

User Manual

020-100168-08

Christie AutoStack 4.1



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Install and Set up Christie AutoStack

This section provides information and procedures for installing and setting up Christie AutoStack.

Hardware recommendations

- Computer:
 - Intel or compatible processor (Intel Core i7-4700 or better recommended)
 - 200 MB of free disk space
 - 4 GB of RAM
 - A true color (32 bit) display with a minimum resolution of 1024 x 768
 - 1Gbps Ethernet port and network
- Network:
 - 1 unmanaged Gigabit Ethernet switch
 - 1 Ethernet cable to connect the computer to the network switch
 - 1 Ethernet cable for each projector
 - 1 Power over Ethernet (PoE) injector (if using a PoE camera)

Software recommendations

- Computer operating system:
 - Microsoft Windows 7 SP 1
 - Microsoft Windows 8
- Supported projectors and software:
 - Christie M series projectors must have Main Software version 2.3.0 or later installed
 - Christie StIM WU projectors must have Main Software version 1.4.5 or later installed
 - Christie StIM WQ projectors must have Main Software version 1.2 or later installed
 - Christie J Series projectors must have Main Software version 1.1.0 or later installed
 - Christie D4K series projectors must have Main Software version 1.3 or later installed
 - Christie Boxer projectors must have Main Software version 1.0.0 or later installed
- Adobe Reader 11 or later
- Christie Twist 2.0 Pro or later

Camera recommendations

Christie AutoCal must be used with one of the following calibrated cameras provided by Christie Digital:

- 3.2MP USB3 Point Grey Flea 3 USB FL3-U3-32S2M-C (recommended)
- 5.0MP GigE Point Grey Flea 3 FL3-GE-50S5M-C
- 1.2MP USB2 Point Grey Chameleon CMLN-13S2M
- 2.0MP GigE Point Grey Flea 3 FL3-GE-20S4M-C
- 5.0MP Mono GigE PoE Point Grey Blackfly BFLY-PGE-50H5M-C

To use the Power over Ethernet (PoE) functionality of this camera, a PoE injector or PoE enabled hub or router is required. If the camera cannot be located on the network, use a PoE injector to connect the camera to the control computer, or connect the camera to a PoE enabled hub or router.

Connect projectors to the control computer

To use Christie AutoStack, a minimum of one camera and one Christie AutoStack-enabled projector must be connected to the control computer.

1. Connect a computer to a network switch with an Ethernet cable or use a wireless connection.
A wireless connection is not recommend with network (GigE) cameras.
2. Connect an Ethernet cable from each projector to the network switch.
3. If you are using network (GigE) cameras, connect each camera to the network switch.

For optimum performance, connect each network (GigE) camera to an unmanaged switch. Do not connect network (GigE) cameras to a managed switch.

Assign a projector ID

This procedure is optional, but can help identify projectors when troubleshooting.

1. Press **Menu** on the keypad or the remote.
2. Select **4 Configuration**.
3. Select **7 Communication**.
4. Select **4 Projector Address**.
5. Specify a unique identification number.
6. Press **Menu**.

Add the projector to the network

Alternative network routing options can cause time-outs and interfere with software functionality.

1. Press **Menu** on the keypad or the remote.
2. Select **4 Configuration**.
3. Select **7 Communication**.
4. Select **5 Network Routing**.
5. Select **1 Separate**.
6. Press the **Menu**.

Assign a projector port number

When you add projectors to a configuration, you can search all available ports or specify a specific port. To associate a projector with a specific port, you must know the port number.

1. Press **Menu** on the keypad or the remote.
2. Select **4 Configuration**.
3. Select **7 Communication**.
4. Select **5 Ethernet Settings**.
5. Make sure the correct port number is displayed.
6. Press the **Menu**.

Connect cameras

Cameras are connected to a network hub with an Ethernet or a USB connection. The network hub is connected to the control computer.

To use Christie AutoStack, a minimum of one camera and one Christie AutoStack-enabled projector must be connected to the control computer. Every camera connected to the control computer must have a valid IP address and be accessible on the local network.

Tools provided by the camera manufacturer are installed in the Christie AutoStack folder in the Windows **Start** menu. Typically, cameras work correctly with Christie AutoStack without modifying their settings. If you need to modify camera settings, see the documentation provided by the camera manufacturer or visit their website. If a camera is not working correctly, see [Unable to connect a camera](#) on page 27.

When using a USB connection to connect cameras, use the cable supplied with the camera or a high quality equivalent. To determine what extenders or hubs are supported, see the supplier web site.

