

Christie Twist 2.3



User Manual

020-101380-04

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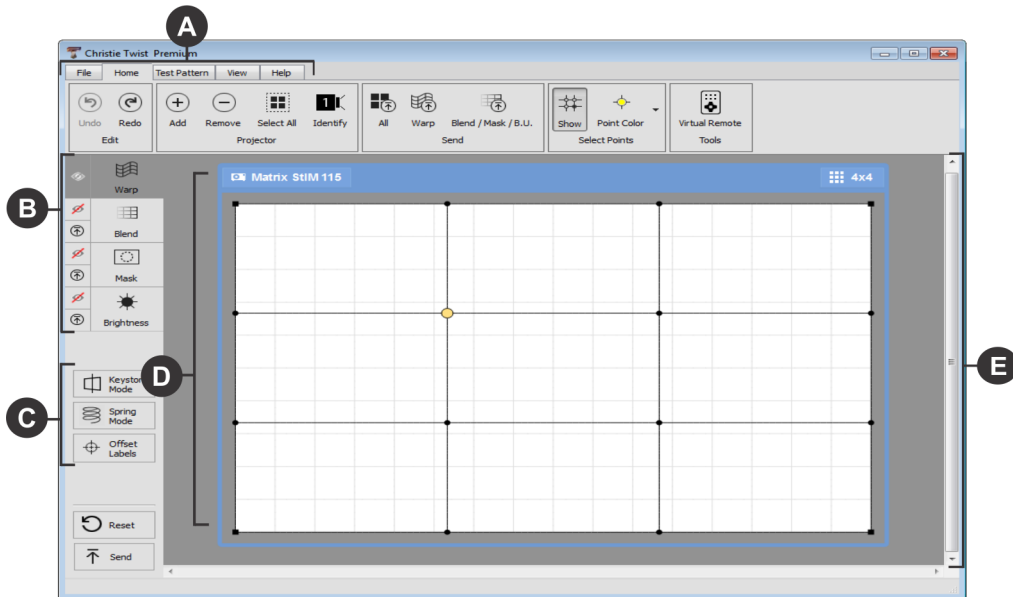
Christie Twist at a Glance

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

Christie Twist is an application that you use to map pixels onto any projection surface while maintaining correct image geometry and accurate pixel-to-pixel alignment.

The Christie Twist user interface

This illustration shows the primary Christie Twist screen elements.

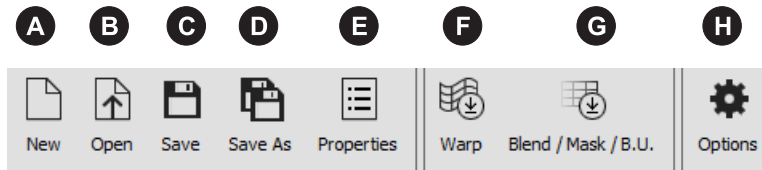


A	Ribbon
B	Layer Tabs A red key icon indicates the layer tab is not available. To activate the feature, see Licensing on page 13.
C	Layer Toolbar
D	Projector Window(s)
E	Canvas

Ribbon icons

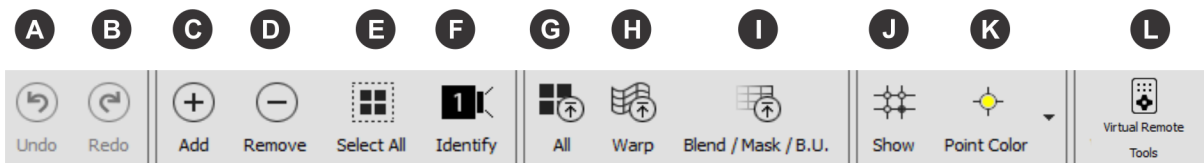
This section describes the icons that appear in the ribbons at the top of your Christie Twist screen.

