

G60 W series

Warp and Blend Tool

User manual

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Table of contents

1	Warping and Blending	5
1.1	Image Warping	6
1.2	Edge Blending	6
1.3	Black Level	7
1.4	Image Stacking	7
2	Getting started	9
2.1	System requirements	10
2.2	Installing the Warping and Blending Tool	10
2.3	Set up projectors and network	12
2.4	Network configuration, assign IP address for projectors	13
2.5	Network configuration, assign IP address for the computer	14
2.6	Network configuration, verifying the IP settings	16
3	Using the Warping and Blending tool	19
3.1	Registering a projector	20
3.2	Selecting and deleting the projector	21
3.3	General settings	22
3.4	Warp settings	22
3.5	Warp settings, Moving Cursors	24
3.6	Warp settings, Test Pattern	24
3.7	Edge Blending	25
3.8	Edge Blending, Enable Marker	28
3.9	Black Level	28
3.10	Black level, transparent	30
3.11	Saving and opening settings	31

Warping and Blending

1

Introduction

This projector provides the ability to warp the shape of the projected images and to blend the overlapped edges of two or more images. Manipulating the projected images using the Warping and Blending Tool allows the user to create a seamless, unified image in arbitrarily shape.

Overview

- Image Warping
- Edge Blending
- Black Level
- Image Stacking

1.1 Image Warping

About warping

The warping function allows the user to perform grid point adjustment to digitally manipulate the shape of projected images to fit on a curve, flat, or anamorphic screen.

- Warping the image to fit on a curve projection screen.

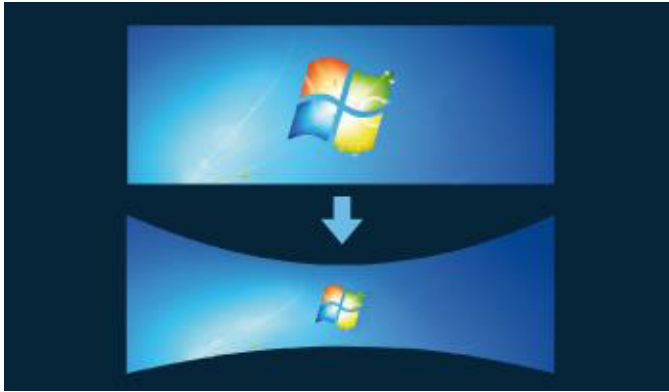


Image 1-1

- Adjusting the grid point to change the image shape.

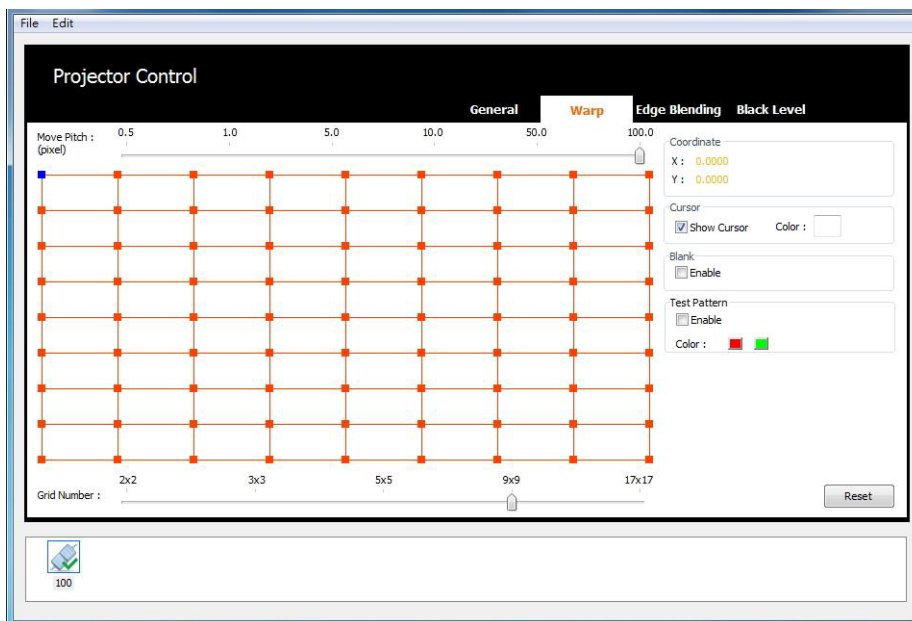


Image 1-2

1.2 Edge Blending

About blending

Using the edge blending function, the overlapped edges of two or more images from multiple projectors can be seamlessly blended into a single, unified image.

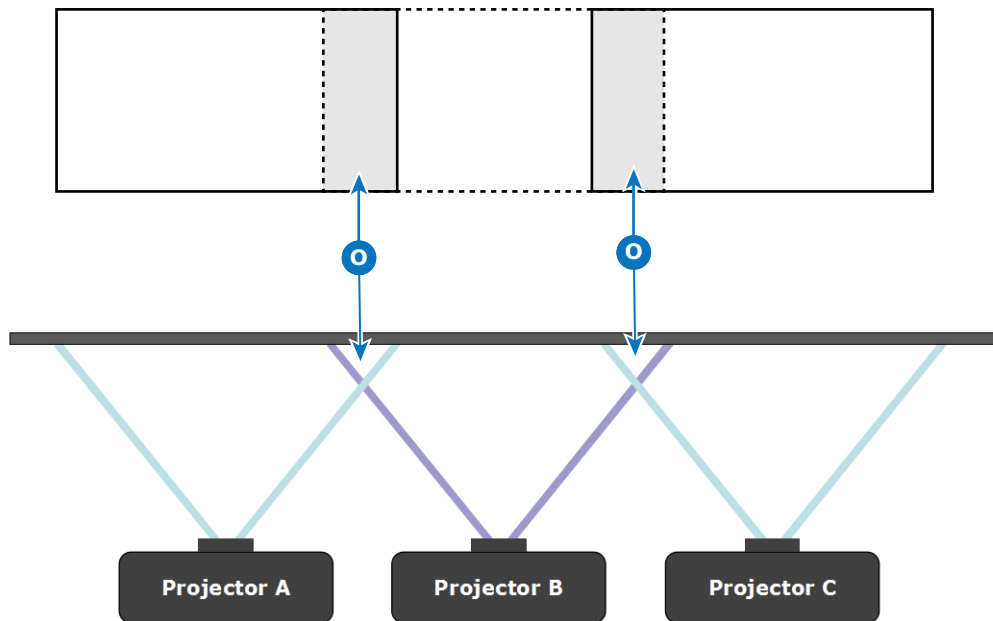


Image 1-3

○ Overlap area

1.3 Black Level

About black level

In a blended image, the overlapping area of the adjacent images might be brighter than the rest of the image. The black level function allows the user to adjust the black level of the images to achieve better black uniformity.



Image 1-4

1.4 Image Stacking

About image stacking

Image Stacking increases the image brightness in a fixed image size by stacking two or more projectors.

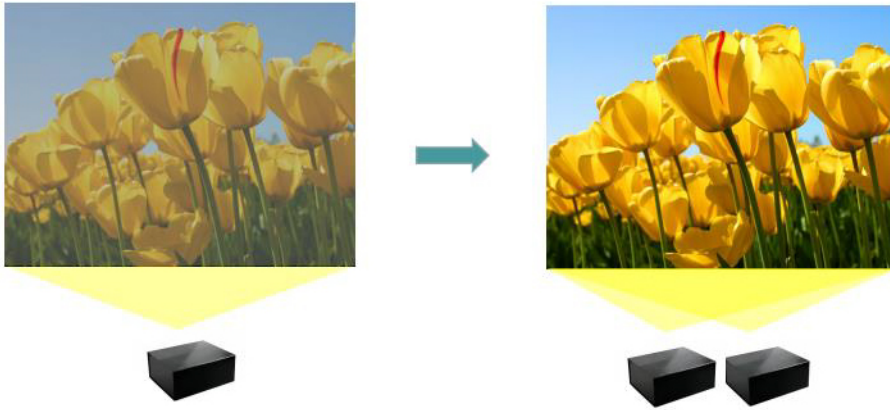


Image 1-5

Getting started

2

Overview

- System requirements
- Installing the Warping and Blending Tool
- Set up projectors and network
- Network configuration, assign IP address for projectors
- Network configuration, assign IP address for the computer
- Network configuration, verifying the IP settings

2.1 System requirements

Overview

The following are the minimum system requirements of the Warping and Blending Tool.

