dialog shows both the number of Merge engines and cores. However, modern hardware typically has both full cores and hyper-threading or logical cores. Both are counted as cores in this dialog, but the logical cores should not be counted as a full core when determining how many Merge engines to use. As a guide, count logical cores for only 25%-50% of a full core.

For example: on an Intel i7 CPU that comes with 4 cores and 4 additional hyper-threading cores, Windows Task Manager will show 4 cores and 8 logical processors on its performance tab. On a CPU like this, 5 or 6 Merge engines can be configured to run in parallel.

It is advised that you *do not configure more engines than can be backed by actual processing power*. This adds overhead while not adding processing power.

To configure the number of Merge engines:

1. Select **Window > Preferences...** from the menu; under **Scheduling**, select **Scheduling - Merge engine**.
2. Set **Local engines launched** to a number appropriate for your system.
3. Initially, you can set **Parallel engines per job** to the same number as the Local engines launched, for both medium and large jobs (see "Job size limits" on the facing page, below).
4. Always set **Maximum concurrent engines per type** to the same number as the Local engines launched, for both medium and large jobs.
5. Click **OK** or **Apply**.

Note

Since PrintShopMail Connect can only handle one job at a time, it isn't useful to make any 'engine reservations'. Reserved engines cannot be used by jobs of another type. All Merge engines should be "floating".

Job size limits

Job size is a relative concept. In a small service company a job may be considered large when it counts 1,000 records, whereas in an insurance company the same job may be seen as small. PrintShop Mail Connect lets you define job sizes by setting the maximum number of **records** in a small job, and the minimum number of records in a large job. Jobs that are neither small nor large are medium sized. (Note that the term 'records' refers to top-level records only. Detail records are not considered.) These job size limits could have an impact on performance.

- **Small** jobs always get just **one** engine. Do not set the limit for small jobs too high; small jobs should be easily handled by one engine.
- The number of engines used for **medium** and **large** jobs is configurable.

Which job size limits are ideal in your setup can't be said beforehand. It requires testing to find the minimum and maximum number of records in jobs that benefit from running with more than one Merge engine. Take into account that jobs with fewer records could actually be medium or large if each individual record outputs 10,000 pages.

- To set the job size limits, select **Window > Preferences...** from the menu; then go to **Scheduling**.
- Under **Scheduling - Merge engine** you can set the number of **Parallel engines per job** for medium and large jobs.

Example

Testing may reveal that jobs between 50 and 250 records benefit from running with 2 Merge engines, but that running those jobs with more Merge engines doesn't result in higher output speeds or even takes a bit longer.

In this case, the maximum number of records in a small job should be set to 50; the minimum number of records in a large job could be set to 250. Subsequently, the Parallel engines per job setting could be set to 2 for medium jobs, and for large jobs it should be set to the maximum number of Merge engines available.

Memory per engine

As explained above, PrintShop Mail Connect can be configured to use multiple Merge engines. By default, each Merge engine, as well as the Datamapper engine and Weaver engine, is set to use 640MB of RAM. To make optimum use of the machine's capabilities it might be useful to increase the amount of memory that an engine can use.

- For complex templates with a lot of pages per document, there is a chance that the Merge engines will run better with more memory.
- For jobs with heavy graphics, jobs that use Cut & Stack impositioning and jobs that use particular variables that entail page buffering (see "Content variables" on page 802), the maximum memory usage of the Weaver engine can be relevant.

The **Maximum memory per engine** setting is found in the scheduling preferences of each engine type; see Merge Engine Scheduling and Weaver Engine Scheduling.

Performance Considerations

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

Performance analysis details

In PrintShop Mail Connect, after each print job, a message dialog displays a print job summary (see "Print Job Summary dialog" on page 434). This summary may help you determine how best to maximize the performance of PrintShop Mail Connect.

With no Performance Pack, PrintShop Mail Connect's Weaver engine can generate output at 250 **ppm** (pages, or emails) per minute) for Subscription licence, or 1000ppm for Perpetual licence. Additional Performance Packs increase this quota.

If your print jobs are not running at the licensed speed, there may be several ways to improve the performance, as described below. Note however that it is not guaranteed that the licensed speed can be achieved with **any** job. Creating output for templates with very complex scripts or complex graphics resources will take a certain amount of time, even on high-end hardware.

If your print jobs are running at the licensed speed, then improving performance will require purchasing either a Performance Pack or upgrading to PlanetPress or PreS Connect (see [Performance Packs](#)). For advice please contact your local sales office (see [Objectif Lune's Contact page](#)).

Engine configuration

A **Merge engine** merges the template and the data to create Email output, or to create an intermediary file for Printed output. The intermediary file is in turn used by a **Weaver engine** to prepare the Print output.

Configuring these engines to match the hardware configuration is probably the fastest and most effective way to improve Connect's performance. See "Engine configuration" on page 26.

- **Number of Merge engines.** When first installed, PrintShop Mail Connect is configured to use 1 Merge engine. A Merge engine will run mostly single-threaded. To benefit from modern multi-core systems it is recommended to run several Merge engines in parallel. See "Number of Merge engines" on page 27.
- **Job size limits.** PrintShop Mail Connect lets you define job sizes by setting the maximum number of records in a small job, and the minimum number of records in a large job. Jobs that are neither small nor large are medium sized. Job size limits could have an impact on performance. See "Job size limits" on page 28.
- **Memory per engine.** To make optimum use of the machine's capabilities it might be useful to increase the amount of memory that an engine can use. See "Memory per engine" on page 28.

Template optimization

When you find that the speed per Merge engine - the Content Creation speed - is low, optimizing a template can make a huge difference. For advice on how to optimize a template see: "Optimizing a template" on page 815.

Network and internet connections

Use a fast network and internet connection or avoid loading external or internet resources. 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 5,000 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 83 minutes.

Hardware configuration

When processing speed is important, the following is suggested before looking into Performance Packs to enhance performance (and after addressing the other issues mentioned in this topic).

- **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 .

- Use a **high-performance, low-latency hard drive**. Connect benefits from fast I/O. 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 needs 1GB each, and that each engine needs 1GB as well, you can roughly estimate how much memory is needed.
- **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.
- Consider using hardware with more **physical cores**. PrintShop Mail 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.
- For both virtual and non-virtual environments, make sure the machine is not busy with all kinds of other processes.

System requirements

These are the system requirements for PrintShop Mail Connect 2018.2

Operating system (64-bit only)

- Microsoft Windows 2008 R2 Server
- Microsoft Windows 2012/2012 R2 Server
- Microsoft Windows 2016 Server
- Windows 7
- Microsoft Windows 8.1
- Microsoft Windows 10 (Pro and Enterprise versions only)

Note

Windows Vista, Windows 8.0, Windows 2003 Server and earlier versions of Windows are not supported by PrintShop Mail Connect.

Minimum hardware requirements

- NTFS Filesystem (FAT32 is not supported)
- CPU Intel Core i7-4770 Haswell (4 Core)
- 8GB RAM (16GB Recommended)
- Disk Space: At least 10GB (20GB recommended)

Note

For tips and tricks on performance, see Performance Considerations.

Installation and Activation

This topic provides detailed information about the installation and activation of PrintShop Mail Connect 2018.2.

Note

A PDF version of this guide is available for use in offline installations. [Click here to download it.](#)

Where to obtain the installers

The installers for PrintShop Mail Connect 2018.2 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](#)
- [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](#).
- PrintShop Mail Connect Version 2018.2 can be installed [under a regular user account with Administrator privileges](#).
- PrintShop Mail Connect **must** be installed on an NTFS file system.
- PrintShop Mail Connect requires **Microsoft .NET Framework 4.5** already be installed on the target system.

Note

As with any JAVA application, the more RAM available, the faster PrintShop Mail Connect will execute!

User accounts and security

Connect generally requires only standard Windows user credentials to run, but does require a user with local Windows Administrator when installing the software and when activating the software license. This is to allow read/write access to protected Windows folders and registry entries.

The following links contain the details as to when and where Windows Administrator rights are required:

- Connect Installation: [Connect Installation](#)
- Activating Connect: [Activating a License](#)

Permissions for PrintShop Mail Connect Designer

PrintShop Mail Connect Designer does not require any special permissions to run besides that of a regular program. It does not require administrative rights and only needs permission to read/write in any folder where templates are located.

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

Installing PrintShop Mail Connect on Machines without Internet Access

Installing PrintShop Mail Connect 2018.2 in offline mode requires some extra steps. These are listed below.

GoDaddy Root Certificate Authority needs to be installed.

In order to install PrintShop Mail 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 PrintShop Mail 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 PrintShop Mail Connect installer

The PrintShop Mail Connect installer may be supplied as an ISO image or on a DVD.

- If an ISO image, you can choose between the following, depending upon your Operating System and the choices available:
 - Burn the ISO image onto a DVD
 - Un-zip the contents to a folder (keeping the internal folder structure intact)
 - Mount the ISO image from within Windows Explorer
- 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 intact)

Navigate to the PrintShop Mail_Connect_Setup_x64.exe and double-click on it. After a short while the Setup Wizard will appear as a guide through the installation steps.

PrintShop Mail 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. If the same version of PrintShop Mail 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.

Running the Installation with extra logging

The installer can be run with enhanced logging options, if needed.

To do so, run the PrintShop Mail_Connect_Setup_x64.exe from the command line with one of the following command line options:

- `PrintShop Mail_Connect_Setup_x64.exe --verbose`
This adds extra debugging style logging to the installation process.
- `PrintShop Mail_Connect_Setup_x64.exe --trace`
This adds full trace style logging to the installation process. The log file this produces will be very large, as this option logs everything.

Selecting the required components

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

- **PrintShop Mail Connect Designer:** The Designer module (see "The Designer" on page 92) can be installed standalone (with no other installed modules) on as many machines as you like. It does not require a license to run as a standalone designer tool . This allows for any number of people to use the Designer for creating jobs, but without production capabilities such as automation and commingling.
- **MySQL Product:** A supplied MySQL database used by PrintShop Mail Connect. The database is used for referencing temporary Connect files and for sorting temporarily extracted data, and similar.
A pre-existing MySQL or Microsoft SQL server (referred to as an **external** database, in this documentation) *could* be used instead, for the same purposes.
The *external* database could reside on 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 to use 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 17 for more information about setting up *external* databases.

- **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 MySQL user '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.

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 PrintShop Mail 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, a message will be displayed after clicking “*Finish*” in the setup. The message details the information that needs to be sent back to Objectif Lune Inc. in order to determine when/if the software needs updating.

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 Inc. 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.

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

PrintShop Mail 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 PrintShop Mail_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 (see: "Uninstalling" on page 87).

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

The **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).

PrintShop Mail defaults

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

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 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 is selected and MySQL 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 PrintShop Mail 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 use the "cd" command to access 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

PrintShop Mail Connect comes with a 30 day trial license period during which time it is not necessary to have a commercial license to run the application. This allows time for reviewing the applications and for organizing a commercial license. If a modification to the trial license is required, such as to allow an extension to the trial period, or for extra functionality, then a new activation code will need to be requested.

Obtaining the PrintShop Mail 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 has a different Magic Number, and each requires a separate license file to be functional.

To get the PrintShop Mail Connect Magic Number, open the PrintShop Mail Connect Designer application:

- Open the **Start Menu**
- Click on **All Programs**, then **Objectif Lune**, then **PrintShop Mail Connect**
- Open the **PrintShop Mail Connect Designer [version]** shortcut.
- If the application has never been activated before or if the activation (either a trial or full license) has expired, the **Software Activation** dialog should automatically appear. If the application license is still active (either a trial or full license) and has not yet expired, load the **Software Activation** dialog via the **Help > PrintShop Mail Connect Software Activation ...** Menu option.
 - **License Information** subsection:
 - **Magic Number**: Displays the PrintShop Mail Connect Magic Number.
 -  **Copy the magic number to the clipboard**: Click to copy the Magic Number to the clipboard. It can then be pasted in the activation request email using the Windows CTRL+V keyboard shortcut.
 - **Licensed Products** subsection:
 - **Name**: Displays the name of the application or module relevant to this activation.
The Information button  provides detailed information about the application or module license.

- **Serial Number:** Displays the trial license serial number or 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.
- **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 Connect license file (**.olconnectlicense**), once it has been received.
- **Install License** - *Active only when a license file is Loaded:* Click to install the license and activate the software.
- **Close:** Click to cancel this dialog.
Even if a license file has been Loaded, it will not be installed if this dialog is Cancelled before the **Install License** button was clicked.

The **Software Activation** dialog can also be reached through a shortcut located in **All Programs > Objectif Lune** and is named **Connect Software Activation**.

Since it does not need to load Designer, this is the fastest way to access license activation.

Requesting a license

After getting the Magic Number, a license request must be done for PrintShop Mail Connect:

- **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 PrintShop Mail 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 PrintShop Mail 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 PrintShop Mail Connect

To activate PrintShop Mail 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 **PrintShop Mail Connect Software Activation** tool.

Activating the PrintShop Mail Connect license requires the user to have local Windows Administration rights.

- Using a user profile that has local Windows Administration rights, open the **Start Menu**
- Click on **All Programs**, then browse to the **Objectif Lune** folder.
- Run the “**Connect Software Activation**” tool.
- Click the **Load License File** button, and browse for the .olconnectlicense file you received from Objectif Lune Inc..
- Read the EULA and click the *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.

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 Prerequisites](#)
- [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 PrintShop Mail Connect on the new workstation.

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 Practice" to convert the documents to the version installed.

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\PrinterDefinitionCo

nfig

- **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\PrinterDefinitionCo

nfig

- **OMR Marks Configuration Files (.hcf)**

C:\Users\[UserName]\Connect\workspace\configurations\HCFFiles

Where [username] needs to be replaced with your own Windows username.

Other Resources

- **OL Connect Designer Templates** 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 require 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 Configuration\ServerConfig.exe
 - Configure the Merge and Weaver engines preferences under Scheduling (see "Engine configuration" on page 29)
 - 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 (see "Performance Considerations" on page 29):
 - 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\Connect Merge Engine\MergeEngine.ini
 - C:\Program Files\Objectif Lune\OL Connect\Connect Weaver Engine\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 PrintShop Mail 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. See "Uninstalling" on page 87.

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**.

The General Preferences also provides you with buttons to :

- **Reset all Warning Dialogs:** This re-enables all warning dialogs that might have been previously disabled by selecting the "Don't show again" checkbox within the dialog.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

COTG Servers preferences

By allowing one or more Capture OnTheGo servers to be set up, this option anticipates the release of a Capture OnTheGo On Premise Server product.

- **Name:** Enter a unique name.
- **URL:** Enter a valid URL (including the protocol, e.g. http://).
- **Restore Defaults:** Removes all custom servers from the list and resets to the default Capture OnTheGo server.

The COTG Servers Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

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.

As part of the job production process PrintShop Mail 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.

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 as per the cron job scheduling; or when PrintShop Mail Connect is started (if **Run at application start up** is selected); or when the **Run Now** button is pressed.

- **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.
- **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 [Quartz Scheduler](#) tutorial.

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. For PrintShop Mail Connect the Designer is the only choice.

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. PrintShop Mail 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 PrintShop Mail 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.

The Clean-up Services Preferences also provides you with buttons to :

- **Run Now:** This will run the clean-up service immediately.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.

- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

Database Connection preferences

Dialog used to change the PrintShop Mail Connect back-end Database.

This dialog supports the swapping of the back-end database between various vendor databases. Note, however, that the alternate vendor database(s) *must already be installed and available* in order to swap to them.

This is not a migration tool. It is a simple connection tool, that enables shifting to a different back-end database. 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.

When shifting to a different back-end database, the changes won't be applied until PrintShop Mail Connect is restarted. Including the Connect services. A full machine restart is recommended, as this provides the cleanest restart of all the services.

- **Basic Connection Settings** selections:
 - **Database vendor:** Select the database type from the drop down list.

Note

Moving from one vendor database to another will reset 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 PrintShop Mail Connect. This should help in determining and refining the 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, though, will not be created until Connect is restarted.

- **Username:** Enter the database login username.

Tip

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:** This option sets 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).

Tip

Leaving this value set to the default maximum *should* be the best option in most circumstances.

We recommended this entry be left at the default value.

- **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 PrintShop Mail 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.

The Database Connection Preferences also provides you with buttons to :

- **Test Connection:** This will run a test on the current Database Connection settings.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.

- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

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) 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.

The DataMapper Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Editing preferences

These preferences define different editing options in the Designer module.

- **Object Resizing for <div> elements:** This defines in which contexts to enable the resizing of <div> elements (including Positioned and Inline boxes). Resizing <div> elements may cause layouts to produce undesirable results especially when using Foundation templates.
 - **Enable for Print Context:** Check to enable <div> resizing in the Print contexts.
 - **Enable for Email Context:** Check to enable <div> resizing in the Email contexts.
- **Detail tables preview limit**
 - **Maximum number of records to show in preview:** This setting limits the number of records to show in detail tables in both the Designer (Preview tab) and Datamapper. The lower this number, the shorter the time before the preview or the next record will appear.

CSS options

A CSS preprocessor is a CSS extension language that allows you to enhance CSS with code (variables, for example) and then compile it into plain CSS. CSS Preprocessor **Sass** is integrated in Connect.

For more information about Sass, see: [Sass website](#).

The CSS options relate to the way Sass (.scss) files are compiled in Connect. See also: [Compiling a Sass file](#).

- **Output style:** This setting determines the use of spaces and indentation in the compiled CSS file. For examples of the available output styles, see: [Sass reference: Output style](#).
 - **Compact:** Each CSS rule takes up only one line, with every property defined on that line. Nested rules are placed next to each other with no new line, while separate groups of rules have new lines between them.
 - **Compressed:** This output style minifies the output. It has no whitespace except that necessary to separate selectors and a new line at the end of the file. It also includes some other minor compressions, such as choosing the smallest representation for colors. It's not meant to be human-readable.

- **Expanded:** This is the default output style. Each property and rule take up one line. Properties are indented within the rules, but the rules aren't indented in any special way.
- **Nested:** Each property has its own line, but the indentation isn't constant. Each rule is indented based on how deeply an element is nested in the HTML and CSS structure.
- **Auto compile on saving .scss files:** When this option is checked, a .scss file is compiled into a .css file whenever you save it, overwriting any previously compiled version of the .css file. By default this option is enabled.

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 404).

- **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 221.
 - **Table:** This color highlights tables, and the rows and columns in tables; see "Table" on page 242.
 - **Resizable Table:** This color highlights tables for which the option Allow resizing has been checked when adding the table; see "Table" on page 242.
 - **Forms:** This color highlights forms; see Forms.
 - **Shared Content:** This color highlights shared content, such as shared snippets; see "Snippets" on page 248.
- **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 269.
 - **Margins:** This color delineates the content area on a page; see "Pages" on page 128.
 - **Bleed box:** This color delineates the printable area on a page; see "Page settings: size, margins and bleed" on page 129.
- **Master pages:** These edges are only visible on Master pages; see "Master Pages" on

page 136.

- **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 137.
- **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 292.

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.

The Editing Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

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 and Send Test Email dialogs ("Send (Test) Email" on page 444).
 - **Email Address:** Enter the email that is set by default in the "From Email" field in the Send Email and Send Test Email dialogs ("Send (Test) Email" on page 444).
- **Litmus account Group:**
 - **Email Test address:** If you have a Litmus account, enter the test address to use

when sending a test email (see "Send (Test) Email" on page 444). 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 or Send Test Email dialog. (See "Send (Test) Email" on page 444 and "Email header settings" on page 160). 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 PrintShop Mail Connect" on page 810).
- **Apply**: Apply the new settings without closing the Preferences dialog.

The Email Preferences also provides you with buttons to :

- **Restore Defaults**. This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply**: This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

Emmet Preferences

Emmet is a framework that enables the lightning-fast creation of HTML code through the use of a simple and effective shortcut language resembling CSS Selectors (see "Emmet" on page 149). 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 <div> 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](http://Emmet.io/documentation). 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.

The Emmet Preferences also provides you with buttons to :

- **Reload Engine.** This allows you to reload the Emmet engine based upon the current settings.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Engine Setup

See [Engine Setup Preferences](#).

Language Setting Preferences

- **Display language:** Select a language from the drop-down list to be used as the language of the User Interface (after the software is restarted).
- **Default Locale:** The default locale sets the locale for new templates. By default this is the system's locale. The locale can be changed per template; see "Locale" on page 290.
 - Select System Locale to use the operating system's locale settings.
 - Select Explicit Locale to choose a static locale from the drop-down list.

Default Locale

The Default Locale preferences are only available in the Designer Preferences. This setting determines the locale for new templates. By default this is the system's locale. Select *System Locale* to use the operating system's locale settings. Select *Explicit Locale* to choose a specific locale from the drop-down **Explicit Locale** list. The Locale can be changed on a per template basis. See "Locale" on page 290.

The Language Settings and Default Locale Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.

- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

Log Setting Preferences

PrintShop Mail Connect logs the activities it undertakes whilst running. New Connect logs are created daily and are held for a period before they are automatically deleted.

The settings on this page determine the level of logging and how long the log files should be retained.

These log files can be an essential resource when diagnosing issues with OL Support. The logging settings are global to **all** Connect applications and the Logging Preferences can be adjusted from within any of the Designer and Print Manager dialogs.

The settings are:

- **Overall Logging Level** selection: Select the overall Connect Logging level. This controls how much logging Connect will do.
By default the logging level is set at the midpoint of *Info*, but it can be set higher to include more logging (*All*, *Trace*, *Debug*), or lower to reduce the amount of logging (*Warning*, *Error*).
The logging is hierarchical, with each Logging Level selection containing all of the Logging Levels below it. The default logging *Info* Level contains all *Error* and *Warning* entries plus informational log entries.

Warning

Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

We recommended leaving the logging level to *Info* and only using the higher levels of logging in conjunction with advice from OL support.

- **Rollover policy** selection: Chose whether to retain Connect log files for a certain number of days (**Daily logs**) or based upon some predetermined hard disk usage limitations

(**Size-based logs**). The selection are as follows:

- **Daily Logs:** Use this setting to determine how many days Connect Logs are to be kept, before they are deleted.
 - **Number of days to retain logs:** This value only impacts upon historic (closed) logs.
Chose between 1 and 99,999 days.
The default value is set to 10 days for a new installation and 99,999 days on existing installations (to preserve backward compatibility).
- **Size-based logs:** Use this setting to restrict log file size, and to keep only a specified number of them.
By combining the maximize individual log file size with the amount of log files to retain, this effectively allows a hard disk space usage limitation to be placed upon the logging process.
 - **Maximum size for log file:** This sets the maximum size a log file can reach before the logging system creates a new file.
 - **Number of files to keep:** This sets the maximum number of log files kept in the log folder. The default value is set to 50 for a new Connect installation and 99, 999 for an existing installation (to preserve backward compatibility).
- **Logging pattern** edit box: This edit box determines the formatting of the individual log entries.
By default it is set to a date/time value which allows for simple searching within log files.

Warning

We recommend leaving the Logging pattern to the default value.

If you do need to change the Logging pattern, please see the [Pattern Formatting](#) guide for help in doing so.

- **Log message preview** display: This displays a real time example of the format and content of individual log file entries, based upon the **Logging pattern** setting.

Advanced Log Settings

The Advanced settings over-ride the Overall logging settings, and provide a greater level of logging granularity.

Warning

Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

The Advanced Log Settings should only be set in conjunction with advice from OL support, to ensure that only the most relevant settings are set to the higher logging levels.

This Preferences page allows you to add () or remove () individual Connect Packages, or change their logging settings (.

The Log Setting and Advanced Log Setting Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

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 will not be visible in the "Model" drop-down of the Print Options dialog; see "Print Options" on page 596 and "Adding print output models to the Print Wizard" on page 796.

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 PrintShop Mail 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 PrintShop Mail 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.

- **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 a Job Creation Preset.

Print Measurements Preferences

- **Units:** Use the drop-down 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 269). With this option checked, dragging a guide from a horizontal ruler inserts a vertical guide.

The Print Preferences also provides you with buttons to :

- **Test Print Server URL.** This button is only available for the General Print Preferences. It tests the Print Server URL settings made within that Preferences page.
 - **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

Saving Preferences

The saving preferences are a way control if and how often PrintShop Mail 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 96.

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.

The Save Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Scheduling Preferences

The Designer's scheduling preferences are a way to control precisely how the PrintShop Mail Connect Designer handles jobs when

For more information about scheduling preferences in PrintShop Mail Connect also see "Performance Considerations" on page 29.

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.

Scheduling - Merge engine

This preference 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.

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.

The Scheduling Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Scripting Preferences

The Scripting preferences define different options related to scripting within PrintShop Mail Connect. See also: "Testing scripts" on page 349.

- **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.
- **Expanded script quotes style:** When the Expand button in a Script Wizard is clicked, the expanded script will use either **double (")** or **single (')** quotation marks.

Tip

Using single quotation marks in a script simplifies adding HTML fragments, which typically use double quotes.

- **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!

The Scripting Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

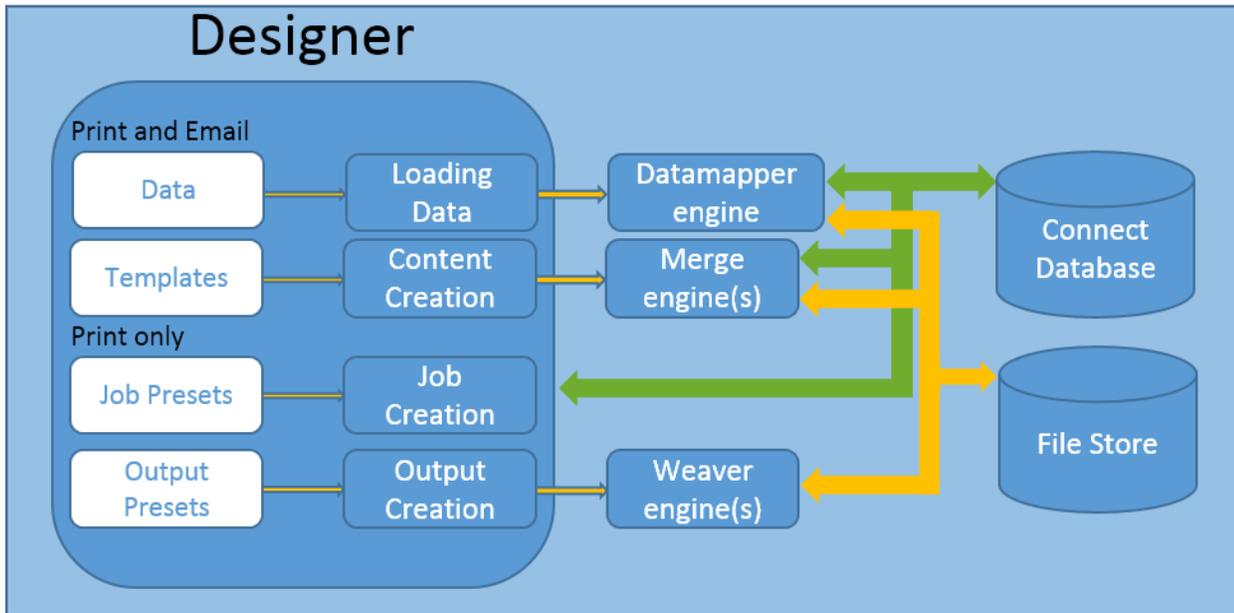
Connect: a peek under the hood

Connect consists of visible and invisible parts.

The visible part is of course the Designer, that you use to create templates and print presets.

The invisible parts process the Connect job to provide the actual output. This topic introduces you to those parts.

Here's a simplified, graphical representation of the architecture of PrintShop Mail Connect.



The Connect database

The Connect database is the database back-end used by Connect itself when processing jobs. It can be either the MySQL instance provided by the Connect installer, or a pre-existing (external) instance (see "Database Considerations" on page 17).

All generated items (records, content items etc.) are stored in this database .

Note

Email content items are not stored in the Connect database.

A clean-up of the database is performed at regular intervals in accordance with the settings (see "Clean-up Service preferences" on page 317).

The File Store

Connect has its own File Store which it uses for transient files.

The Clean-up service takes care of removing obsolete files when those files are not marked as permanent (see "Clean-up Service preferences" on page 317).

The engines

DataMapper engine. A DataMapper engine extracts data from a data file. This is an internal engine, for which there are no settings to make.

Merge engine/s. A merge engine merges data with a template using the scripts in the template, in order to create (PrintorEmail) content items.

The number of merge engines is configurable (see Merge Engine Scheduling): it can be increased depending on the capacity of the machine that runs the solution (see "Performance Considerations" on page 29).

Weaver engine . The Weaver engine creates Print output from Print content items. It takes the settings made in Print presets or in the Print Wizard into account.

The number of Weaver engines is configurable as well (see Weaver Engine Scheduling).

Speed units

The number of 'speed units' is the maximum number of Merge engines or Weaver engines that are allowed to work in parallel. The output speed of all engines together is limited to a certain number of output items (web pages, emails, or printed pages) per minute. How many speed units you have and what the maximum total output speed will be is determined by your licence and any additional Performance Packs you might have.

PrintShopMail Connect always has just one speed unit. Performance Packs only increase the output speed. But there is one important twist: when generating **Print** output, the limit imposed by the number of speed units, only applies to the **Weaver** engine; when creating **Email**, the limit applies to the **Merge** engines only (the Weaver engine is not involved). So, when generating Print output, multiple Merge engines can be used. The number of Merge engines is only limited to one when creating Email output.

Each Merge engine and each Weaver engine needs at least one speed unit. However, since the number of engines is configurable, and since small, medium and large jobs may run concurrently, the number of engines in use may not match the number of available speed units.

When there are more speed units than there are engines in use, the Connect server distributes the speed units and the maximum output speed to the engines **proportionally**.

Known Issues

This page lists important information about issues that apply to PrintShop Mail Connect 2018.2.

Job Creation Presets: External Sorting

Versions prior to 2018.2 did not correctly save the line end characters for external sort configurations in Job Creation Presets, which meant the job could not be externally sorted. This issue has been fixed in version 2018.2. However, Job Creation Presets created with an earlier version may still have the wrong line end character for external sorting. To fix this, open the Job Creation Preset in the new version, reset the line end setting in the sorting options and then save the preset.

Business Graphics: Backward Compatibility Issues

As a consequence of changes in both the user interface and the underlying technology, Business Graphics made with a version prior to PrintShop Mail Connect 2018.1 may not display correctly when opened in version 2018.2.

The currently known backward compatibility issues are listed here:

All charts

- **Legend position:** The position of the legend is not converted. It defaults to 'left' in a converted chart.
- **NOTE:** Expanded custom chart scripts cannot be converted.

Pie charts

- **Default colors:** The default colors (used when no pie chart colors are specified) have changed.

Known Font issues

The following font(s) are known to have issues in PrintShop Mail Connect 2018.2:

- **Benton Sans CFF** font

Minor differences in PCL, AFPDS and IPDS output introduced in 2018.1

The browser component (Mozilla Gecko) used in the WYSIWYG editor of the Designer was updated for Connect 2018.1. This allows use of new CSS properties, such as flexbox.

However this update could lead to increased output file sizes for some PCL, AFPDS and IPDS jobs. This is generally not a cause for concern, however there might be some associated increase in processing times, as well as some minor differences in the output. For example, table line widths and font spacings might differ slightly (particularly for SMALL CAPS text), which could lead to slightly different word-wrapping in some circumstances.

Windows Server 2016 issue

As of PrintShop Mail Connect 2018.1 Connect is officially supported under Windows Server 2016.

Please note, however, that the Objectif Lune Inc. **Update Client** application might be blocked by the enhanced security settings in Windows Server 2016.

To fix this, add <http://updates.ca.objectiflune.com> to the list of trusted web sites on that machine, or lower the internet access rules.

Limit of 100MB of image files within a single job

The browser component (Mozilla Gecko) used in the WYSIWYG editor of the Designer was updated for Connect 2018.1. This allows use of new CSS properties, such as flexbox.

However this update also introduced a limit of 100MBs for image files included within a single job. The limit is set at 100MB deliberately, as this allows *most* jobs to run faster. However, if a job requires more than 100MBs of image files, then the Connect image cache size can be increased to cater for such.

Please contact **OL Support** for instructions on how to modify the image memory cache value, if needed.

Print Output: Booklet Impositioning changes introduced in 2018.1

When Booklet Impositioning is enabled, all pages within a document need to be changed to duplex prior to Impositioning . The method for duplexing jobs has been changed to now always combine existing pages into the front and backsides of sheets, rather than adding empty backsides to any simplex pages.

The result is that now every document in the job becomes a booklet without any empty pages between the first page and the last page.

With some exceptions. Booklet Impositioning that require a multiple of 4 pages (*Saddle binding* and *Perfect binding*) will still get empty pages added, when needed.

Installation Paths with Multi-Byte Characters

When installing the Traditional Chinese 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 | ko | 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

The minimum supported MySQL version is 5.1.31.

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.

Color Model in Style Sheets

The color model of colors defined in a style sheet can sometimes change after editing the style sheet. This is a known issue and will be addressed in a subsequent release.

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.

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.

Magic Number changes when installing Docker

Installing Docker on a system where Connect has already been installed may impact Connect's licensing mechanism and require reactivation.

Note

Installing Connect after Docker has already been installed will not cause issues.

Uninstalling

This topic provides some important information about uninstalling (removing) PrintShop Mail Connect2018.2.

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

Note

The **PrintShop Mail 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 PrintShop Mail 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 PrintShop Mail Connect Uninstall:
 1. PrintShop Mail Connect
 2. Connect products on remote systems which refer to this MySQL database.

Uninstallation Wizard

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

1. **PrintShop Mail 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 PrintShop Mail Connect.
 - **Backup MySQL Date:** If the deletion checkbox is selected, this option appears to allow backing up the MySQL database to a customizable location, prior to uninstallation.

Note

If an error occurs during uninstallation or when re-installing Connect after uninstalling it, please see: [Problems during a Connect installation or version upgrade](#) in Connect's Knowledge Base.

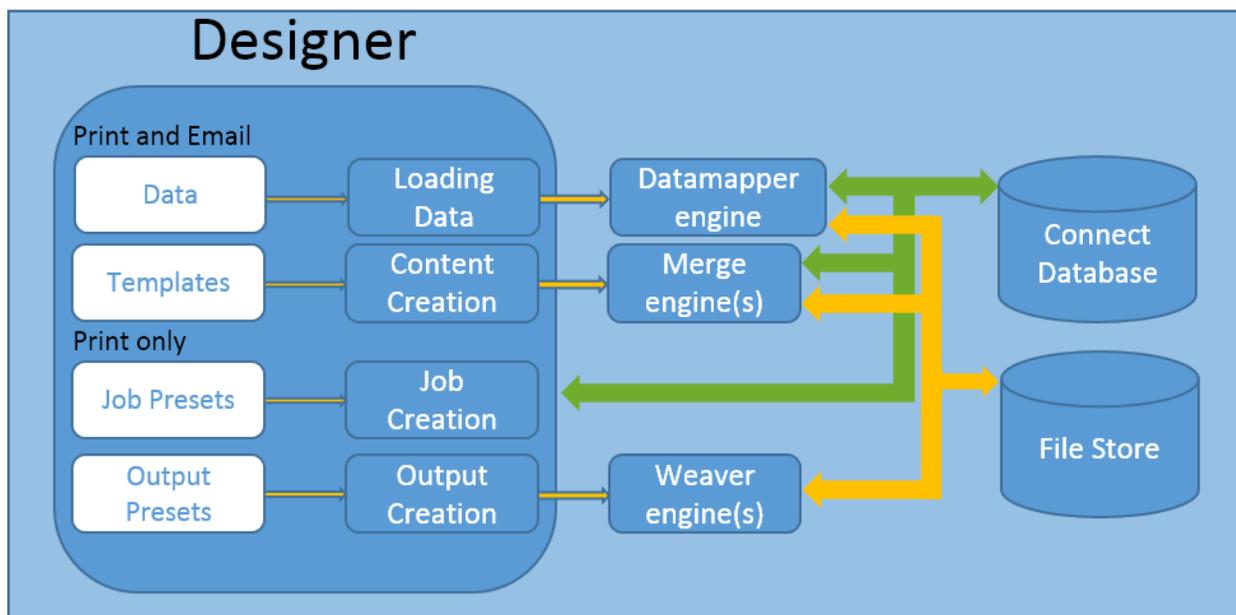
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All generated items (records, content items etc.) are stored in this database .

Note

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A clean-up of the database is performed at regular intervals in accordance with the settings (see "Clean-up Service preferences" on page 317).

The File Store

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The number of merge engines is configurable (see Merge Engine Scheduling): it can be increased depending on the capacity of the machine that runs the solution (see "Performance Considerations" on page 29).

Weaver engine . The Weaver engine creates Print output from Print content items. It takes the settings made in Print presets or in the Print Wizard into account.

The number of Weaver engines is configurable as well (see Weaver Engine Scheduling).

Speed units

The number of 'speed units' is the maximum number of Merge engines or Weaver engines that are allowed to work in parallel. The output speed of all engines together is limited to a certain number of output items (web pages, emails, or printed pages) per minute. How many speed units you have and what the maximum total output speed will be is determined by your licence and any additional Performance Packs you might have.

PrintShopMail Connect always has just one speed unit. Performance Packs only increase the output speed. But there is one important twist: when generating **Print** output, the limit imposed

by the number of speed units, only applies to the **Weaver** engine; when creating **Email**, the limit applies to the **Merge** engines only (the Weaver engine is not involved). So, when generating Print output, multiple Merge engines can be used. The number of Merge engines is only limited to one when creating Email output.

Each Merge engine and each Weaver engine needs at least one speed unit. However, since the number of engines is configurable, and since small, medium and large jobs may run concurrently, the number of engines in use may not match the number of available speed units. When there are more speed units than there are engines in use, the Connect server distributes the speed units and the maximum output speed to the engines **proportionally**.

Connect File Types

This article describes the different File Types that are related to PrintShop Mail 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-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 > Package file dialog.
- **.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.

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. More advanced users may edit the underlying HTML, CSS and JavaScript directly.

The following topics will help to quickly familiarize yourself with the Designer.

- "Designer basics" 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 390. 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.

Designer basics

With the Designer you can create templates for personalized letters and emails, 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 94.
2. **Fill the template**

Add text, images and other elements to the template and style them. See "Content elements" on page 170 and "Styling and formatting" on page 251.

3. **Personalize the content**

Personalize the content using variable data. See "Personalizing Content" on page 292.

4. **Generate output**

Adjust the settings, test the template and generate output: letters and emails. See "Generating output" on page 790.

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 101. A context contains one or more designs for one output channel:

- "Print" on page 106. This topic helps you design and fill sections in the Print context.
- "Email" on page 147. This topic helps you design an email template.
- Web. This topic helps you design a web page.

"Sections" on page 102. Sections in one context are designed for the same output channel.

"Content elements" on page 170. Elements make up the biggest part of the content of each design.

"Snippets" on page 248. Snippets help share content between contexts, or insert content conditionally.

"Styling and formatting" on page 251. Make your Designer templates look pretty and give them the same look and feel with style sheets.

"Personalizing Content" on page 292. Personalize your customer communications using variable data.

"Writing your own scripts" on page 340. Scripting can take personalization much further. Learn how to script via this topic.

"Generating output" on page 790. 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 – printoremail – 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 and Email.

See: "Creating an Email template with a Wizard" on page 151 "Creating a Print template with a Wizard" on page 109 "Creating a Web template with a Wizard"

Tip

The quickest way to create a Print template based on a PDF file is to **right-click the PDF** file in the Windows Explorer and select **Enhance with Connect**.

After creating a template you can add the other contexts (see "Contexts" on page 101), as well as extra sections (see "Sections" on page 102), 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 151. 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 extension .OL-template.

The most recently opened templates and data mapping configurations are listed on the Welcome screen and in the menu: **File > Open Recent**.

To clear these lists, select **Window > Clear Recent Files Lists**.

Warning

A template created in an older version of the software can be opened in a newer version. However, opening and saving it in a newer version of the software will convert the template to the newest file format. The converted template can't be opened in older versions of the software.

Opening a package file

Templates can also be stored in a package file (see "Creating package files" on page 98). To open a package file, switch the file type to Package files (*.OL-package) in the Open File dialog. If the package contains print presets, you will be asked if you want to import them into the proper repositories.

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, select **File > Save** or press **Ctrl+S**. The first time you'll have to give the template a name. **File > Save as** allows you to save the template with a different name.

Tip

To quickly copy the name of any other file, set **Save as type** to **Any file (*.*)** in the Save dialog. 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 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.

Saving older templates

Saving a template in a newer version of the software will convert the template to the newest file format. This makes it unreadable to older versions of the software.

The warning message that is displayed in this case can be disabled.

To re-enable this message (and all other warning dialogs), go to **Window > Preferences > General**, and click the **Reset All Warning Dialogs** button at the bottom.

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 768. If you are not familiar with writing scripts, refer to "Writing your own scripts" on page 340.

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 Job Creation Preset and an Output Creation Preset. (See "**Job Creation Presets**" on page 583 and "Output Creation Settings" on page 594 for more details.)

To create a package file, select **File > Package file**, see "Templates" on page 94. The package file has the extension .OL-package and can be opened in the Designer (see "Opening a package file" on page 95).

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" on page 407.

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 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. The DataMapper is included only in PlanetPress Connect and PreS Connect. 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 791, and "Generating Email output" on page 807.

To test a template first, select **Context > Preflight**. Preflights execute the template without actually producing output and it displays any issues once it's done (see also: "Testing scripts" on page 349).

Creating package files

The Package dialog saves templates and print presets as a Package file (*.OL-package).

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 583 and "Output Creation Settings" on page 594 for more details.

Package files can be opened by other Connect users.

To open the Package dialog, select **File > Package....** For an explanation of the options in it, see "Package dialog" on page 425.

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 236, "Snippets" on page 248, "Styling templates with CSS files" on page 253 and "Fonts" on page 287.

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 referring 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: ``. 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 357 and "Writing your own scripts" on page 340.

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 `` 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`).

Contexts

Contexts are parts of a template that are each used to generate a specific type of output: Email or Print.

- The Print context outputs documents to either a physical printer or a PDF file; see "Print context" on page 114.
- The Email context outputs HTML email, composed of HTML code with embedded CSS. See "Email context" on page 155.

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 151. After creating a template, contexts can be added to it, but that can not be done with a wizard.

Outputting and combining contexts

All contexts can be present in any template and they can all be used to output documents; see "Generating Email output" on page 807, "Generating Print output" on page 791 and Generating Web output.

They can even be combined in output.

If present in the same template, a Print context can be attached to an Email context.

You could select Print sections based on a value in the data with a Conditional Print Sections script; see "Conditional Print sections" on page 313.

Outputting other combinations of contexts, and selecting other sections based on a value in the data, can be done via a Control Script; see "Control Scripts" on page 369.

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**. Or use **Context > Add** in the main menu. 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

If you don't have a backup of 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. In the Saving Preferences you can set whether a backup file should be created when you save the template; see "Saving Preferences" on page 337.

Sections

Sections are parts of one of the contexts in a template: Print or Email. 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 or Print) 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 151. 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** or **Email**) and double-click a section to open it.

Each section can contain text, images and many other elements (see "Content elements" on page 170), including variable data and other dynamic elements (see "Personalizing Content" on page 292).

To preview a section, open the Preview tab in the Workspace (see "Workspace" on page 493).

Copying a section

To copy a section:

1. Open the context (EmailorPrint) on the **Resources** pane.
2. Right-click the section and select **Copy**.
3. Right-click the context and select **Paste**. Note that sections cannot be pasted to another context.

The copy will have the same settings as the original.

Alternatively you may copy the contents of a section manually:

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" on the previous page, above).
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**.

Section properties

Which properties apply to a section, depends on the context it is part of. See also: "Print sections" on page 119, "Email templates" on page 157, and Web pages.

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.
4. You can also change the order in which the CSS files are read: click one of the included CSS files and use the **Up** and **Down** buttons. 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.

Note

Style sheets are applied in the order in which they are included in a section. 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.

Note

Style sheets that are linked to (i.e. included in) a section show a chain icon in the Resources pane (see "Resources pane" on page 484).

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 119, "Email templates" on page 157 and Web pages.

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 791.

In Email output, only one section can be outputted at a time. The section that will be output is the section that has been set as the 'default'. See "Generating Email output" on page 807 and "Email templates" on page 157.

It is, however, possible to include or exclude Print sections when the output is generated, depending on a value in the data. A Control Script can do this; see "Control Scripts" on page 369.

See "Generating output" on page 790 to learn how to generate Print documents or Email.

Print

Connect supports a number of different types of print outputs. These include:

- AFP
- IPDS (spool file created by Connect, with printer control available through the "Print Manager" on page 818)
- PCL
- PDF
- PostScript (including the PPML, VIPP and VPS variants)

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, or any other type of letter you can think of.

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 directly to a printer or a printer stream/spool file, or to a PDF file (see "Generating Print output" on page 791).

The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 807.

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 or when a Print context is added to an existing template the Print context folder is created along with other folders and files that are specific to a Print context (see "Creating a Print template with a Wizard" on page 109, "Adding a context" on page 102 and "Print context" on page 114).

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 119.

Pages

Unlike emails, 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 129.

The minimum number of pages can be set via the Print section properties; see "Print section properties" on page 443.

Although generally the same content elements can be used in all three contexts (see "Content elements" on page 170), the specific characteristics of pages make it possible to use special elements, such as page numbers; see "Page numbers " on page 131.

See "Pages" on page 128 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 136 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 791.

See "Media" on page 139 for further explanation about how to add Media and how to apply them to different pages.

Copy Fit

Copy Fit is a feature to automatically adjust the font size of text to make it fit the available space. It could be used for the name of a person on a greeting card, for instance, or for the name of a product on a shelf talker. This feature is only available with Box and Div elements in Print sections.

For more information about this feature see "Copy Fit" on page 266.

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 (called 'sections') can be added later.

Print template wizards can be found in the Welcome screen and on the File menu.

In the **Welcome** screen that appears after startup:

- Choose **Template Wizards** and scroll down until you see the **Basic Print templates** or **ERP templates** and select one of them.
- Or choose **Create a New Template** and select **PDF-based Print**.

Alternatively, on the menu select **File > New**, expand the **Template** folder, and then:

- Select **PDF-based Print**.
- Or expand the **Basic Print templates** or **ERP templates** folder, select a template type and click **Next**.

Another way to start a PDF-based Print template is this:

- **Right-click the PDF** file in the Windows Explorer and select **Enhance with Connect**.

The various template types and their options are described below.

See "Print context" on page 114 and "Print sections" on page 119 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.

Basic Print template wizards

There are two 'basic' Print Template wizards: one for a formal letter, and one for a postcard.

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 116.
- 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 136.
- **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 303.
- 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 340.
- One empty Media. Media, also called Virtual Stationery, can be applied to all pages in the Print section. See "Media" on page 139.

The Wizard opens the Print section, so that you can fill it with text and other elements; see "Content elements" on page 170. It already has two Positioned Boxes on it: one on the front, for text, and one on the back, for the address.

See "Print context" on page 114 and "Print sections" on page 119 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 129.

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 114 and "Print sections" on page 119.
- 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 136.
- 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 139.
- **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 303.

The Wizard opens the Print section. You can add text and other elements; see "Content elements" on page 170.

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 251 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

Tip

The quickest way to create a Print template based on a PDF file is to **right-click the PDF** file in the Windows Explorer and select **Enhance with Connect**.

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 123). 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 292 and "Variable Data" on page 303).

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 it isn't saved with the template, the image remains 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" on page 114 and "Print sections" on page 119. The selected PDF is used as the background of the Print section; see "Using a PDF file as background image" on page 123. 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 136.
- One empty Media. Media, also called Virtual Stationery, can be applied to all pages in the Print section. See "Media" on page 139.

ERP templates

The ERP template wizard creates a business document. There is a collection of business documents that you can choose from: Sales Invoice, Purchase Order, Collection Letter, etc.. Currently all of these documents follow the corporate style designed by Microspective.

The first page of the wizard lets you select the page settings, see "Page settings: size, margins and bleed" on page 129. A few clarifications:

- 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):

- Choose the desired type of business document from the **General** drop-down.
- Select a color for the colored parts of the document; see "Color Picker" on page 404.
- Enter your contact details.
- Click the **Browse** button to select a logo, or select to use a placeholder logo or no logo at all.
- Select a PDF file with the letterhead stationery. Also see "Media" on page 139.

Tip

Nice to know: your info and preferences are saved and will be reused the next time you create an ERP template.

When you click **Finish**, the Wizard creates:

- A Print context with one section in it; see "Print context" below and "Print sections" on page 119.
- One 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 136.
- 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 139.
- **Selectors** for variable data, for example: @Name@, @Amount@. You will want to replace these by the names of actual fields in your data. See "Variable Data" on page 303.

The Wizard opens the Print section. You can add text and other elements; see "Content elements" on page 170. See "Styling and formatting" on page 251 to learn how to style elements..

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 directly to a printer or a printer stream/spool file, or to a PDF file (see "Generating Print output" on page 791).

The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 807.

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 109), or add the Print context to an existing template (see "Adding a context" on page 102).

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.

The quickest way to create a Print template based on a PDF file is to right-click the PDF file in the Windows Explorer and select **Enhance with Connect**. Alternatively, start creating a new Print template with a Wizard, using the PDF-based Print template (see "Creating a Print template with a Wizard" on page 109).

To use a PDF file as background image for an existing section, see "Using a PDF file as background image" on page 123.

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 120. See "Print sections" on page 119 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 136.

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 139 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 253.

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 page 119.

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; see "Conditional Print sections" on page 313. This can also be done using a Control Script; see "Control Scripts" on page 369.

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 (Duplex, Mixplex)" on page 127. 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; then right-click the **Print** context and select **Finishing**.
Alternatively, select **Context > Finishing** on the main menu. This option is only available when editing a Print section in the Workspace.
2. Choose a Binding style and, if applicable, the number of holes. For an explanation of all Binding and Hole making options, see "Finishing Options" on page 592.

To set the binding style of a Print **section**, see "Setting the binding style for a Print section" on page 126.

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 583 for more details.
2. Select that Job Creation Preset in the Print wizard; see "Generating Print output" on page 791.

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 129.

Overprint and black overprint

Normally, when two colors overlap in Print output, the underlying color is not printed. It is "knocked out", for two reasons: firstly, the underlying color may affect the top color, especially if the top color is lighter than the underlying color. Secondly, not printing an underlying color, which is not visible anyway, will save ink or toner.

However, there are cases when underlying colors should not be knocked out:

- If the top color is a **special ink or toner**, such as varnish or UV, it should go over any other colors, as it is meant to be transparent and go over other content. In Connect you may enable overprint when you define a spot color; see "Defining colors, spot colors and tints" on page 283.
- If **small black text** is printed over a colored area, mis-registration may cause white areas to be visible around the text if the underlying color is knocked out.

The option to print small black text over other colors is referred to as **black overprint**. To enable black overprint for text smaller than a given size:

1. Right-click the **Print context** in the **Resources** pane and select **Color Output**.
2. In the **Text smaller than** field, enter a text size (in points, for example: 3pt).

Note

Black overprint only works with CMYK black.

Converting RGB black to CMYK black

In Print output, black is by default output as a CMYK color. RGB black is converted into CMYK black.

If that is not desirable for any reason, it is possible to prevent it:

1. Right-click the **Print context** in the **Resources** pane and select **Color Output**.
2. Enable the **Keep RGB black in output** option.

In Connect versions prior to 2018.2, RGB black was not automatically converted to CMYK black. Therefore, this option is by default enabled in templates made with an earlier version. In new templates, this option is disabled by default.

Print sections

Print templates (also called *Print sections*), are part of the Print context. They are meant to be printed directly to a printer or a printer stream/spool file, or to a PDF file (see "Generating Print output" on page 791).

The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 807.

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, 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 129.

The minimum number of pages can be set via the Print section properties; see "Print section properties" on page 443.

Although generally the same content elements can be used in all three contexts (see "Content elements" on page 170), the specific characteristics of pages make it possible to use special elements, such as page numbers; see "Page numbers " on page 131.

See "Pages" on page 128 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 136 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 139 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 791.

Copy Fit

Copy Fit is a feature to automatically adjust the font size of text to make it fit the available space. It could be used for the name of a person on a greeting card, for instance, or for the name of a product on a shelf talker. This feature is only available with Box and Div elements in Print sections.

For more information about this feature see "Copy Fit" on page 266.

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 109 and "Print context" on page 114), 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**.

Note that the new section automatically gets the same properties as the first section.

The first Master Page (see "Master Pages" on page 136) and Media (see "Media" on page 139) 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 138 and "Applying Media to a page in a Print section" on page 144.

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.

The quickest way to create a Print template based on a PDF file is to right-click the PDF file in the Windows Explorer and select **Enhance with Connect**. Alternatively, start creating a new Print template with a Wizard, using the PDF-based Print template (see "Creating a Print template with a Wizard" on page 109).

To use a PDF file as background image for an existing section, see "Using a PDF file as background image" on page 123.

Note

Via a Control Script, sections can be added to a Print context dynamically; see "Dynamically adding sections (cloning)" on page 379.

Tip

If you need a Print section to be visible in the output only under certain conditions, consider using the Conditional Print Section script wizard; see "Conditional Print sections" on page 313.

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

If you don't have a backup of 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. In the Saving Preferences you can set whether a backup file should be created when you save the template; see "Saving Preferences" on page 337.

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 251.

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.
4. You can also change the order in which the CSS files are read: click one of the included CSS files and use the **Up** and **Down** buttons. 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.

Note

Style sheets are applied in the order in which they are included in a section. 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.

Note

Style sheets that are linked to (i.e. included in) a section show a chain icon in the Resources pane (see "Resources pane" on page 484).

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. 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.

Note

Encrypted PDF files are **not supported** in *PDF pass-through* mode.

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 **From PDF resource**.
3. For a PDF resource, you have to specify the **path**. Clicking the **Select Image** button opens the Select Image dialog (see "Select Image dialog" on page 446).
 - 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. You can give a local path (e.g. C:\Images\Test.jpg) or use the "file" protocol. The complete syntax of a fully qualified URL with the "file" protocol 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`).

Note

If a URL doesn't have a file extension, and the option **Save with template** is **not** selected, the Select Image dialog automatically adds the `filetype`

parameter with the file extension as its value (for example:
`?filetype=pdf`

(if it is the first parameter) or
`&filetype=pdf`

).

The `filetype`

,

`page`

and
`nopreview`

parameters are not sent to the host; they are used internally. Therefore, URLs that rely on one of these parameters cannot be used.

- 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 it isn't saved with the template, the image remains 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 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.

The Top and Left offset can be specified in the usual units of measurement or as a percentage of the page (for example: a Left value of 25% means it will be placed at 25% of the page width).

5. Set the **scale** of the image as a percentage of the original image.
6. Click one of the options next to **Rotation** to rotate the image.
7. 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.

8. Finally, click **OK**.

Note

To set the background of a section in script, you need a Control Script; see "Control Scripts" on page 369 and "Control Script API" on page 749.

Tip

An alternative to using a PDF as background inside the template is to layer the template (i.e. the PDF output of a Print section) over the background PDF via a Script task in a Workflow process. This is called 'stamping'. In the unusual case where extracting text from the PDF that is the output of a Print section with a PDF background doesn't work, it is recommended to use this method.

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 117.

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.

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 583 for more details.
2. Select that Job Creation Preset in the Print wizard; see "Generating Print output" on page 791.

Enabling double-sided printing (Duplex, Mixplex)

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 447.)

Note

Your printer must support Duplex for this option to work.

To enable Duplex or Mixplex 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 **Omit empty back side for Last or Single sheet** to reset a page to Simplex if it has an empty back side. Thus changing a Duplex job into a **Mixplex** job may reduce volume printing costs as omitted back sides aren't included in the number of printed pages.
Empty means that there is no content and **no master page** on that side. To suppress the master page on empty back sides and single sheets, check the option

Omit Master Page Back in case of an empty back page.

- 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.

Note

Master Pages, Media and Duplex printing options can also be set in a Control Script (see "Control Scripts" on page 369 and "Control Script API" on page 749). This is especially useful when you need identical sections with different settings.

Pages

Unlike emails, 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.

The minimum number of pages can be set via the Print section properties; see "Print section properties" on page 443.

Although generally the same content elements can be used in all three contexts (see "Content elements" on page 170), the specific characteristics of pages make it possible to use special elements, such as page numbers; see "Page numbers " on page 131.

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 133. You can also avoid or force a page break before or after an entire element, see "Page breaks" on page 134.

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 136 and "Media" on page 139.

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 131 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.
- Detail tables can be used in all contexts, but **transport lines** are only useful in a Print context; see Detail Table.

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 170.

When it comes to positioning elements on a page, Guides can be useful, as well as Tables. See "How to position elements" on page 267.

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 menu, select **Window > Preferences > Print > 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 292) 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 236 and "Snippets" on page 248.
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. Whitespace 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 174.
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 136.

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 138) 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`.

Tip

Instead of page numbers, you might want to display the current **record index** and/or the total number of records in the record set, in the document. There is a How-to that explains how to do that: [How to get the record index and count](#).

Creating a table of contents

A table of contents can only be created in a script.

If you are looking to create a short, simple table of contents in **one section**, you could add a Standard Script that uses the `pageRef()` function. For an example, see "Creating a table of contents" on page 717.

For a **multi-page, cross-section** table of contents you must use a Post Pagination Script; see "Creating a Table Of Contents" on page 385.

The basics of script-writing in the Designer are explained in the following topic: "Writing your own scripts" on page 340.

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 369). 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. The same applies to list items (in unordered, numbered and description lists).

The number of lines that should be considered a widow or orphan can be changed for the entire Print context, and per paragraph and in tables.

Note

Widows and orphans are ignored if the **page-break-inside** property of the paragraph is set to **avoid**; see "Preventing a page break" on page 135.

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 **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. Open the Formatting dialog. To do this, you can:
 - Select the paragraph using the breadcrumbs or the **Outline** pane (next to the **Resources** pane) and then select **Format > Paragraph** in the menu.
 - Right-click the paragraph and select **Paragraph...** from the contextual menu.
2. After **Widows** and **Orphans**, type the minimum number of lines that should be kept together.

In tables

The CSS properties **widows** and **orphans** can be used in tables to prevent a number of rows from being separated from the rest of the table.

A Standard Table doesn't flow over multiple pages by default. Splitting a Standard Table over multiple pages requires setting the Connect-specific `data-breakable` attribute on all of its rows. You can either open the Source tab, or write a script to replace each `<tr>` with `<tr data-breakable="">`. Note that the effect will only be visible in Preview mode.

To set the number of widows and orphans for a table:

1. Open the Formatting dialog. To do this, you can:
 - Select the table using the breadcrumbs or the **Outline** pane (next to the **Resources** pane) and then select **Format > Table** in the menu.
 - Right-click the paragraph and select **Table...** from the contextual menu.
2. After **Widows** and **Orphans**, type the minimum number of table rows that should be kept together.

Page breaks

A page break occurs automatically when the contents of a section don't fit on one page.

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 263):

1. Select the element (see "Selecting an element" on page 174).
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. Alternatively you could set this property on the Source tab in the HTML (for example: `<h1 style="page-break-before: always;">`), or add a rule to the style sheet; see "Styling your templates with CSS files" on page 257.

Note

You cannot use these properties on an empty `<div>` or on absolute-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 174).
- 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. For an explanation of all available options of the **page-break-inside** property in CSS, see [CSS page-break-inside property](#).

Alternatively you could set this property on the Source tab in the HTML (for example: `<ul style="page-break-inside: avoid;">`), or add a rule to the style sheet; see "Styling your templates with CSS files" on page 257.

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 114).

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 138.

Examples

There are a few How-tos that demonstrate the use of Master Pages:

- [Showing a Terms and Conditions on the back of the first page only](#).
- [A tear-off section on the first page of an invoice](#).
- [Tips and tricks for Media and Master Pages](#).

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" below.
- 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. The drop-downs at the top of the Workspace let you select a Section and a Media (front or back) that will serve as a background to your Master Page design.

A Master Page can contain text, images and other elements (see "Content elements" on page 170), including variable data and dynamic images (see "Personalizing Content" on page 292). 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 170).

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" on the previous page.
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 sheet in a Print section has a natural position: it can be the **first**, the **last**, one of the sheets in between ('**middle**'), or a **single** sheet. For each of these 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.

Note

Master Pages, Media and Duplex printing options can also be set in a Control Script (see "Control Scripts" on page 369 and "Control Script API" on page 749). This is especially useful when you need identical sections with different settings.

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 144.

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 "Setting Media properties" 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, drag the PDF file from the Windows Explorer to one of the Media. The Select Image dialog opens; select an image and check the option **Save with template** if you want to insert the image into the **Images** folder on the **Resources** pane. (For PDF files selected by URL this option is always checked.)

Alternatively you could first import the PDF file to the **Images** folder on the **Resources** pane (using drag & drop) and drag it from there on one of the Media in the **Media** folder. Either way, you cannot 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 to 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.

Note

Encrypted PDF files are **not supported** in *PDF pass-through* mode.

- 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. You can give a local path (e.g. C:\Images\Test.jpg) or use the "file" protocol. The complete syntax of a fully qualified URL with the "file" protocol 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`).

Note

If a URL doesn't have a file extension, and the option Save with template is **not** selected, the Select Image dialog automatically adds the `filetype`

parameter with the file extension as its value (for example:
`?filetype=pdf`)

(if it is the first parameter) or
`& filetype=pdf`

).

The

`filetype`

,

`page`

and

`nopreview`

parameters are not sent to the host; they are used internally. Therefore, URLs that rely on one of these parameters cannot be used.

- 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 it isn't saved with the template, the image remains 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. If the PDF file consists of more than one page, select the desired page.

Note

The number of pages in a PDF file can not be determined via the HTTP and HTTPS protocols. If you wish to use a page other than page 1 in a remote PDF, check the option **Save with template**; then click OK and reopen the dialog. Next, on the Resources tab, select the PDF, and select a page.

5. Click **Finish**.

6. 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.
7. 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 136.

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.

Note

Master Pages, Media and Duplex printing options can also be set in a Control Script (see "Control Scripts" on page 369 and "Control Script API" on page 749). This is especially useful when you need identical sections with different settings.

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 340 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.

Rotating the Media in a Print section

The actual orientation of the Media and that of a section to which the Media is applied may not match.

The Media can therefore be rotated per Print section:

- On the **Resources** pane, expand the **Print** context; right-click the Print section, and click **Sheet configuration**.
- Click one of the options next to **Media rotation**.

The Media (to be more accurate: the Virtual Stationery images specified for this Media) will be rotated accordingly in the entire section.

Note

- Any Virtual Stationery settings made for the Media also influence how the Media is displayed in each section (see "Setting Media properties" on page 140).
- Section backgrounds are rotated separately (see "Using a PDF file as background image" on page 123).

If in the Media properties, the Virtual Stationery position is set to Absolute, any offset given by the Top and Left values will be applied **after** rotation. A Virtual Stationery image located absolutely at the top left (Top: 0, Left: 0) will still appear at the top left of the page after rotating the Media.

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 "[Output Creation Settings](#)" on page 594 for more details.
2. Select that job creation preset in the Print Wizard; see "Generating Print output" on page 791.

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 151.

Also see "Designing an Email template" on the facing page for guidelines on the design. 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 102), the Email context folder is created along with other files that are specific to an Email context; see "Email context" on page 155.

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 157. 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 807.

Email templates are personalized just like any other template; see "Variable Data" on page 303.

Sending email

When the template is ready, you can change the email settings (see "Email header settings" on page 160) and send the email. 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. (Compression options for PDF attachments can be specified in the Email context's properties; see .)
- Other files, an image or a PDF leaflet for example.
- Attaching the Print context is one of the options in the Send (Test) Email dialog.

See "Email attachments" on page 166 and "Generating Email output" on page 807.

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 PrintShop Mail Designer

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 151. 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.

Litmus

There are several tools to preview how email will be rendered on a variety of clients. We recommend using **Litmus**. Support for Litmus is integrated into the Designer; the Send Test Email dialog has an option to "Send to Litmus".

Emmet

Emmet is a plugin that enables the lightning-fast creation of HTML code through 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 `<div>` 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 329.

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) 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 marketplace. 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 114.

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 148).

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 101 and "Email templates" on page 157).

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 the next page 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 (or last used) 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 303.
The Invoice email template also contains a Detail Table; see Detail table.
- 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, 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 160

- A style sheet, named context_htmlmail_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 170, "Email context" on page 155, and "Email templates" on page 157.

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 404). The color can be changed later; see "Colors" on page 283.

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 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** email, the Email Template Wizard lets you choose:

- The subject. You can change and personalize the subject later, see "Email header settings" on page 160.
- 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 404). The color can be changed later; see "Colors" on page 283.

- 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.

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 151) or when an Email context is added to a template (see "Adding a context" on page 102) 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 page 157 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 157.
- A style sheet, named `context_htmlmail_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 170 and "Email templates" on page 157.

Sending email

When the template is ready, you can generate Email output; See "Generating Email output" on page 807. 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. (Compression options for PDF attachments can be specified in the Email context's properties; see .)
- Other files, an image or a PDF leaflet for example.

- Attaching the Print context is one of the options in the Send (Test) Email dialog.

Note

To split the Print context into multiple attachments, and to rename this type of attachment, you need to create a Control Script that specifies **parts**; see "Parts: splitting and renaming email attachments" on page 374.

See "Email attachments" on page 166.

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; then right-click the **Email** context and select **PDF Attachments**.
Alternatively, select **Context > PDF Attachments** on the main menu. This option is only available when editing an Email section in the Workspace.
2. 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 160.

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 170. 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 303.

The subject, recipients (To, CC and BCC), sender and reply-to address are specified with Email Script Wizards; see "Email header settings" on page 160.

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 807.

Adding an Email template

When an Email template is created (see "Creating an Email template with a Wizard" on page 151), 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 311), or Snippets and a script (see "Snippets" on page 248 and "Loading a snippet via a script" on page 357).

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 103).

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:

- On the **Resources** pane, expand the **Contexts** folder, expand the **Email** context, right-click the name of the section, and then click **Delete**.

Warning

If you don't have a backup of 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. In the Saving Preferences you can set whether a backup file should be created when you save the template; see "Saving Preferences" on page 337.

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 251.

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 174.

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.
4. You can also change the order in which the CSS files are read: click one of the included CSS files and use the **Up** and **Down** buttons. 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.

Note

Style sheets are applied in the order in which they are included in a section. 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.

Note

Style sheets that are linked to (i.e. included in) a section show a chain icon in the Resources pane (see "Resources pane" on page 484).

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**.

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.

The default Email SMTP settings and the sender's name and address are defined in the Connect Designer preferences (see "Email Preferences" on page 327). They can be adjusted per run in the Send Email and Send Test Email dialogs.

Email Fields

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 807).

Note

Using a variable email address requires you to load data first; see "Loading data" on page 295.

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. See "Script wizards" on page 436 for an explanation of the options in the script wizard.

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 340.

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 812. To get started with Control Scripts, refer to "Control Scripts" on page 369.

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 PrintShop Mail Connect" on page 810). 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 Test Email dialog and Send Email dialog (see "Send (Test) Email" on page 444) 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.HTML_EMAIL [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 versions of the software prior to version 1.7 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 "The Email Script Wizard" on page 161), 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 340 first.

Note

A Subject script created by clicking Subject in the Email Fields always targets one email section specifically, for example: `html[section="Content"]` (in this case, Content is the name of the email section). 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 "The Email Script Wizard" on page 161.

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 and Send Test Email dialogs (see "Send (Test) Email" on page 444).

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 "The Email Script Wizard" on page 161. 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](#).)

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 "The Email Script Wizard" on page 161), to specify the Reply To address in a script.

Meta information

Meta information in an email header is not visible to the receiver, but might have an effect on the representation of the email in the e-mail client. The information may also be used by an Email Service Provider (see "Using an ESP with PrintShop Mail Connect" on page 810).

To add custom meta information to an email header:

1. Right-click the email section on the Resources pane and select **Properties...**
2. The **Meta Information** group lists all <meta> tags that will be added to the header of the email. Click the **Add** button to add a new <meta> tag to the list.
3. Select the **type** of <meta> tag, which is either name or http-equiv.
4. For a name-type meta tag, enter the **value**.
5. Enter the **content**.

Example

When you add a *name* meta tag with the value *viewport* and content *width=320*, the following will be added to the email header:

```
<meta name="viewport" content="width=320">.
```

For more information on <meta> tags, see [W3Schools - HTML meta tag](#).

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 807). 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 382, "Control Scripts" on page 369 and "Control Script API" on page 749.

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. (Compression options for PDF attachments can be specified in the Email context's properties; see .)
- Other files, an image or a PDF leaflet for example.
- Attaching the Print 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). Compression options for PDF attachments can be specified in the Email Context Properties dialog; see "Compressing PDF attachments" on page 156.

Note

To split the Print context into multiple attachments, and to rename this type of attachment, you need to create a Control Script that specifies **parts**; see "Parts: splitting and renaming email attachments" on page 374.

This topic explains how to attach files other than those generated by the Print context.

Attaching files

Selecting and adding files as attachments

If you want all recipients to get the same attachments with their email, you can add the attachments to the Email section(s).

The easiest way is to **drag and drop** the desired file on the Email section. If the file is an image, you will be presented with the option to import it into the template's Resources folder. Any other file will be added to the list of attachments directly.

The **Attachments** dialog also lets you select files and delete attachments. To open the Attachments dialog: Right-click the Email section in the Resources pane and select **Attachments**. Alternatively, select **Section > Attachments** from the menu. This menu item is only available when an Email section is opened in the workspace.

For further information about this dialog, see: Attachments dialog.

Dynamic attachments: creating file names based on data fields

The new Dynamic Attachment wizard lets you concatenate this value with the base location and/or file extension to construct the path. Dynamic Attachment scripts are created via the New option on the toolbar of the Scripts panel.

The **Dynamic Attachment Script Wizard** lets you add a different attachment for each email recipient. It composes **one** file name (including the path) based on the value of one or more data fields.

1. On the **Scripts** pane at the bottom left, click the downward pointing arrow next to the **New** button; then select **Email Scripts > Dynamic Attachment**.
2. A new script called **Attachments** has appeared in the list. Double-click to open it.
3. Choose an Email section from the **Section** drop-down list.
4. Fill in the different parts of which the file name is composed:

Prefix. The first prefix contains the base path (or at least the first, static part of the path). For example:

- C:\Attachments\
,
C:/Attachments/
, or
file:///C:/Attachments/
.

- **Data field/s.** The selected data field/s will be evaluated. If a data field is empty, the entire row is skipped. Otherwise the prefix, data field value and suffix are added to the path/file name.

Suffix. The suffix on the last used row should contain the file extension, including the dot (for example

- .pdf
).

For resources **inside** the template, refer to the folder in the Resources, e.g. 'images/file.extension' , or 'fonts/myfont.otf' , etc.

For a file on **disk**, you can use the file protocol, for example:

file:///c:/somefolder/attachments/INV2018.246.pdf (which equals

file://localhost/c:/somefolder/attachments/INV2018.246.pdf; if the host is "localhost" , it can be omitted).

For a **remote** file, give the URL (e.g.

http://www.mysite.com/somefolder/attachments/INV2018.246.pdf or
'http://localhost:8080/pod/v1/deliverynotes/{8FCEC8BC-72E8-486B-A206-516BF10E21F6}').

Note

For attachment names, it is recommended to use only US-ASCII characters. Other characters may not be supported by all email servers and clients.

5. The attachment's name in the email will be the part of the path that comes after the last '/'. When there are no forward slashes in the path, the full path is used. You may want to use a custom attachment name. To learn how to do that, see "Renaming attachments" below.
6. Click **OK** or **Apply** to save your changes.

Note that an Attachments script creates **one single attachment**. To add more attachments, you could either add Attachments scripts, or click the Expand button and edit the script.

If you want to write your own email attachment scripts, there is a how-to that you may find helpful: [How to add custom email attachments](#).

Renaming attachments

Print sections that are attached to an email can only be renamed via a Control Script; see "Parts: splitting and renaming email attachments" on page 374.

Renaming dynamic attachments

Dynamic attachments can be renamed via the script that attaches them to the email. Double-click the script to open it and click the **Expand** button.

Dynamic attachment scripts add a <link> element to the <head> of an Email section. The title attribute of that element specifies the attachment name that will show up in the email.

Take a look at the last line of the script:

```
results.append(query("<link rel=related>").attr("title", result.split('/')[0].pop()).attr("href", result));
```

To give the attachment another name, you have to replace the bold part of the code by that new name. For example:

```
results.append(query("<link rel=related>").attr("title", "Invoice.pdf").attr("href", result));
```

Of course, you can also use data field values here, for example: `results.append(query("<link rel=related>").attr("title", record.fields.invoice_number + ".pdf").attr("href", result));`

Note that the Wizard can no longer be used once you have edited and saved the script.

Note

For attachment names, it is recommended to use only US-ASCII characters. Other characters may not be supported by all email servers and clients.

Content elements

Once you have created a template, it can be filled with all kinds of elements. All types of elements are listed on this page.

There are several ways to insert elements, see "Inserting an element" on page 173.

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 174, "Attributes" on page 172 and "Styling and formatting an element" on page 175.

ID's and classes are particularly useful with regard to variable data (see "Personalizing Content" on page 292) and styling (see "Styling templates with CSS files" on page 253).

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 172.

Element types

The following types of content can be added to the content of a template:

- "Images" on page 236 and "Dynamic Images" on page 314
- "Text and special characters" on page 246
- "Date" on page 232
- "Table" on page 242

- "Boxes" on page 221: Positioned Box, Inline Box, Div and Span

Tip

Wrapping elements in a box (see "Boxes" on page 221) or in a semantic HTML element makes it easier to target them in a script or in 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 305 and "Styling and formatting" on page 251.

- "Hyperlink and mailto link" on page 234
- "Barcode" on page 176
- "Whitespace elements: using optional space at the end of the last page" on page 130 (Print context only)
- "Page numbers " on page 131 (Print context only)
- Article, Section, Header, Footer, Nav and Aside are HTML5 semantic elements; see https://www.w3schools.com/html/html5_semantic_elements.asp
- Other HTML elements: Heading (H1 - H6), Address and Pre
To quickly change a paragraph into a Heading, place the cursor inside of it, or select the paragraph (see: "Selecting an element" on page 174). Then select the appropriate element, either on the **Format** menu, or from the 'Element type' dropdown on the toolbar.
- "Snippets" on page 248: 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. 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 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 267 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 <https://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.codecademy.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 292) and styling (see "Styling templates with CSS files" on page 253).

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 page 174) 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 305.

In code, you can change an element's attribute using the function `attr()`; see "Writing your own scripts" on page 340 and "Standard Script API" on page 691.

Inserting an element

To insert an element in a section:

1. Navigate to where you want to insert the element, using the arrow keys, the mouse, the Breadcrumbs (see "Selecting an element" on the facing page) or the Outline pane.
2. Click the respective toolbar button. Alternatively, click the element on the **Insert** menu.
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 292) and styling (see "Styling templates with CSS files" on page 253).

Note

Do not give an element the ID 'pages' or the class name 'dynamic'. These are reserved words. Using them as an ID or class name leads to undesirable effects.

4. 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 <p> 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 (</p>).*

* 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 down to the root of the body.

For a list of links to the different types of elements, see "Element types" on page 170.

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.

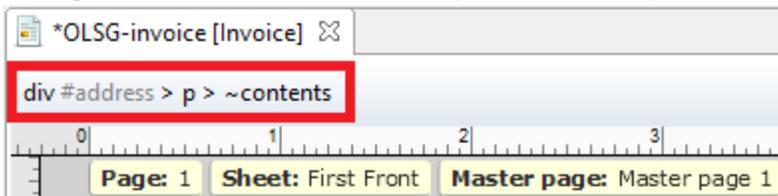
Tip

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:

- 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 ~contents`.

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.

Click `~contents` to select the **contents** of the element. This way you may, for example, quickly change the text of a hyperlink.

- 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.

Scripts are used to personalize templates. To start learning more about scripts, see "Personalizing Content" on page 292 and "Writing your own scripts" on page 340.

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:

- Right-click the element and select the type of element on the shortcut menu.
- Select the element (see "Selecting an element" on page 174) and select the type of element on the **Format** menu.

See "Styling and formatting" on page 251 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 253.

Barcode

In PrintShop Mail 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 "Page breakdown" on page 614) 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 594).

Before adding a Barcode, load data or at least a Data Model; see "Loading data" on page 295. 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. (This option is not available in Email sections.) Alternatively, use the **Location** drop-down to select where to insert the Barcode.
 5.
 - **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 `<p>` 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 (`</p>`).*

* 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 down to the root of the body.

6. 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" below.

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.

7. 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" on the next page.

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.

- Australia Post, see "OneCode, KIX Code, Australia Post" on page 209
- "Aztec Code" on page 181
- "Codabar" on page 183
- Code 11, see "Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5" on page 205
- "Code 39, Code 39 extended" on page 186
- Code 93, Code 93 extended, see "Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5" on page 205
- "Code 128" on page 190
- "Data Matrix" on page 191
- EAN-8, EAN-13, see "UPC-A, UPC-E, EAN-8, EAN-13" on page 219
- "GS1 DataMatrix" on page 196
- "GS1-128" on page 197
- KIX Code, see "OneCode, KIX Code, Australia Post" on page 209
- "IMPB" on page 200
- Industrial 2 of 5, see "Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5" on page 205
- Interleaved 2 of 5, see "Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5" on page 205
- Matrix 2 of 5, see "Code 11, Code 93, Code 93 extended, Industrial 2 of 5, Interleaved 2 of 5, Matrix 2 of 5" on page 205

- "MaxiCode" on page 206
- "MSI" on page 207
- OneCode, see "OneCode, KIX Code, Australia Post" on page 209
- "PDF417" on page 210
- "Postnet" on page 212
- "QR Code" on page 214
- "Royal Mail 4 State (RM4SCC)" on page 216
- "Royal Mail Mailmark" on page 218
- UPC-A, UPC-E, see "UPC-A, UPC-E, EAN-8, EAN-13" on page 219

OneCode, KIX Code, Australia Post

OneCode, KIX Code and **Australia Post** are some of the types of barcodes that can be added to a template; see "Barcode" on page 176.

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 176.

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 and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on the previous page.

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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

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.

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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

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.

Human Readable Message

When this option is checked, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 Data Matrix barcode. For the properties of other barcode types, see "Barcode type and properties" on page 179.

Note

Tilde characters in the data are processed as special characters. Therefore, any tilde that needs to be included in the output must be escaped by adding another tilde (either "~~", or "7E7E" if the Hex input option is enabled). This can be done with a `replace()` call in the Barcode script, after expanding the script.

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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 DataMatrix

GS1 DataMatrix is one of the types of barcodes that can be added to a template; see "Barcode" on page 176.

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 176.

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.

About GS1 DataMatrix barcode data

In order to create a GS1 compliant DataMatrix barcode, the barcode data must meet the following requirements.

- The barcode data must start with a leading FNC1 character: ~1. When this function code is omitted the barcode may be scanned as a DataMatrix barcode instead of a GS1 DataMatrix barcode.
- The GS1 Application Identifiers (AI) must be used for all data. In addition, the function code ~1 must be used as field separator for variable length AI elements.
- Only ASCII characters should be used.

Barcode properties

This topic lists the properties of the barcode type GS1 DataMatrix. For the properties of other barcode types, see "Barcode type and properties" on page 179.

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.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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, Australia Post

OneCode, **KIX Code** and **Australia Post** are some of the types of barcodes that can be added to a template; see "Barcode" on page 176.

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 176.

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 and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 179.

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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

Color

The **Color** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

Resolution

Select the printer output definition for the barcode (200, 300, 400, 500 or 600 dpi).

Mode

PrintShop Mail Connect supports several modes; for an explanation of these modes see the [MaxiCode page on Wikipedia](#).

Color

The **Color** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

MSI

MSI is one of the types of barcodes that can be added to a template; see "Barcode" on page 176.

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 176.

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 179.

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.

Add Checksum

When checked, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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, Australia Post

OneCode, **KIX Code** and **Australia Post** are some of the types of barcodes that can be added to a template; see "Barcode" on page 176.

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 176.

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 and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 179.

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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

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.

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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 176) 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 179.

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 alphanumeric 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**, **Latin-2**, **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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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.

Royal Mail 4 State (RM4SCC)

Royal Mail 4 State (RM4SCC) is one of the types of barcodes that can be added to a template; see "Barcode" on page 176.

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 176.

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 4 State and Australia Post. For the properties of other barcode types, see "Barcode type and properties" on page 179.

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.
- **Proportional:** 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, PrintShop Mail 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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 176.

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 179.

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.
- **Proportional:** 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 176.

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 179.

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.

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, PrintShop Mail 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** group 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](#)).

When black is a composite of CMYK or RGB values, it may incur a color click charge on some printers. Check the **Output in Grayscale** option to make sure that pure black is used.

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 (or in a semantic HTML element) makes it easier to target them in a script or in 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 305 and "Styling and formatting" on page 251.

Tip

With the **Copy fit** feature, text can automatically be scaled to the available space in a Box or Div. See "Copy Fit" on page 266.

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 `<div>` element that has an **absolute position**; in other words, it has its CSS property `position` set to `absolute` (see also: "Using the CSS position property" on page 269).

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.

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. Pressing any arrow key moves the box by 1 pixel in the direction of that key.

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. Also note that currently, Y-offset and X-offset cannot be left empty.

To move or resize multiple Positioned Boxes at the same time, hold the Ctrl key while selecting them. You could either select them in the Design view (the main editor) or in the Outline pane.

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 251 and "Styling templates with CSS files" on page 253.

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 `<div>` 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 251 and "Styling templates with CSS files" on page 253.

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 <div> 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.

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 305 and "Styling and formatting" on page 251.

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 251 and "Styling templates with CSS files" on page 253.

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 173.

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 172.

In HTML, boxes are <div> elements. Spans are elements. To learn how to change the attributes of elements, see "Attributes" on page 172.

Business graphics

Business graphics are a great way to visualize data in your documents. Connect Designer lets you create three types of graphics: Bar Charts, Line Charts and Pie Charts. The charts are generated by the integrated **amCharts** library (<https://www.amcharts.com/javascript-charts/>).

This topic explains how to create and edit a business graphic using a **Wizard**, without scripting. The wizard helps you to select data and it shows a preview of both the chart and the supplied data.

Connect supports the majority of features of the amCharts library (version: 3.21.12), whether or not they are directly available in the Chart wizard or via the Chart Properties dialog. As a rule, configuration options that aren't available as an option in a dialog can be set manually on the Source tab of the Chart Properties dialog.

Instead of using a Wizard, you could insert a business graphic **manually** by turning a standard <div> element into a chart object using scripting.

There is a How-to that guides you through that process and gives a better understanding of the

underlying configuration: [Programmatically configure a Chart object](#).

For another example see this How-to: [Put one slice per detail record in a Pie Chart](#).

Note

As of PrintShop Mail Connect version 2018.1, the way charts can be compiled and presented has been greatly improved. As a consequence, charts made with a version of Connect prior to 2018.1 may not be converted correctly when opened in a later version. For a list of known backward compatibility issues see: "Business Graphics: Backward Compatibility Issues" on page 83. Also note that charts based on expanded, custom scripts are never converted.

Inserting a business graphic

The Connect Designer has wizards for adding three kinds of graphics: Pie Charts, Bar Charts and Line Charts. These wizards insert the chart and its accompanying script, after you select the data that should be displayed, their colors and labels, and a few display options.

