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Designer 11.05

Welcome to the Designer Documentation homepage for release 11.05. The sections below are grouped to help you find the areas most likely to assist you:

- **Where to Begin** points you at the system fundamentals, or offers an overview of the system changes since the last major release, depending on your history with the product.
- **User Manual** takes you deeper into the online documentation. The links allow you to jump into a specific topic area.
- **Related Areas** takes you to the other products of Enterprise, the prior Designer version, or to other versions, depending on your interests.

Keeping your Scala Maintenance Subscription up to date will give you access to the latest updates and upgrades from Scala. These are the dates specific to this release:

- **Scala Maintenance Start Date**: March 1, 2018
- **End of Support Date:** not yet defined.

For more information about maintenance and renewal, Updating Your Network.

Where to Begin

Read First

- Using Media Formats Supported by Scala Enterprise

New Users

- Introducing Designer
- Installing Designer
- Primer
- Glossary of Terms
- Getting Started
- Tips and Tricks

Experienced Users

- What's New
- Release and Update Notes

User Manual

- Working in the Main View
- Working in the Page View
- Working with Templates
- Working with Add-Ons
- Integrating Data
- Scripting and Automation

Related Areas

For online documentation related to our other products in this same release version:

- Content Manager 11.05
- Player 11.05

To access the prior version of Designer:

- Designer 11.04

Looking for something different? Visit our documentation portal homepage:

- Scala Enterprise Homepage

Other Resources

The following resources are also available:

- Support provides technical support numbers, FAQs, and a User Forum.
- Scala Maintenance has more information about maintenance expiration and staying up-to-date.
- Professional Services and Training are available to help you get the most out of your digital signage network.
- Customer Assets provides valuable links and inspiration, such as the Software Download Center and example templates.

Introducing Designer

Whether you are a beginner or an expert, with Designer you can create polished, professional on-screen productions that combine text, sound, graphics and animation for maximum impact. Designer, when used with its powerful companion application Content Manager, lets you easily publish and distribute your productions across the internet to networks of Scala Players located around the globe.

Designer was created specifically for visual communication and has many publication and playback options that make the environment a powerful creative composition tool to add to your existing toolbox.

Designer provides users with the ability to create and publish content to…

Content Manager for **Scala Players** in a Scala Enterprise network.

Content created with Designer ranges from dynamic presentations to interactive applications to data-driven information.

Although Scala supports a wide variety of media formats from images to streaming video, only Designer has these benefits:

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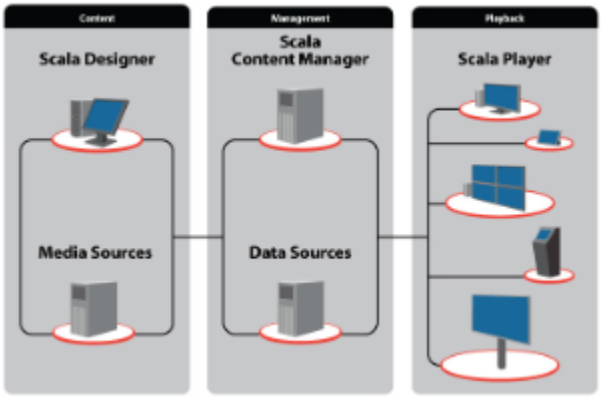
- Creates content in the native Scala format.
- Can be used to create Scala Templates.
- Can mix high quality motion with dynamic data.

In a Scala Enterprise network, Designer is part of a workflow process, allowing users to create scripts and templates, manage them in Content Manager and play them in Player. An illustration of this process is below.



Designer can work for you

Designer offers you a variety of presentation formats so you can use whatever fits your purpose. For example, you can use Designer to:

- Design and publish content for digital signage networks.
- Engage your customers with an interactive customer experience.
- Make advertising more compelling, increase sales and grow your business.
- Inform your patrons of the many services your business has available.
- Distribute news and publicize products and events on your corporate information channel.

Because Designer productions can be transmitted and updated through the Internet, up-to-the-minute information can reach all your sites almost instantly. The time and expense of sending people or bulky media to each site when the displays need to change is a thing of the past. And your training and production costs for creating productions and managing a Designer installation are low, thanks to Scala's easy-to-use graphical user interface.

The key to a successful production is to think about your audience and how and where they will interact with the content you create. With Designer, your can create productions that be displayed on a wide variety of display types of setups including, but not limited to: large format screens, video walls, outdoor billboards, complex monitor arrangements.

Additional Introduction Topics

- The Primer section covers the essentials for working with Designer.
- Installing Designer will help you to set up your version of Designer.
- Getting Started is a simple walk though of using Designer to create a simple script through to publishing the production.
- Glossary of Terms defines the terminology used within Designer.

Release and Update Notes

Scala is constantly working to improve the customer experience by providing updates on a regular basis. These updates reflect current security trends and resolutions to issues that have been reported by our customer base.

These updates are only available to customers under Scala Maintenance. If your Scala Maintenance date has lapsed, you can renew your Scala Maintenance Subscription by contacting your Scala Certified Partner. If you are need further assistance, our Scala sales team will be happy to help.

The list of releases can be found below, with the most recent version always being at the top of the list. Click the release version label to review the summary of changes you are interested in.

Versions Within This Page

- Release 11.05.00 – March _____ 2018

Related Areas

- Scala Enterprise Homepage
- Scala Enterprise Release Notes
- Player 11.05 Release and Update Notes
- Content Manager 11.05 Release and Update Notes

Release 11.05.00 – March _____ 2018

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Enhancements

- Page Elements now includes seven new commands in the right-click Context Menu for ease of control during message creation. See Right-Click Context Menu for more information.
- Variables in the Script Properties Template tab can now be moved to/from the Variables and Sections Panes via drag and drop. See Script Properties Template for more information.
- Designer now allows users to click and drag to change the position and size of table elements.
- Designer now allows users to create TextBox elements using click and drag.
- Element Level functions in the Position tab and right-click context menu have now been renamed to Element Layer to improve clarity and ease-of-use.

Other

- The Font Size field for Text Boxes is now automatically selected instead of the Minimum Font Size field when opening font size pop-up menu in Designer; Users can now use SHIFT+ALT+n command to open the font size pop-up menu.
- General cosmetic and usability improvements.

Bug Fixes

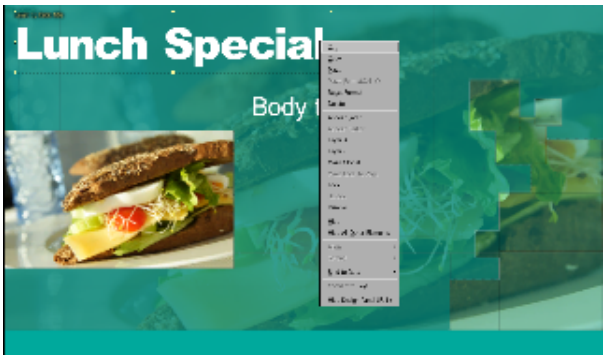
- Fixed an issue that caused Designer to highlight the incorrect table cell when clicking an unselected cell.
- Fixed an issue that caused Publish Automation to publish incorrect section names for templates with pages that lacked section details.

What's New in 11.05

Note:
To view new features in our other Scala Enterprise products, see What's New in Content Manager and What's New in Player.

New Menu Commands

Right-click context menus for Page Elements now include seven new commands, to increase ease-of-use. See Right-Click Context Menu for more information.



Drag and Drop in Script Properties

Moving variables to the right section is now easier than ever using drag-and-drop. See Script Properties Template for more information.

Click and Drag functionality

In Designer, users can now create TextBox elements, or change the size of table elements using click-and-drag.

For Further Information...
- Read the full update notes for complete details on changes made to this release in hotfixes.
- Start at the Designer 11.05 homepage for complete details on Designer.

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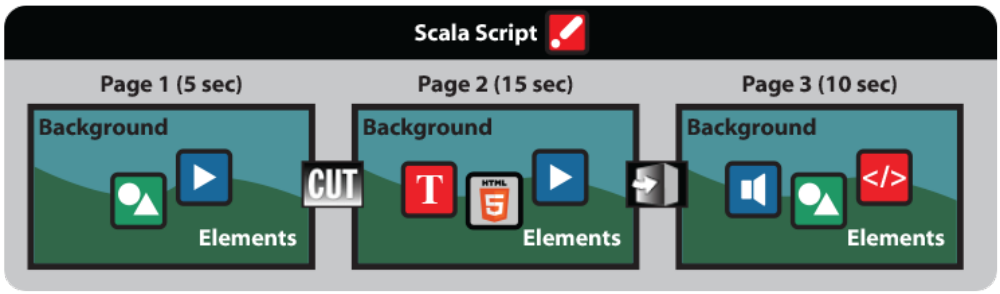
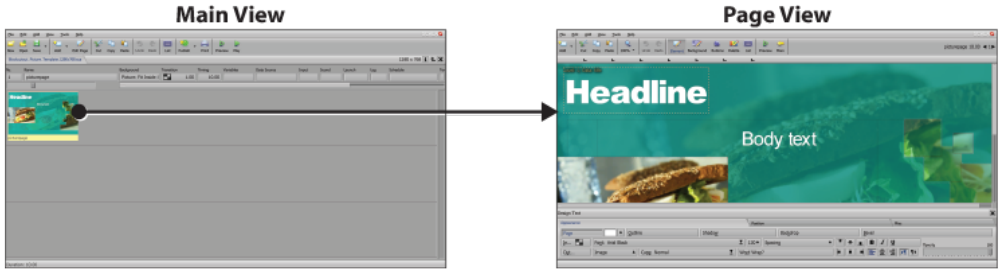
Primer

In Designer, your production is defined by a script, which is defined as a file that specifies a series of events and their timing. The events in a script are the individual image files, sound files, text lines, and other items that appear in the final production. The events in a script contain all the settings and options that describe how and when things happen in the final production.



However, you do not have to work with a Designer script the way a programmer works, which is through a series of text commands. You may write and edit the script entirely through the Scala graphical user interface. It shows you the script as one or more pages of information, each of which can be created or designed graphically and arranged in any order you choose.

As you work with a production and compose the script, each page is listed separately in the **Main View**. A page number is assigned based on its position in the production sequence, including a short title for easy identification. Thus, the Designer Main View shows you an outline of your script and an overview of its structure.



Laying out an individual page is accomplished in the **Page View**. Here you are able introduce Elements on the page which can be positioned, scaled and layered as well as setting the order, timing and transitions for how the Elements appear on the page.

From here, you can navigate to other Designer views necessary to create the script. Additionally, it is possible to perform tasks directly from this view to manipulate and refine the script.

Once your production is complete, you can either publish it directly to Scala Content Manager for inclusion in a **Playlist** or collect it for others to use.

Scripts can be created in a text editor. Many advanced users modify their scripts to perform additional functionality that otherwise is not available in the GUI (graphical user interface.)

Additional Topics:

- A general overview of the User Interface(UI) is given in the section UI Overview.
- Get more details on media that can be used in conjunction with Designer in Using Media Formats Supported by Scala Enterprise.
- Tips and Tricks provides you with helpful hints to be more productive when using Designer.

UI Overview

The options and commands available in any Designer panel depend on the purpose of the panel, but most Main View elements have common features in Designer. For example, unlike other PC applications, some choices in the panel are buttons rather than text items in a list, while some buttons lead to other panels and dialog boxes.

It is assumed that most people will use a mouse to interact with the UI although almost all operations can be accomplished using a keyboard shortcut.

Common menu elements are briefly explained below:

Element	Graphical Representation	Function
Title Bar		Shows the name of the panel, script, or dialog box in which you are working. Occasionally, additional information is provided.

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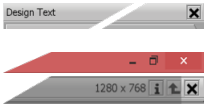
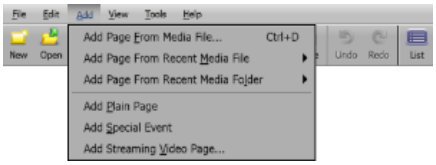
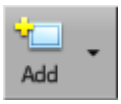
Toolbar		Contain icon buttons for common functions in that panel or dialog. Toolbar items can toggle special options, present drop-down lists, or navigate to another panel.
Tabbed Panels		Access different sets of related controls to prevent panels from becoming too large or crowded. **Ctrl+Tab** moves to the next tab. **Shift+Ctrl+Tab** moves to the previous tab. Click the tab header to display the panel of options for that type of operation. As a point of interest, the sequence of panels are ordered so that common tools between elements are found in the left-hand panels and unique tools for that element in the right-hand panels.
Close Button		Closes the active panel or script with which the button is associated. In the Main View, the **Close** button is located in the upper right corner of the application window and choosing it quits the application. The other, smaller Close button is associated with the script you are working with and choosing it closes the script.
Up Button		When grouping pages, this allows you to move up one level out of an open page group.
Value Control		Lets you cycle through a series of values, or change a value directly. Click the arrows to go to the previous or next value, or click in the text box between the arrows, type a value and press **Enter**. Some value controls have more than one value, or more than one text box between the arrows. Before using the arrows, click in the text box you want to change.
Pop-up Button (Selector)		Pop-up list allowing a choice from a series of option values. The **Selector Button** will facilitate access to other functions and panels. If the pop-up list shows option values, the current selection is highlighted when you open the list. To choose a value or function, click on the **Selector** button, then click on your desired choice. Or, click and hold the mouse button while moving the pointer through the list, then release the mouse button when the desired choice is highlighted.
Pull-down Menu		Opens a pull-down list of options or functions from a top menu item, allowing your choice of a particular function or navigation to another panel.
Combination Icon		Lets you either choose a default action or select from a list of actions. A single click on the main part of the icon will choose the default action. By clicking on the down arrow (d) part of the icon, a drop-down list of related actions will be displayed.

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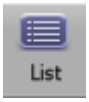
List Icon		Lets you choose how you want to view pages in a script. Normally you would see thumbnails. When the icon is depressed, the List mode is opened, with pages listed by name.
On/Off Button		When clicked, this button will turn an option on or off. If the label for this type of button ends in a **question mark (?)**, then a check mark appears after the label when the option is on. Some buttons of this type can be pressed in to turn their option on and released with another click to turn it off.
Close and OK Buttons		All panels and dialogs have a **Close** button. When the button is pressed, any changes made to the settings are saved rather than undone. The **OK** button will accept any changes you make in the dialog, then the dialog will close. The close button is located in the upper right corner of the screen, and is essentially the same as the Cancel button.
Nudge with Arrow Keys		**Ctrl+Arrow Key** allows you to move/nudge elements by **one pixel** in whatever direction the arrow key is depressed. **Shift+Ctrl+Arrow Key** allows you to jump **10 pixels** at a time.

Using Media Formats Supported by Scala Enterprise

A more detailed discussion of the guidelines for each of the formats can be found at Using Media Formats Supported by Scala PC Player.

Tips and Tricks

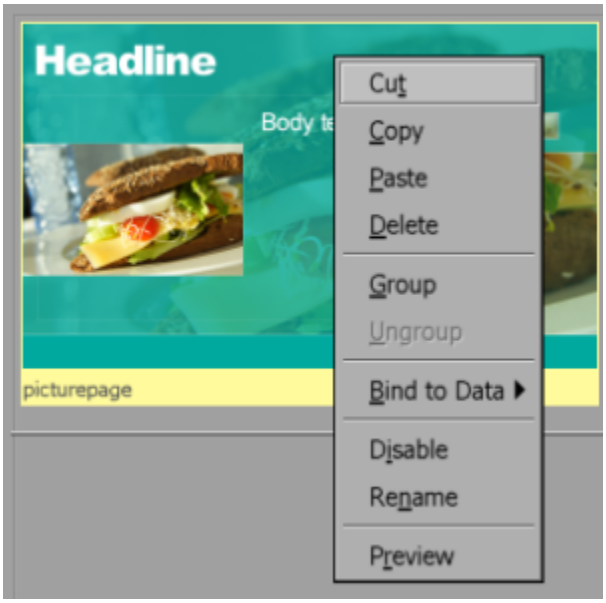
Page listed below can provide you with shortcuts to make usage of Designer easier.

- Context Menus
- The F1 Page IS Your Friend

Context Menus

Designer has right-click Context Menus, which increases the ability to quickly access certain features.

For example, right-clicking on a thumbnail or list item in the Main View.



This will reveal a context menu allowing you to Cut, Copy, Paste, Delete, Group, Ungroup, Bind to Data fields, Disable and Preview in one motion. Combined with keyboard shortcuts, this will greatly increase your productivity.

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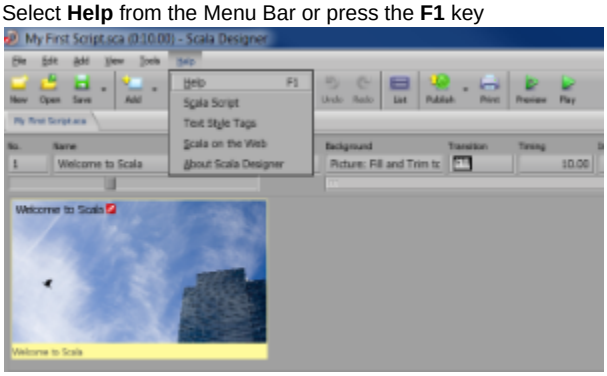
The F1 Key IS Your Friend

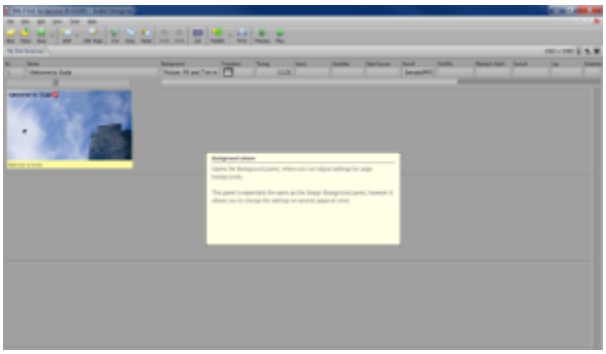
If there is a button you are not familiar with, hover the mouse pointer over it to see the **Tool Tip** label.

For even more detailed information, follow the steps below:

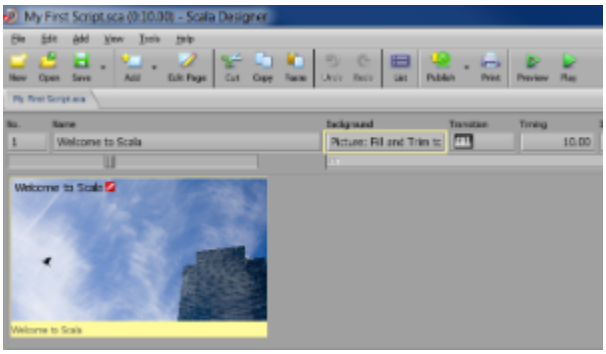
1. Select **Help** from the Menu Bar or press the **F1** key



2. Highlight what you are interested in



3. Then click on it to learn more



The **Help** section on the Menu Bar also contains general information about Designer, including your license information, and for advanced users links to Scala Script (for connecting HTML5 WebClips and Flash) and Text Style Tag documentation.

Keyboard shortcuts exist for many actions in Designer and are shown next to the Menu item. We have made an effort to list them as often as is possible through the documentation.

Installing Designer

Technical Specification

Operating Systems

Recommended

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- Windows 10 (64-bit)
- Windows 7 (64-bit)

Supported:

- Windows 10 (32-bit)
- Windows 8.1 (32-bit)
- Windows 7 (32-bit)

Third Party Components

Requirement	Purpose
Python 2.7.11	Special Scala version.
Adobe Flash	Processes Flash files. **Warning about Adobe Flash:** Scala Enterprise only supports Flash through version 10.3.x (e.g. 10.3.183.90) due to issues with significant memory leaks seen in newer versions of Flash. You might still choose to leverage your older Flash media assets, but we advise shifting to a different media format moving forward.

The Installation Process

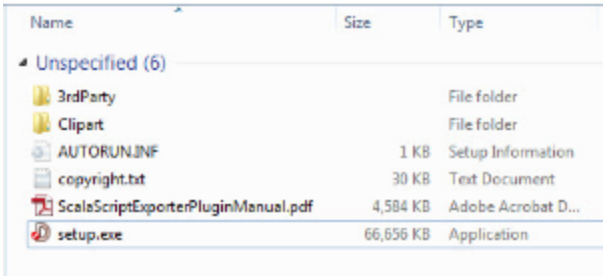
Important Note about Software Dongles:
Scala Designer comes with a USB key (dongle).

To ensure the correct driver is installed and used, please do not insert the USB key (dongle) until requested by the Installer program.

Note:
Your actual steps may vary based on components that may be already installed on your system.

1. Insert the Designer Installation DVD

If auto-run is disabled on your PC, open Explorer to access the DVD and run **setup.exe**.



2. Welcome to the Scala Designer Setup Wizard

Notice the button to view the **Getting Started Guide** online. This has installation steps similar to these, which can help you in a live installation. Click **Next**.

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3. Third Party Components

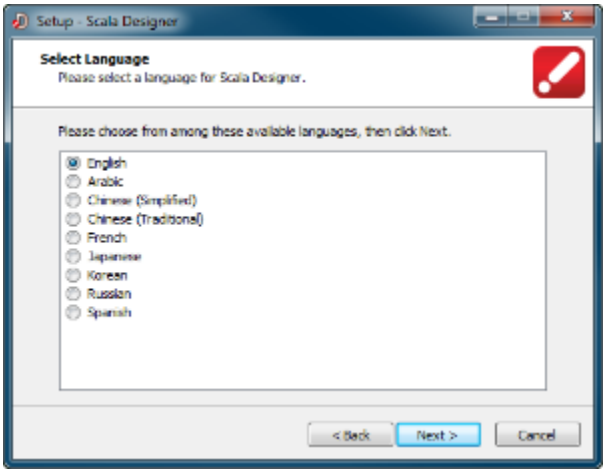
If any third party components are already installed, those steps will be skipped by the installer. Otherwise, answer **Yes** to install components if requested.

4. License Agreement

Choose your language (either English or French) , choose Accept and click **Next**.

5. Select Language

Click **Next**.



6. Select Destination Location

Click **Next**.

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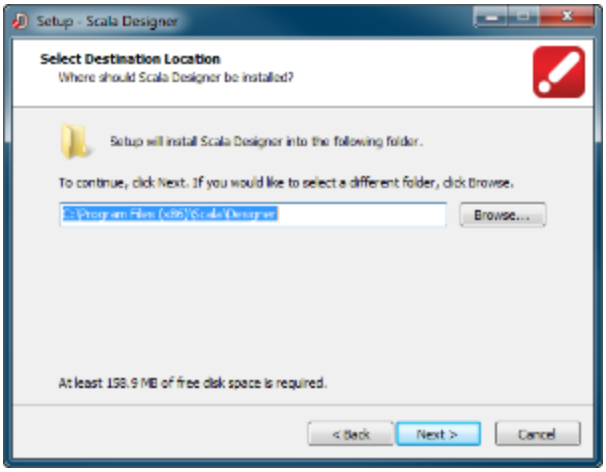
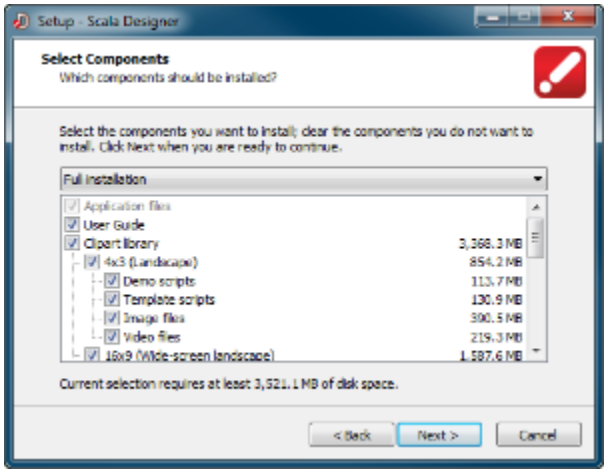


7. Select Components



8. Select Clipart Location

This choice depends on personal preference where the Scala clipart should be installed. A shortcut to this location will be installed in you're My Documents folder so you can find it later. Make a selection and click Next.

What Do These Options Mean?

- **Program Files:** Clipart will be installed in C:\Program Files\Scala\Clipart.
- **Shared Documents:** Clipart will be installed in C:\Documents and Settings\All Users\Documents\Scala\Clipart. This choice is recommended.
- **Custom Folder:** You choose a folder.

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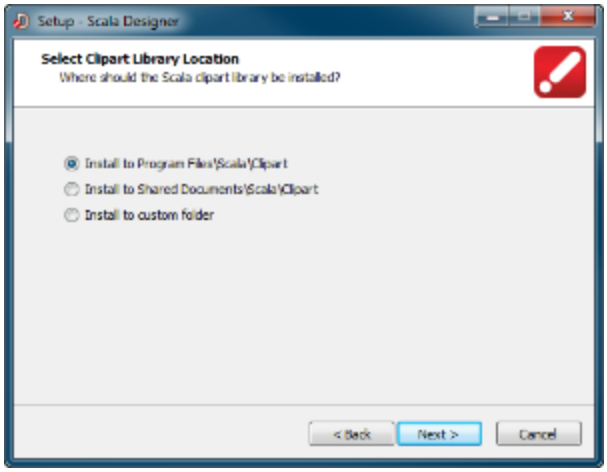
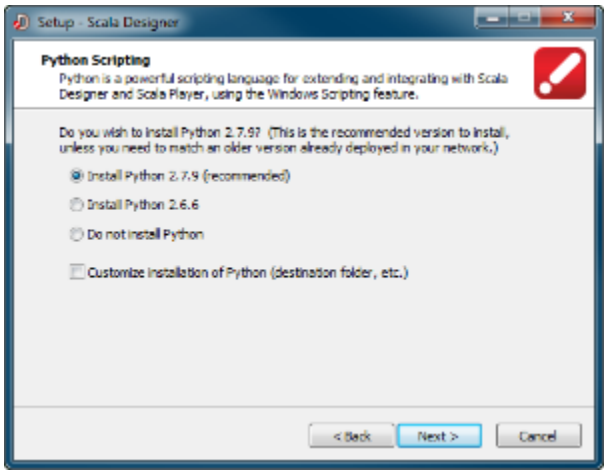


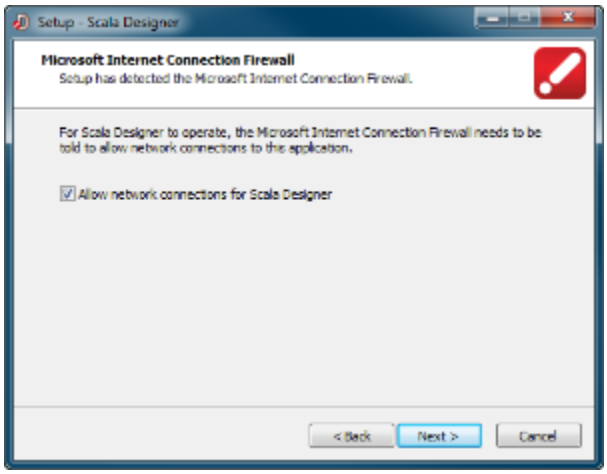
9. Python Scripting

This can be skipped if it is already installed. Click **Next.**



10. Microsoft Internet Connection Firewall

Keep the option selected to allow network connections for Designer. Click **Next**.



11. Ready to Install

Click **Install**.

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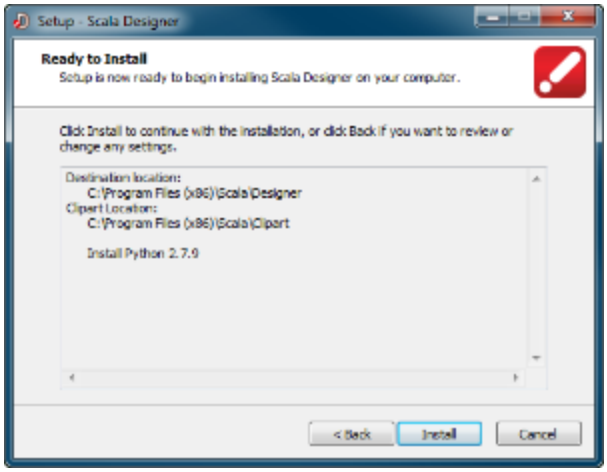
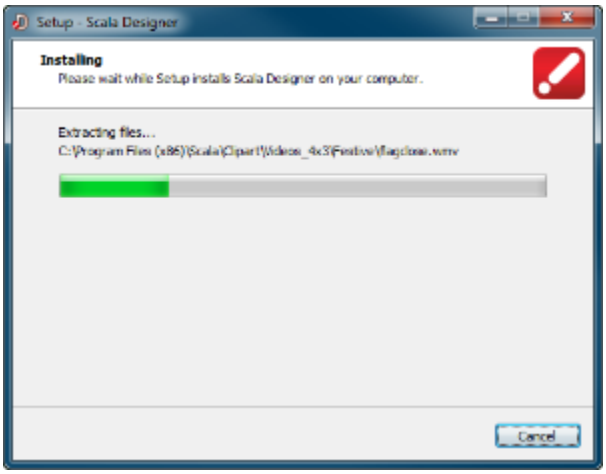


12. Installing

You will see a progress bar like the one below while the installation happens.



13. Finish Page

This screen will given the option to View Update Notes, and/or start Scala Designer now. Once you have (un)selected your choices, click **Finish**.

License Activation

You will need a license file in order to run Designer. This is an XML file generated by Scala that enables the software to run using a particular USB dongle. It also contains information such as additional features or EX Modules that can be activated according to your license.

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New dongles have a 30-day grace period before they stop working unless you provide the license file. The license can be downloaded directly from Scala by Designer, or you can manually copy it.

If you select **Get New License File Online,** Designer will retrieve it from the Scala license server. You will have the option to save a copy of your license file in the My Documents folder.

You can also select **I Have It** if you have a copy of your license file or defer by selecting **Get it Later.**

Software Update

Unless otherwise specified, all updates are cumulative so if you've missed one or more updates, you can just install the latest one. You can find the latest updates on the Scala website at **www.scala.com/updates**.

Additional Topics

- Advanced Configuration Options for Designer provides information on how to further customize your installation of Designer.

Advanced Configuration Options for Designer

Shortcuts to Sub-topics within this Page:

- Installation Options
  - Silent Installation
  - Common Installation Options
  - Scala Designer Installation Options
- Font Exclusion List
- Advanced Customization Options
  - MMOS.INI Options Applying to All Scala Products
  - Scala Designer and Scala Player MMOS.INI Options
  - Scala Designer MMOS.INI Options

Installation Options

The Scala installers accept various command-line parameters that affect the installation, or the values used in installation. To use these, open a command prompt and type:

```
setup.exe /OPTION1=value /OPTION2=value ...
```

If *value* contains spaces, enclose it in quotes, for example:

```
setup.exe /OPTION1="C:\Temp\My Folder"
```

Silent Installation

Silent installation can be accomplished by passing **/SILENT** or **/VERYSILENT** as command-line arguments. **/SILENT** installs ask no questions, but show installation progress.**/VERYSILENT** installs ask no questions and do not show progress during installation.

To assist with silent installs, the installers accept various additional command line parameters given below.

Common Installation Options

All the Scala installers accept:

- **/LOG=*filename***: Log the results to *filename*, which can be used to trouble-shoot a silent install.
- **/DIR=*folderpath***: Specify the full path where the product should be installed.
- **/LANGUAGE=*language***: Select *language* during installation.
  - These are the accepted values for Designer installs (NOT case sensitive):
    - Arabic
    - English
    - French
    - Japanese
    - Korean
    - Russian
    - SimplifiedChinese
    - Spanish
    - TraditionalChinese

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- **/ROOTDATAFOLDER=*path***: Specify the path to be used for storing various configuration and data items. This corresponds to the **WIN32_RootDataFolder** keyword in **MMOS.INI** (see here), but the command-line option is also supported for Content Manager.

Scala Designer Installation Options

The Scala Designer installer also supports these options:

- **/COMPONENTS="*comma-separated list*"**: Specify which components to install. Supported values are:
  - **usersguide**: User's Guide
  - **clipart**: Clipart library
  - **clipart\4x3**: 4x3 (Landscape) Clipart
  - **clipart\4x3\demoscripts**: 4x3 Demo scripts
  - **clipart\4x3\templates**: 4x3 Template scripts
  - **clipart\4x3\images**: 4x3 Image files
  - **clipart\4x3\videos**: 4x3 Video files
  - **clipart\16x9**: 16x9 (Wide-screen landscape) Clipart
  - **clipart\16x9\demoscripts**: 16x9 Demo scripts
  - **clipart\16x9\templates**: 16x9 Template scripts
  - **clipart\16x9\images**: 4x3 Image files
  - **clipart\16x9\videos**: 4x3 Video files
  - **clipart\9x16**: 9x16 (Wide-screen portrait) Clipart
  - **clipart\9x16\images**: 4x3 Image files
  - **clipart\9x16\videos**: 4x3 Video files
  - **clipart\clips**: Clip files
  - **clipart\sounds**: Sound files
  - **clipart\misc**: Other files (tiles, palettes, pointers, ...)
  - **extrafonts**: Additional typefaces

  Example: **/COMPONENTS="clipart\clips,clipart\sounds,extrafonts"**

Font Exclusion List

Scala Players use intelligent file transfer to avoid uploading or downloading files that are already present. However, font licensing rules generally require that fonts be transmitted with their documents (Scala scripts), which defeats the benefit of intelligent file transfer. This is not a big issue with Western fonts because of their comparatively small size, but with Asian fonts this can be a significant issue.

Scala Designer supports a font exclusion list. In a Scala network, if a set of fonts is known to be pre-installed on ***all*** players, then naming these fonts in the font exclusion list will cause them to be not included by default when publishing to Scala networks. (By default, fonts not on the exclusion list are published as normal.)

In the **Advanced Publish Options** menu, the **Include Fonts?** option still allows you to exclude all fonts. If you choose to include fonts, the new **Exclude Standard Fonts?** option lets you control whether the fonts on the exclusion list are excluded or transmitted.

The list of excluded fonts itself is an XML file that can be found at:

```
Program Files\Scala\Designer 5\System\FontEmbeddingExclusionList.xml
```

Modifying this file is straightforward, but care must be taken to only list fonts that are indeed present on all players. Otherwise, a player may receive a script without all the necessary fonts, which can produce an incorrect display and run-time errors.

Advanced Customization Options

Most Scala products have a variety of advanced configuration options available through the use of the **MMOS.INI** file. Content Manager uses a file called **features.xml** for some of its advanced customization.

MMOS.INI is a file that lives in the program's installation folder, e.g. **D:\Scala\Player** or **C:\Program Files\Scala\Designer**, or wherever your Scala product(s) are installed. Normally, each installation folder can have its own **MMOS.INI** file with its own settings. It can be UTF-8, in which case it should begin with the UTF-8 *byte-order mark*, which consists of the hexadecimal values *EF BB BF*. It begins with the optional *byte-order mark*, followed by the word **[Scala]** as shown inside square brackets, followed by one or more lines of the form

```
OptionName = value
```

Anything after a semi-colon is treated as a comment and is ignored by the Scala applications.

Here is a simple example:

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```
[Scala]
; Open on the desktop in a borderless window
DESKTOP_Borderless = 1

; Force the window to be topmost always
DESKTOP_TopMost = 1
and so on.
```

You may find you already have an **MMOS.INI** file. If you do, you may wish to review which settings are already in force. But remember, anything after a semi-colon is a comment and does not have any effect. If you do not have an **MMOS.INI** file, it is a simple matter to make one in any text-editor such as **Notepad**.

Windows 7 (and Newer) Note:
Under Windows 7 and up, if you try to create files inside the **Program Files** folder, Windows will create a per-user shadow-copy inside the Windows "Virtual Store". Depending on your system configuration and user rights, you may need to create the **MMOS.INI** file in a regular folder, then use Windows Explorer to drag it over to the correct destination inside Program Files.

MMOS.INI Options Applying to All Scala Products

WIN32_RootDataFolder

Control the location of all Scala config files, logs, settings, temporary files, etc.

```
WIN32_RootDataFolder = path
```

When set, Scala data that is normally stored under the Windows-standard configuration areas is stored instead under the specified path. Also the Scala temporary folder appears under the specified path. Most of the locations where Scala reads and writes files can be controlled.

This is the simplest way to move the locations where such files are stored. There are additional **MMOS.INI** keywords to move specific folders such as the **Content** and**LocallyIntegratedContent** folder, but it is often better to move them all with this one keyword.

You can install the products specifying **/RootDataFolder=*path*** on its command-line, and Setup will set **WIN32_RootDataFolder** correctly (creating an**MMOS.INI** file if necessary, otherwise modifying the existing one.)

Content Manager installer supports **/RootDataFolder=*path*** on its command-line. This sets **WIN32_RootDataFolder** for Content Manager itself, as well as for the Transmission Server and Server Support components. (In those components, the installer also sets **WIN32_CommonProductRootDataFolder**, so those components can locate Content Manager's location where needed.

Note:
For Content Manager, changes to **WIN32_RootDataFolder** must be done using the installer, rather than by hand-editing the **MMOS.INI** files.

Note:
This option is not yet supported for the Playback Audit Reporting Module.

WININET_EnableServUDirectoryCacheKludge

The directory caching of the Serv-U FTP server can return incorrect results. Scala recommends that directory caching be disabled when using the Serv-U FTP server. However, if this is not possible you can enable a workaround by adding this to your **MMOS.INI**:

```
WININET_EnableServUDirectoryCacheKludge = 1
```

(The workaround will hurt media transfer performance.)

TCPIPTOOLS_FTPClientKeepAliveCommandChannel

Setting this instructs the FTP client to set the socket "keep-alive" option on the FTP command channel. This can resolve certain

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command-channel timeouts that can sometimes be caused by intervening firewalls or routers. To enable this, add the following to your **MMOS.INI**:

```
TCPIPTOOLS_FTPClientKeepAliveCommandChannel=1
```

Scala Designer and Scala Player MMOS.INI Options

These MMOS.INI Options apply to both Scala Designer and Scala Player:

Path Options

MEDIA_Content:

You can override the location of the Content folder by setting:

```
MEDIA_Content=path
```

MEDIA_LocalIntegratedContent

Normally, when a Scala script references some media, that media is sent along with the script when the script is published to a Scala network. However, any media that is**Linked Content** is ***not*** sent with the script that references it. Such content either needs to be added separately within Scala Enterprise Content Manager, or needs to be installed, delivered, or generated on the player.

> **Note:**
> When installing, delivering, or generating content on the Player, you should read and understand the **Locally Integrated Content** supp ort features.

When resolving references to Linked Content, the Scala software *first* looks in the Content folder, and if the file is not found there, it looks in the LocallyIntegratedContent folder. The reason for two folders and the essential difference is that:

- The **Content** folder is managed by the Player network engine, *i.e.*, things sent as content from Scala Enterprise Content Manager are placed there.
- The **LocallyIntegratedContent** folder is for content managed outside of Scala Players, *e.g.*, placed here by any custom integration application.

One big difference is that cleanup of old/unused content will not touch files in the **LocallyIntegratedContent** folder.

By default, the **Content** and **LocallyIntegratedContent** folders are placed side-by-side as:

```
Documents and Settings\Users\Public\Documents\Scala\Content
Documents and Settings\Users\Public\Documents\Scala\LocallyIntegratedContent
```

but the **WIN32_RootDataFolder** keyword overrides this to:

```
WIN32_RootDataFolder\Documents\Content
WIN32_RootDataFolder\Documents\LocallyIntegratedContent
```

Display Options

DESKTOP_Borderless/TopMost/CustomPosition

Scala Player can now run on the desktop as a top-most borderless window of arbitrary or full size. You can specify the left, top, width and height. As an example, add this to your **MMOS.INI**:

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```
DESKTOP_Borderless = 1
DESKTOP_TopMost = 1
DESKTOP_CustomPosition = 100 50 800 600
```

Omitting **DESKTOP_CustomPosition** will make the window fill the primary display.

These options are also supported by Scala Designer.

MM3D_EnsureVBlankDuringPresentKludge

This enables a workaround for device driver issues with very old video cards. Some device drivers do not properly maintain frame-synchronization during display updates. Ordinarily, a Direct3D device driver waits for the display device to enter vertical blank before performing the display update. Playback relies on this for smooth, shear-free animation. Some drivers do not handle this properly, resulting in jerky animation and/or horizontal shearing. When this workaround is enabled, playback waits for the display device's vertical blank period instead of relying on the device driver to wait for vertical blank. This workaround was initially added to address an issue with the Intel 945 graphics chipset, and playback will automatically recognize the Intel 945 chipset and enable this workaround.

In some preliminary tests, this workaround has also shown a performance improvement to movie playback on multiple display players. If you enable this workaround, you should probably also disable **MM3D_UseBackBufferLockKludge** as it will likely interfere with the **MM3D_EnsureV BlankDuringPresentKludge** workaround.

To enable this workaround, use:

```
MM3D_EnsureVBlankDuringPresentKludge=1
```

MM3D_UseBackBufferLockKludge

This enables a workaround for device drivers that consume a large amount of CPU waiting for vertical blank. Very old Direct3D devices apart from those from nVidia and ATi require this workaround. Playback detects those devices and will enable this workaround as necessary. You can override that behavior with this setting. Note that the Intel 945 *does not* require this workaround, other Intel devices (845, 865, 915, 946, 965) currently require this workaround.

To enable this workaround, use:

```
MM3D_UseBackBufferLockKludge=1
```

To disable this workaround, use:

```
MM3D_UseBackBufferLockKludge=0
```

MM3D_UseATIOddTextureSizeKludge

Due to a driver bug on certain ATI-based systems, some wide text elements or crawl-segments could end up displayed as a white rectangle. There is now a workaround that can be enabled by setting

```
MM3D_UseATIOddTextureSizeKludge=1
```

in your **MMOS.INI** file.

AllowDXVA=0

When playing back H.264 or WMV/VC-1 video on most systems, hardware-accelerated video is now used. This results in better image quality and performance, combined with lower power consumption. This new capability requires Windows 7 or newer. To force software-based video decode, use the **MMOS.INI** setting

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```
AllowDXVA=0
```

MM3D_MaxWidthforDXVA2 and MM3D_MaxHeight forDXVA2

Most graphics hardware has a resolution limit for hardware-accelerated video, beyond which things may not work, or may even crash. By default, we limit hardware-accelerated video to 1920x1088 or smaller. If you know your graphics card can go higher, use the **MMOS.INI** setting

```
MM3D_MaxWidthForDXVA2=width
MM3D_MaxHeightForDXVA2=height
```

DSHOWRENDER_FFMPEGFallbacktoDirectShow

When Video files are not recognized by the new playback subsystem, the system will attempt to play it using other Windows codecs. This may be useful in rare or obscure cases. In normal systems where you have good control over the media formats used, it can be a good idea to set the **M MOS.INI** setting

```
DSHOWRENDER_FFMPEGFallbackToDirectShow=0
```

DSHOWRENDER_CorrectFileTSDiscontinuties

"Timestamp discontinuity reconciliation" for local video file playback is disabled by default. Locally stored audio or video files do not usually need to correct for these continuities. They are only necessary for streams impacted by data loss, such as video streaming. This flag is set to off to fix this:

```
DSHOWRENDER_CorrectFileTSDiscontinuities=0
```

Media-Handling Options

If a video stream has multiple audio tracks, we select the one whose language matches the system's language. This can be overridden with the **M MOS.INI** key

```
DSHOWRENDER_IPTVISO639LanguageID=0xnnnnnn
```

where *nnnnnn* is the hex representation of ISO-639 language code, e.g. (0x737061, corresponding to 'spa', for Spanish.)

DSHOWRENDER_AllowAC3

AC3 is a patented audio encoding format. It is commonly found in broadcast digital TV (IPTV, ATSC, DVB, etc), but it not commonly used otherwise. Although Scala Player and Designer do not include an AC3 decoder, it is possible to use a third party DirectShow AC3 decoder to perform AC3 decoding duties. Because the AC3 encoding format is patented, it is subject to patent licensing terms from the patent holder in countries, like the U.S., that honor those patents.

By default Player/Designer will not expose an AC3 stream. To tell Scala Designer and Player to expose an AC3 stream so a third party DirectShow AC3 decoder can see it, use this mmos.ini setting:

```
DSHOWRENDER_AllowAC3=1
```

FLASHLOADER_MaxTextureSize:

Limits the maximum texture-size (resolution) used for Flash clips, that effectively gives better performance for slightly fuzzier visual quality, for large Flash clips. Set

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```
FLASHLOADER_MaxTextureSize=n
```

Where *n* is at least 400. If the Flash clip is larger than *n* in either dimension, playback will cut its size in half repeatedly until both dimensions are less than or equal to *n*. The Flash clip will be drawn at its correct size, but with reduced detail, enabling higher performance.

WEBCLIP_Useragent

The "User-Agent" string used for **WebClip** can be customized using the **MMOS.INI** setting:

```
WEBCLIP_UserAgent=string
```

Value that will be returned as the User-Agent HTTP header, which identifies your browser to a web server. If empty, it uses the default User-Agent string from the version of Chromium built into Player/Designer.

WEBCLIP_CachePath

```
WEBCLIP_CachePath
```

When set to a valid directory name, CEF will use this directory to store the browser cache. Also, CEF will not delete the files in this directory when Player/Designer shuts down, so the cache will persist between runs of Player/Designer (unless you also use WEBCLIP_DeleteCacheOnShutdown).

WEBCLIP_Persist_Session_Cookie

Used in conjunction with the WEBCLIP_CachePath flag, this flag will tell CEF to keep session cookies for a webclip.

```
WEBCLIP_PersistSessionCookies=1
```

WEBCLIP_DeleteCacheOnShutdown

```
WEBCLIP_DeleteCacheOnShutdown=0
```

When this setting is on, Player/Designer will delete all the files within the CachPath directory when shutting down. Apart from WEBCLIP_DeleteCacheOnShutdown, there is currently no explicit mechanism to automatically remove files from the web cache or manage how large it gets. CEF decides the maximum size of the cache based on available disk space.

WEBCLIP_ShareInput=0

This behavior is enabled by default. You can disable it with this mmos.ini setting.

The input system for the webclip is separate from the input system used by ScalaScript buttons and hotkeys. When an interactive webclip is on screen, it gets the opportunity to handle input before ScalaScript buttons and hotkeys, even if there are ScalaScript buttons are visibly in front of the webclip. In the past, the webclip would consume all input, so any ScalaScript button that overlapped with a webclip would never get any input. The webclip will now provide the ScalaScript input system with its own copy of mouse and keyboard input, so the same input goes to **both** the webclip **and**any ScalaScript buttons that overlap with the webclip

WEBCLIP_DisableAccelerated2DCanvas, WEBCLIP_DisableGPU and WEBCLIP_Disable3DAPIs

These three boolean variables are used to disable different aspects of hardware acceleration used by webclip. They assist the user with potential compatibility, driver bugs, or performance issues introduced by the introduction of hardware acceleration for 2D and 3D in Scala Release 11.

These all default to off. These control the corresponding "disable" chrome command line flag, respectively:

```
--disable-accelerated-2d-canvas
--disable-3d-apis
--disable-gpu
```

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WEBCLIP_IgnoreCertificateErrors=1

This passes the command flag **--ignore-certificate-errors** to Chromium. It disables the security features related to certificate verification. If a web page fails certificate verification, this flag tells the browser to show the page anyway. During testing, there are times where this flag is helpful to either diagnose certificate problems or lift restrictions during development when the web server is not available or may not be production ready.

Warning:
Because leaving this flag in place has significant security risks, if you use it, we provide a strong warning against it.

"You are using an unsupported webclip flag: Stability and security will suffer."

This will appear as an error in logs and is intended to be obvious so the end user won't forget to disable it.

WEBCLIP_LogJSConsole

This boolean variable defaults to FALSE. When on, any javascript console messages get logged in the scala log. When off, the javascript console messages are ignored.

WEBCLIP_AllowDevTools

This boolean variable defaults to off. When on, if a webclip has focus, and you hit **Ctrl-Shift-I**, it will open Chrome's Developers Tool window. Ctrl-shift-I is the same key used by the English version of the consumer version of Chrome. You must use "Playback in a Window" and not a full screen mode with the "Developer Tool" window.

Note:
This feature is only for developing and troubleshooting web content inside of a webclip. Stability and security may be compromised.

WEBCLIP_Enable MediaStream=0

Webcams are enabled by default, but can be disabled using this flag. WEBCLIP_EnableMediaStream is on by default. This flag allows webcams for use inside a web browser.

WEBCLIP_ProxyBypass

This string specifies list of web addresses where webclip should not use the proxy and overrides the default bypass behavior. The format of this string matches the format used by Chrome's Bypass
list. This includes a special token for variations of localhost, <local>. For example, to add an exception for localhost, for all addresses matching 192.168.10.* and scala.com:

```
WEBCLIP_ProxyBypass="<local>;scala.com;192.168.10.*"
```

If you use this setting, <local> must be present if you want to bypass the proxy for localhost.

WEBCLIP_UseOSProxySettings

This boolean tells the webclip to use the OS for proxy settings. This flag overrides WEBCLIP_ProxyBypass

WEBCLIP_Locale

A string variable which sets the locale string passed to the Blink/Webkit subsystem of Chrome. Using the special "<OS>" value makes Scala query the PC for its locale string, which is typically a two letter ISO 3166 country code (e.g. US English: "en-US," German: "de-DE," Great Britain: "en-GB.")

WEBCLIP_EnableSystemFlash=1

Setting this to 1 will allow your webclip to use the system wide Flash PPAPI plugin.

WEBCLIP_DisableGPUCompositing=0

For Enterprise Player 11.03, Scala updated the webclip's embedded browser from Chromium Embedded Framework (CEF) version 47 to CEF 56. Since CEF 47, changes to the Chromium code base have compromised the performance of graphically intensive web content when using CEF's off-screen rendering mode (OSR). This information is also relevant for 11.04.

Although Scala was able to restore performance for most content, this could only achieve this by disabling WebGL. By default, WebGL content will not be visible in webclip in 11.03. You can still enable WebGL via the following mmos.ini:

WEBCLIP_DisableGPUCompositing=0

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Note that, although that setting will allow WebGL content to display, WebGL will not perform as well as previous versions of webclip. Also, that setting will significantly degrade the performance of non-WebGL based web content, so unless you need WebGL, it is recommended that you leave it disabled.

Also, some older Intel graphics chipsets are known to have problems with the WebGL implementation operating in OSR mode, causing the underlying Chromium GPU process to revoke its WebGL support. This includes at least "Ivy Bridge" era chipsets like the HD Graphics 4000, as well as "Haswell" era chipsets like the HD Graphics 4600.

DSHOWRENDER Book

DSHOWRENDER_ForceRTPMulticastViaRTSP=FALSE

This Boolean variable defaults to FALSE. When it is set to TRUE, it forces RTSP requests to ask for multicast.

DSHOWRENDER_StreamingTimeoutToErrorMS

With a time value is in milliseconds, (the default value is 300000, or ~ 5 minutes), DSHOWRENDER_StreamingTimeoutToErrorMS is nearly identical to DSHOWRENDER_FrameStuckErrorMS, except DSHOWRENDER_StreamingTimeoutToErrorMS applies only to streaming video and has a much larger default value (currently 5 minutes).

The value for these settings is so high because it should be possible for a UDP broadcast to drop its signal in bad weather and recover.

DSHOWRENDER_FrameStuckErrorMS

While playing a video file, Player/Designer will trigger an error if the video decoder does not deliver a frame for an extended period of time. The default time out period is 25000 milliseconds, but you can override it with:

```
DSHOWRENDER_FrameStuckErrorMS=<timeout to error in milliseconds>
```

Note this does not apply to network video streaming, there is a separate setting (DSHOWRENDER_StreamingTimeoutToErrorMS) to govern that.

DSHOWRENDER_StreamInitNoDataTimeoutMS and DSHOWRENDER_StreamInitSomeDataTimeoutMS

These flags are specific to RTSP, RTP and UDP streaming, and they govern the timeout on network data when initializing a streamclip/BG for playback:

DSHOWRENDER_StreamInitNoDataTimeoutMS = 5000 ms; // 5 second timeout if nothing arrives during init

DSHOWRENDER_StreamInitSomeDataTimeoutMS = 20000 ms; // 20 second timeout if some data arrives

The timeout is shorter if there are no data packets received. The shortness of the timeout is because a longer one will delay either the Player or the thumbnail generator, while the system is waiting for these timeout to happen.

The other 2 timeout values pertain to a "rebuild" after playback successfully started. If a stream changes characteristics on the fly or there is some error, the streaming clip will trigger a "rebuild" to basically reinitialize itself. The timeouts here are considerably longer that the first initialization timeouts:

DSHOWRENDER_StreamRebuildNoDataTimeoutMS and DSHOWRENDER_RebuildSomeDataTimeoutMS

These values pertain to a "rebuild" after playback successfully started. If a stream changes characteristics on the fly or there is some error, the streaming clip will trigger a "rebuild" to reinitialize itself. The timeouts here are considerably longer that the first initialization timeouts:

DSHOWRENDER_StreamRebuildNoDataTimeoutMS = 35000; // 35 second timeout if nothing arrives during rebuild
DSHOWRENDER_StreamRebuildSomeDataTimeoutMS = 180000; // 180 second timeout if some data arrives during rebuild

DSHOWRENDER_AllowDXVA2ForRTPTCP

This applies to the RTP over TCP streaming. It defaults to 0, but it has these possible values:

- 0 = never
- 1 = always try
- 2 = only when coded size matched visual size.

DSHOWRENDER_AllowDXVA2ForRTP

This setting applies to RTP over streaming, not transport stream over UDP. it controls if DXVA is allowed, and defaults to 0, but it has these possible values:

- 0 = never

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- 1 = always try
- 2 = only when coded size matched visual size.

The default for this setting is 2. Setting it to 1 does not guarantee you will be able to get DXVA, but allows you to attempt to do so.

DSHOWRENDER_AllowDXVA2ForTSoverUDP

This setting controls if DXVA2 is allowed when streaming via transport system. It defaults to 1, but has two possible values.

- 0 = never
- 1 = always

Scala Designer MMOS.INI Options

(See additional options that apply to both Scala Designer and Scala Player.)

HTREQ_PreserveScalaArt:

Normally, if you add media from the Scala clipart library location, the ScalaScript uses the normal Windows path to that file. But if you set:

```
HTREQ_PreserveScalaArt=1
```

then such media will be listed in the script using a path of the form **ScalaArt:\folder\file.jpg**. This matches IC3 behavior, but only in certain limited cases is it useful.

SCRIPTXFER_EnableUTF8ContentFiles: When set, forces the publish operation write the top-level Content XML files in UTF8.

```
SCRIPTXFER_EnableUTF8ContentFiles=1
```

Getting Started

This space will serve as a brief starter guide for using Designer, and will provide you the basics to get going.

- Starting Designer
- Creating a Script
- Publishing a Script
- Sharing and Archiving a Script
- Doing More with Designer
- Getting Updates

Starting Designer

The installer will run Designer for you the first time you use it, but when you later want to open the program, select the Windows Start Menu and choose **All Programs > Scala Designer > Scala Designer**.

Useful Tip:
While you are in the Start menu, notice that in addition to the program, there are shortcuts to the Linked Content folder, the Logs folder, and several links to Scala's Web site for your convenience.

Activating Designer

In addition to the USB key, Designer must be activated in order to operate. If you have not activated Designer, the following message will appear:

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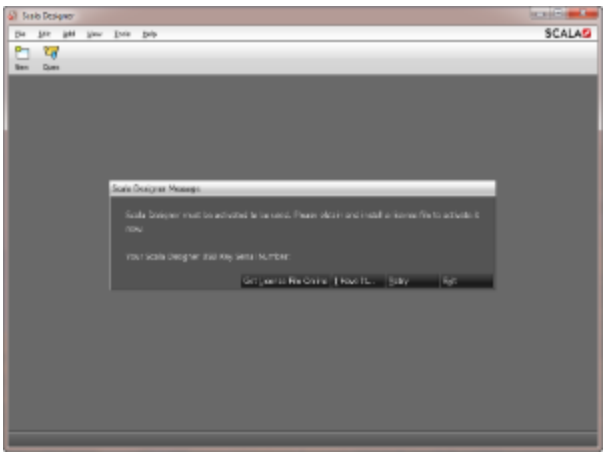


You must activate Designer with a license file. You can install the license file now or choose to defer installing the file for up to 30 days.

If you select **Get New License File Online**, Designer will retrieve it from the Scala license server. You will have the option to save a copy of your license file in the My Documents folder.

You can also select **I Have It** if you have a copy of your license file or defer by selecting **Get it Later.**

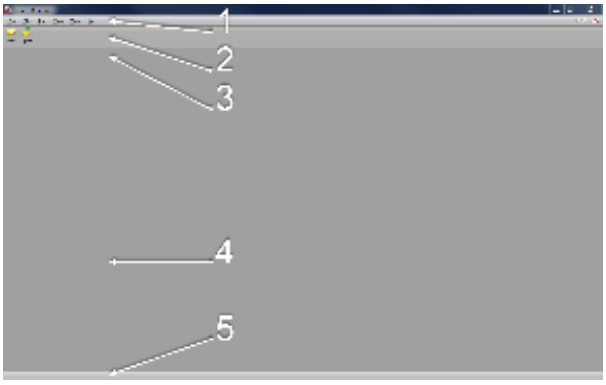
Welcome to Scala Designer

When the program opens, and before you begin to create a new production you will see this message:

You can view the Getting Started Guide or to start using Designer, click **OK**.

The Designer Interface

When you open Designer, you will see the Main View, which is initially empty. Once you start creating with Designer, more items on the screen will become available.



The key parts of the Main view are:

1. **Menu Bar:** Contains pull-down menus for opening, saving and closing files as well as editing and viewing options.
2. **Tool Bar:** Contains buttons for common functions.
3. **Script Bar:** Just below the toolbar, when scripts are loaded, this area shows their names.
4. **Page Area:** The larger area of the window is where your content, organized into pages will appear as thumbnails.
5. **Status Bar:** The bottom of the window displays messages related to the actions you have done in the program.

Creating a Script

In Designer, your productions are called **scripts,** a file that specifies a sequence of pages containing audio and visual elements.

Each page is represented by a thumbnail image. However, you can toggle the display between thumbnails and text-only columns by clicking the **L ist** button in the toolbar.

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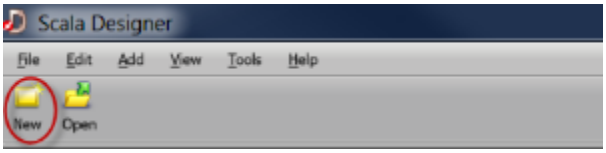
Defining the Script

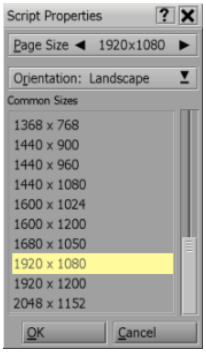
To begin work, you need to either create a script or load an existing script.

To create a new script:

1. Click **New** from the Toolbar.



2. Choose or enter a **Page Size**. The size to be used depends on the use of the content, such as landscape or portrait screens, crawls, sidebars or other smaller portions of the display, or a video wall. For example, 1368 x768 for a typical landscape LCD screen. You can also enter custom values for the size by clicking on the numbers at the top of the window. This is particularly useful when designing content that will appear in a frame/zone in Content Manager. Click **OK** when done.



Adding A Page

A page consists of a background and any foreground elements.

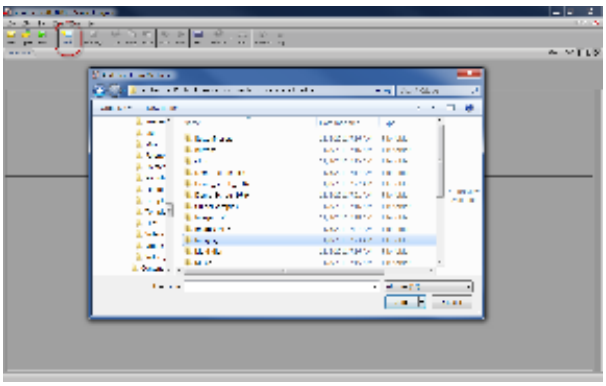
Under the **Add** pull-down menu you will see options for creating different types of page backgrounds:

- **Page from Media File:** Image or video as the background.
- **Plain:** Solid color, gradient or transparent background.
- **Special Event:** Non-displayed page to the script (for audio or other non-visual actions).
- **Streaming Video Page:** Background is a Streaming Media source.

There is also an **Add** button in the toolbar, which does the same action as **Add Page from Media File**.

To add a new page:

1. Click on the **Add** button or select **Add Page From Media File** from the **Add** pull down menu.



2. This will bring up the **Add Page From Media File** dialog box. The background image you choose will be the base upon which you place text, animation, photos and other items.
3. Select a background by navigating to the desired folder and double-clicking the file. A background format can include any of these file types: JPG, PNG, GIF, TIFF, BMP, H.264, MPG, WMV, SWF or AVI.

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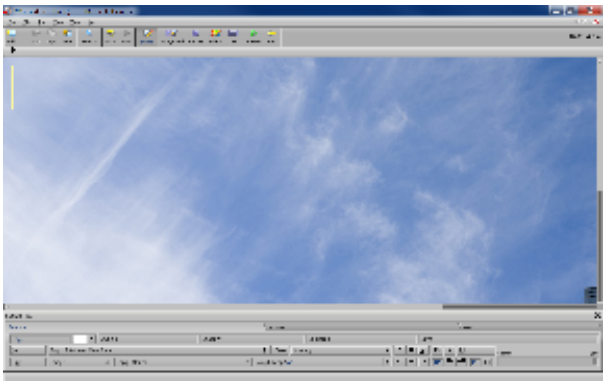
The Page View

After choosing a background, you will see the Page View, where you can add elements from the **Add** pull-down menu, then edit their attributes using the Design panel at the bottom of the window.



The toolbar at the top of the window provides easy access to common functions:

- **Add:** Imports a photo, graphic or animation onto the page. The **Add** pull-down menu lets you add additional types of elements.
- **Cut/Copy/Paste:** Standard cut, copy and paste commands. The **Edit** pull-down menu has more tools for editing elements.
- **Undo/Redo:** Undoes the last change made to the page. Use **Redo** to cancel the effect of the last Undo.
- **Zoom :** Allows the user to change the sizing of the panel to preset percentages or to Fit Screen or Full Screen options.
- **Element:** Goes to the **Element panel** for the type of element you have selected, giving control over color, scale, opacity, etc. for text, clips, animclips, text crawls and drawing objects (line, box, oval).
- **Background:** Goes to the **Background panel**, where you set attributes for the background image and resolution.
- **Palette:** Goes to the **Palette panel**, where you set the selection of available colors for text, shadow, outline, etc.
- **List:** Goes to the **List panel**, where you see a listing of all the elements on the current page. The List panel is used to determine the sequence of events and object layering.
- **Preview:** Plays back the current page of the presentation.
- **Main:** Returns to the **Main view**.

There are additional options in the pull-down menus.

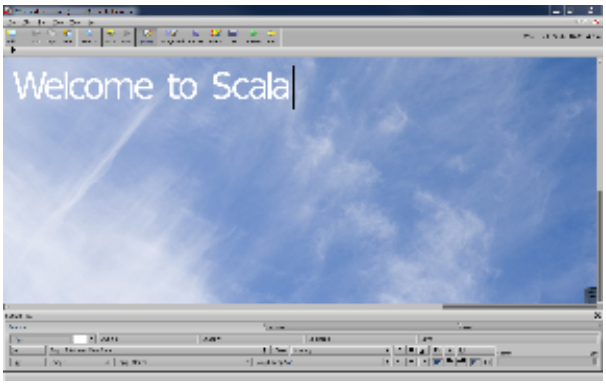
Entering Text

The most basic element is text. You can click anywhere in the page and immediately start typing.

Each time you click on the background, you create a new text element, which you can drag to a new location on the page at any time.

To create a text element:

1. Click anywhere on the page.
2. Type your name or something like “Welcome to Scala.”



Useful Tip:
Pressing **Enter** will move the cursor to the next line and also create a new text element. Pressing **Shift-Enter** will move the cursor to the next line, but keep within the same text element.

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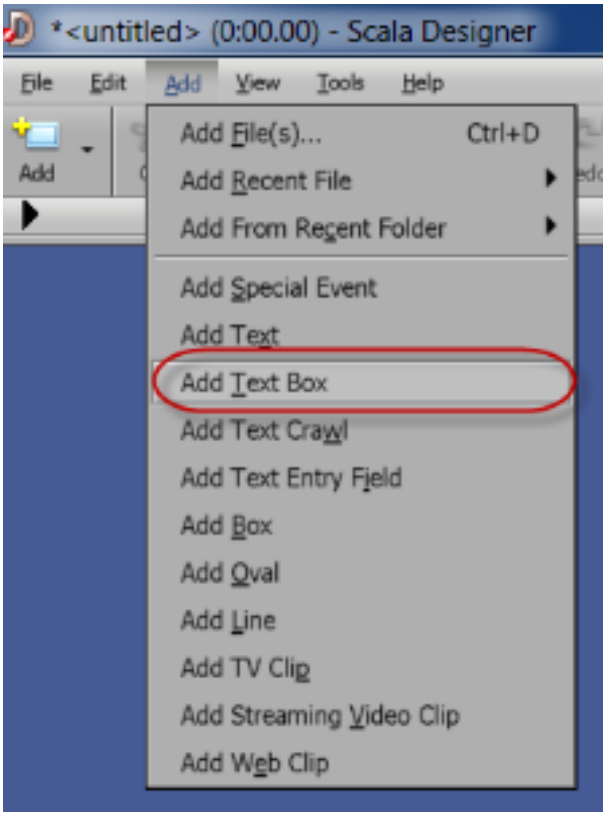
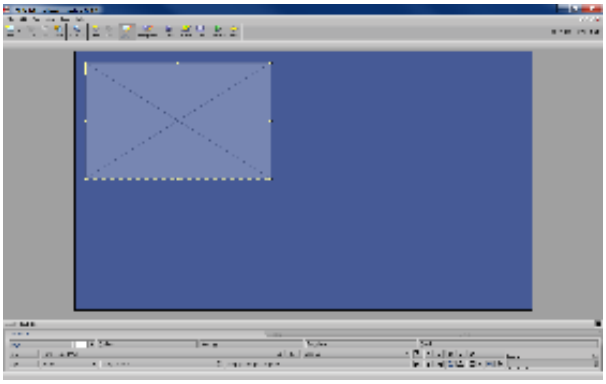
Text Boxes

Text boxes are useful when you want to confine text to a specific area on the page and be able to align text within that area.

To add a Text box select it from the **Add** menu.



An empty text box appears on the screen and this can be resized to fit your needs.



Text Box has a definable minimum size of the font. This will cause the font size to automatically adapt to fit within the Text Box (providing all the text can fit based on the minimum size). This is useful when the text is dynamically created, either as a template field or program variable.

In text cursor mode, you can now type in your text. When the text box is "full" the onscreen font size reduces as you continue to type. On reaching the minimum size the Text Box will overflow. When you select another element or hit **ESC,** the text will be trimmed to the box.

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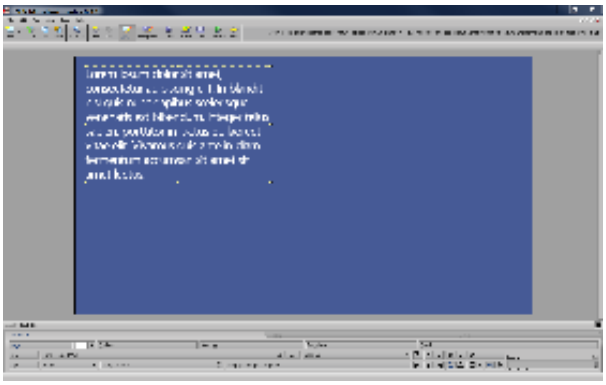
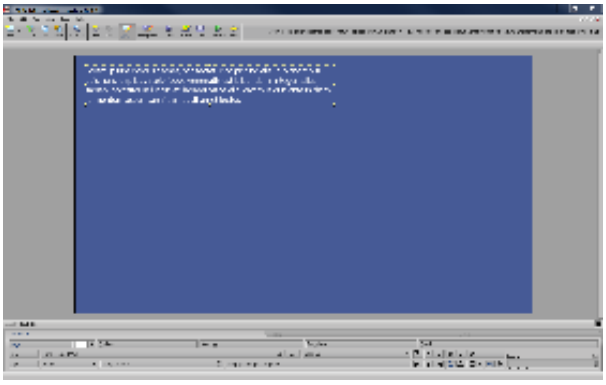


Note the Text font size will also adjust when you resize the Text Box itself.



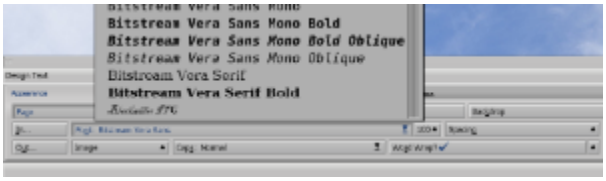
Changing Font Color and Style

You can change the font, color and style of the text, depending on what is selected.

If the cursor is visible, the changes will affect the next text typed.

You can also click and drag a selection of letters.

If the text has a selection border around it, the entire element is selected. Any style changes will affect all the letters in the element. To select the entire text element, press **Esc** or double-click the element.



To change the font, click on the **Font** button with the name of the font in it. You see a list in which you can choose from any TrueType fonts installed on your system. Select a font when you are done.

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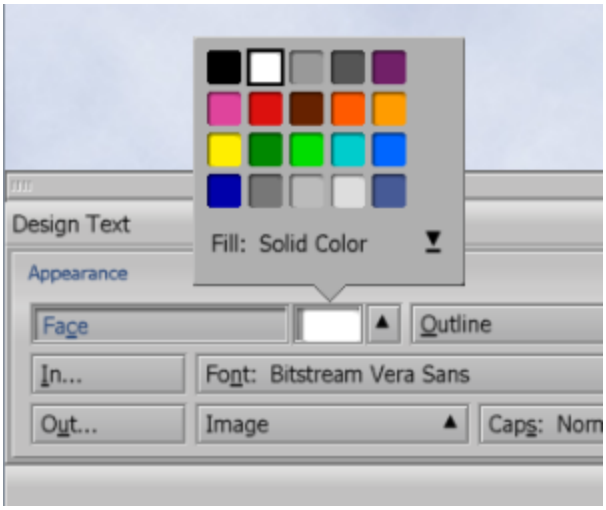


To change the color of text, click on the color within the **Face** button and choose a different color. There are additional options in the Style pop-up button next to the color. Colors can be modified in the Palette panel.

Common text styles like bold, italics, and underline are also available (the B, I and U buttons) and options like Outline, Shadow and Backdrop also have separate buttons.

Moving a Text Element

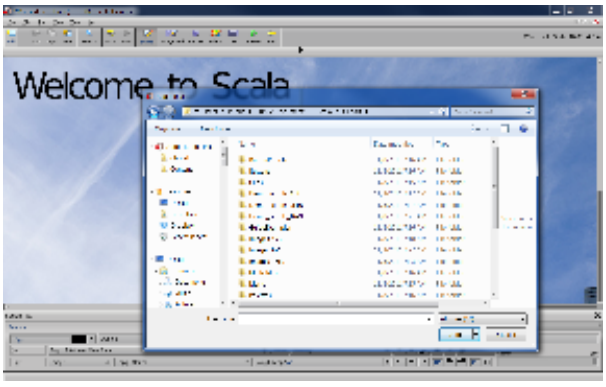
When an element is selected, you can click and drag it to any position on the page. Make sure the entire text element is selected, not individual letters.

You can set the pixel position directly from the Position tab of the Design Text Panel.

Useful Tip:
Ctrl+Arrow Key allows you to move/nudge elements by one pixel in whatever direction the arrow key is depressed. **Shift+Ctrl+Arrow Key** allows you to jump 10 pixels at a time.

Importing a Graphic or Video

To import a graphic to the page, click the **Add** button (the + sign icon) in the toolbar or select **Add File(s)** from the **Add** drop down menu. You can import most standard file formats including JPG, PNG, GIF, TIFF, BMP, H.264, MPG, WMV, SWF or AVI.



Navigate to a folder containing clips and double-click on one of them. You can apply styles to clips the same as text and you can resize the clip and try other options that apply only to clips.

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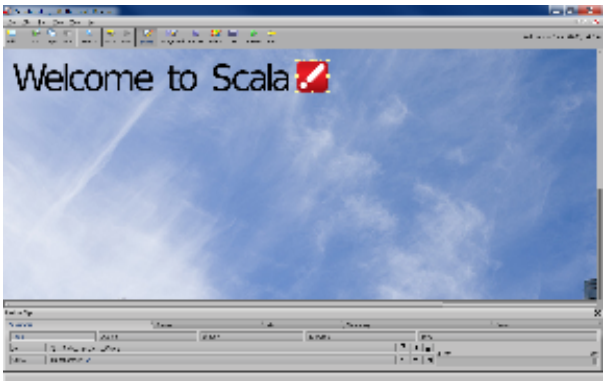


Notice that the bottom panel has changed to **Design Clip**. The Design panel adjusts to whatever type of element you have selected.