Operating system	32- or 64-bit Windows® 7, 8, 8.1
Hardware	<ul style="list-style-type: none">• Intel Core2 Duo 2.6 GHz processor• 2 GB RAM• 1 GB available hard disk space• Wired or wireless LAN

2.2 Installing the Warping and Blending Tool

About the tool

Download the installation file for Warping and Blending Tool from the product page on the Barco website.

How to install

1. Double click the installation file to open the setup wizard. Click **Next**.



Image 2-1

2. Select the installation folder and click **Next**.

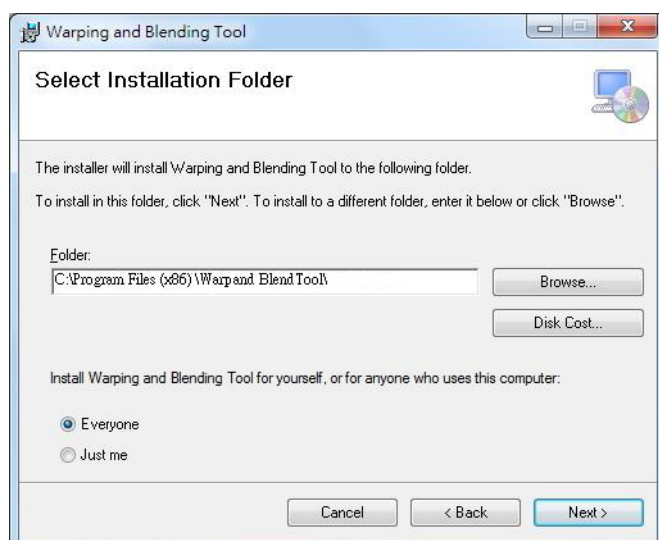


Image 2-2

3. To confirm the installation, click **Next**.

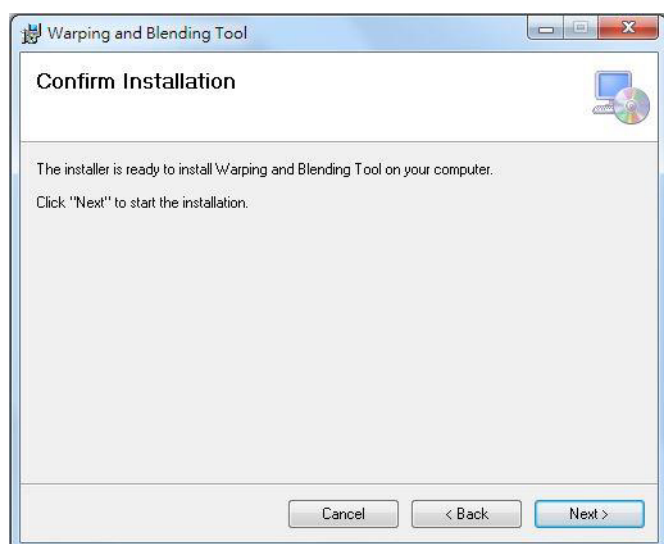


Image 2-3

4. When the installation is completed, click **Close** to exit the wizard.

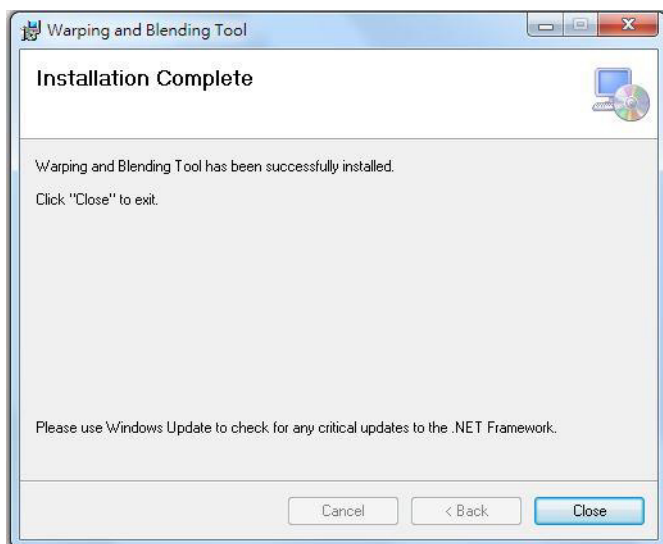


Image 2-4

2.3 Set up projectors and network

Network connection

Use a router to create a wired or wireless network connecting the computer and projectors. Install the Warping and Blending Tool on this computer.

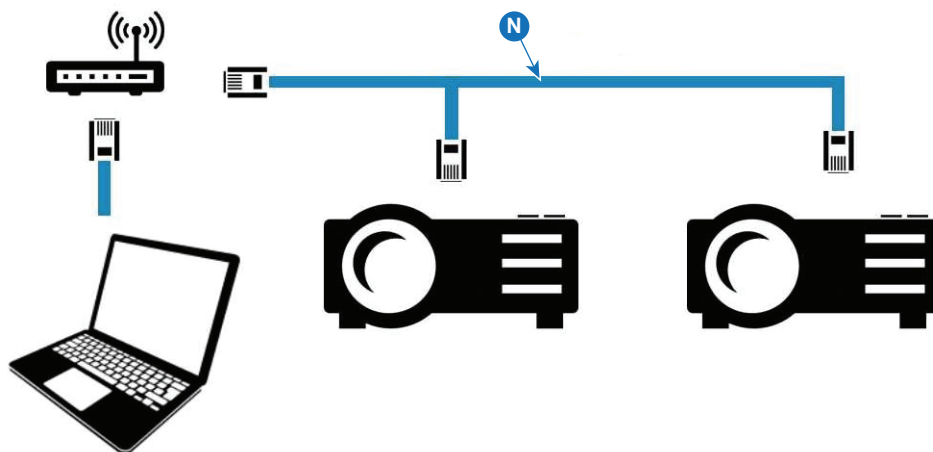


Image 2-5

N Network connection



Connect the projectors of the same model.
The projectors should be set with the same resolution and light source.
For wired connection, use Cat 5 or higher category Ethernet cable.

Source connection

Use a computer installed with a graphic card that supports image overlap in the same way as the input source. Connect the computer to projectors with video cables.

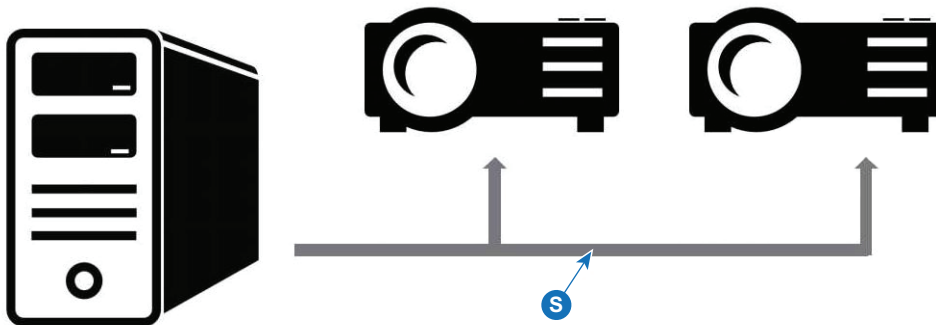


Image 2-6



Graphics cards that support image overlap include NVIDIA Quadro K1200 and higher, NVS 510 and NVS 810; AMD FirePro™ W600, W5x00 and above, all AMD FirePro™ S series products and AMD Radeon™ Pro workstation cards.

