



Drivers for Windows
***NVIDIA Edge Blending
User's Guide***

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ABOUT NVIDIA EDGE BLENDING

When presenting applications across multiple displays or projection systems, it is important that the edges between adjacent displays are properly blending to create a seamless presentation. For example, multiple projection systems can be used to create a virtual canvas where multiple displays are projected onto a larger screen. In order to eliminate the hard edge between adjacent displays, the edges must be overlapped to create a seamless composite projection.

Proper overlapping of adjacent displays requires attention to the following areas:

- **Source Formatting**

Each display must provide image overlap at the edges.

- **Projector Position**

The projectors must be positioned to coincide with the display image overlap.

- **Edge Blending**

The overlap sections must be modified to provide seamless continuity between adjacent displays.

About This Document

This document explains how to use NVIDIA edge blending software to set up and adjust edge blending of adjacent displays in order to create the appearance of one large virtual canvas.

System Requirements

- Windows[®] 2000 or Windows[®] XP.
- One of the following NVIDIA graphics cards:
 - NVIDIA Quadro FX 5500 (requires NVIDIA ForceWare Driver version 9x.xx or later)
 - NVIDIA Quadro FX 4500 X2 (requires NVIDIA ForceWare Driver version 9x.xx or later)
 - NVIDIA Quadro FX 4500
 - NVIDIA Quadro FX 4000
 - NVIDIA Quadro FX 3450
 - NVIDIA Quadro FX 3400
- NVIDIA ForceWare Driver version 5x.xx or later.

It is recommended to use the latest NVIDIA ForceWare drivers for NVIDIA Quadro products.

NVIDIA EDGE BLENDING AND OVERLAP

This chapter explains the key parameters for successful edge blending, and how to adjust those parameters using the NVIDIA Edge Blending software.

- “Understanding Edge Blending Adjustments” on page 3
- “Setting Up Edge Blending on Multiple Systems” on page 5
- “Setting Up Desktop Overlap for nView Spanning Modes” on page 7
- “Creating and Using the Configuration File” on page 9
- “Setting Up Edge Overlap Using the New NVIDIA Control Panel” on page 11

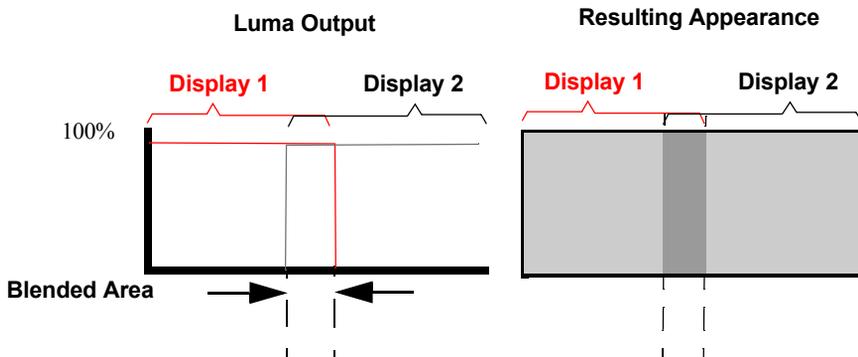
Understanding Edge Blending Adjustments

When overlapping the display edges, NVIDIA edge blending lets you compensate for variances in luminance to achieve a more continuous video image. Edge blending involves making adjustments in three areas:

- Blended Area
- Luma
- Luma Roll-off

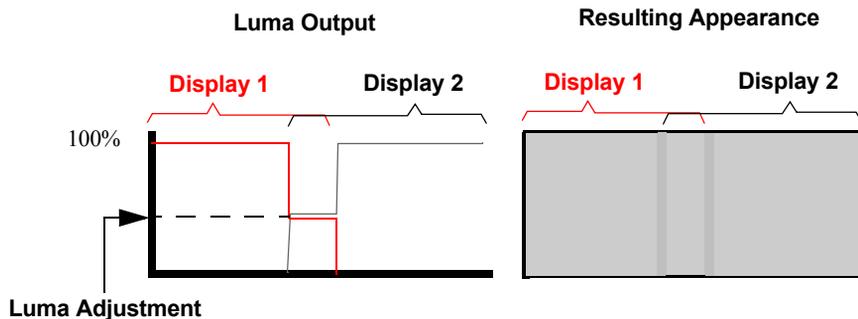
Blended Area

The width of the edge area to blend must be specified. This usually matches the actual overlap area.