File ribbon



A	Creates a new configuration file.
B	Opens an existing configuration file.
C	Saves your configuration file changes.
D	Saves the configuration file in a new location with a new name.
E	Opens the File Properties dialog where you can change the name of the warp or blend and the memory location for the settings.
F	Downloads warp settings from a memory location on the projector.
G	Downloads blend, mask, and brightness uniformity settings from a projector memory location.
H	Modifies the settings of new configuration files. These are the settings you can modify: <ul style="list-style-type: none"> • Initial grid size • Enable or disable spring mode • Enable or disable offset labels • Show or hide selected points • Show or hide a test pattern • Show or hide the File Setup Wizard Existing configuration files are unaffected.

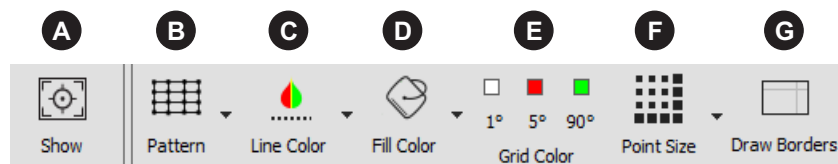
Home ribbon



A	Removes changes made to the configuration.
B	Reapplies changes made to the configuration.
C	Adds a projector to the canvas.

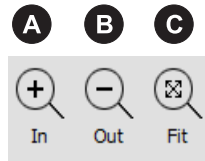
D	Removes a projector from the canvas.
E	Selects all projector windows on the canvas.
F	Identifies the projector windows on the canvas and the screen with a number to help identify the projector in your installation.
G	Sends warp, blend, mask, and brightness uniformity settings to all selected projectors.
H	Sends the warp settings to the selected projectors.
I	Sends the blend, mask, and brightness uniformity settings to the selected projector.
J	Displays or hides points on the screen.
K	Changes the color of points on the screen.
L	Displays the virtual remote application.

Test Pattern ribbon



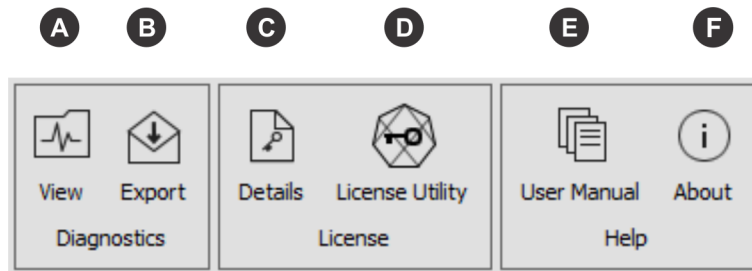
A	Shows or hides a grid test pattern.
B	Increases or decreases the line spacing of the grid test pattern.
C	Changes the line color of the grid test pattern.
D	Applies a fill color to the grid test pattern.
E	Changes the color of the grid test pattern. Available only when Fields of View blending is active.
F	Changes the point size. Available only when Fields of View blending is active.
G	Adds borders to the test pattern. Available only when Fields of View blending is active.

View ribbon



A	Increases canvas magnification.
B	Reduces canvas magnification.
C	Fits the canvas and projector windows to the screen.

Help ribbon



A	Opens the Data and logs folders.
B	Exports diagnostic information.
C	Shows license details.
D	Uploads licenses to projectors.
E	Displays printed help documentation.
F	Provides Christie Twist application version information and license agreements.

Install and Set Up Christie Twist

This chapter provides information and procedures for installing Christie Twist.