To insert a business graphic in a template:

1. Place the cursor where the graphic should be added. Also make sure that you have loaded data (see "Loading data" on page 295).
2. Click the toolbar button of the type of chart you want to add, or select **Insert > Business graphic** and choose the chart type.
The wizard opens with a page on which you can specify the attributes and insertion point of the graph.
3. An **ID** is required. You can change the given ID and, optionally, add a class.
4. Check the option **Absolute** if you want the chart to have an absolute position. Leave it unchecked to insert the chart as part of the text, and use the **Location** drop-down to select where in the text the graphic should be inserted:
 - **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 <p> 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 (</p>).*

* 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 down to the root of the body.

5. Click **Next** and specify the data for the graph. These settings can also be edited when you open the script, after you've inserted the chart. For an explanation of the options in the wizard, see "Selecting data for a Business Graphic" on the facing page.
6. For a Bar Chart or Line Chart, you can click **Next** and set some basic parameters of the chart:
 - **Stack Series:** Check to stack the values in one bar, instead of having one bar per value. This is only useful with a chart that is based on a data table.
 - **Rotate:** Check to flip the x and y axes, so that the bars are horizontal starting from the left.
 - **Show Legend:** Check to show the labels of the selected data in a legend. This is only useful with a chart that is based on a data table. In a chart based on data fields, the labels of the fields appear under the x-axis.
 - **Titles:** Type the title that should appear near the horizontal (x) axis and/or the vertical (y) axis. (Note that the axes with their titles are exchanged when you rotate the chart.)

These are just a few of the numerous display options that can be edited via the Chart Properties dialog; see "Enhancing a charts' design" on page 229.

7. Click **Finish** to insert the chart into the template.

The wizard adds the following to the template:

- A Div element. It has a `data-amchart` attribute, as you can see when you select the chart and open the Source view in the Workspace. The `data-amchart` attribute contains settings for how the data is displayed. These settings are made via the chart's properties (see "Enhancing a charts' design" on page 229).
 - A script. The script determines which data are displayed in the chart, with which colors and labels. The script can be edited any time; see "Selecting data for a

Business Graphic" on the facing page.

When a preview or output must be generated, the script adds the data for the chart to the `data-amchart` attribute (in a `dataProvider` property). Connect then passes the value of that attribute to the integrated amCharts library.

Rasterizing a business graphic

Business graphics are output as SVG images, but not all clients may support that format. Before generating output, you may want to 'rasterize' it. This converts the business graph into a JPG or PNG image.

To rasterize a business graphic, right-click it and select **Rasterize Options**.

For a JPG image you can set the quality of the resulting image in a percentage.

Note

A business graphic in an Email section is rasterized by default and output as PNG image, because email clients usually don't support SVG images.

SVG images in an Email section give an error in the Preflight window (see "Preflight" on page 350).

Selecting data for a Business Graphic

A Business Graphic script determines which data, colors and labels are used in the chart.

Double-click the script on the **Scripts** pane to open it.

Tip

To find the script that provides data for a chart, hover over the names of the script in the Scripts pane. That particular script will highlight the chart in the template and its selector is the same as the ID of the business graphic (preceded by #).

1. Next to **Values**, select **data fields** with a numerical value.

Tip

The **Toggle non-numeric fields** button filters non-numeric fields from the list. The list will then display only Integer, Float and Currency data fields.

2. Adjust the **label** of each of the selected data fields as needed: click on the label and type the new one.

In Bar and Line Charts with Data Fields as input data, these labels appear under the x-axis of the chart.

Note

Labels are used in the legend. They will be visible when the legend is enabled.

3. Select a **color** for each of the selected fields. Click on the color to open the Edit Color dialog (see "Color Picker" on page 404).

Note

Colors defined in the Chart Properties dialog override the colors set in the script. To open the Chart Properties dialog, right-click the chart after adding it, and select **Chart...** See: "Enhancing a charts' design" below.

4. Use the **Move Up** and **Move Down** buttons to change the order of the fields, which is reflected in the chart.

The Preview shows what the chart looks like with the current settings, whilst the Data Preview shows which data will be passed to the amCharts library.

Enhancing a charts' design

Charts inserted with a wizard always have the same layout. The **amCharts** library that is integrated in Connect has loads of options to layout charts differently. Here's how to make use of those options.

Start by opening the Chart Properties dialog. Right-click the chart (in the template, or in the Outline pane) and select **Chart**.

Every tab menu in the Chart Properties dialog, except the last one, gives direct access to a number of layout options. For a description of the options see:

- "Bar Chart Properties dialog" on page 391
- "Line Chart Properties dialog" on page 414
- "Pie Chart Properties dialog" on page 429

Adding and editing properties manually

The last tab menu in the Chart Properties dialog, the **Source** tab, reflects the choices made in the other tabs. More importantly, this tab gives you the possibility to add any amCharts configuration option that is unavailable via the other tab menus.

On the Source tab, all settings are given in JSON. For example:

```
{
  "type": "pie",
  "legend": {
    "enabled": false
  },
  "radius": "100",
  "innerRadius": "30"
}
```

(The `innerRadius` option, found on the Pie tab in the Pie Chart properties, gives this Pie Chart the shape of a donut.)

Note that only properties that were modified via one of the tab menus are included in the JSON on the Source tab.

To change the chart, you can simply edit the JSON.

For example, adding `"handDrawn": "true"` (at the same level as the "type" property) will distort the lines of a Bar chart or Line chart, producing a hand-drawn effect.

All configuration options can be found in the amCharts **API** documentation:

<https://docs.amcharts.com/3/javascriptcharts/>.

It depends on the class to which a property belongs, where in the JSON the property should be added. Chart properties should be added at the highest level; for example:

```
{
  "type": "serial",
```

```
"rotate": true,  
...  
}
```

Properties of the Legend (listed here: <https://docs.amcharts.com/3/javascriptcharts/AmLegend>) should go in the `legend` section in the JSON:

```
...  
"legend": {  
  "position": "right"  
},
```

The Source tab also lets you change properties that *are* available in either the Script Wizard or other tabs of the Chart Properties dialog. You could, for example, set the colors of the bars, lines or slices by adding an array of hexadecimal color values, like this:

```
"colors": ["#FF6600", "#FCD202", "#B0DE09", "#0D8ECF"]
```

Note that properties defined on the Source tab override those made in the Script Wizard or on other tabs of the Properties dialog.

For inspiration you could use amCharts' **online editor**: <https://live.amcharts.com/new/>.

Properties can be copied directly from the Code tab in the live editor to the Source tab of the Chart properties dialog in Connect.

Note that copying the entire content of the Code tab will also carry over the sample data from the live editor (the `dataProvider` key). These will be overwritten by the chart script in Connect.

Note

- Properties defined on the Source tab override those made in the Script Wizard or on other tabs of the Properties dialog. The only exception is the `dataProvider` property: this will be overwritten by the chart's script.
- In Connect, the implementation was tested with Pie Charts (`amPieChart`) and with Bar Charts and Line Charts (`amSerialChart`). Other variants may or may not work.
- Animations will not work in the output, even if the output is a web page. This is because the chart is generated on the server, not in the browser. To get animations to work you would have to implement a solution similar to the one described in this How-to: [Dynamic dashboard charts](#).

Using themes

The amCharts library supports working with themes. The default themes are: light, dark, black, patterns, and chalk. All except the 'patterns' theme can be used in Connect templates. Here's how to do that.

1. Add the theme to the top of the JSON on the Source tab of the Chart Properties dialog. For example:

```
{ "theme": "light",  
  ...
```

This setting overrides any color settings made in the Chart Script wizard and on the other tabs of the Chart Properties dialog.

2. The 'light' theme requires no other settings. For the other themes you will have to manually set the background color of the Div element that holds the chart:
 - A. Switch to the Design mode.
 - B. Right-click the chart area and select **Box...** from the contextual menu.
 - C. On the **Background** tab, set the **Color** to:
 - #282828 for the 'dark' theme and the 'chalk' theme
 - #222222 for the 'black' theme
3. Finally, the 'chalk' theme requires adding a remote stylesheet with this URL:
'https://fonts.googleapis.com/css?family=Covered+By+Your+Grace' to your template. See "Using a remote style sheet" on page 255.

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 that originates from a record set, to a template, see: "Variable Data" on page 303. To insert a date you could use either the drag and drop method or the Text Script Wizard; 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 https://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 729).
4. Now type a dot after `formatter`, press **Ctrl + space** and choose one of the functions to format a date and time; see "Creating a Date object from a string" on page 733.

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 290.

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 172.

The HTML tag of a hyperlink or mailto-link is `<a>`. This is sometimes called an `anchor` tag. For a list of attributes, see https://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://`.
 - **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.

Tip

To quickly change the text of a hyperlink, position the cursor on the link and click `~contents` in the Breadcrumbs. Now you can start typing the new text.

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 340.

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.

Images

Images are a powerful ingredient in all of your templates. This topic explains how to add and use them. Currently the 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 the next page and "Resources" on page 99). Once added to the content of a template, an image can be resized (see "Resizing an image" on page 276) and alternate text can be linked to it (see "Setting an alternate text" on page 241).

Tip

Using images in an Email template? See "Using images in email campaigns: tips" on page 150.

Dynamic images

Images can be switched dynamically, so that a letter or email can include one image or another, depending on a value in the data set. Read "Dynamic Images" on page 314 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 278 and "Using a PDF file as background image" on page 123.

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.

The quickest way to create a Print template based on a PDF file is to right-click the PDF file in the Windows Explorer and select **Enhance with Connect**. Alternatively, start creating a new Print template with a Wizard, using the PDF-based Print template (see

"Creating a Print template with a Wizard" on page 109).

To use a PDF file as background image for an existing section, see "Using a PDF file as background image" on page 123.

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 130.

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 172.

In the section's source file, images are `` elements. The `` 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 241.

The value of the attributes can be changed via a script; see "Attributes" on page 172.

Adding images

This section explains the difference between imported and external images and describes a number of ways to add images to a template.

Note

The Connect image cache size is limited to 100MB. This allows most output jobs to run faster. However, if a job requires more than 100MBs of image files, then the Connect image cache size can be increased to cater for such. Please contact OL Support for instructions on how to modify the image memory cache value, if needed. (See also: "Limit of 100MB of image files within a single job" on page 84.)

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. To refresh them at any other time, use the Refresh option in the menu (**View > Refresh**) or the Refresh button at the top of the Workspace.

External images can not be added via the drag-and-drop method. Use the Select Image dialog instead (see below).

If you add an external image via the Source tab or via a script, and the URL doesn't have a file extension, you have to add the `filetype` parameter to the URL manually. Specify the file extension as its value, for example: `?filetype=pdf`, or `&filetype=pdf` if it isn't the first parameter. Note that the ampersand character needs to be encoded as `&`.

For information about referring to images in HTML or in a script, see "Resources" on page 99.

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.

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.

- 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. You can give a local path (e.g. C:\Images\Test.jpg) or use the "file" protocol. The complete syntax of a fully qualified URL with the "file" protocol 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`).

Note

If a URL doesn't have a file extension, and the option Save with template is **not** selected, the Select Image dialog automatically adds the

`filetype`

parameter with the file extension as its value (for example:

`?filetype=pdf`

(if it is the first parameter) or

`&filetype=pdf`

).

The

`filetype`

,

page

and
nopreview

parameters are not sent to the host; they are used internally. Therefore, URLs that rely on one of these parameters cannot be used.

- 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 it isn't saved with the template, the image remains 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.
3. If the image is a PDF file that consists of more than one page, select the desired page.

Note

The number of pages in a PDF file cannot be determined via the HTTP and HTTPS protocols. If you wish to use a page other than page 1 in a remote PDF, check the option **Save with template**; then click OK and reopen the dialog. Next, on the Resources tab, select the PDF, and select a page.

4. 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. One solution is to combine the images into a single image file (an 'image sprite') 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 "Creating and using image sprites" on page 816.

Moving an image

An image that is added to a section behaves like a character and is part of the text flow. To move it, simply click the image and drag and drop it somewhere else in the text flow. To learn how to wrap text around it, see "Wrapping text around an image" on page 277.

How to make an image stay at a certain position (like any image added to a Master Page) is explained here: "Pulling an image out of the text flow" on page 277. When an image has an 'absolute position' it can be moved around freely: hover over the border of the image to get a move pointer, click that pointer and drag and drop the image somewhere else.

Styling an image

Images can be resized using the handles on the sides and 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 253.

A number of issues related to image styling are discussed in a separate topic: "Styling an image" on page 275.

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 280 and "Spacing" on page 291. All general formatting topics are listed under "Styling and formatting" on page 251.

Note

It is recommended to resize images outside of the Designer, with image editing software.

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 at the position of the image while the image is loading and when the image is not found.

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 image files 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.

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 148. 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.

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 172.

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 https://www.w3schools.com/html/html_tables.asp.

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 <p> 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 (</p>).*

* 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 down to the root of the body.

Note

- Tables with an absolute position are only useful in Print sections.
- 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 use the drop-down to select the desired table style.
5. Uncheck the box **Allow resizing** 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.
6. 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

To learn how to style Tables, see "Styling a table" on page 271.

Resizing and moving a Table

Resizing a Table

- Select the Table (see "Selecting an element" on page 174) and type the desired width and height under **Geometry** 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.
- Click in the Table and drag the handles to resize it. Press the **Shift** key while dragging to scale the Table proportionally.
This option only works in a Print section, with a Table that has an absolute position and for which resizing is allowed.
 - If the position of the Table isn't absolute, 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 174) and then, on the **Attributes** pane, check the option **Allow resizing**.

Moving a Table

The easiest way to move a Table in relation to other content is this:

1. Open the **Outline** pane (next to the Resources pane).
2. Select the Table on the Outline pane.

3. Drag and drop it somewhere else in the outline.

To move a Table with an absolute position, you can also:

- Click in the Table and then drag the border to move the Table.
- Select the Table (see "Selecting an element" on page 174) and type the desired values in the Top and Left fields on the **Attributes** pane.
- Select the Table and select **Format > Table**, on the menu. On the **Table** tab, change the **Positioning** values.

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 280.

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 (`<div>`), 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, use the **Insert Lorem Ipsum** toolbar button to insert dummy text, or copy-paste text into the template.

Select **Paste as Plain Text** from the Edit menu or the contextual menu to insert the text without any HTML styles or formatting.

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 305.

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 PrintShop Mail

ConnectDesigner. Formatting options like bold, italic and formats like Heading 1, Heading 2 are maintained.

Extra spaces

When you add spaces in Design or Preview mode the editor automatically preserves any extra spaces by converting them to non-breaking spaces (" " in HTML). It does this because in HTML extra spaces are generally removed. Take this into account when you edit the template in Source mode (i.e. in HTML) or add text via a script.

This how-to describes another way 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 131.

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 172.

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 <p>. The paragraph should be followed by a closing tag: </p>.

A line break looks like this in HTML:
.

Only the Source tab requires that you write HTML. In Design or Preview mode the editor adds HTML tags as needed.

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 263.

In all templates you can use the fonts that are provided with the Designer, as well as imported fonts; see "Fonts" on page 287.

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 236.
- 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 250).

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:

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 357.

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 or email into a snippet for reuse in the content of a template:

1. Open the section and select the part or parts that should be saved to a snippet.
2. Right-click the selection, point to **Snippet** and click **Create**.
3. Give the snippet a name.

Renaming a snippet

To rename a snippet, right-click it on the **Resources** pane in the **Snippets** folder and select **Rename**.

If you rename a snippet that was inserted into a section as shared content, you need to update the reference to the snippet manually:

1. Open the section in which the snippet is used.
2. Switch to Source view.
3. Look for the <article> element in the HTML and replace the old snippet name with the new name in the source attribute.

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 340.

For an example in which JSON snippets are being used to localize a template, see this how-to: [Localizing templates using json](#).

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:

- 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 next page.

Layout properties

Colors and fonts make an important contribution to the look and feel of your template. See "Colors" on page 283 and "Fonts" on page 287.

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 263.

Boxes and a number of other elements can have a background color and/or background image; see "Background color and/or image" on page 278.

Several elements, such as boxes, images, paragraphs, and tables, can have a border; see "Border" on page 280.

Boxes, images, tables, text and other elements can be rotated; see "Rotating elements" on page 271.

Spacing (padding and margin) helps to position elements relative to other elements in the template; see "Spacing" on page 291.

The best way to position elements depends on the output channel for which the template is intended; see "How to position elements" on page 267.

The locale setting influences how dates, numbers and amounts of money are displayed; see "Locale" on page 290.

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 files: Cascading Style Sheets. This topic explains how to do that.

Why use CSS files

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 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 <https://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.codecademy.com and look for HTML (and CSS) courses.

What you can't do with CSS

In Connect, it depends on the output channel what can and cannot be done with CSS. CSS can only be used to its full potential with HTML output. Animation and transition features won't work in Print output, obviously.

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). For example, when you create an action email using the Wizard, the files `context_htmlmail_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.

In case the CSS file has references to specific images, you can drag/drop or copy/paste those images into the Stylesheets folder as well.

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 "Applying a style sheet to a section" on page 104.

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 located in a network folder or hosted on an external web server (generally called a **CDN**).

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. If the file is located on an external web server, this must be a full URL, including the `http://` or `https://` prefix, domain name, path and file name. If the file is located on your network you can click the Browse button or enter the path and

file name manually. The complete syntax with the "file" protocol is:

`file://<host>/<path>`. If the host is "localhost", it can be omitted, resulting in

`file:///<path>`, for example: `file:///c:/resources/images/image.jpg`.

If the file is located on another server in your network, the path must contain five slashes after "file:".

Tip

After adding the remote file, you may right-click it and select **Download Resource**. This allows you to maintain a central file, from which you can quickly download a copy to your template without having to copy & paste.

There are a few advantages to resources hosted on a CDN:

- 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.

Tip

To refresh the remote resources in a Designer view, use the Refresh option in the menu (**View > Refresh**) or the Refresh button at the top of the Workspace.

Using a Sass file

A CSS preprocessor is a CSS extension language that allows you to enhance CSS with code (variables, for example) and then compile it into plain CSS. CSS Preprocessor **Sass** is integrated in Connect.

For more information about Sass, see: [Sass website](#).

For information about working with Sass in the Designer, see Using a Sass file.

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.

Note

Do not give an element the ID 'pages' or the class name 'dynamic'. These are

reserved words. Using them as an ID or class name leads to undesirable effects.

- 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 https://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 251. Note: where a width can be set as a percentage, it is a percentage of the space between the left and right margin.
 6. Click the **Apply** button to see how a setting affects any elements that are subject to the selector. (You may have to move and resize the Stylesheet dialog before opening the Edit Rule dialog, in order to be able to see the template that you are working on.) If all is well, 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.

Editing 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:
<https://www.w3schools.com/cssref/>.

Note

Block comments (`/* ... */`) are allowed in CSS, but single-line comments (`// ...`) are not standard and

might not work as expected in all browsers.

In the Designer, syntax highlighting doesn't work on single-line comments in CSS files.

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 (as described below).

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; they will both be affected by the CSS rules for the element with that ID.

- Style sheets only apply to sections in which they are included; see "Applying a style sheet to a section" on the facing page.

Adding a class or ID to an HTML element

1. Select the element (see "Selecting an element" on page 174).
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">`.

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.
4. You can also change the order in which the CSS files are read: click one of the included CSS files and use the **Up** and **Down** buttons. 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.

Note

Style sheets are applied in the order in which they are included in a section. 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.

Note

Style sheets that are linked to (i.e. included in) a section show a chain icon in the Resources pane (see "Resources pane" on page 484).

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 174) and take a look at the Styles pane that sits next to the Attributes pane.

Tip

Content added by a script isn't visible in Design mode, but is visible and can be inspected in Preview mode.

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 251).

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 "Applying a style sheet to a section" on page 104.

Using a more specific CSS rule

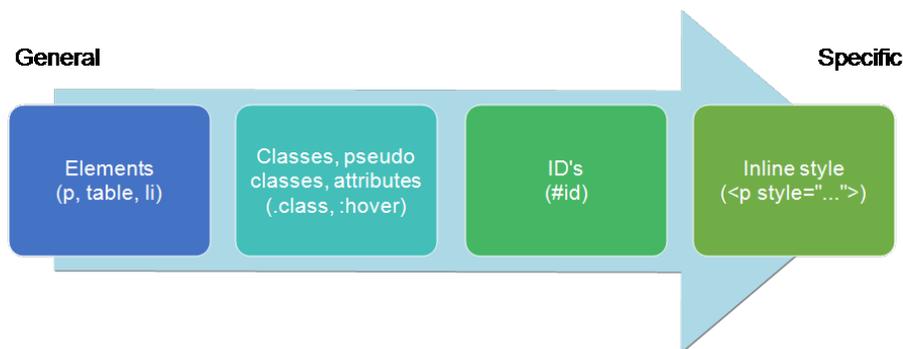
By default, many CSS properties of an HTML element also apply to the elements inside that element. For example, a CSS rule that specifies a certain font-type for a box also applies to paragraphs in that box. In this example the box is the 'parent' element and the paragraphs are the 'child' elements that 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.



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

Assuming that a table has the CSS property "color: red" (which colors text in the cells red), a more specific rule for cells in that table 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.

Note

When `!important` is added to a style rule (e.g. `color: red !important;`), this rule overrides any other style rules, even inline style 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 251 and "Styling templates with CSS files" on page 253.

Tip

With the **Copy fit** feature, text can automatically be scaled to the available space in a Box or Div. See "Copy Fit" on page 266.

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 174) and click one of the toolbar buttons to make it bold, center it, create a numbered or bulleted list, etc.

Tip

To quickly change a paragraph into a Heading, place the cursor inside of it, or select the paragraph (see: "Selecting an element" on page 174). Then select the appropriate element, either on the **Format** menu, or from the 'Element type' dropdown on the toolbar.

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:** Select the font used to display text. See also: "Fonts" on page 287. 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:** Specify the color of the text: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216,255,170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. This setting is equivalent to the `color` property in CSS.
 - **Background color:** Specify the background color of the text: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216,255,170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. 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. 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 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.
- **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 251.

Formatting a paragraph

Through the Paragraph Formatting dialog you can set the line height and first indent of a paragraph, and specify how to handle page breaks before, in and after the paragraph. It also lets you add spacing and a border; see "Spacing" on page 291 and "Border" on page 280.

To open the Paragraph Formatting dialog, select a paragraph (see: "Selecting an element" on page 174) or place the cursor in a paragraph, and then select **Format > Paragraph**. For an explanation of all options in this dialog see: "Paragraph Formatting dialog" on page 425.

Removing 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 because they are considered more *specific* (see "Using a more specific CSS rule" on page 261). 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 may 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.

Copy Fit

Copy Fit is a feature to automatically scale text to the available space: the name of a person on a greeting card for example, or the name of a product on a shelf talker.

This feature is only available with Box and Div elements in Print sections.

Activating the Copy Fit feature

After adding a Box or Div element to a Print section (see "Boxes" on page 221), you can activate the Copy Fit feature on that element. Text inside that Box or Div or text in an element inside it, will then be scaled to fit the available space. This is how it's done:

1. Right-click the Box or Div element and click the respective element on the shortcut menu. Alternatively, select the element (see "Selecting an element" on page 174) and on the **Format** menu click the respective element.
2. Click the **Content** tab.
3. Check the **Copy Fit** option.
4. Enter the **Min font size and/or Max font size** using a valid font measurement unit (pt, px, in, cm or mm). Do not put a space between the number and the unit.
 - The **minimum font size** is 1pt. The default minimal font size is 4pt.
When the minimum font size is left **blank**, the font size in Design view becomes the

minimum font size. This means that the text can only be made bigger than its initial size.

- The **maximum font size** is 1048pt. By default this is 48pt.

When the maximum font size is left **blank**, the font size in Design view becomes the maximum font size, so that the text can only be made smaller than its initial size.

5. When the option **Fit to width only** is checked, no line breaks will be added to the text.
6. Optionally, you can specify a **child** (an element inside the Box or Div) by giving its ID, for example: **#product**, or class, for example: **.product** - note the dot. The Copy Fit feature will only be applied to this child element.

Tip

To give an element a class or ID, select it and add the class or ID on the Attributes pane. An ID is meant to be used once in each section, while a class can be shared between several elements.

7. Click **Apply** or **OK**. Note that the effect of the Copy Fit feature can only be seen in Preview mode.

If it is impossible to make a text fit within the box with the given minimum and maximum font size, this will be reported as an error during a preflight (see "Testing scripts" on page 349).

How it works

When the Copy Fit feature is activated, the font size is calculated for the entire Box. Elements inside that Box get a font size relative to the Box. This means that their relative proportions are maintained.

How to position elements

To position elements in relation to each other in a template, you can wrap those elements in a Table or Box (see "Table" on page 242 and "Boxes" on page 221), 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 291.

Aligning objects with an absolute position is easy with the Alignment buttons. Guides help to align elements as well; see "Aligning objects" on the facing page.

The top, right, bottom, and left properties specify offsets from the edges of the element's containing block.

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 148 and "Table" on page 242.

In the **Print** context, Tables can be used to position elements, as well as both types of Boxes; see "Table" on page 242 and "Boxes" on page 221.

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 291.

Tip

Use a negative left margin to create a hanging paragraph or image.

Aligning objects

In Print sections, objects with an 'absolute position', such as a Positioned Box, have a fixed position in relation to the page (see also: "Using the CSS position property" on the next page). Objects with an absolute position can be aligned easily:

1. Press the **Ctrl** key and hold it down while clicking on the objects that you want to align. The **last** selected object is the reference object; this object will not be moved.

2. On the menu, select **Format > Align Objects**, or use the respective Toolbar buttons to align the objects.

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.

Click the **Shift** key while dragging to make the guide snap to the closest ruler tick.

Double-clicking a 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` (that is, relative to the 'parent', its container).

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` properties position the element inside its parent with exact values: pixels (px), centimeters (cm), etc. Negative values are allowed.

Tip

You can quickly change the `position` property of an element in a Print section by right-clicking it and selecting **Convert to Absolute** or **Convert to Inline**.

For an explanation of all values that the `position` property can possibly have, see https://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 Email sections, do not use this property. Use Tables instead (see "Designing an Email template" on page 148 and "Table" on page 242).

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 174) 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 253).

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 253 and "Writing your own scripts" on page 340.)

For an online tutorial about this property, see [w3schools website](#).

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 174) 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 253.

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 251 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 174) 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 287), the borders (see "Border" on page 280), the cell padding (the distance between the edge of the cell and its content, see "Spacing" on page 291), and the background color or image of the table and its cells ("Background color and/or image" on page 278).

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.

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.

For information about specific options in the formatting dialogs, see "Table Formatting dialog" on page 456 and "Table Cell Formatting dialog" on page 459.

Via a style sheet

Cascading Style Sheets (CSS) offer more ways to style a table and its contents, than the Formatting dialog does.

How to use style sheets is explained in another topic; see "Styling templates with CSS files" on page 253.

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.

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;
}
```

Tip

In a Detail Table, data are in the body of the table (selector: `tbody`) and subtotals are in the footer (selector: `tfoot`).

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 nth 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.

`: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 340).

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 272) 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 "Standard Script API" on page 691).

Styling an image

Just like many other elements, images can be given borders and rounded corners, and they can be rotated. How to do this isn't any different from the way it is done with other elements, so it isn't described in this topic, but in general formatting topics; see "Styling and formatting" on page 251.

This topic discusses specific image formatting issues.

Note that image characteristics like brightness and contrast can not be changed within the Designer.

Local formatting vs. style sheets

Just as other elements, images can be styled in two ways:

- With **local formatting**. This means styling the image 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.

See "Styling and formatting" on page 251 for background information about these two methods.

Applying local formatting to an image

To apply **local** formatting to an image, either:

- right-click the image and select **Image...** from the contextual menu
- click the image and select **Format > Image...** from the menu.

For an explanation of the available options, see "Image Formatting dialog" on page 411.

Applying style rules to an image

To format an image via a **style sheet**, first give the image an ID or class: select the image, and enter the ID or class on the Attributes pane. This makes it possible to make the CSS style rule target this image specifically, or a set of images with the same class. A style rule with the selector `img` (the HTML image tag) would apply to all images.

Next, create the style rule; see "Styling templates with CSS files" on page 253. Note that when a property isn't present in the style rule editor, it can still be used: click the Advanced button in the style rule editor; enter the property under Property, and its value under Value.

Resizing an image

There are several ways to resize an image after inserting it in the content of a template.

- Click the image and drag the handles to resize it. Press the **Shift** key while dragging, to scale the image proportionally.
- Select the image (see "Selecting an element" on page 174) and type the desired width and height in the respective fields on the **Attributes** pane.
- Select the image and select **Format > Image**, on the menu. On the **Image** tab, change the **width** and **height** of the image.
- Set the size of the image in a style sheet (see "Styling templates with CSS files" on page 253).

The size can be set in a measure or as a percentage of the containing element.

Reset the image size

To reset an image to its original size, select the image and click the **Reset Image Size** button on the Attributes pane, under Geometry.

Positioning an image

Wrapping text around an image

Initially, when an image is inserted into a paragraph, it behaves as if it were a character. Text isn't wrapped around an image automatically. To make that happen, you have to change the `float` property of the **image** to `left` or `right`. This anchors the image to the left or right, allowing text to be wrapped around it.

Select the image (see "Selecting an element" on page 174) and use the  (Float left) and  (Float right) icons on the toolbar to change the position of an image within the text.

- The **Float left** button aligns the image to the left. The text is positioned to the right of it and is wrapped around the box.
- The **Float right** button aligns the image to the right, with the text wrapped around it to the left.
- The **No float**  button positions the image where it occurs in the text, as if it were a character. Text is not wrapped around it.

To position an image using the menu, select the image and then select one of the options in **Format > Float**.

Alternatively, open the Formatting dialog (see "Applying local formatting to an image" on the previous page): select the image; on the menu, select **Format > Image** and on the **Image** tab, under **Text Wrap**, set the **Float** property.

The `float` property could also be changed via a style sheet. This property isn't present in one of the tab menus of the style rule editor directly, but you can add it and specify its value after clicking the Advanced button in the style rule editor (see "Applying style rules to an image" on the previous page).

Pulling an image out of the text flow

When dragged into a template, an image is automatically integrated in the text flow. This means that it will move up or down, depending on the preceding text.

In a Print section, to position the image independently of the text flow, you can change its

`position` property to `absolute`. (For an explanation of all possible values for this property, see https://www.w3schools.com/css/css_positioning.asp.)

When an image is placed inside a Box (or Div element), changing its `position` property to `absolute` positions the image absolutely inside that Box.

Note that `float`, the property that can make an image float to the right or left (see "Wrapping text around an image" on the previous page), is a relative positioning property, since it specifies the position of the element relative to its container. This means it is incompatible with the `position: absolute` property.

In the Formatting dialog (see "Applying local formatting to an image" on page 276) the `position` property can be found on the **Image** tab, under **Positioning**.

The `position` property isn't present in one of the tab menus of the style rule editor directly, but you can add it after clicking the Advanced button in the style rule editor (see "Applying style rules to an image" on page 276).

When the `position` property of an element is set to `absolute`, the `top` or `bottom` and `left` or `right` properties can be used to position the element inside its parent with exact values (pixels (px), centimeters (cm), etc). Negative values are allowed.

Note

In Web sections, the `position` property may sometimes be useful for images inside a Div element, but generally 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.

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 174; note that a Box is a `<div>` element) and on the **Format** menu click **Box**.
3. Click the **Background** tab.

To define a **background color**:

Click the downward pointing arrow next to **Color** to select a color from the list of predefined colors (see "Background color and/or image" on the previous page).

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 "Background color and/or image" on the previous page; for an explanation of the other options in this dialog, see "Color Picker" on page 404.

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%)
```

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:
https://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 253. 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'); }`**

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 174) 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): select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmymk(15%, 0%, 33%, 0%)`. 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 253.

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).

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 174) 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 https://www.w3schools.com/css/css3_borders.asp.

This is, for example, how you could round the corners of a paragraph:

1. Select the paragraph (see "Selecting an element" on page 174) 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 253. 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 251).

Defining colors

To define colors:

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. It should not contain spaces or special characters.

Tip

Working with style sheets? Choose a name that reflects 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 wide range of colors. This model is typically used for electronic devices.
For information about the **Spot color** and **Overprint** options see "Defining a spot color" below.
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). Note that spot colors can only be used on certain printers.

If your printer can use spot colors and you want a spot color to be used in a Print context, define the color as described above, making sure to:

- Match the color's **name** to that of the spot color used in the printer.
- Check the option **Spot color**.
- If applicable, check the **Overprint** option for this spot color. Overprinting refers to the process of printing one color on top of other colors. This is sometimes required, for example to deal with special print applications, such as applying UV ink or varnish to a certain area, or to avoid mis-registration when printing black on top of colored areas.

Note

Black overprint can be enabled for text smaller than a given size; see "Overprint and black overprint" on page 118.

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. From the Type drop-down, 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 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 253.

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 283), to the text of all paragraphs:

```
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 174).
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 174).
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 283).
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 283; for an explanation of the other options in this dialog, see "Color Picker" on page 404.
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 406.

Fonts

In templates for personalized customer communications you can use the operating system's fonts, including imported fonts.

When you are using a font that is not installed on your machine (for example, the bold or italic variant of a regular font) Windows tries to simulate the font in the Designer. Likewise, PrintShop Mail Connect tries to simulate the font in the output. It is however not guaranteed that the output will be exactly as shown in the Designer. It is strongly advised to make sure that all used fonts are available and to always test the output before running production jobs.

Note

Hosting non-standard fonts on the operating system in a **server** environment (as opposed to importing them into the template) is not recommended.

If output is produced on the server whilst running under a different account, that account might not have access to the font.

If you do add a font to a server, select the option "Install for all users", and do not forget to **restart** the machine, as otherwise the font might not be available, due to the way certain Windows versions handle 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 174) 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 "Step 2: apply CSS to the content" on page 259.

Note

The reason for specifying more than one font in a style sheet for emails is that the font might not be available on the device on which they are viewed.

Order the font names by preference. The last one should be the generic font family (either serif or sans-serif).

Importing a font

To import a font into a template:

- Drag the appropriate font files into the **Fonts** folder on the **Resources** pane.

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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

Combining font files with font effects

You can style text using the Bold and Italic buttons on the toolbar. When you do that with text that is displayed in an imported font, and there's no file that contains the bold or italic version, Connect will **mimic** the bold and italic versions of that font. This is called style simulation.

Style simulation is costly in terms of performance (output is created slower) and results in bigger files.

It is much better, if you have separate files for the **bold**, *italic* and any other versions of a font, to use those. Here's how to do that.

1. Import the files for the bold, italic and any other versions of the font into the Fonts folder. Initially, imported fonts appear as separate entries in the Fonts drop-down on the toolbar. They are not used automatically when you style text using the Bold and/or Italic button. To make the Designer use the styled version of a font when you click the Bold or Italic button, open the **Font Manager**:
2. From the menu, select **Edit > Fonts**.
3. Combine each of the styled fonts with a font effect:
 - Select the font and click the **Edit** button.
 - Select the appropriate font effect (e.g. Font Weight: Bold, or Font Style: Italic).
 - Change the name of the styled font. It should have the **same** name as the regular font.
4. Close the Font Manager.

Font types

The Designer currently supports 4 font types: TTF, OTF, WOFF, EOT and SVG.

When 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.

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;  
}
```

Using remote fonts

In order to use a remote font, you have to add a remote style sheet that points to a web font style sheet, for example <https://fonts.googleapis.com/css?family=Roboto+Slab>. For instructions see "Using a remote style sheet" on page 255.

Remote fonts can be applied to content in a Master page, section, or Snippet. They may be used in a style sheet and they are automatically added to the Fonts drop-down on the toolbar. Note that the list of font names is based on the style sheets that are included in the active section (see "Applying a style sheet to a section" on page 260) or, when editing a Snippet, in the section that was active when the Snippet was opened.

Note

Support for remote fonts in email clients cannot be relied upon, and not all remote fonts are supported by all browsers. It is therefore recommended to add fallback fonts to the specific style rules whenever using remote fonts in a **Web** or **Email** section (see "Applying a font" on page 287).

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 305 and "Formatting variable data" on page 309). 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 340 and "Standard Script API" on page 691.

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-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 174) and on the **Format** menu click the respective element.
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 251.

It is also possible to change an element's formatting via a style sheet; see "Styling templates with CSS files" on page 253.

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 (including but not limited to printed matter).

Before you can start personalizing the content of a template, you must open a data file or database; see: "Loading data" on page 295.

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 letter or email. Scripts in PrintShop Mail 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 303.

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 305.

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 311.

Conditional Print sections

Entire Print sections can be included in or omitted from the output on the basis of one or more values in variable data. See "Conditional Print sections" on page 313.

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 314.

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 248 and "Loading a snippet via a script" on page 357.

Scripts

As soon as you want to do more than what can be done with the available 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.

The basics of script-writing in the Designer are explained in the following topic: "Writing your own scripts" on page 340.

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.

See "Control Scripts" on page 369.

Post Pagination Scripts

Post Pagination Scripts are run in a **Print** context **after** the content has been paginated. Because they can search through the output of all Print sections, and modify Print sections (one

at a time), they may be used to create a Table Of Contents (TOC), as explained in the topic: "Creating a Table Of Contents" on page 385.

See "Post Pagination Scripts" on page 383.

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 need 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 file, see "Adding data from a data file" below.
- A database, see "Adding data from a database" on page 297.
- A JSON file, see "Adding data from a JSON file" on page 301.

When you open a data file or a database, the Data Model will be derived from it .

After 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.

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.

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:

- Tabular files: CSV files (.csv, .txt) and Excel files (.xls, .xlsx)

Note

Excel files saved in "Strict Open XML" format are not supported yet.

- Microsoft Access Database (.mdb, .accddb)
 - XML files (.XML).
 - AFP files (optional).
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).

Excel (XLS/XLSX) file options

- **First row contains field names:** Check this option to use the first line of the Excel file as headers. This option automatically names all extracted fields.
- **Sheet:** Only one sheet can be selected as the data source.

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 unparseable 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.

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.

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.

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.

- **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.

Adding data from a JSON file

JSON data can either be **added to**, or **replace** the Data Model in a template.

To add data from a JSON file:

1. Select **File > Add Data > JSON sample data**, from the menu. Alternatively, click the **JSON Sample Data** toolbar button on the Data Model pane.
2. Either browse to the location of the file and select it, or paste or write the JSON directly in the box below the file name.
3. Review the JSON; you may edit it if you like.
4. Select the **Replace Data Model** option if you want the JSON to replace the existing Data Model. Otherwise, the JSON data will be mapped to corresponding fields in the existing Data Model, and data that cannot be mapped to any field will be discarded.

5. Click **Finish**.

Note

Values are converted to text strings. If a value in a record object is another JSON object, it is ignored.

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 letter or email. Scripts in PrintShop Mail Connect Designer are the basis of Variable Data Printing.

After loading data from a data file or database (see "Loading data" on page 295), 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.

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**.

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 123).

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 221), give that Box or Span an ID and use that ID as the script's selector. See "Using the Text Script Wizard" below for an explanation about the various types of selectors. For more tips to make a template generate output faster, see "Optimizing scripts" on page 353.

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.

Note

Scripts can only have the same name when they are not in the same folder.

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 349 and "Optimizing scripts" on page 353.

- 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 251 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 https://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 pointing arrow and select one of the formats, or Custom Pattern to enter a custom pattern. See "Formatting variable data" on page 309.
 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, this is bold 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, "
" 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 (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 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 221 and "How to position elements" on page 267).

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](#).
- To use only part of a data field, or to split the data, you will have to write a script. For an example, see this How-to: [How to split a string into elements](#).

Formatting variable data

When a Text Script, made with the Text Script Wizard (see "Using the Text Script Wizard" on page 305) 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.

Note

The locale influences the way dates, times, numbers and currencies are formatted; see "Locale" on page 290.

You could also format data in a script using the `formatter` ; see "Standard Script API" on page 691.

Date

Dates can only be formatted via a script. All data in the Data Model are strings; they have to be converted to Date objects before applying a particular date format. See also: "Creating a Date object from a string" on page 733.

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 305.
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.

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 305.
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:
 - **Custom Pattern**: allows you to enter a custom format mask. 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 744 and <http://docs.oracle.com/javase/7/docs/api/java/text/DecimalFormat.html>. The custom pattern will only work if the actual value of the field can be converted from a text to a number.
 - **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 290.
 - **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 290.
 - **Currency no symbol** does the same as Currency, but omits the currency symbol.
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.

The Conditional Script Wizard helps you to show or hide one element – a paragraph, image or other HTML element - based on the value of one or more data fields. For example, you could check whether the data field 'State' is 'Equal To' the value 'British Columbia' or 'Québec', to include a paragraph for all recipients in those states.

Showing or hiding elements using the Conditional Content 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 Content Script wizard opens.
2. Rename the script so that it reflects what the script does.

Note

Scripts can only have the same name when they are not in the same folder.

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 305 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. Check the **Toggle Visibility** option, if you want the opposite action to be performed if the condition evaluates to **false**. By default, this option is checked.
6. Click the downward pointing arrow next to **Field**, to select the data field that should be evaluated.
7. 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**.
8. Type the **Value** or values (each on a new line) that should be used for the conditional check.
Values (in Strings) are case sensitive, unless the option **Case insensitive** is checked.
Dates should be entered in ISO standard notation (yyyy-mm-dd).
The selected action will be performed if the condition evaluates to true with one of the given values.
If, conversely, the condition evaluates to false, and the option **Toggle Visibility** is checked, the opposite action will be performed.

Note

If you need more complex conditions, click **Expand** and edit the code of the script. See "Writing your own scripts" on page 340.

9. Click **Apply** or **OK**.
10. 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 Content 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 305 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 Content Script wizard" on page 311.

Conditional Print sections

You can include or exclude entire Print sections from the output, depending on a field's value. This can be done using the Conditional Print Section Script Wizard, described below. Alternatively you could write a Control Script (see "Control Scripts" on page 369).

Including or excluding Print sections using the Conditional Print Section Script wizard

1. Right-click the section 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 Print Section Script**. Double-click the new script to open the Conditional Print Section Script wizard.
2. Rename the script so that it reflects what the script does.

3. Select the section you want to put a condition on.
4. Set the **Action: Print** or **Skip** that is performed when the condition below is **true**. The opposite action is applied when the condition returns false.
5. Click the downward pointing arrow next to **Datafield**, 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** or values that should be used for the conditional check. Each additional value should go on a new line. The action is performed if the condition evaluates to true with one of the given values.

Dates should be entered in ISO standard notation (yyyy-mm-dd).

Values are case sensitive, unless the option **Case insensitive** is checked.

Example

You could check whether the `Province` field is 'Equal To' the value `Québec`, in order to print or skip a section only for customers living in Québec. With these values:

`Québec`

`Ontario`

the section will be printed if the `Province` field reads `Québec` **OR** `Ontario`.

Note

More complex conditions can be written in the Script Editor: click **Expand** and edit the code of the script. See "Control Scripts" on page 369.

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). Take a look at the Resources pane: on each Print section that is affected by a Conditional Print Section script a small decorator appears if it is skipped with the current data record.

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 237.
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.

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**.

The General Preferences also provides you with buttons to :

- **Reset all Warning Dialogs:** This re-enables all warning dialogs that might have been previously disabled by selecting the "Don't show again" checkbox within the dialog.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

COTG Servers preferences

By allowing one or more Capture OnTheGo servers to be set up, this option anticipates the release of a Capture OnTheGo On Premise Server product.

- **Name:** Enter a unique name.
- **URL:** Enter a valid URL (including the protocol, e.g. http://).
- **Restore Defaults:** Removes all custom servers from the list and resets to the default Capture OnTheGo server.

The COTG Servers Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

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.

As part of the job production process PrintShop Mail 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.

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 as per the cron job scheduling; or when PrintShop Mail Connect is started (if **Run at application start up** is selected); or when the **Run Now** button is pressed.

- **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.
- **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 [Quartz Scheduler](#) tutorial.

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. For PrintShop Mail Connect the Designer is the only choice.

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. PrintShop Mail 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 PrintShop Mail 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.

The Clean-up Services Preferences also provides you with buttons to :

- **Run Now:** This will run the clean-up service immediately.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Database Connection preferences

Dialog used to change the PrintShop Mail Connect back-end Database.

This dialog supports the swapping of the back-end database between various vendor databases. Note, however, that the alternate vendor database(s) *must already be installed and available* in order to swap to them.

This is not a migration tool. It is a simple connection tool, that enables shifting to a different back-end database. 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.

When shifting to a different back-end database, the changes won't be applied until PrintShop Mail Connect is restarted. Including the Connect services. A full machine restart is recommended, as this provides the cleanest restart of all the services.

- **Basic Connection Settings** selections:
 - **Database vendor:** Select the database type from the drop down list.

Note

Moving from one vendor database to another will reset 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 PrintShop Mail Connect. This should help in determining and refining the 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, though, will not be created until Connect is restarted.

- **Username:** Enter the database login username.

Tip

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:** This option sets 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).

Tip

Leaving this value set to the default maximum *should* be the best option in most circumstances.

We recommended this entry be left at the default value.

- **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 PrintShop Mail 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.

The Database Connection Preferences also provides you with buttons to :

- **Test Connection:** This will run a test on the current Database Connection settings.
 - **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

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) 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.

The DataMapper Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

Editing preferences

These preferences define different editing options in the Designer module.

- **Object Resizing for <div> elements:** This defines in which contexts to enable the resizing of <div> elements (including Positioned and Inline boxes). Resizing <div> elements may cause layouts to produce undesirable results especially when using Foundation templates.
 - **Enable for Print Context:** Check to enable <div> resizing in the Print contexts.
 - **Enable for Email Context:** Check to enable <div> resizing in the Email contexts.
- **Detail tables preview limit**
 - **Maximum number of records to show in preview:** This setting limits the number of records to show in detail tables in both the Designer (Preview tab) and Datamapper. The lower this number, the shorter the time before the preview or the next record will appear.

CSS options

A CSS preprocessor is a CSS extension language that allows you to enhance CSS with code (variables, for example) and then compile it into plain CSS. CSS Preprocessor **Sass** is integrated in Connect.

For more information about Sass, see: [Sass website](#).

The CSS options relate to the way Sass (.scss) files are compiled in Connect. See also: [Compiling a Sass file](#).

- **Output style:** This setting determines the use of spaces and indentation in the compiled CSS file. For examples of the available output styles, see: [Sass reference: Output style](#).
 - **Compact:** Each CSS rule takes up only one line, with every property defined on that line. Nested rules are placed next to each other with no new line, while

separate groups of rules have new lines between them.

- **Compressed:** This output style minifies the output. It has no whitespace except that necessary to separate selectors and a new line at the end of the file. It also includes some other minor compressions, such as choosing the smallest representation for colors. It's not meant to be human-readable.
- **Expanded:** This is the default output style. Each property and rule take up one line. Properties are indented within the rules, but the rules aren't indented in any special way.
- **Nested:** Each property has its own line, but the indentation isn't constant. Each rule is indented based on how deeply an element is nested in the HTML and CSS structure.
- **Auto compile on saving .scss files:** When this option is checked, a .scss file is compiled into a .css file whenever you save it, overwriting any previously compiled version of the .css file. By default this option is enabled.

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 404).

- **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 221.
 - **Table:** This color highlights tables, and the rows and columns in tables; see "Table" on page 242.
 - **Resizable Table:** This color highlights tables for which the option Allow resizing has been checked when adding the table; see "Table" on page 242.
 - **Forms:** This color highlights forms; see Forms.
 - **Shared Content:** This color highlights shared content, such as shared snippets; see "Snippets" on page 248.
- **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 269.

- **Margins:** This color delineates the content area on a page; see "Pages" on page 128.
- **Bleed box:** This color delineates the printable area on a page; see "Page settings: size, margins and bleed" on page 129.
- **Master pages:** These edges are only visible on Master pages; see "Master Pages" on page 136.
 - **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 137.
 - **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 292.

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.

The Editing Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

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 and Send Test Email dialogs ("Send (Test) Email" on page 444).

- **Email Address:** Enter the email that is set by default in the "From Email" field in the Send Email and Send Test Email dialogs ("Send (Test) Email" on page 444).
- **Litmus account Group:**
 - **Email Test address:** If you have a Litmus account, enter the test address to use when sending a test email (see "Send (Test) Email" on page 444). 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 or Send Test Email dialog. (See "Send (Test) Email" on page 444 and "Email header settings" on page 160). 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 PrintShop Mail Connect" on page 810).
- **Apply:** Apply the new settings without closing the Preferences dialog.

The Email Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.

- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

Emmet Preferences

Emmet is a framework that enables the lightning-fast creation of HTML code through the use of a simple and effective shortcut language resembling CSS Selectors (see "Emmet" on page 149). 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 <div> 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](http://Emmet.io/documentation). 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.

The Emmet Preferences also provides you with buttons to :

- **Reload Engine.** This allows you to reload the Emmet engine based upon the current settings.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Engine Setup

See [Engine Setup Preferences](#).

Language Setting Preferences

- **Display language:** Select a language from the drop-down list to be used as the language of the User Interface (after the software is restarted).
- **Default Locale:** The default locale sets the locale for new templates. By default this is the system's locale. The locale can be changed per template; see "Locale" on page 290.
 - Select System Locale to use the operating system's locale settings.
 - Select Explicit Locale to choose a static locale from the drop-down list.

Default Locale

The Default Locale preferences are only available in the Designer Preferences. This setting determines the locale for new templates. By default this is the system's locale. Select *System Locale* to use the operating system's locale settings. Select *Explicit Locale* to choose a specific

locale from the drop-down **Explicit Locale** list. The Locale can be changed on a per template basis. See "Locale" on page 290.

The Language Settings and Default Locale Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Log Setting Preferences

PrintShop Mail Connect logs the activities it undertakes whilst running. New Connect logs are created daily and are held for a period before they are automatically deleted.

The settings on this page determine the level of logging and how long the log files should be retained.

These log files can be an essential resource when diagnosing issues with OL Support. The logging settings are global to **all** Connect applications and the Logging Preferences can be adjusted from within any of the Designer and Print Manager dialogs.

The settings are:

- **Overall Logging Level** selection: Select the overall Connect Logging level. This controls how much logging Connect will do.
By default the logging level is set at the midpoint of *Info*, but it can be set higher to include more logging (*All*, *Trace*, *Debug*), or lower to reduce the amount of logging (*Warning*, *Error*).
The logging is hierarchical, with each Logging Level selection containing all of the Logging Levels below it. The default logging *Info* Level contains all *Error* and *Warning* entries plus informational log entries.

Warning

Higher logging settings will have an impact upon Connect production speeds, as well as leading to

substantially larger log files.

We recommended leaving the logging level to *Info* and only using the higher levels of logging in conjunction with advice from OL support.

- **Rollover policy** selection: Chose whether to retain Connect log files for a certain number of days (**Daily logs**) or based upon some predetermined hard disk usage limitations (**Size-based logs**). The selection are as follows:
 - **Daily Logs**: Use this setting to determine how many days Connect Logs are to be kept, before they are deleted.
 - **Number of days to retain logs**: This value only impacts upon historic (closed) logs.
Chose between 1 and 99,999 days.
The default value is set to 10 days for a new installation and 99,999 days on existing installations (to preserve backward compatibility).
 - **Size-based logs**: Use this setting to restrict log file size, and to keep only a specified number of them.
By combining the maximize individual log file size with the amount of log files to retain, this effectively allows a hard disk space usage limitation to be placed upon the logging process.
 - **Maximum size for log file**: This sets the maximum size a log file can reach before the logging system creates a new file.
 - **Number of files to keep**: This sets the maximum number of log files kept in the log folder. The default value is set to 50 for a new Connect installation and 99, 999 for an existing installation (to preserve backward compatibility).
- **Logging pattern** edit box: This edit box determines the formatting of the individual log entries.
By default it is set to a date/time value which allows for simple searching within log files.

Warning

We recommend leaving the Logging pattern to the default value.

If you do need to change the Logging pattern, please see the [Pattern Formatting](#) guide for help in doing so.

- **Log message preview** display: This displays a real time example of the format and content of individual log file entries, based upon the **Logging pattern** setting.

Advanced Log Settings

The Advanced settings over-ride the Overall logging settings, and provide a greater level of logging granularity.

Warning

Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

The Advanced Log Settings should only be set in conjunction with advice from OL support, to ensure that only the most relevant settings are set to the higher logging levels.

This Preferences page allows you to add () or remove () individual Connect Packages, or change their logging settings (.

The Log Setting and Advanced Log Setting Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

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 will not be visible in the "Model" drop-down of the Print Options dialog; see "Print Options" on page 596 and "Adding print output models to the Print Wizard" on page 796.

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 PrintShop Mail 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 PrintShop Mail 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.

- **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 a Job Creation Preset.

Print Measurements Preferences

- **Units:** Use the drop-down 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 269). With this option checked, dragging a guide from a horizontal ruler inserts a vertical guide.

The Print Preferences also provides you with buttons to :

- **Test Print Server URL.** This button is only available for the General Print Preferences. It tests the Print Server URL settings made within that Preferences page.
- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Saving Preferences

The saving preferences are a way control if and how often PrintShop Mail 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 96.

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.

The Save Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Scheduling Preferences

The Designer's scheduling preferences are a way to control precisely how the PrintShop Mail Connect Designer handles jobs when

For more information about scheduling preferences in PrintShop Mail Connect also see "Performance Considerations" on page 29.

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.

Scheduling - Merge engine

This preference 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.

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.

The Scheduling Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
- **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.

Scripting Preferences

The Scripting preferences define different options related to scripting within PrintShop Mail Connect. See also: "Testing scripts" on page 349.

- **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.
 - **Expanded script quotes style:** When the Expand button in a Script Wizard is clicked, the expanded script will use either **double (")** or **single (')** quotation marks.

Tip

Using single quotation marks in a script simplifies adding HTML fragments, which typically use double quotes.

- **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!

The Scripting Preferences also provides you with buttons to :

- **Restore Defaults.** This option restores the preferences to Defaults. This applies to the current Preferences page only, but not other Preferences.
 - **Apply:** This option Applies the settings made within the current Preferences page, but does not close the Preferences dialog.
-

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 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 363).

This topic explains how scripts work and how you can create and write a script.

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.

Script types

There are three types of scripts in the Designer: **Control Scripts**, **Standard Scripts** and **Post Pagination Scripts**.

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.

Control Scripts don't touch the content of the sections themselves, but they change the way a template is outputted. For more information about Control Scripts and their use, see "Control Scripts" on page 369.

Standard Scripts

Standard 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 (see "Selectors in Connect" on page 363). Running a Standard 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 136).

Tip

Content added by a script isn't visible in Design mode, but is visible and can be inspected in Preview mode.

Post Pagination Scripts

Post Pagination Scripts are run in a **Print** context **after** the content has been paginated. Because they can search through the output of all Print sections, and modify Print sections (one at a time), they may be used to create a Table Of Contents (TOC), as explained in the topic: "Creating a Table Of Contents" on page 385.

For more information see "Post Pagination Scripts" on page 383.

Creating a new Standard Script

Writing a Standard 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.

Note

Scripts can only have the same name when they are not in the same folder.

3. Choose which kind of **selector** you want to use. Running a Standard 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 it easier to recognize the text 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 in the Selector field without the angle brackets: p.
 - HTML elements with a specific CSS class (eg. green). In the Script Wizard, click **Selector** and type the class name in the Selector field , preceded by a dot: .green.
 - An HTML element with a specific ID (eg. intro). In the Script Wizard, click **Selector** and type the ID in the Selector field , preceded by #: #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 https://www.w3schools.com/cssref/css_selectors.asp for more selectors and combinations of selectors; also see "Selectors in Connect" on page 363 for selectors that can only be used in Connect.
- 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 CSS selectors. See also: "Testing scripts" on page 349.

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 Standard Script" on page 342, " Adding a Control Script" on page 370 or "Adding a Post Pagination Script" on page 385), 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: https://www.w3schools.com/js/js_syntax.asp and https://www.w3schools.com/js/js_if_else.asp.

A few examples can be found in a How-to: [Combining record based conditions](#).

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 462.

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](#).

If an expanded script contains errors or if there are warnings, icons appear in the overview ruler on the right hand side of the editing area. These icons are shown relative to their position in the script and do not move as you scroll down. You can click on an icon to quickly jump to the error or warning. Script errors are highlighted by a red icon, and warnings in yellow. The topmost icon will display red if any errors exist in the script at all.

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 "Standard Script API" on page 691.

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 page 348.

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" below).

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" below. What you can do is disable the script or the containing folder; see "Enable/disable scripts" on the facing page.

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 page 346.
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" on the previous page. 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 353.

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 353.

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.

Note that scripts that use values of data fields can only be effective when a data file is open. See "Loading data" on page 295.

Testing for errors

One way to see if a script is functional 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.

 Spa Location	#spa-location
 Promo	#promo1
 Date	@Date@
 Year	@Year@
  Address	
 Employee	@EMP@

- 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.

If an expanded script contains errors or if there are warnings, icons appear in the overview ruler on the right hand side of the editing area. These icons are shown relative to their position in the script and do not move as you scroll down. You can click on an icon to quickly jump to the error or warning. Script errors are highlighted by a red icon, and warnings in yellow. The topmost icon will display red if any errors exist in the script at all.

Preflight

In addition to the icons and messages in the Scripts pane, a **preflight** can show if your scripts function as expected before generating output:

1. On the menu, select **Context > Preflight**.
2. Select **All**, or enter a selection of records. You can specify 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.
3. Click **OK**.

Preflight executes the template without actually producing output.

The Preflight window displays any issues once it's done. It will tell, for example, which selectors were not encountered in the template.

Double-click a script warning/error (either in the Preflight Progress dialog or in the Preflight Result view) to open the script in the script editor. The relevant line will be highlighted.

Tip

Be aware that scripts run in a specific order (see "The script flow: when scripts run" on page 363). 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 346).

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

page 353.

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 next 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:

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 346.

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 221. 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.

```

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']);
    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 https://www.w3schools.com/js/js_regexp.asp.

The script in this how-to: [Translate and replace script](#) uses the `replace()` method with a regular expression.

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.

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 readable, 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.

Other resources

There are also many resources online to help learn about JavaScript performance and coding mistakes. See for example:

- [JavaScript performance](#)
- [The 10 most common JavaScript mistakes](#)
- [Tips for writing efficient JavaScript.](#)

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.

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 340) 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 736.

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 736 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, <p ID="En">), 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: "Standard Script API" on page 691.

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:

```
<div ID="EN"><p>This is text for English customers.</p></div>
```

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 (<p>), but not the container itself (<div>).

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);
```

Loading content using a server's API

Content in a template is usually static (apart from being personalized) and part of the main text flow. It can also be located in a snippet (see "Snippets" on page 248).

It is also possible to include content that is served by another server. Many servers provide an API to fetch publicly available content from their site. That content may even be dynamic: the **most recent** blog posts on a Wordpress website, for example, or the **current** weather forecast for a certain city.

This topic explains how to retrieve content using a server's API and insert that content in a template.

Step 1: Getting the appropriate link

To request content from another server, you will need a link.

Some websites give the option to **embed** their content in your website by providing a link or the complete HTML. Youtube.com, for example, offers not only a link to share a certain video, but also the full HTML to embed that video in your website.

If that option is not available, you will have to build the link yourself. Find the server's **API** and look through it to get the exact endpoint and parameters that you need.

With many servers it is required to use an **API key** in the link; this key generally comes for free after you sign up to their website. The key will be part of the link that is used to make a request to the server.

Note

Pay attention to the service's Terms of Service. Many servers have limitations on the number of calls that can be made to them for free. Beyond these limits, their content will not show up in your template unless you purchase a business plan.

Step 2: Preparing the template

The next step is to set up a template. If you've got the HTML to embed content in your template you can paste that HTML on the Source tab (and skip Step 3).

Otherwise your template has to contain an element that can be replaced or followed by the

remote content: an empty paragraph, for example, or a heading. If the element isn't unique in the template, give the element an ID.

Note that interactive content, such as an interactive map, can only be used in Web templates, and cannot be output on Print or Email contexts (even though they will show up in Preview mode!).

Step 3: Writing a script

The final step is to write a script that retrieves the content and inserts it into the template (see "Writing your own scripts" on page 340). Use the element or the ID of the element that you added in Step 2 as the script's selector. For information about selectors, see "Selectors in Connect" on page 363.

Tip

Select an element, then click on 'ID' in the Attributes pane, to create a script that has that element's ID as selector.

Retrieving content

Depending on the type of content that the remote server returns - HTML or JSON - you can use `loadhtml(location)` or `loadjson(location)` (see also: "loadhtml()" on page 736 and "loadjson()" on page 739) to retrieve the content. The link that you selected in Step 1 should be passed to the function as a string. For example:

```
loadjson('https://blog.mozilla.org/wp-json/wp/v2/posts?per_page=5');
```

If the returned content is JSON data, that data has to be wrapped in HTML before inserting it into the template. This is demonstrated in the example below.

Tip

Install the Postman application to preview JSON returned by an endpoint.

Tip

To load a JavaScript file (.js) or a style sheet (.css) you can use `loadtext()`. See "loadtext()" on page 740.

Inserting content in the template

To insert the content after the selected element, use `results.after()`. To replace the element with the new content, use `results.html()` or `results.replaceWith()`.

Example: recent posts

The following script loads five posts from Mozilla's blog and inserts their titles as links in a template. Mozilla's blog is a WordPress website. Since the WordPress REST API uses JSON as the response format, the `loadjson()` function has to be used and the received content has to be wrapped in HTML.

If the script's selector was `h1` (a level one heading), the retrieved content would be inserted after each level one heading.

```
var postsObj = loadjson('https://blog.mozilla.org/wp-  
json/wp/v2/posts?per_page=5');  
var html = '';  
html = '<ul>';  
for (var idx in postsObj) {  
    html += '<li><a href="' + postsObj[idx].link + '">' + postsObj  
[idx].title.rendered + '</a></li>';  
}  
html += '</ul>';  
results.after(html);
```

See [WordPress REST API developer endpoint reference](#).

Tip

More examples of how to use an API to load external content are given in these How-to's:

- [Using the Google Maps API](#)
- [Using the OpenWeatherMap API](#)

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 369).

Then the Standard scripts are executed, once for each section, in the order in which they appear in the Scripts pane.

Standard 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 340 and "Selectors in Connect" below).

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 Standard scripts in the Scripts pane run once for each section and then for each Master Page (see "Master Pages" on page 136). Next, each processed Master Page is put behind every page to which it should be applied.

Scripts are NOT executed again for every page.

Finally, Post Pagination Scripts run, in the order in which they appear in the Scripts pane (see "Post Pagination Scripts" on page 383).

Post Pagination Scripts are run in a **Print context after** the content has been paginated.

Because they can search through the output of all Print sections, and modify Print sections (one at a time), they may be used to create a Table Of Contents (TOC), as explained in the topic:

"Creating a Table Of Contents" on page 385.

Selectors in Connect

Selectors are patterns used to select one or more HTML elements. They were originally developed to be able to define the layout of web pages without touching their content, through Cascading Style Sheets (CSS). In Connect, since each section in a Connect template is in fact an HTML file (see "Editing HTML" on page 172), the very same selectors can be used in style

sheets (see "Styling templates with CSS files" on page 253) and template scripts (see "Personalizing Content" on page 292 and "Writing your own scripts" on page 340). Selectors can increase the speed with which a template and data are merged; see "Use an ID as selector" on page 353.

Standard CSS selectors

Selectors are made up of one or more of the following components:

- An **HTML element**. Type the HTML tag without the angle brackets (e.g. `p`) to select all elements of that type (`p` selects all paragraphs).
- A **class**. Type the class name, preceded by a dot, e.g.: `.green`, to select HTML elements with that class.
- An **ID**. Type the ID, preceded by `#`, e.g.: `#intro`, to select an HTML element with that ID.
- An **attribute** of an HTML element. Type the attribute and, optionally, its value, between square brackets, e.g.: `[target]`, to select HTML elements with a matching attribute.
- A **pseudo-class**. For example, `tr:nth-child(even)` selects all even table rows.

These components can be combined in different ways. For example, `p div` selects all paragraphs *inside* `<div>` elements, while `p, div` selects all paragraphs *and* all `<div>` elements.

A complete list of selectors and ways to combine them, and a tool that demonstrates their use can be found at W3Schools: https://www.w3schools.com/cssref/css_selectors.asp.

A **video** about CSS and Script Selectors, can be found here: [Connect with Evie 6 - CSS and Script Selectors](#).

Connect classes and attributes

Connect itself sometimes adds a specific class or attribute to elements in a template. Capture OnTheGo widgets, for example, have a `role` attribute that allows the COTG library to dictate their behaviour. Connect classes and attributes can be used in selectors, as will be explained and demonstrated below.

Connect-specific classes usually are invisible in the Designer. By opening the currently selected section in your default web browser (click the Preview HTML toolbar button) and using the browser's code or source inspector you can see most of the dynamically added classes.

Warning

Avoid using classes with the `__ol` prefix in your selectors. These dynamically added class names may change in future releases of the software.

Section selector

The Designer writes the name of each section to the `section` attribute of the `<html>` element. This attribute can be used in selectors.

Example

The following rule applies formatting to `<h1>` elements in sections of which the name starts with 'Letter':

```
[section^='Letter'] h1 {
    color: brown;
}
```

Note

To make scripts run exclusively on certain sections, it is advised to put them in folders and set the execution scope of the scripts in a folder via the folder properties; see "Execution scope" on page 347.

Sheet position selectors

In Print output, pages have a sheet position that depends on the options set in the Sheet Configuration dialog (e.g. the Duplex and Allow Content On options). Connect gives each page - or rather, the "MediaBox" div element on that page - a class depending on their sheet position:

- `.frontside`
- `.backside` (does not apply to simplex documents)
- `.contentpage`
- `.nocontentpage`

The MediaBox contains the Master Page objects and section backgrounds. This means that these classes can only be used to format a Master Page and section background. They do not let you change the formatting of elements residing in the main text flow (e.g. a `<h1>` element on page 3).

Conditionally formatting Master Page objects

The following CSS rule sets the color of `<h1>` elements on a Master Page when that Master Page is present on the front of a sheet.

```
.frontside h1 {
    color: green;
}
```

The next style rule is a bit more specific: it colors `<h1>` elements on a Master Page when that Master Page is applied to the front of a sheet in Section 1:

```
[section='Section 1'] .frontside h1 {
    color: green;
}
```

The following rule hides `<h1>` elements on the back of a sheet on which no content (from the main text) is allowed.

```
.backside.nocontentpage .h1 {
    display: none;
}
```

Print section background selector

When you inspect a Print section in a browser, you will see that it has a `<div id="pages">` element as the first child of the `<body>` element. Inside this `<div>` there are one or more MediaBoxes: elements with the class `page_mediabox`. Each MediaBox contains the Media, section background and Master Page that apply to one page (see "Media" on page 139, "Master Pages" on page 136 and "Using a PDF file as background image" on page 123).

In the MediaBox, a Print section background is an `` element with the `ol_pdf_datamapper_input` class. Its `src` attribute references the PDF file that contains the image and its `page` attribute is used to select a specific page in that PDF (as a PDF can contain more than one page). For example:

```

```

You can use the `ol_pdf_datamapper_input` class as a selector to target the section background in a style rule or script.

Placing the section background in front of the Master Page

The stacking order of elements inside each MediaBox, from bottom to top, is:

1. Media
2. Section background
3. Master Page elements

Using the `.page_mediabox` selector, you could change this stacking order and place the section background on top of the elements on the Master Page. Set the `z-index` property to a value larger than 0 (zero) and add `!important` to make this style rule override the inline style declaration that normally puts the section background behind the Master Page elements:

```
.page_mediabox img.ol_pdf_datamapper_input {  
    z-index: 10 !important;  
}
```

Scaling the section background

The rule below downscales the section background image and keeps it in the centre of the page:

```
.page_mediabox img.ol_pdf_datamapper_input {  
    transform: translate(-50%, -50%) scale(1.5, 1.5) !important;  
}
```

View selectors

In the Designer, sections can be viewed on different tabs: Source, Design, Preview and - if it is a Web section - Live. In each view mode (except Source) a specific CSS class is added to the `<html>` element. The view-specific classes are:

- `.DESIGN`
- `.PREVIEW`
- `.OUTPUT`

.OUTPUT is used when viewing the current section on the Live tab or in an external browser, and when generating output.

View selectors allow you to apply formatting to elements in a certain view, for example to highlight or show elements. The Designer itself does this, for example, to highlight all boxes in the Design view, when the Show Edges icon is clicked.

Adding an outline

The following style rule wraps every element that has the class `address-block` with a purple dashed outline in Design mode. The outline is not visible in other views or when outputting the document.

```
.DESIGN .address-block {
    outline: 1px dashed purple;
}
```

Adding a background pattern

The Postcard template wizard (in the Basic Print templates group) uses the .DESIGN class to mark areas that are reserved for postal use and should not contain text or images. These areas were added to the Master Page as absolute positioned boxes that have been given the class `clearzone`. The following style rule assigns a background pattern to elements with that class in the Design view:

```
.DESIGN .clearzone {
    background:url
(data:image/png;base64,iVBORw0KGgoAAAANSUHEUgAAAAQAAAAECAYAAACp8Z5+
AAAAFUlEQVQImWNgQAL/70z7TyqHgYEBANRfDcEzmlBaAAAAAE1FTkSuQmCC)
repeat;
}
```

Note

The pattern image was created on www.patternify.com and is added as a data URI (see [Data URIs](#)).

Showing hidden Foundation elements

In Capture OnTheGo templates based on the Foundation framework the `.DESIGN` selector can be used to show elements that would otherwise be hidden in the Design view.

For example, to expand accordion elements and show validation errors in Design view, you could add the following style rules to your template:

```
.DESIGN .accordion .accordion-navigation > .content {
    display: block;
}
.DESIGN small.error {
    display: block;
    margin-top: -20px;
}
```

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.

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.

The basics of script-writing in the Designer are explained in the following topic: "Writing your own scripts" on page 340.

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 page 371.)

Control Scripts differ from Standard 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 **do not 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. Similarly, the `query()` function, which is used to select content from within a script, is unavailable in a Control Script.

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 **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.

Note

Scripts can only have the same name when they are not in the same folder.

4. Write the script; see the "Control Script API" on page 749. If you are not familiar with scripting, also see "Writing your own scripts" on page 340.

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 it and that shows what the script should look like.

In a Control Script, `section` usually is the most important object. To get a quick overview and lots of examples, see "section" on page 782. For help on specific tasks, see the table below.

Task	See topic	Field/function of <code>section</code> object
Change the page numbering of Print sections	"Control Script: Page numbering" on the facing page	<code>restartPageNumbering</code>
Set the background image of a Print section	"Control Script: Setting a Print section's background" on page 376	<code>background.source</code> , <code>background.url</code> , <code>background.position</code>
Split and rename Print email attachments	"Parts: splitting and renaming email attachments" on page 374	<code>part</code>
Dynamically set a password on PDF attachments	"Control Script: Securing PDF attachments" on page 382	<code>password</code> , <code>ownerPassword</code>
Include/exclude sections: <ul style="list-style-type: none"> Conditionally omit Print or Web sections Output one section or another, based on the value of a data field Select one Print section as PDF attachment if the 	Use a Conditional Print Section script to in-/exclude a Print section based on a simple condition; see "section" on page 782 In all other cases take a look at the examples in the following topic: "section" on page 782.	<code>enabled</code>

Task	See topic	Field/function of section object
output is to be emailed, and another Print section if the output is to be printed.		
Add sections dynamically	"Dynamically adding sections (cloning)" on page 379.	<code>clone()</code>
Add a header to an email	"section" on page 782, example: "Adding custom ESP handling instructions" on page 812.	<code>headers</code>
Set the margins of a Print section or Master Page	margins	<code>margins</code>
Set a Master Page, Media, or Duplex printing for a Print section	"sheetConfig" on page 764	<code>sheetConfig</code>

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 369 and "Control Script API" on page 749. If you don't know how to write scripts, see "Writing your own scripts" on page 340.

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 782 and "Control Script API" on page 749.)

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 short, simple table of contents in **one section**, you could add a Standard Script that uses the `pageRef()` function. For an example, see "Creating a table of contents" on page 717.

For a **multi-page, cross-section** table of contents you must use a Post Pagination Script; see "Creating a Table Of Contents" on page 385.

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:

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;
    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 into multiple email attachments. This topic shows how to do that.

For information about Control Scripts in general, see "Control Scripts" on page 369 and "Control Script API" on page 749. If you don't know how to write scripts, see "Writing your own scripts" on page 340.

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 782 and "Control Script API" on page 749.)
```

- 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 all Print sections. The attachment(s) will be named after the email subject.

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.

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

```
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";
}
}
```

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 123. 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.

Note

Encrypted PDF files are **not supported** in *PDF pass-through* mode.

For information about Control Scripts in general, see "Control Scripts" on page 369 and "Control Script API" on page 749. If you don't know how to write scripts, see "Writing your own scripts" on page 340.

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 background of the section to Resource PDF (see "BackgroundResource" on page 770). 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 Resource PDF, 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, scaling and rotating the background

After a background has been selected, it can be positioned, scaled and rotated, using properties of the `background` object; see "background" on page 761.

To position the background, for example, set the section's `background.position`:

```
activeSection.background.position = MediaPosition.FIT_TO_MEDIA;
```

For all possible positions, see "MediaPosition" on page 773.

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 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;
```

Tip

You could use the `resource()` function to check the number of pages or for example the page height and width before setting it as a background (see "resource()" on page 748).

Example

This script 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 376). 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 369 and "Control Script API" on page 749. If you don't know how to write scripts, see "Writing your own scripts" on page 340.

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 that with multiple clones, the next clone is always added **after** the previous clone.

With `addBefore()`, the code `original.addBefore(clone1); original.addBefore(clone2);` will result in "clone1, clone2, original".

With `addAfter()` the code `original.addAfter(clone1); original.addAfter(clone2);` results in "original, clone1, clone2".

Note

Calling `clone()` multiple times before calling `addAfter()` or `addBefore()` currently won't work, as each next clone will get the same default name and replaces the previous clone. To avoid this you should either explicitly assign a unique name to each clone (i.e. not rely on the default name), or call `addAfter()` or `addBefore()` before calling `clone()` again.

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";
```

To ensure that CSS rules and scripts can target a specific clone, that clone's name should be unique (within the scope of a single record, that is; across records, the same name can be used).

Targeting elements in a cloned section

Clones that have a unique name can be further personalized with the use of CSS style sheets (see "Styling and formatting" on page 251) and personalization scripts (see "Variable Data" on page 303 and "Writing your own scripts" on page 340).

The selector to use is: `[section="name of the clone"]`.

The following CSS style rules target the `<h1>` element in a number of clones and assign the respective text a different color:

```
[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 selector could be used in personalization scripts:

Selector: `[section="my_section_clone_0"] h1`

Script: `results.css('color', 'red');`

Inside a Standard 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 753.

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;
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 166 and "Email PDF password" on page 166.

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 369 and "Control Script API" on page 749. If you don't know how to write scripts, see "Writing your own scripts" on page 340.

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 374), 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 166). 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';
    }
}
```

Post Pagination Scripts

Post Pagination Scripts are run in a **Print** context **after** the content has been paginated. Because they can search through the output of all Print sections, and modify Print sections (one at a time), they may be used to create a Table Of Contents (TOC), as explained in the topic: "Creating a Table Of Contents" on page 385.

This topic explains what a Post Pagination Script is and how to add it to a template.

The basics of script-writing in the Designer are explained in the following topic: "Writing your own scripts" on page 340.

What Post Pagination Scripts are

Post Pagination Scripts are a special kind of Designer script: they are applied to the output of all sections in a **Print** context **after** the content has been paginated. They may collect

Post Pagination Scripts differ from Standard Scripts and Control Scripts in two ways:

- Post Pagination Scripts run **after** all other scripts, more precisely: after the content has been *paginated*. The pagination process applies page breaks to the content of a Print section, adds Master Pages and sets the Media. A Post Pagination Script may query the rendered document and collect information about elements (for instance, on which page they reside on) and sections (for instance, whether they are enabled). If needed, a Post Pagination Script can re-paginate a section.
- Post Pagination Scripts only apply to the **Print** context. The output of other contexts is not paginated.

Just like Standard Scripts, Post Pagination Scripts have a **selector** (see: "Selectors in Connect" on page 363). 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 (see "results" on page 778).

The second most important object in a Post Pagination Script, just like in a Control Script, is a `section` (see "section" on page 782).

What to use a Post Pagination Script for

After all Print sections have been paginated, Post Pagination Scripts may search through the rendered document and collect information about elements (for instance, which page they reside on) and sections (for instance, whether they are enabled). With this information, a Post Pagination Script can do two things:

- **Modify the output.** The script may modify the output of a section. It could, for example, use information like page numbers to create a Table Of Contents (TOC), as explained in the topic: "Creating a Table Of Contents" on the next page. If needed, a Post Pagination Script can re-paginate the section (see "paginate()" on page 789).
- **Add information to the Connect database.** The script may add production information, such as the page, size or position of elements after a merge, as custom properties to a

Print Content Item in the Connect database (see [contentitem](#)). Custom properties can be utilized for further processing in a Workflow configuration with the Retrieve Items task. The Retrieve Items task retrieves custom properties along with the base record information (see [Retrieve Items](#) in Workflow's Online Help).

Adding a Post Pagination Script

To add a Post Pagination Script:

1. On the **Scripts** pane at the bottom left, click the black triangle on the **New** button and click **Post Pagination Script**. The new script appears in the Post Pagination folder.
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.

Note

Scripts can only have the same name when they are not in the same folder.

4. Write the script. If you are not familiar with scripting, see "Writing your own scripts" on page 340.

Creating a Table Of Contents

This topic explains how to create a multi-page, cross-section Table Of Contents (TOC) using a Post Pagination Script.

For information about Post Pagination Scripts in general, see "Post Pagination Scripts" on page 383.

The basics of script-writing in the Designer are explained in the following topic: "Writing your own scripts" on page 340.

Note

It is currently not possible to make TOC entries link to the respective position in the document (for example when generating PDF output).

Step 1: Opening a Print template

Create or open a Print template.

Make sure to use HTML headings level 1 and level 2 (<h1> and <h2>) in your Print sections, if you want to use the script sample that is given in Step 3. This script collects the text and page numbers of these headings and puts them in the TOC.

To quickly change a paragraph into a Heading, place the cursor inside of it, or select the paragraph (see: "Selecting an element" on page 174). Then select the appropriate element, either on the **Format** menu, or from the 'Element type' dropdown on the toolbar.

Of course, you could just as well create a table of contents using other heading levels, or even other elements. In that case you'll have to adjust the script accordingly.

Step 2: Creating a placeholder for the TOC

Create one extra Print section to put the Table Of Contents in.

Inside the extra section, insert an Article element (see "Inserting an element" on page 173).

Give the element an ID, for example: `toc-content`. This element is the placeholder for the TOC.

Step 3: Inserting the Post Pagination script

Insert a Post Pagination script (see "Adding a Post Pagination Script" on the previous page). Double-click on the new script to open it.

Set its **selector** to the ID that you specified in Step 2, preceded by a #, for example: `#toc-content`.

Paste the following code in the script editor:

```
// Build the TOC
var toc = '';
merge.context.query("h1, h2").each(function() {
    var pageNo = this.info().pageNo;
    var text = this.text();
    var level = this.tagName();

    toc += '<p class="toc-entry ' + level + '">';
    toc += '<span class="text">' + text + '</span>';
    toc += '<span class="dots"></span>';
    toc += '<span class="number">' + pageNo + '</span></p>';
});

results.html( toc );

// Repaginate the result
```

```
merge.section.paginate();

// Update the page numbers
var $numbers = query('.number');
merge.context.query("h1, h2").each(function( index ) {
    var pageNo = this.info().pageNo;
    var entry = $numbers.get( index );
    if( entry ) {
        entry.text( pageNo );
    }
});
```

What the script does

First the script creates a variable to hold the table of contents: `toc`.

Then it collects all `<h1>` and `<h2>` elements - in other words, level 1 and 2 headings. The `merge.context.query(selector)` function searches **across all Print sections** (see "query(selector)" on page 776).

The query returns a result set. Each of the elements in the result set goes through the callback function defined in `each()` (see "each()" on page 726).

The callback function gets the element's page number, text and HTML tag name:

```
var pageNo = this.info().pageNo;
var text = this.text();
var level = this.tagName();
```

Note that the `info()` function can also be used to get an element's sheet number, the section it is located in, and the total page count and sheet count of that section (see "PaginationInfo" on page 777) and "info()" on page 782). In this case only the page number is used.

Then the callback function adds an entry to the variable that holds the table of contents, using the retrieved info.

```
toc += '<p class="toc-entry ' + level + '">';
toc += '<span class="text">' + text + '</span>';
toc += '<span class="dots"></span>';
toc += '<span class="number">' + pageNo + '</span></p>';
```

The HTML tag name is added as a **class**. This can be used in a CSS file to style the entries in the table of contents according to their level. (See "Step 4: Styling the table of contents" on

page 389.)

The empty span between the heading's text and page number has the class `dots`. This is used to put dots between heading and page number.

The `number` class (for the page number) is not only used in CSS, but also later on in the script.

The table of contents is inserted in the section with: `results.html(toc);` (see "Examples" on page 717).

The table of contents may get too long for a single page and affect the page numbers in other sections. In that case it is necessary to re-paginate the content; `merge.section.paginate();` does the trick.

Note

Whether page numbering restarts in each section, depends on the settings for page numbering; see "Configuring page numbers" on page 132. By default, page numbering starts with page 1 for each section.

If the pagination process has changed the page numbers, the TOC needs to be updated as well.

To do that, the script first has to collect the page numbers from the table of contents. This is where the `number` class comes in handy: `var $numbers = query('.number');`.

Note that this `query()` function, as opposed to `merge.context.query()`, only searches the **current** section (see "query()" on page 745).

Then, the level 1 and 2 headings are collected from all Print sections again using `merge.context.query("h1, h2").`

The callback function in `each()` retrieves the heading's new page number. It then uses the index number of the heading in the result set to get the corresponding entry in the TOC: `var entry = $numbers.get(index);` (see `get(index)`), and replaces it with the new page number.

Excluding headings

Often there are certain headings that you don't want to appear in the table of contents. The title of the table of contents itself, for example.

To exclude these headings from the table of contents, do the following:

1. Give all the headings that you want to be ignored the same class (see "ID and class" on page 172), for example `ignore-me`.