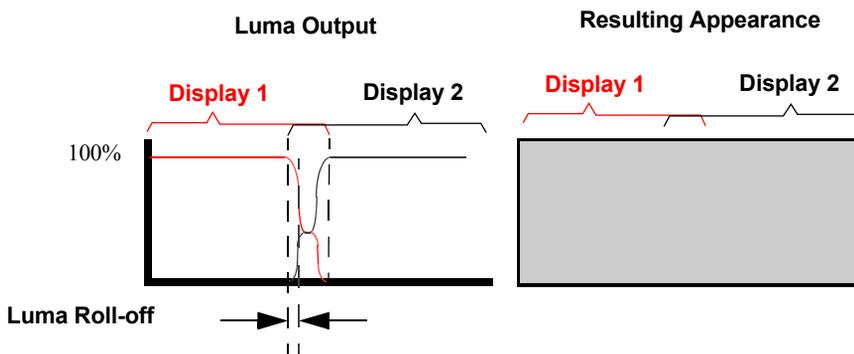
Luma

The combined intensity of the overlapped region results in a noticeable band. The luma of the overlapped regions can be adjusted so that the combined intensity matches the non-overlapping region.



Luma Roll-off

Improved edge blending can be achieved by adjusting the gradient—or roll-off—of the luma within the overlapped display area.

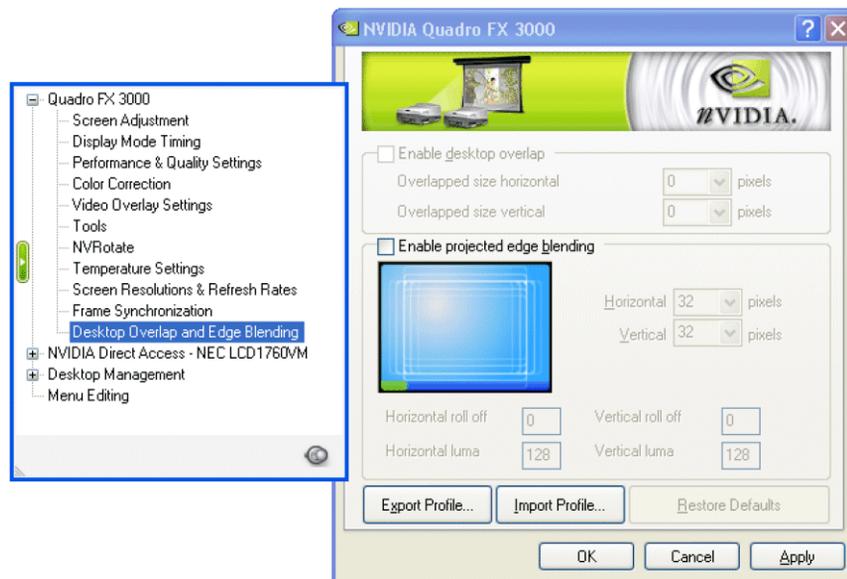


Setting Up Edge Blending on Multiple Systems

It is recommended that the projectors be properly aligned and the brightness, contrast and color balance settings for each display be adjusted before setting up the edge blending parameters.

Make the necessary adjustments to achieve the best blending of adjacent displays, as described in the following steps:

- 1 Enable Projected Blending.
 - a Open the NVIDIA panel by right-clicking the desktop and then clicking NVIDIA Display->your monitor name.
 - b Click the Desktop Overlap and Edge Blending tree item from the slide-out tray.



- c Click the **Enable Projected Blending** check box.



- 2 In the display diagram, click the arrows corresponding to the edges that you want to adjust.
In the instructions that follow, the horizontal settings apply to side-to-side overlapping, and the vertical settings apply to above and below overlapping.
- 3 Set the horizontal and vertical edge blending dimension to match the actual display overlap.
 - Click the Horizontal or Vertical Pixels list arrow and then click one of the pixel values from the list.
 - The pixel list is generated from the current display resolution.
- 4 Adjust the Luma value for the overlapping regions.
 - In the Horizontal or Vertical Luma box, enter a value between 0 and 255.
 - A value of 0 creates the darkest edge region, while a value of 255 results in no difference between the edge region and the non-overlapping region of the display.
- 5 Adjust the amount of roll-off for the overlapping regions.
 - In the Horizontal or Vertical Roll-off box, enter the number of pixels to use for the gradient roll-off.
 - The maximum value equals half of the overlap dimension.
- 6 Click **OK** or **Apply** to activate the changes.