Hardware recommendations

- Computer:
 - Intel or compatible processor (Intel Core i7-4700 or better recommended)
 - 200 MB of free disk space
 - 2 GB of RAM (Christie recommends 4 GB)
 - A true color (32 bit) display with a minimum resolution of 1024 x 768
 - 1 Ethernet port
 - 1 free USB port (Twist Pro or Twist Premium)
- Network:
 - 1 network hub
 - 1 Ethernet cable to connect the computer to the network hub
 - 1 Ethernet cable for each projector

Software recommendations

- Computer operating system:
 - Microsoft Windows 7 SP 1
 - Microsoft Windows 8
- Projector 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 D4K2560 and Christie D4K3560 projectors must have Main Software version 1.3 or later installed (Main Software version 1.4 or later is required when using per-projector licensing)
- Adobe Reader 11 or later

Install and open Christie Twist

Before you complete an installation, visit the Christie website (www.christiedigital.com) and verify that you have the latest version of the Christie Twist software. You can download the latest software to the Christie Twist dongle.

1. Insert the Christie Twist dongle into the USB port of the computer on which you will manage Christie Twist settings.
or
Download the software from the Christie website (www.christiedigital.com).
2. Complete the Christie Twist 2.2 Setup Wizard.
3. Click **Finish**.
4. Open the application:
 - a. Click **Start > All Programs**.
 - b. Click **Christie > Twist 2.2 > Twist 2.2**.
5. Click **New**.
6. Add projectors.
See [Manage Projectors](#) on page 15.
7. Complete the **File Setup Wizard**.
8. Click **Finish**.

Licensing

Licenses are required to activate Christie Twist features. To view the features that are currently active, click **Help > View Details**.

You can use the Christie Twist dongle to license Twist Pro or Twist Premium. You must insert the dongle into the USB port of the computer on which you will manage Christie Twist settings before Christie Twist opens.

Individual projectors can be licensed for Twist Pro or Twist Premium. Any computer running Christie Twist can connect to the projector. See [Upload a license file](#) on page 17.

If multiple licenses are used, only the features available with the lowest Christie Twist software version are active. For example, if one projector is licensed for Christie Twist Pro and a second projector is licensed for Christie Twist Premium, only the features available with Christie Twist Premium are active.

Available features

This table lists the features that are available with the different versions of Christie Twist 2.2:

Feature	Twist	Twist Premium	Twist Pro
Maximum Number of Projectors	6	18	Unlimited
Control Points	9 x 9	9 x 9	Unlimited
Brightness Uniformity	No	Yes	Yes
Auto Blending (Wallpaper Advanced)	No	Yes	Yes
Auto Blending (Field of View)	No	No	Yes
Arbitrary Point Placement	No	Yes - Maximum 6	Yes - Unlimited

View Christie Twist license information

1. Click the **Help** tab.
2. Click **View Details**.
3. Click **Close**.

View Christie Twist help topics

1. Click the **Help** tab.
2. Click **User Manual**.

Technical support

North and South America: +1-800-221-8025 or tech-support@christiedigital.com

Europe, Middle East, and Africa: +44 (0) 1189 778111 or techsupport-emea@christiedigital.com

Asia Pacific: tech-asia@christiedigital.com

Manage Projectors

This section provides information and procedures for managing projectors.

Connect projectors to the Christie Twist control computer

The projectors and the control computer must be on the same network and use the same subnet.

1. Connect one end of an Ethernet cable to the Ethernet port on the control computer.
2. Connect the other end of the Ethernet cable to the network hub.
3. Connect a second Ethernet cable to the network hub.
4. Connect the other end of the second Ethernet cable to the Ethernet port on the projector.
5. Repeat steps 3 to 4 to add additional projectors.

Add a projector to a configuration by searching

1. Click the **Home** tab.
2. Click **Add**.
3. Click the **Broadcast** tab.
4. Select **Default** in the **Port Number** area to search for a projector with a default port setting.
or
Select **Custom** and enter the custom port number for the projector.
5. Click **Search**.
6. Select projectors in the **Search Results** list.
7. 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. Click the **Home** tab.
2. Click **Add**.
3. Click the **Manual** tab.
4. Complete the **IP Address** field.
5. Click **Search**.

6. Select the projector in the **Search Results** list.
7. Click **OK**.

View projector properties

Click the projector name on the top of the projector window.