2.4 Network configuration, assign IP address for projectors

About assigning IP address

Assign network IP address for the computer and projectors. Make sure each device in the network is assigned with a unique IP address.

How to assign

1. Press **Menu** on the projector's keypad or remote control.
2. Select *Communications* from the *SETUP* menu.
3. Select *LAN*.

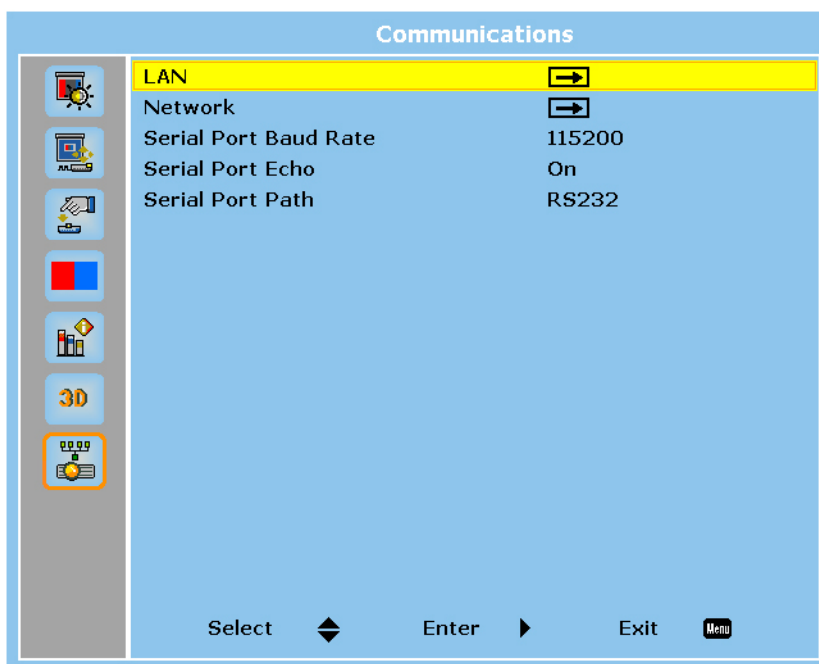


Image 2-7

4. Select *IP Address*.

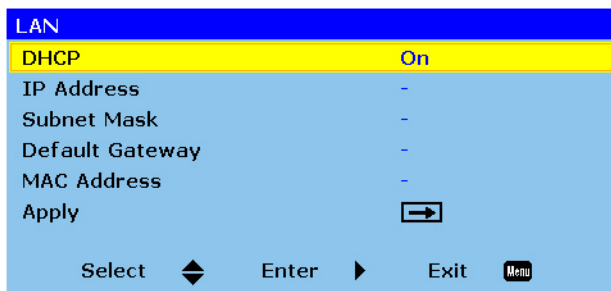


Image 2-8

5. Set the IP Address and press **Enter** on the projector's keypad or remote control.

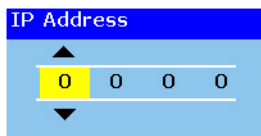


Image 2-9

2.5 Network configuration, assign IP address for the computer

How to assign

1. Go to *Network and Sharing Center* and click *Manage network connections*.

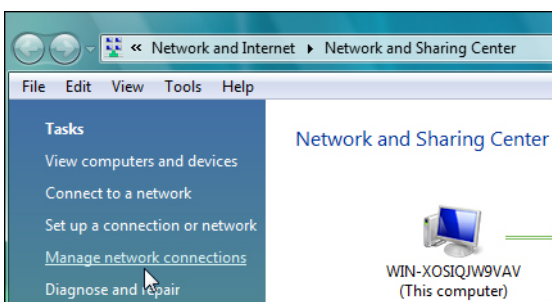


Image 2-10

2. Right click the Local Area Connection and click *Properties* from the drop down menu.

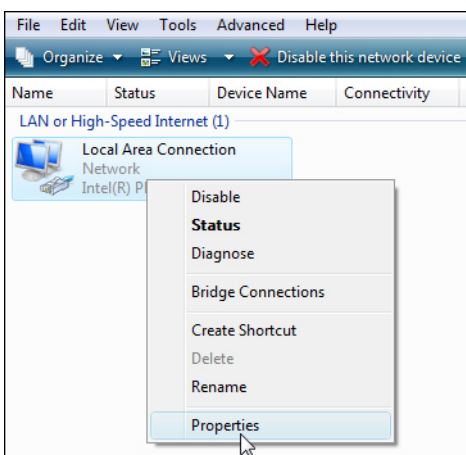


Image 2-11

3. Highlight Internet Protocol Version 4 (TCP/IPv4) then click *Properties*.

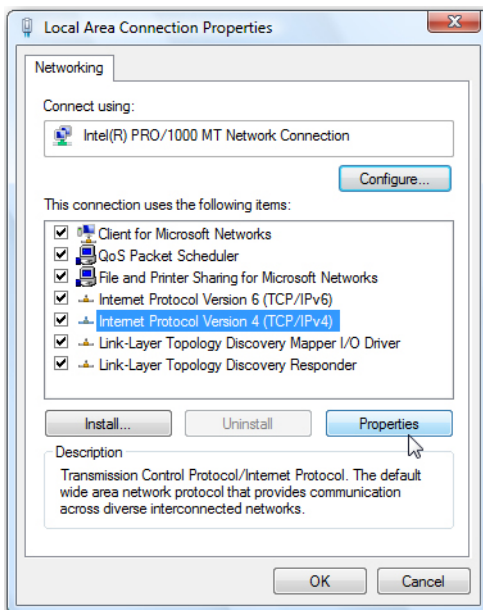


Image 2-12

4. Set IP address, and Click **OK**.

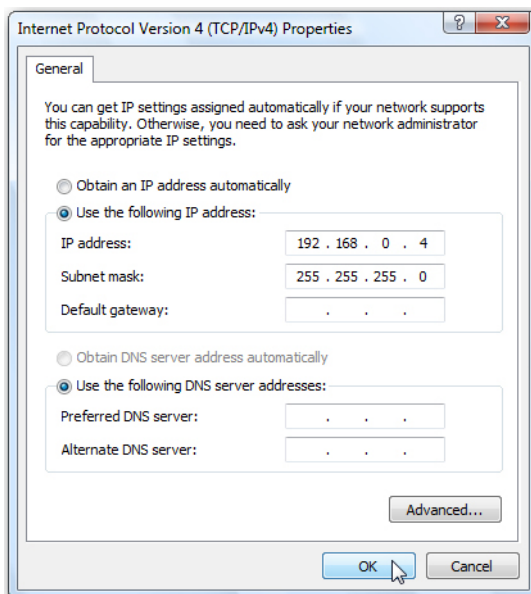


Image 2-13

5. Click **Close** to exit *Local Area Connection Properties* and the IP settings will go into effect.

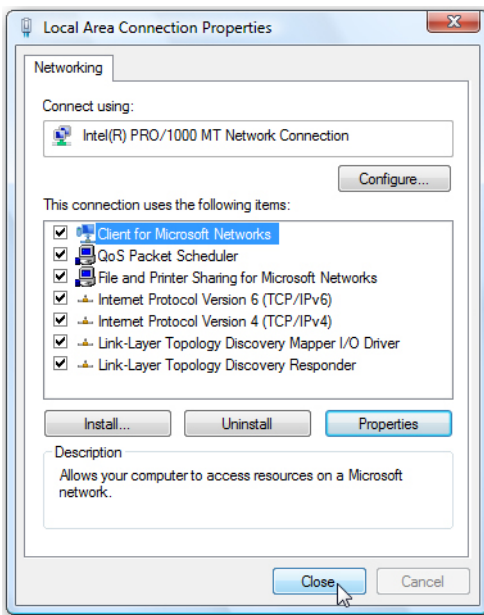


Image 2-14

2.6 Network configuration, verifying the IP settings

What should be done?