See “[Creating and Using the Configuration File](#)” on page 9 for instructions on how to apply identical settings on multiple systems.

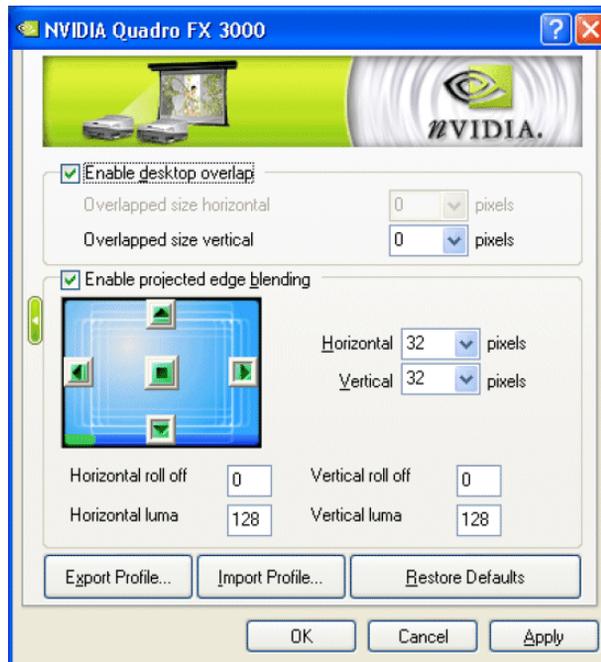
Setting Up Desktop Overlap for nView Spanning Modes

You can use a single system with two displays in nView Spanning mode to create a larger desktop area.

NVIDIA's Desktop Overlap mode repeats the edges of the adjacent displays so that the display edges can be overlapped when viewed with projection systems.

1 Enable Desktop Overlap

- a Make sure that two displays are connected to the system and that nView Spanning mode is enabled.
- b Open the Windows Display Properties control panel and then click Settings->Advanced to navigate to the NVIDIA graphics display properties page.
- c Click the Desktop Overlap and Edge Blending tree item from the slide-out tray.



- d Click the Enable Desktop Overlap check box.
- e Click the Enable Projected Blending check box.

- 2** Specify the horizontal or vertical overlap dimension.
 - If nView Horizontal Spanning mode is enabled, click the Overlapped Size Horizontal Pixels list arrow and then click one of the pixel values from the list.
 - If nView Vertical Spanning mode is enabled, click the Overlapped Size Vertical Pixels list arrow and then click one of the pixel values from the list.
 - The pixel list is generated from the current display resolution.
- 3** In the display diagram, click the arrows corresponding to the edges that you want to adjust.
 - The center button activates edge blending between the spanning displays.
 - The up/down/left/right arrow buttons activate edge blending at the outer edges of the virtual desktop.

In the instructions that follow, the horizontal settings apply to side-to-side overlapping, and the vertical settings apply to above and below overlapping.
- 4** Set the horizontal and vertical edge blending dimension to match the actual display overlap.
 - Click the Horizontal or Vertical Pixels list arrow and then click one of the pixel values from the list.
 - The pixel list is generated from the current display resolution.
- 5** Adjust the Luma value for the overlapping regions.
 - In the Horizontal or Vertical Luma box, enter a value between 0 and 255.
 - A value of 0 creates the darkest edge region, while a value of 255 results in no difference between the edge region and the non-overlapping region of the display.
- 6** Adjust the amount of roll-off for the overlapping regions.
 - In the Horizontal or Vertical Roll-off box, enter the number of pixels to use for the gradient roll-off.
 - The maximum value equals half of the overlap dimension.
- 7** Click **OK** or **Apply** to activate the changes.

