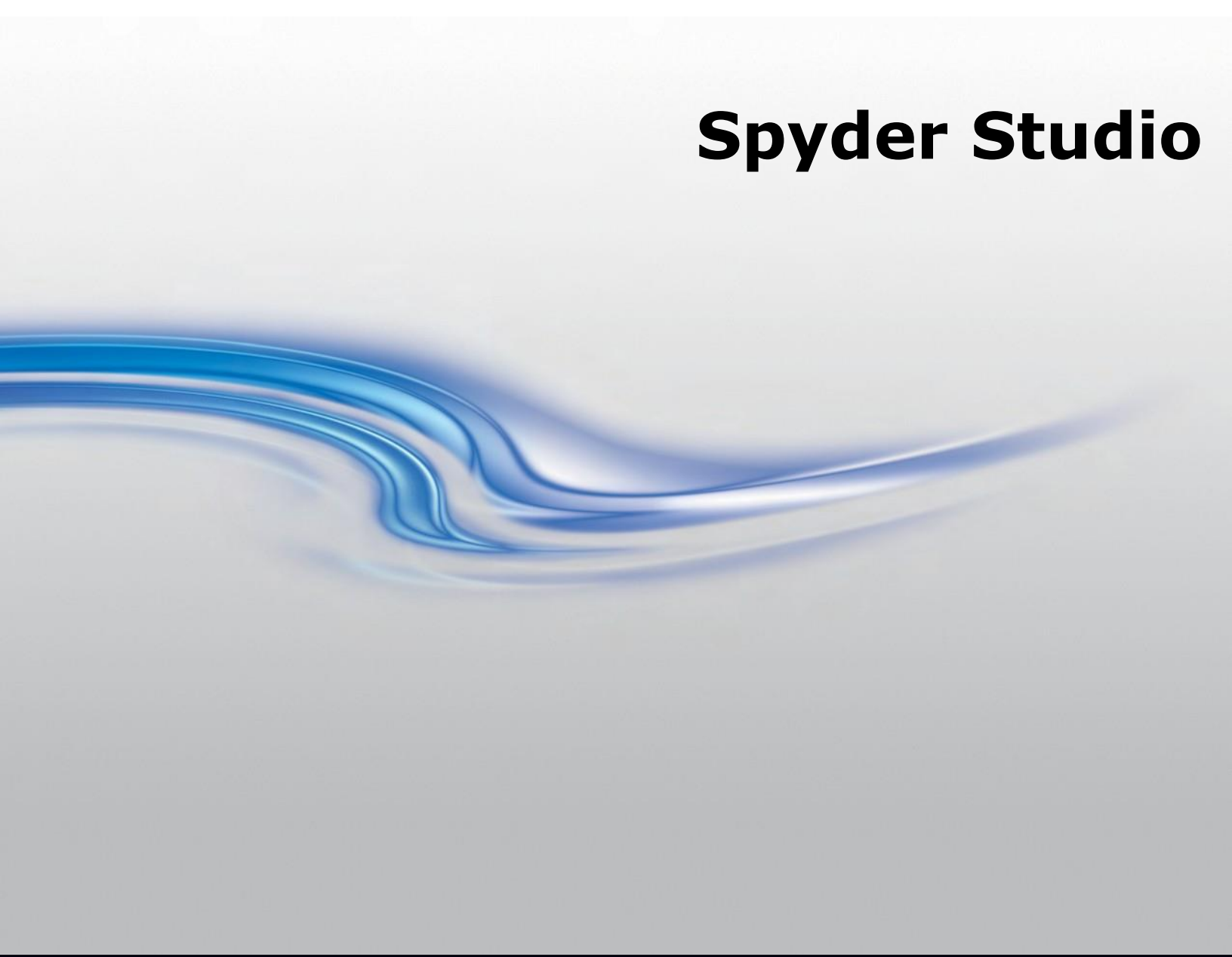


# **User Guide**

020-102579-04

# **Spyder Studio**



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# Getting Started

The Christie Spyder X80 enables the creation of spectacular, never-before-seen visual experiences. Use the following steps to help get started.