Turn a projector on or off

1. Click the projector name of a projector on the canvas.
2. Click **On** or **Off** in the **Power** area.
3. Click **OK**.

Open or close the projector shutter

1. Click the projector name of a projector on the canvas.
2. Click **Open** or **Close** in the **Shutter** area.
3. Click **OK**.

Change the projector window name

1. Click the projector name on a projector window on the canvas.
2. Type a new name for the projector in the **Projector Name** field.
3. Click **OK**.

Display a projector test pattern

1. Click the projector name of a projector on the canvas.
2. Select a test pattern in the **Test Pattern** list.
3. Click **OK**.

Activate a color field for color calibration

1. Click the projector name of a projector on the canvas.
2. Select a color to display in the **Color Enable** list.
3. Click **OK**.

Move a projector on the canvas

Select and drag the projector to a new location.

Remove a projector from the canvas

1. Click the **Home** tab.
2. Click a projector window on the canvas.
Press **CTRL** and click the left mouse button to select multiple projectors.
3. Click **Remove** on the ribbon.

Control the projector with the virtual remote


The virtual remote cannot be used with Christie D4K2560 projectors.

1. Click the **Home** tab.
2. Click **Virtual Remote** on the ribbon.
3. Click the buttons on the virtual remote to control projector functions.

Display or hide multiple layer tab settings

Click the eye () icon in the left pane to display or hide layer tab information on other layers.

Enable or disable sending settings to projectors

Click the arrow () icon in the left pane to enable or disable sending settings to projectors.

If you disable settings, selecting **Send** removes the current settings from the projector.

Copy and paste a layer from one projector to another

The current layer state can be copied and pasted from projector windows within a single Christie Twist session, or from one Christie Twist session to another. Only manual blends can be copied between projectors. Copying and pasting a layer cannot be undone.

Pasted layer data is scaled up or down when the resolution of the destination projector is different than the resolution of the source projector.

1. Right-click anywhere on the source projector window and select **Copy**.
2. Right-click anywhere on the destination projector window and select **Paste**.

Invert a projector configuration

Right-click the configuration and select **Flip Vertically** or **Flip Horizontally**.

The configuration is mirrored on all layers of the selected projector windows.

Upload a license file

1. Click the **Help** tab.
2. Click **License Utility**.
3. Click **Browse** and browse to the location of the license file.
4. Select the license file and click **Open**.
5. Select the projectors to which you want the license to be applied in the **Projectors** area.
6. Click **Apply**.

Manage Points

Each point represents a specific location on a projected image.

Move a single point

Use one of these methods to move a point:

- Click and drag a point to a new location.
- Click CTRL + UP, DOWN, LEFT, RIGHT ARROW to move a point in one pixel increments.
- Click ALT + UP, DOWN, LEFT, RIGHT ARROW to move a point in ten pixel increments.
- Click CTRL + SHIFT + UP, DOWN, LEFT, RIGHT ARROW to move a point in increments of one-tenth of a pixel.

Move a line of points

When you move a line of points, the line maintains its shape.

1. Click anywhere on a grid line in a projector window to select the entire line.
2. Click and drag the line to a new position.

Move a group of points

1. Click and drag over a group of points.
2. Release the mouse button to complete your selection.
3. Click and drag the points to a new location.

Add a point

Right-click anywhere in the projector window and select **Add Point**.

Remove a point


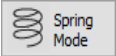
Some points cannot be removed. For example, the corner points of a warp mesh.

1. Select a point in the projector window.
or
Click and drag over a group of points and release the mouse button to complete your selection.
2. Right-click and select **Delete Points**.

Activate spring mode

Spring mode linearly distributes the movement of a point to other points along its vertical and horizontal axes. This reduces point grouping and smooths the image.

Spring mode is only available when warping an image and is applied to all projector windows on the canvas.


