

User Guide

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Spyder Studio



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Product overview

Spyder is a versatile video processing system that blends, windows, and scales a wide array of video signals.

The Spyder architecture allows multiple displays to be combined to generate a resolution exceeding what a single display can handle. Use Spyder to drive multiple displays to achieve greater brightness, image quality, and resolution than previously possible.

Spyder systems are generally composed of the following base components:

- **Spyder**—The hardware-based video processor core of the system. Adding additional Spyder boxes expands the system and allows more video inputs and windows to be managed.
- **Spyder Studio**—Used to configure the Spyder system and provides online and offline editing capabilities for creating configurations.
Spyder Studio hosts a virtual version of the Spyder server allowing users to work within the software as though connected to the system. It provides synchronization options for the user to take a copy of the system data offline, or to push their offline work to the server hardware.
- **External control systems**—Use external control protocols to develop customized control systems and user interfaces. These control systems are generally found in installations where Spyder is only one of several disparate systems combined to form a larger system. Typical applications include systems such as Montage II, AMX, or Crestron.

Understanding the visual components

Learn about the relationship between the components of the visual image (VI).

- **Visual image (VI)**—Internally, Spyder generates a high resolution display, also referred to as a video canvas. This canvas within Spyder is referred to as the visual image or VI. The VI is segmented into one or more partitions, known as pixelspaces, which define overall screen sizes to be output by Spyder.

The VI within a single Spyder has a fixed maximum number of pixels that can be allocated into individual pixelspaces. The number of available pixels varies according to several factors; however these are general pixel counts based on processing bit-depth:

- 8 bit—79,626,240 pixels
- 12 bit—53,084,160 pixels

The physical input and output module count in Spyder has no effect on the internal VI size.

- **Pixel space**—A pixelspace is a clipping rectangle, used to segment a section of the Spyder VI for the purpose of defining a screen area.
- **Background**—Spyder provides two background layers that can contain user-defined still images loaded into individual pixelspaces. Backgrounds are displayed behind all Spyder layers.
- **Keyframe**—Visual attributes applied to a layer such as size, position, borders, shadows, or clone modes are known as keyframe attributes.

- **Layer**—A single input displayed on the Spyder visual image, displaying either a live video input or still image. Each layer is generated by one of the Spyder input modules, and therefore a 1-to-1 relationship exists between the number of layers in a Spyder system and the number of physical input cards contained within that system. Layers are also referred to interchangeably as a window.
- **Priority**—As it applies to Spyder layers, priority refers to the natural Z-order of multiple layers stacked on top of each other. Spyder is designed with a physically fixed priority; layer one is always shown below layer two, layer two is always shown below layer three, and so on.
- **Source**—A device providing a video input to the Spyder system, such as a computer or media player. Each source is defined by the user and contains an input configuration, a user definable name, and either a router input or hard patched layer.

Related documentation

Additional information on Spyder is available in the following documents:

- *Christie Spyder X80 Installation and Setup Guide (P/N: 020-102024-XX)*
- *Christie Spyder Serial Commands Technical Reference (P/N: 020-102207-XX)*

Configuring Spyder Studio

Use the Spyder Studio software to connect to a Spyder, configure the canvas size and pixelspace, and design the configuration.

Installing the Spyder Studio software

Install the Spyder Studio software on a computer with a resolution of 1920 x 1080 or greater.

Supported operating systems:

- Windows 7 SP1 or newer

Do not use MAC or PC emulators such as VMWare and Microsoft Virtual PC to run Spyder Studio.

Hardware requirements:

- 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor
- 1 GB RAM (32-bit) or 2 GB RAM (64-bit)
- 16 GB available hard disk space (32-bit) or 20 GB (64-bit)

Christie recommends closing all programs before installing the Spyder Studio software.

1. Download Spyder Studio from the Christie website (www.christiedigital.com).
2. Double-click **Spyder Studio <version> Setup.exe**.
3. Install any prerequisite programs and follow the Spyder Studio installation wizard.

Although the application does not require that it be installed on any particular disk drive, the data path for the application has been hard coded to `C:\SPYDER`. All users must have full control (read and write access) to the installation directory and to `C:\SPYDER`.

Configuring the network connection

To ensure network performance and consistent communication between Spyder and Spyder Studio clients, configure the network connection with these recommendations.

- Spyder communicates to its clients over broadcast traffic. This traffic can be intensive to an already active network. Christie recommends that Spyder and all Spyder Studio clients be installed on a closed network. Place any unnecessary devices that also generate large amounts of network traffic on a separate network.
- Christie does not recommend using complex routers and managed switching equipment in the network as it may cause communication interruptions if they are not configured properly,

resulting in loss of communication with Spyder. If the connection between Spyder and its client(s) are interrupted, the communication socket can to break. This causes a temporary loss of communication until the socket is restored with restarting the client application.

- On computers running Spyder Studio, avoid configuring a network card with multiple IP addresses and enabling secondary wired/wireless Ethernet connections.

Network cards on client computers must be configured with an IP address in a specific range.

1. Change the Internet Protocol (TCP/IP) properties to have the computer running Spyder Studio on the same subnet as the Spyder hardware.
2. If Spyder Studio is open, for the settings to be applied, restart the software.

Connecting Spyder Studio to the Spyder hardware

The computer running Spyder Studio must be connected to the Spyder before a configuration can be displayed and live changes can be made.

1. Open Spyder Studio.
2. Select **Server > Connection Manager**.
The server connection manager displays all individual Spyder frames or primary frames available on the network. Spyder frames configured as expansion frames do not appear in the Server Connection dialog.
3. In the Current Connection area, select the Spyder from the list, and click **Connect**.
The Spyder Studio version on the client computer must have the same the firmware version of the Spyder frame before a connection is allowed. If the software versions do not match, the Connect button text changes to Update Now and the firmware must be updated.

Related information

Upgrading the firmware on the Spyder (on page 38)

Disconnecting Spyder Studio from a Spyder

To work offline, disconnect Spyder Studio from the hardware.

1. Select **Server > Connection Manager**.
The server connection manager displays all individual Spyder frames or primary frames available on the network. Spyder frames configured as expansion frames do not appear in the server connection dialog.
2. Select the device from the list, and click **Disconnect**.

Adding a router

To have access to more sources than can connect directly to Spyder, add a router to the configuration.

1. Select **Tools > Routers > Add New Router**.
Alternatively, select a source and in the Router area of the properties, click **Add**.
2. Type a name for the router.

3. Select the number of inputs and outputs available on the router.
4. Select the type of router.
If the router is not listed, contact Christie Technical Support.
5. For Spyder X20 frames, in the Patch To list select the router protocol.
6. Select the type of connection between the router and Spyder.
Analog is only valid for Spyder X20 frames.
7. Click **OK**.

Configuring a router

For increased redundancy, configure multiple Spyder systems to share the same physical routing switcher.

The router patch definition on each Spyder system distinguishes the physical router outputs that correlate to the Spyder frame inputs.

1. Select **Tools > Routers** and select the router.
2. Type a name for the router.
3. Select the type of router.
If the router is not listed, contact Christie Technical Support.
4. Select the number of inputs and outputs available on the router.
5. Select the type of connection between the router and Spyder.
6. If the router is an IP router, type the IP address of the router.
7. If the router is a serial router, select the serial port controlling the router.
8. To test the connection to the router, click **Query Now**.