Cameras that use a USB 3.0 connection must be connected to a USB 3.0 port with a USB 3.0 cable. Typically, USB 3.0 ports are blue and are identified with USB 3.0 SS symbol.

Cameras without power supplies can receive power through the USB cable.

Install camera drivers

Use the Christie AutoStack installation wizard to install Christie AutoStack and the camera drivers. Christie recommends that you only install the drivers for the cameras connected to the control computer. Installing multiple drivers from different manufacturers can cause software conflicts and prevent the cameras from working correctly.

See [Install Christie AutoStack](#) on page 10.

Uninstall previous software versions

If you are using older projectors, you can install Christie AutoStack 4.1 without removing an existing Christie AutoStack 2.0 installation.

1. Click **Start > Control Panel**.
2. Click **Programs and Features**.
3. Right-click **Christie AutoStack** and click **Uninstall**.
4. Click **Yes**.

Install Christie AutoStack

If a restart prompt appears during the installation, select **No** and restart the computer when the full Christie AutoStack installation is complete.

1. Insert the installation media or download the application from the Christie website.
2. If the installation does not start automatically, click **Start > Computer**. Browse to the CD-ROM drive and double-click the **setup.msi** file that matches your Windows version.
3. Click **Next** when the Setup Wizard appears.
4. Select the **I accept the terms in the License Agreement**. Click **Next**.
5. Click **Install**.

Start Christie AutoStack

Click **Start > All Programs > Christie > AutoStack 4.1 > AutoStack 4.1**.

To create a new configuration, click **New**.

To open an existing configuration, click **Open**, browse to the location of the configuration file (*.stack), select it, and click **Open**.

Licensing

A license is required to activate Christie AutoStack features. To view the features that are currently active, click the **Help** tab and then click **View**.

To activate Christie AutoStack Standard or Premium, insert the dongle into the USB port of the computer on which you will manage Christie AutoStack settings before opening Christie AutoStack.

Guided setup

Select **Guided Setup** on the **File** tab to be guided through a quick configuration setup. To manually add a configuration, click **New**.

Uninstall Christie AutoStack

1. Click **Start > Control Panel**.
2. Click **Programs and Features**.
3. Right-click **Christie AutoStack 4.1** and select **Uninstall**.
4. Click **Yes**.



Bonjour, Microsoft Visual C++ 2010 and 2012 Redistributables, and Microsoft .NET Framework 4 may be used by other programs and are not uninstalled by the wizard. To uninstall these programs, see [Uninstall previous software versions on page 10](#).

Technical support

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Asia Pacific: tech-asia@christiedigital.com

Manage Projectors

When you add projectors to your configuration, they appear in the Projector panel. Use the **Projector** panel to view information about connected projectors.

To view the details about a projector expand the **Details** list.

To add a projector, you need the IP address, and the port number. To identify the IP address and port number, press **MENU > 4 CONFIGURATION > 7 COMMUNICATIONS > 5 ETHERNET SETTINGS**.

To reorder the projectors, select a projector and click **Move Up** or **Move Down**.

To remove a projector from the list, select it and click **Remove**.

To rename a channel, double-click the **Name** and enter a new one.

Add a projector to a configuration by searching

1. Start Christie AutoStack. See [Start Christie AutoStack](#) on page 10.
2. Click **New** on the **File** tab.
3. Click **Projector** in the left pane.
4. Click **Add** in the lower left pane.
5. Click the **Broadcast** tab.
6. Select **Default** in the **Port Number** area to search for a projector with a default port setting.
7. or
8. Select **Custom** and enter the custom port number for the projector.
9. Click **Search**.
10. Select projectors in the **Search Results** list.
11. Click **OK**.

Manually add a projector to a configuration

Use this procedure if your projectors cannot be detected automatically, or are not on the same subnet. To manually add a projector to a configuration, you must provide the projector IP address and port.

1. Start Christie AutoStack. See [Start Christie AutoStack](#) on page 10.
2. Click **New** on the **File** tab.

3. Click **Projector** in the left pane.
4. Click **Add** in the lower left pane.
5. Click the **Manual** tab.
6. Complete the **IP Address** field.
7. Click **Search**.
8. Select the projector in the **Search Results** list.
9. Click **OK**.

Manage Cameras

This section provides information and procedures for managing cameras.

Add a camera

Use the **Camera** panel to locate cameras, add them to your configuration, and change exposure and binarization settings.

