NVIDIA® Drivers

Release 6 for Windows®
Features & Enhancements

Version 6.50

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CHAPTER 1

ABOUT THIS DOCUMENT

This document provides a brief overview of the NVIDIA® Release 6 for Windows® Driver (Version 6.50) with a focus on its features.

Operating Systems Supported

The Release 6 for Windows driver is designed for the following Microsoft® operating systems:

Windows Millennium (Me) Edition

Windows 98	Windows 2000
Windows 95	Windows NT® 4.0

Notes:

- The Microsoft Windows 95, Windows 98, and Windows Me Microsoft platforms are collectively called **Windows 9*x*** in this document.
- Certain Release 6 for Windows features discussed in this document may not support all the Windows operating systems listed above. Exceptions are noted, where applicable.
- The Windows 2000 screens shown in this document also apply to Windows NT 4.0; any exceptions are noted, where applicable.

NVIDIA Products Supported

The Release 6 for Windows NVIDIA driver contains support for Microsoft DirectX® 7 and supports the NVIDIA graphics cards listed below in Commercial and Consumer Products and Workstation Products.

Note: Most Release 6 for Windows features support only certain NVIDIA graphics cards, which are specified, where applicable.

Commercial and Consumer Products

The following NVIDIA graphics cards are listed in the approximate order of their performance:

- GeForce2 Ultra™
- GeForce2 GTS™
- GeForce2 MX™
- GeForce 256™
- TNT2™ and Vanta™ family
  - RIVA TNT2 Ultra
  - RIVA TNT2 Pro
  - RIVA TNT2
  - RIVA TNT2 M64
  - Aladdin TNT2
  - NVIDIA Vanta
  - NVIDIA Vanta LT
- RIVA TNT™

Workstation Products

The following NVIDIA graphics cards are listed in the approximate order of their performance:

- Quadro™ family
  - Quadro2 Pro™
  - Quadro2 MXR™
  - Quadro

Overview of Release 6 Features & Changes

The Release 6 for Windows driver offers new features not found in previous releases of the NVIDIA driver for Windows. This sections provides an overview of the Release 6 for Windows features and changes.

- **TwinView** is a **Release 6 for Windows** feature that supports connecting dual displays using a single graphics card, such as the GeForce2 MX or Quadro2 MXR.TwinView includes major features such as **Virtual Desktop**, **Video Mirror**, and **Desktop Manager**. The GeForce2 MX and the Quadro2 MXR cards perform exceptionally well in 2-D and 3-D, even under multiple display support.

  TwinView supports a variety of display options, such as digital flat panels, red-green-blue (RGB) monitors, TVs, and analog flat panels. For detailed information on TwinView features, see the following sections:

  - "TwinView Basic Features" on page 5
  - "Video Mirror" on page 18
  - "Desktop Manager" on page 23
- **Digital Vibrance Control** (DVC), a mechanism for controlling color separation and intensity, boosts the color saturation of an image. DVC is supported by the GeForce2 MX or Quadro2 MXR graphics card. (See "Digital Vibrance Control" on page 43.)
- The NVIDIA **OpenGL® Settings** control panel now contains the following additions and improvements: (See "OpenGL Settings" on page 44.)
  - Full-scene anti-aliasing methods not previously available
  - Additional options for Windows 2000 and Windows NT 4.0
- The NVIDIA **Direct3D® Settings** control panel has the following changes and improvements: (See "Direct3D Settings" on page 46.)
  - Full-scene anti-aliasing methods not previously available
  - Deleted options that are now obsolete
- **Cursor Trails** are now supported.
- **Control Panels:** TwinView, Digital Vibrance Control, OpenGL, and Direct3D features have associated NVIDIA-specific windows (control panels) from which these features can be configured. To access these control panels, from you Windows desktop, click the right mouse button and select **Properties** > **Settings** > **Advanced**.

Notes on Uninstalling and Installing Drivers

Read this section if you already have an installed version of the NVIDIA drivers on your computer. Before installing the current Version 6.50 of the NVIDIA Release 6 drivers, be sure to *uninstall* the currently installed NVIDIA drivers.

Note: If you have the Release 6 for Windows Desktop Manager feature enabled, before you begin the uninstallation process, you must disable the Desktop Manager by following one of the procedures below, depending on whether you are running Windows 2000/NT 4.0 or Windows 9*x*.

Windows 2000/NT 4.0: To access the NVIDIA Other Options control panel, follow these steps:

1. Right click the mouse from your desktop, then click **Properties** > **Settings** tab > **Advanced**.
2. Click the tab with the name of your NVIDIA card (such as GeForce2 MX or Quadro2 MXR)
3. Click **Additional Properties**, then the **Other Options** tab.
4. Click the **Display the QuickTweak icon in the taskbar** to uncheck (disable) the option, then click **Apply** and **OK**.
5. Proceed with driver uninstallation.

Windows 9*x*: To access the NVIDIA Taskbar Utility control panel, follow these steps:

1. Right click the mouse from your desktop, then click **Properties** > **Settings** tab > **Advanced**.
2. Click the tab with the name of your NVIDIA card (such as GeForce2 MX or Quadro2 MXR).
3. Click **Additional Properties**, then the **Taskbar Utility** tab.
4. Click the **Display the QuickTweak icon in the taskbar** to uncheck (disable) the option, then click **Apply** and **OK**.
5. Proceed with driver uninstallation.

CHAPTER 2

TWINVIEW BASIC FEATURES

The TwinView feature allows Windows desktop users to double the desktop workspace by using two space-saving displays. For example, one application can extend across two displays or separate applications can run on each display.

Note: The GeForce2 MX product name is used in examples throughout this document. In general, the Quadro2 MXR product name can be substituted.

This chapter contains the following major sections:

TwinView Display Device Options

TwinView supports a variety of display options, such as digital flat panels, red-green-blue (RGB) monitors, TVs, and analog flat panels. The following are sample display combinations:

- Two RGB monitors with second RAMDAC (digital-to-analog converter)
- Two analog flat panels
- Two digital flat panels (DFPs)
- One digital flat panel and one analog flat panel
- One digital flat panel and one RGB monitor
- One RGB monitor and one TV

- One RGB monitor and one analog flat panel (with second RAMDAC)
- One analog flat panel and one TV

Note: Setting up a dual-head graphics card, such as a GeForce2 MX or Quadro2 Pro MXR, involves installing the card on a PC, attaching the two display devices to the PC, and installing the current Release 6 for Windows drivers (software). After rebooting the PC, the multiple display modes of the graphics cards installed are fully functional.

TwinView Applications

Financial applications, such as trader applications, can use a pair of large digital flat panels. Financial analysts can have data feeds on one monitor and charts/spreadsheets on the other.Two GeForce2 MX cards (an AGP and a PCI) would allow connecting up to four displays.

Training and Presentation: TwinView Clone mode ("Clone Mode" on page 14), where two monitors display identical images, is useful for presentations. A presenter may use the smaller monitor on the podium, while a projector monitor reflects the presentation to the audience. In training applications, the instructor can see what the student is doing under TwinView Clone mode. The ability to see the presentation while it's being projected can be especially useful in mobile PCs.

Graphics Artists can have common applications such as Adobe® Photoshop® or 3D Studio Max® open with the palettes and menus on one monitor and the other monitor dedicated to workspace. **Writers** can use one monitor for research and the other for writing.

Video editing applications would use one large PC display and one NTSC monitor. Since the GeForce2 MX allows decoupling of refresh rates, the PC (editing) display can be a high-resolution RGB monitor for running the application (Adobe Premiere®, for example), while the second monitor can be an NTSC or S-video display for checking the video output to ensure proper color balance and quality.

Entertainment applications can use multiple display support in several ways. Some games, such as Microsoft® Flight Simulator 2000, support multiple displays out of the box. Other games can be run in TwinView Clone mode ("Clone Mode" on page 14) with a large screen TV as one output device.

Home theater systems can utilize the DVD capabilities of the PC running TwinView ("Video Mirror" on page 18). DVDs can be viewed on a large screen TV that functions as the second monitor connected to the PC running TwinView, which eliminates the need for a dedicated DVD player.

Television and Movies: Using the TwinView Video Mirror ("Video Mirror" on page 18) feature, you can watch TV and any other video while you work.

TwinView Display Modes

TwinView offers several display modes, as described in the following sections:

- "Standard Mode" on page 7
- "Extended Desktop (Span) Mode" on page 9
- "Clone Mode" on page 14
- "Virtual Desktop" on page 16

Note: Under **Windows 9*x***, in order to switch modes from Standard or Clone to Extended Desktop and vice versa, you must restart your computer, when prompted.

Note: Whenever you make any changes to any of the control panels, including the NVIDIA-specific ones, be sure to click **Apply** for the changes to take effect.

Standard Mode

The Standard mode option in the TwinView control panel disables the TwinView feature, allowing viewing in only one display.