```
. . . . .  
. . . . . " ;  
}
```

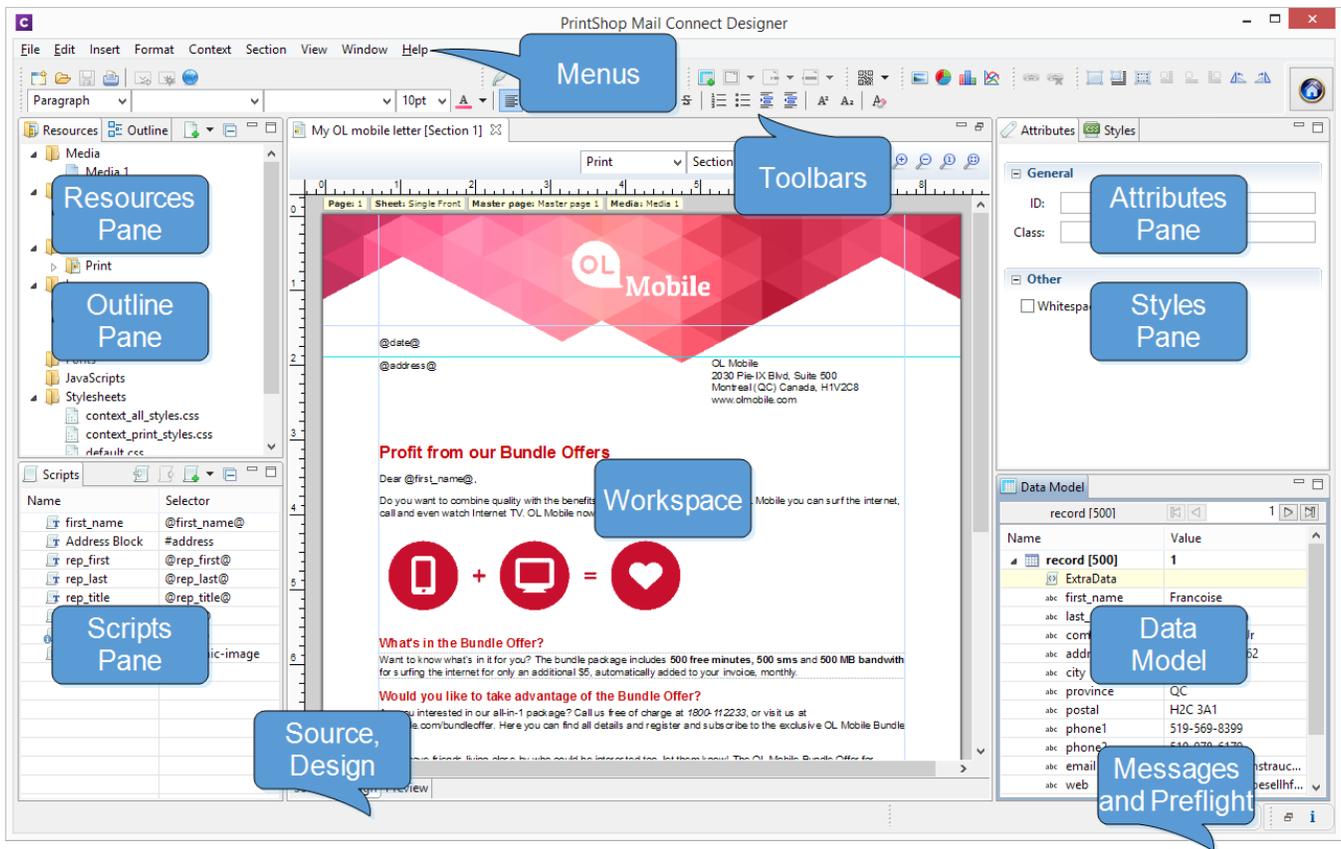
```
p.toc-entry .number {  
flex-shrink: 1;  
text-align: right;  
font-weight: bold;  
}
```

These styles make use of the CSS Flexbox Layout Module. For more information about that, see [W3schools: CSS Flexbox](http://W3schools.com/CSS/Flexbox).

Designer User Interface

The main ingredients in the Designer's user interface are the following:

- "Menus" on page 469
- "Toolbars" on page 496
- "Resources pane" on page 484
- "Outline pane" on page 484
- "Attributes pane" on page 478
- "Styles pane" on page 493
- "Workspace" on page 493 (Source, Design and Preview tabs)
- "Data Model pane" on page 481
- "Scripts pane" on page 490
- "Preflight Results and Messages" on page 482



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 dialogs:

Bar Chart Properties dialog

The Bar Chart dialog appears when a Bar Chart object is right-clicked and the **Chart...** option is clicked. It determines how the Bar Chart is displayed in output and in Preview mode (see "Business graphics" on page 225).

All of the settings in this dialog are equivalent to a property in the amCharts library (see: [amCharts' Class Reference](#)). The description of each setting specifies the corresponding property. When you've made a setting, you can also find the property on the Source tab.

General tab

Most settings on the General tab correspond to properties of the AmSerialChart class in the amCharts library; see: [AmSerialChart](#).

- **General Group:**

Display grid above graph: Check to display the grid on top of the bars so that it is always visible. (Equivalent to the

- `gridAboveGraphs` property; see: [gridAboveGraphs](#).)

Rotate: Check to rotate the chart 90 degrees so that the bars are horizontal starting from the left. (Equivalent to the

- `rotate` property; see: [rotate](#).)

Stack Series: Check to stack the values in one bar, instead of having one bar per value. (Equivalent to the

- `stackType` property of the `ValueAxis`; see: [stackType](#).)

- **Text Group:** Determines how text is displayed in labels and legends.

Font: Enter 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

- `fontFamily` property; see: [fontFamily](#).)

Size: Enter the size of the font. Defaults to 11. (Equivalent to the

- `fontSize` property; see: [fontSize](#).)

Color: Select the color in which to display text: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `color` property; see: [color](#).)

- **3D Group:** Creates a 3D effect if both settings in this group are higher than 0.

Depth: The depth of the 3D part of the plot area. (Equivalent to the

- `depth3D` property; see: [depth3D](#).)

Angle: The angle of the 3D part of the plot area. (Equivalent to the

- `angle`
property; see: [angle](#).)

Value Axis tab

Settings on the Value Axis tab are equivalent to properties of the ValueAxis class in the amCharts library; see: [ValueAxis](#).

- **Title group:**

Label: Enter a label for the value axis (the Y axis, or the X axis if the graph is rotated). (Equivalent to the

- `title`
property; see: [title](#).)

Bold: Check this option if the title should be bold. (Equivalent to the

- `titleBold`
property; see: [titleBold](#).)

Color: The default label color is black. To select a custom color for the label, click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `titleColor`
property; see: [titleColor](#).)

Font Size: Enter a font size for the label. (Equivalent to the

- `titleFontSize`
property; see: [titleFontSize](#).)

- **Grid group:**

Color: Select a color for the grid lines that divide the value axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `gridColor`
property; see: [gridColor](#).)

Opacity: Enter the opacity percentage of the grid. Default is 15%. 100 is fully opaque, 0 is transparent. (Equivalent to the

- `gridAlpha`
property; see: [gridAlpha](#).)

Thickness: Enter a thickness for the grid lines. Default is 1. (Equivalent to the

- `gridThickness`
property; see: [gridThickness.](#))

Tick Length: Length of the tick marks. (Equivalent to the

- `tickLength`
property; see: [tickLength.](#))

- **Axis group:**

Color: Select a color for the value axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexademical color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `axisColor`
property; see: [axisColor.](#))

Opacity: Enter the opacity in percentage for the axis. 100 is fully opaque, 0 is transparent. Set opacity to 0 to hide the axis. (Equivalent to the

- `axisAlpha`
property of the
`ValueAxis`
; see: [axisAlpha.](#))

Thickness: Enter the thickness of the axis. (Equivalent to the

- `axisThickness`
property of the
`ValueAxis`
; see: [axisThickness.](#))

Labels: Check this option to make the labels on the value axis visible. This is often useful in rotated charts. (Equivalent to the

- `labelsEnabled`
property of the
`ValueAxis`
; see: [labelsEnabled.](#))

Frequency: Defines per how many grid lines a label will be placed. (Equivalent to the

- `labelFrequency`
property of the
`ValueAxis`
; see: [labelFrequency.](#))

Category Axis tab

Settings on the Category Axis tab correspond to properties of the CategoryAxis class in the amCharts library; see: [CategoryAxis](#).

- **Title group:**

Label: Enter a label for the category axis (the X axis, or the Y axis if the graph is rotated).(Equivalent to the

- `title` property; see: [title](#).)

Bold: Check if you want the title to be bold. (Equivalent to the

- `titleBold` property; see: [titleBold](#).)

Color: Select a custom color for the label (default is black): click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `titleColor` property; see: [titleColor](#).)

Font Size: Enter a font size for the title. (Equivalent to the

- `titleFontSize` property; see: [titleFontSize](#).)

- **Grid group:**

Color: Select a color for the grid lines that divide the category axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `gridColor` property; see: [gridColor](#).)

Opacity: Enter the opacity percentage of the grid. Default is 15%. 100 is fully opaque, 0 is transparent. (Equivalent to the

- `gridAlpha` property; see: [gridAlpha](#).)

Thickness: Enter a thickness for the grid lines. Default is 1. (Equivalent to the

- `gridThickness` property; see: [gridThickness](#).)

- **Position:** Specifies if a grid line is placed on the centre of a cell or on the beginning

of a cell. (Equivalent to the `gridPosition` property; see: [gridPosition](#).)

Tip

The position of the ticks (which is `Middle` by default) does not move with the grid. To change the tick position, add the following to the `categoryAxis`

section on the Source tab:

```
"tickPosition": "start"
```

.

Tick Length: Length of the tick marks. (Equivalent to the

- `tickLength` property; see: [tickLength](#).)

Tip

By default, one label per grid line will appear on the Category axis. To change that frequency, add the following to the `categoryAxis`

section on the Source tab:

```
"labelFrequency": "2"
```

(replace 2 by the desired number of grid lines).

- **Axis group:**

Color: Select a color for the value axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `axisColor` property; see: [axisColor](#).)

Opacity: Enter the opacity in percentage for the axis. 100 is fully opaque, 0 is transparent. Set opacity to 0 to hide the axis. (Equivalent to the

- `axisAlpha`

property; see: [axisAlpha](#).)

Thickness: Enter the thickness of the axis. (Equivalent to the

- `axisThickness`
property; see: [axisThickness](#).)

Auto Wrap: Specifies if axis labels (when horizontal) should be wrapped if they don't fit in the allocated space. (Equivalent to the

- `autoWrap`
property; see: [autoWrap](#).)

Graphs tab

Most settings on the Graphs tab correspond to properties of the `AmGraph` class in the `amCharts` library; see: [AmGraph](#).

- **Labels:**

Text: Text of the data labels. You can use tags like `[[value]]`, `[[description]]`, `[[percents]]`, or `[[category]]`. (Equivalent to the

- `labelText`
property; see: [labelText](#).)

Position: Position of the data labels. Possible values are: "bottom", "top", "right", "left", "inside", "middle". (Equivalent to the

- `labelPosition`
property; see: [labelPosition](#).)

Rotation: Rotation of the data labels. Supported notations:

- `0.0`
,
`0.0°`
or
`0.0 deg`
. (Equivalent to the
`labelRotation`
property; see: [labelRotation](#).)

Offset: Vertical offset of the data labels. A positive offset moves the data labels up. A negative value moves them down. (Equivalent to the

- `labelOffset`
property; see: [labelOffset](#).)

Anchor: Select whether the start, middle or end of a data label should be anchored to the bar. This setting moves the labels horizontally. (Equivalent to the

- `labelAnchor`

property; see: [labelAnchor](#).)

- **Columns:**

Width: Specify a bar width between 0 and 1. (This is a relative width, not pixel width). (Equivalent to the

- `columnWidth`
property; see: [columnWidth](#).)

Spacing: The gap in pixels between two columns of the same category. (Equivalent to the

- `columnSpacing`
property of the
`AmSerialChart`
class; see: [columnSpacing](#).)

Legend tab

Settings on the Legend tab correspond to properties of the `AmLegend` class in the `amCharts` library; see: [AmLegend](#).

Show Legend: Specifies if legend is enabled or not. (Equivalent to the

- `enabled`
property; see: [enabled](#).)

- **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. (Equivalent to the

- `equalWidths`
property; see: [equalWidths](#).)

Position: Use the drop-down to select where the legend is shown: at the Right, Left, Top or Bottom. (Equivalent to the

- `position`
property; see: [position](#).)

Align: Use the drop-down to select how to align the text in the labels: Left, Middle or Right. (Equivalent to the

- `align`
property; see: [align](#).)

Horizontal Space: Horizontal space between legend items, in pixels. (Equivalent to the

- `spacing`
property; see: [spacing](#).)

Vertical Space: Enter a numerical value (in pixels) to define the vertical space between legend items, and also between the legend border and the first and last legend item. (Equivalent to the

- `verticalGap` property; see: [verticalGap](#).)

Max Columns: Enter a numerical value to define the maximum number of columns in the legend. If the Legend's position is set to "right" or "left", this is automatically set to 1. (Equivalent to the

- `maxColumns` property; see: [maxColumns](#).)

- **Labels Group:** Defines if and how labels are shown in the Legend.

Text: Enter the text used to display the labels;

- `[[title]]` is a variable that will be replaced with the title of the graph. (Equivalent to the `labelText` property; see: [labelText](#).)

- **Markers Group:** Defines how the Legend's Markers look. 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. (Equivalent to the

- `markerType` property; see: [markerType](#).)

Size: Enter the size (in pixels) for the Markers to be displayed. (Equivalent to the

- `markerSize` property; see: [markerSize](#).)

Label Gap: Enter the distance (in pixels) between the legend marker and legend text. (Equivalent to the

- `markerLabelGap` property; see: [markerLabelGap](#).)

Border Width: Use the drop-down to define the thickness of the border added to the Markers. The default value (0) means the line will be a "hairline" (1 px). In case the Marker type is line, this style will be used for the line thickness. (Equivalent to the

- `markerBorderThickness` property; see: [markerBorderThickness](#).)

- **Border Color:** Color of the Legend's border. Enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored

square to open the Color Picker dialog ("Color Picker" on page 404). (Equivalent to the `markerBorderColor` property; see: [markerBorderColor](#).)

Border Opacity: Enter a numerical value between 0 and 100 to define the opacity (in percentage) of the border. (Equivalent to the

- `markerBorderAlpha` property; see: [markerBorderAlpha](#). When specified on the Source tab, the value should be between 0 and 1, e.g. 0.8.)

Source tab

The JSON on the Source tab reflects the choices made in the other tabs and, more importantly, provides the possibility to add in any amCharts configuration option that is unavailable via the other tab menus. For more information see: "Adding and editing properties manually" on page 230.

Box Formatting dialog

The Box Formatting dialog is accessible by clicking inside a box in the template and then selecting **Format > Box** in the menu.

All settings in this dialog are in fact CSS properties. Cascading Style Sheets (CSS) were originally designed for use with web pages: HTML files. Since Designer templates are HTML files, they are styled with CSS. To learn how to use CSS in the Designer, see "Styling and formatting" on page 251 and "Styling templates with CSS files" on page 253. For information about specific properties and their options, see [W3Schools CSS Reference](#).

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 336.

For information about the different types of Boxes, see "Boxes" on page 221.

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 336). 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 336). 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 (see Position, below). 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:** Note that it depends on both the Context and the type of Box, which settings are available. For information about the different types of Boxes, see "Boxes" on page 221.
 - **Position:** Use the drop-down or type in the value for the type of positioning for the box. Equivalent to the CSS `position` property (see "Using the CSS position property" on page 269).
 - **Top** (Web Context): Set the vertical offset between this box and its parent's top position. Equivalent to the CSS `top` property.
 - **Left** (Web Context): Set the horizontal offset between this box and its parent's left position. Equivalent to the CSS `left` property.

- **Y-offset** (Print Context): Sets the vertical offset between this box and the current page's top. This only works for Positioned boxes.
- **X-offset** (Print Context): Sets the vertical offset between this box and the current page's left edge. This only works for Positioned boxes.
- **Bottom**: Set the vertical offset between this box and its parent's bottom position. Note that you can't set the Height *and* Top (or Y-offset) *and* Bottom of a Box. Remove the Height before setting the Bottom property. Equivalent to the CSS `bottom` property.
- **Right**: Set the horizontal offset between this box and its parent's left position. Note that you can't set the Width *and* Left (or X-offset) *and* Right of a Box. Remove the Width before setting the Right property. 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

For information about backgrounds see "Background color and/or image" on page 278.

- **General group:**
 - **Color**: Specify the color of the box background: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmymk(15%, 0%, 33%, 0%)`.
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 446. Equivalent to the CSS `background` property.
 - **Size**: select `auto`, `cover` or `contain` (for an explanation see https://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.

Spacing tab

For information about spacing see "Spacing" on page 291.

- **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

For information about borders see "Border" on page 280.

- **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: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on the facing page). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. Equivalent to the CSS `border-color` property.

Content tab

- **Copy Fit:** Check this option to automatically scale text inside the Box to the available space; see "Copy Fit" on page 266 .
 - **Minimum font size:** Specify the minimum font size using a valid font measurement unit (pt, px, in, cm or mm). Do not put a space between the number and the unit. The smallest possible size is 1pt. The default is 4pt.
When left **blank**, the font size in Design view becomes the minimum font size. Text can only be made bigger than its initial size.
 - **Maximum font size:** Specify the maximum font size using a valid font measurement unit (pt, px, in, cm or mm). Do not put a space between the number and the unit. The biggest possible size is 1048pt. The default is 48pt.
When left **blank**, the font size in Design view becomes the maximum font size. Text can only be made smaller than its initial size.
 - **Fit to width only:** When this option is checked, no line breaks will be added to the text.
 - **Child** (optional): When specified, the Copy Fit feature will only be applied to the given child element (an element inside the Box or Div). Specify the element by giving its ID, for example: **#product**, or class, for example: **.product** - note the dot.

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. For information about how to define and apply colors and how to keep them consistent in different output channels, see "Colors" on page 283.

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 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 outputted; see "Colors" on page 283.

- **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 its equivalent.

Colors Properties

The Colors Properties defines and sets named colors used in the template; see "Colors" on page 283. 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 251.

- **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 283).
- **Edit:** Edit the currently selected color using the **Edit Color** dialog (see below and see "Colors" on page 283).
- **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.

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 429).
- **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.

Export Template Report wizard

The Export Template Report wizard is opened through the menu: **File > Export report.**

It contains the following options:

- **File Name:** Enter the desired file name for the template report.
- **Format:** Select PDF or XML.

Click **Next** to go to the next set of options:

- **Generate Thumbnails:** The generated thumbnail images will be included in the PDF file. When exporting an XML report, the thumbnails will be saved in the same folder as the XML, in a subfolder named Thumbnails.
 - **Sections (first page):** Save the first page of each section as a thumbnail image.
 - **Image resources:** Save all image resources as thumbnail images.
- **PDF Options:**
 - **Standard:** The standard PDF report 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). The report has a standard layout.
 - **Custom:** To create a custom PDF report, you need two files:
 - **Template:** A template design with the desired layout and variable data. This .OL-TEMPLATE file has to be made in the Designer.
 - **DataMapper:** A data mapping configuration that provides the variable data. This .OL-datamapper file has to be made in the DataMapper module, using the standard XML template report as data sample.

Note

The DataMapper is included only in PlanetPress Connect and PreS Connect.

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.
- **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 287).

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.

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 https://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 https://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 https://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.

All settings in this dialog are in fact CSS properties. Cascading Style Sheets (CSS) were originally designed for use with web pages: HTML files. Since Designer templates are HTML files, they are styled with CSS. To learn how to use CSS in the Designer, see "Styling and formatting" on page 251 and "Styling templates with CSS files" on page 253. For information about specific properties and their options, see [W3Schools CSS Reference](#).

For more information about the use of images, see "Images" on page 236 and "Styling an image" on page 275.

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 (see Position, below). 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 (see "Using the CSS position property" on page 269).
 - **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.
- **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 right 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: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)),

a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmymk(15%, 0%, 33%, 0%)`. Equivalent to the CSS `border-color` property.

Includes dialog

The Includes dialog defines which style sheets and JavaScript files should be applied to a section when generating output (see: "Styling templates with CSS files" on page 253 and Using JavaScript).

To open this dialog and make settings for one section, right-click the section on the **Resources** pane and select **Includes**.

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.

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 in all Web sections, if you are making settings for the Web context). Use the **Include** and **Exclude** buttons to move files from one list to the other.
3. Files are included in the order shown. To change this order, click one of the included files and use the **Up** or **Down** button.

Note

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.

Line Chart Properties dialog

The Line Chart dialog appears when a Line Chart is right-clicked and the **Chart...** option is clicked. It determines how the chart is displayed when generating output and in Preview mode

(see "Business graphics" on page 225).

General tab

Most settings on the General tab correspond to properties of the AmSerialChart class in the amCharts library; see: [AmSerialChart](#).

- **General Group:**

Display grid above graph: Check to display the grid on top of the bars so that it is always visible. (Equivalent to the

- `gridAboveGraphs` property; see: [gridAboveGraphs](#).)

Rotate: Check to rotate the chart 90 degrees so that the bars are horizontal starting from the left. (Equivalent to the

- `rotate` property; see: [rotate](#).)

Stack Series: Check to stack the values in one bar, instead of having one bar per value. (Equivalent to the

- `stackType` property of the `ValueAxis`; see: [stackType](#).)

- **Text Group:** Determines how text is displayed in labels and legends.

Font: Enter 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

- `fontFamily` property; see: [fontFamily](#).)

Size: Enter the size of the font. Defaults to 11. (Equivalent to the

- `fontSize` property; see: [fontSize](#).)

Color: Select the color in which to display text: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `color` property; see: [color](#).)

- **3D Group:** Creates a 3D effect if both settings in this group are higher than 0.

Depth: The depth of the 3D part of the plot area. (Equivalent to the

- `depth3D`

property; see: [depth3D](#).)

Angle: The angle of the 3D part of the plot area. (Equivalent to the

- `angle`
property; see: [angle](#).)

Value Axis tab

Settings on the Value Axis tab are equivalent to properties of the ValueAxis class in the amCharts library; see: [ValueAxis](#).

- **Title group:**

Label: Enter a label for the value axis (the Y axis, or the X axis if the graph is rotated). (Equivalent to the

- `title`
property; see: [title](#).)

Bold: Check this option if the title should be bold. (Equivalent to the

- `titleBold`
property; see: [titleBold](#).)

Color: The default label color is black. To select a custom color for the label, click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `titleColor`
property; see: [titleColor](#).)

Font Size: Enter a font size for the label. (Equivalent to the

- `titleFontSize`
property; see: [titleFontSize](#).)

- **Grid group:**

Color: Select a color for the grid lines that divide the value axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `gridColor`
property; see: [gridColor](#).)

Opacity: Enter the opacity percentage of the grid. Default is 15%. 100 is fully opaque, 0 is transparent. (Equivalent to the

- `gridAlpha`

property; see: [gridAlpha](#).)

Thickness: Enter a thickness for the grid lines. Default is 1. (Equivalent to the

- `gridThickness`
property; see: [gridThickness](#).)

Tick Length: Length of the tick marks. (Equivalent to the

- `tickLength`
property; see: [tickLength](#).)

- **Axis group:**

Color: Select a color for the value axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `axisColor`
property; see: [axisColor](#).)

Opacity: Enter the opacity in percentage for the axis. 100 is fully opaque, 0 is transparent. Set opacity to 0 to hide the axis. (Equivalent to the

- `axisAlpha`
property of the
`ValueAxis`
; see: [axisAlpha](#).)

Thickness: Enter the thickness of the axis. (Equivalent to the

- `axisThickness`
property of the
`ValueAxis`
; see: [axisThickness](#).)

Labels: Check this option to make the labels on the value axis visible. This is often useful in rotated charts. (Equivalent to the

- `labelsEnabled`
property of the
`ValueAxis`
; see: [labelsEnabled](#).)

Frequency: Defines per how many grid lines a label will be placed. (Equivalent to the

- `labelFrequency`
property of the
`ValueAxis`
; see: [labelFrequency](#).)

Category Axis tab

Settings on the Category Axis tab correspond to properties of the CategoryAxis class in the amCharts library; see: [CategoryAxis](#).

- **Title group:**

Label: Enter a label for the category axis (the X axis, or the Y axis if the graph is rotated).(Equivalent to the

- `title`
property; see: [title](#).)

Bold: Check if you want the title to be bold. (Equivalent to the

- `titleBold`
property; see: [titleBold](#).)

Color: Select a custom color for the label (default is black): click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `titleColor`
property; see: [titleColor](#).)

Font Size: Enter a font size for the title. (Equivalent to the

- `titleFontSize`
property; see: [titleFontSize](#).)

- **Grid group:**

Color: Select a color for the grid lines that divide the category axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `gridColor`
property; see: [gridColor](#).)

Opacity: Enter the opacity percentage of the grid. Default is 15%. 100 is fully opaque, 0 is transparent. (Equivalent to the

- `gridAlpha`
property; see: [gridAlpha](#).)

Thickness: Enter a thickness for the grid lines. Default is 1. (Equivalent to the

- `gridThickness`
property; see: [gridThickness](#).)

- **Position:** Specifies if a grid line is placed on the centre of a cell or on the beginning

of a cell. (Equivalent to the `gridPosition` property; see: [gridPosition](#).)

Tip

The position of the ticks (which is `Middle` by default) does not move with the grid. To change the tick position, add the following to the `categoryAxis`

section on the Source tab:

```
"tickPosition": "start"
```

.

Tick Length: Length of the tick marks. (Equivalent to the

- `tickLength` property; see: [tickLength](#).)

Tip

By default, one label per grid line will appear on the Category axis. To change that frequency, add the following to the `categoryAxis`

section on the Source tab:

```
"labelFrequency": "2"
```

(replace 2 by the desired number of grid lines).

- **Axis group:**

Color: Select a color for the value axis: click the colored square to open the Color Picker dialog ("Color Picker" on page 404), or enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)). (Equivalent to the

- `axisColor` property; see: [axisColor](#).)

Opacity: Enter the opacity in percentage for the axis. 100 is fully opaque, 0 is transparent. Set opacity to 0 to hide the axis. (Equivalent to the

- `axisAlpha`

property; see: [axisAlpha](#).)

Thickness: Enter the thickness of the axis. (Equivalent to the

- `axisThickness`
property; see: [axisThickness](#).)

Auto Wrap: Specifies if axis labels (when horizontal) should be wrapped if they don't fit in the allocated space. (Equivalent to the

- `autoWrap`
property; see: [autoWrap](#).)

Graphs

Settings on the Graphs tab correspond to properties of the `AmGraph` class in the `amCharts` library; see: [AmGraph](#).

- **Line:**
 - **Thickness:** Sets the thickness of the lines in a Line chart. (Equivalent to the `lineThickness` property; see: [lineThickness](#).)

Tip

Set "`fillAlphas`" = 1 on the Source tab to color the space below the lines.

Legend tab

Settings on the Legend tab correspond to properties of the `AmLegend` class in the `amCharts` library; see: [AmLegend](#).

- **Show Legend:** Specifies if legend is enabled or not. (Equivalent to the
 - `enabled`
property; see: [enabled](#).)
- **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. (Equivalent to the
 - `equalWidths`
property; see: [equalWidths](#).)
 - **Position:** Use the drop-down to select where the legend is shown: at the Right, Left, Top or Bottom. (Equivalent to the
 - `position`

property; see: [position](#).)

Align: Use the drop-down to select how to align the text in the labels: Left, Middle or Right. (Equivalent to the

- `align`
property; see: [align](#).)

Horizontal Space: Horizontal space between legend items, in pixels. (Equivalent to the

- `spacing`
property; see: [spacing](#).)

Vertical Space: Enter a numerical value (in pixels) to define the vertical space between legend items, and also between the legend border and the first and last legend item. (Equivalent to the

- `verticalGap`
property; see: [verticalGap](#).)

Max Columns: Enter a numerical value to define the maximum number of columns in the legend. If the Legend's position is set to "right" or "left", this is automatically set to 1. (Equivalent to the

- `maxColumns`
property; see: [maxColumns](#).)

- **Labels Group:** Defines if and how labels are shown in the Legend.

Text: Enter the text used to display the labels;

- `[[title]]`
is a variable that will be replaced with the title of the graph. (Equivalent to the `labelText` property; see: [labelText](#).)

- **Markers Group:** Defines how the Legend's Markers look. 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. (Equivalent to the

- `markerType`
property; see: [markerType](#).)

Size: Enter the size (in pixels) for the Markers to be displayed. (Equivalent to the

- `markerSize`
property; see: [markerSize](#).)

Label Gap: Enter the distance (in pixels) between the legend marker and legend text. (Equivalent to the

- `markerLabelGap`

property; see: [markerLabelGap](#).)

Border Width: Use the drop-down to define the thickness of the border added to the Markers. The default value (0) means the line will be a "hairline" (1 px). In case the Marker type is line, this style will be used for the line thickness. (Equivalent to the

- `markerBorderThickness` property; see: [markerBorderThickness](#).)

Border Color: Color of the Legend's border. Enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). (Equivalent to the

- `markerBorderColor` property; see: [markerBorderColor](#).)

Border Opacity: Enter a numerical value between 0 and 100 to define the opacity (in percentage) of the border. (Equivalent to the

- `markerBorderAlpha` property; see: [markerBorderAlpha](#). When specified on the Source tab, the value should be between 0 and 1, e.g. 0.8.)

Source tab

The JSON on the Source tab reflects the choices made in the other tabs and, more importantly, provides the possibility to add in any amCharts configuration option that is unavailable via the other tab menus. For more information see: "Adding and editing properties manually" on page 230.

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 290). The default Locale for new templates can be set via the Preferences ("Language Setting Preferences" on page 332).

- **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 136.

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 484.
- **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. For an explanation of what Media are and how to use them, see "Media" on page 139.

Media are not printed, unless you want them to; see "Printing virtual stationery" on page 146.

To open the Media properties dialog, right-click one of the Media in the Media folder on the **Resources** pane and select **Properties**.

The **Page Setup** button closes the Media Properties dialog and opens the Print Section Properties dialog (see "Print section properties" on page 443).

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 443).
 - **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 446 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.

- **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, 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.*

Package dialog

The Package dialog saves templates and print presets as a package file. Package files can be sent to other Connect Designer users.

- **Configurations:** Initially this list contains the Connect files that are currently open.
 - **Browse:** This button opens the Select Files dialog that lets you add one or more templates (*.OL-template) and print presets (*.OL-jobpreset, *.OL-outputpreset) to the list.
 - **Select Preset:** Opens the Select Preset dialog, which lists all Print Presets found in the default folder for print presets
`(<root>\Users\<username>\Connect\workspace\configurations.`
 You can select one or more Print Presets to add them to the list of configurations in the Package dialog.
 - **Delete:** Deletes the selected file from the list of configurations.
- **Package...:** This button opens the Save dialog. All selected Connect files will be saved to one package file. You can use the topmost checkbox to select all of the listed files at once.
- **Cancel:** Click this button to close the dialog without creating a package file.

Paragraph Formatting dialog

The Paragraph Formatting dialog controls how the selected paragraph is formatted. It is accessed by placing the cursor within a paragraph and then selecting **Format > Paragraph** on the menu.

All settings in this dialog are in fact CSS properties. Cascading Style Sheets (CSS) were originally designed for use with web pages: HTML files. Since Designer templates are HTML files, they are styled with CSS. To learn how to use CSS in the Designer, see "Styling and formatting" on page 251 and "Styling templates with CSS files" on page 253. For information about specific properties and their options, see [W3Schools CSS Reference](#).

Click the **Advanced** button to enter CSS properties and values directly.

The **Apply** button lets you preview the template with the new settings.

For information about text and how to style it see "Text and special characters" on page 246 and "Styling text and paragraphs" on page 263.

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 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 each paragraph in the element. 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.
- **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 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:** Specifies 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:** Specifies 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:** 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.
 - **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. select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. Equivalent to the `border-color` property.

PDF Attachments dialog

The PDF Attachments dialog defines options for the Email context that are used when generating email output with PDF attachments (see "Generating Email output" on page 807).

To open this dialog, right-click the **Email** context on the **Resources** pane and select **PDF attachments**.

Alternatively, select **Context > PDF Attachments** on the main menu. This option is only available when an Email section is being edited in the Workspace.

- **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.

Pie Chart Properties dialog

The Pie Chart Properties dialog appears when a Pie Chart is right-clicked and the **Chart...** option is clicked. It determines how the Pie Chart is displayed when generating output and in Preview mode (see "Business graphics" on page 225).

General tab

Settings on the General tab correspond to properties of the `AmPieChart` class in the `amCharts` library; see: [AmPieChart](#).

- **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 `fontFamily` property; see: [fontFamily](#).)
 - **Size:** Type in the size of the font. Defaults to 11. (Equivalent to the `fontSize` property; see: [fontSize](#).)
 - **Color:** Type the color in which to display text: a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). (Equivalent to the `color` property; see: [color](#).)
- **Slice Colors Group**

Note

Settings made in this group override the settings made in the Chart wizard (see "Selecting data for a Business Graphic" on page 228).

- **Base Color:** Enter a base color: a valid HTML hexadecimal color value ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). 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. (Equivalent to the `baseColor` property; see: [baseColor](#).)
To set a color for each data field individually, leave this option empty and edit the **script** that fills the Pie Chart (see "Selecting data for a Business Graphic" on page 228).

- **Brightness Step:** Enter the amount of brightness to change on each new slice. Positive values increase the brightness (max: 100), negative values decrease the brightness (minimum: -100). Default is 10. (Equivalent to the `brightnessStep` property; see: [brightnessStep](#).)
- **Slice Outline Group:** Determines whether an outline should be added to each slice of the chart.
 - **Width:** Select the width of the outline for each pie slice. (Equivalent to the `outlineThickness` property; see: [outlineThickness](#).)
 - **Color:** Enter a color for the outline: a valid HTML hexadecimal color value ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). (Equivalent to the `outlineColor` property; see: [outlineColor](#).)
 - **Opacity:** Enter the opacity of the outline. 100 is fully opaque, 0 is transparent. (Equivalent to the `outlineAlpha` property; see: [outlineAlpha](#).)

Pie tab

Settings on the Pie tab correspond to properties of the `AmPieChart` class in the amCharts library; see: [AmPieChart](#).

- **Pie Group:** Defines how the pie chart is displayed in the template.
 - **Radius:** Enter the radius of the Pie Chart as a percentage of the shortest length of the containing `<div>` object (e.g. 30%) or in pixels. (Equivalent to the `radius` property; see: [radius](#).)
 - **Hole Radius:** Enter the radius of the center of the Pie Chart to remove, in pixels or as a percentage. The hole radius removes the center of the chart, creating a doughnut hole pie chart. (Equivalent to the `innerRadius` property; see: [innerRadius](#).)
 - **Start Angle:** Enter the starting angle of the first slice of the chart, between 0 and 360 (decimals are allowed). 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. (Equivalent to the `startAngle` property; see: [startAngle](#).)
- **3D Group:** Creates a 3D effect if both settings in this group are higher than 0.
 - **Depth:** The depth of the Pie. (Equivalent to the `depth3D` property; see: [depth3D](#).)
 - **Angle:** The Pie lean angle. This must be a value between 0 - 90. (Equivalent to the `angle` property; see: [angle](#).)

Labels tab

Settings on the Label tab correspond to properties of the `AmPieChart` class in the `amCharts` library; see: [AmPieChart](#).

- **Labels Group:** Defines how the label text is shown.
 - **Text:** Enter the text to use to display labels. The default text is `[[title]]: [[percents]]%`. Variables can be used to display specific data, `
` can be used to create a new line:
 - `[[title]]` : Refers to the field label.
 - `[[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.
(Equivalent to the `labelText` property; see: [labelText](#).)
 - **Radius:** The distance between the label and the slice, in pixels. You can use negative values to put the label on the slice. (Equivalent to the `labelRadius` property; see: [labelRadius](#).)
- **Tick Group:** Defines how ticks (line between the Pie chart and its labels) is shown.
 - **Color:** Enter a valid HTML hexadecimal color value ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)) for the color of the tick. (Equivalent to the `labelTickColor` property; see: [labelTickColor](#).)
 - **Opacity:** Enter a percentage of opacity for the tick to be displayed. The default is 20 (20% opacity). 100 is fully opaque, 0 is transparent. (Equivalent to the `labelTickAlpha` property; see: [labelTickAlpha](#).)
- **Grouping Group:** Defines how smaller percentages are grouped together into an individual "Other" category.
 - **Less than %:** If there is more than one slice whose percentage of the pie is less than this number, those slices will be grouped together into one slice. This is the "other" slice. It will always be the last slice in a pie. (Equivalent to the `groupPercent` property; see: [groupPercent](#).)
 - **Slice Title:** Enter a name for the label of the "Other" category. (Equivalent to the `groupedTitle` property; see: [groupedTitle](#).)
 - **Color:** Enter a color for the slice: a valid HTML hexadecimal color value ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored square to

open the Color Picker dialog ("Color Picker" on page 404). (Equivalent to the `groupedColor` property; see: [groupedColor](#).)

Legend tab

Settings on the Legend tab correspond to properties of the `AmLegend` class in the `amCharts` library; see: [AmLegend](#).

Show Legend: Specifies if legend is enabled or not. (Equivalent to the

- `enabled`

property; see: [enabled](#).)

- **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. (Equivalent to the

- `equalWidths`

property; see: [equalWidths](#).)

Position: Use the drop-down to select where the legend is shown: at the Right, Left, Top or Bottom. (Equivalent to the

- `position`

property; see: [position](#).)

Align: Use the drop-down to select how to align the text in the labels: Left, Middle or Right. (Equivalent to the

- `align`

property; see: [align](#).)

Horizontal Space: Horizontal space between legend items, in pixels. (Equivalent to the

- `spacing`

property; see: [spacing](#).)

Vertical Space: Enter a numerical value (in pixels) to define the vertical space between legend items, and also between the legend border and the first and last legend item. (Equivalent to the

- `verticalGap`

property; see: [verticalGap](#).)

Max Columns: Enter a numerical value to define the maximum number of columns in the legend. If the Legend's position is set to "right" or "left", this is automatically set to 1. (Equivalent to the

- `maxColumns`

property; see: [maxColumns](#).)

- **Labels Group:** Defines if and how labels are shown in the Legend.

Text: Enter the text used to display the labels;

- `[[title]]`

is a variable that will be replaced with the title of the graph. (Equivalent to the `labelText`

property; see: [labelText](#).)

- **Markers Group:** Defines how the Legend's Markers look. 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. (Equivalent to the

- `markerType`

property; see: [markerType](#).)

Size: Enter the size (in pixels) for the Markers to be displayed. (Equivalent to the

- `markerSize`

property; see: [markerSize](#).)

Label Gap: Enter the distance (in pixels) between the legend marker and legend text. (Equivalent to the

- `markerLabelGap`

property; see: [markerLabelGap](#).)

Border Width: Use the drop-down to define the thickness of the border added to the Markers. The default value (0) means the line will be a "hairline" (1 px). In case the Marker type is line, this style will be used for the line thickness. (Equivalent to the

- `markerBorderThickness`

property; see: [markerBorderThickness](#).)

Border Color: Color of the Legend's border. Enter a valid hexadecimal color ([HTML Hex Color](#)) or a predefined CSS color ([CSS color names](#)), or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). (Equivalent to the

- `markerBorderColor`

property; see: [markerBorderColor](#).)

Border Opacity: Enter a numerical value between 0 and 100 to define the opacity (in percentage) of the border. (Equivalent to the

- `markerBorderAlpha`

property; see: [markerBorderAlpha](#). When specified on the Source tab, the value should be between 0 and 1, e.g. 0.8.)

Source tab

The JSON on the Source tab reflects the choices made in the other tabs and, more importantly, provides the possibility to add in any amCharts configuration option that is unavailable via the other tab menus. For more information see: "Adding and editing properties manually" on page 230.

Print Job Summary dialog

The Print Job Summary dialog reports statistics of a print job. The entries in this summary are explained below.

If you are looking to improve the performance, please refer to the following topic: "Performance Considerations" on page 29.

- **Job:** The internal name of the template and data file that were used to create this job.
- **Statistics:** The statistics group shows all information with regards to how long the job took, the speed at which it ran, the job size and what was used to achieve those numbers.
 - **Start time:** The moment the print command was given. Typically this occurs just before the progress dialog appears.
 - **Finish time:** The moment all output files had been either written to disk or spooled to the printer. This is not the printer's finishing time.
 - **Duration:** The total time that it took to finish the job (the difference between Finish and Start time). This should be the sum of the time spent on Content Creation, Job Creation and Output Creation.
 - **Content Creation:** The time spent on creating content items. This includes the time needed to process the input data and merge them with the given template.
 - **Job Creation:** The time spent on assembling the job. Job creation settings can be made in the Advanced Printer Wizard, or in a separate Job Creation Preset (see "Job Creation Presets" on page 583).
 - **Output Creation:** The time spent on creating the actual (spool) file(s). Output creation settings can be made in the Advanced Printer Wizard, or in a separate Output Creation Preset (see "Output Creation Settings" on page 594).
 - **Input size:** The number of records in the input data.
 - **Document count:** The number of documents in the job. This may be less than the input size if filtering was used in the Job Creation settings.

- **Job size:** The number of pages created during Output Creation. This number is also used to calculate the output speed in pages per minute.
- **Merge engines:** The number of Merge engines used for Content Creation. On a multi-core system it is recommended to run several Merge engines in parallel; see "Engine configuration" on page 29.
- **Cores:** The number of cores in the CPU(s) of the system.
- **Licensed speed:** The maximum speed (in pages per minute) allowed under the applicable license.
- **Speed:** The actual speed achieved (in pages per minute) in this print job. The speed is calculated by dividing Job size by Duration.
- **Message:**
 - When no message is shown, this is because the job was too short to make any sensible statement about it. This happens when the duration is below 30 seconds.
 - "Your job ran at the licensed speed." When this message is shown, the achieved speed for this job is within a 5% margin of the licensed speed. To increase the licensed speed, look into the different upgrading options (performance packs, or a product upgrade).
 - "Your job did not run at the licensed speed. Press the help button for tips on improving performance." When this message is shown, it was not possible to achieve the licensed speed. If performance is an issue, please refer to the topic about improving performance: "Performance Considerations" on page 29.

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 490 execute. It helps greatly in troubleshooting performance issues caused by scripting (see also: "Testing scripts" on page 349).

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 339).

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. These are the available Script wizard types.

- **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 303.
- **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 314.
- **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 160.
- **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 176

- **Business Graphic Script:** This script controls the contents of a Pie Chart, Bar Chart or Line Chart. See "Business graphics" on page 225.
- **Conditional script:** This script shows or hides content elements depending on certain conditions and values. See "Showing content conditionally" on page 311.

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

For the options in Conditional Script wizards see "Conditional script dialog" on page 441.

In other Script wizards, the following options are available.

- **Name:** The name of the script, making it easier to identify it.
- **Selector/Find text:** 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.

Note

Email script wizards don't have the Selector or Find text option. Instead they select the header of the specified **Section** (the current one, by default) or **All email sections**. Note that the Section name is case-sensitive.

To see the actual (HTML) selector that an email script uses to select a section, you can click the Expand button.

- **Wizard Results:** Displays a list of the data that replaces 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.
- **Format:** A special formatting modifier applied to the Field; see "Formatting variable data" on page 309.
- **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 `
` 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, `this is bold` 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, "`
`" 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 (`` 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.
 - 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. The expanded script will use either double or single quotation marks, depending on the Preferences (**Window > Preferences > Scripting**; see "Scripting Preferences" on page 339).
- **Apply:** Saves changes made to the script and applies the changes in the template without closing the dialog.

Expanded 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 340.

For an overview of keyboard shortcuts that can be used in this script editor, see "Keyboard shortcuts" on page 462.

Chart Script dialog

The Chart Script dialog specifies which variable data will be displayed in a chart and shows a preview of both the chart (on the right hand side) and the data (at the bottom). This dialog is one of the parts of the Insert Chart wizards. It can be reopened by double-clicking the relevant script in the Scripts pane.

For more information about charts, see: "Business graphics" on page 225.

These are the options in the Chart Script dialog:

- **Name:** The name of the script, making it easier to identify it.
- **Selector:** The Selector or Text to apply the script to.
 - **Selector:** Uses CSS selectors to find the element to which the script applies. (See also: "Selectors in Connect" on page 363.)
 - **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 within the specified Selector as a trigger for the script.

- **Input Type:** Use the drop-down to select the source of the data to add to the Chart.
 - **Data fields:** Select to use fields at the record level in the Data Model.
 - **Data table:** Select to use fields in a detail table. At least one detail table must be available in the [Data Model Pane](#) for this option to be functional.
 - **Detail table:** Use the drop-down to select one of the detail tables that are part of the Data Model.
 - **Category:** Use the drop-down list to select the data field (in the selected detail table) of which the values will appear under the bars or the line; in other words, on the **x** axis.
- **Values:** Select data fields with a numerical value.
 - **Column:** Removing the topmost check deselects all data fields.
 - **Labels:** Click the label to enter a new label for a field. It depends on the Input Type where the labels appear: with Data Fields, the labels appear under the x-axis of the chart; with a Data Table, labels appear in the Legend.
 - **Color:** Click on the color to open the Color Picker dialog ("Color Picker" on page 404) and select a different color.

Buttons next to Values:

- The **Toggle non-numeric fields** button filters non-numeric fields from the list. The list will then display only Integer, Float and Currency data fields.
- The **Move Up** and **Move Down** buttons change the order of the fields, which is reflected in the chart.
- **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. The expanded script will use either double or single quotation marks, depending on the Preferences (**Window > Preferences > Scripting**; see "Scripting Preferences" on page 339).
- **Apply:** Saves changes made to the script and applies the changes in the template without closing the dialog. Note that the effect will only be visible on the Preview tab in the Workspace.

Expanded 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 340.

For an overview of keyboard shortcuts that can be used in this script editor, see "Keyboard shortcuts" on page 462.

Conditional script dialog

Conditional scripts 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 311.

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 "Selectors in Connect" on page 363.

- **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(s) used for the conditional check. Each additional value should go on a new line. The action is performed if the condition evaluates to true with one of the given values.

Values are case sensitive, unless the option **Case insensitive** is checked.

Dates should be entered in ISO standard notation (yyyy-mm-dd).

- **Case insensitive:** With this option checked, upper- and lowercase letters (in Strings) are treated as being the same.

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

The respective section properties dialogs are opened via the contextual menu:

- Right-click the section in the Resources pane and choose **Properties**.

Email section properties

For information about Email sections, see: "Email templates" on page 157.

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.
- The **Meta Information** group lists all `<meta>` tags that will be added to the header of the email. 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) and the **content**. For example, when you add a *name* meta tag with the value *viewport* and content *width=320*, the following will be added to the header: `<meta name="viewport" content="width=320">`. For more information on `<meta>` tags, see [W3Schools - HTML meta tag](#).

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. (See "Includes dialog" on page 414 and "Styling templates with CSS files" on page 253.)

Attachments tab

The **Attachments** tab lets you select files and delete attachments. For more information, see: "Email attachments" on page 166.

Print section properties

For information about Print sections, see: "Print sections" on page 119.

Properties

- **Section group:**
 - **Name:** The name of the section.
 - **Minimum number of pages:** The default minimum number of pages is 1. If content is too long to fit on one page, overflow will automatically appear on the next page. Changing the minimum number of pages can be useful when you want certain content to appear on a specific page.

These properties can be used in a Control Script; see the topic "Control Scripts" on page 369 and the page about the `section` object: "section" on page 782.

For an explanation of other settings on the Properties tab, see "Page settings: size, margins and bleed" on page 129.

Includes Tab

The Includes tab defines which style sheets and JavaScript files should be applied to the section when generating output, and in which order; see "Includes dialog" on page 414. For more information about stylesheets, see "Styling templates with CSS files" on page 253. For more information about using JavaScript, see Using JavaScript.

Finishing tab

This tab defines finishing options for this section when it is printed. For an explanation of all Binding and Hole making options, see "Finishing Options" on page 592.

Sheet Configuration tab

The Sheet Configuration tab defines how different Print context sections output on different Media (see "Media" on page 139) and using different Master Pages (see "Master Pages" on page 136). For an explanation of all settings on this tab, see "Sheet Configuration dialog" on page 447.

Background tab

This tab defines the background of the current Print section; see "Using a PDF file as background image" on page 123.

Numbering tab

The Numbering tab defines how page numbers are configured in the current Print section; see "Configuring page numbers" on page 132.

Arrange Sections

The Arrange dialog is used to change the order of sections within a context. This can have an effect on how they are outputted; see: "Print sections" on page 119, and "Email templates" on page 157.

To access the Arrange dialog, on the Resources pane, 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.

Send (Test) 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 160.

For more information about the process of sending out email and the possible settings, see "Generating Email output" on page 807.

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** - only when sending a test email:
 - **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** group:
 - 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.
- **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 161.

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 PrintShop Mail Connect" on page 810.

- **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 user name.

Select Image dialog

The Select Image dialog lets you select an image, depending on where the image is located. Whenever possible, a preview of the selected image will be shown.

- 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. You can give a local path (e.g. C:\Images\Test.jpg) or use the "file" protocol. The complete syntax of a fully qualified URL with the "file" protocol 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`).

Note

If a URL doesn't have a file extension, and the option Save with template is **not** selected, the Select Image dialog automatically adds the `filetype`

parameter with the file extension as its value (for example:
`?filetype=pdf`

(if it is the first parameter) or
`&filetype=pdf`

```
).  
The  
filetype  
  
,  
page  
  
and  
nopreview
```

parameters are not sent to the host; they are used internally. Therefore, URLs that rely on one of these parameters cannot be used.

- 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 it isn't saved with the template, the image remains 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.

Sheet Configuration dialog

The Sheet Configuration dialog defines how different Print context sections output on different Media (see "Media" on page 139) and using different Master Pages (see "Master Pages" on page 136).

Note

Master Pages, Media and Duplex printing options can also be set in a Control Script (see "Control Scripts" on page 369 and "Control Script API" on page 749). This is especially useful when you need identical sections with different settings.

General options

The first option defines **Duplex** printing, which also enables or disables the settings for the **Back** side of each sheet.

If Duplex is enabled, you can also:

- Check **Omit empty back side for Last or Single sheet** to reset a page to Simplex if it has an empty back side. Thus changing a Duplex job into a Mixplex job may reduce volume printing costs as omitted back sides aren't included in the number of printed pages.
- Check **Tumble** to duplex pages like in a calendar. (On Portrait output, this would be equivalent to short-edge duplex.)
- Check **Facing pages** to have the margins of the section switch alternately, so that pages are printed as if in a magazine or book.

The **Media rotation** setting rotates the Media 0, 90, 180, or -90 degrees.

Sheet position options

With the option **Same for all positions** checked, the same Master Page and Media will be applied to every page in the Print section.

When this option isn't checked, 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.

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 though Duplex printing is enabled. 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 (see "Page numbers " on page 131).
- **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.
 - **Edit Script:** Click this button to create a script that defines which Media is used.
- **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 back of the selected sheet's position. (Disabled if Front only is selected under Allow content on, or if Duplex is unchecked.)

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 251 and "Styling templates with CSS files" on page 253.

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) or Email (context_email_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 its 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" below.
- **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.

Click the **Apply** button to see how a setting affects the elements that are subject to that selector.

(You may have to move and resize the Stylesheet dialog before opening the Edit Rule dialog,

in order to be able to see the template that you are working on.)

At any point you can click on the **Advanced** button to see the Advanced Stylesheet Rule. See "Advanced Stylesheet Rule" on page 455.

- **Name:** The CSS Selector to which this rule applies. This can be a selector that is specific to Connect (see "Selectors in Connect" on page 363) or any selector used in regular CSS, since they 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. See also: "Fonts" on page 287. This is equivalent to the CSS

- `font-family` property.

Size: Enter the size in a measure, named size or percentage. This is equivalent to the CSS

- `font-size` property.

Color: This is the color of the text. Select a named font color as defined in the Edit Colors dialog (see "Colors" on page 283) 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 is equivalent to the CSS

- `color` property.

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 283) or click the colored square to create a new color or to manually enter a color value (a valid HTML color name or hexadecimal color code). 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.

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 whether a page break should occur before the element. Equivalent to the

- `page-break-before` property.

Inside: Specifies whether to accept page breaks within the element. Equivalent to the

- `page-break-inside` property.

After: Specifies whether a page break should occur after the element. Equivalent to the

- `page-break-after` property.

Widows: Specifies how to handle widows within a 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 a 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

See also: "Spacing" on page 291.

- **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.

Border Tab

See also: "Border" on page 280.

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 a table looks. Note that the settings are applied to the table as a whole. For example, when you change the border of the table, the borders of cells inside the table will not be changed. For more information see "Styling a table" on page 271.

All settings in this dialog are in fact CSS properties. Cascading Style Sheets (CSS) were originally designed for use with web pages: HTML files. Since Designer templates are HTML files, they are styled with CSS. To learn how to use CSS in the Designer, see "Styling and formatting" on page 251 and "Styling templates with CSS files" on page 253. For information about specific properties and their options, see [W3Schools CSS Reference](#).

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.
 - **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

For information about spacing see "Spacing" on page 291.

- **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

For information about borders see "Border" on page 280.

- **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: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. Equivalent to the CSS `border-color` property.

Background Tab

For information about backgrounds see "Background color and/or image" on page 278.

- **General group:**
 - **Color:** Specify the color of the table background:select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. 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 446. Equivalent to the CSS `background` property.
 - **Size:** Select `auto`, `cover` or `contain` (for an explanation see https://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

The Table Cell Formatting dialog defines how a particular cell in a table looks. For more information see "Styling a table" on page 271.

All settings in this dialog are in fact CSS properties. Cascading Style Sheets (CSS) were originally designed for use with web pages: HTML files. Since Designer templates are HTML files, they are styled with CSS. To learn how to use CSS in the Designer, see "Styling and formatting" on page 251 and "Styling templates with CSS files" on page 253. For information about specific properties and their options, see [W3Schools CSS Reference](#).

Cell Tab

- **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.
- **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:** You may select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmyk(15%, 0%, 33%, 0%)`. 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.
- **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

For information about spacing see "Spacing" on page 291.

- **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

For information about borders see "Border" on page 280.

- **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: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)),

a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmymk(15%, 0%, 33%, 0%)`.

Equivalent to the CSS `border-color` property.

Background Tab

For information about backgrounds see "Background color and/or image" on page 278.

- **General group:**

- **Color:** Specify the color of the table cell background: select a named color (defined in the [Colors Editor](#)) from the drop-down, or click the colored square to open the Color Picker dialog ("Color Picker" on page 404). Alternatively you could type a name or value in the Color field directly. It must be a predefined CSS color name ([CSS color names](#)), a hexadecimal color code ([HTML Hex Color](#)), an RGB color value, for example `rgb(216, 255, 170)` or a CMYK color value, for example `cmymk(15%, 0%, 33%, 0%)`.

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 446. Equivalent to the CSS `background` property.
- **Size:** select `auto`, `cover` or `contain` (for an explanation see https://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
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

Key combination	Function
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
Ctrl + Shift + 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

Key combination	Function
Ctrl + Shift + F12	Package

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
Ctrl + A	Select all
Ctrl + Shift + E	Switch to Editor
Ctrl + F	Find (opens the Find and Replace dialog: "Find/Replace Dialog" on page 408)
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
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 <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;">Tip You can also use the mouse's scroll wheel in combination with the Ctrl button to gradually zoom in or out.</div>
Ctrl + - or: Ctrl + Shift + -	Zoom out
Ctrl + 0	Zoom to page width

Key combination	Function
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 495), 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
Ctrl + F	Find
Ctrl + I	Indent (Tab)
Ctrl + J	<ul style="list-style-type: none"> • Script Editor: Add a line break. • Other editors: Incremental find; start typing a search string directly after pressing this key combination.
Ctrl + K	Find next
Ctrl + L	Go to line; a prompt opens to enter a line number.
Ctrl + Shift + D	Delete line

Key combination	Function
Tab	Expand Emmet abbreviation (see "Emmet Preferences" on page 329)
Shift + Tab	Shift selected lines left
Tab	Shift selected lines right
Ctrl + /	Comment out / uncomment a line in code
Ctrl + Shift + /	Comment out / uncomment a code block

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.

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 462.

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 94.
- **Open:** Opens a standard File Open dialog. This dialog can be used to open templates. See "Templates" on page 94 and Data mapping configurations.
- **Open Recent:** Lists the most recently opened Templates and configurations. Clicking on a template will open it in the Designer module.
- **Close:** Closes the currently active Template. If the file needs to be saved, the appropriate Save dialog will open.
- **Close All:** Closes any template. If any of the files needs to be saved, the Save Resources dialog opens.
- **Close Others:** Closes all templates except the one that is currently active in the workspace.
- **Save:** Saves the current 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:** Reverts all changes to the state in which the file was opened or created.
- **Add Data:** Adds data to the open template. See "Loading data" on page 295 .
 - **From File Data Source...:** Opens the dialog to add a new data file.
 - **From Database Data Source...:** Opens the Edit Database Configuration dialog.
 - **Generate Counters:** Opens the Generate Counter Wizard to create a custom counter as a data source.
 - **JSON sample data...:** Opens the dialog to load JSON sample data in the Data Model pane; see JSON sample data dialog.
- **Package...:** Opens the dialog that lets you package files; see "Package dialog" on page 425.

- **Print:** Opens the "Print Options" on page 596 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:** Opens the "Job Creation Presets" on page 583 dialog.
 - **Output Creation Presets:** Opens the "Output Creation Settings" on page 594 dialog.
- **Proof Print:** Opens the "Print Options" on page 596 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 dialog; see "Send (Test) Email" on page 444 and "Generating Email output" on page 807.
- **Send Test Email:** Opens the Send Test Email dialog; see "Send (Test) Email" on page 444.
- **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.
- **Paste as Plain Text:** Takes the current clipboard content and pastes it at the pointer location without any HTML styles or formatting.
- **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 449. See "Styling and formatting" on page 251 and "Styling templates with CSS files" on page 253.
- **Colors...:** Opens the [Colors Editor](#) dialog. See "Colors" on page 283.
- **Fonts...:** opens the "Font Manager" on page 410. See "Fonts" on page 287.

- **Locale...:** Opens the [Locale Settings](#) dialog. See "Locale" on page 290.
- **Color Settings...:** Opens the [Color Settings](#) dialog. See "Colors" on page 283.

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 236.
- **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 443) 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:** Opens the "Date" on page 232 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 <div>).
- **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 242.
- **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...:** Opens a dialog to add a <p> element; see "Text and special characters" on page 246.
 - **H1 through H6...:** Opens a dialog to add a <h1> to <h6> element; see "Text and special characters" on page 246.
 - **Address...:** Opens a dialog to add an <address> element.
 - **Preformatted...:** Opens a dialog to add a <pre> element.
- **Structural Elements:**

- **Div...**: Opens a dialog to add a <div> element; see "Boxes" on page 221
- **Span...**: Opens a dialog to add a element; see "Boxes" on page 221
- **Article...**: Opens a dialog to add an <article> element
- **Section...**: Opens a dialog to add a <section> element (the HTML element, not a section in a context).
- **Header...**: Opens a dialog to add a <header> element.
- **Footer...**: Opens a dialog to add a <footer> element.
- **Nav...**: Opens a dialog to add a <nav> element.
- **Aside...**: Opens a dialog to add an <aside> element.

Note

Article, Section, Header, Footer, Nav and Aside are HTML5 semantic elements; see https://www.w3schools.com/html/html5_semantic_elements.asp

- **Business Graphic**: Displays a list of available business graphic object to be inserted:
 - **Insert Pie Chart**: Opens the Pie Chart script dialog to insert a new Pie Chart.
 - **Insert Bar Chart**: Opens the Bar Chart script dialog to insert a new Bar Chart.
 - **Insert Line Chart**: Opens the Line Chart script dialog to insert a new Line Chart.
- **Barcode**: Displays a list of available barcodes. Click on one to insert it in the page. See "Barcode" on page 176.

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 263.
 - **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 263.

- **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 263.
- **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 425 to modify the paragraph where the cursor is located. See "Styling text and paragraphs" on page 263.
- **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.
- **Align Objects:**
 - **Top:** Aligns the top side of the selected objects with the top edge of the last selected object.
 - **Middle:** Aligns the middle of the selected objects with the middle of the last selected object. Objects may move up or down.
 - **Bottom:** Aligns the bottom side of the selected objects with the bottom edge of the last selected object.
 - **Left:** Aligns the left side of the selected objects with the left edge of the last selected object.
 - **Center:** Aligns the center of the selected objects with the vertical center of the last selected object. Objects may move to the left or to the right.
 - **Right:** Aligns the right side of the selected objects with the right edge of the last selected object.

- **Box...:** Opens the "Box Formatting dialog" on page 400 to modify the box where the cursor is located.
- **Image...:** Opens the "Image Formatting dialog" on page 411 to modify the image that is currently selected.
- **Table...:** Opens the "Table Formatting dialog" on page 456 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 459 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 234.
 - **Edit...:** Opens the properties for the currently selected hyperlink; see "Hyperlink and mailto link" on page 234.
 - **Remove:** Removes the currently selected hyperlink. The text or element that was the hyperlink is not removed.

Context Menu

- **Add:**
 - **Print Context:** Adds a new Print context to the template if one does not exist.
 - **HTML Email Context:** Adds a new Email context to the template if one does not exist.
- **Delete:** Deletes the currently selected context. The last remaining context cannot be deleted.
- **Go to:** Opens 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.
- **Finishing:** Opens the Print context's Finishing options dialog (see "Setting the binding style for the Print context" on page 117). This option is only available when editing a Print section in the Workspace.
- **PDF Attachments:** Opens a dialog to set the compression for PDF attachments; see "PDF Attachments dialog" on page 428. This option is only available when editing an Email section in the Workspace.

- **Preview HTML:** Opens the currently selected section in the default system browser to preview it. This feature works in all contexts.
- **Profile Scripts:** Opens the "Profile Scripts dialog" on page 435 to test script performance (see "Testing scripts" on page 349).
- **Preflight:** Opens the Preflight dialog. Preflight checks the template for common errors (see "Testing scripts" on page 349).

Section Menu

- **Add:** Adds a new section to the currently selected context.
- **Delete:** Deletes the currently selected section.
- **Arrange:** Opens the "Arrange Sections" on page 444 dialog.
- **Go to:** Lists the sections in the currently selected context. Open one by clicking it.
- **Properties...:** Opens the appropriate section properties: Email or Print. See "Section properties dialogs" on page 442.
- **Includes...:** Opens the "Includes dialog" on page 414.
- **Finishing... (Print Sections only):** Opens the Finishing tab in the "Print section properties" on page 443.
- **Sheet Configuration... (Print Sections Only):** Opens the "Sheet Configuration dialog" on page 447.
- **Master Pages:** Lists the available Master Pages in the template (see "Master Pages" on page 136). Open one by clicking it.
- **Master Page Properties...:** Opens the currently selected Master Page's properties dialog; see "Master Pages" on page 136.

View Menu

- **50/75/100/150/200%:** Zooms the [Workspace](#) at the selected level.
- **Source View:** Shows the HTML source for the template, including CSS and HTML code.
- **Design View:** Shows the template including all styles, text and images as well as the placeholders used for variable data.
- **Preview View:** Shows the template as it will output with the current record, with the personalized content (see "Personalizing Content" on page 292).

- **Refresh:** Reloads the view, including static external images and remote stylesheets, and re-runs the scripts (the latter in Preview Mode only).
- **Show Edges:** Shows or hides a colored border around elements on the page.
- **Rulers:** Shows or hides the rulers in the [Workspace](#). Rulers only appear for Print contexts.
- **Guides:**
 - **Show Guides:** Shows or hides the margin lines and guides in a Print section (see "Print" on page 106, "Page settings: size, margins and bleed" on page 129 and "Guides" on page 269). The colors of margin lines and guides are adjustable; see "Editing preferences" on page 325.
 - **Lock Guides:** Locks the guides, so that they cannot accidentally be moved while working on the Print context.
 - **Snap to Guides:** Enables or disables snapping to guides and to margins when moving objects.
- **Virtual Stationery:** Enables or disables the visibility of the PDF Background image set in the Media.
- **Highlight Master Page Items:** Enables or disables a yellow border around Master Page items in a section.
- **Object Resizing:** Enables or disables the ability to resize <div> elements on the page. See "Editing preferences" on page 325 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 "Preflight Results and Messages" on page 482.
 - **Problems:** Shows the Problems pane, see "Preflight Results and Messages" on page 482.
 - **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.
- **Clear Recent Files Lists:** Clears the lists of the most recently opened templates and data mapping configurations under File > Open Recent and in the Welcome screen.
- **Preferences:** Click to open the [Preferences](#) dialog.

Help Menu

- **Software Activation:** Displays the Software Activation dialog. See "Activating a License" on page 49.
- **Help Topics:** Opens the help system in the default web browser.
- **Contact Support:** Opens the [Objectif Lune Contact Page](#) in the default system web browser.
- **About PrintShop Mail Connect Designer:** Displays the software's About dialog.
- **Welcome Screen:** Re-opens 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 Attributes 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 scripts that can affect **multiple** elements.

Note

Do not give an element the ID 'pages' or the class name 'dynamic'. These are reserved words. Using them as an ID or class name leads to undesirable effects.

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 446.
- **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 Detail 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 Detail 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 https://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.

- **Top:** 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.
- **Left:** 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.
- The **Reset Image Size** button resets the selected image to its original size.

Note

When no unit is added to a geometry value, the default unit will be added to the value; see "Print Preferences" on page 336.

Page

These attributes appear when selecting the *Page* node in the [Outline Pane](#).

- **Master Page:** Which of the "Master Pages" on page 136 to use for the template.

Data Model pane

The Data Model Pane displays a Data Model used to help design the template, along with data. When you load data (see "Loading data" on page 295), the resulting record set is loaded in the Data Model pane. The information shown is the information for the current record within the record set.

Data Model toolbar buttons

- **JSON Sample Data:** Opens a dialog to load JSON sample data in the Data Model pane; see "Adding data from a JSON file" on page 301.
- **Minimize/Maximize:** Click to minimize or maximize the pane. See [Moving and Merging Panes](#).

Browsing data

When a Data Model is loaded in the Data Model Pane, it can be used to design templates by dragging fields directly into the template; see "Variable Data" on page 303. If data is present (from a data file), it is possible to preview the resulting data in the template on 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.

The way the Data Model is displayed can be changed via the following options in the contextual menu. (Right-click the Data Model to open the contextual menu.)

- **Collapse All Fields:** Collapse all fields .
- **Expand All Fields:** Expand all fields.

Preflight Results and Messages

Messages pane

The **Messages** pane 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 390).

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.
- **Date**: The date and time when the error occurred.

Preflight Results pane

The Preflight Results pane displays any notifications or errors related to the template, its scripts, its code or output generation. Double-click a script warning/error to open the script in the script editor. The relevant line will be highlighted.

See also: "Testing scripts" on page 349.

Moving and merging panes

The PrintShop Mail Connect interface for the Designer module is highly configurable. Each panel in the application can be moved, with the exception of the "Workspace" on page 493 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.
 - A 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 option:
 - **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 Resources pane displays the resources that affect the template and its output.

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 791 and "Print Options" on page 596) including page size and paper type. See "Media" on page 139 for more information.

Contextual menu

- **New Media:** Click to create a new Media and open its properties ("Media Properties" on page 423).
- **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.
- **Copy:** Click to copy the selected Media to the clipboard.
- **Paste:** Paste the copy into the Media folder.

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 136 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 136 for more information.
- **Copy:** Click to copy the selected Master Page to the clipboard.
- **Paste:** Paste the copy into the Master Pages folder.

Contexts

Contexts hold the actual content of the template that is used to generate output. See "Contexts" on page 101 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 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 101 for more information.
- **Paste:** Paste the copied section into the Context folder.

Sections

Sections hold part of the contents within a specific context. See "Sections" on page 102 for more information.

Contextual menu

- **Set as Default** (Email 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 or Print. See "Section properties dialogs" on page 442.
- **Includes...:** Click to open the "Includes dialog" on page 414.
- **Finishing...** (Print Sections only): Click to open the Finishing tab in the "Print section properties" on page 443
- **Sheet Configuration...** (Print Sections Only): Click to open the Sheet Configuration dialog; see "Master Pages" on page 136 and "Media" on page 139.
- **Copy:** Click to copy the selected section (including its settings) to the clipboard.
- **Paste:** Paste the copied section into the same Context.

Images

Images are graphical elements that can be added to the page for display, either statically or dynamically. See "Images" on page 236 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 dialog. 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. Fonts appear in the fonts drop-down menu but they can also be set through a CSS Stylesheet.

Currently supported font types: otf, woff, ttf, svg. Fonts must be set to *installable* to be useable in the output.

See "Fonts" on page 287.

JavaScripts

See Using JavaScript for more information.

JavaScript files that are linked to (i.e. included in) a section show a chain icon.

Contextual menu

- **New Javascript:** Click to create a new JavaScript resource.
- **New Remote Javascript:** Click to add a Remote JavaScript resource. See Using JavaScript 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.
- **Download Resource** (remote JavaScript files only): Select to download the Remote JavaScript file (see Adding a remote JavaScript file) and add the downloaded copy to the Scripts folder. The copy will have the same name as the remote script file, but its extension will be .js instead of .rjs. Any section that used the JavaScript file will from then on use the downloaded file (see Including a JavaScript file in a Web context).
- **Delete:** Click to delete the resource. This is the same as pressing the Delete key while the resource is selected.

Stylesheets

Style sheets control how contents appears on the page. They define spacing, color, size and other properties of elements on the page. See "Styling templates with CSS files" on page 253 for more information.

In case the CSS file has references to specific images, you can drag/drop or copy/paste those images into the Stylesheets folder as well.

Style sheets that are linked to (i.e. included in) a section show a chain icon. See "Applying a style sheet to a section" on page 260.

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 253 for more information.
- **New SCSS file:** Click to add a new, empty Sass file to the Resources (extension: .scss). **Sass** is a CSS Preprocessor integrated in Connect. For more information about Sass, see: [Sass website](#).

Note

When the name of Sass file begins with an underscore, it is considered a partial .scss file (e.g. `_mySass.scss`). Partial files are typically imported in a base .scss file. They may include Sass

variables or other directives declared in the base file, and they cannot be compiled.

- **New Remote SCSS file:** Click to add a Remote Sass file to the Resources.
- **Compile** (.scss files only): Select to compile the Sass (.scss) file into a Stylesheet which can then be applied to a section.
The compiled style sheet will have the same name as the Sass file, but with the extension .css.
Compiled CSS files can be recognized by their first line: `/* Compiled by https://sass-lang.com/libsass */`.
Compiler options can be set in the Preferences; see "Editing preferences" on page 325.

Note

Re-compiling a .scss file overwrites any manual changes made to the .css file.

Note

Partial .scss files cannot be compiled.

- **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.
- **Download Resource** (remote style sheets only): Select to download the Remote Stylesheet (see "Using a remote style sheet" on page 255) and add the downloaded copy to the Stylesheets folder. The copy will have the same name as the remote style sheet, but its extension will be .css instead of .rscss. Any section that used the remote style sheet will from then on use the downloaded style sheet (see "Applying a style sheet to a section" on page 260).
- **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 248 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.

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 292.

The scripts are stored in three groups: Control, Standard and Post Pagination, depending on when they run (see "The script flow: when scripts run" on page 363).

Note

The scripts in each of the main folders - Control, Standard and Post Pagination - are 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 loaded contents.

The Script pane allows to add and edit scripts and to manage scripts, or instance by organizing them in subfolders and enabling/disabling them (see "Managing scripts" on page 346).

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 484 (see Using JavaScript).

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 PrintShop Mail Connect JavaScript API (see "Standard Script API" on page 691), such as the `record` object.

JavaScript resources, on the other hand, are only executed **after** the content creation is done, generally in a browser.

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:
 - **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 369 and "Control Script API" on page 749.
 - **Standard Script:** Adds a new empty standard script. Double-clicking the new script opens the script editor, where you can write code (see "Writing your own scripts" on page 340).

Tip

Select **Text Script** instead of Standard Script to create a Standard script that is opened with the Script Wizard.

- **Post Pagination Script** (Print context only): Adds a Post Pagination script, which runs on the Print context after the output has been paginated (see "Post Pagination Scripts" on page 383).

- **Folder:** Adds a folder in which scripts can be placed for easier management. See "Script folders" on page 346.
- **Text Script:** When you add variable data to a template, a script of this type is created by default. See "Variable Data" on page 303.
- **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 314.
- **Email scripts** (Email sections only): Email scripts define the sender, recipients, subject, dynamic attachments etc. of the email that is sent, and the PDF password. See "Email header settings" on page 160.
- **Conditional Content Script:** This script can conditionally show or hide any element in the template. See "Showing content conditionally" on page 311 and "Conditional script dialog" on page 441.
- **Conditional Print Section Script** (Print context only): This script conditionally shows or hides any Print section in a template. See "Conditional Print sections" on page 313.
- **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. See "Selectors in Connect" on page 363. Control Scripts do not have a selector (see "Control Scripts" on page 369).

Tip

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 303.

Contextual menu options

- **New:** Click to create a new script or folder. See "Buttons" on the previous page for a description of all options. Which script types are available depends on the current section

and script folder.

- **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 348
- **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 347.

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 251).

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 261 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 "Applying a style sheet to a section" on page 104.

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 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 462.

Design tab

The Design tab shows 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.

Normally you would only edit a template in Design mode.

The top of the Design tab contains an area with the following options and buttons:

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.
- **Buttons**
 - **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.
 - **Refresh:** Reloads the view, including static external images and remote stylesheets, and re-runs the scripts (the latter in Preview Mode only).

- **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.

Tip

You can also use the mouse's scroll wheel in combination with the Ctrl button to gradually zoom in or out.

When a template is open, the workspace also shows a ruler and guides (see "Guides" on page 269).

Preview tab

The Preview tab shows the section as it will output with the current record (see "Loading data" on page 295), showing the personalized content (see "Personalizing Content" on page 292). Content added by a script isn't visible in the Design tab, but is visible and can be inspected in the Preview mode.

Although it is sometimes possible to edit the template in Preview mode to a certain extent, it is recommended to do all editing in Design mode.

Source tab

The source tab displays the HTML source of the section, 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. When editing a template in Source mode you should write HTML. For shortcuts that can be used in this editor, see "Text editors: Source tab, JavaScript, CSS, Script Editor" on page 467 and "Emmet" on page 149.

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-->
```

Toolbars

This topic lists the buttons that are available in the top toolbar of the Designer module. For a description of the buttons at the top of the Workspace, see "Workspace" on page 493.

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 596 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; see "Send (Test) Email" on page 444.
-  **Send Test Email:** Opens the Send Test Email dialog; see "Send (Test) Email" on page 444.
-  **Preview HTML:** Opens the current template's Preview in the system default browser. Useful for testing scripts and HTML output.

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 267.
-  **Insert Vertical Guide:** Click to insert a new horizontal guide; see "How to position elements" on page 267.

Form Wizard

-  **Form Wizard:** Click to open the Form Wizard to add a form to a Web Context. See Forms and Form Elements.
-  **Validation Settings:** Click to open the Validation settings dialog to change the validation settings on the currently selecting tools. See Forms.

Table manipulation

-  **Insert Standard Table...:** Inserts a table with a specific number of columns and rows through the "Table" on page 242 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 236.
-  **Insert Barcode:** Displays a list of available barcodes. Click on one to insert it on the page. See "Barcode" on page 176.
-  **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 234.
-  **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.

Align Objects

-  **Top:** Aligns the top side of the selected objects with the top edge of the last selected object.
-  **Middle:** Aligns the middle of the selected objects with the middle of the last selected object. Objects may move up or down.
-  **Bottom:** Aligns the bottom side of the selected objects with the bottom edge of the last selected object.

-  **Left:** Aligns the left side of the selected objects with the left edge of the last selected object.
-  **Center:** Aligns the center of the selected objects with the vertical center of the last selected object. Objects may move to the left or to the right.
-  **Right:** Aligns the right side of the selected objects with the right edge of the last selected object.

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 editing

-  **B Bold:** Makes the currently selected text **bold**.
-  **I Italic:** Makes the currently selected text *italic*.

-  **Underline:** Makes the currently selected text underline.
-  **Strikethrough:** Makes the currently selected text ~~strikethrough~~.
-  **Create Numbered List:** Makes the selected text element a numbered list (). If multiple paragraphs are selected, each becomes a list item (<li class="Bullet">).
-  **Create Bulleted List:** Makes the selected text element a bullet list (). 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.
-  **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.
-  **Superscript:** Makes the currently selected text a ^{superscript}.
-  **Subscript:** Makes the currently selected text a _{subscript}.
-  **Remove Formatting:** Remove any and all styles, text decorations and other formatting from the selected text. Indentation is not affected.

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.
-  **Welcome Screen:** Click to re-open the Welcome Screen.

Welcome Screen

The **Welcome Screen** appears when first starting up PrintShop Mail Connect. It offers some useful shortcuts to resources and to recent documents and data mapping configurations.

If you are new to PrintShop Mail Connect and you don't know where to start, see "Welcome to PrintShop Mail Connect 2018.2" on page 14.

The Welcome Screen can be reopened in two ways:

- The **Welcome Screen** button in the "Toolbars" on page 496.
- From the Menus in **Help, Welcome Screen**.

To go back from the Welcome Screen to the template or data mapping configuration that you were working on:

- Close the Welcome Screen by clicking the cross next to the text 'Welcome' at the top.

Contents

- **Activation:** Click to open the **Objectif Lune Web Activation Manager**.
- **Release Notes:** Opens the current **Release Notes** for PrintShop Mail Connect.
- **Website:** Opens the PrintShop Mail Connect website.
- **Take A Tour:** Click to open the YouTube Playlist giving you a tour of the software.
- **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 94.
 - **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** (used for both Production and Proof printing) and the [Output Preset Creation](#) Wizard.

This first page is the most important of the Advanced Print Wizard/Output Creation Preset Wizard.

All 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.

Models for all these print output streams are included with Connect. By default, Connect initially displays just the PDF output option, to keep the interface clean. But other print output types can be added to the Printer Model drop down list at any time via the Settings button 

You can also add any customized Printer Model that Objectif Lune Inc. has prepared for you, specific to your printer.

Or you can create your own customized PostScript Printer Model through the printer manufacturer provided PostScript Printer Definition (PPD) file. This will launch the "Dynamic PPD Options" on page 682 page later in the Printer Wizard.

For more information on how to add Printer Models to Connect, see "Adding print output models to the Print Wizard" on page 796.

- **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 could write the Job Output Mask directly into this edit box (for a list of available variables see "Print output variables" on page 798), or you could create a Mask via the Options  button. This opens the custom dialog: Job Output Mask Dialog.
The Job Output Mask may contain (dynamic) folder names, for example: `${document.metadata['Country']}\${template}`. The evaluated value of the Job Output Mask is taken as a path **relative** to the folder specified by the Job Output Folder (the next option in this dialog). The Job Output Folder must exist, but folders specified in the Job Output Mask will get created if they don't exist.
- **Job Output Folder:** The path on the disk where the file is produced. Please note that the folder must exist, or output will fail when produced through the server.
- **LPR Queue:** Select to send the print job to an LPR queue. It is assumed that the print technology is supported by the system receiving the LPR job.
 - **Local Printer:** The IP or host name of the printer or machine where the LPD is installed and will receive
 - **Queue Name:** The queue name that will accept the job on the LPD. Default is generally "auto".
 - **Job Owner Name:** Optional entry for adding the name of the job owner.
 - **Job Name:** The name of the output file. You can use `${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 (note that this is an actual printer queue, not a Workflow 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 600 page. This option is unselected by default unless selected in the Designer "Print section properties" on page 443.
 - **Imposition** checkbox: Check to enable Cut & Stack Imposition, which is set in the "Imposition Options" on page 601 page.
 - **Add Inserter marks** checkbox: Check to enable inserter mark functionality, which is set in the "Inserter Options" on page 610 page.
 - **Override Finishing options** checkbox (not available in **Output Preset Creation**): Check to configure custom "Finishing Options" on page 592, such as binding.
 - **Print virtual stationery** checkbox: Check to enable virtual stationery in the output.
 - **Use grouping** checkbox (not available in **Output Preset Creation**): Check to configure grouping of output into jobs, job segments or document sets. See "Grouping Options" on page 585.
 - **Include meta data** checkbox (not available in **Output Preset Creation**): 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 591.

- **Separation** checkbox: Check to activate the "Separation options" on page 613 page of the wizard.
- **Add additional content** checkbox: Check to activate the "Page breakdown" on page 614 page of the wizard.
- **Records** group (not available in *Output Preset Creation*):
 - **Record Range**: Allows selection of a range of records or a custom selection. You can specify 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 (not available in *Output Preset Creation*):
 - **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 grey, rather than black or white.

 - **Black Threshold Percentage**: The percentage of shading at which the element will appear as full black, rather than dark grey.
 - **White Threshold Percentage**: The percentage at which the element will appear as full white, rather than light grey.

Advanced Print Wizard navigation options

- **Load** button (not available in *Output Preset Creation*): 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 502 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 *all* the options selected in the "Print Options" on page 502 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Printer Settings

The **Printer Settings** page provides options for cut-sheet printers. It maps media types to printer trays.

It is available for AFP, IPDS, PCL and PostScript printers that are configured for cut-sheet printing.

- **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.
- **Media/Tray Table** 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.
- **Media/Tray Table** buttons:
 -  **Add**: Adds a new Media/Tray entry in the table.
 -  **Delete**: Deletes the current Media/Tray selections from the table.
 -  /  **Move Up / Move Down**: Move the selected Media/Tray entries up or down within the table.
 -  **Import Tray Settings**: Import the Media/Tray settings from a Connect Template.

The options are to:

 - **Import from current template**, which will import any Media/Tray settings from the current Connect Template into the table.

- **Import from template file**, which allows you to browse for a Connect Template to import the Media/Trays settings from.
There is no restriction on how many Templates you may import settings from.

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:**
 - **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 the **Imposition Options** page allow for the setting of imposition repetition, order, margins and markings.

As imposition selections are very specific and can be quite confusing, we have provided a handy dynamic diagram that displays a representation of the current imposition selections in real time. Whenever selections are changed, this display changes to reflect the selections made.

You can even select how many pages are to be represented, whilst page numbers appear on the pages in the diagram and change dynamically, like everything else.

Note

It is important to note that if Impositioning is used then the only metadata that will be available to the job thereafter will be the metadata at Job Segment level.

When using Impositioning everything within the Segment is Impositioned, so all metadata below the Job Segment level is lost.

Note

If *Booklet Binding* were selected, some of the imposition settings will be determined by

the options made within the "Booklet Options" on page 600 Page and those imposition settings will thus be disabled on this page.

The Imposition selections that can be made are as follows:

- **Sample Page** group: Use to choose a paper size for the logical page(s) which would be printed upon the actual physical Imposition sheet. This helps in decision making regarding what paper sizes and orientations to use, with the Sample Page shown in blue on the white Imposition Sheet in the output preview (and validation) diagram.

Note

The logical page size can be set independently of any template open in the Designer, allowing for output presets to be created independently from the active template.

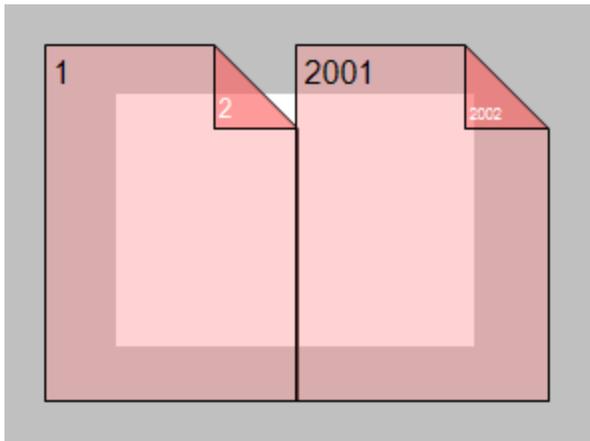
If a template is currently loaded in Connect Designer, the size and portrait attribute of the first section of that template are used as defaults for the Sample Page.

As a general rule, it makes little sense to modify the Sample Page size within the **Print Wizard** (as the template media size will already have been selected), but it does make sense when creating Print Output Presets for other templates.

If no template is loaded or if the template does not have a Print section, then the Sample Page defaults to A4 portrait.

- **Size:** Use the drop-down to select the media size of the logical template page.
- **Orientation:** Select orientation (aspect ratio) of the logical template page (*Landscape* or *Portrait*).
- The **Width** and **Height** values are read-only and appear for display and design purposes only.
- **Imposition Sheet** group: Use to select the physical media size that the logical pages will be printed upon. This appears as the white background in the output preview (and validation) diagram.