1. Click **Add**.

2. Select a camera.

If you have recently connected a new camera, click **Refresh** to see it.

3. Click **OK**.

When a camera is added, a preview of the camera image appears in the image preview.

Remove a camera

Select a camera and click **Remove**.

View camera details

Expand the **Details** list in the Camera panel.

The Details area displays information about the camera and network information including the IP address, the subnet mask, and the MAC address. It also shows the name of the camera **Profile**.

Manage camera profiles

Camera profiles are stored on the camera. A camera profile defines the technical characteristics of a camera and its lens. The camera calibration process defines the position and orientation parameters of a camera.

If you attempt to add a camera without a profile, it is unavailable in the Camera panel or the Select Camera dialog.

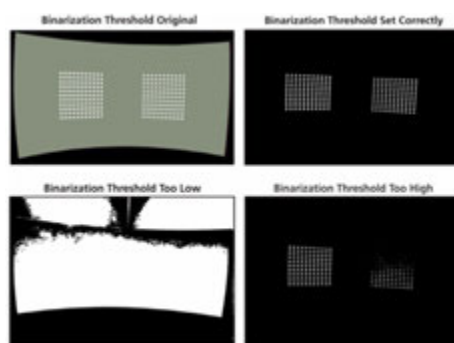
1. On the **File** tab, click **Manage**.

2. To add a camera profile, click **Add**.
3. In the Open File dialog, browse to the file (.xml) containing the camera profile, select it, and click **Open**.
4. Click **OK**.

Set camera exposure and binarization

You use the Camera panel to set the exposure and binarization of your camera(s).

Binarization defines the threshold of the black (dark) and white (bright) pixels of the captured image. The ideal binarization is when the image's background noise is minimized and all grid points are fully captured.



When a binarized image is taken, the projector(s) in the system display a black background with a white grid. (If Camera Markers are selected, the camera visible markers are turned on to select a correct binarization and exposure value to detecting these markers).

When a single camera and projector are activated, you can adjust the binarization threshold and camera exposure of the selected camera.

By default, Christie AutoStack determines exposure and binarization settings automatically. Before making changes to these settings, make sure that:

- the screen is defined
- the required cameras are imported and activated
- the required channels are imported and activated
- channel extents are defined
- all points are mapped

Adjust camera exposure and binarization

The settings described in this procedure are applied to the selected camera and not all cameras.

1. Make sure at least one camera is connected and one channel is selected.
2. Expand the Camera panel.

3. Select one of these options:

- **Automatic** - Automatically adjusts exposure and binarization.
- **High Contrast** - Automatically adjusts exposure and binarization by using a slower test pattern to improve image processing and contrast. This setting is recommended when the camera view of the projector dots has poor contrast or some areas are brighter than others.
- **Manual** - Manually adjusts binarization.
 - In the **Marker Type** list, select **Projector Dots** to change the projector grid settings or **Screen Markers** to change the camera calibration marker settings.
 - Drag the **Exposure** slider back and forth or click the **-** and **+** buttons to adjust the amount of time the camera shutter remains open while capturing images.
 - Click **Thresholding Mode**.



When using multiple cameras, adjust binarization and exposure settings individually for each one.

When making adjustments, make sure that you find a balance between the correct exposure and binarization threshold until all ambient light is filtered out and the image displayed shows only the grid points in their sharpest context. It is essential to avoid losing points when making adjustments.

Manually adjust camera settings

If camera alignment, brightness, or focus are not correct, use the zoom in, zoom out, or fit buttons at the top of the camera view screen. Image scale can also be adjusted using the mouse wheel.

Calibrate cameras

Before you calibrate your configuration, you must identify points on the screen so that your camera(s) are calibrated.

The camera view is 2-dimensional. To calibrate a camera, you map the 3D points to the 2D points of the camera.

The Calibration panel displays a real-time picture of the camera view. To display or hide windows, select one of the buttons in the upper-right corner.

Locate corners

Christie AutoStack can automatically locate the corners of your screen. This feature works best for planar rectangular screens.

To locate the corners, follow these recommendations:

- The screen has a well-defined border with a high degree of contrast between the screen area and the border.
- There are no objects between the camera and the screen that would obscure the camera's view.

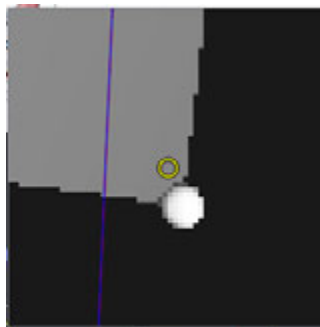
- The camera aperture is set so the image is visible, but not over exposed.
- The camera focus has been adjusted to provide a clear, sharp image.
- The center of the camera view is in the center of the screen.
- The entire screen must be visible to the first camera.