Windows NT 4.0 and Windows 2000

Figure 2.1 shows a **Windows 2000** TwinView control panel in Standard mode. To configure settings for your display (monitor), on your TwinView panel, click the right mouse button on the monitor icon to display a list of settings options as shown in Figure 2.1. Click the left mouse button on one of the options you want to configure:

- **Output Device**
- **Color Correction** (See "Digital Vibrance Control" on page 43.)
- **Screen Adjustments**

Note: You can also access the configuration options by clicking the **Output Device** button on the TwinView panel.

Windows 9*x*

Figure 2.2 shows a **Windows 98** TwinView control panel in Standard mode.

Figure 2.1 TwinView Standard Mode: Windows 2000

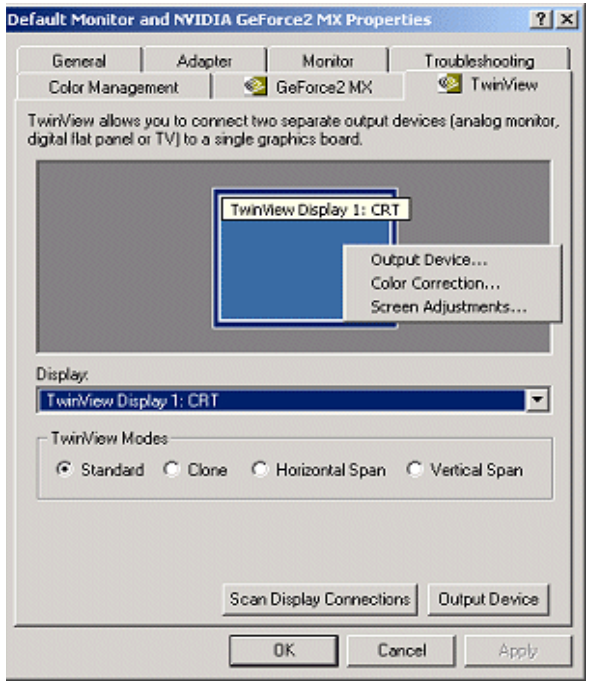
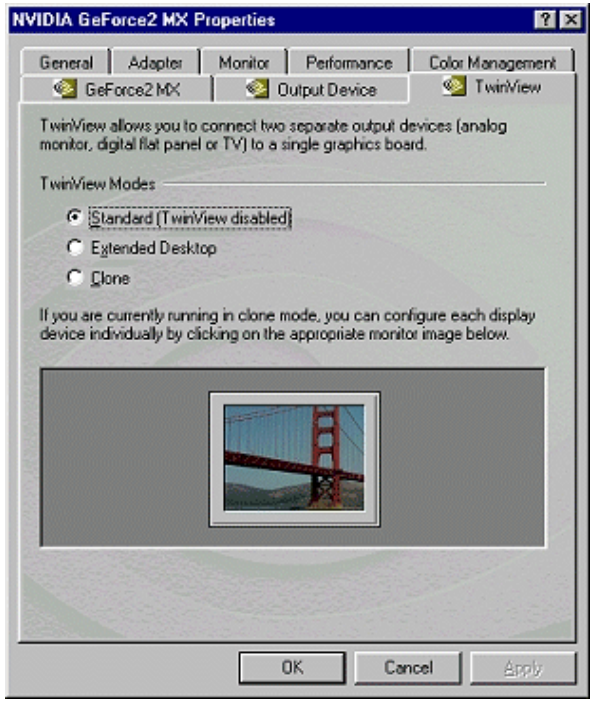


Figure 2.2 TwinView Standard Mode: Windows 98



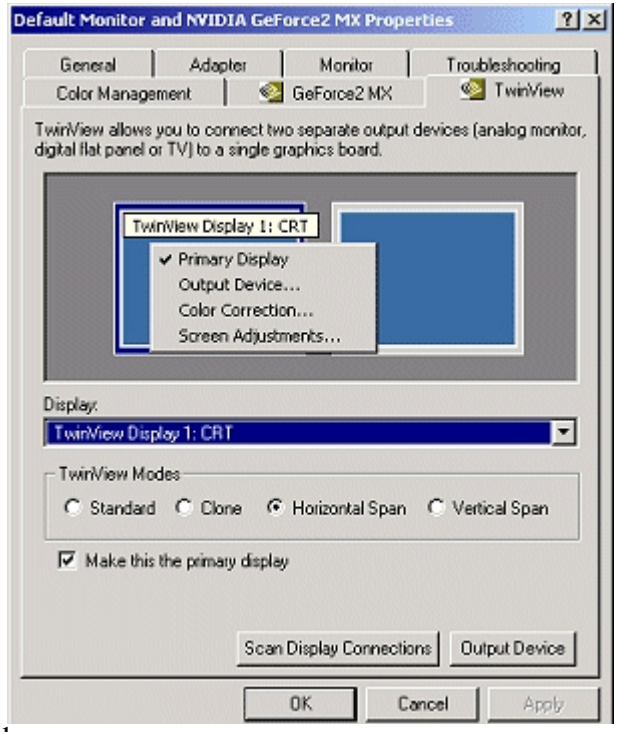
Extended Desktop (Span) Mode

In this mode, the desktop area is spread across both displays. This mode can be set for multiple categories of displays, although display limitations may override the capabilities of the GeForce2 MX (or the Quadro2 MXR) card. For example, if the second display is an NTSC TV monitor, due to the limitations of the monitor itself, the resolution cannot be set above 800 x 600 and the refresh rate cannot be set above 60 Hz. However, the PC monitor in such a configuration may have its refresh rate and resolution set much higher. The desktop may be “stretched” horizontally or “stacked” vertically, depending on user needs.

Windows NT 4.0 and Windows 2000

Due to operating system differences between Windows 9*x* and Windows NT 4.0/Windows 2000, the latter does not currently offer true multi-monitor support for Span mode under a single dual-head graphics card such as the GeForce MX or the Quadro2 MXR[1]. As a result, the size of the actual desktop is limited to twice the smaller size of the two displays. The desktop can be extended either horizontally (Figure 2.3 & Figure 2.4) or vertically (Figure 2.5),

Figure 2.3 TwinView Horizontal Span Mode: Windows 2000



[1] If two graphics cards are installed, the Windows 2000/NT operating system does detect two devices.

Figure 2.4 TwinView Horizontal Span Mode (2): Windows 2000

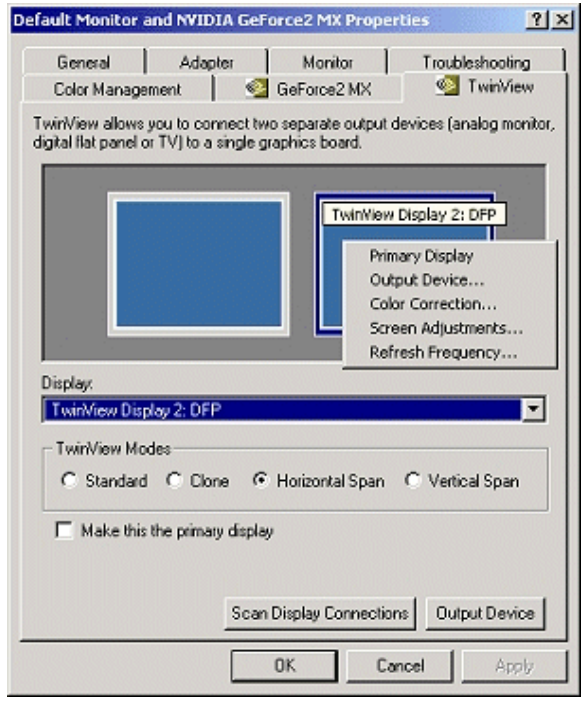
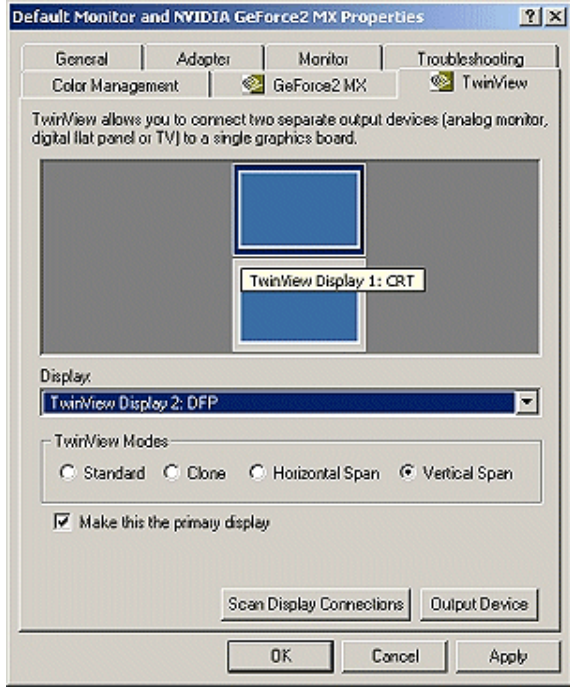


Figure 2.5 TwinView Vertical Span Mode: Windows 2000



but cannot be extended at other angles as under Windows 9*x*.