Creating a custom layout

Create a workspace containing the most relevant windows for your task.

1. Customize the workspace by adding or removing windows.
 - a) To add a new window, from the **View** menu, select the window to display.
 - b) To move a window, click the window title and drag it to the new position.
When dragging a panel over the application, docking handles automatically appear. Release the mouse while one of the docking handles is highlighted.
To undock a panel, double-click the panel title bar. To re-dock a panel in its last docked location, double-click the title bar.
 - c) To resize an area, click and drag the separator bar between the windows.
 - d) To remove a window, click the X in the top right corner of the window.
2. Save the layout.
 - To save the layout as an additional layout, select **Layout > Custom Layout > New Custom Layout**. Type a name for the layout and click **OK**.
 - To save it as the new default layout, select **Layout > Save as Default**.
The default layout is the layout that is loaded when starting Spyder Studio.

Renaming a custom layout

Change the name of the layout to reflect the tasks that can be performed when it is displayed.

1. Select **Layout > Custom Layout > *layout name* > Rename.**
2. Type a new name for the layout and click **OK.**

Deleting a custom layout

Remove any obsolete layouts.

1. Select **Layout > Custom Layout > *layout name* > Delete.**
2. In the confirmation dialog, click **Yes.**

Switching layouts

Change the organization of the workspace to a different layout.

1. To return to the factory default layout, select **Layout > Default Factory Layout > Layout 1.**
2. To display the default layout, select **Layout > Load Default Layout.**
3. To switch to a custom layout, select **Layout > Custom Layout > *layout name* > Load.**

Viewing the hardware input allocations

Analyze the Spyder hardware allocations correlated with pixelspace and frame group definitions.

1. Switch to the **System Layout** view.
2. Verify that the hardware displayed in the System Layout is correct.
3. To understand which inputs and outputs are associated with each pixelspace, review the hardware allocation mappings.

Viewing the association between layers, pixelspaces, and outputs

Reference a real-time view of which layers are assigned to a pixelspace, and which outputs display the pixelspace.

1. Switch to the **System Patch** view.
Red lines from the layers in the left column identify which pixelspaces they are associated with.
White lines map the pixelspaces with their outputs.
2. To understand which inputs and outputs are associated with each pixelspace, review the hardware allocation mappings.

Licensing Spyder

Extend the capabilities of Spyder with licensed options purchased from Christie.

License options are cumulative, meaning that when multiple Spyder frames are connected to a primary Spyder as expansions, a licensed option must be licensed on every Spyder in the chain or the option is disabled on all frames.

Licenses are available for the following options:

- **Maintenance contract**—Maintenance contracts purchased for the Spyder system enable owners to access software updates containing new features and functionality. A license containing an active maintenance contract is required to update to new software versions.
- **Stereoscopic (SSO)**—The stereoscopic option for Spyder allows for any combination of 2D video inputs and 3D (active or passive) stereoscopic inputs to be displayed on the same screen simultaneously. Spyder outputs also support passive or active stereoscopic modes, allowing the device to natively run 3D display devices.
- **HDCP**—Allows Spyder to stop HDCP-encrypted content from being played on devices that do not support HDCP or which have been modified to copy HDCP content.

Requesting a license

The license request process generates a snapshot of one or more Spyder frames, which is used by Christie to generate a license file specifically for the Spyder system(s).

The hardware snapshot is combined with customer information collected during the license request process to create a packaged license request file.

1. In Spyder Studio, select **Help > License Manager**.
2. Select **Generate a license for my Spyder system** and click **Next**.
3. Complete the customer information fields and click **Next**.
4. Select whether the request is to license all Spyder systems on the network or just for a specific server.
5. Specify where the license request will be saved and click **Next**.
6. Click **Generate Now**.
The customer information is combined with one or more Spyder hardware snapshots to create a single file called `License.req`.
7. After the file is completed generating, click **Finish**.
8. Email the license request file to techsupport-az@christiedigital.com.

Installing a license file

After receiving a license file, apply the license to Spyder.

1. Copy all license files to a folder on the computer running Spyder Studio.
2. In Spyder Studio, select **Help > License Manager**.
3. Select **Install one or more license packages obtained from Christie** and click **Next**.
4. Browse to the location where the license files are saved.
After selecting the folder, all license packages found in the location are listed at the bottom of the screen.

5. Click **Next**.
6. In the confirmation dialog, click **Yes**.
7. After the license files are applied, click **Next**.
8. To close the License Manager, click **Next**.

Viewing the current license status

Display the current status of all available license options within the Spyder system.

Use the Spyder License Manager to view license status on both primary and expansion Spyder frames. Because licensed options are cumulative when frames are connected together over the expansion link, viewing license files on each frame can be useful in troubleshooting licensing issues on expanded systems.

1. In Spyder Studio, select **Help > License Manager**.
2. Select **View licenses previously applied to my system(s)** and click **Next**.
3. Select the server IP address.
The status of licenses are listed below the server selected.
4. To close the License Manager dialog, click **Finish**.

EDID management

Learn how to record EDID data from an existing display device, edit EDID data, and program custom EDID data into the Spyder inputs.

Extended display identification data (EDID) is a data structure provided by a display device to describe its capabilities to a computer graphics card, enabling a computer to know what kind of monitor is connected. The EDID includes information such as the manufacturer name and video timings supported by the display. EDID is defined by a standard published by the Video Electronics Standards Association (VESA).

As required of all DVI display devices, Spyder DVI inputs conform to the Extended display identification data (EDID) standard.

Adding an EDID

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Click **Add EDID**  and select **Add from Factory HDMI** or **Add from Factory DP**.

Deleting an EDID configuration

Remove any EDID files that are no longer needed.

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Select the EDID configuration from the list.
4. Click **Remove EDID** .

5. In the confirmation dialog, click **OK**.

Importing an EDID file

Import an existing EDID file to the Spyder frame.



EDID advanced properties can only be edited on imported EDID files with a Christie extension.

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Click **Import EDID** .
4. Navigate to the EDID file and click **Open**.

Customizing the EDID properties

To accommodate a display device, it may be necessary to change the EDID settings.

Modifying the EDID settings may result in a file that does not conform to VESA standards, and may result in performance and quality degradation.

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Select the EDID configuration from the list.
Factory EDID configurations cannot be customized.
4. Modify the base EDID settings.
If the EDID is not for 4K content, deselect the CEA Extension checkbox.
5. To modify advanced properties for the base EDID, at the bottom of the EDID manager, expand the properties of the configuration and select **Base EDID**.
6. Select **Enable Advanced Properties**.
7. In the warning dialog, click **OK**.
8. Modify the EDID settings.
9. Select the ports to use the selected EDID configuration.
To display ports with connections of a certain type, use the filters.
10. Click **Apply**.
11. In the confirmation dialog, click **Yes**.

Retrieving EDID information from the output

Read the EDID information saved on the output, and load it into the EDID manager.

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Click **Read EDID from Output** .

Exporting an EDID file

Export an EDID file to an external location.