After assigning IP address for the computer and projectors, you can verify the IP settings by using the “ping” command at the command prompt.

How to verify

1. Open windows command prompt.

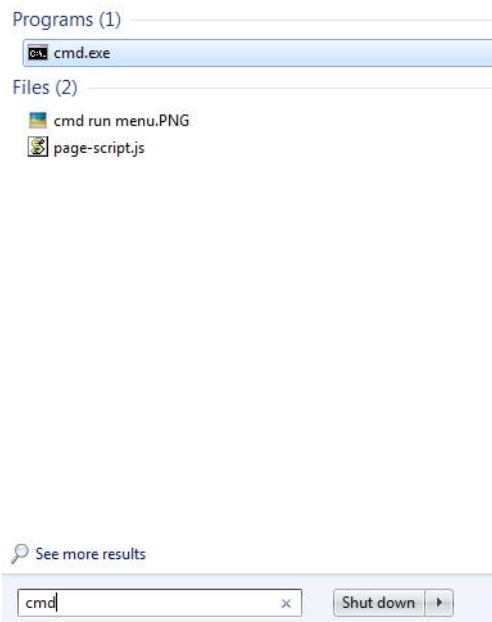


Image 2-15

2. Type in “ping” and IP address to verify the IP setting.


```
D:\>ping 192.168.0.4
Pinging 192.168.0.4 with 32 bytes of data:
Reply from 192.168.0.4: bytes=32 time=2ms TTL=64
Reply from 192.168.0.4: bytes=32 time=1ms TTL=64
Reply from 192.168.0.4: bytes=32 time=1ms TTL=64
Reply from 192.168.0.4: bytes=32 time=1ms TTL=64
Ping statistics for 192.168.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
D:\>_
```

Image 2-16

Using the Warping and Blending tool

3

About this chapter

This chapter provides detailed instructions to the Warping and Blending Tool, which offers three major functions including Warp, Edge Blending and Black Level.



If the old version is already installed, please remove previous version before installing the new one.
If the projector was rebooted, please open this tool again to continue adjustment.

Overview

- Registering a projector
- Selecting and deleting the projector
- General settings
- Warp settings
- Warp settings, Moving Cursors
- Warp settings, Test Pattern
- Edge Blending
- Edge Blending, Enable Marker
- Black Level
- Black level, transparent
- Saving and opening settings

3.1 Registering a projector

How to register?

1. Click **File** and select *New Multi-Function* to register a single projector to the network.



Image 3-1

2. Set up projector's native resolution.

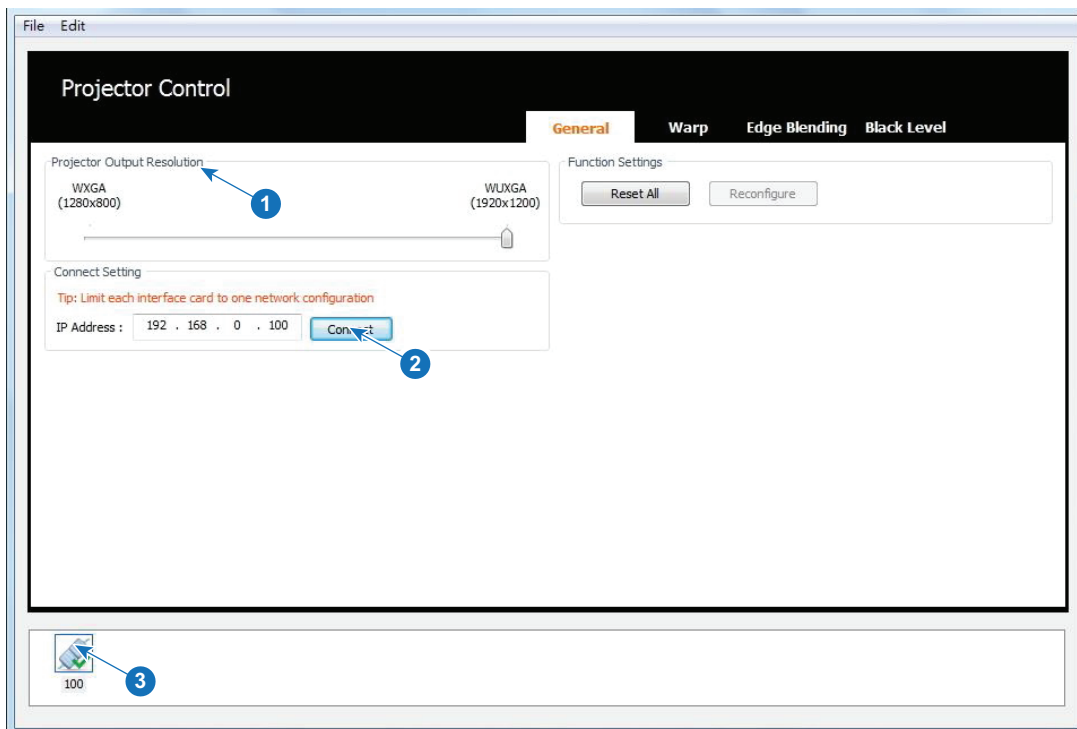


Image 3-2





3. Type in the projector's IP Address, and click Connect.

The connected projector will appear at the bottom status bar.

4. Repeat this step to register more projectors.

Projector status

The status bar provides information about the projector status.

Icon	Description
	The projector is disconnected to the network.
	The projector is connected to the network.
	The projector is in sleep mode.
	The projector is selected.

3.2 Selecting and deleting the projector

How to delete

1. Click on the projector at the status bar (1).

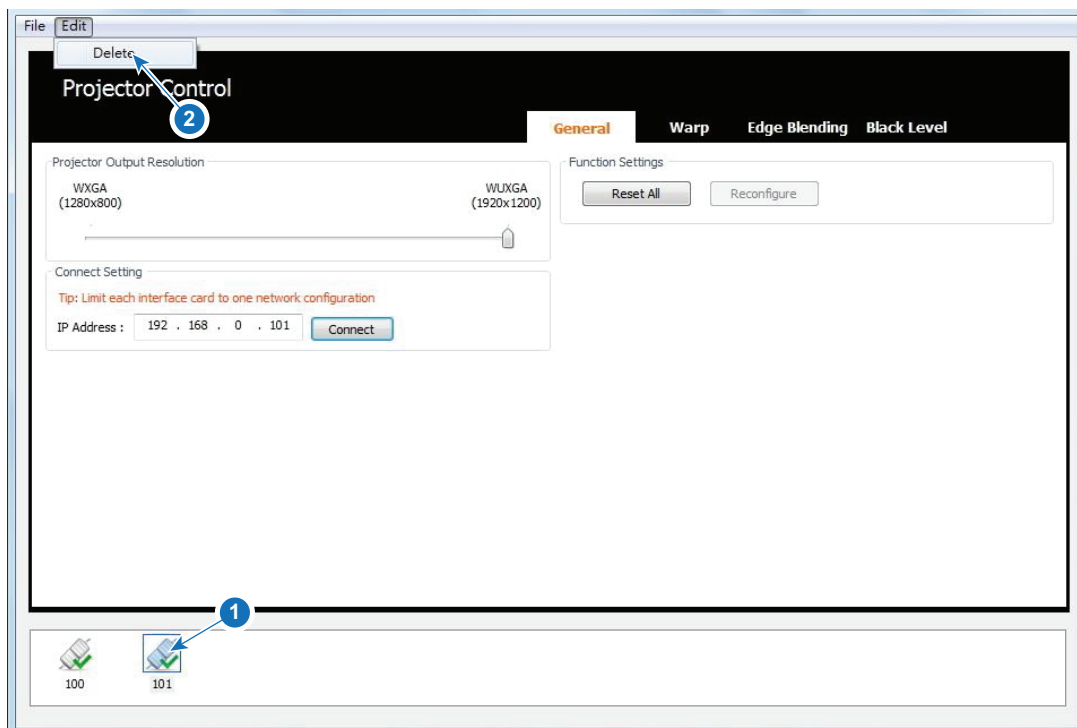


Image 3-3

2. Press **Ctrl + Shift + Delete** on your keyboard

or

click **Edit** → **Delete** (2).