To configure settings for Display 1 or Display 2 on your TwinView panel, follow these steps:

1. Click the right mouse button on either of the monitor icons to display a list of settings options (Figure 2.3 and Figure 2.4).
2. Click the left mouse button on one of the options you want to configure:
   - **Primary Display** (This option achieves the same result as clicking the 'Make this the primary display' option.)
   - **Output Device**
   - **Color Correction** (See "Digital Vibrance Control" on page 43.)
   - **Screen Adjustments**
   - **Refresh Frequency** (appears only on Display 2 monitor icon)

Note: You can also access the configuration options by clicking the **Output Device** button on the TwinView panel.

Windows 98 and Windows Me

Extended Desktop mode is not supported under Windows 95.

TwinView offers multi-monitor support in the Extended Desktop (Span) mode so that the desktop area can be spread across both displays and the refresh rate, color depth, and resolution can be independently set for each display.The desktop can be extended horizontally, vertically, as well as at other angles by reposition the desktop display icons in the Windows Settings control panel. You can drag the icons to the positions that represent how you want to move items between monitors.

For example, if you're using two monitors and you want to move items from one monitor to the other by dragging left and right, position the icons side-by-side (Figure 2.6). To move items between monitors by dragging up and down, position the icons one above the other (Figure 2.7). To move items between monitors by dragging at an angle, position the icons diagonally (Figure 2.8).The icon positions don't have to correspond to the physical positions of your monitors. That is, you can position the icons one above the other even though your monitors are side-by-side.

Figure 2.9 shows a Windows 98 TwinView control panel set to Extended Desktop (Span) mode.

Figure 2.6 Windows 98 Monitor Settings (Horizontal)

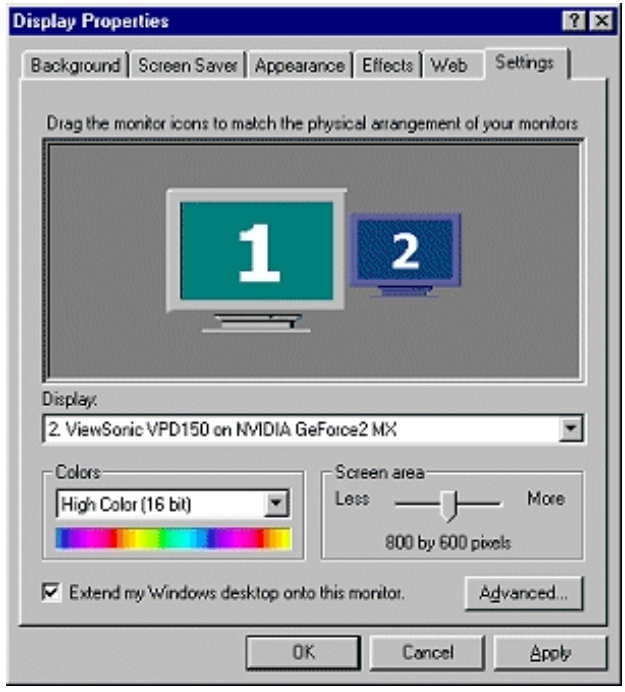


Figure 2.7 Windows 98 Monitor Settings (Vertical)

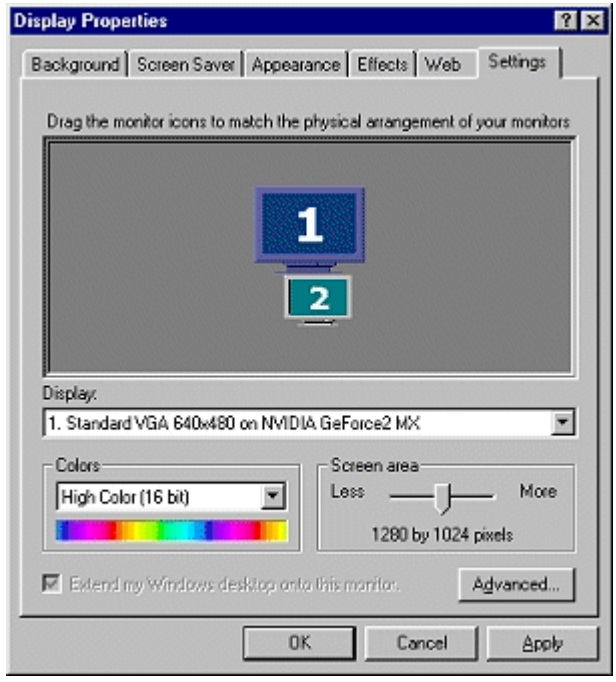


Figure 2.8 Windows 98 Monitor Settings (Diagonal)

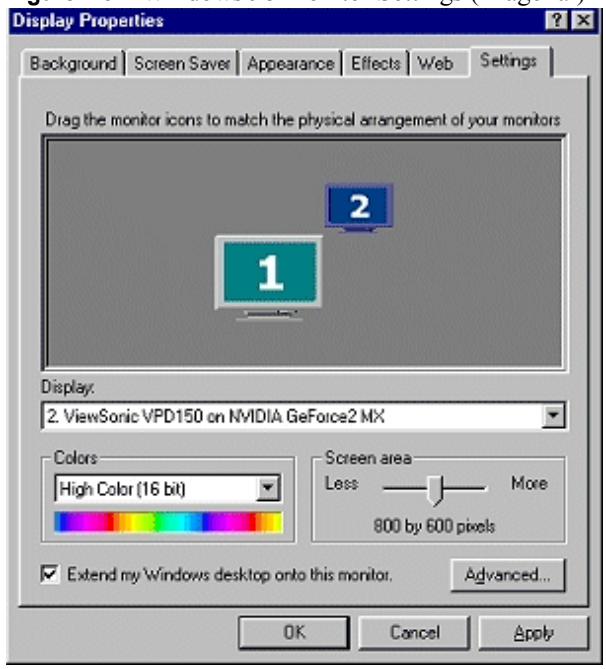
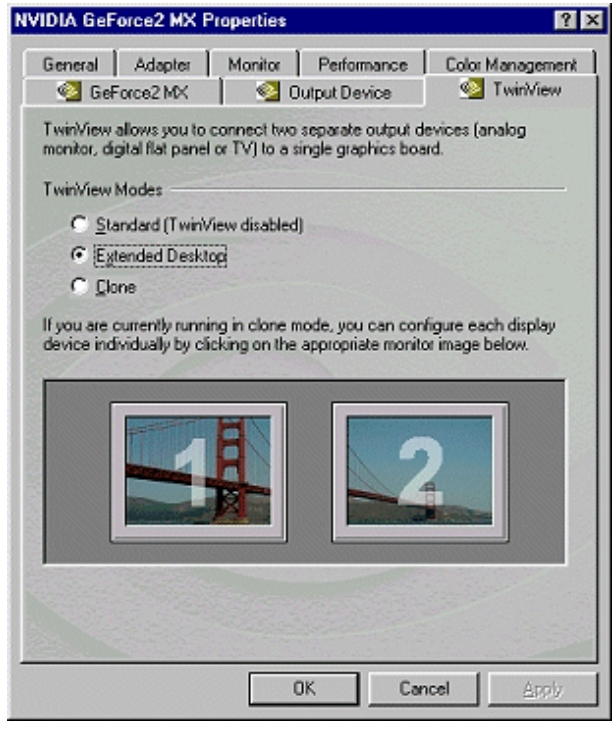


Figure 2.9 TwinView Extended Desktop (Span) Mode: Windows 98



Clone Mode

In Clone mode, two monitors display identical images, which is useful for presentations. A presenter may use the smaller monitor on the podium, while a projector monitor reflects the presentation to the audience.

Windows NT 4.0 and Windows 2000

Figure 2.10 and Figure 2.11 show Windows 2000 TwinView control panels set to **Clone** mode where the CRT (computer monitor) is set as Display 1 and the DFP (digital flat panel) is set as Display 2.