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Click **Export EDID** .
4. Navigate to the location where the EDID file will be saved and click **Save**.

Assigning an EDID file to an input

Identify what EDID file to be used by an input.

1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Select the EDID configuration from the list.
4. Select the ports to use the selected EDID configuration.
To display ports with connections of a certain type, use the filters.
5. Click **Apply**.
6. In the confirmation dialog, click **Yes**.

Playing HDCP-encrypted content

Configure Spyder to only display content that has made a successful HDCP handshake with the display device.

High-bandwidth Digital Content Protection (HDCP) is a form of digital copy protection to prevent copying of digital audio and video content as it travels across a digital interface. The system is meant to stop HDCP-encrypted content from being played on devices that do not support HDCP or which have been modified to copy HDCP content.

Spyder has two working modes with respect to HDCP and no combination involves both these modes at the same time.

- **HDCP mode**—HDCP-enabled devices can connect and transmit HDCP content to Spyder.
- **Non-HDCP mode**—This is the normal working mode of Spyder. HDCP content is not displayed.

HDCP has certain considerations and limitations on Spyder, which are imposed by the HDCP specification implementation and compliance requirements.

- HDCP content is only available through the supported digital interfaces and all analog and SDI outputs are shutdown but continue to work as if in normal mode.
- Spyder, as an HDCP repeater, can handle a chain of up to seven devices and supports a maximum of 127 devices. Transmitter devices connected to the Spyder may not have the capability to support this size of chain, or as many devices. The implementation of the transmitter determines the impact of going beyond the limits of that device. Spyder does not have any control if the transmitter chooses not to send HDCP content in such situations.
- In HDCP mode, all downstream traffic from Spyder is encrypted using an HDCP cipher, irrespective of the nature of incoming video through upstream connections. The upstream devices may choose to encrypt or not to encrypt the contents based on the type of video

content but as soon as a device is connected downstream to Spyder, Spyder starts the authentication process and only HDCP enabled displays or devices function.

- HDCP mode restricts the Spyder outputs to function only in single link mode even for the odd numbered outputs. In normal mode, odd numbered DVI outputs in Spyder function at dual-link rates.
- DVI distribution amplifiers, routers, or splitters used in between the sources and Spyder may be unable to manage HDCP or pass-through the DDC communication with reliability, and the HDCP connection may break and become unusable.
- After source content is decrypted in Spyder, it may not be retransmitted or output in any unencrypted signal. HDCP support is system-wide in Spyder, and as a result no supported scenarios involve simultaneous HDCP outputs and non-HDCP outputs in the same system.

To allow devices to connect and transmit HDCP content to Spyder, enable HDCP.

1. Select **Server > Frame Configuration**.
2. To allow only DVI outputs which have made a successful HDCP handshake with the downstream display device to display content, in the Global Settings area select **Enable HDCP**.
All other output connectors are disabled.
3. In the confirmation dialog, click **Yes**.
4. Click **Apply Settings Now**.
5. Restart Spyder.

Viewing the HDCP status

Identify whether video is being transmitted on the selected output.

1. Open the **System Patch** view.
2. Locate the output to inspect, and review the LED status indicator.
Each of the outputs completes a handshake with a downstream device before video begins outputting. Possible status indicators are:
 - **Green**—A successful handshake has occurred and the output is transmitting encrypted video.
 - **Amber/Red**—The handshake failed and the output is not transmitting video.

Input handshaking status is not available with HDCP devices. As a result, no additional status information is added for the input or source side of the system.

Creating a configuration

Use Spyder Studio to design and develop a configuration for the available canvas.

Creating a new Spyder configuration

Create a new project file for each show.

1. Select **File > New**.
2. In the Welcome Screen, select the type of configuration to start with.
 - **Start with new empty configuration**—Build a new configuration.
 - **Load current configuration**—Create a new configuration file using the settings from the last project loaded into Spyder Studio.
3. Add the Spyder frames to be used in the configuration.
Select the model of each Spyder frame and the IP address of the frame in the order it will appear in the expansion chain.
4. Select the frame rate and mode for the Spyder system.
To create a 3D configuration, select **Stereoscopic** mode.
5. Select the pixel depth model.
6. To include a Preview area in the configuration, click **Preview Disabled**.
The button changes to Preview Enabled.
7. Click **Next**.
8. Define the canvas for each frame in the configuration.
 - a) Set the width and height of the canvas space.
 - b) Identify the starting position of the canvas.
9. Click **Next**.
10. Add pixelspaces to the canvas.
 - a) To add a pixelspace, right-click within the grid and select **Add Pixelspace**.
 - b) Select the new pixelspace and adjust the size with the pixelspace boundary handles or by specifying the width and height in pixels in the top toolbar.
 - c) Click and drag the pixelspace to the correct position on the grid.
The location can also be specified by entering the X and Y position of the pixelspace in the top toolbar.
 - d) To rename the pixelspace, in the pixelspace properties pane type a new name and press **Tab**.
 - e) To remove a pixelspace, right-click the pixelspace and select **Remove**.

11. Click **Next**.
12. Select an output and drag it onto the pixelspace.
13. To configure the output, select it on the canvas and in the Properties pane adjust the output settings.
14. Click **Next**.
15. Select which data types within the configuration to keep and remove from the new configuration.
16. Add a router to the configuration.
Routers can also be added after the configuration has been created.
17. Click **Next**.
18. Apply the configuration.
 - If the computer is connected to Spyder, select **Apply to Spyder hardware now**.
 - If the computer is not connected to Spyder, select **Apply to local PC now (Virtual Mode)**.
19. In the confirmation dialog, click **OK and Close**.
Updates to Spyder the may cause devices in the expansion chain to restart.

Related information

Opening a project file saved on the computer (on page 19)

Saving a project file to the computer

When creating or updating a project while disconnected from Spyder, save the project file on the computer.

1. Select **File > Backup**.
2. Navigate to the location where the file will be saved.
3. Type a name for the project file.
4. Click **Save**.
Spyder Studio projects are saved with a `.vap` extension.
5. Select whether the still images in the configuration should be included.
Including still images in the backup may significantly increase the size of the file.

Opening a project file saved on the computer

Load a previously created project into the Spyder Studio workspace.

1. Select **File > Restore**.
2. Navigate to the location where the file was saved.
3. Select the file and click **Open**.
The project files is loaded into the Spyder Studio workspace.
If the computer running Spyder Studio is connected to a Spyder, the configuration is also pushed to the server.

Related information

Loading a project file onto the Spyder (on page 20)

Retrieving the configuration on Spyder

Download the configuration currently loaded on Spyder into the Spyder Studio workspace.

1. Save the configuration file currently active in Spyder Studio.
The configuration downloaded from the server automatically overwrites any configuration in the software, regardless of whether any changes have been saved.
2. Select **Server > Pull Data from Server**.
3. Optionally, save a copy of the server configuration to the computer.

Related information

Saving a project file to the computer (on page 19)

Loading a project file onto the Spyder

Move the project file saved on the computer onto Spyder.

If the computer is connected to Spyder, restoring a configuration file automatically pushes the configuration to the server.

1. When disconnected from the server, open the configuration file in Spyder Studio.
2. Connect to Spyder.
3. Select **Server > Push data to server**.