The selected projector is removed from the status bar.

3.3 General settings

Start up

Select the **General** tab to configure the general settings for the selected projector.

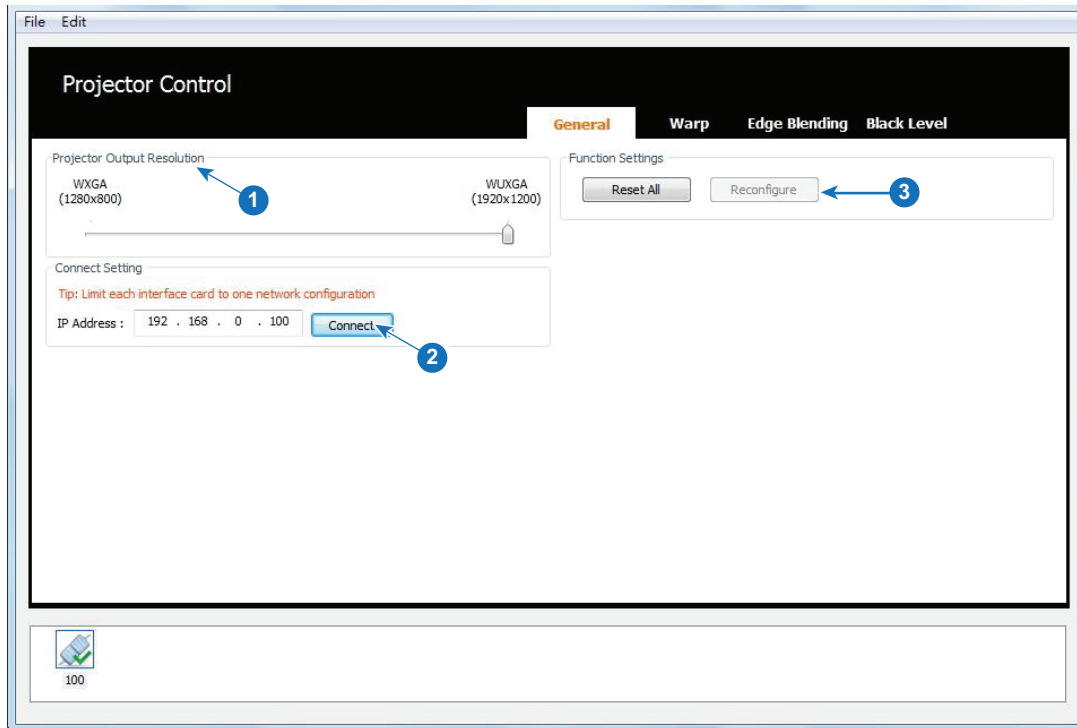


Image 3-4

Projector Output Resolution

Choose the projector's native resolution using the slider (1).

Connect Setting

Enter the IP address of the projector and click **Connect** (2).

The last three digits of the IP address will be the projector's name.

Functional Settings

- Click **Reset All** to apply default settings (3).
- When a previously saved configuration file (CFG file) is opened, click **Reconfigure** to apply the settings to the connected projectors.

3.4 Warp settings

Start up

Select the **Warp** tab to configure the warping settings for the selected projector.

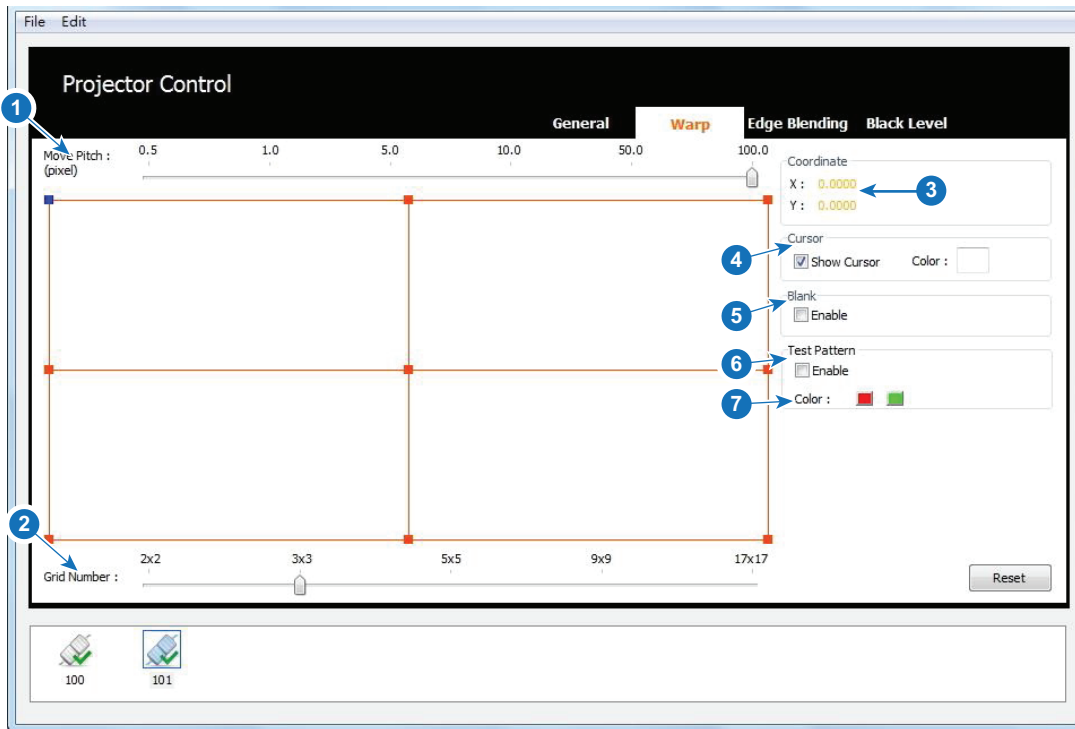


Image 3-5

Move Pitch

Drag the slider to set the number of pixels the cursor moves each time (1) or use the **+** and **-** keys on your keyboard.

The default value is 100 pixels.

Grid number

Drag the slider to set the number of grids on the projection screen (2) or use **Ctrl +** and **Ctrl -** on the keyboard.

The default value is 3 x 3.

Coordinates

Shows the coordinate of the selected cursor (3).

Cursor

- Check the box next to *Show Cursor* to show the cursors on the projection screen (4).
- Click the box next to *Color* to select the cursor color.

Blank

Check the box to enable project black pattern (5).

Test pattern

Check the box to enable test pattern, and select color for the test pattern (6).

For more info, see “Warp settings, Test Pattern”, page 24.

3.5 Warp settings, Moving Cursors

Overview

Move the cursors on the projection screen to perform warping.

- Select cursor. To select a cursor, click the cursor or use “W”, “A”, “S”, and “D” on the keyboard. The selected cursor will change to blue.
- Move cursor. Use arrow keys on the keyboard to move the selected cursor.
- Adjust cursor
 - Start with a minimal number of grids and gradually increase the number of grids. It is advisable to starting with 2 x 2 setup.
 - Using fewer grid number allows for easier warping control.
 - As shown below, adjust the outer cursors in red first, and then adjust the inner cursors in green.