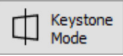
1. Click the **Warp** () layer tab.
2. Click **Spring Mode** ().
3. Select a point in the projector window.
or
Click and drag over a group of points and release the mouse button to complete your selection.
4. Click and drag the point to a new location.

Activate keystone mode

When you adjust the position of projector window corner points, select keystone mode to automatically adjust all of the interior points and maintain their perspective.

When keystone mode is selected, you cannot modify the grid resolution. To avoid image distortion, set the warp resolution to 5x5 or higher.

Keystone mode is only available when warping an image and is applied to all projector windows on the canvas.

1. Click the **Warp** () layer tab.
2. Click **Keystone Mode** ().
3. Click and drag a corner point to a new location.

Activate offset labels

Activate offset labels to display the displacement of a point from its original position in pixels. If keystone mode is selected, offset labels only appear in the corners. Offset labels are only available when warping an image. When offset labels is selected, offset labels are applied to all projector windows on the canvas.

1. Click the **Warp** () layer tab.
2. Click the **Offset Labels** () layer tab.



Change the color of selected points on screen

1. Right-click a projector window on the canvas and select **Selected Points Color**.
2. Select a color for the selected points.


Warping

Use image warping to correct image distortion and make images appear correct on curved screens.

Increase or decrease warp grid resolution

1. Click the **Warp** () layer tab.
2. Click a projector on the canvas.
3. Click the **Grid Size** () icon in the top right.
4. Increase or decrease the **X Resolution** and **Y Resolution** fields.
Significantly increasing the resolution can affect the performance of Christie Twist.
5. Click **OK**.

Warp an image

1. Click the **Warp** () layer tab.
2. Click a projector window on the canvas.
3. Move a one or more points to warp the image.
See [Move a single point](#) on page 19, [Move a line of points](#) on page 19, or [Move a group of points](#) on page 19.
4. To send the warp to the projector, right-click the projector on the canvas and select **Send Warp**.
5. To save the warp as a configuration file, click **File > Save**.
If this is a new configuration file, specify a name and location for it.

Download a warp from projector memory

1. Click a projector window on the canvas.
2. Click the **File** tab.
3. Click **Warp**.
4. Select the memory location for the warp in the **Download from memory location** list.
5. Click **OK**.


Blending

Use blending to increase or decrease the borders of an individual image so it blends with a neighboring image to create a single, seamless image.

Before you blend images, it is recommended that you complete your warp settings first. See [Warping](#) on page 22.

Create a simple wallpaper blend

Use a wallpaper blend when the image overlap between projectors is regular. When this option is selected, stacks imported from Christie AutoCal or Christie AutoStack are recognized by Christie Twist.

1. Click the **Blend** () layer tab.
2. Click **Enable Blends** on the canvas.
3. Click **Wallpaper (Simple)**.
4. Select values for the horizontal and vertical blends in the **Overlaps** area.
5. Enable or disable smart undershoot handling.

When smart undershoot handling is enabled, projector undershoot on the image borders is ignored when blend calculations are performed.

6. Click **OK**.
7. Arrange the projector windows on the canvas so they match your projector installation.


See [Move a projector on the canvas](#) on page 17. If you change the position of a projector on the canvas, the blend is automatically updated.

8. To send the blend to the projector, right-click the projector on the canvas and select **Send Blend**.
9. To save the blend as a configuration file, click **File > Save**.

If this is a new configuration file, specify a name and location for it.

Create an advanced wallpaper blend


Use an advanced wallpaper blend to define the overlap for each projected image.

1. Click the **Blend** () layer tab.
2. Click **Enable Blends** on the canvas.
3. Click **Wallpaper (Advanced)**.
4. Modify the **Left**, **Right**, **Top**, and **Bottom** fields for each projector.

5. Enable or disable smart undershoot handling.
When smart undershoot handling is enabled, projector undershoot on the image borders is ignored when blend calculations are performed.
6. Click **OK**.
7. To send the blend to the projector, right-click the projector on the canvas and select **Send Blend**.
8. To save the blend as a configuration file, click **File > Save**.