Related information

Opening a project file saved on the computer (on page 19)

Adding a preview to a configuration

Add a preview pixelspace to a configuration after the configuration wizard has been completed.

1. In the System Patch view, right-click the center column of pixelspaces and select **Add**.
2. Select **Add a Preview pixelspace for an existing pixelspace**.
3. In the properties area, select which pixelspace to create a preview for.
4. Click **OK**.

Adding a pixelspace

Configure the size and position of the pixelspace required for the configuration.

1. In the System Patch view, right-click the center column of pixelspaces and select **Add**.
2. Select **Add a New Program pixelspace**.
3. In the properties area, define the name, position, and size of the new pixelspace.
4. If the pixelspace is being added to a parallel configuration, identify the Spyder frame it will be controlled by.

5. Click **OK**.

Pixelspace and layer alignment

Understand the alignment options available for pixelspaces and layers

Icon	Description
	Align Bottom —Repositions specified layers vertically to make the bottom edge of the layers match the first specified layer.
	Align Center —Repositions specified layers horizontally to make the center position of all layers match the first specified layer.
	Align Left —Repositions specified layers horizontally to make the left edge of all layers match the first specified layer.
	Align Middle —Repositions specified layers vertically to make the center position of all layers match the first specified layer.
	Align Right —Repositions all specified layers horizontally to make the right edge of all layers match the first specified layer.
	Align Top —Repositions specified layers vertically to make the top edge of layers match the first specified layer.
	Center Horizontal —Repositions all specified layers as a group so that layers are centered horizontally in their current pixelspace.
	Center Vertical —Repositions all specified layers as a group so that layers are centered vertically in their current pixelspace.
	Horizontal Decrement —Decreases the horizontal spacing between two or more layers.
	Horizontal Increment —Increases the horizontal spacing between two or more layers.
	Make Horizontal Equal —Makes the horizontal spacing between all specified layers equal to the spacing between the first and second specified layers.
	Make Same Height —Makes all specified layers the same height as the first specified layer, maintaining aspect ratio in all layers.
	Make Same Width —Makes all specified layers the same height as the first specified layer, maintaining aspect ratio in all layers.
	Make Vertically Equal —Makes the vertical spacing between all specified layers equal to the spacing between the first and second specified layers.
	Remove Horizontal Spacing —Removes spacing between specified layers, causing them to be horizontally stacked in the order specified.
	Remove Vertical Spacing —Removes spacing between specified layers, causing them to be vertically stacked in the order specified.
	Size to Display Height —Resizes specified layers to fill their respective pixelspace vertically; no adjustment is made to the horizontal position.
	Size to Display Width —Resizes specified layers to fill their respective pixelspace horizontally, and centers the input vertically.

Icon	Description
	Snap to Bottom —Repositions specified layers vertically to align bottom edges of layers with the bottom of their pixelspace.
	Snap Left —Repositions the specified layers horizontally to align left edges of layers with the left edge of their pixelspace.
	Snap Right —Repositions the specified layers horizontally to align right edges of layers with the right edge of their pixelspace.
	Snap Top —Repositions the specified layers vertically to align top edges of the layers with the top edge of their pixelspace.
	Stack Grid —Arranges the layers in the grid configuration selected, and sizes the layers based on the grid alignment options.
	Stack Horizontal —Makes all layers the same height, centers them vertically with the first specified layer, and positions them in a horizontal array running to the right of the first layer.
	Stack Vertical —Makes all layers the same width, centers them horizontally with the first specified layer, and positions them in a vertical array running downward starting at the first layer's position.
	Swap Windows —Swaps horizontal position and size between the two specified layers.
	Vertical Decrement —Decreases the vertical spacing between two or more layers.
	Vertical Increment —Increases the vertical spacing between two or more layers.

Configuring an output

To ensure all content has a consistent appearance, adjust how content appears when displayed through a specific output.

1. In the System Patch view select the output to adjust.
2. In the Properties pane adjust the output settings.
3. Right-click the output and select **Set as Configuration Output**.

Adding a still image

Spyder works with most standard image formats, including .png, .jpg, .gif, .jpeg, .tiff, .tga, .dds, .dib, or .bmp.

Video and images may have an alpha channel that identifies the transparency applied to the red, green, and blue color channels. Images that contain an alpha channel must be saved in a format that maintains the alpha channel data, such as .png or .tiff.

1. Switch to the **Stills** tab.
2. Right-click a spot and select **Add File(s)**.
3. Browse to the image location and select the image.
4. Click **Open**.

Synchronizing images between the client and server

Compare and update any still image files out of sync between the client and server.

1. On the Stills view, right-click the image and select **Sync Files**.
2. Select whether the image on the client is uploaded to the server, or the server image is downloaded to the client.
3. Select what should happen to any image that does not have an associated register.
4. To view what the results of the synchronization will be, click **Preview**.
5. To start the synchronization, click **Perform Sync Now**.
6. After the synchronization is complete, click **Close**.

Adding a source

Add the video sources needed for the configuration.

1. Make sure the system is physically connected with power to all sources.
Always double check connections and ensure that each source is on the correct input, and the source is powered on and outputting a video signal.
2. Click inside an empty source row.
Alternatively, if an existing source has a configuration similar to the new source, right-click the similar source and select **Copy Source**.
3. Type a name for the source.
4. Select the input type.
5. Identify the router.
 - If the source is connected directly to Spyder, select **Spyder Internal** and specify the physical input number that the source is patched to.
 - If the source is using a router controlled by Spyder, select the router from the list.
 - If the connected router is not yet defined on Spyder, above the router list, click **Add**.
 - If no router is used, select **Remove**.
6. Select the stereo mode.
 - **Off**—The source is non-stereo input.
 - **Active**—Define a router and associated input for the stereo sync signal, which can be routed separately from the video signal.
 - **Passive**—Define a second router input which specifies the input of the alternate eye video signal.
7. Select the input configuration.
 - **New**—Create a completely new configuration.
 - **Copy**—Create a configuration from an existing configuration.
 - **Link**—Associate the new source to an existing input configuration.
8. To add the source without any further configuration, right-click in the Sources area and select **Add new Source**.
Alternatively, to continue configuring the input, click **Create and Configure Input**.

Configuring the source

Change the name, select the router, and set the preferred treatments and layers for the source.

1. Make sure the system is physically connected with power to all sources.
Always double check connections and ensure that each source is on the correct input, and the source is powered on and outputting a video signal.
2. Click an existing source.
3. In the Properties view, configure the following settings:
 - **Name**—Type a name for the source.
 - **Thumbnail**—Select an image to represent the source in the source list.
 - **Preferred Treatment**—Associate an image file to represent the source within the Spyder Studio. Optionally, specify a treatment to automatically be applied to a layer when the source is selected.
 - **Preferred Layer**—Specify a layer to be used when opening the source in a new layer. If the requested layer is in use when the source is recalled, the first available layer is used instead.
4. Identify the router.
 - If the source is connected directly to Spyder, select **Spyder Internal** and specify the physical input number that the source is patched to.
 - If the source is using a router controlled by Spyder, select the router from the list.
 - If the connected router is not yet defined on Spyder, above the router list, click **Add**.
 - If no router is used, select **Remove**.
5. Select the hardware input connector number.
6. To automatically detect the type and properties of the video source, select **<AutoSync>**.
7. On the Preferences tab, select the preferred treatment and layer for the source.
8. To add the source without any further configuration, select **Create and Add Another Source**. Alternatively, to continue configuring the input, select **Create and Configure Input**.