1.	Install the X80 hardware.	Refer to separate document <i>020-102024-XX-Christie-LIT-MAN-INST-X80</i> .
2.	Learn about Spyder's features and capabilities.	<a href="#">Product Overview</a> , page 9
3.	Install Spyder Studio.	<a href="#">Installing the Spyder Studio Software</a> , page 11.
4.	License Spyder.	<a href="#">Licensing Spyder</a> , page 13.
5.	Learn about playing HDCP content through Spyder.	<a href="#">Playing HDCP-Encrypted Content</a> , page 15.
6.	Use Spyder Studio for creating a configuration.	<a href="#">Creating a Configuration</a> , page 18.
7.	Add sources to a configuration.	<a href="#">Adding a Source</a> , page 21.
8.	Use Spyder Studio to add layer effects.	<a href="#">23Input Key Frame Tab</a> , page 23.
9.	Use Spyder Studio to create live scripts.	<a href="#">Scripting a Configuration</a> , page 35.
10.	Use Spyder Studio to save configurations and restore later.	<a href="#">38Maintaining and Monitoring Spyder</a> , page 38.
11.	Review common Spyder terms.	<a href="#">Glossary</a> , page 40

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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 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.

- **Pixelspace**—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)

Christie recommends closing all programs before installing the Spyder Studio software. Use the Spyder Studio software to connect to a Spyder, configure the canvas size and pixelspaces, 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:

- OS: Windows 7 SP1 or newer
- i** Do not use MAC or PC emulators such as VMWare and Microsoft Virtual PC to run Spyder Studio.

Hardware minimum requirements:

- CPU: 2.2 GHz dual-core
  - RAM: 4GB (8 GB recommended)
  - Disk: 1 GB (Disk may require additional space for user configuration and still image files.)
  - i** Christie recommends closing all programs before installing the Spyder Studio software.
1. Download Spyder Studio from the Christie website ([www.christiedigital.com](http://www.christiedigital.com)).
  2. Double-click **Spyder Studio <version> Setup.exe**.
  3. Install any prerequisite programs and follow the Spyder Studio installation wizard.
- i** 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 break. This causes a temporary loss of communication until the socket is restored by restarting the client application.
- On computers running Spyder Studio, avoid configuring a network card with multiple IP addresses and enabled secondary wired/wireless Ethernet connections.

### Network Cards on Client Computers

Network Cards on client computers must be configured with an IP address in a specific range:

- Change the internet protocol (TCP/IP) properties to have the computer running Spyder Studio on the same subnet as the Spyder hardware.
- 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 software version on 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 software will be updated if the button is pressed. Avoid updating by verifying the current software on the front panel of the Spyder and downloading the matching software on the Christie website.

## 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**.

## Upgrading the Software on the Spyder

In the list of devices on the network, any server colored red requires a software update.

1. Open Spyder studio.
2. Select **Server > Connection Manager**.  
The server connection manager displays all individual Spyder 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 red and click **update now**.
4. Wait for the front panel messaging counter to complete. The system will automatically restart once it is finished.

# 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:

- **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 generated, 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.

Copy all license files to a folder on the computer running Spyder Studio.

1. In Spyder Studio, select **Help > License Manager**.
2. Select Install one or more license packages obtained from Christie and click **Next**.
3. 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.
4. Click **Next**.
5. In the confirmation dialog, click **Yes**.
6. After the license files are applied, click **Next**.
7. 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**.

# 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 7 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. In the Global Settings area, select **Enable HDCP**.  
All SDI output connectors are disabled.
3. In the confirmation dialog, click **Yes**.
4. Click **Apply Settings Now**.
5. Restart Spyder.

## Viewing the HDCP Status

To 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 Custom Layout

To create a workspace containing the most relevant windows for your task:

1. Customize the workspace by adding or removing windows.
  - To add a new window, from the View menu, select the window to display.
  - 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.
  - To resize an area, click and drag the separator bar between the windows.
  - To remove a window, click the **X** in the top right corner of the window.
2. Save the layout.
3. To save the layout as an additional layout, select **Layout > Custom Layout > New Custom Layout**.
4. Type a name for the layout and click **OK**.
5. 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

To 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

To remove any obsolete layouts:

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

## Switching layouts

To 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**.