To find corners, on the Home tab, click **Find Corners**.

After Christie AutoStack has searched for corners, it displays blue dots at the corners of your screen in the Camera view window. It also shows blue lines along the edge of the screen. If you selected one of the Cylindrical options, then blue circles appear on the top and bottom of your screen area to show the curved edges of your screen.

In some cases, Christie AutoStack might not be able to find the corners of your screen. If the corners are not where you want them:

1. Move the corners to match your screen by clicking and dragging the blue circles. When you click a dot to select it, it turns yellow. While you are dragging a dot, it appears as a hollow blue circle. Drag all 4 red circles to the desired locations, and then observe the blue box to see if it is where you want it.
2. For fine adjustments to corner locations, press and hold the **CTRL** key. A zoom window appears, allowing you to drag a circle by small increments.



Press **CTRL** + the arrow keys to move a selected circle by 10 pixels. To move a circle by 1 pixel, Press **CTRL** + **SHIFT** + the arrow keys. Release the **CTRL** key to close the zoom window.

Confirm layout

After adding and adjusting points, verify that the calibration is set up correctly.

On the Home tab, Christie AutoStack superimposes the boundary of the screen section and channels that the camera sees.

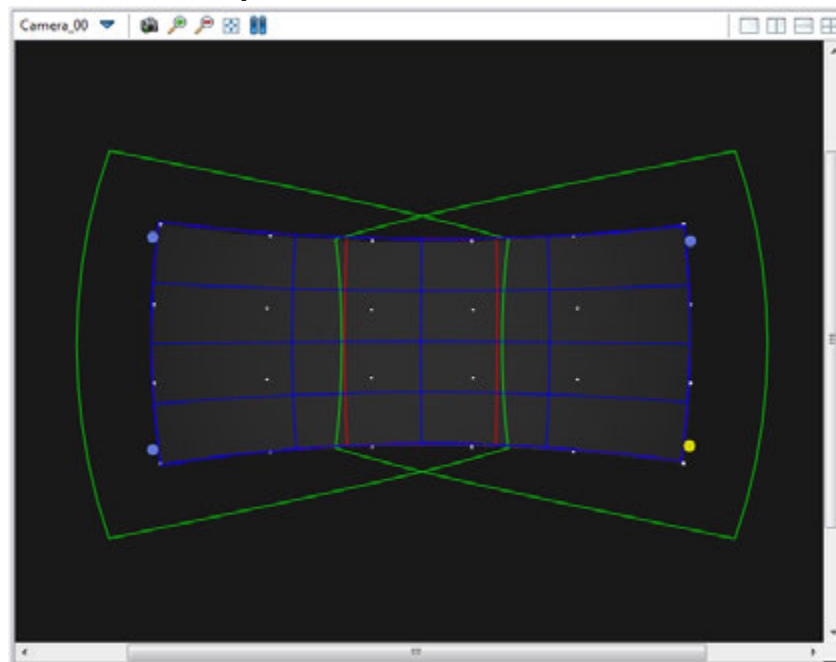
1. On the **Home** tab, click **Confirm Layout**. Christie AutoStack switches to Camera view. Warping/blending is turned off, a white test pattern is displayed on all screens and a red bounding box is superimposed for each channel in the image. A blue bounding box represents the defined screen.
2. Confirm that the blue lines trace the outline of your screen and the red lines outline where you want your channels to be.

- If the red bounding box is not within the white test pattern, then image will not be displayed within the target position.
- If the blue outline does not match the layout of the physical screen, then you should re-calibrate the camera, adjust the horizontal and vertical overlaps.

Analyze layout

Analyze your configuration to create a mapping between the camera and projector coordinate systems.

Click the **Home** tab and click **Analyze**.



The display area for the projectors (green), the screen area (blue), and the channel extents (red) is displayed.

Run calibration

Before beginning a calibration, make sure that these conditions are true:

- The screen is defined.
- The required cameras are imported and activated.
- The required projectors are imported and activated.
- All points are mapped.
- Camera images are focused
- Manual exposure and threshold values are correct.
- Images are not over exposed.