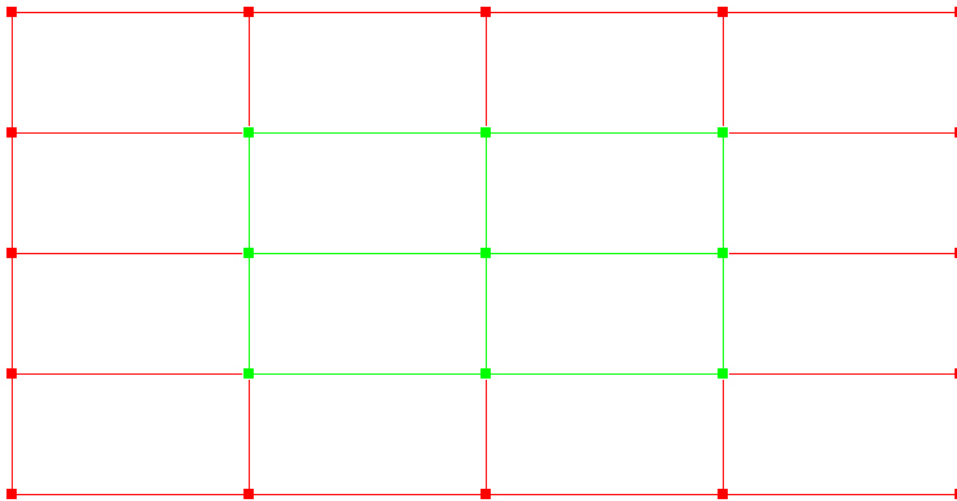


Image 3-6



If starting with larger grid number, all the warping settings will be lost when decreasing the grid number.

3.6 Warp settings, Test Pattern

Overview

Test pattern helps to tune the edge blending. When performing edge blending, test pattern helps to align the two projection screen as shown in the example below.

- Enabling the test pattern to assist in tuning the edge blending.

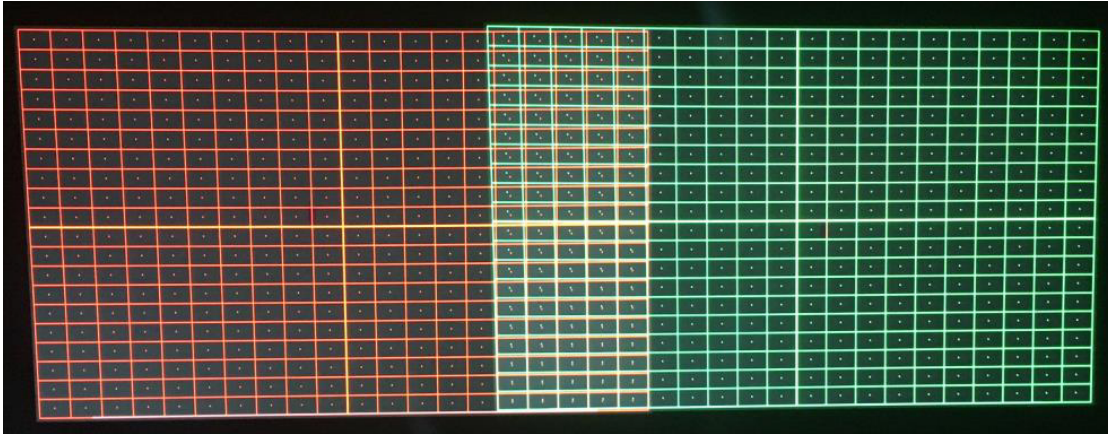


Image 3-7

- Two projection screens are aligned using test patterns.

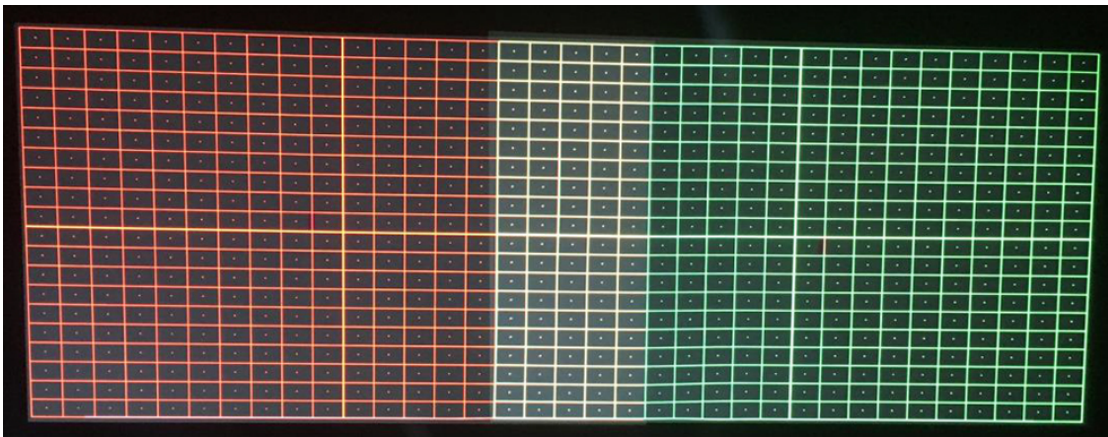


Image 3-8

3.7 Edge Blending

Start up

Switch to the Edge Blending tab to configure the settings for edge blending.

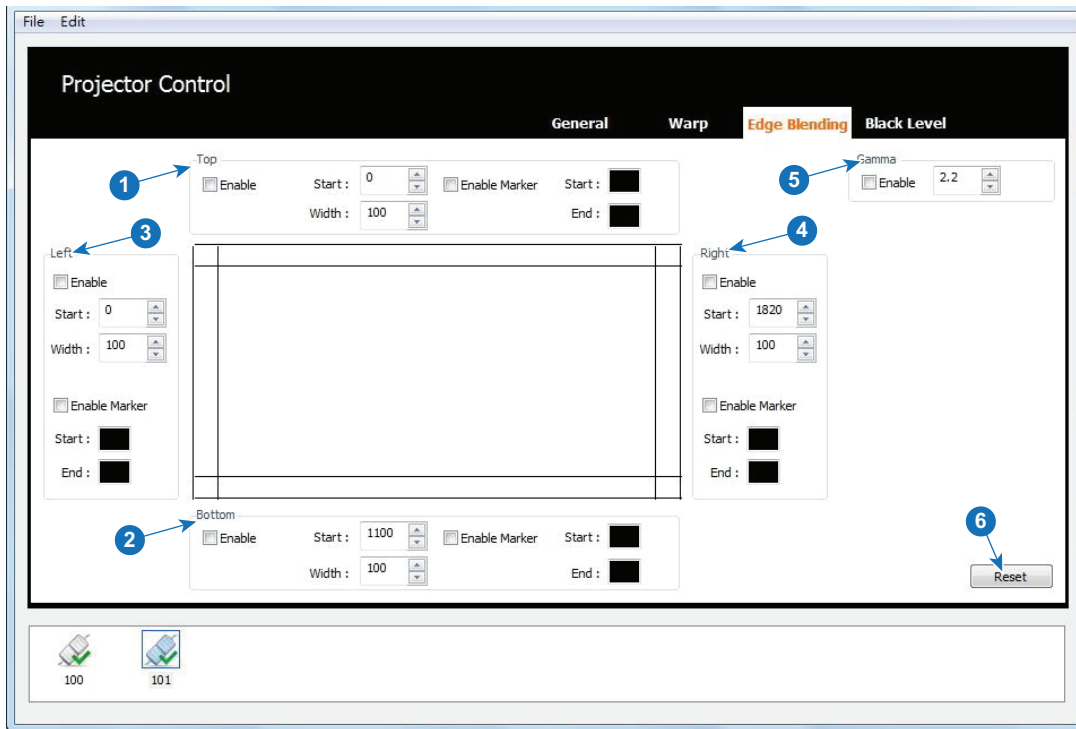


Image 3-9

Top

Set the top blending area of the projection screen (1).