# Creating a Configuration

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

## Creating a New Spyder Configuration

To Create a new project file:

1. Select **File > New**.
6. 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.
7. Add the Spyder frames to be used in the configuration (virtual mode only. Online will auto populate).
8. Select the frame rate and mode for the Spyder system.  
To create a 3D configuration, select **Stereoscopic** mode.
9. Select the pixel depth model.
10. To include a Preview area in the configuration, click **Preview Disabled**.  
The button changes to Preview Enabled.
11. Click **Next**.
12. 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.
13. Click **Next**.
14. 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**.
15. Click **Next**.
16. Select an output and drag it onto the pixelspace.
  - a. To configure the output, select it on the canvas and in the Properties pane adjust the output settings.
  - b. Select an output and choose a reference object to use the tools to line up the output with designated pixelspaces.
17. Click **Next**.
18. Select the data types within the configuration to keep and remove from the new configuration.
19. Add a router to the configuration.  
Routers can also be added after the configuration has been created.
20. Click **Next**.

21. 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)**.

22. In the confirmation dialog, click **OK and Close**.

## 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. Select the type of connection between the router and Spyder.

6. 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.

23. If the router is an IP router, type the IP address of the router.

24. If the router is a serial router, select the serial port controlling the router.

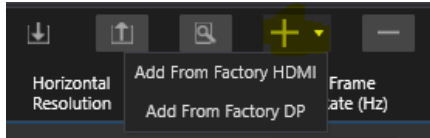
25. To test the connection to the router, click **Query Now**.

## EDID Manger

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

## Adding EDID

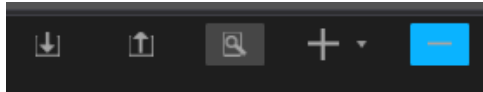
1. Connect to the Spyder hardware.
2. Select **Server > EDID Manager**.
3. Click **add EDID from DP or HDMI** depending on your connector type.



## Deleting an EDID

Remove any EDID files that are no longer needed.

1. Connect to the Spyder hardware.
2. Select **Server > EDID Manager**.
3. Select the EDID from the list.
4. Click remove EDID.



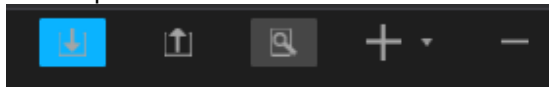
26. In the confirmation dialog, click **ok**.

## Importing an EDID file

Import and existing EDID to the Spyder frame.

**Note:** EDID advanced properties can only be edited on imported EDID files with Christie extension.

1. Connect to the Spyder hardware.
2. Select **Server > EDID Manager**.
3. Click import EDID.



27. 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.

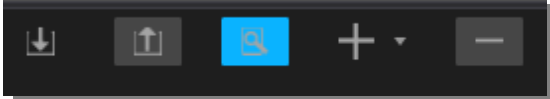
1. Connect to a remote Spyder frame.
2. Select **Server > EDID Manager**.
3. Select the EDID configuration from the list.  
Factory EDID configurations cannot be customized.
4. Modify the base EDID settings.
5. If the EDID is not for 4K content, deselect the CEA or DID Extension checkbox.
6. To modify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

12. Click **Apply**.
13. In the confirmation dialog, click **Yes**.

## Reading EDID from a Display Device

Read the EDID information from a connected display on an output and load it into the EDID manager.

1. Connect to the Spyder hardware.
2. Select **Server > EDID Manager**.
3. Click read EDID from display Device.

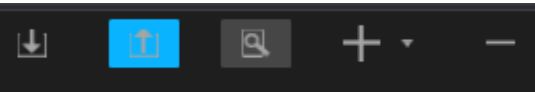


28. Choose the connector type and output port to read from.
29. Click **OK**.

## Exporting an EDID File

To export an EDID file to an external location:

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



- 30.
31. Navigate to the location where the EDID file will be saved and click **Save**.

## Assigning EDID to an Input

To identify the 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 all HDMI or all DP use the filters.
5. Click **Apply**.
6. In the confirmation dialog, click **Yes**.

## Adding a Source

Add the video sources needed for the configuration. 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.

1. 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**.
2. Type/view the name for the source.
3. Select the input type.
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**.
- 5. 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 that specifies the input of the alternate eye video signal.
- 6. 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.
- 7. 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**.

## Source Tab

Use the Source tab to change the name, select the router, and set the preferred treatments and layers for the source.

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.

1. Click an existing source.
32. 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.
33. 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**.
34. Select the hardware input connector number.
35. On the Preferences tab, select the preferred treatment and layer for the source.
  - **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.