To begin a calibration:

1. On the **File** tab, click **Save** to save the current configuration.
2. Click **Run** to begin a full calibration.

To access other run options, select one of these options:

Option	Description
Run using analyze results	If you have already analyzed your setup (by clicking Analyze on the Home tab) or performed a full calibration (by clicking Run on the Home tab), then the mappings between the camera and projector coordinate systems may already exist. Select this option to use these mappings instead of generating them again. Only use this option if you have not moved any cameras or projectors since the last analysis was done.
Run without iterations	Select this option to run a faster calibration by disabling iterations for camera-to-projector coordinate mapping. If you disable iterations, Christie AutoStack will only perform the calibration calculation once, which could lead to poor results. To configure iteration options, see the Options panel.

Manage the Image Position and Layout

This section provides information and procedures for manipulating the displayed image.

Set up screen definitions

This section outlines procedures for setting up the geometry definitions that define the characteristics of the physical projection screen.

Use the Screen panel to change these settings.

To zoom in or out, use the mouse wheel.

Define the layout

A layout defines the location of each channel. A layout must match the parameters of the content or image generator. Warps are automatically generated so the projected image matches the specified layout.

Channel layouts are defined by the overlaps between adjacent channels. The projected area of all channels will fill the entire screen.

1. Expand the **Layout** list in the left pane.
2. Select **Planar** in the **Type** list.
3. Select a projector orientation in the **Orientation** list.

The projector orientation must match the projector setting. This feature is only available with AutoStack premium.

4. On the **Setup** list, select a grid layout.

The number of projectors installed determines what options are available. For example, when 2 projectors are active, the drop-down contains the selections **1x2** and **2x1**, and **1x1 (stacked)**. When four projectors are selected, the list includes **1x1 (stacked)**, **1x2 (stacked)**, **2x1 (stacked)**, and **2x2**.

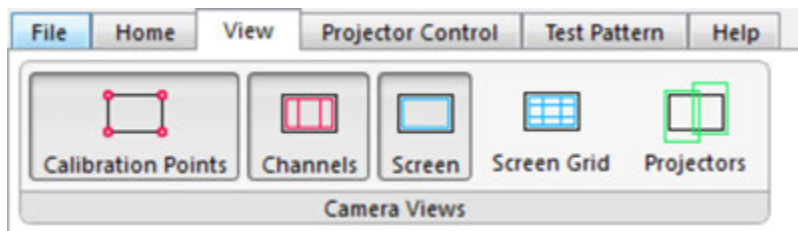
5. Enter the horizontal or vertical overlap percentages.
6. To further inset the projected image inward, specify inset percentage values (percentage in screen space). A positive inset value will create a black border around the final full image.

Use Christie AutoStack

Read this chapter to learn about Christie AutoStack features, how to use controls, and more.

View ribbon

Use the View ribbon to customize what the projectors display on screen and what is visible in the Christie AutoStack application window.



Camera view



The Camera view shows what is currently visible in your cameras. Use the buttons beside the **View** list and your mouse to adjust the camera view:

- To change the position of the image, click the left mouse button and drag.
- To zoom in or out, use the wheel button on your mouse or click the zoom in and zoom out buttons.
- Click the capture button to capture an image from the camera.
- Click the fit button to fit the current image to the camera view window.

- Click the pause button to pause the real-time view from the camera.

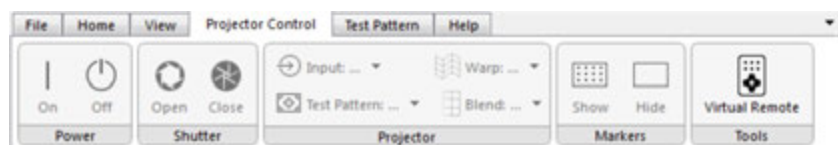
The **Camera Views** area includes these buttons:

Button	Description
Calibration Points	Shows or hides calibration points around the edge of the screen.
Channels	Shows or hides the projector display area on the screen with the current configuration.
Screen	Shows or hides the screen outline.
Screen Grid	Shows or hides a grid displayed across the screen that shows the screen's interior shape (red grid).
Projectors	Shows or hides the areas that the projectors can display.

Some of the buttons are only available after completing an analysis.

Projector control ribbon

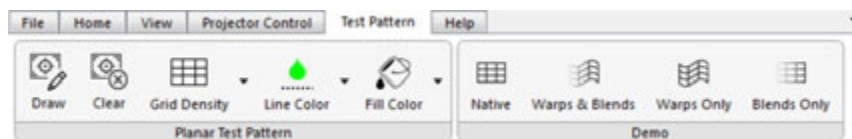
Use the Projector Control ribbon to send commands to the projector.