Useful Tip:
To resize proportionally, hold down the **shift** while resizing. To crop an image, hold down the **Alt** key and drag the handles on border of the clip.

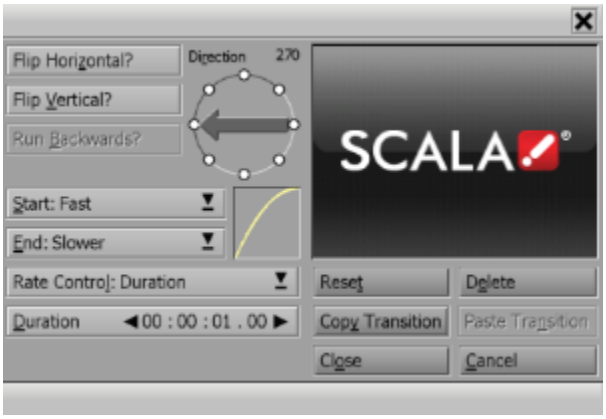
Transitions

Adding transitions to elements on the page gives them motion and visual excitement with zooms, and fly-ons that you can sequence any way you want.

By default, elements start with no transition, so they appear when the page itself appears and remain static until a new page appears.

1. Select the desired element by clicking on it. If it is text, make sure the entire element is selected, not the letters within it.
2. Click on the **In** button on the lower left side of the Design panel.
3. You will see the Transition panel.

4. When you select a transition, you will be able to adjust the duration, acceleration, direction and other options.



5. A small preview shows the Transition's effect. You can see how it works on your actual content by clicking **Preview**.
6. When finished, click **Close.** Or, to remove a transition from an element, click **Delete**.

   The **Out** button brings up the same panel to let you choose a transition to make the element disappear or fly away.

Returning to Main View

You are currently in the Page View, where you can edit elements on a page. To return to the Main View, click the **Main** button in the Toolbar.

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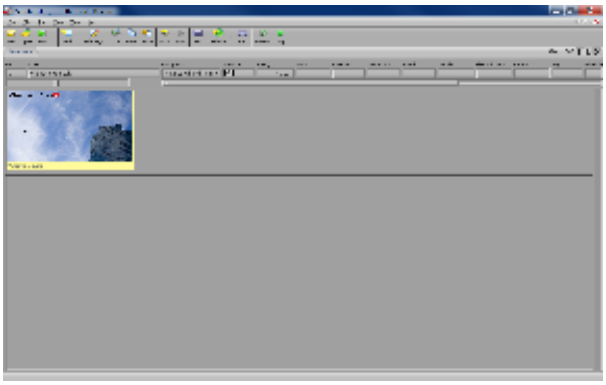
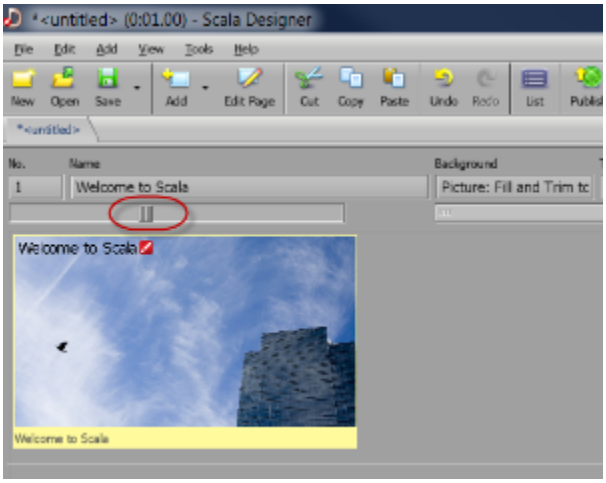


You should see your new page as a thumbnail image.



In the Main view, you can adjust the size of the preview thumbnails with the slider bar.

EX Columns

There are several attributes shown as a row of boxes next to the page name.

Some of them are:

- **No.:** Clicking on it lets you change the page's name and enable/disable it from playback.
- **Name:** Name of the page.
- **Background:** Changes background settings for one or multiple pages.
- **Transition:** Apply a page wipe. Like elements, a page can have a wipe, which controls how it first appears.
- **Timing**: Sets how the page advances, which can be after any of several things have happened.

Changing the Timing

The **Timing** button allows the user to set timing for the page.

To change the timing:

1. Select a page.
2. Click the **Timing** button for the page to open the Timing panel at the bottom of the window.

3. The **Timing** pop-up you see here lets you choose several different choices:

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a. **Duration:** Page will display for a fixed period of time. Any elements still in motion at that moment will disappear when the page transitions to the next.
b. **Wait Forever: P**age will not advance on its own. Some other method, such as clicking the mouse or using the keyboard is needed to advance.
c. **Record Time with Mouse:** Sets the page's timing interactively the next time you play the script.
d. **Wait For Elements:** Page will wait for all the elements on the page to complete.

> **Note:**
> If none of the elements have transitions or durations of their own (e.g. a video), the page will effectively have zero duration and will only appear briefly. Use the Duration option to specify a value.

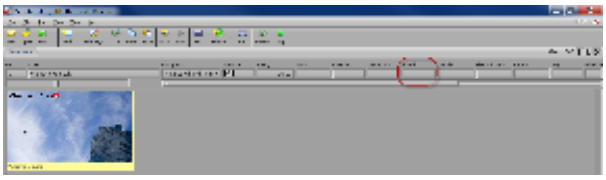
4. A common choice is to select **Duration** and enter a value such as 10 seconds (the units are HH:MM:SS.hh). When you have completed setting the timing, click **Close**.

Adding Sound

Sounds can be added within a page, such a sound effect, or to a page itself such as background music.

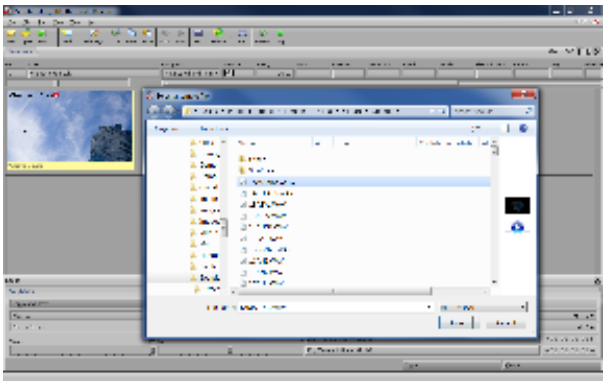
To add sound to a page:

1. Select a page.
2. Click on the **Sound** button for the page.



3. You will see the **Sound** panel.

4. Click on the **File** button to choose the sound file.



5. Navigate to a folder containing WAV or MP3 file and double-click on one.

Notice the Sound button for the page reflects that a sound has been added.

If the sound is longer than the duration of the page, it will continue to play over other pages. The Sound panel has additional commands to stop and wait for playing sounds.

Sounds can also be added to elements within a page.

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Playing a Script

To view all of the pages you have added to your script, click the **Play** icon in the toolbar.

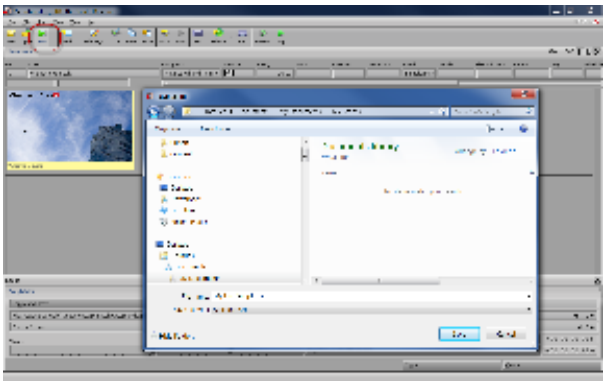
The first page should appear, then the next page, and so on, until the end of the list of pages you have added. When the final page has appeared, the script will loop back to the first page.

To exit playback at any time, press the **Esc** key.

There is also a **Preview** button, which only plays the page(s) you have selected.

Saving a Script

Remember to save your work by clicking the **Save** button on the toolbar or selecting **Save** from the **File** pull-down menu.



Enter a file name (the .SCA extension will be automatically added) and click **Save**.

Publishing a Script

In order for a script to be used in Content Manager, it must be published.

Before publishing you need to know the following information:

- **Content Manager URL:** this typically looks like:

  http://hostname:8080/ContentManager
  or
  http://1.2.3.4:8080/ContentManager (where 1.2.3.4 is the Content Manager IP address).

- **Username and password:** created on Content Manager. The account must have a Role that allows “Publish from Designer”. As of Release 11.00, the password must contain at least eight (8) characters.

> **Note:**
> If your computer is behind a proxy server, you will need to know its URL and, if required, user name and password for the proxy. These are entered in Designer under **Tools/Options/Network**.

To publish a script:

1. Click the **Publish** icon from the toolbar. Publish settings are saved as “Targets.” Select **<New Target>** and click **OK**.

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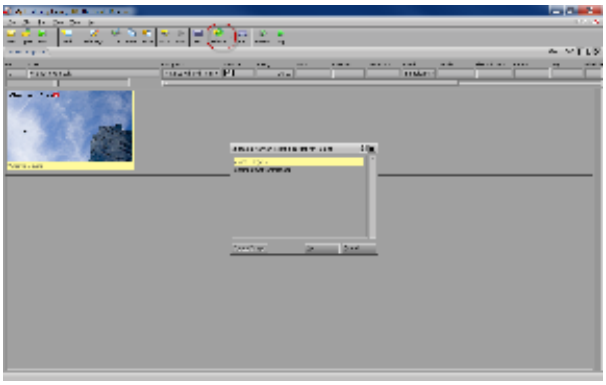
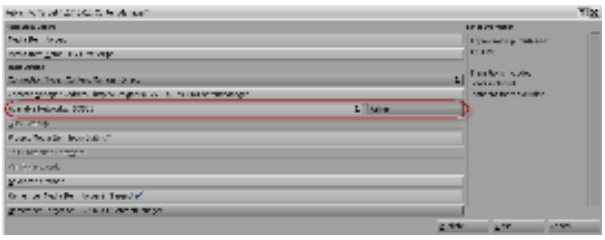
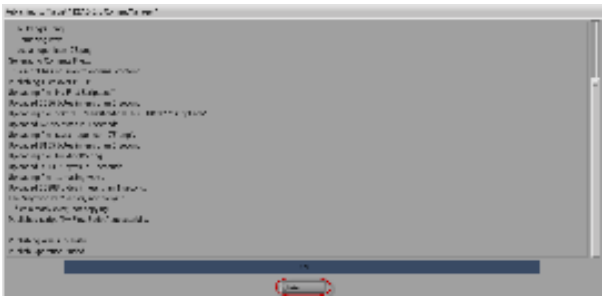


2. The **Publish** panel lets you select options for publishing a script to Content Manager.

3. In most networks the **Connection Type** should be set to **Content Manager Direct**.
4. Click on the **Content Manager Address** button. Enter the URL, User Name and Password for your Content Manager.
5. Click **Refresh**. This will test the connection to the server and tell you the name of the Content Manager network.
6. If you have entered the correct information, the **Available Networks** button will be automatically filled.



7. If you see an error message, you may have entered an incorrect URL, user name or password. Or the server is not accessible from your computer.
8. Click the **Publish!** Button.
9. You will see the publishing progress display.



10. When it is done, click **Close**.

Useful Tip:
Once you have published successfully, the settings will be saved as a “Target” for the next time you need to publish. Simply click on the **Publish** button in the toolbar to publish again, or select it from the drop-down list next to the icon to use the same settings on a new script.

Sharing and Archiving a Script

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When you import media files into your script, Designer references them from their respective locations. It does not embed them.

If you want to share or archive a script, you will need to gather all the necessary media files together. The **Collect Files** feature does this for you.

This function works similar to other production software. It will save a copy of your script and create a folder with the same name as the script containing all of the media files. This script plus folder is a separate copy from what you are editing, and can be archived for later use.

1. Select **File** from the drop-down menu and choose **Collect Files**.
2. Set the **Collect For** button to **Authoring**. This ensures the script will be editable by other users. They must have the same fonts used by the script.
3. Click on the **Folder** button to select where the files will be collected (try the Desktop).
4. Click the **Collect** button.

Doing More with Designer

Congratulations, you have made your first script. But you have just scratched the surface of what can be done.

For example:

- **Making a Template Script:** Designer allows you to turn scripts into templates where you can give users in Content Manager the ability to fill in text or replace specific visual elements.
- **Interactivity:** You can turn any element on a page into an interactive button that can control script flow, play a sound or other features.
- **Device and Data Integration:** Designer has powerful scripting capabilities as well as the ability to run VBScript, JavaScript or Python. These features enable advanced programming to integrate with data sources, devices or external files.
- **Live or Streaming Video:** Designer can display live video input as well as streaming video. Live video requires a video capture card and the TV Tuner EX Module.
- **Scrolling Tickers:** Designer allows you to add text crawl elements that can pull text from an external file or a template filled in by a user.

Getting Updates

A newer version of Designer may be available. To find out, visit http://www.scala.com/updates.

There you can enter your Designer serial number and click **Submit**.

You can find your Designer serial number by going to **Help/About Scala Designer** in the Designer menu bar.

Glossary of Terms

Animation

Sequence of frames that, when played in order at sufficient speed, present a smoothly moving image effect similar to film or video. Sources of animations can be from digitized video sequences, Flash animations, or animated GIF files.

Learn more here: Page View Toolbar: Background, Tab: Image Type

Animclip

Animated clip in either the GIF or SWF formats which have been loaded as a clip in a Designer page. Similar to other clips, Animclips can be moved, scaled, as well as have other parameters modified.

Learn more here: Page Toolbar: Add, Add a Clip Element, Working with Design Panels, Creating a Script

Branch

Allows you to create variables and set their values, create expressions, use system functions and redirect script flow to create loops and other non-linear execution flows.

Learn more here: Variables, Page View: Add

Clip

Predefined graphic image, such as a picture, drawing, symbol, etc., which can be imported and positioned on the Designer page.

Learn more here: Page Toolbar: Add

Context Menu

Pop-up menu which appears when the secondary (Right) mouse button is applied in the Main view or Page view windows.

Learn more here: Context Menus

Design Panel

Lower section of the Designer window which contains the settings, options and controls for timing, events, media, text and design items.

Learn more here: Working with Design Panels

Duration

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Amount of time which is individually specified, using standard time code settings at the frame rate of 30fps (frames per second).

Learn more here: Transitions, Timing

Effect

Way an element's style or appearance, such as borders, outline thickness and shadow amount and position, can be modified.

Learn more here: Using Undo/Redo, Tab: Appearance

Element

Any type of text, draw object, crawl, clip or movieclip which can appear on a page.

Learn more here: Page Toolbar: Add, General Visual Manipulation of Elements

Event

Action in a script; virtually everything which happens in a script is an event, including pages, text, sounds, transitions, animations, etc..

Learn more here: Add a Special Event, Adding a Special Event Page

EX Module

Extension which allows the user additional control over a variety of options such as Timing, Sound, Database, Schedule and more.

Learn more here: Scala Publish Automation EX Module

Expression

Statement which uses variables with arithmetic operations, such as addition and multiplication, as well as logical tests and comparisons.

Learn more here: Add a Text Crawl Element, Text Style Tags

Fade

Gradual change in a setting of opacity from a background color, or previous page element, to the present , facilitated by a Fade transition.

Learn more here: Transition

Flashclip

Created in Adobe® Flash, either SWF or FLA movies.

Learn more here: Connecting Flash and ScalaScript, Add a Clip Element

Fly-On

Type of transition in which an image, clip or text moves onto or off the screen from a position outside its borders.

Learn more here: Creating a Script

Group

Collection of pages, sub-scripts or special events represented by a single thumbnail in the Main view.

Learn more here: Grouping Pages, Main View: Edit, Timing

Hide/Unhide

Ability to select the visibility of elements in the Page view.

Learn more here: Page View: View

HSV

Hue (basic color), Saturation (intensity of the hue) and Value (overall brightness) of an image, or digitized video clip.

Learn more here: Page Toolbar: Palette, Tab: Chroma Key

Kerning (Character Spacing)

Adjustment of space between characters and words to create a more pleasing look and improve readability.

Learn more here: Tab: Appearance, Text Style Tags

Leading

(Rhymes with "wedding") or Line spacing, is the amount of vertical space between lines of text.

Learn more here: Text Style Tags

Level

Order in which the elements are placed on the page, either in front of, or behind clips or objects, as shown in the List panel.

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Learn more here: Page Toolbar: Zoom Level, Tab: Select Action

List Mode

Main view mode which presents all of the items of a script and their properties in columns; such as sequential order, name, background, transition, etc.

Learn more here: Main Toolbar: List, Main View Toolbar and Selecting a Page(s)

Movieclip

Digital video imported into a Designer Page, in MPG, AVI and WMV formats. Similar to Animclips, Movieclips can be modified in scale and placement. They may also include audio channels.

Learn more here: Page Toolbar: Add, Add a Clip Element, Working with Design Panels, Page Toolbar: Palette

Multi-Tile

Edited bitmap images which are divided into several “slices”, which are seamlessly tiled together to produce a final image. Can be resized without distorting the image.

Learn more here: Main View: Tools, Using the Multi-Tile Editor

Page

Basic unit of a script. It may be a screen page with one or more elements, such as a background, text, clip, sound, transition, etc.; may also represent a group of pages or another script.

Learn more here: Working with Pages, Page View Toolbar

Palette

Set of colors which can be selected and applied to elements on a page. Also refers to the selection of colors which make up an image or animation.

Learn more here: Page Toolbar: Palette

Publish

To prepare an Designer script for distribution to any of the publish media locations which Designer supports.

Learn more here: Main Toolbar: Publish, Scala Publish Automation EX Module

Publish Location

Local or network folder, defined in Content Manager, where scripts and media are published for scheduled broadcast to the Scala player(s).

Learn more here: Main Toolbar: Publish

Push Button

Most common and versatile type of button. Typically used for branching to another page of the script, or accepting some kind of response from the viewer. Can have one, two, or three visual states.

Learn more here: Tab: Type, Tab: Select Action, Tab: Appearance -- Button

Radio Button

Similar to a toggle button, but it works with any kind of variable, so it can assign any type of value (text, numeric, or Boolean). Like a Toggle button, it has either two or four visual states, and remains in its selected state after being clicked.

Learn more here: Tab: Type, Tab: Select Action, Tab: Appearance -- Button

RGB

Red, Green and Blue channels which are combined in the color light spectrum to produce the color block. Pure white light is a full combination of RGB at 100%, whereas black, is the absence of all RGB or 0%

Learn more here: Page Toolbar: Palette, Tab: Chroma Key

Script

Page-by-page definition of a presentation or project created in Scala Designer. Specifies the actions and properties of the image files, text, sound,video and other elements on a page. It also identifies the settings which control how the page is displayed.

Learn more here: Main View Toolbar, Scripting and Automation

Skin

Defined as the graphical appearance of the User Interface (UI) in the Designer window. By changing a Skin in the Options pop-up, you will change the color scheme and overall look of the buttons, tabs and other window elements.

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Learn more here: Designer Tool Options

Sound Event

Event in the Main view that controls an independent sound or the sound in the previous page.

Learn more here: Sound

Speed

Predetermined amount of time which will move elements at an equal rate of speed, regardless of their distance of motion on the page.

Learn more here: Transition, Tab: Image Type

Style

Special feature which can be applied to an element in order to enhance its appearance; for example, shadow, underline, outline, color, bold, italic, etc.

Learn more here: Tab: Appearance, Tab: Image Type

Sub-Script

Completed script file that is imported into another script and is represented by a thumbnail with the Scala logo in the Main view.

Learn more here: Main Toolbar: Preview and Play

Tabs

Individual tabbed panels which reside inside the Design Panel and contain buttons, sliders, controls, settings and selectors.

Learn more here: Design Buttons Panel, Design Panel Tabs

Text Crawl

Element which allows you to move a segment of text continuously from one side of the page to the other.

Learn more here: Add a Text Crawl Element, Design Text Crawl Panel, Data Driven Text Crawls

Thumbnail Mode

View of small graphic images in the Main view which represent pages, groups, sub-scripts and special events.

Learn more here: Main Toolbar: List

Toggle Button

Used to switch a Boolean variable between its two possible values, on and off. This makes it easy for a script to accept and respond to Yes/No kinds of input from the viewer. The button itself can have either two or four visual states. Unlike a Push button, a Toggle button remains in its selected state after being clicked so that its value is obvious.

Learn more here: Tab: Type, Tab: Select Action

Transition

Timed graphic blending effect for making transitions from one page to another, or for moving elements on and off the screen.

Learn more here: Transition

Variable

Named “container” for a quantity which can change within a script in response to user input or a condition in the script’s execution; in addition to simple numbers and strings, it may also contain expressions.

Learn more here: Variables, Integrating Data

Video Clip

Any digital video movie that can be imported into Designer.

Learn more here: Add a Streaming Video Clip Element, Design Streaming Video Clip Panel

View

Partial or full-screen panel containing buttons, scroll bars, text boxes and other controls that set options and perform operations to create a script.

Learn more here: Working in the Main View, Working in the Page View

Wait?

Allows you to specify whether elements on a page should wait for the page transition to complete, before beginning their element transitions.

Wait for Element(s)

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Page or element will not advance until the page or element is complete.

Learn more here: Timing

Web Clip

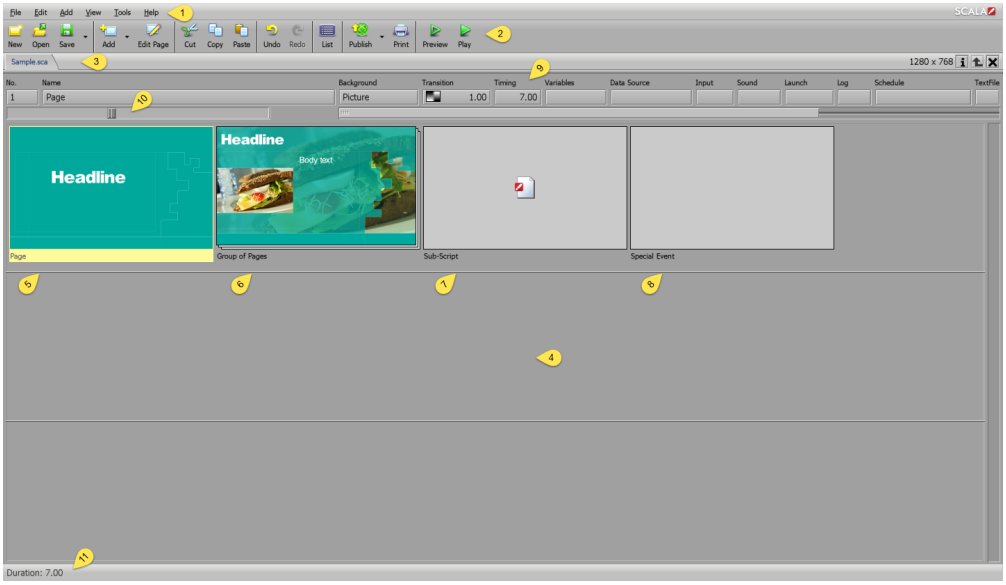
URL or HTML Widget.

Learn more here: Design Web Clip Panel, Add Web Clip Element, Tab: Web Clip Control

Working in the Main View

Designer's Main View is used to create and manipulate scripts and gives you access to all other views needed in the creation and execution of your scripts.

The Main View is broken down into these basic areas:



Main View Menu (1)

Provide access to functions in the areas of File, Edit, Add, View, Tools and Help. More detailed discussions of these can be found by clicking on the link of the section.

Main View Toolbar (2)

When you initially open Designer, the Toolbar only has the the icons that can be used at that moment. The Thumbnail/List Area is empty, because it is waiting for you to either create a script (using the **New** icon) or load an existing script (using the **Open** icon).

Document Tab Bar (3)

This area contains all your currently opened or unsaved scripts. You can switch scripts by selecting the scripts name in the **Document Tab** bar. If you have not saved the script, then an asterisk (*****) will appear in front of the script name. On the right of the document bar you will see the scripts dimensions, the scripts properties icon, the up icon (for moving up levels in grouping) and the close script icon.

Thumbnail/List Area (4)

The **List** icon toggles the view between thumbnails. List mode is a textual view that can be useful when over-viewing larger scripts, or when you want to modify multiple pages simultaneously.

This area gives you an overview of everything your script will display or execute.

A thumbnail in the Main view may represent one of several things, each of which has a distinctive appearance:

- **Page (5) :** Contains elements such as text, video clips, HTML web clips and sounds. Most thumbnails fall into this category. Examples include a background upon which you may place elements such as text, graphics, and video. These pages may also include non-graphic elements, such as sounds and timing events. Page View is used to create and manipulate a page.
- **Group (6):** Collection of pages that can be treated as a unit.

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- **Sub-Script (7):** Another script run from within the current script.
- **Special Event (8):** Non graphical event, such as a timing event, sound, or a command to control an external device.

Column - EXtension Modules (9)

Between the Document Tab Bar and the Thumbnail area is a row of columns which hold information or events associated with the currently selected page as a whole. The number of columns displayed depends upon the number of modules installed, which can vary.

You can change the size of the thumbnail images by using the slider control above the thumbnails **(10)**, or by adjusting the Size control in the Thumbnails tab of the **Options** dialog.

In List mode, pages are displayed here as rows from top to bottom, identified by name, which lets you see and access many pages' column buttons at once. This provides an overview of the script's settings for Transitions, timing, etc.

Status information Bar (11)

Additional information may appear in this bar from time to time.

Additional Topics

These areas will also be discussed as part of this section:

- Working with Pages

Main View Toolbar

On opening a Designer session there are only two options available in the toolbar:

New: Icon for creating a new script.

Open: Allows you to open an existing script.

Once one of these activities have been done then the full toolbar is shown. The toolbar is context sensitive and only those icons that can be used at that moment are available, while the remainder are ghosted.

The following is the full list of activities in the toolbar. Click on the link to find out more information.

- **Save:** Saves the currently selected script. The drop down menu also allows you to select **Save As**, which enables you to save the script with a new name.
- **Add**: Opens the file dialog to select a file as the background for a new page. The drop down menu also enables you to add a **Special Event**, **Plain Page,** or a **Streaming Video Page**.
- **Edit Page**: Selecting this Icon will open the currently selected page for Editing.
- **Cut**: Deletes the currently selected page(s) from the current Script and places them on the clipboard.
- **Copy**: Copies the currently selected page(s) to the clipboard.
- **Paste**: Pastes the most recently cut or copied item(s) from the clipboard into the sequence of pages, after the selected page.
- **Undo**: Erases the last change(s) and reverts your script to an older state.
- **Redo**: Restores the last change(s) and returns your script to a more current state.
- **List**: Toggles between Thumbnail mode (images) and List mode (rows of pages).
- **Properties**: Opens the Script Properties dialog enabling the modification of Variables, the list of Fonts used and the adjustment to script Dimension.
- **Publish:** Publishes a Designer Script to Scala Content Manger for inclusion Playlists and distribution to Players.
- **Print**: Lets you print the script.
- **Preview**: Previews the selected page(s).
- **Play**: Plays the entire script from the beginning

Main Toolbar: New

Setting the page dimensions of your production is the first part of creating a new script. The dimensions will depend on how the content will be displayed, i.e., is the content going to be shown over the whole display or in a portion of the screen inside a frame (zone).

Two important concepts need to be explained at this point.

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1. You are not limited to screen resolutions such as 1280 x 720 or 1920 x 1080, you can work in any native portrait and landscape resolutions but more importantly you can work pixel for pixel when necessary; for instance, when creating content to displayed on super wide stadium perimeter banners, video walls or frames within a channel.
2. Aspect ratio is also key. It enables you to re-purpose content created in one resolution and either scaled up or down to fit a different resolution of the same aspect ratio.

There is no need to worry if you make an incorrect choice. You can change your mind afterwards using the script properties button and the size you select or specify will be remembered for the next production. Remembering what you did last is one of the things Designer does and is something you will come to appreciate as this enables you to accomplish your tasks quicker.

For scripts to be displayed across the whole screen, the following table contains some common resolutions and aspect ratios:

Resolution	Aspect Ratio	Typical Display
1024 x 768	4:3	Desktop LCD
1280 x 720	16:9	LCD or Plasma
1360 x 768	16:9	LCD or Plasma
1920 x 1080	16:9	LCD or Plasma
720 x 1280	9:16	LCD or Plasma in Portrait rotation
768 x 1360	9:16	LCD or Plasma in Portrait rotation
1080 x 1920	9:16	LCD or Plasma in Portrait rotation

Note:
Not all screens have the exact resolutions listed in the above chart. For example, some may be 1280 x 768 or 366 x 768. Check your screen's user manual for a list of its correct resolutions.

As we described earlier, you may be creating content and scripts intended for playback within frames of a Scala channel. For example, the frameset created in Content Manager for a 1920 x 1080 Channel might have the following frames:

Frame	Resolution	Aspect Ratio
Main	1600 x 900	16:9
Sidebar	320 x 900	16:45
Crawl	1920 x 180	32:3

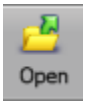
Remember that content created in the same aspect ratio can easily be played in either a frame or the full screen using Scala scaling properties without having to re-author the content.

Create a New Script

In this example, you will create a **1920 x 1080 script** for a full-screen display.

1. Click on the **New** button or select New from the **File** pull-down menu.
2. You should now see the **Script Properties** dialog. Choose whether you want to author in landscape or portrait mode. Select one of the preset resolutions such as **1920 x 1080,** or type your own dimensions and then click **OK**.
3. You now have an empty script and you can start composing your production.

Main Toolbar: Open



You can easily open an existing or saved script file while in the Main View.

1. In the Main View, click **Open,** which will open the Windows File dialog.
2. Navigate to the folder on your hard drive containing the desired script.
3. Scroll through the files in the list box that appears, then double-click on that name, or select the script and click **OK**. Thumbnails of the script you have just opened will appear in the Main View.

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You can also open scripts from the Files menu using:

- Open
- Open Recent
- Open from Recent Folder

It is also possible to work with multiple scripts open at once. Each is shown in its own tab in the Main View and it is possible to copy pages between open scripts. Be careful when copying between scripts of different dimensions, as the layout may change.

Main Toolbar: Save

As you compose and manipulate the pages in a script, you should periodically save the script so that your work is not accidentally lost. Designer allows you to save a script at any time from any level of the script structure in which you are working.

This can be done in a number of ways:

- Use the **Save** icon in the toolbar to save the current script, if it has previously been saved, using its current name and location without opening the **File** dialog. If the script has not been previously saved the File dialog opens for you to choose a location and script name.
- Use the **Save** drop down menu icon to access **Save** and **Save As** options.
- Alternatively, use the **File** pull-down menu and click **Save** or **Save As** to open the File dialog.

Ensure that the File dialog shows that you are on the drive and in the folder where you want to save the script. Designer remembers the last one used, or if this is the first time using Designer, you will see the My Documents folder. If necessary, navigate to the folder where you want to save the script.

- **File Name**: May/may not be an existing name. You can either edit the existing name of the script, or type any name you choose. If the script is new, the File name: text box is empty; otherwise File name: indicates the name you gave the script the last time it was saved.

  In Designer, file names, unlike page names, must follow Windows standards:

  - Have up to 256 alphanumeric characters, which can be upper or lowercase
  - Start with a letter or a number
  - Cannot contain special characters. Special characters include, but are not limited to: **backslashes** (\), **colons** (:), **semicolons** (;), **asterisks** (*), **question marks** (?), or **periods** (.).

Designer adds the proper file-type extension (.SCA for scripts) unless you choose to include it in the name.

Auto Recover

Under **Designers Options** there is a **Auto Recover tab**. The option, which can be turned on or off, can be set to periodically save Auto Recover Information. When the feature is:

1. **On**: Any unsaved changes will be automatically saved to a specific folder. If Designer should be unexpectedly closed due to power loss, machine crash or program crash, offer to recover to the last saved recovery point, upon the next start after the issue.
2. **Off:** No recovery information will be saved, and if an unexpected situation happens, and you had not saved your script, then there will be no recovery files to restore.

This feature works for all scripts when enabled, but how it works depends on how many scripts you have.

If you have 3 scripts open and all of them have been modified, and auto-saved, and either your PC or Designer crashes, the next time you start Designer, you will be asked if you want to recover the auto-saved scripts. If you choose to defer the recovery process, you can do something else, and then open one of the scripts that have a auto-saved script. At that point, you will get a dialog asking if you want to: Recover, Open Original or Cancel the operation. If you chose to open original, then the auto-saved version will be deleted. Auto-recover also works if you have a single script, but the unsaved script will be called **<untitled>.** If you defer recovering it, then later in the same session create a new script, you will not be asked if you want to recover the unsaved script. Only if you exit Designer and start the program again will you have the chance to recover that unsaved script again.

For unsaved scripts there is a limit of one auto-saved version. For all already saved scripts they can potentionally have their own auto-saved version. Whenever a script is successfully saved, its auto-saved version is removed. When the user makes changes to a script, it will get auto-saved after a period of time.

If multiple users have access to scripts located on a share drive, they cannot share auto-saved scripts.

Main Toolbar: Add

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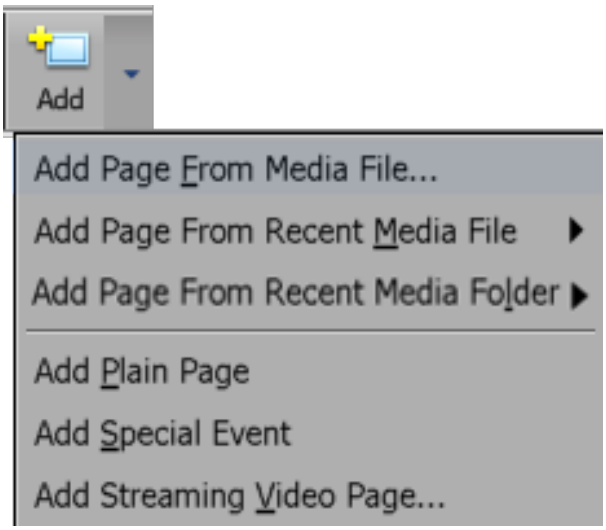

To add a new page of any type (script, animation, etc.), use the Add icon in the Main View toolbar. If the Main View is empty, as it is when you create a new script, you will be adding the first page. Otherwise, the page you add will be inserted in the script after the currently selected page.

Using the Add button in the toolbar, you can add a new page from a media file or script. This is the same as using the Add pull-down menu and selecting Add Page From Media File.

Using the Add pull-down menu, you can perform the following:

- Add Page From Media File: Add a new page by opening the File dialog, where you can choose backgrounds or sub-scripts.
- Add Page From Recent Media File: Choose from previously used media
- Add Page From Recent Media Folder: Choose media from a previously used media folder
- Add Plain Page: Add a page with a solid color background
- Add Special Event: Add an event other than a background, such as a sound event or pause or some other non-visual event
- Add Streaming Video Page: Add a page whose source is a video stream.

Additionally, you have the option of Adding a Page using Drag and Drop.

Depending on how you have Tools > Options > Authoring > Automatically Edit New Page set up, you will either enter the page for editing automatically (default) or remain on the Main View.

When entering the page for the first time, you will either be placed into text entry mode with the Text cursor at the top left of the background, or you will see the Design Background Panel, depending on the type of background. Subsequently, when editing a page, the first element on the page is selected along with its Design Panel.

Adding a Page from a Media File

Whether you click the main part of the **Add** icon, or choose **Add Page From Media File** from the Add pull-down menu, the standard Windows File dialog will open. It enables access to all existing files including scripts, backgrounds, animations, and sound effects, etc. and can be done by:

1. In the **File** dialog, click on the folder which contains the type of file you want to add, or navigate through your file structure until you see the file name in the list box, then double-click on the name or select the file and click **Open**. If the file is a picture background, Designer assumes you want to start composing the page. The Page view will appear with your chosen background. Usually you will see the Design Text Panel, however, when adding an animation or movie, you will see the Design Background Panel.
2. When your page is completed, and you click the Main icon in the Page View, you will see the page thumbnail listed in the Main View.
3. If the file is not a picture background, you will see the Main View. The new page is automatically selected and Designer will assign a name which you can change at any time. You will also see the panel for the type of page element represented by the file you have selected. For example, if you selected a sound file, the Sound panel is already open, allowing for immediate refining of the sound settings.

Designer also has the ability to select several files from the same folder and add them to the script at the same time. You can select a range of consecutive files, (Shift-click) or randomly select files, (Ctrl-click). The new pages are automatically selected in the Main View.

When you add a page to a script, the contents of the file chosen from the File dialog, become the contents of the page. If the file is a script, all of its pages, sub-scripts, sound effects, etc. will be included in the definition of the page.

Add Recent Media File

A list of recent loaded files is displayed. Choosing one will load the file.

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Add From Recent Folder

A list of recently used folders is displayed. Choosing one will open the file dialog for this folder. The number of items listed will be based on the settings in the Authoring Tab of Designer Tool Options.

Add a Plain Page

This option allows you to quickly create a page with a single color background. As with other backgrounds, Designer assumes you want to begin designing the page immediately. When you choose **Add > Add Plain Page**, you will see the Design Text Panel in addition to a plain background.

You also have the option of changing the color of the background or subsequently change the background type.

Adding a Special Event Page

Doing this is unique because it enables you to add elements to a script which may not be associated with a file or background. Some examples of Special Events include setting the value of a variable or changing the flow of the script based on variable values.

To add a special event, go the **Add** drop-down menu and choose **Add Special Event**.

The Special Event page is automatically assigned <untitled> as the name of the page. As with any page, you can click on the **No.** button and edit the name in the **Page Control Panel**.

You can then click the Timing, Input, Variable, Sound, or other Module columns to specify the action of the special event.

Special Events are often used to notate or comment your script by naming the page with your comment and then un-checking **Enabled?** in the **Page Control Panel**.

Add Streaming Video Page

This can be done from the **Add** pull-down menu, by selecting **Add > Add Streaming Video Page** and entering the URL of the active media. For a discussion of media supported by Designer, see Media Formats Supported by Scala Enterprise.

The page may also be edited in Page View with additional elements and text after which the media will stream to the page as a background movie.

Adding a File Using Drag and Drop

You can also add pages to the script using ordinary drag and drop methods. To do this, drag a file icon for a background image, sound, sub-script, or other file from its window into the Designer window showing the Main View. The file is added as a new page, and it will follow whichever page you originally selected.

There are certain types of pages that cannot be created using drag and drop. Plain Pages, for example, and Special Event pages which are not file-based (such as a branch event) must be created as described earlier in this document.

You can drag media files into into the Main View from your Desktop and pages will automatically be created for you, with the media getting embedded into the the script. This action, while convenient , is not recommended, as the action of dragging or copying media from your clipboard into your script, causes unnecessary bloating of the Scala Script file.

Main Toolbar: Edit Page

The quickest way to begin editing the contents or design of a page listed in the Main View is to double-click on the corresponding thumbnail, or its Name button.

In addition to the Page Toolbar, the revealed Page View is dependent upon two things:

- An Empty Page
- The Page Already Has Elements on It

An Empty Page

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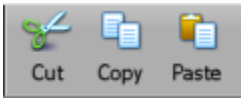
You will see the Design Text Panel with a text cursor at the top left of the page canvas (the visible design area of the page), ready for text entry. Clicking anywhere in the page canvas will place the text cursor in this position, assuming you wish to type text in that position. To add other elements at this position, you can use the drop-down menu to add the following elements:

Using this Element	Allows You To
Add Files	Add a new element by opening the File dialog from which you can choose from Clips (Images), AnimClips, Movie Clips, Multi-tile Clips, Buttons.
Add Recent File	Choose from previously used media.
Add From Recent Folder	Choose media from a previously used media folder.
Add Special Event	Add an event such as a sound event or pause or some other non visual or programming event.
Add Text	Enter free-form text at the cursor position.
Add Text Box	Define an area on the screen for text to be entered into.
Add Text Crawl	Add a Text Crawl element whose contents continuously move, or "crawl," in a specified direction during playback.
Add Text Entry Field	Add an interactive text element that can accept typed input from someone running the script and store the text in a variable.
Add Table	Add a grid of Text Box elements for the easy display of tabular data.
Add Box	Draw open or filled boxes. After choosing this option, the pointer changes to a cross and you can draw the box on the page.
Add Oval	Draw open or filled ovals. After choosing this option, the pointer changes to a cross and you can draw the box on the page.
Add Line	Draw a line. After choosing this option, the pointer changes to a cross and you can draw the box on the page.
Add TV Clip (if EX Module enabled)	Add a Clip that shows the display of an attached webcam or TV Tuner type video source, as controlled by the TV Tuner Module.
Add Streaming Video Clip	Add a video clip whose source is a video stream.
Add Webclip	Add a clip whose source is a web based URL (HTML or HTML5).

The Page Already Has Elements on it

If this is the case, you should be presented with the corresponding Design Panel for the first element on the page, (i.e., if the first item is a clip, then you will see the Design Clip Panel.) If the page is an animation or movie page, then the Design Background Panel is shown irrespective of whether there are any elements on the page.

Main Toolbar: Cut, Copy and Paste



Function	What It Does	Where Does my Info Go?
Cut	Deletes the selected page(s).	Information is placed on the clipboard and can be pasted into any script. Any information located on the clipboard is available until the next time you choose Cut or Copy.
Copy	Puts information to the clipboard, which can be pasted into any script.	Any information on the clipboard is available until the next time you choose Cut or Copy.

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Paste	Inserts pages from the clipboard that have been cut or copied.	Pages are inserted after the currently selected page.

Main Toolbar: Undo and Redo

Mistakes happen, which is why Designer has a multi-leveled Undo and Redo function. **Undo** (shortcut Ctrl+Z) and **Redo** (shortcut Ctrl+Y) are options which are available on the **Edit** pull-down menu and the toolbar panel in both the Main and Page Views.

While the majority of actions can be undone, changes to settings that impact only the application's working environment and not the script itself are not tracked by the undo system.

Examples of changes that **cannot** be undone include:

- Changes made in the Tools Options dialog.
- Opening or closing a panel or dialog (apart from changes made within it).
- Actions that cause some form of output, such as printing or publishing.
- Changing the Designer window size or position.

Undo (Ctrl+Z)

Undo reverses the last change that you made to the script. You can continue choosing Undo to move as far back as necessary through your editing history. (The Undo entry in in the pull-down menu identifies the change to be reversed, such as Undo Delete.)

You see the results immediately, and a message in the Status Bar at the bottom of the screen indicates the specific change.

Use Redo to cancel the effect of the last Undo.

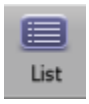
Redo (Ctrl+Y)

Redo reverses the effect of the last Undo operation, restoring an editing change you had made. You can continue choosing Redo to move as far forward as necessary through the actions that you have taken back using Undo. (The Redo entry in in the pull-down menu identifies the change to be reversed, such as Redo Delete.)

You see the results immediately, and a message in the Status Bar at the bottom of the screen indicates the specific change.

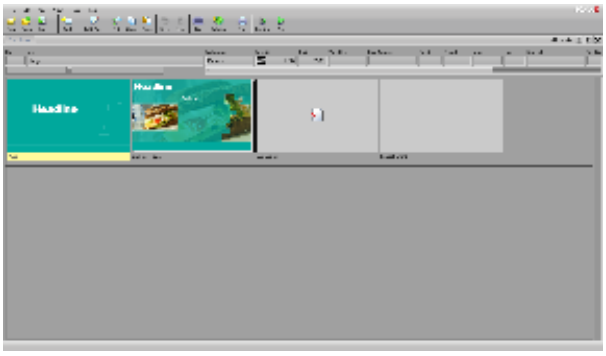
Use Undo to cancel the effect of the last Redo.

Main Toolbar: List



This button toggles the view between Thumbnail Mode and List Mode.

Thumbnail Mode



In this mode, you will see thumbnails of each page, group, sub-script or special event in the script.

Page Thumbnails have the page name shown underneath them to help distinguish the different types of thumbnails in the Main View. A page, group of pages, sub-script, or a special event, reveal different thumbnails. In the Main View, every item listed, regardless of type—page, group, sub-script, or special event—is represented by a row, consisting of a separate columns.

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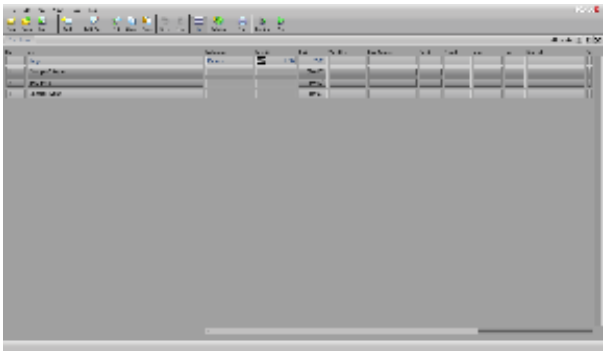
When you select the thumbnail of a page, the column buttons for that page are shown above the rows of thumbnails. The size of the thumbnails can be adjusted using the slider.

List Mode



The script in the Main View is presented as a list of page names.

The List icon in the Main View toolbar enables you to choose how the pages of the script appear.

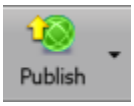
Details and columns are the same as in thumbnail mode. However, the column buttons of all the visible pages are readily available for each page making it easy to apply adjustments to your script rapidly.

Note:
Rows are the same for either List Mode or Thumbnail Mode. Columns represent previously selected thumbnails. To view the column information of more than one selected item in the Main View, switch to the List Mode.

Main Toolbar: Properties

The Properties Icon in the toolbar opens up the Script Properties dialog. Click Adjusting Script Properties for further documentation.

Main Toolbar: Publish



Use the **Publish** icon button on the toolbar to publish your script. This publishes the script to a location that Content Manager can distribute for playback on Player systems. The Publish button launches a dialog that asks for your target location. Once you have your network set up, it becomes a nearly instantaneous process to update your scripts.

The publishing process collects every file used by the script (including graphics, video, sound, and other files) and puts them together in a portable form. Whichever publishing medium you choose, the procedure is basically the same. Different available options will depend on the final destination of your published script.

Designer uses Intelligent file transfer methods to ensure that only the changed script and associated assets are transferred, minimizing the data that is actually altered on subsequent publishing of a new version of the script.

There are three publishing methods, and the one you use will depend on your Scala Enterprise network topology.

Publishing To	Lets You Specify
Content Manager Direct	URL, logon name, and password for connecting directly to Scala Enterprise Content Manager
Web or FTP Folder	URL, logon name, and password to a web-based Publish Location
Local or Shared Folder	Path to a Publish Location folder on your network

In the last two cases, the destination should be a Publish Location defined in Content Manager.

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Designer stores publish settings in what is called a target. When you click the Publish icon from the Main View toolbar, the script is published using the previously configured options. If you have not published the script before or if you click on the small down arrow to the right of the icon in the toolbar, a popup list will appear. This allows you publish to a selected target location or create a new target. You can also publish through the **File** menu.

Publishing a Script

To publish a script:

1. Create or open a script.
2. Click the **Publish icon,** select **<New Target>** and click **OK.**
3. Notice the **Script Information box.** This box on the right provides information about the script which you have chosen to publish, such as the approximate size in megabytes. Designer will automatically scan your script and display its information in this box. It will also display information regarding data which is currently being processed.
4. Notice the **Target Options**. Located under Target Options is the **Connection Type** button. Selecting it lets you choose the type of connection you will publish to:
    a. **Content Manager Direct**: Published to Content Manager's Media or Template library where it can be used in playlists or as a template, depending on how it was authored. This is the most commonly used option.
    b. **Web or FTP Folder**: Uploaded to a folder on a server. It is assumed that this folder is set up in Content Manager as a Remote Publish Location. Content Manager polls the folder periodically for updates and retrieves the script.
    c. **Local or Shared Folder**: Copied to a local or shared folder. It is assumed that this folder is set up in Content Manager as a Remote Publish Location (similar to Web or FTP Folder).
5. Choose **Content Manager Direct**.
6. Click on the **Content Manager Address button**. A dialog will appear to allow you to select the connection protocol and enter a URL and/or folder of your connection, as well as a User Name and Password. When publishing to Content Manager, the URL is case sensitive. Depending on how Content Manager was configured, you may need to specify a port in the URL (e.g. http://localhost:8080/ContentManager)
7. The User Name and Password will be an account created in Content Manager (e.g. Designer). Click **OK**.
8. Click **Refresh**, and Designer will query Content Manager for the name of its network. If this step is successful, you know you have entered the correct settings in order to publish to Content Manager. If not, you will see an error message.
   Other options in this window include:
    a. **Media Item Folder**: Specifies a sub-folder to publish the script in the Content Manager media or template library. A folder will be created if it does not yet exist.
    b. **Media Item Name**: Name of the script currently being published.
    c. **Skip Cleanup?**: Skips a step at the end of publishing which cleans up old files.
    d. **Protect Media from Editing**: Adds a password to prevent the published version of the script from being edited by someone else with a copy of Designer.
    e. **Advanced Options**: Extra settings controlling whether fonts and transitions are included with the published script. It is generally recommended that you do not change these options.
    f. **Remember Media Item Folder in Target**: Chooses whether or not to save the Media Item Folder in the target definition so it is already entered the next time you publish. All other settings are remembered, but this one is optional.
    g. **Remember Target As**: Lets you choose a name for the target that is easy to remember (e.g. Main Office Content Manager).
9. To complete Publishing, click the **Publish!** button.

If you are publishing to a local or shared folder and there is another script of the same name in the publish folder, a dialog will appear asking whether you want to delete the contents and continue publishing or abort. If you see dialog, click **OK**.

You must be sure to check the licensing requirements for any fonts you use . The TrueType fonts included with Scala Designer are freely re-distributable for any production you create, but only for non-commercial purposes. TrueType fonts which you acquire from other sources may have licensing restrictions which vary from manufacturer to manufacturer. It is your responsibility to comply with their requirements.

Publishing Through a Proxy Server

If your network has a proxy server, you will need to configure Designer so it can publish through it.

To change the proxy settings:

1. From the main view, go to **Tools/Options**.
2. Click on the **Network** tab.
3. Enable the **Connect Via Proxy Server** option.
4. Click on the **Proxy Server URL** button and enter the appropriate address, port, and authentication.

Publishing a ScalaScript Package

Normally you would publish Scripts directly to Content Manager. In cases where this is not possible, you can publish to a SCZ file and manually upload it to the Media library.

When publishing to a local or shared folder, select **Publish to ScalaScript Package?** which will create a single file containing the ScalaScript and its related media. This single file has a .SCZ file extension and may then be shared with others or uploaded to Content Manager via drag-and-drop.

After uploading the SCZ file, it will become a new revision (i.e. replace) an SCB file of the same base name.

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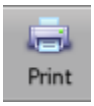
Main Toolbar: Print



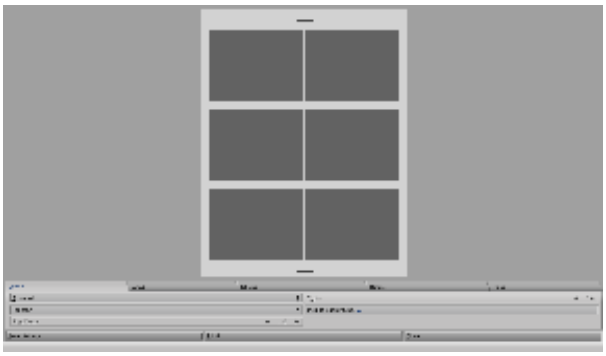
Designer gives you the ability to print your scripts. Using ScalaPrint, you can produce color or black and white hard copies on paper or transparencies to enhance or accompany your Designer production, or to aid in your design process. You may want to summarize your script, print certain pages of your script, or print a permanent record of the entire script. You may also find a need for a cue card-type list of notes for a presenter to follow during the presentation of your script.

Using ScalaPrint, you can choose how much of your script to print, whether it be the entire script or only selected pages. You can also lay out your pages in different formats. Whatever you choose, ScalaPrint provides you the ability to customize your script printouts in order to accommodate your needs. It produces printed output in a graphical format similar to the way the Thumbnail View in the Main View displays your scripts. You can print all script pages on one sheet of paper, or each on its own page, and every option in between. The ScalaPrint view will allow you to arrange the size, numbering, and arrangement of all the script's pages on the printed page, and direct that output to a specific printer device.

To open ScalaPrint, click the **Print** icon on the **Main View** toolbar or select the **File** drop down menu and click **Print**.

The ScalaPrint view will appear on the screen, divided into two main areas: the page preview section and the five ScalaPrint tabbed panels:

- General
- Layout
- Labeling
- Margins
- Printer



The page preview section, located across the top of the screen, will provide a graphical representation of how your script's slides will be positioned on a sample printed page. You will not see your actual script page's images or content on the screen. Instead, you will see boxes which represent the size and position of each slide. The tabbed options panels allow you to select the options which control the layout of your slides on each page, and choose the destination printer to generate the hard copy. As you change most layout options, the page preview update will automatically reflect your changes.

Remember, the slides are only a representation of the physical position of your script pages. They are not a preview of what will actually print.

Reset Settings

Clicking this option changes all of ScalaPrint's settings back to their defaults. Any selections which have been made, will be discarded.

Print!

When you have made your choices for your print job's content, layout, and destination, you are ready to print. Click the **Print!** button to send the currently configured print job to the printer you have selected.

Close

Selecting **Close** exits ScalaPrint and will return you to the Main View. All settings in the tabbed panels will automatically be saved when you close the ScalaPrint view.

ScalaPrint - General

The General panel options deal with the overall arrangement of the script pages you want to print.

Slides

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Choose whether to print slides for all script pages, or only the slides corresponding to the script pages you have selected in the Main View. Use the selector to switch between **All** and **Selected**. If you have more than one script page selected in the Main View before you start ScalaPrint, this selector will default to **Selected**.

Pages

Print pages from the current job, either every page, or only pages from a selected range in the print job. Use the selector to switch between **All** an d **Range**. Choosing Range will enable the **Print Range** control below.

This control refers to pages of the print job, not script pages. For example, if your script has twelve pages and your slide layout places six slides on each printed page, the print job has three physical pages, controlled by this option. Choosing **Pages: All** does not print all script pages unless the **Slides: All** option has been selected.

Print Range

When you select **Range** from the Pages: selector, the Print Range value control becomes active, allowing you to specify the beginning and ending pages of a range you wish to print from the current print job. Select the page number range using the value control, either by using the arrows or entering the page range numbers manually. Possible values for this control are from 1 to 999. The Print Range value control is not limited to the actual number of pages in the current print job. It is possible to set page numbers which are higher than the maximum number of pages. If the starting page number is too high, pages will not be printed. Entering an ending page number greater than the maximum number of pages will have the same effect as entering the maximum number.

Copies

Set the number of copies of the current print job you wish to print.

Include Background?

You have the option to exclude the background images from your slides so they will not be printed as part of the slide. Turning off **Include Background?** excludes background images from all slides in the current print job. For example, if your slides contain text overlying busy background graphic images, and you are using ScalaPrint to generate transparencies, then you may want to emphasize only the text, and might choose to exclude the background images from the slides. This option is **on** by default.

ScalaPrint - Layout

The Layout panel contains options which adjust how slides are laid out on the pages of your print job.

Orientation

Choose the direction in which the slide's contents are positioned on the page with this selector. You can choose either:

- **Portrait:** Page height is longer than its width, and columns are positioned across the narrower dimension of the page
- **Landscape:** Page width is longer than its height, and columns are positioned across the widest dimension of the page.

Matrix

Specify the number of slides which will appear on a page and how they are arranged in columns and rows by using the Matrix value control. The first value represents the number of columns of slides, and the second is the number of rows of slides.

You can have as few as 1 slide per page (a matrix value of 1×1) to as many as 100 slides per page (a matrix value of 10×10). As matrix values increase, the number of slides on a page will increase. Subsequently there will be less room to display each slide. ScalaPrint will reduce the size of every slide equally, maintaining their original aspect ratios. As you adjust the matrix values, the page preview slides will change correspondingly.

To change the Matrix value, use the value control. You can use the arrows or enter the numbers manually.

Slide Order

Placing multiple rows and/or columns of slides on a page requires you decide their order. Using this selector, you can specify whether the slides' order is:

- **Across (Default):** Filling each row to progress to the bottom of the page.
- **Down:** Filling each column to progress to the right side of the page.

Scale

Sometimes when printing a script you may need more white space around your slides, whether for notes, framing, titles or labels, or just aesthetic reasons. Reduce slides to a percentage of their maximum size. Keep in mind the maximum slide image sizes are initially determined by the number of slides you choose to place upon each page with the Matrix control. Scaling does not increase the number of slides on a page, but merely reduces each slide's image size. You cannot scale up, or enlarge a slide to greater than 100% of its maximum size.

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Row Alignment

Just like you justify or align text, you can align slides. However, with ScalaPrint, you are actually aligning the slides within the boundaries of their individual matrix areas. Align the rows of slides vertically on the page, by choosing from Center, Top, and Bottom alignments. This will create a visual effect only if the slides have room to move vertically within their matrix areas. If your slides do not move when you change their alignment, use the Scale option to reduce their size.

Column Alignment

Align the column(s) of slides horizontally on the page. Choose from among Center, Left, and Right alignments to align columns along their matrix areas. Further adjustments may need to be applied to the page's margins using the Margins option tab. This will create a visual effect only if the slides have room to move horizontally within their matrix areas. If your slides do not move when they have been justified, use the Scale option to reduce their size.

ScalaPrint - Labeling

This panel offers a variety of options to control the labeling of your slides on the printed pages.

Title?

This option is on by default, and will place the name of your script, without its file extension, at the top of each page of your print job. When this option is turned on, you will see a representation of the title displayed at the top of the page preview. When off, the printed pages will not contain a heading.

Page Number?

This enables/disables printing the print job's page number at the bottom of each page. The page number represents the order of the pages as they are generated by the printer for the current print job, and does not necessarily correspond to the numbering of pages in the script. If this option is turned on, you will see a Greek numbered representation (1, 2, 3, etc.) of the page number displayed at the bottom of the page preview. For example, suppose you select pages 1, 3, and 5 from the Main View, and set the matrix to 1 × 1 in ScalaPrint, so each slide prints on one page. You have defined a print job of 3 pages. These pages, if you turn on **Page Number?**, will be pages 1, 2, and 3 of the print job. The print job's page numbers do not correspond to the script's page numbers.

Frames?

You can choose to have a beveled frame, similar to a picture frame, placed around your slides. If you turn this option on, a predefined frame is placed around each slide. Thin lines representing the frames outlining each slide will appear in the page preview. But if you leave it off, (the default setting), the slide will be displayed and printed without a border. ScalaPrint frames are the same thickness regardless of slide size.

Slide Name?

Turn this on to enable the name of a slide to print directly underneath the slide image. The slide name corresponds to the script's assigned page name, including the extension if a file name is used. With this option on, you will see a representation of the slide name displayed underneath and to the left of each slide in the page preview. This option is off by default.

Slide Number?

This option enables/disables printing the slide's script page number, which is the same as the script's page number, directly underneath the slide image. If a slide is part of a group of pages in the Main View, the slide number will be printed as the Group number, followed by a dash (-), and the page number within the group. With this option on, you will see a representation of the slide number displayed underneath and to the right of each slide in the page preview.

ScalaPrint - Margins

You can adjust the margins of the printed page by using the Top, Left, Bottom, and Right value controls on the **Margins** panel.

The units of measure indicated on the value controls are controlled by the **Margin Units:** selector. Adjusting the margins is useful when you need to leave room for binding your printout.

Printer devices have different minimum margin settings, and you may find the minimal margin you selected is not supported by your printer. If your images, text, or labels seem to be cut off near the page edge, consult the printer manual to determine the printer's minimum supported margin.

Margin Units

Margins can be specified as either 1/16 ths of an inch (English units) or millimeters (metric units). Use this selector to switch between English and metric. When you change between millimeters and 1/16 ths of an inch, the individual margin values will accurately convert from metric to English and vice versa.

ScalaPrint - Printer

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The panel will allow you to adjust physical printing options, including allowing you to choose the print device itself.

Printer

Choose from the list of available printers your computer is set up to use. You can select only from those printers configured in the Windows Printers folder. If the desired printer name is not available from the selector, check your system's printer settings. The default printer displayed in ScalaPrint will match your default Windows printer.

Paper

Choose a paper size for your print job. The sizes listed are those which the currently selected printer accommodates.

Printer Properties

Clicking this button will open the Windows Printer Properties dialog. You can then select from among the other features which is offered by the selected printer driver. Other than to select printer device, paper size, number of copies and paper orientation, you must use the external Windows Printer Properties dialog to change the current printer's features.

For these printer settings which you can also make directly in ScalaPrint, the corresponding settings in the Printer Properties sheet will reflect whatever choices have already been made. Similarly, changes which are made in Printer Properties are immediately reflected in ScalaPrint, when you click **OK** and return.

Main Toolbar: Preview and Play

Preview a Page(s)

The Preview icon helps you test and preview one or more pages of the script. However, what you see and hear is not necessarily everything that will appear on the selected pages. While using preview, events continuing from earlier pages will not be included in the playback.

Play

To see how everything flows and functions together, it is necessary to use **Play**. It will always show the entire script, regardless of the selected pages.

Options during Playback

You can stop script playback at any time by pressing **Esc**.

Advancing

You can override any timing settings by pressing the main mouse button to reveal the next page in the sequence, or by using the secondary mouse button to return to the previous page. If you use the mouse buttons during the presentation of a page which represents another script, you will advance (or move back) through each page of the sub-script. Using the mouse to advance when the script has reached the last event, by default will loop back to the beginning of the script.

Main View Menus

The drop down menus in Main View cover the following activities:

- File
- Edit
- Add
- View
- Tools
- Help

Main View: File

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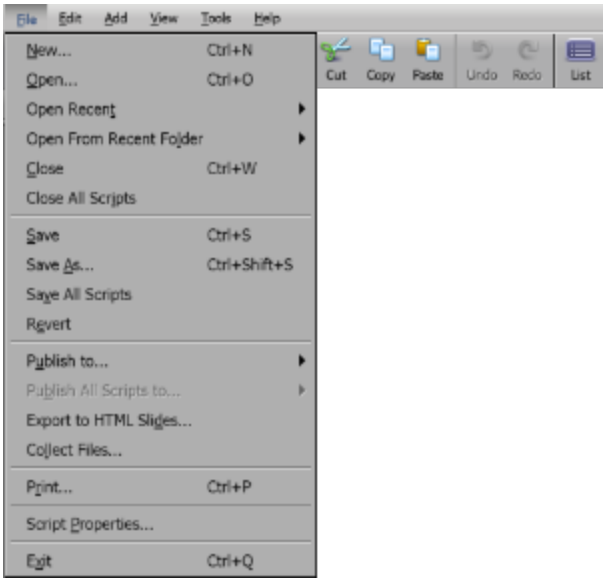

The File Menu has a number of functions available to assist you during the creative process, and it enables quick access to:

Function	Explanation
New **(Ctrl +N)**	Creates a new blank script.
Open	Brings up the Open Script File dialog with the Scripts folder displayed by default.
Open Recent	Lists recently used scripts to open without using the **Open Script File** dialog. The number of scripts listed can be set in Tools Options.
Open From Recent Folder	Lists recently used folders. Opens the **Open Script File** dialog for the Scripts folder selected. The number of folders listed can be set in Tools Options.
Close **(Ctrl +W)**	Closes the current script. Clicking on this button brings up a dialog asking if you want to save changes. Choose **Yes** to save and close the script or **No** to close without saving. Choose **Cancel** to leave the script open.
Close All Scripts	Closes all currently open scripts. For each script with unsaved modifications, indicated by the * next to the script name, you will be asked if you want to save changes. Choose **Yes** to save and close the script or **No** to close without saving. Choose **Cancel** to leave the script open.
Save **(CTRL+S)**	Saves the current script, if it has previously been saved, using its current name and location without opening the **File** dialog. If the script has not been previously saved the File dialog opens for you to choose a location and script name.
Save As	The File dialog opens for you to choose a location and script name even if it has previously been saved.
Save All	Saves all open scripts. Those scripts that have previously been saved will be updated under their current name and location without opening the File dialog, which will open for you to choose a location and script name for those scripts that have not been previously saved.
Revert	Opens the on-disk version (usually the last version saved to the disk). Discards all unsaved changes and cannot be undone. A warning dialog will be shown before this action is taken.
Publish To	Selects a publish location and opens the Publish to Scala Enterprise Content Manager option.
Publish All Scripts To	Selects a publish location and opens the Publish to Scala Enterprise Content Manager option.

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Export to HTML Slides	Opens the Export Script as an HTML Slides dialog, which exports the script to a Web server as a set of HTML pages that displays the script as a series of static images. Viewing the script in this format requires only a web browser.
Collect Files	Collects the script and all its media.
Print	Print the current script.
Script Properties	Opens a dialog allowing you to view and edit specific properties related to the current script.
Exit	Exits this session of Designer. If there are any open scripts that are unsaved, you will be prompted to do save them.

Additional Topics

More information relating to this section can be found at:

- Collecting a Script
- Adjusting Script Properties
- Closing a Script
- Quitting Designer

Collecting a Script

It is useful to be able to collect the final version of your script either for archival purposes or to send the script and the assets to another Designer. Collecting a Scala Script will save a copy of your script and create a folder with the same name as the script containing all of its media files. This script and the folder are separate copies of the script you are editing.

To collect a script:

1. Load or Create a script.
2. Select **File** from the drop-down menu and choose **Collect Files**.
3. Set the **Collect For** button to **Authoring**. The **Collecting For** option affects which fonts can be embedded in the script. Choosing **Playback**, allows embedding of fonts for playback but not editing. If a user does not have those fonts on their system, they cannot edit the script. If you choose **Authoring**, this limits embedding only to fonts that can be included with editable documents.
4. Click on the **Folder** button to select where the files will be collected (e.g. the Desktop).
5. Click the **Collect** button.

The ideal situation is that the other user already has the necessary fonts installed and embedding is not needed. Some fonts may not allow embedding at all. You must be sure to check the licensing requirements for any fonts you use. The TrueType fonts included with Scala Designer are freely re-distributable for any production you create, but only for non-commercial purposes. TrueType fonts which you acquire from other sources may have licensing restrictions which vary from manufacturer to manufacturer. It is your responsibility to comply with their requirements.

Sharing Scala Scripts

You can copy and distribute the script and its folder to other users. As long as they are kept together, Designer will be able to read them successfully.

Adjusting Script Properties

Users can access **Script Properties** in four ways:

From the **File Menu** by selecting **Script Properties**

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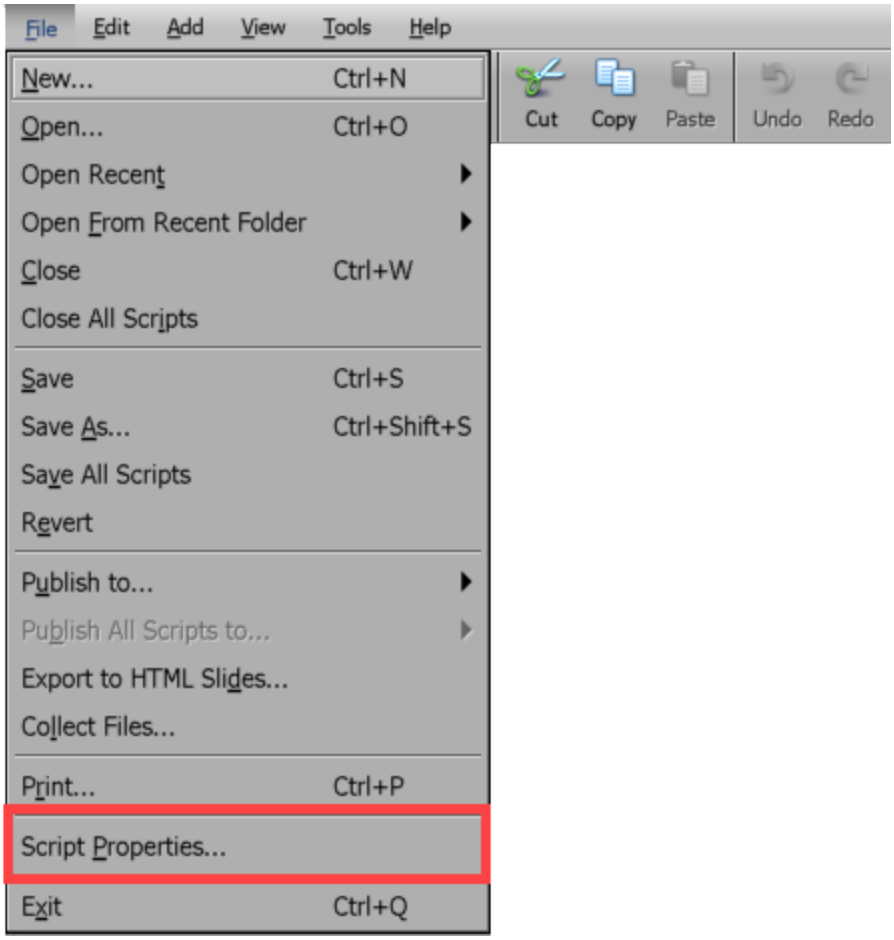
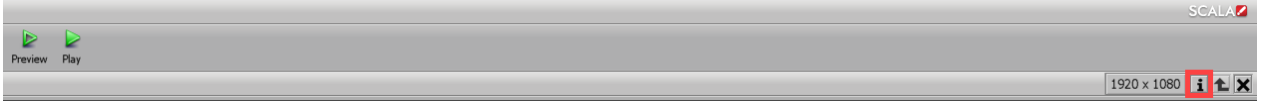


via the **Properties** icon in the **Toolbar**

via the **Script Properties** button, next to the Script Dimensions in the **Main View**.

or via the **Script Dimensions** in the **Main View**. Clicking the dimensions will take you directly to the **Dimensions** tab of **Script Properties**.



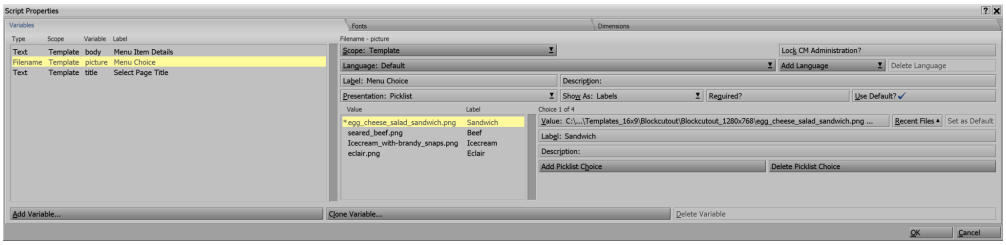
Script Properties opens a dialog allowing you to view and edit specific properties related to the current script. There are four tabs:

Tab	Function

Variables	Lists all variables used in the script, along with their Type, Scope and Initial Value. Scope and Initial value are allowed to be edited. If an array variable is selected, the Max Index can also be edited. This tab is frequently used to define the additional properties of Templates variables
Template	Allows the user to easily view, manage, and organize template sections, variables, and bound elements.
Fonts	Lists all fonts used in the script.
Dimensions	Allows the user to change the dimension of the pages in the script. All background images, videos or other types will be sized relative to the dimensions specified, using user specific rules. If different dimensions are used for full screen playback in the Options dialog, the elements on the script pages are rendered normally, but the page will be stretched/shrunk to fit the dimensions specified in the Options dialog.

Script Properties: Variables

The Variables tab enables you add, modify or delete the script's Variables.



Variables List (left hand section)

in this section the user is presented with a summary of all user defined variables in the script

The four columns in this panel are:

- **Type**: shows the type of each variable, and whether it is an array.
- **Scope**: shows whether each variable is a local, external, or template variable.
- **Variable**: shows the name of each variable.
- **Label**: shows the label for each template variable in the selected language, and shows nothing for non-template variables.

Variable Definition (right hand section)

This area shows the currently selected variable's details the choices available depend largely on the Scope and Type of the Variable along with sub-options chosen

Scope:

Local and External

When setting the scope to either Local or External only the **Initial Value** can be set
Template

Selecting Template as the scope allows the creator to specify many attributes that will be presented to the user when creating a message from within Content Managers.

Template Attribute	Description
Lock CM Admin?	Checking this option prevents the Content Manager's Template Administrator from changing this template field's presentation details
Language	Choose a language to author labels and descriptions for Content Manager to use when creating a message. Default is used to author text for Content Manager to use when a specific language is not available.
Description	Enter a description for this template field in the selected language, to be used by Content Manager when creating a message.