Create a fields of view blend

A field of view or spherical blend is typically used for simulation environments.


1. Click the **Blend** () layer tab.
2. Click **Enable Blends** on the canvas.
3. Click **Fields of View**.
4. Modify these fields for each projector:

Field	Description
Yaw	The angle of rotation about the Z-axis, describing the left-to-right direction of the channel's heading. Forward headings have a yaw of 0, headings to the right are positive, and headings to the left are negative.
Pitch	The angle of rotation upward toward the Z-axis, describing the up and-down direction of the channel's heading. Horizontal headings have a pitch of 0, heading up towards the Z-axis are positive, and downward headings are negative.
Roll	The angle of rotation of the channel about the heading direction (specified by yaw and pitch). A channel with no rotation about the heading has a roll of 0, channels with clockwise rotation have positive roll, and channels with counter-clockwise rotations are negative.
LeftFOV	The angle at the eyepoint from the channel heading to the channel's left edge. Angles toward the left are negative.
RightFOV	The angle at the eyepoint from the channel heading to the channel's right edge. Angles toward the right are positive.
TopFOV	The angle at the eyepoint from the channel heading to the channel's top edge. Upward angles are positive.
BottomFOV	The angle at the eyepoint from the channel heading to the channel's bottom edge. Downward angles are negative.

5. Click **OK**.
6. To send the blend to the projector, right-click the projector on the canvas and select **Send Blend**.
7. To save the blend as a configuration file, click **File > Save**.

If this is a new configuration file, specify a name and location for it.

Create a manual blend

1. Click the **Blend** () layer tab.
2. Click **Enable Blends** on the canvas.
3. Click **Manual**.
4. Click **OK**.
5. Right-click the top, bottom, or sides of a projector window and select **Add Blend**.
To delete a blend, right-click and select **Delete Blend**.
6. Click and drag a point to modify the blend properties.
7. To add additional points to the blend, right click the blend border and select **Add Point**.
8. To send the blend to the projector, right-click the projector window on the canvas and select **Send Blend**.
9. To save the blend as a configuration file, click **File > Save**.
If this is a new configuration file, specify a name and location for it.

Import a projector centric blend

Projector centric blends are created in Christie AutoCal and imported into Christie Twist when a Twist file is opened.

1. Click the **File** tab.
2. Click **Open** and browse to the location of the Twist file created by Christie AutoCal.
3. Select the file and click **Open**.
4. To send the blend to the projector, right-click the projector window on the canvas and select **Send Blend**.

Download a blend from projector memory


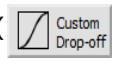
The blend file includes blend, mask, and brightness uniformity settings. This functionality is not available for Projector centric blends created in Christie AutoCal.

1. Click a projector window on the canvas.
2. Click the **File** tab.
3. Click **Blend/Mask/B.U.**
4. Select a memory location for the blend in the **Memory Location** list.
5. Click **OK**.


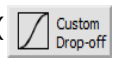
6. To send the blend to the projector, right-click the projector window on the canvas and select **Send Blend**.

Adjust the blend drop off curve


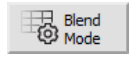
Manual blend mode must be selected to adjust a drop off curve.

1. Click the **Blend** () layer tab.
2. Click a projector window on the canvas.
3. Select a blend region.
4. Click **Custom Drop-Off** () in the left pane.
5. Adjust the midpoint to make the blend area darker or lighter.
6. Adjust the shape to make the transition more linear.
7. Click **OK**.
8. To send the blend to the projector, right-click the projector window on the canvas and select **Send Blend**.




Reset the blend drop off curve

1. Click the **Blend** () layer tab.
2. Click a projector window on the canvas.
3. Select a blend region in the projector window.
4. Click **Custom Drop-Off** () in the left pane.
5. Click **Reset**.
6. To send the blend to the projector, right-click the projector window on the canvas and select **Send Blend**.