## Input Configuration Tab

Configure the input to sync its resolution and timings to the Spyder.

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 adjust the raster, use the arrows to fit the source into the raster box.
5. Click **Save**.

## Creating Cut 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**.
36. 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**.
37. Add the fill source to a layer in the pixelspace.
38. Even though two sources are being used to create the shape, only one layer is consumed.

## 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 Input Configuration properties, open the levels tab.
2. Use the sliders or type a value for the brightness, contrast, hue, saturation, and gamma.
3. To reset the values click **defaults**.
4. Click **save**.

## Adjusting the Darkness of 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 input configuration properties on the **Keying tab**, select **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.
39. To reset values, click **Defaults**.
40. Click **Save**.

# Input Key Frame Tab

## 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.

## Changing the Size and Position of a Source

To 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.
41. Expand **KeyFrame**.
42. To change the size of a layer, click and drag the corner of the layer.
43. To change where the layer appears, click and drag the layer into the new position.
44. 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.
  - d) The height is automatically adjusted to maintain the aspect ratio of the source.
  - e) To change where the layer appears, in the Size/Position area, type the coordinates for the X (horizontal) and Y (vertical) position.

## 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.
45. 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.
46. For an Offset clone, adjust the distance between the original and clone layer.
47. To remove a cloned or mirrored layer, select **Off**.

## 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.

### 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**.

### 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.

### Changing the Transparency of a Layer

Adjust the transparency from no transparency to full transparency.

1. In the Simulator area, select the layer.
2. Expand the **KeyFrame** properties.
3. In the Attributes area, switch to the **transparency** tab.
4. Adjust the level between 0 and 255.

## Input Border / Shadow Tab

### 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.
48. Switch to the **Fill** tab and select a color or texture for the border.
49. 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 size, 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.

## Loading Test Pattern to a Layer

View a test pattern in a layer by opening up the test pattern generator tab in the properties.

1. In the Simulator area, select the layer.
2. Expand the test pattern generator properties.
3. Choose the type of test pattern wanted.
4. Click **load**.
5. Click **clear** to clear the test pattern.

## Treatments

### 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.

### Applying a Treatment to a Layer

To 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.
3. When applying a treatment to multiple layers, a dialog may appear requesting confirmation.
4. 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.
5. To remove a treatment from a layer, right-click the layer and select **Treatments > Clear Treatment**.

## 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

To 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 Content to the Pixelspace

To 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.
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.
5. To add a source displayed as a single item across all pixelspaces add the source or still to **All pixelspace**.
6. To remove a layer from the pixelspace, right-click the layer and select **Remove Selected**.
7. 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**.

## Pixelspace and Layer Alignment

Understand the alignment options available for pixelspaces and layers.

Icon	Description
	Swap Windows—Swaps horizontal position and size between the two specified layers.
	Align Left—Repositions specified layers horizontally to make the left edge of all 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 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.
	Align Middle—Repositions specified layers vertically to make the center position of all layers match the first specified layer.
	Align Bottom—Repositions specified layers vertically to make the bottom edge of the layers match the first specified layer.
	Snap Right—Repositions the specified layers horizontally to align right edges of layers with the right edge of their pixelspace.
	Snap Left—Repositions the specified layers horizontally to align left edges of layers with the left 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.
	Snap to Bottom—Repositions specified layers vertically to align bottom edges of layers with the bottom of their pixelspace.
	Size to Display Width—Resizes specified layers to fill their respective pixelspace horizontally, and centers the input vertically.
	Size to Display Height—Resizes specified layers to fill their respective pixelspace vertically; no adjustment is made to the horizontal position.
	Make Same Width—Makes all specified layers the same height as the first specified layer, maintaining aspect ratio in all layers.
	Make Same Height—Makes all specified layers the same height as the first specified layer, maintaining aspect ratio in all layers.

Icon	Description
	Make Horizontal Equal—Makes the horizontal spacing between all specified layers equal to the spacing between the first and second specified layers.
	Horizontal Increment—Increases the horizontal spacing between two or more layers.
	Horizontal Decrement—Decreases the horizontal spacing between two or more layers.
	Remove Horizontal Spacing—Removes spacing between specified layers, causing them to be horizontally stacked in the order specified.
	Make Vertically Equal—Makes the vertical spacing between all specified layers equal to the spacing between the first and second specified layers.
	Vertical Increment—Increases the vertical spacing between two or more layers.
	Vertical Decrement—Decreases the vertical spacing between two or more layers.
	Remove Vertical Spacing—Removes spacing between specified layers, causing them to be vertically stacked in the order specified.
	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.
	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.
	Stack Grid—Arranges the layers in the grid configuration selected, and sizes the layers based on the grid alignment options.