Configuring the source input

Set the parameters for the input.

1. Right-click a source and select **Configure Input**.
2. Open the **Input Configuration** section.
3. To automatically examine the source and locate the best match in the default resolution tables, click **Auto-Sync**.
4. To manually configure the resolution for the source, click **Load Standard** and select the resolution from the list. Click **Apply**.
5. To adjust the raster, use the arrows to fit the source into the raster box.
6. Click **Save**.

Creating cut and fill sources

Use cut and fill sources to create non-rectangular shapes.

A linear key is comprised of two video sources, known as a cut signal and a fill signal. The fill signal is the source video material intended to be shown on screen. The cut signal removes the luminance (green) channel, leaving only the content to be displayed over top of the fill signal.

The resolution of the cut and fill layers must be exactly the same.

1. Create a cut source.
 - a) Add a new source.
 - b) In the Input Configuration properties, switch to the Keying tab and select **Cut**.
 - c) Click **Save**.
2. Create a fill source.
 - a) Add a new source.
 - b) In the Sources area, switch to the **Linear Key** tab and select the cut source created in step 1.
 - c) In the Input Configuration properties, switch to the Keying tab and select **Fill**.
3. Add the fill source to a layer in the pixelspace.

Even though two sources are being used to create the shape, only one layer is consumed.

Adding content to the pixelspace

Add the video sources and still images to the pixelspaces.

1. In the Simulator area, in View Stack select the pixelspace to display.
2. Click and drag the source or still into the pixelspace.

Dragging a source or still onto an existing layer causes the source or still to be loaded to the layer directly. Dropping a source or still on a pixelspace causes an unused layer to be displayed and loaded with the specified source or still.

Layers are added to a pixelspace starting with Layer 1. Layers are displayed with the highest number layer appearing on top of lower number layers.

On Spyder X20, when using a preview pixelspace, Christie recommends loading a still into the preview pixelspace and then transitioning to program.
3. To assign a source or still to a specific layer, right-click in the pixelspace and select **Add Layer**.
4. Select the layer to add and drag the source into the new layer.

To add a source displayed as a single item across all pixelspace, add the source or still to **All pixelspace**.
5. To remove a layer from the pixelspace, right-click the layer and select **Remove Selected**.
6. To remove all layers from the pixelspace, right-click in the pixelspace and select **Remove All Layers**.

Moving a layer to a different pixelspace

To move a layer to a different area of the canvas, you may need to change the pixelspace the layer belongs to.

1. In the Simulator area, in View Stack select the pixelspace to display.

2. Right-click the layer, select **Move to pixelspace** and choose the pixelspace from the list.
3. To remove a layer from the pixelspace, right-click the layer and select **Remove Selected**.
4. To remove all layers from the pixelspace, right-click in the pixelspace and select **Remove All Layers**.

Changing the size and position of a source

Move the layer to a different location in the pixelspace or adjust the size of the layer.

1. In the Simulator area, select the layer.
2. Expand **KeyFrame**.
3. To change the size of a layer, click and drag the corner of the layer.
4. To change where the layer appears, click and drag the layer into the new position.
5. Alternatively, modify the keyframe properties for the position and size of the layer.
 - a) In the Simulator area, select the layer.
 - b) Expand the **KeyFrame** properties.
 - c) To change the size of the layer, in the Size/Position area type the width.
The height is automatically adjusted to maintain the aspect ratio of the source.
 - d) To change where the layer appears, in the Size/Position area type the coordinates for the X (horizontal) and Y (vertical) position.

Replacing the source or still image in a layer

Change the source displayed in a layer.

1. In the Simulator, select the layer.
2. To replace the source, double-click the new source.
Alternatively, click and drag the new source onto the layer.
3. To put a still image into a layer, click and drag the still image onto the layer.

Adding a background to a pixelspace

Add a static image, such as a corporate logo, as the background of a pixelspace.

1. Inside the pixelspace, right-click and select **Next Background** or **Current Background**.
2. Select the graphic or color to use as the background.
 - To add a new image as a background, click **Browse File** and navigate to the new image.
 - To use a solid color as the background, click **Browse Color** and select the color to display.
 - From the list, choose a graphic or file that has already been used as a background.
3. To remove the background, right-click inside the pixelspace and select **No Background**.

Displaying a test pattern

Set test patterns for each pixelspace and output to assist with the configuration and to diagnose any issues that may occur.

The test pattern for each pixelspace or layer must be configured individually.

1. In the Simulator area, select the layer or pixelspace.
2. Expand **Test Pattern Generator**.
3. Select the pattern and type of test pattern to display.
4. Select the additional pattern overlay options for the test pattern.
 - **Outline**—Draws a 1-pixel white outline around pattern.
 - **Center**—Draws a 1-pixel circle filling the pattern raster.
 - **Grid**—Loads a white grid over the selected pattern.
 - **Center X**—Draws an X from corner to corner of image.
5. To display the test pattern on the layer or pixelspace, click **Load**.

Cloning or mirroring a layer

Create a copy of a layer that shares all keyframe properties with the original layer such as size, border, and shadow settings, with the exception of the horizontal position.

The clone can exist anywhere on a horizontal offset from the original layer, however the clone cannot be positioned at a vertical offset. This is useful for widescreen applications where the same video source must be repeated on each side of the screen.

1. In the Simulator area, select the layer.
2. In the Properties area, expand **KeyFrame** and select the preferred Clone option.
 - **Mirror**—The clone moves in a mirror image to the original layer. If the original layer is moved towards the clone layer, the clone layer moves towards the original layer. If the original layer is moved away from the clone layer, the clone layer moves away from the original layer. This only occurs on the horizontal plane. The layer always stay at equal height, in respect to each other, vertically.
 - **Offset**—The clone always stays the same distance from the original on the horizontal plane. If the original layer is moved towards the right, the clone moves the same distance to the right. This only occurs on the horizontal plane.
3. For an Offset clone, adjust the distance between the original and clone layer.
4. To remove a cloned or mirrored layer, select **Off**.

Adjusting the brightness, contrast, hue, saturation, and gamma of the source

Improve the image quality by changing the brightness, contrast, hue, saturation, and gamma levels.

1. In the Simulator area, select the layer.
2. In the Properties area, expand **Input Configuration**.

3. On the Levels tab, use the sliders or type a value for the brightness, contrast, hue, saturation, and gamma.
4. To reset the values, click **Defaults**.
5. Click **Save**.

Adjusting the darkness or color of the source

Remove user-defined portions of a live video input signal, allowing for visual effects such as non-rectangular windows and titling.

1. In the Simulator area, select the layer.
2. In the Properties area, expand **Input Configuration**.
3. On the Keying tab, select the Key Mode.
 - **Luma**—Clips pixels that are below a user-defined darkness threshold away from the source image .
 - **Color**—Clips pixels within a user specified threshold from a specific color from the source.
 - **Cut** and **Fill**—Allows for non-rectangular shapes to be created.