To configure settings for Display 1 or Display 2, on your TwinView panel, click the right mouse button on either of the monitor icons to display a list of settings options as shown in Figure 2.10 and Figure 2.11. Click the left mouse button on one of the options you want to configure:

- **Output Device**
- **Color Correction** (See "Digital Vibrance Control" on page 43.)
- **Screen Adjustments**
- **Refresh Frequency** (appears only on Display 2 monitor icon)

Figure 2.10 TwinView Clone Mode (CRT): Windows 2000

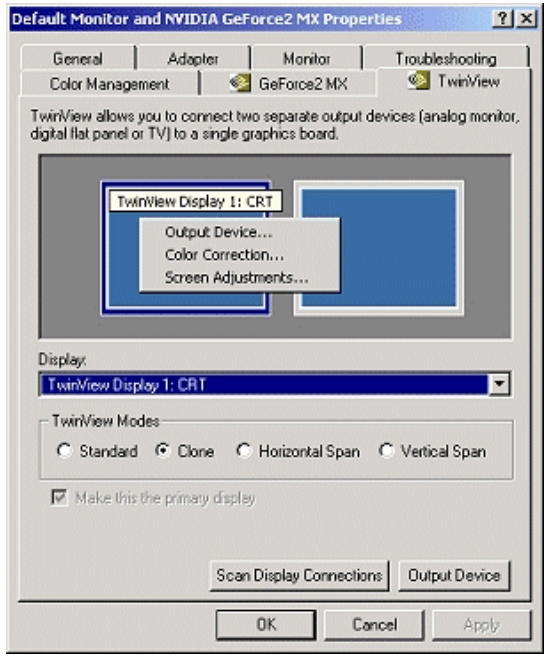
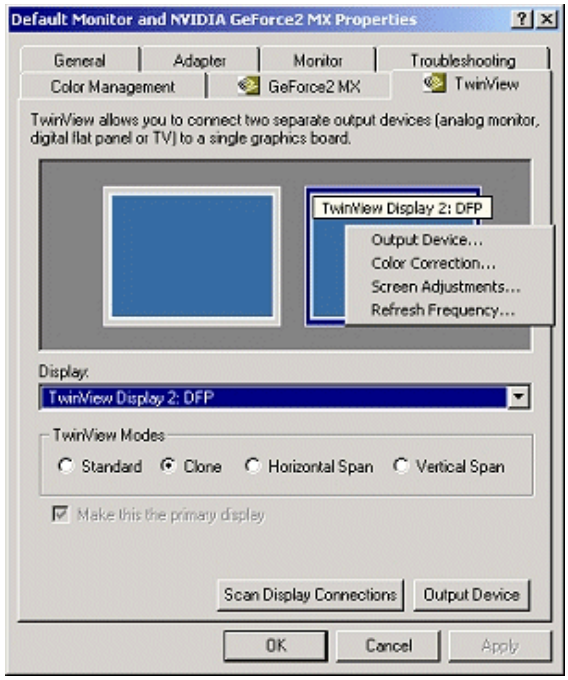


Figure 2.11 TwinView Clone Mode (DFP): Windows 2000



Note: You can also access the configuration options by clicking the **Output Device** button on the TwinView panel.

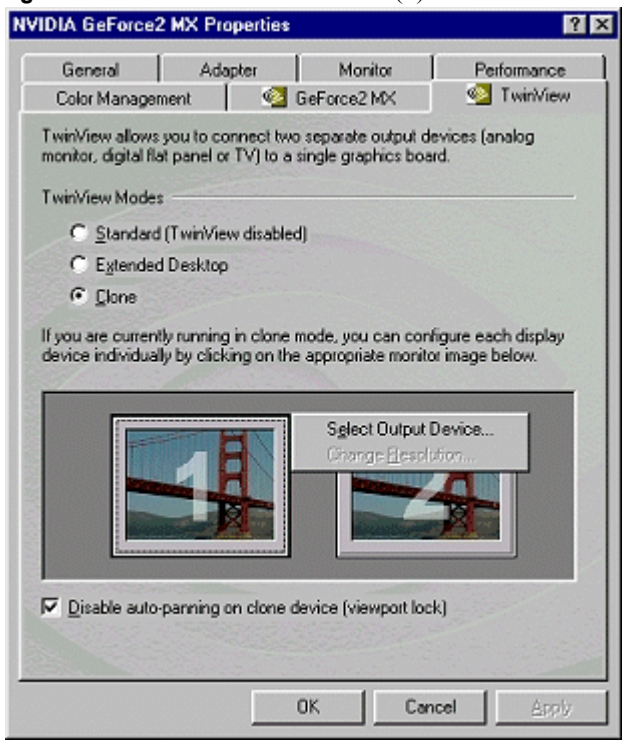
Windows 9*x*

Figure 2.12 and Figure 2.13 show Windows 98 TwinView panels set to **Clone** mode.

Note: After you select the **Clone** mode option, click **Apply**. If the **Disable auto-panning on clone device (viewport lock)** does not appear at the bottom of the TwinView page as shown in Figure 2.12, click **OK,** and return to the TwinView Panel to refresh the panel so that the viewport lock checkbox appears.

You can select the Output Device for each display device (as indicated by the monitor icons numbered 1 and 2 by clicking the left mouse button on either of the monitor icons and then clicking the right mouse button on the **Select Output Device** option. In a similar manner, for device 2, you can use the **Change Resolution** option to modify its Resolution and Refresh Frequency. For example, if you want to enable "**Virtual Desktop**", you can set the resolution of this secondary device to less than that of the primary device, which is your CRT/analog monitor. For an explanation of the Virtual Desktop feature, including the **viewport lock** option, see an explanation of Virtual Desktop below.

Figure 2.12 TwinView Clone Mode (1): Windows 98



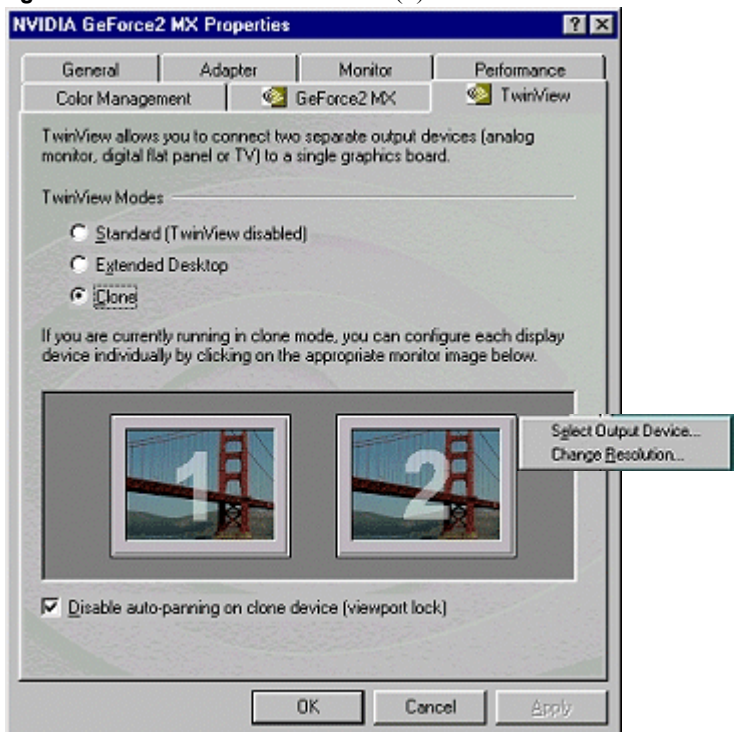
Virtual Desktop

The Virtual Desktop feature works in conjunction with TwinView and is useful for panels and monitors with limited resolution. Virtual Desktop is used to set a larger than viewable area on the second display, which supports full pan-and-scan of the entire desktop area.

Windows NT 4.0 and Windows 2000

Virtual Desktop is automatically enabled under TwinView **Clone** mode when the display resolution of the TwinView control panel is less than the resolution you set in the Windows Display Properties > Settings control panel.

Figure 2.13 TwinView Clone Mode (2): Windows 98



Windows 9*x*

Virtual Desktop is automatically enabled under TwinView **Clone** mode when the resolution of the secondary display is less than that of the primary display. The secondary display functions as a subset of the primary display to support Virtual Desktop and the **Viewport lock** feature. Viewport lock allows you to lock the display position of the secondary display; the feature is enabled by checking the **Disable auto-panning on the clone device** check box on the TwinView panel (Figure 2.13).

CHAPTER 3

VIDEO MIRROR

Video Mirror works in conjunction with TwinView and supported by the GeForce2 MX and Quadro2 Pro MXR graphics cards.

Video Mirror is a TwinView feature that allows a video or DVD application to mirror its playback in full-screen mode on any one of the connected display devices. In other words, Video Mirror allows video data that's displayed on a hardware overlay to be displayed at full-screen on a secondary display.

(For sample combinations of display devices that are supported, see relevant text in Chapter 2, "TwinView Basic Features" on page 5.)

Major features of Video Mirror, such as Zoom and Aspect Ratio, can be configured through the Video Mirror control panel (Figure 3.3). The Zoom options allow part of the image from the primary monitor to be displayed on the secondary monitor, but zoomed in. This mode can also be used for image editing, close-up work in modeling or CAD applications, or image processing and mapping applications.