## 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**.

## 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 the 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**.

## Adding a Background to a Pixelspace

To 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**.

## Replacing the Source or Still Image in a Layer

To 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.

## Viewing the Hardware Input Allocations

To analyze the Spyder hardware allocations correlated with pixelspace and frame group definitions:

1. Switch to the **System Layout** view.
2. Verify 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

To 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 the 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.

## Configuring the Multiviewer

1. Use the Multiviewer to create user presets for scaled viewing of pixelspaces, inputs and outputs.
2. Change the mode on an available output to Multiviewer.

Note: only the fourth output on each card is Multiviewer compatible.

3. Click **save** after selecting the mode.  
The Multiviewer window will automatically open.
4. Recall default presets such as OPMON and SOURCEMON.

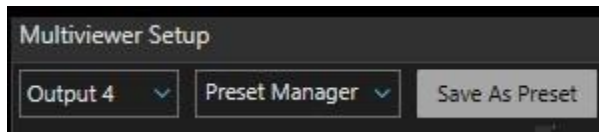
## Creating Custom Multiviewer Presets

Customize the Multiviewer for full user experience.

1. Start with a blank Multiviewer canvas.
2. Begin to drag and drop the desired View elements onto the Multiviewer window.
  - Up to 1 PGM pixelspace is available at a time.
  - Up to 1 PVW pixelspace is available at a time.
  - Up to 24 Inputs are available at a time.
  - Up to 1 Output is available at a time.

Note: Users can have 1 PGM pixelspace with 1 PVW pixelspace in a saved preset, 1 PGM view with up to 24 inputs, or 1 PVW with 1 Output view per preset.

3. Once a desired 'look' is set, select the **save as preset** button at the top of the Multiviewer simulator.



4. Name the preset and select **OK**.
5. To recall the saved presets use the drop down on the Multiviewer simulator or create user function keys.



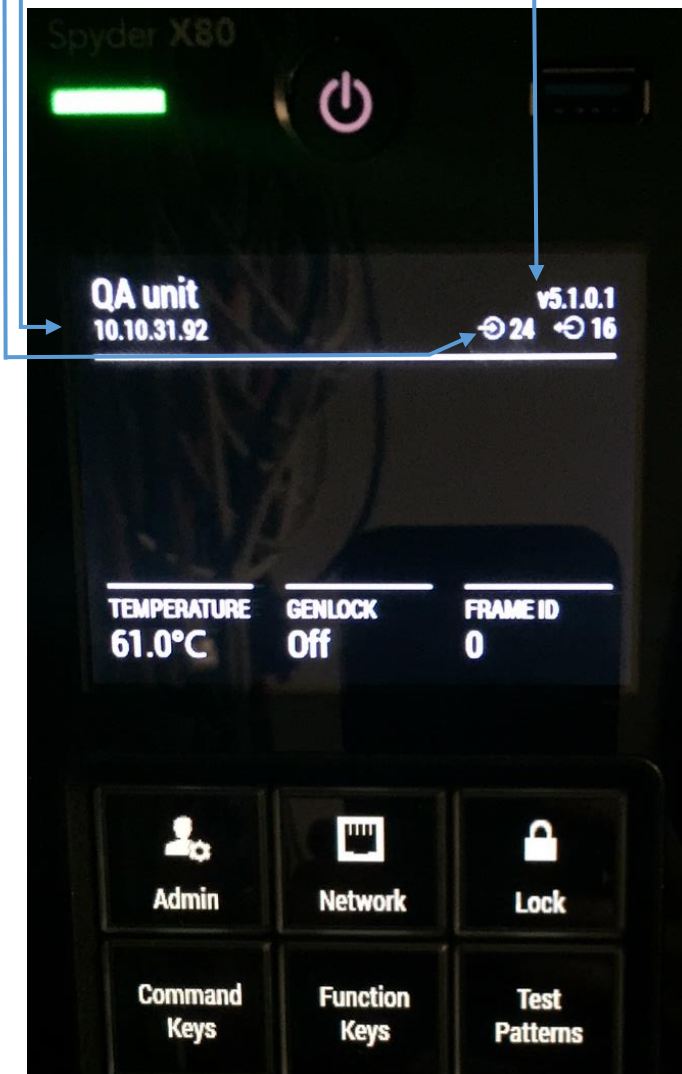
# Configuring a Parallel Configuration

A parallel configuration consists of 2 or more X80s linked together using a PCIe connector.