Edit existing blend settings

1. Click the **Blend** () layer tab.
2. Click **Blend Mode** () in the left pane.
3. Select a blend type.
4. Adjust the blend settings.
5. Click **OK**.
6. To send the blend to the projector, right-click the projector window on the canvas and select **Send Blend**.


Remove blending

1. Click the **Blend** () layer tab.
2. Click **Blend Mode**  in the left pane.
3. Click **None**  .
4. Click **OK**.
5. Click the **Home** tab.
6. Click **Select All**.
7. Click **Send Blend/Mask/BU**.

Masking

Use masking to conceal the unused edges of an image.

Add a mask

1. Click the **Mask** () layer tab.
2. Click a projector window on the canvas.
3. Move a single or multiple points toward the center of the projector window to adjust the mask shape.
See [Move a single point](#) on page 19, [Move a line of points](#) on page 19. or [Move a group of points](#) on page 19.
4. To add points, right-click on a grid line and select **Add Point**.
5. To send the mask to the projector, right-click the projector window and select **Send Mask**.
The existing settings are overwritten and the settings are saved to projector memory.
6. To save the mask as a configuration file, click **File > Save**.
If this is a new configuration file, specify a name and storage location for it.


Download a mask from projector memory

The mask file includes blend, mask, and brightness uniformity settings.


1. Click a projector window on the canvas.
2. Click the **File** tab.
3. Click **Blend/Mask/B.U.**
4. Select a memory location for the mask in the **Download from memory location** list.
5. Click **OK**.

Apply a blend to a mask

Select the Blend to Mask option to extend a blend to the mask edge instead of the edge of the projected image.

1. Add a mask. See [Add a mask](#) on page 28.
2. Click the **Blend** () layer tab.
3. Click **Enable Blends**.
4. Click **Wallpaper (Simple)**, **Wallpaper (Advanced)**, or **Fields of View**.
5. Select **Blend to Mask**.


Remove a mask

1. Click the **Mask** () layer tab.
2. Right-click a projector window on the canvas and select **Reset Mask**.

Brightness Uniformity

Use brightness uniformity to make sure that all area areas of a displayed image are equally bright. The value of each point on the blend layer can be adjusted from 0 through 125 percent. Selecting a value greater than 100 percent will not increase the maximum brightness of the projector but will increase brightness of dark spots on the blend layer. The global brightness can only be a value in the range of 0 through 100 percent.

Increase or decrease brightness uniformity

1. Click the **Brightness** () layer tab.
2. Click a projector window on the canvas.
3. Select a single point or multiple points, right-click and select **Edit Brightness**.
Alternatively, select a single point, multiple points, or the label of a selected point, and click **Ctrl+[** or **Ctrl+]** to change the brightness by 0.1, or **Alt+[** or **Alt+]** to change the brightness by 1.
4. Click **Enter** to save the change.
5. To send the brightness setting to the projector, right-click the projector window and select **Send Brightness Uniformity**.
6. To save the brightness uniformity settings as a configuration file, click **File > Save**.
If this is a new configuration file, specify a storage location, a file name, and click **Save**.

Download brightness uniformity settings from projector memory


1. Click a projector window on the canvas.
2. Click the **File** tab.
3. Click **Blend/Mask/B.U.**
4. Select a memory location for the blend uniformity settings in the **Memory Location** list.
5. Click **OK**.

Reset brightness uniformity

1. Click the **Brightness** () layer tab.

2. Right-click a projector window on the canvas and select **Reset Brightness Uniformity**.

Adjust the brightness of an entire image

1. Click the **Brightness** () layer tab.
2. Click a projector window on the canvas.
3. Click the global intensity box in the top right corner.
4. Move the slider up or down to increase or decrease the brightness of the entire image.
5. Click the projector window to close the **Global Intensity** dialog.

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