Button	Description
Power	Turns the projector power on or off.
Shutter	Opens or closes the projector shutter.
Input	Selects the input source for the projector.
Test Pattern	Displays or removes a test pattern.
Warp	Applies or removes a standard or user-defined warp.
Blend	Applies or removes a standard or user-defined blend.
Show/Hide Markers	Displays or hides markers.
Virtual Remote	Displays the virtual remote application.

Test pattern ribbon

Use the Test Pattern ribbon to display test patterns and troubleshoot calibration issues.



Button	Description
Draw	Displays a test pattern on the screen.
Clear	Removes a test pattern from the screen.
Grid Density	Changes the grid density.
Line Color	Changes the line color.
Fill Color	Applies a fill color to the grid test pattern.

View network details

Click the  icon in the lower-left corner of the Select Projectors dialog.

Set Christie AutoStack Options

The Options panel allows you to specify warp and blend settings, grid resolution, and projector orientation. The information for both warps and blends is stored under one name. You specify whether or not you want to include blend calculations.

Warping and blending

1. In the Warping & Blending area, in the **Name** field, enter the warp/blend name to be sent and saved to the projector.
2. In the **Mem Location** list, select the memory location of the warp/blend.

Access a saved warp

To apply a saved warp to the projector, select the projector in the Projector panel, and then select the warp in the **Warp** list on the **Projector Control** tab.

1. Press the **Menu** button on the projector keypad or the remote. Use the up and down arrow keys on the project keypad to make selections.
2. Select **4 Configuration**.
3. Select **8 Geometry and Color**.
4. Select **2 Keystone and Warping**.

5. Select **1 Warp Select** to access a list containing all saved warp locations. Each projector can store up to 10 custom warp definitions. Users can select any number from 1 to 10.
6. Press **Menu**.

Access a saved blend

To apply a saved blend to the projector, select the projector in the Projector panel, and then select the blend in the **Blend** list on the **Projector Control** tab.

1. Press the **Menu** button on the projector keypad or the remote. Use the up and down arrow keys on the project keypad to make selections.
2. Select **4 Configuration**.
3. Select **8 Geometry and Color**.
4. Select **4 Edge Blending**.
5. Select **1 Blending Select** to access a drop-down menu containing all saved blend locations. Each projector can store up to 5 custom blend definitions. Users can select any number from 1 to 5.
6. Press **Menu**.

Set calibration options

Use these settings to specify calibration options:

- **Do Iterations:** Performs calibration calculations repeatedly to refine the calibration. Clear this option to have Christie AutoStack use initial calculations only. Iterations improve accuracy, but reduce smoothness.
- **# of Iterations:** Specify the maximum number of iterations Christie AutoStack will perform. The default value is 50. Specify a value between 10 and 50. Calibration automatically stops when convergence is detected. Lower the iteration number to stop calibration sooner.
- **Do Tiling:** Select to have the projectors tile the image so that each one shows only its portion of a shared input. This option is not supported on all projectors.

Christie Twist

Use these settings to specify Christie Twist-related options. To show these settings, expand **Options** in the left pane, and then expand **Twist**.

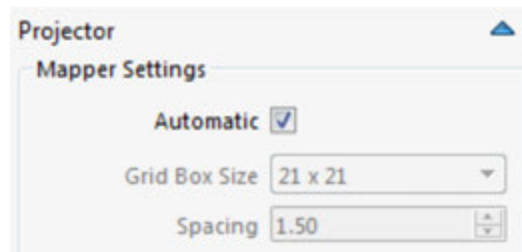
- **Twist Filename:** Specify the name of the Christie Twist (.twistx) file that you want to use.

Click the browse button  to select a folder. By default, the folder where you save calibration (.stack) files is selected. Also, by default, Christie AutoStack updates the name of the Christie Twist file to match the name of the Christie AutoStack file.

- **Grid Size:** Specify the number of grid points to be drawn by the projector during calibration (the warp resolution sent down to the projector). If you specify a grid size greater than 9, your Christie Twist file will only be able to be opened by Christie Twist Pro.
- **Smart Undershoot Handling:** When selected, ignores projector undershoot around the border when performing blend calculations.

Projector

Use these settings to specify projector-related options. To show these settings, expand **Options** in the left pane and then click the expand button beside **Projector**. To manually adjust the settings, clear the **Automatic** checkbox.