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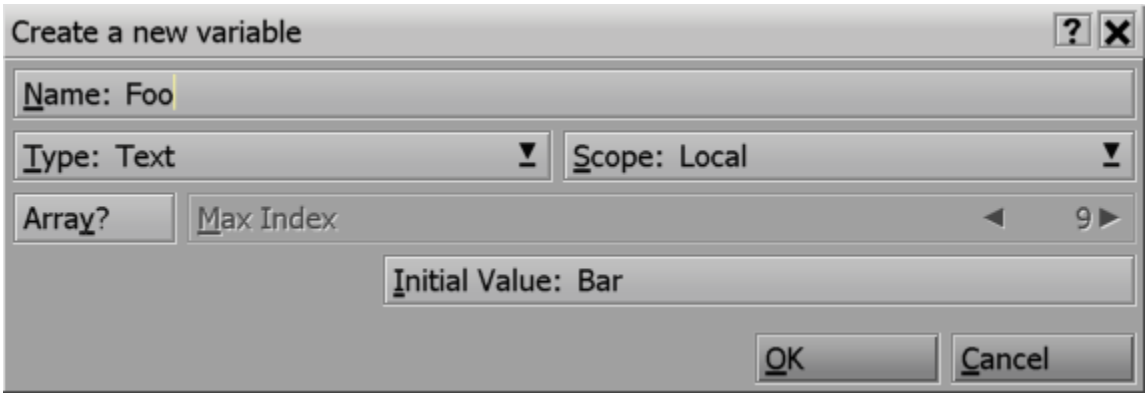
Add Language	Add a specific language to author labels and descriptions for Content Manager to use when creating a message.
Delete Language	Remove translations for the current language from all template fields in the script. Default translations cannot be removed.

For a more detailed discussion of the template attributes that can be set for each of the Variable types, please go to Template Field Variables.

Note: Arrays
An array variable can only use either a Local or External scope and you cannot use template scope and a template variable cannot be set to an array.

Add Variable...

Selecting **Add Variable** opens the **Create a New variable** dialog



Name: Enter a name for your variable. The UI will only allow valid characters for the name.

Note:
The remaining fields are enabled once you have started typing the name and thee options displayed will be determined by the Type and Scope selected

Type: Select the type of variable you want to create. Your choices are:

Type	Description
Text	Text string
Boolean	Boolean value
Integer	32-bit integer value
Real	32-bit floating point value
Filename	File name
Script	ScalaScript file name
Resource	Page-reference label

Note:
When you bind an element property, and you are allowed to select the type, that means you can bind the element's property in different ways.

Scope: Select the scope of the variable.

Scope	Description

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Local	Only visible inside this script, or within subscripts called by this script.
External	Way to access a variable that may already exist outside of the current script. This may be a variable defined in a parent script, a variable in the playback environment on remote players, channel variables defined in Content Manager, or player metadata. If no variable by this name is found at runtime, then a local variable is created instead.
Template	Variable whose value will be requested by Content Manager when creating messages from this template script. A script containing one or more template variables at the time it is published will be treated by Content Manager as a Template rather than a Media-item.

Array?: Turning this on enables you to define a variable array:

> **Note:**
> If the scope of the variable was set to **Template** before turning Array? on, the scope will change to External as a template variable cannot be used in an array.

- **Max Index**: Set the Array size.
- **Current Index**: Adjust the Current Index value in order to enter the initial value for it.
- **Initial Value**: Enter the initial value according to the Type of Variable defined. Some Types have additional controls/selection options.

Type	Description
Text	Enter a text string.
Boolean	Select On (True) or Off (False) The default is Off (False).
Integer	Enter a 32-bit integer value.
Real	Enter a 32-bit floating point value.
Filename	Select a file name using either the File dialog or from Recent Media dropbox.
Script	Enter a ScalaScript file name using either the File dialog or from Recent Scripts dropbox.
Resource	The initial Value for a resource cannot be set using this dialog.

- **OK**: Create the new variable.
- **Cancel**: Discard the variable's definition.

Clone Variable...

First select the variable you wish to clone from the Variables panel on the left.
Select the **Clone Variable**... button, which creates a new variable using the same settings as the selected variable.

You can then adjust these settings for the new variable.

Delete Variable...

First select the variable you wish to delete from the Variables panel on the left
Select the **Delete Variable**... button, which then deletes the variable selected.

> **Note:**
> If you accidentally delete the wrong variable, close the dialog and use the undo button, then return to the Script Properties to continue defining Variables.

Template Field Variables

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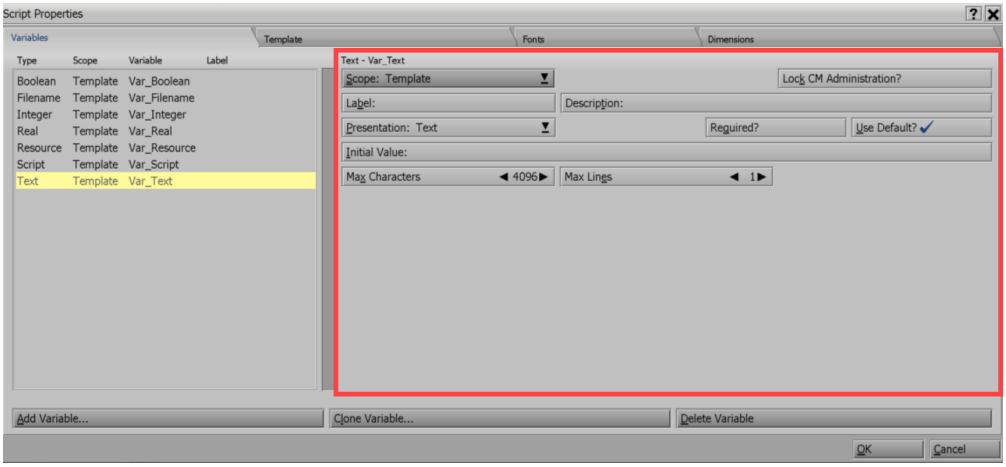

The right pane of the **Script Properties Variables tab** contains the settings for any variable that is highlighted in the Variables List.

The following information describes the options available to users when creating variables to be used as template fields in Content Manager's Message Creator.

> ⚠ Local and External variables will not be displayed during the Message Creation process.

General Settings

The following fields display with all template variable types:

General Template Attributes	Description
Scope	Set the scope of the variable as Local, External, or Template. Ensure that the variables scope has been set to Template (Local and External variables will not be displayed during the Message Creation process).
Lock CM Admin?	Checking this option prevents the Content Manager's Template Administrator from changing this template field's presentation details
Label	Enter a label for this template field in the selected language, to be used by Content Manager when creating a message
Description	Enter a description for this template field in the selected language, to be used by Content Manager when creating a message.
Presentation	Choose how Content Manager will present this template field when creating a message.
Required?	Require Content Manager to fill in this template when creating a message.
Use Default?	Allow Content Manager to initialize this template field with a default value when creating a message. If this button is selected, Content Manager will display a button to reset this template field to its default value.

Template Variable Types

Type	Description
Text	Text string
Boolean	Boolean value
Integer	32-bit integer value

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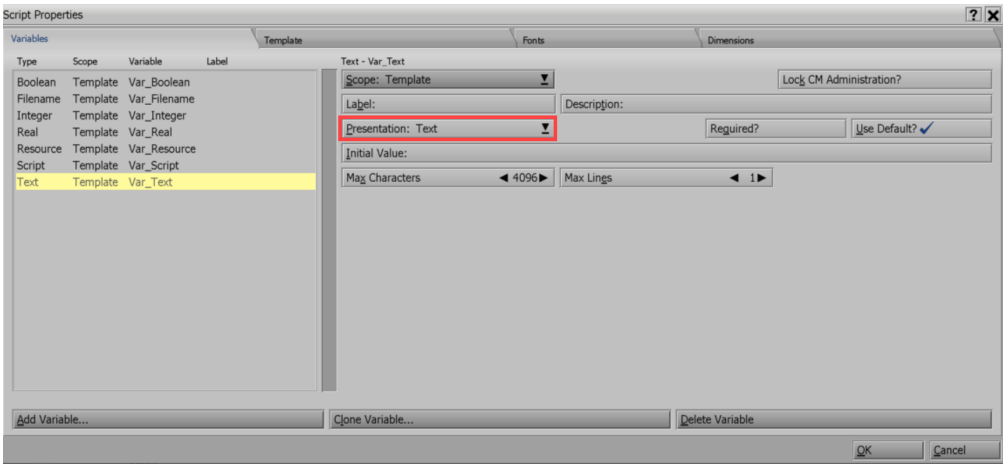
Real	32-bit floating point value
Filename	File name
Script	ScalaScript file name
Resource	Page-reference label

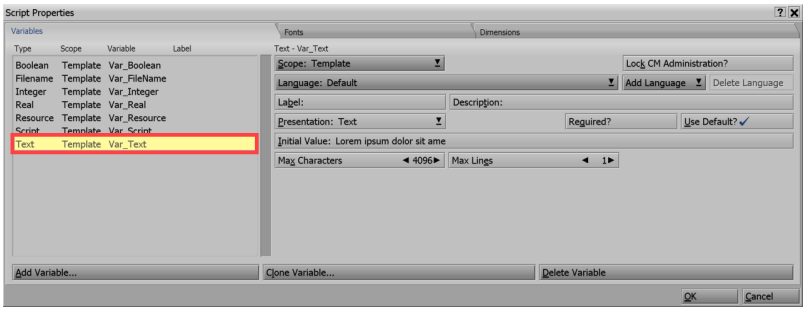
Each of the variable types listed above has different presentation options available via the **Presentation** drop-down menu.



Presentation Options by Variable Types

General Settings
Template Variable Types
Presentation Options by Variable Types
Variable Type: Text
Variable Type: Boolean
Variable Type: Integer
Variable Type: Real
Variable Type: Filename
Variable Type: Script
Variable Type: Resource

Variable Type: Text



Presentation

For **Text** variables, the **Presentation** drop-down choices are: Text, Radio, and Picklist.

TEXT

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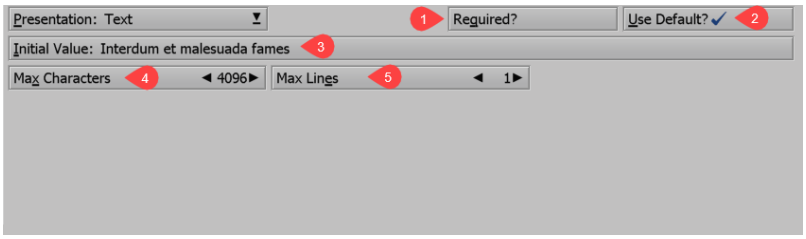
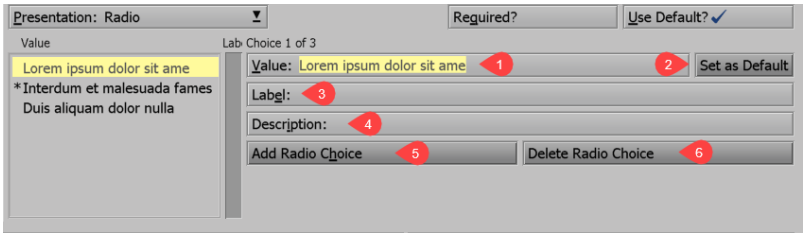


Number	Button	Description
1	**Required?**	When checked, this indicates that the user must make a selection for this field before the message can be saved.
2	**Use Default?**	When checked, the variable is initialized with the initial value and a button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value.
3	**Initial Value:**	Enter a text string that will be presented as the initial value
4	**Max Characters**	Enter a Number between 1 and 4096
5	**Max Lines:**	Enter a number between 1 and 10

> **Max Lines** has two functions:
>
> a) Controls the size of the text entry field when creating a message
>
> b) Controls the number of Carriage Returns (Line Feeds) that this text field can have (Paragraph Breaks)

RADIO



Number	Button	Description
1	**Value**	Enter the text value for the selected choice for the template field.
2	**Set As Default**	Make the selected choice's value the default value.
3	**Label**	Enter a label for the selected choice for the template field in the selected language.
4	**Description**	Enter a description for the selected choice for the template field in the selected language.
5	**Add Radio Choice**	Add a new choice to the template field's radio presentation.
6	**Delete Radio Choice**	Delete the selected choice from the template field's radio presentation.

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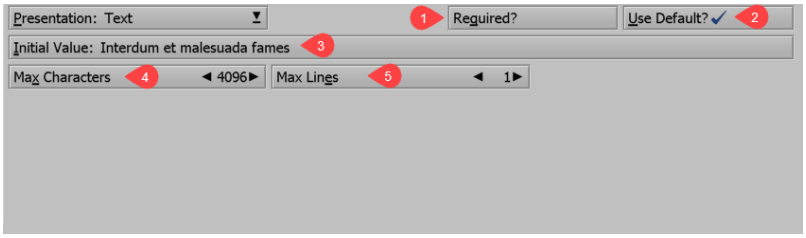
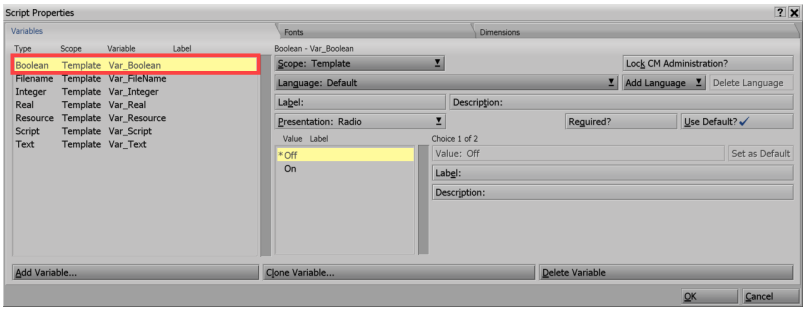
PICKLIST



Number	Button	Description
1	**Value**	Enter the text value for the selected choice for the template field.
2	**Set As Default**	Make the selected choice's value the default value.
3	**Label**	Enter a label for the selected choice for the template field in the selected language.
4	**Description**	Enter a description for the selected choice for the template field in the selected language.
5	**Add Picklist Choice**	Add a new choice to the template field's picklist presentation.
6	**Delete Picklist Choice**	Delete the selected choice from the template field's picklist presentation.

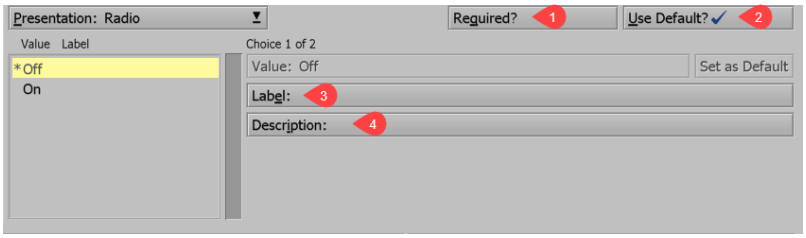
Variable Type: Boolean



Presentation

For **Boolean** variables, the **Presentation** choices are: Radio and Picklist.The choices are preset and both Radio and Picklist have the same options.

RADIO/PICKLIST



Number	Button	Description
1	**Required?**	When checked this indicates that the user must make a selection for this field before the message can be saved.

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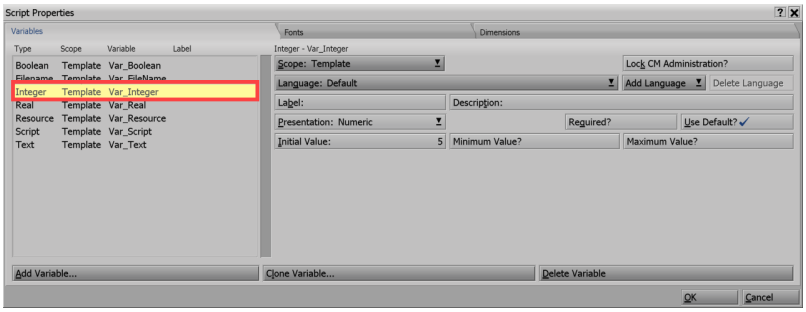
2	**Use Default?**	When Checked the variable is initialized with the initial value and a button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
3	**Label:**	Enter a label for the selected choice for the template field in the selected language.
4	**Description**	Enter a description for the selected choice for the template field in the selected language.

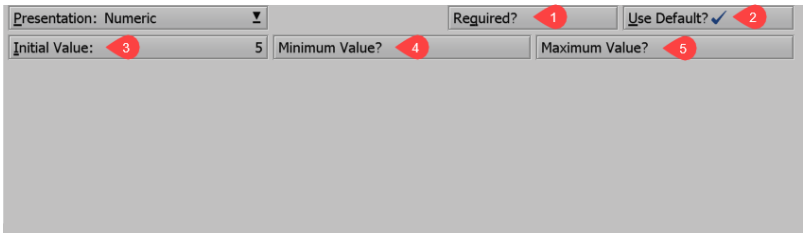
Variable Type: Integer



Presentation

For **Integer** variables, the **Presentation** choices are: Numeric, Radio, Picklist and Slider.

NUMERIC



Numbers	Button	Description
1	**Required?**	When checked this indicates that the user must make a selection for this field before the message can be saved.
2	**Use Default?**	When Checked the variable is initialized with the initial value and a button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
3	**Initial Value:**	Enter a numeric value that will be presented as the initial value
4	**Minimum Value?**	When checked will allow you to set the minimum value
5	**Maximum Value**	When checked will allow you to set the maximum value

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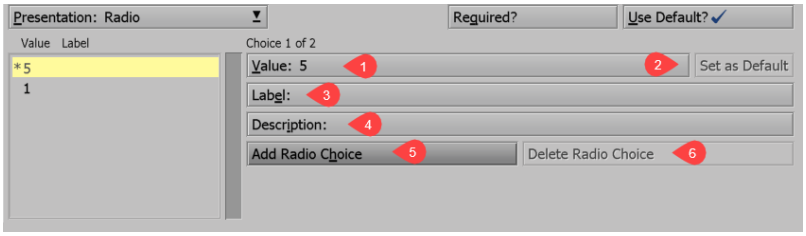
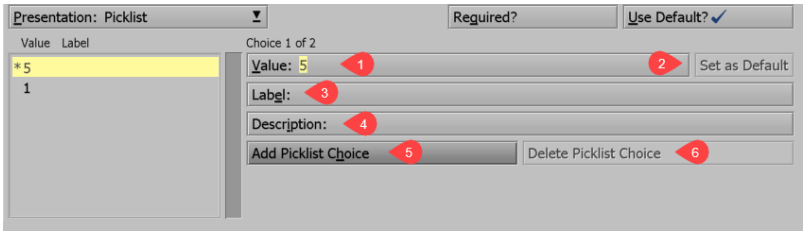
RADIO



Number	Button	Description
1	Value	Enter the numeric value for the selected choice for the template field.
2	Set As Default	Make the selected choice's value the default value.
3	Label	Enter a label for the selected choice for the template field in the selected language.
4	Description	Enter a description for the selected choice for the template field in the selected language.
5	Add Radio Choice	Add a new choice to the template field's radio presentation.
6	Delete Radio Choice	Delete the selected choice from the template field's radio presentation.

PICKLIST



Number	Button	Description
1	Value	Enter the numeric value for the selected choice for the template field.
2	Set As Default	Make the selected choice's value the default value.
3	Label	Enter a label for the selected choice for the template field in the selected language.
4	Description	Enter a description for the selected choice for the template field in the selected language.
5	Add Picklist Choice	Add a new choice to the template field's picklist presentation.
6	Delete PicklistChoice	Delete the selected choice from the template field's picklist presentation.

SLIDER

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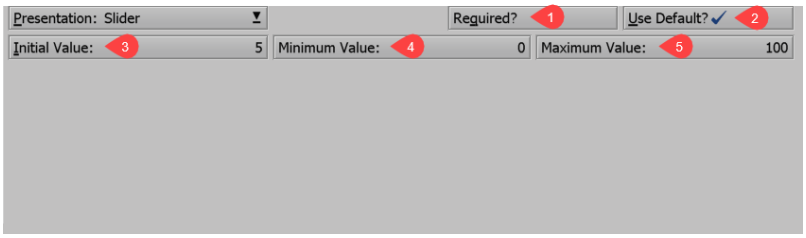
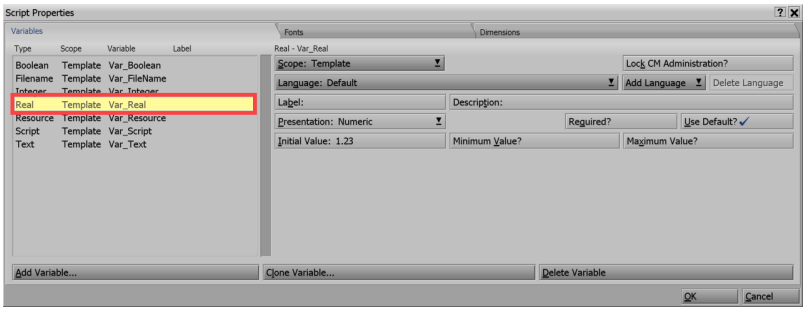


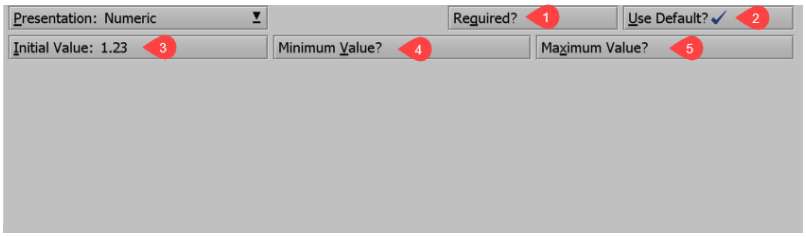
Number	Button	Description
1	**Required?**	When checked this indicates that the user must make a selection for this field before the message can be saved.
2	**Use Default?**	When Checked the variable is initialized with the initial value and a button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
3	**Initial Value:**	Enter a numeric value that will be presented as the initial value
4	**Minimum Value**	Set the minimum value of the Slider
5	**Maximum Value**	Set the maximum value of the Slider

Variable Type: RealPresentation

For **Real** variables, the presentation choices are: Numeric, Radio and Picklist.



NUMERIC



Number	Button	Description
1	**Required?**	When checked this indicates that the user must make a selection for this field before the message can be saved.
2	**Use Default?**	When Checked the variable is initialized with the initial value and a button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
3	**Initial Value:**	Enter a numeric value that will be presented as the initial value

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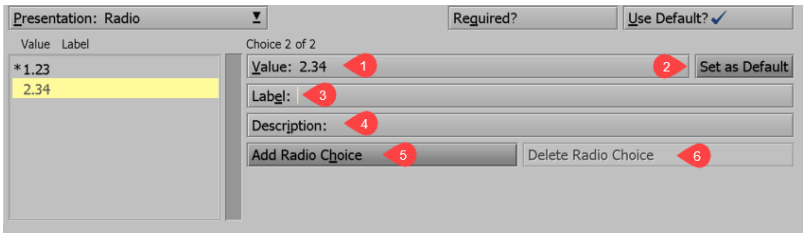
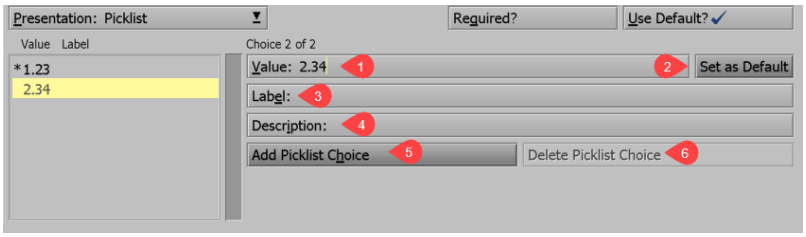
4	**Minimum Value?**	When checked will allow you to set the minimum value
5	**Maximum Value**	When checked will allow you to set the maximum value

RADIO



Number	Button	Description
1	Value	Enter the numeric value for the selected choice for the template field.
2	Set As Default	Make the selected choice's value the default value.
3	Label	Enter a label for the selected choice for the template field in the selected language.
4	Description	Enter a description for the selected choice for the template field in the selected language.
5	Add Radio Choice	Add a new choice to the template field's radio presentation.
6	Delete Radio Choice	Delete the selected choice from the template field's radio presentation.

PICKLIST



Number	Button	Description
1	Value	Enter the numeric value for the selected choice for the template field.
2	Set As Default	Make the selected choice's value the default value.
3	Label	Enter a label for the selected choice for the template field in the selected language.
4	Description	Enter a description for the selected choice for the template field in the selected language.
5	Add Picklist Choice	Add a new choice to the template field's picklist presentation.

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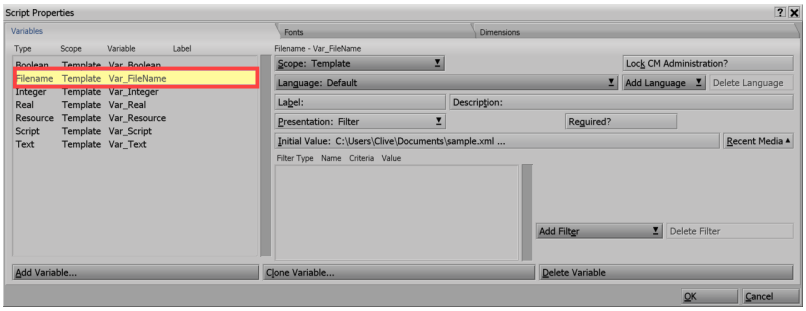
6	Delete Picklist Choice	Delete the selected choice from the template field's picklist presentation.

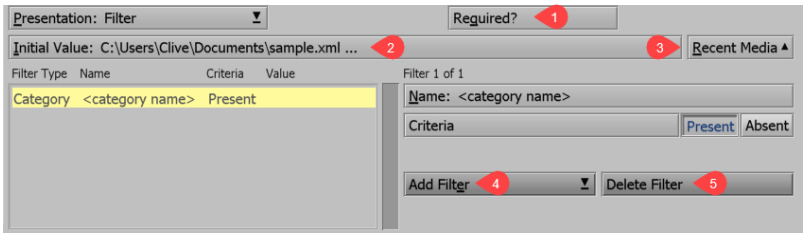
Variable Type: Filename



Presentation

For **Filename** variables, the presentation choices are: Filter, Radio and Picklist.

FILTER



Filter gives you the ability to specify the criteria for the file list presented to the user when creating a Message within Content Manager.

Number	Button	Description
1	**Required?**	When checked this indicates that the user must make a selection for this field before the message can be saved.
2	**Initial Value:**	Opens a file dialog to choose the initial value for the filename variable. A button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
3	**Recent Media**	Choose from recently used media files.
4	**Add Filter**	Allows you to select one of the four filter types: Category, String Metadata, Integer Metadata and Boolean Metadata associated to Media Items in Content Manager
5	**Delete Filter**	Will delete the selected Filter

Criteria Names
The Name used should match that in Content Manager. For more information about Filter Criteria, see Filter Criteria.

RADIO

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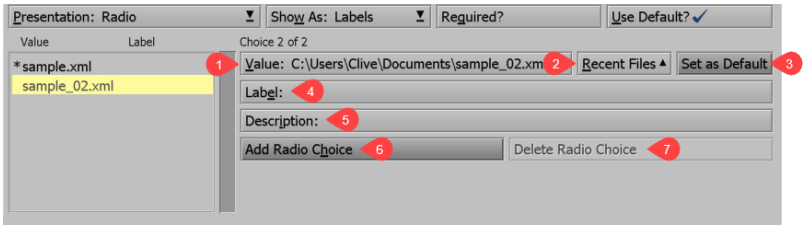
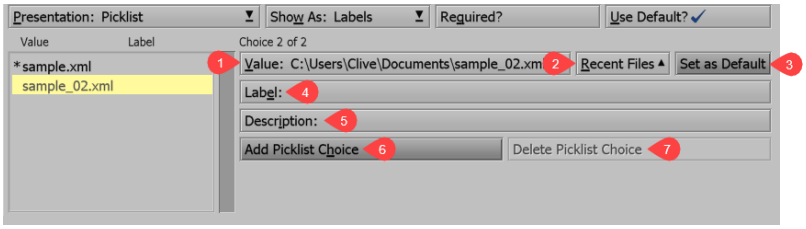


Number	Button	Description
1	Value	Opens a file dialog to choose a file for the selected choice for the template field.
2	Recent Files	4Choose a recently used file for the selected choice for the template field.
3	Set As Default	Make the selected choice's value the default value.
4	Label	Enter a label for the selected choice for the template field in the selected language.
5	Description	Enter a description for the selected choice for the template field in the selected language.
6	Add Radio Choice	Add a new choice to the template field's radio presentation.
7	Delete Radio Choice	Delete the selected choice from the template field's radio presentation.

PICKLIST



Number	Button	Description
1	Value	Opens a file dialog to choose a file for the selected choice for the template field.
2	Recent Files	Choose a recently used file for the selected choice for the template field.
3	Set As Default	Make the selected choice's value the default value.
4	Label	Enter a label for the selected choice for the template field in the selected language.
5	Description	Enter a description for the selected choice for the template field in the selected language.
6	Add Picklist Choice	Add a new choice to the template field's picklist presentation.
7	Delete Picklist Choice	Delete the selected choice from the template field's picklist presentation.

Variable Type: Script

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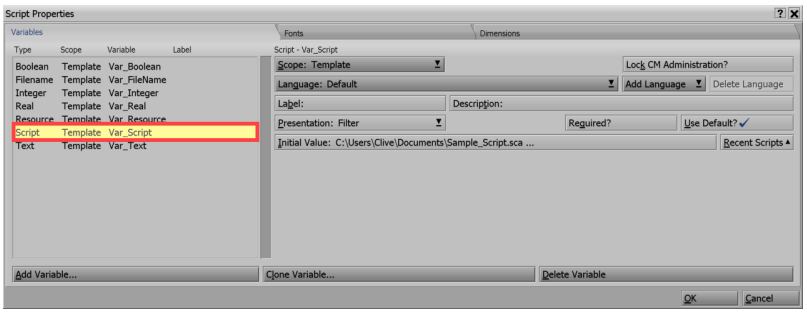
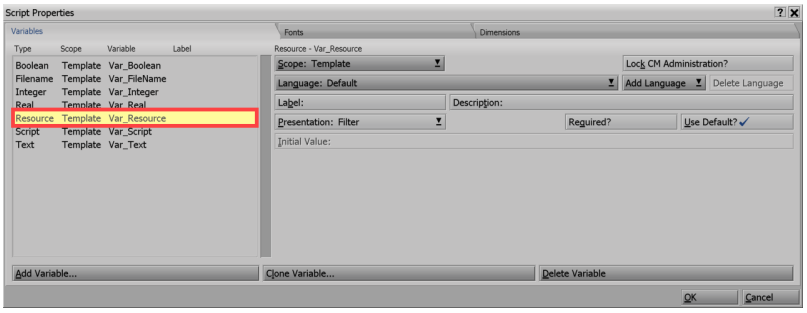


Presentation

For **Script** variables, the presentation choice is fixed to a Filter of ScalaScripts.

Number	Button	Description
1	**Required?**	When checked this indicates that the user must make a selection for this field before the message can be saved.
2	**Use Default?**	When Checked the variable is initialized with the initial value and a button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
3	**Initial Value:**	Opens a file dialog to choose the initial ScalaScript file. A button will appear in Content Manager Message Creation to enable the user to reset their choice to this Initial Value
4	**Recent Scripts**	Choose from recently used Scala Script files.

Variable Type: Resource



This type of bound variable is available when binding a ScalaScript page. It will offer the Message creator a list of Playlists to select from. There are no parameters that can be set.

Filter Criteria

For **Filename** variables, the presentation choices are: Filter, Radio, and Picklist.

Filter gives the user the ability to specify the criteria for the file list that is presented when creating a message in Content Manager. Read the information below to learn more about the options for Filter Criteria.

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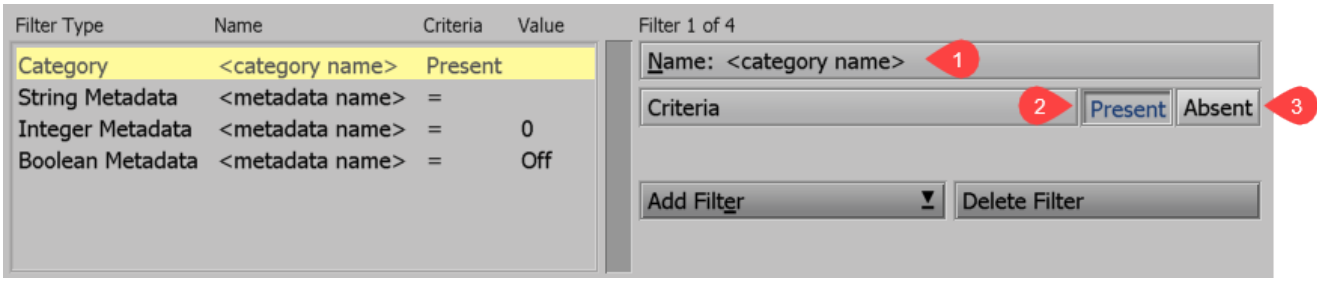
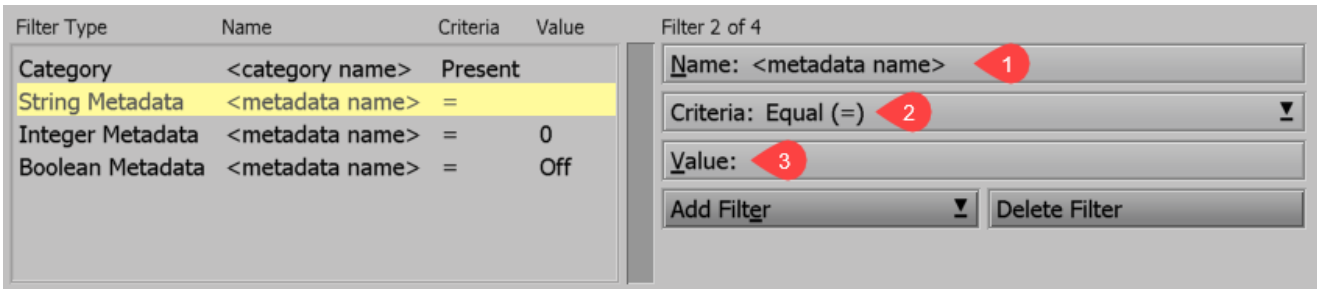
Criteria Names
The Name used should match what is used in Content Manager

Filter Criteria: Category



Number	Button	Description
1	**Name**	Specify the Name of the Media Category in Content Manager
2	**Criteria Present**	Media Item, within Content Manager, must include the named category for the file to be offered in the file selector
3	**Criteria Absent**	Media Item, within Content Manager, must not include the named category for the file to be offered in the file selector

Filter Criteria: String Metadata



Number	Button	Description
1	**Name**	Specify the Name of the Media String Metadata in Content Manager
2	**Criteria**	• **Equal (=):** metadata value must match the stated value. • **Not Equal (<>):** metadata value must not match the stated value.
3	**Value**	Specify the string value of the String Metadata for the file to be offered in the file selector

Filter Criteria: Integer Metadata

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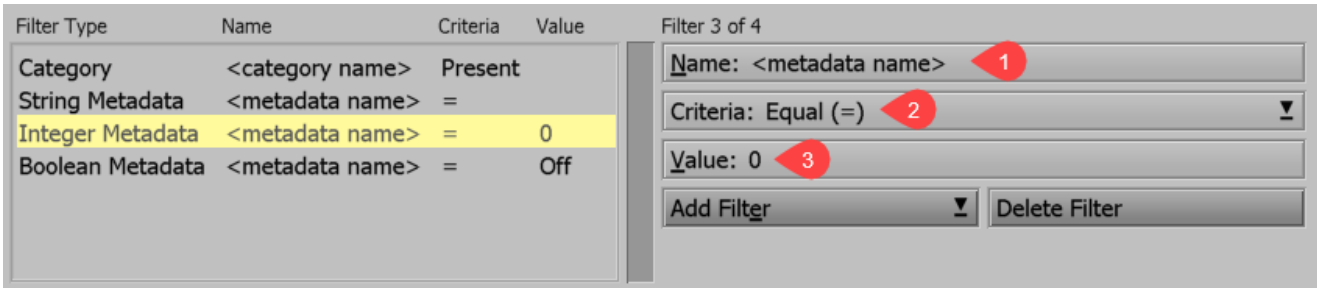
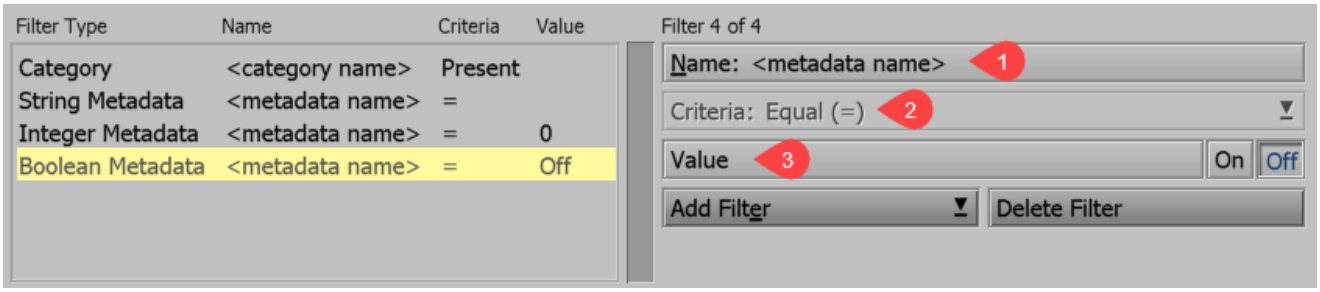


Number	Button	Description
1	**Name**	Specify the Name of the Media Integer Metadata in Content Manager
2	**Criteria**	• **Equal (=):** metadata value must match the stated value. • **Not Equal (<>):** metadata value must not match the stated value. • **Less Than (<):** metadata value must be less than the stated value. • **Less Than or Equal (<=):** metadata value must be less than or equal to the stated value. • **Greater Than (>):** metadata value must be greater than the stated value. • **Greater Than or Equal (>=):** metadata value must be greater than or equal to the stated value.
3	**Value**	Specify the string value of the Integer Metadata for the file to be offered in the file selector

Filter Criteria: Boolean Metadata



Number	Button	Description
1	**Name**	Specify the Name of the Media Boolean Metadata in Content Manager
2	**Criteria**	**Equal (=):** metadata value must match the stated value. This field cannot be edited.
3	**Value**	Specify the Boolean value of the Boolean Metadata for the file to be offered in the file selector: • **On** (True) • **Off** (False)

Script Properties: Template

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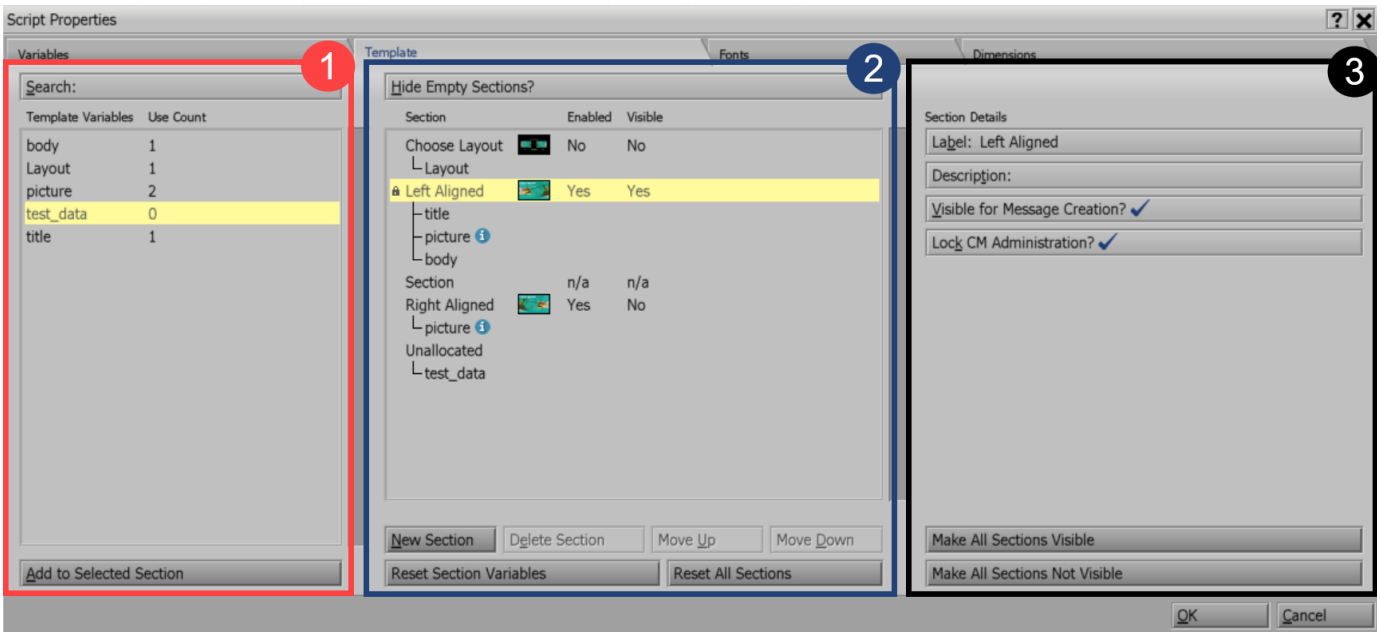
- Introduction to Script Properties: Template
  - Variables Pane
  - Sections Pane
    - Moving Variables
    - Enabled and Visible Statuses
  - Details Pane
    - Section Details

Introduction to Script Properties: Template



The Template tab allows a designer to adjust the pages and/or template variables that are presented during message creation in Content Manager, streamlining the process. There are 3 main sections of the template tab:

1	Variables Pane	Allows the user to see template variables an d usage count within the template sections.
2	Sections Pane	Allows the user to see, manage, and move sections in the current template.
3	Details Pane	Allows the user to manage labels, description, administration, and visibility settings in the current template.

Variables Pane

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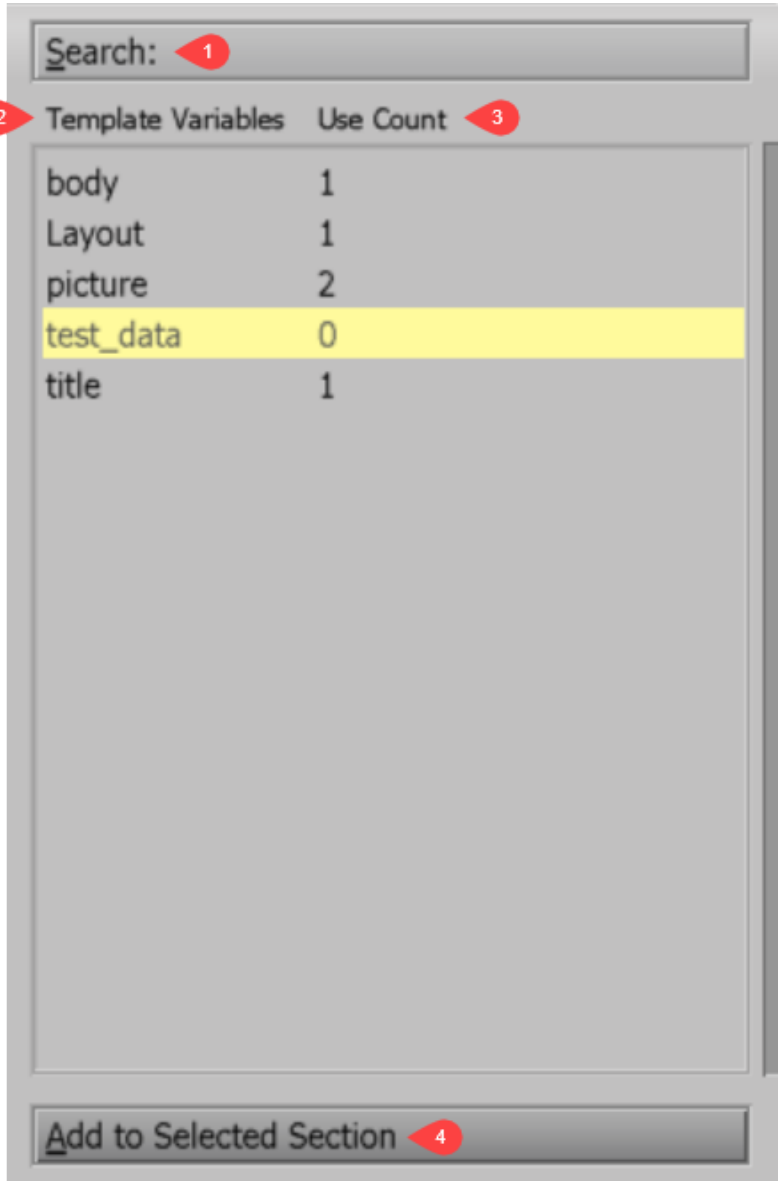

Number	Feature	Description
1	**Search for Variable**	Type the variable name here to search quickly.
2	**Template Variables**	Lists all template variables in the current template.
3	**Use Count**	Indicates the number of times a variable is presented in the section. **Note**: If a variable is used zero times, it will appear in the unallocated section of the **Sections Pane**.
4	**Add To Selected Section**	Add the selected variable to a designated section in the Sections List.

Sections Pane

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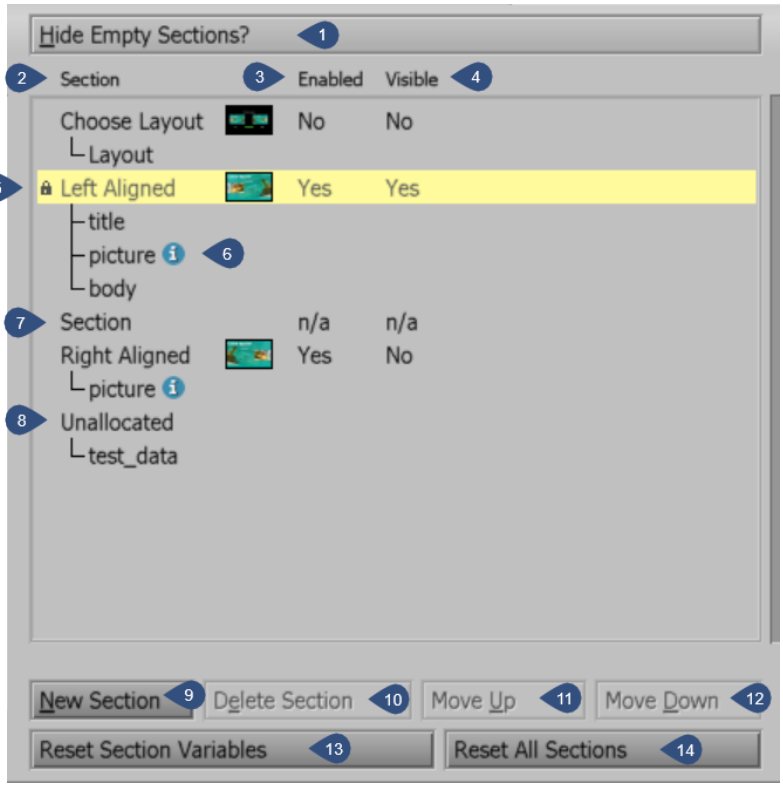

Number	Feature	Description
1	**Hide Empty Sections?**	Allows the user to hide sections that have no template variables or visible thumbnail.
2	**Sections List**	Shows section name and any variables associated with that section.
3	**Enabled**	Indicates whether the page will show during playback. Pages can be enabled or disabled by right clicking the page and choosing Disable or Enable in the **Main Menu**. See Enabled and Visible Statuses for information about status options.
4	**Visible**	Create a visible thumbnail for a designated section. This feature can be turned on/off by clicking the **Visible for Message Creation** button in the Details Pane. See Enabled and Visible Statuses for information about status options.
5		Displays next to a section when a user has clicked **Lock CM Administration?**
6		Displays when a variable appears in more than one section.
7	**User-created Section**	This type of section has no visual page association. It can only contain variables, therefore n/a for **Enabled** and **Visible** options. Users can create this type of section by clicking **New Section**.
8	**Unallocated**	This section is visible only when the user has created variables athat are not assigned to any existing sections. See Moving Variables to learn how to move this type of variable.

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9	**New Section**	Add a new section into the Sections List.
10	**Delete Section**	Delete an existing section from the Sections List.
11	**Move Up**	Move a variable up the Sections List. This button becomes active when a variable is selected.
12	**Move Down**	Move a variable down the Sections List. This button becomes active when a variable is selected.
13	**Reset All Sections**	Removes all user-created sections. Any variables assigned to these sections are added to Unallocated. This button will also remove authored section information from the template script.
14	**Reset Section Variables**	Removes variables that aren't bound to elements on the selected page. This will remove all variables for user-created sections.

Moving Variables

In Designer 11.05, users can move variables via **drag-and-drop** to and from the Sections Pane and the Variables Pane. This enhancement can increase productivity by allowing users to shift variables faster, in a more intuitive manner.

User-created sections and unallocated variables can only be moved inside the **Sections List.**

Using the **Add to Selected Sections** button will move variables the same way, contingent on user preference.

Lastly, the user can also move variables without the use of a mouse with the **Add to Selected Section** button's hotkey (**ALT + a**) together with the arrow keys.

Enabled and Visible Statuses

Enabled	
Yes	**No**
Selected page plays during playback	Selected page does **not** play during playback
Visible	
Yes	**No**
Section thumbnail **is** visible in Content Manager	Section thumbnail is **not** visible in Content Manager

Details Pane

Section Details

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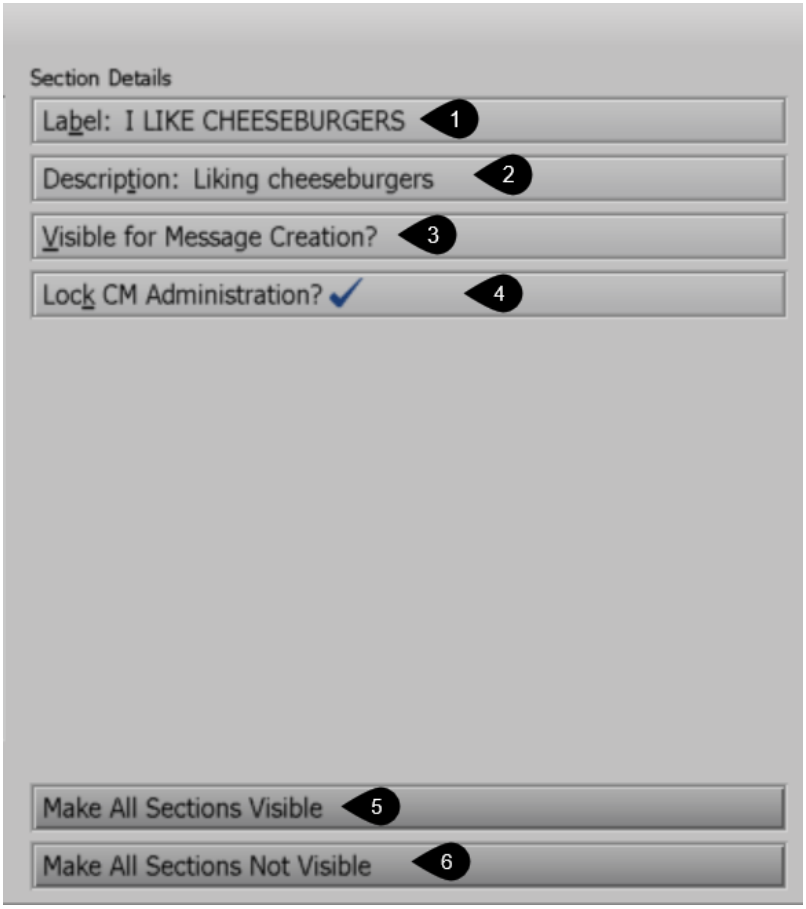

Number	Feature	Description
1	**Label**	Create a label for the selected template field. Content Manager will use this label when creating a message.
2	**Description**	Create a description for the selected template field. Content Manager will use this description when creating a message
3	**Visible for Message Creation?**	Allows the user to control whether a section thumbnail is visible when creating a message in Content Manager
4	**Lock CM Administration?**	Allows Content Manager to prevent another template administrator from changing information in the Section Details when a message is created. Locked sections will display a lock icon next to their name.
5	**Make All Sections Visible**	Allows the user to make all sections visible in Content Manager
6	**Make All Sections Not Visible**	Allows the user to hide all sections in Content Manager

Script Properties: Fonts

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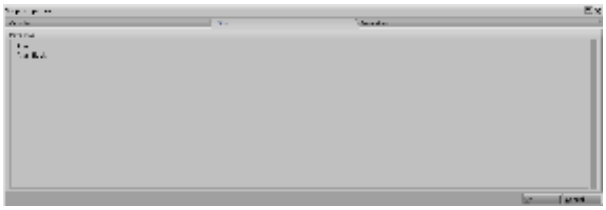
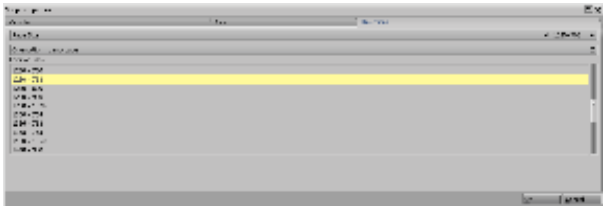


The Fonts table lists all the fonts used within the Script

Script Properties: Dimensions



Page Size:

Displays the page size for this script, in pixels horizontally and vertically.

The default size is 640 x 480, but you can pick another size from the Common Sizes list. The size you choose then appears in this control, where you can select either value and adjust it manually if you need a custom size.

Orientation:

Dictates wether the resolutions in the list below shall be presented with landscape or portrait aspect.

Common Sizes:

Lists common script page sizes to choose from.

When you select a size, it appears in the Page Size control.

Custom Sizes

If the size you require is not listed, you can modify either dimension by selecting and editing the value in the Page Size Control

Closing a Script

Click on the **Close** button in the script title bar to close your script.

If a script has unsaved changes, an asterisk (*) is shown in that script's tab in the Main View.

When you attempt to close a script that has been edited since you last saved it, you will see a dialog box asking if you want to save changes to the script you have made.

- Click **Yes** in the dialog to save the script before closing it.
- Click **No** if you want to close the script, discarding any changes to the script you made since you last saved.
- Click **Cancel** to leave the script open.

Quitting Designer

To stop working in Designer and quit your current session, click on the **Close** button in the Title Bar, or double-click the Designer icon on the left-hand side of the Title Bar.

If you attempt to close Designer when an open script has been edited since your last save, you will see a dialog box asking if you want to save the changes you made to your script.

- Click **Yes** in the dialog to save the script before closing the application.
- Click **No** if you want to close the application, discarding any changes to the script you made since you last saved.
- Click **Cancel** if you do not want to close Designer**.**

You will see this dialog for each open script that has been edited since the last time it was saved.

Main View: Edit

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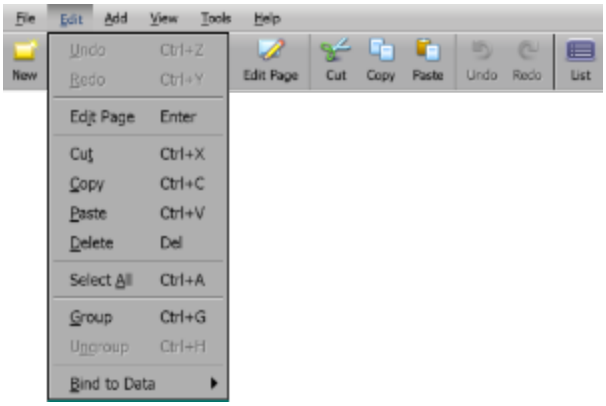
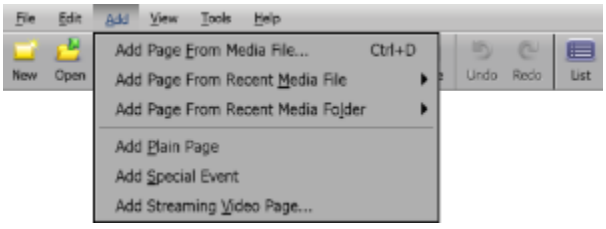


The Edit Menu has a number of functions available to assist the designer during the creative process, and enables quick access to:

Function	Keyboard Shortcut	Explanation
Undo	Ctrl+Z	Reverses the last change that you made to the script.
Redo	Ctrl+Y	Reverses the effect of the last Undo operation, restoring an editing change you had made.
Edit Page		Allows you to make edits to the script.
Cut	Ctrl+X	Removes selected items from the screen and places them on the clipboard.
Copy	Ctrl+C	Adds selected items to the clipboard.
Paste	Ctrl+V	Takes the most recently cut or copied item(s) from the clipboard into the sequence of pages, after the selected page.
Delete	Del	Removes selected items permanently. Deleti ng items from a script affects only the script, and has no effect on the files an item may refer to.
Select All	Ctrl+A	Selects all pages in the script.
Group	Ctrl+G	Groups all selected pages together into a single group. It can be nested (can contain sub-groups).
Ungroup	Ctrl+H	Dissolves a group into its constituent pages.
Bind to Data		Binds the current page or group to a Data field.

Main View: Add



The Add Menu has a number of functions available to assist you during the creative process, and enables quick access to:

Function	Explanation

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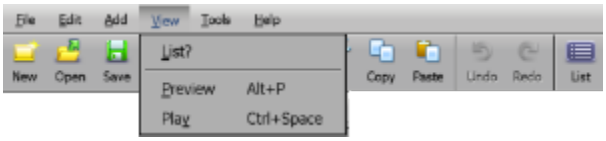
Add Page From Media File	Add a new page by opening the File dialog, where you can choose backgrounds or sub-scripts.
Add Page From Recent Media File	Choose from previously used media.
Add Page From Recent Media Folder	Choose media from a previously used media folder.
Add Plain Page	Add a page with a solid color background.
Add Special Event	Add an event other than a background, such as a sound event or pause or some other not visual event.
Add Streaming Video Page	Add a page whose source is a video stream.

Using Drag and Drop

Alternatively, you can drag media files into the Main View from your desktop and pages will automatically be created for you, and the media will be embedded into the script.

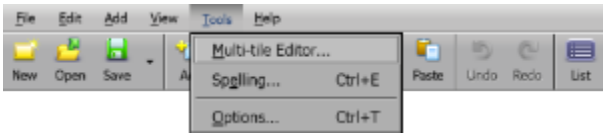
Main View: View



The View Menu has a number of functions available to assist you during the creative process, and enables quick access to:

Function	Explanation
List?	Toggles between Thumbnail and List Views.
Preview	Previews the currently selected page(s).
Play	Shows the entire script from the beginning.

Main View: Tools



The Tools Menu has a number of functions available to assist you during the creative process, and enables quick access to:

Function	Explanation
Multi-Tile Editor	Allows you to create and edit multi-tiles, graphic objects that are similar to clips. They may be resized without distorting their contents, and are ideal for use as text backdrops, which must change size to fit their contents.
Spelling	Begins checking the spelling of the text on the current page.
Options	Presents the Options dialog, which you can use to customize Scala Designer and control script performance.

Using the Multi-Tile Editor

The Multi-Tile Editor splits bitmapped elements into sections that can be stretched and scaled, while keeping their four corner integrity in shape and resolution. It will work with any imported JPG, BMP or PNG image file, and is a highly effective tool to quickly and seamlessly create scalable screen graphic elements.

Making a multi-tile image from an ordinary one is accomplished by using the Designer Multi-Tile Editor to slice the source image into nine tiling regions. There are three slices in each direction. The four corner regions will not change size, and are not duplicated when the multi-tile is sized.

The basic strategy to make a multi-tile is to make the framing slices (Left, Right, Top, and Bottom) just wide enough to contain the parts of the source image that form the borders of the image. The Center and Middle slices contain the areas of the image which can be duplicated.

The middle regions of the four outer slices are duplicated in the appropriate direction when the multi-tile is sized. The Top Middle and Bottom

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Middle regions are duplicated horizontally, and the Left Middle and Right Middle regions are duplicated vertically. This will ensure that the sides of the image, where you would typically have features such as beveled edges, shadows, etc., will continue to fit with the corner regions. The Center-Middle region is tiled, or duplicated, both horizontally and vertically as necessary to fill the internal area of the multi-tile for the desired size.

The key is to adjust the slice edges so they will precisely match the edges of the pattern which is to be repeated. The Center slice should be exactly as wide as the pattern, while the Middle slice should be exactly as tall.

Although you can use any image to make a multi-tile, to achieve optimal results, you should use a source image specifically created for this use. Typically this will be a rectangular graphic which contains shading or other special treatment of its edges and corners, along with a central pattern designed to fit seamlessly together when tiled. By using this image, the tiling will not be apparent, but the multi-tile interior will look like a single, unbroken surface and the edges will be continuous.

Clip-art libraries, particularly those intended for Web authoring, often contain graphics specifically designed with this purpose in mind.

Understanding the Multi-Tile Toolbar

Open

Clicking on the icon in the Multi-Tile Editor toolbar will open the File dialog. Choose a source image in any format, or an existing multi-tile (PNG format). When you have chosen an image, click **OK**. The Multi-Tile Editor containing your chosen image will appear, ready for editing. The name of the image will appear in the bar below the toolbar.

When you first open a plain image (one which is not already a multi-tile) into the Multi-Tile Editor, the Center and Middle slices are set to occupy the entire image. If your image is a uniform pattern, the other slices will be superfluous allowing you to simply adjust the granularity and immediately save the image.

Image Areas

The Multi-Tile Editor screen has two display areas.

1. The large area to the left is the Graphic Editor, which shows an enlarged version of the source image, and it is where you actually define the slices. The name of the currently open file will be shown in the bar above this area.
2. In the lower right of the editor is a tabbed display section which contains the Preview tab. It shows a stretched version of the source image, using the settings you have defined, and the Original tab, which shows the image at its natural, un-expanded dimensions. The Preview image will change in real time as you makes changes using the Slice Controls and Granularity settings. The example will then expand to fill the preview box, given the current settings. If the source image is too large, it may not be possible to fit a stretched image in the Preview panel. With a very large source image, the sample may extend beyond the edges of the box. If this occurs, simply drag the sample around in the Preview panel so you can easily see the outer areas.

Slice Controls

Above the Preview/Original tabs are the buttons of the Numeric Editor, which control the vertical and horizontal slices. Each of the six slice buttons displays two pixel values:

1. An offset (the number of pixels from the top edge or left edge of the source image)
2. Width.

When you select one of the buttons, the corresponding slice will be highlighted on the Graphic Editor's enlarged image. Changing the Numeric Editor values will change the dimensions of the slice in the editor. Similarly, clicking in the enlarged image will select a slice. By dragging the graphic handles on the sides of the slice, the pixel values on the corresponding button will automatically update. You can use either or both methods to define your slices.

By default, the edges of neighboring slices are stuck together. For example, when you move the right edge of the Middle slice, the left edge of the Right slice will move in tandem. This will ensure that the source image's pattern will match from slice to slice. The edges of the slices may also be adjusted independently. To independently control the edge of a slice, hold down **Ctrl** while dragging its handle. As you position the selected slice edge, the edge of the neighboring slice will not move. Once separated, the two edges will remain independent of one another, until they are moved again. The capability to separate slices may occasionally be useful, for example if there is one part of the source image which you want to constitute the repeated multi-tile pattern.

Granularity

In Designer, you can resize a clip arbitrarily to any pixel size. However, multi-tiles are resized in discrete increments which may be larger than a single pixel. The **Granularity** value control specifies the increments by the size which the multi-tile can be changed. A large granularity limits the number of possible sizes you can make; a small granularity allows you to resize more freely.

The control will allow you to adjust the horizontal and vertical granularity independently, in pixels. Click the Granularity control to activate it. This will also highlight the granularity setting graphically on the enlarged image. You can adjust the setting using the handles, similar to working with slices.

Generally, granularity should be small, such as 3 × 3. This will allow greater precision in sizing the multi-tile. The limiting factor in specifying the granularity is the source image, and the desired look when it is adjusted to its final size. With some source images, the exact granularity setting is not critical. However, others may call for a particular granularity value.

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There are two main reasons for specifying a particular granularity value:

1. **Prevent discontinuities between the center-middle slices and the Bottom and Right slices.**
   If the granularity is smaller than the size of the center-middle slice, segments of the Center and Middle slices (in granularity-sized increments) are used to complete any odd-sized area on the right and bottom of the fill area. These segments might not match with portions of the central pattern that could be present in the Bottom/Right slices.

2. **Ensure the pattern contained in the center-middle region will always reproduced in its entirety, not cut off from the bottom or right sides.**
   When the granularity is made equal to the size of the tile defined by the Center and Middle slices, only whole center-middle tiles will be displayed, and the pattern will not be cut off.

   The granularity of a multi-tile is not necessarily the same as the size of the center-middle region. Aside from the fact that granularity cannot be larger than the size of the center-middle region, the settings of Granularity, Center, and Middle are independent.

   This will allow you to optimize both the precision with which you can resize the multi-tile and the quality of the resulting image. The center-middle region is used as the basic tile unit to fill the multi-tile; Designer will always reproduce the full tile, or as much of it as possible within the space available. When the final size of the multi-tile cannot be filled by complete tiles, partial tiles will be used. The size of the partial tiles can vary in granularity-sized increments. Some multi-tile images have a large-scale pattern or shape, and will simply look better with a large center-middle tile. However, the nature of some large-scale patterns may allow a small granularity.

Save

To save a multi-tile which you have created or edited, simply click the **Save** icon in the Multi-Tile Editor toolbar to open the **File** dialog. You can also save the multi-tile to any location. Regardless of the format of the source image, multi-tiles will be saved as PNG files.

Close

Click **Close** to exit the Multi-Tile Editor and return to the Main View. You will be prompted to save any unsaved changes.

Using the Spell Checker

Designer includes a full-featured multilingual spell-checking tool that can quickly and automatically examine every text element in a script, and allow you to correct misspellings manually, or by choosing from a list of suggested alternatives.

Configuring the Spell Checker

The Designer Options dialog has a panel dedicated to the spell checker. Click **Tools** and choose **Options** to open the dialog, then click the **Spelli ng** tab to see the spell checker options panel.

Starting the Spell Checker

You can access the spell checker from the Main View or Page View. Starting the spell checker from the Page View will only apply to the current page until you advance to the next page. From the Main View, you can initiate spell check on any page.

When you initiate the spell checker, it will search the full text in a script, and sequentially highlight any words which appear to be misspelled. Unrecognized words, such as proper names, can be added to a user dictionary, to keep spell checker from stopping on them in the future.

Spell-Checking from the Main View

To start spell-checking from the Main view, click the **Tools** icon and choose **Spelling** from the drop-down list. The spell checker will begin checking the spelling starting with the highlighted word when you choose Spelling. You can begin the spell check on any particular page by selecting it in the Main View before running the spell checker.

Spell-Checking from the Page Views

To start spell-checking from any Page View, click the **Tools** pull-down menu and choose **Spelling**. The spell checker will begin checking the spelling starting with the page currently in the Page View.

When There are No Misspellings

When you run the spell checker on a script without misspelled words, you will not see the Spelling panel. Instead, the following dialog will appear: "**The spell check of this script is complete."**

Using the Spelling Panel

What you will see when the spell checker runs and finds a word which is not in either the main or the user dictionaries for that language is a panel that resembles a regular Design panel. The page currently being checked is displayed, with the Spelling panel at the bottom of the screen.

The unrecognized word will be highlighted in the text element on the page. If you do not see a highlighted word, the word maybe hidden beneath the Spelling panel.

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The highlighted word will also appear in the **Not in Dictionary:** text box. If the word is similar to a word in one of the dictionaries, the spell checker will offer a suggested replacement in the **Change To:** text box. Additional possibilities for the intended word may be offered in the **Suggestions:** s crolling list.

You have several options:

- **Accept the suggested correction:** Can be done either for this occurrence or all occurrences.
- **Make a different correction**: You can either use one of the suggested alternatives, or type the correct spelling yourself.
- **Tell the spell checker to ignore the word:** Can be done either for this occurrence only, for all occurrences in the current session, or always, by adding the word to the user dictionary.
- Delete the word from the page.
- Go to the Design Text Panel to edit the page.
- Preview the page.
- Move on to check the following page.
- Close the spell checker.

Changing the Highlighted Word

Clicking **Change** will replace the highlighted word on the page with the word in the **Change To:** text box. The corrected word will retain the same text styles as the original word. The spell checker will resume searching for any other unrecognized words on the page.

If the suggested correction in the text box is not the intended word, but the intended word is in the **Suggestions:** list, select the word in the list to make it appear in the **Change To**: box, and then click **Change**.

If the highlighted word or any suggestions are not correct, select the word in the **Change To:** box and type the intended word, and then click **Cha nge** to make the correction.

Ignoring a Word

To ignore the highlighted word, and allow the spell checker to continue checking the page, click **Ignore**.

To ignore the word and continue ignoring it for the remainder of your authoring session, click **Ignore All**. The word will be added to a temporary list in memory of words to ignore. Until you shut down and restart Designer, or use the **Reset Ignore All** option in the **Options** dialog from the **To ols** pull-down menu, the spell checker will not stop on that particular word.

Adding a Word to the User Dictionary

The dictionary which Designer checks spellings is extensive, but it cannot contain every word that might be used in a script.

Proper names, trademarks, technical terms, foreign words, and less common forms of existing words are likely to be unrecognized by the spell checker. To prevent the need to continually use **Add** for such words, the spell checker allows you to add them to a special user dictionary. This is similar to the **Ignore All** list, but because the user dictionary is a file stored on your hard drive, once entered, a saved word is ignored in future Designer sessions as well as the current session.

To add the highlighted word to the user dictionary, click **Add** in the Spelling panel. The word is then considered to be spelled correctly in this and any other script. Any variant forms of the word, such as plurals or those with different verb endings, will have to be added separately.

You can see the contents of the user dictionary, and delete any words on the **Spelling** panel of the Designer Options dialog.

Multiple Language Dictionaries

The custom user dictionary is language-specific. There can be several user dictionaries, each of which may contain only the words which were added when a particular spell check language was selected in Designer Options.

Editing the Page during Spell Checking

At times spelling corrections may change the lengths of words, and the layout of text on the page may be disrupted as a result. If this happens, simply navigate to the Page Views to adjust the layout, while in the middle of a spell checking session, then resume spell checking from where you left off.

To switch to the Design panel while spell-checking, click the **Design** button at the bottom of the **Spelling** panel. The Design Text Panel will appear, and the misspelled word will be highlighted. You can revise the positioning of text elements so everything will properly fit, and/or go to other Page Views to rearrange other elements.

When you have finished making your change, click the **Tools** pull-down menu and choose **Continue Spelling**. This choice will appear in place of Spelling in the Tools pull-down menu while spell checking is in progress. The Spelling panel will appear again, and spell checking will restart at the point where you left the dialog.

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Previewing the Page during Spell Checking

You can click the **Preview** button to see how the current page will look during playback.

Continuing the Spell Check

As you continue to click Change, Ignore, or Ignore All, the spell checker will move on to other text on the page. When all the text has been checked, the **Next Page** button will be enabled, requiring you to move to the next page and give you the opportunity to review the page, and if necessary, adjust the layout.

When you are satisfied with the page, click Next Page, which allows the spell checker to check the text of the following page in the script. Spell check will continue to check each subsequent page until it finds another misspelled word.

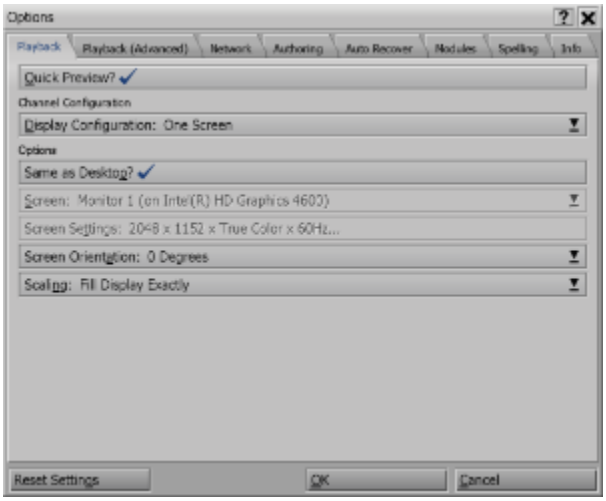
When the spell checker reaches the end of the script that you did not start checking on the first page, it goes back to the beginning and continues checking. Once the text in the script has been checked, the following message will appear: "**The spell check of this script is complete."**

Finishing a Spell Check

Click the **Close** button on the Spelling panel at any time to complete a spell checking session.

Designer Tool Options

Authoring Options



Select **Tools/Options** from the pull-down menu. This displays system information panel contains options that you can use to customize how Designer is presented and controls script performance. The following is a brief overview for each of the Tabs:

- **Playback:** Allows you to modify the options that control playback within Designer.
  - The **Display Configuration** button determines how Designer will display your script when you press Play. Normally this is set to Window mode.
  - In **Full-screen** mode, you can use the Quick Preview option to choose whether or not to swap to that resolution when you click Preview.
  - Scaling provides you with 3 choices for default playback.
    - **Fill Display Exactly**: Fills the entire display or window when playing back a Scala script. The default setting of Fill Display Exactly is recommended. You may choose Fit Inside Display if the script has an aspect ratio other than 16:9 (e.g.: portrait or designed for a sidebar frame).
    - **Fit Inside Display:** Choose if the script has an aspect ratio other than 16:9 (e.g.: portrait or designed for a sidebar frame), as this setting will preserve the media item(s) aspect ratio.
    - **Fill and Trim to Display**: Will also preserve the media item(s) aspect ratio.
- **Playback (Advanced):** Modify advanced options to conserve video memory for playback in Designer.
- **Network:** Contains options for Designer to connect via a Proxy server to Scala Enterprise Content Manager.
- **Authoring:** Modify the options that control the UI, including:
  - **Toolbar:** By, **Defaulting to Text and Icons**, you can minimize this to icons or text only once you are familiar with the UI.
  - **Skin:** Determines the icon sets and color scheme used for your interface.
  - **Show Off-Page Elements:** Extends your work surface by allowing you to work with elements outside of the page boundaries.
- **Auto Recover:** Allows you to modify the options that controls the Auto Recover feature including the time interval between check points.
- **Modules:** Shows the Scala modules installed and allows you to modify the configurable options.
- **Spelling:** Contains options you can use to customize the Spelling checker.
- **Info:** Shows system information.