## Expanding the Hardware

To get started with a parallel system, ensure all units are working properly as a single unit. Check the following by viewing the **front panel for each unit**:

- All units are powered and have active Ethernet.
- Each unit sees all input and output cards.
- All units are on the same software version.

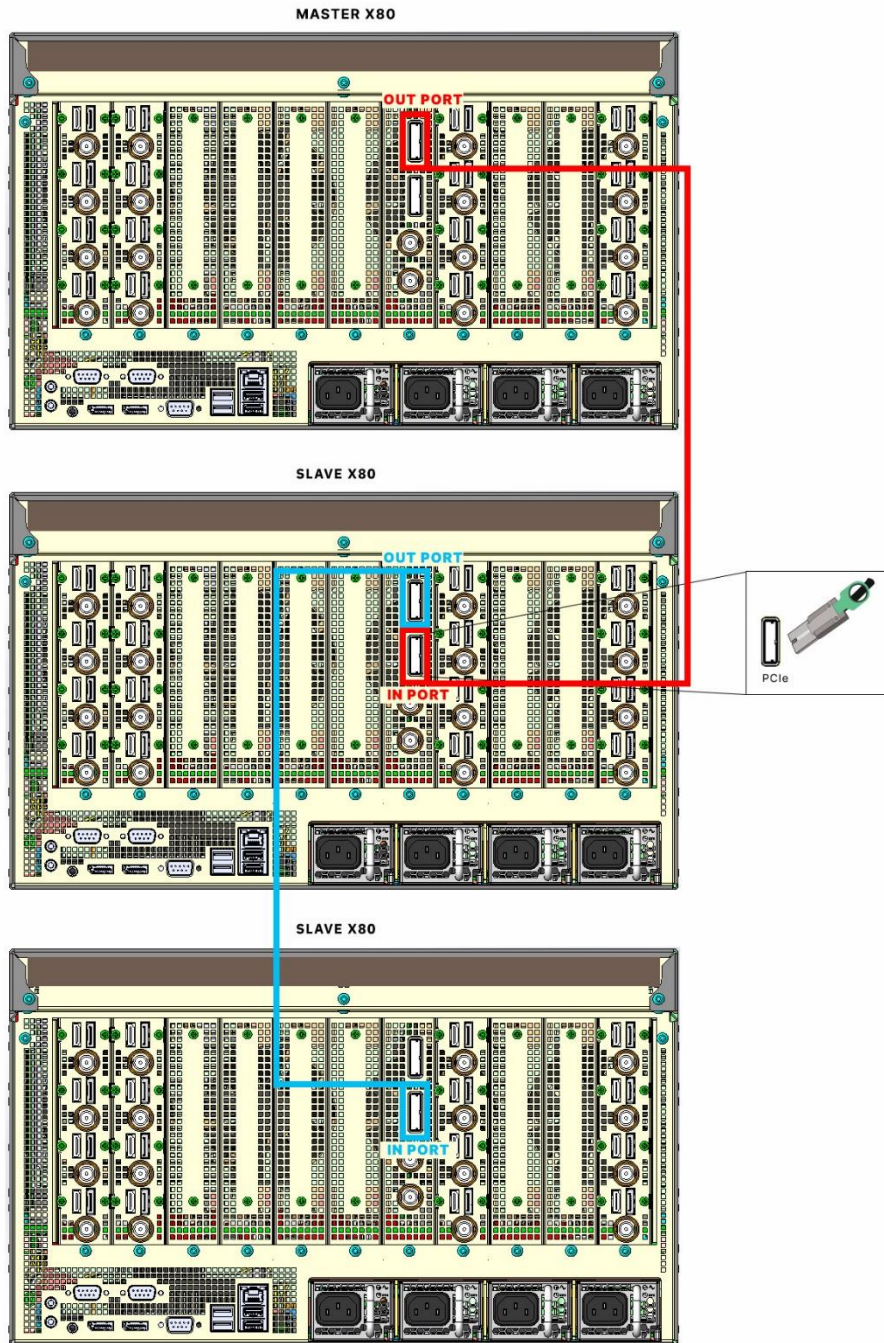


For units to expand properly do the following:

1. Power down all units.
2. Plug in **host** end of the PCIe connector into the **out** port on the back of the master X80.
3. Plug in the **target** end of the PCIe connector into the **in** port on the back of the slave X80.