Video Mirror functionality is available under the following TwinView modes:

- **Windows 2000 Clone** mode
- **Windows 9*x* Clone** or **Extended Desktop** (Span) mode
- **Windows 95 Clone** mode only

To access the Video Mirror control panel:

1 **Important:** In order for the Video Mirror button to appear as shown in Figure 3.1 and Figure 3.2, be sure your TwinView panel is set to one of the supported modes listed in the previous page.

2 Go to the Other Options (Windows NT/2000) or the Taskbar Utility (Windows 9*x*) control panel as shown in Figure 3.1 (Windows 2000) and Figure 3.2 (Windows 98).

To access the **Other Options** or **Taskbar Utility** tab, from your desktop, click the right mouse button, then click Properties > Settings > Advanced > GeForce2 MX or Quadro2 MXR tab > Additional Properties. . .

3 Click the **Open Full Screen Video Control Center …** button to display the Video Mirror control panel (Figure 3.3).

Note: Whenever you make any changes to any of the control panels, including the NVIDIA-specific ones, be sure to click **Apply** for the changes to take effect.

Figure 3.1 Other Options Settings (Windows 2000)

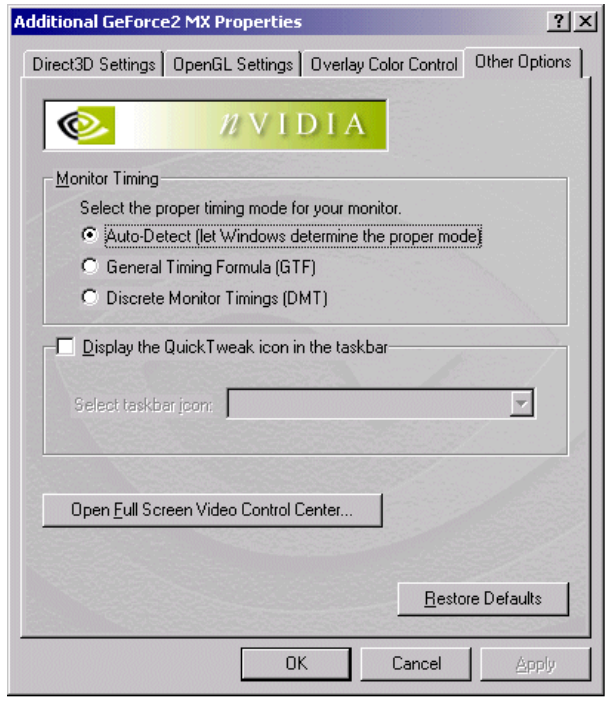


Figure 3.2 Taskbar Utility Settings (Windows 98)

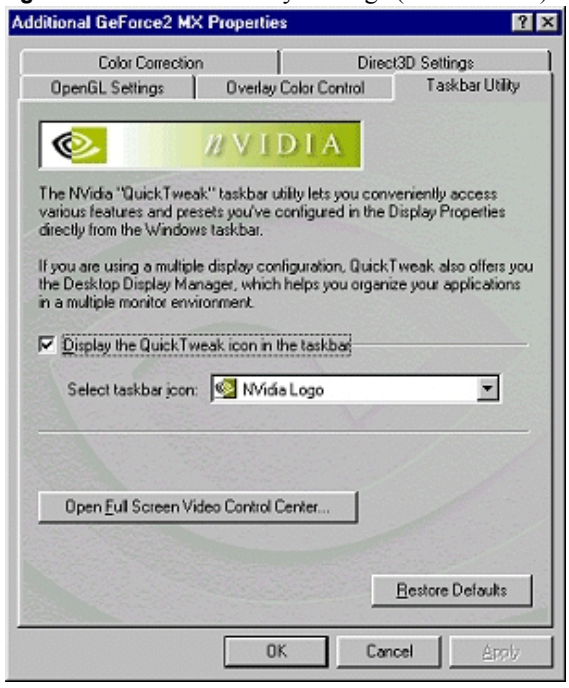


Figure 3.3 Video Mirror Settings

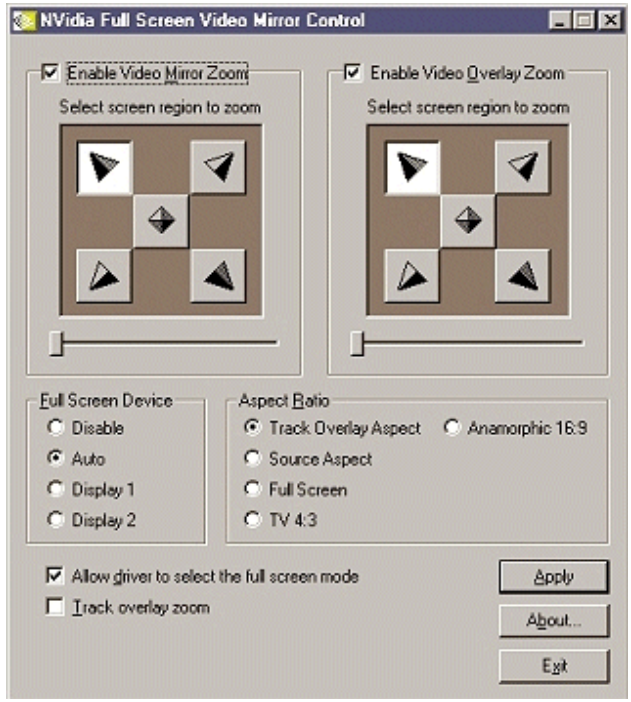


Table 3.1 lists and describes the Video Mirror features.

Table 3.1 Video Mirror Features

Feature	Description
Full Screen Device	
• Disable	Disable Video Mirror
• Auto	To enable Full Screen Device function in *Extended Desktop (Span)* mode, select Auto, which creates the full-screen mirror on the display device on which there is no Overlay. This implies that if the video play is dragged to the other display, the full screen mirror will automatically switch displays.
• Display 1	To enable Full Screen Device in *Clone* mode, click Display 1 or Display 2 as the full screen Video Mirror device.
• Display 2	In *Clone* mode (e.g., under Windows 2000 or Windows 9*x*), select Display 2.
Note: After selecting any the above options, you may need to exit and restart your video application for the settings to take effect.	
Enable Video Mirror Zoom	Enables zooming to a quadrant of the video data on the full-screen mirror.
• Select screen region to zoom	Select the quadrant to zoom.
• Use of the slider	Move the slider to zoom in and out. **Note:** Video players that are not able to detect the presence of Video Mirror may not update the zoom factor immediately while displaying a still frame.
Enable Video Overlay Zoom	Enables zooming to a quadrant of the video data on the overlay. This option does not require a TwinView device.
• Select screen region to zoom	Select the quadrant to zoom.
• Use of the slider	Move the slider to zoom in and out. **Note:** Video players that are not able to detect the presence of Video Mirror may not update the zoom factor immediately while displaying a still frame
Aspect Ratio	Advanced features used to change the aspect ratio of the video display on the Video Mirror.
• Track Overlay Aspect	Default setting; this is the recommended setting. The aspect ratio of the Video Mirror tracks the aspect ratio of the overlay.
• Source Aspect	The aspect ratio of the Video Mirror is equal to the aspect of the source video, assuming square pixels.

Table 3.1 Video Mirror Features (continued)

Feature	Description
• Full Screen	The video is stretched to the boundaries of the Video Mirror device.
• TV 4:3	Forces the Video Mirror aspect ratio to 4:3 (width:height).
• Anamorphic 16:9	Forces the Video Mirror aspect ratio to 16:9 (width:height).
Allow driver to select the full-screen mode	Advanced setting enabled by default. When enabled, the Video Mirror driver selects the optimal display mode for the full screen device. When disabled, the Video Mirror uses that desktop mode that is currently set on the display device.
Track overlay zoom	When Track overlay zoom is enabled, the Video Mirror Zoom settings become disabled. In other others words, enabling the Track overlay zoom causes the Video Mirror setting to become dependent on the Video Overlay Zoom settings. Normally these two settings are independent.
Apply	When changing the Full Screen Device options, click Apply for the changes to take effect. The changes automatically take effect for all other options.

CHAPTER 4

DESKTOP MANAGER

This chapter contains the following sections:

Note: In this chapter, 'Windows 9*x*' refers to Windows 98 and Windows Me, but *not Windows 95*. The Desktop Manager does *not* support Windows 95 due to features lacking in the Windows 95 operating system.

Features Overview

The NVIDIA Desktop Display Manager is a software feature designed for use with NVIDIA TwinView-enabled devices, such as the GeForce2 MX and the Quadro2 MXR graphics cards.