- **Size:** Use the drop-down to select the size of the physical media the output is to be printed upon.
- **Orientation:** Select orientation (aspect ratio) of physical media sheet (*Landscape* or *Portrait*).
- The **Width** and **Height** values are real-only and appear for display and design purposes only.
- Output diagram and validation. Use the settings here to control how the output diagram is to look and behave. It contains the following options:
 - **Display size** entry: Chose between a pre-set viewing percentage, or manually enter whatever percentage you would like, or select *Fit Page* or *Fit Width* to have the diagram display the page(s) within the diagram window dimensions.
 - Use the zoom in/out buttons  /  to increase or reduce the viewing percentage by 25% increments.
 - **Sample size** entry: Set the sample output size here. The number selected here will be reflected within the output diagram, if applicable.
 - Output diagram: A real-time display that reflects the selections made in the Imposition Options page. The blue page(s) are the individual logical page(s), upon a white background that represents the physical Imposition Sheet. If the settings are invalid, the display will appear as red, such as in the following diagram:



In this case the logical pages are too large to fit on the selected Imposition Sheet.

- **Position** group: These settings apply to the positioning of the logical page(s) within the Imposition Sheet.

- **Method** selection: Set the position of the logical page(s) upon the Imposition Sheet. The choices are as follows:
 - *Center*: Have the logical page(s) centered within the Imposition Sheet.
 - *Scale to fit*: Scales the logical page(s) so that they fit the Imposition Sheet exactly.
 - *Offset*: Have the logical page(s) offset within the Imposition Sheet. The offset values can be set in the Left and Top entry boxes, which only become available for this positional method.
- **Left and Top** values: These entry boxes are only enabled and their values applied when the Offset method has been chosen. They are used to set the offset of the logical page(s) upon the Imposition sheet.
- **Rotate** selection: Select to rotate the logical page(s) within the Imposition Sheet.
- **Layout** group: Select how the logical page(s) are to be laid out on the Imposition Sheet.
 - **Horizontal** selection: Set how many logical pages are to be placed on one horizontal line within the Imposition Sheet.

Note

If the logic page was set to **Rotate** in the Position selections, then the Horizontal selection might appear as vertical, and the Vertical selection might appear as horizontal, on the real time output diagram.

- **Vertical** selection: Set how many logical pages are to be placed on one vertical line within the Imposition Sheet.
- **Horizontal Gap** selection: Set the amount of blank space to add between each logical page on this axis.
- **Vertical Gap** selection: Set the amount of blank space to add between each logical page on this axis.
- **Stack Depth** selection: Stack Depth defines the number of Imposition Sheets that will be printed before drill sorting resets.

Stack Depth works in conjunction with the Horizontal and Vertical page, Gap and Page Order selections in order to determine the printing order. This is best

illustrated by way of example.

The following "Cut and stack" example has a job with 100 single page documents and repetition settings of 5 Horizontal and 2 Vertical, plus a Stack Depth of 5. Each table represents a single Imposition Sheet, and the red line between the tables represents the Stack Depth:

1	6	11	16	21
26	31	36	41	46
2	7	12	17	22
27	32	37	42	47
3	8	13	18	23
28	33	38	43	48
4	9	14	19	24
29	34	39	44	49
5	10	15	20	25
30	35	40	45	50
<hr/>				
51	56	61	66	71
76	81	86	91	96
52	57	62	67	72
77	82	87	92	97

Each set of 5 Imposition Sheets is a discrete drill sorted nUp block that can be guillotined and stacked. The first 5 sheets encompass records 1-50, whilst the next 5 sheets encompass records 51-100.

The following example is the same job but with a Horizontal repetition setting of 6:

1	6	11	16	21	26
31	36	41	46	51	56
2	7	12	17	22	27
32	37	42	47	52	57
3	8	13	18	23	28
33	38	43	48	53	58
4	9	14	19	24	29
34	39	44	49	54	59
5	10	15	20	25	30
35	40	45	50	55	60
61	66	71	76	81	86
91	96				
62	67	72	77	82	87
92	97				

As you can see, the outputs are *very* different.

Note

If the Stack Depth is greater than the number of sheets in the entire job then you will get a single drill sorted block that can be guillotined and stacked to give the complete job in record order.

- **Sides** selection: Select how many sides of the Imposition Sheet are to be printed upon. Choice is between *Simplex* or *Duplex*.
- **Method** selection: In 2018.2 we introduced a new imposition page order for cut & stack impositioning that works with continuous feed devices: *Stack by Column*. This option is intended for impositions with more than 1 row. It places the next page in the next row of the same column on the current sheet, instead of in the same row and column of the next sheet like the pre-existing *Cut and Stack* does. The choices are between:
 - *Cut and Stack*: Any preset created in a version of Connect prior to Connect 2018.2 will default to this Layout Method. It allows total control of subsequent **Page Order** choices.
 - *Stack by Column*: For use with continuous feed printers. This selection limits subsequent **Page Order** choices to column based options only.
- **Page Order**: Select in which direction to go when adding sections to the output:
 -  **Left to right, top to bottom**
 -  **Right to left, top to bottom**
 -  **Top to bottom, left to right**
 -  **Top to bottom, right to left**
- **Reverse** selection: The reverse selections have been extended in Connect 2018.2, with the addition of the *Inverse page order* option. The options now available are:
 - *Off*. Output is not reversed.
 - *Stack upside down*: Essentially turns the stack upside down by reversing the output imposition page sides. The last sheet becomes the first, and in the case of duplex imposition, the back sides become the front sides.

For presets created in a version prior to Connect 2018.2, a "Reverse Pages" selection will apply this *Stack upside down* setting.

- *Inverse page order*: This impositions the output in the **exact opposite order** from what has been selected.

For example, if the selected order was **Top to bottom, left to right** (down the stack, left to right, top to bottom), then selecting **Inverse page order** would result in output that was up the stack, right to left, bottom to top.

In the case of duplex impositioning, the front and back sides don't switch.

- **CropMarks** group: Select to add Crop Marks to the printed output.
 - **Type**: Use the drop-down to select whether to add Crop Marks to the page or not, and what type of Crop Marks to use. The Crop Mark types available are *Standard* or *Japanese*.
 - **Page side**: What side(s) of the page to put the Crop Marks. The choices are *Front*, *Back* or *Both*.
 - **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Inserters Options

The **Inserters 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 611.**

- **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 611 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. This can be done by highlighting the Mark Name entry and either pressing the  **Edit** button, or using the right mouse click context menu, and selecting  **Edit**.
For information on how to edit the Selective Inserts settings, see "Selective Insert Dialog" on page 612
- **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Mark Position Options

The **Mark Position Options** 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 610 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.

Selective Insert Dialog

The Selective Insert Dialog provides control over individual inserts. In this dialog the selected can be set to be either selected ("Yes") or not ("No"), or selected based upon some conditional criteria ("Conditional").

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".

Both Metadata and Informational fields can be used in the Conditionals settings.

For more details on how to create a conditional, see the "How to Set Conditionals" on page 673 page.

Finishing Options

Use the **Finishing Options** page to force the use of specific printer finishing options, rather than using any finishing options that might have been set in the Template's Media and Section options.

These settings are only applied when producing print output. They do not modify the original finishing options in either the Section or the Template.

Finishing settings can be set on various levels of Job Creation, such as Document Sets and Job Segments. This allows you, for example, to staple Document Sets whilst punching holes in Job Segments.

You can also have multiple finishing settings at the same level.

- **Finishing Options Table:** This table, on the left of the Wizard page, allows you to add or remove sections to apply the Finishing options to. It contains the **Section** for which the settings are to be applied (*Section, Document, Document Set* or *Job Segment*), plus the **Finishing** options that are to be applied, and any **Rule** determining the conditions under which the Finishing settings are to be applied. To set the details, use the following options:
 -  **Import Finishing:** Imports the existing settings from a Connect Template. The Template could be the current template (***Import from currently template***), or some other Template (***Import from template ...***).
 -  **Add:** Adds a new section to apply Finishing options to. The default is to add a new *Section*, but these can be changed to *Document, Document Set* or *Job Segment* types, thereafter. You can have multiple selections of each type, all with different criteria determining when the Finishing options are to be applied.
 -  **Delete:** Removes the selected Section(s) from the table.
 -  **Move Up / Move Down:** Moves the selected Section(s) up or down within the table.
 -  **Edit ... :** Brings up the Rule Editor Dialog, which can be used to construct the rule (s) that determines whether this conditional Finishing option is to be applied or not.
- **Binding group:**
 - **Style:** What type of Binding to request on the printer. This includes *Stapled, Glued, Stitched, Ring, Comb, Coil*, amongst other options..

- **Side:** Sets the side of the paper that the Binding is to occur. This includes both the top and the bottom of the paper,
- **Location:** Sets where the binding is to occur, if applicable.
The selections available here will be 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 available to you in reality 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.
 - **Pattern Catalog ID:** The Catalog ID of the selected Binding option.

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Grouping Options

The **Grouping options** page separates the job output into multiple blocks that can then be physically separated using split sheets in the printer.

A typical usage of this feature is to create groups of mail pieces by size, so they can easily be inserted (into envelopes). For instance, one might want to group together all the "single page" mail pieces that fit within a C5 envelope and then put all larger mail pieces into an "oversized" category, that will go into larger envelopes.

- **Grouping Tabs:** Jobs can be grouped at three different levels. The three groups each have their own tab, and are as follows:
 - **Job Grouping Fields**
 - **Job Segment Grouping Fields**
 - **Document Set Grouping Fields**

The Fields available to be used for any Grouping are contained within the **Available Fields** box.

Any Fields that you want to use for Grouping need to be added to the **Selected Fields** box via the arrows found between the two boxes.

Simply select the Field(s) you want to move and then click the appropriate 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.

Once a field is added to the **Available Fields** box, its *Sorting Option* can be selected by clicking in the "**Sorting Option**" column, and selecting the appropriate option. The options for sorting are either Ascending or Descending order.

- **Size Grouping** section: Check the checkbox to enable *size grouping*, which separates Documents into different groups, based upon their relative sizes.

For example, selecting *Document Set Grouping* for the **Grouping Level**, *Documents* for

the **Item to group**, **Group** by *Page Count* and then creating a page range from 1-5 and another page range 6 to Largest, will create two Document Set groups. The first will contain all Documents of 1 to 5 pages in length, and the second will contain any document of 6 or more pages.

The options within Size Grouping are:

- **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.
- **Item to Group:** Use the drop-down to select which item to group. The item choices are **Job Segments**, **Document Sets** or **Documents**.

Note

A selection made here can over-ride a previously selected **Grouping Level** option.

For example, if the **Grouping Level** was previously set to *Document Set*, then selecting *Job Segments* as the **Item to Group** will not make sense for that Grouping Level. Thus the **Grouping Level** would automatically be changed to the more appropriate *Job* selection.

- **Group by:** Use the drop-down to select what criteria the Items will be grouped by. The choices are **Page Count** or **Sheet Count**.
- **Size groups in reverse order** checkbox: 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.
- **Size grouping after normal grouping** checkbox: Check this option to firstly group using the selections made above and then secondly group upon page break grouping. This creates two different levels of grouping, applied in order.
- **Meta data property** edit box: Select a name for the *meta data* field that is created. This meta data field can then be used in other Print Wizard/Preset pages, such as in the Job Output Mask Dialog.

- **Size Ranges:** 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".

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Metadata options

The **Metadata Options** page defines metadata tags that will be added to the output file when producing PDF and AFP output in the "Output Creation Settings" on page 594.

Metadata tags are ignored in all other output types, except when they are associated with "Page breakdown" on page 614 in the Print Wizard.

Note

Metadata properties have a length limitation of 255 characters.

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**.

Note

It is important to note that if Impositioning is used then the only metadata that will be available to the job thereafter will be the metadata at Job Segment level.

When using Impositioning everything within the Segment is Impositioned, so all metadata below the Job Segment level is lost.

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 metadata 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 meta data:** Click to add a new tag to the current level. Select either **Add field meta data** or **Add text meta data** from the Field Selection context menu. When adding field metadata select the field name(s) from the Field List and click OK. This will add them as tags of the same name as their associated field.
-  **Delete Field:** Click to delete the currently selected tag.
-  **Move Up / Move Down:** Click to move the currently selected tag(s) one position up or down.

Separation options

The **Separation Options** 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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Additional Content

The **Additional Content** page allows you to add content at the time of printing. There are four different types of Additional Content that can be added at print time: **Text**; **Images**; **Barcodes** and **OMR Marks**.

They can be used to add either static content or variable content.

The Additional Content option is particularly useful when you might need to drive custom processes on production machines using either Barcodes or OMR Marks, or if you need to add some last minute additions to the print job via text and/or images.

Page breakdown

The Additional Content table displays any Additional Content that has been set. Additional Content can be added, edited, removed, duplicated or moved within the table via the buttons to the right of the table.

The **Additional Content options** are:

-  **Add**: Click to open some Additional Content.
The choices are as follows:
 - "Additional Text Settings" on page 616 entry.
 - Additional "Additional Barcode Options" on page 619 entry, from the selection presented.
 - Additional "Additional Image Settings" on page 618 entry.
 - Additional "Additional OMR Mark Settings" on page 669 entry.
-  **Edit**: Click to edit the currently selected entry. This will launch the appropriate edit box, for the selected entry type.
Double clicking on an entry in the table has the same effect as this button.
-  **Delete**: Click to delete the currently selected entry or entries.
-  **Duplicate**: Click to create a duplicated copy of the entry. This creates a new entry that is exactly the same as the original.

- **↑ / ↓ Move Up / Move Down:** Click to move the selected entry (or entries) up or down within the table.

Additional Content Table: The table is split up into the following columns

- **👁 Include in Output:** Indicates whether the entry is to be included in the output or not. The settings made in the Additional Content dialog box can be over-ridden here. This allows you to create a virtual "library" of Additional Content options in an Output Preset, from which you can then pick and choose from at time of printing.
- **Type:** Displays an icon showing what type the Additional Content entry is.
- **Description:** Displays the Description" that was entered in the Additional Content dialog.

Note

The entered text Description might stretch over a couple of lines, so it is possible that not all of the Description will be displayed here.

- **Left:** Displays the Additional Content Left Positional value.
- **Bottom:** Displays the Additional Content Bottom Positional value.
- **Content:** Displays the actual Additional Content that is to be inserted. In the case of Text, this would be the actual text (or data fields) that are to be inserted. In the case of Image, this would be the name of the image file. In the case of Barcode, this would be the data fields used for creating the barcode. In the case of OMR, this would be the number of marks set for this entry.
- **Condition:** Displays the Conditional entry that is used to determine whether this Additional Content instance is to be added to the output or not.

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 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 "Page breakdown" on page 614 page.

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **Style:** Choose between "Regular", "Italic", "Bold" or "Bold Italic".
- **Font Size:** Enter the font size in points (pt).
- **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 using 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. Use the  button for selection options.
For details on how to create a conditional, see the "How to Set Conditionals" on page 673 page.

Additional Image Settings

The **Additional Image** dialog displays the properties of the image added in the "Page breakdown" on page 614 page.

- **General group:**
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries.

This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.

- **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **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).
 - **Output 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 launch a Browse box to select an image file. This is a mandatory field.

Note

Transparent images are not supported.

- **Preview** group: This displays a preview of the selected Image.

- **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. Use the  button for selection options.

For details on how to create a conditional, see "How to Set Conditionals" on page 673 page.

Additional Barcode Options

When adding Barcodes in the "Page breakdown" on page 614 page you can select from a series of predetermined Barcode types.

To create dynamic barcodes, "Metadata options" on page 591 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 are described on the following pages:

- "Australia Post 4 State Settings" on page 621
- "Codabar Settings" on page 623
- "Code 128 Settings" on page 626
- "Code 39 Settings" on page 629
- "Datamatrix Settings" on page 632
- "EAN-128 Settings" on page 634
- "EAN-13 Settings" on page 637
- "EAN-8 Settings" on page 640
- "Interleaved 2 of 5 Settings" on page 643

- "KIX Code (Dutch Post) Settings" on page 645
- "PDF417 Settings" on page 647
- "QR Code Settings" on page 650
- "Royal Mail 4 State Settings" on page 654
- "Royal Mail 2D Settings" on page 656
- "UPC-A Settings" on page 658
- "UPC-E Settings" on page 661
- "US Postal Service IMB Settings" on page 664
- "US Postal Service IMPB Settings" on page 667

Codabar Settings

Codabar barcodes support the following data: 0-9 - \$: / . + plus the optional specification of start/stop characters.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:

- **Orientation:** Use the drop-down to select the orientation of the Barcode added to the page.
- **Output once per sheet:** This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **Font size:** Enter a font size for the human readable text.
- **Display start/stop symbols** checkbox: 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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Datamatrix Settings

A Datamatrix barcode is a high-density, two-dimensional (2D) matrix barcode which supports encoded text, numbers, files and digital data.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation:** Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet:** This option relates to Imposition printing (see [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** group:
 - **Module Width:** Specifies the width of the narrow bars. Changing this value to a 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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation:** Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet:** This option relates to Imposition printing (see [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 a higher value will generally make the Barcode bigger.
 - **Check Digit marker:** This character is used as a placeholder for the check digit, which will 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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 barcode is 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.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allows for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation:** Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet:** This option relates to Imposition printing (see [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 a 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.
- Note**
Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.
- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation:** Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet:** This option relates to Imposition printing (see [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 a 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 (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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:

- **Orientation:** Use the drop-down to select the orientation of the Barcode added to the page.
- **Output once per sheet:** This option relates to Imposition printing (see [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): **Low**, **Medium**, **Quartile** and **High**.
- **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.

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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.

-  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@))

character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Additional OMR Mark Settings

The **Add OMR** dialog displays the properties of an OMR Mark that was added in the "Page breakdown" on page 614 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

- **General** group:
 - **Include in output** checkbox: This determines whether of not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.

- **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **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 length of each OMR mark line.

- **Line Spacing:** Determines how the spacing between each OMR mark line will be set. 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 of 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 "How to Set Conditionals" on page 673 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 "How to Set Conditionals" on page 673 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.

How to Set Conditionals

- **Condition:** Enter the condition which determines whether or not this element will be added to the document at print time.

Use JavaScript conditional expressions to construct your conditional. You may use JavaScript logical operators (==, !=, <, >, &&, ||, etc), literal values ("text", 3.14, etc), mathematical operators (/, *, +, -, etc) and data fields.

-  **Add:** Click to add a field to the conditional expression. Select from a list of metadata fields (as added in [Metadata Options](#)), document information fields (see [Variables Available in Output](#)), or common expressions.

For example, selecting the **Expressions > First Page** would add "page.nr == 1" to the conditional entry.

Example: `if (page.nr == 1) { ... }`

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 336) 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 an 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.

AFP Options

The **AFP Options** page is shown only when a AFP Print output type is selected in the [Print Options](#) dialog. It is used to select AFP specific options.

- **Page Groups**
Select (or deselect) what Page Grouping options are to be created for AFP output.
 - *Job Segments.*
 - *Document Sets.*
 - *Documents.*
- **Options** group:
AFP specific output options, that relate to AFP Tagged Logical Elements (TLEs)
 - **Create TLEs for all metadata properties**: Used to control whether TLEs are to be created from job metadata properties and included in the AFP output. Prior to Connect 2018.2 TLEs were always created for job metadata properties. This option allows that automatic TLE creation to be switched off.

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

PDF Options

The **PDF Options** page is shown only when a PDF Print output type is selected in the [Print Options](#) dialog. It is used to select PDF specific options.

- **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 (PDF/A-1b), graphics format PDF (PDF-X4) and variable data printing format PDF (PDF-VT).
- **Font Creation** selection: The choices are:
 - **Simple fonts when possible (smallest size).** This is the default option. This option uses Simple fonts in cases where the fonts do not use too many characters. It automatically switches to using composite fonts when the number of characters becomes too large to fit a Simple font. This allows omitting fonts that are considered "standard fonts" in the PDF reference, which helps reduce file size. The drawback to this option is that some PDF viewers do not support it properly, which can cause viewing issues with jobs using non-Latin1 encoded characters.

Note

A Simple font can be a Type1 font, a TrueType font or a Type3 font. One of the main characteristics of a Simple font is that its glyphs are selected using a single byte character code, limiting the number of glyphs to a maximum of 256.

For more information on Simple fonts, see Adobe's documentation regarding Portable Document Format files.

- **Always create CID fonts (best compatibility).** This option always uses composite fonts (CID fonts), regardless of the number of glyphs in the font. CID fonts use 2 byte ids to select glyphs, so this option always leads to larger file sizes. The benefit of this option is that all the fonts get embedded in the output, making for the most portable of PDF outputs. Customers using Asian fonts should generally use the CID font option.

Note

Any pre Connect 2018.2 Output Presets will use the **Simple Fonts** default, unless updated in Connect 2018.2.

- **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 PDF/A and PDF-X4 output, as fonts are always embedded in those output types.

- **Pass-through PDF resources:** Click to have PDF resources used *as-is*, without any additional processing. This guarantees the fidelity of any PDF graphics used within the template will be retained in the output.

Note

Connect tries to write content in the best way possible, depending on the chosen output format and optimization settings. Selecting *PDF pass-through* means the output will be less optimized, which typically produces somewhat larger files.

Note

Encrypted PDF files are **not supported** in *PDF pass-through* mode.

- **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.

Note

PrintShop Mail Connect currently supports only a single Digital Signature per PDF output file.

- **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 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 674 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 PrintShop Mail 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 674 page.

Note

PrintShop Mail Connect currently supports only a single Digital Signature per PDF output file.

- **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 678 dialog, called from the "PDF Options" on page 674 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).
 - **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Printer Settings

The **Printer Settings** page provides options for cut-sheet printers. It maps media types to printer trays.

It is available for AFP, IPDS, PCL and PostScript printers that are configured for cut-sheet printing.

- **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.
- **Media/Tray Table** 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.
- **Media/Tray Table** buttons:

-  **Add:** Adds a new Media/Tray entry in the table.
-  **Delete:** Deletes the current Media/Tray selections from the table.
-  /  **Move Up / Move Down:** Move the selected Media/Tray entries up or down within the table.
-  **Import Tray Settings:** Import the Media/Tray settings from a Connect Template.

The options are to:

- **Import from current template**, which will import any Media/Tray settings from the current Connect Template into the table.
- **Import from template file**, which allows you to browse for a Connect Template to import the Media/Trays settings from.

There is no restriction on how many Templates you may import settings from.

Dynamic PPD Options

The **Dynamic PPD mode options** page allows you to add PostScript printer capabilities to Connect, through the printer's associated PostScript Printer Definition (PPD) file, and to assign rules to them to trigger those capabilities in conjunction with Connect Templates.

Note

This Print Wizard page is intended for use by those operators who are very familiar with their PostScript printers capabilities as well as the options available to them in the printer's associated PPD file.

A video example of how to set Dynamic PPD Options can be found here: [Setting Dynamic PPD Options within Connect - An example](#)

The **Dynamic PPD mode Options** page can be broken up as follows:

PPD Info group

This shows information about the selected PostScript Printer Definition. The information box contains general printer details (such as the model name) whilst the **PPD file name** field displays the name of the actual PPD file that is loaded.

If the incorrect PPD was assigned to this Printer Model, the PPD file can be changed at this

point, via the **Import PPD** button .

This is not considered good practice, however. It would be better to return to the Printer Model selection dialog and chose the correct Printer Model and PPD combination there.

Rules

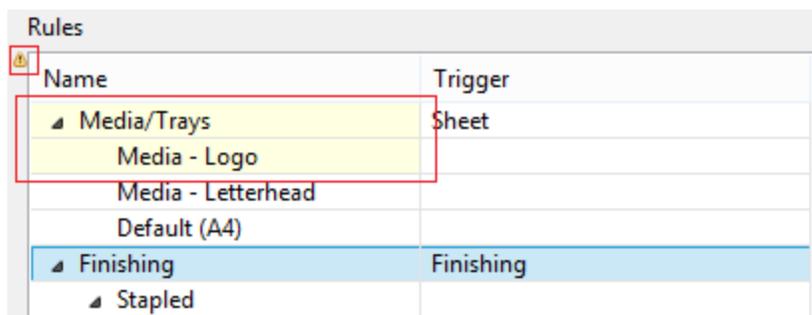
This group displays the print options for the template along with their associated triggers, as well as the more general Simplex/Duplex/Mixplex options.

If your Template already has Finishing and Media entries set, then those options will appear pre-populated in the Rules table along with their Triggers, to allow you to assign specific options for those entries.

Additional Rules (and Triggers) can be added (or deleted) and all Rules can be edited, and/or moved up or down within the table after being added.

Within a group of Rules, the Rules are processed sequentially, from top to bottom. Thus if two Rules apply to the same option (such as two different Rules applying for Tray 1), then the topmost Rule will be applied, once the Rule trigger is encountered. Thus it makes sense to have the most specific rules at the top of a group, with the more generic rules placed below them.

Rules should have at least one Printer Option assigned to them. If they do not, then the page is considered incomplete and a warning symbol will be displayed and the offending Rules highlighted. As seen in the following screen-shot:



Name	Trigger
Media/Trays	Sheet
Media - Logo	
Media - Letterhead	
Default (A4)	
Finishing	Finishing
Stapled	

It is possible to create a set of Rules in which none of the Rules ever evaluate to true, and thus no Rule will be applied. This could be done on purpose, to allow the printer's default settings to apply.

The types of Rules are as follows:

- **Media/Trays** rules: Media/Trays settings will be pre-populated from settings contained within the current Connect Template, if such exist. They can also be added from other Templates, selected using the **Import**  button. You can import settings from as many Templates as you like.
You can also add new settings, using the **Add**  button.

Media/Tray selections always apply to *Sheets*.

Once the Media/Trays are entered you will need to assign specific Printer Options (from those contained in the PPD) to the individual Media/Tray types.
See the "Printer Options" on page 581 section for how to do this.

- **Finishing** rules: This allows you to set Finishing options. These settings will be pre-populated from settings contained within the current Connect Template, if such exist. They can also be added from Job Creation Presets and other Templates, selected using the **Import**  button. You can import settings from as many Templates as you like.
You can also add new settings, using the **Add**  button.
The Finishing Rules support all industry standard binding options.

Once the Finishing Rules are entered you will need to assign specific Printer Options (from those contained in the PPD) to each of the individual Finishing Rules.
See the "Printer Options" on page 581 section for how to do this.

Note

You should also choose an Option to switch off the Finishing selection, to cater for subset Finishing.

- **Plex** rules: This fixed group allows you to set rules for sheet plexing. The choices are Duplex, Simplex or Tumble Duplex.
You should add Printer Options for each of these Plexing Rules.
See the "Printer Options" on page 581 section for how to do this.
- **Custom** rules: This group does not appear by default, but can be added at any point via the **Add**  button.

The **Rules** Options. These can be selected via the icons to the right of the Rules table, or from

-  **Import:** Allows importation of Rules from existing Job Creation Presets and/or Connect Templates. You will be presented with options to either **Import Finishing Settings**, or **Import Media Settings**, based upon what is currently selected and/or available in the Rules table. Both options allow you to select an existing Connect Template, from which to import the settings from, whilst Finishing settings can also be imported from Job Creation Presets. The settings will be added to those already in the Rules table.
-  **Add:** This allows you to Add various options, dynamically. What options are available is dependant upon what rule is currently selected. For example, the *Plex* group does not have an option to **Add Rules** available to it.
 1. **Add Rule:** This will add a Rule that is specific to the type of option was selected when the Add Rule was pressed. The options are as follows:
 - **Media/Trays** : If the Rule is being added to a *Media/Trays* selection, then the Dynamic Tray Mapping Editor Dialog will be launched. This dialog allows the setting of all necessary
 - **Finishing** : If the Rule is being added to a *Finishing* selection, then the Dynamic Finishing Editor Dialog will be launched.
 - **Plex** : Add Rule is not available as an option for *Plex* settings.
 - **Custom** : If the Add Rule is selected on a *Custom Group* selection, then the Dynamic Custom Element Editor Dialog will be launched. The *Custom Group* selection allows for considerable customization and complexity. For example, they could be used to separate large documents (that might not fit into an Inserter machine), or to use a letterhead stock that is based upon what city the document recipient lives in.
 2. **Add Custom Group:** This launches the Custom Group Editor Dialog which adds a new Custom Group entry, and associated Trigger.
 3. **Add Media/Trays Group:** This adds a new blank Media/Trays entry. To add the actual Rule details you must select the new Media/Tray entry and then select the Add Rule option.
 4. **Add Finishing Group:** This adds a new blank Finishing entry. To add the actual Rule details you must select the new Finishing entry and then select the Add Rule option.

Each selection allows you to set the appropriate details for that type of rule.

-  **Edit**: This allows you to edit the current Rule, dynamically. What options are available is dependant upon what rule is currently selected.

The options are as follows:

- **Media/Trays** : If the Rule is being edited is a *Media/Trays* selection, then the Dynamic Tray Mapping Editor Dialog will be launched.
- **Finishing** : If the Rule is being edited is a *Finishing* selection, then the Dynamic Finishing Editor Dialog will be launched.
- **Plex** : *Plex* Rules cannot be edited.
- **Custom** : If the Rule is being edited is a *Custom Group* selection, then the Custom Group Editor Dialog will be launched.

Rules can also be edited via double mouse clicking on the rule. This launches the appropriate Editor Dialog, as listed above.

-  /  **Move Up / Down**: Move the selected rule(s) up or down within the Rules table. This allows sorting of options, for easier legibility, and more importantly, *for Order Dependency*.

Within a group of Rules, the Rules are processed sequentially, from top to bottom. Thus if two Rules apply to the same option (such as two different Rules applying for Tray 1), then the topmost Rule will be applied, once the Rule trigger is encountered. Thus it makes sense to have the most specific rules at the top of a group, with the more generic rules placed below them.

-  **Delete**: Delete the selected rule(s) from the Rules table.

Rule Details

This table displays the details of the currently selected Rule.

For Media/Trays, Finishing and Plex selections only the **Properties** are displayed. For Custom selections, the **Condition** can also be displayed.

The tabs can be broken down as follows:

- **Properties** Tab: displaying all the relevant Rule Details. These are:
 - **Property**: The list of properties available to this Rule.
What properties are displayed is dependent upon the type of Rule selected.
 - **Value**: The property's associated value, if set. If not set, the Value will remain blank.

The table is read only and the details cannot be adjusted or edited from within the table. Rules need to be edited from within the Rules table directly, through either the Edit button or by double mouse clicking on the Rule.

- **Condition** Tab: displays the logical condition that needs to be fulfilled before the Custom Rule is to be applied.

Printer Options

This section allows for the selection and ordering of Printer Options to be associated with the active Rule. The Print Options are all those contained in the PPD.

The **Printer Options** table displays :

- **Name** column: This column contains the names of the Printer Options, as taken from the PPD file.
- **Option** column: This column shows the selected Printer Option preference.
- **Order** column: This column displays any Dependency Order criteria that applies to the selected Printer Option.

The choices available to the Printer Options are as follows:

-  **Add**: This launches the Add Printer Options Dialog which allows you to add one or more Printer Options. That dialog will be populated with options that relate to the Rule that was selected, when the Add Printer Options button pressed.
-  **Edit**: This allows you to edit an existing Rule Printer Option. It launches the Add Printer Options Dialog.
-  **Move Up / Down**: Move the selected Printer Option(s) up or down within the table. This allows sorting of options for easier legibility, but manually moving options up and down is done without any check on Order Dependency.
-  **Delete**: Delete the selected Printer Option(s).
-  **Sort by Order dependency**: This sorts the Printer Options by the order of their dependencies.

Not all Printer Options have dependencies, but for those that do, the order is important. For example, consider these following PPD file Printer Option extracts:

- **PageRegion**:
*OpenUI *PageRegion: PickOne

```
*OrderDependency: 50 AnySetup *PageRegion
```

```
...
```

```
*CloseUI: *PageRegion
```

- **InputSlot:**

```
*OpenUI *InputSlot: PickOne
```

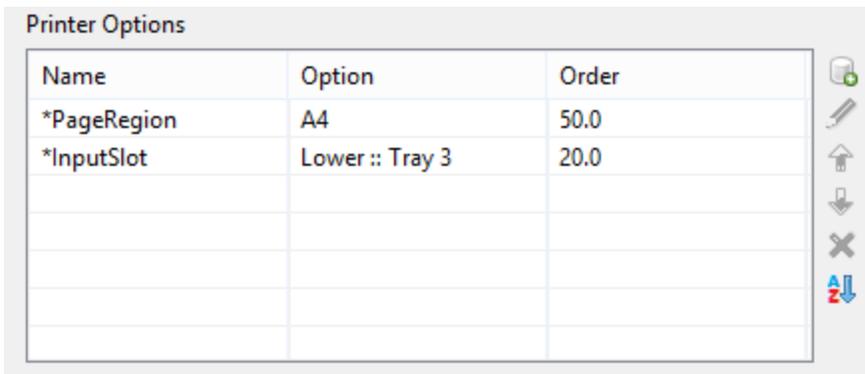
```
*OrderDependency: 20 AnySetup *InputSlot
```

```
...
```

```
*CloseUI: *InputSlot
```

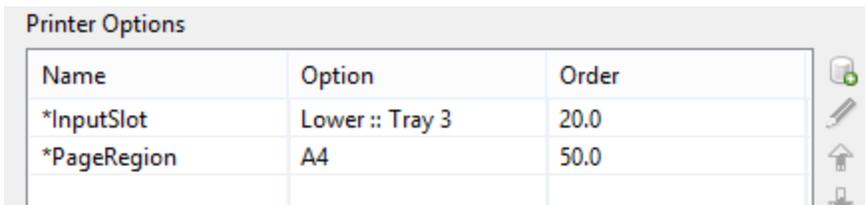
We can see that one has an Order Dependency of 50 and the other 20.

If *PageRegion* was selected prior to *InputSlot* in the Add Printer Options Dialog, then they would appear like this in the Print Wizard:



Name	Option	Order
*PageRegion	A4	50.0
*InputSlot	Lower :: Tray 3	20.0

To sort them into the correct dependence order, use the **Sort by Order dependency** button. This will sort them into the proper dependency sequence. As seen below, where the lower dependency now appears first.



Name	Option	Order
*InputSlot	Lower :: Tray 3	20.0
*PageRegion	A4	50.0

Warning

Nothing prevents the selection of conflicting and contradictory Print Options.

This can be seen in the following example, which shows multiple conflicting Folding

Options have been chosen:

Printer Options		
Name	Option	Order
*Punch :: Punch	None :: Off	1.0
*Staple :: Staple	None :: Off	21.0
*Prepunched :: Pre-Punched	True :: On	65.0
*SquareFold :: Spine Corner Forming	True :: On	1.0
*MultiFolder :: Multi Folder	FD503(2-4H) :: Multi F...	1.0
*Fold :: Fold	ZFold :: Z-Fold	1.0

The breadth and diversity of PPD files as well as individual printer capabilities mean that the Print Wizard cannot meaningfully validate the selections made, and thus does not attempt to.

So you must be careful when making selections. We recommend that you always test each individual selection made, to confirm that they are valid and that they do what you expected of them.

This could entail considerable trial and error, but should lead to less anguish in the long run.

Job Creation Presets

The **File>Print Presets>Job Creation Settings ...** dialog displays a list of available presets and a summary of their settings. This dialog can be used to create new Presets or to edit and update existing Presets. Presets, however, cannot be deleted or renamed from within this dialog. That must be done manually.

The Presets are all stored as individual files, using the Preset name and a "OL-jobpreset" file extension.

The Presets can be found in the following folder:

`C:\Users\[UserName]\Connect\workspace\configurations\JobCreationConfig`

Where `[UserName]` needs to be replaced with your own Windows User Name.

Note

The **Job Creation** Wizard requires an active Template and associated data.

Dialog Interface

- **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 has 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.

Grouping Options

The **Grouping options** page separates the job output into multiple blocks that can then be physically separated using split sheets in the printer.

A typical usage of this feature is to create groups of mail pieces by size, so they can easily be inserted (into envelopes). For instance, one might want to group together all the "single page" mail pieces that fit within a C5 envelope and then put all larger mail pieces into an "oversized" category, that will go into larger envelopes.

- **Grouping Tabs:** Jobs can be grouped at three different levels. The three groups each have their own tab, and are as follows:
 - **Job Grouping Fields**
 - **Job Segment Grouping Fields**
 - **Document Set Grouping Fields**

The Fields available to be used for any Grouping are contained within the **Available Fields** box.

Any Fields that you want to use for Grouping need to be added to the **Selected Fields** box via the arrows found between the two boxes.

Simply select the Field(s) you want to move and then click the appropriate 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.

Once a field is added to the **Available Fields** box, its *Sorting Option* can be selected by clicking in the "**Sorting Option**" column, and selecting the appropriate option. The options for sorting are either Ascending or Descending order.

- **Size Grouping** section: Check the checkbox to enable *size grouping*, which separates Documents into different groups, based upon their relative sizes.

For example, selecting *Document Set Grouping* for the **Grouping Level**, *Documents* for the **Item to group**, **Group by Page Count** and then creating a page range from 1-5 and another page range 6 to Largest, will create two Document Set groups. The first will contain all Documents of 1 to 5 pages in length, and the second will contain any document of 6 or more pages.

The options within Size Grouping are:

- **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.
- **Item to Group:** Use the drop-down to select which item to group. The item choices are **Job Segments**, **Document Sets** or **Documents**.

Note

A selection made here can over-ride a previously selected **Grouping Level** option.

For example, if the **Grouping Level** was previously set to *Document Set*, then selecting *Job Segments* as the **Item to Group** will not make sense for that Grouping Level. Thus the **Grouping Level** would automatically be changed to the more appropriate *Job* selection.

- **Group by:** Use the drop-down to select what criteria the Items will be grouped by. The choices are **Page Count** or **Sheet Count**.
- **Size groups in reverse order** checkbox: 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.
- **Size grouping after normal grouping** checkbox: Check this option to firstly group using the selections made above and then secondly group upon page break grouping. This creates two different levels of grouping, applied in order.

- **Meta data property** edit box: Select a name for the *meta data* field that is created. This meta data field can then be used in other Print Wizard/Preset pages, such as in the Job Output Mask Dialog.
- **Size Ranges:** 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".

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Data Filtering Options

The **Data Filtering Options** page is used to filter records and prevent them from being printed. Conditions are evaluated on each record.

Data Selection Filter

The table columns are:

- **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.

The options available are:

-  **Add:** Click to add a new rule to list, at the current level of grouping.
A variety of filtering options are available. Options such as allowing filtering by data field, Media and Finishing properties, or by document length.
Once added, the logical operators for the rule can be altered to suit, within the table.
-  **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 new subgroup with the currently selected rule(s). This functionality allows the nesting of groups and associated rules.
-  **Merge selected rules/ruleset to parent rules:** Click to move the currently selected rule(s) to the parent group. This allows one to alter the nesting of groups and associated rules.
-  **Move Up/Down within group:** Click to move the selected rule(s) up or down within the current group. This option does not support moving rules between groups.

Preview

This box displays a textual representation of the logical conditions set within the data filtering table.

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 / down:** Click to move the currently selected row up or down within 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, PrintShop Mail 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 PrintShop Mail Connect will pass through in the position of the `${input}` placeholder.
 2. Generate an output file that contains the sorted data and must be named according the file name PrintShop Mail Connect will pass through in the position of the `${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 datafields. 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 PrintShop Mail Connect. An example usage would be generating a postcode or postal barcode data from address details, making it available for use in PrintShop Mail 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 (X) 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 PrintShop Mail 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.

Metadata options

The **Metadata Options** page defines metadata tags that will be added to the output file when producing PDF and AFP output in the "Output Creation Settings" on page 594.

Metadata tags are ignored in all other output types, except when they are associated with "Page breakdown" on page 614 in the Print Wizard.

Note

Metadata properties have a length limitation of 255 characters.

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.

Note

It is important to note that if Impositioning is used then the only metadata that will be available to the job thereafter will be the metadata at Job Segment level.

When using Impositioning everything within the Segment is Impositioned, so all metadata below the Job Segment level is lost.

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 metadata 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 meta data:** Click to add a new tag to the current level. Select either **Add field meta data** or **Add text meta data** from the Field Selection context menu. When adding field metadata select the field name(s) from the Field List and click OK. This will add them as tags of the same name as their associated field.
-  **Delete Field:** Click to delete the currently selected tag.
-  **Move Up / Move Down:** Click to move the currently selected tag(s) one position up or down.

Finishing Options

Use the **Finishing Options** page to force the use of specific printer finishing options, rather than using any finishing options that might have been set in the Template's Media and Section options.

These settings are only applied when producing print output. They do not modify the original finishing options in either the Section or the Template.

Finishing settings can be set on various levels of Job Creation, such as Document Sets and

Job Segments. This allows you, for example, to staple Document Sets whilst punching holes in Job Segments.

You can also have multiple finishing settings at the same level.

- **Finishing Options Table:** This table, on the left of the Wizard page, allows you to add or remove sections to apply the Finishing options to. It contains the **Section** for which the settings are to be applied (*Section, Document, Document Set or Job Segment*), plus the **Finishing** options that are to be applied, and any **Rule** determining the conditions under which the Finishing settings are to be applied. To set the details, use the following options:
 -  **Import Finishing:** Imports the existing settings from a Connect Template. The Template could be the current template (*Import from currently template*), or some other Template (*Import from template ...*).
 -  **Add:** Adds a new section to apply Finishing options to. The default is to add a new *Section*, but these can be changed to *Document, Document Set or Job Segment* types, thereafter. You can have multiple selections of each type, all with different criteria determining when the Finishing options are to be applied.
 -  **Delete:** Removes the selected Section(s) from the table.
 -  **Move Up / Move Down:** Moves the selected Section(s) up or down within the table.
 -  **Edit ... :** Brings up the Rule Editor Dialog, which can be used to construct the rule (s) that determines whether this conditional Finishing option is to be applied or not.
- **Binding group:**
 - **Style:** What type of Binding to request on the printer. This includes *Stapled, Glued, Stitched, Ring, Comb, Coil*, amongst other options..
 - **Side:** Sets the side of the paper that the Binding is to occur. This includes both the top and the bottom of the paper,
 - **Location:** Sets where the binding is to occur, if applicable. The selections available here will be 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 available to you in reality 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.
 - **Pattern Catalog ID:** The Catalog ID of the selected Binding option.

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Output Creation Settings

The **File > Print Presets > Output Creation Settings...** dialog displays a list of available presets and a summary of their settings. This dialog can be used to create new Presets or to

edit and update existing Presets. Presets, however, cannot be deleted or renamed from within this dialog. That must be done manually.

The Presets are all stored as individual files, using the Preset name and a "OL-outputpreset" file extension.

The Presets can be found in the following folder:

C:\Users\[UserName]\Connect\workspace\configurations\OutputCreationConfig

Where [UserName] needs to be replaced with your own Windows User Name.

Dialog Interface

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 601 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** (used for both Production and Proof printing) and the [Output Preset Creation](#) Wizard.

This first page is the most important of the Advanced Print Wizard/Output Creation Preset Wizard.

All 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.

Models for all these print output streams are included with Connect. By default, Connect initially displays just the PDF output option, to keep the interface clean. But other print output types can be added to the Printer Model drop down list at any time via the Settings button 

You can also add any customized Printer Model that Objectif Lune Inc. has prepared for you, specific to your printer.

Or you can create your own customized PostScript Printer Model through the printer manufacturer provided PostScript Printer Definition (PPD) file. This will launch the "Dynamic PPD Options" on page 682 page later in the Printer Wizard.

For more information on how to add Printer Models to Connect, see "Adding print output models to the Print Wizard" on page 796.

- **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 could write the Job Output Mask directly into this edit box (for a list of available variables see "Print output variables" on page 798), or you could create a Mask via the Options  button. This opens the custom dialog: Job Output Mask Dialog. The Job Output Mask may contain (dynamic) folder names, for example: ``${document.metadata['Country']}\${template}`. The evaluated value of the Job Output Mask is taken as a path **relative** to the folder specified by the Job Output Folder (the next option in this dialog). The Job Output Folder must exist, but folders specified in the Job Output Mask will get created if they don't exist.
 - **Job Output Folder**: The path on the disk where the file is produced. Please note that the folder must exist, or output will fail when produced through the server.
 - **LPR Queue**: Select to send the print job to an LPR queue. It is assumed that the print technology is supported by the system receiving the LPR job.
 - **Local Printer**: The IP or host name of the printer or machine where the LPD is installed and will receive
 - **Queue Name**: The queue name that will accept the job on the LPD. Default is generally "auto".
 - **Job Owner Name**: Optional entry for adding the name of the job owner.
 - **Job Name**: The name of the output file. You can use `${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 (note that this is an actual printer queue, not a Workflow 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 600 page. This option is unselected by default unless selected in the Designer "Print section properties" on page 443.
 - **Imposition** checkbox: Check to enable Cut & Stack Imposition, which is set in the "Imposition Options" on page 601 page.
 - **Add Inserter marks** checkbox: Check to enable inserter mark functionality, which is set in the "Inserter Options" on page 610 page.

- **Override Finishing options** checkbox (not available in *Output Preset Creation*): Check to configure custom "Finishing Options" on page 592, such as binding.
- **Print virtual stationery** checkbox: Check to enable virtual stationery in the output.
- **Use grouping** checkbox (not available in *Output Preset Creation*): Check to configure grouping of output into jobs, job segments or document sets. See "Grouping Options" on page 585.
- **Include meta data** checkbox (not available in *Output Preset Creation*): 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 591.
- **Separation** checkbox: Check to activate the "Separation options" on page 613 page of the wizard.
- **Add additional content** checkbox: Check to activate the "Page breakdown" on page 614 page of the wizard.
- **Records** group (not available in *Output Preset Creation*):
 - **Record Range**: Allows selection of a range of records or a custom selection. You can specify 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 (not available in *Output Preset Creation*):
 - **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 grey, rather than black or white.

 - **Black Threshold Percentage**: The percentage of shading at which the element will appear as full black, rather than dark grey.
 - **White Threshold Percentage**: The percentage at which the element will appear as full white, rather than light grey.

Advanced Print Wizard navigation options

- **Load** button (not available in **Output Preset Creation**): 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 596 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 *all* the options selected in the "Print Options" on page 596 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.

- **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 the **Imposition Options** page allow for the setting of imposition repetition, order, margins and markings.

As imposition selections are very specific and can be quite confusing, we have provided a handy dynamic diagram that displays a representation of the current imposition selections in real time. Whenever selections are changed, this display changes to reflect the selections made.

You can even select how many pages are to be represented, whilst page numbers appear on the pages in the diagram and change dynamically, like everything else.

Note

It is important to note that if Impositioning is used then the only metadata that will be available to the job thereafter will be the metadata at Job Segment level.

When using Impositioning everything within the Segment is Impositioned, so all metadata below the Job Segment level is lost.

Note

If *Booklet Binding* were selected, some of the imposition settings will be determined by the options made within the "Booklet Options" on page 600 Page and those imposition settings will thus be disabled on this page.

The Imposition selections that can be made are as follows:

- **Sample Page** group: Use to choose a paper size for the logical page(s) which would be printed upon the actual physical Imposition sheet. This helps in decision making regarding what paper sizes and orientations to use, with the Sample Page shown in blue on the white Imposition Sheet in the output preview (and validation) diagram.

Note

The logical page size can be set independently of any template open in the Designer, allowing for output presets to be created independently from the active template.

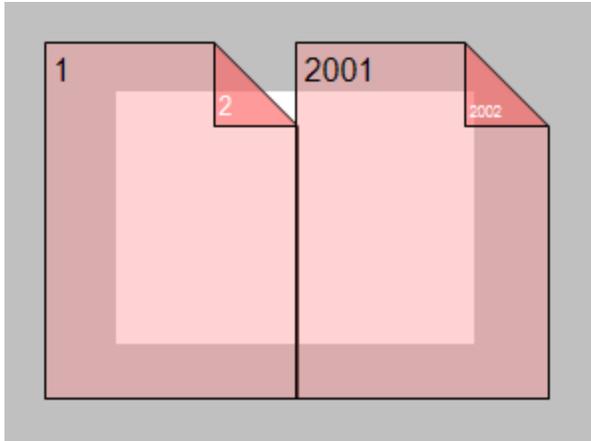
If a template is currently loaded in Connect Designer, the size and portrait attribute of the first section of that template are used as defaults for the Sample Page.

As a general rule, it makes little sense to modify the Sample Page size within the **Print Wizard** (as the template media size will already have been selected), but it does make sense when creating Print Output Presets for other templates.

If no template is loaded or if the template does not have a Print section, then the

Sample Page defaults to A4 portrait.

- **Size:** Use the drop-down to select the media size of the logical template page.
- **Orientation:** Select orientation (aspect ratio) of the logical template page (*Landscape* or *Portrait*).
- The **Width** and **Height** values are real-only and appear for display and design purposes only.
- **Imposition Sheet** group: Use to select the physical media size that the logical pages will be printed upon. This appears as the white background in the output preview (and validation) diagram.
 - **Size:** Use the drop-down to select the size of the physical media the output is to be printed upon.
 - **Orientation:** Select orientation (aspect ratio) of physical media sheet (*Landscape* or *Portrait*).
 - The **Width** and **Height** values are real-only and appear for display and design purposes only.
- Output diagram and validation. Use the settings here to control how the output diagram is to look and behave. It contains the following options:
 - **Display size** entry: Chose between a pre-set viewing percentage, or manually enter whatever percentage you would like, or select *Fit Page* or *Fit Width* to have the diagram display the page(s) within the diagram window dimensions.
 - Use the zoom in/out buttons  /  to increase or reduce the viewing percentage by 25% increments.
 - **Sample size** entry: Set the sample output size here. The number selected here will be reflected within the output diagram, if applicable.
 - **Output diagram:** A real-time display that reflects the selections made in the Imposition Options page. The blue page(s) are the individual logical page(s), upon a white background that represents the physical Imposition Sheet. If the settings are invalid, the display will appear as red, such as in the following diagram:



In this case the logical pages are too large to fit on the selected Imposition Sheet.

- **Position** group: These settings apply to the positioning of the logical page(s) within the Imposition Sheet.
 - **Method** selection: Set the position of the logical page(s) upon the Imposition Sheet. The choices are as follows:
 - *Center*: Have the logical page(s) centered within the Imposition Sheet.
 - *Scale to fit*: Scales the logical page(s) so that they fit the Imposition Sheet exactly.
 - *Offset*: Have the logical page(s) offset within the Imposition Sheet. The offset values can be set in the Left and Top entry boxes, which only become available for this positional method.
 - **Left and Top** values: These entry boxes are only enabled and their values applied when the Offset method has been chosen. They are used to set the offset of the logical page(s) upon the Imposition sheet.
 - **Rotate** selection: Select to rotate the logical page(s) within the Imposition Sheet.
- **Layout** group: Select how the logical page(s) are to be laid out on the Imposition Sheet.
 - **Horizontal** selection: Set how many logical pages are to be placed on one horizontal line within the Imposition Sheet.

Note

If the logic page was set to **Rotate** in the Position selections, then the

Horizontal selection might appear as vertical, and the Vertical selection might appear as horizontal, on the real time output diagram.

- **Vertical** selection: Set how many logical pages are to be placed on one vertical line within the Imposition Sheet.
- **Horizontal Gap** selection: Set the amount of blank space to add between each logical page on this axis.
- **Vertical Gap** selection: Set the amount of blank space to add between each logical page on this axis.
- **Stack Depth** selection: Stack Depth defines the number of Imposition Sheets that will be printed before drill sorting resets.

Stack Depth works in conjunction with the Horizontal and Vertical page, Gap and Page Order selections in order to determine the printing order. This is best illustrated by way of example.

The following "Cut and stack" example has a job with 100 single page documents and repetition settings of 5 Horizontal and 2 Vertical, plus a Stack Depth of 5. Each table represents a single Imposition Sheet, and the red line between the tables represents the Stack Depth:

1	6	11	16	21
26	31	36	41	46
2	7	12	17	22
27	32	37	42	47
3	8	13	18	23
28	33	38	43	48
4	9	14	19	24
29	34	39	44	49
5	10	15	20	25
30	35	40	45	50
51	56	61	66	71
76	81	86	91	96
52	57	62	67	72
77	82	87	92	97

Each set of 5 Imposition Sheets is a discrete drill sorted nUp block that can be guillotined and stacked. The first 5 sheets encompass records 1-50, whilst the next 5 sheets encompass records 51-100.

The following example is the same job but with a Horizontal repetition setting of 6:

1	6	11	16	21	26
31	36	41	46	51	56
2	7	12	17	22	27
32	37	42	47	52	57
3	8	13	18	23	28
33	38	43	48	53	58
4	9	14	19	24	29
34	39	44	49	54	59
5	10	15	20	25	30
35	40	45	50	55	60
61	66	71	76	81	86
91	96				
62	67	72	77	82	87
92	97				

As you can see, the outputs are *very* different.

Note

If the Stack Depth is greater than the number of sheets in the entire job then you will get a single drill sorted block that can be guillotined and stacked to give the complete job in record order.

- **Sides** selection: Select how many sides of the Imposition Sheet are to be printed upon. Choice is between *Simplex* or *Duplex*.
- **Method** selection: In 2018.2 we introduced a new imposition page order for cut & stack impositioning that works with continuous feed devices: *Stack by Column*. This option is intended for impositions with more than 1 row. It places the next page in the next row of the same column on the current sheet, instead of in the same row and column of the next sheet like the pre-existing *Cut and Stack* does. The choices are between:
 - *Cut and Stack*: Any preset created in a version of Connect prior to Connect 2018.2 will default to this Layout Method. It allows total control of subsequent **Page Order** choices.
 - *Stack by Column*: For use with continuous feed printers. This selection limits subsequent **Page Order** choices to column based options only.
- **Page Order**: Select in which direction to go when adding sections to the output:
 -  **Left to right, top to bottom**
 -  **Right to left, top to bottom**
 -  **Top to bottom, left to right**
 -  **Top to bottom, right to left**
- **Reverse** selection: The reverse selections have been extended in Connect 2018.2, with the addition of the *Inverse page order* option. The options now available are:
 - *Off*. Output is not reversed.
 - *Stack upside down*: Essentially turns the stack upside down by reversing the output imposition page sides. The last sheet becomes the first, and in the case of duplex imposition, the back sides become the front sides.

For presets created in a version prior to Connect 2018.2, a "Reverse Pages" selection will apply this *Stack upside down* setting.

- *Inverse page order*: This impositions the output in the **exact opposite order** from what has been selected.

For example, if the selected order was **Top to bottom, left to right** (down the stack, left to right, top to bottom), then selecting **Inverse page order** would result in output that was up the stack, right to left, bottom to top.

In the case of duplex impositioning, the front and back sides don't switch.

- **CropMarks** group: Select to add Crop Marks to the printed output.
 - **Type**: Use the drop-down to select whether to add Crop Marks to the page or not, and what type of Crop Marks to use. The Crop Mark types available are *Standard* or *Japanese*.
 - **Page side**: What side(s) of the page to put the Crop Marks. The choices are *Front*, *Back* or *Both*.
 - **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Inserters Options

The **Inserters 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 the next page.

- **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 the next page 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. This can be done by highlighting the Mark Name entry and either pressing the  **Edit** button, or using the right mouse click context menu, and selecting  **Edit**.
For information on how to edit the Selective Inserts settings, see "Selective Insert Dialog" on page 612
- **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Mark Position Options

The **Mark Position Options** 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 the previous page 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.

Selective Insert Dialog

The Selective Insert Dialog provides control over individual inserts. In this dialog the selected can be set to be either selected ("Yes") or not ("No"), or selected based upon some conditional criteria ("Conditional").

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".

Both Metadata and Informational fields can be used in the Conditionals settings.

For more details on how to create a conditional, see the "How to Set Conditionals" on page 673 page.

Separation options

The **Separation Options** 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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Additional Content

The **Additional Content** page allows you to add content at the time of printing. There are four different types of Additional Content that can be added at print time: **Text**; **Images**; **Barcodes** and **OMR Marks**.

They can be used to add either static content or variable content.

The Additional Content option is particularly useful when you might need to drive custom processes on production machines using either Barcodes or OMR Marks, or if you need to add some last minute additions to the print job via text and/or images.

Page breakdown

The Additional Content table displays any Additional Content that has been set. Additional Content can be added, edited, removed, duplicated or moved within the table via the buttons to the right of the table.

The **Additional Content options** are:

-  **Add**: Click to open some Additional Content.
The choices are as follows:
 - "Additional Text Settings" on page 616 entry.
 - Additional "Additional Barcode Options" on page 619 entry, from the selection presented.

- Additional "Additional Image Settings" on page 618 entry.
- Additional "Additional OMR Mark Settings" on page 669 entry.
-  **Edit**: Click to edit the currently selected entry. This will launch the appropriate edit box, for the selected entry type.
Double clicking on an entry in the table has the same effect as this button.
-  **Delete**: Click to delete the currently selected entry or entries.
-  **Duplicate**: Click to create a duplicated copy of the entry. This creates a new entry that is exactly the same as the original.
-  **Move Up / Move Down**: Click to move the selected entry (or entries) up or down within the table.

Additional Content Table: The table is split up into the following columns

-  **Include in Output**: Indicates whether the entry is to be included in the output or not. The settings made in the Additional Content dialog box can be over-ridden here. This allows you to create a virtual "library" of Additional Content options in an Output Preset, from which you can then pick and choose from at time of printing.
- **Type**: Displays an icon showing what type the Additional Content entry is.
- **Description**: Displays the "Description" that was entered in the Additional Content dialog.

Note

The entered text Description might stretch over a couple of lines, so it is possible that not all of the Description will be displayed here.

- **Left**: Displays the Additional Content Left Positional value.
- **Bottom**: Displays the Additional Content Bottom Positional value.
- **Content**: Displays the actual Additional Content that is to be inserted.
In the case of Text, this would be the actual text (or data fields) that are to be inserted.
In the case of Image, this would be the name of the image file.
In the case of Barcode, this would be the data fields used for creating the barcode.
In the case of OMR, this would be the number of marks set for this entry.
- **Condition**: Displays the Conditional entry that is used to determine whether this Additional Content instance is to be added to the output or not.

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 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 "Page breakdown" on page 614 page.

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **Style:** Choose between "Regular", "*Italic*", "**Bold**" or "***Bold Italic***".
- **Font Size:** Enter the font size in points (pt).
- **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 using 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. Use the  button for selection options.

For details on how to create a conditional, see the "How to Set Conditionals" on page 673 page.

Additional Image Settings

The **Additional Image** dialog displays the properties of the image added in the "Page breakdown" on page 614 page.

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **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 launch a Browse box to select an image file.
This is a mandatory field.

Note

Transparent images are not supported.

- **Preview** group: This displays a preview of the selected Image.
- **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. Use the  button for selection options.

For details on how to create a conditional, see "How to Set Conditionals" on page 673 page.

Additional Barcode Options

When adding Barcodes in the "Page breakdown" on page 614 page you can select from a series of predetermined Barcode types.

To create dynamic barcodes, "Metadata options" on page 591 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 are described on the following pages:

- "Australia Post 4 State Settings" on page 621
- "Codabar Settings" on page 623
- "Code 128 Settings" on page 626
- "Code 39 Settings" on page 629

- "Datamatrix Settings" on page 632
- "EAN-128 Settings" on page 634
- "EAN-13 Settings" on page 637
- "EAN-8 Settings" on page 640
- "Interleaved 2 of 5 Settings" on page 643
- "KIX Code (Dutch Post) Settings" on page 645
- "PDF417 Settings" on page 647
- "QR Code Settings" on page 650
- "Royal Mail 4 State Settings" on page 654
- "Royal Mail 2D Settings" on page 656
- "UPC-A Settings" on page 658
- "UPC-E Settings" on page 661
- "US Postal Service IMB Settings" on page 664
- "US Postal Service IMPB Settings" on page 667

Australia Post 4 State Settings

Australia Post 4 State barcodes are specific to Australian postal addresses. Every address in Australia has a numeric Delivery Point IDs (DPID) associated with it. Addresses must first be matched against an official Postal Address File (PAF), to obtain the unique DPID, and the DPIDs must be available to the job as "Metadata options" on page 591.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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.

- **Australia Post 4 State Properties** group:
 - **Track height:** The height of the small vertical centre bars, in metric (mm/cm). Value must be between 1 mm and 1.6 mm.
 - **Full bar height:** Height of the tallest vertical bars, in metric (mm/cm). Value must be between 4.2 mm and 5.8 mm.

The ascender and descender bar heights are automatically calculated based upon the *Full* and *Track* bar heights.

- **Module width:** Thickness of each bar in the Barcode, in metric (mm/cm). Value must be between 0.4 mm and 0.6 mm.
 - **Module spacing:** The spacing between each bar, in metric (mm/cm). Value must be between 0.4 mm and 0.7 mm
- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Codabar Settings

Codabar barcodes support the following data: 0-9 - \$: / . + plus the optional specification of start/stop characters.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **Font size:** Enter a font size for the human readable text.
- **Display start/stop symbols** checkbox: 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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.

-  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Datamatrix Settings

A Datamatrix barcode is a high-density, two-dimensional (2D) matrix barcode which supports encoded text, numbers, files and digital data.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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** group:
 - **Module Width:** Specifies the width of the narrow bars. Changing this value to a 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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a higher value will generally make the Barcode bigger.
 - **Check Digit marker:** This character is used as a placeholder for the check digit, which will 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at

(@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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 barcode is 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.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allows for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

KIX Code (Dutch Post) Settings

KIX code barcodes (also known as Klantenindex, or Dutch KIX 4-State), are used by Royal Dutch TPG Post (Netherlands) for Postal code and automatic mail sorting. They contain the address of the receiver, encoded in alpha-numeric format (0-9, A-Z).

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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.
- **KIX Code Properties** group:
 - **Track height:** The height of the small vertical centre bars, in metric (mm/cm). Value must be between 1 mm and 1.6 mm.
 - **Full bar height:** Height of the tallest vertical bars, in metric (mm/cm). Value must be between 4.2 mm and 5.8 mm.

The ascender and descender bar heights are automatically calculated based upon the *Full* and *Track* bar heights.

 - **Module width:** Thickness of each bar in the Barcode, in metric (mm/cm). Value must be between 0.4 mm and 0.6 mm.
 - **Module spacing:** The spacing between each bar, in metric (mm/cm). Value must be between 0.4 mm and 0.7 mm
- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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 (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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 alphanumeric 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): **Low**, **Medium**, **Quartile** and **High**.
- **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.

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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Royal Mail 4 State Settings

Royal Mail Barcodes (also known as RM4SCC, RoyalMail4SCC and Royal Mail 4-State Customer Code), are used by the British Royal Mail postal service. They contain the address of the receiver, encoded in alpha-numeric format (0-9, A-Z).

Use the following options to configure the output Barcode settings:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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.

- **Royal Mail Properties** group:
 - **Track height:** The height of the small vertical centre bars, in metric (mm/cm). Value must be between 1.02 mm and 1.52 mm.
 - **Full bar height:** Height of the tallest vertical bars, in metric (mm/cm). Value must be between 4.22 mm and 5.84 mm.

The ascender and descender bar heights are automatically calculated based upon the *Full* and *Track* bar heights.

- **Module width:** Thickness of each bar in the Barcode, in metric (mm/cm). Value must be between 0.38 mm and 0.63 mm.
 - **Module spacing:** The spacing between each bar, in metric (mm/cm). Value must be between 0.38 mm and 0.63 mm.
- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Royal Mail 2D Settings

Royal Mail 2D Mailmark Barcodes are a variant of 2 Dimensional Datamatrix barcodes. They are used by the British Royal Mail postal service. They contain the address of the receiver, encoded in alpha-numeric format (0-9, A-Z).

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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.
- **Royal Mail 2D Properties** group:
 - **Module Width:** The size of each column and row within the barcode. Value must be between 0.5 mm and 0.7 mm.
 - **Preferred Version:** Select the preferred size of the barcode in terms of rows by columns.

Note

Depending on the information being embedded, this entry may be overridden if the specified size is not big enough to contain the barcode information.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **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.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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 a 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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

US Postal Service IMB Settings

US Postal Service Intelligent Mail Barcodes (IMB) are used by the United States postal service. They contain the address of the receiver, encoded in numeric format (0-9).

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not. It is checked by default for all new entries. This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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.
- **USPS IMB Properties** group:
 - **Track height:** The height of the small vertical centre tracking bars, in inches (in). Value must be between 0.039 and 0.057 inches.
 - **Ascender height:** The height of the ascender bar. This also determines the height of the descender bar and full height bars, in inches (in). Value must be between 0.082 and 0.111 inches.
 - **Module width:** Thickness of each bar in the Barcode, in inches (in). Value must be between 0.015 and 0.025 inches.
 - **Interchar gap size:** The gap between the bars, calculated as a ratio of the module width, where a value of 1.0 equates to a gap width the same as the module width. Value must be between 0.012 and 0.04 inches.
 - **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.

Note

Vertically-oriented fonts (fonts whose typeface name begin with the at (@) character) are not supported in Connect.

- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

US Postal Service IMPB Settings

US Postal Service Intelligent Mail Package Barcodes (IMPB) are used by the United States postal service for parcel deliveries. They contain parcel destination information along with other information about the delivery.

Note

To create dynamic barcodes, Metadata options must first have been set (see "Metadata options" on page 591). 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:

- **General** group:
 - **Include in output** checkbox: This determines whether or not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **Position** group:
 - **Orientation**: Use the drop-down to select the orientation of the Barcode added to the page.
 - **Output once per sheet**: This option relates to Imposition printing (see [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.
- **USPS IMPB Properties** group:
 - **Barcode height:** The height of the bars in the barcode, in inches (in). Value must be between 0.075 and 1.0 inches.
 - **Module width:** The thickness of thin bars in the barcode, in inches (in). Thicker bars are a multiple of this value. Value must be between 0.013 and 0.021 inches.
 - **Text to barcode clearance:** The space between the barcode bars and the top and bottom text, in inches (in). Value must be between 0.125 and 0.25 inches.
 - **Text height:** The height of the text, in inches (in). Value must be between 0.09 and 0.125 inches.
 - **Line to text clearance:** The space between the guard lines and text, in inches (in). Value must be between 0.031 and 0.04 inches.
 - **Guard bar height:** The thickness of the guard lines, in inches (in). Value must be between 0.031 and 0.063 inches.
- **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 (see [Metadata Options](#)), 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 "How to Set Conditionals" on page 673.
 -  **Add** button: Click to display a list of metadata fields, information fields to add, or common expressions to the condition.

Additional OMR Mark Settings

The **Add OMR** dialog displays the properties of an OMR Mark that was added in the "Page breakdown" on page 614 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

- **General** group:
 - **Include in output** checkbox: This determines whether of not this Additional Content entry should be included in the output or not.
It is checked by default for all new entries.
This option allow for "libraries" of Additional Content to be created in Presets, libraries from which you can pick and choose what entries you wish to have included, at time of printing.
 - **Description** edit box: An edit box for adding an optional Description to the Additional Content entry.
- **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 length of each OMR mark line.
 - **Line Spacing:** Determines how the spacing between each OMR mark line will be set. 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 of 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 "How to Set Conditionals" on page 673 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 "How to Set Conditionals" below 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.

How to Set Conditionals

- **Condition:** Enter the condition which determines whether or not this element will be added to the document at print time.

Use JavaScript conditional expressions to construct your conditional.

You may use JavaScript logical operators (==, !=, <, >, &&, ||, etc), literal values ("text", 3.14, etc), mathematical operators (/, *, +, -, etc) and data fields.

-  **Add:** Click to add a field to the to the conditional expression.
Select from a list of metadata fields (as added in [Metadata Options](#)), document information fields (see [Variables Available in Output](#)), or common expressions.

For example, selecting the **Expressions > First Page** would add "page.nr == 1" to the conditional entry.

Example: if (page.nr == 1) { ... }

AFP Options

The **AFP Options** page is shown only when a AFP Print output type is selected in the [Print Options](#) dialog. It is used to select AFP specific options.

- **Page Groups**

Select (or deselect) what Page Grouping options are to be created for AFP output.

- *Job Segments.*
- *Document Sets.*
- *Documents.*

- **Options group:**

AFP specific output options, that relate to AFP Tagged Logical Elements (TLEs)

- **Create TLEs for all metadata properties:** Used to control whether TLEs are to be created from job metadata properties and included in the AFP output. Prior to Connect 2018.2 TLEs were always created for job metadata properties. This option allows that automatic TLE creation to be switched off.

Advanced Print Wizard navigation options

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

PDF Options

The **PDF Options** page is shown only when a PDF Print output type is selected in the [Print Options](#) dialog. It is used to select PDF specific options.

- **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 (PDF/A-1b), graphics format PDF (PDF-X4) and variable data printing format PDF (PDF-VT).
- **Font Creation** selection: The choices are:
 - **Simple fonts when possible (smallest size).** This is the default option. This option uses Simple fonts in cases where the fonts do not use too many characters. It automatically switches to using composite fonts when the number of characters becomes too large to fit a Simple font. This allows omitting fonts that are considered "standard fonts" in the PDF reference, which helps reduce file size. The drawback to this option is that some PDF viewers do not support it properly, which can cause viewing issues with jobs using non-Latin1 encoded characters.

Note

A Simple font can be a Type1 font, a TrueType font or a Type3 font. One of the main characteristics of a Simple font is that its glyphs are selected using a single byte character code, limiting the number of glyphs to a maximum of 256.

For more information on Simple fonts, see Adobe's documentation regarding Portable Document Format files.

- **Always create CID fonts (best compatibility).** This option always uses composite fonts (CID fonts), regardless of the number of glyphs in the font. CID fonts use 2 byte ids to select glyphs, so this option always leads to larger file sizes. The benefit of this option is that all the fonts get embedded in the output, making for the most portable of PDF outputs. Customers using Asian fonts should generally use the CID font option.

Note

Any pre Connect 2018.2 Output Presets will use the **Simple Fonts** default, unless updated in Connect 2018.2.

- **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 PDF/A and PDF-X4 output, as fonts are always embedded in those output types.

- **Pass-through PDF resources:** Click to have PDF resources used *as-is*, without any additional processing. This guarantees the fidelity of any PDF graphics used within the template will be retained in the output.

Note

Connect tries to write content in the best way possible, depending on the chosen output format and optimization settings. Selecting *PDF pass-through* means the output will be less optimized, which typically produces somewhat larger files.

Note

Encrypted PDF files are **not supported** in *PDF pass-through* mode.

- **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.

Note

PrintShop Mail Connect currently supports only a single Digital Signature per PDF output file.

- **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 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 674 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 PrintShop Mail 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 674 page.

Note

PrintShop Mail Connect currently supports only a single Digital Signature per PDF output file.

- **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 previous page dialog, called from the "PDF Options" on page 674 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).
 - **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

- **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 596 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 *all* the options selected in the "Print Options" on page 596 page have been completed or not.
- **Cancel** button: Cancels the Print Wizard, without creating any printout.

Printer Settings

The **Printer Settings** page provides options for cut-sheet printers. It maps media types to printer trays.

It is available for AFP, IPDS, PCL and PostScript printers that are configured for cut-sheet printing.

- **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.
- **Media/Tray Table** 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.
- **Media/Tray Table** buttons:

-  **Add:** Adds a new Media/Tray entry in the table.
-  **Delete:** Deletes the current Media/Tray selections from the table.
-  /  **Move Up / Move Down:** Move the selected Media/Tray entries up or down within the table.
-  **Import Tray Settings:** Import the Media/Tray settings from a Connect Template.

The options are to:

- **Import from current template**, which will import any Media/Tray settings from the current Connect Template into the table.
- **Import from template file**, which allows you to browse for a Connect Template to import the Media/Trays settings from.

There is no restriction on how many Templates you may import settings from.

Dynamic PPD Options

The **Dynamic PPD mode options** page allows you to add PostScript printer capabilities to Connect, through the printer's associated PostScript Printer Definition (PPD) file, and to assign rules to them to trigger those capabilities in conjunction with Connect Templates.

Note

This Print Wizard page is intended for use by those operators who are very familiar with their PostScript printers capabilities as well as the options available to them in the printer's associated PPD file.

A video example of how to set Dynamic PPD Options can be found here: [Setting Dynamic PPD Options within Connect - An example](#)

The **Dynamic PPD mode Options** page can be broken up as follows:

PPD Info group

This shows information about the selected PostScript Printer Definition. The information box contains general printer details (such as the model name) whilst the **PPD file name** field displays the name of the actual PPD file that is loaded.

If the incorrect PPD was assigned to this Printer Model, the PPD file can be changed at this

point, via the **Import PPD** button .

This is not considered good practice, however. It would be better to return to the Printer Model selection dialog and chose the correct Printer Model and PPD combination there.

Rules

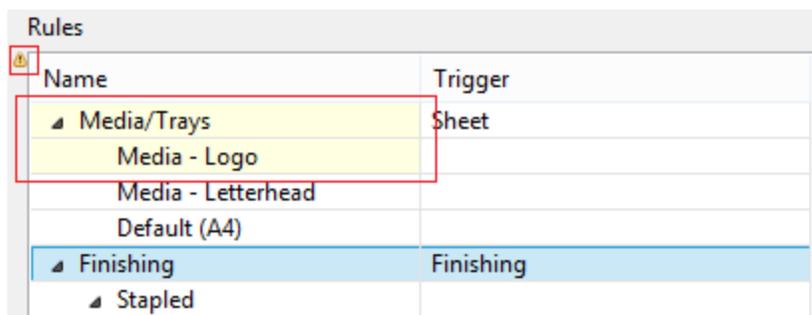
This group displays the print options for the template along with their associated triggers, as well as the more general Simplex/Duplex/Mixplex options.

If your Template already has Finishing and Media entries set, then those options will appear pre-populated in the Rules table along with their Triggers, to allow you to assign specific options for those entries.

Additional Rules (and Triggers) can be added (or deleted) and all Rules can be edited, and/or moved up or down within the table after being added.

Within a group of Rules, the Rules are processed sequentially, from top to bottom. Thus if two Rules apply to the same option (such as two different Rules applying for Tray 1), then the topmost Rule will be applied, once the Rule trigger is encountered. Thus it makes sense to have the most specific rules at the top of a group, with the more generic rules placed below them.

Rules should have at least one Printer Option assigned to them. If they do not, then the page is considered incomplete and a warning symbol will be displayed and the offending Rules highlighted. As seen in the following screen-shot:



Name	Trigger
Media/Trays	Sheet
Media - Logo	
Media - Letterhead	
Default (A4)	
Finishing	Finishing
Stapled	

It is possible to create a set of Rules in which none of the Rules ever evaluate to true, and thus no Rule will be applied. This could be done on purpose, to allow the printer's default settings to apply.

The types of Rules are as follows:

- **Media/Trays** rules: Media/Trays settings will be pre-populated from settings contained within the current Connect Template, if such exist. They can also be added from other Templates, selected using the **Import**  button. You can import settings from as many Templates as you like.
You can also add new settings, using the **Add**  button.

Media/Tray selections always apply to *Sheets*.

Once the Media/Trays are entered you will need to assign specific Printer Options (from those contained in the PPD) to the individual Media/Tray types.
See the "Printer Options" on page 687 section for how to do this.

- **Finishing** rules: This allows you to set Finishing options. These settings will be pre-populated from settings contained within the current Connect Template, if such exist. They can also be added from Job Creation Presets and other Templates, selected using the **Import**  button. You can import settings from as many Templates as you like.
You can also add new settings, using the **Add**  button.
The Finishing Rules support all industry standard binding options.

Once the Finishing Rules are entered you will need to assign specific Printer Options (from those contained in the PPD) to each of the individual Finishing Rules.
See the "Printer Options" on page 687 section for how to do this.

Note

You should also choose an Option to switch off the Finishing selection, to cater for subset Finishing.

- **Plex** rules: This fixed group allows you to set rules for sheet plexing. The choices are Duplex, Simplex or Tumble Duplex.
You should add Printer Options for each of these Plexing Rules.
See the "Printer Options" on page 687 section for how to do this.
- **Custom** rules: This group does not appear by default, but can be added at any point via the **Add**  button.

The **Rules** Options. These can be selected via the icons to the right of the Rules table, or from

-  **Import:** Allows importation of Rules from existing Job Creation Presets and/or Connect Templates. You will be presented with options to either **Import Finishing Settings**, or **Import Media Settings**, based upon what is currently selected and/or available in the Rules table. Both options allow you to select an existing Connect Template, from which to import the settings from, whilst Finishing settings can also be imported from Job Creation Presets. The settings will be added to those already in the Rules table.
-  **Add:** This allows you to Add various options, dynamically. What options are available is dependant upon what rule is currently selected. For example, the *Plex* group does not have an option to **Add Rules** available to it.
 1. **Add Rule:** This will add a Rule that is specific to the type of option was selected when the Add Rule was pressed. The options are as follows:
 - **Media/Trays** : If the Rule is being added to a *Media/Trays* selection, then the Dynamic Tray Mapping Editor Dialog will be launched. This dialog allows the setting of all necessary
 - **Finishing** : If the Rule is being added to a *Finishing* selection, then the Dynamic Finishing Editor Dialog will be launched.
 - **Plex** : Add Rule is not available as an option for *Plex* settings.
 - **Custom** : If the Add Rule is selected on a *Custom Group* selection, then the Dynamic Custom Element Editor Dialog will be launched. The *Custom Group* selection allows for considerable customization and complexity. For example, they could be used to separate large documents (that might not fit into an Inserter machine), or to use a letterhead stock that is based upon what city the document recipient lives in.
 2. **Add Custom Group:** This launches the Custom Group Editor Dialog which adds a new Custom Group entry, and associated Trigger.
 3. **Add Media/Trays Group:** This adds a new blank Media/Trays entry. To add the actual Rule details you must select the new Media/Tray entry and then select the Add Rule option.
 4. **Add Finishing Group:** This adds a new blank Finishing entry. To add the actual Rule details you must select the new Finishing entry and then select the Add Rule option.

Each selection allows you to set the appropriate details for that type of rule.

-  **Edit**: This allows you to edit the current Rule, dynamically. What options are available is dependant upon what rule is currently selected.

The options are as follows:

- **Media/Trays** : If the Rule is being edited is a *Media/Trays* selection, then the Dynamic Tray Mapping Editor Dialog will be launched.
- **Finishing** : If the Rule is being edited is a *Finishing* selection, then the Dynamic Finishing Editor Dialog will be launched.
- **Plex** : *Plex* Rules cannot be edited.
- **Custom** : If the Rule is being edited is a *Custom Group* selection, then the Custom Group Editor Dialog will be launched.

Rules can also be edited via double mouse clicking on the rule. This launches the appropriate Editor Dialog, as listed above.

-  /  **Move Up / Down**: Move the selected rule(s) up or down within the Rules table. This allows sorting of options, for easier legibility, and more importantly, *for Order Dependency*.

Within a group of Rules, the Rules are processed sequentially, from top to bottom. Thus if two Rules apply to the same option (such as two different Rules applying for Tray 1), then the topmost Rule will be applied, once the Rule trigger is encountered. Thus it makes sense to have the most specific rules at the top of a group, with the more generic rules placed below them.

-  **Delete**: Delete the selected rule(s) from the Rules table.

Rule Details

This table displays the details of the currently selected Rule.

For Media/Trays, Finishing and Plex selections only the **Properties** are displayed. For Custom selections, the **Condition** can also be displayed.

The tabs can be broken down as follows:

- **Properties** Tab: displaying all the relevant Rule Details. These are:
 - **Property**: The list of properties available to this Rule.
What properties are displayed is dependent upon the type of Rule selected.
 - **Value**: The property's associated value, if set. If not set, the Value will remain blank.

The table is read only and the details cannot be adjusted or edited from within the table. Rules need to be edited from within the Rules table directly, through either the Edit button or by double mouse clicking on the Rule.

- **Condition** Tab: displays the logical condition that needs to be fulfilled before the Custom Rule is to be applied.

Printer Options

This section allows for the selection and ordering of Printer Options to be associated with the active Rule. The Print Options are all those contained in the PPD.

The **Printer Options** table displays :

- **Name** column: This column contains the names of the Printer Options, as taken from the PPD file.
- **Option** column: This column shows the selected Printer Option preference.
- **Order** column: This column displays any Dependency Order criteria that applies to the selected Printer Option.

The choices available to the Printer Options are as follows:

-  **Add**: This launches the Add Printer Options Dialog which allows you to add one or more Printer Options. That dialog will be populated with options that relate to the Rule that was selected, when the Add Printer Options button pressed.
-  **Edit**: This allows you to edit an existing Rule Printer Option. It launches the Add Printer Options Dialog.
-  **Move Up / Down**: Move the selected Printer Option(s) up or down within the table. This allows sorting of options for easier legibility, but manually moving options up and down is done without any check on Order Dependency.
-  **Delete**: Delete the selected Printer Option(s).
-  **Sort by Order dependency**: This sorts the Printer Options by the order of their dependencies.

Not all Printer Options have dependencies, but for those that do, the order is important. For example, consider these following PPD file Printer Option extracts:

- **PageRegion**:
*OpenUI *PageRegion: PickOne

```
*OrderDependency: 50 AnySetup *PageRegion
```

```
...
```

```
*CloseUI: *PageRegion
```

- **InputSlot:**

```
*OpenUI *InputSlot: PickOne
```

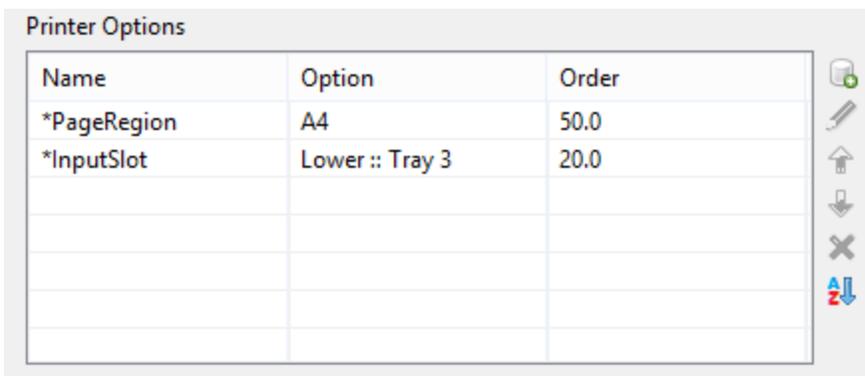
```
*OrderDependency: 20 AnySetup *InputSlot
```

```
...
```

```
*CloseUI: *InputSlot
```

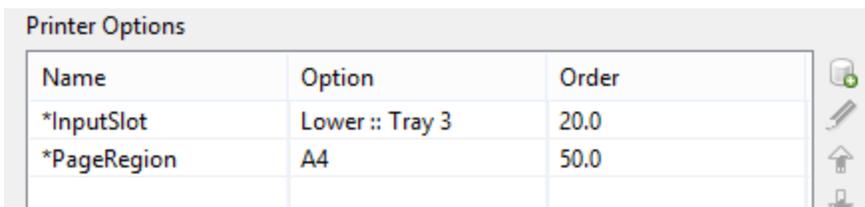
We can see that one has an Order Dependency of 50 and the other 20.

If *PageRegion* was selected prior to *InputSlot* in the Add Printer Options Dialog, then they would appear like this in the Print Wizard:



Name	Option	Order
*PageRegion	A4	50.0
*InputSlot	Lower :: Tray 3	20.0

To sort them into the correct dependence order, use the **Sort by Order dependency** button. This will sort them into the proper dependency sequence. As seen below, where the lower dependency now appears first.



Name	Option	Order
*InputSlot	Lower :: Tray 3	20.0
*PageRegion	A4	50.0

Warning

Nothing prevents the selection of conflicting and contradictory Print Options.