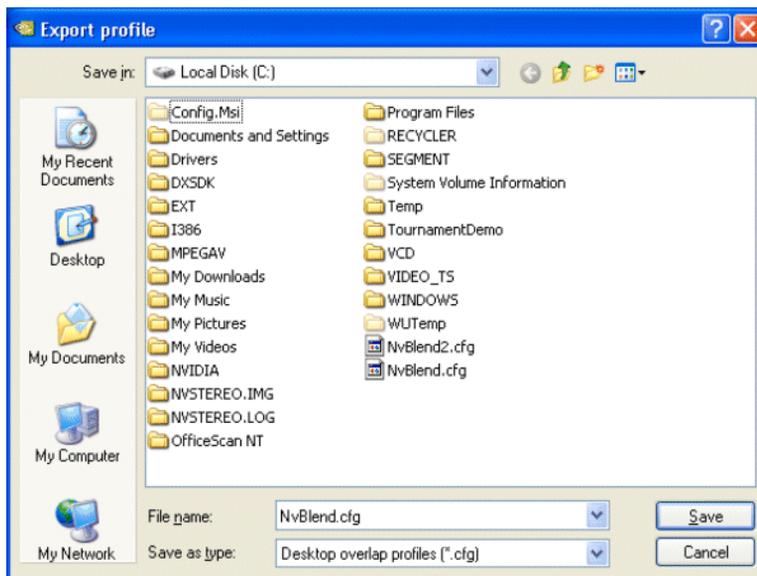
Creating and Using the Configuration File

You can configuration files to simplify the setup process for large arrays of displays. Using the configuration file also ensures that the intended setup is applied without mistake.

When the same edge blending setup can be applied to multiple displays, use the configuration file as follows:

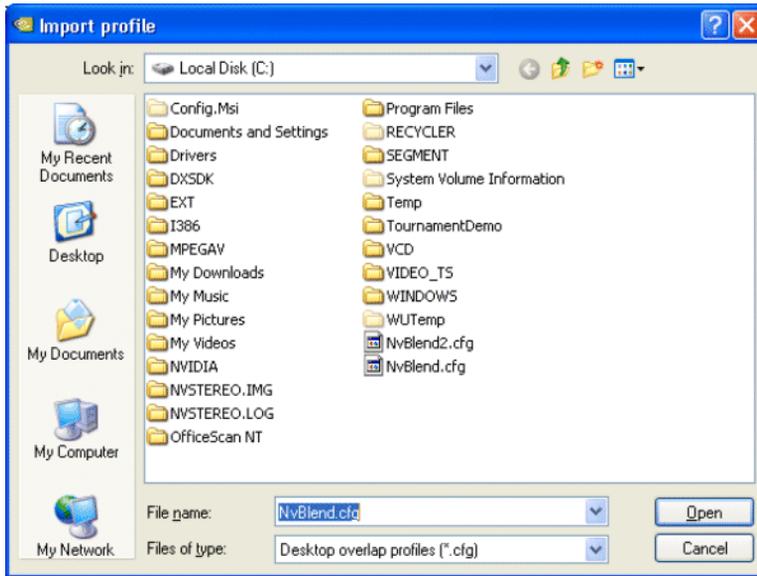
- 1 Set up edge blending parameters for one of the displays per the instructions in “Setting Up Edge Blending on Multiple Systems” on page 5.
- 2 From the Desktop Overlap and Edge Blending page, click **Export Profile**.

The **Export profile** window appears.



- 3 Navigate to the path and enter the file name for your configuration setting, or use the default file name `NvBlend.cfg`, and then click **OK**.
- 4 For each of the remaining displays for which you want to use the same settings, follow the remaining steps.
- 5 From the Desktop Overlap and Edge Blending page, click **Import Profile**.

The **Import profile** window appears.



- 6 Navigate to the location of your saved configuration file, select the configuration file, then click **OK**.

Setting Up Edge Overlap Using the New NVIDIA Control Panel

This section describes how to configure display edge overlap using the new NVIDIA Control Panel. Only edge overlap controls are available with the NVIDIA Control Panel. The NVIDIA Control Panel does not have controls for edge blending.

See the *NVIDIA Control Panel Quick Start Guide* for an overview of this new interface.

To configure display edge overlap using the new NVIDIA Control Panel:

- 1 Make sure that the displays that you are using are connected to the same graphics card and that nView Spanning mode is enabled.
- 2 To open the NVIDIA Control Panel, right-click the desktop and then click **NVIDIA Control Panel** from the context menu
- 3 Go to the NVIDIA Control Panel Adjust Edge Overlap page.