- **Grid Box Size:** Sets the size (in pixels) of grid points that Christie AutoStack draws during calibration.
- **Mapper Spacing:** Sets the spacing of the grid points used by Christie AutoStack during calibration. The value specified is a multiplier of the grid box size.

Troubleshooting

This section provides information and procedures for resolving common Christie AutoStack issues. If you cannot resolve a projector issue, contact Christie Technical Support. For contact information see [Technical support](#) on page 11.

View and export diagnostics

When you are troubleshooting Christie AutoStack issues, Christie Technical Support may ask you to view diagnostics files, such as log files or images, or send those files to Christie for further analysis. Christie AutoStack creates a new folder for diagnostics files each time you run the software.

View diagnostic files

Click **Help** > **Diagnostics** > **View** and select one of these files:

- Crash
- Data
- Images
- Logs

Export diagnostic files

1. On the **Help** tab, click the **Export** button.
2. Select an Christie AutoStack session and click **Export**.
3. Browse to the location where you want to save the zip archive file, and click **Save**.
4. Locate the file on your computer.

The file name begins with "Diags_" and includes the calibration file name (if you have saved your calibration) and the session folder name, which includes the date and time when Christie AutoStack was launched.

5. Send the archive zip file to Christie Technical Support.

Unable to locate cameras or projectors

- Ensure computer network connectivity.
- Check cable connections (computer, camera, projectors, etc.).
- Make sure that the computer is on the same subnet as the camera/projector.
- Attempt to access the projector's Web interface. If you can reach it, then enter the IP address of the projector on the **Manual** tab of the **Select Projectors** dialog.
- Check the Ethernet firmware version on the projector.
- Make sure that no other Christie software application is running.
- Make sure the Bonjour application is installed and operating correctly.

Unable to connect a camera

- Make sure the camera is connected to a dedicated router with DHCP enabled. The camera should be assigned an IP address automatically.
- If the camera is connected to a network hub or router with Power over Ethernet (PoE), make sure PoE is enabled on the on the hub or router port. To enable PoE on the hub or router port, see the documentation included with the hub or router.
- If you are using a PoE camera, connect it to a PoE injector.

If the Point Grey Flea3 or Black Fly PoE cameras cannot be detected on the network, use this procedure.

1. Disable all wireless network connections.
2. Connect one end of an Ethernet cable to the camera.
3. Connect the other end of the Ethernet cable into the network port of the computer running the Christie AutoStack application.
4. Click **Start > Programs > Christie > AutoStack 4.1 > Point Grey Utilities > GigE Configurator**.
5. Select your camera in the left pane.
6. Click **Automatically Force IP**.
7. If your cameras use static IP addresses:
 - Enter the network settings for the camera.
 - Select **LLA & Persistent IP**.
 - Click **Set IP Address/Subnet**.

If your cameras use dynamic IP addresses:

- Select **LLA & Persistent IP**.
 - Select **DHCP**.
 - Click **Set IP Address/Subnet**
8. Click **Test Camera Connection**.

9. Reconnect the camera to the network.
10. Click **Test Camera Connection**.
11. If the camera is not recognized, see the documentation provided by the camera manufacturer for diagnostic information.

Intermittent camera connection

The primary symptom of this issue is the live camera preview being intermittently replaced by a checkerboard pattern and Christie AutoCal calibration failing. The Christie AutoCal application automatically attempts to recapture the image. The appearance of the checkerboard pattern during setup or when adjusting cables, is not always indicative of a problem.

Resolving this issue with network (GigE) cameras installed

1. Complete the Unable to connect to a camera procedure. See [Unable to connect a camera](#) on page 27.
2. Make sure the Point Grey filter driver is installed:
 - a. Click **Start > All Programs > AutoStack 4.1 > Point Grey Utilities > GigEConfigurator**.
 - b. Click **Firewall and Filter Driver Settings** in the left pane.
 - c. Make sure the **Install Filter Driver** and **Enable Filter Driver** checkboxes are selected.
If the checkboxes are not selected, install the filter driver. the correct location for the installation is: C:\Program Files\Christie Digital Systems\AutoStack 4.1\PointGrey. When the installation is complete, the **Filter Driver Status** area will display **Point Grey Filter Driver: Installed**.
3. If you cannot install the filter driver:
 - a. Click **Start**.
 - b. Type **regedit** in the **Search programs and files** field and press **Enter**.
 - c. Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Network.
 - d. Double-click **MaxNumFilters** in the right pane.
 - e. Type **14** in the **Value data** field.
 - f. Click **OK**.
 - g. Repeat step 2.