Windows 2000/NT 4.0 vs. Windows 9*x*

Desktop Management is an artifact of how Windows 2000 handles multi-monitor. Under **Windows 2000/NT 4.0**, one PCI/AGP device (such as the dual-head GeForce2 MX or Quadro2 MXR card), it is not detected as two *separate*

devices. Therefore, Desktop Manager adds functionality so that the two monitors can be used as if they were attached to two separate devices. Under **Windows 9*x***, however, one PCI/AGP device (i.e., the dual head GeForce2 MX or Quadro2 MXR card) *is* detected as two separate devices resulting in much of the Windows 2000/NT 4.0 Desktop Manager functionality being inherent to the Windows 9*x* operating system. For this reason, only a subset of the Windows 2000/NT 4.0 features is required and available under the Windows 9*x* Desktop Manager.

Note: Windows 9*x* does not support multiple desktops.

Desktop Manager allows you to run one or more applications on one or both monitors or desktops and primarily works in conjunction with the TwinView Span/Extended Desktop modes. Key features of and improvements to Desktop Manager include:

- re-centering of dialog boxes and menus, preventing them from splitting across two monitors
- application-management features such as maximizing the image to a single monitor and restoring application windows to their last-used position
- multiple-desktops support; e.g., the ability to launch applications on separate desktops, switch between desktops using hot keys, and an improved task switcher ("Alt-Tab") window
- window-management hot keys to move windows from one monitor to the other
- specific application support, such as the ability to display Microsoft PowerPoint® slide shows on a single monitor without breaking the display across two monitors under multi-monitor mode
- displaying 'zoomed' views of the screen area under your mouse cursor and changing the zoom level on the fly using hot keys or the mouse wheel
- resizing of taskbar so that it no longer spans across monitors
- unicode-enabling, which allows entering desktop names in any non-English language that is supported by the Windows operating system running the NVIDIA software and hardware

Enabling Desktop Manager

Desktop Manager can be selected from the Quick Tweak icon in the Windows task bar that appears in the right bottom corner of the Windows desktop.

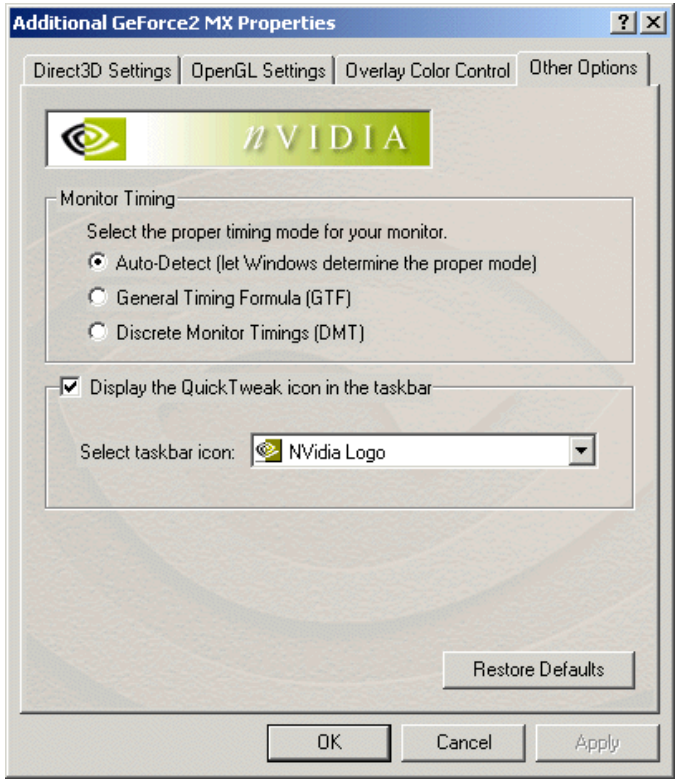
1 Before you can access NVIDIA Desktop Manager, you must have the following TwinView mode settings:

- Under **Windows 9*x***, set the TwinView control panel to **Extended Desktop** mode.
- Under **Windows NT 4.0** or **Windows 2000**, set the TwinView control panel to **Standard**, **Clone, Horizontal Span** or **Vertical Span** mode. Note that the Span modes ensure full Desktop Manager functionality. For example, with a Standard mode setting, only multiple desktop features are supported.

2 To display the QuickTweak icon in the task bar, go to the NVIDIA Other Options (Windows NT/2000) or the Taskbar Utility (Windows 98) control panel as shown in Figure 4.1 and Figure 4.2.

To access the **Other Options** or **Taskbar Utility** tab, from your desktop, click the right mouse button, then click Properties > Settings > Advanced > GeForce2 MX or Quadro2 MXR tab > Additional Properties. . .

Figure 4.1 Displaying the QuickTweak Icon (Windows 2000)



3 Click the **Display the QuickTweak icon in the task bar** checkbox. In the **Select taskbar icon:** field, if 'NVIDIA Logo' does not already appear, click the down arrow in the display box to select NVIDIA Logo, then click **Apply**.

The NVIDIA logo appears on the bottom right corner of the Windows desktop.

4 Click the NVIDIA icon with the right mouse button and select **Desktop Display Manager**.

If **Display Manager Enabled** is not checked, click the option to check it. The context menu is removed. Again, click the NVIDIA icon with the right mouse button, select Desk**top Display Manager,** then select **Display Manager Properties** to open the Desktop Display Manager Properties control panel.

If **Display Manager Enabled** is checked, select **Display Manager Properties** to open the Desktop Display Manager Properties control panel.

The Desktop Manager can be configured through the NVIDIA Desktop Display Manager Properties control panel (Figure 4.3 and Figure 4.4), which contains the **Application Management**, **Hot Keys**, **Global Settings**, **Pop-Ups**[1] and **Zoom** tabs, as described in the sections that follow.

Figure 4.2 Displaying the QuickTweak icon (Windows 98)

1. Applies *only* to Windows 2000 and Windows NT 4.0.

Note: The first time you open the Desktop Display Manager control panel, click **Apply** on any of the settings windows, such as Global Settings and Hot Keys, for the current settings to take effect. (Note that some application-specific settings may require restarting the application.) Whenever you make changes to any control panels, including those in Desktop Display Manager, be sure to click **Apply** for the changes to take effect.

Application Management

Using the Application Management window (Figure 4.3 and Figure 4.4) you can add applications that you want to configure under Desktop Manager and then enable any of the settings that are listed.

Figure 4.3 Desktop Manager: Application Management (Windows 2000)

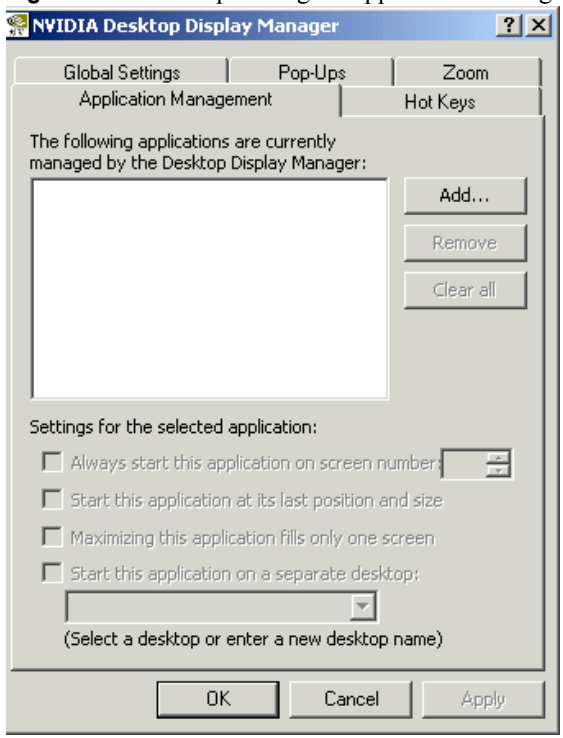
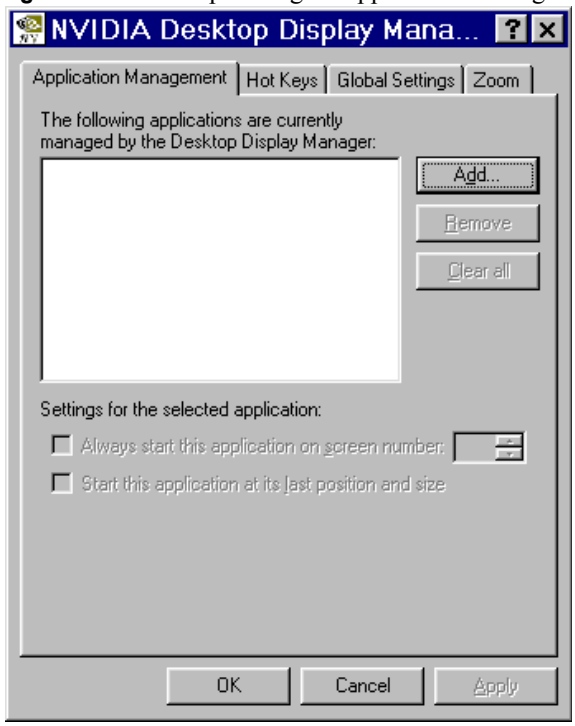


Figure 4.4 Desktop Manager: Application Management (Windows 98)



Adding an Application to Desktop Manager

To add an application to configure in Desktop Manager, follow these steps:

1. **Important:** Be sure that the applications you want to run using Desktop Manager are already open.
2. Click the **Add** button on the Application Management window**.** Your open applications will appear in the New Application window as shown in Figure 4.5**,** which displays sample open applications on a Windows 2000 desktop.
3. Select the application you want to add, then click **OK**. The application appears in the Application Management window (Figure 4.6).
4. Repeat this step for each application that you want to add to Desktop Manager (Figure 4.7 and Figure 4.8**)**.