Additional Topics

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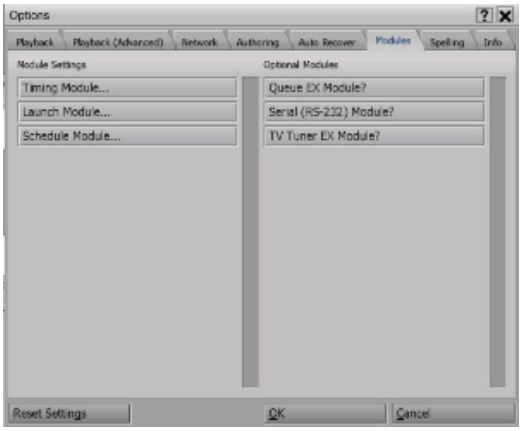
- Detailed explanations of the Scala Extension Modules can be found here.

Scala Extension Modules

The Modules tab in the shows the Scala Extension Modules (EX Modules) that are installed and allows you to modify the options of those that are configurable.



When you click a column button in a Main View, for the page you are working on, a menu for the corresponding Module will appear. You can then adjust the settings just as you would for similar columns in the Page List view.

Some Modules contain configuration settings. Modules such as Timing and Launch in the default Designer installation are shown in the Options dialog Module Settings list. The settings which are available with these dialogs are global settings. Any event or script which uses the corresponding Module will be affected.

In contrast, the Module menus which you see on the Main and Design List views control settings which are specific to a particular script event.

The Module Panel consists of two lists:

Module Settings

Lists the activated modules that have settings associated with them.

Click on a module name to open a dialog in which you can adjust the settings for that module.

Optional Modules

Lists the modules that are optional.

These can be activated or deactivated by clicking on them.

Deactivating a module may result in a column disappearing from the Main and List views.

If the optional module has configuration requirements then it will also appear in the Modules Settings list, such as the TV Tuner EX Module

Modules

- Timing Module
- Launch Module
- Schedule Module

If you are designing scripts to use of any of the following optional modules, it may be useful to note that feature-based licenses come bundled with these optional modules as part of the purchase costs:

- TV Tuner EX
- Queue EX

Local verification EX is not included with feature-based licenses. This module cannot be used for feature-based players.

Optional Modules

- TV Tuner EX Module
- Queue EX Module

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- Serial (RS-232) Module

Timing Module

The Timing Options dialog primarily controls how the Designer system variables, Time, Date and Weekday display their information. To choose time and date formats, simply click the Timing Module button in the Module Settings column. The variables dialog will appear with

- Time Format
- Date Format
- Weekday Format

With several options available, you can use the formats best suited for your geographic region (or the region in which your scripts will run). Day, date, and time are displayed in scripts by embedding those variables in the normal text.

Always Upper-Case?

If you prefer your text which appears in the timing variables (am/pm, October, Thursday) to be all in upper-case (AM/PM, OCTOBER, THURSDAY) simply turn on this option.

Time Format

Time Format has ten primary options, using different combinations of 12-hour and 24-hour, leading zero and seconds and a custom format. The following Table shows the Time formats available and the value of the Scala System Variable **timeformat.**

Time Format	Timeformat Value
07:30:58 (24h)	0
07:30 (24h)	1
7:30:58 (24h)	2
7:30 (24h)	3
07:30:58 am (12h)	4
07:30 am (12h)	5
7:30:58 am (12h)	6
7:30 am (12h)	7
Use Windows Regional Options: With Seconds	100
Use Windows Regional Options: Without Seconds	101
Use Windows Regional Options: In Custom format	102

The **custom time format** template consists of a combination of one pattern from each of these categories. The letters m, s, and t must be lowercase, and the letter h must be lowercase to denote the 12-hour clock or uppercase to denote the 24-hour clock.:
Hours

- **h**: Hours (12-hour clock).
- **hh**: Hours with leading zeros (12-hour clock).
- **H**: Hours (24-hour clock).
- **HH**: Hours with leading zeros (24-hour clock).

Minutes

- **m:** Minutes.
- **mm:** Minutes with leading zeros.

Seconds

- **s:** Seconds.
- **ss**: Seconds with leading zeros.

Time Marker (am/pm)

- **t:** Single-character time marker.
- **tt:** Multi-character time marker.

Date Format

Date Format has sixteen primary options, using different combinations of separators, leading zero, and day/month/year order and a custom format. The following Table shows the Date formats available and the value of the Scala System Variable **dateformat.**

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Date Format	Datefoemat vaule
"5 October 1999"	0
"5. October 1999"	1
"October 5, 1999"	2
"10/5/99"	3
"10/05/99"	4
"05/10/99"	5
"05-Oct-99"	6
"5-Oct-99"	7
"991005"	8
"99/10/05"	9
"05.10.99"	10
"5.10.99"	11
"5.10.1999"	12
"1999-10-05"	13
"Use Windows Regional Options" In Long Form	100
"Use Windows Regional Options" In Short Form	101
"Use Windows Regional Options" In Custom Format	102

The **custom date format** template consists of a combination of patterns from this list. The letters d, g, and y must be lowercase and the letter M must be uppercase:
Day

- **d:** Day of the month as digits.
- **dd:** Day of the month as digits with leading zeros.
- **ddd:** Day of the week, abbreviated.
- **dddd:** Day of the week.

Month

- **M:** Month as digits.
- **MM:** Month as digits with leading zeros.
- **MMM:** Month name, abbreviated.
- **MMMM:** Month name.

Year

- **y:** Single-digit Year.
- **yy:** Two-digit Year.
- **yyyy:** Four-digit Year.

Period/Era

- **gg:** Period/era name (ignored if the current calendar has no associated era name).

Weekday Format

Weekday Format has 15 primary options, using different combinations of separators, leading zero, and day/month/year order and a custom format. The following Table shows the Weekday formats available and the value of the Scala System Variable **weekdayformat.**

Weekday Format	Weekdayformat value
"Use Installed language" Full	0
"Use Installed language" Abbreviated	1
"Use English" Full	2
"Use English" Abbreviated	3

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"Use Windows Regional Options" Full	100
"Use Windows Regional Options" Abbreviated	101

Save

To save these settings as your defaults, and exit the **Timing** dialog, click **OK**. Click **Cancel** or the dialog close button to discard any unwanted changes.

Launch Module

The Launch Module allows a Scala Designer script to launch other applications and commands under script control. This capability may open security issues and possibly make the playback machine vulnerable to possibly damaging software and therefore care should be taken when changing this setting.

Security

This drop list contains the three options:

Option	Explanation
Warn When Opening	Default choice which causes a cautionary dialog to be displayed whenever you open a script that contains Launch events. Use this choice if you may be opening scripts from sources that cannot be trusted.
Disallow Opening	Prevents the opening or authoring of scripts that contain Launch events. If the scripts that you will be creating or using do not contain Launch events, select this choice.
No Warning When Opening	Disables Launch event warnings. This can be convenient for those who often work with scripts that contain Launch events and prefer to avoid the dialogs. If you select this choice, you should be careful when opening scripts from sources you do not trust.

Schedule Module

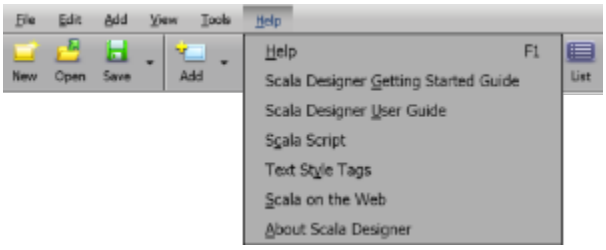
This provides options that specify the configuration of the Schedule Module and how the UI displays scheduling.

First Day of the Week

The two choices for this option are for the First Day of the Week: select Sunday or Monday.

Changes in these settings take effect when Scala Designer is restarted. It is important to note the the players schedule matches this setting. Week Numbers are used for scheduling as the the Start of the week can vary by a day.

Main View: Help



Designer has help both in-product and on-line documentation. The Help Menu enables quick access to:

Function	Explanation
Help	Press F1 to see help text for various elements in the Designer interface
Scala Designer Getting Started Guide	Opens the online Getting Started guide
Scala Designer User Guide	Opens the online user documentation front page

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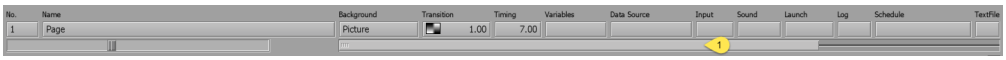
Scala Script	Opens a panel that provides information about syntax for Scala Script commands, functions, and variables
Text Style Tags	Opens a syntax document describing Embedded Tags supported by Text and Text Crawl elements
Scala on the Web	Opens www.scala.com
About Scala Designer	Shows version, copyright, and licensing information for Designer in the About Scala Designer window

The About Scala Designer Window

Use Ctrl + C to copy this information to the clipboard should you need to contact Scala Support.

- **Check Support Online:** Connects to Scala's License Server to verify the subscription coverage information and either downloads a new license file if one is available, or navigates to the Scala Maintenance Subscription web site for more options. The user must be connected to the internet to use this function.
- **Get License File Online:** Connects to Scala's License Server to download the latest license file associated with the Scala Designer USB Key and install it. The user must be connected to the internet to use this function.
- **Import License File...**: Use this button to install a license file you already have. In the file dialog that opens, locate your license file, select it and press **Open** to install it. The file must be for your Scala Designer USB Key.

Columns--EXtension Modules



The first two columns in the row are identified by number and name, and the remaining columns to the right are Module columns. The column buttons open different panels at the bottom of the Main View, allowing you to create settings associated with the entire script. Settings made in the Module panels are reflected in text or graphic form on the Column buttons. This will allow a quick overview of the various settings, such as transitions and sound effects, or to examine the settings in greater detail and make changes to refine the script, which can be done by clicking the Column button to open the associated panel.

Some columns only appear if the EXtension module has been enabled in **Options.** For example, the Series EX column has to be enabled in order for you to enter Serial commands and depending on the resolution of your screen you may have to scroll to see the additional columns using the scroll bar. **(1)**

Apart from column 1 (Number) and column 2 (Name), the column order may be adjusted by selecting the column header, and clicking and holding down the left mouse button, then dragging the heading either to the left or right. Similarly the column width can be adjusted by selecting the column spacer, found at top right of the column header. This allows you to move and size the columns you use the most into an order that works for you. This setting is remembered between Designer sessions.

The integrated Modules are always available. Optional Modules may be enabled in the Options dialog. Each Module extends the capabilities of your script and some may be purchased separately.

Follow the link for a more detailed discussion of each of the Optional Modules:

- No.–Number
- Name
- Background
- Transition
- Timing
- Variables
- Data Source
- Input
- Sound
- Launch
- Log
- Schedule
- TextFile
- WinScript
- Playback Audit
- Optional Modules
- Customizing Columns

No.--Number

A number on a button in the No. (number) column indicates the position of the page in the sequence of the script, and also that the page is **on** an d enabled as part of the script. When **Off** is visible on the button, it means that the page is not shown when the script is run. This is used when

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you need to prevent the execution of a page, but do not want to lose or change the contents of the page, so it is easily available in the future. To change the setting so that a page is included or excluded accordingly, click on the page's **No**. button, opening the Page Control panel.

The **Enabled?** button is marked with a checkmark when the page is included in the script. Otherwise it is excluded and **off**. Click on the button to either include or exclude the page. Unless you specifically choose to exclude the page, it is numbered in the Main View, according to its position in the script. You can set the status of other pages without closing the panel by clicking in either the No. or Name columns of the pages. To close the panel, click on the **Close** button or the **X** box in the upper right corner of the panel to confirm the setting or **Cancel** to leave it unchanged. Clicking outside the panel after making a change will confirm the action. If you choose to make changes to other pages, it is not necessary to close the panel.

Name

The buttons in the Name column display a unique name for each page. If the name is referring to a page, then the original name of the page will be displayed. Initially, the page is given a default name based upon the file name of the background, or the first element placed on the page.

Designer handles each page as a distinct entity separate from the file contained within it. The name used to identify a page is not dependent upon a specific file name. Page names can be as long as the space in a button permits. It may also contain spaces and dots (**.**). The only restriction is that the name must be unique within the script.

To change the name of a page, click on the page's No. (number) button and, in the Page Control panel, edit the name as desired. The name should be short but descriptive enough so it conveys the contents or purpose of the page.

The specific name of a page and script will not affect any other pages or page names, nor any file name. This means that although the name Designer provides may be based upon the name of a file, you can change the name to something more descriptive in the Main View without affecting the name of the original file.

Background

Clicking a button in the Background column opens the Background panel, allowing for sizing, opacity, masking and other adjustments to background images from the Main View. It is essentially identical to the Design Background Panel. It also offers the advantage of being able to work with more than one page at a time.

Transition

The icon on the button in the Transition column represents the page transition, or the way the page moves onto the screen and replaces the previous page in the script, is currently being applied to each page. In most cases, there is also a number on the button which represents the duration of the transition.

By default, Designer applies the Cut transition (the next page simply appears all at once).

You may edit the page transition by clicking on the Transition button, opening the Page Transition panel. When you select a transition, the Transition button will immediately reflect the icon, transition duration or speed, and direction (if any). You may also change the transition for additional pages in the script before clicking on **Close**, to exit the panel. When adjusting each page, simply click on the page to select it, choose a transition and/or set a duration or speed.

Buttons in the Transition column are blank and disabled for pages in the Main View which represent a group, a special event or a sub-script, as transitions cannot be applied to those items.

Designer allows you to adjust the speed of the transitions. You can start or end the transition either slower or faster. The transition tool will allow you to select the direction, variable speed, transition speed and direction (in many cases) of the transition.

Set the length of the transition in the **Duration** button. To remove a transition from an element, click **Delete**.

Timing

The Timing button indicates how pages automatically advance. Pages can have one of the following durations:

- **Duration**: Fixed time duration. It is defined in hours, minutes, seconds and hundredths of a second. Depending on the current width of the column, the value can be displayed as either seconds only (up to 999), or in **hh:mm:ss.hh** format
- **Wait for Elements**: Wait for the elements in the page, however long this may take.
- **Wait Forever**: Page wait indefinitely, and can only be interrupted by mouse click, or by scheduling or programming.

Designer uses the default setting Wait For Elements for a new page, and also assumes that a new page should have the same timing setting as the previously selected one. Look at the **Timing** button to verify the setting. To change the timing setting, click on the **Timing** button for the desired page, and open the Timing Panel.

When a thumbnail in the Main View represents a group of pages, a script, or a special event, Designer automatically uses Wait For Elements as the timing setting, indicating no delay between the current page and the following page. If the thumbnail represents a group, the timing setting for the last page in the group determines when the next page in the script is displayed.

Regardless of the timing setting, the viewer of the script can always override the timing of a page by pressing the secondary mouse button to see the previous page, or by pressing the main mouse button to see the following page.

Variables

The Variable column button allows access to the panel that defines variables and controls the flow of a script. This panel makes it possible for you to produce sophisticated, flexible scripts which can respond to a variety of inputs.

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Clicking a button in the Variables column opens the Variable and Branching panel, which consists of 4 tabs:

- **Condition**: Determines whether page will be played based on the **Show If** expression.
- **Set Variable**: Sets either the initial value for a new variable or the value of a variable for an existing variable.
- **Repeat**: Conditions under which the page or group of pages will be repeated.
- **Go To**: Allows the script flow control to be adjusted from playing the next page in the sequence of the script.

Tab: Condition

The **Show If** Expression literally translates into words and action: “If this condition is true, then show this event.” If the condition is not true, the event will be skipped, and the script will continue with the following event.

The condition can be any Boolean expression allowed in Designer. Because expressions in Designer can use Boolean operators, you can also use the condition to make more complex comparisons.

Show If may also be combined with the Go To and Repeat branches, to make those operations.

Show If Expression

Enter a valid Expression for testing either by:

- Typing the expression in the prompt.
- Selecting Variables, Functions and Operators from the list to build an expression.

For example, the condition might be the expression **Quantity < 5,** that is, an event having this condition would execute if the value in the variable QUANTITY was less than 5.

Tab: Set Variable

A variable is a container for a quantity which can change within a script. Because you can name variables, you can refer to what they hold by their names, regardless of the actual value. For example, you can create a variable which keeps track of how many times a page has been played with a name, such as "iterations." You can also increase it for each time the page has played, and display its current value on a page at any time by referring to its name.

There are four variable types in Designer, which also contains various system variables:

- **Text:** Text of any length. Any literal text must be enclosed in double quotes (e.g.: “Oscar”.) Designer will preserve any capitalization, or spaces.
- **Boolean:** ON or OFF. You also can use TRUE or FALSE, which are synonyms for ON and OFF respectively.
- **Integer**: Any whole number between -2,147,483,648 and 2,147,483,647, or any expression which evaluates to a number within that range.
- **Real**: Any number between approximately -3.402^{38} and 3.402^{38}, or any expression which evaluates to a number within that range.

Designer also contains various system variables.

Set Variable

In the **Set Variable** prompt box enter the variable name followed by an equals sign (=) and an initial value for the variable.

Examples:

```
Name = "Fred Flint"
Quantity = 5.67
```

If the variable does not exist then a dialog will appear asking you to confirm the variable type. If you do not know what the initial value will be, you can enter:

- 0 for a numeric variable (interger,
- " " two double quote marks for a text variable (also known as a Null String)
- FALSE for a logical variable.

Tab: Repeat

Use Repeat While and Repeat Until when an action must be repeated several times. You can use these events to repeat a single event several times, or repeat a series of events.

This is easily visualized: Script execution runs through the series of events, then at the end of the series, jumps or “loops” back to the top of the series to repeat the loop.

The difference between the two types of loops is the point in the loop where they evaluate whether the “while” or “until” condition is true. **Repeat While** evaluates the condition before executing the contents of the loop; **Repeat Until** evaluates the condition after each time through the loop. **R epeat Until** will always execute the events in the loop at least once. **Repeat While**, will look at the condition before starting the loop. If the

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condition is not true when the script first reaches the loop, it will be skipped.

Another way to think of the difference is that Repeat While loops will continue while the condition is TRUE, but Repeat Until loops will continue while the condition is FALSE (until it becomes TRUE).

Repeat While / Repeat Until

This drop menu allows you to choose the type of looping to apply:

- Repeat While
- Repeat Until

Expression

Enter in the prompt the expression to test whether to continue looping.

Generally, if the value of the variable used in the condition is set somewhere earlier in the script, it is easier to use Repeat Until. If the loop is self-contained, or its condition variable is created and set within the loop, Repeat While may be easier to use. The two types are mutually exclusive; a loop cannot be both a While and an Until loop.

Tab: Go To

Go To actions are the most powerful of the branching instructions, because they can remove all linear, sequential limitations to the order in which events are executed. This will allow much more flexibility in your script. Designer also has the powerful capability to set a bookmark when you use a Go To action, allowing you to return at a later time, and continue running the script from the point after the action. Go To branches should be used sparingly. Overuse of such actions, especially Go to event, can make a script difficult to understand and edit. Before you use a Go To branch, see if there might be another way to accomplish your objective by rearranging events to make the branch unnecessary.

The Action: pop-up on this tab has the following options:

- None
- Go to Event
- Return to Bookmark
- Exit from Script
- Show WWW Page

The three “Go to” actions allow you to make script execution move to some other location in the script, from which execution continues. You can return to the original location after a Go to by setting a bookmark.

None

This removes the Go To Event.

Go to Event

This is the most flexible branching action. Consequently it requires you to specify both the destination itself and the level of the script where the destination exists. You see the controls for these on the tab when you choose **Action: Go to Event**.

Go To

Choose the page you want the script to advance to. In most cases, the Go To will be set to a page. A thumbnail of the destination page is shown in the box to the right of the button.

Level

Select the level of the script where the destination is. Use the selector to cycle through the levels. If the destination is in the same group you are in, you can leave the selector as is. If your script has no groups, the only choices are: <this script> . Only levels at or above the current level are accessible.

Leave Bookmark?

Return from a series of events after branching with a Go to Event. Click on **Leave Bookmark?** to turn it on. Then, at the end of the series of Go to events, insert a special event, open the Variables column and select the Go To tab. Choose **Action: Return to Bookmark**. When executed, this returns the script to the bookmark location, which is immediately after the original Go to Event. Using Go to Event with a bookmark lets you define sections of a script as independent units that you can go to and return from whenever you call it.

Return to a Bookmark

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When using a Go to Event in the Variables and Branching Panel you can choose to use the Leave Bookmark? option. This allows you to set a marker to which a later event can return. In this way, you can define sections of a script as independent units that you can go to and return from at any point in the script.

Exit from a Script

Although most productions are designed to run continuously, some need to be able to exit from playback. This ends the script, returning the viewer either to Windows, or to the Main menu if the script was run from within Designer.

Show WWW Page

> **This Option has been superceeded**
> Show WW Page has been superseded by using a Adding a Web Clip Page. and is the preferred method for displaying a web page. The option remains for legacy purposes only.

Show WWW Page , allows the viewer to jump out of the playback environment. You see the URL: text box when Show WWW Page is selected. Enter the address of the desired Web page there (for example, enter http://www.scala.com to jump to Scala's Web page), and Designer attempts to launch or activate the preferred Web browser. If successful, it then tries to connect to the Web page specified. If playback is setup to run full-screen, playback is minimized so that the Web browser window is visible on the desktop.

Data Source

The Data Source Module allows a simply-formatted Local XML File to be opened. You are also able to view the various XML elements and decide which of these can be connected to data fields, such as ScalaScript variables and arrays. These can then be bound to Scala Elements within the ScalaScript.

Using it will repeat (if required) the page(s) according to where the data source is applied and the parameters set within the Data Source Module.

It is possible to use ScalaScript programming techniques, in conjunction with Data Source for more advance looping, iterations and processing of the Local XML file.

XML File Structures Supported

This module supports only simply-formatted XML File structures. It does not fetch the XML file, which is done instead by a Data Source Fetcher, that converts your original file to something simpler if it is in a different or more complex XML format.

Here is an example for your reference. It contains comments, but please note that your XML file should not.