This can be seen in the following example, which shows multiple conflicting Folding

Options have been chosen:

Printer Options		
Name	Option	Order
*Punch :: Punch	None :: Off	1.0
*Staple :: Staple	None :: Off	21.0
*Prepunched :: Pre-Punched	True :: On	65.0
*SquareFold :: Spine Corner Forming	True :: On	1.0
*MultiFolder :: Multi Folder	FD503(2-4H) :: Multi F...	1.0
*Fold :: Fold	ZFold :: Z-Fold	1.0

The breadth and diversity of PPD files as well as individual printer capabilities mean that the Print Wizard cannot meaningfully validate the selections made, and thus does not attempt to.

So you must be careful when making selections. We recommend that you always test each individual selection made, to confirm that they are valid and that they do what you expected of them.

This could entail considerable trial and error, but should lead to less anguish in the long run.

Designer 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 363).

Most scripts can be made using one of the Script Wizards (see "Personalizing Content" on page 292).

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 340 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:

https://www.w3schools.com/js/js_syntax.asp and https://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 462.

Designer API

The "Standard Script API" on the next 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 136).

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 369.

Features that are specific to Control Scripts are listed in the "Control Script API" on page 749.

Post Pagination Script API

Post Pagination Scripts are run in a **Print** context **after** the content has been paginated.

Because they can search through the output of all Print sections, and modify Print sections (one at a time), they may be used to create a Table Of Contents (TOC), as explained in the topic:

"Creating a Table Of Contents" on page 385.

For more information about Post Pagination Scripts and their use, see "Post Pagination Scripts" on page 383.

Features that are specific to Control Scripts are listed in the "Post Pagination Script API" on page 774.

Standard Script API

This page lists the global objects and functions that are available in Standard Scripts, created inside the Scripts pane. Click through to an object or function to get a description and examples.

Most of these objects and functions are also available in Control Scripts ("Control Scripts" on page 369) and Post Pagination Scripts ("Post Pagination Scripts" on page 383).

For objects and functions restricted to Control Scripts see "Control Script API" on page 749, and for the Post Pagination Script API see "Post Pagination Script API" on page 774.

The basics of script-writing in the Designer are explained in the following topic: "Writing your own scripts" on page 340.

Objects

Object	Description
"results" on page 778	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 369).
"record" on page 693	The record in the main data set that is currently being merged. To get the value of a field in the record, use <code>record.fields['fieldname']</code> or <code>record.fields.fieldname</code> .
"logger" on page 693	Global object that allows you to log messages.
locale	Defines which locale to use. See "Locale" on page 290.

Object	Description
"formatter" on page 729	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 triggered the current operation. Not available in PrintShopMail Connect.
"merge" on page 753	The <code>merge</code> 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 <code>results</code> object in the script (see "results" on page 778).
contentitem	<p>(Print output only.) The <code>contentitem</code> object holds the Print Content Item that is written to the Connect database when generating Print output. It allows you to add custom properties to the Print Content Item, in the form of key-value pairs (a JSON string).</p> <p>Note: The <code>contentitem</code> object is not available in PrintShopMail Connect, due to the absence of a Connect database.</p>

Global functions

Function	Description
"fatalError (message)" on page 727	Triggers a fatal error that aborts content creation.
"loadhtml()" on page 736	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 739	Loads json data from a URL. This is a simple way to retrieve content from external systems.

Function	Description
"query()" on page 745	Performs a query in the template's contents and creates a new result set containing the HTML elements that match the given CSS selector.
"resource()" on page 748	This function returns information about an image resource. It can also be used to check if a file exists.

Examples of iterator functions

Function	Description
"each()" on page 726	A generic iterator function, to iterate over the elements in the result set
"for(... in ...)" on page 728	Iterates over the enumerable properties of an object, in arbitrary order. For each distinct property, statements can be executed.

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 "Preflight Results and Messages" on page 482 and "Designer User Interface" on page 390).

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
warn()	message: string	Logs a warning message

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: <code>record.fields['fieldname']</code> or <code>record.fields.fieldname</code> .
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 <code>prod_id</code> in the first record of a detail table called <code>detail</code> , use: <code>record.tables["detail"][0].fields["prod_id"]</code> .

Examples

The following Standard 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 778 and "Writing your own scripts" on page 340.)

```
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 369.)

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.

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 745.

Function	Description
"Examples" on page 699	Adds elements to a set of HTML elements.
"Examples" on page 700	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 701	Inserts content after each element in a set of HTML elements..
"Examples" on page 704	Inserts content at the end of each element in a set of HTML elements.
"Examples" on page 706	Change the given attribute of the element or set of HTML elements with the given value.
" Examples" on page 708	Inserts content before an element or before each element in a set of HTML elements.
"Examples" on page 709	Returns the immediate children of an HTML element.
"Examples" on page 764	Returns a new result set containing a copy of each element in a set of HTML elements.

Function	Description
"Examples" on page 711	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 712	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 714	Removes the contents (child elements and inner HTML) from one element or a set of elements in the template.
"Example" on page 714	Returns a subset of the current result set.
"Example" on page 715	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.
get(index)	Returns the element found at the supplied index in a set of HTML elements.
"Example" on page 716	Returns <code>true</code> if the first element in this result set has the specified class.
height()	Gets or sets the outer height of an element, including padding and borders.
"hide()" on page 716	Hides the HTML element or set of HTML elements.
"Examples" on page 717	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.
"info()" on page 782	Post Pagination Scripts only. Returns pagination information for the first element in this result set.

Function	Description
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 717	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 719	Returns the parents of the elements in a set of HTML elements.
"Examples" on page 719	Inserts content at the beginning of an HTML element or of each element in a set of HTML elements.
"Examples" on page 722	Removes an HTML element or a set of HTML elements from the document.
"Examples" on page 723	Removes the specified attribute from each element in this result set.
"Examples" on page 723	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 724	Replaces an HTML element or a set of HTML elements (with a snippet, for example). Returns the result set.
"show()" on page 724	Shows the HTML element or a set of HTML elements.
size()	Gets the number of elements in this result set. Equivalent to the <code>length</code> property.
tagName()	Returns the HTML tag name of the first element in this result set, in uppercase. For an example see: "Creating a Table Of Contents" on

Function	Description
	page 385.
"Example" on page 725	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.
width()	Gets or sets the outer width of an element, including padding and borders.

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 745).

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");
```

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	<p id="chapters">{{chapters}}</p>	<h1>Chapter 1</h1> <p>Lorem ipsum...</p> <h1>Chapter 2</h1> <p>Lorem ipsum...</p> <h1>Chapter 3</h1> <p>Lorem ipsum...</p> <h1>Chapter 4</h1> <p>Lorem ipsum...</p>

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 745). 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.

```
results.addClass("foo");
```

Selector	Matched element	Matched element after script execution
p	<p>Hello world</p>	<p class="foo bar">Hello world</p>

The following script adds two class names to a paragraph.

```
results.addClass("foo bar");
```

Selector	Matched element	Matched element after script execution
p	<p>Hello world</p>	<p class="foo bar">Hello world</p>

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 745). See also: " Examples" on page 708.

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 745). 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>");
```

Matched element	Matched element after script execution
<code><p id="salesrep">Peter Parker</p></code>	<code><p id="salesrep">Peter Parker</p> <p>Lorem ipsum</p></code>

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
<code><p id="salesrep">Peter Parker</p></code>	<code><p id="salesrep" style="color: red;">Peter Parker</p> <p>Lorem ipsum</p></code>

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
<code><p id="salesrep">Peter Parker</p></code>	<code><p id="salesrep">Peter Parker</p> <p>Lorem ipsum</p></code>

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");
```

Matched element	Matched element after script execution
<p>Lorem dolor sit amet, consectetur adipiscing elit.</p>	<p>Lorem ipsum dolor sit amet, consectetur adipiscing elit.</p>

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
<p id="salesrep">Peter Parker</p>	<p id="salesrep">Peter Parker</p> 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 745). See also: "Examples" on page 719.

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 745). `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
<code>#box</code>	<pre><div id="box"> <h1>Personal information</h1> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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
<code>.name</code>	<pre><div> <h1>Personal information</h1> <p class="name">Name: </p> </div></pre>	<pre><div> <h1>Personal information</h1> <p class="name">Name: Peter Parker</p> </div></pre>

This script's selector is `<div>`, 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
<code>div</code>	<pre><div></pre>	<pre><div></pre>

Selector	Matched element	Matched element after script execution
	<pre><h1>Personal information</h1> </div> <div> <h1>Personal information</h1> </div></pre>	<pre><h1>Personal information</h1> <p>Peter Parker</p> </div> <div> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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
<code>#box</code>	<pre><div id="box"> <h1>Personal information</h1> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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
<pre><div id="box"> <h1>Personal information</h1> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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");
```

Matched element	Matched element after script execution
<pre><div id="box"> <h1>Personal information</h1> </div></pre>	<pre><div id="box" style="color: red;"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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.

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 745). See also: "Examples" on page 701.

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.

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
<code>#salesrep</code>	<code><p id="salesrep">Peter Parker</p></code>	<code><p>Lorem ipsum</p></code> <code><p id="salesrep">Peter Parker</p></code>

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
<code><p id="salesrep">Peter Parker</p></code>	<code><p>Lorem ipsum</p></code> <code><p id="salesrep">Peter Parker</p></code>

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
<code><p id="salesrep">Peter Parker</p></code>	<code><p >Lorem ipsum</p></code> <code><p id="salesrep" style="color: red;">Peter Parker</p></code>

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");
```

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
<code><p>ipsum dolor sit amet, consectetur adipiscing elit.</p></code>	<code><p>Lorem ipsum dolor sit amet, consectetur adipiscing elit.</p></code>

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
<code><p>ipsum dolor sit amet, consectetur adipiscing elit.</p></code>	<code>Lorem Ipsum <p id="salesrep">Peter Parker</p></code>

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);
```

clone()

This function returns a new set containing a copy of each element in a set; see "Dynamically adding sections (cloning)" on page 379.

To duplicate an existing template element, clone it before calling `append()`; see "Examples" on page 704.

Note

Calling `clone()` multiple times before calling `addAfter()` or `addBefore()` currently won't work, as each next clone will get the same default name and replaces the previous clone. To avoid this you should either explicitly assign a unique name to each clone (i.e. not rely on the default name), or call `addAfter()` or `addBefore()` before calling `clone()` again.

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
```

```

["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.

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 709).

The `closest()` command is based on the `closest()` command found in the jQuery library: <https://api.jquery.com/closest/>.

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 colored 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 745), 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");
```

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);
```

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	<p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit.</p>	<p>Lorem ipsum amet, consectetuer adipiscing elit.</p>

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 script 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 https://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 script filters all even rows from the `results` and colors them red.

```
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');
}
```

hide()

Hides the elements in a set. This doesn't remove the elements; to make them visible again, use the function "show()" on page 724.

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 311.

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);
```

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 '`<i>OL Connect 1</i>`'. It uses `html()` so the HTML formatting (`<i>` and `</i>`) 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.pagerref() + '</span></li>';
});
toc += '</ul>';
results.after(toc);

```

The first line creates a variable for the table of contents, which will be a list (a `` 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 253.

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 711).

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 778). 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 745). See also: "Examples" on page 704.

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 745). `Append` creates a new result set.

content

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
<code>#box</code>	<pre><div id="box"> <p>Peter Parker</p> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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	<pre><div> <h1>Personal information</h1> <p class="name">Peter Parker</p> </div></pre>	<pre><div> <h1>Personal information</h1> <p class="name">Name: Peter Parker</p> </div></pre>

This script inserts content in multiple <div> elements at the same time.

```
results.prepend("<h1>Personal information</h1>");
```

Selector	Matched element	Matched element after script execution
div	<pre><div id="box"> <p>Peter Parker</p> </div> <div id="box"> <p>Peter Parker</p> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div> <div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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	<pre><div id="box"> <p>Peter Parker</p> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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
<pre><div id="box"> <p>Peter Parker</p> </div></pre>	<pre><div id="box"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

This script uses the function `query()` to find a box, prepends a heading and sets the text color of the entire box to red.

```
query("#box").prepend("<h1>Personal information</h1>").css
("color", "red");
```

Matched element	Matched element after script execution
<pre><div id="box"> <p>Peter Parker</p> </div></pre>	<pre><div id="box" style="color: red;"> <h1>Personal information</h1> <p>Peter Parker</p> </div></pre>

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	<p>Lorem ipsum dolor sit amet, consectetuer adipiscing elit.</p>	<p>Lorem ipsum amet, 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 706).

removeAttr(attributeName)

attributeName

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.removeClass("foo");
```

Selector	Matched element	Matched element after script execution
p	<code><p class="foo">Hello world</p></code>	<code><p>Hello world</p></code>

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.

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 716.

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 311.

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();
}
```

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);
```

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 scripts demonstrate a simple iteration over the elements in the `results` (the set of HTML elements that match the selector of the script).

The first 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 712.)

```
results.each(function(index) {
    results[index].css('background-color', 'red');
});
```

This 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);
});
```

Selector	Matched element	Matched element after script execution
p	<p></p> <p></p> <p></p>	<p>3</p> <p>1</p> <p>7</p>

The next 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	<p></p> <p></p> <p></p>	<p>0</p> <p>1</p> <p>2</p>

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 https://www.w3schools.com/tags/att_global_data.asp.

Selector	Matched element	Matched element after script execution
p	<p data-translate="first"></p> <p data-translate="last"></p> <p data-translate="email"></p>	<p>primero</p> <p>último</p> <p>dirección de correo electrónico</p>

fatalError(message)

The `fatalError()` function triggers a fatal error that aborts content creation.

message

A string.

When a script calls this function in Preview mode, the script that triggers it is marked with an error icon in the Scripts pane, and the given message is displayed in a hint.

When generating output from the Designer, the Designer will log the error and display an error dialog with the given message. Content creation is aborted.

Note

Errors thrown in a `try` statement do not abort content creation. Content creation will continue with the next script, the same record.

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> <p>first</p> <p>last</p> <p>email</p>

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>");
}
```

Selector	Matched element	Matched element after script execution
#test	<h1 id="test">Fields</h1>	<h1 id="test">Fields</h1> <p>Peter</p> <p>Parker</p> <p>pparker@localhost.com</p>

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 305 and "Formatting variable data" on page 309.

Note

The `TextFormatter` object is now deprecated and will eventually be removed.

Functions

Function	Description
<ul style="list-style-type: none"> • <code>currency()</code> • <code>currencyNoSymbol()</code> • <code>grouped()</code> • <code>integer()</code> • <code>integerUngrouped()</code> • <code>number()</code> 	<p>The <code>currency()</code>, <code>grouped()</code>, <code>integer()</code> and <code>number()</code> functions allow you to format a number, possibly with a custom pattern. See "Number functions" on page 743.</p>

Function	Description
<ul style="list-style-type: none"> • <code>numberUngrouped()</code> 	
<ul style="list-style-type: none"> • <code>date()</code> • <code>dateLong()</code> • <code>dateMedium()</code> • <code>dateShort()</code> • <code>dateTime()</code> • <code>dateTimeLong()</code> • <code>dateTimeMedium()</code> • <code>dateTimeShort()</code> • <code>timeLong()</code> • <code>timeMedium()</code> • <code>timeShort()</code> 	<p>The <code>date()</code>, <code>dateTime()</code> and <code>time()</code> functions allow you to format a date and/or time in different ways. See "Creating a Date object from a string" on page 733.</p>
<ul style="list-style-type: none"> • <code>lowerCase()</code> • <code>upperCase()</code> • <code>properCase()</code> 	<p>The text formatting functions are used on Strings. <code>lowerCase()</code> transform all characters to lowercase, <code>upperCase()</code> transforms all characters to uppercase and <code>properCase()</code> transforms the first character of each word to uppercase and all other characters to lowercase.</p>

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 290.

`date(value, pattern)`

Formats a date 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: "MMMM dd, yyyy"; see "Date and time patterns" on page 734. 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 734.

Note that the repetition of pattern letters determines the exact presentation.

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 the facing page. 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

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

Creating a Date object from a string

When you open a data file or database in the Designer, 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 https://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.

```
/* 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");
```

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" below.

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. In the Script Editor, the pattern can be passed to a `date`, `dateTime` or `Time` function of the `formatter`; see "formatter" on page 729.

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.

Note

The pattern letters and patterns on this page are only suitable for **displaying** dates and times in templates.

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 zone	-08; -0800; -08:00

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>.

loadhtml()

Loads HTML content from the specified HTML file. The file may be located inside the template (see "Snippets" on page 248) or hosted on a Content Management System or on another location outside the template.

An optional `selector` allows you to retrieve only the content of matching elements.

Note

Loadhtml() is cached per batch run (based on the URL) in print/email.

Tip

To load a JavaScript file (.js) or a style sheet (.css) you can use `loadtext()`. See "loadtext()" on page 740.

Tip

External content is not loaded while editing a script. To test a script that loads external content, you can do a preflight; see "Preflight" on page 350.

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 an HTML file residing in the Snippets folder on the Resources panel.

In order to retrieve files from outside the template the `file` protocol is supported as well as the `http/https` protocols.

The complete syntax of a fully qualified URL with the "file" protocol is: `file://<host>/<path>`. If the host is "localhost", it can be omitted, resulting in `file:///<path>`, for example:

`file:///c:/somefolder/somecontent.html`.

When using the `http/https` protocol, remember that only absolute paths are supported inside remote snippets (see "Remote snippets" on page 249).

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'));
```

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
('file:///C:/Users/PParker/Documents/Example.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 containing a path that can be absolute or relative to the section/context.

Use `snippets/<snippet-name>` to retrieve the content from an HTML file residing in the Snippets folder on the Resources panel.

In order to retrieve files from outside the template, the `file` protocol is supported as well as the `http/https` protocols.

The complete syntax of a fully qualified URL with the "file" protocol is: `file://<host>/<path>`. If the host is "localhost", it can be omitted, resulting in `file://<path>`, for example:

`file:///c:/somefolder/somecontent.html`.

When using the `http/https` protocol, remember that only absolute paths are supported inside remote snippets (see "Remote snippets" on page 249).

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 778).

```
var mysnippet = loadhtml('snippets/snippet-
selectors.html', '#item3');
results.replaceWith(mysnippet);
```

This script loads the **children** of the selected element.

```
var snippet = loadhtml
('file:///C:/Users/PParker/Documents/Example.html','foobar').children();
results.replaceWith(snippet);
```

The next script loads a **remote** snippet (see "Remote snippets" on page 249), 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 a JSON enabled server using a standard HTTP request. Popular content management systems like WordPress (requires JSON API plugin) 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>

Tip

External content is not loaded while editing a script. To test a script that loads external content, you can do a preflight; see "Preflight" on page 350.

loadjson(location)

Loads json data from the specified location.

location

String; the supplied location should be either a URL or a relative file path. The `file` protocol is supported as well as the `http/https` protocols. The complete syntax of a fully qualified

URL with the "file" protocol is: file://<host>/<path>. If the host is "localhost", it can be omitted, resulting in file:///<path>, for example: file:///c:/somefolder/somejson.json.

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>");
}
```

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)
```

loadtext()

Loads text from the specified text file, for example a JavaScript file (.js) or style sheet (.css). The text file may be located inside the template or hosted on a Content Management System or on another location outside the template.

Tip

To load an HTML fragment, you can use `loadhtml()` (see `Skin/Formats/CrossReferencePrintFormat("loadhtml()Loads HTML content from the specified HTML file. The file may be located inside the template (see Skin/Formats/CrossReferencePrintFormat("Snippets" on page 1))` or hosted on a Content Management System or on another location outside the template. An optional selector allows you to retrieve only the content of matching elements. `Loadhtml()` is cached per batch run (based on the URL) in print/email. To load a JavaScript file (.js) or a style sheet (.css) you can use `loadtext()`. See `Skin/Formats/CrossReferencePrintFormat("loadtext()" on page 1)`. External content is not loaded while editing a script. To test a script that loads external content, you can do a preflight; see `Skin/Formats/CrossReferencePrintFormat("Preflight" on page 1)`. `loadhtml(location)` Loads all HTML from the specified HTML file. `locationString` containing a path that can be absolute or relative to the section/context. Use `snippets/<snippet-name>` to retrieve the content from an HTML file residing in the Snippets folder on the Resources panel. In order to retrieve files from outside the template the file protocol is supported as well as the http/https protocols. The complete syntax of a fully qualified URL with the "file" protocol is: `file://<host>/<path>`. If the host is "localhost", it can be omitted, resulting in `file:///<path>`, for example: `file:///c:/somefolder/somecontent.html`. When using the http/https protocol, remember that only absolute paths are supported inside remote snippets (see `Skin/Formats/CrossReferencePrintFormat("Remote snippets" on page 1)`). 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'));` 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('file:///C:/Users/PParker/Documents/Example.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. `locationString` containing a path that can be absolute or relative to the section/context. Use `snippets/<snippet-name>` to retrieve the content from an HTML file residing in the Snippets folder on the Resources panel. In order to retrieve files from outside the template, the file protocol is supported as well as the http/https protocols. The complete syntax of a fully qualified URL with the "file" protocol is: `file://<host>/<path>`. If the host is "localhost", it can be omitted, resulting in

`file:///<path>`, for example: `file:///c:/somefolder/somecontent.html`. When using the `http/https` protocol, remember that only absolute paths are supported inside remote snippets (see `Skin/Formats/CrossReferencePrintFormat("Remote snippets"` on page 1)).`selectorString`. 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 `Skin/Formats/CrossReferencePrintFormat("results"` on page 1)).`var mysnippet = loadhtml('snippets/snippet-selectors.html', '#item3');``results.replaceWith(mysnippet);` This script loads the children of the selected element.`var snippet = loadhtml('file:///C:/Users/PParker/Documents/Example.html', 'foobar').children(); results.replaceWith(snippet);` The next script loads a remote snippet (see `Skin/Formats/CrossReferencePrintFormat("Remote snippets"` on page 1)), 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.` on page 1)); for JSON, use `loadjson()` (`"loadjson"` on page 739).

Tip

External content is not loaded while editing a script. To test a script that loads external content, you can do a preflight; see `"Preflight"` on page 350.

loadtext(location)

Returns the content of a text file. The file extension doesn't have to be `.txt`. It may also be a JavaScript file (`.js`) or a style sheet (`.css`), for instance.

location

String containing a path that can either be a URL or a path that is relative to the section/context.

In order to retrieve files from outside the template the `file` protocol is supported as well as the `http/https` protocols.

The complete syntax of a fully qualified URL with the "file" protocol is: `file://<host>/<path>`. If the host is "localhost", it can be omitted, resulting in `file:///<path>`, for example: `file:///c:/somefolder/somecontent.js`.

Examples

This script loads a JavaScript file (from the Resources pane) directly into a `<script>` element.

```
var js = loadtext("js/my-script.js");
results.append(query("<script>").text(js));
```

The following script loads a style sheet (from the Resources pane) into the <style> element.

```
var css = loadtext("css/my-styles.css");
results.append(query("<style type='text/css'>").text(css));
```

Number functions

Note

The locale also influences the output of some Number functions; see "Locale" on page 290.

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 290.

value

A number. Note that all data fields contain strings. Strings need to be converted to a number before passing them to this function.

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 290. For available patterns, see "Number patterns" on the facing page.

value

A number. Note that all data fields contain strings. Strings need to be converted to a number before passing them to this function.

pattern

A custom pattern that may consist of symbols; see "Number patterns" on the facing page. 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. Note that all data fields contain strings. Strings need to be converted to a number before passing them to this function.

grouped(value)

Formats a number using a thousands separator. Which separator is used depends on the Locale, see "Locale" on page 290.

value

A number. Note that all data fields contain strings. Strings need to be converted to a number before passing them to this function.

Number patterns

Numbers, used in a template, can be displayed using a custom pattern.

In the Script Editor, the pattern can be passed to a function of the `formatter`; see "formatter" on page 729. The custom pattern may consist of pattern characters (see below), a prefix and a suffix.

Note that all data fields contain strings. 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>.

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 778.

Note

The `query()` function can't be used in a Control Script, since Control Scripts don't have access to the DOM.

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 https://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 script applies a style rule to the queried elements.

```
query("#test1").css("color", "yellow");
```

Matched element	Matched element after script execution
<code><p id="test1">foo</p></code>	<code><p id="test1" style="color: yellow;">foo</p></code>

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);
```

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 https://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).

```
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 166.

resource()

The `resource()` function returns information about an image resource. It can also be used to check if a file exists.

This function is useful in a Control Script, for example to check the number of pages or the page height and width before setting it as a background (see "Control Script: Setting a Print section's background" on page 376).

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)

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.
permissions	Permissions	PDF only. Allows to verify if a PDF is password-protected or has restrictions for printing.
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
}
```

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 369 for information about this kind of scripts, how to insert them and what you can do with them.

Other objects that are available to Control Scripts

The list below isn't exhaustive: most of the objects listed in the Designer API (see "Standard Script API" on page 691) 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 (see "What Control Scripts are" on page 369). For example, the `query()` function can't be used in a Control Script because it requires access to the DOM which a Control Script doesn't have.

Object	Usage
"section" on page 782	Much of the Control Script magic is performed by setting one of the fields of the <code>section</code> object. Via the <code>section</code> 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 <code>merge.template.contexts.ContextType.sections["section name"]</code> . For example: <code>merge.template.contexts.PRINT.sections["Section EN"]</code> .

Object	Usage
"context" on page 775	<p>Object that contains one context and its sections. It is accessed through the <code>template</code> object: <code>merge.template.contexts</code>.</p> <p>To get access to one context, you have to specify the <code>ContextType</code> (see "ContextType" on page 772), for example: <code>var printContext = merge.template.contexts.PRINT;</code></p> <p>Through the <code>merge</code> object you can find out which context is currently being merged: <code>merge.context</code>.</p>
"template" on page 768	The <code>template</code> object contains all contexts and sections. It is accessed through the <code>merge</code> object: <code>merge.template</code> .
"merge" on page 753	The <code>merge</code> object gives access to the template with all of its contexts and sections .
channel (see "Channel" on page 771)	<p>The channel for which output is generated. This is registered in the <code>merge</code> object: <code>merge.channel</code>.</p> <p>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.</p>
"record" on page 693	The current record in the main data set. To get the value of a field in the record, use <code>record.fields['fieldname']</code> or <code>record.fields.fieldname</code> .

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 782) inside a

Field	Type	Description
		<p>particular context defined in the template.</p> <p>Note: When using <code>merge.context.sections</code> keep in mind that for example 'Section X' might only exist in your Print context, so using <code>merge.context.sections['Section X']</code> without enclosing it in the <code>if</code> statement <code>if (merge.context.type == ContextType.PRINT) {}</code> will yield an error when the script runs for other contexts. Alternatively, use the <code>template</code> object to access a specific context: <code>merge.template.contexts.PRINT.sections['Section X']</code>.</p>
type	"ContextType" on page 772	The context type: PRINT, EMAIL or WEB.

Function	Description
"query (selector)" on page 776	Runs a query across all sections in the Print context. This function is only available in Post Pagination Scripts, which are only applied to the Print context. See "Post Pagination Scripts" on page 383.

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;
    }
}

```

media

The `media` object can be used to specify, enable and position a stationery's front and back in a Control Script (see "Control Scripts" on page 369 and "Control Script API" on page 749). Note that Media are only used in Print sections (see "Media" on page 139).

The available media are listed in, and retrieved via, the `template` object (see "template" on page 768), for example: `var myMedia = merge.template.media.My_Media.`

Fields

Field	Type	Description
stationery	Stationery	The Stationery's object's <code>front</code> and <code>back</code> fields are used to set the front and the back of a Media; see "front, back" below.

front, back

The `front` and `back` fields of the Stationery object are used to set the front and the back of a Media (see "media" above).

Both `front` and `back` have the following fields.

Field	Type	Description
enabled	boolean	When enabled, the stationery will be included in the output (Print sections only).
url	String	Specifies the image to use as virtual stationery. For a file named <code>My_Media.pdf</code> , stored inside the template resources, the url would be <code>images/My_Media.pdf</code> . The complete syntax for an external file is: file://<host>/<path> . If the host is "localhost", it can be omitted, resulting in file:///<path> , for example: <code>file:///c:/users/Administrator/Pictures/My_Media.jpg</code> .
page	Number	PDF and TIFF files may count more than one page. Specify the page number to use.

Field	Type	Description
position	"MediaPosition" on page 773	The <code>position</code> is used to place the stationery on the page (absolute, centered, fit to media).
top	Measurement	The vertical offset from the top of the page, used to position the stationery (only when absolute positioning is selected). This value can be negative.
left	Measurement	The horizontal offset from the left of the page, used to position the stationery (only when absolute positioning is selected). This value can be negative.

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 more information about Control Scripts, see "Control Scripts" on page 369 and "Control Script API" on page 749.

Some of the objects are also useful in Post Pagination Scripts; see "Post Pagination Scripts" on page 383 and "Post Pagination Script API" on page 774.

For sample scripts, follow the links to the respective objects.

Field	Type	Description
channel	"Channel" on page 771	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.
"context" on page 775	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, <code>merge.context</code> shows with which context the record is merged.

Field	Type	Description
"section" on page 782	Section	<p>In Standard Scripts, this object defines the section that is being merged.</p> <p>Note! In Control Scripts, <code>merge.section</code> is not available.</p> <p>To retrieve any section in a Control Script, use: <code>merge.template.contexts.ContextType.Section['Section name'];</code> (for example: <code>merge.template.contexts.PRINT.sections["Section EN"]</code>).</p> <p>In Post Pagination Scripts, only Print sections are available.</p>
"template" on page 768	Template	<p>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 <code>merge.template.contexts</code> (see "context" on page 775) and to manipulate the sections in those contexts (see "section" on page 782).</p>

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 369 and "Control Script API" on page 749).

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" on page 761	Background	Print sections only. Used to set a PDF background on a Print section. See "Control Script: Setting a Print section's background" on page 376 and "BackgroundResource" on page 770.
enabled	Boolean	<p>Enables or disables this Print or Web section for output (see "Examples" on page 758). Note that even if a section is disabled, the <code>part</code> and <code>restartPageNumber</code> fields are still effective to define the parts division and page numbering over multiple sections when applicable.</p> <p>The default enabled state for sections (before any control script runs) is as follows: 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.</p>
headers	String	Email sections only. Used to set custom email headers. For examples, see "Adding custom ESP handling instructions" on page 812.
margins	Margins	Print sections only. Used to set the print margins of a section. You can set the bottom, left, right and top margin using a Measurement string; for example, "2in" sets a margin to two inches.
minPages	Number	Minimum number of pages in the section. The default is 1.

Field	Type	Description
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 <code>part</code> .
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 382.
part	String	Name for the part. <code>part</code> 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 374.
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 382.*
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 sections. The default value is <code>false</code> , meaning that each section will start with page 1 (to emulate behavior

Field	Type	Description
		of previous versions).
"sheetConfig" on page 764	SheetConfig	Print sections only. Overrides the Master Page, Media and Duplex printing options of first/middle/last/single or all sheets in a Print section.

* 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 166). 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
"Examples" on page 764	Clone this section. See "Dynamically adding sections (cloning)" on page 379.
addAfter()	Add a cloned section after this section.
addBefore()	Add a cloned section before this section.
"paginate()" on page 789	Post Pagination Scripts only. Paginates the content of a Print 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 374).

```
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 374)

```

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";
}
}

```

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 382.

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 absolute 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 770, "MediaPosition" on page 773 and "Control Script: Setting a Print section's background" on page 376.

Cloning Print sections

For background information on cloning Print sections, see: "Dynamically adding sections (cloning)" on page 379.

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);
    }
}

```

background

The `background` object holds the PDF background of a Print section (see "section" on page 782 and "Control Script: Setting a Print section's background" on page 376).

Fields

Field	Type	Description
allPages	Boolean	Show all pages from the PDF.
end	Number	The end page of the PDF to use as a background for the section.
left	Measurement	The left offset of the PDF background (only when absolute positioning is selected).
position	"MediaPosition" on page 773	Set the position of the PDF background (Absolute, centered, fit to media).
rotation	Number	Set the rotation of the PDF background to 0, 90, 180 or -90 degrees.
scale	Number	Set the size of the PDF background as a percentage of the original image.

Field	Type	Description
source	"BackgroundResource" on page 770	<p>Set the source of the PDF background (NONE, Datamapper, PDF Resource).</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>Setting the background to NONE does not reset any other option, such as the position and scale of the background.</p> </div> <div style="border: 1px solid #ccc; padding: 10px; margin: 10px 0;"> <p>Note</p> <p>DataMapper cannot be used in PrintShopMail Connect. The DataMapper is included only in PlanetPress Connect and PreS Connect.</p> </div>
start	Number	The start page of the PDF to use as a background for the section.
top	Measurement	The top offset of the PDF background (only when absolute positioning is selected).
url	String	<p>The location of the PDF to use as a background for the section. For a file named background.pdf, stored inside the template resources, the url would be <code>images/background.pdf</code>.</p> <p>The complete syntax for an external file is: <code>file://<host>/<path></code>. If the host is "localhost", it can be omitted, resulting in <code>file:///<path></code>, for example:</p> <pre>file:///c:/resources/images/image.jpg</pre>

Example

This script 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;
```

Tip

For more examples, see "Control Script: Setting a Print section's background" on page 376.

clone()

This function returns a new set containing a copy of each element in a set; see "Dynamically adding sections (cloning)" on page 379.

To duplicate an existing template element, clone it before calling `append()`; see "Examples" on page 704.

Note

Calling `clone()` multiple times before calling `addAfter()` or `addBefore()` currently won't work, as each next clone will get the same default name and replaces the previous clone. To avoid this you should either explicitly assign a unique name to each clone (i.e. not rely on the default name), or call `addAfter()` or `addBefore()` before calling `clone()` again.

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
["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.

sheetConfig

Sheet configuration settings are the Master Page, Media and Duplex printing options of first/middle/last/single or all sheets in a **Print** section. The `sheetConfig` object holds these options and can be used to set (or rather, override) them via a Control Script (see "Control

Scripts" on page 369 and "Control Script API" on page 749). This is especially useful when you need identical sections with different sheet configuration settings.

The `sheetConfig` object can be retrieved via the `section` object (see "section" on page 782); see the example below.

Fields

The fields of the `sheetConfig` object correspond to settings in the Sheet Configuration dialog; see "Sheet Configuration dialog" on page 447.

Field	Type	Description
duplex	Boolean	Enables or disables duplex (two-sided) printing.
facingPages	Boolean	(Only with duplex printing.) When <code>facingPages</code> is set to <code>true</code> , the margins of the section switch alternately, so that pages are printed as if in a magazine or book.
mediaRotation	Number	Rotates the Media by 0, 90, 180, or -90 degrees.
omitEmptyBackside	Boolean	(Only with duplex printing.) Resets a page to Simplex if it has an empty back side. This may reduce volume printing costs.
positions	Positions (see "Position" on the facing page)	Used to modify the Master Page and Media and to allow content on sheets in different positions; for example: <pre>var section1 = merge.template.contexts.PRINT.sections [0]; section1.sheetConfig.positions.all.med ia = "Media 1";</pre> For an overview of the available settings in each position see "Position" on the facing page.

Field	Type	Description
tumble	Boolean	(Only with duplex printing.) When <code>tumble</code> is set to <code>true</code> , pages are printed like in a calendar. (On Portrait output, this would be equivalent to short-edge duplex.)

Example

This script retrieves a section and changes its sheet configuration settings.

```
let section = merge.template.contexts.PRINT.sections["Section 1"];
section.sheetConfig.duplex = true;
section.sheetConfig.omitEmptyBackside = true;
section.sheetConfig.facingPages = true;
section.sheetConfig.mediaRotation = 0;
```

Position

The `positions` property of the `sheetConfig` object (see "sheetConfig" on page 764) can be used to retrieve and modify settings for sheets in different positions. Available positions are:

- **single**: The only sheet in a section.
- **first**: The first sheet in the section.
- **middle**: All after the first sheet and before the last sheet in a section.
- **last**: The last sheet in a section.
- **all**: All sheets in the section.

Note

Settings for all sheets may conflict with settings for a particular position. In such cases, the setting that was specified last overrides the other.

Each of these positions has the following fields.

Field	Type	Description
allowContent	AllowContent	Used to specify on which sides of a sheet (in a certain position) content is allowed. Possible values: <ul style="list-style-type: none"> • AllowContent.ALL_SIDES • AllowContent.FRONT_ONLY (only with duplex printing) • AllowContent.BACK_ONLY (only with duplex printing) • AllowContent.NONE (not allowed on all, single and middle positions)
masterBack	String	Specifies the Master Page to use on the backside of sheets in this position.
masterFront	String	Specifies the Master Page to use on the front of sheets in this position.
media	String	Specifies the Media to use with sheets in this position.

Note

To remove a Media or Master Page via script, give it the value `undefined`, or `null`, or an empty string (""); see the examples below.

Examples

This script retrieves a Print section and modifies a number of settings for all of its sheets.

```
let section = merge.template.contexts.PRINT.sections["Section 1"];
section.sheetConfig.positions.all.allowContent = AllowContent.ALL_SIDES;
section.sheetConfig.positions.all.media = "MyMedia";
section.sheetConfig.positions.all.masterFront = "Master page 1";
```

```
section.sheetConfig.positions.all.masterBack = undefined; // or null, or an empty string
```

The following script ensures that empty backsides of single sheets are omitted.

```
let section = merge.template.contexts.PRINT.sections["Section 1"];  
section.sheetConfig.positions.single.omitMasterOnEmptyBackside = true;
```

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 369 and "Control Script API" on page 749).

It is retrieved via the merge object: `merge.template` (see "merge" on page 753).

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 772).

Field	Type	Description
contexts	Array	Array of contexts (see "context" on page 775) available in the template. The contexts contain the sections (see "section" on page 782).
masterpages	Array	Array of Master Pages available in the template.
"media" on page 752	Array	Media available to this template (see "Media" on page 139). For each of them you can specify, enable and position the stationery's front and back.
"properties" on the next page	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;
}
```

properties

The `properties` object inside the `template` object (see "template" on the previous page) contains all default properties of the template file as well as any custom properties.

To view and complement the file properties, select **File > Properties** on the menu. See File Properties.

Following are the default properties.

Field	Type	Description
application	String	Application version when the document was last saved
author	String	Original author of the document
company	String	company name
created	Date	Date and time on which the document was created
customProperties	List	A list of defined custom properties

Field	Type	Description
description	String	Description of the document
file	String	File name of the document
keywords	String	Semicolon-separated list of keywords
modified	Date	Date and time on which the document was last saved

Example

This script stores a default property (author) and a custom property in variables.

```
var author = merge.template.properties.author;
var myProperty = merge.template.customProperties.myPropertyName;
```

BackgroundResource

BackgroundResource is an enumeration for the types of background resources for a Print section (see "background" on page 761 and "section" on page 782).

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_PDF	<p>A PDF file retrieved via the active data mapping configuration. This can be the PDF file that was used as input file, or another type of input file, converted to PDF.</p> <div style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>Note</p> <p>From DataMapper input cannot be used in PrintShopMail Connect. The DataMapper is included only in PlanetPress Connect and PreS Connect.</p> </div>

Field	Description
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
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 123.

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.
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 `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.

Value	Description
PRINT	The context is the Print 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 (<code>background.top</code>) and left (<code>background.left</code>) measured from the top and left side of the section.
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";

```

Post Pagination Script API

The table below lists the functions and objects that are only available in Post Pagination Scripts. Click through to the object to find a description and sample scripts.

See "Post Pagination Scripts" on page 383 for information about this kind of scripts, how to insert them and what you can do with them.

Note

Post Pagination Scripts only apply to the Print context. These functions and objects cannot be used with other contexts.

Tip

It is possible to *define* a function in a Control Script which calls these functions, as long as that function is only invoked from a Post Pagination Script.

Object or function	Usage
merge.context. "query(selector)"	Call <code>merge.context.query(selector)</code> to run a query across all sections in the Print context. The query returns a result set that is read-

Object or function	Usage
on page 776	only.
merge.section. "paginate()" on page 789	A call to <code>merge.section.paginate()</code> triggers pagination of the current section.
"PaginationInfo" on page 777	This object contains essential information about one element in order to create a table of contents (see "Creating a Table Of Contents" on page 385).
results."info()" on page 782	A call to <code>results.info()</code> returns pagination information (see "PaginationInfo" on page 777) for the first element in the result set of a query (see "query(selector)" on the facing page).

Other objects that are available to Post Pagination Scripts

The list above isn't exhaustive: the objects listed in the Designer API (see "Standard Script API" on page 691) and in the Control Script API (see "Control Script API" on page 749) are also available in Post Pagination Scripts.

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	<p>Array of sections (see "section" on page 782) inside a particular context defined in the template.</p> <p>Note: When using <code>merge.context.sections</code> keep in mind that</p>

Field	Type	Description
		for example 'Section X' might only exist in your Print context, so using <code>merge.context.sections['Section X']</code> without enclosing it in the <code>if</code> statement <code>if (merge.context.type == ContextType.PRINT) {}</code> will yield an error when the script runs for other contexts. Alternatively, use the <code>template</code> object to access a specific context: <code>merge.template.contexts.PRINT.sections['Section X']</code> .
type	"ContextType" on page 772	The context type: PRINT, EMAIL or WEB.

Function	Description
"query (selector)" below	Runs a query across all sections in the Print context. This function is only available in Post Pagination Scripts, which are only applied to the Print context. See "Post Pagination Scripts" on page 383.

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;
    }
}
```

query(selector)

This function of the `context` object (see "context" on the previous page) returns a result set, containing the HTML elements in **all** sections of the Print context that match the supplied CSS selector.

The new result set is of the type `QueryResults`, just like the `results` object which is also the result of a (hidden) query (see "results" on the facing page), but it is **read-only**.

This function can only be called in a Post Pagination Script (see "Post Pagination Scripts" on page 383). It is indispensable in a script that creates a table of contents, as described in the following topic: "Creating a Table Of Contents" on page 385.

selector

A String containing a CSS selector. See https://www.w3schools.com/cssref/css_selectors.asp for CSS selectors and combinations of CSS selectors.

Example

This script returns all level 1 headings in all sections of the Print context.

```
var headings = merge.context.query("h1");
```

PaginationInfo

The `PaginationInfo` object is returned by the `info()` function of the `results` object (see "info()" on page 782 and "results" on the facing page). It contains information about where an element is located: on which page and which sheet, and the section in which the element is located.

This object (as well as the `info()` function) is only available in Post Pagination Scripts (see "Post Pagination Scripts" on page 383). It is essential in a Post Pagination Script that creates a table of contents, as described in the following topic: "Creating a Table Of Contents" on page 385.

Field	Type	Description
pageCount	Number	The number of pages in the section in which the first element of the <code>results</code> is located.
pageNo	Number	The page number on which the first element of the <code>results</code> is located.
"section" on page 782	Section	The section in which the element is located. This is always a Print section, since Post Pagination Scripts only operate on the Print context.

Field	Type	Description
sheetCount	Number	The number of sheets in the section in which the first element of the <code>results</code> is located.
sheetNo	Number	The sheet number on which the first element of the <code>results</code> is located.

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 <code>size()</code> .

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 745.

Function	Description
"Examples" on page 699	Adds elements to a set of HTML elements.
"Examples" on page 700	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 701	Inserts content after each element in a set of HTML elements..
"Examples" on page 704	Inserts content at the end of each element in a set of HTML elements.
"Examples" on page 706	Change the given attribute of the element or set of HTML elements with the given value.
" Examples" on page 708	Inserts content before an element or before each element in a set of HTML elements.
"Examples" on page 709	Returns the immediate children of an HTML element.
"Examples" on page 764	Returns a new result set containing a copy of each element in a set of HTML elements.
"Examples" on page 711	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 712	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.

Function	Description
"Example" on page 714	Removes the contents (child elements and inner HTML) from one element or a set of elements in the template.
"Example" on page 714	Returns a subset of the current result set.
"Example" on page 715	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.
get(index)	Returns the element found at the supplied index in a set of HTML elements.
"Example" on page 716	Returns <code>true</code> if the first element in this result set has the specified class.
height()	Gets or sets the outer height of an element, including padding and borders.
"hide()" on page 716	Hides the HTML element or set of HTML elements.
"Examples" on page 717	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.
"info()" on page 782	Post Pagination Scripts only. Returns pagination information for the first element in this result set.
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 717	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.

Function	Description
"Example" on page 719	Returns the parents of the elements in a set of HTML elements.
"Examples" on page 719	Inserts content at the beginning of an HTML element or of each element in a set of HTML elements.
"Examples" on page 722	Removes an HTML element or a set of HTML elements from the document.
"Examples" on page 723	Removes the specified attribute from each element in this result set.
"Examples" on page 723	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 724	Replaces an HTML element or a set of HTML elements (with a snippet, for example). Returns the result set.
"show()" on page 724	Shows the HTML element or a set of HTML elements.
size()	Gets the number of elements in this result set. Equivalent to the <code>length</code> property.
tagName()	Returns the HTML tag name of the first element in this result set, in uppercase. For an example see: "Creating a Table Of Contents" on page 385.
"Example" on page 725	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.
width()	Gets or sets the outer width of an element, including padding and

Function	Description
	borders.

info()

Returns pagination information for one element in the result set (see "results" on page 778) of a query across all sections in a Print context (see "query(selector)" on page 776).

The returned information is of the type `PaginationInfo` (see "PaginationInfo" on page 777).

This function can only be used in a Post Pagination Script ; see "Post Pagination Script API" on page 774.

For an example see: "Creating a Table Of Contents" on page 385.

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 369 and "Control Script API" on page 749).

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" on	Background	Print sections only. Used to set a PDF

Field	Type	Description
page 761		background on a Print section. See "Control Script: Setting a Print section's background" on page 376 and "BackgroundResource" on page 770.
enabled	Boolean	<p>Enables or disables this Print or Web section for output (see "Examples" on page 786). Note that even if a section is disabled, the <code>part</code> and <code>restartPageNumber</code> fields are still effective to define the parts division and page numbering over multiple sections when applicable.</p> <p>The default enabled state for sections (before any control script runs) is as follows: 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.</p>
headers	String	Email sections only. Used to set custom email headers. For examples, see "Adding custom ESP handling instructions" on page 812.
margins	Margins	Print sections only. Used to set the print margins of a section. You can set the bottom, left, right and top margin using a Measurement string; for example, "2in" sets a margin to two inches.
minPages	Number	Minimum number of pages in the section. The default is 1.
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

Field	Type	Description
		should always include alphanumeric characters. To rename email attachments, use the field <code>part</code> .
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 382.
part	String	Name for the part. <code>part</code> 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 374.
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 382.*
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 sections. The default value is <code>false</code> , meaning that each section will start with page 1 (to emulate behavior of previous versions).
"sheetConfig" on	SheetConfig	Print sections only. Overrides the Master Page,

Field	Type	Description
page 764		Media and Duplex printing options of first/middle/last/single or all sheets in a Print section.

* 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 166). 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
"Examples" on page 764	Clone this section. See "Dynamically adding sections (cloning)" on page 379.
addAfter()	Add a cloned section after this section.
addBefore()	Add a cloned section before this section.
"paginate()" on page 789	Post Pagination Scripts only. Paginates the content of a Print 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 374).

```
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 374)

```

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";
}
}

```

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 382.

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 absolute 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 770, "MediaPosition" on page 773 and "Control Script: Setting a Print section's background" on page 376.

Cloning Print sections

For background information on cloning Print sections, see: "Dynamically adding sections (cloning)" on page 379.

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);
    }

```

paginate()

This method of the `section` object (see "section" on page 782) triggers pagination of the current section. The pagination process re-establishes page boundaries, updates page numbers and page counts, and reapplies Master Pages.

Depending on whether page numbering restarts in each section this may affect the page numbers in other sections as well (see "Configuring page numbers" on page 132).

When the pagination process has ended, the script resumes.

The 'current section' is always a Print section, since this method can only be used in Post Pagination Scripts, and Post Pagination Scripts only run on the Print context (see "Post Pagination Scripts" on page 383).

You only need to call `merge.section.paginate()` in a Post Pagination Script if the script has added or removed content to such an extent that the page boundaries need to be renewed.

For an example see: "Creating a Table Of Contents" on page 385.

Generating output

When merged with a record set, the templates made in the Designer can generate two types of output: Print and Email.

Print output

Connect supports a number of different types of print outputs. These include:

- AFP
- IPDS (spool file created by Connect, with printer control available through the "Print Manager" on page 818)
- PCL
- PDF
- PostScript (including the PPML, VIPP and VPS variants)

Print templates (also called Print *sections*), are part of the Print context. They are meant to be printed directly to a printer or a printer stream/spool file, or to a PDF file (see "Generating Print output" on the next page).

The Print context can also be added to Email output as a PDF attachment; see "Generating Email output" on page 807.

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 369.

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 116.

To split the Print output into several files, see "Splitting printing into more than one file" on page 798.

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 808.

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 349) and send a test email first (see Send Test Email), before actually sending the email (see "Generating Email output" on page 807).

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. (Compression options for PDF attachments can be specified in the Email context's properties; see .)
- Other files, an image or a PDF leaflet for example.
- Attaching the Print context is one of the options in the Send (Test) Email dialog.

To learn how to attach other files, see "Email attachments" on page 166.

Generating Print output

Print output can only be generated from the Designer when a data set is available (see "Loading data" on page 295). The Designer merges all sections in the Print context (see "Print context" on page 114) with the data set, and generates the output using those data values.

Connect supports a number of different types of print outputs. These include:

- AFP
- IPDS (spool file created by Connect, with printer control available through the "Print Manager" on page 818)
- PCL
- PDF
- PostScript (including the PPML, VIPP and VPS variants)

To generate Print output, select File from the menu and choose Print.

- **File > Print...** allows the following printing options:
 - Using the **Default** output settings.
For more details, see "Print Using Standard Print Output Settings" on page 794
 - Using the same settings that were **last used** to produce printed output.
For more details, see "Print Using Standard Print Output Settings" on page 794
 - 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 behaviour.

For a detailed description see "Print Using Advanced Printer Wizard " on page 795.

- Using previously saved **Printing Preset** options.
See "[Job Creation Presets](#)" on page 583 and [Output Creation Presets](#) for more details.

Saving Printing options in Print 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 583 and "[Output Creation Settings](#)" on page 594 for more details.

Print settings in a template

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 made in the Print Wizard or influenced through either a Job Creation Preset or an Output Creation Preset. They are made in and saved with the template.

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. The same applies to Mixplex printing. See "[Enabling double-sided printing \(Duplex, Mixplex\)](#)" on page 127.
- **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 117 and "[Setting the binding style for a Print section](#)" on page 126. Also see "[Finishing Options](#)" on page 592 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 129.
- **Black overprint.** The option to print small black text over other colors is referred to as black overprint. See "[Overprint and black overprint](#)" on page 118.

If you want to generate Print output via an automated process, this means that you have to design a process in the Workflow configuration tool.

Aborting content creation

You may want the content creation process to be aborted in certain situations; for example, when a template script fails to load remote content. To abort the content creation process, you

may raise a fatal error from within a script in the template; see "fatalError(message)" on page 727.

When a script calls this function in Preview mode, the script that triggers it is marked with an error icon in the Scripts pane, and the given message is displayed in a hint.

When generating output from the Designer, the Designer will log the error and display an error dialog with the given message. Content creation is aborted.

Print Using Standard Print Output Settings

When using either the **File > Print...** or the **File > Proof 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:** Leave the selection at the Default or use the drop-down to select an existing [Output Creation Preset](#).
Use the Gear button to edit the currently selected Preset or to reload the list of Presets from the system. 
 - **Job Creation:** Leave the selection at the Default or use the drop-down to select an existing [Job Creation Preset](#).
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 (Default or created).

Note

The Default output type (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 specify 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 587 and "Sorting Options" on page 588 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 596 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 list box.

Select from one of the options:

1. Select **Import Definition** to add a customized Printer Definition. These are customized files created by Objectif Lune Inc. in conjunction with you. They will have been customized specifically for your printer(s).

2. Select **Create Definition from PPD** to add a customizable PostScript Printer Model using the printer manufacturer provided PostScript Printer Definition (PPD) file. This launches the **PPD Import Wizard**. In the Wizard, do the following.
 - Select the printer's PPD file. Once selected details about that specific printer will load in the information box, for confirmation.
NOTE: The PPD information extraction and processing can take some seconds.
 - If you are satisfied that the printer information is correct, then press the **Finish** button to complete the importation process. This will then launch another dialog to allow setting the new Printer Model name.

Once a PPD has been selected, then the "Dynamic PPD Options" on page 682 page will be presented at some point in the Print Wizard. When it appears is dependant upon other choices made in the Wizard, This page provides the functionality for assigning printer specific options to the Connect Template.

See "Dynamic PPD Options" on page 682 for more details.

3. Select **Edit available printers** to add standard Printer Definitions. These are the standard print outputs installed with Connect.
 - In the **Preferences** dialog that launches, select the print output model(s) 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 791 for a further explanation about Job Creation Presets and Output Creation Presets.

Print output variables

In Print output, File name variables can be used to create dynamic output file names, while Content variables can be used in additional content and in the Conditional field when selectively adding inserts in the "Inserter Options" on page 610.

Note

When using a variable in a condition, do not wrap it in `{ }`. This notation is only necessary in the context of a text (like file names or additional page content).

File name variables

File name variables are available in a few places in the "Print Options" on page 596:

- In the **Job Output Mask** and **Job Output Folder** fields when using the Directory option.
- In the **Job Name** field when using the Windows Printer option.

Tip

You can name the output file or folder through the WorkFlow.

This is done by setting a JobInfo field in the WorkFlow and then referencing it in the "Print Options" on page 596 fields via the variable @automation.JobInfoX@ (where "X" is the number of the JobInfo field).

If the output is to be separated into multiple files, some Output content variables can also be used as Output file variables, depending on the level of separation (see "Content variables" on page 802).

Template

<p>#{template}</p>	<p>#{template} is a shorthand for #{template.base}_#{template.nr,0000}.#{template.ext}.</p> <p>It expands to a name based on the template name. A four digit sequence number is added at the end of the base name. The file extension is determined by the selected output format.</p> <p>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 806, below.</p> <p>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.</p>
<p>#{template.base}</p>	<p>Returns the base name of the template, which is the name of the template file without its path and without the trailing file extension.</p> <p>Example If the template file is C:\Data\My-Invoices-EN.OL-template, then #{template.base} expands to My-Invoices-EN.</p>
<p>#{template.name}</p>	<p>Returns the name of the template file without the path.</p> <p>Example If the template file is C:\Data\My-Invoices-EN.OL-template, then #{template.name} expands to My-Invoices-EN.OL-template.</p>

	Note that <code>\${template.name}</code> still includes the extension of the template file (.OL-template in the example above).
<code>\${template.nr}</code>	<p>An automatic sequence number belonging to the current output file. It is automatically incremented for each new output file that gets created when Separation has been selected in the Output Creation preset.</p> <p>It is possible to format the number using a pattern and locale. See "Formatting date and number values " on page 806, below.</p>
<code>\${template.ext}</code>	<p>The extension that corresponds to the chosen output format (in lower case).</p> <p>For example, for PDF output, <code>\${template.ext}</code> would be pdf, for PostScript output, <code>\${template.ext}</code> would return ps.</p> <p>Note that <code>\${template.ext}</code> does not include a leading dot.</p>

File

<code>\${file}</code>	<p><code>\${file}</code> is a shorthand for <code>\${file.base}_</code> <code>\${file.nr,0000}.\${file.ext}</code>. It expands to an internally generated file name with a four digit sequence number at the end. The file extension is determined by the selected output format.</p> <p>The <code>0000</code> in <code>\${file.nr,0000}</code> 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 806, below.</p> <p>Example When printing to PDF, <code>\${file}</code> could expand to merged.5852941188491153960_0001.pdf.</p>
<code>\${file.base}</code>	Expands to a unique, internally generated file name, without a trailing dot or extension.

<code>\${file.ext}</code>	<p>The extension that corresponds to the chosen output format, for example pdf or ps.</p> <p>Note that <code>\${file.ext}</code> does not include a leading dot.</p>
<code>\${file.nr}</code>	<p>An automatic sequence number belonging to the current output file. It is automatically incremented for each output file that gets created within the same job.</p> <p>It is possible to format the number using a pattern and locale. See "Formatting date and number values " on page 806, below.</p>
<code>\${file.pageCount}</code>	<p>This variable was introduced for use in Printer Definitions for PostScript printers.</p> <p>As it entails page buffering and could easily lead to Out of Memory errors with big jobs, usage of this variable in an Output Preset or in the Print Wizard is discouraged; it should be regarded as deprecated.</p>

Job

<code>\${job}</code>	<p><code>\${job}</code> is a shorthand for <code>\${job.base}_\${job.nr,0000}.\${job.ext}</code>. It expands to a name based on the name of the applied Job Creation preset (or 'Untitled' if no Job Creation preset was used). A four digit sequence number is added at the end of the base name. The file extension is determined by the selected output format.</p> <p>The <code>0000</code> in <code>\${job.nr,0000}</code> 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 806, below.</p>
<code>\${job.base}</code> or <code>\${job.name}</code>	<p>Returns the name of the applied Job Creation preset without any extension. Expands to Untitled if no Job Creation preset was used.</p>
<code>\${job.nr}</code>	<p>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.</p>

	It is possible to format the number using a pattern and locale. See "Formatting date and number values " on page 806, below.
<code>#{job.ext}</code>	The extension that corresponds to the chosen output format, for example pdf or ps . Note that <code>#{job.ext}</code> does not include a leading dot.

Content variables

The variables listed below can be used in text, barcodes, and OMR and Image data in the "Page breakdown" on page 614 page, and in the Conditional field when selectively adding inserts in the "Inserter Options" on page 610.

If the output is grouped and separated, Content variables on the separation level and above are **also available as File name variables**. For example, if the output is grouped on the job segment and document set level, and is to be separated on the Document Set level, the **set** and **segment** variables can also be used in the Job Output Mask field.

Warning

Use `count` variables with caution. They entail higher memory usage in Weaver (the engine that creates Print output). When, for example, `segment.count.pages` is used in additional text, the Weaver engine has to buffer all pages until it knows how many pages the segment counts in order to include that total in the additional text on each page. With big jobs this could easily lead to Out of Memory errors.

System

<code>#{system.time}</code>	Displays the current system data and/or time. Can be formatted using the "Formatting date and number values " on page 806, as seen below.
------------------------------------	---

Page

<code>#{page.back}</code>	True when the page is on the back of the sheet.
<code>#{page.front}</code>	Boolean indicating whether the page is on the front

	of the sheet.
<code>#{page.height}</code>	The page's height (in points).
<code>#{page.landscape}</code>	True when the page's orientation is landscape.
<code>#{page.portrait}</code>	True when the page's orientation is portrait.
<code>#{page.nr}</code> or <code>#{page.sequence.document}</code>	Page number in the document.
<code>#{page.sequence.sheet}</code>	Page number on the sheet.
<code>#{page.sequence.set}</code>	Page number within the document set.
<code>#{page.sequence.segment}</code>	Page number within the job segment.
<code>#{page.sequence.job}</code>	Page number within the job.
<code>#{page.width}</code>	The page's width (in points).

Sheet

<code>#{sheet.count.pages}</code>	Total number of pages on the sheet.
<code>#{sheet.duplex}</code>	True when printing on the sheet is duplex.
<code>#{sheet.height}</code>	The sheet's height (in points).
<code>#{sheet.pageDevice}</code>	Array specifying the sheet's Type (e.g. Plain), Weight (e.g. 83), Color (e.g. yellow), Width (in points), Height (in points) and Tumble (e.g. false).
<code>#{sheet.nr}</code> or <code>#{sheet.sequence.document}</code>	Sheet number within the document.

<code>\${sheet.sectionName}</code>	Name of the Template Section that the Sheet belongs to.
<code>\${sheet.sequence.set}</code>	Sheet number within the document set.
<code>\${sheet.sequence.segment}</code>	Sheet number within the job segment.
<code>\${sheet.sequence.job}</code>	Sheet number within the job.
<code>\${sheet.simplex}</code>	True when printing on the sheet is simplex (one-sided).
<code>\${sheet.width}</code>	The sheet's width (in points).

Document

<code>\${document.metadata. propertyname}</code> or <code>\${document.metadata ['propertyname']}</code>	<p>Value of a meta data property of the document.</p> <p>The <i>propertyname</i> must have been defined as a Tag Name on the Document Tags tab of the "Metadata options" on page 591 page in the <i>Advanced Print Wizard</i> or <i>Job Creation preset</i>.</p> <p>Note: this variable is only available if Separation based on Document has been selected on the "Separation options" on page 613 page in the <i>Advanced Print Wizard</i> or <i>Output Creation preset</i>.</p>
<code>\${document.count.pages}</code>	Total number of pages in the document.
<code>\${document.count.sheets}</code>	Total number of sheets in the document.
<code>\${document.nr}</code> or <code>\${document.sequence.set}</code>	Document number within the document set.
<code>\${document.sequence.segment}</code>	Document number within the job segment.
<code>\${document.sequence.job}</code>	Document number within the job.

Set

<p><code>#{set.metadata. propertyname}</code> or <code>#{set.metadata ['propertyname']}</code></p>	<p>Value of a meta data property of the Document Set.</p> <p>The <i>propertyname</i> must have been defined as a Tag Name on the Document Set Tags tab of the "Metadata options" on page 591 page in the <i>Advanced Print Wizard</i> or <i>Job Creation preset</i>.</p> <p>Note: this variable is only available if Separation based on Document Set has been selected on the "Separation options" on page 613 page in the <i>Advanced Print Wizard</i> or <i>Output Creation preset</i>.</p>
<p><code>#{set.count.pages}</code></p>	<p>Total number of pages in the document set.</p>
<p><code>#{set.count.sheets}</code></p>	<p>Total number of sheets in the document set.</p>
<p><code>#{set.count.documents}</code></p>	<p>Total number of documents in the document set.</p>
<p><code>#{set.nr}</code> or <code>#{set.sequence.segment}</code></p>	<p>Document set number within the job segment.</p>
<p><code>#{set.sequence.job}</code></p>	<p>Document set number within the job.</p>

Segment

<p><code>#{segment.metadata. propertyname}</code> or <code>#{segment.metadata ['propertyname']}</code></p>	<p>Value of a meta data property of the job segment.</p> <p>The <i>propertyname</i> must have been defined as a Tag Name on the Job Segement Tags tab of the "Metadata options" on page 591 page in the <i>Advanced Print Wizard</i> or <i>Job Creation preset</i>.</p> <p>Note: this is only available if Separation based on Job Segment or <i>Split At Exactly n Sheets</i> has been selected on the "Separation options" on page 613 page in the <i>Advanced Print Wizard</i> or <i>Output Creation</i></p>
---	---

	<i>preset.</i>
<code>\${segment.count.pages}</code>	Total number of pages in the job segment.
<code>\${segment.count.sheets}</code>	Total number of sheets in the job segment.
<code>\${segment.count.documents}</code>	Total number of documents in the job segment.
<code>\${segment.count.sets}</code>	Total number of document sets in the job segment.
<code>\${segment.nr}</code> or <code>\${segment.sequence.job}</code>	Job segment number within the job.

Formatting date and number values

Date and number values can be formatted using an optional pattern and/or locale.

Form	Description	Example	Result
<code>\${expression}</code>	Do not format.	<code>\${system.time}</code>	July 4, 2009 12:30:55 PM
<code>\${expression,pattern}</code>	Apply pattern with system locale	<code>\${system.time, yyyyMMdd-HH:mm:ss}</code>	20090704- 12:30:55
<code>\${expression,pattern,locale}</code>	Apply pattern with the specified country locale	<code>\${system.time, "dd MMMM yyyy", fr}</code>	19 décembre 2017
<code>\${expression,,locale}</code>	Apply a default format with the specified country locale	<code>\${system.time,,fr}</code> >	19 décembre 2017 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. When no pattern is specified, some default format is applied. For other types, it is not possible to specify a pattern or locale.

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 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. (Compression options for PDF attachments can be specified in the Email context's properties; see .)
- Other files, an image or a PDF leaflet for example.
- Attaching the Print context is one of the options in the Send (Test) Email dialog.

To learn how to attach other files, see "Email attachments" on page 166.

Before generating Email output

- Decide on the use of an Email Service Provider; see "Using an ESP with PrintShop Mail Connect" on page 810.
- 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, to ensure that most email clients would actually see the output. Rasterizing converts the element to a JPG or PNG image. 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.

Note

A business graphic in an Email section is rasterized by default and output as PNG image, because email clients usually don't support SVG images. SVG images in an Email section give an error in the Preflight window (see "Preflight" on page 350).

Note

Rasterization options are only available for Boxes (<div> elements); see "Boxes" on page 221.

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 160. 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 160.
- Default SMTP settings can be set in the preferences; see "Email header settings" on page 160.
- 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 160.

- PDF attachments can be compressed to make the files smaller; see "Compressing PDF attachments" on page 156.

To generate Email output:

1. Open a template with an Email context.
2. Load a data file or database compatible with this template. See "Loading data" on page 295.
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 (Test) Email" on page 444 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](#).

Aborting content creation

You may want the content creation process to be aborted in certain situations; for example, when a template script fails to load remote content. To abort the content creation process, you

may raise a fatal error from within a script in the template; see "fatalError(message)" on page 727.

When a script calls this function in Preview mode, the script that triggers it is marked with an error icon in the Scripts pane, and the given message is displayed in a hint.

When generating output from the Designer, the Designer will log the error and display an error dialog with the given message. Content creation is aborted.

Using an ESP with PrintShop Mail 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 PrintShop Mail 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 PrintShop Mail 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).

PrintShop Mail 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 PrintShop Mail Connect for the chosen ESP, via the Preferences dialog of the Designer (see "Email SMTP settings" on page 161).

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 807). 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 dropdown.
- 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, these custom headers can be added via the Email section properties (see "Meta information" on page 165).

Alternatively custom headers may be added through a Control Script (see "Control Scripts" on page 369, "Control Script API" on page 749 and "section" on page 782).

The following samples show how to assign a tag or category to a message for various ESPs.

SendGrid

Dashboard: <https://app.sendgrid.com/>

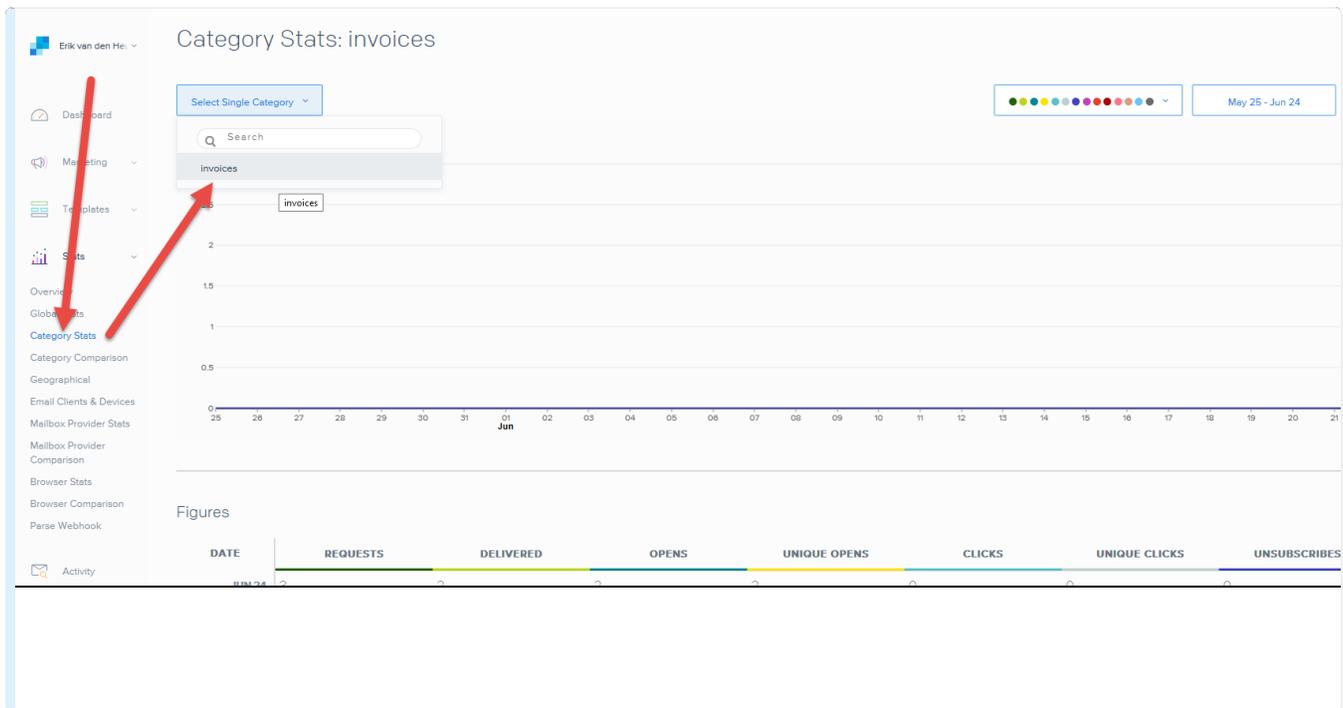
Documentation: https://sendgrid.com/docs/API_Reference/SMTP_API/using_the_smtp_api.html

Add a *name* meta tag with the value *X-SMTPAPI* and set its content to the required JSON string (for example: `"category": ["invoices"]`). You can make this setting in the Email section properties (see "Meta information" on page 165) or write a Control Script, for example:

```
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.



MailGun

Dashboard: <https://mailgun.com/cp/stats>

Documentation: <https://documentation.mailgun.com/api-sending.html#sending>

Add a *name* meta tag with the value *X-Mailgun-Tag* and set its content (for example: *invoices*). You can make this setting in the Email section properties (see "Meta information" on page 165) or write a Control Script, for example:

```
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.

Bounces	0	0	0	0	0	0	0	0
Spam reports	0	0	0	0	0	0	0	0
Unsubscribes	0	0	0	0	0	0	0	0
Incoming	0	0	0	0	0	0	0	0
Posts via routes	0	0	0	0	0	0	0	0

* Note: Counters are UTC-based.

Categorized By Tag

Delete Selected Search or Reset

	Jun 18	Jun 19	Jun 20	Jun 21	Jun 22	Jun 23	Jun 24	Total
<input checked="" type="checkbox"/> Invoices-tag Delivered	0	0	0	0	0	0	10	10

Mailgun domain's tag limit is 4000.

Open & Click Event Settings For The Current Domain

Tracking clicks: Yes and opens: Yes

If you enable this feature, Mailgun will scan your messages for links and rewrite them.

Looking for webhooks? We've moved them to a [new Webhooks page](#).

MailJet

Dashboard: <https://app.mailjet.com/dashboard>

Documentation: https://app.mailjet.com/docs/emails_headers

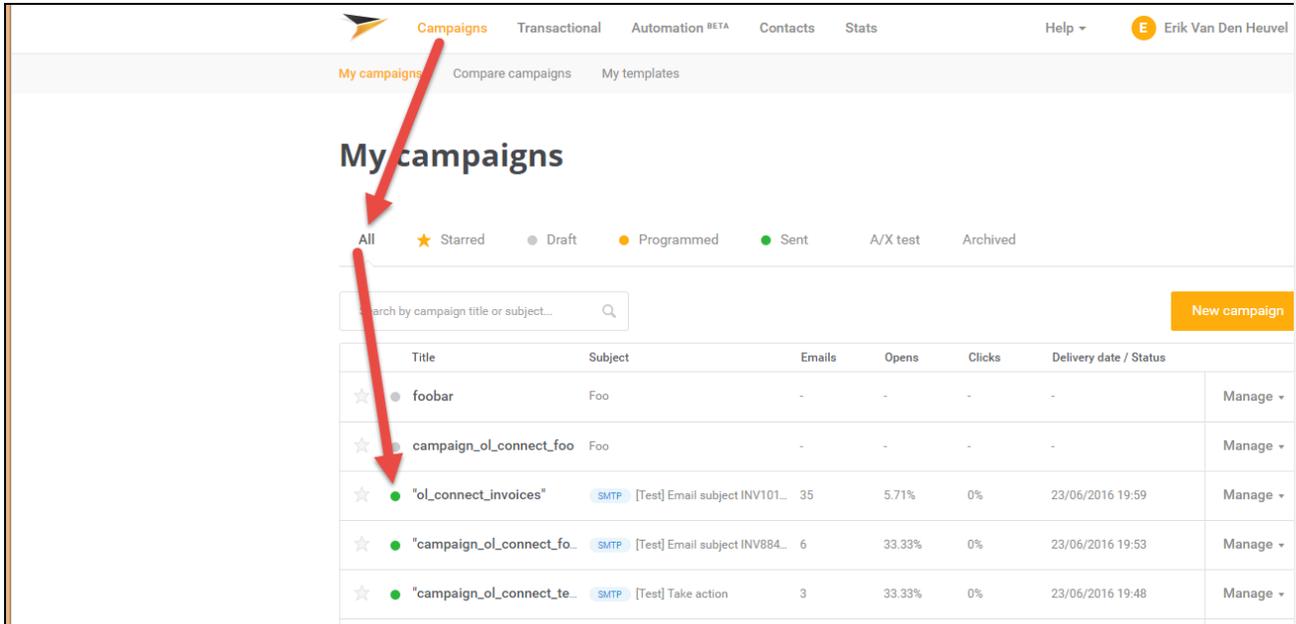
To assign a campaign, set a meta tag of the type *name* with the value *X-Mailjet-Campaign* and set its content to the name of the campaign (for example: *invoices*). You can make this setting in the Email section properties (see "Meta information" on page 165) or via a Control Script, for example:

```
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.



Optimizing a template

This topic describes some ways to optimize a template in order to speed up the output process. However, the template itself is not the only factor to be taken into account. The server configuration and hardware configuration have an influence on the output speed as well. For advice on server configuration and hardware configuration, see "Performance Considerations" on page 29.

Scripts

In the process of output generation, the execution of scripts may take up more time than necessary. Here's what you can do to shorten that time.

- **Use efficient selectors.** Using very precise selectors in scripts will be much faster than using a text selector, especially on large documents. See "Use an ID as selector" on page 353.

- **Optimize your scripts.** Custom scripts with non-optimized loops and unnecessary DOM manipulations can slow down Content Creation. Use the Designer's test facilities to find out which scripts can be improved (see "Testing scripts" on page 349 and "Optimizing scripts" on page 353).
- **Only run the necessary scripts.** Normally the Designer will run all scripts for each and every record and section. You can save time in the process of Content Creation by organizing scripts in folders and setting their execution scope or even disabling them (see "Managing scripts" on page 346). Note that loading a JavaScript library is generally very fast and is only done once for the record set.
- **Use a fast network and internet connection** or avoid loading external or internet resources. 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 5,000 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 83 minutes.
- Make sure to use **optimized graphic resources.** For instance, avoid using images with transparency where no transparency is needed.

Images

- Make sure to use **optimized graphic resources.** For instance, avoid using images with transparency where no transparency is needed.
- 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. One solution is to combine the images into a single image file (an 'image sprite') and display the part that holds the image. This reduces the number of file requests and can improve the output speed significantly.

Creating and using image sprites

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 single 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.

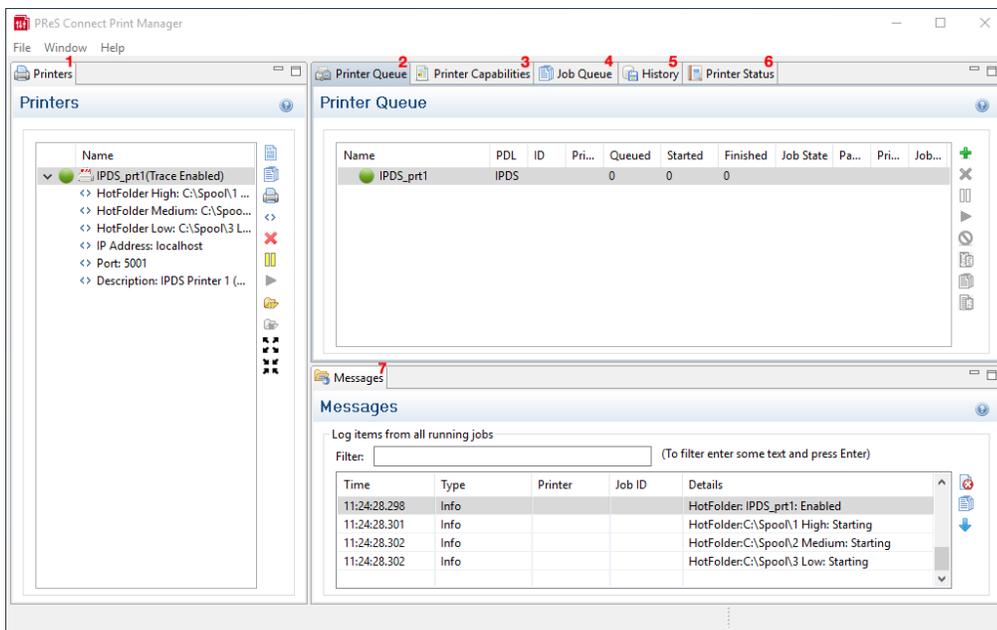
Step 2. Add the file that contains the collection of images to the template's Resources (see "Adding images" on page 237).

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 221). 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 253) that sets its background image to the image sprite and positions the image. For an explanation and examples of this style rule, see https://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 += ' Reset Perspective** menu option):



1. "Printers pane" on the facing page
2. "Printer Queue pane" on page 827
3. "Printer Capabilities pane" on page 840
4. "Job Queue pane" on page 836
5. "Job History pane" on page 839
6. "Printer Status pane" on page 841
7. "Messages pane" on page 838

## 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 842.
- **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 allows you to add or remove printers to the **Print Manager**. Once a printer is added here it will be available for use within the "Printer Queue pane" on page 827.

The following information (all editable via the "Printer Settings Dialog" on page 822) 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 status 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.
- **<> HotFolder :** Displays the paths of any hot folders that are set.
- **<> IP Address:** Displays either the IP Address or machine name of the IPDS printer.
- **<> Port (IPDS Only):** Displays the port the printer communicates on.
- **<> Queue (PCL and PostScript Only):** Displays the printing file type.
- **<> Description:** Displays printer description, if one exists for the printer..

The following controls are available to the right of the printer list, as well as via right-mouse click context menus:

-  **Add job to selected printer:** Click to add file(s) to the printer queue for the selected printer. These jobs will then appear in the queue for that printer in the "Printer Queue pane" on page 827.

-  **Add job with Page Range:** Click to load a file directly to the printer queue while specifying a page range to print.
-  **Add Printer:** Click to add a new printer using the "Printer Settings Dialog" on the facing page.
-  **Edit Printer:** Click to edit the currently selected printer using the "Printer Settings Dialog" on the facing page.
-  **Delete:** Click to delete the currently selected printer.
-  **Stop Printer Queue:** Click to stop the currently selected printer(s) queue, which prevents any new jobs from being printed on the stopped printer(s). The printer status icon in the "Printer Queue pane" on page 827 turns yellow, indicating that the printer is not active.
-  **Start Printer Queue:** Click to resume the currently selected printer(s) queue. Any job within the queue assigned to the printer(s) will then start being printed. The printer status icon in the "Printer Queue pane" on page 827 will turn green, to indicate that the printer is active.
-  **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 available 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.
-  **Disable Printer:** Click to disable the selected printer(s). This either removes the selected printer(s) from view in the Printer Pane (if the **Hide disabled printers** option is active in the General tab of the Preferences) or highlights the printer(s) in red, to visually indicate that they are disabled.

#### Note

If the **Hide disabled printers** option is active in the General tab of the Preferences,

any disabled printers will disappear from the Printers Pane.  
To return them to view, the **Hide disabled printers** option must be de-selected in the Preferences.

-  **Enable Printer:** Click to re-enable the selected disabled printer(s).

## Printer Settings Dialog

This dialog allows you to add printers to the **Print Manager**, or to modify settings for those already added. The settings differ between printer types, with IPDS printers having more options than other printers.

Each logical grouping of printer setting appears in its own subsection within the dialog. These can be folded up or down (to make them visible, or hidden) by clicking on the blue title bar atop each subsection.

Once the settings are complete, press the Finish button to apply the new settings.

In the case of adding a printer (via the **Add Printer** option), this adds the newly entered printer to the **Print Manager** and automatically makes it available in the "Printers pane" on page 820 and the "Printer Queue pane" on page 827.

If modifying an existing printer (via the **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 840.

The printer options that can be set include:

- **Printer Details:**
  - **Enable Printer:** Check to enable the printer settings.  
Printers can be Enabled or Disabled using this check box, or via the Enable / Disable options in the "Printers pane" on page 820.
    - **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. Browse to set the folders via the Browse () button.  
Up to three Hot Folders can be set. One each for **High**, **Medium** and **Low** priority queues.  
An additional "**Set Job on Hold**" option is available which assigns jobs to the target printer but puts them 'On Hold'. They will not be taken from the queue and processed until manually released.
- **Extended Options (IPDS only)** subsection: Defines logging of printer activities.
  - **Page Counters:** IPDS Printers return counters for various categories, from which you can chose.

#### Note

The Print Manager will use whichever is selected in this list box to determine when a job is Finished. Once the Counter for this

selection equals the total number of pages in the job, the job will be considered Finished and it will display as such within the "Printer Queue pane" on page 827.

What choice you make here is dependent upon the capabilities of the printer. Not all printers will provide all options. For example, some printers will only return when the job is Committed, rather than when it has been Received or Stacked.

The full range of choices available to the Print Manager (but not necessarily the IPDS printer) are:

- **Received:** The amount of pages received by the printer.
- **Stacked:** The amount of pages stacked by the printer.
- **Jam Recovery:** If a paper jam is encountered, the page number at which the printer jam occurred.
- **Committed:** The number of pages committed to the printer.
- **Operator View:** This counter contains the number of pages that have passed the view of the printer operator. It increments by the number of pages on a sheet when the last copy of the sheet passes the view of the printer operator.
- **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 now 10 pages which means the Print Manager will send an acknowledgement request to the printer in increments of 10 pages, until the end of the job. Given the overhead in processing such requests, the smaller the Page number, the slower the printing becomes, but the higher the granularity of the reporting and error correction. If speed is of the essence you might like to increase the number to 100.

We recommend retaining the default value, due to the granularity of reporting and the error correction this allows.

- **SNMP:** Select this option to allow IPDS printer(s) and Print Manager to communicate back and forth.

#### Note

Not all IPDS printers will support SNMP, but most contemporary printers are likely to.

This option is enabled by default, as it provides the greatest functionality.

- **Multi Job Mode:** Select this option to support near continuous IPDS output, using Multipage PDF containers.

#### Note

When printing on high volume IPDS printers, it is best if the printer does not pause often. On continuous feed printers in particular, pauses can lead to malfunctions as well as cause delays. It's not just the pause itself, but also the additional time spent whilst the printer slows down and then speeds up again after the pause. The faster the printer, the bigger an issue this becomes.

Most modern IPDS printers support Multipage PDF containers, which can be used in such a way to as remove pauses between print jobs.

Selecting this option and outputting jobs using Multipage PDF containers means high-end printers can be largely prevented from pausing.

This option is enabled by default, as it provides the greatest printing efficiency.

- **Extended Options:** Select this to allow access to further Extended Options.

The Extended Options consist of:

**Create Trace File:** Select this to log all communications to a log file.

The trace file will be sent to the following folder:

- C:\Users\[UserName]\Connect\trace\PrintManager

The

[UserName]

would be the currently active user's Windows login name.