A linear key is comprised of two video sources, known as a cut signal and a fill signal. The fill signal represents the source video material intended to be shown on screen. The luminance (green) channel of the cut signal is used as a real-time video mask. Control is provided with the linear key as the video input used to generate the cut is a different video signal.

A linear key requires two adjacent Spyder layers and the cut signal must be provided on the lowest of the two layers.

4. To reset the values, click **Defaults**.
5. Click **Save**.

Related information

Creating cut and fill sources (on page 25)

Changing the look of a layer

Alter the way the layer appears when it is displayed, without changing the original source by creating treatments.

A treatment is a collection of key frame information that can be applied to one or more layers in the system at any time. Treatments offer a considerable speed increase over manually adjusting the key frame for a layer and make it easy to provide a consistent look between windows. A default treatment can even be selected, extending the consistent look of multiple layers by automatically applying a treatment to all layers before they are displayed on screen.

Adding borders to a source or still

Place borders around each layer or source to accent or differentiate it.

1. In the Simulator area, select the layer.
2. Expand the **Border/Shadow** properties.

3. Configure the thickness, offset, and settings for the border.
 - **Thickness**—Defines the thickness of the border around the layer. When adjusting the thickness, the layer content is scaled to fit within the border.
 - **Offset**—Adjusts the appearance of a horizontal or vertical angled lighting effect.
 - **Inside Soft**—Identifies the degree to which the inside border softens and blends with the content. As a border is softened, it becomes less defined on the outside edges.
 - **Outside Soft**—Identifies the degree to which the exterior border softens and blends. The affected edges can be selected.
4. Switch to the **Fill** tab and select a color or texture for the border.
5. To define the shape of the border, switch to the **Shape** tab and select the shape.

Adding a shadow to a source or still

Control the shadow properties on the layer, providing a more 3D look to an otherwise flat layer.

1. In the Simulator area, select the layer.
2. Expand the **Border/Shadow** properties.
3. Configure the thickness, offset, and settings for the shadow.
 - **Offset**—Adjusts the distance and direction of the shadow from the layer, allowing the shadow to be positioned anywhere around the layer.
 - **Size**—Defines the width of the shadow. A larger shadow gives the visual effect of the layer appearing further away from the background content.
 - **Softness**—Softens the edges of the shadow, providing a harder or more subdued shadow effect.
 - **Transparency**—Sets the overall darkness of the shadow. The adjustment range is from 0 (black) to 255 (transparent).
4. Switch to the **Fill** tab and select a color for the border.
5. To define the shape of the border, switch to the **Shape** tab and select the shape.

Changing the area of interest in the layer

Move the area of interest within the input with zooming and panning.

1. In the Simulator area, select the layer.
2. Expand the **KeyFrame** properties.
3. In the Attributes area, switch to the **Pan & Zoom** tab.
4. To zoom in on the area of interest, adjust the slider.
5. To move the area of focus into the center of the layer, adjust the horizontal and vertical sliders.
6. To remove any pan or zoom settings, click **Reset**.

Cropping a layer

To crop part of the image, use the sliders for each edge of the selected layer.

1. In the Simulator area, select the layer.
2. Expand the **KeyFrame** properties.

3. In the Attributes area, switch to the **Crop** tab.
4. To crop the edges of the selected layer, use the sliders.
Crop adjustments are represented in decimal format, with values between 0.0 (no crop) and 1.0 (full crop).
5. To remove any cropping, click **Reset**.

Changing the aspect ratio of a layer

Adjust the aspect ratio in the source input configuration to override the original aspect ratio.

1. In the Simulator area, select the layer.
2. Expand the **KeyFrame** properties.
3. In the Attributes area, switch to the **A/R** tab.
The total aspect ratio adjustment includes any adjustments configured in the Input Configuration properties.
4. Adjust the Offset setting until the preferred aspect ratio is displayed, or type the required aspect ratio.

Transitioning from one keyframe to another

Set the duration of the transition (in frames) for live layer transition operations such as mixing a layer on or off screen.

1. In the Simulator area, select the layer.
2. Expand the **KeyFrame** properties.
3. In the Attributes area, switch to the **Motion** tab.
4. To configure transitions for this layer, deselect **Use System Defaults**.
5. To change the amount of time it takes to display or remove the layer, adjust the **Ease In** and **Ease Out** sliders.

Saving a treatment

Save the border, shadow, and keyframe settings as a treatment to be applied to other layers and sources.

1. Right-click on the layer with the treatment to save and select **Treatments > Save As Treatment**.
2. Type a name for the treatment.
3. Select the options to save as part of the treatment.
4. Click **OK**.
Saved treatments are listed in the **Treatments** view.

Related information

Applying a treatment to a layer (on page 31)

Applying a treatment to a layer

Alter the way the layer appears when it is displayed, without changing the original source.

1. To apply a treatment to a single layer, drag the preferred treatment from the treatment list onto a layer in the simulator or patch control.
Alternatively, select the layer and in the Treatments view double-click the treatment name.
2. To apply a treatment to multiple layers simultaneously, select the layers and double-click the preferred treatment.
When applying a treatment to multiple layers, a dialog may appear requesting confirmation.
3. To apply treatments to script elements, drag the treatment from the treatment list onto a script element at the preferred cue location.
If a keyframe is already defined at the selected element cue, the treatment is applied to the existing element keyframe properties. If no keyframe exists at the specified location, a new keyframe is automatically added to the element.
4. To remove a treatment from a layer, right-click the layer and select **Treatments > Clear Treatment**.

Scripting a configuration

Spyder Studio scripting provides a powerful environment for creating elaborate visual effects, such as walk-on looks for staging events and looping demonstrations.

Every command key is based on a script file. A script consists of displays various sources or stills, referred to as elements, which span a period of time in the form of cues.

Creating a function key

Function keys provide single step operations that can be recalled manually or linked to command keys.

1. Right-click in an empty area of the Function Key area and select the type of key to add.
 - **Background mix**—Mixes backgrounds between programs and preview.
 - **External Command Key Recall**—Recalls a command key on a remote Spyder.
 - **Layer Freeze**—Freezes the source within a layer.
 - **Device Freeze**—Freezes the source by device.
 - **Layer Offset**—Defines horizontal and vertical offsets to be applied to one or more windows. This is typically used to create Fly Off effects.
 - **Network Command**—Sends a single UDP or TCP string in ASCII format to a user-specified port, at a user-specified IP address.
 - **Router Salvo**—Switches outputs on a router not directly connected to Spyder.
 - **Source Assignment**—Loads a defined source onto one or more layers.
 - **Still Load**—Loads a still on a layer.
2. Type a name for the function key and click **OK**.
3. Select the function key and enter the required information in the Properties area.

For network command keys, special values can be entered into the command line using the following escape codes:

 - **\r**—Sends a carriage return character.
 - **\n**—Sends a new line character.
 - **\X00**—Sends a hex character, where the 00 represents a hex encoded value.

Creating command keys

Create preset user-defined screen looks to be recalled or added to a script.

The number of command keys displayed in the panel is user definable and up to 20 pages of command keys can be created.