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```
<?xml version="1.0"?>
<!-- main node element, can have any name -->
<main>
   <!-- main contains zero or more top-level elements.These top-level elements can
have any unique names,and simple values (sub-elements ignored) -->
   <top-element-1>top-value-1</top-element-1>
   <top-element-2>top-value-2</top-element-2>
   ...
   <!-- main contains zero or more repeating items, where the item node can have any
name -->
   <item>
      <!-- item node contains one or more elements with simple values. -->
      <item-element-1>item-value-A1</item-element-1>
      <item-element-2>item-value-A2</item-element-2>
      ...
   </item>
   <item>
      <!-- Successive item nodes would typically have the same elements, with new
values. -->
      <item-element-1>item-value-B1</item-element-1>
      <item-element-2>item-value-B2</item-element-2>
      ...
   </item>
   ...
</main>
```

XML Features Not Supported

These XML features are not currently supported by the Data Source module:

- XML attributes
- Additional sub-elements
- Other more complex structures (e.g.: deeper trees)
- More than one group of repeating item nodes
- XML comments (e.g.: <!-- My Comment -->

Using Data Source

To use Data Source, follow this process:

1. Create an XML file like the example found above.
2. Create the layout using placeholder Scala elements on the page(s) that will be replaced by XML elements from the XML file. If using multiple page layouts, be sure to group the pages
3. Select the **Data Source** column for the page(s).
4. Select the source XML File on the Data Source tab of the Data Source Panel
5. Select the XML element(s) to be read using Data Source Mapper dialog and define the number of records to read at a time.
6. Setting the rules for stepping through the XML File.
7. **(Optional)** Set the variables associated for Counters and Indexes.
8. Bind the data fields to existing placeholder elements on the page(s).

Additional Topics

Overviews of the Tabs used with the Data Source module can be found at:

- Tab: Source
- Tab: Counters and Indexes

Tab: Source

The Source tab of the Data Source Panel allows you to:

- Specify the XML data source file.
- Map which entries in the XML are read and how many are read at a time.

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- Set the required looping behavior.

You need to have a sample of the data source file in order to be able to set up the event.

Data Source Mapping

Initially the only button available on this tab and on selection opens the Data Source Mapping Dialog, which contains the following:

Filename

Opens the file dialog to select the file name of an XML data source.

Recent Feeds

Lists the recently used files for quick access. For a discussion on how to make the XML file dynamic load the XML file from the Linked Content folder, see the section on Locally Integrated Content under Scripting and Automation.

Number of Records

Specifies how many records you want to read from the data source at one time, the Default is 1. It also determines the array-size for any variables created to handle repeated data records. Once the XML file is specified the XML source file is read and the dialog populates with details of the XML element structure, preview data and enables you choose which elements you want to map to ScalaScript variables, with the default being **All** . Check the panel to ensure that the definitions are what you need. Should you need to change these details, select the XML Element, then you can modify:

Mapped

Select whether this entry should be mapped to a ScalaScript variable (the default value is yes).

Type

Specify the type of the variable to which you are mapping. The available types will depend on the data in your source file, and one will be suggested. If the variable is already used elsewhere in the script, then this button is disabled since you cannot change the type.

The following conditions are also true:

1. The same field in ALL records must have a value for Scala Designer to recognize the type.
2. If one or all records have the field empty, the Type will be **Text**.
3. If all records (same field) include the alphabet, the selectable Types will be **Text** and **Filename**.
4. If all records (same field) have only digits, the selectable Types will be **Text**, **Filename**, **Real,** and **Integer**.
5. If the all the records (same field) have only "true" or "false", the selectable Types will be **Text**, **Filename,** and **Boolean**.

Variable

Lets you select the name of a new or existing variable or array to map the XML element to, based on the XML element name and its position in the structure.

Loop Through Records?

- **Disabled: (default):** Performs one read from the XML file and will attempt to read the number of records specified in the Mapping Dialog.
- **Enabled:** Enabling Loop Through Records adds an additional option **Max Loops** which defaults to infinite (in this case infinite is defined as all records in the XML file). Alternatively specify the number of Loops to perform by adjusting the numeric value.

Resume At:

If Loop Through Records is off, or the number of loops specified by Max Loops is reached, then the next time this page is played you can choose:

- **Next Record**: Data should pick up where you left off.
- **First Record:** Re-starts from the beginning of the XML file.

Custom Step Size?

- **Disabled: (Default):** Advances the position in the XML file by the specified value in Number of Records read after each iteration of the loop.
- **Enabled**: Enabling Custom Step Size adds an additional numeric field which advances the position in the XML file by the count specified.

Tab: Counters and Indexes

The Counters and Indexes tab of the Data Source Panel allows you to set these Data Source control variables to Scala Script variables, which can be used as on-screen variables or used for more complex ScalaScript programming technique. For each of these variables, you must **first** de

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fine an integer variable.

Type	Explanation of Value
Current Count Variable	Number of repeating records retrieved for the current iteration.
Total Count Variable	Total number of repeating records in the data source.
Current Loop Variable	Current loop count. The Loop starts at zero.
Current Index Variable	Current index position into the data source for the current iteration. The index starts at zero.

Input

Clicking a button in the Input column opens the Input panel, which contains options related to interactive input for how mouse, touch and keyboard input are handled on any given page.

Unlike other panels, the settings you make on this panel are not options specific to the page on which they are set. Instead, they are commands to change the interactive settings for the script starting at that point in script execution.

The settings are effective for the current page and all subsequent pages, until another Input panel event is encountered.

The Input menu has three tabs:

- **Button Controls**: Types of user input accepted by interactive buttons within a script.
- **Mouse Pointer**: Options for determining when a mouse pointer appears, and what it looks like.
- **Slideshow Controls**: Options for page advance that do not require the use of interactive buttons, as in slideshow presentations.

Tab: Button Controls

On the Button Controls tab, you can choose the type of input recognized in a production using one of these options:

- Mouse?
- Touch Screen?
- Keyboard (arrows + Enter)?

At least one of these options is always on, so you cannot turn off all three.

Mouse?

Enabling **Mouse?** allows the viewer to use the mouse to highlight and select buttons when the production plays. The mouse pointer appears and the script can respond to mouse clicks if the page uses buttons. This option is on by default.

Touch Screen?

Turn this on when the system playing the production uses a touch screen. Doing so turns off the **Mouse?** option so that the mouse pointer does not appear. Because mouse and touch screen input are mutually exclusive, the appearance of the pointer would be both unnecessary and misleading to the viewer. Pointer Image options are not necessary with touch screens, so they are also disabled.

Keyboard (Arrows + Enter)?

When enabled, this option lets you use the keyboard rather than the mouse and main mouse button to highlight and select buttons on the screen with the arrow keys, and select the highlighted button by pressing Enter. This option is available whether the touch screen or mouse options are on, and can also be used by itself.

Tab: Mouse Pointer

To change the default pointer images for entire pages and scripts, or to choose when the pointer is visible in your script, you can use the options in the Mouse Pointer tab. However, if you want to change the pointer image for buttons in the Highlight and Select states, use the Buttons panel.

Pointer

The **Pointer:** pop-up lets you choose when you want the pointer visible in your production. Even on a page that has no buttons, for example, you might want to use the pointer for illustrative purposes, to point to items on the page as you discuss them. Alternatively, you may want the pointer visible only when buttons are available for selection.

The Pointer pop-up menu has two options:

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- **For Selection Only:** Pointer is be visible only if there are buttons on screen.
- **Always**: Pointer visible regardless of whether there are buttons on screen or not.

Pointer Image

Controls the design of the normal mouse pointer used on screen, if for example, you want the image to be a pointing finger instead of the standard arrow. When you click on **Pointer Image**: you see the **File** dialog open and you can and choose any clip to use as a pointer image.

Busy Pointer Image

Change the image of the busy pointer, which appears on the screen when the script is busy and temporarily cannot accept input. By default, there is no busy pointer. Click this button, and in the **File** dialog, choose a new image.

Tab: Slideshow Controls

The Slideshow Controls tab lets you choose how you want your script to advance when you are working with a slideshow-style production. Slides how Controls ONLY work when playing back your script in Designer. They do not work if you publish your script to the Network and schedule that script to play on a player.

Mouse Buttons?

This controls whether the mouse buttons by themselves control the advance to another page. Pressing the main mouse button moves forward in the script, and the secondary mouse button moves back. It is on by default.

On any page with buttons, the button-selection function of the mouse buttons takes precedence over the page-advance function, regardless of the setting of the Mouse Buttons option.

Keyboard (Page Up/Down)?

This controls whether the keyboard can advance the script. The Page Down key moves to the next page, and the Page Up (default) key moves to the previous page.

Slideshow Controls ONLY work when playing back your script in Designer. They do not work if you publish your script to the Network and schedule that script to play on a player.

Sound

Clicking a button in the Sound column opens the Sound panel. When a sound is added to a page, the corresponding button in the Sound column is labeled with text, such as Play or Stop to the sound event, which may be music, sound effect or voice. If there is no sound event on the page, the button will be blank.

As with the Page Transition and Timing panels, you can change the sound setting for other pages in the script without closing the Sound panel by clicking on the following page.

When the thumbnail or row in the Main View represents a group of pages or a script, the Sound button is blank, even when sound is an element of one or more individual page(s). You may click on the button to define sound elements that affect the entire group or script. For example, if you want music to begin with the first page in the series and end with the last page, before the next page in the script in the Main view is presented, this option would be very useful.

Launch

Prior to using Launch, which allows you to run external programs, documents, or URLs from within your script, the security settings for Launch should be set. More details on how to do this are available in the Launch Module section of this documentation. Once selected, the Launch Program or Document panel appears, with the following options:

Command Line

Type the location and file name of the program, document, or URL you want to launch, as well as any command line arguments.

File...

Opens the file dialog, enabling you to locate the program or document you need and add additional arguments in the command line.

Wait?

When **On**, this suspends the execution of the script until you exit the launched application or document.

Minimized

Runs the launched application in a minimized window, without showing the Windows desktop.

Log

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Opens the Log panel, where you can add, edit, or delete text and/or variables to be included in the playback log as this script event is executed. When the page is played, the text is evaluated (if it contains variables) and written into the log.

The Log panel has:

Log Text:

Enter the text written into the log when this page is executed. The text may contain variables, which must be preceded by the evaluation character (!), to be evaluated prior to writing the string.

Schedule

Most of your scheduling tasks and calendar events will be managed through Content Manager. However, you can still use the creative scheduling features built into Designer.

Scheduling works the same with pages, special events, elements, sub-scripts, and groups. Some types of scheduling will not apply to elements and will only be able to be applied to pages.

You can schedule events to be run according to various criteria:

- At regular intervals—hourly, daily, or weekly.
- Continuously between two given times or dates.
- Once, at a specific date and time.

By default, all events are available to play with no scheduling restrictions.

What Can Be Scheduled?

The Schedule panel can be used for all of the following (although some have limited scheduling options, as explained later in this document):

- A page, consisting of a background and all its elements.
- Individual elements on a page such as text, clips and sounds.
- A group or collection of pages which you can treat as a unit.
- Sub-script, another script which is run from within the current script.

There are essentially three types of scheduling in Designer:

- Periodic
- Interrupt
- Timeslot

Each contains its particular uses, depending on your production needs.

Periodic Scheduling

Periodic scheduling can be applied to any script event. It creates “windows” of time, which are defined as valid time periods. It uses four successively more specific levels which you may use to define a valid time period:

- **Valid Range:** Overall schedule time period.
- **Valid Weeks:** Whole weeks by week number.
- **Valid Days:** Days of the week.
- **Valid Time of Day:** Single-day level.

Given a time period which you have defined as valid, you can specify one of two possible results for a periodic schedule entry either enable or disable the event for that particular period.

As Designer runs a script and reaches an event which has a periodic schedule setting, it will check to see whether the current date and time is within the valid period defined by the schedule. If it is, then:

- if the event is **Enabled within the Valid Period,** the event will run (it cannot run outside the valid period).
- if the event is **Disabled within the Valid Period,** the event will be skipped (it can run at any time outside the valid period).

In short, the periodic/disabled type of schedule will invert the sense of the valid period (i.e. don't play during this periodic schedule.)

It is important to emphasize that periodic scheduling will not cause events to run at a certain time, or guarantee which event will run during any given scheduled period. It simply allows the event to run if, in the normal pace and sequence of the script’s execution, the event is reached during a period for which it is enabled.

The following diagram graphically illustrates how three levels of periodic scheduling (for simplicity, omitting consideration of the Valid Weeks level) work together to filter the possible execution times of a script event.

The example schedule has an overall Valid Range setting of one week, with Monday, Wednesday, and Friday selected in Valid Days, and

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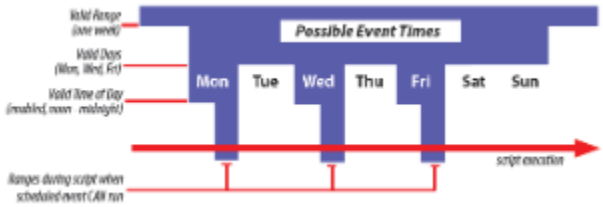
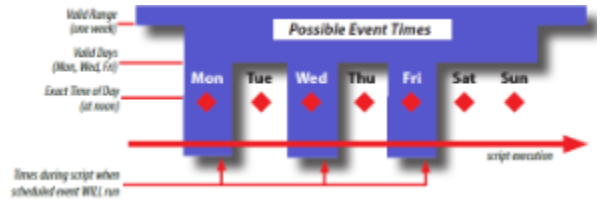
periodic/enabled daily in and out times of noon and Midnight.



Interrupt Scheduling

This type of scheduling can be applied to any kind of page (including special event pages, groups and sub-scripts), but not to elements on a page, and not to pages within groups.

The Valid Range, Valid Weeks, and Valid Days levels of scheduling are active and work for interrupt scheduling just as they do for periodic scheduling. However, in contrast to periodic scheduling, at the daily level, interrupt scheduling is definite. When the scheduled time arrives, playback will interrupt whatever is happening in order to run the page which is interrupt-scheduled for that particular time.



During normal running of a script, Playback will skip over interrupt-scheduled page(s). After running an interrupt-scheduled page, Playback will continue by running the next page in the script after the interrupt-scheduled page. It will not automatically return to the interrupted page. There is an option to set a bookmark to allow resuming playback from the point of interrupt.

For periodic-scheduled events, the location of the event in the script will dictate when the event may run. For interrupt-scheduled pages, the location of the page in the script is irrelevant to when the event will run. It does dictate which page will run after the interrupt-scheduled page, especially if the bookmarking feature is not used.

Timeslot Scheduling

Is similar to interrupt scheduling, however, timeslots are more structured than exact interrupts, since playback respects them when determining what to play. This is true even if the exact start time was missed due to a down-time, if the segment is temporarily interrupted by other content. Ti meslots are more structured than exact interrupts. Playback respects them when determining what to play, even if the exact start time was missed due to a down-time or if the segment is temporarily interrupted by other content. This means a script with a Timeslot schedule applied, will interrupt the current running script at the beginning of the Timeslot period, and will continue until the end of that period.

More details on setting schedules is discussed in the Schedule Panel.

Many of the important issues in scheduling are related to issues in timing. Timing of events is relative and neither type of scheduling will adjust duration lengths, transition speeds, or other factors which control a production's pacing.

To make the best use of scheduling in a complex production, you may need to utilize grouping and/or sub-scripts as the use of groups and/or sub-scripts have special considerations.

Schedule Panel

The Schedule panel specifies entries in the schedule for an event. Each entry consists of a collection of time-related information which determines when the scheduled event can or will play. These controls are grouped into four sections, corresponding to successively more specific levels of scheduling:

- **Valid Range**: Establish the overall date/time range within which an event can play, and outside of which it cannot play.
- **Valid Weeks:** Make it possible to schedule events through the year on the basis of week numbers.
- **Valid Days:** Operates on the level of individual days, and allows you to permit the event to play on certain days of the week.
- **Valid Time of Day/Exact Time of Day:** Operates on the level of the individual days which are valid as defined by other controls, and establishes whether the schedule entry is of the periodic or interrupt type. Other buttons in the Schedule panel let you add, view, and remove entries.

Schedule Entries

When you open the Schedule panel, you will start at entry 1. Once it has been edited, you can add additional entries for the event as necessary. For example, you may want the same page to run only during an hour in the morning and another hour in the afternoon. Each hour would then be

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one entry in the schedule for that corresponding page.

Nothing will prevent you from creating multiple-entry schedules which can cause an event to always or never run, or which can make interrupt-scheduled events interrupt each other. You must keep track of the cumulative effect of the entries. It is often easier to create your schedules within the Schedule interface in Content Manager.

The following choices are available from the drop-down menu:

Option	Explanation
Entry Number	Selects the scheduled entry to display and/or edit.
Add Entry	Creates additional schedule entries for this event. For example, to schedule an event to run from 1-2 pm on Wednesdays and 2-4 pm on Thursdays requires two schedule entries.
Remove Entry	Removes an entry from the schedule.
Remove All	Removes all scheduled entries from this event, so that it is unscheduled.
View Schedules...	Switches the Schedule panel to an entry view mode, in which you can look at a summary of all the scheduled entries for the selected events, or for the whole script. Use multiple entries to create complex schedules for an event. You can combine entries which use different types of scheduling—periodic/enabled, periodic/disabled, interrupt—freely, and timeslot. When the periodic/enabled and periodic/disabled types are combined, the valid period(s) created by the cumulative effect of all enabled entries will be determined first, then the disabled entries are will be used to “cut holes” in the valid period.

Event

Sets the type of scheduling for this event using the drop menu:

- Dates are in mm/dd/yy format
- Time is in 24hr (or military time) Format HH:mm:ss

Option	Explanation
Is Enabled within Period:	Creates periodic schedules with Valid Time of Day ranges within which the event may run.
Daily in Time:	Time of day after which the event can run using the value controls for hours, minutes and/or seconds.
Daily Out Time:	Time of day after which the event cannot run using the value controls for hours, minutes and/or seconds.
Is Disabled within Period:	Creates periodic schedules with Valid Time of Day ranges within which the event may run.
Daily in Time:	Time of day after which the event cannot run using the value controls for hours, minutes and/or seconds.
Daily Out Time:	Time of day after which the event can run using the value controls for hours, minutes and/or seconds.
Interrupts Exactly	Creates an Exact Time of Day event, interrupting whatever else happens to be running at that time.

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Leave Bookmark?	This option appears, and is enabled by default, when **Event: Interrupts Exactly** is chosen. An interrupt-scheduled page will disrupt the normal script flow, effectively acting as a branch to that page, and script execution will normally continue with any pages which follow the interrupt-scheduled page in the script. If you want to resume the script from the point of interruption, so the interrupt-scheduled page works as a temporary detour rather than a branch, two actions need to be taken: • Enable this option. • At the end of the interrupted-scheduled page, or sequence of pages use and set a **Return to Bookmark** in the Go To Tab.
At Time:	Precise time at which the event will run.
Repeat?	When enabled, this allows the setting of a regular interval for the interrupted event (Repeat Every and Repeat Until become enabled).
Repeat Every	Time between repetitions of an Interrupt-scheduled event using the value controls for hours, minutes and/or seconds.
Repeat Until	Time of day after which no more repeats will take place using the value controls for hours, minutes and/or seconds.
Timeslot	More structured than exact interrupts, since playback respects them when determining what to play even if the Exact Time of Day start time was missed due to down-time or the segment in turn is temporarily interrupted by other content.
Daily In Time	In-time of a timeslot interruption using the value controls for hours, minutes and/or seconds.
Daily Out Time	Out-time of a timeslot interruption using the value controls for hours, minutes and/or seconds.

Recurrence

This can be set to on of 4 (four) options for the scheduled event:

- **Once:** Set to a specific date.
- **Weekly (Default option)**: Set for days of the week, week numbers, and a date range for recurrence.
- **Monthly:** Set for day of the month(s) and a date range for recurrence.
- **Yearly:** Set for a specific month, day of the month and a date range for recurrence.

Textfile

The Textfile EX Module allows you to link a ASCII text file, containing data, to a page or group of pages. The data from the Text file is displayed on the page(s) using the series of reserved Scala System variables ***line1*** though to ***line99***. As the script runs, a specified number of lines are read from the text file, the ***lineXX*** variables are updated and the page(s) is displayed. This is repeated until the end of the text file is reached.

Basic Steps

To use the Textfile EX Module:

1. Create a text file making sure that if you have repeated data, it is in the same sequence and position in the sequence.
2. Create a script with one or more page(s) using the Scala reserved variables line1, line2...line99 to display the contents of the text file.
3. Assign the text file to the template pages in the Textfile EX menu.
4. Set the number of lines to read from the text file (max 99).
5. Run the script.

Textfile EX will not display the page or pages if it cannot find the Textfile, and the same is true if the file is missing or contains all blanks. Ensure you set the **Update** setting as mentioned on Tab: Misc for the element to ensure they do not update prematurely.

Text File Panel

File

Opens the File dialog which is used to select the name of a text (data) file. If you are going to replace the Text file by local version on the playback device, then you can load the text file from the Linked Content folder.

Maximum Lines on Page

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This can sometimes be a little confusing as this specifies the number of lines read from the text file at a time (default 1) as normally the value specified here should equal the number of unique !LINE variables to be displayed on the page or group of pages. Because your text file could contain lines that are not used for either display or programmatic usage, it sets the block of lines to read on each pass.

Rules for Use

1. You do not have to use line variables in order (i.e. display line5 before line2).
2. You do not have to display or use all of the lines that are read.
3. The maximum number of lines that can be read in one go is 99
4. While you can Nest Textfile operations, great care should be taken and remember that the values or Line1..99 will depend on the last file read.

WinScript

Note:
More details on this topic can be found in the Scripting and Automation section.

The Windows Scripting column displays the name of a Windows script launched by this event through the Windows Scripting Module.

You can develop Windows scripts using any scripting language supported through the Windows Scripting Engines installed on your system. Common scripting engines include VBScript, Python and JScript.

The Windows Scripting panel enables you to select the external windows script and share variables between it and ScalaScript. An example of this might be a windows script that gathers weather information from an external source and populates ScalaScript variables with today's weather. It consists of:

Windows Script

Opens the File dialog to let you select a Windows script file to run. It is launched when the Scala script executes this Windows Scripting event.

Engine

It is enabled after the file is chosen and defaults to the engine Designer believes should be the source. The drop down list shows Windows Scripting engines currently available on your system. You should ensure that it matches the Windows Scripting language used by the selected Windows script. It is important to make sure that the chosen scripting engine is is also available on your playback device.

Variables List

The left hand list shows the user variables created within the current Scala script, along with their variable type (integer, real, text, or boolean). The Variables are not enabled for selection until a Windows script file has been selected. Double-click on a variable in the list to share it with the Windows script. Scala variables shared with the Windows script will be available to the Windows script for reading and writing.

Shared Variables

The right hand list shows the Scala variables that are shared with the Windows script. These variables will be available for the Windows script to read and modify within the Windows Scripting environment. Double-click on a variable in the list to stop it from being shared.

Delete

Deletes a Windows Scripting event.

Playback Audit

This opens the Playback Audit panel, which allows you to enable or disable the logging of playback audit information for the page, and has:

Audit Event?

- When **On**, playback audit information is written to the playback audit log file when this page is played.
- When **Off**, no playback audit information is written for this page.

The playback audit information consists of the:

- Player name (derived from the COMPUTERNAME environment variable)
- Page name
- Script name
- Timestamps showing exactly when playback for the page began and ended.

It is written to the file 'Logs:\BillYYYYMMDD.log', where YYYY is the year, MM is the month, and DD is the day, and is appended to the end of the log file each time a tracked page finishes. The Playback Audit Module creates a new playback audit log file at midnight every day.

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Include Custom Text?

The Custom Text field may be used to control grouping in Playback Audit Reports, and to provide additional detail.

- When on, the Custom Text string is written to the playback audit log. Entries that would otherwise match will be tallied separately if the Custom Text values differ.

Include Note?

The Note Text field provides additional detail in Playback Audit Reports.

- When on, the Note Text string is written to the playback audit log. Entries that would otherwise match will be tallied together even if the Note Text values differ.

Optional Modules

Optional Modules may be enabled in the Designer Tool Options dialog. Each Module extends your script's capabilities.

Optional modules include:

TV Tuner

This EX Module gives you the capability of incorporate video inputs within your production using integrated Webcams, Video Capture devices and TV Tuner hardware that accepts and displays a video input.

This module requires configuration prior to use. Information on doing this can be found at Designer Tool Options.

To use the TV Tuner EX see the following topics:

- Add TV Clip Element
- Other Design Panels (Design TV Clip Panel)

Serial

This allows the bi-directional communication between ScalaScript and external RS-232 devices. This could be for sending control signals to change the mood lighting or receiving a trigger from a proximity sensor when a customer is near to the screen.

An additional column is added in the Page and Main Views and it is normal for the Serial commands to be applied to a special event although can be tied to specific elements.

This module requires configuration prior to use. Information on doing this can be found at Designer Tool Options.

Customizing Columns

Designer enables you to adjust the width of the columns in the Main View and change the sequence of the columns that represent page elements, (Transition, Timing, etc.)

Adjusting Column Width

Changing the width of a column affects the number of columns that can be seen at one time in the Main View. For example, if you make the Name column narrower, you can see additional Module columns without using the scroll bar.

Adjusting the width will also determine the amount of visible information on one or more buttons. For example, if the Timing column is wide enough, a full time value such as 00:03:45.50 can be shown.

To make an adjustment to column width:

1. Point to the vertical space between the column you want to adjust, and the column to its right.
2. Press and hold the main (left) mouse button. The space between the columns will be highlighted.
3. Drag the right edge of the column to your desired width, then release the mouse button.

Adjusting Column Order

Although you cannot adjust the position of the No. and Name columns, you can rearrange the order of any of the other columns. For example, if you need to work more frequently than usual within a column adjusting the column order would be desirable.

To rearrange the columns of page elements:

1. Point to the column heading and
2. Drag the name to the left or right until it is in the new position.
3. Do this as necessary until the columns are in the desired order.

You can also choose not to display the columns of optional Modules. This may be accomplished in the Options dialog.

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Working with Pages

In addition to using the **Main View** to define page elements such as transitions, pauses and sounds, there are many other ways to work with pages in the Main view to refine the script. Generally, the basic techniques for handling pages are the same, whether you are working in the List or Thumbnail mode.

- Selecting a Page(s)
- Moving Pages
- Copying Pages
- Deleting Pages
- Disabling Pages
- Setting the Thumbnail
- Grouping Pages

Selecting a Page(s)

To select a single page, click on its thumbnail. In List Mode you will click on the corresponding Name button. The page may also be selected by clicking on one of its other module buttons. When selected, the corresponding panel of each button's function will appear.

To select multiple pages in either List Mode or Thumbnail Mode, Designer uses the same controls for multi-section as many Windows based programs. You may select pages listed consecutively in the panel, or randomly positioned in the list.

The following are several reasons for selecting multiple pages:

- Copy and paste them into another script
- Move them to another location in the script
- Group them
- Delete them
- Collectively apply settings, such as a transition or timing

This enables you to save time and effort because it allows you to modify the settings for several pages by selecting the module button for the setting you wish to change for all selected pages.

Module panels do not need to be closed before opening another. Select a different column to open its module panel.

Note that the order in which you select the pages is maintained when they are copied, moved, or grouped.

Moving Pages

You can quickly revise a production by changing the order of the script's pages, whether or not a page in the Main View represents a page, a group of pages, or a script.

- **Thumbnail View**: Point to its thumbnail and drag it to a different position. With the exception of the page number (in the No. column), all of the information defined for the page will also be moved. All other pages will be moved accordingly, and their corresponding page numbers will be adjusted.
- **List View**: You may move a page by dragging the Name button up or down the list.

Designer also allows several pages to be moved simultaneously. Multi-select the pages you wish to move and then drag them to their new position in the script. Whether or not your selected pages are in a consecutive series, they will be handled collectively, and inserted together in their new position.

Copying Pages

You can create a new page in Designer by copying an existing page and pasting it elsewhere in the current script, or in another script of your choice. You may also copy one page or a series of selected pages, regardless if they are consecutive.

To make a copy of a Page:

1. Select the page(s) you want to copy.
2. In the Main View, click on **Edit** and choose **Copy (Ctrl+C)**. A copy of each selected page will be placed on the clipboard.
3. If necessary, use the tabs to navigate to the script where you want to place the duplicate(s) or, if the script is not available, click on **Open** and select it from the **File** dialog.
4. In the script, select the page where you want to place the duplicate(s).
5. Click on **Edit** and choose **Paste (Ctrl+V)**. Each copied page will be listed in the panel in the order in which it was originally selected.
6. Designer applies the same name as the original to the copy. Additionally, a number which uniquely identifies the duplicate, will be added. For example, if the original name of a page is "Info", the name of the first copy is "Info.1". If the page is copied again, the second copy will be titled "Info.2", and so on.

A copy of the original selection(s) will remain on the clipboard and may be pasted as many times as necessary until the next time you choose Cut or Copy from the list of Edit options.

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Deleting Pages

To remove a page(s) from a script:

1. Select the page or pages you want to delete.
2. In the Main View, click on **Edit** and choose **Delete (Del/Delete)** or **Cut (Ctrl+X)**. If you choose Cut, the pages will be placed on the clipboard. If you choose Delete, the pages will not be placed on the clipboard.

The only way a deleted page can be recovered is by using Undo.

If you used Cut, then the page can be moved to another position in the same script, or moved to a different script by using Edit from the menu and choose **Paste**. If you selected and cut several pages, they will be inserted in the order in which they were selected.

Information which is cut or copied to the clipboard, will remain there until you choose Cut or Copy again. When you quit Designer, the clipboard is automatically cleared, but any text that exists will remain.

Disabling Pages

A page can be disabled and will not be payed or acted upon when running the script. There are several uses for disabling a page including:

- It is a page that holds elements you want to reuse.
- It is a page that needs to be suspended for some reason, but you do not want to lose the original information.
- To add a comment to your script to aid clarity.

To disable a page:

1. Click on the page's No. (Number) button, opening the Page Control panel.
2. Uncheck the **Enabled?** button
3. Close the panel.
4. The disable page now appear grayed out or blank.

To re-enable a disabled page, use the same technique above but make sure the **Enabled?** button is checked.

By default, the first graphical page will be used to generate the thumbnail for the script when published to Content Manager, even if that page is disabled. User can set any page as the thumbnail using the Set as Thumbnail Page option.

Setting the Thumbnail

Users can choose to use any enabled page as the thumbnail for their script using the **Set as Thumbnail** option.

The **Set as Thumbnail** option is accessible in one of two locations:

- the Page Control Panel
- the right-click menu

Page Control Panel

1. Click on the page's No. (Number) button, opening the **Page Control** panel.
2. Click **Set as Thumbnail Page**.
3. Close the panel.
4. The thumbnail page will now display the thumbnail icon on the top left corner of the page.

Right-click menu

1. Right-click the page you would like to make a thumbnail.
2. Select **Set as Thumbnail Page.**
3. The thumbnail page will now display the thumbnail icon on the top left corner of the page.

Grouping Pages

To help you structure and organize a script, Designer makes it possible to organize pages into groups. This can be especially useful in large scripts, where grouping pages will enable you to get a better overview and be easier to manage.

A group may include any number or combination of pages, scripts or other groups of pages. Whether the selected pages are (are not) listed consecutively in the Main View, the group's position in the script will be that of the first page you select. Similarly, within the group, pages are sequenced according to the order in which they were selected.

- **Thumbnail View:**
  A thumbnail/Name button representing the group appears in the position of the first page you selected. The page(s) you selected are now in the group. Designer assigns a generic name to the group, which will also appear on the group's Name button. You can change the name of the group as follows:

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- Click on the group's No. (Number) button, opening the **Page Control Panel**.
- In the Name text box, type a short descriptive name for the group and click on **Close**. You will return to the Main View and, on the group's Name button, you will see the name you have assigned. Buttons for a group are generally darker in color than buttons for a page. The thumbnail for a group looks like a stack of pages with the first page in the group located on top.

- **List View:**
  - To group pages: Select the pages you want to include in the group in the Main View.
  - Click on the Edit pull down menu and choose **Group** or you can right-click on one of the selected thumbnails or listed page names, and select Group from the context menu.

Editing a Group

When you double-click on a group's Name button, you will see the Main View with the individual pages, scripts or groups of pages that are included in the group. The page number for each represents the sequence of pages within the group based upon their selected order.

The path in the script title bar reflects the position of the group in the structure of the script. You can refine the elements of the group and work in the panel as usual.

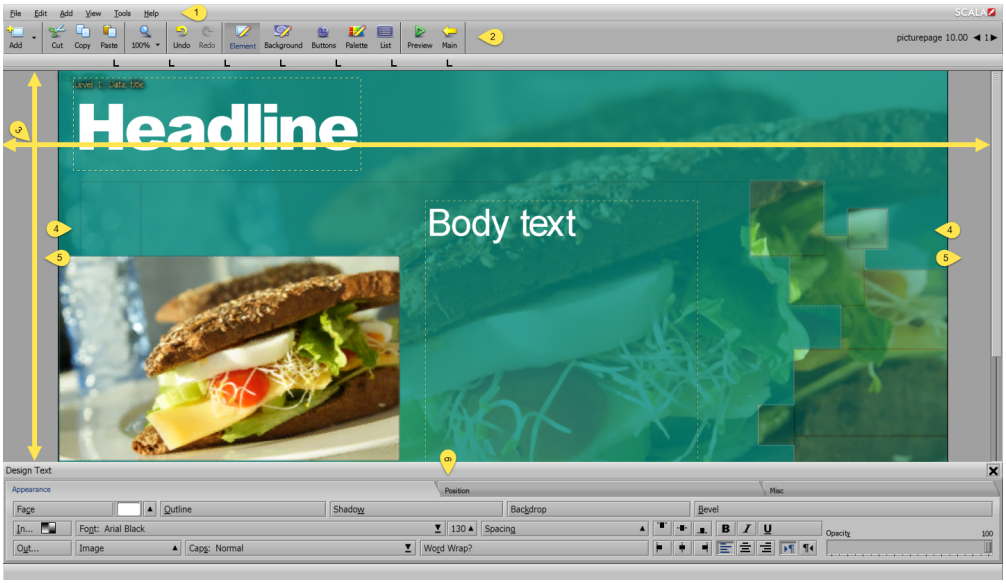
When you are done, click on the **Script Up** button in the script title bar, as necessary, until you see the top level of the script structure.

Ungrouping

To dissolve the group and leave its contents as individual items in the script, select the page representing the group, then click on the **Edit** pull-down menu in the Main View and choose **Ungroup**. The items in the group are listed individually and consecutively, beginning at the position in the script previously occupied by the group.

Working in the Page View

Designer's Page View is used to create and manipulate a page, and it is broken down into these basic areas:



Page View Menu (1)

These menus provide access to functions in the areas of File, Edit, Add, View, Tools and Help.

Page View Toolbar (2)

The Page View Toolbar has a few buttons which are similar to the Main View Toolbar. Certain icons, including Add, Cut, Copy, Paste, Undo and Redo and Preview are also present on both Toolbars. To the right of the tool bar you will see the page's name and duration and the Page Switcher.

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Page View Canvas (3)

The canvas has two distinct parts:

- **Visible Page Area (4)**: seen during playback and is normally the main area to work within.
- **The Off-page Area (5)**: area outside the visible page

Design Panel (6)

These panels house the functions and settings you will need to compose individual pages in your script. There is a specific Design Panel associated with every major type of design task. The name of a panel reflects its purpose or the type of element with which it is associated.

Additional Topics

Information on the following topics can also be found in this section:

- General Visual Manipulation of Elements
- Working with Off-Page Elements

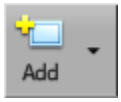
Page View Toolbar

The Page View Toolbar has a few buttons which are similar to the Main View Toolbar. However, it has other icons that let you quickly access different aspects of the page in which to compose, and it consists of:

- Add
- Cut
- Copy
- Paste
- Zoom Level
- Undo
- Redo
- Element
- Background
- Buttons
- Palette
- List
- Properties
- Preview
- Main

⚠ Add, Cut, Copy, Paste, Undo & Redo, Properties, and Preview are present on both Toolbars

Page Toolbar: Add



Using the Add Icon

Most types of elements are added to the page through the Add icon in the toolbar, with the general exception being Text. Clicking in an open area on the background will insert a Text Cursor allowing you to enter text. Other elements are added at the current cursor position (Text Cursor). Select the **File** type in the bottom panel and navigate to the location of the file you wish to add (either on your hard drive or server), in a manner similar to the Windows file dialog. You can select more than one file at a time by either holding down the **Shift** key or using the **Alt** key and selecting one file at a time. To add elements such as Special Events, Text Crawl and Streaming Videos, use the Add pull-down menu.

Using the Add icon in the Toolbar, the following elements may be utilized:

- **Custom**: Select any type of file which is supported.
- **Images**: Narrows the choice of selection of items in the dialog to just image files.
- **Animations**: Available animation files
- **Video**: Available video files
- **Sounds**: Available sound files
- **All Files**: Select any type of file, whether or not it is supported.

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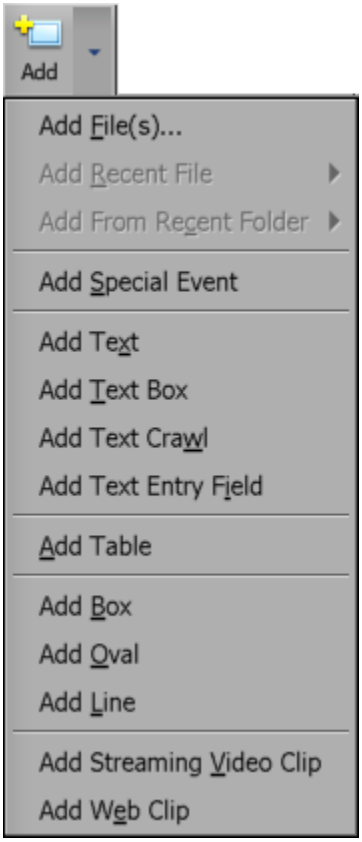
Using the Add Pull-Down Menu

The following choices are available:



- **Add File(s)**: Allows the user to select any type of importable file, such as a Clip Element, Flash Clip, or Movie Clip Element.
- **Add Recent File(s)**: Allows the user to select from recently-used media files.
- **Add From Recent Folder**: Allows the user to select from recently-used media file folders.
- **Add Special Event**: Opens the Design List panel and adds a line to select Timing, Variables and Branching, Sound, Launch, Log, Schedule or WinScript.
- **Add Text**: Adds an empty text element to your page, which can be useful when you can not select an open spot on the canvas area, especially if you have full-screen elements on your page. The text cursor will also appear.
- **Add Text Box**: Empty text box element will be placed on your page.
- **Add Text Crawl**: Element which can be positioned and edited will be placed on your page.
- **Add Text Entry Field**: Interactive text element that can accept typed input from someone running the script and store the text in a variable.
- **Add Table**: Adds a Table of text boxes.
- **Add Box**: Creates a Box element that can be drawn out with the mouse.
- **Add Oval**: Creates an Oval inside a boundary box that can be drawn out with the mouse.
- **Add Line**: Creates a diagonal Line inside a boundary box that can be drawn out with the mouse.
- **Add Streaming Video Clip**: Requests input of the Streaming Video URL.
- **Add Web Clip**: Opens a dialog that requests input of the Web URL.

Adding Elements using Drag and Drop

When working in Page View, Designer can add elements to a page by using Windows drag and drop feature.

Dragging the icon for a graphics file into the Page View canvas will add that file as a clip, animclip, or movieclip. You can also add sound and text files in the same way. They are added to the page as sound events or text elements after any existing elements, and will appear at the bottom of the Page view List panel.

If you drag an icon for a type of file which is unrecognized or cannot be added to an Designer page into the Page view canvas, you will see a message stating that it cannot be added.

Adding Elements

Elements can be moved, resized and styled on top of the current page background, and can be added to the page using these methods.

- Position the cursor at the point on the page you want to insert the elements.
- Then either:

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    - In the toolbar, click on the **Add** icon, which reveals the **File** dialog.
    - Use the **Add** pull-down menu and select the appropriate option (e.g. Choose **Add Special Event** to a Special Event) to select the element.
- If you are adding a box, line or oval element, you will be need to do the following, after the mouse pointer has become a cross-hair (+):
    - Move the pointer to where you want one corner of the element, then press and hold the left (main) mouse button, then move the pointer to the position of the diagonally opposite corner and release the mouse button to complete the box element.

The element is imported at full resolution at the cursor position. After the import is complete, the appropriate Design Panel appears. It contain numerous options when working with clips, which are discussed further in Working with Design Panels.

If the elements you are trying to create a Clip element (e.g. any of the following: Clip, Movie Clip, Streamkng Video, or Web), see Using Media Formats Supported by Scala Enterprise for a more detailed discussion of the formats supported by Designer.

Notes for Specific Elements

- Clips and Movie Clips
- Special Events
- Text
- Text Boxes
- Text Crawls
- Text Entry Field
- Table Element
- Box
- Ovals and Circles
- Lines and Arrows
- Streaming Video Clip
- Web Clips
- TV Clips
- Flash Clips

Clips and Movie Clips

Designer can import and separately position almost any image available as a graphic file, even animations. In Designer, any graphic image placed on a page is referred to as a clip, which is an independent element that can be moved, resized, and styled on top of the current page background. To be more specific, in the case of animations, as an animclip, movieclip, webclip or Flashclip.

Special Events

A Special Event within a Page enables you to add events to a script which may not be associated with an element, such as setting the value of a variable, or changing the flow of the script within the page based on variable values.

It is automatically assigned <untitled> as the name of the event. As with any element, you can click on the No. button and edit the name in the Element Control panel.

You can then click the Timing, Input, Variable, Sound, or other Module columns to specify the action of the special event.

Special Events are often used to notate or comment your script by naming the page with your comment and then un-checking **Enabled?** in the Page Control panel.

Text

If you click on any free area of the page, the Text Cursor will appear and you can start typing text. It can be a single word, a line, or several lines. Each text element is independent of one another and can exhibit entirely different settings which govern its appearance, position, and movement on the page.

Designer allows tremendous freedom to individually move, manipulate and design each element. You can move any text element by dragging it to a new position. You can also start a new element or break the current text element into two when the cursor is visible by pressing **Enter**.

Text elements can be converted to **Text Box** (and vice-versa), by right-clicking the element and selecting **Convert to TextBox**.

Selection and Editing Text

You can select text using the keyboard, the mouse, or a combination of both. The method you use will depend upon the amount of text you want to select, and if you want to move the text. For example, using the mouse is the quickest way to select and group several text elements so they can be moved as a unit.

Depending on the selection method chosen, the text will either be highlighted in a different color, or enclosed in a dashed rectangular selection frame.

- When the whole Text Element is selected you will see a dashed rectangular selection frame, any changes made in the Text Design Panel

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will affect the whole element. Typing Text when the element is selected will replace all of the existing text.
- When highlighted in a different color, any changes made using the Design Text Panel will only affect that Text Segment. Typing Text when a segment is highlighted replaces that section of text.

In either case, the selected text is now available to edit. You can change the color, apply a style, delete it, and so on. The selection frame also indicates the availability of options which are only available to text elements, such as applying a transition, specifying a pause setting, changing the alignment or dragging the text to move it.

Editing text is similar to using most word processors, including cut, copy, paste and delete. To add more text to the element, position the text cursor as desired and start typing. Unless you have turned off Word Wrap in the Design Text panel as you type, the text will automatically wrap onto the next line, but ALL the text typed will be considered as a single text Element.

Breaking/Joining Text Elements

If you want to create a New Text Element while typing, press **Enter**, which will move the Text Cursor to the next line and a new text element can then be created.

To break an Text Element into two, position the Text Cursor and hit **Enter**. Text after the Enter will start on the next line and will retain any styles associated to the text. To start a new line without creating a new Text element use **Shift + Enter**.

To Join text elements together either position the cursor at the:

- End of the first text element and press **Delete**.
- Beginning of the second text element and press **Backspace**.

Another method of breaking up text Elements is to use **Ctrl + Enter**. This leaves the starting point for the new text Element where the **Ctrl + Enter** was pressed. This method is often used to transition on individual characters of a word.

Inserting In-line Images into the Text Element

To insert an image into a text element:

1. Position the text cursor where you want to insert an image.
2. Right Click to open the Context Menu and choose **Insert Image**.
3. The image will be scaled according to its original size and image settings on the appearance tab of the Design Text Panel.

Text Boxes

After following the add process detailed at the top of this page, you will see a semi opaque rectangle appear with the text cursor ready to enter text. To exit cursor mode press the **Esc** key, which will remove the text cursor.

The Text Box is a useful alternative to the Text element due to these specific properties:

1. It defines an area on the page into which text is entered.
2. Text typed into it will automatically reduce in size when the cursor reaches the bottom right corner, allowing more text to be entered into the area until the minimum font size is reached.
3. Text that overflows it will be truncated.

This makes using a Text Box almost the primary element for Text when using them for Binding to Data in Templates.

Text Box elements can be converted to **Text** elements (and vice-versa), by right-clicking the element and selecting **Convert to Text**.

Text Crawls

A Text Crawl is a special kind of text element, allowing you to move text across the page continuously in the crawl as is typically seen for news feeds but can also be used to create credit scrolls, like those used at the end of television programs.

In addition to having the attention-grabbing element of motion, a Text Crawl is more powerful than a simple Text Element. It will allow you to specify different types of source for the text, process the text for display, and define a window where the text can freely move.

The source for a Text Crawl can be contained in:

- **File:** Text file.
- **Expression:** Entered into the Text Expression field below the **Text Source:** selector.
- **Cued Expression:** Can be updated via a cue signal.

You can design Text Crawl elements to become global, allowing them to run over every page within the current script.

Creating a Text Crawl

When creating a text crawl, an element consisting of the word “Crawl” will appear by default, and will inherit the current set of text styles. However, unlike a normal text element, it contains graphic handles on its dotted frame, indicating that it can be resized.

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A graphical separator can be inserted between text crawl segments, which are defined as an expression of a single line from a file.

Text Entry Field

These are used in interactive scripts and allow a viewer to enter data with an input devices such as a keyboard. They require a variable, which must be a Text variable, to be associated with it. Whatever the viewer enters in the field is stored in this variable, which can be displayed and manipulated the same as any other variable in Designer. For example, the viewer could be asked to enter their name, and the script could then refer to the viewer by name. More sophisticated applications of Text Entry Fields can gather, store, and process information entered, then use it as a basis for changing script flow (branching), and display choices based on that variable.

If there are any user-defined Text variables already defined, they are listed and you can select one. Otherwise, enter a name in the Name: box to create a variable by that name.

Set the Scope of the variable as appropriate for this case (i.e. set the Scope to External), if you want a new variable to be common to the script and any sub-scripts it has.

Table Element

This is a grid that can be either empty or contain a Text Cell, which is an adaption of the Text Box Element.

Column Size

When re-sizing the Table the minimum size for any column or row is 3 pixels.

The height of a row is common to the whole row in the Table, as is the width of a column to to the whole column.

Context Menu

The context menu for Table allows you to:

- Insert a Row Above and/or Below the selected row.
- Insert a Column Before and/or After the selected column.
- Delete a row or Column

Text Cell

This has the same basic functionality as a Text Box, and is added by clicking inside the empty grid cell.

Box

Rectangles and Square can be created using the Box Element. By applying Corner Styles to boxes, you are able to create a variety of shapes, (e.g. simple boxes with rounded corners, crosses, triangles, crescents, etc.) and these can have the area filled or outline line-art.

Drawing Box Elements

While drawing, you can hold down the the following keys to draw:

- **SHIFT:** Perfect square from the first corner in any direction.
- **CTRL:** From the center of the Box (the center being the original position).
- **SHIFT + CTRL**: Perfect square from the center of the Box (the center being the original position).

Two graphic handles will appear on the bounding box the start and end points of the line, indicating it is selected, and allowing you to change its shape.

Ovals and Circles

These can be created using the Oval Element.

Lines and Arrows

Lines and Arrows can be created using the Line Element.

Drawing Lines

While drawing, you can hold down the the following keys to draw:

- **SHIFT:** Line at 15 degree angle intervals.
- **CTRL:** From the center of the Line, with the center being the original position.
- **SHIFT + CTRL:** From the center of the Line at 15 degree angle intervals.

Two graphic handles will appear on the bounding box the start and end points of the line, indicating it is selected, and allowing you to change its shape.

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Streaming Video Clip

This is created at a resolution of the Streaming Video and a frame from that stream is used at the cursor position. If the URL of the clip cannot be reached, Designer has no reference to draw it. You will not see anything on the screen, but Element will be listed in the Page List View. When you return to the Main View, a warning triangle can be observed on the page's thumbnail indicating a problem. Previewing the page and pressing ESC may provide additional information as to exact nature of your issue.

Web Clips

A Web Clip has two forms:

1. A URL pointing at a specific web content.
2. A HTML Widget, which is a ZIP compressed file, ending with the extension ".wgt", containing a top level file named "index.html" plus any other HTML, JavaScript, and media files used by your content.

When they are created, Web Clips will be added at a resolution of 512 x 384 and a frame from that stream is used at the cursor position. If the URL of the Web Clip cannot be reached, Designer has no reference to draw the Streaming Video Clip. You will not see anything on the screen but the Element will be listed in the Page List View. After returning to the Main View, a warning triangle can be observed on the page's thumbnail indicating a problem. Previewing the page and pressing **ESC** may provide additional information as to exact nature of your issue.

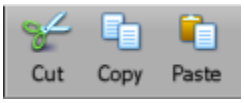
TV Clips

These are only available if they have been configured and enabled in the Tools Options Settings, and are used to show content from TV capture cards and internal webcams. They are represented by a **Color Bars** graphic at a Capture Size resolution, defined as the Capture Size at the cursor position.

Flash Clips

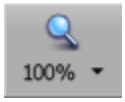
Once created, it is imported at a resolution of 1280x720 at the cursor position.

Page Toolbar: Cut, Copy, and Paste



Function	Description
Cut	Deletes the selected element or elements. The information is placed on the clipboard and can be pasted into any script. It is available until the next time you choose Cut or Copy.
Copy	Copies information to the clipboard which can then be pasted into any script. It is available until the next time you choose Cut or Copy.
Paste	Inserts elements from the clipboard that have been cut or copied, which are inserted after the currently selected element. If you click on the screen and see the text cursor, the information will be inserted at the cursor position, but if one or more elements are selected, the information will be placed after the first selected page.

Page Toolbar: Zoom Level



Zoom In/Out

The current zoom level is indicated on the **Zoom** icon, which allows you to pick a predefined zoom level from the popup when you click on it.

You can also use these hotkeys to choose zoom level:

- **ALT + CTRL + 0:** Return to 100% zoom.
- **CTRL + 0**: Fit the space in the menu.
- **SHIFT + CTRL+ 0**: Fill the space in the menu.
- **SHIFT + ALT + CTRL + 0**: Shows the pages off-page elements in the menu.
- **CTRL + PLUS (+)**: Attempt to keep the selected items visible.
- **CTRL + MINUS (-)**: Zoom out of the page.
- **ALT + WHEEL**: Zoom in / out around the position of the mouse pointer.

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Scrolling

Using the Scroll Bars

A Design panel can cover the lower portion of a Page View canvas. If any portion of the canvas is covered by a Design panel, or if the window is not large enough to display the entire page, you will see vertical and/or horizontal scroll bars in the Page View window, that will disappear when not needed.

Designer can automatically scroll through the page display. For example, if you drag an element below the top of a Design panel, Designer will scroll the page to reveal the entire element.

Mouse-Wheel / Middle-Mouse-Button Support

if your mouse has a middle wheel and/or button, you can use it to scroll or zoom on the page.

- **Wheel**: Scrolls the page vertically as you turn the wheel
- **Shift + Wheel**: Scrolls the page vertically by screenfuls as you turn the wheel.
- **Ctrl + Wheel**: Scrolls the page horizontally as you turn the wheel.
- **Shift + Ctrl + Wheel**: Scrolls the page horizontally by screenfuls as you turn the wheel.
- **Alt + Wheel**: Zooms the page in or out as you turn the wheel.
- **Middle Mouse Button**: Scrolls the page as you drag with the middle mouse button (wheel-button) pressed.

Page Toolbar: Undo and Redo

Designer has a multi-leveled Undo and Redo function. Undo and Redo are options which are available on the **Edit** pull-down menu and the toolbar panel in both the Main and Page Views. You can also use keyboard shortcuts for these functions: Ctrl+Z for Undo and Ctrl+Y for Redo.

While the majority of actions can be undone changes to settings that impact only the application's working environment and not the script itself, are not tracked by the undo system.

Examples of changes that cannot be undone include:

- Changes made in the Tools Options dialog.
- Opening or closing a panel or dialog, apart from changes made within it.
- Actions that cause some form of output, such as printing or publishing.
- Changing the Designer window size or position.

Undo Ctrl+Z

This function undoes the last change made to the script.

You can continue choosing it to move as far back as necessary through your editing history. The Undo entry in in the pull-down menu identifies the change to be reversed, such as Undo Delete. You will see the results immediately, and a message in the Status Bar at the bottom of the screen indicates the specific change.

Use **Redo** to cancel the effect of the last Undo.

Redo Ctrl+Y

This function reverses the effect of the last Undo operation, restoring an editing change you had made.

You can continue choosing it to move as far forward as necessary through the actions that you have taken back using Undo. The Redo entry in in the pull-down menu identifies the change to be reversed, such as Redo Delete. You will see the results immediately, and a message in the Status Bar at the bottom of the screen indicates the specific change.

Use **Undo** to cancel the effect of the last Redo.

Page Toolbar: Element

The Element button jumps to the Element Design panel for the selected element(s), and is useful when alternating between the List and Element Views. You can also use the keyboard shortcut **F3** to access the Element button.

A more detailed discussion of each of these elements can found in Working with Design Panels.

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Working with Design Panels

Design panels are the tabbed panels at the bottom of your Designer window when you are editing a page.

You can easily move from one Design panel to another by clicking its icon in the toolbar, or by pressing its F-key shortcut.

In order to see the Design panel for a particular element, first, select the element, and depending on the type of element selected, the appropriate Design panel will automatically appear. The Element icon in the toolbar will also be highlighted. There is a corresponding Design panel for every type of created screen element.

To edit other aspects of the page such as Background, Palette or List, click on the desired icon.

After using a Design panel, click the Element icon to continue working with an element's styles. If an element is not selected when you click the **El ement** icon, or you have selected multiple elements of different types, you will see a Design Multiple Elements tab in which most options have been disabled.

Look in the **View** pull-down menu to see the associated F-keys for the different Design panels. Some keyboards may be set up with alternate global commands for F-key functions, which may be disabled or overridden while working in Designer. These panels house the functions and settings you will need to compose individual pages in your script. There is a specific Design panel associated with every major type of design task. The name of a panel reflects its purpose or the type of element with which it is associated. The tabs containing common functions between elements are on the left most tab and the unique functions for the element are on the right.

This arrangement is optimal for getting the job done as you are kept on the same tab panel as you switch between elements. The Elements Design Panel can also be accessed from the View pull-down menu.

Since many of the panels contain similar controls under the tab of the same name the tabs are discussed in general. The table below shows each of the Panels and their associated tabs with a brief description to follow in Understanding the Panel Tabs, found after the chart.

Panel Name	Panel Tabs					
Design Background	Image Type	Image Settings	Process			
Design Text	Appearance	Position	Misc			
Design Clip	Appearance	Position	Misc	Chroma Key	Process	
Design Movie Clip	Appearance	Position	Misc	Chroma Key	Process	Video
Design Text Box	Appearance	Position	Misc			
Design Text Crawl	Appearance	Position	Misc	Crawl Control		
Design Table	Appearance	Position	Misc			
Design Text Entry Field	Appearance	Position	Misc	Field		
Design Box	Appearance	Position	Misc			
Design Oval	Appearance	Position	Misc			
Design Line	Appearance	Position	Misc			
Design TV Clip	Appearance	Position	Misc	Chroma Key	Process	Video
Design Streaming Video Clip	Appearance	Position	Misc	Chroma Key	Process	Video
Design Web Clip	Appearance	Position	Misc	Chroma Key	Process	Web Clip Control
Design Flash Clip	Appearance	Position	Misc	Chroma Key	Process	Flash Control

Understanding the Design Panel Tabs

Panel Tab	Contains Options That
Appearance	Can be applied to the element.

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Position	Control how elements are positioned on the page.
Misc	Do not fit on other tabs, including options to save and reset default values.
Chroma Key	Let you make a particular Clip color transparent.
Process	Allow you to change the appearance of Clips. These changes affect the rendering of the images only, not the underlying files, and can easily be undone.
Video	Assist in the playback of Anim Clips and Movie Clips.
Crawl Control	Allow the control of aspects of a Text Crawl element.
Field	Define text entry characteristics of the Text Field element
Web Clip Control	Allow the control of aspects of a Web Clip element.
Flash Control	Set controls related to the playback of flash files.
Image Type	Choose a type of background image and set certain options for that image type.
Image Settings	Control the size of the background image and other background settings.

Design Background Panel

The Design Background Panel gives you the the ability to make special adjustments to the background of a page. The adjustments and options available will depend on the type of background you are working with.

Some of the actions you can perform with this panel are:

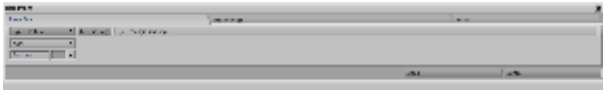
- **Change:** Background type without affecting elements on the page. Color or image processing.
- **Adjust:** How the image or video used for the background is scaled to fit the page and background size to ensure that it matches the page size.
- **Crop/Trim:** Graphic areas you do not want to include.
- **Apply:** Color and opacity gradients, as well as corner styles and alpha masks
- **Make:** Full page background from a smaller image by tiling.

Because the Background consists of two layers, the Background Face (upper) and the Backdrop (Lower), the tabs and options available accessible are dependent the background type selected.

The Design Background panel is accessed from:

- **Main View:** Select the page you want to change and click on the Background column
- **Page View:** Click Background icon or use the **View Menu > Background Panel** or use the keyboard shortcut **F4.**

The Design Background Panel consists of these tabs:

- **Image Type:** Set or change the type of background to be used.

- **Image Settings:** Contains options related to the dimensions of picture, movie, animated or streaming video backgrounds.

- **Process:** Enables real-time color processing of the background during playback.

Other Design Panels

When an an element is added or selected in Page View, a corresponding Design Panel will appear, and it will allow you to:

- **Apply**: Color gradients, opacity gradients, corner styles and alpha masks. You can also apply and change the backdrop of the element.
- **Change:** Normal and minimum font sizes, and the font size and face and area color or fill type of an element. If you are creating a line, line size or thickness.
- **Set:** Typographical controls and In and Out transitions for the element. If the element is one of the kinds of Clip, Start and End Times can be set, as can volume for the sound, and the URL for the Stream. Text elements allow the variable associated with the field to be set as

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well.
- **Add:** Line images, inline images, separator images between Crawl segments, Text Cells to a table, an outline to a box, and arrow heads to either end of a line element.
- **Adjust:** Size and cropping area of Clips, Normal and minimum font sizes, face color or fill type of a text element.

These Panels can be accessed by:

- Adding a new element.
- Selecting an element on the page you want to change.
- Selecting the name of the element in List View.
- Using the **Tools > Element Panel (F3)** when in List View and working in another Module column, such as Variables.

Design Panel Tabs

These panels house the functions and settings you will need to compose individual pages in your script. There is a specific Design panel associated with every major type of design task. The name of a panel reflects its purpose or the type of element with which it is associated. The tabs containing common functions between elements are on the left most tab and the unique functions for the element are on the right.

Each Panel Tab is described in general and some options may not be available depending on the Element.

Panel Tab	Menu	Function
Appearance		Basic style options that can be applied to the element.
Position		Control how elements are positioned on the page.
Misc		Various options that do not fit on other tabs, including options to save and reset default values.
Chroma Key		Make a particular Clip color transparent.
Process		Image-processing options to change the appearance of Clips, which affect the rendering of the images only, not the underlying files, and can easily be undone if desired.
Video		Related to the playback of Anim Clips and Movie Clips.
Crawl Control		Control aspects of a Text Crawl element.
Field		Controls input options for Text Entry Fields
Web Clip Control		Control aspects of a Web Clip element.
Flash Control		Related to the playback of flash files.
Image Type		Choose a type of background image and set certain options for that image type.
Image Settings		Control the size of the background image and other background settings.

Wait and Loops

The following settings are available when editing Clips.

Wait?

Controls the progress of the script.

- When **On**, Wait? prevents the script from advancing to the next event in the page's sequence until the current animation finishes.
- When **Off**, Wait? allows the next event to begin as soon as the animation has started.

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Loops

Lets you specify the number of times that the entire crawl text moves through the crawl element box. The default **infinity** setting causes the crawl text to continue to repeat without stopping.

- Sets the number of times the element should play.
- The default value (and also the recommended setting) is **infinite.**
- However, for Video, where the default value and recommended setting are both **one (1)**.

Simpler Clips do work well when you specify the number of loops, while more complex ones can interfere with the end-of-loop detection, and may end up finishing prematurely, or loop due to behaviors designed into the clip itself.

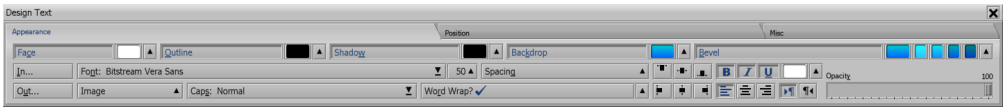
Page Advancement for Wait? and Loops

Regardless of the Wait? setting, the page itself will advance when the page duration is reached. If Wait? is **off,** and if the page is set to **Wait for Elements**, then the page will wait for the specified number of Loops to complete. If Loops is set to infinite then the page will advance.

Tab: Appearance

The Appearance tab is the primary tab of all Design Panels. It allows the application of a variety of styles to the element, and how it should transition on and off of the page.

> **Note:**
> This image is for illustrative purposes only. The actual Panel's layout may vary based on the element selected and some of the features described below may not be available.



General Element Controls

Element	Purpose
Face	Specify a colored or textured effect of the selected element.
Outline	Specify a colored or textured effect around the selected element.
Shadow	Specify a colored or textured drop shadow behind the selected element.
Backdrop	Specify a colored or textured backdrop box behind the selected element.
Bevel	Specify a colored or textured effect for the bevel around the selected elements bounding box

Enable/Disable the Element

The Face element is enabled by default and the Options popup button, while all other elements will show the Options popup. It will show a color chip for text or monochrome clip elements.

To prevent elements from becoming invisible, you cannot disable them unless either the Outline or Shadow is enabled.
Fill Chip

To change the face color or texture, click on the color chip to open the **Fill Options** popup. Select the desired Fill type (Solid Color, Color Gradient, Image, or Tile), then adjust colors and various other parameters.
Options

To adjust attributes click on the triangle to open the options popup, all of which are element dependent:

- **Opacity**: Set the overall opacity of the element.
- **Opacity Gradient:** Apply an opacity gradient to the element, the level and the direction of the gradient
- **Smooth?:** Turn on or off smoothing of text or shape elements.

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Note:
Off: can be useful when working with low resolution outdoor LED displays

- **Corners:** Corner Styles can be applied to this part of the element.
- **Mask**: Choose an image file to use as a mask to determine the opacity for this part of the element.
- **Thickness:** Set the thickness, in pixels, of the element.
- **Softness:** Adjust the softness of the element.
- **Presets**: Glow, Edged and Solid are preset combinations of softness and thickness.
- **Allow Show Through?**: Control whether the element is visible through the non-opaque and/or transparent portions of the Face, Outline, Underline, Area or Line.
- **Padding**: Adjust the height and width of the elemtn by adding padding to the Top, Left, Right and Bottom.
- **Linked Padding?**: When enabled, allows all the padding sliders to be adjusted simultaneously.

BevelFill Chips

The five (5) color chips are:

- **Bevel All Edge Fill**: Automatically populate all the bevel fill chips with an appropriate color or image (Colors are added to the User Palette).
- **Bevel Top Fill:** Adjust the fill type settings for the Top bevel.
- **Bevel Left Fill:** Adjust the fill type settings for the Left bevel.
- **Bevel Right Fill:** Adjust the fill type settings for the Right bevel.
- **Bevel Bottom Fill:** Adjust the fill type settings for the Bottom bevel.

Transitions

- **In... :** Shows the current **In** transition for the element.
- **Out... :** Shows the current **Out** transition for the element.

These can be changed by clicking the button to open the Element Transition Panel.
Page Alignment

The six (6) page alignment buttons adjusts the position of the element in relation to the page margins.

The upper group align the element to Top, Middle or Bottom of the page, while the lower group align the element to the Left, Center or Right of the Page Margins.

Text Based Element Controls

Text, Text Box, Text Crawl, Table Cell and Text Entry Field Elements.
Font

The Font button has the currently selected font shown and lets you change the typeface of the selected text based element. Click on the name of the current typeface to change it and the shown is in two parts, the top section has the recently used fonts and the bottom section is an alphabetical list of fonts available on this system. Scroll the list using the scroll bar or the up/down arrows or even type the first letter of the font you are looking for, and select the font highlighted. The changes you make are applied to any selected text, or to the next text you type.

Fonts listed with a lock symbol next to the name is an indication that the font has restricted distribution rights and cannot be embedded within a ScalaScript. If you wish to publish or distribute a script that uses non-embeddable fonts, you must ensure that the machines on which the script will play already have the necessary font(s) installed. A warning at the the time of selection is shown as well as at the time of collection and publication of the script.
Font Size

The Font Size popup has several options:

- **Font Size**: Specify the font size or select the numeric value and enter the size you want. It can be bound by right mouse selection of the numeric value.
- **Font Browser...**: Shows an alternative and more detailed font selection panel, with a preview area to type some text into.
- F**ont Sizing**: Sets the method to use to calculate the drawn text.
  - **Cell Height**: Text, including accents and descenders, fits exactly within the number of pixels specified in the Font Size.
  - **Character Height**: Upper-case letters are approximately the number of pixels specified in the Font Size, which more closely matches various other applications.
- **Text Engine:** Choose which engine will be used to draw text.
  - **Standard:** Supports a full range of text effects
  - **Complex**: The Standard text engine and styles and the Complex Writing Systems engine supports Arabic, Thai, Hebrew, Hindi, and other complex writing systems, but does not support certain text style settings.
  - **Automatic:** Uses the Standard text engine when possible, but uses the Complex Writing Systems engine when the text element requires its features.
  - **Complex Writing Systems:** Always uses the Complex Writing Systems text engine.
- **Asian Vertical Text?:** Specify that the text shall be rendered using the Asian vertical writing style.

Spacing

Opens the Spacing options popup which enables you to make the following changes:

- **Line Spacing:** Slider tightens or opens the spacing between text lines for multi-line text based elements. The value is in pixels and can also be adjusted by the value control.

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- **Character Spacing:** Slider tightens or opens the spacing between selected characters of text based elements. The value is in pixels and can also be adjusted by the value control.
- **Kerning:** Adjusts spacing between certain character pairs based on typographical rues. There are three (3) options:
  - **Normal and Digits:** The default setting is applied to all Character pairs including digits.
  - **Normal:** Character pairs are kerned but digits have equal spacing for vertical alignment.
  - **Off:** No Kerning is applied and all characters use their standard spacing.

Image

The Image button popup menu enables images to be embedded into text based elements with controls for scaling and positioning of the embedded image based on the typographical size ranges of the current font.

- **Insert Image:** Brings up the file dialog to select an image
- **image Range:** Can be set (scaled and positioned) to one of the following ranges:
  - **Cap Height:** Between the Baseline and the Cap Height of the current font.
  - **Ascender Height**: Between the Baseline and the Ascender of the current font.
  - **Cell Height:** Within the cell height of the current font.
- **image Alignment:** Image can be aligned at the Top, Middle, or Bottom of the range set in the Image Range. An embedded image that is larger than the specified range will be scaled smaller to fit the range. If the image is smaller than the specified range will not be scaled but will be positioned within the range based on the current image alignment.

Caps

The Caps button opens a popup with controls for the capitalization style to be applied to the text, which is shown:

- **Normal**: As typed (default option).
- **Small Caps**: Any lower-case letters replaced with reduced-size upper-case letters.
- **All Caps**: All upper-case.

Word Wrap?

Word Wrap, enabled by default, is the distance in pixels between the left and right text margins of the element. Text will dynamically wrap to the next line when the right text margin of the element is reached. To disable Word Wrap simply toggle the button off and any text typed, regardless of the length, will not wrap at the right text margin of the element.

The left and right text margins are indicated in the Tab/Margin bar by a pair of black triangles, one on the left and one on the right. These triangles will appear hollow if they are outside of the visible page area. The word wrap length can be adjusted either by dragging them in the Tab/Margin bar to a new position or by changing the value in the options popup menu.

- **Word Wrap Width:** Use the numerical controls buttons or select the value and enter a new value. The right margin triangle will move to reflect this change.
- **Keep Ideographs Together?:** When **On**, word wrapping will try to keep ideographic phrases together, as is the case in Chinese characters.

Style Buttons

- **Bold (B) Button:** Makes the selected text **bold**.
- **Italics (*I*) Button:** *Italicizes* the selected text.
- **Underline (U) Button:** Underlines the selected text.
  - **Underline Fill Chip:** Adjust the fill type settings of the Underline.
- **Options:** This popup will vary depending on the current styles selected.
  - **Bold Weight:** Use the slider or select and change the numeric value.
  - **Italic Slant:** Using the slider or select and change the numeric value (negative numbers slant the characters to the left).
  - **Underline Position:** Adjusts the number of pixels of the underline in relation to the fonts baseline. This is done by either using the slider or selecting and changing the numeric value. (Negative numbers raise the underline).
  - **Underline Thickness:** Adjusts the thickness of the underline by either using the slider or selecting and changing the numeric value.
  - **Underline Air:** Adjusts the pixel space (air) surrounding the text characters by either using the slider or selecting and changing the numeric value when an underline goes though the characters.
  - **Underline Opacity:** Enables you to set the overall opacity of the Underline.
  - **Underline Opacity Gradient:** Enables you to apply an opacity gradient to the Bevel, the level and direction of the gradient.

Text Justification

Text Based elements have three (3) Justification Buttons and Text Boxes and Table Cells have an additional Option popup for adjusting the Vertical Justification. They are disabled for horizontal Text Crawls.

- **Left Text Justify button:** Justify text inside elements bounding box along the left edge.
- **Center Text Justify button:** Justify text inside elements bounding box between the left and right edges.
- **Right Text Justify button:** Justify text inside elements bounding box along the right edge.
- **Options**: Contains the Vertical Justification for Horizontal Text Crawls, Text Entry Fields, Text Boxes and Table Cells:
  - **Top**: Text is top-aligned within its bounding box.
  - **Middle**: Text is centered vertically within its bounding box.
  - **Bottom**: Text is bottom-aligned within its bounding box.
  - **Baseline**: Text is justified to the baseline specified with the baseline button below. (Horizontal Text Crawls Only)

Cursor

Use the color chip to set the color of the Text Entry Field's blinking cursor.
Direction of Text

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- **Left-to-Right (>¶):** Sets the default text-direction for left-to-right languages such as English.
- **Right-to-Left (¶<):** Sets the default text-direction for right-to-left languages such as Arabic or Hebrew.

Image, Movie and Flash Element Controls

Clip

Shows the name of the current clip or blank if nothing is selected. The current clip can be replaced by clicking the name, which opens the file dialog, and selecting a new file.
Transparency?

If a Clip has an alpha channel then Transparency is automatically turned On. For other clips turning transparency On makes transparent any portions of a Clip defined as transparent using the controls in the Chroma Key tab. Adding Transparency and Chroma Key to Movies and other animations require additional CPU usage and can result in poor performance on low specification playback devices. When Transparency? is On, the Shadow and Outline styles follow the edges of the visible areas of the Clip, rather than the rectangular shape of the Clip..
Volume

For a clip where the audio volume is set to to the maximum value. This setting can be adjusted by either using the slider or select and changing the numeric value. The actual volume is in relationship to the master volume setting of the device. (e.g. If the Master volume of the device is set to 60% then setting the volume of the clip to 25% will result in the actual volume being 15% of the master volume.)

Web Clip and Streaming Video Element Controls

File or URL

- **File:** Shows the currently selected HTML Widget (.wgt file). It can be replaced by clicking the name and selecting a new HTML Widget from the file dialog.
- **URL:** Shows the URL of the Web Page or Stream vdideo and can be replaced by clicking the URL. The dialog enables you to specify the URL and any credentials needed to view the web page.

Transparency?

Turning transparency On makes transparent any portions of a Clip defined as transparent using the controls in the Chroma Key tab.
Wait?

This settings is discussed here.

Shape Element Controls

For Box and Oval shapes, the Face is broken into two parts, Area and Line, which enables shapes to have filled areas and/or line art. For Line Shapes, only Line is available.

Element	Purpose
Area	Specify a colored or textured effect for the Area of the selected element.
Line	Specify a colored or textured effect for the Line of the selected shape element.

Enable/Disable the Element

For Boxes and Ovals, the Area is enabled by default and will show a fill chip and an Options popup button. For Line Shapes, Line is Enabled by default and will show a fill chip and an options popup button.

To prevent Shape elements from becoming invisible, you cannot disable the Area unless the Line is enabled.
Fill Chip

To change the either the Area or Line color or texture, click on the fill chip to open the Fill Options popup. Select the desired Fill type (Solid Color, Color Gradient, Image, or Tile), then adjust colors and various other parameters.d.
Options

To adjust attributes click on the triangle to open the Options popup, and choose from one of the available options:

- **Opacity**: Set the overall opacity of the Area.
- **Opacity Gradient:** Apply an opacity gradient to the Area, the level and direction of the gradient.
- **Mask**: Choose an image file to use as a mask to determine the opacity for this part of the element.
- **Opacity Gradient:** Apply an opacity gradient to the Area, the level and direction of the gradient.
- **Line Thickness:** Adjusts the thickness of the line by either using the slider or select and change the numeric value.

TV Clip Element Controls

This Element is only available if the TV Tuner Module is enabled in the Designer Tool Options panel. Here, you are able to setup the default settings for Channel, Capture size, etc.
Channel

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Enables the selection of the channel for the TV Tuner device. The default Channel is initially shown, but you can choose other channels from the list on the device. The List contains channels defined for the current capture device and also:

- **<use player default>:** uses the channel defined in the settings of the player. This is useful when players are located in different locations.
- **Composite:** Captures from the Composite port of the device (device dependent).
- **S-Video**: Captures from the S-Video port of the device (device dependent).
- **Custom**: Selecting this option enables the Custom Button below.

Custom Channel

This is only available if Custom is first selected as the Channel list, and lets you manually enter the name of the Channel.
Transparency?

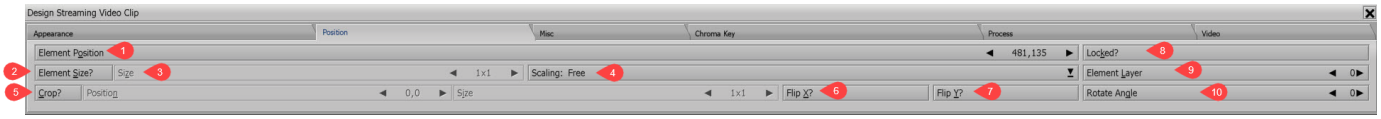
Turning transparency On makes transparent any portions of the Streaming Video defined as transparent using the controls in the Chroma Key tab.
Volume

The TV Clip volume is set to to the maximum value. This can be adjusted by either using the slider or by selecting and changing the numeric value. The actual volume is in relationship to the master volume setting of the device. (e.g.if the Master volume of the device is set to 60% then setting the volume of the clip to 25% will result in the actual volume being 15% of the master volume.)

Tab: Position

The Position tab contains options related to the position and dimensions of the element(s) selected.

> This image is for illustrative purposes only, as the actual Panel's layout may vary based on the element selected. Some of the features described below may not be available.



1	**Element Position**	This is normally defined by the number of pixels in the *x* and *y* direction, relative to the origin, which is the top left of the page (0,0). It can can be modified by entering in the exact coordinates or by using the numeric controls. May be bound to variables by clicking the right mouse button on a numeric control, then choosing **Bind to Data**.
2	**Element Size?**	When this button is **On**, it enables the Element Size value control, and when **Off**, the element is reverted to its original size. The perimeter of the area defined by the size of the element is often referred to as the **bounding box**.

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	Size	Sets the width and height of an element in pixels. The element will be stretched or squeezed to fit the new dimensions. It can be modified by entering the width and height or you can use the numeric controls. May be bound to variables by clicking the right mouse button on a numeric control, then choosing **Bind to Data**. This button is automatically enabled if you have re-sized the element using graphical controls When using tables, **Size** changes to **Cell Size**. Cell Size sets the width and height of the cell in pixels. The cell will be stretched or squeezed to fit the new dimensions, and it can be modified by entering the width and height or using the numeric controls. Changing the width of a cell will adjust all cells in that column to the new width. Changing the height of a cell will adjust all cells in that row to the new height. The size of the cell may be bound to variables by clicking the right mouse button on a numeric control, then choosing **Bind to Data**.
	Scaling	The Scaling of an element can be adjusted according to its bounding box size. • **Free:** Image will exactly match the bounding box, which the element may be stretched or squeezed to fill. • **Fill and Trim (Preserve Aspect Ratio):** Scales the image to fill the bounding box, trimming either the width or height as required. • **Fit Inside (Preserve Aspect Ratio):** Scales the image, as large as possible while still fitting entirely within the bounding box, letterboxing the element as necessary. Scaling an element is especially useful when the Clip's filename is bound to a data field, because it controls how the replacement Clip is scaled to fit the area of the placeholder. It is particularly important to check when you bind the graphical element to a variable for use in a template.
	Crop?	Selecting Crop? it enables the crop position and crop size fields. • **Position**: Sets the upper left corner of the crop area (initially 0,0). The first value is the distance from the left side of the original media asset, and the second value is the distance from the top of the original media asset. • **Size**: Define the size of the area visible after cropping (initially <full width> x <full height>). The first value is the crop area width, and the second is its height. You can revert to the uncropped state by turning this button **Off**.
	Flip X?	When enabled the media asset is flipped horizontally around the vertical axis. The keyboard shortcut for this option is **x**.
	Flip Y?	When enabled the media asset is flipped vertically around the horizontal axis. The keyboard shortcut for this option is **y**.

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8	**Locked?**	When enabled, this locks the element in position and prevents any editing of the element. A yellow lock icon ? Unknown Attachment indicates the element is currently locked.
9	**Element Layer**	The visual order (stacking) of elements is controlled by the Element Layer. Normally the elements are placed on the page in the order they appear in the list view of the page. This means elements that appear later will be on top of other elements that appeared earlier. The layer number enables the visual ordering of the elements to be adjusted independently from the order the elements appear on the screen. Elements with a higher layer number always appear on top of those with a lower numbered layer, regardless of when they appear on the page. By default all elements are created on layer zero (0) and in Page View. You will see a small overlay indicating the layer for any selected element that is not on layer zero (0). The Element Layer can also be set in the List View of a Page, and may be bound to a variable by clicking the right mouse button on the numeric control, then choosing **Bind to Data**.
10	**Rotate Angle**	Displays the rotation angle of the element. You can adjust the angle using the numeric field or the up/down controls in either single (1) or ninety (90) degree increments, depending on the element type.

Tab: Misc

The **Misc** (miscellaneous) Tab enables you to:

- Set the Global status of the element, as well as Page Margins.
- Control how on-screen variables are updated, and the advanced scripting behavior for replaying an element.

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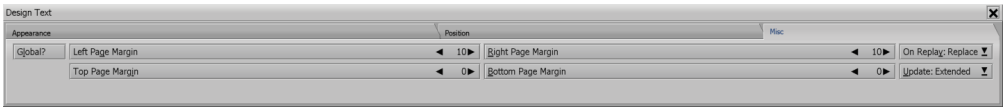

Global?

When Global? is **Off** (default), the element appears only on that page. When it is **On**, the element shows on **all** pages of the script, without being affected by page transitions. Global Elements cannot have an In or Out transition, nor can they be aligned relative to the page. If transitions were applied prior to making the element **Global?,** these transitions will be removed when Global? is turned on.

Page Margins

The left, right, top and bottom page margins are predefined to 10 pixels from the edges of the page. These settings are used to determine the position of the element when an alignment option is applied, and to provide the default position of the left and right margins for new elements.

- **Left Page Margin:** Pixels from the left edge of the page.
- **Right Page Margin:** Pixels from the right edge of the page.

Together, they determine the effects of the left, center, and right alignment buttons in Tab: Appearance.

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- **Top Page Margin**: Pixels from the top edge of the page.
- **Bottom Page Margin**: Pixels from the bottom edge of the page.

Together, they determine the effects of the top, middle, and bottom alignment buttons in Tab: Appearance.

Update

By default, embedded variables displayed on the page are automatically updated, so as the variable's value changes during playback so to does its representation on the screen. The simplest example of this is !(time), which displays a clock on the page.

You are able to control how long the variable will update for while playing the page.

- **Extended**: (default) Continues to update until the beginning of the next visual page. This includes the transition period between the pages and also any special events that follow the current page.
- **Normal**: Continues updating until the end of the current page.
- **None**: Does not update at all. When using Textfile, it is recommended that Update be set to **Normal** for the text variables !(Line1), !(Line2),..,!(LineN).. to avoid premature updating of the display.

On Replay

> **Note:**
> This is intended for advanced scripting only.

This feature allows you to control what should happen if the element is run again as part of some scripting in your page.

- **Add:** Makes a new element, leaving the existing element present. It can be used in a scripted loop to create several copies of an element.
- **Replace:** Makes a new element, replacing the existing element. It can be used to update the image file used by a clip.
- **Ignore:** Will not make a new element after the first time.

Tab: Chroma Key

Transparency is generally handled for clip formats containing a pre-set alpha channel. For those that do not support alpha channel, the transparent area can be associated with a selected color called the **Chroma Key**.

Any particular color in the clip's palette which has been defined as transparent will determine which areas of the clip will disappear when **Transparency?** in the Appearance tab is turned **On**. You can also specify which color in a clip is transparent using the **Chroma Key** tab in the Design panel. By turning the **Transparency?** option **Off**, you can see this color by turning the Chroma Key option Off.

If the Chroma Key tab is disabled then it is usually because the clip has a pre-set alpha channel.

> This image is for illustrative purposes only as the actual Panel's layout may vary based on the element selected and some of the features described below may not be available.

The Chroma Key tab has a set of sliders and associated value displays which reveal the chosen transparency, or **Chroma Key** color. You can select a Chroma Key Color by using either:

- **Pick**: Click **Pick**, then use the pointer to click on your desired color in the clip.
- **RGB/HSV Color Selection:** sliders or Numeric values.

The large color block will display your chosen color. If the Transparency? button in the Appearance tab is On, your chosen color will become transparent in the clip. You can switch between the RGB and HSV color models by clicking in the RGB/HSV display box.

Range

The Chroma Key Range control will allow you to specify a color tolerance, so similar colors may also become transparent. When the range slider is all the way to the left, only the exact color on the color block will be affected.

Feathering

The Chroma Key Feathering control allows you to adjust smoothness of the transition between transparent and non-transparent areas. You may need to experiment with the range value and the exact color to achieve your desired effect.

Tab: Process

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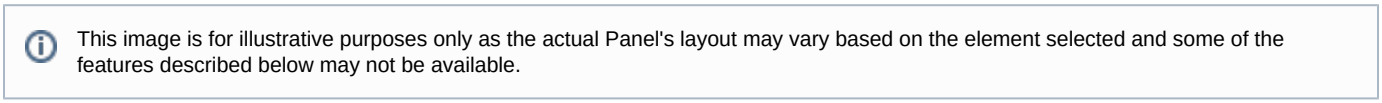
Designer allows you to make real-time changes in the overall color balance and tonal qualities of a clip or background, since it is not uncommon that they may need some touching up. Some examples may include tinting an image a particular color for an artistic effect, or reducing its contrast to make it work better by allowing it to blend more effectively into a background. Adjustments made in the Process panel will not alter the source image. You can always return to the original, unprocessed image with a single click.



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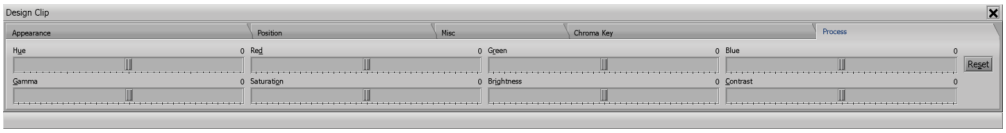


Types of Image Processing

The image processing tasks which you can accomplish in the Process panel can be distinguished within two general types:

- **Color Processing:** Deals with adjusting hues which make up an image. You can apply minor alterations in the strength of a particular color component in order to correct a picture's color balance, or make a radical adjustment which will completely alter the natural colors in the image.
- **Luminance Processing:** Affects the relative and overall brightness levels of the pixels in the image, apart from their color.

As you will see when you begin to work in this panel, the effects of the controls are not independent. There are many ways to achieve similar effects. Not only will every control affect the entire image, they will also interact with one another.
Process Controls

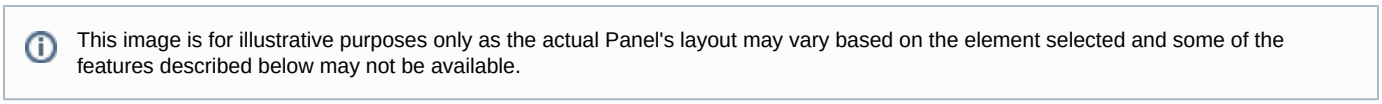
The initial value for each control is zero (0) and can be adjusted using either the slider, or by selecting and entering the value of the control located at the top right of the control.

The range of values for most sliders is -100 to +100, except the Hue control, whose value can range from -179 to 180.

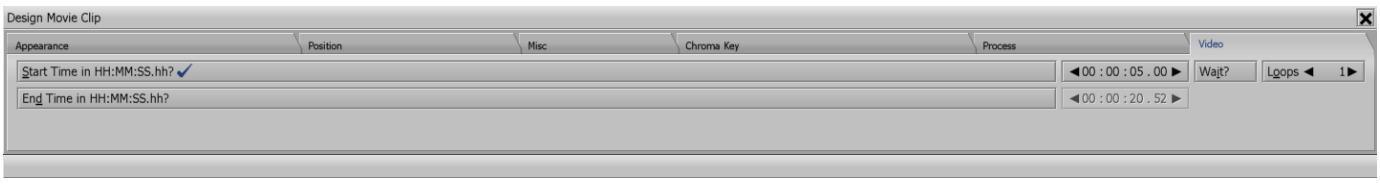
Please be aware that processing Video and other animations require additional CPU usage and can result in poor performance on low specification playback devices.

- **Color Processing**:
  - **Hue:** Shifts the hue of all colors by a constant amount, retaining color relationships.
  - **Saturation:** Adjusts the intensity or purity of the colors in the image.
  - **Red:** Controls the amount of red in the image.
  - **Green:** Controls the amount of green in the image.
  - **Blue:** Controls the amount of blue in the image.
- **Luminance Processing**:
  - **Brightness:** Adjusts the brightness of the image.
  - **Contrast:** Adjusts the relationship of light and dark areas, increasing or decreasing contrast.
  - **Gamma Correction**: Similar to Brightness, this setting adjusts the overall luminance of the image, but does not alter the lightest and darkest tones from their original values.
- **Reset:** Returns the image to its original, unprocessed state, resetting all controls to zero.

Tab: Video



This image is for illustrative purposes only as the actual Panel's layout may vary based on the element selected and some of the features described below may not be available.



The Video tab is primarily used to set the Start and End times of the movie clip allowing you to play a specific part of the movie clip. To have the movie clip start playing at some point after the beginning, use the Start Time control to set the position in hours, minutes, seconds, and hundredths (HH:MM:SS.hh). To have the movie clip stop playing at some point before the end, use the End Time control to set the length of time from the beginning to the desired stop point (HH:MM:SS.hh).

Start Time in HH:MM:SS.hh?

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- Enables the Start Time value control, allowing you to adjust the start time for the movie.
- **Start Time Control:** The default is 00:00:00:00, the beginning of the movie. Select a value and adjust it.

End Time in HH:MM:SS.hh?

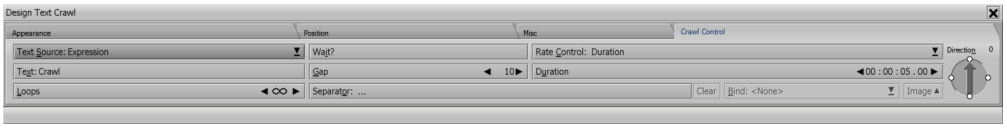
- Enables the End Time value control, allowing you to adjust the end time for the movie.
- **End Time Control:** The default is the movie length, indicating that the movie plays to the end. Select a value and adjust it.

Wait? Loops and Page Advancement for Wait? and Loops

These settings are discussed here.

Tab: Crawl Control

The Crawl Control tab has a number of options for defining the source of the text crawl as well as options for how the crawl is displayed.



Initially, a text Crawl will source the text as an Expression with the word "Crawl" as its Expression Text.

Text Source

There four sources that can be used with a Text Crawl, once the Source is selected other fields appear for further definition.

- **File**: Contained in a text file
  - **Text File**: Use the file dialog to specify the Text File
- **Expression**: Contained in an expression
  - **Text**: Enter an expression, which can be a literal text string (enclosed in double quotes) or can involve variables, functions, and operators.
- **CuedExpression**: Contained in an expression which can be that can be signaled/cued by another program to display updated text content.
  - **Text**: Enter an expression, which can be a literal text string (enclosed in double quotes) or can involve variables, functions, and operator.
  - **Cue Variable**: (possibly from an external source) during playback. A cue variable is used to signal when updated text is available.
  - **Endless?**: You also must specify whether the source is an endless stream (such as a stock price ticker) or is terminated.
- **Variable**: Contained in a text variable or a text variable array.
  - **Text**: Enter an expression, which can be a literal text string (enclosed in double quotes) or can involve variables, functions, and operators. When a text array is selected, then all entries in the array will be used.

Style Control Codes

It is possible to change various aspects of the text style within the text of a Text Crawl or Global Text Crawl by using special control codes. Inserting the appropriate control codes at the beginning of the crawl text will change the style in the segment of text which follows.

Direction

The Direction of the Crawl can be set using the arrow control or by typing a numeric value

- **Right to Left (Default)**: Traditional for horizontal text Crawls.
- **Left to Right**
- **Bottom to Top:** Traditional for credit scrolls
- **Top to Bottom**

Rate Control

The crawl movement can be adjusted by either Duration (time code) or a preset series of steps called Speed,

- **Duration**: Specify the time that the first edge of the crawl will take to travel the crawl area. This is specified in HH:MM:SS:hh.
- **Speed**: Determine the number of pixels the crawl will move per step (refresh rate of the screen).
  - **Pixels per Step**: Enter the number of pixels. Increasing Pixels per Step will make the crawl move faster.

Gap

When a crawl element loops, is cued, or the text source contains carriage returns, there will be a space between the crawl texts. You can adjust the size of this space using the Gap value control.

The Gap is specified as a number of pixels between each crawl text repetition or update. To allow visual adjustments, the space you set will be reflected in the distance between the repetitions of the **Crawl** place-holder text which is displayed in the Page View.

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Separator

In addition to using Gap, an image separator can be inserted between crawls. The Image will have the Gap either side of it

Click the Separator button and select a image file using the file dialog.

- **Clear**: Clears the Image Separator.
- **Bind**: Specify a variable that contains the Separator Image.

Image

Controls the scaling and positioning of separator images in text crawl elements, based on the metrics of the current font.

- Range can be set to Cap Height, Ascender Height, or Cell Height.
- Can be aligned with the Top, Middle, or Bottom of that range.

A separator image that is larger than the specified range will be scaled smaller to fit the range, while one that is smaller than the specified range will not be scaled but will be positioned within that range based on the current image alignment.

Loops and Wait?

These settings are discussed here.

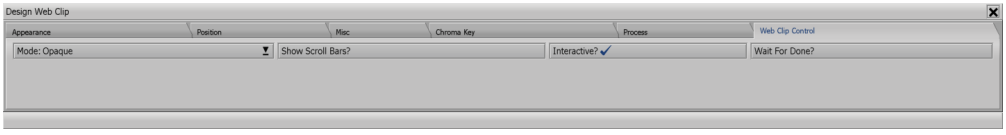
Tab: Field

The Field tab enables you to modify the following:

Setting	Explanation
Pointer	Shows the current mouse pointer and when selected opens the file dialog. This will allow you to change how you want the mouse pointer to appear when the Text Entry Field is accepting keystrokes.
Clear	Resets the pointer to the default.
Field Length?	Defines the number of characters the text entry field accepts, which can be adjusted using the numeric controls. If the user attempts to add more characters than this limit, those characters will be ignored.
Password?	Conceals its contents by displaying an asterisk for any character typed into it.
Decimal Only?	Restricts the user to type only the decimal characters 0 through 9 into the Text Entry Field and will ignore all other keystrokes.
Variable	Shows the current variable and enables you to select another variable or create one to store the text typed into the field during playback.

Tab: Web Clip Control

This image is for illustrative purposes only as the actual Panel's layout may vary based on the element selected and some of the features described below may not be available.



The Web Clip Control tab enables you to modify the following:

Mode

Controls the Composition Layers of the Web Clip:

- **Opaque Mode**: Hides everything underneath the Web Clip.

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- **Transparent Mode:** Allows elements underneath to show through any transparent portions of the Web Clip.

Show Scroll Bars?

Sets whether the Web clip will be displayed with Scroll Bars, which sometimes will appear because the underlying HTML page is causing them to be displayed.

Interactive?

Enables the Web Clip to receive input controls from an input device such as a touch screen.

Tab: Flash Control

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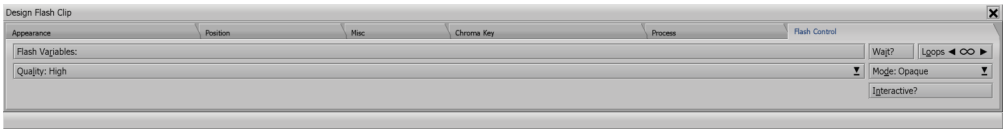

The Flash Control tab enables you to modify the following:

Flash Variables

Lets you specify a list of variables and their initial values that will passed to the Flash file through the FlashVars method.

- Each entry in the list is of the form <variable name> = <value>.
- When supplying multiple values, separate them with the ampersand (**&**) character. For example, var1=Hello World&var2=300

Quality

Specifies the quality of the flash playback. Each of the levels of quality has its advantages.

- **Low:** Favors playback speed over appearance and never uses anti-aliasing.
- **Auto Low:** Favors speed and begins with anti-aliasing turned off, but if the CPU is powerful enough, it will dynamically switch to a higher quality and turn on anti-aliasing.
- **Auto High:** Starts with higher quality with anti-aliasing turned on, but will dynamically turn off anti-aliasing and cut back the quality to maintain reasonable playback performance.
- **Medium:** Applies some anti-aliasing and does not smooth bitmaps.
- **High:** Favors appearance over playback speed and always applies anti-aliasing. It uses bitmap smoothing when there is no animation.
- **Best:** Provides the best display quality without regard for playback performance. All output is anti-aliased and all bitmaps are smoothed.

Loops and Wait?

These settings are discussed here.

Mode

Controls the **Window Mode** property of the Flash Clip.

- **Opaque Mode**: Hides everything underneath the Clip.
- **Transparent Mode:** Allows elements underneath to show through any transparent portions of the Clip, including any alpha-channel transparency.

Interactive?

This enables the Flash Clip to receive input controls from an input device, such as a touch screen.

Tab: Image Type

> This image is for illustrative purposes only as the actual Panel's layout may vary based on the element selected and some of the features described below may not be available.

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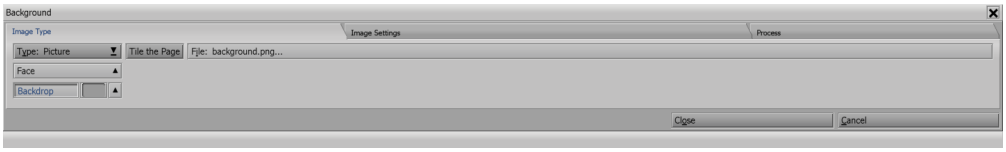

There are six Background Types which can be selected from the pop-up:

- Type: Plain
- Type: Picture
- Type: Animation
- Type: Movie
- Type: Streaming Video
- Type: Flash

Type: Plain

Plain Backgrounds consists of only a Backdrop layer (lower).

- The Fill type is defined by selecting the color clip.
- A Plain Background can have options applied to the backdrop such as Opacity.

Changing the Fill Type of the Backdrop

Plain pages start with a Solid Color as can be seen in the Color Chip. To change the type of fill being used, click the Color Chip to access the Fill pop-up panel.

The Fill Type selector has four style options:
Solid Color

Fills the backdrop with one single color selected from the palette.
Color Gradient

Fills the backdrop with a linear color gradient from one color to another. To change the **From** and **To** colors, select either or the color chips and then click one of the colors from the palette.

The direction of the gradient can be adjusted by changing the direction of the arrow or by typing the numeric value of degrees
Image

Fills the backdrop with a image file which will be stretched to fill the area it will cover.
Tile

Tiles the specified image to fill the backdrop. Tiled images have additional controls that allow for the adjustment of:

- Primary row of tiles to be aligned to the Top, Middle or Bottom of the page or the primary column of tiles to be aligned to the Left, Center or Right of the page, using the alignment buttons.
- **Vertical?**: When this button is off, Offset specifies a horizontal offset for successive tile rows. When this button is on, Offset specifies a vertical offset for successive columns.
- Offset lets you specify the number of pixels that each successive row or column of tiles is offset from the preceding row or column.

With the exception of there being no Face option, in **Type: Plain**, the following options can be changed across all of the background types:
Similarities Across Background Types

Changing the Face options

Selecting the Face button opens up the Face options panel where you can apply the following:

- Corner Styles.
- Select an Alpha Mask Image file that will be use as a stencil.
- Set the overall Opacity level.
- Opacity gradient

Changing the Backdrop options

Selecting the up arrow next to the Color Chip opens up the Backdrop options panel where you can apply the following:

- Corner Styles.
- Select an Alpha Mask Image file that will be use as a stencil.
- Set the overall Opacity level.
- Opacity gradient

Backgrounds Layers

With the exception of the Plain Background, all other Backgrounds in this tab have both a Face layer (upper) and Backdrop layer (lower), while Plain background only have a backdrop layer.

Note:

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Specifics relating to a particular background Type will be discuss as part of their section of the documentation on this page.

Picture Backgrounds have both a Face layer (upper) and Backdrop layer (lower).

- **File:** Shows the current media asset being used and can be changed by clicking the name to bring up the file dialog.
- **Face**: Can have options applied to the face by selecting the Face button.
- **Backdrop**: Can have a Backdrop Fill Type option applied to the backdrop, such as Opacity.
- **Loops**: Number of times the Background should loop during playback.
- **Speed:** Specifies the speed of playback.
- **Stop on First?**: Specifies whether the Animation finishes on the last or first fame.
- **Start Time in HH:MM:SS.hh?** To have the Background start playing at some point after the beginning, use the Start Time control to set the position in hours, minutes, seconds, and hundredths (HH:MM:SS.hh).
- **End Time in HH:MM:SS.hh?** To have the Background stop playing at some point before the end, use the End Time control to set the length of time from the beginning to the desired stop point (HH:MM:SS.hh).
- **Volume**: Specifies the volume level using a range of 0-255 with the default set to 255.
- **Flash Variables:** Specify a list of variables and their initial values that will passed to the background file through the FlashVars method.
- **Interactive:** Enables the Background to receive input controls from an input device such as a touch screen.
- **Mode:** Sets the "Window Mode" property of the Background to either Opaque or Transparent.
- **Quality:** Sets the quality of playback for the Background.

Type: Picture

Please see the section on Background Layers.

Type: Animation

Loops

This setting in discussed here.
Speed
Adjusts the update rate of the animated GIF file. Lower numbers make the animation update less frequently. A value of 50 tells the animation to play at its normal speed. Values less than 50 are treated as a fraction of the normal speed, so a value of 25 will make the animation play at half speed. 25, or half speed, is the default.
Stop on First?

After completion of the number of loops this setting specifies whether the Animation stops on the last frame of the animation (default) or shows the first frame again

Type: Movie

The Backdrop layer will only be seen if the Face layer's settings allow it to do so (i.e. by applying Corners Styles or a Mask to the Face will expose the Backdrop Fill behind it).
Start Time in HH:MM:SS.hh?

Enables the Start Time value control, allowing you to adjust the start time for the movie. The default is 00:00:00:00, the beginning of the movie. Select a value and adjust it.
End Time in HH:MM:SS.hh?

Enables the End Time value control, allowing you to adjust the end time for the movie. The default is the movie length, indicating that the movie plays to the end. Select a value and adjust it.
Loops

This setting is discussed here.

Type: Streaming Video

Start Time in HH:MM:SS.hh?
Enables the Start Time value control, allowing you to adjust the start time for the Streaming Video.
Start Time control

The default is 00:00:00:00, the beginning of the Streaming Video. Select a value and adjust it.
End Time in HH:MM:SS.hh?

Enables the End Time value control, allowing you to adjust the end time for the Streaming Video.
End Time control

The default is the Streaming Video length, indicating that the movie plays to the end. Select a value and adjust it.
Loops

This setting is discussed here.

Type: Flash

Loops

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This setting is discussed here.
Flash Variables:

Specify a list of variables and their initial values that will passed to the Flash Background through the FlashVars method.

- Each entry in the list is of the form <variable name> = <value>.
- When supplying multiple values, separate them with the ampersand (&) character. For example, var1=Hello World&var2=300

Interactive?

Enables the Flash Background to receive input controls from an input device such as a touch screen.
Mode:

Controls the Window Mode property of the Flash Background.

- Opaque mode hides everything underneath the Flash Background.
- Transparent mode allows elements underneath to show through any transparent portions of the Flash Clip, including any alpha-channel transparency.

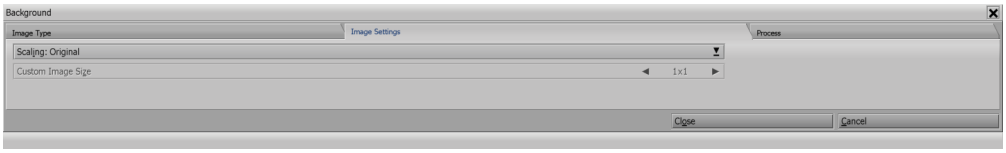
Quality:

Specifies the quality of the flash playback.

- **Low**: Favors playback speed over appearance and never uses anti-aliasing.
- **Auto Low**: Favors speed and begins with anti-aliasing turned off, but if the CPU is powerful enough it will dynamically switch to a higher quality and turn on anti-aliasing.
- **Auto High**: Starts with higher quality with anti-aliasing turned on, but will dynamically turn off anti-aliasing and cut back the quality to maintain reasonable playback performance.
- **Medium**: Applies some anti-aliasing and does not smooth bitmaps.
- **High**: Favors appearance over playback speed and always applies anti-aliasing. It uses bitmap smoothing when there is no animation.
- **Best**: Provides the best display quality without regard for playback performance. All output is anti-aliased and all bitmaps are smoothed.

Tab: Image Settings

> This image is for illustrative purposes only as the actual Panel's layout may vary based on the element selected and some of the features described below may not be available.



The Image Settings tab of the Design Background panel contains options related to the dimensions of picture, movie, anim or streaming video backgrounds. When a background of one of these types is added, both the face and backdrop layers are present. This tab relates to the media asset in the face layer.

The media asset used for the background will be scaled automatically from the center using the default scaling setting of **Fill and Trim to Page**. This allows the media asset to cover the entire page without being distorted. If the media asset is smaller than the defined page size, it will automatically be scaled upward until it covers the dimensions of the page. If the media asset is larger than the page, it will be scaled down. Regardless, if the proportions of the media asset and the page do not match, some of the media asset will **run-off** the edge of the page.

The Custom Image Size button, although normally disabled, reveals the size of media asset being used in the face layer of the background. Additionally, the Image Size: selector provides several automatic scaling options.

Scaling

Lets you choose one of several options for scaling the background media asset to the size of the page.

- **Original**: No scaling is performed. The media asset appears at its original dimensions and positioned centrally within the page.
- **Fit Inside Page (Preserve Aspect Ratio)**: Scales the media asset as large as possible while still fitting entirely within the page, letter-boxing if necessary.
- **Fill and Trim to Page (Preserve Aspect Ratio)**: Scales the media asset to just completely fill the entire page, trimming in the larger dimension if necessary.
- **Fill Page Exactly**: Scales the media asset so that it exactly matches the page size, without regard to aspect ratio.
- **Custom**: Enables the Custom Image Size control, so that you can specify any arbitrary size.

When the proportions of the media asset do not match the proportions of the page, the Backdrop layer's Fill Type is used to fill the page areas not covered by the media asset.

If the dimensions or proportions of the media asset match those of the page, there will be no apparent difference in the effects of some of these options.

Custom Image Size

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Normally disabled, this option displays the pixel dimensions of the picture, movie, anim or streaming video background. To choose a custom size, set the Scaling option to **Custom**, which allows you to specify any size you want for the media asset, and it will be scaled according to its new dimensions.

Crop?

Selecting **Crop?** enables the crop position and crop size fields. The position fields (initially 0,0) set the upper left corner of the crop area. The first value is the distance from the left side of the original media asset, the second value is the distance from the top of the original media asset. The size fields (initially <full width> x <full height>) define the size of the area visible after cropping. The first value is the crop area width, and the second is its height. You can revert to the background's uncropped media asset by turning this button off.

Flip Horizontal?

When enabled, the media asset is flipped horizontally.

Flip Vertical?

When enabled, the media asset is flipped vertically.

Rotate

Displays the rotation angle of the picture, movie, streaming video or anim background. Adjust the angle using the numeric field or the up/down controls in 90 degree increments.

Page Toolbar: Background

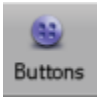
Once a new page is added, the background becomes a backdrop for elements such as text, clip art, special photographs, pre-designed graphics, and video clips, all of which will enhance the creative design of your page.

In Designer, still images are referred to as **Picture** backgrounds, while AnimGIF animations and SWF files are **Animation** backgrounds. Digital video (AVI, WMV, MPG H.264) are referred to as **Movie** backgrounds. Animation and Movie backgrounds are generally referred to as animations. There are also **Multi-tile** backgrounds, which are similar to picture backgrounds, and **Plain** backgrounds, which consist simply of a solid color. Any type of background, other than a Plain background, is referred to as an image background.

Selecting the Background Button in the Toolbar takes you to the Design Background Panel, where you can make changes to the settings of the background or change the background Image type

If you are looking for information on adding elements, please go to Page Toolbar: Add.

Page Toolbar: Buttons



A script that is interactive accepts input from the user. Buttons and Text Entry Fields are the key to the world of interactivity.

A button is an element in your script that provides interactivity. Most standard elements can be converted into a button. These Button elements give the viewer control over the direction of the production. By using the mouse (or another type of input device, like a touch screen) to select buttons, the viewer can make choices about how the script should proceed. A button can trigger almost any kind of event: jumping to a new page, playing a sound, wiping in an element, even making calculations with variables. This makes it possible for you to create flexible, powerful scripts that can adapt themselves to respond to a wide variety of audiences. Your interactive button, then, could be anything from a cat illustration that meows when clicked, to a catalog of product photos and text that a potential customer can browse for information.

Buttons are created and edited in the Design Buttons Panel, where you work with unique button features. They can be used to:

- Go to other locations in the script.
- Link sounds to buttons.
- Specify hotkeys for buttons.
- Set variables based on button activity.
- Use custom mouse pointers.
- Independently set options for various button states.

Although buttons have special features, they are elements that can be manipulated just like other elements, using wipes, cut and paste, and the other Design Panels. You have all the Element Design Options open to you to make the element look the way you want.

Designer gives you great freedom to design your own buttons, but you do not have to do so. The Buttons Panel also gives you the option of choosing from a selection of predefined buttons and button backdrops supplied with the Scala Clipart Library, which have matched images for the

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various states.

There are three types of buttons you can create:

- Push Buttons
- Toggle Buttons
- Radio Buttons

The Design Buttons Panel and the Design Text Entry Field Panel pages discuss these buttons in greater detail.

Plan

Before making your Script interactive, it is recommended you lay out the basic production first and save this as a base, so you can always revert to the non-interactive version should you need to do so. Additionally, is recommended you create an interactive map that you can use to help do your work.

Design Buttons Panel

In Designer almost all elements can be transformed into interactive buttons. The Design Buttons Panel is shown when selecting Buttons from the Page View Toolbar or selecting Buttons (F5) from the View Menu.

It consists of the following tabs, which allow you to specify the:

- **Type**: Use of the selected element. You can change it into one of three types of button, change one type of button to another, or change a button back into a plain element.
- **Select Action**: Action to take when the button is selected.
- **Other Actions**: Additional controls for setting variables or playing sounds associated with the button.
- **Appearance**: Visual appearance of push, toggle, and radio buttons.

Tab: Type

Initially this Panel only contains a single list button which specifies the type of button

- **None:** The default setting and also the method for removing the button and making it a 'normal' element again. Swapping between Push Buttons,Toggle Buttons and Radio Buttons requires the selection of **None** before swapping can be completed successfully.
- Push Buttons
- Toggle Buttons
- Radio Buttons
- Panel Buttons

Push Buttons

These are the most common and most versatile type of button, and are typically used for branching to another page of the script or accepting some kind of response from the viewer. A Push button can have one, two, or three visual states.

1-State: Normal

A Push button with one state has a single appearance. It can respond to being selected, but cannot give any visible response to the mouse passing over it or clicking on it the way a button with multiple states can.

2-State: Normal or Select

A two-state Push button can have a different appearance for its **Normal** (idle) state and its **Select** state (when it is clicked by the mouse). During playback, a button displays the Select state when:

- It is chosen by clicking on the mouse.
- The viewer presses Enter.
- The viewer touches the button, if using a touch screen device.

Using different imagery for the Select state helps confirm for the viewer that his or her choice has been noticed and accepted.

3-State: Normal, Highlight or Select

A Push button with three states can have separate appearances for **Normal, Highlight** (mouse pointer touching it but not clicked, or highlighted by using arrow keys) and **Select** (clicked-on) states.

If you do not make changes to the button for its Highlight state, the button keeps its normal imagery when the mouse pointer is over it. Using the Highlight state is valuable in most interactive productions as a way of letting viewers know where buttons are, so they know when they can click or press Enter to choose a button.

During playback, a button displays the Select state when:

- It is chosen by clicking on the mouse.
- The viewer presses Enter while the button is highlighted.
- The viewer touches the button if using a touch screen device.

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Using different imagery for the Select state helps confirm for the viewer that his or her choice has been noticed and accepted.

Toggle Buttons

The states possible for Toggle buttons are somewhat different from those of Push buttons. They are always in either an Off or On state. Additionally, for a four-state button, both the Off and On states can have a Highlight state as well as a Normal state.

A Toggle button is used to switch a Boolean variable between its two possible values, on and off. This makes it easy for a script to accept and respond to Yes/No kinds of input from the viewer. Unlike a Push button, a Toggle button remains in its selected state after being clicked so that its value is obvious. They can have either two or four visual states, and require a Boolean variable to be assigned to it. The Variable List panel appears when first creating the Toggle button. You can either choose an existing variable or create a new one as required.

2-State: Normal On and Off

A two-state Toggle button can be either **Off** (appearing like a Push button in the Normal state) or **On** (appearing like a Push button in the Select state). It does not respond to the mouse pointer until clicked on. Selecting it triggers a change in the variable's value.

4-State: Normal On and Off, Highlighted On and Off

A four-state Toggle button works the same way, but both the Off and the On positions also have a Highlight state to indicate when the pointer is over the button. This button can change visually when the mouse moves over it, and also when the button's variable changes value. Selecting it triggers a change in the variable's value.

Radio Buttons

Radio buttons are closely related to Toggle buttons, but are different because they allow you to use any type of variable, not just Boolean ones. This implies that, when using text and numeric variables, you are not limited in your choice of values to assign to the button states. You can choose any valid value you like for the button variable in a given state. This makes Radio buttons more versatile than Toggle buttons.

Like a Toggle button, a Radio button it has either two or four visual states, and remains in its selected state after being clicked. It requires a variable to be assigned to it. The Variable List panel appears on first creating the Toggle button where you can either choose an existing variable or create a new variable as required.

2-State: Normal On and Off

A two-state Radio button can be either **Off** (appearing like a Push button in the Normal state) or **On** (appearing like a Push button in the Select state). It does not respond to the mouse pointer until clicked on. Selecting it triggers a change in the variable's value.

4-State: Normal On and Off, Highlighted On and Off

A four-state Radio button works the same way, but both the Off and the On positions also have a Highlight state to indicate when the pointer is over the button. This button can change visually when the mouse moves over it, and also when the button's variable changes value. Selecting it triggers a change in the variable's value.

Panel Buttons

Panel Buttons can be created from any of the three types of Buttons (Push, Toggle and Radio) discussed on this page. Selecting a Push buttons adds 3 button icons to the Design Buttons Panel Title Bar, while selecting either a Radio or Toggle button will add 4 icons. These are also visible on the Element Design Panel, indicating it is a Button and enables the setting of different visual appearances for each state.

At least one of these button icons is always selected, indicating the current state of the selected button. If you have defined a button with fewer than four states the title bar icon(s) for the unused state(s) are disabled. More than one state of the selected button(s) may be current at a given time, so that you can apply the same styles and attributes to several states at once. Select multiple button states to affect them all with the same attributes by Ctrl-clicking as many title bar state indicators as desired.
To cycle through the states of the currently selected button, use the F12 shortcut or click the button icons to switch directly to a particular state. Hold the mouse pointer over the button icons to get tool tip information about which state each icon represents. Both F12 and the button icons are available in any Design menu.

Most of the options in the Button Appearance and Action tabs (either Select Action or Other Action) can be applied independently to each of a button’s states.

Tab: Select Action

There are two tabs in the Buttons menu for controlling the actions that can happen when using the action-oriented button types (Push and Toggle buttons): the Select Action tab and the Other Action tab.

The **Select Action Tab** is for specifying the primary purpose for an action-oriented button. In particular, it lets you choose what happens when the button is put into the **Select** or **On** state. This occurs when the button is clicked on, or the viewer presses Enter or a defined hotkey while the button is highlighted. Most often, the action is a branching type of operation, such as moving to another event or page within the script, but other action types are possible.

The Action: pop-up on the Select Action tab has the following options:

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- None
- Go To Event
- Going to the Next Page
- Going to the Previous Page
- Returning to a Bookmark
- Exiting from a Script
- Show WWW Page

Using Go To Actions

The three **Go To** actions allow you to make script execution move to another location in the script where that execution continues, either on another page or another event on a page. This lets the response to a button be almost any series of scriptable events. You can return to the original button location after a button Go To by setting a bookmark.

Go To Event

Go To Event is the most flexible button branching action. Consequently it requires you to specify both the destination itself and the level of the script where the destination exists. You see the controls for these on the tab when you choose Action: Go to Event.

Action	Description
Go To	Selector to choose the page or event that you want the script to advance to when a button is selected. In most cases, Go To will be set to a page. Use the selector to choose a page number. A thumbnail of the destination page is shown in the box to the right of the button. If you just want to advance to the immediately following or preceding page in the script, it is simpler to use the Go to Next Page or Go to Previous Page actions.
Use Level:	Choose the level of the script where the destination is. Use the selector to cycle through the levels. If the destination is in the same group you are in, you can leave the selector as is. If your script has no groups, the only choices are: <this script> and <this page>. Only levels at or above the current level are accessible. Setting a Go To an event on the current page is also possible: set the Level: selector to <this page>, then use the Go To: selector to cycle through events on the page.
Leave Bookmark?	Allows you to return from a series of events after branching with a Go to Event. Click on Leave Bookmark? to turn it on. Then, at the end of the button's series of Go to events, insert a special event. On this special event, open the Variables column and select the Go To tab. Choose **Action: Return to Bookmark**. When executed, this returns the script to the bookmark location, which is immediately after the original Go to Event. Using Go to Event with a bookmark lets you define sections of a script as independent units that you can go to and return from whenever a button is clicked.

Going to the Next Page

A very common type of button-activated branch is advancing to the next page in the presentation. It does what its names implies, advancing to the page that follows the current page on the Main Menu.

Going to the Previous Page

A very common type of button-activated branch is returning to the preceding page in the presentation. It does what its names implies, returning to the page that immediately precedes the current page on the Main Menu.

Returning to a Bookmark

When using a Go to Event branch on a button or in the Branch menu, you can choose to use the **Leave Bookmark?** option. This allows you to set a marker to which a later event can return. This way, you can define sections of a script as independent units that you can go to and return from at any point in the script.

As with bookmarks and GoTo's on the Branch menu, bookmarks left with a button Go to Event action are used in conjunction with an action that restores the current execution location in the script to the bookmark location. This is **Action: Return to Bookmark**. The typical usage of this

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action would be as the Select Action of a **Return** or **Back** interactive button you would place on a page that was the last in a series branched to by a Go to Event button.

Exiting from a Script

Although most productions are designed to run continuously, some need to allow the viewer to exit from the script. Creating a button to do this is simple. Give a button the Exit from Script action as a Select Action, ending the script and returning the viewer either to Windows, or to the Main menu if the script was run from within Designer.

Show WWW Page

> **Option Superceded**
> The Show WWW Page option has been superseded by using Add Web Clip Element, and is the preferred method for displaying a web page. The option remains for legacy purposes only.

It allows the viewer to jump out of the playback environment. You see the URL: text box when Show WWW Page is selected. Enter the address of the desired Web page there (for example, enter http://www.scala.com to jump to Scala's Web page). When someone clicks a button that has this as its Select Action, Designer attempts to launch or activate the preferred Web browser. If successful, it then tries to connect to the Web page specified. If playback is setup to run full-screen, playback is minimized so that the Web browser window is visible on the desktop.

Tab: Other Action

The Other Actions tab provide actions that take place when a button transitions between selection status.

Transition

From the **Transition:** pop-up, choose the selection status transition for which the additional action(s) should apply. The action, which changes the button from it's Normal state (unless noted) to will take place when:

Status	Function	Makes Changes To:
Button Selected	Button is selected.	Select/On state from the Normal or Highlight states.
Mouse Off Button	Moves off a button or otherwise becomes idle.	Normal state from the Select/On state.
Mouse Over Button	Passed over by the mouse pointer or otherwise is highlighted.	Highlight state from the Normal state.

Selection status is closely related to a button's visual state, with the distinction being that any of the selection status transitions can occur regardless of how many visual states you have defined for a button. For example, a 1-state Push button can have secondary actions defined for a transition to the Highlight state, regardless of the fact that the button itself does not have a visual Highlight state.

Sound

Each selection status transition can have a different sound. When the selection status transition for which you have set a sound occurs, the sound event plays. It plays to completion, even if the button does not remain in the state that triggered the sound. Clicking the **Sound:** button opens the Sound panel, where you can choose the sound file and adjust sound properties.

Variable

A variable value can be set when a button changes state. Clicking on the **Variable:** button opens the Variables panel, where you can define and set variables.

Pointer

The pointer is ordinarily the default arrow, or the pointer image specified by the most recent Input menu event. When you move the pointer over a Push or Toggle button, its appearance changes by default to a hand with the finger extended.

You can change how you want the mouse pointer to appear depending on the button state. Clicking the **Pointer:** button opens the File dialog, where you can select and load a clip to use as a mouse pointer.

Tab: Appearance -- Button

The buttons general appearance is created using the elements Design Panel. You can apply different styles to each button state by selecting the state button icon on the Design Panel Title Bar.

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The appearance options apply to whichever button state is currently selected, as indicated by the highlighted button icon in the title bar.

Shift

Use the value control to specify an offset, in pixels horizontally and vertically, to move the button face (text or clip) from its normal position in relation to its bounding box. The most typical use of Shift is to use a small offset down and to the right for the selected face of a button that has a beveled style. This gives the illusion that the button is being pressed down when it is clicked.

Boxed Hit Area?

The option lets you adjust the button's hit area, which is the space in and around the button that responds when the mouse pointer moves over it or clicks on it. This area can be rectangular (default) or an irregular shape, that is, one defined by the pixels of the button image, as opposed to the background.

The primary use of this option is with clip images that have transparent areas. The hit area of a round button (which has transparent corners) can be round. If you have selected three elements with different sizes for the three different buttons states, Designer uses the size and position of the Normal state image for the hit area determination.

Link Sizes?

Because you can adjust the different button states independently, it is possible to have different sized buttons for each state.

- **On:** Forces any size changes made in one button state to be reflected in the other state(s) so that their sizes match. This is the default setting.
- **Off:** Enables independent control of the sizes of a button's states.

Link Positions?

Most Button are designed so that the states overlap each other and thus must be in the same position. but it is possible to position them independently. When moving one state button:

- **Setting On:** All other states move to retain their relative position. This is the default setting.
- **Setting Off:** All other states remain in their specified position.

If you do need to position button states independently:

1. Turn off **Link Positions?**
2. Move the individual button states to the correct places.
3. Turn the option back on again. You can then move the entire button (all states) as necessary without losing the relative positioning.

Apply Preset

Button presets load a set of backdrop images that are aligned, and contain appropriate Shift and Border settings so that an element fits neatly into the backdrop with no additional effort. Button presets are much like an elaborate kind of style that you can apply to buttons. Clicking **Apply Preset** : when a button is selected opens the File dialog open to the Clipart Folder. Select the ButtonsPresets folder and then you can choose a preset .BTN file.

Page Toolbar: Palette

Several Design panels will also allow you to assign colors to elements from the color popup. These colors are controlled from the Design Palette panel, where you can individually apply color options to images and edit individual colors.

Designer uses three kinds of palettes:

- **User Palette**: Selection of default colors, which are fully customizable. Most of your time working with individual colors in Designer will involve the User palette.
- **Background Palette**: Colors in the background image if the image is 256-color format (8-bit).
- **Clip Palette**: Colors for the currently selected clip if it is a 256-color format (8-bit).

To adjust the default palette, make or open a script and edit it, adjusting the palette to your preferences, then select **Tools > Save Element and Page Defaults**.

Palettes will not be available under the following conditions:

- **A Background Palette Option**: Background is Plain, a High Color or True Color image, or a movie.
- **The Clip Palette Option**: If a clip has not been selected, or if the clip is a High Color, or True Color image, or a movieclip.
- No clip is currently selected.

Color Bar

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The contents of the current palette are displayed in the color bar at the top of the panel, in color sets of 16 colors at a time. Use the Color Set Switcher at the end of the color bar to cycle through the color sets in the palette.

The color bar for the User palette contains the system default of 19 colors. One of these colors is always selected, as indicated by a box within one of the colors on the color bar, and it will also be displayed in a larger color block to the right of the sliders.

Palette

Lets you select:

- **User**:
- **Background**: Available if the current background is a 256-color (8-bit) picture or animation
- **Clip**: Available only if a 256-color (8-bit) clip is selected.

Add

You can create and add any color you choose to the User palette.

- Click the Add button beneath the **Palette:** pop-up to create a new chip.
- It is located to the left of the currently selected color chip, and will be the selected color. Colors which are located to the right on the color bar, and those which are located in higher numbered color sets, will be moved over one space.
- Initially, the new chip is the same color as the previously selected color chip, but it can be edited to reflect your choice of colors.

New colors should be added to the end of the current palette by first using the Color Set Switcher and then selecting the last color.

Copying Colors from the Background or Clip palettes

You can transfer some of the clip, or background colors in the User palette to color text blocks, allowing them to match the background, by:

- Switching to the Background or Clip palette by using the **Palette**: pop-up.
- Selecting the color on the Background or Clip palette color bar.
- Clicking the Add to User Palette button. When you switch from the User palette to the Background or Clip palettes, this button will replace the Add and Delete buttons.
- Every time you click on the Add to User Palette button, the selected color will be copied to the User palette. The color will immediately be selected in the User palette display.

Delete

Deleting unneeded User colors will facilitate locating the colors you want to use in your production. This can be done by:

- Selecting the color in the **User** palette
- Click the **Delete** button.

You cannot delete colors from the Background or Clip palettes. If you delete a color which is already in use, (applied to some element), the element's color will be remapped to the closest matching color in the User palette.

Pick

Usually used after adding a new color chip, Pick enables you to change a selected color to match a specific color from the page. Clicking this button changes the pointer to the Pick pointer, and you can then position it on the pixel whose color you want and click to pick it. The color that was selected in the color bar changes to the picked color and all pixels in the image that were the selected color become the picked color.

Spread

One special feature of the Palette panel is automatic color spreads which allow you to easily create a series of any number of colors which will smoothly shade between two given colors. To create a spread in the User palette:

1. Select a color chip on the **User** palette color bar.
2. Click the **Add** button as many times as the number of steps you want in the spread.
3. Use the color controls to adjust the last color added, or Pick a color from the page. This color will be representing the end of the spread.
4. Select the first color added, and adjust it (or Pick a color) to represent the other end of the spread.
5. Click the **Spread** Button.
6. Select the ending color chip on the User palette color bar.

The color chips between the first and last colors which were created will smoothly shade between the two colors.

Sliders

You can adjust the color of the selected chip to any desired shade, simply by using the three color sliders. The sliders are available for two color modes, RGB or HSV. For both modes, the large color block in the middle of the panel will display the color, and the corresponding numerical display. You can also click the value and enter a number.

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RGB/HSV selector

Lets you choose either RGB or HSV color modes for editing colors. Click this button to toggle between RGB and HSV mode.

RGB Mode

The three sliders control the amounts of Red, Green, and Blue that combine to make the color in the color chip. The R, G and B values range from 0 to 255. Red, Green and Blue channels are combined in the color light spectrum to produce the color chip. Pure white light is a full combination of RGB at 100%, whereas black, is the absence of all RGB, or 0%

HSV mode

The HSV color mode is slightly more complicated. Once you understand it, you can frequently make color adjustments more easily than with RGB. The three sliders in HSV control are

- **Hue (H)**: Basic color, accessible on the slider in a spectral order: red-orange–yellow–green–blue–violet–red. Because of this, the value ranges from 0 to 359.
- **Saturation (S)**: Intensity or purity of the hue. It can have values from 0 to 255.
- **Value (V)**: Overall brightness. It can have values from 0 to 255.

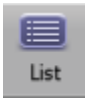
If the V slider is at 0 before starting, the color will remain black. To achieve gray tones, set **S** to 0 and adjust **V**. **H** will not have an effect. For bright, pure colors, set **S** and **V** to their maximum setting, and adjust **H**.

Copy Color Palette from One Page to Another

Each page has a separate color palette. If you want to use the palette of one page on another (or another script) you need to export it from the first page, then add it on the other page. To do this:

1. Open the first page, select the **File** pull-down menu and choose **Export/Palette**.
2. Name the file **mypalette.pal** and click **Save**.
3. Return to the Main View and open the page you want to add the palette to.
4. In the Page View, click **Add** and open the mypalette.pal file.

Page Toolbar: List



The **Page View: List Panel** will give you an overview of the relationships between elements and events that take place on a page, similar to the way the Main View presents an overview of how every page fits into the complete architecture of your script.

The List Panel arranges the events on a page in their specific order, allowing you to change their sequence without affecting the position of the elements on the page. It primarily allows you to apply and remove transitions, and individually control the timing of events.

From here, you can access the Sound panel to create a sound event specifically associated with an element. You can also access the Timing pan el to allow you to define the pause setting of an element. The Element Transition panel determines how elements enter and leave the page.

The List Panel can adjust the order of existing events on a Page. It can also create a special event which may not be associated with a visual element. If you are currently working in a Design Panel, click on the List icon on the toolbar. If you are in the Main View, select the page you want to edit before you choose List from the toolbar.

You will see the Page View List Panel, complete with text and clip elements.

If the page has more than a few elements, you can use the scroll bars to access different parts of the list, or you can click on the Normal/Full Size button in the panel title bar to enlarge the panel to full screen size. This allows you to see multiple events in the list, thereby realizing their relationships to one another.

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Clicking the Normal/Full Size button a second time will reduce the List Panel to its standard size. You will also be able to view both the Page View canvas and the panel simultaneously. When the panel is normal size, you can press the secondary mouse button to temporarily hide the List panel. If the panel is hidden, press the button again and it will appear.

You can easily move between the List Panel and the current page while you are working. Any selections or changes which are applied in one area, will immediately be reflected in the other.

Unlike settings defined in most Design Panels, you will not be able to see or hear the results until you preview the page or run the script. Any changes made in the List Panel are timing-related and they are not apparent on a static page.

You can move from one page to another using the Page Switcher arrows in the panel title bar. You can also access a different Design panel by using the toolbar icons, or a shortcut key.

Working with the List Panel

The List Panel offers several similarities in function as that of the Main View.

An event here is analogous to a page in the Main View. It can be a single line of text, a clip, or it may be a special event which defines a sound event, a pause, or a variable. An event is anything which can be introduced on a page and controlled from the List Panel. Events representing something seen on a page, such as text and clips, are more frequently referred to as Elements, but they may also be known as events.

- The No. (Number) column indicates the position of an event in the sequence of events as they occur on the page. It also indicates whether or not the event is enabled (**On**) on the page. To change the status of an element, click on the No. button and use the Element Control panel, which is the same as the Page Control Panel on the Main View. When an event is disabled, the No. button will read **Off**. Its row in the List panel will also change color. If the event is an element, the element will disappear from the screen.
- In the Element column, the name of an element is based on the element itself. For example, if the element is a line of text, the name will be the same as the contents of the line, (i.e. the actual text.) A clip is identified by its file name.
- If the same text or the same type of element is used more than once on a page, Designer automatically adjusts the name by adding a numerical suffix such as ".1".
- You can change the name which identifies an element without affecting the element itself. To edit the on-screen text in a text element, you must work directly in the Page View. Do not edit the text by editing the name of the element in the List panel.
- You can change the order in which events take place by dragging the Element button to a different position.
- You can adjust the width of the columns and change their order.
- To work with several elements simultaneously, select the elements on the page by using the Shift-click and Ctrl-click commands.
- All the standard functions of the Edit Pull-Down Menu and the context menu (Cut, Copy, Delete, etc.) are available.

There are some additional columns that are specific to the Page View List Panel:

- **Transition In:** How an element should appear onto the page (unset means it will appear immediately).
- **Transition Out:** Allows you move elements off of the page while it is being displayed.
- **Layer:** Controls the elements depth arrangement.

Working with Elements in List Panel View

In the Page View List panel, page elements and events are listed in order according to time. Later events are further down in the list. Depending on how you arrange them, this sequence can be quite different from the top-to-bottom arrangement of the elements as they are positioned on the page itself.

Changing the Order of Events

You can change the position of an element in the List panel by pointing to its Element button and dragging the row to a new position, but will not change the position of the element on the page.

The freedom of movement of an element within the list depends on whether it is either a passive or independent element.

Passive and Independent Elements

Passive Elements

When the script is running, elements which do not contain an In transition will simultaneously come into view with the background. They are also collectively affected by any settings that apply to the entire page. If they are global elements, they will be displayed over every background. These are called passive elements, meaning they are not separate events in time. They cannot have special module column events, such as a sound or pause, and are always listed first in the List panel. When you assign an In transition to an element, it becomes an independent element and is no longer passive.

Independent Elements

Elements with transitions and events created as special events will produce effects which occur independently of the page transition. These are known as independent elements. They will appear in the List Panel following the passive elements. In playback, they will either appear during, or after the page transition, depending upon the status of the **Wait** option of the page transition.

Independent elements and events are listed in the order in which they take place. Initially, this is the order in which they were created, or placed

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on the page. To make an independent element passive, remove the In transition.

You cannot move a passive element into the section of the panel which lists the independent elements. Similarly, you cannot move an independent element into the area of passive elements.

Changing the order of passive elements will not change the order in which they are displayed. However, you may want to change their order in the List panel, especially if they overlap. You may also change their order to place a particular element on top, or to make the panel more closely resemble the Page View.

Changing the order of independent elements will also change the sequence of events, and it will determine which element will be displayed first, next or last.

Adding Elements on the List Panel

Designer allows you to add elements to the current page directly from the List Panel. Similar to the Design Text Panel, click on the page and type to add text. You can add an element that exists as a file in your system, such as a clip, or script, or you can add a special event which will insert a blank element into the List Panel. For example, you can define a pause setting to ensure there is a brief delay before the first element transitions onto the page.

To add an element to the page from the Page Toolbar: List, click on **Add**. The File dialog will appear. Similar to clicking Add in the Main View, you have access to the same folders and files. To add a special event choose **Add Special Event** from the Add icon pull-down menu list. An event named “<untitled>” will appear in the List panel.

When you double-click on a file name, click **OK**, or choose **Add Special Event**, you will see the List Panel again. The new event will be inserted below the previously selected event in the list or at the end of the list if a selection is not made. Added elements are automatically selected on the page (if the element is visible) and in the List Panel. If the new element overlaps any existing elements on the Page View canvas, you may need to adjust its position.

Using Element Levels

The List Panel contains the layer column. The column button contains the current layer number of each element. Clicking in the layer column will open the layer panel, which contains the Element Layer control.

By default, elements are created in layer 0. Changing an element’s layer number from 0 to a higher number will ensures it will appear on top of any elements with a lower layer number. Levels are only a designation of the depth relationship of overlapping elements. Layers do not exist as entities that you work with directly. You can directly select and manipulate any element on any layer. For any elements with layer numbers other than 0, a legend will appear in the upper left corner of their selection frame, indicating the element’s layer number.

There is no limit to the number of elements or element levels that can be at a given level. Levels are adjusted by changing a selected element’s layer number. This can be done by changing the:

- Value in the Element Layer control on the Position panel of the Element Design panels.
- Layer number in the List panel’s layer column.

As with other element attributes, newly created elements will take on whatever value is specified in the Element Level. New elements are created in the layer with the last layer specified, or the layer of the last element which was selected, or until you change the layer number.

Applying Transitions from the List Panel

In and Out transitions may be applied to any element that is not a sub-script or non-graphic special event, such as a sound or a pause. When a page element is added, it does not contain an In or Out transition.

If you click on a transition button the Element Transition Panel will appear. Additionally, depending upon the size of the List panel, either the Page View canvas and the Transition panel, or the full-screen List Panel and the Transition Panel will appear. Applying transitions using the List Panel allows an effective overview of the sequence of page elements and events, and also reveals transition settings. As a result, it is often more practical to work with the full-screen List Panel and the Transition panel. Click Preview to test the on-screen effects of your adjustments.

You can select a transition, adjust its duration and preview the results, or work in the panel and apply In and Out transitions to multiple elements in the List Panel before closing the Transition Panel.

Transitions and Passive Elements

If you apply an In transition to a passive element, Designer will automatically move the element to the bottom of the list in the List Panel. If you remove an **In** transition from an independent element, the element will automatically be repositioned and listed last in the series of passive elements. Elements that are special events are interpreted by Designer as independent elements. If there is a long list of elements, Designer will scroll to the element in its new position, selecting it so you can continue working.

Passive elements may contain an **Out** transition. When an Out transition is applied, Designer will create a new event in the list of independent elements. The name will be the same as the original element, but will include the prefix **Out**. This will allow you to distinguish between every type of transition and related event. If you change the name of one of the related events, Designer will automatically update the other. If you do not apply an Out transition to an element, it will remain on the page until the next page transitions.

Adjusting the Sequence of In and Out Transitions

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When you apply both an In and an Out transitions to an element, Designer will schedule the element to transition out immediately after it transitions in. In the list of independent elements, the Out transition event is placed directly below the event with the related In transition.

You can change the timing by moving one or both of the elements in the list, or by changing the Timing setting for the element with the **In** transitio n.

Since an element cannot transition out of view before it is displayed, you cannot move an Out transition event to a position which precedes its related **In** event.

Adding Pauses

The setting on the Timing button of an element indicates how long Designer waits before it proceeds to the next event in the sequence. Initially, this setting is one (1) second, after which the next event will occur immediately. This duration is independent of the transition duration. If it is less than the duration of the transition, the next event will start before the current transition has been completed. If it is longer, playback will appear to wait for the difference between the two durations.

To vary the timing, simply click on the Timing button of an element which will open the Timing panel. This panel will also appear when you click on a Timing button in the Main View. The timing options for elements are the same as for pages.

Special Event Pauses

It is often useful to create a special event that is used to define a pause. For example, create a brief delay between the information presented by the passive elements which come into view with the page, and the appearance of the first independent event, which may be additional text. You cannot apply a pause directly to a passive element.

Page Toolbar: Properties

The Properties Icon in the toolbar opens up the Script Properties dialog. See Adjusting Script Properties for further documentation.

Page Toolbar: Preview

Preview runs the current page, allowing you to see and hear any element on the page, including their transitions. In a Design panel, Preview will not show you how the page transitions in, or let you hear a sound which started on, an earlier page. For a complete overview of the interaction of the page and the rest of the script, you must run the script from the Main View.

Page Toolbar: Main

The Main icon closes the Page view and returns to the Main View, where the page will also be listed. When you save the script, the page will also be permanently saved.

Choosing Undo from the Edit drop-down immediately after exiting to the Main View will return you to the Page View. This will also undo the last change you made to the page, and it does not revert the page to its previous state, prior to any editing in Page View. To globally revert to an earlier version of your script, you must close it without saving changes, and then reopen it.

Page View Menus

The drop down menus in Page View cover the following activities:

- **File**: File based activities that assist in the creative process.
- **Edit:** Various editing functions that will allow you to manage the contents of the page.
- **Add:** Ability to add elements to the page.
- **View:** Viewing options that assist in the creative process.
- **Tools**: Various tool options that assist in the creative process.
- **Help:** Access to the Help system and various online documentation.

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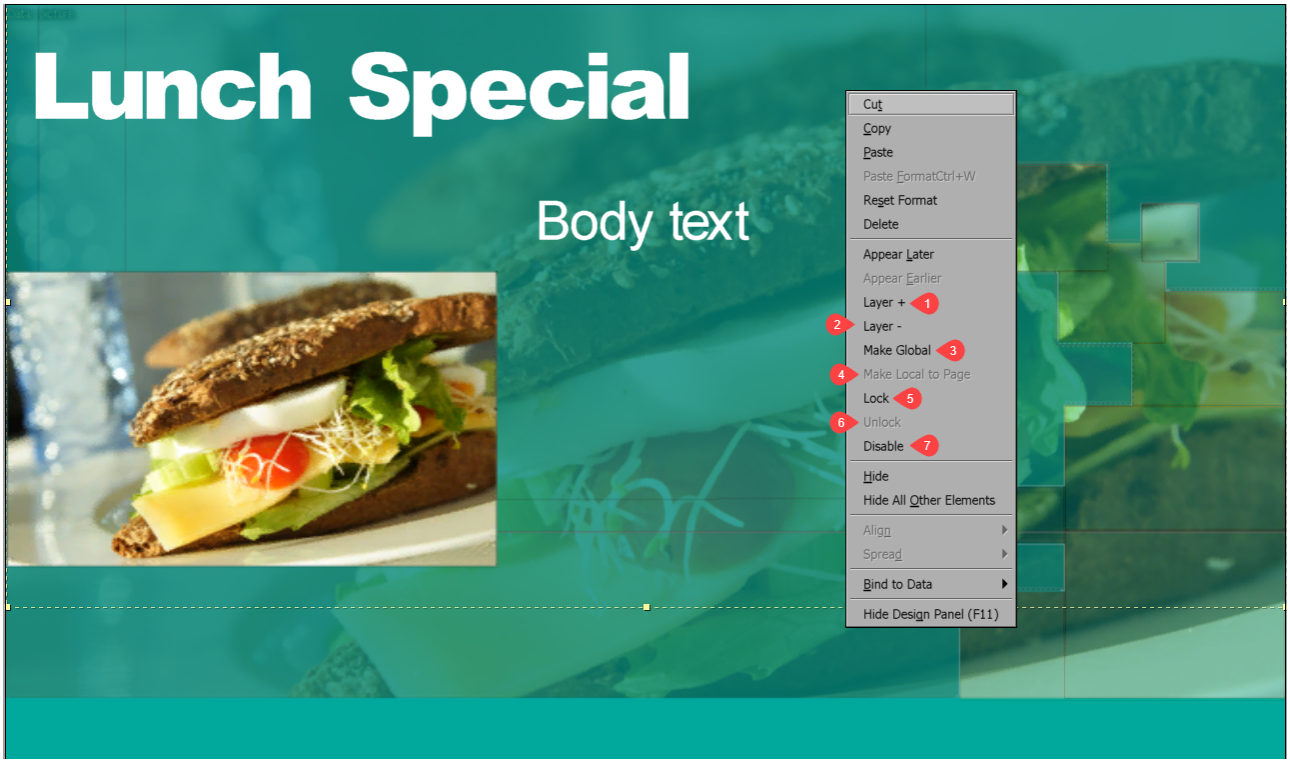
Right-Click Context Menu

In 11.05, seven new options have been added to elements' right-click Context Menu in Designer: **Layer +**, **Layer -**, **Make Global**, **Make Local to a Page**, **Lock**, **Unlock**, and **Disable/Enable**. These commands were previously located in the selected element's Design menu. The new location increases usability, so that users can quickly access the frequently-used commands.

The following commands are only available in Page View, when an element has been selected.



1	**Layer +**	Raises the level of an element. The element must not be locked in order to use this command
2	**Layer -**	Lowers the level of an element. The element must not be locked in order to use this comm and
3	**Make Global**	Makes the selected element available on every page, but does not apply to **Entry Fields** and **Buttons**. The element must not be locked in order to use this command
4	**Make Local to a Page**	Makes the selected element appear only on the first page it was added to, but does not apply to **Entry Fields** and **Buttons**. The element must not be locked in order to use this command
5	**Lock**	Locks elements to disallow editing
6	**Unlock**	Unlocks elements to allow editing. This com mand appears only when the selected element has been locked
7	**Disable/Enable**	Disables or enables playback of the selected element. **Disable** is the default command, but will interchange with Enable when selected. The element must not be locked to use this feature

Page View: File

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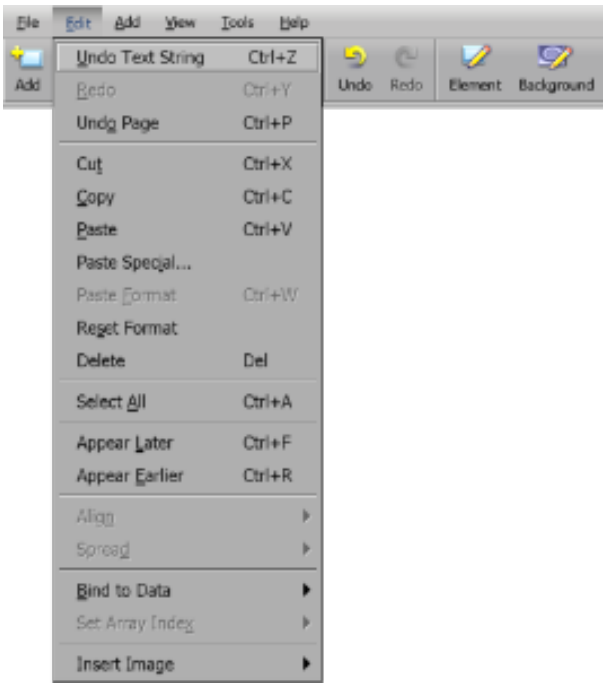
The File menu has a number of functions available to assist the designer during the creative process that enable quick access to:

Function	Shortcut	Explanation
Save	CTRL + S	Save the current script, if it has previously been saved, using its current name and location without opening the File dialog. If the script has not been previously saved, the File dialog opens for you to choose a location and script name.
Save As		Choose a location and script name, even if it has previously been saved.
Export		Sub-menu has several options for exporting selected element(s), the background or the entire Page as a PNG image file. Options for saving the selected text into a text file, exporting the page's palette and saving a newly created button as a button preset for later use.
Main	ALT + M	Returns you to the Main View.

Page View: Edit



Edit contains options for managing the contents of the page. The available options depend on the tab which may differ slightly from one tab to another. They can be accessed primarily through the Edit pull-down menu. A few options are also available in the Page view Toolbar such as Cut, Copy, Paste, Undo and Redo.

The Edit menu consists of:

Function	Explanation

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Undo/ Redo (last named action)	Use as necessary. The Undo/Redo support in the Design panels is the same as described in Main Toolbar: Undo and Redo. The Undo command undoes the last action you performed while Redo restores that action. They are both multi-leveled, meaning you can repeatedly step backward through the sequence of your changes by continually choosing Undo, or step forward in your sequence by choosing Redo.
Undo Page	This is **whole-page** undo. Choosing this option will revert the current page to the state it was in when you last entered it from the Main View, or from another page, in any Design Panel. For example, if you have made several changes to a page and realize that the page is all wrong, Undo Page lets you start over more easily than using Undo repeatedly.
Cut	Deletes information from a page, and places it on the clipboard. From there, it can be pasted into any script, and is available until the next time you choose Cut or Copy.
Copy	Duplicates information to the clipboard, which can then be pasted into any script. Any information located on the clipboard is available until the next time you choose Cut or Copy.
Paste	Inserts information from the clipboard which has been cut or copied. The position of the information after it has been pasted, depends on the current status of the page: • If you click on the screen and see the text cursor, the information will be inserted at the cursor position. • If one or more elements are selected, the information will be placed down and slightly to the right of the currently selected items' upper left corner. • If nothing is selected and there is no cursor visible, Designer will remember the last position the text cursor occupied, and insert the information into that position. Having copied an element it is possible to paste it exactly on top of the original using the keyboard CTRL+ALT+V. You may continue working with any pasted information.
Paste Special	For special options when pasting material placed on the clipboard from an external program. It is available only when there is material on the clipboard, apart from plain text, which Designer will interpret as graphics. When you choose Paste Special, you will see a dialog offering two options: • **Paste as Clip:** Embed the pasted image into your script**.** • **Store as a Separate File:** Use when you do not want the pasted object to be embedded into the Designer script file. Instead, it will remain a separately referenced file, which will will keep the script file from becoming too large, especially when you are using several copies of the same item. When you choose this option, you will see the **File** dialog. Enter a location and filename, and Designer will create a file containing the clipboard object with the name and location you assigned, and will display the object on the page. The script will reference the file in a manner similar to Adding a file. For example, copying columns out of a spreadsheet program to be included in a page. If pasted normally, the spreadsheet data would appear on the page as a single text element, and the data would most likely not be arranged in columns. Using this option, you can paste an image of the copied columns into the spreadsheet. For it to work properly, the application from which you cut or copy must be able to create the bitmap image when it places the data on the clipboard, something that not all applications can do.
Reset Format	Returns the selected elements to the defaults, which are controlled by the Save Element and Page Defaults in the Tools Menu.

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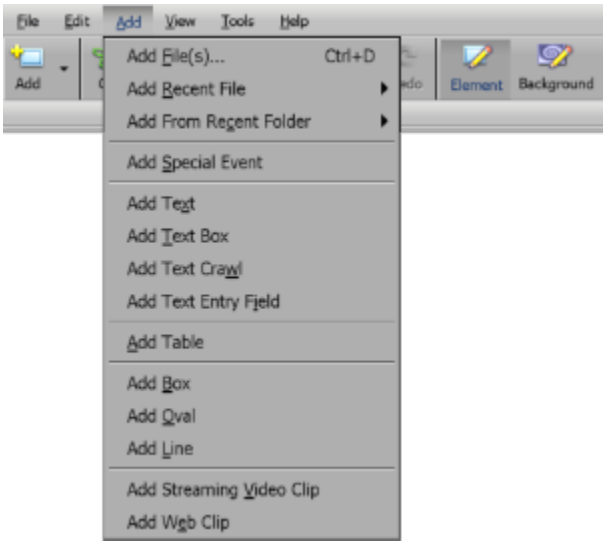
Delete	Removes any selected elements. May be recovered by choosing Undo.
Select All	Automatically selects every element on the page. For example, if you wanted to apply the same pause setting to every element, you would use this option. In some situations it is faster to select all elements on the page and then Ctrl-click on the elements you want to exclude, rather than individually clicking on every element.
Appear Later, Appear Earlier	Appear Later causes the selected element to appear on the page later than other elements, while Appear Earlier causes the selected element to appear on the page earlier than other elements. This will effectively move the element to the top of the Page Toolbar: List mode. These options also have the effect of causing the selected element to move in front of, or behind overlapping elements. Using Element Layering will control how elements cover each other, independent of their temporal order. When using these options, the rules applied are based of whether the element has a transition. Essentially there are two groups as is seen in the List View. The first section of elements are those without transitions and are already on the page when the page appears during playback, while the second section are those with transitions and appear in the order in List View. Adding or removing a transition will cause the element to move between the sections.
Align	Opens the Align popup, which provides the ways to align the selected elements both vertically and horizontally.
Spread	Opens the Spread popup, which provides the ways to spread the selected elements both vertically and horizontally.
Bind to Data	This will bring up a popup menu that lets you pick a variable, or choose **New**... to create or select a variable to bind the property to. If the property already is bound to data, you will find an **Unbind** option at the bottom of the popup menu so that you can unbind it from the data. When an element is bound to a variable the Selection box of the element will show the name of the variable it is bound to.
Set Array Index	Opens the Set Array Index popup, which provides the ways to alter the index used when binding parameters in the selected elements.
Insert Image	Adds the given image into the text or text box element at the current location as an embedded image.

Page View: Add



The Add menu enables you to add to the page any of the available designer elements at the current selected position, indicated by either the Text cursor or the first selected Element. After adding the element the appropriate Design Panel opens allowing you set various attributes for the

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element. It enables quick access to:

Menu Item	Explanation
Add File(s) (CTRL + D)	Add a new element by opening the File dialog where you can choose from among Clips, Anim Clips, Movie Clips, HTML Widgets, Multi-tile Clips, Buttons, or other files.
Add Recent File	Choose from previously used media files.
Add From Recent Folder	Choose media from a previously used media folder.
Add Special Event	Opens the Design List Panel and adds a line to select Timing, Branch, Sound, Launch, Log, Schedule, or WinScript.
Add Text	Inserts an Text Element on your page. This can be useful when you can not select an open spot on the canvas area, especially if you have full-screen elements on your page. The text cursor will also appear.
Add Text Box	Places an empty Text Box Element on your page.
Add Text Crawl	Adds a Text Crawl Element which can be positioned and edited.
Add Text Entry Filed	Inserts a Text Entry Field, an interactive text element that can accept typed input from someone running the script and store the text in a variable.
Add Table	Table of Text Boxes.
Add Box	Opens the Design List panel. Creates a Box Element that can be drawn-out with the mouse.
Add Oval	Opens the Design List panel. Creates an Oval Element inside a boundary box that can be drawn-out with the mouse.
Add Line	Opens the Design List panel. Creates a diagonal Line inside a boundary box that can be drawn-out with the mouse.
Add TV Clip	Adds a TV Clip that shows the display of an attached TV Tuner type video source, as controlled by the TV Tuner Module.
Add Streaming Video Clip	Dialog that requests input of the Streaming Video Clip URL.
Add Web Clip	Dialog that requests input of the Web Clip URL.

Page View: View

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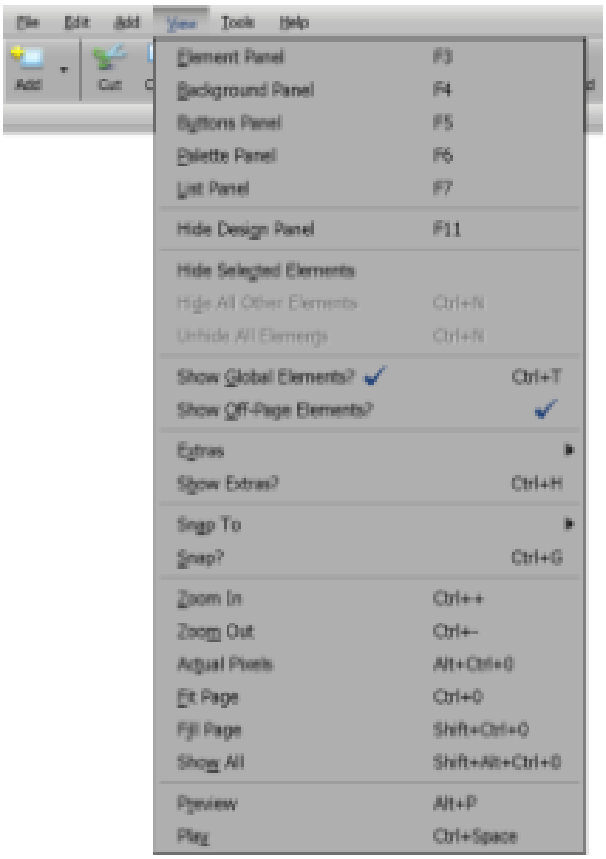

The View menu has a number of functions available to assist the designer during the creative process, and it enables quick access to:

Function	Explanation
The Primary Design Panels	Element (F3), Background (F4), Buttons (F5), Palette (F6) and List (F 7)
Hiding the Design Panels	To see the covered portion of a page obscured by a panel without scrolling, press the Right mouse button and select **Hide Design Panel**. When the tab is hidden, press the Right mouse button to make it visible. If your keyboard is not globally programmed with another feature, or you have reprogrammed it for accessibility in Designer, you can also use the **F11** key to Hide/Show the Design Panel. If you are running in a window, and your desktop is large enough, you can enlarge the window so that the Design panels do not obscure the Page View canvas.
Hiding Elements	It is useful to be able to hide elements while working on a page since typically, when designing, several elements are arranged one on top of another. • Hide Selected Elements: Select the element either by clicking it in the design canvas or from the List Panel, then choose **Hide Selected Elements** from the View pull-down menu. • Hide All Other Elements: Quick way to isolate only the selected element(s) on the screen. • Unhide All Elements: Make all hidden elements visible regardless if they were selected. You can also access the Hide/Unhide All features from the context menu, using the Right mouse button on a selected element or by using the hotkey **Ctrl+ N**. Elements will remain hidden until you complete editing them and exit the page. To permanently hide elements from playback, use the **Enable/Disable** feature from the Element Control Panel.
Hide/Show Global Elements	Hides/shows any elements globally viable on all pages of this script.They are still in the script, and can be drag-selected or selected in the List panel, but cannot be selected by clicking on them. When the page is crowded, this option makes it easier to work with elements that are only on this page.

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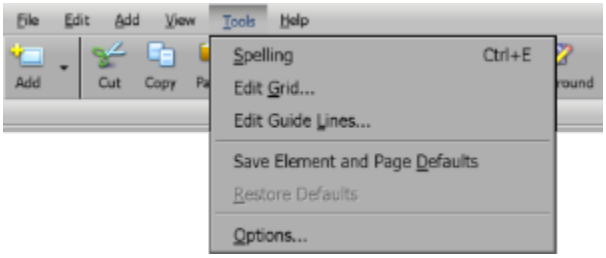
Hide/Show Off-page Elements	Hides/Shows elements not within the page boundary. Elements that break the boundary are cropped to the part visible within the page boundary. When off-page elements are hidden, the Page View scroll bars are limited to the page itself.
Extras (Grids and Guide Lines)	Used in conjunction with **Show Extras?**, this menu allows you to specify which of the **Extras** are shown.
Show Extras?	Show/hide grids and guidelines that are for editing purposes only. Grids and Guidelines are useful both to ensure alignment or defining safe areas of the screen.
Snap to	Used in conjunction with **Snap?**, this can specify which of the **Extras** elements are snapped to, when moved.
Snap?	Enables you to limit the movement of elements to the nearest grid or guide line depending on the selected **Snap To** options.
Zoom Control	Six of the commonly used zoom levels are provided from here.
Preview Page	Same option as the Preview Icon in the Page View Toolbar. It enables you to preview the page, including transitions.
Play Script	Same option as the Play Icon in the Main View Toolbar. It enables you to play the script from the beginning.

Page View: Tools



The Tools menu has a number of functions available to assist the designer during the creative process, and enables you quick access to:

- Spelling
- Edit Grid
- Edit Guide Lines...
- Save Element and Page Defaults
- Restore Defaults
- Options...

Spelling

Begins checking the spelling of the text on the current page.

Edit Grid

Opens the Grid Editor, where you can adjust the size, origin, and Snap setting of the layout grid. This option is explained in greater detail in the Using Grid Points section.

Edit Guide Lines...

Opens the Guide Lines Editor, where you can add, adjust, and delete layout guide lines. This option is explained in greater detail in the Using Guide Lines section.

Save Element and Page Defaults

Lets you save the current settings on the Design Panels as the default for new pages.

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Restore Defaults

Restores the default settings for new pages.

Options...

Opens the Options dialog, which can be used to customize Scala Designer and control script performance. This option is explained in greater detail in the Designer Tool Options section.

Using Grid Points

Turning on the Show Extras? option in the View pull-down menu will reveal a grid of points, representing the current grid settings. (Show Extras? also shows any guides if set).

The default is a 10 x 10 pixel grid with the origin point at position 0,0, that is, the top left corner of the page. Turning on the grid will not cause elements to move or change size.

Grid Options

You can adjust the size and origin of the grid in the Grid Editor panel. Click Edit Grid from the Tools pull-down menu to open the Grid Editor panel. The **Show Grid?** option is automatically turned on. Within this dialog, you can adjust the grid, either graphically or numerically.

Re-sizing the Grid

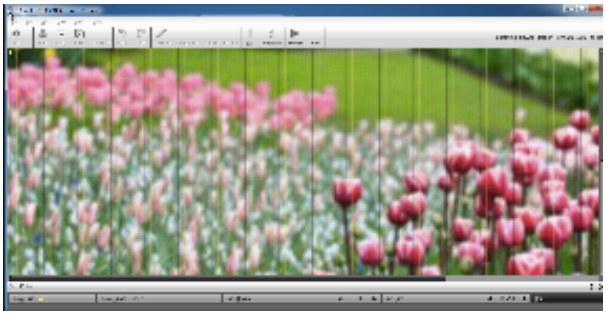
The smaller the grid size values, the more freedom you have to position and resize elements. Both the width and height contain a range from a minimum of 4 to any desired maximum size.

To graphically edit the size of the grid, drag the solid graphic handle, which is located below and to the right of the origin (initially the upper left corner of the page). To numerically edit the size of the grid, simply highlight the value in the Grid Size control which you want to change, (width or height), and use the value control to increase or decrease the number.

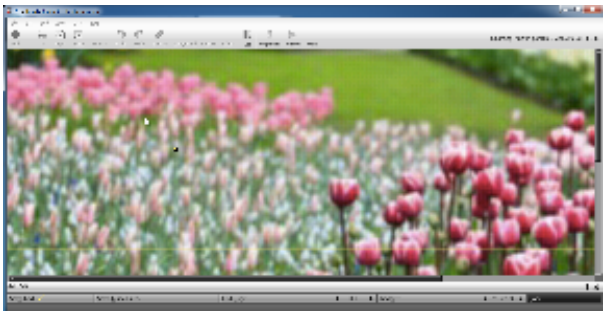
As the values are edited, you will see the grid change. With coarser settings, the grid lines become farther apart and the “boxes” in the grid will become larger.

Here is a pair of images, with the grid at its default, and expanded in size in the second photo.

Before



After



Moving the Grid on the Page

You can re-position the entire grid relative to the page, so that even with coarse grid settings you will still have considerable freedom in positioning items. The grid origin is represented by a hollow graphic handle crossed by two solid lines. By default, it is set to 0,0, which is located in the upper left corner of the page. You can drag this handle, or you can adjust the values in the Grid Origin control. Any pixel position (regardless of the grid size) can also be set as the origin.

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When you are finished in the Grid Settings dialog, click **Done**. The grid settings apply to every page in every open script, however, they will only have an effect while you are editing a page. They can be retained for future use by clicking **Save Element** and **Page Defaults** from the Tools pull-down menu, and are not saved with scripts.

Using the Grid

The grid can be used purely as a visual aid or can assist alignment if the **Snap**? option is set you can easily position elements to consistently line up on the page.

> **Snap To**
> When Snap? is enabled, it will use grid and guides depending on the setting of **Snap To** in the View Menu.

When turned on, this option will allow elements to be specifically positioned at grid points. When you drag with the grid on, the horizontal and vertical leading edges of the elements will show a visible yellow line where they can “snap” into the possible positions defined by the horizontal and vertical grid size values. However, if you quit dragging in-between two grid points, the element will not automatically jump to the snap position.

Using Guide Lines

Guide Lines are another useful layout and alignment aid for the Designer. But unlike grid points, they are not defined by default. Guides are horizontal and vertical lines which extend across the entire page canvas. They are visible only in the Page View when the **Show Extras?** option is turned on. They need to be checked in the Extras Option.

They are not viewable when you preview or play a script, and can be created or positioned anywhere. This can be done by selecting **Edit Guide Lines** from the Tools pull-down menu and opening the Guide Lines Editor panel. They will automatically be turned on when you open the panel. You can create and move lines by clicking and dragging directly on the page, or by using controls in the dialog to make more precise adjustments.

Creating Guide Lines

There are two ways to create a guide line:

1. Click anywhere on the canvas while in the Guide Lines Editor. The new guide line will be vertical or horizontal depending on whether you clicked closer to the sides of the canvas area or the top/bottom.
2. Click **Add Line**. Your line will be positioned relative to the side of the page specified by the **Edge:** pop-up. The line is vertical if **Edge:** is set to Left or Right, or horizontal if it is set to **Top or Bottom**.The new line will appear solid, indicating that it is the current selected line. Any other guide lines will be dashed. A small arrowhead in the middle of the current line will point to the left side, right side, the top or the bottom, depending upon which edge represents **0** for that line’s position value.

You can create any number of guide lines.

Selecting Guide Lines

Guide lines are individually numbered. Each **Edge:** setting (Left, Right, Top or Bottom) can have a series of lines associated with it, regarding its numbering and position. The numbering starts with 0, and represents the order of the lines in terms of how far they are from the page edge, with line 0 is closest to its edge, line 1 is the next closest, and so on. The number of the current line is shown in the Line Number value control arrows. You can use this value control to select a line, or alternatively, click on the line. The selected line will become solid, and its Edge, Line Number, and Line Position settings will be displayed in those controls.

Positioning Guide Lines

If you used Add Line, the new line will be positioned relative to the last guide line which you created for the current edge. Newer lines are positioned farther from the edge. The Line Position value control will show the distance of the current guide line from its edge, in pixels. You can adjust the line’s position using this control. Once created, you can move guide lines by dragging them. You must click directly on the line to avoid creating a new line. In repositioning guide lines, it can be easier to use the Line Number control to select the lines, rather than making precise adjustments with the Line Position control. If you click and drag to move a guide line, the line will follow the mouse pointer, and a number will appear near the pointer, indicating its line position.

Removing Guide Lines

There are several methods to remove a guide line by selecting it and :

- Either clicking on it or using the Line Number control, then clicking **Remove Line.**
- Either clicking on it or using the Line Number control, then using the **Delete** key on your keyboard.
- Dragging the line off the page.

Clicking the **Remove Line** button repeatedly will remove successively lower-numbered lines.

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Done

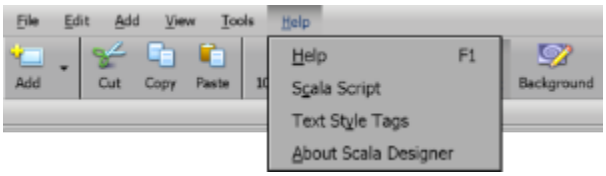
When you have finished creating guide lines, click **Done** to close the Guide Lines Editor. The guide lines you defined will appear in the Page View canvas as solid yellow lines, whenever the Show Extras option in the View pull-down menu is on. The lines do not appear in playback.

Guide line settings can be retained for future use by clicking **Save Element** and **Page Defaults** in the Tools pull-down menu.

Snap-To Guide Lines?

Using the **Snap-to Guide Lines?** Option works similarly to **Snap-to Grid?**. With the element(s) selected, choose the **Snap to > Guides?** from the View pull-down menu. When you move your elements on the canvas, the edges will highlight the guide lines when you get near them. Once the guide line is highlighted, let go of the mouse and it will snap to that guide line.

Page View: Help



Designer has help both in-product and on-line documentation. The Help Menu enables quick access to:

- Help
- Scala Script
- Text Style Tags
- About Scala Designer

Help

Provides assistance on various user interface elements. See The F1 Key IS Your Friend section for more details.

Scala Script

Dialog where you can pick a command, function, or system variable to get syntax help on.

Text Style Tags

Syntax document describing Embedded Tags supported by Text and Text Crawl elements.

About Scala Designer

About Box that shows the version, copyright and license information for Scala Designer. You can use Ctrl+c to copy this information to the clipboard should you need to contact Scala Support.

Check Support Online

This will attempt to connect to Scala's License Server over the Internet to verify the subscription coverage information, and then either download a new license file if one is available, or take you to the Scala Maintenance Subscription web site for more options. You must be connected to the internet for this to succeed.

Get License File Online

This will attempt to connect to Scala's License Server over the Internet and download the latest license file associated with your Scala Designer USB Key and install it. You must be connected to the internet for this to succeed.

Import License File...

You can use this button to install a license file you already have. In the file dialog that opens, locate your license file, select it and press **Open** to install it. The file must be for your Scala Designer USB Key.

General Visual Manipulation of Elements

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Element Selection

Elements can be selected by:

- Using a mouse click to select the element (moving the mouse over the element only shows the 'bounding rectangle' of the element).
- Using the **Up/Down** arrow keys to select the next previous element on the page based on the order in the List View.
- Clicking the elements name in Page List view.
- Drag-selecting elements using the mouse. Click and hold down the mouse on an empty area Then, drag the mouse and a lasso-frame appears and any element that is enclosed fully or partially by the lasso is selected.

When you click on a element, you will see a dashed rectangular frame to indicate that it is selected. For those Elements that can be re-sized, the eight (8) graphic handles placed around its edges.

You have to click on a non-transparent part of a clip which has Transparency set or the Chroma Key? option on in order to select it (Or use the drag select method). If several clips overlap, you can click through the transparent part of one to select another underneath.

Selecting Multiple Elements

This can be done using one or more of the following methods:

- Choose the first element(s) using one of the methods above.
- Hold down the **Ctrl** Key.
- Using the mouse to select another element, or the **Up/Down** arrow keys to select the previous or next elements on the page based on the order in the List View.
- Click another elements name in Page List view
- Drag-select elements using the mouse.

Regardless of your selection method, the Design Panel will appear for the last type of element you have selected. If it is a clip, you will see the Design Clip Panel, etc.

Moving the Element

- Select the element and drag it to its new position (you can cancel the drag by right clicking while dragging)
- Use the Position tab in the Design Panel and type in the X, Y co-ordinates.
- Using **SHIFT** and dragging will lock the drag either in the horizontal or vertical direction
- Using **CTRL + Arrow Key** will move the element(s) by one (1) pixel in the direction of the arrow
- Using **SHIFT + CTRL + Arrow Key** will move the element(s) by ten (10) pixels in the direction of the arrow.

Elements can be dragged off of the page into the off-page area. When moving Multiple items, they are normally moved in relation to each other, except when **Snap?** is turned on.

Manipulation using Element Handles

Apart from the Text Element, which does not have any handles on the bounding frame, all other elements can be re-sized using these handles. Image and Animation elements may also be cropped using the handles.

Changing Size

You can quickly adjust the size by clicking and dragging on the element's bounding box.

- Dragging a handle at a corner will allow you to simultaneously adjust the width and height.
- Dragging a handle on a side will allow you to adjust only that side.
- **SHIFT +** dragging a corner handle maintains the original aspect ratio of the element.

You can cancel a dragging operation by pressing the secondary (Right) mouse button while holding down the main (Left) mouse button.

The size can also be adjusted in the Design Panel for the element you want to add. A list of these can be found in Working with Design Panels.

A couple of notable single-key keyboard shortcuts associated with sizing are:

- **h:** Make the element half its current width and height.
- **d:** Make the element its current width and height.

Cropping

Designer allows you to crop away parts of the element without having to resort to editing in a external paint package:

- Use **ALT +** to drag a handle on the side or corner of the element until the edge(s) enclose only the portion of the element you want to keep.
- Use **ALT +** to drag the element itself to re-position the cropped area seen.

The cropped area can also be adjusted in the Design Panel's Position Tab as well as reverting to the element to its un-cropped state.

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Cut, Copy & Paste

An element can easily be copied from one part of the page to another or even to another page in another opened script. Any styles applied will be remembered.

- Cut the element using **CRTL + x** or by selecting **Cut** from the **Edit** menu.
- Copy the element using **CTRL + c** or by selecting **Copy** from the **Edit** menu.
- Paste the element using **CTRL + v** or by selecting **Paste** from the **Edit** menu. The new element is added slightly below and to the right of the existing one.
- Paste the element using **CTRL + ALT + v** will paste the new element exactly in the same place as the original.

If an element was copied from an external package and added by pasting from the clipboard, the element's button will read **<embedded>**, indicating there is no underlying file. This can bloat your script file and on saving as you will also see a .dat file associated to the .sca file

Additional Keyboard Shortcuts

- **x:** Flips the selected element horizontally (around a vertical axis).
- **y:** Flips the selected element upside down (around a horizontal axis).
- **r:** Rotates the element clockwise in 15-degree increments.
- **SHIFT+ r**: Rotates the element counter-clockwise in 15-degree increments.

Exporting Elements

You can save elements with your size, crop and style changes simply by choosing **Export** from the Edit drop-down menu. In the File dialog, choose a location and enter a name for the processed element. If several elements are selected, they will be exported as one, with any additional transparent areas, and the resulting file is saved as a PNG file.

Importing Elements

Text can be imported from a ASCII text file by using the Add File dialog. Only the first 1000 characters are imported.

Working with Off-Page Elements

Designer has the ability to show off page elements, which is useful when laying out graphics or text that overlap the page boundaries. The settings are found by selecting from the menu **Tools > Options > Authoring**.

There are three settings that control off-page elements:

Element	Function
Show Off-Page Elements?	If this option is selected, the elements extending outside the page boundaries will fully show in the Page View. If this option is off, then elements will be clipped to the page boundaries.
Border	Adjust the color of the 1 pixel border around the page when the Show Off-Page Elements mode is **On**. The default border color is black.
Off-Page Elements Opacity	Adjust the off-page elements opacity to adjust the difference between what is visible on the page and off it.

Grouping Pages

To help you structure and organize a script, Designer makes it possible to organize pages into groups. This can be especially useful in large scripts, where grouping pages will enable you to get a better overview and be easier to manage.

A group may include any number or combination of pages, scripts or other groups of pages. Whether the selected pages are (are not) listed consecutively in the Main View, the group's position in the script will be that of the first page you select. Similarly, within the group, pages are sequenced according to the order in which they were selected.

- **Thumbnail View:**
  A thumbnail/Name button representing the group appears in the position of the first page you selected. The page(s) you selected are now in the group. Designer assigns a generic name to the group, which will also appear on the group's Name button. You can change the name of the group as follows:
  - Click on the group's No. (Number) button, opening the **Page Control Panel**.
  - In the Name text box, type a short descriptive name for the group and click on **Close**. You will return to the Main View and, on the group's Name button, you will see the name you have assigned. Buttons for a group are generally darker in color than buttons for a page. The thumbnail for a group looks like a stack of pages with the first page in the group located on top.
- **List View:**
  - To group pages: Select the pages you want to include in the group in the Main View.
  - Click on the Edit pull down menu and choose **Group** or you can right-click on one of the selected thumbnails or listed page names, and select Group from the context menu,

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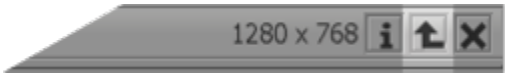
Editing a Group

When you double-click on a group's Name button, you will see the Main View with the individual pages, scripts or groups of pages that are included in the group. The page number for each represents the sequence of pages within the group based upon their selected order.

The path in the script title bar reflects the position of the group in the structure of the script. You can refine the elements of the group and work in the panel as usual.



When you are done, click on the **Script Up** button in the script title bar, as necessary, until you see the top level of the script structure.

Ungrouping

To dissolve the group and leave its contents as individual items in the script, select the page representing the group, then click on the **Edit** pull-down menu in the Main View and choose **Ungroup**. The items in the group are listed individually and consecutively, beginning at the position in the script previously occupied by the group.

Working with Templates

Designer is most commonly used to create templates. Designer defines the structure and layout of the template, and specifies elements or variables that can be changed by binding them to a data field. In addition the Designer, via the Script Properties: Template Tab, can define which pages and variables are presented. Content Manager then uses the template to create a message by changing media assets or adding text, as defined by the template administration restrictions in Content Manager.

See Creating a Script for more information on creating a page and using layout tools.

Templates can display one or more pages. The user can use the same Data Field Name (variable) multiple times to show the same information.

When renaming variables, you can correct a spelling mistake in a variable name by hand-editing the Scala Script.

What elements can be bound?

- Text Elements
- Text Crawls (Text Expression or Text File)
- Background (Image /Videos)
- Clips (Images//Videos)
- Pages (Playlists in Content Manager)
- Table Cells
- Masks
- Font Size
- Many Numeric values of an Items properties for example the elements position

Content Manager only allows users to replace placeholders with data of the same type: text with text, video with video, and images with images. Binding is easy – just right click with the mouse.

Whether binding a text element, a clip, or even panel options such as Font size, the user can access **Bind to Data** by right-clicking the item. To bind something, right click on the element that should be bound, then select the correct option:

- **Bind Text To Data Field…:** Text Elements
- **Bind Text Crawl Text To Data Field…:** Text Crawl Expressions
- **Bind Text Crawl Filename To Data Field…:** Text Crawl Text Files
- **Bind Clip Filename To Data Field…:** Clip Files
- **Bind Background Picture Filename To Data Field…:** Background Files

See Template Creation for more information about these options.

When defining Text variables, it is important to remember to rules to naming Variables. See Variables for more information.

Content Manager Template Properties

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When Scala Designer publishes the scripts, Content Manager is able to distinguish between a normal script and a template script. Normal scripts are put directly in the media list, while template scripts are added to the Template list where they can be used to make Messages. A single template can be used to generate any number of Messages. See Uploading Templates for more information.

Users can open a template's properties by selecting the check box next to the desired template and clicking on **Properties**. In Template Properties users can add a description, see the dimensions of a template, view a history of revisions, or other pertinent information.

Administration Tab

The Administration tab in Template Properties allows a user to adjust the parameters of the fields or change the order in which they present. Follow the directions below to make changes to template fields:

1. Login to Content Manger with an appropriate role.
2. Open the **Content** tab.
3. Click on **Templates.**
4. Select the check box of Template you wish to make changes to, then click **Properties.**
5. Click the **Administration** tab.
6. Change the field labels and order, if desired. Then click **Save.**

Template Creation

A template script can have one or more pages and must have at least one element/variable bound as a template field. It is this the act of binding a data field for use as a Template that changes a normal Scala Script into a Template. Similarly, the un-binding of all the template data fields in a script will return it to a Scala Script.

The bound element/variable will be used as the placeholder while working in Designer and may be replaced later during the creation of a message in Content Manager.

The same bound variable may be used in more than one location, that is, an image that appears on multiple pages of your template.

When publishing a template script it it will not appear in the media list in Content Manager, but it will be in Template repository. An explanation of the methods for publishing template scripts into Content Manager can be found in the Uploading Templates section.

The basic steps to creating a template are:

- Create a Script
- Bind Elements
- Adjust Template Properties
- Save
- Publish to Content Manager

Scala recommends that you first create a non-templated version of the script before commencing the binding process, as doing this will make reverting to the original version easier, should you need to do

Create a Script

In Designer, each production is a called a Script. To create one, you must first define its size. This can be done by clicking New in the Toolbar and selecting a size from the box that appears. Click OK once that is done, and then create your script as you see fit.

Subjects to Consider When Creating Templates

Before you start the creation process there are a few choices to consider in regards to what to use in the Template:

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Text Box Element vs Text Element	For templates the Text Box Element can be more versatile than using a Text Element. This is because: • The font size of the text will reduce in size to accommodate more text into the area (if set) • The visible area for the copy is limited to the bounding area of the element to avoid overflow **Note**: If you need fixed font sizes, consider using the Text Element. **Text** elements can be converted to **Text Box** (and vice-versa), by right-clicking the element and selecting **Convert to TextBox**.
Text Word Wrap	When using a Text Element as a template file, it is important to ensure that the **Word Wrap** option in the text panel is set correctly for the behavior you need. Remember the Text Element is of a fixed font size. Typically the following are the suggested settings for Word Wrap: • **Headings:** Word Wrap **Off** • **Body copy:** Word Wrap **On**
Clips	When using a Clip as a template file, select the **Scaling** option as follows: • **Free:** Exactly to the size regardless of aspect ratio • **Fill and Trim:** Match the width or height (whichever is closer) and crops off the image in the other direction • **Fit Inside:** Fit completely within the size area, leaving space above or below if the aspect ratio is differen

Bind Elements

Users may choose to bind several types of elements to a data field:

- Text Elements
- Text Segments
- Clips
- Text Crawls
- Sound Files
- Pages
- Positions
- Sizes
- Rotation Angles

Binding a Text Element to a Data Field

1. Right-click on the title and select **Bind Data** and then **New**.
2. Enter the name of the variable and click **OK**.
   The text you have typed in Designer is considered a placeholder. When creating a message in Content Manager, a user will enter different text to replace the placeholder. The font, attributes, size, and transitions will be preserved.

Binding Text Segments to a Data Field

It is also possible to bind a segment of a text element to a data field:

1. Highlight a word within a text element
2. Right-click on the selection and choose **Bind to Data** from the context menu

Binding a Clip Filename to a Data Field

When binding a clip to a data field you are actually binding the file name of the clip that is being assigned the data field.

1. Right-click on a clip and select **Bind to Data**, then select **New.**
2. Enter the name of the variable and click **OK**.
   The image you use in Designer is considered a placeholder. This clip is published with the script but is replaced when the user creates a

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message. The new clip will adopt the attributes, scale, transitions, and effects that were applied to the placeholder.

Note: You cannot use a still image clip as a template placeholder and later select a video clip to replace it in Content Manager. You must keep the same type of clip used in your template as you will use from your media folder items. If you need the option of still and video, you will have to make two separate template scripts or use Scala script programming to handle the choice of file format.

Binding a Text Crawl a Data Field

The **Text Crawl** element has **two options** for templates depending on the Text Source:

Text Source: Expression

When binding a Text Crawl Expression to a data field you can only bind the complete text

1. Right-click on a Text Crawl and select **Bind to Data**, then select **New.**
2. Enter the name of the variable and click **OK**.

Text Source: File

When binding a Text Crawl File to a data field you are actually binding the file name of the Text File that is being assigned the data field.

1. With the Text Crawl selected use the Edit menu and select **Bind to Data**, then select **New.**
2. Enter the name of the variable and click **OK**.

Binding a Sound file to a Data Field

Binding a **Sound** file to a data field can be done from the Sound panel. Click on the Sound column in the row of the element or page you are setting. When binding a Sound File to a data field you are binding the file name of the Sound File being assigned to the data field.

With the Sound panel open:

1. Select the **Bind** button in the panel and then select **New.**
2. Enter the name of the variable and click **OK**.

Binding a Page to a Data Field

Binding a Page of a Designer script allows the substitution of this page with a Playlist when creating a Message in Content Manger. As this page is not played back it is recommended that you bind a simple Plain Page.

From the Main View:

1. Select the Page to be bound.
2. Right-click on a Page and select **Bind to Data**, then select **New.**
3. Enter the name of the variable and click **OK**.

Binding the Position (X, Y) of an Element to a Data Field

The X and Y positions of an Element can be bound so that you can re-position the Element during Message Creation

With the Design Panel open for the Element select the position tab:

a. Right-click on a Element Position (X or Y numeric) and select **Bind to Data**, then select **New.**
b. Enter the name of the variable and click **OK**.

Binding the Size (X, Y) of an Element to a Data Field

The X and Y size of an Element can be bound so you can re-size the Element during Message Creation.

With the Design Panel open for the Element select the Position tab:

a. Right-click on a Size (X or Y numeric) and select **Bind to Data**, then select **New.**
b. Enter the name of the variable and click **OK**.

Binding the Rotation Angle of an Element to a Data Field

Where available the Rotation Angle of an Element can be bound so that you can adjust the angle of the Element during Message Creation

With the Design Panel open for the Element, select the Position tab:

a. Right-click on a Rotation Angle numeric and select **Bind to Data**, then select **New.**
b. Enter the name of the variable and click **OK**.

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Unbinding Elements

Removing a Data Field

To remove the data field binding from an element, right-click on it and select **Bind to Data**, then **Unbind**. This removes the connection between the element and the data field. Once any element has been assigned to a data field, the script is will be considered template script. You would need to remove all data fields to convert it back to a normal script.

Adjust Template Properties

Select the **Script Properties** icon in the toolbar to access the **Script Properties**.

Under the **Variables** Tab, you can define the creative choices you need for each of the variables. For further details see Script Properties: Variables and Adjusting Script Properties.

For Example:

1. **For a Bound Clip Filename you are able to define**:
    a. The Presentation of the choices - Filter, Radio (Buttons) or Picklist
    b. In the case of Radio or Picklist the ability to specify the choices of Clips the Message Creator in Content Manager can make, and whether they are shown just as thumbnails, labels or both
    c. In the case of Filter the ability to set Filter criteria to limit the list presented to the Message Creator in Content Manager

2. **For a Bound Integer you are able to define**:
    a. The Presentation of the choices - Numeric, Radio (Buttons), Picklist or Slider
    b. In the case of Numeric the ability to set the initial value and a range of valid values (Min, Max)
    c. In the case of Radio or Picklist the ability to specify the choices of Numbers the Message Creator in Content Manager can make
    d. In the case of Slider the ability to set the initial value and a range of Slider

Under the **Template Tab**, you can adjust the pages and/or template variables that are presented during message creation in Content Manager. You can reorder the template variable allowing you to present them in a logical sequence, add additional Sections that contain just template variables and much more.

For further details see Script Properties: Template.

Save

Once you have created your Script, you can save it by pressing the **Save** button in the Toolbar.

Publish to Content Manager

The methods for publishing a Template in Content Manager are detailed in Uploading Templates.

Working with Add-ons

Scala Publish Automation EX Module

This is an additional software component that supports external applications that want to represent and publish content to a Scala network. It is a Windows service that allows an external program to perform the equivalent of the Publish to Scala Network function of Designer.

A more detailed discussion of this Module can be found in Scala Publish Automation EX Module.

ARS Media's Scala Exporter for Photoshop

The Ars Media's Scala Exporter for Photoshop works by examining the individual layers within an Adobe Photoshop document and generating an equivalent ScalaScript.

For Full details with regards to operation and support please contact Ars Media or visit http://www.arsmedia.tv/.

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Integrating Data

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There are many ways in which Designer can integrate with data, as it is essential a scripting language and therefore data handling is an intrinsic part of this scripting language. There are many ways to integrate with ScalaScript, and while many require programming skills, there are a few that can be done with limited to no programming skills whatsoever.

Designer integrates with your data in the following ways:

Method	Explanation
Variables	All integration needs the basic understanding of Variables, This section goes through the methods of defining, using and displaying Scala Variables. There are a number of predefined system variables that can be used by the script as well as the ability to define your own.
Textfile EX	The simplest form of data integration and one that needs little to no previous experience of programming. Provides easy to repeat pages of information based on the content of the text file.
Data Source Module	Map data from XML files into Scala variables, with flexible control over data mapping and iteration.
Data Driven Text Crawl	Drive the contents of a text-ticker from a Python or Windows script that connects to a data source, and prepares data for display.
Text Style Tags	Scala supports inline text-style tags to format text in Text elements and TextCrawls. For example, "Hello <facecolor="#ff0000">world" changes the color of "world" to red. You can reach this by using the Help pull-down menu.
Connecting Flash and ScalaScript	When including a Flash object in a ScalaScript, you can pass data to the Flash clip, and have the ScalaScript wait for the Flash object to decide when to advance.
Accessing Player Variables and Metadata	This page contains information on various ways to access player variables and metadata.

Connecting HTML5 Web Clips and ScalaScript

This is another way in which Designer can integrate with your data.

When including an HTML5 object in a ScalaScript, you can pass data to the HTML object, and have the ScalaScript wait for the HTML object to decide when to advance. Scala supplies a JavaScript file called **scala.js** (a sample of this file is also attached to this page) that lets you access certain features independent of whether your HTML/JavaScript is running on a classic Scala PC Player or Scala Android Player.

Integrating with Windows Host Scripting (WHS) Languages

A ScalaScript can invoke other scripts (usually Python or VBScript). Various topics are documented at Windows Scripting Introduction, including:

- Sharing ScalaScript variables or arrays with Python (or VBScript) variables or arrays.
- Methods to let the script sleep.
- Methods to write messages to the Scala log.
- Methods to report custom errors back to Content Manager.
- Functions to manage access to Scala media files that take care of file-revision and locking issuesMethods that let a Python or VBScript (or other external process) download or create media files, and integrate them locally to the player, in a way that takes care of file-revision and locking issues.

Additional Windows Scripting integration notes can be found in Windows Scripting Topics.

A username and password is required to access this page.

Scripting and Automation

Scala Developer Wiki

Scala now offers an online information resource for partners and customers who wish to develop solutions around Scala products, at the Scala Developer Wiki. **A username and password is required.**

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Web Services for Content Manager

Scala Enterprise Content Manager now supports a rich set of web services so that other applications can interface with it. Documentation is provided on the Scala Developer Wiki. **A username and password is required.**

ScalaScript Documentation

Scala's rich media playback is governed by a flexible scripting language called **ScalaScript**, which describes pages, elements, actions, and events in Scala. Documentation on individual commands, functions, and variables is accessible from Designer's **Help > Scala Script** pull-down menu.

ScalaScript language topics:

- The ScalaScript Language
- ScalaScript Syntax documentation

Other Scripting and Integration Documentation

Other Scripting and Automation topics:

- Windows Scripting Introduction
- Windows Scripting Documentation
- Text Style Tags
- Connecting HTML5 Web Clips and ScalaScript
- Connecting Flash and ScalaScript
- Data-Driven Text Crawls
- Data Source Fetcher
- Reporting Custom Warnings and Problems
- Locally Integrated Content
- Restart Playback
- Check For New Plans
- Accessing Player Variables and Metadata
- Scala Publish Automation EX Module
- Scala Server Support Module

The ScalaScript Language

Foreword

This document provides an overview of the ScalaScript language and its capabilities.

When you create a project in Scala Designer, you use Designer's user-interface to compose and sequence media. If you were to open your project in a text editor, you would see a **ScalaScript**, which is the document format that represents your project. Most users never need to concern themselves with the details of ScalaScript, because Designer takes care of all that for them. That said, various advanced results can be achieved by hand-editing ScalaScripts. Often this is done by creating the basic project in Designer, then embellishing it using a text editor.

If you need to use a feature or capability that is not supported by Designer, manual updating of a script may be required. It is possible to create new scripts outside of Designer, as well as hand-edit scripts that were created by Designer. Loading a hand-edited or hand-authored script into Designer can occasionally produce unexpected results.

The ScalaScript Language

ScalaScript is a language used for storing Scala Player scripts. The Scala Player internally stores scripts as an object tree, where playing the script consists of traversing the tree and passing methods to the objects. When a script is saved, it is converted into a text file containing commands and directives that allow the object hierarchy to be reconstructed at a later time.

It is important to understand that the ScalaScript language is not a traditional procedural (imperative) programming language. Commands in a ScalaScript script are not executed (played back) one after another, like a Basic or C program. Rather, a ScalaScript script is a description of an application and its components, much like a description in English. The Player and the EX modules use this description to build an object model of the script. When the script is played, the objects are activated and deactivated according to the structure of the script. However, they may also react to external stimuli (such as input events or hardware interrupts) to asynchronously cause changes in the playback of the script. That is, these script objects may perform operations even if they are not being directed by the Player to do so.

Also, keep in mind that the ScalaScript language was designed primarily to be authored in a graphical user interface. It would certainly look different if it was intended to be programmed directly.

Table of Contents

- ScalaScript Structure

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- Lexical Rules
- ScalaScript Syntax
- Event Names
- ScalaScript Variables
- Core ScalaScript Commands
- Core ScalaScript Functions
- Core ScalaScript Variables
- Extension Functions
- Extension Variables

ScalaScript Structure

To introduce the ScalaScript language, a number of simple scripts will be presented. These scripts will highlight certain features of the language and give an overview of how scripts are constructed and how they execute. The details of the language will be presented on other pages of this wiki.

Note:
The examples presented in this section are simplified for illustrative purposes. That is, they are strictly examples and may not be complete enough to actually play in Designer or Player.

Simple Picture Sequence

The first example script consists of three commands that execute sequentially:

```
!ScalaScript
{
    Picture("C:\Pictures\Photo1.jpg");
    Picture("C:\Pictures\Photo2.jpg");
    Picture("C:\Pictures\Photo3.jpg");
}
```

What is important to recognize here? The first point is the general construction of the script. The first line of the script must contain the !ScalaScript file identifier. This token must be the first thing on the line. It identifies the contents of the file to the Player.

Next, notice that the commands in the script are enclosed between EVENT and END brackets, **{** and **}** respectively. Commands enclosed between **{** and **}** are known as a block, and the block containing the entire script is known as the main block of the script. All scripts must have a main block, and all commands must appear inside of at least one block (blocks may be nested). ScalaScript does not support blocks outside of the main block, however, it does support calling external scripts.

Blocks are used extensively in scripts for grouping and execution control.

Comments and white space may appear anywhere in the script, even outside of the main block (but not before the !ScalaScript identifier). Comments follow the comment style of the C language, with both line comments and block comments being supported:

```
!ScalaScript
/* this is a block comment, it may appear anywhere
within the script
*/
```

```
{
    // This is a line comment.
}
```

There are a number of places where either a single command or a block may be used. To this end, it is convenient to define an event as either a single command or a block. That is, if an event may be used in some context, then either a single command or a block may be used in that context. The definition of a block should then be modified to read: events enclosed between **{** and **}**. That is, blocks may contain both commands and other blocks.

The containing block of an event is often referred to as the parent of that event.

There are three commands in the example script. Each command must be terminated by a semicolon. Commands may take arguments, and the

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arguments are enclosed in parentheses.

Command arguments may be of several data types, including **Boolean**, **Integer**, or **String**. String arguments are enclosed in double quotes (").

The **Picture** command used here requires one argument: the name of the picture file to display. In this case, the name is a string parameter so it is enclosed in quotes. This is a command that displays a picture as the backdrop of a page (full-screen).

The default behavior of a block is to play its events sequentially. Thus, this script will display one picture after another until they have all been displayed.

Parallel Execution

Sequential execution is fine for many tasks, but there are times when two commands must execute simultaneously. For instance, a script may wish to play a sound at the same time a picture is being displayed:

```
!ScalaScript
{
  Group:
    Picture("C:\Pictures\Photo1.jpg");
    Sample.Play("C:\Sounds\Sound1.mp3");
}
```

This example is similar to the previous example, except it contains a **Group:** directive. Events that follow the **Group:** directive are said to be in the group list of the block. Each block may have its own group list.

It introduces the **Sample.Play** command, which plays a sound file.

Events within the group list of a block are executed in parallel. They are also executed before any events in the block that are outside of the group list. In the above example, the sound will start playback when the picture is displayed.

Combining Parallel and Sequential Execution

The next step is to allow both sequential and parallel execution of events within the same script. This may be accomplished in a number of ways given the simple constructs that have been presented so far. The first, and most obvious way is to separate the parallel events from the sequential events using blocks:

```
!ScalaScript
{
    {
      Group:
        Picture("C:\Pictures\Photo1.jpg");
        Sample.Play("C:\Sounds\Sound1.mp3");
    }
    Picture("C:\Pictures\Photo2.jpg");
    Picture("C:\Pictures\Photo3.jpg");
}
```

In this case, Photo1 will play in parallel with Sound1. Once these have completed, Photo2 and Photo3 will display sequentially. Alternatively, the sequential pictures may be placed into the same block as the parallel events as long as they appear before the **Group:** directive.

```
!ScalaScript
{
    Picture("C:\Pictures\Photo2.jpg");
    Picture("C:\Pictures\Photo3.jpg");
  Group:
    Picture("C:\Pictures\Photo1.jpg");
    Sample.Play("C:\Sounds\Sound1.mp3");
}
```

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This script will have the same behavior as the preceding example, that is, the pictures will be shown in the same order. This is because the group list of a block executes first, before sequential events in that block.

To better highlight which events are sequential and which are parallel, the **Sequence:** directive is available. This directive is placed before events that are to be executed sequentially:

```
!ScalaScript
{
  Group:
    Picture("C:\Pictures\Photo1.jpg");
    Sample.Play("C:\Sounds\Sound1.mp3");
  Sequence:
    Picture("C:\Pictures\Photo2.jpg");
    Picture("C:\Pictures\Photo3.jpg");
}
```

Events following the **Sequence:** directive are known as the sequence list of the block. This list is played immediately following the execution of the group list, and the contents are played sequentially. By default an event is placed into its parent's sequence list. The first example relied on this fact, placing the three **Picture** commands into the sequence list. The example could just as well have read:

```
!ScalaScript
{
  Sequence:
    Picture("C:\Pictures\Photo1.jpg");
    Picture("C:\Pictures\Photo2.jpg");
    Picture("C:\Pictures\Photo3.jpg");
}
```

Simultaneous Execution

The preceding examples have been simplified to introduce the concepts of the group list and the sequence list. In reality, the behavior of these two list is more complex. Events in the group list are played before the events in the sequence list, but the events in the group list remain active until after the sequence list completes. This makes it possible to have a command execute while another command is in process. Take the following script, for example:

```
!ScalaScript
{
  Group:
    Picture("C:\Pictures\Photo1.jpg");
    Sample.Play("C:\Sounds\Sound1.mp3");
  Sequence:
    Pause(2);
    Text(10, 10, "Hello, World!");
}
```

In this example, Picture1 and Sound1 start at the same time. The sequence list is played while the picture is displaying and the sound is playing,. That is, after two seconds of playback a line of text will be displayed on the picture.

The group and sequence list behavior is even more complex than this example suggests, however, this should give the reader a good feel for page construction within a script. When scripts are built that contain multiple pages, each page will look much like the above block. All of the page blocks will be contained within the main block of the script.

Simple Page Sequence

This example shows how blocks might be used to define a number of pages:

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```
!ScalaScript
{
  Sequence:
    :"Page1"
    {
      Group:
        Picture("C:\Pictures\Photo1.jpg");
      Sequence:
        Text(120, 40, "This is a");
        Text(120, 60, "page with text");
    }
    :"Page2"
    {
      Group:
        Movie("C:\Movies\Anim1.mpg");
        Sample.Play("C:\Music\Song1.mp3");
      Sequence:
        Text(120, 350, "Hello, World!");
    }
}
```

This example also shows that blocks may be named by preceding them with a label, which is a string that is prefixed by a colon. If the string is an identifier (defined in the section on Lexical Rules), then the quotes around the string may be omitted.

Both commands and blocks may have labels. The label attaches to the first event following the label. Therefore, a label must precede some event.

There are certain places where labels may not be placed in a script. They may not be added to events in the group list of a block, and they may not be used on commands that define internal labels, such as style commands.

The above example contains two named pages: **Page1** and **Page2**.

Labels are used to give names to events, thus creating named events. A named event may be used as a target for the **Goto()** command, or as a subroutine calls via the **Use()** command.