Resolving this issue with USB cameras installed

Christie recommends that you restart the computer after each troubleshooting attempt.

- Move the USB cable side to side and up and down. If this movement causes dropped frames, make sure the USB cable is attached correctly or replace the USB cable.
- Connect the USB cable to a different USB port on the control computer.

- Replace the USB cable.
- Install a shorter USB cable.
- Install a USB hub between the control computer and the camera.

Projector unresponsive

- Check power.
- Check cable connections.
- Check ability to search for projectors.

Invalid calibration file loaded

A .stack file is valid when all of the following conditions have been met:

- The selected camera is currently on the network.
- The screen has been defined.
- Each projector within the configuration is currently on the network.

Poor calibration results

Make sure that you have adequate camera coverage on the screen.

Make sure you have calibrated your camera successfully.

Review your exposure and binarization settings. If you used automatic exposure and binarization, select manual and adjust the values yourself.

Make sure all cameras are in focus.

Click the **Projector Control** tab and click **Show** in **Markers**. Make sure the camera images are not over exposed and adjust the camera aperture.

Expand **Camera** in the left pane, expand **Exposure & Binarization**, select **Automatic**.

Point Grey Flea3 status

This table shows the statuses that correspond to each LED state for the Point Grey Flea3 camera.

Camera Status	
Off	Not receiving power
Steady green, high intensity (~5 seconds)	Camera powers up
Green flashing quickly, low intensity	Camera is attempting to establish an IP connection.

Camera Status	
One green blink	1) An IP address, if enabled and available;
Two green blinks	2) a DHCP address, if enabled and available;
Three green blinks	3) a link-local address (LLA).
Three red blinks	4) Failure to establish connection
Steady green, high intensity	Camera is streaming images
Red/Green flashing quickly	Firmware update in progress
Red flashing slowly	General error.

Location of generated images and log files

Christie AutoStack generates images and log files which may be useful when troubleshooting.

View

To view the log and image files, on the Help tab, click **Diagnostics > View**.

Export

To export log and image files, on the Help tab, click **Export**.

Problems with device communication

- Check that Network Routing is set to Separate. See [Add the projector to the network](#) on page 9.
- Click **Start > All Programs > Christie > AutoStack 4.1 > Point Grey Utilities > GigEConfigurator**.
- Confirm that the camera and computer are connected properly. Click **Start > All Programs > Christie > AutoStack 4.1 > Point Grey Utilities > FlyCap2**.

Slow camera performance

For optimal results, you should have a minimum of a 1.0 Gigabits per second (Gbps) network connection. To confirm the speed of your network connection, click **Start > Control Panel > Network and Sharing Center**. Click your network connection and view its settings.

Failed to determine a channel ordering error message

- Make sure the layout settings are correct. The channel layout must match the projector output.
- Make sure every projector is calibrated by a minimum of one camera.

Mapper generated no data error message

- Make sure every projector is calibrated by a minimum of one camera.
- Make sure that the lens cap has been removed from all the cameras.
- Adjust the camera aperture to increase or decrease light levels. In dark rooms a low aperture setting may result in a completely black image.
- Make sure the camera is pointing at an illuminated surface.
- Try viewing the camera image with the software provided by the camera vendor. For example, use FlyCapture with Point Grey cameras. The FlyCapture application is included with Christie AutoStack 4.1.

If you can see a clear image with the camera software but not with Christie AutoStack, confirm that the camera and firmware are supported and then contact Christie support.

If the image is visible but unclear, manually focus the camera.

- Make sure the network hardware, including the cabling and switches, can support 1Gbps throughput. If the camera drivers do not have a fast and reliable connection they may return blank images or no images may appear.

Warps have failed validation error message

- Make sure the layout settings are correct and the orientation setting matches the projector orientation settings.
- Adjust the projector orientation so the on-screen display appears correct from the planned end-user viewing angle.

Projector undershooting causing distorted blends

With projector undershooting, one projector undershoots the screen or content boundary. This creates a region on which only a single projector can project an image. To resolve this issue:

- Expand **Options** in the left pane, expand **Twist**, and select the **Smart Undershoot Handling** checkbox. Projector undershoot around the border is now ignored when performing blend calculations. Typically, selecting this option improves blend quality.
- Expand **Options** in the left pane, expand **Twist**, and clear the **Smart Undershoot Handling** checkbox. The other projector is allowed to fill the undershoot area and the blend is modified so it transitions smoothly into the undershoot region. Select this option if you have an irregular projector or content arrangement.

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