Options	Descriptions
Enable	Check the box to enable top edge blending.
Start	Sets the starting position of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 0.
Width	Sets the width of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 100 pixels.
Enable Marker	Check the box to show the markers of the blending area.
Enable Marker, Start	Click the box to select a color for the starting marker. The default color is black.
Enable Marker, End	Click the box to select a color for the ending marker. The default color is black.

Bottom

Set the bottom blending area of the projection screen (2).

Options	Descriptions
Enable	Check the box to enable bottom edge blending.
Start	Sets the starting position of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 0.
Width	Sets the width of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 100 pixels.

Options	Descriptions
Enable Marker	Check the box to show the markers of the blending area.
Enable Marker, Start	Click the box to select a color for the starting marker. The default color is black.
Enable Marker, End	Click the box to select a color for the ending marker. The default color is black.

Left

Set the left blending area of the projection screen (3).

Options	Descriptions
Enable	Check the box to enable left edge blending.
Start	Sets the starting position of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 0.
Width	Sets the width of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 100 pixels.
Enable Marker	Check the box to show the markers of the blending area.
Enable Marker, Start	Click the box to select a color for the starting marker. The default color is black.
Enable Marker, End	Click the box to select a color for the ending marker. The default color is black.

Right

Set the right blending area of the projection screen (4).

Options	Descriptions
Enable	Check the box to enable right edge blending.
Start	Sets the starting position of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 0.
Width	Sets the width of the blending area. Type in the value and press Enter on the keyboard. The default value is set to 100 pixels.
Enable Marker	Check the box to show the markers of the blending area.
Enable Marker, Start	Click the box to select a color for the starting marker. The default color is black.
Enable Marker, End	Click the box to select a color for the ending marker. The default color is black.

Gamma

Check the box to enable Gamma function (5) to control the gamma curve of the blending area. Type in the value and press **Enter** on the keyboard to apply.

The default value is set to 2.2.

For adjacent projectors, set the same gamma value.

Reset

Reset all settings for edge blending (6).

3.8 Edge Blending, Enable Marker

Overview

Using markers to highlight the blending areas helps with the edge blending process. As shown below, red and green lines were used to mark the overlapping area.

- Enabling markers to highlight the blending areas for the two projection screens.

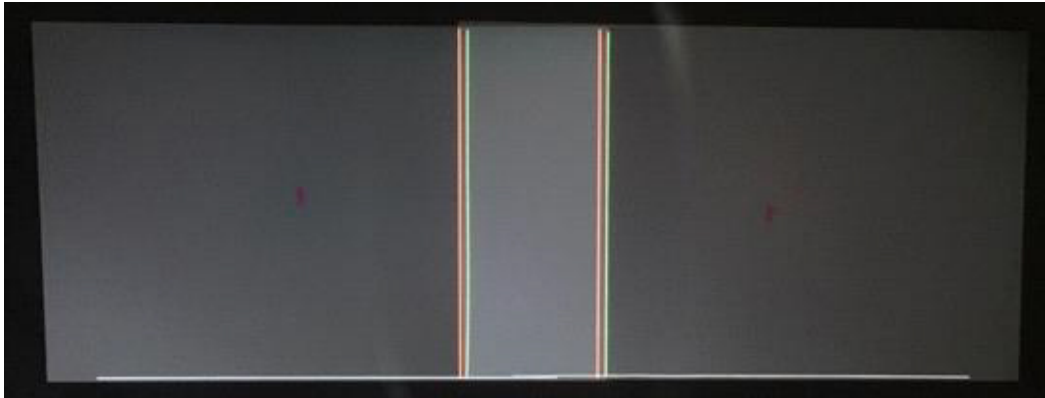


Image 3-10

- The overlapping area is adjusted using the markers.



Image 3-11

3.9 Black Level

Start up

Click on **Black Level** tab to adjust the back level of the projection screens to achieve better black uniformity.

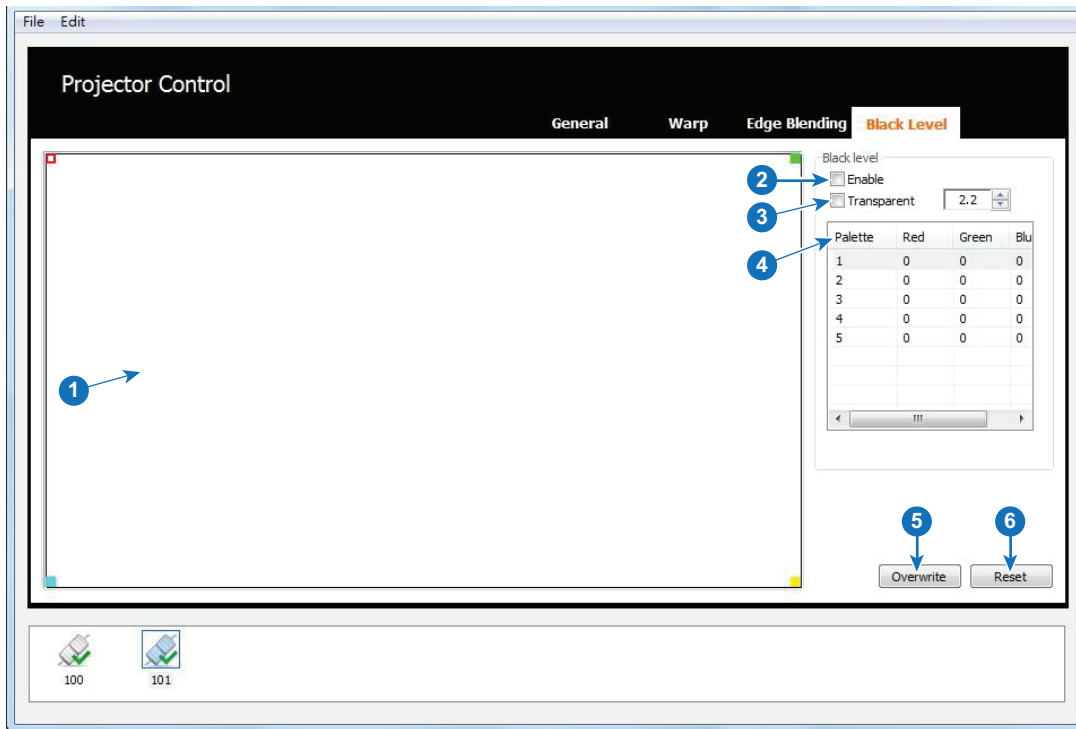


Image 3-12

Canvas

The rectangular canvas (1) allows the user to create an adjusting area through four control points. The four control points are colored in red, green, cyan, and yellow. The cursor will turn to hollow when selected.

- Click on the cursor to select it or use “W”, “A”, “S”, and “D” on the keyboard.
- Drag the selected point to the desired position, and use arrow keys on the keyboard to fine tune the position.

Enable

Check to the box to enable black level settings (2).

Transparent

Set the transparent value of the adjusting area (3).

The default value is set to 2.2.

For more info, see “Black level, transparent”, page 30

Palet

There are five palettes for the user to set color for the adjust area (4).

The default color is black.

Click the palette row and a color palette dialog will pop out. In the color palette dialog, select a color and click **OK**.

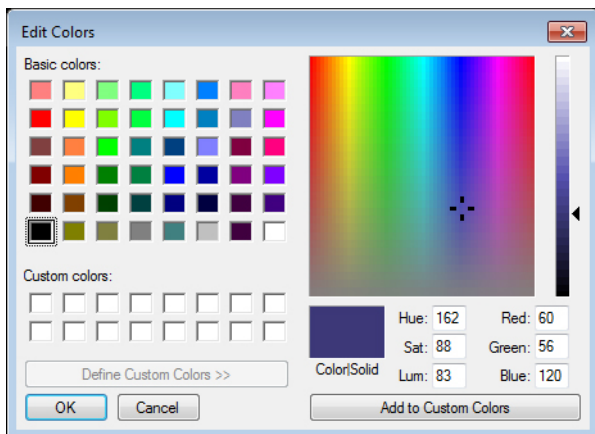


Image 3-13

Overwrite

Click **Overwrite** to paint the adjusting area with the palette color (5).