Simple Chapter Sequence

Blocks can be nested any number of levels:

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```
!ScalaScript
{
    :"Chapter1"
    {
      Sequence:
        :"Page1"
        {
          Group:
            Picture("C:\Pictures\Photo1.jpg");
          Sequence:
            Text(120, 40, "Some text");
        }
        :"Page2"
        Picture("C:\Pictures\Photo2.jpg");
        :"Page3"
        Picture("C:\Pictures\Photo3.jpg");
    }
    :"Chapter2"
    {
        :"Page1"
        {
          Group:
            Picture("C:\Pictures\Photo4.jpg");
          Sequence:
            Text(120, 40, "Some text");
        }
    }
}
```

Note:
It may not be desirable to nest the script a great deal, even though it is possible. Nested blocks restrict the scope of the label names defined within the block. It is often useful to be able to jump directly to any page from any point in the script. This is not possible if the script uses chapter nesting as shown above.

How Things Happen in Parallel

Here we describe how the script engine interacts with the modules that actually handle most ScalaScript commands, to enable the desired parallelism.

Player Threads

The script engine progresses through a ScalaScript by using a single thread that invokes each command, following the rules for events, scoping, group lists, sequence lists, etc.

In a configuration with multiple frames, each frame has its own script, and each script has its own script engine thread. (Internally, the **AsyncScript()** command is used to achieve that.) Such a configuration has multiple ScalaScripts running at the same time, each with its own script engine thread and execution context.

Command Handling

Most ScalaScript commands, such as those that display pictures, draw text, play videos, play sound, handle serial input and output, etc., do their heavy lifting using their own threads. That means the script engine thread does not have to wait for a picture to be displayed before it can process the next command. This is how many things can happen in parallel, and how a ScalaScript can react rapidly to asynchronous signals while other things are occurring.

Asynchronous Signals

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It is also possible to cause script events to execute in response to asynchronous signals. That is, an event can execute out of sequence, and then playback will resume with the original sequence.

> **Warning:**
> Information below relies on concepts covered later in ScalaScript Language. The reader may wish to skip this section on first reading. Alternatively, try to grasp the concepts of the examples without worrying about the specifics of the implementation.

The simplest example of responding to asynchronous signals uses the **OnNotification()** command and a system-provided variable that changes value every second, called **Timing.Seconds**.

The **OnNotification()** command executes a branch whenever the value of a variable changes. Using this command, it is possible to execute a subroutine whenever our example variable, **Timing.Seconds**, changes value:

```
{
  Group:
    OnNotification(Timing.Seconds, Use(UpdateDisplay));
  Sequence:
    ...
  Resources:
    :UpdateDisplay Text(10, 10, "!Timing.Seconds");
}
```

Whenever the variable **Timing.Seconds** changes value, the **UpdateDisplay** text command is executed. It is important to recognize here that the execution of the command does not change the current execution sequence of the script. The script continues running as though nothing had happened, and there is no break in the playback of the sequence list of the block. However, at the same time the sequence list is executing, the update.display subroutine will also run. This playback of the subroutine is asynchronous to the normal flow of the program. That is, the normal playback of the sequence list is not paused or notified in any way. The subroutine just executes.

The **UpdateDisplay** action in the example executes out of sequence without disturbing the original sequence because of the way the **Use()** branch operates. If the branch had been a **Goto()**, then the script would behave differently. Using the **Goto()** branch will change the main execution flow to the target location. Thus, in the script:

```
{
  Group:
    OnNotification(Timing.Seconds, Goto(UpdateDisplay)); // NOTE: Goto().
  Sequence:
    ...
  Resources:
    :UpdateDisplay Text(10, 10, "!Timing.Seconds");
}
```

The main execution will transfer to the resource when **Timing.Seconds** changes. That is, the sequence list will be stopped and the execution will jump to **UpdateDisplay**.

OnNotification() can be used to react to environment variables that change asynchronously, including device notification variables. Other examples of asynchronous signals include button presses and hotkeys.

Lexical Rules

When parsing tokens from a ScalaScript file, the parser will gather the maximum possible number of characters to form the token., which mean the next token will not begin until the end of the previous token has been found. The only exception to this rule involves expressions that contain a minus sign immediately followed by a number:

```
x = x - 3;
```

If the longest possible tokens are taken, then 'x' and '-3' are found on the right-hand side of the assignment. However, this will actually parse to:

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```
x = ( x ) - ( 3 );
```

The end of the current token is usually identified by finding a character that is not allowed within the current token. In some cases (comments and strings), the current token will only end when a specific character sequence is found.

Comments

Comments are used when hand-authoring scripts. They allow the author to document their work. However, Scala Designer does not recognize comments, and they will be lost if a hand-authored script is saved from within Designer. Each comment is treated as a single token, where all characters inside of the comment are ignored.

Comments do not nest.

There are two types of comments in ScalaScript:

1. **Block comments**. Delimit a range of characters defined by a block comment introducer (/*) and a block comment terminator (*/). Any characters may appear inside of the comment, and all characters are ignored until the block comment terminator is found:

```
!ScalaScript
/* this is a block comment
*/ { /* this is a comment. It may appear anywhere within the file,
except on the first line. Everything within the block is ignored.
*/ } /* another block comment */
```

2. **Line Comments**. Are introduced by the line comment introducer (//). All characters up to the first end of line character (either carriage return or line-feed) are ignored:

```
!ScalaScript
 // this is a comment
{
Sequence: // this is a comment.
 my.command(1,2,Test(on)); // another comment.
}
// this is a comment.
```

Special Characters

The following characters are single-character tokens which always end the current token (they do not have to have intervening white space):

;	semicolon	Marks the end of commands (including assignments).
,	comma	Separates arguments in an argument list.
(	left parenthesis	Used in expressions to control precedence, and begins an argument list.
)	right parenthesis	Used in expressions to control precedence, and ends an argument list.
[	left square bracket	Starts an array argument list (index values).
]	right square bracket	Ends an array argument list.
{	left curly brace	Starts an event-block.
}	right curly brace	Ends an event-block.

The following characters terminate the current token and mark the start of a specific type of token:

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:	colon	Label introducer. These may also appear as part of the **Group:**, **Sequence:**, and **Resources:** primitives.
$	dollar sign	Hex number introducer.
%	percent sign	Binary number introducer.
"	double-quote	String introducer.

See also special characters within strings.

Numbers

Numbers can be integers or real numbers.

Integers

Integer numeric literals can be in decimal (base 10), hexadecimal (base 16) or binary (base 2) form.

Integer numbers are internally represented as 32-bit signed values. The decimal form supports a minus sign which is used to denote negative numbers. The hexadecimal and binary forms are in twos-complement form. Hexadecimal numbers are not case sensitive.

Decimal Numbers

Introduced by either a number (**0**-**9**) or a minus sign. The number will continue as long as characters in the range **0**-**9** are found.

```
4711
-123
09090911122344321
```

Hexadecimal Numbers

Introduced with the dollar sign (**$**) and continue as long as characters in the ranges **0**-**9**, **a**-**f** and **A**-**F** are found. Given that the value is represented as a 32-bit data type, a maximum of eight hex digits should be presented in any number. If the number contains less than eight digits, it is padded on the left with zeroes.

```
$7f
$Ac39dF
$0000FFFF
```

Binary Numbers

Introduced with the percent sign (**%**) and continue as long as characters in the range **0**-**1** are found. Given that the value is represented as a 32-bit data type, a maximum of 32 binary digits should be presented in any number. If the number contains less than 32 digits, it is padded on the left with zeroes.

```
%11010111
%10101010101010101010101010101010
```

Real Numbers

Real number literals are written in decimal form.

Introduced by either a numeric digit (**0**-**9**) or a minus sign. The number will continue as long as characters in the range **0**-**9** are found, and may contain a single decimal-point (**.**) character. If the portion ahead of the decimal is zero, and the number is not negative, the zero may be omitted.

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```
1.23
0.5
.5
-0.7
1234.567
```

Strings

String literals are always enclosed with double quotes (**"**). The string continues until the next un-escaped double quote is reached. ScalaScript imposes no limit to the length of a string. The string token generated will contain everything between the double quotes.

ScalaScripts are typically in Unicode UTF-8 format (and have a Byte Order Mark at the beginning), in which case string literals may contain any Unicode character. Legacy ScalaScripts that lack a byte-order-mark are treated as ANSI, in which case string literals may contain any ANSI character. The **^uNNNN** escape sequence works even in ANSI scripts.

The ScalaScript language uses the caret (**^**) as an "escape" character, to prefix control codes within a string:

^n	new line
^r	carriage return
^t	tab
^"	literal quote
^^	literal caret
^ at end of line	Continue string on next line
^xNN	Embed any ANSI Latin-1 character code NN (hexadecimal 00-FF)
^uNNNN	Embed any Unicode character code-point NNNN (hexadecimal 0000-FFFF)

By using the exclamation-mark (**!**), which is sometimes referred to as the **bang** character, a literal string may also contain embedded variables or expressions that are expanded, through bang expansion.

Labels

Consists of a colon followed by a string. If the string is a simple identifier (see below) then the quotes around the string are optional. However, if the quotes are omitted, then the label must be immediately followed by either white space, an opening brace ({) or a comment.

```
:"this is a long label with spaces!"
:page1
:page1.paragraph2
```

Identifiers

Used to denote command names, variable names and function names. Identifiers must start with one of the following characters:

```
A-Z, a-z, _ (underscore)
```

The remaining characters of the identifier can include any of the following:

```
A-Z, a-z, _ (underscore), 0-9, . (period)
```

Identifiers are not case-sensitive.

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Valid identifiers include:

```
_foo09
test.identifier
FourScoreAndSevenYearsAgo
The_Date_is_1997.02.03
```

White Space

Used to separate tokens that could not be distinguished without the intervening white space. That is, the tokens **EVENT** and **Group:** must have white space between them for the parser to recognize them as separate tokens:

```
!ScalaScript
EVENTGroup: // the parser would NOT recognize these as independent tokens.
...
END
```

The white space is used to identify the tokens and then discarded. All strings of white space are treated as a single token break during parsing. That is, any amount of white space may be inserted between tokens without changing the behavior of the script. White space is defined as the following characters:

Hex Value Character Description

0x20	space
0x09	tab
0x13	carriage return
0x10	line feed

The script:

```
!ScalaScript
{
  Group:
    integer ( x ) ;
  Sequence:
    x
    =
    x
    +
    1
    ;
}
```

is equivalent to:

```
!ScalaScript
{ Group:Integer(x);Sequence:x=x+1;}
```

Comments are treated as white space.

Primitives

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Control Primitives

These primitives are used to structure the script and control certain behaviors of events:

Disabled	Mark the following event as disabled.
End	Block terminator, equivalent to **}**.
Event	Block introducer, equivalent to **{**.
NoAuthor	Mark the following event as non-authorable.
Optional	Suppresses error messages if the EX module that processes the following optional command is unavailable.
External	Denotes that a variable is an external variable.

These tokens are also control primitives, however, note that they contain a trailing colon. This colon does not indicate the start of a label.

Group:	Place events that follow into the group list of the current block.
Sequence:	Place events that follow into the sequence list of the current block.
Resources:	Place events that follow into the resources list of the current block.

Parentheses, Separators and Terminators

These characters are used to break statements into their component parts:

( )	parentheses	Enclose argument lists for commands and functions. They are also used in expression grouping.
[ ]	square brackets	Enclose indices of array variables.
,	comma	Separate arguments in command, function and array argument lists. Array arguments are also known as indices.
;	semi-colon	Terminate commands (including assignments).
=	equals-sign	Separate the left and right-hand sides of an assignment statement. It is also used as the equality comparator.

Other Control Characters

These control characters are also used:

:	colon	Part of certain primitives (such as **Sequence :**), or are used to introduce labels.
{ }	curly braces	Enclose event blocks. The keyword **EVENT** i s equivalent to open-brace, and the keyword **END** is equivalent to the close-brace.

Boolean Literals

These values are valid Boolean literals:

True	Boolean true value.
False	Boolean false value.
On	Boolean true value.
Off	Boolean false value.

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True is equivalent to **On** and **False** is equivalent to **Off**. The two forms may be used interchangeably.

Operators

Assignment Operator

To assign a value to a variable, use the equals-sign to write:

```
variable = expression;
```

If **x** is an integer, **r** is a real, **s** is a string, and **b** is a boolean, then:

```
x = 3;     // Sets x to 3

x = 3/2;   // Sets x to 1 (truncates to fit in an integer)

x = 3.9;   // Sets x to 3 (truncates to fit in an integer)

r = 3.9;   // Sets r to 3.9

r = 3/2;   // Sets r to 1.5

r = 3.5/2; // Sets r to 1.75

b = True;  // Sets b to true
```

Note that the equals-sign (**=**) is used both for assignment and as the equal-to comparator.

There is no facility for multiple assignment (You cannot say **a = b = 5** to set both a and b to 5).

Integer Operators

Can be performed on integer expressions, constants, or variables:

Operator	Meaning	Example	Result
-	unary negation	-3	-3
+	addition	2 + 3	5
-	subtraction	5 - 3	2
*****	multiplication	2 * 3	6
/	division	12 / 3	4
MOD	modulus (remainder)	9 mod 4	-1
****	power	6 ** 2	36

Real Operators

Can be performed on real expressions, constants, or variables:

Operator	Meaning	Example	Result
-	unary negation	-3.5	-3.5
+	addition	2.1 + 3.2	5.3

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-	subtraction or negation	5.3 - 3.2	2.1
*****	multiplication	2.1 * 3.2	6.72
/	division	9.0 / 4	2.25

String Operators

Can be performed on string expressions, constants, or variables:

Operator	Meaning	Example	Result
+	**Concatenation**	"Hello" + "World"	"HelloWorld"

Strings also support embedding of expressions within the string through bang-expansion. This is discussed later in the section on Strings.

Boolean Operators

These operators can be performed on boolean expressions, constants, or variables:

Operator	Meaning	Example	Result
NOT	logical not	NOT False	True
AND	logical and	False AND True	False
OR	logical or	False OR True	True

Comparators

Comparators can be used to compare two values. The result of the comparison will either be **True** or **False**.

The two values being compared must be of compatible types. That is, you can compare a boolean to a boolean, a string to a string, an integer to an integer, or a real to a real. If you compare an integer to a real, the integer is treated as a real for purposes of the comparison.

Comparator	Meaning	Example	Result
<	less-than	2 < 7	True
<=	less-than or equal-to	2 <= 7	True
>	greater-than	2 > 7	False
>=	greater-than or equal-to	2 >= 7	False
=	equal-to	2 = 7	False
<>	not equal-to	2 <> 7	True

Remember that the equals-sign (**=**) is used both for assignment and as the equal-to comparator.

ScalaScript Syntax

The various commands and functions found on this page all follow a certain general syntactical style. However, certain commands, especially legacy ones, may have some minor variations.

Case

Scripts are case insensitive. That is, **WHILE()** is equivalent to **while()**.

```
/* these three lines are equivalent */
DISPLAY(STYLE(DISPLAY1));
Display(Style(Display1));
display(style(display1));
```

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Naturally, case generally matters in string constants. What you use is what will be displayed or used.

Byte Order Mark

Most ScalaScripts are saved in the Unicode UTF-8 format. The first character of the script is the Byte Order Mark, represented by the three-byte UTF-8 sequence **EF BB BF**, which looks like ï»¿ in most editors.If a ScalaScript does not have a Byte Order Mark, then it is interpreted as ANSI (8-bit text).

File Identifier

After any Byte Order Mark, the next 12 characters of a ScalaScript file must be **!ScalaScript**. This identifies the file to the Player as a valid ScalaScript file. This keyword must be before any comments, commands, white space or any other characters. It must be on the first line of the file.

Following **!ScalaScript** is an optional version number. For example, ScalaScripts saved by Scala 10.5 begin with:

```
!ScalaScript1050
...
```

Blocks

A number of events bracketed by the **{** and **}** (or **EVENT** and **END**) directives is known as a block. Blocks are used for grouping and execution control, and its contents are treated as a single event by the Player.

Execution of events within a block is controlled by dividing the block into three sections:

- **Group List:** Early execution, parallel playback and scoping.
- **Sequence List:** Sequential playback.
- **Resources List:** Sequential events that are normally not executed, but may be called when needed.

By default, events go into the sequence list. To place something into another section, that section must be explicitly named. The sections are named as follows:

```
{
  Group:
    /* Group stuff here */
  Sequence:
    /* Sequence stuff here */
  Resources:
    /* Resources stuff here */
}
```

The sections may appear in any order, but are executed in a very well-defined order. The group list is executed first, and all commands in the group list are executed in parallel. Once the commands in the group list are all active, the events in the sequence list are played back sequentially. Events in the resources list are only accessed if specifically referenced by another command. Once the sequence list has completed, commands in the group list are given a chance to clean up.

This order of execution is always maintained regardless of how the block is called. The block always starts with the group list, then executes the sequence list in order. This may lead to unexpected results if an attempt is made to jump from outside of a block into the middle of the block's sequence list. If an attempt is made to jump into the middle of a block's sequence list, the block will still execute from the beginning. The actual target command will be ignored.

The commands in the group list are actually playing the entire time the rest of the block is executing. That is, while execution is continuing in the sequence or resources list of the block, the group list commands are still active. They are activated when the block is entered and deactivated just before the block is left. This fact means that the group list also gives scope to commands. Specifically, commands in the group list have scope over the entire block. They remain active until the block is exited. Objects created in the group list will exist throughout the execution of the block's sequence list. Certain commands take advantage of this fact. For instance, the Player supplied variable commands are placed into the group list of a block. The variables declared will then be available anywhere within that block.

Blocks should not be placed within the group list of another block. If a block is placed into the group list of another block, then only the group list of the block contained will be played (the sequence list and resources lists are ignored).

Commands in the group list can be named by labelling them. Labels may only be used in the sequence list or the resources list of a block. This is

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because commands in the group list execute in parallel, and there is no meaning to jumping into the group list or only executing part of the group list.

The sequence list of a block contains commands that conceptually execute in order. The commands in the sequence list may be designed such that they continue to perform actions after their turn in the list. For example, a command that displays an animated icon may simply display the icon and start it moving. This action may continue while other commands played. That is, the command may be interpreted as a command to start the icon moving. Once the icon is running, the command is complete and execution can continue with the next command. The icon may depend on a second command executing or a change in the display to terminate its action.

The resources list of a block is identical to the sequence list, however, commands in the resources list are not executed by default. These commands may only be accessed by a jump or call to the resources list. Once control is passed into the resources list, execution continues until the end of the list (which terminates the block) or control is passed back to the sequence list. The execution of the block ends when either the end of the sequence or resources list is reached, or when a jump is made out of the block.

Block Execution Control

Execution of a block may be controlled through the following commands:

If()	Execute block if condition is **True**.
ElseIf()	Execute block if previous if-condition was **False**, but this condition is **True**.
Else()	Execute block if previous if-condition was **False**.
While()	Repeat block while condition is **True**.
Until()	Repeat block until condition becomes **True**.

These commands are used in the group list of the block and they control the execution of the entire block. For instance, the **If()** statement allows a block to execute only if the condition is **True**:

```
{
  Group:
    If (condition);
  Sequence:
    /* stuff to execute if condition is TRUE */
}
```

Blocks that use **If()**, **ElseIf()** and **Else()** must be contiguous to operate as expected. White space and comments between the blocks does not matter. For instance:

```
{
  Group:
    If (if-condition);
  Sequence:
    // execute if condition is TRUE.
}
{
  Group:
    ElseIf (elseif-condition);
  Sequence:
    // execute if if-condition was FALSE, but elseif-condition is TRUE.
}
{
  Group:
    Else ();
  Sequence:
    // execute if if-condition and elseif-condition are FALSE.
}
```

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The **While()** statement repeats the execution of the block while the condition is **True**.

```
{
  Group:
    While (while-condition);
  Sequence:
    /* stuff to execute while condition is TRUE */
}
```

The **Until()** statement repeats the execution of the block until the condition is **True**.

```
{
  Group:
    Until (condition);
  Sequence:
    /* stuff to execute until condition is TRUE */
}
```

The **While()** statement tests the condition before the block is executed, so the block may not even execute once. The **Until()** statement tests the condition after the block is executed, so the block is always executed at least once.

Execution order in a script may be controlled using the **Goto()**, **Use()**, **Jump()**, **Exit()**, **Quit()**, **Return()**, **Script()**, and **OnNotification()** commands . See the reference later in this document for more information on these commands.

Statements

A statement is either a command or an assignment:

```
Display(Style(display1));
Text( 10, 10, "Hello, world!");
While(x = 1);
greeting = "Hello world";
Integer(temptime, timeofday, timeoffset[20]);
temptime = timeofday + timeoffset[12];
Else();
```

Where a semicolon terminates each statement.

Assignments

Simple statement that assigns the result of an expression to a variable:

```
x=10;
Foo.ControlValue = LookupValue[123] / 32;
y = ( ( x + 1 ) ** 2 ) + ( 3 * sin ( angle ) );
```

The left-hand side of the assignment may be either a simple variable or an array. The right hand side consists of an expression, which may contain constants, variables, array references and functions.

Commands and Functions

Commands and functions are very similar, differing only in two respects:

- Functions return a value.
- Commands are complete statements, terminated by a semicolon. Functions are used in expressions.

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Commands have two parts: the command and the arguments. The command itself is a simple identifier. Prior to parsing the script, the various modules within the Scala system register to parse the arguments for those commands they are responsible for. When the Player encounters the command it passes control to the appropriate module, which reads the argument list and builds an object in memory. If no module has registered to parse a command, then an error will be displayed when the script is loaded.

Arguments to commands are enclosed in parentheses and multiple arguments are separated by commas. Arguments may include named options such as this **Text()** command which has a **Style()** and an **Outline()** option:

```
Text(0, 0, "Outline", Style(t2), Outline(on, Thickness(2), Pen(1)));
```

Options may be embedded within options as in Outline(). This may go arbitrarily deep. For instance, the Text() command shown has an Outline() option which has a Pen() option.

Commands with no arguments have an empty set of parentheses following the command identifier.

Expressions

May appear in two places:

- Right-hand side of an assignment statement
- Argument list of a command, function or array.

That is, the following are all valid:

```
x = x + 1;
test.command(y-3, x**2);
val = Sin(2 * theta);
next_channel_name = channels_array[channel + 1];
```

Variables and functions are often used in expressions:

```
foo = x - temp[100] + Random(1,10);
```

Expressions may also be used inside quoted strings using a special notation called bang-expansion. This uses the exclamation point character, which is also known as a "bang" character, to introduce an expression embedded within a string:

```
// substitute the variables x and y in the string, plus use an expression.
string_var = "X value is !x, Y value is !y, product is !(x * y)";
```

The expression is evaluated when the string is resolved, which is usually when it is displayed on the screen. Bang-expansion will be covered in detail in a later section on strings.

In ScalaScript, each expression has a data type. The data type of the expression must match its use. When assigning an expression to a variable, the result of the expression must match the data type of the variable. This also applies to command and function arguments and to array index values. If an expression of a different data type is to be used, then a conversion function must be called to convert it to the proper type. There are no automatic conversions in ScalaScript.

Expressions consist of constants, variables, array references and function calls separated by operators. Constants and variables should be self-explanatory. Array references take the form:

```
array-name[...]
```

Where the array arguments (index values) are inside of the square brackets. Function calls take the form:

```
function-name(...)
```

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Where the function arguments are inside of the parentheses. The arguments passed to functions and arrays may be quite complex, and may include expressions or optional parameters:

```
my.function(2*x+1, "string data", my.other.variable, option1(1,TestOff), option2(ON));
another.fn()
simple_fn( int_var )
my.array[ x, y ]
string_array[ hash_value, Extended(on) ]
```

The arguments passed to arrays usually do not include optional parameters, but they are supported by the ScalaScript language specification.

Parentheses are used to override default operator precedence.

```
int_1 = 1 + (3 ** 2);
bool_1 = (1 = 1) and not (3 > 7);
```

Named Parameters

ScalaScript uses the concept of named, or optional parameters to create self-identifying data in argument lists. A named parameter is an argument or set of arguments that are enclosed in parentheses and given a name, much like a function name:

```
Test.Command(X, Y, Color(10, 100, 17));
```

Here, the command **Test.Command()'** has three parameters. It has two required parameters **X** and **Y**, and a named parameter **Color(),** which itself contains three parameters.

The advantages of using named parameters include:

- Command arguments can be optional. The caller specifies only the arguments they are interested in and lets the command use default values for the rest.
- The script becomes more readable, as values are preceded by a explanatory name.
- Using named parameters ensures script compatibility between different software versions. New optional arguments can be added without changing the existing syntax.

To see how named parameters work, consider a command to play back a sound. In its simplest form, this command will have a single argument: the name of the file to play.

```
Sample.Play("C:\Sounds\Toccata.mp3");
```

Additionally, one might add arguments to set the sound's volume, panning, pitch, fade-in time, fade-out time and so on.

```
Sample.Play("C:\Sounds\Toccata.mp3", Volume(24), Pan(-5), FadeOut(10));
```

In these examples, the first argument (the file name) is fixed. After all the fixed position arguments comes a list of optional (named) arguments, which may be empty (as in the first example, above). New options may be added to the command at any time without changing existing usage. For instance, a **Reverb()** parameter could be added in a future version of the **Sample.Play()** command:

```
Sample.Play("C:\Sounds\Toccata.mp3", Reverb(10));
```

The new version of the Sound module will still play the old scripts, they simply will not use the new features.

It is possible to have more than one value per named parameter, for example:

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```
Clip(120, 400, "C:\Graphics\Logo.png", Resize(48, 54));
```

It is even possible to have parameters that contain other named parameters:

```
Clip(120, 400, "C:\Graphics\Logo.png", Bevel(on,Size(4)));
```

Directives

There are a number of directives that apply to commands and events.

Disabled

Events may be disabled by placing the directive **Disabled** in front of them. A disabled event does not play when the script is executed. This directive follows any label, but precedes the command or block.

```
Disabled my_command(1, Foo(on)); // disabled command.
:my_label Disabled cmd(); // disabled command with label.
:my_event Disabled { ... } // disabled block with label.
```

Optional

Commands may be marked as optional by putting the directive **Optional** in front of them. This directive follows any label, but precedes the command.

```
optional my_command(1, Foo(on)); // this command not required.
```

An optional command is one that is not required for the execution of the script. If the module that handles the command is available, then the command should be normally processed. If the module is unavailable, then any errors will be quietly suppressed and the script playback will proceed without the command.

If a command is not marked as optional and the module is unavailable, then Designer will present an error message to the user, and Player will log an error into its log file.

The **Optional** directive also comes after any label.

NoAuthor

The **NoAuthor** directive prevents Scala Designer from attempting to interpret the event. This is usually used on hand-authored scripts that Designer wouldn't understand, allowing such hand-authored scripts to be loaded into Designer for editing.

```
NoAuthor my_command(1, Foo(on));
```

Events marked **NoAuthor** will be unchanged by the authoring process. The **NoAuthor** directive also comes after any label.

Scripts

A script consists of a single block contained in a file. A script might be:

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```
{
    /* commands and stuff here. */
}
```

The outside block of a script is known as the main block of the script. All scripts must have a main block, and all statements in the script must appear inside of the main block.

All scripts must begin with the text !ScalaScript file identifier. The minimal script is:

```
!ScalaScript
// This is the minimal ScalaScript script. Note that nothing is allowed
// to appear before the !ScalaScript file identifier (no comments, blank lines,
// etc. This script doesn't do anything.
{
}
```

Only comments, white space and the file identifier may appear outside of the main block of a script.

The If() Parameter

Can be added to many commands to make the command conditional on an expression. For example, a text element might be:

```
Text(20, 20, "Always shown");
```

By adding an **If()** parameter, you can make the element's presence conditional.

```
Text(20, 20, "Shown sometimes", If(mycondition));
```

See also the **If()** command.

Event Names

Labels are used to name events:

```
:cmd_label command(); // command with label.
:my_event event...end // block with label.
```

Named events allow references to be made to specific commands or blocks. They are primarily used for execution control, but can also be used for element transitions. That is, the script may **Goto()** an event with a name rather than calculating the offset of the target event. This makes the target event position independent.

Labels attach to the first block or command after the label. They that do not have a following block or command are ignored (for instance, labels immediately before an end-block **}**, or where there are two sequential label(s).

Here are some examples of labels:

```
:"test event name" { // a block with the name "test event name"
  Sequence:
    :bar Text(10, 20, "hello"); // a command with the name "bar"
}
```

Labels cannot be used to jump into the group list of a block, as it is meaningless to do that. However, labels on dumped elements in a group list can be used by out transitions to refer to specific elements.

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Name Collisions

Labels, variable names and style names all occupy the same name space, even though they are defined using different formats. Labels, as previously mentioned, use a leading colon:

```
 :TestLabel
{ // this event (a block) will take the name "TestLabel"
...
}
```

Variables contain the event name inside the command:

```
Integer(my_var);
```

This creates an object (an integer variable) named *my_var*. A single command may be used to declare multiple variables:

```
Integer(x, y, z);
```

This creates objects (integer variables) named *x*, *y* and *z*.

Styles, such as those implemented by the **Text()** command, are similar to variable definitions in that they contain the event name within the command. However, they may only contain a single event name. They also contain additional information that defines the behavior of the style:

```
TextStyle(my_style, Font("helvetica 20"), Face(on, Pen(7)));
```

Here, a text style object named *my_style* is defined with a specific set of attributes (font and color).

Typically, the event name will be a fixed parameter if the name is required by the command. That is, variables and styles must be named. If they are not named, then they cannot be accessed later. The script writer should understand that all of these names occupy the same name space; and that care should be exercised to avoid reusing names, even in seemingly unrelated areas.

Scope

The scope of a name is the part of the script where the name is visible. An event name is visible to all events that are inside of the block in which that name is defined. If a reference to a name is made outside of its scope, the name will not be found.

The event's scope includes all events within the immediate parent block of the named event, and, if any of these events are blocks, then all events inside of these blocks. It continues recursively to include all events that are contained within any block that is contained within the immediate parent block of the named event. This includes the group, sequence and resources list of all of these blocks.

When the Player must search for an event name to resolve a reference, it searches the parent block of the event that has the reference. The block is searched from the beginning to the end, and the first name that matches is the one that is used. If a match is not found in the block, then the Player searches the parent of that block from beginning to end. This continues until the Player has searched all containing blocks, including the main block of the script. If the event name is still not resolved, then the environment will be searched.

Different types of name references will search in different areas of the script. For instance, it does not make sense to jump into the group list of a block, so commands like **Use()** or**Goto()** will not look in the group list. Variables, on the other hand, must be defined in the group list of a block as they rely on the group scoping. Thus, variables will be resolved by searching the group lists of the containing blocks.

When the Player is searching blocks to resolve names, it always searches the group list first, followed by the sequence list and, finally, the resources list. Again, certain commands do not search the entire block. For instance, the **Goto()** command does not search the group list. ScalaScript allows names to be reused in the same scope. That is, a name may be used even though it has already been defined within that scope:

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```
{
  Group:
    Integer(SourceID); // definition #1
  Sequence:
    SourceID = 321; // set SourceID #1 to 321
    {
      Group:
        Integer(SourceID); // definition #2, hides SourceID #1
      Sequence:
        SourceID = 10; // set SourceID #2 to 10
    }
    SourceID = 999; // #2 is out of scope, set SourceID #1 to 999
}
```

Here, the local variable hides the more global variable until the local variable goes out of scope. Once the local variable is no longer in scope, the more global variable is again visible. Even environment variables may be hidden in this manner.

Binding

There are two possible methods of binding to a name in a script given a reference to that name:

1. **Static binding:** Name is found when the script is loaded. The connection does not change during the playback of the script. It is fast compared to dynamic binding. There is no searching for the target name at run time. However, the referenced position will always remain the same regardless of the execution of the script.
2. **Dynamic binding:** Name is found each time the command is executed. Every time the name is needed, the Player must search the script for the name. It is more flexible, but is slower and often not necessary. IT only matters where the same name is defined in multiple places within a script.

Currently, only bang-expansion within strings supports dynamic binding of names. Suppose a string is created that references a variable:

```
{
  Group:
    Integer(x); x = 3;
    String(str); str = "x is !x";
  ...
```

And then, within that script there are two different uses of that string:

```
...
{
  Group:
    Integer(x);
    x = 9123;
  Sequence:
    Text(10, 20, str);
}
...
{
    Text(10, 20, str);
}
...
```

If strings used static binding, then the string would bind the value of x to 3 when the script is parsed. If this were true, then when if the script were run, it would print "x is 3" twice. However, strings use dynamic binding to resolve internal variable references, so each use of the string (once in each of the **Text()** commands) will bind when it is encountered. Thus, the script will print "x is 9123" and "x is 3".

The location of the '*Use()* command in the script does not change the binding of names in that the called subroutine. This is best shown through

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examples:

```
{
  Group:
    Integer(x);
    x = 100;
  Sequence:
    Use(foo);
    {
      Group:
        Integer(x);
        x = 123;
      Sequence:
        Use(foo);
    }
  Resources:
    :foo Text("x is !x");
}
```

This script will print "x is 100" twice. The resolution of the name "x" does not happen from where the subroutine is used, it happens from where the subroutine is defined in the script. Therefore, the name "x" referenced in the resources list will be found at the outer level regardless of whether static or dynamic binding is used. This script shows the same effect:

```
{
  Sequence:
    {
      Sequence:
  Use(foo);
      Resources:
  :bar Text("inner level");
    }
  Resources:
    :foo Goto(bar);
    :bar Text("outer level");
}
```

This script will print "outer level". Again, this is because the **Goto()** is resolved from its actual location in the script and not where it is used. This has nothing to do with static vs. dynamic binding, but is determined solely by the way events in the resources list are handled.

ScalaScript Variables

A **variable** is a named object that can store a value that can be changed or used elsewhere within a script. There are several types of variables, which are discussed in greater detail later on in this discussion. Using the variable-type **Integer** as an example, here is how you can declare a variable called **age**:

```
Integer(age);
```

Most variables and arrays must be declared, although there are built-in variables (often added by EX modules) that are available without declaration. Variables that do not need to be declared are always global in scope. They are known as built-in, global or environment variables.

Global variables do not have to be declared or created by the script. However, variables that are created within the script must be declared before use. Variables that must be declared in the script are known as local variables.

There are several types of variables.

Variable Declaration Forms

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Declaring One Variable

To declare a single variable, you would write:

```
{
  Group:
    Integer(myvariable);
```

Declaring Several Variables

To declare several variables of the same type, you would write:

```
{
  Group:
    Integer(myvariable, another_variable);
```

Declaring Array Variables

You can make a single-dimensional array using square brackets:

```
{
  Group:
    Integer(myarray[10]);
```

External Variable Declarations

If a variable **foo** is created by script A, which calls script B as a subscript, script B can see and use the variable **foo** too. But if you load script B into Designer, it won't know that **foo** is a variable, nor what type it is. To handle this, use the **External** keyword:

```
{
  Group:
    External Integer(foo);
```

This lets Designer recognize **foo** when it is isolated in script B. At runtime, if **foo** already exists because of script A, then script B will attach to the same **foo**. (If you omit **External**, then script B gets its own private variable **foo**, and script A's copy remains untouchable by B.)

Initializers in Variable Declarations

A variable can be given an initial value, called an **initializer**, by enclosing that value in parentheses:

```
{
  Group:
    Integer(myvariable(7)); // An initializer, not an array-size!
```

An initializer is similar to an assignment such as **myvariable=7**, and is evaluated at run-time. An initializer that is a constant can supply its value even when the script is not being run. For example, such initializers establish the value of variables for purposes of generating or displaying thumbnails, for the purposes of enumerating files during publish, etc. They have specific value for publishing files, for templates, and certain other scenarios.

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Template Variables

A ScalaScript template has data fields. Within the ScalaScript, these are represented by variables that are both **External** and that have an initializer, for example:

```
{
  Group:
    Template Integer(DaytimeTemperature(72));
```

Variable Types

Boolean

Boolean variables are used to represent logical values. They may be assigned the result of a logical expression, or may be set to any of the Boolean constants (**True**, **False**, **On** or**Off**).

The **Boolean()** command is used to declare one or more Boolean variables (true/false values), or to declare arrays of booleans. This command must be used in the group list of a block. The scope of the variables is over the block in which they were declared.

```
{
  Group:
    Boolean(var_1, arr[3]);
  Sequence:
    ...
```

The boolean constants are **True** and **False**. (You may also use **On** and **Off**)

Integer

Integer variables are 32-bit, signed whole numbers.

The **Integer()** command is used to declare one or more integer variables (whole numbers), or to declare arrays of integers. This command must be used in the group list of a block. The scope of the variables is over the block in which they were declared.

```
{
  Group:
    Integer(x, y, z);
    Integer(test[100]);
    ...
```

Real

Real variables are numbers that can include decimal points.

The **Real()** command is used to declare one or more real variables (non-integers, such as **1.23**) or arrays. This command must be used in the group list of a block. The scope of the variables is over the block in which they were declared.

```
{
  Group:
    Real(x, y, z);
    Real(test[100]);
    ...
```

String

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String variables contain arbitrary Unicode text.

The **String()** command is used to declare one or more text variables orarrays. String variables adjust dynamically to the length of the string it contains. There is no need to declare the length of the string. This command must be used in the group list of a block. The scope of the variables is over the block in which they were declared.

```
{
  Group:
    String(x);
    String(my_array[100], normal.var.string);
    ...
```

FileNameString

The **FileNameString** type behaves like a regular **String**.

However, if you use an initializer, then when publishing a ScalaScript, the file that is referenced will be published too, and can be referenced by that variable.

```
{
  Group:
    FileNameString(mypicture("C:\Photos\MyFace.png"));
  ...
  Clip(10, 20, mypicture, ...);
```

ScriptNameString

The **ScriptNameString** type is like **FileNameString**, but if you use an initializer, then when you publish a ScalaScript the file that is referenced will be published too, as a subscript.

ResourceNameString

The **ResourceNameString** behaves like a regular **String**, but for a ScalaScript template it denotes a page within this script that would be replaced by a playlist within Content Manager.

Object

Object variables contain references to certain script objects.

When you create an element such as **Text()**, **Clip()**, etc., you can remember a reference to that element, which you can later use in a **WipeOut()** command.

```
OBJECT myhandle;

Text(20, 20, "Remember me", Handle(myhandle)); // Stores a reference to this text
element in myhandle
...
WipeOut(myhandle, Wipe("Cut"));
```

Scope of Variables

Environment Variables

Added to the playback environment when EX modules are opened. They are available to the script through the entire execution of the script.

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There is a minor exception to this rule, that EX supplied environment variables are not available in the configuration scripts of other EX modules. They are available in their own configuration script, allowing the EX to be controlled by setting values in the configuration script.

Local Variables

Declaration

They must be declared before they are used, and must always be declared in the group list of a block. The scope of the variable is everything inside the block in which the variable is declared. This is the same as the named event scope, and includes every command in the block and every command contained within every block within the block.

```
{
  Group:
    Boolean(bool_1, bool_2, bool_3);
    Integer(int_1, int_2, int_3);
    String(str_1, str_2, str_3);
  Sequence:
    /* use the variables here, or in the resources list. */
}
```

Local variables may be initialized in the group list:

```
{
  Group:
    String(str_1); // declare str1
    str_1 = "initial value"; // initialize str1
  Sequence:
    /* str1 will have the value "initial value" when the sequence executes. */
}
```

Scope

Local variable objects use group scoping. This means that the variable becomes active when the group list is played, and are deactivated when the block is exited (after the sequence list completes).

Variable Notification

Variables declared in the script, as well as most of the variables supplied by the script engine and other modules support the concept of notification. This is a procedure where a variable can tell another object that its value has changed. The object may then update its display or internal state based on the new value of the variable.

For instance, the **Text()** command supports notification on variables that are referenced within strings using bang-expansion. This means that a string may displayed with variable references that will update as the values in the variables change:

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```
{
  Group:
    Integer(X);
  Sequence:
    X = 0;
    Text(10, 10, "x is !X");
    {
      Group:
        While (X < 100);
      Sequence:
        Pause(1);
        X = X + 1;
    }
}
```

Here, the variable *X* follows the block scope rules, while the text object does not. Text objects are a part of the Element class of the Screen book and these object follow a different set of scope rules. The Text object will remain active until the next **Display()** command is executed (this script assumes that a **Display()** command has already been executed.) See the General Visual Manipulation of Elements section for more information.

So, what does this script do? It displays "x is 0". Then after one second the value of *X* on screen changes to 1, then to 2, and so on. This is because the variable is notifying the text object that its value has changed. The text object then updates its display to show the new value.

Other types of objects can implement notification in their own way, notification doesn't have to involve the updating of the screen. For instance, a Television tuner might change the channel when the value of the channel variable changes.

If a script must execute an action when the value of a variable changes, it may choose to use the **OnNotification()** command to call the action, and that command will take the specified branch when the value of the variable changes:

```
{
  Group:
    OnNotification(my_var, Use(foo));
...
```

OnNotification() follows group scope rules, that is, the command is placed into the group list of a block. It is then active throughout the execution of that block. It is capable of taking any branch action, including **Use()** and **Goto()**.

The use of **OnNotification()** in this example cause the resource foo to be executed asynchronously every time the variable changes. If the asynchronous behavior is not desired, then a **Goto()** may be used in place of the **Use()** branch. It should be remembered that the **OnNotification()** will remain active if the **Goto()** does not exit the block.

String Features

Bang Expansion

Strings may also contain variables or expressions that are expanded when the string is used. The variables or expressions are introduced with the bang (**!**) operator:

```
Text(10, 10, "X is !x, Y is !y, array index 10 is !(array[10])");
```

The bang operator actually introduces a full expression. Parentheses must enclose the expression if it is anything other than a simple variable:

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```
!my_var
!(my_var)
!(a + 1)
!(my_array[10])
!(my_function(a, b, 10))
```

Variable references in bang-expansion expressions are always determined dynamically, at the point where the string is used.

Live Expressions in Text

If an expression or bang-expansion is used in a string displayed by the **Text()** command, then notification is set up for all the variables within that expression or bang-expansion. Changes to the variables while the Text element is displayed will cause the on-screen text to update, subject to the **Update()** option of the **Text()** command.

Consider the following example:

```
String(a, b);

Sequence:
  a = "Hello";
  b = " World!";

  Text(20, 20, "!a!b");
  HardDuration(1000); // Waits for one second
  a = "Goodbye";
```

The text will show "**Hello World!**", and one second later it would automatically update to read "**Goodbye World!**". The text will also update if an expression is used:

```
String(a, b);

Sequence:
  a = "Hello";
  b = " World!";

  Text(20, 20, a + b);
  HardDuration(1000); // Waits for one second
  a = "Goodbye";
```

If it is desired that the text not update, you can use an intermediate variable:

```
   String(a, b);

Sequence:
  a = "Hello";
  b = " World!";

  c= a + b;
  Text(20, 20, c);
  HardDuration(1000); // Waits for one second
  a = "Goodbye";
```

In the above example, the text would remain as "**Hello World!**" even after **a** was changed, because the value of **c** was already established, and it

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does not update when **a** changes.

The **Update(None)** tells the text element not to update, so it would also leave the text as "**Hello World!**" after the value of **a** had changed:

```
String(a, b);

Sequence:
  a = "Hello";
  b = " World!";

  Text(20, 20, "!a!b", Update(None));
  HardDuration(1000); // Waits for one second
  a = "Goodbye";
```

Format Strings

To control how numbers are formatted, see the **Format()** function.

Core ScalaScript Commands

The ScalaScript player engine supplies a range of core commands to handle script flow, conditions, and other "programming language" level tasks. Also, there is a wide range of extension commands for media, timing, and other additions beyond the core language.

The complete set of commands is listed in the ScalaScript commands index.

The core commands are outlined below.

Core Commands

Conditionals

Function Name	Text	Explanation	[Syntax Doc Link]

If(Boolean-expr)	`{`
	`  Group:`
	`  If (condition);`
	`  ...`
	`}`
		Causes the block to execute conditionally if Boolean-expr evaluates to **True**. Must be used in the group list of a block.	[If Command syntax]
			See also the **If()** parameter.

Else()	`{`
	`  Group:`
	`  If (condition);`
	`  ...`
	`}`
	`{`
	`  Group:`
	`  Else();`
	`  ...`
	`}`
		Causes the block to execute conditionally if the preceding **If()/ ElseIf()** returned **False**. Must be used in the group list of a block.	[Else Command syntax]

ElseIf(Boolean-expr)	`{`
	`  Group:`
	`  if (condition);`
	`  ...`
	`}`
	`{`
	`  Group:`
	
	`ElseIf(other_condition);`
	`  ...`
	`}`
		Causes the block to execute conditionally if the preceding **If()/ ElseIf()** returned **False** and if Boolean-expr evaluates to **True**. Must be used in the group list of a block.	[ElseIf Command syntax]

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Looping

Function Name	Text	Explanation	[Syntax Doc Link]

While(Boolean-expr)	`{`
	`  Group:`
	`  If (condition);`
	`  ...`
	`}`
	`{`
	`  Group:`
	`  Else();`
	`  Sequence:`
	`  ...`
	`}`
		Causes repetitive execution of the current block while Boolean-expr evaluates to **True.** The condition is evaluated and tested before the block runs, so the block may not execute at all. Must be used in the group list of a block.	[While Command syntax]

Until(Boolean-expr)	`{`
	`  Group:`
	`  Until (condition);`
	`  ...`
	`}`
		Causes repetitive execution of the current block until Boolean-expr evaluates to **True**. The condition is evaluated and tested after the block runs, so the block will always execute at least once. Must be used in the group list of a block.	[Until Command syntax]

Branching

Function Name	Text	Explanation	[Syntax Doc Link]

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Goto(eventname, bookmark(Boolean-expr))	`Goto(name);`
	`...`
	`:name echo("this is a test^n");`
	`/* execution continues here */`
		The named event must be in the sequence or resources list of a block, and the name must be in scope.
		
		By default, it does not push a return address for the **Return()** command. However, a return address may be set by using the **Bookmark(True)** option. This allows for scripts like this:
		
		`Goto(foo, Bookmark(True));`
		`...`
		`:foo`
		`// do stuff here.`
		`Return;`
		
		If the goto action causes the execution to leave the current block, then the current block will clean up before execution resumes. This means that the commands in the group list will be deactivated and the block will exit, continuing for each block exited until the block containing the named event is reached. At that point, execution will continue at the named event.
		
		If the **Goto()** pushes a bookmark and then exits a block (or a number of blocks), then control will not be able to return to the exact position of the **Goto()** when the **Return()** command is executed. This is because exited blocks always execute from the start when they entered. The return action will jump to the start of the outermost block that was exited between the execution of the **Goto()** and the **Return()**.
			[Goto Command syntax]

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GotoExpr()		Like a **Goto()**, but its argument is treated as a string-expression, the result of which is used to find the destination event. For example:
		`Integer(n);`
		`...`
		`n = 5;`
		`...`
		`// Will go to a page called "Page5"`
		`GotoExpr("Page" + Format("#", n));`
			[GotoExpr Command syntax]

Jump(integer-expr)		Used to jump a number of events. The direction may be either forward or backward, with positive numbers indicating a forward jump.
		`Jump(2);`
		`Jump(-5);`
		Jump(1) does not skip any events, it just jumps to the next event. **Jump(2)** skips one event. Blocks encountered are considered a single event.
		`Jump(3);`
		`sample_command(); // first event skipped`
		`{ // second event skipped, events within the block are ignored.`
		`...`
		`}`
		`another_command(); // jump to here (third event).`
			[Jump Command syntax]

JumpPage()			[JumpPage Command syntax]

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Use(eventname)	`Use(name);`
	`  /* execution continues here */`
	`  ...`
	`  :name echo("this is a test^n");`
	`Sequence:`
	`  Use(res);`
	`  /* execution continues here */`
	`  ...`
	`Resources:`
	`  :res`
	`  {`
	`  /* do everything in this event, then return */`
	`  echo("this is a test^n");`
	`  }`
		Executes the named event, then returns when the event completes.
		
		The named event may be a block, in which case the entire block will be executed. If the named event is not a block, then only the single event will be executed as a subroutine. Often, events referenced by a **Use()** command are kept in the resources list, but this is not required. They may also be in the sequence list.
			[Use Command syntax]

UseExpr()		Is like a **Use()**, but its argument is treated as a string-expression, the result of which is used to find the destination event. For example:
		
		`Integer(n);`
		`...`
		`n = 5;`
		`...`
		`// Will Use a page called "Resource5"`
		`UseExpr("Resource" + Format("#", n));`
			[UseExpr Command syntax]

Return()	`Return();`	Will cause the execution of the current script to return to the position following the last executed **Goto()** that pushed a bookmark. This command only returns to gotos that include the option **Bookmark(True)**. If the return attempts at any point to enter a block that has previously been exited, then execution will resume at the start of that block. This means that the **Return()** command can never cause execution to be transferred to the middle of an exited block.	[Return Command syntax]
Quit(integer-expr)	`Quit(1);` `Quit(5);`	Will exit one or more scripts and return to the caller. If a script calls another script with the **Script()** command, and that script calls a third, then the third script may return to the first by executing the command **Quit(2)**.	[Quit Command syntax]
Exit(integer-expr)			[Exit Command syntax]

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Used to exit from the current block. If the block exited is the main block of the script then the script will exit, returning control to the calling script. If the current script is the top-level script, then the Player terminates.

It takes an argument that indicates the number of blocks (levels of nesting) to exit:

```
Exit(1);
Exit(5);
```

It may be used to return from a subroutine called by the **Use()** co mmand:

```
Use("myresour
ce")
...
  Resources:

:"myresource"
    {
        /*
return from
the resource
before the
end. */

Exit(1);
    }

...
echo("this is
a test^n");
}
```

The subroutine will return when it reaches the end of the event, so the **Exit()** command is only needed when control must return before reaching the end of a block. The parameter to the **Exit( )** command indicates the number of blocks that are to be exited. For instance, if it is embedded within a conditional block, then it must be called to fully exit the subroutine:

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		:res event
		...
		{
		  Group:
		  If (exit.condition);
		  Sequence:
		  // return from the resource before the end.
		  Exit(2);
		}
		...	

Notification

Function Name	Text	Explanation	[Syntax Doc Link]

OnNotification(variable, branch)	`OnNotification(variable, Goto(foo));`
	`OnNotification(my_var, Use(foo));`
		Used to set-up notification on a specific variable. When the variable changes value, a specified action is taken. The notification remains in effect until the variable or the **OnNotification()** command go out of scope.
		
		It follows group scoping. That is, it is placed into the group list of a block and remains active until that block is exited.
		
		{
		  Group:
		
		OnNotification(x, Goto(foo))
		  Sequence:
		  // the OnNotification command is active throughout this entire block
		  // (both the sequence and the resources list).
		}
			[OnNotification Command syntax]

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		It accepts **Use()**, **Goto()**, **UseExpr()**, **GotoExpr()**, **JumpPage()**, **Return()** and **Quit()** for the branch action. These take the following actions when the variable changes, if the branch specified is a: • **Goto()**, then the action will interrupt the player thread, and it will exit its current context so that it can jump to the specified destination location in the script. Bookmarks may not be set in a **Goto()** within an **OnNotification()** command. • **Use()** command, then the action will interrupt the player thread, and it will detour to the specified destination location in the script, returning to the original context when the destination work is complete. • **Return()**, then the action will break the current playback thread and return to the last pushed bookmark. • **Quit()**, then the action will break the current playback thread and exit the current script.	

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Notification()		Used to turn variable-notification on and off. To disable notification for a specific variable **myvar**, use:
		`Notification( Disable, Specific(myvar));`
		To re-enable notification, use:
		`Notification( Enable, Specific(myvar));`
		If the value of **myvar** changed while notification was disabled, no notification will occur. To defer notification until a subsequent **Enable**, use this instead of **Disable**:
		`Notification( Defer, Specific(myvar));`
		If you omit a specific variable, notification for all variables is affected, for example:
		`Notification( Defer);`
			[Notification Command syntax]

Subscripts

Function Name	Text	Explanation	[Syntax Doc Link]
Script(scriptname),	`Script("C:\scala\scripts\test.scr");` `/* execution continues here when test.scr is done. */`	Used to load another file and then return when it is done.	[Script Command syntax]

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KeepPlaying(Boolean-expr)	`Script(filename, KeepPlaying(Boolean)); /* execution continues here when test.scr is done. This will only happen * if the script exits (such as through a Quit() command.) */`	Allows the called script to loop (if the argument is **True**).	[Script Command syntax]
AsyncScript()		Launches an asynchronous Player thread to play another script independent of the calling script. The calling script will continue as soon as the async script is launched. Unless it ends on its own, the async script will continue running until either the player is reset, or the calling script ends. The async script will not have access to the calling script's variables. Any variables to be passed must be explicitly specified on the command.	[AsyncScript Command syntax]

Sequencing

Function Name	[Syntax Doc Link]
Pick.Sequential()	[Pick Command syntax]
Pick.Shuffle()	[Pick Command syntax]

Other

UsesFiles(ViaExpression(filename,...), Scripts(filename,...))

Has the following syntax.

```
UsesFiles(ViaExpression(filename, filename, ...)
    Scripts(filename, filename, ...));
```

This specifies files and other scripts that are used by this script. This information is used by the authoring system to package the script and its support files for publishing.

It is mostly obsolete. To include a file when publishing, and to refer to it later, declare a **FileNameString** with an initializer:

```
FileNameString(myincludedfile("C:\Files\MyClip.jpg"));
...
Clip(20, 40, myincludedfile, ...);
```

Likewise, to include a subscript when publishing, and to refer to it later, declare a **ScriptNameString** with an initializer:

```
ScriptNameString(myincludedscript("C:\Files\MySubscript.sca"));
...
Script(myincludedscript);
```

[UsesFiles Command syntax]

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EX(ex-name)

Used to load EX modules. Loading an EX module makes the commands, variables and functions of that EX available to the executing script. This statement is usually used in configuration files to load EX modules for the script.

```
{
  Group:
    EX("button.ex");
    EX("example.ex");
    EX("console.ex");
    EX("debug.ex");
    EX("screen.ex");
    EX("timing.ex");
    EX("touch.ex");
}
```

[EX Command syntax]

EX.Reset()

Restores each module's settings to the default.

[EX.Reset Command syntax]

Core ScalaScript Functions

Functions and Variables in ScalaScript

The ScalaScript player engine supplies a number of useful core functions, and a wide range of extension functions for media, timing, and other additions beyond the core language.

The complete set of functions is given in the [ScalaScript functions index].

The core functions are outlined below.

Conditional Functions

Conditional()

```
anytype Conditional(Boolean Expr, anytype OnTrue, anytype On False)
```

This function does not show up in the Branch menu list of functions. The function is similar to the C/C++ language construct "?:":

```
Conditional(Expr, OnTrue, OnFalse)
```

It evaluates the boolean expression *Expr*. If *Expr* evaluates to **True**, then **Conditional()** evaluates and returns the expression *OnTrue*. If *Expr* eval uates to **False**, then the expression *OnFalse* is evaluated and returned. This is very useful for constructs like:

```
page = page + Conditional(line > 20, 1, 0);
str = word + Conditional(number > 1, "'s", "");
```

Without this function, many simple operations require setting up complex conditional pages. It is unusual in that any type of variable or expression may be used, and the return type matches the type of the expressions used. However, the function return, *OnTrue*, and *OnFalse* must all be of the same type.

[Conditional Function syntax]

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Casting Functions

Function Name	Text	Explanation	[Syntax Doc Link]
Value()	`Integer Value(String S)`	Interprets the text in string *S* as a number and converts it to an integer. Returns 0 if *S* does not start with a number (leading white space is ignored). Recognizes decimal numbers (default), hexadecimal (prefixed with a '$'), and binary (prefixed with a '%').	[Value Function syntax]

String Functions

Function Name	Text	Explanation	[Syntax Doc Link]
Left()	`String Left(String S, Integer N)`	Return the *N* first characters of *S* . If **Length(S) <= N**, return *S*.	[Left Function syntax]
Right()	`String Right(String S, Integer N)`	Return the *N* last characters of *S* . If **Length(S) <= N**, return *S*.	[Right Function syntax]
Substring()	`String Substring(String S, Integer P, Integer N)`	Return substring of *S*, starting at position *P*, containing *N* characte rs. *P* should be in the range **[1... Length(S)]**. If **N > 1+Length(S)-P**, return as many characters as possible. If **P > Length(S)**, return an empty string.	[Substring Function syntax]
Length()	`Integer Length(String S)`	Return the number of characters in **S**.	[Length Function syntax]
Search()	`Integer Search(String S, Integer P, String T)`	If *T* is a substring of *S* (starting at a position >= *P*) return the position of the first occurrence of *T* within *S*, else return 0.	[Search Function syntax]
Code()	`Integer Code(String S)`	Return the ANSI Latin-1 code of the first character in the string *S*. If *S* is empty, return 0.	[Code Function syntax]
Char()	`String Char(Integer C)`	Return a one-character string consisting of the ANSI Latin-1 character defined by the code C.	[Char Function syntax]
Unicode()	`Integer Unicode(String S)`	Return the Unicode code of the first character in the string *S*. If *S* is empty, return 0.	[Unicode Function syntax]
Unichar()	`String Unichar(Integer C)`	Return a one-character string consisting of the Unicode character defined by the code C.	[Unichar Function syntax]

Formatting Functions

Function Name	Text	Explanation	[Syntax Doc Link]

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Format()	`String Format(String FormatStr, Integer Value)`	Apply the specified format string to the given integer value and return the result as a string. For example: `my_str = Format("-0###.##0", 123400); Will return the string -00123.400.`	[Format Function syntax]
FormatReal()	`String FormatReal(String FormatStr, Real Value)`	Apply the specified format string to the given real value and return the result as a string.	[FormatReal Function syntax]

Format String Syntax

The bang expansion syntax in strings allows for formatting information to be presented for integer expressions. The formatting information is presented as a format string within the parentheses along with the expression to be expanded. The formatting allows for fixed width fields, leading plus or minus signs, and leading or trailing zeroes. For example:

```
"This is a test !(my_var, ^"###.##^") of a format string"
```

This will build a string representation of an integer variable based on information in the format string.

The **Format()** function may also be used to format integer values:

```
str_var = Format("###.##", int_var);
```

Format strings may be constructed as follows:

"####" will print an integer, 4 digits wide:

```
12345   (too wide, grows freely)
1234    (fits fine)
 234    (shorter number is padded with spaces)
  34
   4
  -4    (negative numbers just pick up a minus sign)
 -34
```

"0###" will print an integer with leading zeroes:

```
1234   (fits fine)
0234   (padded with zeroes)
0034
```

"#0##" will fill with leading zeros all but the first digit:

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```
1234   (fits fine)
 234   (leftmost place isn't supposed to be zero-filled)
 034   (now we get zeroes)
```

"##.##" will print an integer as a fixed-point number based on the fractional digits given:

```
12.34   (integer 1234 prints like this)
 2.34   (leading zeroes trick would work here if you wanted)
 2.3    (trailing zeroes dropped, but see below!)
  .3    (not even one leading zero)
 0      (special case)
```

"#0.#0" is like the above example, but will always display two full decimal places listed plus the integral zero:

```
12.34
 2.34
 2.30   (note the 0 in the hundredth's place)
 0.30   (never lose that upper zero)
 0.00   (as zero as we get)
```

"-####" will print a leading minus sign:

```
1234   (no sign printed if positive)
-1234
-  34   (compare to first example, where the minus sign touches the 3)
```

"+####" will print a leading sign (plus or minus):

```
+1234   (even the plus is printed)
+ 234
-1234
```

"####<" will print a left-align number in the field:

```
1234
234
34
4
```

Math Functions

Function Name	Text	Explanation	[Syntax Doc Link]
Min()	`Integer Min(Integer N1, Integer N2)`	Returns the smaller of *N1* and *N 2*. In other words, if *N1* > *N2* it returns *N2* else it returns *N1*.	[Min Function syntax]
Max()	`Integer Max(Integer N1, Integer N1)`	Returns the larger of *N1* and *N2*. In other words, if *N1* > *N2* it returns *N1* else it returns *N2*.	[Max Function syntax]

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Abs()	`Integer Abs(Integer N)`	Returns the absolute value of *N*. In other words, if *N* < 0 it returns -*N* else it returns *N*.	[Abs Function syntax]
Sign()	`Integer Sign(Integer N)`	If *N* < 0 return -1 else if *N* > 0 return 1 else return 0.	[Sign Function syntax]
Random()	`Integer Random(Integer Min, Integer Max)`	Returns a random number in the range [*Min*...*Max*].	[Random Function syntax]
Seed()	`Boolean Seed(Integer N)`	Seed the random number generator; *N* can be any number. The function returns **True** always .	[Seed Function syntax]
Sqrt()	`Real Sqrt(Real X)`	Returns the square root of *X*.	[Sqrt Function syntax]
Bezier()	`Real Bezier(Real P0, Real P1, Real P2, Real P3, Real Time)`		[Bezier Function syntax]
Cos()	`Real Cos(Real X)`	Returns the cosine of *X*, where *X* is in radians.	[Cos Function syntax]
Sin()	`Real Sin(Real X)`	Returns the sine of *X*, where *X* is in radians.	[Sin Function syntax]
Tan()	`Real Tan(Real X)`	Returns the tangent of *X*, where *X* is in radians.	[Tan Function syntax]
RadiansToDegrees()	`Real RadiansToDegrees(Real X)`	Convert the angle *X* (in radians) to degrees.	[RadiansToDegrees Function syntax]
DegreesToRadians()	`Real DegreesToRadians(Real X)`	Convert the angle *X* (in degrees) to radians.	[DegreesToRadians Function syntax]

Expression Evaluation

Function Name	Text	Explanation	[Syntax Doc Link]
EvalString()	`String EvalString(String S)`	Evaluate the string expression contained in the string *S* and return the result.	[EvalString Function syntax]
EvalInt()	`Integer EvalInt(String S)`	Evaluate the integer expression contained in the string *S* and return the result.	[EvalInt Function syntax]
EvalBool()	`Boolean EvalBool(String S)`	Evaluate the Boolean expression contained in the string *S* and return the result.	[EvalBool Function syntax]
EvalReal()	`Real EvalReal(String S)`	Evaluate the Real expression contained in the string *S* and return the result.	[EvalReal Function syntax]

System Functions

Function Name	Text	Explanation	[Syntax Doc Link]
Getenv()	`String Getenv(String Var)`	Return the contents of the OS (not Player) Environment variable *Var*. If the variable is not defined, return an empty string.	[Getenv Function syntax]

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Exists()	`Boolean Exists(String FileName)`	Return **True** if and only if a file named *FileName* exists.	[Exists Function syntax]
Version() / Revision()	`Integer Version(String ModuleName)` `Integer Revision(String ModuleName)`	Return the version or revision number of a module (e.g. "Player.book" or "mpeg.ex").	[Version Function syntax] [Revision Function syntax]
SysTime()	`Integer SysTime(Enum TimeType)`	Returns the system time as a number. *TimeType* can be any of: • **Year**: Returns the current year, e.g. **2015** • **Month**: Returns the current month, e.g. **1** fo r January. • **Day**: Returns the current day of the month • **Hour**: Returns the current hour (0-23) • **Minute**: Returns the current minute (0-59) • **Second**: Returns the current second (0-59) • **Weekday**: Returns the current weekday, e.g. **1** for Sunday, **2** for Monday, up to **7** for Saturday.	[SysTime Function syntax]

Core ScalaScript Variables

Variables in ScalaScript

The ScalaScript player engine supplies a number of useful variables, and a wide range of extension variables for media, timing, and other additions beyond the core language.

The complete set of variables is given in the [ScalaScript variables index], and the core functions variables are outlined below.

Date and Time Variables

Variable Name	Type Definition	Explanation	[Syntax Doc Link]
Clock	`Integer Clock`	Returns time in milliseconds. This variable updates twice per second.	[Clock Variable syntax]
Date	`String Date`	Returns the current date, according to DateFormat and Ti ming.Uppercase. This variable updates when the date changes.	[Date Variable syntax]
Time	`String Time`	Returns the current time, according to TimeFormat and Ti ming.Uppercase. This variable updates every second.	[Time Variable syntax]
Timing.Seconds	`Integer Timing.Seconds`	Returns system time, in seconds. This variable updates every second.	[Timing.Seconds Variable syntax]

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Weekday	`String Weekday`	Returns the weekday as a string, e.g. **Tuesday**, according to WeekdayFormat and Timing.Uppercase.	[Weekday Variable syntax]
Timing.CustomDateFormatString	`String Timing.CustomDateFormatString`	Used to format the date when DateFormat is set to **102**. See Windows KB 307938 for Windows date format notation.	[Timing.CustomDateFormatString Variable syntax]
Timing.CustomTimeFormatString	`String Timing.CustomTimeFormatString`	Used to format the time when TimeFormat is set to **102**. See Windows KB 307938 for Windows date format notation.	[Timing.CustomTimeFormatString Variable syntax]
Timing.Uppercase		When **Timing.Uppercase** is set to true, then text in the Date, Time, and Weekday variables will be converted to upper-case.	[Timing.Uppercase Variable syntax]

DateFormat

```
Integer DateFormat
```

The **DateFormat** variable controls the date format used when evaluating the Date variable. See also Timing.Uppercase.

Accepted values are:

Value	Meaning	Example
0	day month-name year	**5 October 1995**
1	day. month-name year	**5. October 1995**
2	month-name day, year	**October 5, 1995**
3	month-number/day/2-digit year	**10/5/95**
4	month-number/day/2-digit year, leading zeroes	**10/05/95**
5	day/month-number/2-digit year, leading zeroes	**05/10/95**
6	day-month-shortname-2-digit year, leading zeroes	**05-Oct-95**
7	day-month-name-shortname-2-digit year	**5-Oct-95**
8	Packed 2-digit year, month-number, day	**951005**
9	2-digit year/month-number/day, leading zeroes	**95/10/05**
10	day.month-number.2-digit year, leading zeroes	**05.10.95**
11	day.month-number,2-digit year	**5.10.95**
12	day.month-number,4-digit year	**5.10.1995**
13	4-digit year.month-number.day, leading zeroes	**1995.10.05**
100	Windows "Long date" format, from Windows **Regional and Language Options** control panel	

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101	Windows "Short date" format, from Windows **Regional and Language Options** control panel	
102	Windows date format, customized using Timing.CustomDateFormatString	

Windows date formats are localized based on the Windows language. The built-in formats are localized based on the installation language of Designer or Player.

[DateFormat Variable syntax]

TimeFormat

```
Integer TimeFormat
```

The **TimeFormat** variable controls the time format used when evaluating the Time variable. See also Timing.Uppercase

Accepted values are:

Value	Meaning	Example
0	hh:mm:ss, 24-hour, with leading zeroes, with seconds	**09:23:04** or **21:23:04**
1	hh:mm, 24-hour, with leading zeroes, no seconds	**09:23** or **21:23**
2	hh:mm:ss, 24-hour, no leading zeroes, with seconds	**9:23:04** or **21:23:04**
3	hh:mm, 24-hour, no leading zeroes, no seconds	**9:23** or **21:23**
4	hh:mm:ss, 12-hour am/pm, with leading zeroes, with seconds	**09:23:04 am** or**09:23:04 pm**
5	hh:mm, 12-hour am/pm, with leading zeroes, no seconds	**09:23 am** or**09:23 pm**
6	hh:mm:ss, 12-hour am/pm, no leading zeroes, with seconds	**9:23:04 am** or**9:23:04 pm**
7	hh:mm, 12-hour am/pm, no leading zeroes, no seconds	**9:23 am** or **9:23 pm**
100	Windows time format, with seconds, from Windows**Regional and Language Options** control panel	
101	Windows time format, no seconds, from Windows**Regional and Language Options** control panel	
102	Windows time format, customized using Timing.CustomTimeFormatString	

[TimeFormat Variable syntax]

WeekdayFormat

```
Integer WeekdayFormat
```

The **WeekdayFormat** variable controls the time format used when evaluating the Weekday variable. See also Timing.Uppercase

Accepted values are:

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Value	Meaning	Example
0	Localized long-form weekday	**Monday** or **Lundi**
1	Localized short-form weekday	**Mon** or **Lun**
2	English long-form weekday	**Monday**
3	English short-form weekday	**Mon**
100	Windows "Long weekday" form, from Windows **Regional and Language Options** Control Panel	**Monday** or **Lundi**
101	Windows "Short weekday" form, from Windows**Regional and Language Options** Control Panel	**Mon** or **Lun**

[WeekdayFormat Variable syntax]

Mouse Variables

Variable Name	Type Definition	Explanation	[Syntax Doc Link]
`Mouse.X / Mouse.Y`	`Integer Mouse.X` `Integer Mouse.Y`	Returns the current mouse coordinates, live updated.	[Mouse.X Variable syntax] [Mouse.Y Variable syntax]
Mouse.PrimaryButton	`Boolean Mouse.PrimaryButton`	Returns the current state of the mouse's primary button (normally the left button). You can trigger off this variable using the **OnNotification()** command, for example.	[Mouse.PrimaryButton Variable syntax]
Mouse.SecondaryButton	`Boolean Mouse.SecondaryButton`	Returns the current state of the mouse's secondary button (normally the right button). You can trigger off this variable using the **OnNotification()** command, for example.	[Mouse.SecondaryButton Variable syntax]

System Information Variables

Variable Name	Type Definition	Explanation	[Syntax Doc Link]
Player.Language	`String Player.Language`	Returns the installed language of the player, e.g. **English**.	[Player.Language Variable syntax]

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Scala.ProductInfo / Scala.ReleaseInfo / Scala.BuildInfo	`String Scala.ProductInfo`
	`String Scala.ReleaseInfo`
	`String Scala.BuildInfo`
		Returns information on the product and version. **Scala.ProductInfo** describes the product, build-date, and language. **Scala.ReleaseInfo** the release-number information.**Scala.BuildInfo** is normally blank but could contain some information if using a beta-test version, for example.
		
		Examples:
		• **Scala.ProductInfo** = Scala Player 5/2010-05-04 English
		• **Scala.ReleaseInfo** = Release 4.1.7
		• **Scala.BuildInfo** = *blank*
			[Scala.ProductInfo Variable syntax]
			[Scala.ReleaseInfo Variable syntax]
			[Scala.BuildInfo Variable syntax]

Scala.Version / Scala.Revision / Scala.Build	`Integer Scala.Version`
	`Integer Scala.Revision`
	`Integer Scala.Build`
		Returns the version, revision, and build of Player. **Scala.Version** includes 500 for the generation (Scala 5), plus the major release number. **Scala.Revision** is the minor release number. **Scala.Build** is the hotfix number. So Scala 5 Release 4.1.7 would be:
		• **Scala.Version** = 504
		• **Scala.Revision** = 1
		• **Scala.Build** = 7
			[Scala.Version Variable syntax]
			[Scala.Revision Variable syntax]
			[Scala.Build Variable syntax]

Memory	`Integer Memory`	Environment variable containing the total amount (not necessarily free) of RAM in bytes.	

Extension Functions

The ScalaScript player engine supplies a number of useful core functions, as well as a wide range of variables for media, timing, and other additions beyond the core language.

The complete set of functions is given in the [ScalaScript functions index], and many of the extension functions are outlined below.

Extension Functions

FileIO Module Functions

Function Name	Text	Explanation	[Syntax Doc Link]
Close()	`Integer Close(Integer filehandle)`	Closes a file. This is a function, and must be used that way. For example, **x=Close(n)** rather than **Close(n)**	[Close Function syntax]
Copy()	`Boolean Copy(String from, String to)`	Copies a file.	[Copy Function syntax]
DirExists()	`Boolean DirExists(String dirname)`	Returns a Boolean value indicating whether the specified directory exists. If no drive letter is included, the Path is assumed to be relative to the folder containing the script using this function; if a drive letter is included, then that absolute path is searched.	[DirExists Function syntax]

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Eof()	`Boolean Eof(Integer filehandle)`	Returns a boolean value indicating whether an open file is positioned at the end-of-file.	[Eof Function syntax]
Erase()	`Boolean Erase(String filename)`	Erases a file.	[Erase Function syntax]
FileSize()	`Integer FileSize(String filename)`	Returns the size of a file.	[FileSize Function syntax]
MkDir()	`Boolean MkDir(String dirname)`	Creates a directory.	[MkDir Function syntax]
Open()	`Integer Open(String filename, enum mode, Encoding(enum encodingType))`	Opens a file.	[Open Function syntax]
Position()	`Integer Position(Integer filehandle, Integer position, enum relativeType)`	Sets the read/write position of a file.	[Position Function syntax]
ReadBool()	`Boolean ReadBool(Integer filehandle)`	Reads a line from an open file, converts it to a boolean and returns the boolean.	[ReadBool Function syntax]
ReadChars()	`String ReadChars(Integer filehandle, Integer numchars)`	Reads a number of characters from an open file and returns them as a string.	[ReadChars Function syntax]
ReadInt()	`Integer ReadInt(Integer filehandle)`	Reads a line from an open file, converts it to an integer and returns the integer.	[ReadInt Function syntax]
ReadStr()	`String ReadStr(Integer filehandle)`	Reads a line from an open file and returns it as a string.	[ReadStr Function syntax]
Rename()	`Boolean Rename(String from, String to)`	Renames a file.	[Rename Function syntax]
RmDir()	`Boolean RmDir(String dirname)`	Removes a directory.	[RmDir Function syntax]
WriteBool()	`Boolean WriteBool(Integer filehandle, Boolean value)`	Writes a boolean value to an open file. The boolean value is written as a complete line, with CR/LF appended.	[WriteBool Function syntax]
WriteChars()	`Integer WriteChars(Integer filehandle, Boolean value)`	Writes a number of characters to an open file. Only the characters are written, with no trailing CR/LF.	[WriteChars Function syntax]
WriteInt()	`Boolean WriteInt(Integer filehandle, Integer value)`	Writes an integer value to an open file. The integer value is written as a complete line, with CR/LF appended.	[WriteInt Function syntax]
WriteStr()	`Boolean WriteStr(Integer filehandle, String value)`	Writes a string to an open file. The string is written as a complete line, with CR/LF appended.	[WriteStr Function syntax]

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Media Functions

Function Name	Text	Explanation	[Syntax Doc Link]
Movie.Duration()	`Integer Movie.Duration(String filename)`	Returns the duration of a specified movie in milliseconds, or zero if the duration cannot be determined.	[Movie.Duration Function syntax]
TargetAspectRatio()	`Real TargetAspectRatio(String targetname)`	Gets the aspect ratio of a target, such as a page, Frame, VirtualMonitor, or Monitor.	[TargetAspectRatio Function syntax]
TargetWidth()	`Real TargetWidth(String targetname)`	Gets the width of a target, such as a page, Frame, VirtualMonitor, or Monitor.	[TargetWidth Function syntax]
TargetHeight()	`Real TargetHeight(String targetname)`	Gets the height of a target, such as a page, Frame, VirtualMonitor, or Monitor.	[TargetHeight Function syntax]

Serial Module Functions

Function Name	Explanation	[Syntax Doc Link]
Serial.Open()	Opens the specified serial port, with optional serial data parameters such as baud rate, parity, etc.	[Serial.Open Function syntax]
Serial.Close()	Closes the specified serial port.	[Serial.Close Function syntax]
Serial.Send()	Sends the specified data string to the specified serial port that you previously opened with **Serial.Open()**.	[Serial.Send Function syntax]
Serial.Receive()	Lets you receive data from a previously opened serial port. You can specify an optional string to wait for before receiving data, and an optional end string that denotes the end of the sequence to wait for, or the maximum number of characters to read.	[Serial.Receive Function syntax]

TV Tuner EX Module Functions

Function Name	Text	Explanation	[Syntax Doc Link]
TVTuner.CurrentChannelName()	`String TVTuner.CurrentChannelName(String deviceName)`	Returns a string containing the current channel name for the specified capture device, or an empty string if it cannot be determined	[TVTuner.CurrentChannelName Function syntax]
TVTuner.GetVolume()	`Integer TVTuner.GetVolume(String deviceName)`	Returns an integer containing the current volume for the specified capture device, or zero if it cannot be determined.	[TVTuner.GetVolume Function syntax]

Extension Variables

The ScalaScript player engine supplies a number of useful core variables, as well as a wide range of variables for media, timing, and other additions beyond the core language.

The complete set of variables is given in the [ScalaScript variables index], and many of them are outlined below.

Extension Variables

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Billing Module Variabes

Function Name	Text	[Syntax Doc Link]
Billing.PlayerName	`String Billing.PlayerName`	[Billing.PlayerName Variable syntax]

FileIO Module Variables

Function Name	Text	[Syntax Doc Link]
FileIO.Status	`Boolean FileIO.Status`	[FileIO.Status variable syntax]

Queue EX Module Variables

Function Name	Text	[Syntax Doc Link]
Q.Call	`Integer Q.Call`	[Q.Call variable syntax]
Q.Counter	`Integer Q.Counter`	[Q.Counter variable syntax]
Q.Counter*N* (**Q.Counter1** through **Q.Counter9** are supported.)	`Integer Q.CounterN`	[Q.Counter*N* variable syntax]
Q.Letter	`String Q.Letter`	[Q.Letter variable syntax]
Q.NewQueueType	`Integer Q.NewQueueType`	[Q.NewQueueType variable syntax]
Q.NewServiceType	`Integer Q.NewServiceType`	[Q.NewServiceType variable syntax]
Q.NewTicket	`Integer Q.NewTicket`	[Q.NewTicket variable syntax]
Q.NewTicketLabel	`String Q.NewTicketLabel`	[Q.NewTicketLabel variable syntax]
Q.NewWaitTime	`Integer Q.NewWaitTime`	[Q.NewWaitTime variable syntax]
Q.NumDigits	`Integer Q.NumDigits`	[Q.NumDigits variable syntax]
Q.NumWaiting	`Integer Q.NumWaiting`	[Q.NumWaiting variable syntax]
Q.Print	`Integer Q.Print`	[Q.Print variable syntax]
Q.QueueType	`Integer Q.QueueType`	[Q.QueueType variable syntax]
Q.ServiceType	`Integer Q.ServiceType`	[Q.ServiceType variable syntax]
Q.ShowLetter	`Boolean Q.ShowLetter`	[Q.ShowLetter variable syntax]
Q.Ticket	`Integer Q.Ticket`	[Q.Ticket variable syntax]
Q.Ticket*N* (**Q.Ticket1** through **Q.Ticket9** are supported.)	`Integer Q.TicketN`	[Q.Ticket*N* variable syntax]
Q.TicketLabel	`String Q.TicketLabel`	[Q.TicketLabel variable syntax]

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Q.Unit	`Integer Q.Unit`	[Q.Unit variable syntax]
Q.WaitTime	`Integer Q.WaitTime`	[Q.WaitTime variable syntax]

Serial Module Variables

Function Name	Text	[Syntax Doc Link]
Com*N*.Input (Up to 16 serial ports are supported, i.e. **COM1.Input** through **COM16.Input**.)	`String ComN.Input`	[COM*N*.Input variable syntax]
Com*N*.LastChar (Up to 16 serial ports are supported, i.e. **COM1.LastChar** through **COM16.LastChar**)	`String ComN.LastChar`	[COM*N*.LastChar variable syntax]

Windows Scripting Introduction

The **Windows Scripting Module** lets you extend playback behavior by connecting a ScalaScript to additional code you create in your favorite scripting language. This can be used for advanced control and customization, data integration, etc.

Windows Scripting Supported Languages

You can use any Windows Script Host compatible language, including VBScript, JScript, and Python. There are also Windows Script Host compatible versions of other languages, including Perl, Ruby, TCL, and REXX.

VBScript

VBScript is a light scripting language that resembles Visual Basic. See VBScript on the Microsoft website.

It comes pre-installed on Windows XP and newer systems.

JScript

JScript is a light scripting language that resembles JavaScript. See JScript on the Microsoft website.

It comes pre-installed on Windows XP and newer systems.

Python

Python is a flexible scripting language with many extensions. See www.python.org.

Scala Release 11.04 comes with an installer for Python 2.7.9, which includes the core Python distribution for that version, and the following useful Python packages:

- pip
- setuptools
- requests
- pyserial
- Pygments
- colorama
- httpie
- humanize
- bottle
- waitress
- virtualenv
- xlrd
- Pillow
- psycopg2

Plus the following Scala-supplied scripts and packages. See https://developer.scala.com for full information. **A username and password is required**:

- scala5
- ezxml
- scalalib
- scalalink

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- scalaprov
- scalatools
- scws
- scws2
- soaplib
- cm_upload
- packager
- player_report
- sca_publisher
- screencap

Windows Scripting Examples

Various samples of using Windows Script in Scala, and other advanced scripting features of Scala, can be found on Scala 5 Advanced Scripting Examples.

Windows Scripting Documentation

Windows Script Event

To run a Windows script is run from a ScalaScript, add a **WindowsScript** event to the ScalaScript. You choose the Windows script file, the scripting engine (language) to use, and whether the ScalaScript should wait for the Windows script to complete. In addition, you can choose to share one or more ScalaScript variables for access from the Windows script.

Sharing Variables

In the Windows Scripting Module, you can select one or more ScalaScript variables to share with the Windows Script. These variables then become available as objects you can use in the Windows script, where you can read them or change them. If you change a variable from within the Windows script, it value automatically changes, live, in Scala. Shared variables can be used to pass data in either direction between ScalaScript and a Windows script.

Accessing shared variables is similar in all Windows Scripting languages. A shared variable is actually a Windows script object, whose value is represented by the **.Value** method. This is the default method in VBScript, so in VBScript you do not need to explicitly write out **.Value**. In Python, Scala supplies bindings to make direct access easy. In JScript and other languages, you have to explicitly use the **.Value** method to get at its value.

Note:
The following examples given assume you have shared a variable called **sharedvariable**.

Sharing Variables in VBScript

Reading and writing shared variables is very straightforward in VBScript:

```
' Read a shared variable
myVBScriptString = "The value of the shared variable is " & sharedvariable

' Write to a shared variable
sharedvariable = new_value
```

Sharing Variables in JScript

Reading and writing shared variables is very straightforward in JScript. Remember to explicitly write out the **.Value** method:

```
// Read a shared variable
var myJScriptString = "The value of the shared variable is " + sharedvariable.Value;

// Write to a shared variable
sharedvariable.Value = new_value;
```

Sharing Variables in Python

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In Python, first import the Python support bindings. From there, reading and writing shared variables is very easy:

> **Note:**
> In Python, do not use the same name for a Python variable as for a shared Scala variable, as access to the shared variable will be lost, and an exception thrown.