1. Create the look for the command key in the Preview or Program simulator area, including any layers or treatments.
2. Right-click in an empty area of the Command Key view and select the source of the settings.
 - **Empty**—Creates an key with no content in the Program or Preview areas, used to clear all pixelspace.
 - **From Screens**—Saves the layers and settings in the Program area.
 - **From Preview**—Saves the layers and settings in the Preview area.
 - **From Program**—Saves the layers and settings in the Program area.
 - **Add Multi key**—Saves the layers and settings in the Program area.
3. Type a name for the key, and click **OK**.
4. Right-click the command key and select whether it is relative or absolute.
 - **Relative**—Replaces any layers of the same number with the content and position for the command key. Any unique layers from the previously displayed command key remain on the pixelspace.
 - **Absolute**—Replaces any layers of the same number with the content and position for that command key. Any unique layers from the previously displayed command key are removed from the pixelspace.
5. To send the command key settings to the Preview area of the Simulator, click **PVW**.
6. To send the command key settings to the Program area of the Simulator, click **PGM**.

Command keys remain in edit mode after selected until either they are disconnected in the Command Key window or until another command key is recalled that takes control of all layers in the original command key.

If a command key shows red in Program or yellow in Preview, the command key is in edit mode and any changes to layers are saved in that command key.
7. In the Properties area of the command key, set the clock source for a command key.

Setting a command key as relative or absolute

Identify whether or not the content of a command key overwrites the settings of another command key when moved to the Program or Preview view.

Absolute and relative command key modes differ in the handling of layers not defined specifically as part of the command key.

1. In the Command Key area, locate the command key in the list.
2. Right-click the command key and select **Make Relative** or **Make Absolute**.
 - **Relative**—Replaces any layers of the same number with the content and position for that command key. Any unique layers from the previously displayed command key remain on the pixelspace.

- **Absolute**—Replaces any layers of the same number with the content and position for that command key. Any unique layers from the previously displayed command key are removed from the pixelspace.

Adding elements to a script

A script element represents one or more layers of the system spanning two or more cues, including sources, stills, and mixers.

1. Add an element to the script by dragging a source or still from a content panel onto the script. The element is automatically added at the location of the drop cue, starting on the drop layer.
2. To add keyframe to an element, right click the element at a cue location, and select **Add KeyFrame**.
By default, elements only contain one keyframe which defines the initial location of the element on screen. As the script advances, each element uses the last defined keyframe. When editing the keyframe of a layer defined as a script element, the element is automatically updated.
3. To adjust the cue length, drag the bottom edge of the element to the appropriate end point.
4. To create a mixer out of a script element, right-click the element and select **Convert to Mixer**. To mix sources in one window, add multiple sources into the same element at different cues.
5. To display two sources simultaneously out of a script element, right-click the element and select **Convert to Input Array**.
With this configuration, if one source is not ready, the other source waits until that source is ready to be displayed.
6. To add an off element to a script, right-click in an empty area of the script grid and select **Add Off Element**.
7. To configure the script elements, select the element and modify the parameters in the properties area.
Properties that can be modified include the entrance and exit duration, the size and location of the element, and the settings overridden for slave layers.

Adding a trigger to a script

Cue triggers automate the execution of a script cue, based on the internal clock for Spyder, or an external time source.

1. In the left column of the script window, select the cue.
2. In the properties area, select and configure the trigger.
 - **Wait**—Counts down a specified number of frames and execute the next script cue. To automate multi-step scripting operations, create multiple wait triggers on subsequent cues.
 - **WaitX**—Counts down a number of frames until the next cue is manually executed. The script engine then automatically records the elapsed time and changes the cue trigger type from WaitX to Wait. Subsequent executions of the script cue function as a standard wait trigger.
 - **Time**—Monitors an external clock source for a user-defined time code and executes the next cue. The external clock source must be provided from a device connected to the

playback controller and must support a standard playback machine protocol such as BVW75 or Odetics.

- **Time of Day**—Monitors an external clock source for a user-defined time code and days of the week, and executes the next cue.

Controlling playitems

To achieve granular control and management of tightly coupled timed events, spanning multiple discreet components, add playitems to scripts or call scripts from playitems.

Adding a Playitem

Create a pre-configured segment of video playback.

1. To open the playitems view, select **View > Play Items**.

The playitems list displays the current status for all playitems.

- **Inactive**—Not currently running but the in-point and total running time (TRT) are displayed.
- **Cued**—Cued to the in-point time code, minus the preroll frames.
- **PreRoll**—Started playing but the in-point time has not yet been reached. The preroll counts down the amount of time remaining before the in-point time is reached.
- **Playing**—Currently playing and has passed the in-point time. The amount of time remaining before the out-point is reached is displayed.
- **RollOut**—Passed the out-point time and is continuing to play until the time code has reached the out-point time plus the rollout frame count.

2. In an empty row, right-click and select **Add**.

3. Type a name for the playitem and click **OK**.

4. In the Default Source field, select the source name used for the element created when the playitem is added to a script.

5. Select the image to display as a thumbnail representing the playitem.

6. Select the playback device ports active for this playitem.

Two groups of buttons, labeled 1-4 and 5-8, select a playback device port. All controls in the Machine section of the property panel (timecode, live controls, and configuration) follow the selected port.

Ports 1-4 refer to the four ports on a playback device configured as a primary. Ports 5-8 refer to the four ports on a playback device configured as an expansion. The primary/expansion selection is set physically on the playback device hardware.

7. Select the playback device.

- a) Click **Show Configuration**.
- b) Select the playback device.
- c) Select **Enabled**.
- d) Click **Apply**.

8. Define the start and end point, lead-in time, and lead-out time for the PlayItem.

- **PreRoll**—The number of frames required as lead-in time to reach normal playback speed. Usually required for tape-based playback devices but can be used as a lead-in time when

- mixing on a Spyder layer at the beginning of playback. The playitem is cued to the specified in-point time minus the number of preroll frames.
- **RollOut**—The number of frames to run past the out-point time before actually stopping the device. Use this as a lead-out time when mixing off a Spyder layer at the end of playback.
 - **In Point**—The device time code where the playitem video should start playing. To insert the current time code from the machine area of the panel into this field, click **Mark**.
 - **Out Point**—The device time code where the playitem video should stop playing. To insert the current time code from the machine area of the panel into this field, click **Mark**.
9. In the Machines area, define one or more machines to be controlled as part of the selected playitem.
 - a) Select the overall frame rate for the playitem timecode countdown within Spyder. This should usually match the frame rate of the first selected deck in this panel section.
 - b) Select the playback device ports to be controlled as part of the playitem. At least one port must be checked for the playitem to be considered valid, and multiple decks can be selected for sync-roll operations.

Multiple machine selections are typically used for sync-roll operations, where the content of multiple decks are combined to create large, high resolution video playback. When multiple decks are selected in a single playitem, all decks receive cue, stop, and play commands simultaneously, enabling all operations to be triggered at the same time on all devices.

In cases where long running sync-rolls are preferred, clock skew between the decks may cause drifts in the time code between the decks. In these cases, a timecode chase or genlock may be required between the decks.

10. When controlling clip-based playback devices, specify the clip loaded when recalling the playitem.

If this field is not specified, or if the deck protocol used does not support clip control, no clip is recalled when the playitem is cued.