Depending on the NVIDIA driver version that you have installed, either

- Click the *Workstation* category to open that page, then click **Adjust Edge Overlap**, or
- Click **Adjust Edge Overlap** from the *Select a Category* navigation pane.

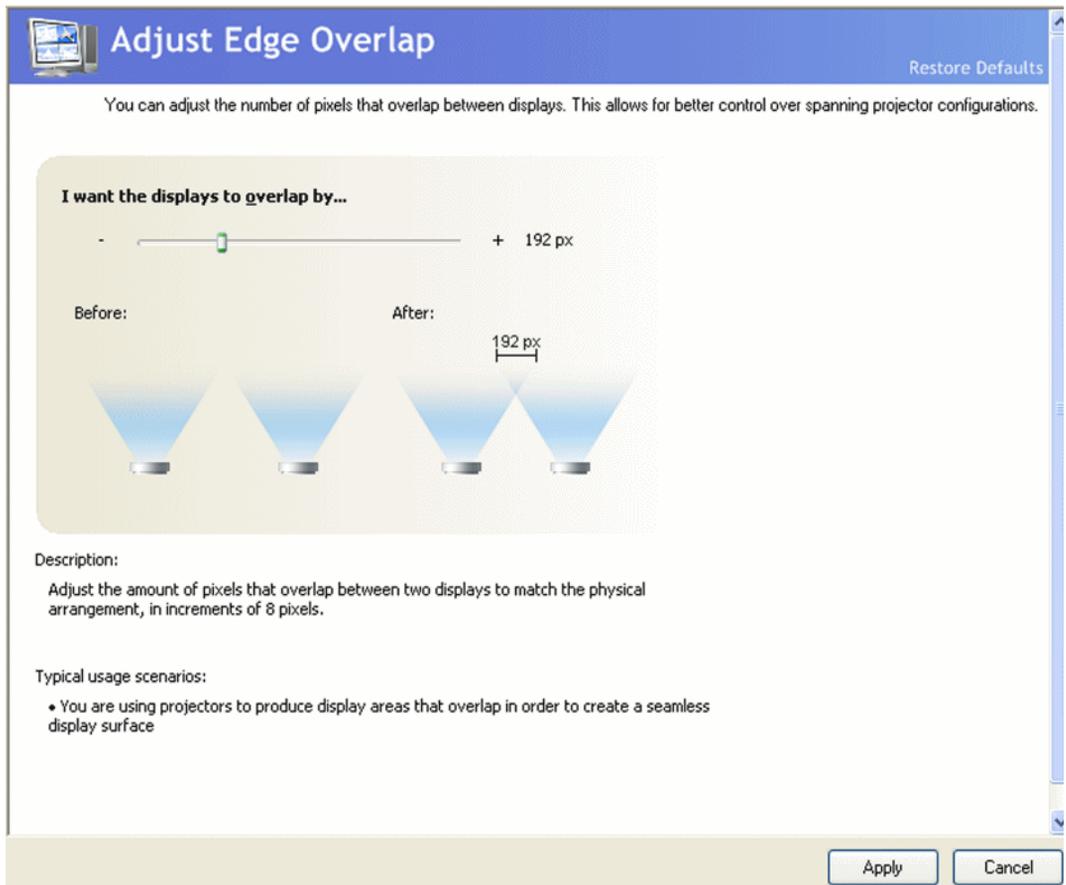


Figure 2.1 NVIDIA Control Panel Adjust Edge Overlap Page

- 1 If you have more than one pair of displays in your system, click the **Select a spanning display pair** list arrow and click one of the display pairs from the list.

The list will not appear if you have only one pair of displays.

- 2 Adjust the edge overlap to match the actual overlap of your displays using one or more of the following methods:
 - Click and drag the slider to increase or decrease the amount of overlap in eight-pixel increments.
 - Click the slider, then press the keyboard right or left arrow keys to increase or decrease the amount of overlap in eight-pixel increments.
 - Click the slider, then press the keyboard **Page Down** or **Page Up** keys to increase or decrease the amount of overlap in 16-pixel increments.

The Before and After projector graphics illustrate your pixel-overlap adjustments.

- 3 Click **Apply** to put the change into effect.