```
scalavars = sharedvars()
...
# Don't do this!
x = scalavars.x
```

Sharing Boolean Variables

If you share a boolean variable in VBScript, the resulting variables appear in VBScript with the possible string-values of **True** and **False**.

Sharing Arrays

ScalaScript supports array variables, as do Windows Script languages. When you share a ScalaScript array variable, the variable on the Windows Script side is a Collection object of variable objects. How you access this depends on the language you are using.

Arrays in VBScript

In VBScript you must explicitly the **.Value** method when writing to a shared array variable. When reading, you do not need to explicitly use **.Value**, but in this example it is shown for consistency and clarity:

```
' Read a shared array variable
myVBScriptString = "The value of the shared value is " & sharedarray(4).Value

' Write to a shared array variable (here we *must* explicitly use .Value)
sharedarray(4).Value = new_value
```

Arrays in JScript

For languages other than VBScript and Python, you have to explicitly use the **.Item(*n*)** method to access the *n*th entry of the array, then the **.Value** method to get at its value.

```
// Read a shared array variable
var myJScriptString = "The value of the shared value is " +
sharedarray.Item(4).Value;

// Write to a shared array variable
sharedvariable.Item(4).Value = new_value;
```

Arrays in Python

The Python COM interfaces map ScalaScript arrays to Python **tuples,** a sequence of immutable Python objects. This will allow you to directly read from a shared array using natural syntax. However, a Python tuple cannot be modified; it can only be replaced in its entirety. In order to write individual values to a shared array, first copy it to a Python list, then manipulate the list, and finally copy it back. This example shows how:

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```
# Import the Scala support module
from scala5 import sharedvars

# Retrieve Scala shared variables
scalavars = sharedvars()

...

# Read a shared array variable (can be done directly)
mypystring = "The value of the shared value is " + scalavars.sharedarray[4]

# To write to a shared array, first copy to a list
mylist = scalavars.sharedarray
# Modify the list
mylist[4] = new_value
# Finally, copy back to the shared array
scalavars.sharedarray = mylist
```

Synchronization Techniques

A Windows script starts when the **Window Scripting Module** event is encountered in playback. There are various ways to synchronize the Windows script to the ScalaScript. Many of these techniques are illustrated in Advanced Scripting Examples.

Technique	Explanation
Wait On	The simplest form of synchronization is to run the Windows script with the **Wait** option set to **on**. The script will run to completion before the ScalaScript resumes.
Free-Running	Alternatively, the Windows script can be free-running, launched with the **Wait**option set to **off**, and no particular synchronization. Any shared variables that are changed by the Windows script will be reflected live in the ScalaScript.
Polling Synchronization	Both the Windows script and the ScalaScript can periodically check for a change in the value of a shared variable, then sleep for a fraction of a second.
Cued Expression	The **TextCrawl** and **GlobalTextCrawl** elements support a cued expression with a cue control variable. The Windows script side uses polling synchronization, but the ScalaScript side uses the cue control variable to coordinate the feeding of new text from the Windows script into the crawl.
Notification Triggering	In ScalaScript, the **OnNotification** command lets you monitor a shared variable, and trigger a **Goto** or **Use** when that variable changes.

The ScalaPlayer Interface

The **ScalaPlayer** interface is available during any Scala playback, which includes ScalaScript playback from within the **Scala Player** product and the **Scala Designer** product. Its interface is the basic support interface exposed to a Windows script when run from the **Windows Scripting Module**. To create a handle to this interface, do as follows:

```
Dim oScala
Set oScala = CreateObject("ScalaPlayer.ScalaPlayer.1")
```

The **ScalaPlayer** interface supports the following methods:

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Sleep Method

The **Sleep** method causes the script to sleep for the specified number of milliseconds. It internally knows how to abort when playback of the script needs to be aborted by Scala.

A VBScript example to sleep for a 3 seconds would be:

```
oScala.Sleep(3000)
```

In Python, you would write:

```
import scala5
...
scala5.ScalaPlayer.Sleep(3000)
```

Log Method

To log a message to IC.log, say:

```
oScala.Log("the message to write")
```

In Python, you would write:

```
import scala5
...
scala5.ScalaPlayer.Log("the message to write")
```

LogExternalError Method

Your script can report a custom warning or problem into the log, which can also appear on the Content Manager **Player Health** screens, and trigger an email-alert to the network administrators. To do this, use the **LogExternalError** method.

To report a problem, say:

```
oScala.LogExternalError(1000, "my module name", "the detailed problem to report")
```

In Python, you would write:

```
import scala5
...
scala5.ScalaPlayer.LogExternalError(1000, "my module name", "the detailed problem to
report")
```

ScriptDir Property

The **ScriptDir** property returns the name of the folder containing the Windows Script.

The ScalaFileLock Interface

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Note:
The **ScalaFileLock** interface is available when the **Player Network Client** is running. That means it is available under the **Scala Player** product, but it is not generally available during playback from the **Scala Designer** product.

Scala uses normal Windows paths to access files. However, Scala extends in the following ways the file path syntax in order to manage the storage and seamless updating of content (media files):

- **Special Locations**: The most important one is called **Content:**, which is the Linked Content location. For example, if you use Scala Enterprise Content Manager's Non-Scheduled Content feature to send data.xml to a player, that file will end up in the Linked Content location. Scala can refer to this file using the path **Content:\data.xml**, and the true location will be found.
- **File Revisions**: Every time you update a file called **data.xml**, it is given a unique, always-increasing revision number. The actual file on disk might thus be called **data[12345].xml**. Scala automatically locates the newest revision of a file, and cleans up older revisions when they are no longer in use, thus Scala can refer to this file using the path **Content:\data.xml**, and the correct revision will be found.
- **Locking**: Scala locks media files while they are in use, to ensure that such files are never cleaned up while they are still in use, and to allow new revisions to be installed under a new, higher revision number.

In order for your Windows script to access files that are inside the **Content:** location, and/or to automatically deal with file revisions and locking, Scala provides the **LockScalaFile** and **UnlockScalaFile** methods of the **ScalaFileLock** interface. These let you obtain the normal Windows-style path to a file, and to hold a lock on it. For example, given a simple path of **Content:\data.xml**, **LockScalaFile** might return.

C:\Documents and Settings\All Users\Documents\Scala\Content\data[12345].xml

You would then use this result within your Windows script, and when you were done with that file, you would call **UnlockScalaFile**.

The **ScalaFileLock** interface supports the following methods:

LockScalaFile Method

The **LockScalaFile** method returns a normal Windows path you can use anywhere in your Windows script. This method will resolve any special locations such as **Content:**, will locate the newest revision of the file, and will ensure that the file will not change out from underneath you.

UnlockScalaFile Method

The **UnlockScalaFile** method indicates you are done with the file. After you call **UnlockScalaFile**, it is no longer safe to use the filename you previously obtained from **LockScalaFile** (unless you call **LockScalaFile** again.)

Note that if a new revision of a file arrives while you have one revision already locked, the new revision is still installed, and will be given to you the next time you inquire, all without disturbing the current revision.

VBScript Example:

```
Dim oScalaFileLock
Set oScalaFileLock = CreateObject("ScalaFileLock.ScalaFileLock.1")

' Resolve and lock the file name, and return the Windows file name to use
windows_file = oScalaFileLock.LockScalaFile(filename)

' Do whatever operation you need, using 'windows_file' as your file name
MsgBox "The Windows path to the file is " & windows_file

' Indicate we are now done with this file
oScalaFileLock.UnlockScalaFile()
```

In Python, the **ScalaFileLock** interface is exposed through the **FileLock** object:

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```
import scala5
...
try:
    lock = scala5.FileLock(r"Content:\foo.jpg")
    try:
        windows_file = lock.realpath
        # Do whatever operation you need, using 'windows_file' as your file name
    finally:
        del lock
except:
    # Handle file not found here
```

Additional Python Considerations

Use of sys.exit() / SystemExit

When running Python scripts using the Windows Scripting interfaces, the Windows Scripting environment does not handle Python scripts that call **sys.exit()** or that raise the **SystemExit** exception. If you are invoking Python code that uses those exit features, you can wrap it this way:

```
try:
    my_main_script() # Call your core Python stuff

except SystemExit,e: # Handle SystemExit exception
    return
```

Text Style Tags

Introduction

You can use text style tags to change the appearance and style of the text in a text element or text crawl. Simply include the appropriate tag in the text itself. If a text element is displaying a a variable (e.g. the text is **!myvariable**), you can even control style changes from a variable. When using a crawl, the style tags can be in the crawl text, or in the file feeding the crawl, or in the cued expression that you set from a VBScript / Python script, etc.

Style tags are supported for text elements, and can also be placed anywhere in a text crawl.

Style Tags

You can use the following embedded style tags in Text Elements or a Text Crawl to change the text style:

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```
<typeface = "typefacename">
<typesize = "pointsize">
<latintypeface = "typefacename">
<latintypesize = "pointsize">
<asiantypeface = "typefacename">
<asiantypesize = "pointsize">
<caps = "Normal|Small|All|None">

<bold = "On|Off">
<bolddelta = "numpixels">
<italic = "On|Off">
<italicdelta = "numpixels">
<under = "On|Off">
<undercolor = "#rrggbb">
<underposition = "numpixels">
<underthickness = "numpixels">
<underair = "numpixels">
<underopacity = "percent">

<face = "On|Off"> or <front = "On|Off">
<facecolor = "#rrggbb"> or <frontcolor = "#rrggbb">
<faceopacity = "percent"> or <frontopacity = "percent">
<outline = "On|Off">
<outlinecolor = "#rrggbb">
<outlinethickness = "numpixels">
<outlinesoftness = "value">
<outlineopacity = "percent">
<shadow = "On|Off">
<shadowcolor = "#rrggbb">
<shadowoffset = "numpixels_horizontal, numpixels_vertical">
<shadowsoftness = "value">
<shadowopacity = "percent">

<kerning = "None|Alpha|AlphaNum">
<leading = "numpixels">
<spacing = "value">

<imagevar = "variable or array-entry">
<imagepath = "path to image file">
<imagerange = "CapHeight|AscenderHeight|CellHeight">
<imagealign = "Top|Middle|Bottom">

<opacity = "percent">

<extragap = "numpixels">
```

Most of the above are self-explanatory. Documentation is available from within Designer, via the **Help > Text Style Tags** pull-down menu. Here are a few additional notes:

- In ScalaScript expressions, the quotation mark always needs to be escaped with a caret. Although you can directly type the following as a text element in Designer,hello <bold="On">world<bold="Off">if using a ScalaScript variable, the equivalent would be:

```
var = "hello <bold=^"On^">world<bold=^"Off^">";
```

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The **Text Expression:** button on the Crawl Control Tab of the Design Text Crawl Panel expects an expression, as its name suggests. You would type:

```
"hello <bold=^"On^">world<bold=^"Off^">"
```

- The **<face...>** and **<front...>** tags are synonymous.
- For ***typefacename***, specify the typeface as generally seen in saved ScalaScripts, e.g.:

```
<typeface = "Arial (Western [])">
```

- To specify a color, use either a hexadecimal value ***#rrggbb***, or its decimal equivalent.
- The **<extragap>** option specifies the number of extra pixel rows of gap that should be added before the next segment is crawled. This option is useful to increase spacing when using scrolls (i.e. vertical crawls).

Connecting HTML5 Web Clips and ScalaScript

Passing Data Into HTML5 Web Clips

The **WebClip()** command creates an HTML5 environment that supports a JavaScript accessor function to read Scala Player variables and Metadata. Here is some sample JavaScript:

```
a = window.ScalaGetVariable("Player.PlayerName");
b = window.ScalaGetVariable("MediaItem.Description");
c = window.ScalaGetVariable("Foo");
```

Alternately, you may use **window.ScalaGetMetadataValue()** as a synonym.

The values from window.ScalaGetVariable() are not live; they are the values at the time the Web Clip was started. Also, there is not currently a function to set Player variables.

Waiting for HTML5 Web Clips

Normally, Scala playback advances at the end of a media item such as the end of a video. Since HTML5 can encapsulate complex behaviors, there is as JavaScript function the HTML5 can use to signal that it is complete, and that Scala playback should advance. Here is some sample JavaScript:

```
window.ScalaDone();
```

There is a Wait for Done option in Designer you can enable on a Web Clip to take advantage of this feature.

ScalaSetVariable

For Release 11, there are two new functions that are attached to the window object. The first is ScalaSetVariable() which will set a ScalaScript variable:

```
ScalaSetVariable(<ScalaScript variable name>, <new value>, <array index> );
```

For example:

```
var myloopcount;
window.ScalaSetVariable("loops", myloopcount, -1 );
```

This sets the ScalaScript variable loops to the value of myloopcount. The <array index> parameter is optional. If it is -1, it is ignored. If it's zero or

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more, it assumes the <ScalaScript variable> is an array, and <array index> is the index of the array item to modify. If <ScalaScript variable> is an array, you can set the entire array at once by supplying a Javascript array value in <new value>.

Note that ScalaSetVariable does no type conversion on <new value>, it has to match the type of the ScalaScript variable, otherwise it will trigger an exception.

The second new function is addScalaScriptListener:

```
addScalaScriptListener(<ScalaScript variable name>, <JavaScript callback function that
takes a single string argument>);
```

For example:

```
function UpdateTime(varname) {
scalatime = window.ScalaGetVariable(varname);
alert('ScalaScript Var "' + varname + '" = ' + scalatime);
}
addScalaScriptListener("Time", UpdateTime);
```

Will tell Scala Player/Designer to set up a callback to call UpdateTime() whenever the ScalaScript variable "time" changes.

Note that ScalaScript variables are not case sensitive.

Connecting Flash and ScalaScript

Passing Data Into Flash

The **FlashClip()** and **Flash()** commands support a **FlashVars()** parameter that lets you pass one or more named variables and their values into the Flash clip. For example:

```
FlashClip(100, 50 "test.swf", ..., FlashVars("foo=1&bar=Hello"),...);
```

would set the Flash variable **foo** to **1**, and the variable **bar** to **Hello**.

Waiting for Flash

Many Flash clips are designed to loop forever. Scala playback does not wait for any infinitely-looping media to finish (because such media is designed to never finish).

For linear, movie-like SWF files, Scala playback can detect when the Flash has finished playing, which lets you add such clips to a Content Manager playlist, and playback will advance at the end of such a Flash clip. Likewise, such linear SWF files can be added in Designer, and you can set the number of loops, and the wait option, and things work as expected, i.e. the same as if using a video file.

More complex SWF files, especially those that are driven by ActionScript rather than a timeline, can make it hard for Scala playback to detect the true end of playback. This is why Designer defaults newly added Flash clips to infinite looping, which effectively lets the Flash clip play for as long as it wants (same as in a browser), and doesn't hold up playback waiting for the Flash clip to complete.

It is possible to make your ScalaScript wait for an explicit signal from your Flash clip's ActionScript. To use this new capability, you need to:

- Edit your ScalaScript to add the new **WaitForExit(On)** into your **FlashClip()** or **Flash()** command, which tells Scala playback to wait for your Flash clip's ActionScript to explicitly signal its completion, before Scala script playback advances.
- Make your Flash clip's ActionScript use Flash's **External API**. Using the ExternalInterface.call method, call the special **scalaexit** function at the point that it wishes Scala playback to advance:

```
ExternalInterface.call("scalaexit");
```

Data Driven Text Crawls

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Introduction

You can use a Windows Script to drive a text crawl element, using the **Cued Expression** feature. Use one Scala variable for the **Text Expression**, and another as the **Cue Variable**. Using the **Windows Script** module, share both of these variables with your VBScript / JScript / Python script.

When the text crawl engine is ready for more text, it will set the cue variable to 1. Your script should notice this, and place the next text string into the text expression variable, then set the cue variable to 0 signaling that the text is now ready. Then, your script should wait for the cue variable to become 1 again. Your script can set the cue variable to -1 to indicate that there are no further updates, which will end the crawl.

Showing / Hiding an "Emergency Crawl" Element

To implement an emergency crawl, you want to have a text crawl element appear only during whatever emergency condition you define and implement. Using the Text Style Tags for opacity, you can turn on and off the crawl.

The crawl can be hidden by setting the opacity to zero, by using this text style tag:

```
<opacity="0">
```

and the crawl can be restored by setting its opacity to 100% or whatever value desired, by using this text style tag:

```
<opacity="100">
```

Data Source Fetcher

Introduction

The Data Source feature primarily focuses on the design-time problem of binding data values to visual elements, and lets the user set up the basic mapping between the feed source and Scala variables. The Data Source module is how the Player reads data from **local** files. It initially has limited goals, and does not handle how data is fetched from the actual source (e.g. internet feeds, database, serial, etc.) This part of the overall task is left to a separate Data Fetcher application running alongside. We are going to discuss the responsibilities of a Fetcher, and what it needs to do in order to be well behaved.

Overview

In the initial version of the Data Source module, the feed supported by Player is a simple XML file available locally (the "Local XML File"). It will be the responsibility of the Fetcher to provide this file, which means the Fetcher must:

- Retrieve the data from the real source, local or web (or multiple sources).
- Scrub the data (sort, filter, reformat content, restructure as simple XML).
- Fetch and stage any files associated with the data (e.g. images).
- Manage updates to the feed.
- Present a simplified Local XML File to Player.
- Manage cleanup of any files associated with the data.

Data Source Module Behavior

The Data Source module allows the user to:

- Select a simply-formatted Local XML File, and see the various XML elements, so that these can be connected to data fields (ScalaScript variables and arrays-of-variables), which can then be bound to text, images, etc., or otherwise used within the ScalaScript.
- Select looping rules to automatically iterate through the records of a feed.
- Use ScalaScript for more advanced looping, iterating, and processing.

Supported Local XML File format

The Data Source module currently supports only a fairly limited format for the Local XML File. Here is an annotated example:

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```
<?xml>
<!-- main node element, can have any name -->
<main>
  <!-- main contains zero or more top-level elements
       These top-level elements can have any unique names,
       and simple values (sub-elements ignored) -->
  <top-element-1>top-value-1</top-element-1>
  <top-element-2>top-value-2</top-element-2>
  ...
  <!-- main contains zero or more repeating items,
       where the item node can have any name -->
  <item>
    <!-- item node contains one or more elements with
         simple values. -->
    <item-element-1>item-value-A1</item-element-1>
    <item-element-2>item-value-A2</item-element-2>
    ...
  </item>
  <item>
    <!-- Successive item nodes would typically have
         the same elements, with new values. -->
    <item-element-1>item-value-B1</item-element-1>
    <item-element-2>item-value-B2</item-element-2>
    ...
  </item>
  ...
</main>
```

An additional supported variant is that the main node can itself be inside a root node. (This is how RSS is structured, for example.)

Non-supported XML Features

Among the XML features not currently supported by the Data Source module include:

- XML attributes (this is supported in hand-scripted ScalaScript).
- Additional sub-elements.
- Other more complex structures (e.g. deeper trees).
- More than one group of repeating item nodes.

It will be the job of the Fetcher to present a Local XML File where any additional complexity in the Original Feed has been mapped down to a valid Local XML File.

Fetcher Requirements

Currently, when using the Data Source module, the actual data retrieval and preparation needs to be done by an external program or script, the Fetcher. For this document, Python is assumed, but any suitable language could be used.

The following is what the Fetcher must do.

Feed Source Connection Management

The Fetcher is responsible for the connection to the Original Feed source, and to connect in a suitable way, handle errors, etc. It needs to handle all the aspects needed for correct behavior, including:

- Frequency of checking.
- Use of HTTP conditional-get, notification APIs, or other optimized ways of detecting changes in the Original Feed.
- Use of proxies where required.
- Local caching of feed data
- Error detection.
- Error handling (e.g. how to inform playback that a feed is unavailable or stale).

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Feed Retrieval

The Fetcher must retrieve the data from the Original Feed. This could involve reading data from a local file, from the web, from a database, from a spreadsheet, from hardware interfaces such as the serial port, etc. It will have to deal with whatever format is being offered, e.g. RSS, XML, JSON, Database, CSV, proprietary, etc.

In some cases, the Fetcher will have to read data from multiple places, and combine that into a single Local XML File for Player.

Filtering, Sorting, Scrubbing, and Formatting

Although some filtering, sorting, and formatting is possible within the ScalaScript, the Fetcher normally would do things like:

- Filtering out unneeded records or fields.
- Sorting records into the desired-for-playback order.
- Scrubbing any unusual formatting from the Original Feed (e.g. there are various common errors or junk in RSS feeds that would need to be scrubbed).
- Formatting field values so they are ready for display or use by ScalaScript.

Fetching of related files

Many feeds link to related files. For example, an RSS feed, or a media-RSS feed, can have a picture associated with each story. The Fetcher needs to:

- Fetch any related files, and place them in a local folder chosen by the Fetcher. This may be via locally integrated content, but that is often not necessary.
- Clean up old related files.

After placing the related files locally, the Fetcher needs to include the local path to those related files as the element's content, e.g.:

```
<?xml>
<!-- main node element, can have any name -->
<main>
  <item>
    <item-name>Apple</item-name>
    <item-picture>C:\temp\Apple1.png</item-picture>
    ...
  </item>
  <item>
    <item-name>Banana</item-name>
    <item-picture>C:\temp\Banana.jpg</item-picture>
    ...
  </item>
  ...
</main>
```

All related files **must** be placed locally before the Local XML File referencing them is presented to Player.

If processing a Media-RSS feed, the item images appear as URLs in the element's url attribute, but the local files need to be presented in an element's content.

Presenting the Local XML File

Once the Original Feed has been read, filtered, sorted, and scrubbed, and any related files fetched and placed locally, the Fetcher needs to:

- Create an XML file that follows the form supported by the Data Source module.
- Use local-file paths for any related files it fetched, in place of the original URLs.
- Place that XML file as the Local XML File, via locally integrated content.

Local XML File Revision Handling

The Locally Integrated Content feature automatically handles revisioning, meaning the ability to provide a ***new*** revision of the ***same*** file. By using the Locally Integrated Content feature, the Fetcher can update the Local XML File without worrying that Player is currently using this file. Once Player is finished with the older revision of the Local XML File, it will automatically switch to the newer revision, and the older revision will be cleaned up.

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Cleanup of Related Files

For most data sources, related files are similar to those in a news feed. In the case of a news feed, the associated pictures would typically be supplanted by a new set of pictures, rather than by new revisions of the same old picture file names, so using Locally Integrated Content would not take care of cleaning up no-longer-needed related files. The Fetcher must take care of this cleanup.

Simple Cleanup

In some cases, the overall behavior and schedule means that the Fetcher can implement cleanup following some simple rules. For example, if the Fetcher is checking often for an updated news feed, and suppresses any feed that is more than one hour out of date, the Fetcher may be able to simply clean up any related files that are more than a couple of hours old.

Locking-Aware Cleanup

In other cases, it may not be possible to have an overarching rule for identifying obsolete files. With a bit of care, it is possible to clean up related files in a way that avoids deleting any file that Player may still need.

When Player accesses the Local XML File, it locks that file and holds the lock until it is done using that revision of the file. ***In addition, Player will lock all related files from all records of the Local XML File.*** This protects these files from deletion. If the Fetcher tries to clean them up, it will fail to delete them.

When Player needs to check for a new revision of the Local XML File (e.g. once it has iterated through all the records), it will unlock all the related files, obtain the new revision, and then lock all the related files. If the Local XML File is unchanged, that does mean it will re-lock the same set of related files it just had locked.

Once the Fetcher has placed all the related media files, and presented a new revision of the Local XML File, the following may be true:

- Player has not yet grabbed this new revision of the Local XML File, in which case the related media files are not yet locked
- Player has grabbed this new revision, and locked the related media files

The player may be still in the middle of using one older revision of the Local XML File. (This may be the current revision, one back, or several back, depending on update frequency, loop length, etc.) Whichever revision is being used, its related files will still be locked.

Therefore, the following cleanup rules are complete and safe:

- Any related files used by the current revision presented by the Fetcher must not be deleted
- Any other related files are safe to ***attempt*** to delete. Those that are still used will fail the attempt, while those that are truly obsolete will be successfully deleted.

The above rules leave a potential gap if the Fetcher supplies a new revision while the Data Source module is starting to process the previous revision, but the Data Source module has special handling to care for that. (Here are the details: say the Data Source module is just starting to process revision x of a feed, and the Fetcher supplies a new revision y of the feed. By the above rules, the Fetcher may clean up related files from revision x that are no longer used by revision y. The Data Source module might then fail to find the related files for its revision x. It has a special behavior in that case, which is to loop back to pick up the newest revision.)

Future Plans for the Data Source Module

Extended Format Support

The Data Source module may grow the capability to handle additional things, such as more complex XML structures, XML attributes, etc. The Data Source module may grow the capability to handle JSON-formatted data.When this support arrives, the Fetcher will have more flexibility in how it presents the Local XML File.

Extended Script Playback Support

The Data Source module may grow additional looping policies. This would not tend to affect the Fetcher.

Reporting Custom Warnings and Problems

Scala Player makes it easy for custom applications running alongside Player, and for Windows Scripts run from a ScalaScript, to report custom warnings or problems into the log, which can also appear on the Content Manager **Player Health** screens, and trigger an email-alert to the network administrators. This is done using the **LogExternalError** method, which is available in two forms:

- Windows Scripts run from within the Windows Scripting Module should use the **LogExternalError** method of the **Scala.Player** interface, which is always available from playback.
- Custom applications running alongside Player should use the **LogExternalError** method of the **Scala.InfoNetwork** interface, which is always available when the Player Network Client is running.

Either form of the **LogExternalError** method takes three parameters:

- **problemNumber**: The problem-number to report. This determines whether the report is a problem (logged, reported to Content Manager's **Player Health** subsystem, where it can trigger an email alert), or a warning (logged only). The current supported values are:

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Value	Explanation
1000	Problem - general. (Use when none of the other Problem numbers are suitable.)
1001	Warning - general. (Use when none of the other Warning numbers are suitable.)
1002	Problem with Player hardware, e.g. "CPU temperature critical".
1003	Warning with Player hardware, e.g. CPU temperature higher than expected".
1004	Problem with the display, e.g. "Projector lamp has failed".
1005	Warning with the display, e.g. "Projector lamp life less than 10% remaining".
1006	Problem with a device, e.g., "Printer is out of paper".
1007	Warning with a device, e.g., "Printer is low on paper".
1008	Problem with communication, e.g. "Server could not be reached, invalid password".
1009	Warning with communication, e.g. "Server could not be reached. retrying".
1010	Problem with software, e.g. "Unhandled error, subsystem cannot continue".
1011	Warning with software, e.g. "Unexpected result".
1012	Problem with data, e.g., "Invalid data format".
1013	Warning with data, e.g., "Data is corrupt".

- **moduleName**: A short string identifying your script module as the source of this report. This information is included in the log and problem report. Examples:
  - "XYZ Screen Monitor"
  - "ABC Data Fetcher"
- **problemString**: A string describing the problem, with as much useful detail on the impact of the problem and/or how to resolve it. This information is included in the log and problem report. Examples:
  - "The lamp in projector #2 has failed",
  - "Unable to get data from newsfeed at http://example.com/SignageNewsFeed.rss"

Locally Integrated Content

Scala Player makes it easy for custom applications running alongside to create, deliver, or install media files or other content in a way which allows them to be seamlessly introduced into a Scala script. This is done through the **IntegrateContentLocally** COM interface provided by the Scala Player Transmission Client.

In Scala Designer, if you add a piece of media from the **Linked Content** folder, that creates a linked content reference. This means that the file specified is **not** included when the script is published, but is expected to be found on the player at run-time. One way to get that content to the player is to send it using Scala Enterprise Content Manager's Non-Scheduled Content feature.

If you want to use a custom application residing on the player to fetch or create the linked content, then use **IntegrateContentLocally** to locally integrate content, which means that the file is placed correctly into a specific folder, such as **..\Users\Public\Documents\Scala\LocallyIntegratedContent.**

IntegrateContentLocally places the file there in a manner that prevents access-collisions with the Scala script which may simultaneously be using the file.

Some examples where **IntegrateContentLocally** may be useful include:

- Load an XML file used by **Data Source Module** to be replaced at the local player (e.g. prices for a menu board).
- Read XML over the web, convert it to text, and place it where **TextFile Module** can access it.
- Fetch the current weather map as a JPEG file from a web server every five minutes.
- Generate a BMP image that is a graph of current production rates.

The **IntegrateContentLocally** method cooperates with Player so that even if Player is currently reading a file, you can install a new version of that file that will be used the next time player needs that file. If you are part-way done installing a file when Player needs it, Player gets the most recent *fully-installed* copy.

This COM interface is installed as part of the Scala Player installation and is available when the Transmission Client is running. To use this

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method, you first must instantiate the **Scala.InfoNetwork** interface:

```
Set obj = CreateObject("Scala.InfoNetwork")
```

Install External Content Files

In a typical example, your external code would generate the file in question, or download it, and place it into some folder you manage. Then, by using the correct technique below, you can install that file into the **LocallyIntegratedContent** folder, which automatically cleans up any earlier revisions of the same file name that are no longer needed.

For example, if the file is **"C:\MyStuff\MyFolder\foo.jpg"**), and you wanted to make it available in the root of the **LocallyIntegratedContent** folde r, you would say in VBScript:

```
Set obj = CreateObject("Scala.InfoNetwork")
...
result = obj.IntegrateContentLocally("C:\MyStuff\MyFolder\foo.jpg", "")
```

or equivalently in Python:

```
from win32com import client as ax
...
obj = ax.Dispatch("Scala.InfoNetwork")
...
obj.IntegrateContentLocally(r"C:\MyStuff\MyFolder\foo.jpg", "")
```

A script can reference this media by using the path **Content:\foo.jpg**.

If instead you wanted to install **foo.jpg** to a subfolder, then you would say in VBScript:

```
Set obj = CreateObject("Scala.InfoNetwork")
...
result = obj.IntegrateContentLocally("C:\MyStuff\MyFolder\foo.jpg", "mysubfolder")
```

or equivalently in Python:

```
from win32com import client as ax
...
obj = ax.Dispatch("Scala.InfoNetwork")
...
obj.IntegrateContentLocally(r"C:\MyStuff\MyFolder\foo.jpg", "mysubfolder")
```

In that case, a script can reference this media by using the path **Content:\mysubfolder\foo.jpg**.

Note that when using Python, you can request that the Transmission Client be started automatically upon calling **IntegrateContentLocally**, if it is not already running. Just add **start_netic=True**, as in:

```
...
obj.IntegrateContentLocally(r"C:\MyStuff\MyFolder\foo.jpg", "", start_netic=True)
...
```

Seamlessly Reference External Content

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As shown above, a Scala Script can reference this media by using paths such as **Content:\foo.jpg** or **Content:\mysubfolder\foo.jpg**. In Scala Designer, you can create such a reference by:

- Opening the Linked Content folder, by going to **Start > Programs > Scala Designer > Linked Content**
- Putting a placeholder file (**foo.jpg** in this example) in that folder.
- From Designer, add **foo.jpg**. You can locate the Linked Content folder by following the **My Documents > Scala Linked Content** shortcut .

Player has special logic for linked content and locally integrated content that allows for seamless updates. That means if your external code installs a new JPEG (e.g. the current weather image), it does not matter if Player is currently using an older revision of the same JPEG. In particular:

- The **IntegrateContentLocally** method will not fail or be blocked because the previous revision is in use. Rather, the new revision of the file will be placed in the folder.
- Player will automatically grab the newest revision of your file the next time it needs it.
- Player will automatically clean up any older revisions of that file.

If you locally integrate a file, and also use Content Manager to deliver a file of the exact same name, the file delivered by Content Manager will take precedence.

Restart Playback

As discussed in Locally Integrated Content, newly integrated content is used the next time it is referenced. In some cases, this could mean the new content is not used until a script loops, for example. To force an immediate restart of playback, use the **RestartPlayback** method implemented inside the Scala Player.

To restart the player engine from VBScript, use:

```
Set obj = CreateObject("Scala.InfoPlayer5")
...
obj.RestartPlayback
```

If the Player is not running, the CreateObject will fail, so you should plan to trap that error.

From Python, use:

```
import scala5
...
scala5.InfoPlayer5.RestartPlayback()
```

Check for New Plans

The Player Transmission Client can be asked to check for new plans, via a COM interface.

To check for new plans, use:

```
Set obj = CreateObject("Scala.InfoNetwork")
...
result obj.CheckPlanNow()
```

If the Player Transmission Client is not running, the CreateObject will fail, so you should plan to trap that error.

From Python, use:

```
import scala5
...
scala5.InfoNetwork.CheckPlanNow()
```

Accessing Player Variables and Metadata

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A number of Player and Channel variables are available as ScalaScript variables on the player, as are various types of metadata that can be set in Content Manager. You can read or display these variables directly from your ScalaScripts, which can also pass this variable to a VBScript, JScript, or Python script for processing there. You can make solutions that display the metadata information or that different actions based on metadata values.

Global Player Variables

You can read these ScalaScript variables to learn certain global properties of the Player:

- **Player.PlayerName**: Name of Player in Content Manager.
- **Playback.Id:** UUID of Player in Content Manager.
- **Playback.MainScript:** Player's main script.
- **Player.*Foo***: Value of Player metadata *Foo*. The metadata entry *Foo* and its values on each player would be set up in Content Manager.

Current Channel Variables

You can read these ScalaScript variables to learn about the current channel:

- **Playback.Channel**: Name of Player's channel.
- **Channel.*Foo***: Value of channel variable *Foo*. The metadata entry *Foo* and its values for each channel would be set up in Content Manager.

Current Frame Variables

You can read these ScalaScript variables to learn about the current frame:

- **Playback.Frame**: Name of frame.
- **Playback.FramePath**: Frame path. This is a string that uniquely identifies the frame including display, channel, and frame-name, e.g. "Display1.My channel.My frame"
- **Playback.Fullscreen**: On or off.
- **Playlist.Path**: Playlist path. This is a string that uniquely identifies the playlist, e.g. "Display1.My channel.My frame.TimeSlot.My playlist"
    - If you have a ScalaScript running in one frame, you can access another frame's media/playback or playlist variables by prefixing those variable names with the frame name of interest, followed by a dot. So **MediaItem.Title** becomes **framename.Mediaitem.Title**. The following cross-frame variables are available: **framename.MediaItem.Title, framename.MediaItem.Type, framename.MediaItem.ModifiedDate, framename.MediaItem.Folder, framename.MediaItem.Foo, framename.Playlist.Path, framename.Playback.Fullscreen**
- **Playlisted.NestedPath:** variable that will show what sub-playlist an item is located in.

Current Media Item Variables

You can read these ScalaScript variables to learn about the currently-playing media item in the current frame:

- **MediaItem.Title**: Name of the current media item in this frame. If no current media item is available, Media.Item.Title will contain the name of the most recently played item.
- **MediaItem.Type**: Type of the current media item in this frame.
- **MediaItem.ModifiedDate**: Modification date of the current media item in this frame.
- **MediaItem.Folder**: Folder of the current media item in this frame.
- **MediaItem.*Foo***: Value of media item metadata *Foo*for the current media item in this frame. The metadata entry *Foo* and its values for each media item would be set up in Content Manager.

Use of Media Item Metadata

If you set up a Media Item metadata entry called **Foo**, then the value of **Foo** for the currently-playing Media Item is made available as the ScalaScript variable **MediaItem.Foo**, and you can read this variable directly from your ScalaScripts. Your ScalaScript can also pass this variable to a VBScript, JScript, or Python script for processing there. You can make a script that displays the metadata information or takes different actions based on metadata values. That lets a ScalaScript read the values of the Media Item metadata that were applied to that script itself.

Cross-Frame Media Item Variables

If you have a ScalaScript running in one frame, you can read these ScalaScript variables to learn about the currently-playing media item in another frame (example given for a frame called *framename*:

- ***framename*.MediaItem.Title**: Name of the media item currently playing in frame *framename*.
- ***framename*.MediaItem.Type**: Type of the media item currently playing in frame *framename*.
- ***framename*.MediaItem.ModifiedDate**: Modification-date of the media item currently playing in frame *framename*.
- ***framename*.MediaItem.Folder**: Folder of the media item currently playing in frame *framename*.
- ***framename*.MediaItem.*Foo***: Value of media item metadata *Foo* for the media item currently playing in frame *framename*. The metadata entry *Foo* and its values for each media item would be set up in Content Manager.

Use of Cross-Frame Media Item Metadata

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You can also access the Media Item metadata for the media items playing in a different frame. You could create a ScalaScript to play in a bottom-frame that displays the song title of a video playing in the main frame, by accessing the ScalaScript variable ***<framename>*.MediaItem.<*metadataname*>**, for example **Main.MediaItem.SongTitle**. You can display this in a text element by typing in Designer **Song: !Main.MediaItem.SongTitle.**

Player Metadata

There are a couple of ways to learn the value of Player Metadata.

Player Metadata from Variables

Player metadata appears as Player variables. For example, **Player.*Foo*** contains the value of the Player metadata *Foo* for the current player. This can be used as a variable in ScalaScript. (In your ScalaScript, you should declare the variable as External.)

To share this value to a VBScript, JScript, Python script, etc., pass it as as a shared variable in the **Windows Scripting** command. In scripting languages where the period character is not legal in variable names, use the **shared name** feature to share it under an adapted name.

Player Metadata XML

Alternately, to access Player Metadata from VBScript, JScript, Python, or another scripting language, the player can discover the settings of its player metadata. Player metadata is written to a file**...\Network\metadata[*revision*].xml**. Using the **ScalaFileLock** interface, this file can be located and then loaded. Here is a sample VBScript to read the player metadata file:

Example to read local metadata file. In this example, there are two metadata values, "Player.Location" and "Player.Color".

Use .SelectSingleNode("entry[@name='X']") to read metadata named X.

In ScalaScript, make variables by those names and share them with the VBScript. Running the VBScript will look up and fill in these values.

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```
' ---------------------------------------------------------------------

' Set default values for all metadata here:
location = "?"
color = "?"

' ---------------------------------------------------------------------

Dim oScalaFileLock
Dim myXML

' Get an instance of the ScalaFileLock, to do our resolving and locking: Set
oScalaFileLock = CreateObject("ScalaFileLock.ScalaFileLock.1")

' Prepare to survive the case where the file is not found
On Error Resume Next
' Resolve and lock the file name, and return the Windows file name to use windows_file
= oScalaFileLock.LockScalaFile("ScalaNet:\metadata.xml")
If windows_file <> "" Then

' Load the metadata XML:
Set myXML = CreateObject("Microsoft.XMLDOM")
myXML.async = False
If (myXML.Load(windows_file) <> 0) Then

' Find the root metadata node:
Set metadatanode = myXML.selectSingleNode("scala-metadata")
IF Not metadatanode Is nothing Then
' Find the entry for location:
Set entrynode = metadatanode.SelectSingleNode("entry[@name='Player.Location']")
If Not entrynode Is nothing Then
' Set the value
location = entrynode.Attributes.getNamedItem("value").text

End If

' Find the entry for color:
Set entrynode = metadatanode.SelectSingleNode("entry[@name='Player.Color']")
If Not entrynode Is nothing Then
' Set the value
color = entrynode.Attributes.getNamedItem("value").text

End If

End If

End If

' Indicate we are done with this file for now
oScalaFileLock.UnlockScalaFile()

End If
```

Access Metadata from Python

Using this method to access metadata is a simpler way than using a VBScript:

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```
from scalatools import get_metaval
location = get_metaval('Player.location')
```

Scala Publish Automation EX Module

The Scala Publish Automation EX Module is an additional software component that supports external applications that wish to represent and publish content to a Scala network. It is a Windows service that allows an external program to perform the equivalent of the Publish to Scala Network function of Scala Designer.

Publish Automation Module Installation

The Publish Automation EX Module is a separate product with its own installer. To use that Installer:

1. In the **Administrative Tools** control panel, double-click the **Services** icon. Select the **Scala Publish Server** service, and open its **Properties**.
2. On the **Log On** tab, specify a suitable account and password for this service to log on as.

Publish Automation Usage

When the Publish Automation EX Module is running, it offers a COM interface to access its **Publish to Scala Network** feature. This COM interface can be accessed from VBScript or many other languages. It contains these methods:

GoPublish and GoPublishFolder Methods

```
Publisher.GoPublish
    scriptlist As String,
    targeturl As String,
    logfilename As String,
    editpassword As String,
    options As String,
    out_handle As Variant
```

or

```
Publisher.GoPublishFolder
    scriptlist As String,
    targeturl As String,
    targetfolder As String,
    logfilename As String,
    editpassword As String,
    options As String,
    out_handle As Variant
```

Where:

- **scriptlist:** String containing the filenames of one or more script files to publish (one script per line).
- **targeturl**: Publish location path or URL with username and password. Can be one of:
  - **A UNC path**: \\server\share\folder
  - **An FTP URL**: ftp://user:password@hostname[:portnumber]/folder/
  - **An HTTP URL**: http://user:password@hostname[:portnumber]/virtual folder?networkname
  - **An HTTPS URL**: https://user:password@hostname[:portnumber]/virtual folder?networkname

  Examples:
  - ftp://administrator:test@myftpserver/foo
  - http://administrator:test@myserver:8080/ContentManager?Scala
- **targetfolder**: (Only for **GoPublishFolder** method) Sub-folder into which to publish.
- **logfilename**: Path to log file to write information to.
- **editpassword**: Optional edit-password to apply to published script(s).

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- **options**: String containing zero or more of the following option flags:
  - **d**: Show progress dialog (not supported when Publish Automation module is running as a service).
  - **i**: Ignore errors (scripts get published with errors).
  - **f**: Do NOT include fonts.
  - **w**: Do NOT include wipes.
  - **x**: Skip cleanup.
  - **p**: Use passive FTP.
  - **z**: Publish to a ScalaScript Package (a single-file format).
- **out_handle**: Returns a unique handle for each request (for use with the **CheckPublish** method).

GoPublish asynchronously initiates a publish operation. Multiple operations can be queued. Once initiated, you can check the progress of a publish operation by passing the handle returned from GoPublish to the **CheckPublish** method. See the **CheckPublish** method for more information and a full VBScript example on how to invoke both methods.

CheckPublish Method

```
Publisher.CheckPublish
    handle As Variant,
    out_numberofscripts As Variant,
    out_currentscriptnum As Variant,
    out_currentscriptname As Variant,
    out_scriptpercentdone As Variant,
    out_overallpercentdone As Variant,
    out_completedscripts As Variant,
    out_failedscripts As Variant,
    out_allerrors As Variant
```

Where:

- **handle**: Supply the handle returned by GoPublish.
- **out_numberofscripts**: Total number of scripts in this publish operation.
- **out_currentscriptnum**: Number in sequence of script currently being published (starting with 1).
- **out_currentscriptname**: Name of script currently being published (no path or extension).
- **out_scriptpercentdone**: Current script progress 0-100 (%), for display only.
- **out_overallpercentdone**: Overall progress 0-100 (%), for display only.
- **out_completedscripts**: String listing successfully publish scripts (one name per line).
- **out_failedscripts**: String listing all scripts that failed to publish (one name per line).
- **out_allerrors**: String listing all errors encountered in this publish operation.

CheckPublish synchronously requests progress information on a publish operation in progress. It may be called repeatedly to request information on a handle returned from **GoPublish**. A publish operation has ended when*out_currentscriptnum > out_numberofscripts*.

An example VBScript might look like this:

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```
Dim obj, handle
Set obj = CreateObject("Scala.Publisher")
obj.GoPublish "c:\My1stScript.sca" & vbLf & "c:\My2ndScript.sca",  _
    "http://username:password@servername:8080/ContentManager?network", _
    "c:\log.txt", "", "", handle
' This example shows progress ten times using MsgBox.  User must hit OK each time.
Dim i, numscripts, curscriptnum, curscriptname, percentdone,  _
    totpercentdone, completedscripts, failedscripts, allerrors
i = 0
Do While (i < 10)
    i = i+1
    obj.CheckPublish handle, numscripts, curscriptnum, curscriptname,  _
        percentdone, totpercentdone, completedscripts, failedscripts, allerrors
    Dim s
    If (curscriptnum > numscripts) Then
        If (failedscripts <> "") Then
            s = "Publishing finished with errors."
        Else
            s = "Publishing finished successfully."
        End if
    ElseIf (curscriptnum = 0) Then
        s = "Queued and awaiting publishing."
    Else
        s = "Publishing script " & curscriptnum & " of " & numscripts & ": '" &  _
            curscriptname & "' is " & percentdone & "% done." & vbLf &  _
            vbLf &  _
            "Overall progress: " & totpercentdone & "% done."
    End If
    s = s & vbLf & vbLf

    If (completedscripts <> "") Then
        s = s & "Completed scripts:" & vbLf & completedscripts & vbLf & vbLf
    End if
    If (failedscripts <> "") Then
        s = s & "Failed scripts:" & vbLf & failedscripts & vbLf & vbLf
    End If
    MsgBox s & allerrors
Loop
Set obj = Nothing
```

Scala Server Support Module

The Scala Server Support Module is a component that supports various tasks that Scala Enterprise Content Manager needs. Using those same features, an external program can generate preview thumbnails of scripts and other content.

Installation

The Server Support Module is installed as part of the Scala Enterprise Content Manager installation.

Module Usage

The Server Support Module offers a COM interface to access its **Thumbnail Generation** feature. This COM interface can be accessed from VBScript or many other languages. It contains these methods:

ThumbnailServer

- GeneratePageThumbnails
    - GeneratePageThumbnails can be used to create thumbnail images from specific pages in a template Scala Script. If ingredients

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are provided, they will be used for the template field values.
    - Arguments:
        - scriptpath: Full path to the template script.
        - xmltext: A string of XML that defines the template field values to use.
        - thumbnailfilename: Full path to the desired thumbnail image files, without a filename extension. The page number will be added to this path for each requested thumbnail.
        - metafilepath: Full path to the metafile.
        - width: Thumbnail max width in pixels.
        - height: Thumbnail max height in pixels.
        - options: Option list (rr, rl, ru, k, s, d).
        - pages: A list of one or more page numbers separated by commas. If empty, all thumbnails will be generated, subject to the d option.
- GenerateScriptThumbnail
    - GenerateScriptThumbnail can be used to create a thumbnail for a script or message suitable for use on a CM landing page.
    - Arguments
        - scriptpath: Full path to the script.
        - xmltext: A string of XML that defines the template field values to use. May be empty.
        - thumbnailfilename: Full path to the desired thumbnail image file, without a filename extension.
        - metafilepath: Full path to the metafile.
        - width: Thumbnail max width in pixels.
        - height: Thumbnail max height in pixels.
        - options: Option list (rr, rl, ru, k, s).

GenerateThumbnail2 Method

The **GenerateThumbnail2** method can be used to create a thumbnail image from a media file or ScalaScript. At the same time it can retrieve related information (such as dimensions and duration) about that media file or ScalaScript.

Publisher.GenerateThumbnail2
mediafilename As String,
pagename As String,
thumbnailfilename As String,
mediainfofilename As String,
width As Variant,
height As Variant,
options As String,
out_errormsg As Variant

- **mediafilename**: Full path to the source media file or ScalaScript file.
- **pagename**: Name of the page to generate (if omitted, the first page is used).
- **thumbnailfilename**: Full path to desired image file. The file name may end in the extension **.png**.
- **mediainfofilename**: Full path to desired XML file that will be written to contain media info. Use a null string if you do not wish this information to be written out. (In VBScript, use the special **vbNullString** constant.) The empty string **""** may be used as an alternative to the null string.
- **width**: Thumbnail width in pixels.
- **height**: Thumbnail height in pixels.
- **options**: A string that can optionally contain one of these flags:
    - **rl**: Rotate 90 degrees left.
    - **rr**: Rotate 90 degrees right.
    - **ru**: Rotate 180 degrees (upside down).
    - **k**: Keep aspect.
    - **s**: Skip calculation of duration for ScalaScripts.
- **out_errormsg**: Error message returned by **GenerateThumbnail2**. Note that errors such as missing files may be reported even in cases where the call succeeds. In such cases, the imagery for the missing files will be absent in the thumbnail that is generated.

GenerateThumbnail2 synchronously generates a thumbnail of the supplied media file or ScalaScript file. For ScalaScript files, the thumbnail is either of the specified page or the first page of the script. The *thumbnailfilename*parameter must contain the full path plus the filename and the extension of the desired image. The resulting image can be in **.png** format, based on the file extension the caller supplies.

If a non-null *mediainfofilename* is provided, then information about the duration and dimensions of the specified *mediafilename* will be written to the file specified by *mediainfofilename* in XML format. Here is a sample result for a media-file:

```
<?xml version="1.0"?>
<media-items-info>
<duration>00:03:59.699</duration>
<width>1024</width>
<height>768</height>
</media-items-info>
```

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Only information relevant to the particular media type is returned. For example, images have no duration, and audio-files have no dimensions. Note that if *mediafilename* points to an audio file, then no thumbnail is generated in that case, but media-info is returned if the call succeeds.

Here is a sample result for a ScalaScript:

```
<?xml version="1.0"?>
<media-items-info>
<min-duration>00:03:59.699</min-duration>
<max-duration>00:03:59.699</max-duration>
<width>1024</width>
<height>768</height>
</media-items-info>
```

Note how for ScalaScripts duration is reported as a minimum and a maximum. That is because duration for ScalaScripts may not be a single constant value, due to the presence of conditionals, complex logic, or other factors that can cause the ScalaScript to run for longer or shorter. In such cases a range is returned.

If it is possible that the ScalaScript may run forever (if it contains a loop, an element of undetermined length such as a Flash file, or a **Wait Forever** ScalaScript duration-command) then

```
<max-duration>unbounded</max-duration>
```

is returned.

An example VBScript invocation might look like this:

```
Dim obj, errormsg
Set obj = CreateObject("Scala.Thumbnailer")
obj.GenerateThumbnail2 "c:\test.sca", "", "c:\thumbnail.png", "c:\mediainfo.xml", 512,
384, "", errormsg
If errormsg <> "" Then
MsgBox errormsg
End if
Set obj = Nothing
```

GeneratePreviewThumbnails3 Method

The **GeneratePreviewThumbnails3** can be used to create thumbnail images from a template-ScalaScript, where the template will use the text and media-files that you supply. At the same time it can retrieve related information (such as dimensions and duration) about the resulting message.

Typical Use of GeneratePreviewThumbnails3

The typical use of **GeneratePreviewThumbnails3** is:
Publisher.GeneratePreviewThumbnails3
scriptpath As String,
xmltext As String,
thumbnailfilename As String,
mediainfofilename As String,
width As Variant,
height As Variant,
options As String,
out_numthumbs As Variant
out_errormsg As Variant

- **scriptpath**: Full path to the template-ScalaScript
- **xmltext**: A string of XML that defines the template data-field values to use.
- **thumbnailfilename**: Full path to desired image file. The file name may end in the extension **.png.** Since templates may have multiple pages, the actual file names will have a number appended. For example, if you specify **C:\Temp\Foo.png**, then the thumbnail filenames will be **C:\Temp\Foo1.png**, **C:\Temp\Foo2.png**, and so on.
- **mediainfofilename**: Full path to desired XML file that will be written to contain media info. Use a null string if you do not wish this

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information to be written out. (In VBScript, use the special **vbNullString** constant.) (The empty string **""** may be used as an alternative to the null string.)
- **width**: Thumbnail width in pixels.
- **height:** Thumbnail height in pixels.
- **options**: String that can optionally contain one of these flags:
  - **rl**: Rotate 90 degrees left.
  - **rr**: Rotate 90 degrees right.
  - **ru**: Rotate 180 degrees (upside down)
  - **k**: Keep aspect.
  - **s**: Skip calculation of duration for ScalaScripts.
  - **d**: Skip generating thumbnails for disabled pages. If this is not used, thumbnails will be generated for both enabled and disabled pages.
  - **p**: Use event numbers in page thumbnail filenames. If this is not used, thumbnails will be numbered sequentially.
- **out_numthumbs**: Returns number of thumbnails that were generated from this template. (A multi-page template will return a number higher than one.)
- **out_errormsg**: Error message returned by **GeneratePreviewThumbnails3**. Note that errors such as missing files may be reported even in cases where the call succeeds. In such cases, the imagery for the missing files will be absent in the thumbnail that is generated.

The *xmltext* string must specify the "ingredients" for your template. That is, it must list the data-fields the template provides and the values you wish to use for each of them. This input string should consist of an **<ingredients>**XML-element containing one or more data-field elements, from the following supported types:

- **<text name="***fieldname***">***Text to use***</text>**: A text data-field and its value.
- **<boolean name="***fieldname***">***On*|*Off***</boolean>**: A boolean data-field and its value.
- **<integer name="***fieldname***">***number***</integer>**: An integer (numeric) data-field and its value.
- **<real name="***fieldname***">***floating-point number***</real>**: A real (floating point) data-field and its value.
- **<filename name="***fieldname***">***path-to-filename***</filename>**: A filename data-field and its value, which is the full path to the file.
- **<resource name="***fieldname***">***name-of-playlist***</filename>**: A resource data-field and its value, which is typically the name of a playlist in Content Manager.

Here is an example *xmltext* string:

```
<ingredients>
<text name="Headline">Breaking News</text>
<text name="Body">Scala announces a major new software release!</text>
<filename name="Photo">C:\images\ScalaLogo.png</filename>
<resource name="Showcase">C:\images\FeatureA.mpg</resource>
</ingredients>
```

This sets the text data-field named **Headline** to "**Breaking News**", and the text data-field named **Body** to "**Scala announces a major new software release!**", and sets the filename data-field named **Photo** to **C:\images\ScalaLogo.png**.

For the **Showcase** ingredient, since it would be hard to pass in an entire playlist, a convention is used instead: You provide the full path to the playlist's first media-item (or the media-item you wish to use to represent this playlist in the thumbnail) in place of the playlist itself, in this case **C:\images\FeatureA.mpg**.

GeneratePreviewThumbnails3 synchronously generates a series of thumbnails for the templated message, generating one thumbnail file for each page in the template, with a number appended to the filename. For example, if you specify **C:\Temp\Foo.png**, then the thumbnail filenames will be **C:\Temp\Foo1.png**, **C:\Temp\Foo2.png**, and so on. The resulting image can be in **.png** format, based on the file extension the caller supplies.

If a non-null *mediainfofilename* is provided, then information about the duration and dimensions of resulting entire message will be written to the file specified by *mediainfofilename* in XML format. Here is a sample result:

```
<?xml version="1.0"?>
<media-items-info>
<min-duration>00:03:59.699</min-duration>
<max-duration>00:03:59.699</max-duration>
<width>1024</width>
<height>768</height>
</media-items-info>
```

Note how duration is reported as a minimum and a maximum. That is because duration for templated messages may not be a single constant value, due to the presence of conditionals, complex logic, or other factors that can cause the ScalaScript template to run for longer or shorter. In such cases a range is returned.

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If it is possible that the templated message may run forever (if it contains a loop, an element of undetermined length such as a Flash file, or a **Wait Forever** ScalaScript duration-command) then

```
<max-duration>unbounded</max-duration>
```

is returned.

Note that resource (playlist) ingredients are not considered in the duration calculation.

An example VBScript invocation might look like this:

```
Dim obj, errormsg, numthumbs
Set obj = CreateObject("Scala.Thumbnailer")
obj.GeneratePreviewThumbnails3 "C:\rootfolder\NewsTemplate.sca",  _
"<ingredients><text name=""Headline"">Breaking News</text><text name=""Body"">Scala
announces a major new software release!</text><filename
name=""Photo"">C:\images\ScalaLogo.png</filename></ingredients>",  _
"C:\thumbnail.png", "C:\mediainfo.xml", 512, 384, "", numthumbs, errormsg
If errormsg <> "" Then
    MsgBox errormsg
Else
    MsgBox "Generated " & numthumbs & " thumbnail(s)."
End If
Set obj = Nothing
```

Alternate Use of GeneratePreviewThumbnails3

Sometimes, an alternate way of calling **GeneratePreviewThumbnails3** can be useful. Here, you pass a root-folder as the first argument, and the *xmltext* additionally provides the path to the template-ScalaScript, and any media files in the ingredients can be specified with paths relative to the *rootfolder*.

Publisher.GeneratePreviewThumbnails3
rootfolder As String,
xmltext As String,
thumbnailfilename As String,
mediainfofilename As String,
width As Variant,
height As Variant,
options As String,
out_numthumbs As Variant
out_errormsg As Variant

- **rootfolder**: Full path to the template-ScalaScript.
- **xmltext**: String of XML that defines the template script and the data-field values to use. The syntax is slightly different than above.

All other parameters are the same as above.

The *xmltext* string defines the script and its "ingredients". This string consists of a **<content>** XML-element whose **name** attribute is the path to the script (relative to *rootfolder*). The **<content>** XML-element contains an**<ingredients>** XML-element containing one or more data-field elements, as above. With this form, the path in any **<filename>** XML-element can be relative to *rootfolder*.

Here is an example *xmltext* string:

```
<content name="NewsTemplate.sca">
<ingredients><text name="Headline">Breaking News</text>
<text name="Body">Scala announces a major new software release</text>
<filename name="Photo">images\ScalaLogo.png</filename>
<resource name="Showcase">C:\images\FeatureA.mpg</resource>
</ingredients>
</content>
```

An example VBScript invocation might look like this:

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```
Dim obj, errormsg, numthumbs
Set obj = CreateObject("Scala.Thumbnailer")
obj.GeneratePreviewThumbnails3 "C:\rootfolder",  _
"<content name=""NewsTemplate.scb""><ingredients><text name=""Headline"">Breaking
News</text><text name=""Body"">Scala announces a major new software
release</text><filename
name=""Photo"">images\ScalaLogo.png</filename></ingredients></content>",  _
"C:\thumbnail.png", "C:\mediainfo.xml", 512, 384, "", numthumbs, errormsg
If errormsg <> "" Then
    MsgBox errormsg
Else
    MsgBox "Generated " & numthumbs & " thumbnail(s)."
End If
Set obj = Nothing
```

Older Methods

The newer, more general methods **GenerateThumbnail2** and **GeneratePreviewThumbnails3** have replaced the older **GenerateThumbnail** and **GeneratePreviewThumbnails** methods, but the older methods are still available, and continue to work.

GenerateThumbnail Method

The **GenerateThumbnail** method can be used to create a thumbnail image from a ScalaScript.
Publisher.GenerateThumbnail
scriptfilename As String,
pagename As String,
thumbnailfilename As String,
width As Variant,
height As Variant,
options As String,
out_errormsg As Variant

- **scriptfilename**: Full path to the source script file.
- **pagename**: Name of the page to generate (if omitted, the first page is used).
- **thumbnailfilename**: Full path to desired image file. The file name may end in the extension **.png.**
- **width**: Thumbnail width in pixels.
- **height**: Thumbnail height in pixels.
- **options**: String that can optionally contain one of these flags:
    - **rl**: Rotate 90 degrees left.
    - **rr:** Rotate 90 degrees right.
    - **ru**: Rotate 180 degrees (upside down).
    - **k**: Keep aspect.
- **out_errormsg**: Error message returned by **GenerateThumbnail**. Note that errors such as missing files may be reported even in cases where the call succeeds. In such cases, the imagery for the missing files will be absent in the thumbnail that is generated.

GenerateThumbnail synchronously generates a thumbnail of either the specified page or the first page of the provided script file. The *thumbnailfil ename* parameter must contain the full path plus the filename and the extension of the desired image. The resulting image can be in **.png** format, based on the file extension the caller supplies.

An example VBScript invocation might look like this:

```
Dim obj, errormsg
Set obj = CreateObject("Scala.Thumbnailer")
obj.GenerateThumbnail "c:\test.sca", "", "c:\thumbnail.png", 512, 384, "", errormsg
If errormsg <> "" Then
MsgBox errormsg
End if
Set obj = Nothing
```

GeneratePreviewThumbnails Method

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The **GeneratePreviewThumbnails** can be used to create thumbnail images from a template-ScalaScript, where the template will use the text and media-files that you supply.

Typical Use of GeneratePreviewThumbnails

The typical use of **GeneratePreviewThumbnails** is:
Publisher.GeneratePreviewThumbnails
scriptpath As String,
xmltext As String,
thumbnailfilename As String,
width As Variant,
height As Variant,
options As String,
out_numthumbs As Variant
out_errormsg As Variant

- **scriptpath**: Full path to the template-ScalaScript.
- **xmltext**: String of XML that defines the template data-field values to use.
- **thumbnailfilename**: Full path to desired image file. The file name may end in the extension **.png**. Since templates may have multiple pages, the actual file names will have a number appended. For example, if you specify **C:\Temp\Foo.png**, then the thumbnail filenames will be **C:\Temp\Foo1.png**, **C:\Temp\Foo2.png**, and so on.
- **width**: Thumbnail width in pixels.
- **height**: Thumbnail height in pixels.
- **options**: String that can optionally contain one of these flags:
  - **rl**: Rotate 90 degrees left.
  - **rr:** Rotate 90 degrees right.
  - **ru**: Rotate 180 degrees (upside down).
  - **k**: Keep aspect.
- **out_numthumbs**: Returns number of thumbnails that were generated from this template. (A multi-page template will return a number higher than one.)
- **out_errormsg**: Error message returned by **GeneratePreviewThumbnails**. Note that errors such as missing files may be reported even in cases where the call succeeds. In such cases, the imagery for the missing files will be absent in the thumbnail that is generated.

The *xmltext* string defines the "ingredients", meaning the template data-fields and their values. This string consists of an **<ingredients>** XML-ele ment containing one or more data-field elements, from the following supported types:

- **<text name="***fieldname***">***Text to use***</text>**: A text data-field and its value
- **<boolean name="***fieldname***">***On*|*Off***</boolean>**: A boolean data-field and its value
- **<integer name="***fieldname***">***number***</integer>**: An integer (numeric) data-field and its value
- **<real name="***fieldname***">***floating-point number***</real>**: A real (floating point) data-field and its value
- **<filename name="***fieldname***">***path-to-filename***</filename>**: A filename data-field and its value, which is the full path to the file.

Here is an example *xmltext* string:

```
<ingredients>
<text name="Headline">Breaking News</text>
<text name="Body">Scala announces a major new software release!</text>
<filename name="Photo">C:\images\ScalaLogo.png</filename>
</ingredients>
```

This sets the text data-field named **Headline** to "**Breaking News**", and the text data-field named **Body** to "**Scala announces a major new software release!**", and sets the filename data-field named **Photo** to**C:\images\ScalaLogo.png**.

An example VBScript invocation might look like this:

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```
Dim obj, errormsg, numthumbs
Set obj = CreateObject("Scala.Thumbnailer")
obj.GeneratePreviewThumbnails "C:\rootfolder\NewsTemplate.sca",  _
"<ingredients><text name=""Headline"">Breaking News</text><text name=""Body"">Scala
announces a major new software release!</text><filename
name=""Photo"">C:\images\ScalaLogo.png</filename></ingredients>",  _
"C:\thumbnail.png", 512, 384, "", numthumbs, errormsg
If errormsg <> "" Then
    MsgBox errormsg
Else
    MsgBox "Generated " & numthumbs & " thumbnail(s)."
End If
Set obj = Nothing
```

Alternate Use of GeneratePreviewThumbnails

Sometimes, an alternate way of calling **GeneratePreviewThumbnails** can be useful. Here, you pass a root-folder as the first argument, and the *xmltext* additionally provides the path to the template-ScalaScript, and any media files in the ingredients can be specified with paths relative to the *rootfolder*.

Publisher.GeneratePreviewThumbnails
rootfolder As String,
xmltext As String,
thumbnailfilename As String,
width As Variant,
height As Variant,
options As String,
out_numthumbs As Variant
out_errormsg As Variant

- **rootfolder**: Full path to the template-ScalaScript.
- **xmltext**: An string of XML that defines the template script and the data-field values to use. The syntax is slightly different than above. See below.

All other parameters are the same as above.

The *xmltext* string defines the script and its "ingredients". This string consists of a **<content>** XML-element whose **name** attribute is the path to the script (relative to *rootfolder*). The **<content>** XML-element contains an**<ingredients>** XML-element containing one or more data-field elements, as above. With this form, the path in any **<filename>** XML-element can be relative to *rootfolder*.

Here is an example *xmltext* string:

```
<content name="NewsTemplate.sca">
<ingredients><text name="Headline">Breaking News</text>
<text name="Body">Scala announces a major new software release</text>
<filename name="Photo">images\ScalaLogo.png</filename>
</ingredients>
</content>
```

An example VBScript invocation might look like this:

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```
Dim obj, errormsg, numthumbs
Set obj = CreateObject("Scala.Thumbnailer")
obj.GeneratePreviewThumbnails "C:\rootfolder",  _
"<content name=""NewsTemplate.scb""><ingredients><text name=""Headline"">Breaking
News</text><text name=""Body"">Scala announces a major new software
release</text><filename
name=""Photo"">images\ScalaLogo.png</filename></ingredients></content>",  _
"C:\thumbnail.png", 512, 384, "", numthumbs, errormsg
If errormsg <> "" Then
    MsgBox errormsg
Else
    MsgBox "Generated " & numthumbs & " thumbnail(s)."
End If
Set obj = Nothing
```

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