4. Repeat steps with multiple frames, **out** of slave into **in** on second slave and so on.



5. Once all PCI connections are established, power all units on at the same time or slightly turn on the slaves before the master. It's important that the slave units' power is initiated before the master frame.

What to expect next:

- All frames will initially come up as frame ID 0 and the slaves will flash red.
- The master frame will be the only frame that shows all the hardware under the I/O at the top of the front panel.

- All slave frames will show 00 under the I/O on the front panel.
- After the master frame has fully initialized, the slave frames will restart themselves and return as frame ID 1, 2, 3 and so on.
- Now the system is ready to connect to Spyder Studio to begin configuring.

## Creating a Parallel Configuration

Use Spyder Studio to create a configuration. Connect to the expanded system by selecting the master unit's IP address in Spyder studio.

- None of the slave IP addresses will appear in the server connection properties.

### File > New

Before getting started with building the configuration, verify all slave units in the **frame setup** are present in the Configuration Manager. Use the optional **canvas setup** section, which is unique to Parallel configurations, in the Configuration Manager to place and size each frame's Area of Responsibility. (Reference [Creating a Configuration](#) on page 18).

# 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 Function Keys

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.
  - **Backup Source**—Toggles between enter and exit backup source.
  - **Device Freeze**—Freezes the source by device.
  - **External Command Key Recall**—Recalls a command key on a remote Spyder.
  - **Layer Freeze**—Freezes the source within a layer.
  - **Layer Offset**—Defines horizontal and vertical offsets to be applied to one or more windows. This is typically used to create Fly Off effects.
  - **Multi-viewer preset**—Recalls saved Multiviewer presets.
  - **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.
4. 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.
4. Right-click in an empty area of the Command Key view and select the source of the settings.
  - **Empty**—Creates a key with no content in the Program or Preview areas, used to clear all pixelspace.
  - **From Screens and From Program** —Saves the layers and settings from the Program area.
  - **From Preview**—Saves the layers and settings from the Preview area.
  - **Add Multi key**—Saves the layers and settings from the Program area and can configure multiple command keys to recall simultaneously.

5. Type a name for the key, and click **OK**.
6. 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.
7. To send the command key settings to the Preview area of the Simulator, click **PVW**.
8. 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.
9. 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**.
5. To mix sources in one window, add multiple sources into the same element at different cues.
6. 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.

7. To add an off element to a script, right-click in an empty area of the script grid and select **Add Off Element**.
8. 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.

# Maintaining and Monitoring Spyder

General monitoring and system configuration information.

## Configuring the Front Panel

To configure the front panel of the Spyder X80 manually:

1. Select **View > Front Panel**.  
The front panel opens as a new window in the software.
10. Drag and drop the desired command keys from the command key window onto the command key front panel tab.
11. Drag and drop the desired function keys from the function key window to the function key front panel tab.
12. Optionally, create custom test patterns to load from the front panel in the front panel test pattern tab.

## 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.
13. Navigate to the location where the file will be saved.
14. Type a name for the project file.
15. Click **Save**.  
Spyder Studio projects are saved with a .sprojextension.
16. 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

To 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.

## Retrieving the Configuration on Spyder

To download the configuration currently loaded on Spyder into the Spyder Studio workspace:

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



## 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.

## 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

To 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

To 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**.  
Type a name for the text file and click **Save**.

# 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 (analog 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.
Layer	A single input, displaying either a live video input or a still image.
Output	A physical connection route for sending a signal to a projector or display.
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.
Pixelspace	A clipping rectangle defining an area of the screen.
Preset	A set of layers and treatments to be displayed within a pixel space.
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, <i>active stereoscopic</i> (on page 40) or <i>passive stereoscopic</i> (on page 41) displays.

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