Manually controlling a playitem

Manually play, stop, cue, and jump to points in the playitem.

1. To open the playitems view, select **View > Play Items**.

The playitems list displays the current status for all playitems.

 - **Inactive**—Not currently running but the in-point and total running time (TRT) are displayed.
 - **Cued**—Cued to the in-point time code, minus the preroll frames.
 - **PreRoll**—Started playing but the in-point time has not yet been reached. The preroll counts down the amount of time remaining before the in-point time is reached.
 - **Playing**—Currently playing and has passed the in-point time. The amount of time remaining before the out-point is reached is displayed.
 - **RollOut**—Passed the out-point time and is continuing to play until the time code has reached the out-point time plus the rollout frame count.
2. Right-click a playitem and select the preferred action.

Alternatively, select the playitem and in the Properties area select the playitem control action.

3. To adjust the clip out point without the requirement of viewing the entire length of the playitem, cue the playitem with a **Jump To** time of 10-180 seconds from the out point.

Moving playitem into a script cue or layer

To associate playitem with command key scripts, drag and drop play items between the playitem panel and the script panel.

1. Drag a playitem to a script cue.

Each cue in a command key script has properties specific to that cue, including cue, play, or stop one or more existing playitem. Whenever defined on a cue, a specified playitem operation is executed whenever the associated script cue is executed.

When dragging a playitem onto a cue in the script window, a playitem cue command is added one cue before the cue dropped on, and the dropped cue adds a playitem play command and a time trigger that automatically advances the script at the end point of the playitem. The clock source for the script is set to the first machine port defined in the playitem.

The playitems area of the cue properties automatically expand as additional playitems are defined, allowing an unlimited number of playitem commands to be added to the cue.

2. Drag a playitem to a script layer.

Dragging a playitem to an unused area within the script grid complete the same operations dragging a playitem onto a script cue, and additionally a source element is created with the default source defined on the playitem.

Related information

Creating a custom layout (on page 11)

Maintaining and monitoring Spyder

Learn how to monitor and perform maintenance on Christie Spyder.

Viewing alerts

Display real-time diagnostic information for both Spyder Studio and a connected Spyder server.

The Alert Viewer provides visibility into the Spyder system and is useful for troubleshooting application or general system problems. The Alert Viewer tab shows a list of informational, warning, and error messages that occur in both Spyder Studio and a remotely connected Spyder frame.

Anytime Spyder Studio performs a significant action or any time a connected Spyder system encounters an error, an entry is logged in the Alert Viewer panel.

1. Open the Alert Viewer view.
2. To view the details of an alert, double-click the row.

Clearing the log files

Remove all log entries from the Alert Viewer.

1. Open the Alert Viewer view.
2. Click **Clear Logs**.
The entries in the Alert view are removed immediately.

Saving the log files

Export the log files to a text file that can be referenced during troubleshooting.

1. Open the Alert Viewer view.
2. Click **Save to Disk**.
3. Type a name for the text file and click **Save**.

Upgrading the firmware on the Spyder

In the list of devices on the network, any server colored orange requires a firmware update.

1. Open Spyder Studio.

2. Select **Server > Connection Manager**

The server connection manager displays all individual Spyder frames or primary frames available on the network. Spyder frames configured as expansion frames do not appear in the server connection dialog.

3. In the Current Connection area, select the Spyder colored orange and click **Update Now**.

4. In the confirmation dialog click **Yes**.

The hardware is updated.

Glossary

1080p

1080p is the Advanced Television Systems Committee (ATSC) high definition 1920 x 1080 progressive scan video format in which a complete frame of video is delivered at either 60 or 24 frames per second.

4K

A display specification that is capable of displaying 4096 x 2160 resolution, or approximately 8.85 million pixels.

Active stereoscopic display

Powered glasses that present the image intended for the left eye while blocking the view of the right eye, then presenting the right eye image while blocking the left eye. This cycle is repeated rapidly, so that the two images combine into a single 3D image.

Aspect ratio

The ratio of the width of an image to its height, such as the 4:3 aspect ratio common in video output. Can also be expressed as a decimal number, such as 1.77, 1.85 or 2.39. The larger the ratio or decimal, the wider and less square the image.

Brightness (perceived)

The human eye responds to low light levels by enlarging the pupil, allowing more light to enter the eye. This response results in a difference between measured and perceived light levels. The brightness of a projection system can be precisely measured with a light meter; however, the human eye has a logarithmic response to light. A lamp that is dimmed to 10% of its maximum measured light output is perceived as being dimmed to only 32%. Likewise, a lamp dimmed to 1% is perceived to be at 10%.

Color temperature

The coloration (reddish, white, bluish, greenish, and so on.) of white in an image, measured using the Kelvin (degrees K) temperature scale.

Contrast (ratio)

The degree of difference between the lightest and darkest areas of the image.

DisplayPort

A digital display interface primarily used to connect a video source to a display device such as a computer monitor, though it can also be used to transmit audio, USB, and other forms of data. DisplayPort can be used to transmit audio and video simultaneously.

DVI

Digital visual interface. A standard that defines the interface between digital devices such as projectors, flat screens and personal computers. For devices that support DVI, a digital-to-digital connection can be made to eliminate the conversion to analog and deliver an image.

DVI can also carry an analog signal and comes as DVI-I (integrated—analogue and digital), DVI-D (digital only) and DVI-A (analogue only).

E-EDID

Enhanced extended display identification standard. Enables properties (such as resolution) of a display device to be detected by the display card in a controlling device such as a PC. The PC, in turn, can then output in a matching format to fill the display.

Gamma

The relationship between input video voltage and output brightness, which determines how mid-tones appear.

HDCP

High-bandwidth digital content protection. Prevents copying of digital audio and video content as it travels across connections.

Input

A physical connection route for a source signal.

Input signal

Signal sent from a source device to the projector or display.

Keyframe

Visual attributes applied to a layer such as size, position, borders, shadows, or clone modes.

Passive stereoscopic display

Two images are projected superimposed onto the same screen through polarizing filters or presented on a display with polarized filters. The viewer wears glasses which also contain a pair of opposite polarizing filters. As each filter only passes light which is similarly polarized and blocks the opposite polarized light, each eye only sees one of the images.

Pixel

The smallest discernible element of data from a computer-generated image.

Pixel space

A clipping rectangle defining an area of the screen.

Preset

A set of layers and treatments to be displayed within a pixel space.

Output

A physical connection route for sending a signal to a projector or display.

Layer

A single input, displaying either a live video input or a still image.

Resolution

The maximum number of pixels that can be displayed horizontally and vertically.

Source

The device, such as a computer or DVD player, connected to the Spyder for display.

Stereoscopic

The creation of a 3D or stereoscopic display is based on the principle that a person's eyes see two different viewpoints. These two distinct viewpoints are then projected onto a screen so that each eye sees the proper perspective; the left eye sees only the left-eye viewpoint, and the right eye sees only the right-eye viewpoint. The brain then reads both viewpoints simultaneously to produce a single image with the depth necessary to make it appear three dimensional.

There are two ways to present 3D content, *active stereoscopic* (on page 40) or *passive stereoscopic* (on page 41) displays.



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