- **End of Job Preferences (IPDS only)** subsection: Select from these options to determine job end processing. More than one option can be selected simultaneously.
  - **Edge Marks:** Select this to add an Edge Mark to the final page of a job. This is commonly used to indicate job separation in Continuous Form printing.
  - **Stack Received Pages:** Add blank pages to the end of the job in order to push the completed job to the stacker.
  - **Print Buffered Pages:** Print any/all buffered Pages. This selection causes the printer to schedule all buffered data for printing prior to sending an Acknowledge Reply. Buffered data is page data not reflected by the committed page and copy counters.
  - **Eject to Front Facing:** For cut-sheet media, this selection causes the next received page to be printed as the first page of the next sheet.
- **Error Handling Preferences (IPDS only)** subsection: Select these to **STOP** printing upon encountering any of the following errors (more than one option can be selected):
  - **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:** Select for how to handle any/all other optional errors. The choices are:
  - **None** - ignore all other errors.
  - **Auto** - allow default error handling.
  - **Prompt** - prompt for operator action on error.
- **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 and to update existing printers. New printers will appear in the "Printers pane" on page 820 and the "Job Queue pane" on page 836.
- **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 820), 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 and then restart printing (at either the individual job level, or at the printer level); to reprint jobs: to print or reprint selected page ranges and other common print production tasks.

This pane would be the main screen used by print operators to control production printing.

### Note

Not all of the functionality on this pane will be available to all printers. Much of the Printer Queue functionality has been specifically designed to work with IPDS printers and is currently only available for IPDS printers and output files. Where such restrictions apply will be noted on this page.

## Job Status

When a print job is being processed by the **Print Manager** the job is renamed to reflect the current processing step. A new file extension is added to the job, and updated in real time, as described in the following table:

|                                 |                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------|
| filename.ipds                   | A print job that is in the queue but which has not yet begun processing.            |
| filename.ipds. <b>Started</b>   | A print job that is now active. It is currently being processed.                    |
| filename.ipds. <b>Committed</b> | The print job has successfully been sent to the printer and is now being Committed. |
| filename.ipds. <b>Finished</b>  | This print job has been processed.                                                  |
| filename.ipds. <b>Queued</b>    | This print job has been resubmitted and is queued for processing.                   |

These file extension entries generally match those found in the Printer Queue Table "*Job State*" field.

## Printer Queue Table

This table displays information about both the available printers (which can be added or removed via the "Printers pane" on page 820) and their associated job queues.

Clicking on selected column titles (such as *Name*, *PDL* and *Priority* columns) will re-sort the Queue display based upon the column selected. Clicking on the column title a second time will reverse the order.

The fields the table contains are broken down as follows:

- **Name:** Displays the name of the printer and beneath it are the names of all the print jobs currently residing in the printer's job queue.

Print jobs can be added or removed from the printer's queue by a variety of means. Such as dragging and dropping jobs between the "Job Queue pane" on page 836 and the Printer Queue panes. When a job is added from the Job Queue pane thus, it is then removed from the Job Queue pane thereafter.

Jobs can also be added by right-click context menu options available at the printer level. The options include adding complete jobs via **+ Add Job**, or partial jobs (IPDS only) via

the  **Add Job with Page Range** option.

Jobs can also be dragged from one printer to another within the Printer Queue pane itself.

- **PDL:** Displays the printer language (for both the printer and print jobs).
- **ID:** An unique identity number that is automatically generated for every job. The first few letters of the ID are coded to indicate how the job was added to the queue. The relevant codes are as follows:
  - **HTF:** Hot Folder capture. Any job that lands in the printers **Hot Folder** is automatically added to the Printer Queue (at the appropriate priority) and given this code.
  - **DRP:** Jobs "dragged and dropped" directly into the Print Manager (either from Windows Explorer, or from the "Job Queue pane" on page 836) are given this code.
  - **BRW:** Code for jobs added to the queue via the **Add Job** file browse option.
  - **RSB:** Code used for jobs that have been **Resubmitted** to the printer.
- **Priority:** Displays the priority with which the job is to be printed: Low, Medium or High. Jobs are processed in the queue in the following order: High, then Medium, then Low. Job priorities can be changed on the fly, through the  **Set to xxxx Priority** context menu options.
- **Queued:** At the Printer level this displays the number of jobs currently queued to the printer. At the print job level it displays the date and time that the job was added to the queue. This counter updates in real time.
- **Started:** At the Printer level this displays the total number of jobs that were started on this printer. At the print job level it displays the time an individual job started printing. Please note, this counter updates in real time, but always adds to the existing Printer total. Use the  **Reset Printer Counters** option to re-set the current Printer total to zero.
- **Finished:** At the Printer level this displays the total number of jobs that have finished on this printer. At the print job level it displays the time an individual job finished printing. Please note, this counter updates in real time, but always adds to the existing Printer total. Use the  **Reset Printer Counters** option to re-set the current Printer total to zero.

#### Note

For IPDS printers the "*Page Counters*" entry in the "*Extended Options*" section of

the "Printer Settings Dialog" on page 822 sets the criteria that determines whether a job is Finished or not.

For example, if the "*Page Counters*" entry is set to Stacked, then the job is only considered Finished when the printer's Stacked pages counter equals the amount of pages in the job.

- **Job State:** Displays the individual print job status. These could be Queued, Finished, Started, and such like.

#### Note

For IPDS printers the "*Page Counters*" entry in the "*Extended Options*" section of the "Printer Settings Dialog" on page 822 sets the criteria that determines whether a job is Finished or not.

For example, if the "*Page Counters*" entry is set to Stacked, then the job is only considered Finished when the printer's Stacked pages counter equals the amount of pages in the job.

- **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:** At the print job level this displays the number of printed pages in the current job. At the Printer level this displays total number of pages printed on the printer. Please note, this counter updates in real time, but always adds to the existing Printer total. Use the  **Reset Printer Counters** option to re-set the current Printer total to zero.
- **Job Pages:** Displays the total number of pages in the job.

The following options are available via right-mouse click context menus. The options that display will be dependent upon what has been selected (Printer or Job) and the current state of the selected item.

## Printer Queue Options

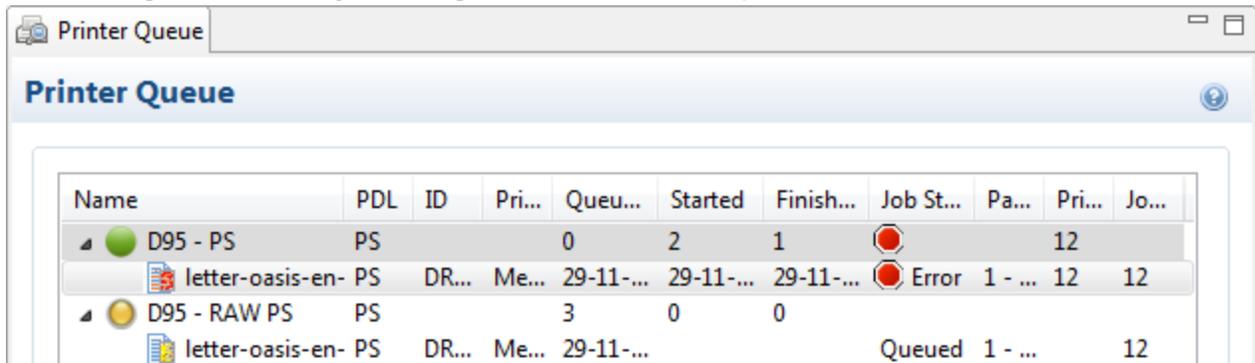
### Note

These 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.

- **▶ Start Printer Queue:** Select to start a printer which has been stopped, or which has been recently added.

Stopped printers have a yellow status icon to indicate that the printer is not currently active. Started printers have a green status icon, to indicate that the print queue is currently active.

The PostScript printer entry in the following image shows how a printer error state is represented within Print Manager when a printing or connection error occurs. The printer is still active (and thus the printer status icon remains green), whilst the job itself is stopped due to the error. This printer is, in effect, in a paused state whilst it waits upon the error being fixed, or the job being removed from the queue.



- **● Stop Printer Queue:** Select to stop an active printer in the printer queue. Once selected, that printer's queue is immediately stopped and the printer status icon turns yellow to indicate that the printer is not active.
- **↻ Refresh:** Select to refresh the connection to a printer. This is handy when the communication between printer and Print Manager has encountered issues.
- **+ Add Job:** Select to add new job(s) to the selected printer. Several jobs can be added at once.
- **📄 Add Job with Page Range** Select to add a specified sub-set of an IPDS job. This launches the "Add Job with Page Range Dialog" on page 834 in which the job and it's required page range can be set.

-  **Remove Finished Jobs:** Select to remove any Finished Jobs from this printers Printer Queue display, making the visual monitoring of active and scheduled jobs easier.
-  **Reset Printer Counters:** Select to update the printer information job counters. This resets the number of jobs Queued, Started or Finished.

## Printer Queue Job Options

### Note

These 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 "Preview pane" on page 835 that displays what the print job looks like.
-  **Pause Job:** Select to temporarily pause the current IPDS job on the printer queue. This option only works for IPDS print jobs and the option is only available when the printer queue is active. Once a job is paused, the job queue for this printer is in effect paused as well, until the paused job is either restarted or cancelled.
-  **Resume Job:** Select to resume a currently paused IPDS job. This option is only ever active when an IPDS print job is paused in the printer job queue.
-  **Cancel Job:** Select to cancel the currently active job (even if paused). This option only works for IPDS print jobs and the option is only available when the printer queue is active. Cancelling the active job will also stop the printer, rather than have it continue onto the next job in the print queue. A cancelled job can be restated at a late time. It can either print in full, via **Resubmit**, or continue from where the job was cancelled, via **Resubmit Range of Pages** and specifying the starting page as the page the job was cancelled on,
-  **Refresh:** Select to refresh the job information. This allows close monitoring of individual jobs.
-  **Remove Job:** Select to delete the currently selected job(s) from the Printer Queue.

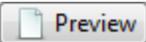
-  **Resubmit Job:** Select to restart the selected job(s) from the beginning. If the original job had been processed using a page range selection, it will be resubmitted using the same page range.
-  **Resubmit Range of Pages:** Select to resubmit an IPDS job, but with a specified page range selection. This launches the "Add Job with Page Range Dialog" on the facing page in which the job and it's required page range can be set.  
This option is very useful when recovering from a print job failure, when a print job has only been partially printed, and you wish to complete the job. The dialog box will present you with a range of options as to where to re-start the job from.
-  **Re-assign to Job Queue:** Select to take the selected job(s) out of the Printer Queue and place it back in the generic Job Queue. The same can be achieved by dragging and dropping the job from the Printer Queue to the Job Queue.  
This option is 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 reached this Job in the Printer Queue.
-  **Set Job on Hold:** Select to hold this job on the printer queue. When held a job will not print, until it is once again activated by assigning a new job Priority. At which point it becomes active again, and will be process at the selected priority.
-  **Set to Low Priority:** Select this to set the job priority to Low. This will immediately drop the job below any/all Medium or High priority jobs in the queue, as well as taking a job off Hold, if it had been held.
-  **Set to Medium Priority:** Select this to set the job priority to Medium. This will immediately drop the job below any/all High priority jobs in the queue, but above all Low priority jobs, as well as taking a job off Hold, if it had been held.
-  **Set to High Priority:** Select this to set the job priority as High. This will immediately push the job above any/all Medium or Low priority jobs in the queue, as well as taking a job off Hold, if it had been held.
-  **Directory:** Select to open a Windows Explorer window set to the directory containing the job file.
-  **Set Finished:** Select this to change a Committed job status to Finished. This option is only available to Committed jobs. It is a way to manually set a completed job to Finished, when the Print Manager has not automatically done so (as can happen, in some scenarios).

## Add Job with Page Range Dialog

The **Add Job with Page Range** dialog box works with IPDS output only. It allows the selection of a page range to print, from IPDS spool files.

It can be used to print a section from within the middle of the file, or it could be used to select a starting point and then print all the pages thereafter.

**Job Name** details section:

- **File Name:** Paste the print job filename and folder into the entry box, or use the Browse  button to browse for the print job.
- **Start Page:** Select the page number at which to start printing.
- **Last Page:** Select the ending page number.  
This defaults to the last page in the print job, but can be set to any page that follows the **Start Page** selection.
-  **Preview** button : Use this button to launch the "Preview pane" on the next page.  
The preview will display the current job, starting at the page selected as the **Start Page** in the page range.
- **Priority:** Select the job printing priority.

**Select Start Page** details section: ***This section only appears when resubmitting a previously processed IPDS job.*** It allows you to set the starting page based upon the following criteria:

- **Start Page:** The first page of the job. If the job was selected with a page range, this would be set to the beginning of that previously selected page range. Otherwise it will always be page 1.
- **Pages Committed:** Select this to start from the last page Committed to the Printer.
- **Page Jammed Recovery:** Select this to start from the Paper Jam Recovery page counter entry.
- **Pages Received:** Select this to start from the Pages Received counter entry.
- **Operator View:** Select this to start from the Operator View counter entry.
- **Pages Stacked:** Select this to start from the Pages Stacked counter entry.

### Tip

When an issue arises with the printer and you wish to restart the job from a recovery point, it would be best to first "Preview pane" below the page at the selected page counter, to confirm that the selected page counter entry is accurate.

In reality, you might need to move the starting page entry backwards or forwards some few pages in order to cater for pages which have been printed, but destroyed in the process.

### Preview pane

The Preview pane displays previews of print jobs from with the "Printer Queue pane" on page 827, the "Job Queue pane" on the facing page, the "Job History pane" on page 839 and the "Add Job with Page Range Dialog" on the previous page.

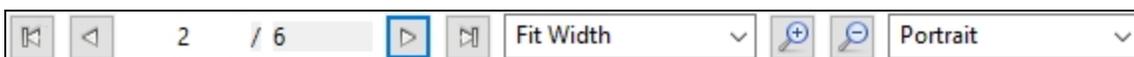
### Note

The Preview will work "out of the box" for both PCL files and standard IPDS files but not for PostScript files, nor continuous IPDS output created as Multipage PDF containers. Previewing either of these types of files requires the **Ghostscript** software be installed first.

Ghostscript is a free industry standard PostScript interpreter/renderer that can be downloaded from here: <https://www.ghostscript.com/download/>

Select the **Ghostscript AGPL Release** version that best matches your Operating System, then download that installer and run. PostScript and continuous IPDS output Previews will then be available, the next time you launch the Print Manager.

The Preview pane allows you to view all the pages in a print job, via the Preview toolbar:



You can step through print jobs using the page step buttons, or move straight to a specific page by entering a number in the page number box. You can also customize the preview viewing settings as you wish.

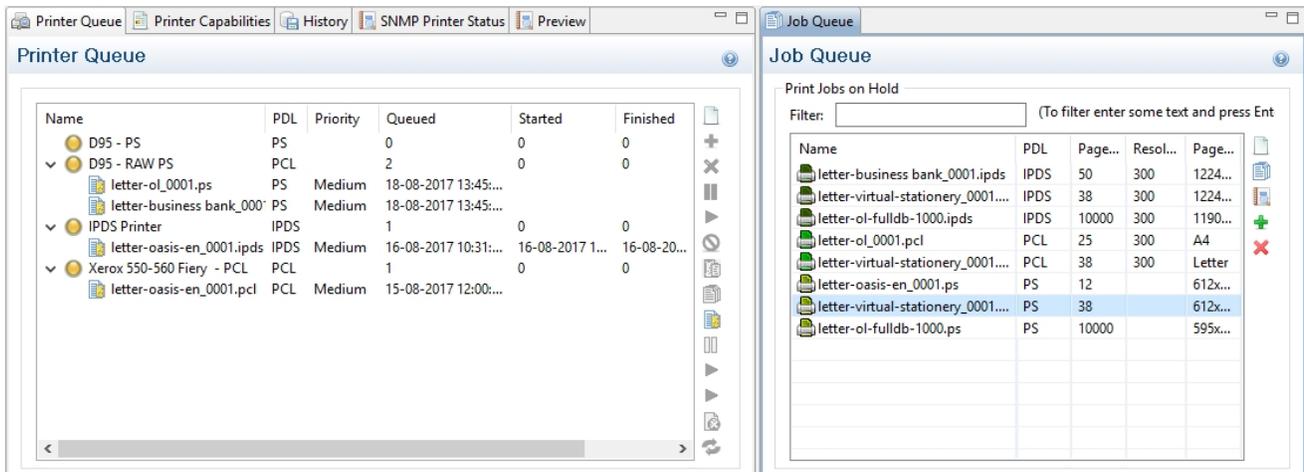
## Job Queue pane

The Job Queue pane is a centralized location designed to allow the consolidation and management of print Jobs.

Jobs are not printed from here. The Job Queue could best be considered a staging area, where one can consolidate jobs in preparation for production printing.

You can add Jobs to the queue by "dragging and dropping" them from a Windows Explorer window, or from the "Printer Queue pane" on page 827, 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 827. To do this, you must have both screens visible at once, as seen here:



### Note

Print Jobs **aren't actually scheduled for printing** in the Job Queue. That is done in the "Printer Queue pane" on page 827. This Job Queue is a job holding/staging queue, rather than a production printing queue.

- **Filter:** Use this search functionality to reduce the data-set displayed in the table. Type in a search word and then hit Enter to filter the table using the entered search word. For example, select "business" to display only those entries that feature the text "business".

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:** An unique identity number that is automatically generated for every job. The first few letters of the ID are coded to indicate how the job was added to the queue. The relevant codes are as follows:
  - **HTF:** Hot Folder capture. Any job that lands in the printers **Hot Folder** is automatically added to the Printer Queue (at the appropriate priority) and given this code.
  - **DRP:** Jobs "dragged and dropped" directly into the Print Manager (either from Windows Explorer, or from the "Job Queue pane" on the previous page) are given this code.
  - **BRW:** Code for jobs added to the queue via the **Add Job** file browse option.
  - **RSB:** Code used for jobs that have been **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 "Preview pane" on page 835 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.
-  **Refresh** button / context menu option: Refreshes the job(s) to update current page count and the like.
-  **Directory** button / context menu option: Opens the folder containing the selected file.

#### Note

If multiple files are selected, only the folder of the first file selected will be opened.

## 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, or that errors have occurred.

The level of logging can be set in the Print Manager Preferences screen, under [General](#) preferences.

- **Filter:** Use this search functionality to reduce the data-set displayed in the table. Type in a search word and then hit Enter to filter the table using the entered search word. For example, select "business" to display only those entries that feature the text "business".

To clear the filtering, delete the contents of the Filter box and press Enter.

- **Messages** table: This contains the message details. Which are:
  - **Time:** The message time-stamp.
  - **Type:** The type of message.

- **Printer:** The relevant printer, if applicable.
- **Job ID:** The relevant Job ID, if applicable.
- **Details:** The actual message itself.

The following controls are available to the right of the Messages table, or via right mouse click context menu:

-  **Clear Log Items** button / **Clear Log** context menu option: 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** button / **Copy** context menu option: Click to copy all messages to the clipboard. Useful for pasting messages into external software.
-  **Always select last log entry** button / **Tail** context menu options: Click to toggle auto-scrolling on/off. Auto-scrolling ensures the most recent message is always displayed when it is added to the log.

## 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 this search functionality to reduce the data-set displayed in the table. Type in a search word and then hit Enter to filter the table using the entered search word. For example, select "business" to display only those entries that feature the text "business".

To clear the filtering, delete the contents of the Filter box and press Enter.

### 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 "Preview pane" on page 835 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 Capabilities pane

The Printer Capabilities pane displays the technical capabilities of any printer that has been added to the "Printers pane" on page 820.

- **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 to the right.

### Note

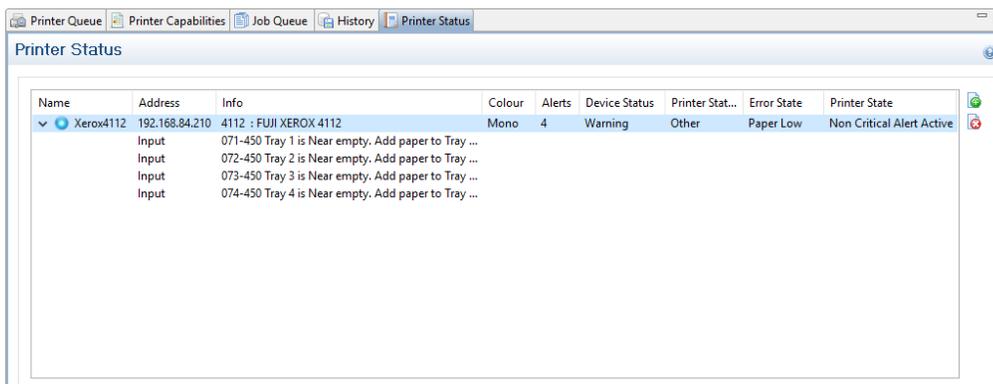
Requesting a printer's capabilities can take some time, and not all printers will support it.

For PostScript and PCL printers you should first set up monitoring of the printer, in the "Printer Status pane" below.

-  **Check Printer Capabilities** button / context menu option: Each printer capability is listed under the Printer, in separate divisions. Capabilities are read directly from the printer.
-  **Export Printer Capabilities** button / context menu option: Export the printer capabilities to JSON file. This contains all the relevant printer capabilities, in a text file format.
-  **Expand / Collapse** button / context menu option: Expand or contract the printer details.

## 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 or 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:



| Name        | Address        | Info                                                | Colour | Alerts | Device Status | Printer Stat... | Error State | Printer State             |
|-------------|----------------|-----------------------------------------------------|--------|--------|---------------|-----------------|-------------|---------------------------|
| ▼ Xerox4112 | 192.168.84.210 | 4112 : FUJI XEROX 4112                              | Mono   | 4      | Warning       | Other           | Paper Low   | Non Critical Alert Active |
|             | Input          | 071-450 Tray 1 is Near empty. Add paper to Tray ... |        |        |               |                 |             |                           |
|             | Input          | 072-450 Tray 2 is Near empty. Add paper to Tray ... |        |        |               |                 |             |                           |
|             | Input          | 073-450 Tray 3 is Near empty. Add paper to Tray ... |        |        |               |                 |             |                           |
|             | Input          | 074-450 Tray 4 is Near empty. Add paper to Tray ... |        |        |               |                 |             |                           |

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 be 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.

| Name        | Address        | Info                   |
|-------------|----------------|------------------------|
| > Xerox4112 | 192.168.84.210 | 4112 : FUJI XEROX 4112 |

- **To reduce the printer details**, press the down arrow besides the printer Name, as seen in the following image.

| Name        | Address        | Info                                                |
|-------------|----------------|-----------------------------------------------------|
| ▼ Xerox4112 | 192.168.84.210 | 4112 : FUJI XEROX 4112                              |
|             | Input          | 071-450 Tray 1 is Near empty. Add paper to Tray ... |
|             | Input          | 072-450 Tray 2 is Near empty. Add paper to Tray ... |
|             | Input          | 073-450 Tray 3 is Near empty. Add paper to Tray ... |
|             | Input          | 074-450 Tray 4 is Near empty. Add paper to Tray ... |

### Note

If SNMP monitoring is enabled on a printer, then printer issues will pause the "Job Queue pane" on page 836 for that printer.

## Print Manager Preferences

The **Print Manager** *Windows > Preferences ...* menu option allows adjustment of various **Print Manager** preferences.

There are several groups of preferences which can be changed, or reset to default settings at any time. These groups are:

1. "Database Connection preferences" on the next page
2. "General Settings" on page 845
3. "Language Setting" on page 847
4. "Log Settings" on page 848
5. "SNMP Connection Settings" on page 850

## Database Connection preferences

Dialog used to change the PrintShop Mail Connect back-end Database.

This dialog supports the swapping of the back-end database between various vendor databases. Note, however, that the alternate vendor database(s) *must already be installed and available* in order to swap to them.

This is not a migration tool. It is a simple connection tool, that enables shifting to a different back-end database. 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.

When shifting to a different back-end database, the changes won't be applied until PrintShop Mail Connect is restarted. Including the Connect services. A full machine restart is recommended, as this provides the cleanest restart of all the services.

- **Basic Connection Settings** selections:

- **Database vendor:** Select the database type from the drop down list.

### Note

Moving from one vendor database to another will reset 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 PrintShop Mail Connect. This should help in determining and refining the 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, though, will not be created until Connect is restarted.

- **Username:** Enter the database login username.

### Tip

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:** This option sets 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).

### Tip

Leaving this value set to the default maximum *should* be the best option in most circumstances.

We recommended this entry be left at the default value.

- **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 PrintShop Mail 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.

## General Settings

- **Hot Folder** group: Define a global hot folder that captures any jobs placed within that folder and places them in the [Job Queue pane](#) (which can be considered a holding queue).

This does not automatically print the jobs, but it does allow them to then be dragged across to the appropriate production printer in the "Printer Queue pane" on page 827.

- **Enable Hot Folder** checkbox: Check to enable the global Hot Folder, to have jobs added to the [Job Queue pane](#).
- **Monitored Folder** entry: This entry is only available if the **Enable Hot Folder** checkbox selected.  
Enter the path for the global Hot Folder, or click the Browse button to browse for the folder.
- **Add Time Stamp** group: Section used to add a time stamp to any files that arrive in the Hot Folder, in order to ensure file uniqueness.
  - **Add Time Stamp** checkbox: Select to have a time stamp added to any files as they arrive in the Hot Folder.
  - **Format** selection: Select the format of the time stamp to add to files in the Hot Folder.
- **Session Retries**: The number of times Print Manager will try to reconnect to the printer before it stops trying and instead produce a timeout error in the messages.
- **Printer Timeout (sec)**: The startup time (in seconds) allowed to the printer before a timeout error is reported in the messages.
- **Printer Ack Timeout (sec)**: The time (in seconds) that the Print Manager waits for a response (an **Acknowledgement**) from the printer after sending a response request.
- **Retry Delay**: The time (in seconds) that the Print Manager waits before retrying a job after a timeout.
- **Log Level**: Use the drop-down to select which Print Manager logging level to use.

#### Note

This logging relates to Print Manager job processing, and not to internal Print Manger debugging. Settings for the internal logs are catered for in the generic "Log Settings" on page 848 pages.

The selection of logging chosen here will determine what is displayed in the [Print Wizard Message Pane](#).

Higher logging levels such as "Debug" and "Status" provide more details but will have an impact in terms of processing time and resources required.

You might need to adjust this setting based upon your production facilities, production speeds and logging requirements. Some sites might decide that "Error" logging levels

(which only records Errors, and thus should be the minimal logging option) are all they need.

### Tip

We recommend leaving the logging level set at the default level of "Info", unless otherwise needed.

- **Printer Preferences** group:

- **Hide disabled printers:** Select to have any printers disabled in the "Printer Settings Dialog" on page 822 not appear in the "Printers pane" on page 820.

### Note

Not being able to see a printer that exists in the "Printer Settings Dialog" on page 822 within the "Printers pane" on page 820 can be confusing for new users.

We would recommend not selecting this option until you are fully comfortable with the Print Manager.

- **Cleanup** group:

- **Automatically remove finished jobs** checkbox: Select to have jobs in the Print Manager automatically deleted, after a set period of time.
- **Remove finished jobs after setting:** This option only becomes available if the **Automatically remove finished jobs** checkbox was selected.  
Select the time period (measured in either *Minutes*, *Hours* or *Days*) for which finished jobs are to be retained. When this retention period is completed the job(s) are deleted. The deletion both removes the job from the Printer Queue, as well as deleting the file on disk.  
The job will remain listed in the job history, but can no longer be viewed.

## Language Setting

- **Display language:** Select a language from the drop-down list to be used as the language of the User Interface (after the software is restarted).

- **Default Locale:** The default locale sets the locale for new templates. By default this is the system's locale. The locale can be changed per template; see "Locale" on page 290.
  - Select System Locale to use the operating system's locale settings.
  - Select Explicit Locale to choose a static locale from the drop-down list.

## Log Settings

PrintShop Mail Connect logs the activities it undertakes whilst running. New Connect logs are created daily and are held for a period before they are automatically deleted.

The settings on this page determine the level of logging and how long the log files should be retained.

These log files can be an essential resource when diagnosing issues with OL Support. The logging settings are global to **all** Connect applications and the Logging Preferences can be adjusted from within any of the Designer and Print Manager dialogs.

The settings are:

- **Overall Logging Level** selection: Select the overall Connect Logging level. This controls how much logging Connect will do.  
By default the logging level is set at the midpoint of *Info*, but it can be set higher to include more logging (*All*, *Trace*, *Debug*), or lower to reduce the amount of logging (*Warning*, *Error*).  
The logging is hierarchical, with each Logging Level selection containing all of the Logging Levels below it. The default logging *Info* Level contains all *Error* and *Warning* entries plus informational log entries.

### Warning

Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

We recommended leaving the logging level to *Info* and only using the higher levels of logging in conjunction with advice from OL support.

- **Rollover policy** selection: Chose whether to retain Connect log files for a certain number of days (**Daily logs**) or based upon some predetermined hard disk usage limitations (**Size-based logs**). The selection are as follows:
  - **Daily Logs**: Use this setting to determine how many days Connect Logs are to be kept, before they are deleted.
    - **Number of days to retain logs**: This value only impacts upon historic (closed) logs.  
Chose between 1 and 99,999 days.  
The default value is set to 10 days for a new installation and 99,999 days on existing installations (to preserve backward compatibility).
  - **Size-based logs**: Use this setting to restrict log file size, and to keep only a specified number of them.  
By combining the maximize individual log file size with the amount of log files to retain, this effectively allows a hard disk space usage limitation to be placed upon the logging process.
    - **Maximum size for log file**: This sets the maximum size a log file can reach before the logging system creates a new file.
    - **Number of files to keep**: This sets the maximum number of log files kept in the log folder. The default value is set to 50 for a new Connect installation and 99, 999 for an existing installation (to preserve backward compatibility).
- **Logging pattern** edit box: This edit box determines the formatting of the individual log entries.  
By default it is set to a date/time value which allows for simple searching within log files.

### Warning

We recommend leaving the Logging pattern to the default value.

If you do need to change the Logging pattern, please see the [Pattern Formatting](#) guide for help in doing so.

- **Log message preview** display: This displays a real time example of the format and content of individual log file entries, based upon the **Logging pattern** setting.

## Advanced Log Settings

The Advanced settings over-ride the Overall logging settings, and provide a greater level of logging granularity.

### Warning

Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

The Advanced Log Settings should only be set in conjunction with advice from OL support, to ensure that only the most relevant settings are set to the higher logging levels.

This Preferences page allows you to add () or remove () individual Connect Packages, or change their logging settings ().

## 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 841.
- **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 (in seconds) between connection retries. This interval period applies only to attempts at reconnecting to printers.

This chapter contains the current and previous versions of PrintShop Mail Connect 2018.2.x release notes.

- [2018.2.1 Patch Release Notes](#)
- [2018.2 Release Notes](#)

#### Previous releases:

- [PrintShop Mail Connect 2018.1.x Release Notes](#)
- [PrintShop Mail Connect 1.8 Release Notes](#)
- [PrintShop Mail Connect 1.7.1 Release Notes](#)
- [PrintShop Mail Connect 1.6 Release Notes](#)
- [PrintShop Mail Connect 1.5 Release Notes](#)
- [PrintShop Mail Connect 1.4 Release Notes](#)

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 2018.2, as well as some important installation information.

### Installing PrintShop Mail Connect 2018.2

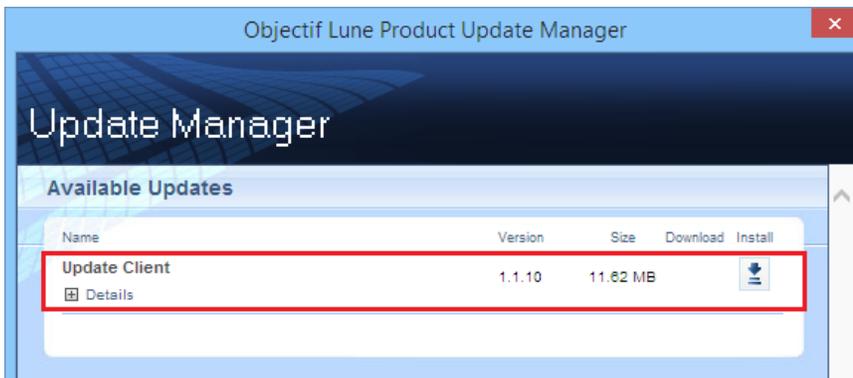
- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help, which can be accessed from the software and the installer.
- Note that PrintShop Mail Connect comes with a 30 day trial license by default.

### Upgrading from PrintShop Mail Connect 1.7

It is highly recommended that you update the **Objectif Lune Update Client** before upgrading PrintShop Mail Connect from version 1.7 to version 2018.2.

If you do not update the Update Client, an unexpected error might occur whilst updating Connect. This error does **not** prevent the successful upgrade of Connect to 2018.2, even though it appears as if it might have. To avoid potential confusion, we recommend that you first update the **Objectif Lune Update Client** before attempting to upgrade Connect from version 1.7 to version 2018.2.

The Update Client 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 itself is still open. It automatically updates itself.



# Connect 2018.2 Enhancements

## Sassy CSS

PrintShop Mail Connect 2018.2 introduces **Sass** CSS preprocessor functionality to the Designer. (SHARED-64625)

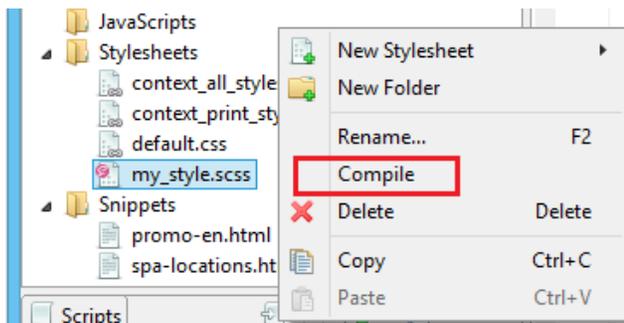
Sass (*Syntactically Awesome Style Sheets*) is an extension of CSS that enables you to use things like variables, nested rules, inline imports and more.

Maintenance of CSS styles for templates requiring many different style rules can become a tedious undertaking. Stylesheets files keep getting larger and more complex and thus harder to maintain. Some common challenges include:

- How to group/organize rules that belong together? (e.g. styles for an address block, footer or dynamic table)
- How to update a color value or font family across multiple rules and even across stylesheet files?

A CSS preprocessor like Sass solves these problems and helps you write maintainable code.

In Connect Designer options have been added to the Stylesheets folder to create and compile Sass files (.scss file written using Sass 3 syntax). For more information on the Sass language see: [www.sass-lang.com](http://www.sass-lang.com).



Compiling a .scss file outputs a normal CSS stylesheet file which is automatically linked to the current section.

Alternatively use drag and drop to link the result to other sections or use the Includes dialog of a specific section.

# Dynamic Sheet Configuration Settings

A common requirement for dynamic print templates is the ability to switch between simplex and duplex. Typically this is solved by duplicating a Print Section, enabling Duplex in the Sheet Configuration dialog and then switching between the simplex and duplex sections by Control Script (or through the Conditional Print Section wizard).

In Connect 2018.2 new scripting commands have been added to dynamically set Sheet Configuration options from within a Control Script. This allows you to set the Duplex mode dynamically, or do things such as applying a different Master Pages based upon the data, or omitting empty sides from the last sheet, or single sheets.

The following Control Script sample enables Duplex mode for "*Section 1*":

```
let section = merge.template.contexts.PRINT.sections["Section 1"];
section.sheetConfig.duplex = true;
```

The following snippet sets the media and the master pages for the all sheet positions of "*Section 1*":

```
let section = merge.template.contexts.PRINT.sections["Section 1"];
section.sheetConfig.positions.all.media = "My Media";
section.sheetConfig.positions.all.allowContent = AllowContent.ALL_SIDES;
section.sheetConfig.positions.all.masterFront = "My Master Page";
section.sheetConfig.positions.all.masterBack = null;
```

## Performance Improvements

- **Job Creation:** Improved job creation speeds. This is particularly the case with any job creation that involves any processing, including filtering, grouping or sorting. (SHARED-50328)
- **Output:** Improved memory handling, leading to even better stability.

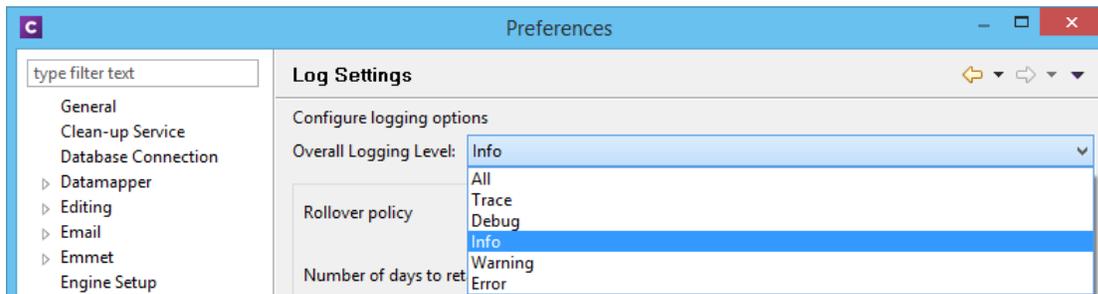
## Installer Improvements

- Support added for using **non-Latin-alphabet characters** in the User Name for connecting to external databases. This applies to both the Setup and the Designer Preferences dialog. (SHARED-65243)
- **Microsoft Visual C++ Runtime** now only installed when really required. (SHARED-63909)
- Several third party libraries have been updated. (SHARED-57163)
- A warning is now displayed if the **Windows Management Instrumentation** service is not enabled and started. (SHARED-61548)
- Installer now logs more helpful messages when failing to connect to an existing MySQL server. (SHARED-62836)

## Logging Improvements

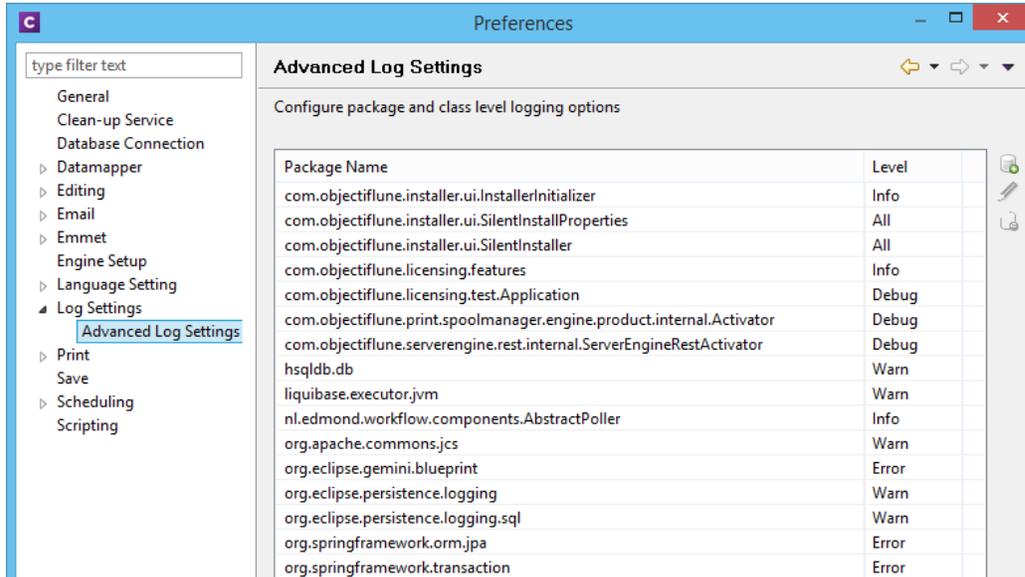
- Improved error/warning logging in Live mode. (SHARED-49046)
- Extra preferences added to allow greater control over logging levels. (SHARED-63923)

One change is the introduction of an option to set the **Overall Logging Level**. By default the logging level is set at the midpoint of *Info*, but it can be set higher to include more logging (*All*, *Trace*, *Debug*) or lower to reduce the logging (*Warning*, *Error*).



**NOTE:** Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

We have also introduced **Advanced Logging** preferences. The Advanced settings override the Overall logging settings, and provide a greater level of logging granularity. The Advanced Log Settings should only be set in conjunction with advice from OL support, to ensure that only the most relevant settings are set to the higher logging levels.



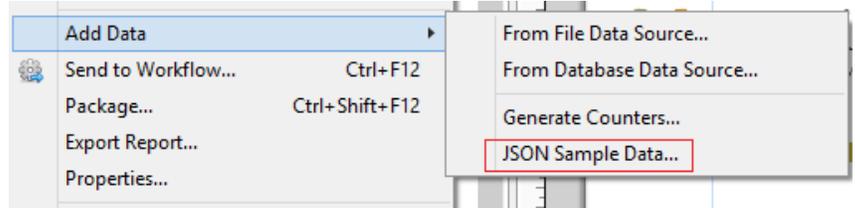
- The logging format default has changed from dd MMM yyyy (31 May 2018) to yyyy-MM-dd (2018-05-31) to make it easier to sort log files when using tools to merge and view multiple log files together. (SHARED-64233)
- Connect will now log a warning message in the event that there are insufficient engines currently available for a specific job, leading to the scheduler having to wait. (SHARED-61642)
- The location of the logging configuration file has moved from the Users directory to ProgramData to restrict the configuration to a per-machine basis. (SHARED-64147)
- Should a fatal error occur in the Java Virtual Machine running Connect the logs generated are now controlled and will appear in "C:\ProgramData\Objectif Lune\OL Connect\ErrorLogs" folder. (SHARED-64597)

# Connect 2018.2 Designer Updates

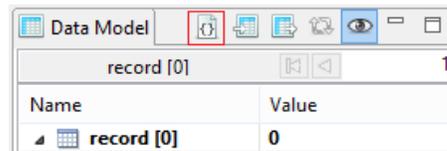
## JSON support added to the Data Model Panel

The Designer now allows you to add **JSON sample data** straight into the Data Model for debugging purposes. (SHARED-61655)

This can be done via a new **File menu option**



Or from the Data Model Panel itself, using the new **JSON Sample Data** button.

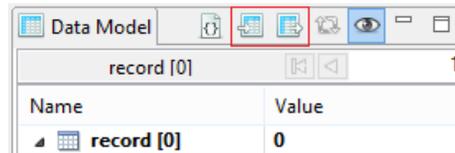


Invoking this option launches a wizard which allows you to either select a JSON file or paste JSON data copied from a Workflow variable. When loading data from a disk file the file contents are automatically placed in the JSON editor.

If JSON sample data is active invoking the **JSON Sample Data...** option will show the current data allowing you to edit its structure and values.

You can also now import or export a Data Model in JSON format. (SHARED-64620)

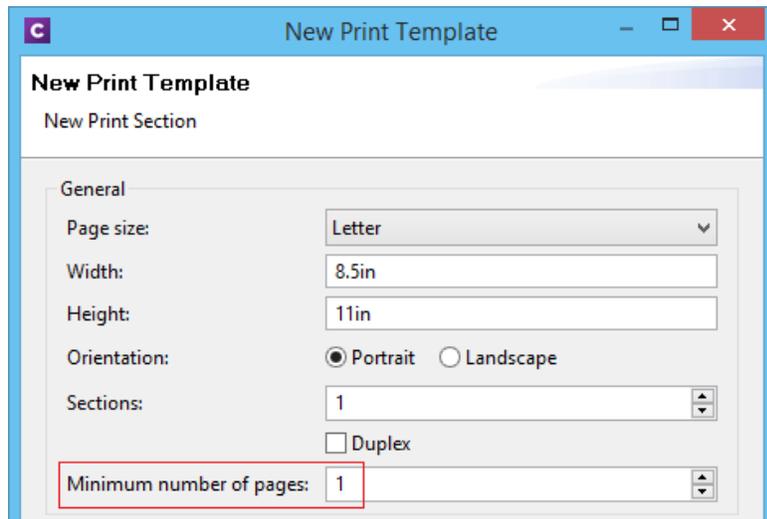
Select the Import or Export button and then choose \*.JSON files type.



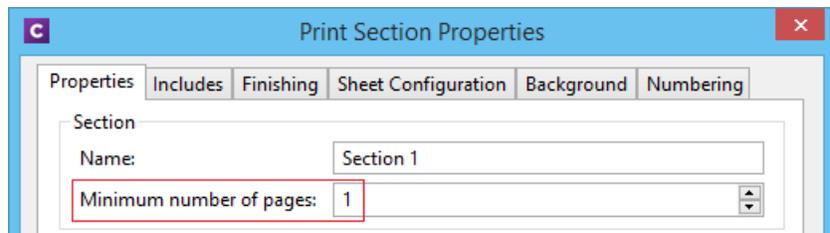
# Minimum Pages option added to Print Sections

Connect 2018.2 introduces a new section property for controlling the minimum number of pages for a Print Section. This can be used to generate pages with only absolute positioned content, simplifying workflows where the number of pages are known up front and you want to draw boxes (absolute positioned divs) on specific pages. (SHARED-10236)

The property can be set when the new Template is being created.

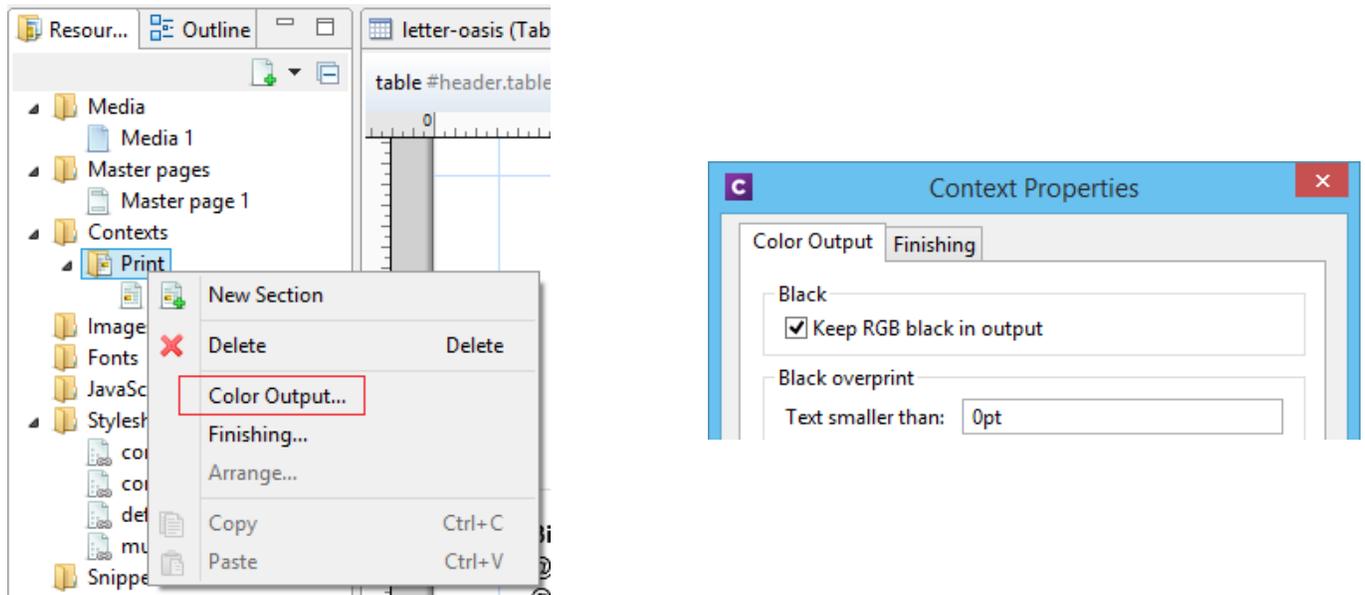


Or through the Print Section properties.



## Color Output option added to Print Contexts

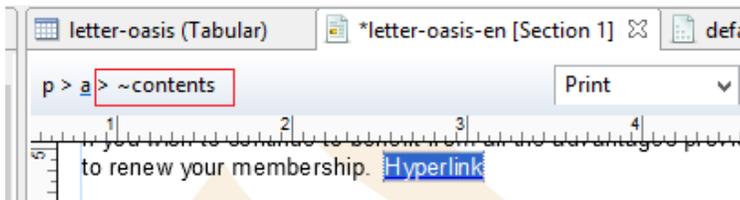
For certain full color print jobs, it is important to be able to set black text on top of color areas to overprint. This is of particular importance for small text, because mis-registration problems are more visible with small text. To support this a new Color Output option has been added to the Print Context. (SHARED-62265)



The default encoding for the color black has also changed from RGB to CMYK. Thus the “*Keep RGB black in output*” option was added for backwards compatibility.

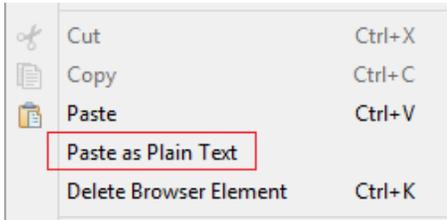
## Breadcrumb Improvements

The breadcrumbs at the top of the workspace will now always end with a ~contents breadcrumb. When clicked this will select the *contents* of the last element rather than selecting the last element. (SHARED-17339)



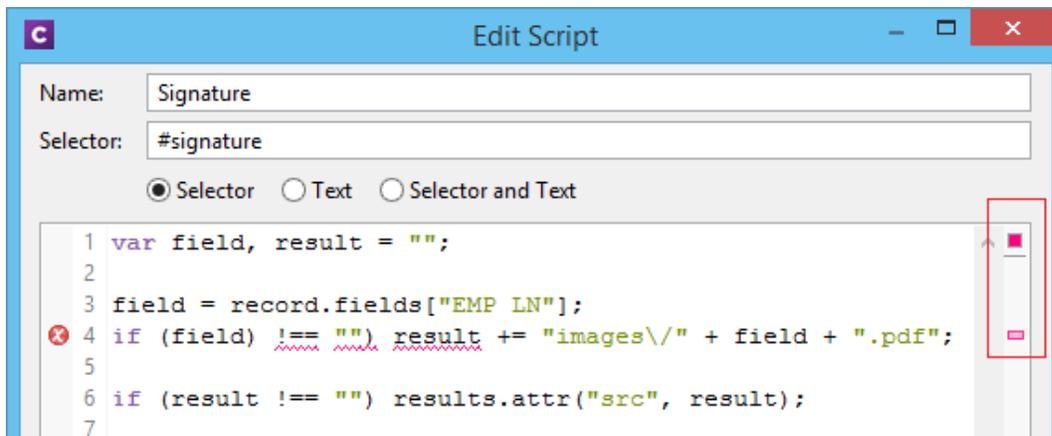
## Paste as Plain Text option added

Option added to paste content copied from an external editor as plain text. This ensures any unwanted formatting and invisible elements are removed. (SHARED-63025)



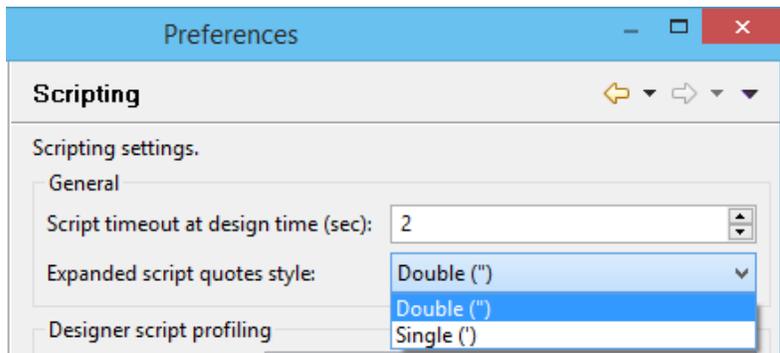
## Scripting Improvements

- An overview ruler has been added to the Script Editor. The ruler shows annotations concerning the entire script. These annotations are shown relative to their position in the script and do not move as the user scrolls the script source. Script errors are highlighted by a red icon, and warnings in yellow. The topmost icon will display red if any errors exist in the script at all.



This allows you to immediately see if a script has warnings or errors and easily jump to any warning/error location by clicking on the annotations in the overview ruler. This is particularly handy when a script has many lines of code. (SHARED-64717)

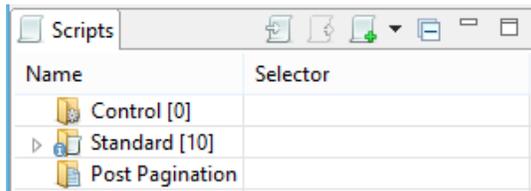
- Personalization scripts can now use the "loadtext" function to load text content from files. (SHARED-61512)
- Option added to Scripting Preferences to set whether expanded scripts use single or double quotes. (SHARED-60370)



- Scripts can now conditionally trigger a fatal error by calling the new `fatalError (message)` function. This will abort content creation. (SHARED-64789)
- Scripts in Print Context jobs can now attach arbitrary properties to *content items* generated by Content Creation. The properties are retained in the database, allowing the information to be utilized in Workflow for further processing along with the base record information when retrieved by the Retrieve Items action. (SHARED-65239)
- Introduced "width" and "height" script functions with the same behaviour as jQuery's "outerWidth" and "outerHeight". (SHARED-65513)
- Fixed an issue whereby the `resource()` function did not work properly when passing a UNC path. (SHARED-65523)

## Post Pagination Improvements

- We have introduced a new **Post Pagination** script type, and have updated the Scripts panel so that it now groups scripts by type. The groups are Control, Standard (which contains any pre-existing scripts) and Post Pagination. (SHARED-64634)



These script types are grouped to emphasize their execution order. Control scripts are executed before the merge process and therefore run before the Standard and Pagination scripts.

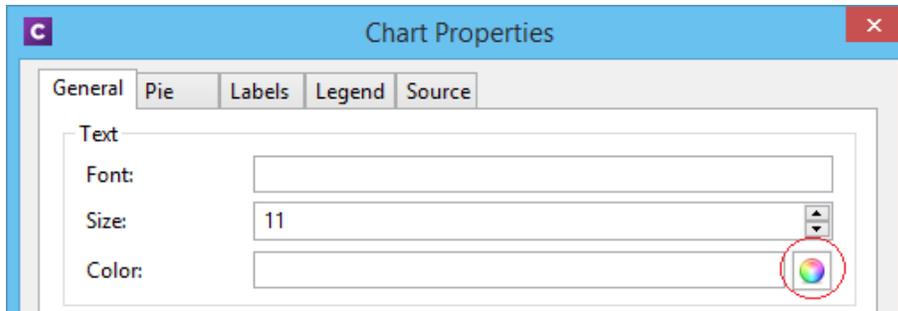
- Several new script functions have been introduced for use with the new Post Pagination scripts. Scripts can now access elements in any section as well as retrieve information that is only available after pagination. This will allow for the creation of post content elements like a **Table of Contents**. (SHARED-64637)
- Margins for Sections and Master Pages are now scriptable, through the new `margins` object. (SHARED-62173)
- The sheet configuration of a Print Section is now scriptable, via the new `sheetConfig` object. (SHARED-63061)

## Barcode Improvements

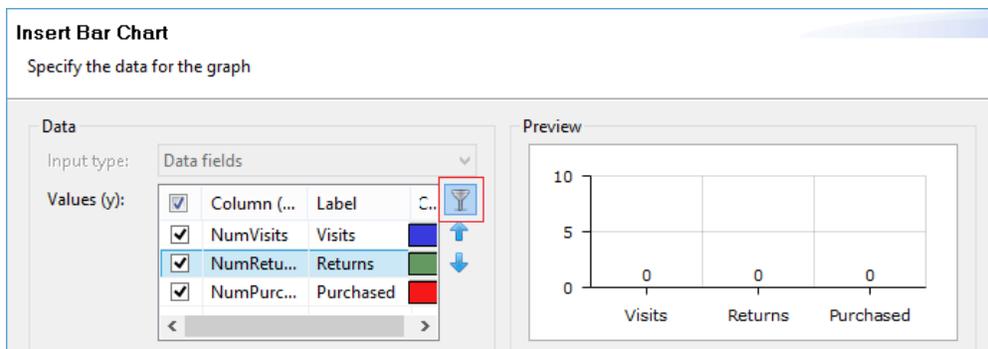
- Added **human readable text** and checksum controls to Royal Mail 4 State barcodes. (SHARED-47422)
- Added support for Grayscale "Colors". (SHARED-50614)

# Business Graphics Improvements

- **Color picker** options added throughout the Chart Properties dialog. (SHARED-62564)

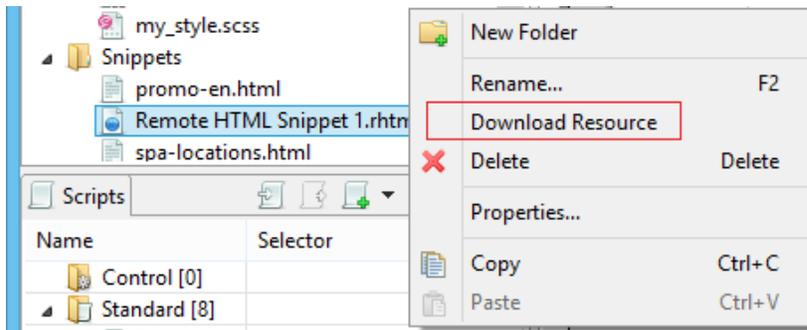


- The "*Values (y)*" table in both the **Insert Graph Wizard** and the **Graph Script** dialog can now be filtered to show only numeric fields. This will then limit the display to only Integer, Float and Currency fields in the Data Model. (SHARED-64875)

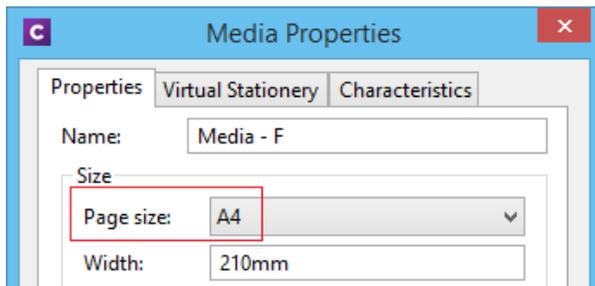


# General Designer Improvements

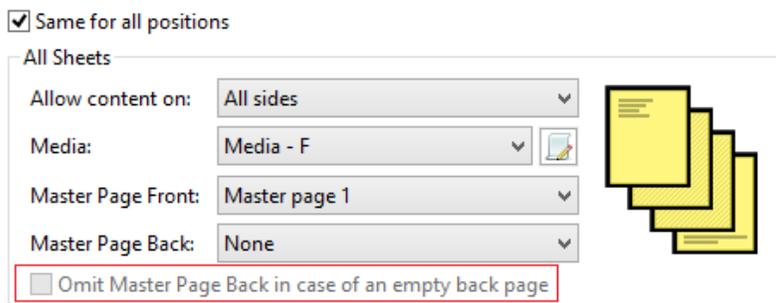
- **Download Remote Resources** (CSS stylesheets, JavaScript files, JSON and HTML snippets) to your template through a new context menu in the Resources view. This allows you to keep a link to a centralized file but quickly download a copy to your template without having to separately copy and paste.(SHARED-58949)



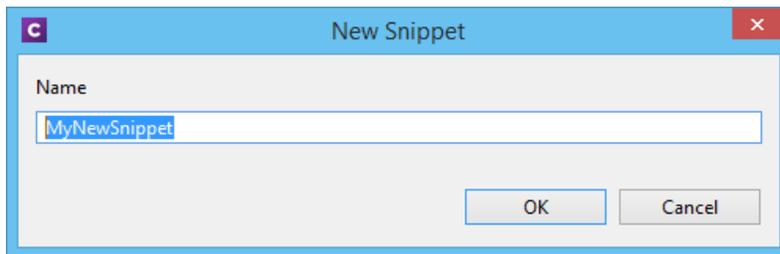
- **New Media** now defaults to the same paper size as the current Print Section. (SHARED-34012)



- Added an "**Omit Master Page Back in case of an empty back page**" option when configuring all sheets at once in the Print Section Properties. (SHARED-56383)



- **Media Properties** dialog behaviour improved. When any of the media in the Resources tree properties are changed, the "Page Setup" button gets activated and Designer prompts to save the media properties changes. (SHARED-62353)
- Disabled **irrelevant menu items** in the View menu when a Snippet editor is active. (SHARED-62816)
- When selecting content in the main editor, and selecting the context menu option of Create Shared Content or Create Snippet, you are now presented with a dialog in which to specify the name of the snippet resource. (SHARED-63217)



- Improved support for editing shorthand **important** rules in the Edit Rule dialog. (SHARED-62863)
- **Preflight**: If a fatal error occurs during Data Mapping, the reported error will now also include the current record number. (SHARED-63089)
- **Help button** added to both the *Profile Scripts* and *Preflight* dialogs. (SHARED-63091)
- Template Wizard file comboboxes now add "Empty" value if not set. (SHARED-63294)
- Improved behaviour for when the **Auto Save** directory no longer exists. (SHARED-64428)
- Improved the way *Create Snippet* and *Create Shared Content* work. Creating a snippet for a selection of multiple elements in the Outline pane now creates a single snippet containing all the elements. (SHARED-64445)
- Improve support for UNC paths in Remote CSS. Connect now attempts to auto-correct UNC paths with the incorrect number of slashes. (SHARED-65308)
- **Zoom** options improved. (SHARED-64880/61294/61296)
- Apply button added to the Stylesheet **New Rule** dialog. (SHARED-60852)
- Fixed an issue whereby formatting could be lost after invoking undo or redo when the source tab is active. (SHARED-64734)

# Connect 2018.2 Output updates

## Important Information

The Output Engine (Weaver) memory footprint has increased in Connect 2018.2. This means some users might need to increase their Weaver memory allocation in the **Engine Setup** preferences.

**Note:** When running really large jobs, it often pays to increase Weaver memory allocation, even if only for the duration of the production job(s).

## Font handling

- **Additional Content Text improvements**

When adding text as Additional Content in Output Presets, TrueType Collections (TTC) font files were not supported. TTC fonts allow a single file to hold multiple fonts types. Since TTC fonts can be important for Asian language fonts, we have now added support for these.

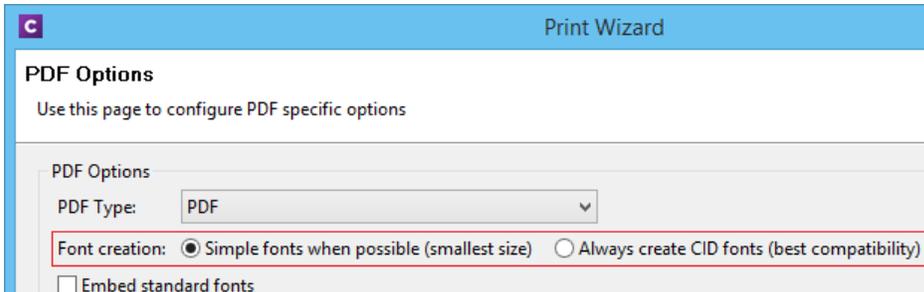
Previously, Additional Content text allowed selecting Bold and Italic for any font, even if the bold or italic version was not present. We now only display the font variation options for a font, if that font variation is actually available.

- **PDF Output font selection**

Added selection for either simple mixed byte font encoding (for smaller size) or fixed 2 byte CID fonts with identity encoding (for greatest compatibility) for PDF output. (SHARED-65462)

Connect always used simple fonts in its output, but dynamically switched to composite fonts when the number of characters in a font grew too large. This approach best reduced output file size. But in some cases the dynamic font creation caused viewing issues with certain PDF viewers, even though the font method is compliant with PDF standards.

To accommodate such, we have provided an alternative font creation method which always creates CID fonts with identity encoding. This results in larger output files, but provides better compatibility with PDF viewers.



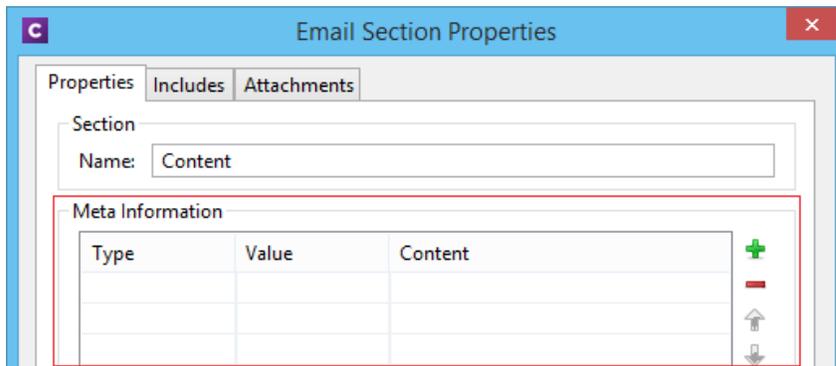
When generating PDF for non-Western languages, this new option may be the recommended choice.

- Asian language PDF output made smaller through improved glyph handling. (SHARED-63549)
- Further improvements made in handling simulated style fonts for OTF fonts. (SHARED-65402)
- Fixed an issue with output of TrueType font encoding information that could cause special characters to be missing or incorrectly substituted. (SHARED-62332)
- When a TrueType font "glyph count" information is incorrect Connect will now attempt to continue processing, rather than immediately throwing an exception. (SHARED-64382)

# Email Output Improvements

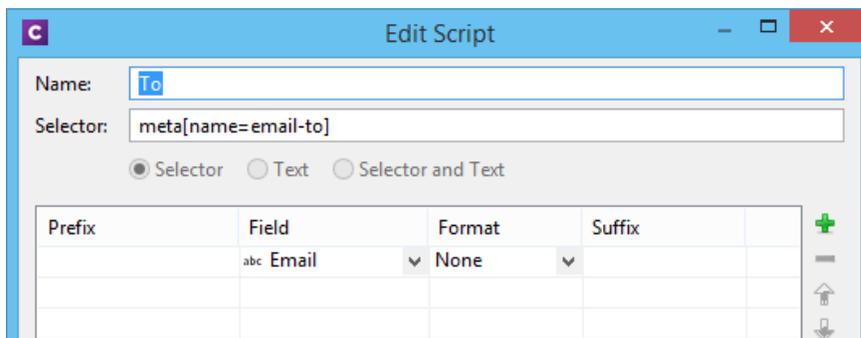
- **Meta information added to the Email Section Properties**

This allows viewpoint meta information to be added and configured in the email. This meta information will not be visible to the receiver, but can have an effect on how the email is represented in the email client. (SHARED-64761)



- **Email Script dialog improvements**

The email Script dialogs have been streamlined and simplified.



Improvements were made to the **To, CC, BCC, Reply-To, From, Subject** and **PDF Password** email scripts. (SHARED-61005)

- **Improved support for graphs in emails**

As email clients don't usually support SVG images, graphs added to an email context are now rasterized by default. There is also a preflight message for emails containing graphs set without rasterize options. (SHARED-60546)

## Print Output Improvements

- **AFP output speed improvement** for image intensive jobs containing lots of pages. (SHARED-55831)
- If a template containing **linked annotations** (either URL links or email links) was printed to PDF as PDF/A-1b, PDF/X4 or PDF/VT, the resulting output file was not compliant to the specified conformance level. This has been fixed. (SHARED-61714)
- We introduced a way to create **custom TLE** and **NOP records** in AFP output, through a custom printer definition. These records can have variable content, and they can be created conditionally. At the moment there is no GUI option to create these custom records and their rules, but this is intended for a future version. (SHARED-65527)
- In PDF/A-1b, PDF/X4 and PDF/VT output the document title in the PDF metadata is now derived from the template name, rather than the full path of the output file name. (SHARED-61168)

## General Output Improvements

- Output engine now warns instead of crashing if it encounters text with a non-invertible transformation matrix (such as a zero point size). (SHARED-59744)
- Output engine now logs a warning if an image in an encrypted PDF file cannot pass-through untouched. (SHARED-59802)
- Fixed uncontrolled appearance of optional content (such as virtual stationery) in documents that are processed by the transparency flattener. (SHARED-60923)
- Fixed handling of output paths with one or more dollar signs (\$) in them, such as certain network shares. (SHARED-63872)
- Several miscellaneous improvements to memory management.

# Print Wizard and Preset Wizard Improvements

## Size grouping

The ability to group documents by their size has been extended. In addition to grouping documents, you can now also group *document sets* and *job segments* by the number of pages. And instead of just using the page count, it is also now possible to use the sheet count for the size of the documents, sets, or segments. This makes size grouping useful for jobs that might contain both simplex and duplex content. (SHARED-61192)

This was previously referred to as “page break grouping”, and is found on the same Grouping Options Wizard page.

**Grouping Options**  
Use this page to configure grouping the output into jobs, job segments and document sets

Job Grouping Fields | Job Segment Grouping Fields | Document Set Grouping Fields

Selected Fields:

| Field Name | Sorting Option |
|------------|----------------|
| CUSTNUMBER | Ascending      |
|            |                |
|            |                |
|            |                |
|            |                |
|            |                |
|            |                |
|            |                |

Available Fields:

- ExtraData
- FOA
- FIRSTNAME
- LASTNAME
- GENDER
- ADDRESS
- CITY
- STATE
- COUNTRY
- FORMAT
- LANGUAGE
- ZIP CODE
- PHONE

Size Grouping

Grouping Level: Job Segment

Item to group: Document Sets

Group by: Sheet Count

Size groups in reverse order

Size grouping after normal grouping

Meta data property: ItemSize

Size Ranges

| Range Name | From | To      |
|------------|------|---------|
| SinglePage | 1    | 1       |
| C5         | 2    | 5       |
| Oversized  | 6    | Largest |
|            |      |         |
|            |      |         |
|            |      |         |
|            |      |         |
|            |      |         |
|            |      |         |

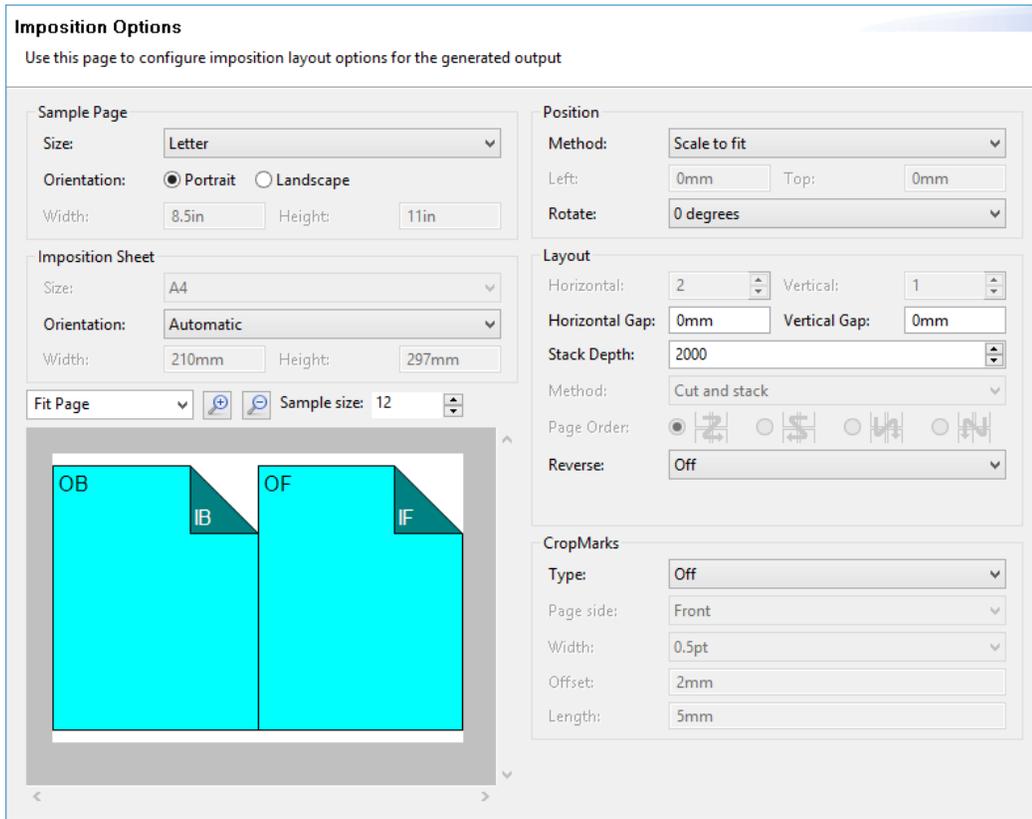
The settings used in the screenshot above groups documents into document sets by their customer number. Size grouping then creates three different jobs segments: the first with sets of only 1 sheet, the second with sets of 2 to 5 sheets, and a third with anything of 6 sheets or greater.

**Tip**

In Output Creation, you could create an output file per job segment, and use `${segment.metadata.ItemSize}` in the output file mask to automatically name these files appropriately.

# Impositioning

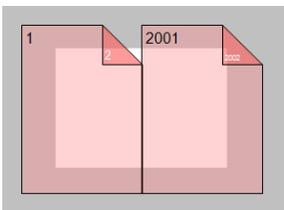
We have made a number of improvements to Impositioning, both by improving usability and by adding new features. These changes led to a redesign of the layout of the imposition wizard page, with some options being moved and others renamed.



The major improvements are as follows.

## Visual warning

The page layout diagram now displays in red when the selected imposition options do not fit the selected sheet.



## Sample page for imposition

The imposition settings are not always meant to work with just your current template. So we have added a sample page setting that will be used for both the preview and the validation of the settings. This sample page now defaults to the size and orientation of the first section of a template, instead of its first media.

### Stack by Column

Alongside the existing cut and stack impositioning order, we have introduced an imposition order that is more suited for continuous feed printing when the imposition has multiple rows. We call this new ordering “Stack by Column”, and it is very suitable for roll fed label printing. It works like this: instead of always positioning the subsequent page on the next sheet (until the stack depth is reached), stack by column first goes to the next row down on the sheet, and then down in the stack. The effect is that if all sheets are layed out top to bottom consecutively, the imposed pages are ordered by column. If the imposition has only 1 row, both methods are identical.

| Comparison of Stack by Column and Cut and Stack with 16 duplex pages in a 2x2 imposition. |                                                             |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Stack by Column<br>(top to bottom, stack down, left to right)                             | Cut and Stack<br>(stack down, top to bottom, left to right) |
|                                                                                           |                                                             |

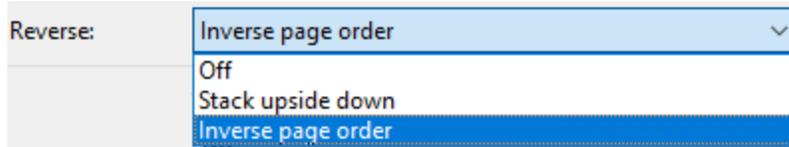
## Reverse impositioning

In roll fed applications, reversing the imposition order can be very important, because, when done properly, this causes the roll output by the printer to have the first page on the outside of the roll, allowing the roll to start with the first page.

Our existing option to reverse the order of impositioning is reversing the order of the resulting imposition sheets by starting with the last side of the last sheet, and then going backwards. This effectively turns the stack up side down. It also means that, in case of duplex impositioning, all back sides become front sides and vice versa.

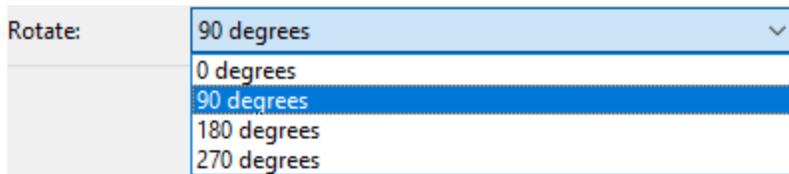
To have an effective way of reversing a Stack by Column imposition that leaves the “by column” order in tact, but that starts at the last pages in the job, we have added a new option to reverse the imposition, that basically reverses the incoming sheet order before impositioning. The effect is that not only is the order of the imposition sheets reversed, but the order of the pages on the sheet is also reversed.

To properly distinguish between these two ways of reversing, we have renamed our existing reverse to “**Stack upside down**”, and our new way of reversing is called “**Inverse page order**”.



## Rotate imposition

In addition to our existing options of having your imposition either upright or rotated 180 degrees upside down, we can now also rotate your imposition by 90 or 270 degrees.



## Selective Inserts

Selective inserts in the *Insert Mark Options* page now support metadata menus for inserting metadata field names in selective insert conditions. (SHARED-61152)

# New AFP Options

We have introduced a new **AFP Options** page, to provide greater control over AFP output. (SHARED-63234)

Connect already had the ability to add metadata properties from Job Creation as TLEs to the AFP output. However, the earlier implementation did not support creating TLEs for specific pages, or for adding TLEs at the page level (which allows different values for each page).

TLEs are often used to mark the start of documents or mail pieces, to indicate media types, locations for inserts (including the name of the insert), and other properties required for print production. To accommodate this, it is now possible to conditionally create both TLEs and NOPs in AFP output by using inserts in custom printer definitions.

In addition to this, we have also added settings to control which job elements page groups will be created in the output. Earlier Connect versions would always create page groups for all job segments, document sets and documents, which would lead to pages being nested in three levels of page groups. Now you can choose to have just one level of page groups, or even no page groups at all.

### AFP Options

Use this page to configure AFP specific options

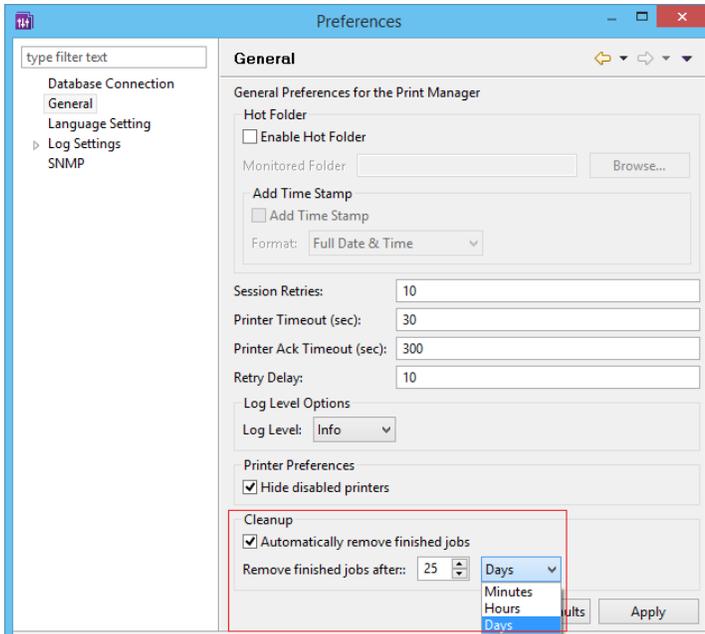
|                                                                                                                                                                                                         |                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Page Groups</b><br>Create Page Groups for:<br><input checked="" type="checkbox"/> Job Segments<br><input checked="" type="checkbox"/> Document Sets<br><input checked="" type="checkbox"/> Documents | <b>Options</b><br><input checked="" type="checkbox"/> Create TLEs for all metadata properties |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|

To make sure that metadata properties from Job Creation do not interfere with dynamic TLEs from the printer definition inserts, this page also has a setting to turn off TLE creation for metadata properties.

# Connect 2018.2 Print Manager updates

## Job Cleanup Improvements

Option added to have finished Print Manager jobs automatically deleted after a set period of time. (SHARED-62981)



## General Print Manager Improvements

- **Date formats** made consistent in the *History* tab, to assist in date searching. (SHARED-59679)
- **Text files** (\*.txt) are now treated the same as comma separated text files (\*.csv) in Print Manager. (SHARED-64666)
- Fixed issue with **IPDS Preview** of GOCA content sometimes displaying random lines across the page. (SHARED-63331)
- Fixed issue with printer connection not always closing after querying printer capabilities. This sometimes led to failures in subsequent printer capability queries. (SHARED-64498)

# Known Issues

As of PrintShop Mail Connect 2018.1 the Known Issues have moved from the Release Notes to the Connect online Help.

They can be found [here](#).

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 2018.2.1 , as well as some important installation information.

## Installing PrintShop Mail Connect

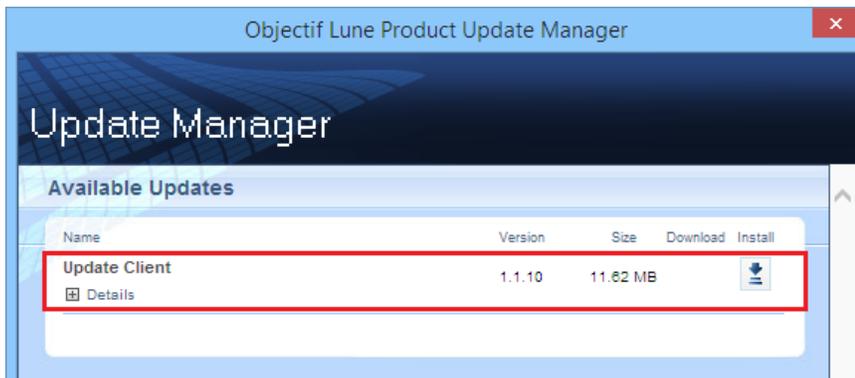
- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help, which can be accessed from the software and the installer.
- Note that PrintShop Mail Connect comes with a 30 day trial license by default.

## Upgrading from PrintShop Mail Connect 1.7

It is highly recommended that you update the **Objectif Lune Update Client** before upgrading PrintShop Mail Connect from version 1.7 to version 2018.2.

If you do not update the Update Client, an unexpected error might occur whilst updating Connect. This error does **not** prevent the successful upgrade of Connect to 2018.2, even though it appears as if it might have. To avoid potential confusion, we recommend that you first update the **Objectif Lune Update Client** before attempting to upgrade Connect from version 1.7.

The Update Client 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 itself is still open. It automatically updates itself.



# Connect 2018.2.1 Enhancements/Fixes

## Backwards Compatibility Issues

Connect 2018.2 introduced some issues which have now been addressed in 2018.2.1. These issues were:

- External sort metadata fields were not being catered for properly in the metadata validation code in the Output Preset and Print Wizards. (SHARED-67687)
- Fixed a problem affecting scripted Section configurations containing different scripted values for different records. The merge engine would sometimes use previously applied scripted values. (SHARED-67699)
- Fixed a problem with cloning template Sections that did not successfully clone all fields. (SHARED-67702)

# Connect 2018.2 Enhancements

## Sassy CSS

PrintShop Mail Connect 2018.2 introduces **Sass** CSS preprocessor functionality to the Designer. (SHARED-64625)

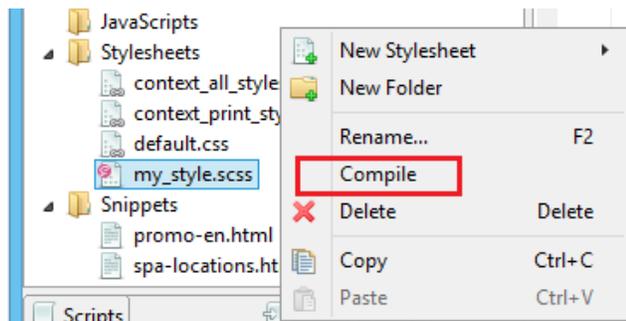
Sass (*Syntactically Awesome Style Sheets*) is an extension of CSS that enables you to use things like variables, nested rules, inline imports and more.

Maintenance of CSS styles for templates requiring many different style rules can become a tedious undertaking. Stylesheets files keep getting larger and more complex and thus harder to maintain. Some common challenges include:

- How to group/organize rules that belong together? (e.g. styles for an address block, footer or dynamic table)
- How to update a color value or font family across multiple rules and even across stylesheet files?

A CSS preprocessor like Sass solves these problems and helps you write maintainable code.

In Connect Designer options have been added to the Stylesheets folder to create and compile Sass files (.scss file written using Sass 3 syntax). For more information on the Sass language see: [www.sass-lang.com](http://www.sass-lang.com).



Compiling a .scss file outputs a normal CSS stylesheet file which is automatically linked to the current section.

Alternatively use drag and drop to link the result to other sections or use the Includes dialog of a specific section.