Reset

Reset all black level settings (6).

3.10 Black level, transparent

Overview

Transparent is used for projecting color images after black level adjustment. When adjusting black level, bright layers are created to cover the darker areas of the image to increase brightness. The bright layers still exist when projecting color images, causing part of the image to appear brighter.

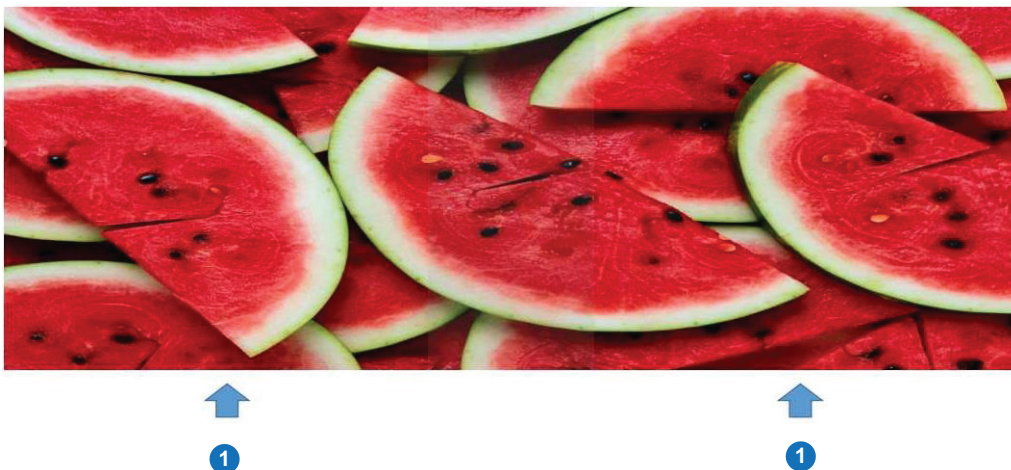


Image 3-14

1 Covered by a bright layer

By giving the bright layer a transparent value, the projector will apply transparent effect to the layer to reduce its brightness.



Image 3-15

2 covered by a bright layer

3.11 Saving and opening settings

What can be done?

The user can save the current settings and open the previously saved settings.

Save settings

Click **Save** (1) from the *File* menu to save the current settings.

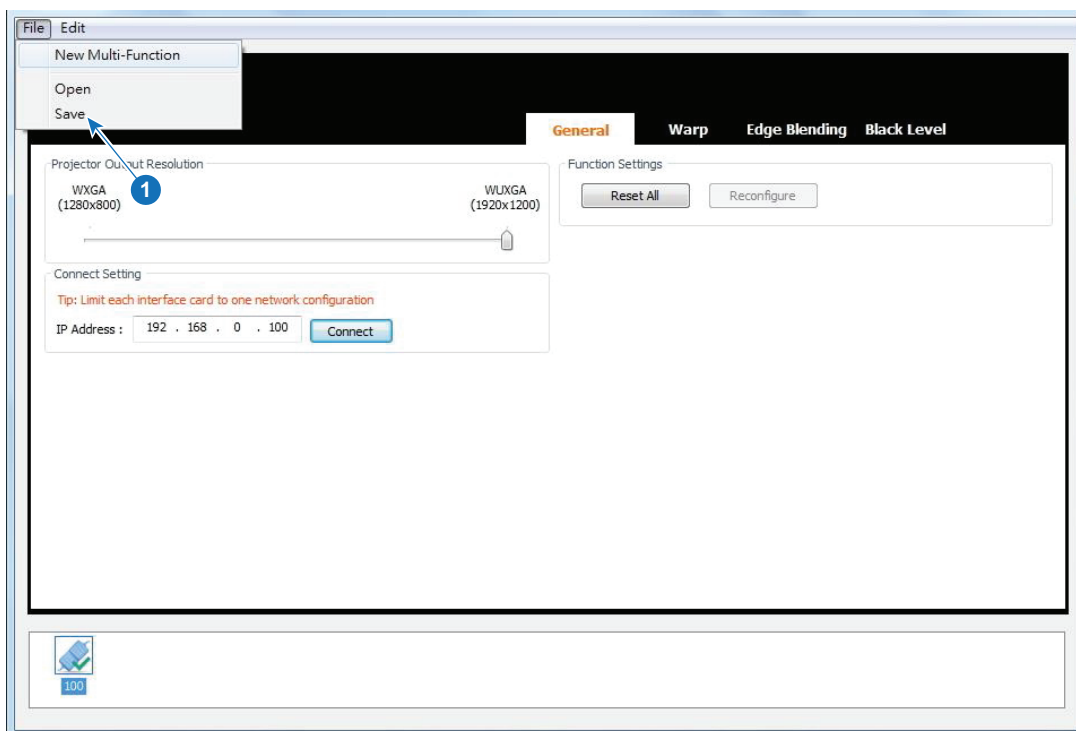


Image 3-16

Open settings

Click **Open** from the *File* menu to open previously saved settings (CFG files).

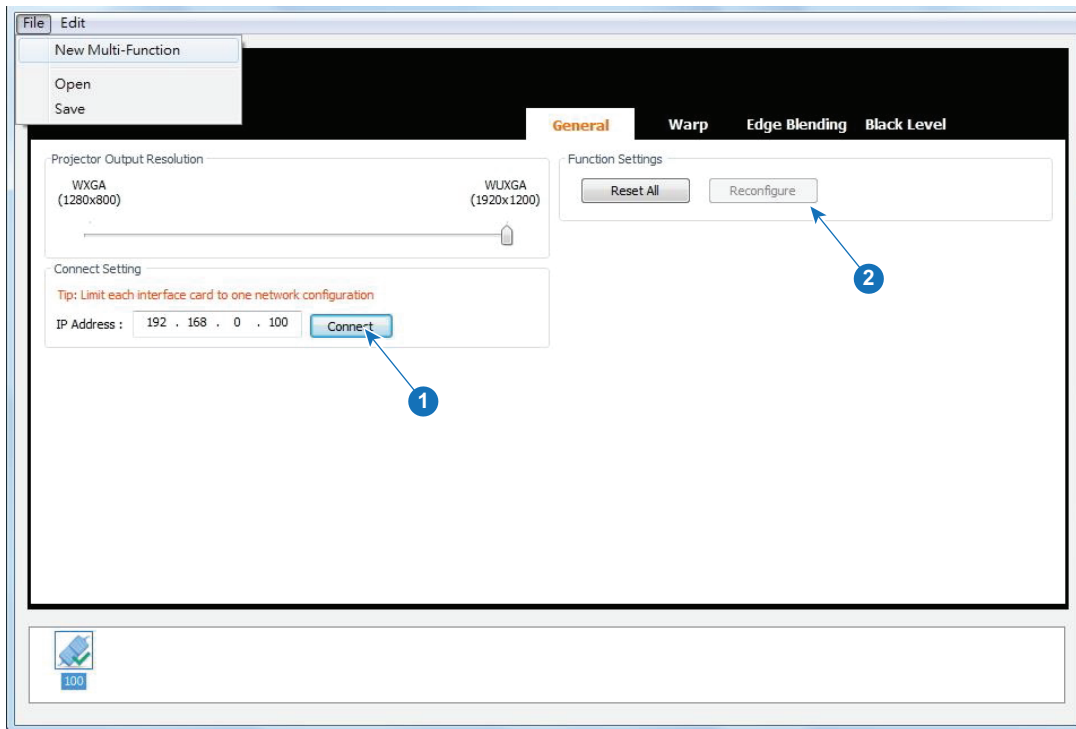


Image 3-17

1. Enter the IP address of the projector and click **Connect**.
2. Click **Reconfigure** to apply the opened settings.