# Dynamic Sheet Configuration Settings

A common requirement for dynamic print templates is the ability to switch between simplex and duplex. Typically this is solved by duplicating a Print Section, enabling Duplex in the Sheet Configuration dialog and then switching between the simplex and duplex sections by Control Script (or through the Conditional Print Section wizard).

In Connect 2018.2 new scripting commands have been added to dynamically set Sheet Configuration options from within a Control Script. This allows you to set the Duplex mode dynamically, or do things such as applying a different Master Pages based upon the data, or omitting empty sides from the last sheet, or single sheets.

The following Control Script sample enables Duplex mode for "*Section 1*":

```
let section = merge.template.contexts.PRINT.sections["Section 1"];
section.sheetConfig.duplex = true;
```

The following snippet sets the media and the master pages for the all sheet positions of "*Section 1*":

```
let section = merge.template.contexts.PRINT.sections["Section 1"];
section.sheetConfig.positions.all.media = "My Media";
section.sheetConfig.positions.all.allowContent = AllowContent.ALL_SIDES;
section.sheetConfig.positions.all.masterFront = "My Master Page";
section.sheetConfig.positions.all.masterBack = null;
```

## Performance Improvements

- **Job Creation:** Improved job creation speeds. This is particularly the case with any job creation that involves any processing, including filtering, grouping or sorting. (SHARED-50328)
- **Output:** Improved memory handling, leading to even better stability.

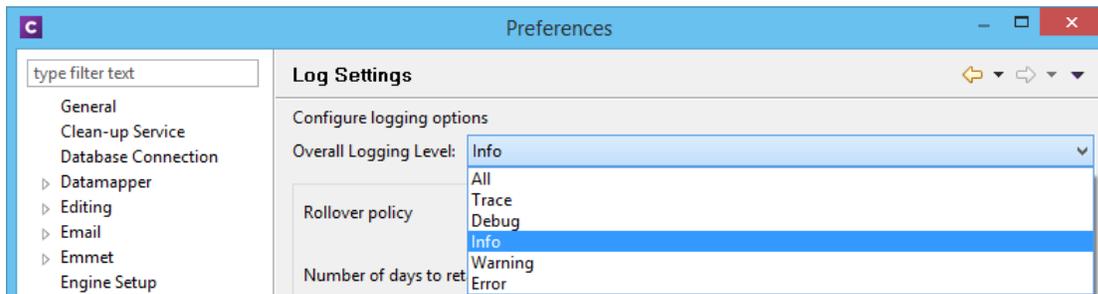
## Installer Improvements

- Support added for using **non-Latin-alphabet characters** in the User Name for connecting to external databases. This applies to both the Setup and the Designer Preferences dialog. (SHARED-65243)
- **Microsoft Visual C++ Runtime** now only installed when really required. (SHARED-63909)
- Several third party libraries have been updated. (SHARED-57163)
- A warning is now displayed if the **Windows Management Instrumentation** service is not enabled and started. (SHARED-61548)
- Installer now logs more helpful messages when failing to connect to an existing MySQL server. (SHARED-62836)

## Logging Improvements

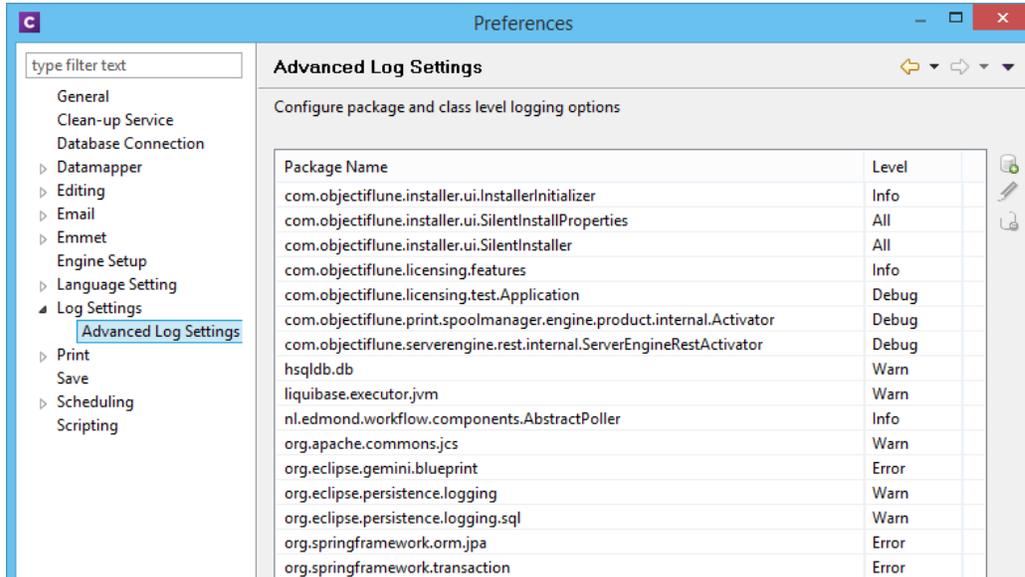
- Improved error/warning logging in Live mode. (SHARED-49046)
- Extra preferences added to allow greater control over logging levels. (SHARED-63923)

One change is the introduction of an option to set the **Overall Logging Level**. By default the logging level is set at the midpoint of *Info*, but it can be set higher to include more logging (*All*, *Trace*, *Debug*) or lower to reduce the logging (*Warning*, *Error*).



**NOTE:** Higher logging settings will have an impact upon Connect production speeds, as well as leading to substantially larger log files.

We have also introduced **Advanced Logging** preferences. The Advanced settings override the Overall logging settings, and provide a greater level of logging granularity. The Advanced Log Settings should only be set in conjunction with advice from OL support, to ensure that only the most relevant settings are set to the higher logging levels.



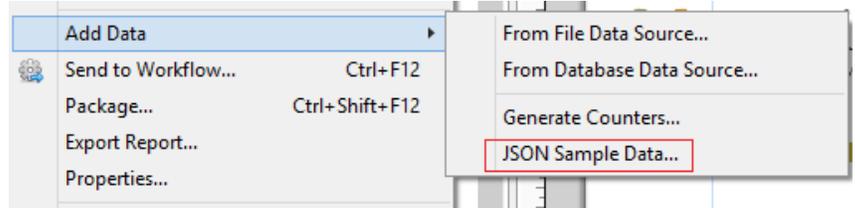
- The logging format default has changed from dd MMM yyyy (31 May 2018) to yyyy-MM-dd (2018-05-31) to make it easier to sort log files when using tools to merge and view multiple log files together. (SHARED-64233)
- Connect will now log a warning message in the event that there are insufficient engines currently available for a specific job, leading to the scheduler having to wait. (SHARED-61642)
- The location of the logging configuration file has moved from the Users directory to ProgramData to restrict the configuration to a per-machine basis. (SHARED-64147)
- Should a fatal error occur in the Java Virtual Machine running Connect the logs generated are now controlled and will appear in "C:\ProgramData\Objectif Lune\OL Connect\ErrorLogs" folder. (SHARED-64597)

# Connect 2018.2 Designer Updates

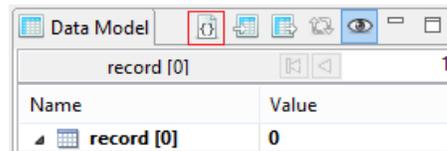
## JSON support added to the Data Model Panel

The Designer now allows you to add **JSON sample data** straight into the Data Model for debugging purposes. (SHARED-61655)

This can be done via a new **File menu option**



Or from the Data Model Panel itself, using the new **JSON Sample Data** button.

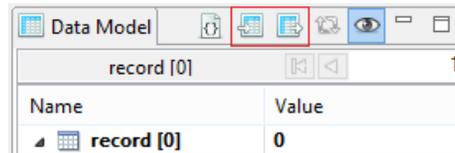


Invoking this option launches a wizard which allows you to either select a JSON file or paste JSON data copied from a Workflow variable. When loading data from a disk file the file contents are automatically placed in the JSON editor.

If JSON sample data is active invoking the **JSON Sample Data...** option will show the current data allowing you to edit its structure and values.

You can also now import or export a Data Model in JSON format. (SHARED-64620)

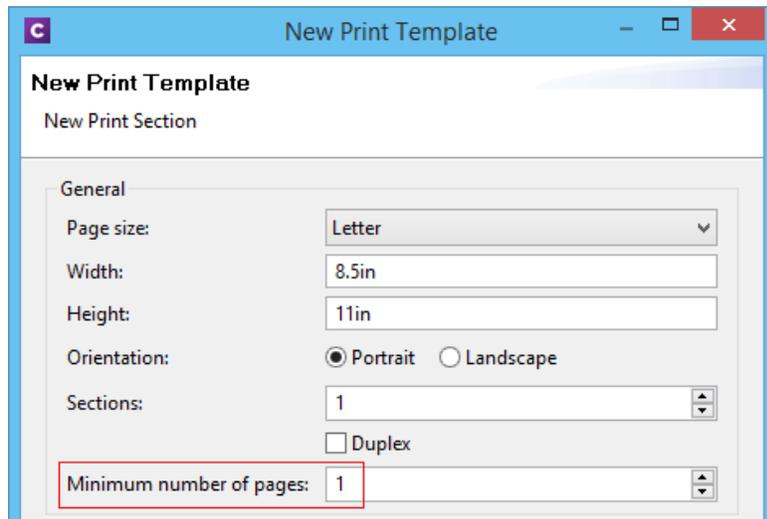
Select the Import or Export button and then choose \*.JSON files type.



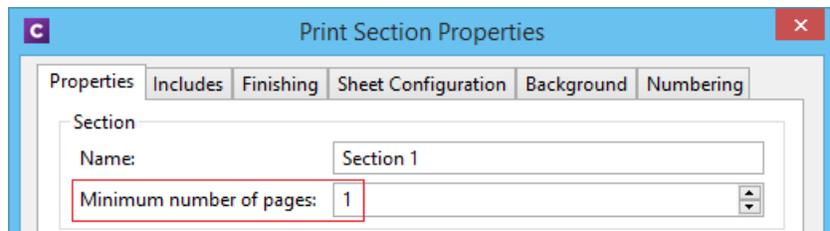
# Minimum Pages option added to Print Sections

Connect 2018.2 introduces a new section property for controlling the minimum number of pages for a Print Section. This can be used to generate pages with only absolute positioned content, simplifying workflows where the number of pages are known up front and you want to draw boxes (absolute positioned divs) on specific pages. (SHARED-10236)

The property can be set when the new Template is being created.

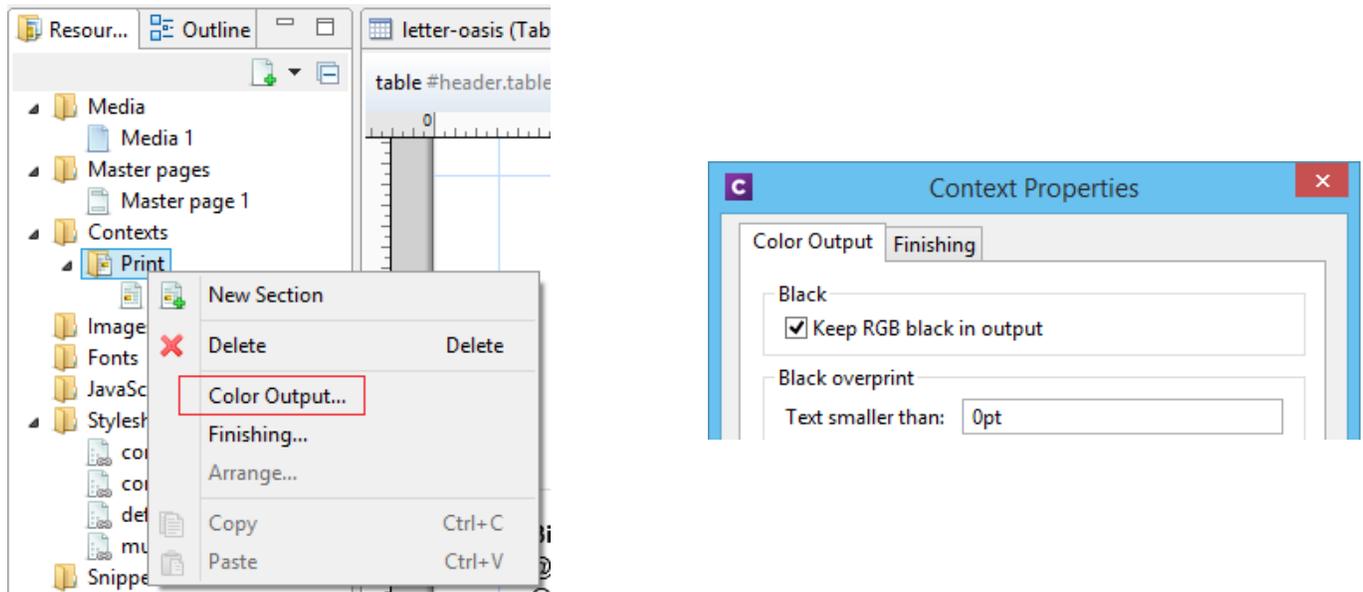


Or through the Print Section properties.



## Color Output option added to Print Contexts

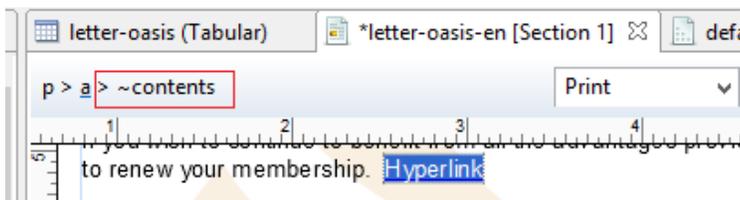
For certain full color print jobs, it is important to be able to set black text on top of color areas to overprint. This is of particular importance for small text, because mis-registration problems are more visible with small text. To support this a new Color Output option has been added to the Print Context. (SHARED-62265)



The default encoding for the color black has also changed from RGB to CMYK. Thus the “*Keep RGB black in output*” option was added for backwards compatibility.

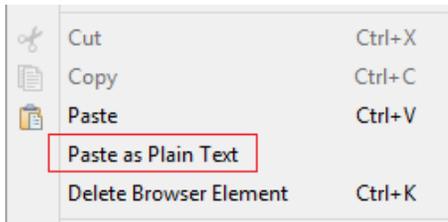
## Breadcrumb Improvements

The breadcrumbs at the top of the workspace will now always end with a ~contents breadcrumb. When clicked this will select the *contents* of the last element rather than selecting the last element. (SHARED-17339)



## Paste as Plain Text option added

Option added to paste content copied from an external editor as plain text. This ensures any unwanted formatting and invisible elements are removed. (SHARED-63025)



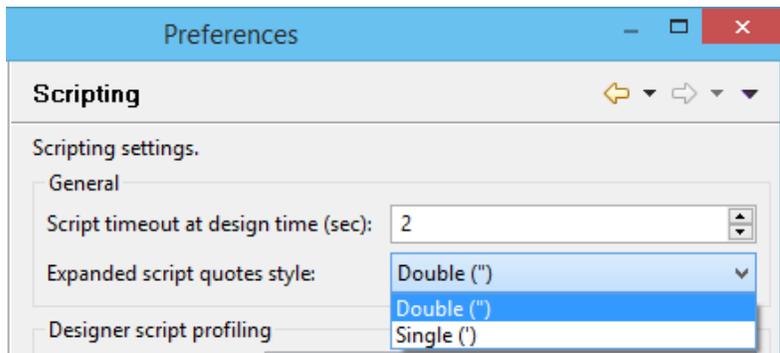
## Scripting Improvements

- An overview ruler has been added to the Script Editor. The ruler shows annotations concerning the entire script. These annotations are shown relative to their position in the script and do not move as the user scrolls the script source. Script errors are highlighted by a red icon, and warnings in yellow. The topmost icon will display red if any errors exist in the script at all.



This allows you to immediately see if a script has warnings or errors and easily jump to any warning/error location by clicking on the annotations in the overview ruler. This is particularly handy when a script has many lines of code. (SHARED-64717)

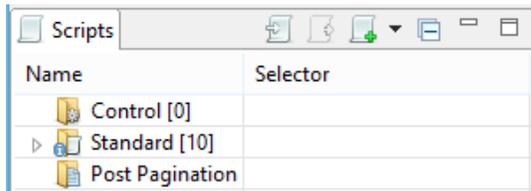
- Personalization scripts can now use the "loadtext" function to load text content from files. (SHARED-61512)
- Option added to Scripting Preferences to set whether expanded scripts use single or double quotes. (SHARED-60370)



- Scripts can now conditionally trigger a fatal error by calling the new `fatalError (message)` function. This will abort content creation. (SHARED-64789)
- Scripts in Print Context jobs can now attach arbitrary properties to *content items* generated by Content Creation. The properties are retained in the database, allowing the information to be utilized in Workflow for further processing along with the base record information when retrieved by the Retrieve Items action. (SHARED-65239)
- Introduced "width" and "height" script functions with the same behaviour as jQuery's "outerWidth" and "outerHeight". (SHARED-65513)
- Fixed an issue whereby the `resource()` function did not work properly when passing a UNC path. (SHARED-65523)

## Post Pagination Improvements

- We have introduced a new **Post Pagination** script type, and have updated the Scripts panel so that it now groups scripts by type. The groups are Control, Standard (which contains any pre-existing scripts) and Post Pagination. (SHARED-64634)



These script types are grouped to emphasize their execution order. Control scripts are executed before the merge process and therefore run before the Standard and Pagination scripts.

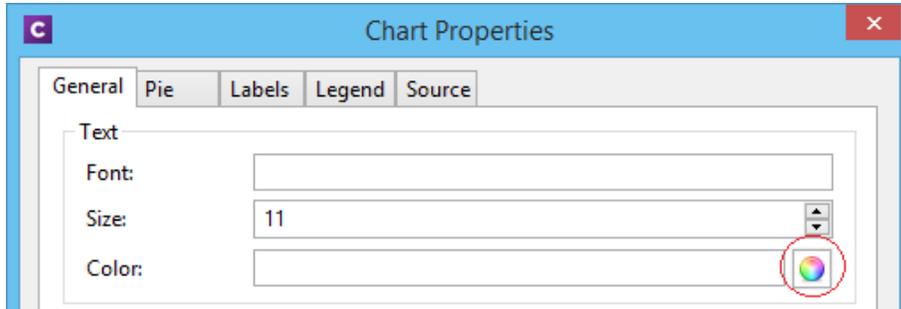
- Several new script functions have been introduced for use with the new Post Pagination scripts. Scripts can now access elements in any section as well as retrieve information that is only available after pagination. This will allow for the creation of post content elements like a **Table of Contents**. (SHARED-64637)
- Margins for Sections and Master Pages are now scriptable, through the new `margins` object. (SHARED-62173)
- The sheet configuration of a Print Section is now scriptable, via the new `sheetConfig` object. (SHARED-63061)

## Barcode Improvements

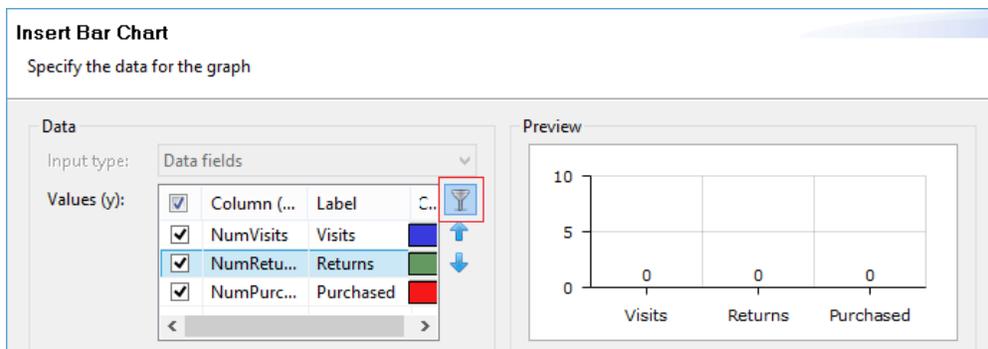
- Added **human readable text** and checksum controls to Royal Mail 4 State barcodes. (SHARED-47422)
- Added support for Grayscale "Colors". (SHARED-50614)

# Business Graphics Improvements

- **Color picker** options added throughout the Chart Properties dialog. (SHARED-62564)

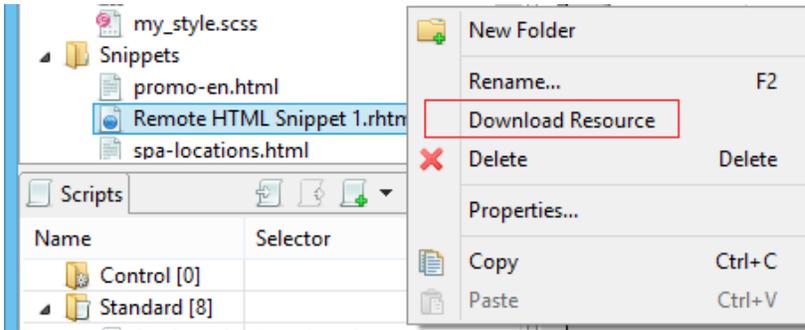


- The "*Values (y)*" table in both the **Insert Graph Wizard** and the **Graph Script** dialog can now be filtered to show only numeric fields. This will then limit the display to only Integer, Float and Currency fields in the Data Model. (SHARED-64875)

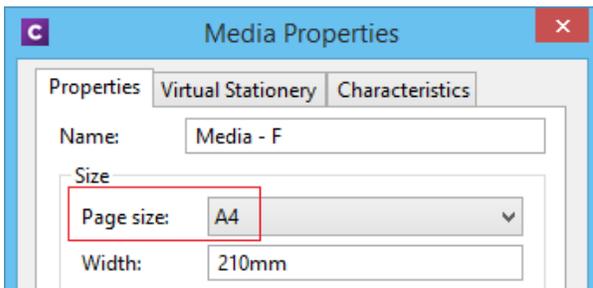


# General Designer Improvements

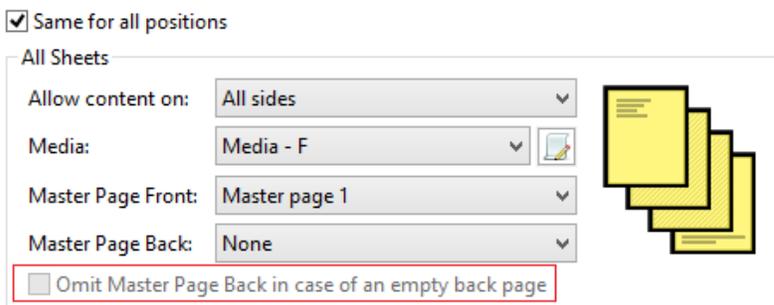
- **Download Remote Resources** (CSS stylesheets, JavaScript files, JSON and HTML snippets) to your template through a new context menu in the Resources view. This allows you to keep a link to a centralized file but quickly download a copy to your template without having to separately copy and paste.(SHARED-58949)



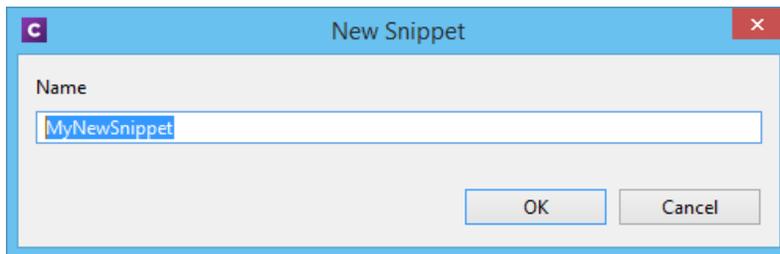
- **New Media** now defaults to the same paper size as the current Print Section. (SHARED-34012)



- Added an "**Omit Master Page Back in case of an empty back page**" option when configuring all sheets at once in the Print Section Properties. (SHARED-56383)



- **Media Properties** dialog behaviour improved. When any of the media in the Resources tree properties are changed, the "Page Setup" button gets activated and Designer prompts to save the media properties changes. (SHARED-62353)
- Disabled **irrelevant menu items** in the View menu when a Snippet editor is active. (SHARED-62816)
- When selecting content in the main editor, and selecting the context menu option of Create Shared Content or Create Snippet, you are now presented with a dialog in which to specify the name of the snippet resource. (SHARED-63217)



- Improved support for editing shorthand **important** rules in the Edit Rule dialog. (SHARED-62863)
- **Preflight**: If a fatal error occurs during Data Mapping, the reported error will now also include the current record number. (SHARED-63089)
- **Help button** added to both the *Profile Scripts* and *Preflight* dialogs. (SHARED-63091)
- Template Wizard file comboboxes now add "Empty" value if not set. (SHARED-63294)
- Improved behaviour for when the **Auto Save** directory no longer exists. (SHARED-64428)
- Improved the way *Create Snippet* and *Create Shared Content* work. Creating a snippet for a selection of multiple elements in the Outline pane now creates a single snippet containing all the elements. (SHARED-64445)
- Improve support for UNC paths in Remote CSS. Connect now attempts to auto-correct UNC paths with the incorrect number of slashes. (SHARED-65308)
- **Zoom** options improved. (SHARED-64880/61294/61296)
- Apply button added to the Stylesheet **New Rule** dialog. (SHARED-60852)
- Fixed an issue whereby formatting could be lost after invoking undo or redo when the source tab is active. (SHARED-64734)

# Connect 2018.2 Output updates

## Important Information

The Output Engine (Weaver) memory footprint has increased in Connect 2018.2. This means some users might need to increase their Weaver memory allocation in the **Engine Setup** preferences.

**Note:** When running really large jobs, it often pays to increase Weaver memory allocation, even if only for the duration of the production job(s).

## Font handling

- **Additional Content Text improvements**

When adding text as Additional Content in Output Presets, TrueType Collections (TTC) font files were not supported. TTC fonts allow a single file to hold multiple fonts types. Since TTC fonts can be important for Asian language fonts, we have now added support for these.

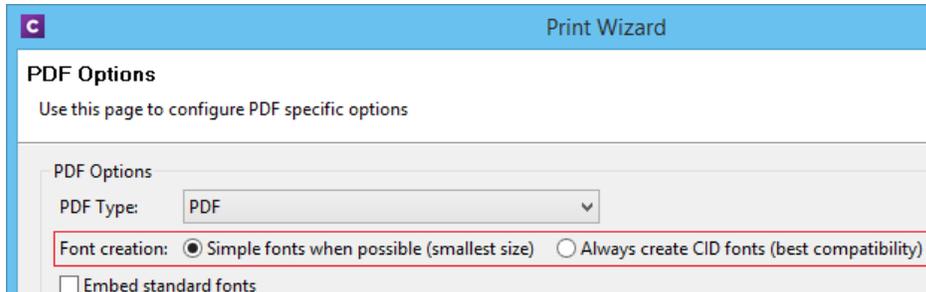
Previously, Additional Content text allowed selecting Bold and Italic for any font, even if the bold or italic version was not present. We now only display the font variation options for a font, if that font variation is actually available.

- **PDF Output font selection**

Added selection for either simple mixed byte font encoding (for smaller size) or fixed 2 byte CID fonts with identity encoding (for greatest compatibility) for PDF output. (SHARED-65462)

Connect always used simple fonts in its output, but dynamically switched to composite fonts when the number of characters in a font grew too large. This approach best reduced output file size. But in some cases the dynamic font creation caused viewing issues with certain PDF viewers, even though the font method is compliant with PDF standards.

To accommodate such, we have provided an alternative font creation method which always creates CID fonts with identity encoding. This results in larger output files, but provides better compatibility with PDF viewers.



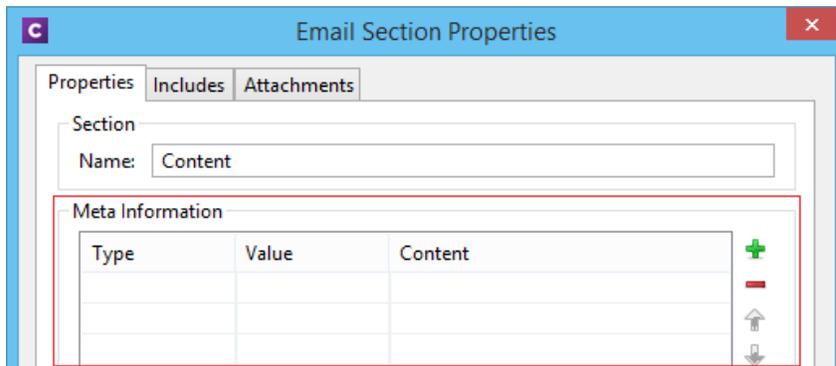
When generating PDF for non-Western languages, this new option may be the recommended choice.

- Asian language PDF output made smaller through improved glyph handling. (SHARED-63549)
- Further improvements made in handling simulated style fonts for OTF fonts. (SHARED-65402)
- Fixed an issue with output of TrueType font encoding information that could cause special characters to be missing or incorrectly substituted. (SHARED-62332)
- When a TrueType font "glyph count" information is incorrect Connect will now attempt to continue processing, rather than immediately throwing an exception. (SHARED-64382)

# Email Output Improvements

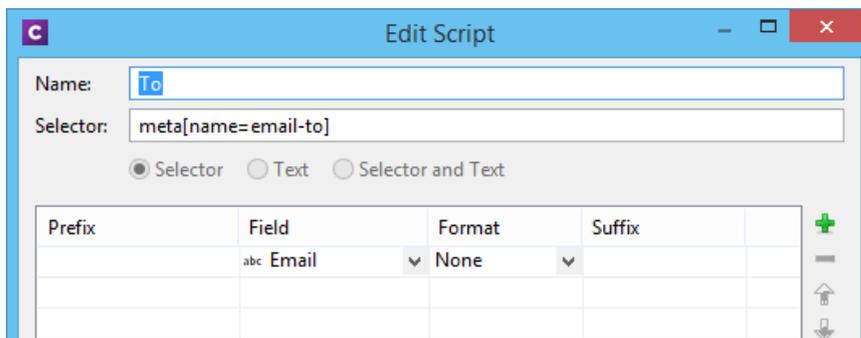
- **Meta information added to the Email Section Properties**

This allows viewpoint meta information to be added and configured in the email. This meta information will not be visible to the receiver, but can have an effect on how the email is represented in the email client. (SHARED-64761)



- **Email Script dialog improvements**

The email Script dialogs have been streamlined and simplified.



Improvements were made to the **To**, **CC**, **BCC**, **Reply-To**, **From**, **Subject** and **PDF Password** email scripts. (SHARED-61005)

- **Improved support for graphs in emails**

As email clients don't usually support SVG images, graphs added to an email context are now rasterized by default. There is also a preflight message for emails containing graphs set without rasterize options. (SHARED-60546)

## Print Output Improvements

- **AFP output speed improvement** for image intensive jobs containing lots of pages. (SHARED-55831)
- If a template containing **linked annotations** (either URL links or email links) was printed to PDF as PDF/A-1b, PDF/X4 or PDF/VT, the resulting output file was not compliant to the specified conformance level. This has been fixed. (SHARED-61714)
- We introduced a way to create **custom TLE** and **NOP records** in AFP output, through a custom printer definition. These records can have variable content, and they can be created conditionally. At the moment there is no GUI option to create these custom records and their rules, but this is intended for a future version. (SHARED-65527)
- In PDF/A-1b, PDF/X4 and PDF/VT output the document title in the PDF metadata is now derived from the template name, rather than the full path of the output file name. (SHARED-61168)

## General Output Improvements

- Output engine now warns instead of crashing if it encounters text with a non-invertible transformation matrix (such as a zero point size). (SHARED-59744)
- Output engine now logs a warning if an image in an encrypted PDF file cannot pass-through untouched. (SHARED-59802)
- Fixed uncontrolled appearance of optional content (such as virtual stationery) in documents that are processed by the transparency flattener. (SHARED-60923)
- Fixed handling of output paths with one or more dollar signs (\$) in them, such as certain network shares. (SHARED-63872)
- Several miscellaneous improvements to memory management.

# Print Wizard and Preset Wizard Improvements

## Size grouping

The ability to group documents by their size has been extended. In addition to grouping documents, you can now also group *document sets* and *job segments* by the number of pages. And instead of just using the page count, it is also now possible to use the sheet count for the size of the documents, sets, or segments. This makes size grouping useful for jobs that might contain both simplex and duplex content. (SHARED-61192)

This was previously referred to as “page break grouping”, and is found on the same Grouping Options Wizard page.

**Grouping Options**  
Use this page to configure grouping the output into jobs, job segments and document sets

Job Grouping Fields | Job Segment Grouping Fields | Document Set Grouping Fields

Selected Fields:

| Field Name | Sorting Option |
|------------|----------------|
| CUSTNUMBER | Ascending      |
|            |                |
|            |                |
|            |                |
|            |                |
|            |                |
|            |                |
|            |                |

Available Fields:

- ExtraData
- FOA
- FIRSTNAME
- LASTNAME
- GENDER
- ADDRESS
- CITY
- STATE
- COUNTRY
- FORMAT
- LANGUAGE
- ZIP CODE
- PHONE

Size Grouping

Grouping Level: Job Segment

Item to group: Document Sets

Group by: Sheet Count

Size groups in reverse order

Size grouping after normal grouping

Meta data property: ItemSize

Size Ranges

| Range Name | From | To      |
|------------|------|---------|
| SinglePage | 1    | 1       |
| C5         | 2    | 5       |
| Oversized  | 6    | Largest |
|            |      |         |
|            |      |         |
|            |      |         |
|            |      |         |
|            |      |         |
|            |      |         |

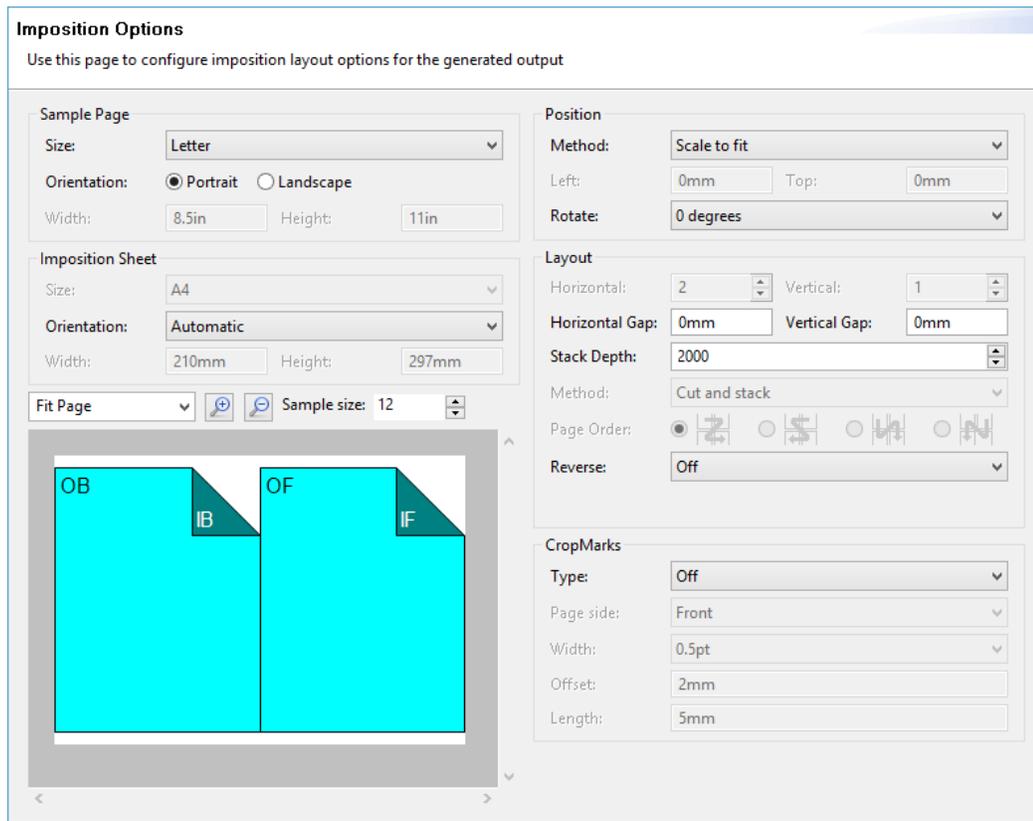
The settings used in the screenshot above groups documents into document sets by their customer number. Size grouping then creates three different jobs segments: the first with sets of only 1 sheet, the second with sets of 2 to 5 sheets, and a third with anything of 6 sheets or greater.

### Tip

In Output Creation, you could create an output file per job segment, and use `${segment.metadata.ItemSize}` in the output file mask to automatically name these files appropriately.

# Impositioning

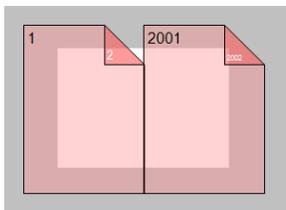
We have made a number of improvements to Impositioning, both by improving usability and by adding new features. These changes led to a redesign of the layout of the imposition wizard page, with some options being moved and others renamed.



The major improvements are as follows.

## Visual warning

The page layout diagram now displays in red when the selected imposition options do not fit the selected sheet.



## Sample page for imposition

The imposition settings are not always meant to work with just your current template. So we have added a sample page setting that will be used for both the preview and the validation of the settings. This sample page now defaults to the size and orientation of the first section of a template, instead of its first media.

### Stack by Column

Alongside the existing cut and stack impositioning order, we have introduced an imposition order that is more suited for continuous feed printing when the imposition has multiple rows. We call this new ordering “Stack by Column”, and it is very suitable for roll fed label printing. It works like this: instead of always positioning the subsequent page on the next sheet (until the stack depth is reached), stack by column first goes to the next row down on the sheet, and then down in the stack. The effect is that if all sheets are layed out top to bottom consecutively, the imposed pages are ordered by column. If the imposition has only 1 row, both methods are identical.

| Comparison of Stack by Column and Cut and Stack with 16 duplex pages in a 2x2 imposition. |                                                             |
|-------------------------------------------------------------------------------------------|-------------------------------------------------------------|
| Stack by Column<br>(top to bottom, stack down, left to right)                             | Cut and Stack<br>(stack down, top to bottom, left to right) |
|                                                                                           |                                                             |

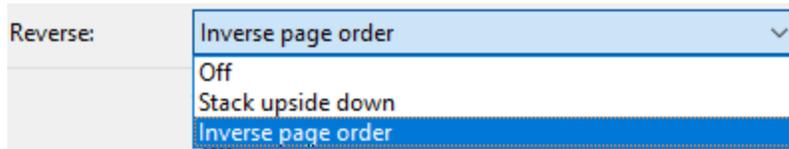
## Reverse impositioning

In roll fed applications, reversing the imposition order can be very important, because, when done properly, this causes the roll output by the printer to have the first page on the outside of the roll, allowing the roll to start with the first page.

Our existing option to reverse the order of impositioning is reversing the order of the resulting imposition sheets by starting with the last side of the last sheet, and then going backwards. This effectively turns the stack up side down. It also means that, in case of duplex impositioning, all back sides become front sides and vice versa.

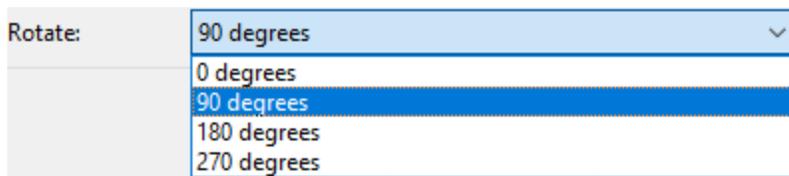
To have an effective way of reversing a Stack by Column imposition that leaves the “by column” order in tact, but that starts at the last pages in the job, we have added a new option to reverse the imposition, that basically reverses the incoming sheet order before impositioning. The effect is that not only is the order of the imposition sheets reversed, but the order of the pages on the sheet is also reversed.

To properly distinguish between these two ways of reversing, we have renamed our existing reverse to “**Stack upside down**”, and our new way of reversing is called “**Inverse page order**”.



## Rotate imposition

In addition to our existing options of having your imposition either upright or rotated 180 degrees upside down, we can now also rotate your imposition by 90 or 270 degrees.



## Selective Inserts

Selective inserts in the *Insert Mark Options* page now support metadata menus for inserting metadata field names in selective insert conditions. (SHARED-61152)

# New AFP Options

We have introduced a new **AFP Options** page, to provide greater control over AFP output. (SHARED-63234)

Connect already had the ability to add metadata properties from Job Creation as TLEs to the AFP output. However, the earlier implementation did not support creating TLEs for specific pages, or for adding TLEs at the page level (which allows different values for each page).

TLEs are often used to mark the start of documents or mail pieces, to indicate media types, locations for inserts (including the name of the insert), and other properties required for print production. To accommodate this, it is now possible to conditionally create both TLEs and NOPs in AFP output by using inserts in custom printer definitions.

In addition to this, we have also added settings to control which job elements page groups will be created in the output. Earlier Connect versions would always create page groups for all job segments, document sets and documents, which would lead to pages being nested in three levels of page groups. Now you can choose to have just one level of page groups, or even no page groups at all.

### AFP Options

Use this page to configure AFP specific options

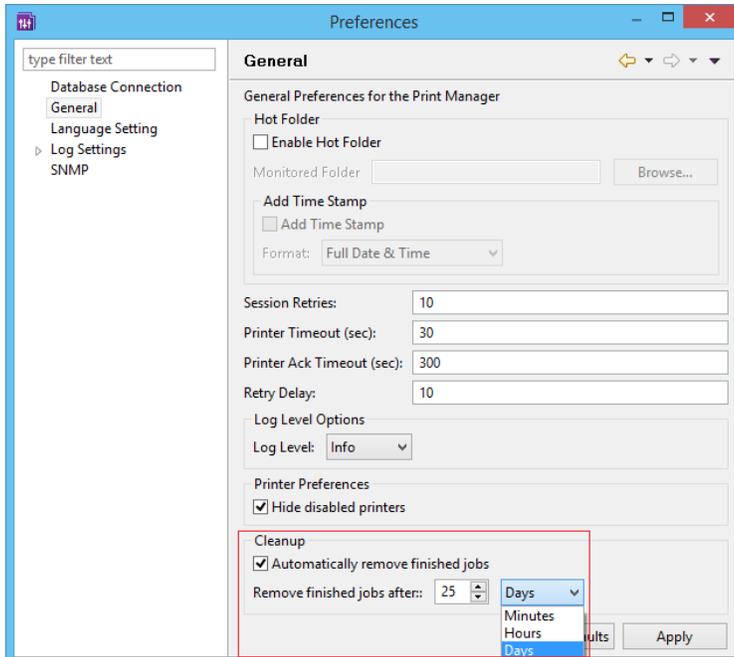
|                                                                                                                                                                                                         |                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <b>Page Groups</b><br>Create Page Groups for:<br><input checked="" type="checkbox"/> Job Segments<br><input checked="" type="checkbox"/> Document Sets<br><input checked="" type="checkbox"/> Documents | <b>Options</b><br><input checked="" type="checkbox"/> Create TLEs for all metadata properties |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|

To make sure that metadata properties from Job Creation do not interfere with dynamic TLEs from the printer definition inserts, this page also has a setting to turn off TLE creation for metadata properties.

# Connect 2018.2 Print Manager updates

## Job Cleanup Improvements

Option added to have finished Print Manager jobs automatically deleted after a set period of time. (SHARED-62981)



## General Print Manager Improvements

- **Date formats** made consistent in the *History* tab, to assist in date searching. (SHARED-59679)
- **Text files** (\*.txt) are now treated the same as comma separated text files (\*.csv) in Print Manager. (SHARED-64666)
- Fixed issue with **IPDS Preview** of GOCA content sometimes displaying random lines across the page. (SHARED-63331)
- Fixed issue with printer connection not always closing after querying printer capabilities. This sometimes led to failures in subsequent printer capability queries. (SHARED-64498)

# Known Issues

As of PrintShop Mail Connect 2018.1 the Known Issues have moved from the Release Notes to the Connect online Help.

They can be found [here](#).

# Previous Releases

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 2018.1, as well as some important installation information.

### Installing PrintShop Mail Connect 2018.1

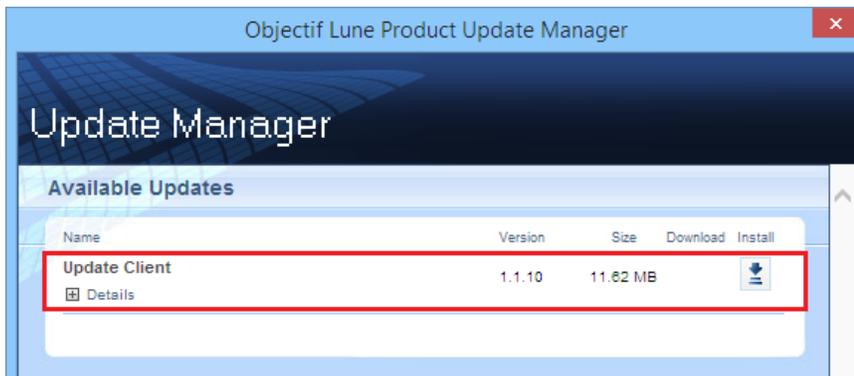
- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help, which can be accessed from the software and the installer.
- Note that PrintShop Mail Connect comes with a 30 day trial license by default.

### Upgrading from PrintShop Mail Connect 1.7

It is highly recommended that you update the **Objectif Lune Update Client** before upgrading PrintShop Mail Connect from version 1.7 to version 2018.1.

If you do not update the Update Client, an unexpected error might occur whilst updating Connect. This error does **not** prevent the successful upgrade of Connect to 2018.1, even though it appears as if it might have. To avoid potential confusion, we recommend that you first update the **Objectif Lune Update Client** before attempting to upgrade Connect from version 1.7 to version 2018.1.

The Update Client 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 in running the update while the Client itself is still open. It will automatically update itself.



## Connect 2018.1.6 Enhancements/Fixes

### Improved Weaver Engine memory usage

Weaver Engine memory usage has been considerably improved. These changes have resulted in the Weaver Engines not only requiring fewer system resources but have also improved stability and reduced the need for periodic restarts. (SHARED-65330)

### Improved font handling

- Improved font style simulation, for when the full font family is not available.  
**Note** that this might cause some very minor output differences in comparison to earlier Connect 2018.1 font style simulations. (SHARED-65336)
- Incompatibilities between the Windows API and some custom fonts that required font style simulation could lead to Merge Engine failures. These issues have now been addressed. (SHARED-65334)

### Blank pages encountered in jobs with PDF backgrounds of 30 pages or more

An issue was discovered in jobs in which the PDF background input exceeded 30 pages. In this scenario some pages would output blank after the 30 page limit was reached. This error was due to the internal image cache being exhausted and has now been fixed. (SHARED-65209)

### Dynamic Printer Control not applying some rules correctly

Dynamic PPD rules that were supposed to apply to Job/File level were actually being applied at the Page/Sheet level. This error has now been fixed. (SHARED-65328)

## Connect 2018.1.5 Enhancements/Fixes

### Blank page inserted in some multi-page transactional tables

(PReS Connect and PlanetPress Connect only)

Issues were encountered with some transactional print jobs, whereby a blank page would be inserted towards the end of some multi-page transactional records. This problem would only be encountered under very specific circumstances. Such as in duplex transactional documents with records that exceeded 15 pages, or where two documents with page numbers in the mid teens followed each other. These issues have now been fixed. (SHARED-64556)

## Connect 2018.1.4 Enhancements/Fixes

### PDF/A-1b compliance broken with Polish text

An issue was discovered with Polish text in PDF/A-1b compliant output, whereby the output was missing "CIDSet" font descriptor entries for TrueType-based CID fonts. This error has now been fixed. (SHARED-64536/64816)

### Issues with text extraction from PDF output

Problems were encountered in extracting non-latin and multilingual text from PDF output. These problems have now been addressed. (SHARED-64936)

## Connect 2018.1.3 Enhancements/Fixes

### Hyperlinks broken in PDF output

Hyperlinks in PDF output were broken in 2018.1. This issue has been fixed, and hyperlinks now work as expected in 2018.1.3. (SHARED-64353)

## Connect 2018.1.2 Enhancements/Fixes

### Issues running Connect jobs through Enhance

- When running multiple parallel output channels via Enhance configurations it was possible that some output channels could attempt to write the exact same content at the same time, thus using the same resources. This could lead to conflicts and resulted in errors and inconsistencies between outputs. This issue has now been fixed. (SHARED-63372)

- When creating PostScript output using the REST API to execute an Enhance configuration, the resulting PostScript file contained incorrect DSC comments if the name of the media used on a page contained one or more space characters. This has been fixed. (SHARED-64334)
- The PostNL KIX database has been updated to the latest 2018 version.  
Note: The KIX database is only available when using the REST API to execute Enhance configurations using the KIX functionality. Standard Connect usage does not allow use of the KIX database. (SHARED-64358)

### OutOfMemory Errors in PostScript Output

When creating PostScript output or using the REST API to run a custom Enhance configuration containing one or more PostScript output channels, "*OutOfMemoryError: Metaspace*" errors could be encountered. This was due to JavaScript source code in the PostScript printer definition being compiled too often. This issue has now been fixed. (SHARED-64350)

### Issue with background image URL paths

Fixed issues with URL path encoding. This issue applied to Section background image paths (\\host\path\image.png) containing special characters, such as spaces and hash signs ('#'). (SHARED-64528)

### Special characters displayed incorrectly in Designer Snippet editor

Fixed an issue with the encoding of non-Latin-1 characters in HTML snippet editors. (SHARED-64530)

## Connect 2018.1.1 Enhancements/Fixes

### Section cloning issues

Two separate Section cloning issues were fixed. (SHARED-64087)

The issues were:

- Cloned content was being based upon the section for which *addBefore* or *addAfter* was invoked, rather than the section the clone was originally based on.
- The rendered page count could be incorrect. This was due to the page count of a section bundle (consisting of sections with continuous page numbering) mistakenly overwriting the page count of the previous section bundle.

## Weaver Engine memory leak

Improvements made to how the Weaver Engine reclaims memory, in order to reduce any memory leakage. (SHARED-64205)

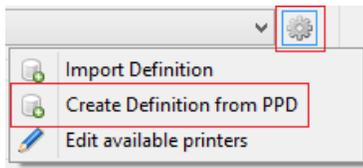
## Issue with Type 3 fonts in PDF Output

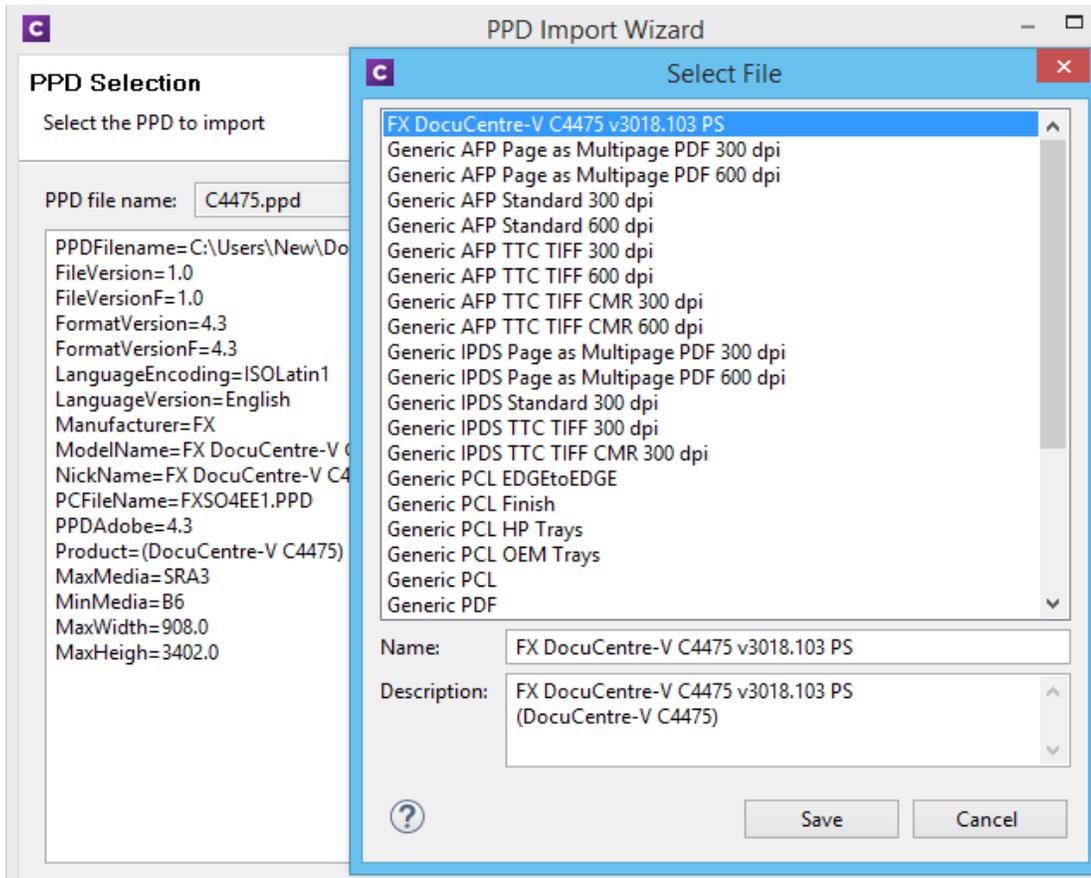
Type 3 fonts not embedded in PDF Output are replaced with font substitutions. These could become unmanageable in some circumstances. This issue has now been fixed. (SHARED-64214)

# Connect 2018.1 General Enhancements

## **Dynamic Print Control for PostScript printers**

Connect 2018.1 introduces a new way to drive PostScript printers. Individual PostScript printers can now be selected in the Printer Wizard and Output Preset via their associated PostScript Printer Definition (PPD) files:





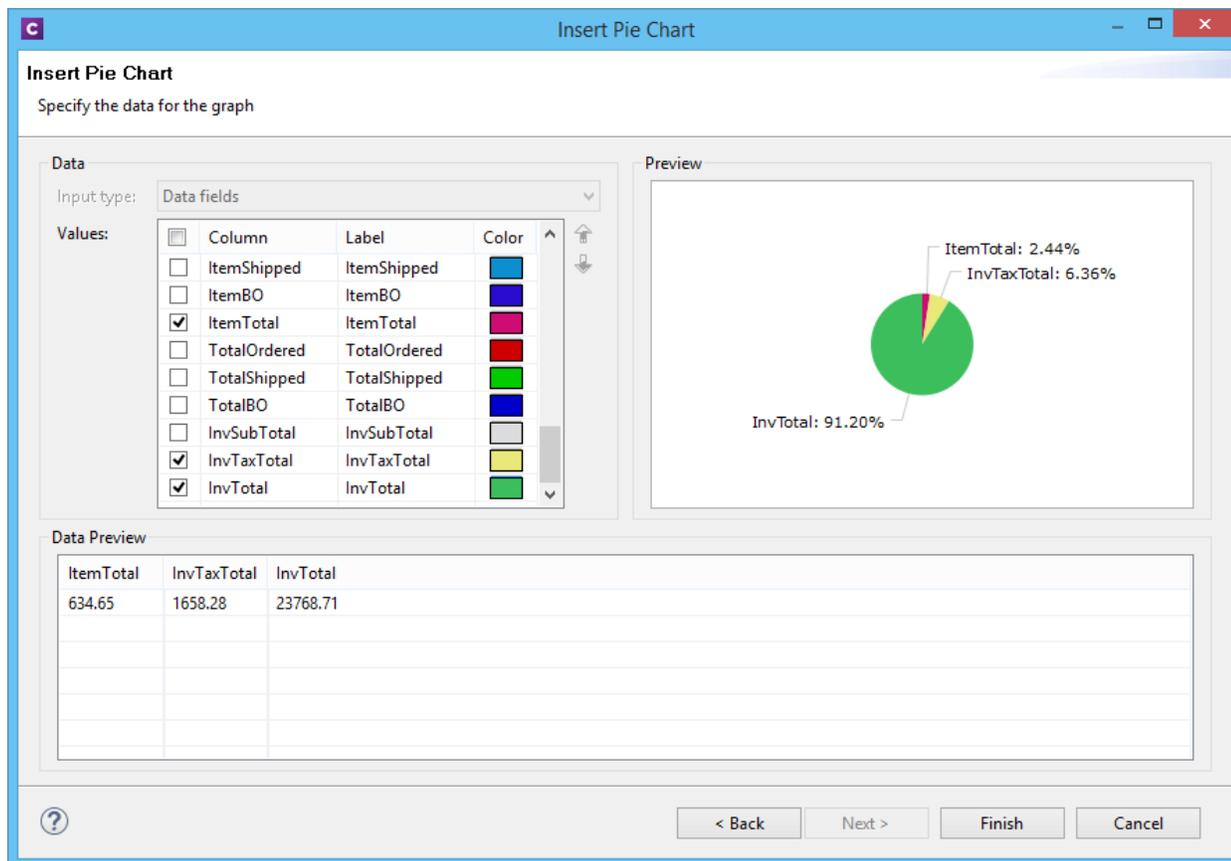
This allows:

- The use of printer features that are not yet supported through the Connect user interface, such as:
  - switching between color and greyscale printing
  - selecting output bins
- Direct control of supported PostScript functionality, such as:
  - Duplex/Simplex
  - Print Media selection
  - Finishing options (e.g. Stapling, Binding and Folding)

**NOTE:** Case sensitivity/insensitivity has not been added as an option in this first cut of the Dynamic Print Control rules editor. This will be added in a subsequent version.

## Improved Business Graphics

Business Graphics have been greatly enhanced and now display a preview of the data and graph as part of the Pie, Line and Bar chart wizards. The updated wizards simplify data selection and allows you to set and preview graph options dynamically, prior to inserting the graph object. This same functionality has been added to the scripting wizard, which can be launched from any Business Graphic script in the Scripts panel:



The Properties dialog in Connect lets you configure the graph via the User Interface and stores the configuration according to the specifications for this library. A Source tab has been added to the Graph Properties dialog so that you can view and edit the JSON configuration.

The implementation now supports the full Line, Bar and Pie chart API of the underlying amChart library. This allows you to enable amCharts graph features that are not available in the user interface of Connect.

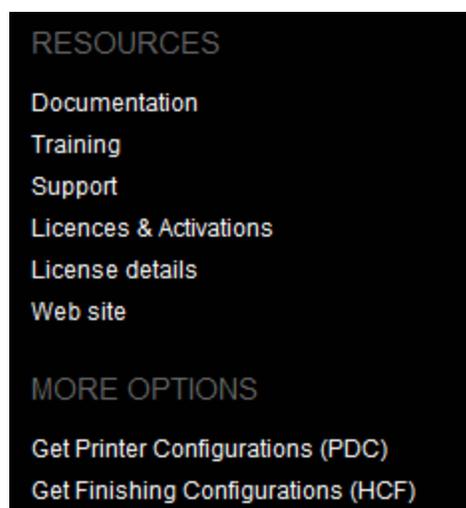
It is also possible to copy/paste Line, Bar and Pie chart configuration settings from the online amChart Live Editor directly to this tab.

Refer to the [amChart documentation](#) for more information on the numerous configuration options available.

**NOTE:** As a consequence of changes in both the user interface and the underlying technology, Business Graphics made with a version prior to PrintShop Mail Connect 2018.1 may not display correctly when opened in version 2018.1. See the ***Business Graphics: Backwards Compatibility*** section on [this](#) page for full details.

### Welcome Screen improvements

The Welcome screen layout has been redesigned and streamlined to simplify navigation and improve access to Connect resources, including current license details. (SHARED-61377)



### Connect version numbering changed

We have changed the version numbering system. From here on in, the version will be year based, with the second number showing the major release and subsequent numbers showing minor releases. The intention is to have two major releases a year, with minor releases in between to address specific customer issues.

2018.1 is the first of the two planned major releases for 2018. The second will have the version number 2018.2. Any minor releases between the two major releases will be labelled 2018.1.n, where "n" is a numeric counter. Thus the first minor release would be 2018.1.1 and the second would be 2018.1.2, and so forth. (SHARED-60069)

## Windows Server 2016 now officially supported

As of PrintShop Mail Connect 2018.1, Connect is now officially supported under Windows Server 2016.

**NOTE:** The Objectif Lune Inc. **Update Client** application might be blocked by enhanced security settings in Windows Server 2016. To fix this, add <http://updates.ca.objectiflune.com> to the list of trusted web sites on that machine, or lower the internet access rules.

## Improved Previews

The Preview now smooths text, images and line art when rasterizing a page. This improves the quality of the resulting image, especially when rasterizing a page with lower resolutions. (SHARED-59724)

## Localization improvements

Improved localization and translations throughout PrintShop Mail Connect.

## Improved Data handling:

- Improvements to the internal handling of data field names to support data fields that do not conform to a standard SQL query syntax. This means that fields with characters such as #, \$, % and ^ can now be processed. (SHARED-59126)
- Performance improvements made to the Connect MySQL back-end database, through changes made to internal database indexing. (SHARED-59393)

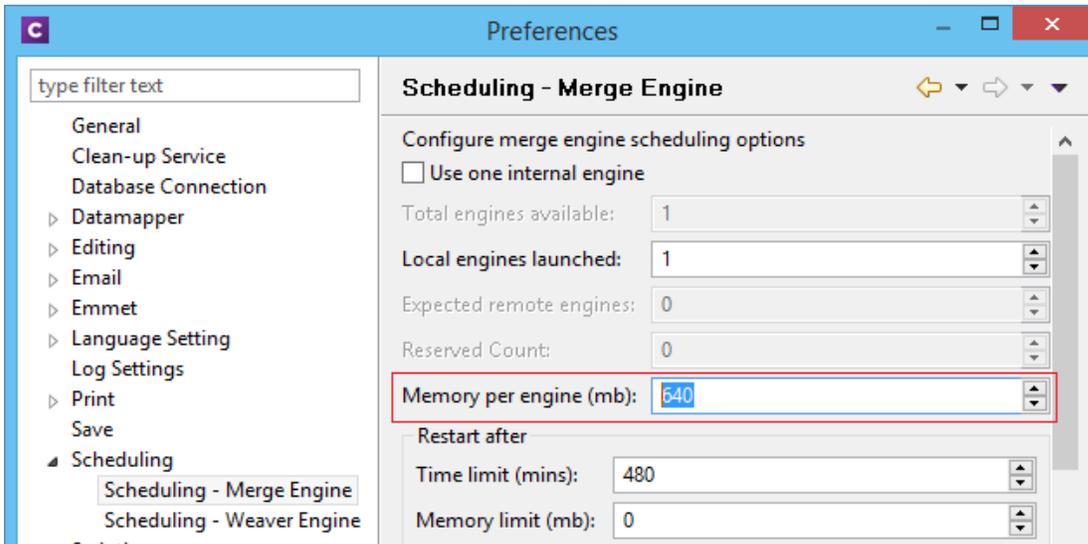
## Improved support for Microsoft SQL Server back-end

A number of enhancements have been made to improve the performance and support for Microsoft SQL Server (MS-SQL) as the Connect back-end database. These include:

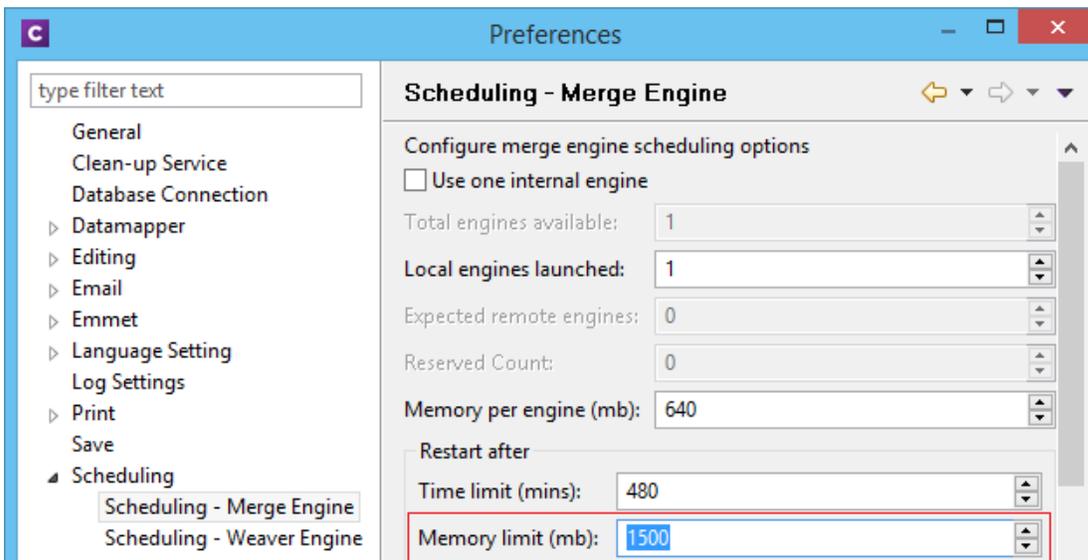
- Database Table Partitioning, significantly speeding up the clean-up service. (SHARED-59589)
- Internal Connect SQL statements re-factored to work more efficiently with MS-SQL. Improving support for large jobs, in particular. (SHARED-57575)
- MS-SQL driver updated. (SHARED-60464)

New Preferences options:

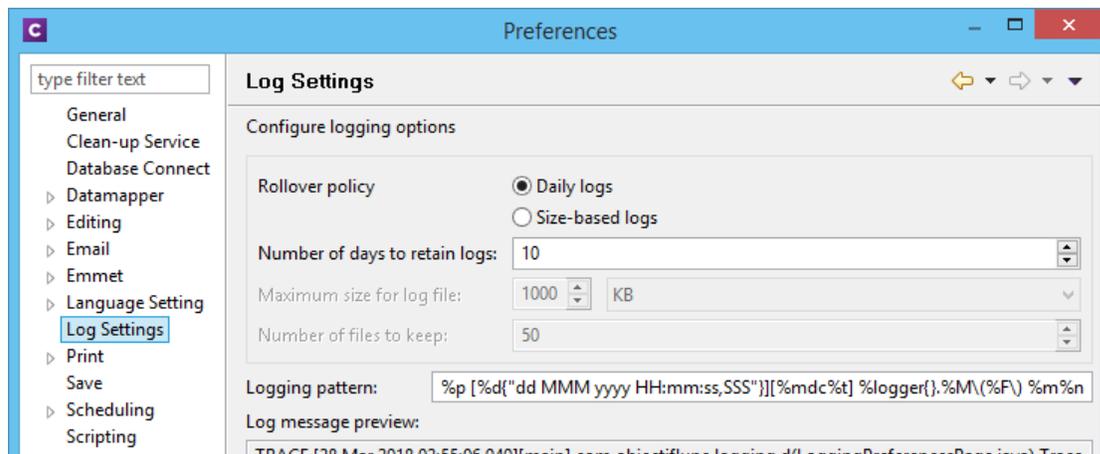
- Scheduling preferences for Merge and Weaver engines now include a preference for specifying the memory (RAM) to be used per engine. (SHARED-44547)



- Merge and Weaver engine scheduling preferences now include an option for scheduling an engine restart if the total amount of memory (RAM) used by the engine exceeds the specified entry. This is in addition to the time limit setting. (SHARED-63101)



- Log file settings can now be adjusted within the Designer, Print Manager and Server Configuration preference windows. The settings are global to all Connect applications. Settings include log file rollover options (time or size based), and the format of the log messages generated. (SHARED-60043)



### Installer Improvements:

- Prerequisites now installed silently when installing Connect using silent installer. (SHARED-59286)
- Messaging improved for when the Connect installer cannot safely commence un-installation. (SHARED-59565)
- Installation folders cleaned up. Those that were no longer necessary have been removed, and others have been renamed or moved to make them more logically consistent.

### Back-end Improvements:

- Better handling of non-responsive engines. (SHARED-55305)
- Improved response to Merge engine failures. (SHARED-46180)
- Reduced memory footprint when running the same job multiple times. (SHARED-57905)

### Logging Improvements:

- Improvements made to Weaver logging for small output jobs and improved throughput. (SHARED-58570)
- Connect version number added to certain log files, to streamline issue identification and confirmation. (SHARED-60256)

- When using the REST API to execute a +PReS Enhance configuration that logged to a custom log file, the log file could not be deleted at the end of the execution. Repeating the execution of the +PReS Enhance configuration also caused unreadable NUL characters to appear in the log file and log messages were appended to it. This has been fixed and the custom log file now closes at the completion of the Enhance configuration execution. (SHARED-59656)
- Logging infrastructure has been updated. Logging can now be configured via an XML file located in the user's home directory under *Connect\workspace\configurations\logback.xml*. (SHARED-61913)

# Connect 2018.1 Designer Enhancements/Fixes

## Updated internal browser component

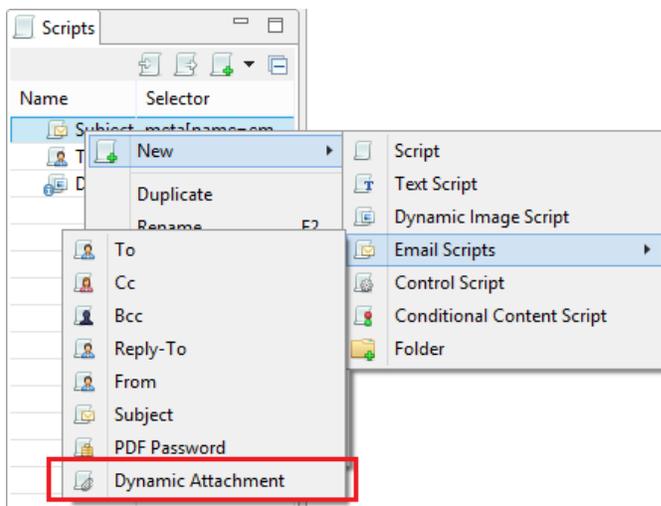
The browser component (Mozilla Gecko) used in the WYSIWYG editor of the Designer has been updated. This allows you to use new CSS properties like flexbox. Connect 2018.1 now uses Mozilla Gecko 38 as its HTML rendering engine. (SHARED-42286)

**NOTE:** The update to the Mozilla Gecko engine could lead to increased output file sizes for some PCL, AFPDS and IPDS jobs. This is generally not a cause for concern, however there might be some associated increase in processing times, as well as some minor differences in the output. For example, table line widths and font spacings might differ slightly (particularly for SMALL CAPS text), which could lead to slightly different word-wrapping in some cases.

## Improved attachment options for Email output

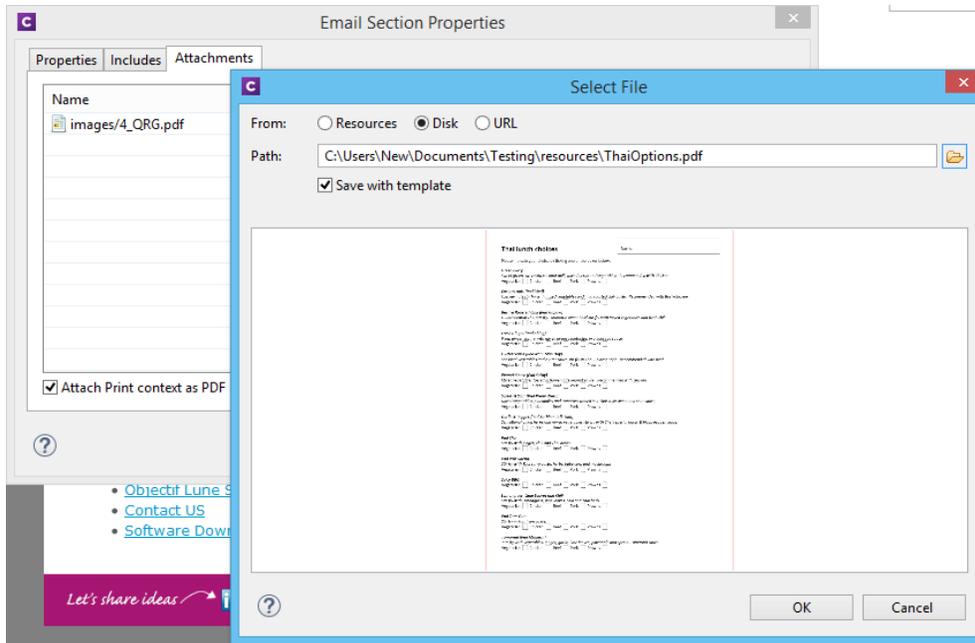
New features have been introduced to simplify the setting of email attachments within Designer.

- **Dynamic file attachments** can be added to email sections via a new *Email Scripts* option. (SHARED-56602)



This Script wizard allows you to construct a selection using the Prefix, Field and Suffix values to dynamically specify a file from disk or a remote location.

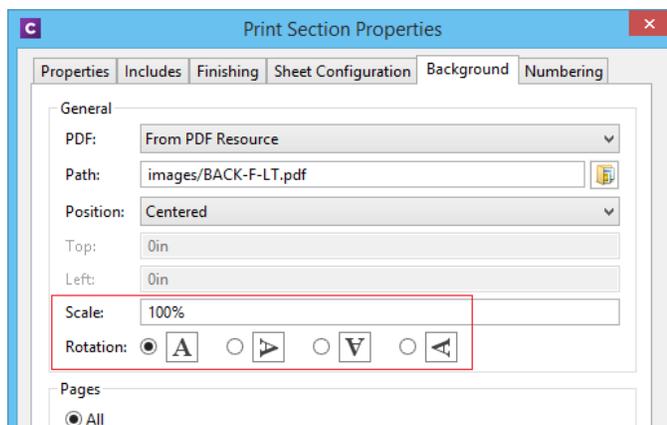
- **Static file attachments** can be added to email sections via the *Attachments* tab in the *Email Section Properties* dialog. (SHARED-28343)



You can also select whether the Print Context should be added as a PDF attachment or not, using the **"Attach Print context as PDF"** check-box.

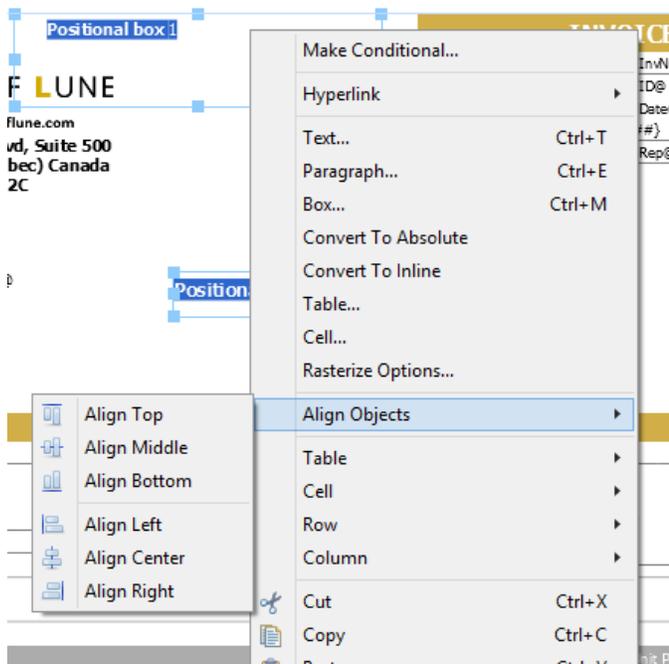
### Rotate and Scale Background Images

Section Background images can now be rotated or scaled, either via the Section Properties dialog or via a control script. (SHARED-60244/60855)



### Align multiple objects

You can now select and align several absolute positioned objects at once with the new **Align Objects** context menu. (SHARED-60263)



### Preflight improvements

Double-clicking a script warning or error in the Preflight report will now open the offending script within a script editor. (SHARED-60273)

### Improved language support

Disable certain **CTRL + ALT + <?>** shortcuts in source editors, including source tab, HTML snippet editors and CSS editors.

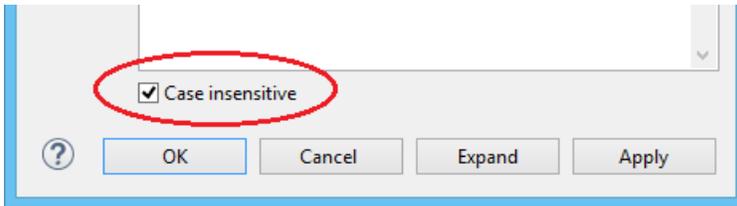
This allows adding square brackets in a source editor when using a French keyboard layout shortcut (CTRL + ALT + [ or CTRL + ALT + ]), as well as semi-colons (CTRL + ALT + ;) on Hungarian keyboard layouts. (SHARED-60308/62056)

### Data Model pane improvements

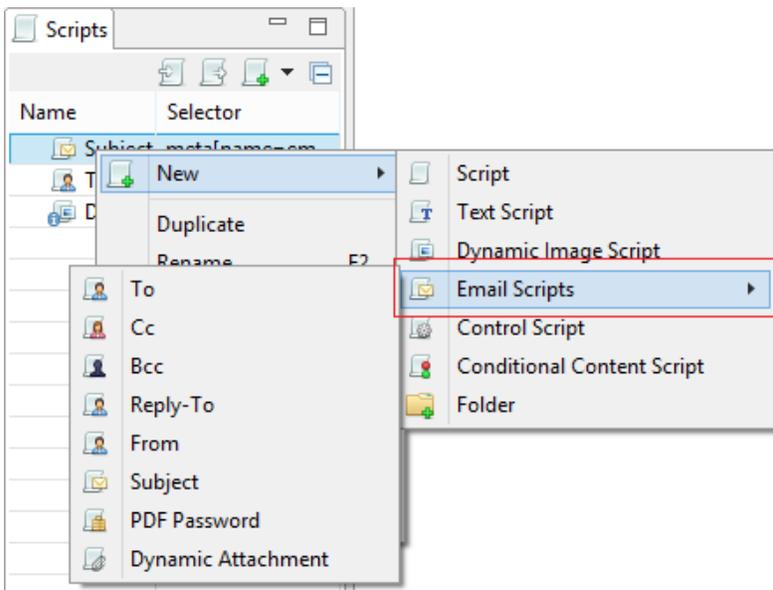
The context menu in the Data Model view now allows you to modify the data model while the template editor is active. This makes it possible for PrintShop Mail Connect users to create and modify a data model. (SHARED-60234)

## Scripting improvements:

- Option added to allow Case Sensitivity to be set on or off for any conditional string comparison scripts. (SHARED-56535)



- You can now inspect Scripted elements in the Outline tree when in Preview mode. (SHARED-60231)
- New sub-folders now inherit the same execution scope as their parent. (SHARED-56964)
- You can now drag and drop a data field to a script folder even when a script of that name already exists within a different folder (or root) of the Scripts panel. (SHARED-57027)
- Improved Email Context script selection. All the Email Context scripts are now bundled together in their own sub-menu. (SHARED-56602)

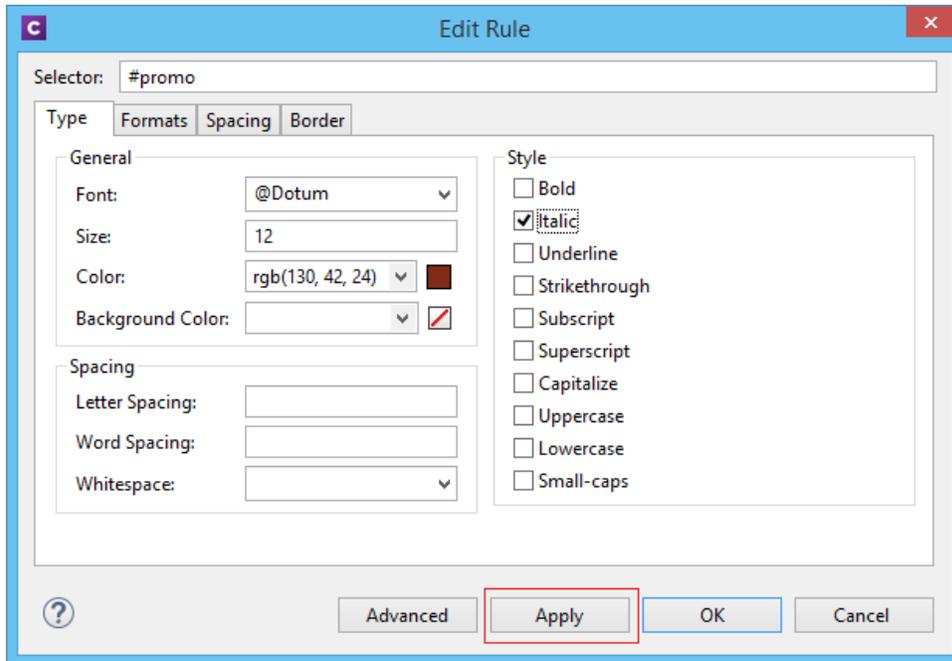


- Improvements made to the default data field selection logic when adding new Text Scripts. (SHARED-57286)
- Double clicking a script in the Script Panel with the script editor open will now prompt you to save your changes. (SHARED-47908)

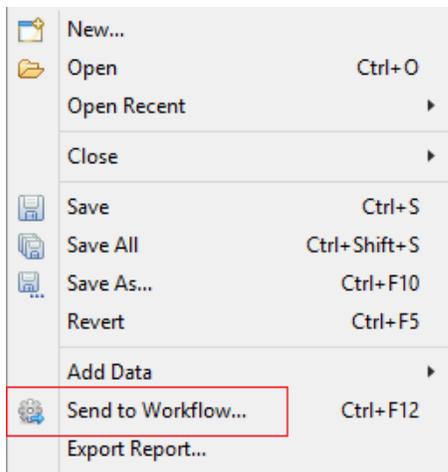
- Any open Script Editor will now close when another template is opened. (SHARED-32289)

## General Designer improvements:

- Style rule changes can now be saved and applied instantly from within the Edit Rule dialog, via a new Apply button. (SHARED-58595)



- A new **Send to Workflow** icon has been added to Designer. It has been added as a new option in the icon toolbar and also to the File menu option. (SHARED-59322)



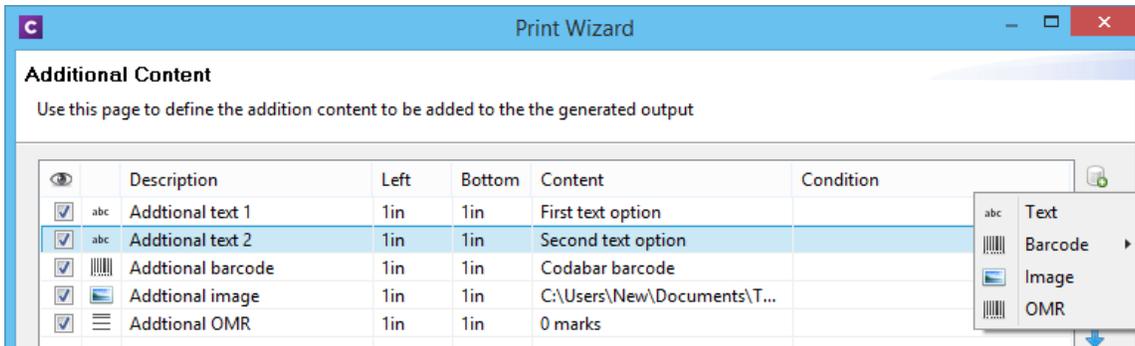
- You can now copy/paste or drag/drop images files from the file system or *Images* folder to the *Stylesheets* folder. (SHARED-49551)

- The **New Email** and **New Print** template wizards now open using the last used Template settings. Selections such as page size, page margins and the like will be retained. (SHARED-33982)
- Improved **element insertion** rules, to make context menus and dialogs more accurate. For example, the option to add Absolute elements in emails has been removed, as the email format does not support this functionality. (SHARED-60947/61117)
- Improved support for **remote images** (http-based URLs). (SHARED-58592)
- The *resource()* script function has been extended to return information about PDF permissions. (SHARED-58026)
- The attributes panel now has a "*Reset Size*" button that reverts a resized image back to its the original size. (SHARED-57025)
- You can now clear the "*recent files*" list via new **Window > Clear Recent Files Lists** menu option. (SHARED-42712)
- You can now toggle between the front and back of the selected Media entry in Master Pages. (SHARED-62038)
- You can now use cursor keys to navigate after <div> or <article> elements that are the last element in the <body>. (SHARED-41710)
- Dialog box resizing improved and made more consistent. (SHARED-16164)

# Connect 2018.1 Output Enhancements/Fixes

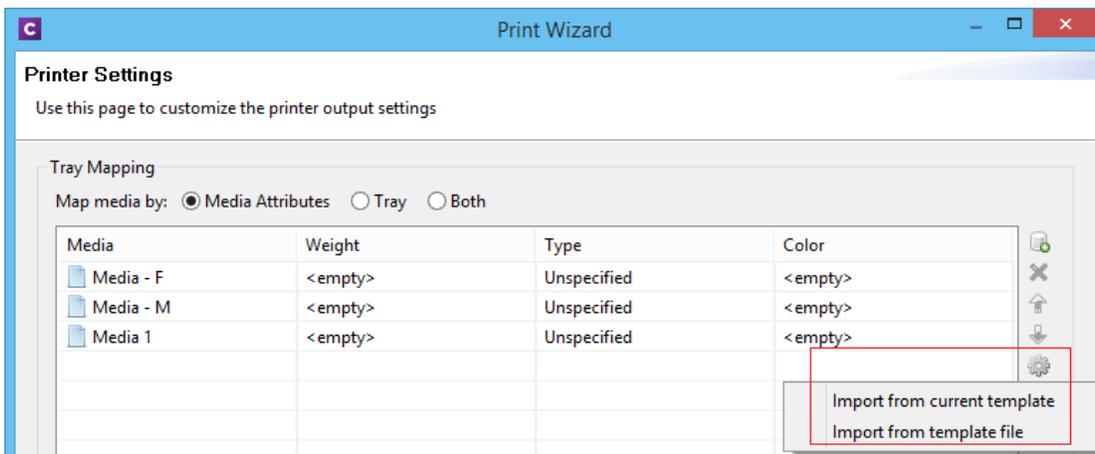
## Redesigned Additional Content page in the Print Wizard

The Additional Content page in the Print Wizard has been re-designed to present all the Additional Content entries in a single table, simplifying Additional Content management. (SHARED-56444)



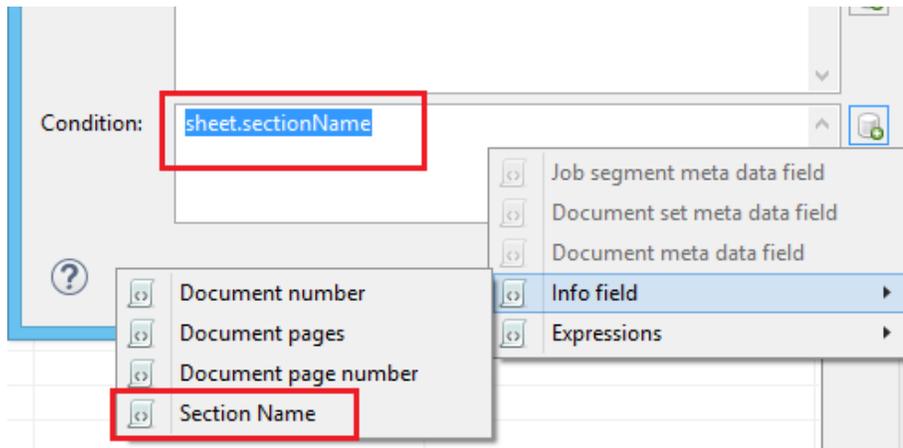
## Improved Tray Mapping in Printer Wizard

Media attributes can now be imported directly into the output config tray mapping from either the currently open template or from a saved template file. (SHARED-48818)



## New Conditional option

During Output Creation, it is now possible to determine the template section to which a sheet belongs to using the new `sheet.sectionName` property. This property has been made available as a conditional option in the Printer Wizard. (SHARED-61275)



**NOTE:** The introduction of this property introduces a slight risk of compatibility issues, but only for cases where an existing custom printer definition or Enhance configuration already has a user-defined property with the *exact same name*.

## Font handling made more robust

Connect will now generate **bold**, *italic* and **bold-italic** variations of most fonts on machines that do not have those variants of the font installed. (SHARED-59975/60670)

## Improved PDF throughput processing:

- Improvements were made to the processing and optimization of barcodes in imported PDFs. This has resulted in speed improvements when processing certain PDF files for print output. This is particularly the case for AFPDS, IPDS and PCL output. (SHARED-58782/59955)
- Enhancements made in the caching of PDF input files has led to speed improvements when processing large PDF inputs. (SHARED-58503)
- Improved memory usage with PDF pass-through. (SHARED-58782)
- PDF pass-through is now enabled by default for PDF containers in AFP and IPDS output. (SHARED-61494)

## Print Output Improvements:

- Transparency support for PDF output. (SHARED-61492)
- Soft mask improvement in PDF. The soft mask is now set by the CTM ("Current Transformation Matrix") when the soft mask is created. (SHARED-58893)
- Improvements made to generic PCL output for some printers. (SHARED-60019)
- Booklet Impositioning for mix-plex jobs has been improved, reducing the likelihood of empty pages. (SHARED-60054)
- Improved Job Creation options for PrintShop Mail Connect. (SHARED-43685)

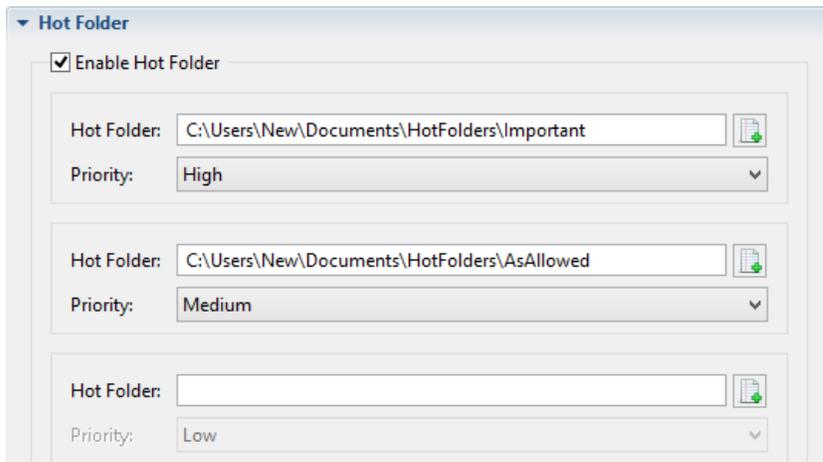
# Connect 2018.1 Print Manager Enhancements/Fixes

Several improvements have been made to the Print Manager. Some to better cater for continuous IPDS printing, and others to improve useability.

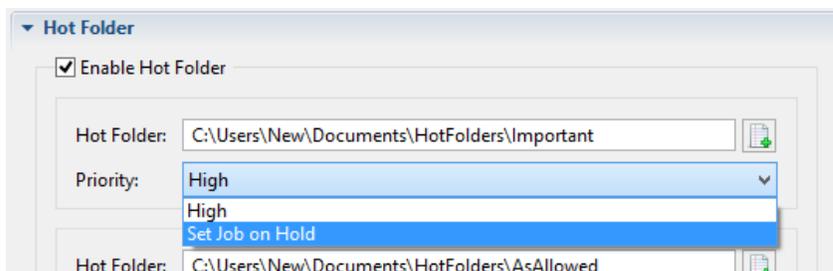
## Hot Folder improvements

The Hot Folder dialog has been updated and improved. Improvements include:

- Simplified selection of Hot Folders



- Option added to put Hot Folders 'On Hold'.



If selected, jobs will be assigned to the target printer but put 'On Hold' and not be taken from the queue until released. (SHARED-61224)

- Files are now moved from the Hot Folders to a processing sub folder and processed from there. (SHARED-60180)

## General Print Manager improvements and fixes:

- Improved handling of duplicated job names. (SHARED-34710)
- Job status added to the job filename, to make it easier to identify the current job state. (SHARED-60182)
- Improvements made to file status updating. (SHARED-58122/58172)

## Known Issues

As of PrintShop Mail Connect 2018.1 the Known Issues have moved from the Release Notes to the Connect online Help.

They can be found [here](#).

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 1.8, as well as some important installation information.

### Upgrading from PrintShop Mail Connect 1.7

It is highly recommended that you update the **Objectif Lune Update Client** before upgrading PrintShop Mail Connect from version 1.7 to version 1.8.

If you do not update the Update Client, an unexpected error might occur whilst updating Connect. This error does **not** prevent the successful upgrade of Connect to 1.8, even though it appears as if it might have. To avoid potential confusion, we recommend that you first update the **Objectif Lune Update Client** before attempting to upgrade Connect from version 1.7 to version 1.8.

The Update Client 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 in running the update while the Client itself is still open. It will automatically update itself.



## Installing PrintShop Mail Connect 1.8

- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help, which can be accessed from the software and the installer.
- Note that PrintShop Mail Connect comes with a 30 day trial license by default.

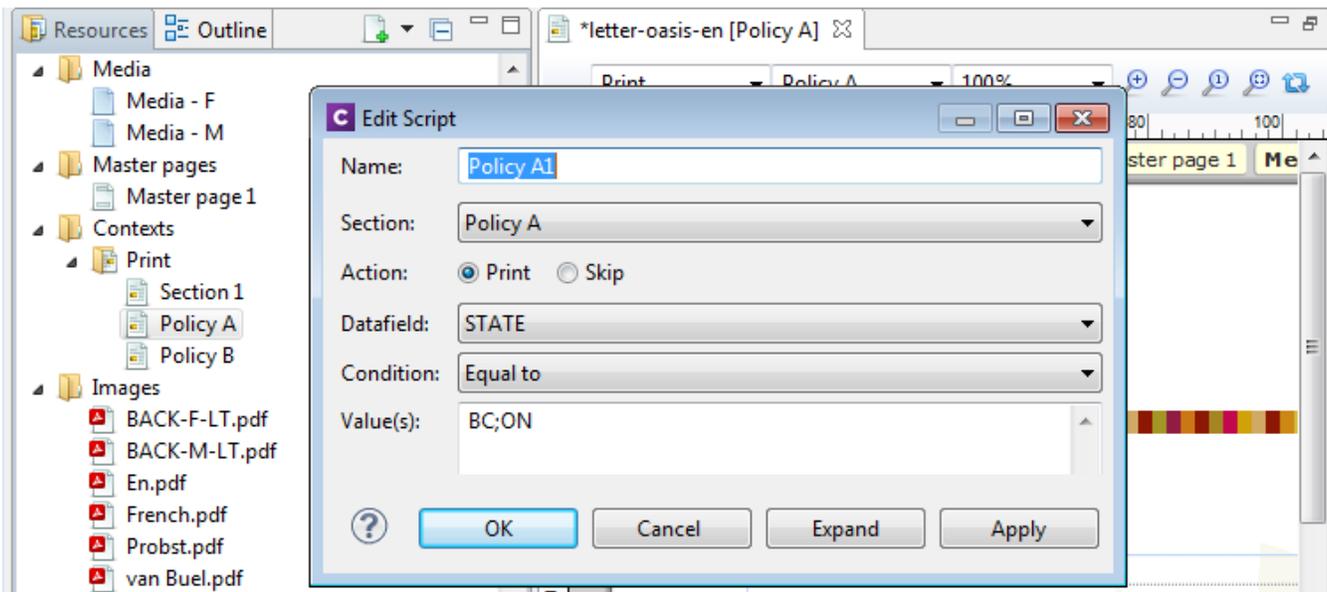
# Connect 1.8 General Enhancements and Fixes

## Native support for Microsoft Excel spreadsheet files

PrintShop Mail Connect can now handle Microsoft Excel files natively. The CSV data type has been enhanced to automatically recognize \*.XLS and \*.XLSX files and use them directly without any additional steps. Both the *CSV Wizard* and the *Add Data* options now allow you to pick these file types. (SHARED-58610)

## Conditional Print Sections Wizard

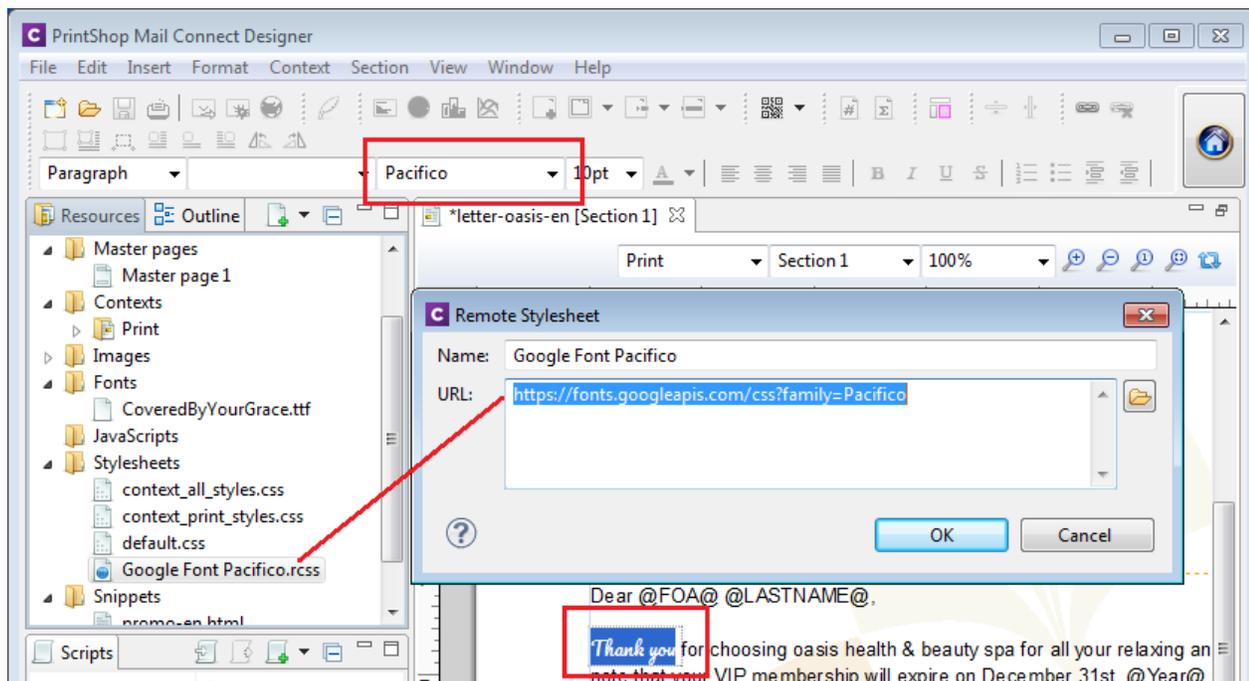
A wizard has been created to simplify the process of creating conditional print sections. Simply right mouse click a print section in the *Resource* panel and choose *Make Conditional...* The wizard allows you to enter a basic condition based on a data field value and either *skip* or *print* the section. When the specified condition is *true* the selected *Action* is applied (which can be Print or Skip) otherwise the opposite is in effect. The icon of the section in the *Resources* panel identifies if the section is printed or skipped. Use the *Expand* option to reveal the underlying *Control Script*. (SHARED-47661)



## Simplified Web Font support

Online font resources (such as [Google Fonts](#)) allow you to use their fonts for both commercial and non-commercial projects. Using these online fonts in your documents is a matter of linking to the Stylesheet file hosted by these services. Simply create a *Remote Stylesheet* entry and paste the location of Stylesheet file in the *URL* field. This will make the font available to the

application. It will be added to the Fonts menu and can be used in your custom CSS Stylesheets, via the `font-family` property. (SHARED-56637).



## Dynamically set Media Background Images

Support has been added for dynamically setting the path of media backgrounds at run time (aka Virtual Stationery). This is achieved via the Control Script API. The path can be set to an image in the *Images* folder but also to a file on disk (the `http://` and `https://` protocols are not currently supported). This greatly simplifies template management in situations where a design is shared between different brands. This technique can also be used to dynamically set the stationery image for the preview template in Connect Send environments. (SHARED-53522)

```
var myMedia = merge.template.media["Media 1"];
myMedia.stationery.front.enabled = true;
myMedia.stationery.front.url = "file:///C:/letterhead.pdf";
```

## Page Breaks inside Lists

Support has been added to allow the splitting of lists across pages. This includes *Widows* and *Orphans* control for ordered (`<ol>`) and unordered (`<ul>`) lists.

The *Orphans* CSS property specifies the minimum number of lines at the bottom of a page and the *Widows* property specifies the minimum number of lines after the page break. To prevent

page breaks inside these elements simply add `page-break-inside: avoid;` to your stylesheets. A formatting dialog for these elements will be added in a future version. (SHARED-14092)

### Installer improvements

Improved error capture, handling and messaging. (SHARED-40209)

### Korean Language Support

PrintShop Mail Connect 1.8 is now available in Korean, in addition to the other languages already supported. (SHARED-40161)

### Context Sensitive Help

Context Sensitive Help has been added to PrintShop Mail Connect. Selecting Help (via  button, or **F1**) in dialog boxes or screens will now generally take you to the Help page most closely associated with the calling dialog box or screen. Context sensitivity will continue to be incrementally introduced and improved hereafter. (SHARED-45766)

### Database connection deadlocks resolved

We have added a timeout period to all Connect back-end database connectors, as well as increasing the amount of database connection threads to better match the capabilities of the hardware. This greatly reduces the chances of database deadlocks or bottlenecks when processing jobs. (SHARED-57252)

### Improved error handling of Merge Engine errors

In some rare circumstances XPCOM initializations would fail in Merge Engines. Thereafter the Merge Engine would continue to run but would be unable to process any further requests. Additional Merge engines would then be launched but the originals did not shut down, eventually leading to resource shortages and subsequent job failures. This issue has been addressed and XPCOM initialization errors in Merge Engines now cause the Merge engine to terminate and restart cleanly. (SHARED-57270)

### Anchored positioned boxes losing style attributes

Absolute positioned (Anchored) elements would lose some style attributes under certain circumstances. These issues would only occur when the absolute positioned element had multiple style attributes that ended with the text "*top*" or "*left*". Such as is the case with

"padding-top" and "top". If both those attributes were set, then only one of the attributes would be retained. (SHARED-57361)

- Customers upgrading from 1.6.1 to 1.8 will not experience any issues with their templates.
- Customers upgrading from 1.7.1 or 1.7.2 to 1.8 will experience problems only if they have saved their templates within 1.7.1. or 1.7.2, and only if those templates contained absolute positioned objects with specific inline CSS styles that end with **top** or **left**, such as **padding-top**, **padding-left**, **border-top** etc.  
In that case those specific styles will be gone and they will either need to restore a backup from before 1.7.x of those templates or manually set the styles again in 1.8 and save the templates.

#### IPDS Data exception

In some instances IPDS output would fail, due to data records exceeding maximum limits and continuing in the subsequent record. This scenario is now catered for and the error is no longer encountered. (SHARED-57723)

#### Issues with 2D Barcodes on Nipson N7000 printers

2D Barcodes (such as DataMatrix) were corrupted when printing on Nipson N7000 printers. This error has been fixed. (SHARED-57767)

#### Changes made to Output Speeds in Connect 1.8

A speed throttling issue was discovered that allowed some users to exceed license limitations. This issue has been corrected, and output speeds will now more accurately reflect license speeds.

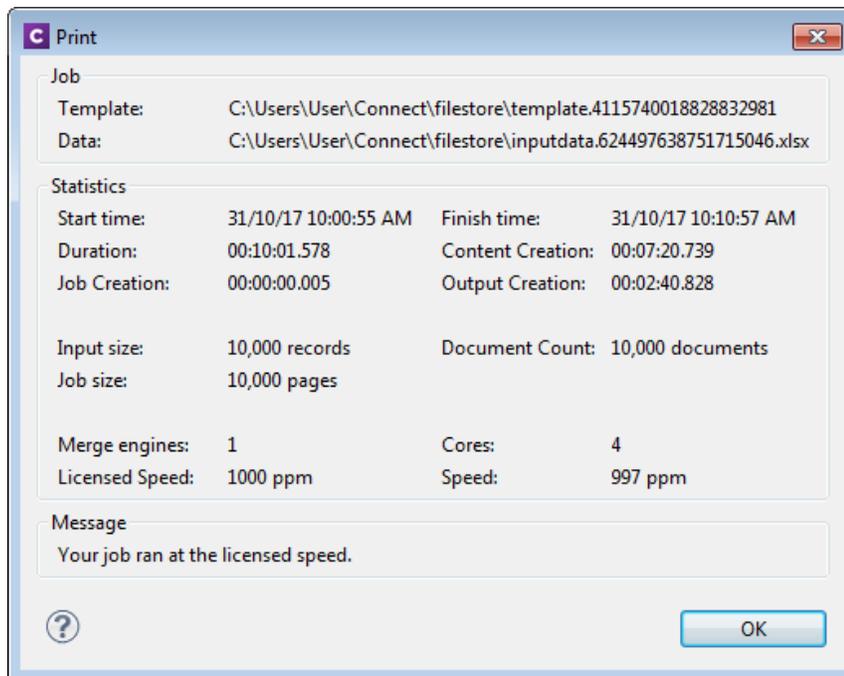
# Connect 1.8 Performance Related Enhancements and Fixes

## Faster printing in PrintShop Mail Connect

For PrintShop Mail Connect, the speed limit in the license will be applied differently, resulting in faster printing. Instead of applying the licensed speed only to the final step of the print process (the Output Creation), the speed limit is now applied to the *entire print process*. Thus the time required for Data Mapping, Content Creation and Job Creation are now taken into consideration as well. The final Output Creation step will now run as fast as required to have the entire print process completed at the licensed speed.

For example, if a 1000 page job needs 40 seconds for content creation, output creation (Weaver engine) is allowed to run at 3000 pages per minute to have the entire print process finish in 1 minute (assuming a licensed speed of 1000 pages per minute). Previously Output Creation would be limited to the licensed speed and cause the whole process to take 1 minute 40 seconds.

PrintShop Mail Connect now also shows a post printing report with details on job size and time spent. (SHARED-56386).



# Connect 1.8 Designer Enhancements and Fixes

## Automatically Fit Text to Container (Copy Fit)

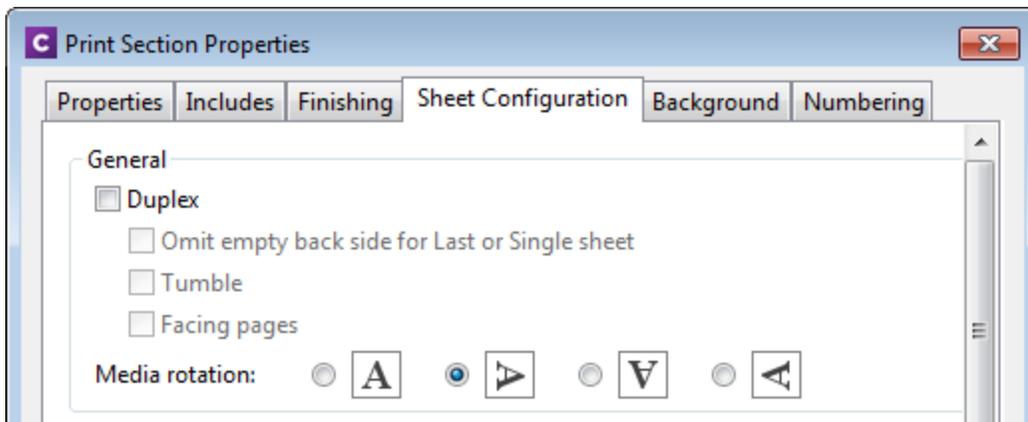
The Designer can now automatically scale text content to fit the boundaries of a box (inline or absolute positioned `<div>`). Scaling text to fit a container is a very popular feature when creating personalized post cards and the like.

The option is found in the *Content* tab of the *Box* properties dialog and can be set to scale all text or a specific element in that box by entering a CSS selector. (SHARED-37702)



## Rotate Print Sections individually

An option has been added to rotate individual *Print Section* orientations via the *Sheet Configuration* dialog (SHARED-46086)



## Snap Guidelines to Ruler

Dragging a guide whilst holding the Shift key will snap the guideline to the closest mark on the ruler. (SHARED-54465)

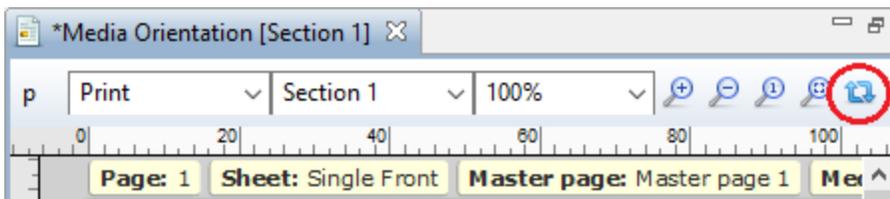
## Toggle Comments On/Off via Shortcut Keys

Toggle comments off or on in HTML, CSS and JavaScript editors via a keyboard combination. Use `Ctrl + /` to comment out a single line and `Ctrl + Shift + /` to comment out multiple lines. (SHARED-56440)

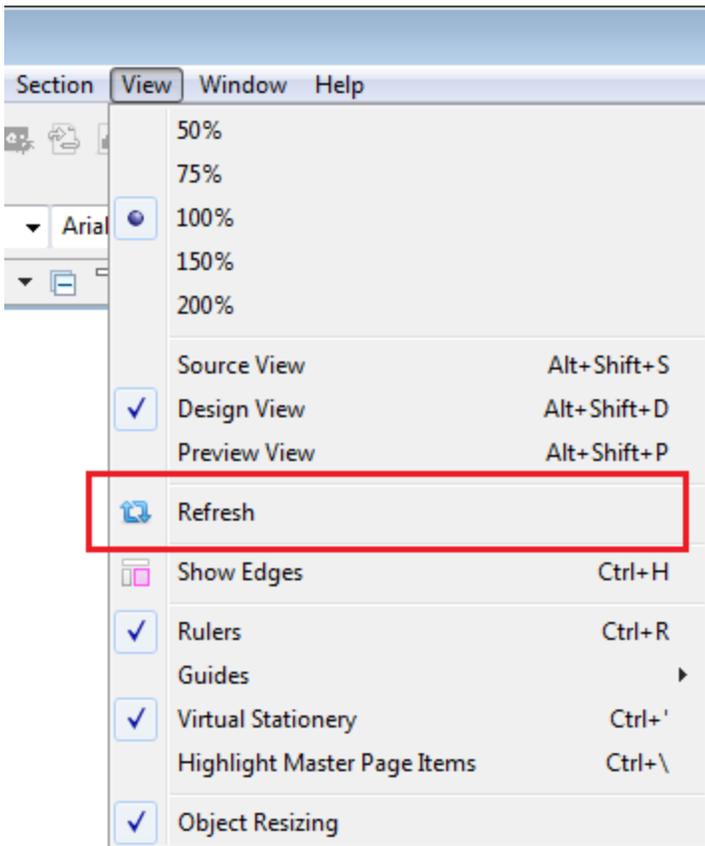
## Refresh View button added

You can now refresh the contents of both Design and Preview views via the new Refresh button or new Refresh selection in the Menu. (SHARED-55616)

Button :

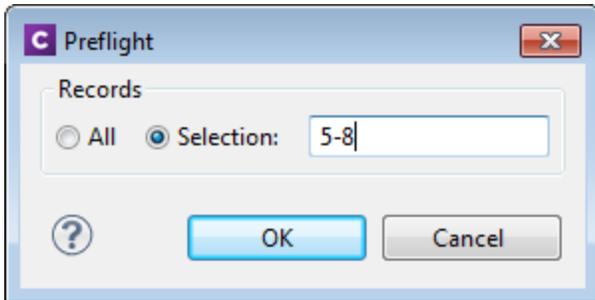


Menu selection :



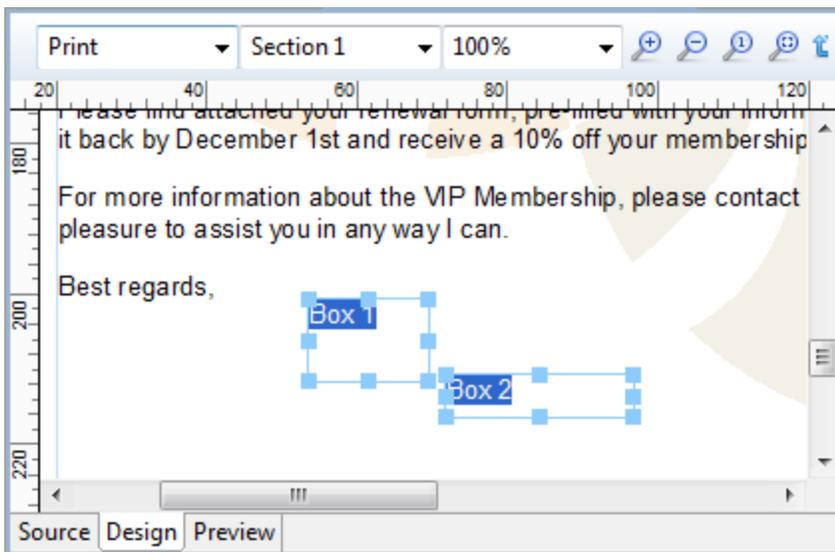
### Specify Page Range for Preflight

You can now optionally perform Preflights on a range of records. (SHARED-35076)



### Select and adjust multiple Box elements simultaneously

Multiple Box elements can now be selected at the same time.



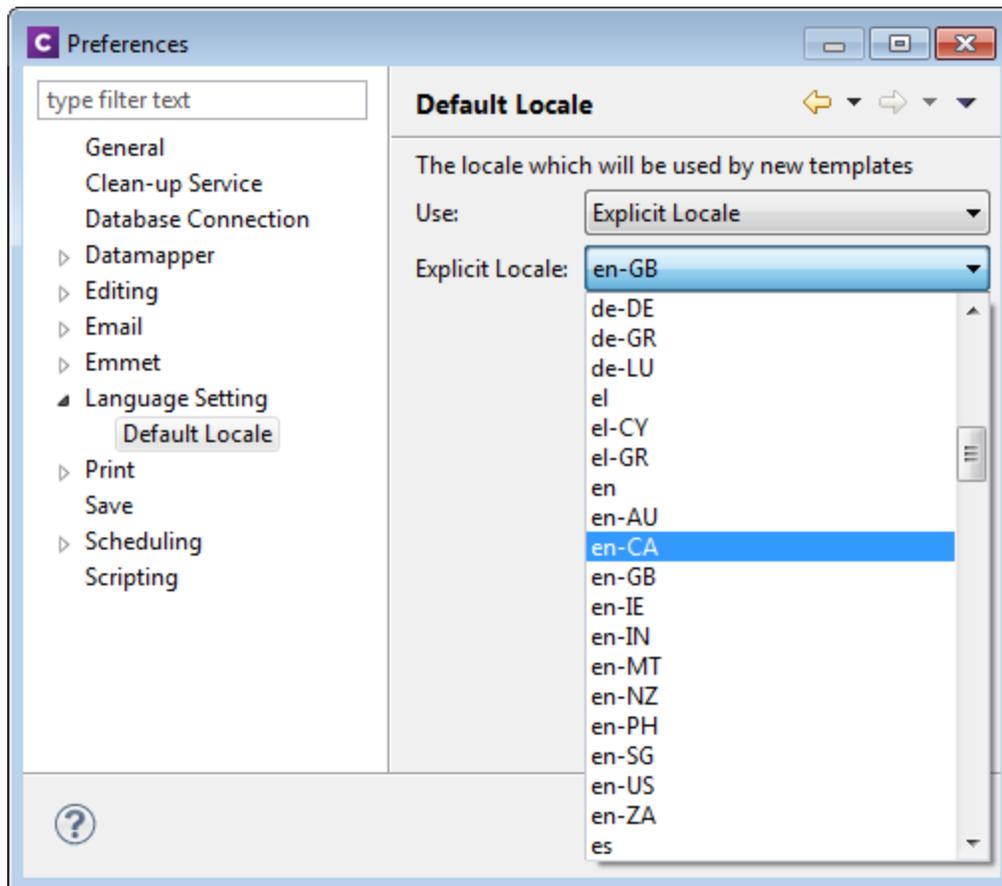
Once selected you can either move or resize the selected boxes as a group. You can move them either via the mouse, or by nudging them around a single pixel at a time with the arrow keys. When nudging, the boxes will not snap to guides. Otherwise, when moving or resizing multiple boxes, the box that was originally clicked (the reference box) will snap to guides if *Snap to Guides* is enabled. (SHARED-55636)

### Specify/change name of Email Attachments

Ability added to overwrite the file name for email attachments through scripting. (SHARED-57120)

## Set Template Locale

Previously Connect always assigned the *System Locale* to new templates. A new option has been added to the preferences to allow the selection of a specific locale. This selection will then apply to all new templates thereafter. It applies to Date and Time fields plus numeric and currency data fields. For example, a monetary data value in France (locale fr-FR) would apply the € (Euro) currency symbol and use the ',' (comma) as the decimal separator, whilst the same monetary data value in the US locale would apply the \$ (Dollar) symbol, and use the '.' (full stop) as the decimal separator. (SHARED-56791)



Locales can still be changed in individual templates by the **Edit > Locale ...** option.

## General Designer improvements

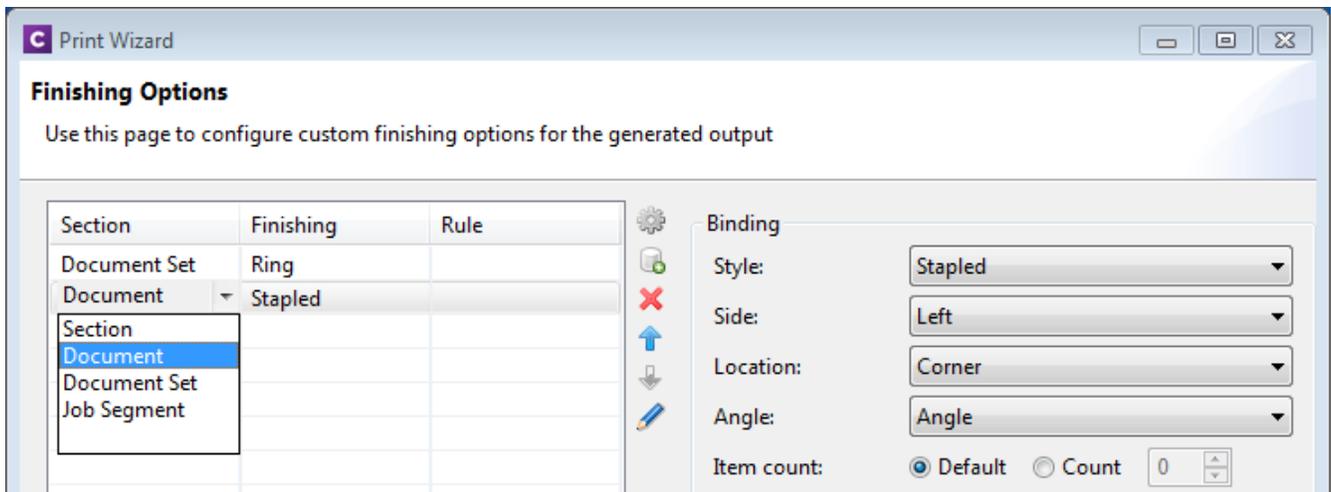
- **GS1 Datamatrix** barcode now supported. (SHARED-55999)
- Section, Media, and Master resources can now be duplicated by copy-pasting. (SHARED-52261)
- **Reopening a template** will put the focus on the section that was active when the template was closed. (SHARED-53199)
- **Keyboard shortcuts** to increase (Ctrl + Shift + >) or decrease (Ctrl + Shift + <) text size now work as expected. (SHARED-11660)
- "Problem" view renamed more accurately as "**Preflight Result**". (SHARED-56343)
- Added "**folding**" support for CSS editors and source editors for standalone HTML files. (SHARED-10717)
- Multiple values now allowed in the **Make Conditional** script wizard. (SHARED-57029)
- **Default colour** swatches can now be edited or overwritten. (SHARED-53670)
- Minor Designer interface inconsistencies fixed. (SHARED-54114)

## Connect 1.8 Output Enhancements and Fixes

### Dynamic Finishing

Print Output Finishing has been improved considerably, and is now much more powerful and flexible. In Templates, you could already set finishing for documents and sections. Job Creation would allow you to specify a different kind of Finishing for your documents and Templates. This has been extended to allow Finishing settings on all levels of Job Creation: **Document Sets**, **Job Segments** and **Jobs**. (SHARED-53277)

So now you can staple document sets and punch holes in your segments. You can also have multiple finishing settings at the same level.



The reason we call this feature **dynamic** finishing, is that it includes a brand new rules editor to allow you to choose when to apply a finishing setting:

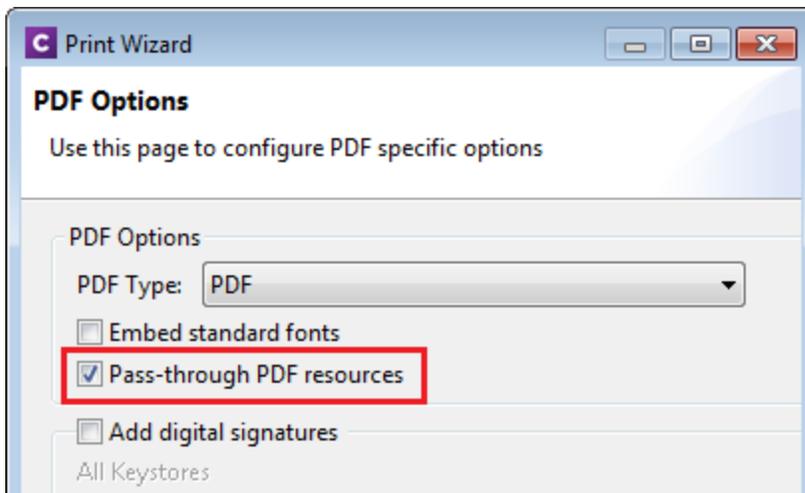
The screenshot shows a rules editor interface with a main container titled "All of the following" and a plus sign icon. Inside, there are several rule blocks, each with a minus and plus icon for editing or deleting:

- Not any of the following** (minus, plus)
  - Field: abc Country, is equal to, [empty], Case sensitive
  - Field: abc Country, is equal to, CA, Case sensitive
- Any of the following** (minus, plus)
  - Field: # InvTotal, is greater than, 0
  - Field: Date, is between, MonthBegin and DueDate
- Size: Document Set, has less than, 5, Sheets
- Position of: Document, is first, in Document Set

## PDF Pass-through

Connect's output creation (Weaver engine) tries to write content the best way possible, depending on the chosen output format and optimization settings. However, there are cases when this might not be desired, such as when the graphics have already been optimized for the device and you do not want the software to change them.

It is now possible to instruct output creation to include PDF resources in the output file *as-is*. When used, it guarantees that the fidelity of PDF graphics used in a template is retained in the output. The resulting output will be less optimized, typically producing somewhat larger files. This option can also be useful when the output is showing unexpected results or to prevent rasterization of PDF output. Will this feature trigger visible differences in the output? No, in most cases not, but when printing highly optimized graphics, expect to see a slight difference in the printed output. This is only possible when PDF content is allowed in the output, meaning it can be used with PDF, IPDS and AFP output with PDF containers. For PDF output, this feature can be found in the Output Preset or Print Wizard page under **PDF Options**. (SHARED-56412)



For AFP and IPDS with PDF containers, this option needs to be set via a Printer Definition file. Printer Definition files for AFP and IPDS that have PDF pass-through enabled will be made available for download, and will be accessible from the Connect Welcome page.

Please note that when using a PDF from a Data Mapping in combination with Virtual Stationery, the PDF is not passed through when selecting this option in Connect 1.8. This is a known issue and will be addressed in a later release of OL Connect.

A second issue when using a PDF background via the Datamapper is that the resultant PDF output file *may* contain invalid font resources. Whilst the output can be viewed in Adobe

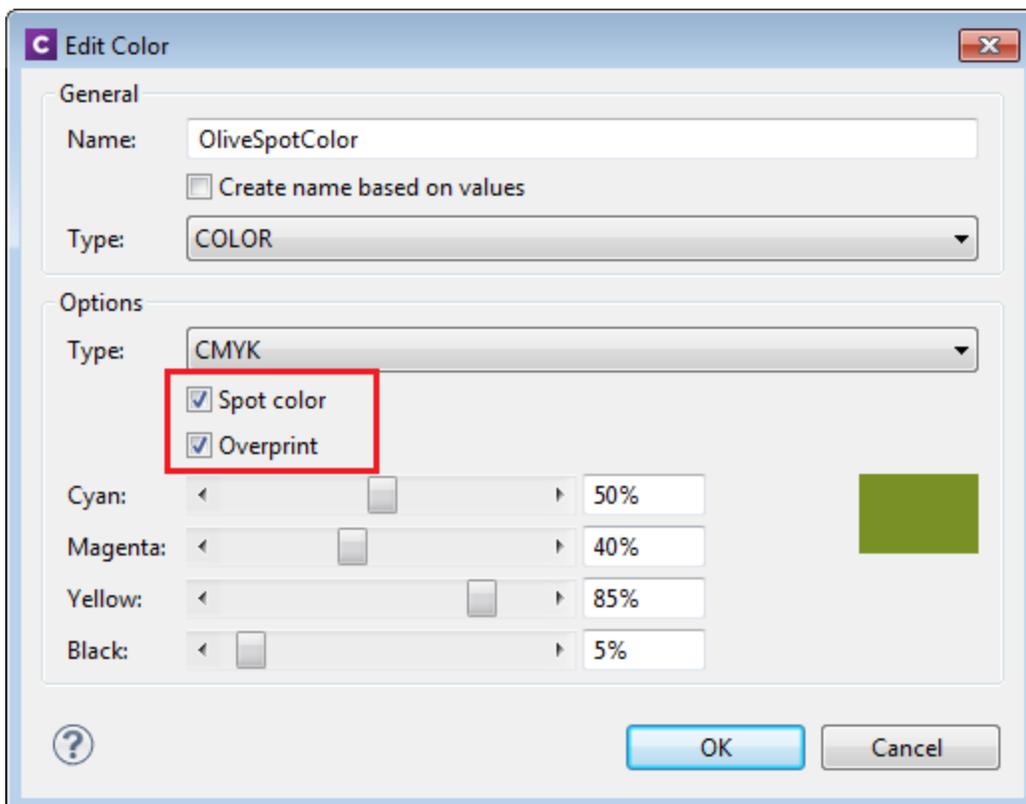
Acrobat Reader without issue and will print correctly on many printers, it will prompt warnings in Adobe Acrobat Professional's Preflight report and it should not be used as input for Connect Data Mapping. We recommend testing the output on your specific printer(s) to best determine whether this will be an issue on your specific printer(s) or not. This issue will also be addressed in a later release.

### Overprint for Spot Colours

Overprinting certain content on top of other content is sometimes required. (SHARED-56743)  
For example:

- To deal with special print applications, such as applying special (invisible) inks that are intended to go on top of coloured areas, for instance printing UV ink or applying varnish to a certain area.
- To avoid mis-registration when printing black on top of coloured areas.

To support scenarios like these, Connect now supports Overprint for Spot Colours.



**Note:** Overprinting does not show on-screen in the Designer.

## Print Output

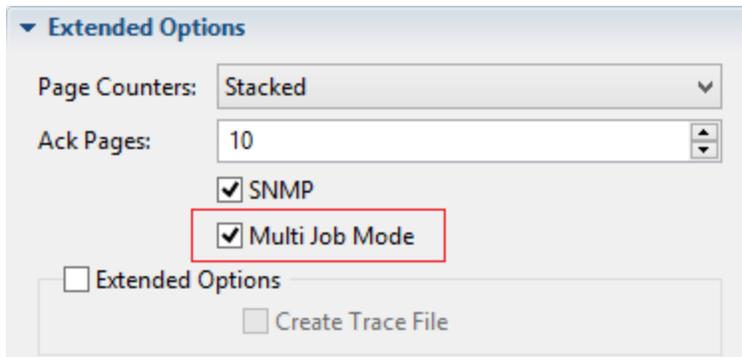
- **Mixplex support added**

An option has been introduced to omit empty back sides for the *Single* and *Last* sheet positions when Duplex is enabled, resulting in mixplex output. This helps in reducing costs in printing environments where page count or click-charging is applied. (SHARED-46965\55459)

- **Improved logging** of output generation. (SHARED-53367)

- **Continuous Printing on IPDS printers now supported**

Option added to the Add/Edit Printer dialog, to provide support for continuous printing on IPDS printers.



For further details, please see "**Continuous Printing on IPDS Printers**" on the next page.

# Connect 1.8 Print Manager Enhancements and Fixes

## Continuous Printing on IPDS Printers

When printing on high volume IPDS printers, it is best if the printer does not pause often. On continuous feed printers in particular, a pause can lead to malfunctions as well as cause delays. It's not just the pause itself, but also the additional time spent whilst the printer slows down and then speeds up again after the pause. The faster the printer, the bigger an issue this becomes.

The Connect Print Manager itself was increasing the pause time as it had to make sure that the currently printing job was completed before sending a new job.

To reduce the need for such pauses, support for **IPDS output incorporating multipage PDF containers** was added in Connect 1.8. Most (if not all) modern IPDS printers support Multipage PDF containers, which can be used in such a way to as remove pauses between print jobs. This means high-end printers can now be prevented from pausing.

To cater for IPDS output with Multipage PDF containers, the Print Manager has been significantly updated.

For further information about this, please see the Print Manager section in the online Help. (SHARED-56881)

## General Print Manager improvements and fixes

- The entire row is now highlighted when selected in the SNMP printer status view of the Print Manager. (SHARED-41114)
- Can now drag print jobs back and forth between the Printer Queue and the Job Queue.
- A multitude of small GUI improvements were made, including catering for new continuous IPDS printing.

# Known Issues

## Installation Paths with Multi-Byte Characters

When installing the Traditional Chinese 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 | ko | 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.

## 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.

### 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.

### 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.

### 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.

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 1.7.1.

### Installing PrintShop Mail Connect 1.7.1

- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help in the installer.
- Note that PrintShop Mail comes with a 30 day trial licenses by default.

# 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, graphic files, and any other resources used, along with their properties. This report can be added as part of your project documentation.

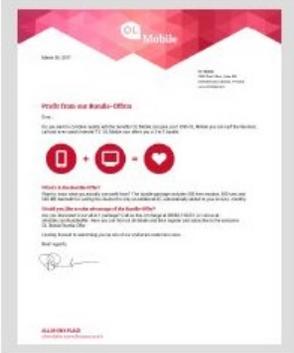
The report is created using Connect technology, and it generates an XML file and thumbnails, allowing you to create your own custom report structure and corporate styling. This can be achieved by altering the underlying Connect Template and DataMapper configuration.

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 Templates. 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)

The screenshot shows a 'Properties' dialog box with the following fields and values:

| Field        | Value                                        |
|--------------|----------------------------------------------|
| File:        | EOFY-Review.OL-template                      |
| Author:      | John Smitherson                              |
| Company:     | Objectif Lune B.V.                           |
| Description: | An ERP template for Microsoft Dynamics AX    |
| Keywords:    | ERP, AX                                      |
| Created:     | 16-Jun-2017 10:29:16 AM                      |
| Modified:    | 16-Jun-2017 10:54:25 AM                      |
| Application: | PrintShop Mail Connect Designer v1.7.0.43667 |

## 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)

## "Enhance with Connect" option added for PDF files in Windows Explorer

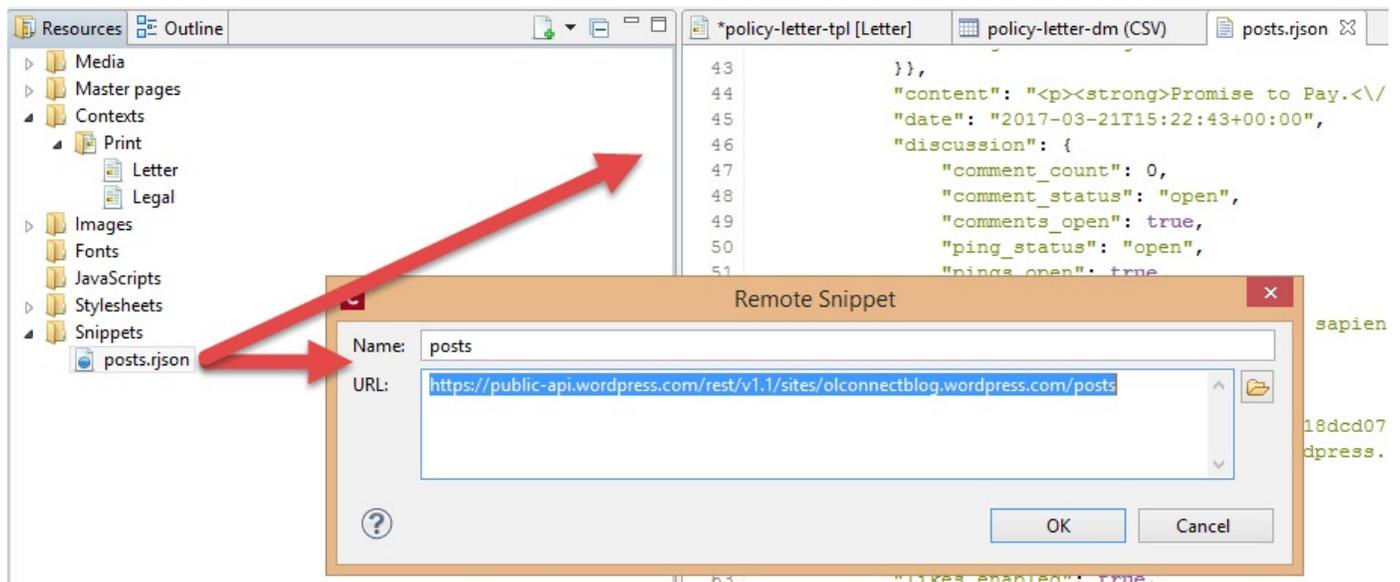
A Windows Explorer context menu entry "**Enhance with Connect**" has been added for PDF files. When a user selects this context menu entry, PrintShop Mail Connect Designer opens with a prefabricated template, that uses the selected PDF file as the background. (SHARED-15350/47156)

## Support added for Remote HTML and JSON Snippets

In PrintShop Mail 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)

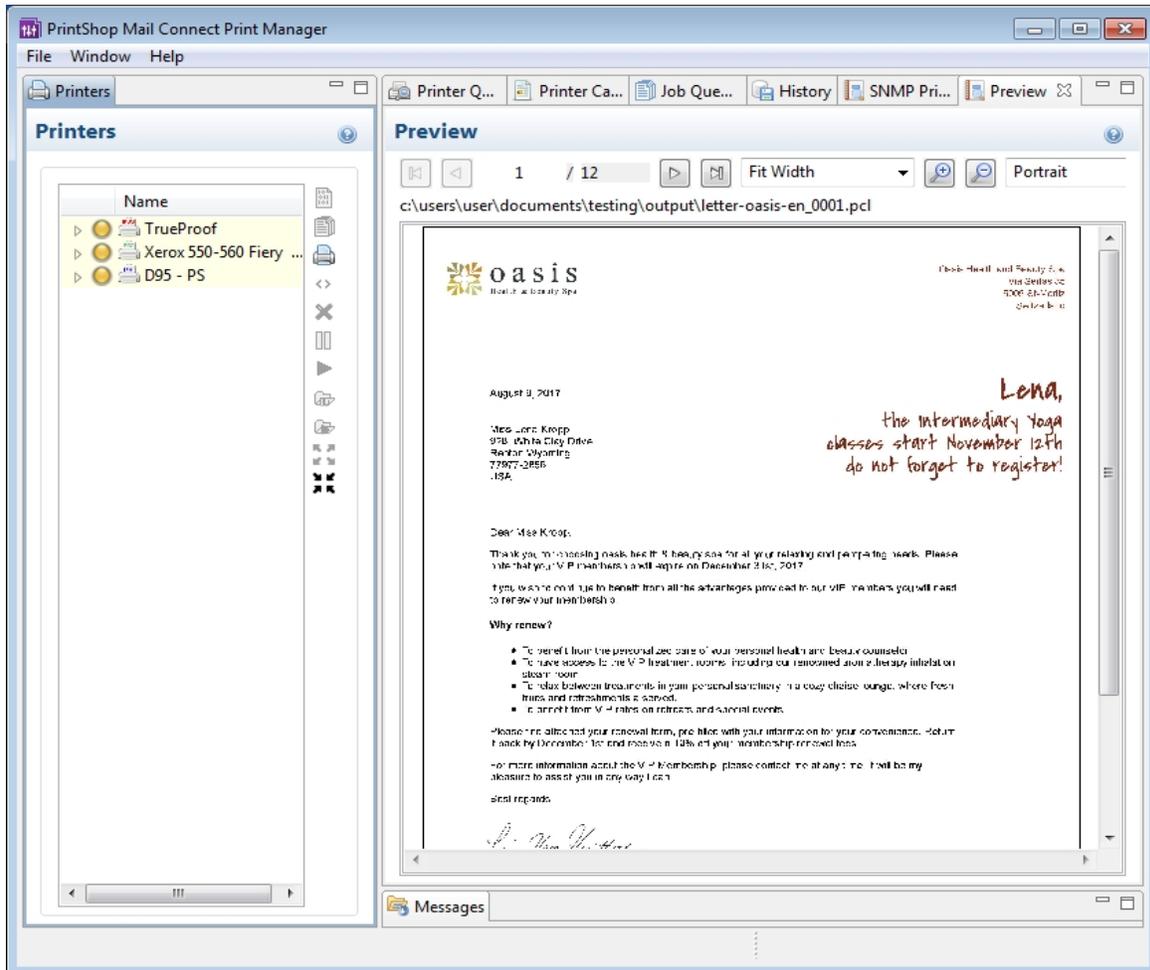


## Installer improvements

- The PrintShop Mail 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 PrintShop Mail 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)

## 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.

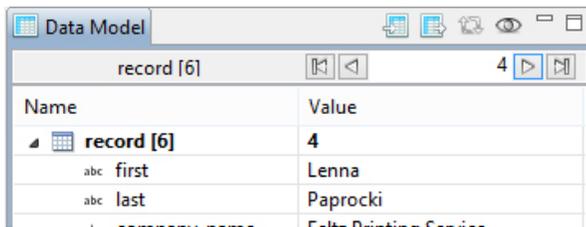
## Connect 1.7.1 Designer Enhancements and Fixes

### 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 PrintShop Mail 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)

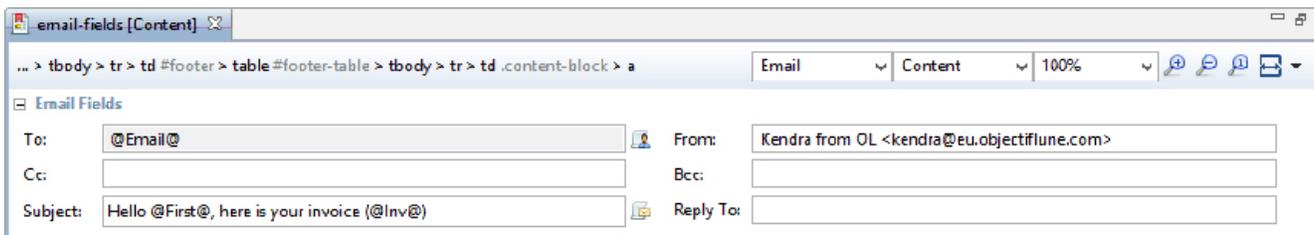
## Simpler Invocation of Email Script Wizards

Invoke email related script wizards simply by clicking the labels in the email information bar. (SHARED-47329)

## Simplified Email fields User Interface

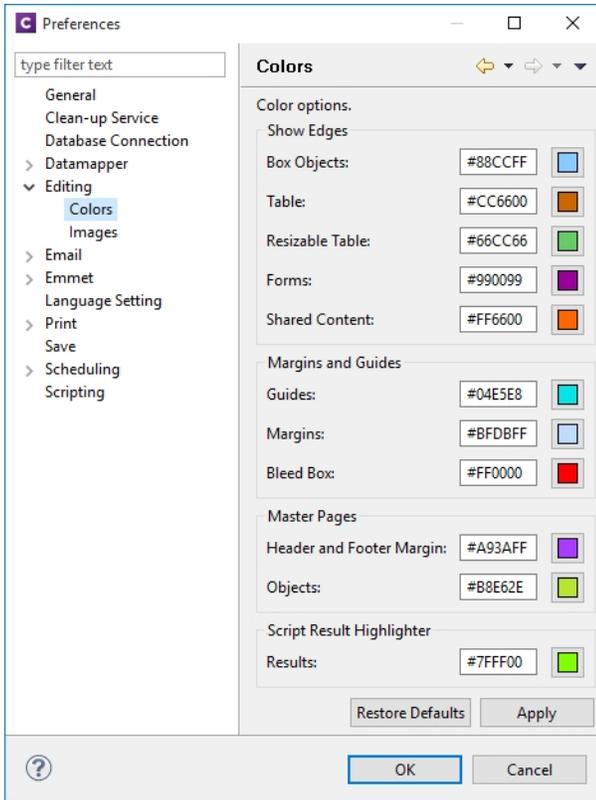
Create *To*, *CC*, *BCC*, *From* and *Reply To* email scripts by dragging and dropping a data field to the respective input field or type a static address directly in the input fields. (SHARED-9178)

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)



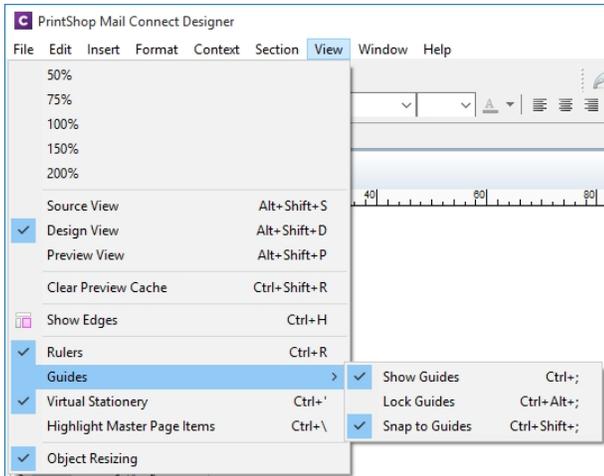
## Improved Customization of the Designer interface

Customize your interface by selecting your own colours for object edges, margins, guidelines, etc. (SHARED-49841)



## 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).



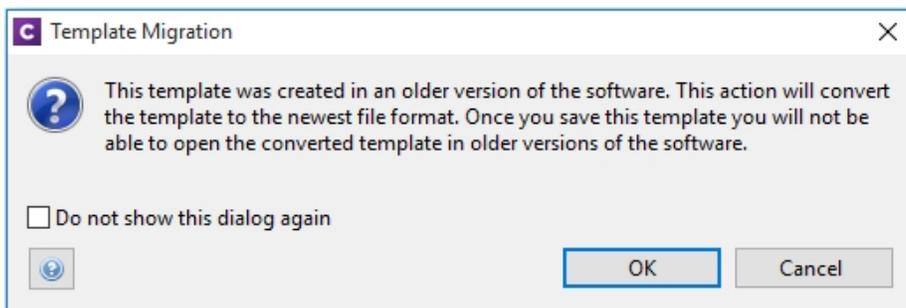
## Warning now displayed when opening templates created in an older version

When PrintShop Mail 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.

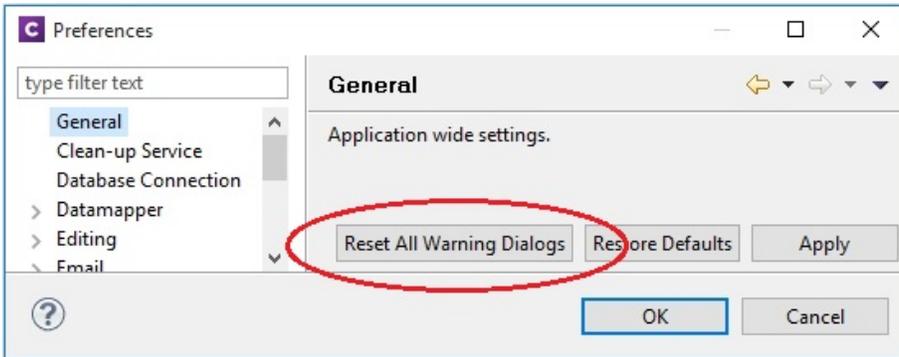
A warning is now shown when opening a Template created in an older PrintShop Mail Connect version, allowing you the chance to save the Template to a new file, leaving the original intact. (SHARED-51912)

## Turn Warning dialogs Off/On

A "**Do not show this warning again**" check-box option has been added to many PrintShop Mail Connect Warning dialog boxes:

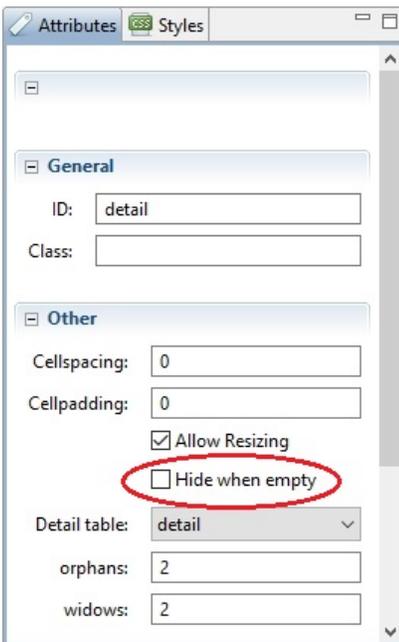


These Warnings can be switched on again at any time thereafter, via the "**Reset All Warning Dialogs**" button in the General Preferences dialog. (SHARED-16962)



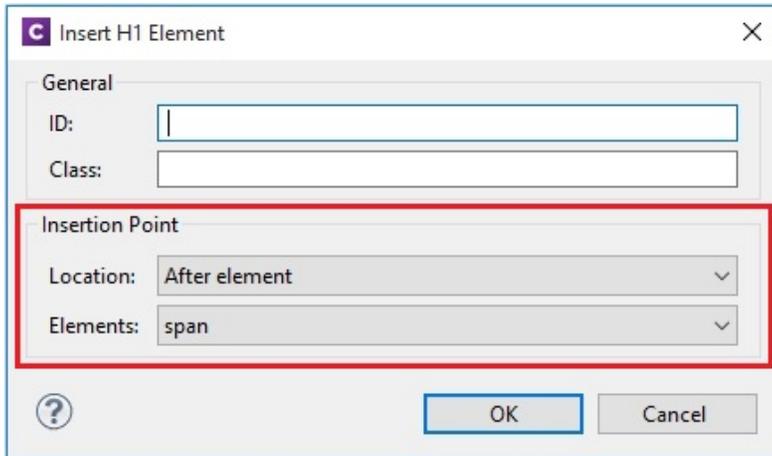
Option to automatically Delete a dynamic table when the table is empty

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

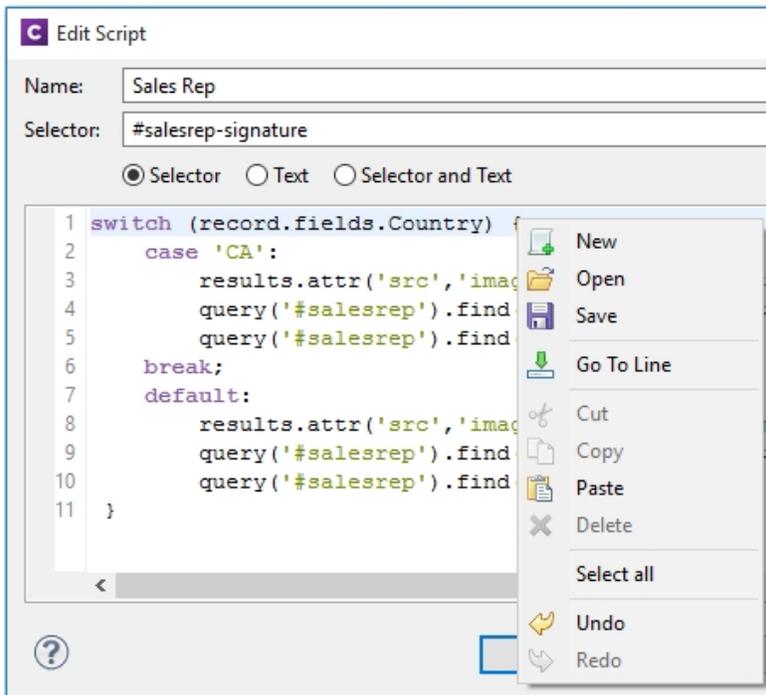
When inserting an element from an **Insert dialog**, Connect now checks the *data-insert-placeholder* attribute. The value of the attribute is then used to set the default value for the *Insert Location* option within the Insert dialog. If the attribute is not found, things behave as in previous versions.



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)

## 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)

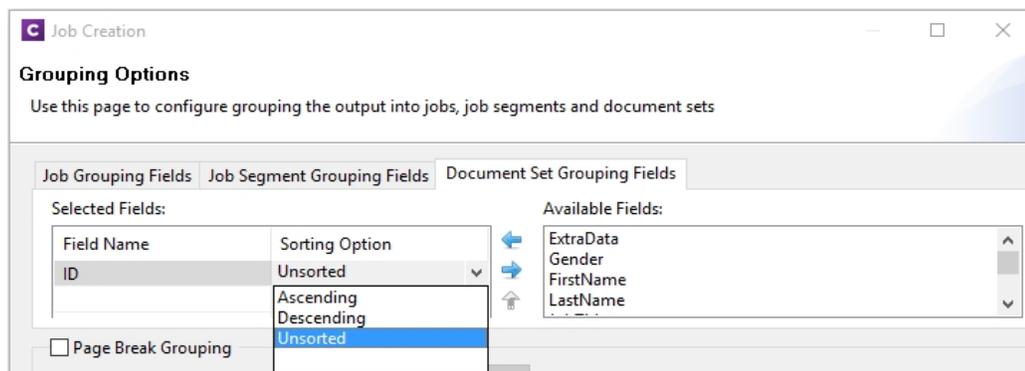
# Connect 1.7.1 Output Enhancements and Fixes

## 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 PrintShop Mail 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.

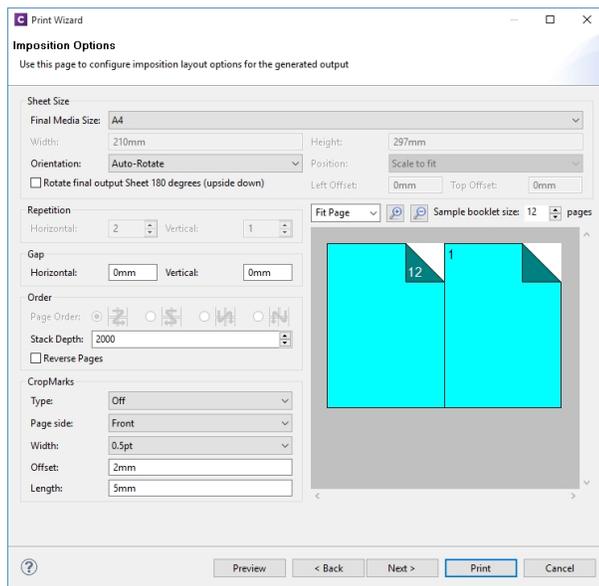
The settings for **Grouping** are available both in the **Job Creation Settings** dialog and the **Advanced** mode of the **Print Wizard**.

## 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 screenshot shows the 'Output Creation' window with the 'Additional Content' section. The 'Barcodes and OMR Marks' tab is active. The 'Additional Barcodes' table has columns for Left, Bottom, Orientation, Type, Text, and Condition. The 'OMR Marks' table has columns for Left, Bottom, Orientation, and Condition. A dropdown menu is open, listing various barcode types. The following table represents the content of the dropdown menu:

|                        |
|------------------------|
| Australia Post 4 State |
| Codabar                |
| Code 128               |
| Code 39                |
| Datamatrix             |
| EAN 128                |
| EAN 13                 |
| EAN 8                  |
| Interleaved 2 of 5     |
| KIX Code               |
| PDF417                 |
| QRCode                 |
| Royal Mail             |
| Royal Mail 2D          |
| UPC A                  |
| UPC E                  |
| USPS IMB               |
| USPS IMPB              |

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.

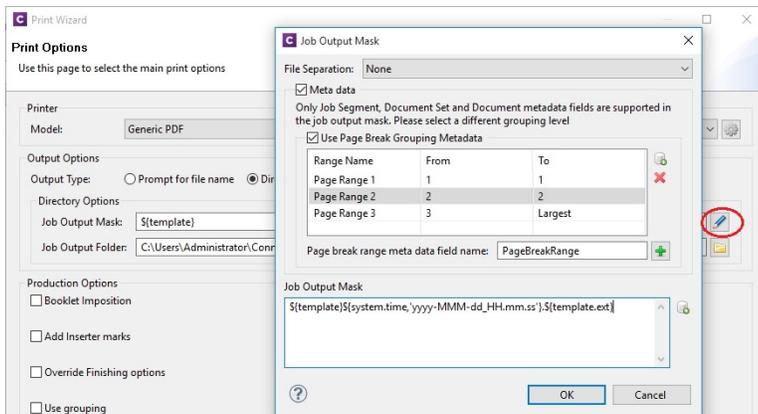
The checksums needed for Australia Post 4 State and IMPB are calculated automatically.

#### 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

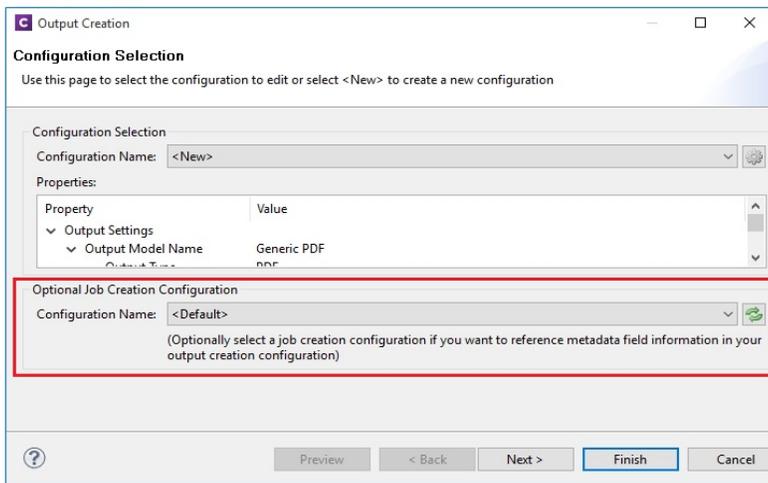
We have improved the way that output file names can be specified. A new dialog box has been added to the Print Wizard, to simplify the creation of Job Output Masks. While it is still possible to directly type a file name with placeholders in the Output File Mask box, it is now also possible to use the 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.

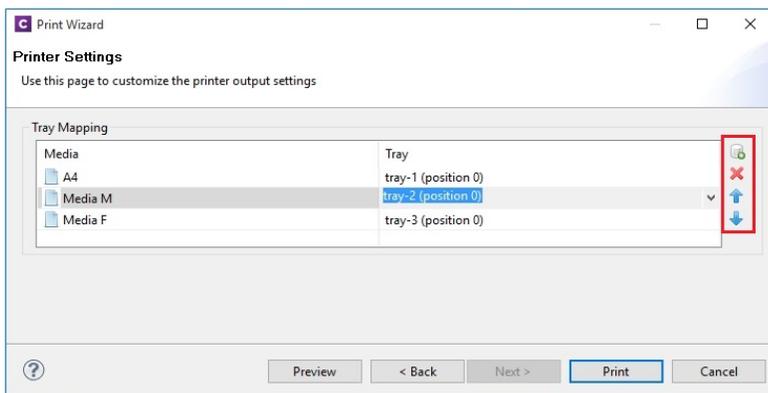
For the Output Preset to know what metadata is available, you can select a Job Preset when creating or modifying an Output Preset:



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)

# Known Issues

## Installation Paths with Multi-Byte Characters

When installing the Traditional Chinese 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.

## 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.

### 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.

### 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.

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 1.6.1.

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**.

#### Installing PrintShop Mail Connect 1.6.1

- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help in the installer.
- Note that PrintShop Mail comes with a 30 day trial licenses by default.

# 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)
- 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)

# 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)

# 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 output**.
- 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)
- 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)

# Known Issues

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1. Go to the .ini files for the Designer and Server Config:
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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.

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### 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.

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 1.5.

## Installing PrintShop Mail Connect 1.5

- PrintShop Mail Connect is released as a 64 Bit version only.
- Full details on installing and licensing PrintShop Mail Connect can be found in the online help in the installer.
- Note that both PrintShop Mail come with 30 day trial licenses by default.

## Connect 1.5 Designer Enhancements and Fixes

### General Designer improvements

- A **color selection eyedropper** has been added, to allow the selection of a color from elsewhere on screen. (SHARED-33561/33646/36293)
- **Improved responsiveness** within the Designer, particularly when dealing with large and complex documents. (SHARED-44309)
- A **configurable Auto Save functionality** has been added for templates. (SHARED-40942/42085)
- Improvements made to **image file selection** functionality. (SHARED-42231/42451/42503/42556//43778)

### Simplified creation of templates based on existing PDFs

- Option added to allow the creation of a **new print document based on an existing PDF**. (SHARED-19220)
- Improved support for **adding PDF files as Section backgrounds**. Files can now be referenced from disk or imported into Template. (SHARED-42496)
- Added support for drag and dropping **Data Fields** directly onto the page as absolutely positioned textboxes. (SHARED-43311)

### Print Layout improvements

- **Page Number** formatting options (start/stop page numbering for sections, set numbering notation) improved in Print Section Properties dialog. (SHARED-39048)
- Added **repeating background images** support for print documents. (SHARED-43201)
- Option added to allow the insertion of **absolute positioned tables** on a master page. (SHARED-21967)

## Email enhancements

- **User-definable SMTP settings.** New defaults are added for Sendgrid and Mailgun (in addition to Mandrill). (SHARED-43897)
- The standard **New email** wizard has been replaced with the new **Basic Email template** wizard. The new wizard has improved HTML structure. (SHARED-43338)
- Sending a **test email** no longer requires data. (SHARED-41889)
- **Tighter compression** for PDF attachments that are based on a print section. (SHARED-38575)
- **Colour picker** support added to the Email template wizards. (SHARED-33561)
- Added support for **PNG barcode** images in email messages. (SHARED-43787)

## Barcode enhancements

- **Improved Barcode creation** with improved dialogs, better data validation and better error messaging. (SHARED-39295/42879)
- Font controls added to the **Barcode Properties** dialogs. (SHARED-22722/43659)
- Barcode improvements made in **Preview** mode. Support added for resizing and dragging of absolute positioned barcode objects, as well as resizing of inline barcode objects. (SHARED-43641)
- Barcodes can now have **transparent backgrounds**. (SHARED-43659)

## Scripting improvements

- New **closest()** command added to the Scripting API, to locate closest matching element above it in the Document Object Model (DOM) tree. (SHARED-41789)
- **Script editing improved.** Line numbering now available within the editor, support for code completion and syntax highlighting added, as well as support for various ECMA6 commands. (SHARED-42768/43696)
- Support added for **cloning Sections in a Control Script** to allow a document to have a dynamic number of Sections. (SHARED-43683)
- Improved **Scripts tool tip** warning and error messaging. (SHARED-42550/43758)  
Improvements include:

- Better tailored error messages and warnings.
  - Icons added representing script type as well as showing the issue severity.
  - Duplicated problems now filtered out.
  - Several other minor improvements.
- Improved support for raw HTML within Designer scripting API commands. (SHARED-43075)

# Connect 1.5 Output Enhancements and Fixes

## General

- Improved **content creation** processing speed for templates featuring PDF backgrounds. (SHARED-44350)

## Email Output

- **Basic Email Action** wizard now made the default for new Email templates. (SHARED-43338)
- Support added for **user defined** SMTP/Email Service Provider (ESP) settings. (SHARED-43897)

## Print Output

- New option added, allowing printing to **Windows Printer Driver**. (SHARED-35536)
- Improvements made to **external sort** option in Job presets. Support added for using input/output file placeholders. (SHARED-40944)
- New **HCF** file added that supports “top down wrap around sequence marks”. (SHARED-42326)
- Use **PostScript Media** name values in the PostScript DSC comments, to improve subsequent searches. (SHARED-42826)
- Option added to allow **storing of job resources** on PostScript printer’s own storage medium. (SHARED-43467)
- **OMR marks improved**, with support added for Match Numbers (Match Code, MC). (SHARED-43589)
- A **Proof preview function** has been added to the Output Wizard, to display onscreen how the current print job would appear when printed. (SHARED-43885)
- **Imposition improvement**. Can now set specific starting position via new Offset option. (SHARED-44022)
- Minor glitches in **Booklet** and **Imposition** output addressed. (SHARED-44340/44430)
- IPDS output: Added **support for levels and metadata**. Future versions of the Print Manager will be able to search and restart based upon these values. (SHARED-44173)

# Connect 1.5 General Enhancements and Fixes

## Installer improvements

- Improvements made to installation robustness. The installer now copes better when encountered **permissions issues** during installation. (SHARED-43732/43737)
- The **Update Client** has been updated to 1.1.9 and has been included in the Connect 1.5 installation. (SHARED-47065)

## Print Manager improvements

- **Removing all finished jobs** for a specific printer with a single step. (SHARED-42984)
- **Retry counters** added to interface. (SHARED-44772)
- Minor dialog **updates and improvements** throughout the Print Manager. (SHARED-30040/41975/42189/42804/43890/44113/44214)

# Known Issues

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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.

## Overview

This document provides an overview of the new features and enhancements in PrintShop Mail Connect 1.4.n.

## Installing PrintShop Mail Connect 1.4.n

- PrintShop Mail Connect is released as a 64 Bit version only.
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- Note that both PrintShop Mail come with 30 day trial licenses by default.

## 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 email context. This has now been fixed. (SHARED-44066)

### Email 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

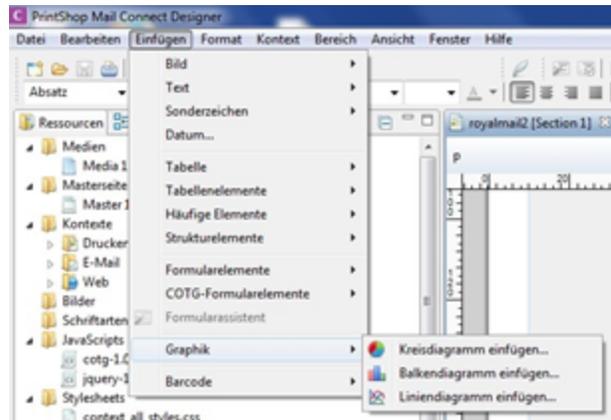
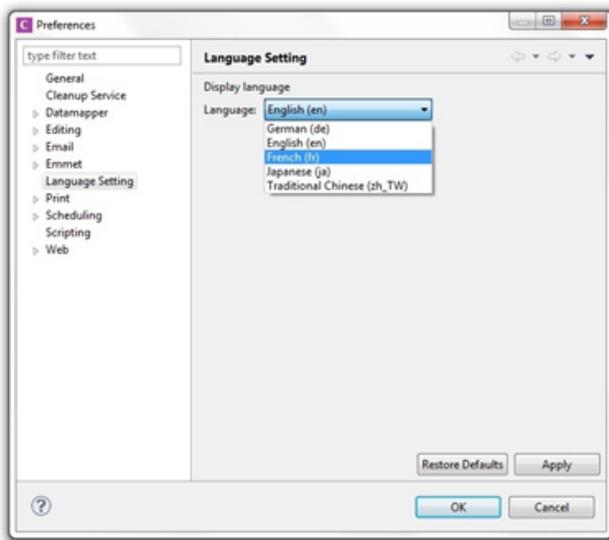
## Connect 1.4.1 New Features and Enhancements

### 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).

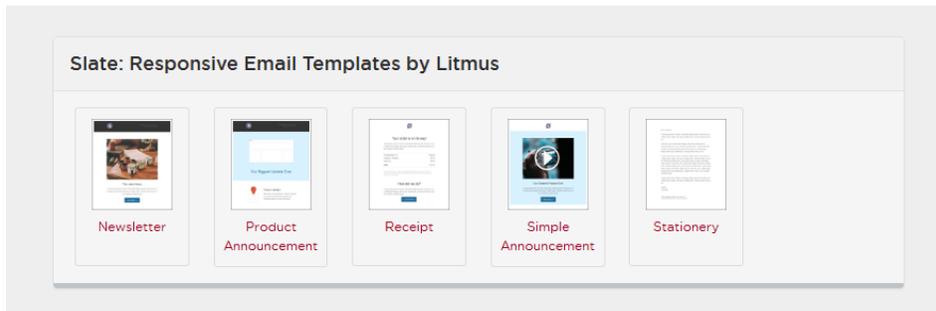


At present only the Connect user interface has been translated. Error messages and warnings will be translated for a later release.

## 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

## 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 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.

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# Legal Notices and Acknowledgements

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The license agreements for the associated open source third party components can be found in the following installation folder: *C:\Program Files\Objectif Lune\OL Connect\Legal Notices*

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.
- **c3p0** which is licensed under the terms of the Lesser General Public License (LGPL) Version 2.1. The source code can be obtained from the following location: <https://github.com/swaldman/c3p0>
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- **Gecko** which is distributed under the terms of the Mozilla Public License (MPL) Version 2.0. Information on obtaining Gecko can be found on the following page: [https://wiki.mozilla.org/Gecko:Getting\\_Started](https://wiki.mozilla.org/Gecko:Getting_Started)  
**NOTE:** This library has been modified for Connect. To obtain copies of the modified library please contact your local Objective Lune Support team.
- **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>

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- **J2V8** which is distributed under the terms of the Eclipse Public License (EPL) 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 (LGPL) Version 2. The source code for this can be obtained from the following location: <http://sourceforge.net/projects/jacob-project/files/jacob-project/>
- **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>
- **Java XmlHttpRequest** which is licensed under the terms of the GNU Lesser General Public License Version (LGPL) 2.1. The source code for this can be obtained from the following location: <https://github.com/objectifluneCA/java-XmlHttpRequest>
- **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>
- **JNA Version 3.5.1** which is distributed under the terms of the GNU Lesser General Public License Version (LGPL) 2.1. The source code for this can be obtained from the following location: <https://github.com/twall/jna/releases>

- **Logback** which is distributed under the terms of the Eclipse Public License (EPL) Version 1.0. The source code for Logback can be obtained from the following location: <https://logback.qos.ch/download.html>
- **Mchange Commons Java** which is licensed under the terms of the Lesser General Public License (LGPL) Version 2.1. The source code can be obtained from the following location: <https://mvnrepository.com/artifact/com.mchange/mchange-commons-java>
- **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 (LGPL) Version 2.1. The source code can be obtained from the following location: <https://sourceforge.net/p/csvjdbc/code/ci/csvjdbc-1.0.31/tree/>
- **Rhino 1.7R4 and 1.7.7.1** which are licensed under the terms of the Mozilla Public License (MPL) 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](https://developer.mozilla.org/en-US/docs/Mozilla/Projects/Rhino/Download_Rhino)
- **Saxon** which is distributed under the terms of the Mozilla Public License (MPL) 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>
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- **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 Public License (MPL) 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 (LGPL) Version 2.1. The source code for this can be obtained from the following location: <https://github.com/chrislake/7zsfxmm>

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