Figure 4.5 Desktop Manager: Adding the first application (Windows 2000)

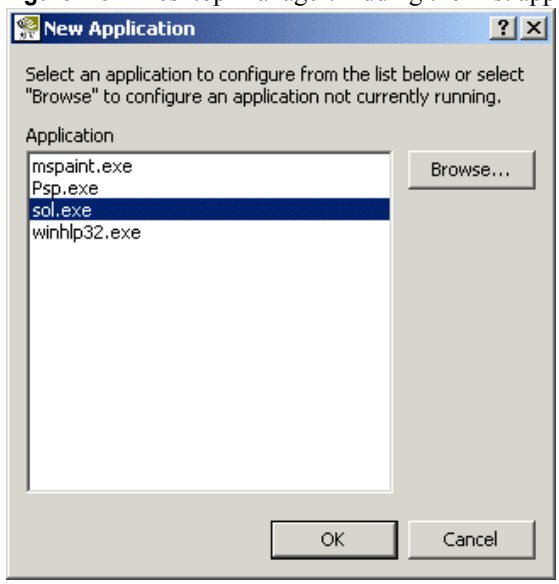


Figure 4.6 Desktop Manager: Configuring the first application (Windows 2000)

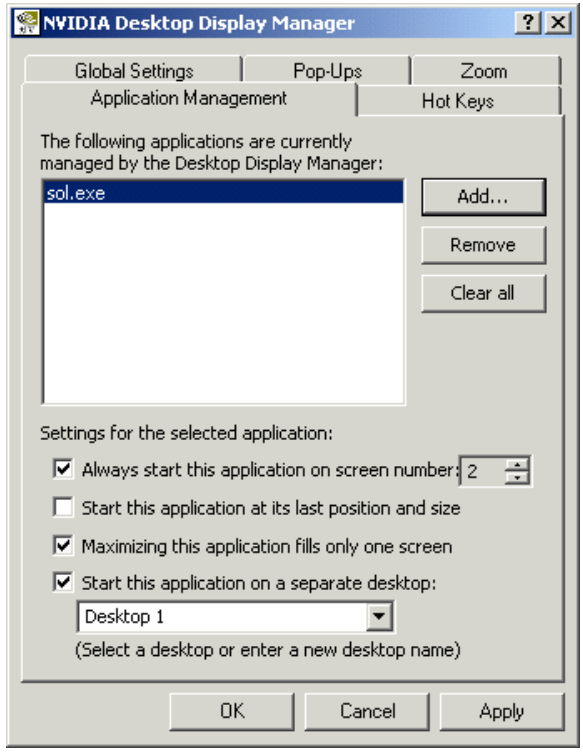


Figure 4.7 Desktop Manager: Adding another application (Windows 2000)

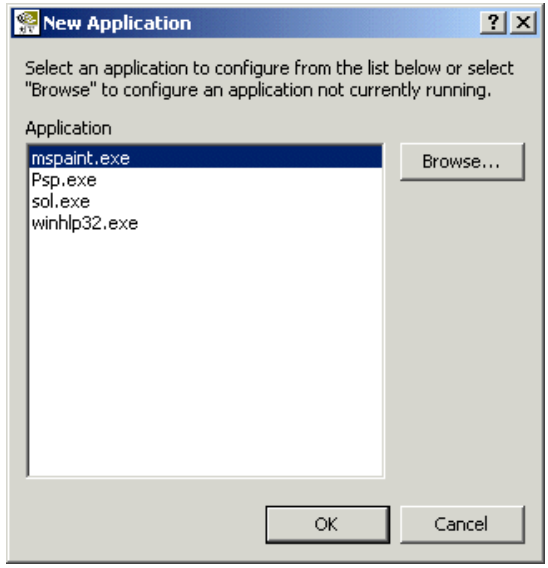


Figure 4.8 Desktop Manager: Configuring another application (Windows 2000)

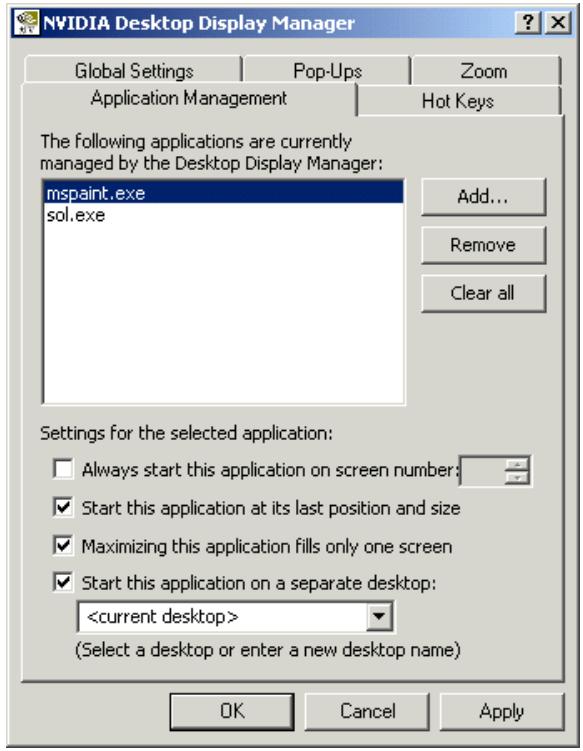


Figure 4.9 Desktop Manager: Adding the first application (Windows 98)

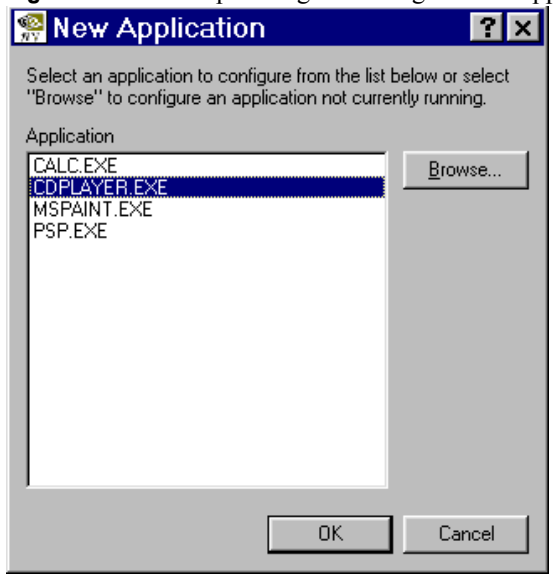


Figure 4.10 Desktop Manager: Configuring the first application (Windows 98)

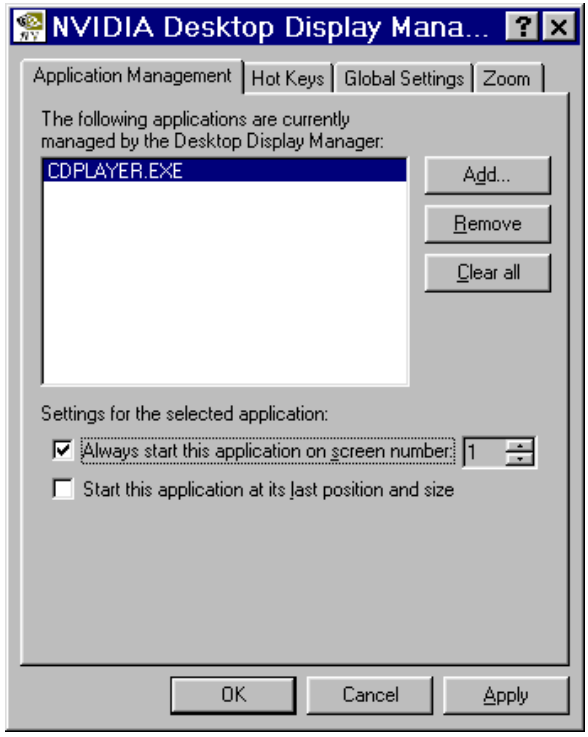


Figure 4.6, Figure 4.8, and Figure 4.10 show a variety of Desktop Manager settings that you can enable; descriptions of these settings follow:

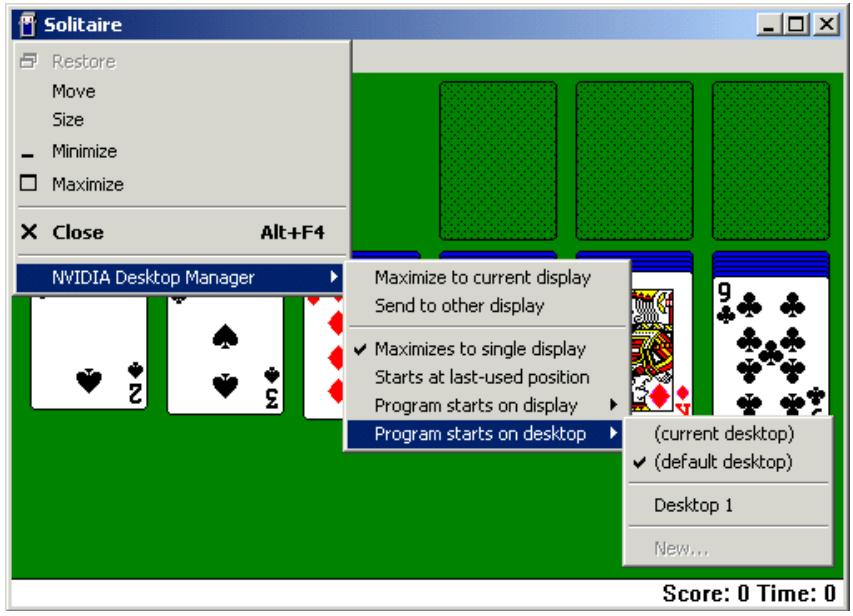
- **Always start this application on screen number**: Check this option to select the monitor (display device) on which you want to start the application. When you check this option, select **1** or **2** in the adjacent box.

  Note: If you are not able to access the **2** in the box even though your second monitor is active, close the Desktop Manager Properties window and re-invoke it.

- **Start this application at its last position and size**
- **Maximizing the application fills only one screen**
- **Start this application on a separate desktop:** When you check this option, enter a name of a new Desktop on which you want to start an application. You can create several Desktops in this manner and then select from the list of named desktops when you configure new applications.

Note: To display the NVIDIA Desktop Manager menu (Figure 4.11) from any application that has been added in Desktop Manager, click the right mouse button with your cursor on the title bar of the open application. (See also "Global Settings" on page 36.)

Figure 4.11 Desktop Manager: Application Manager System Menu (Windows 2000)



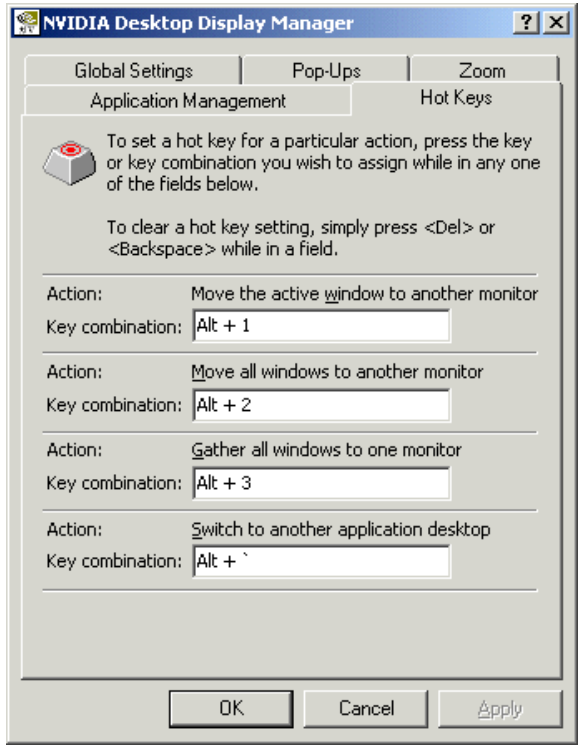
Hot Keys

The Desktop Manager Hot Keys window allows you to enter different key combinations and assign them to actions that involve moving active windows to another monitor or desktop, moving windows to a separate monitor, and so on.

The default key combination for each action is shown in Figure 4.12 (Windows 2000), Figure 4.13 (Windows 98), and listed below. You can replace any of the default hot key combinations with those your prefer.

- **Move the active window to another monitor**: (Alt-1)
- **Move all windows to another monitor**: (Alt-2)
- **Gather all windows to one monitor**: (Alt-3)
- **Switch to another application desktop**: (Alt ~)[1]

Figure 4.12 Desktop Manager: Hot Keys (Windows 2000)



1. Applies only to Windows 2000 and Windows NT 4.0.

Figure 4.13 Desktop Manager: Hot Keys (Windows 98)

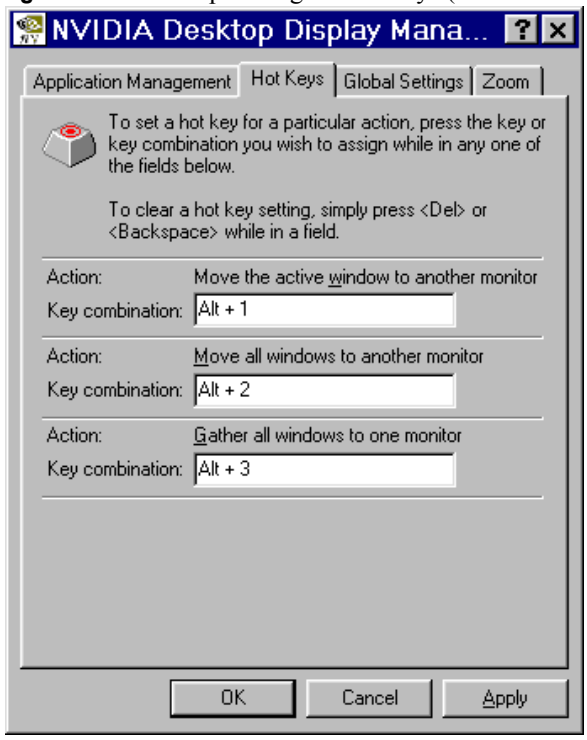
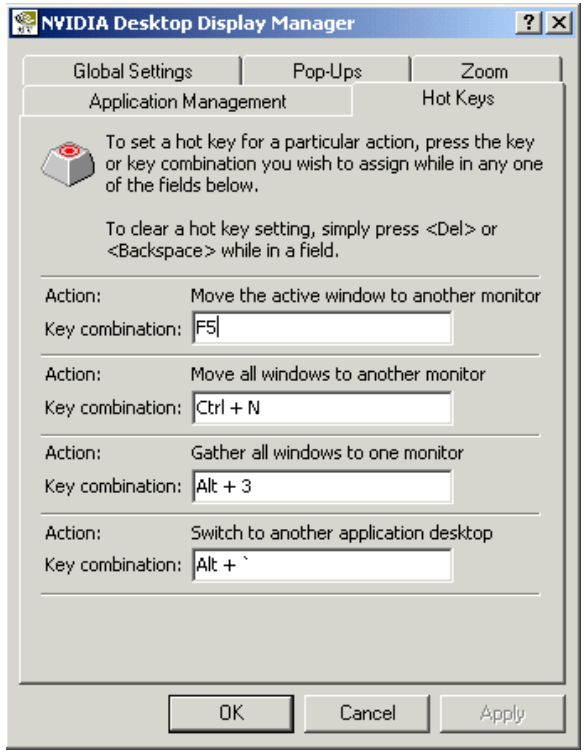


Figure 4.14 shows customized hot-key settings. To specify hot key combinations other than the defaults, you can follow any one of these steps with the cursor in the Key combination field:

- For an Alt-*key* combination, hold down the Alt key and press any other key
- For a Ctrl-*key* combination, hold down the Ctrl key and press any other key. You can also only press any alphanumeric key to obtain an automatic Ctrl-*key* combination.
- For a function key, simply press any function key, such F5, F6, and so on.

Figure 4.14 Desktop Manager: Customized Hot Keys (Windows 2000)

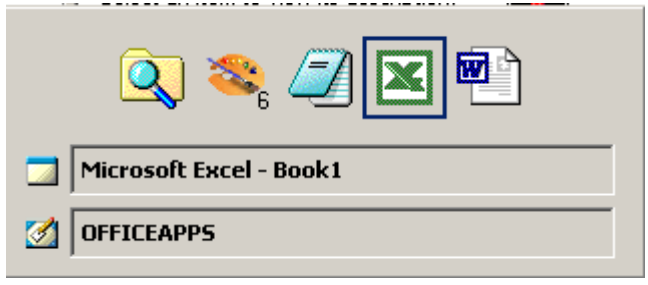


Task Switcher

You can switch amongst Desktop Manager applications using the following procedure:

1. Hold down the **Alt** key, then press and release the **Tab** key to display a menu of icons representing your active (open) applications (Figure 4.15).
2. Continue to click **Tab** until the application you want to open is highlighted, then release the keys.

Figure 4.15 Desktop Manager Task Switcher Menu

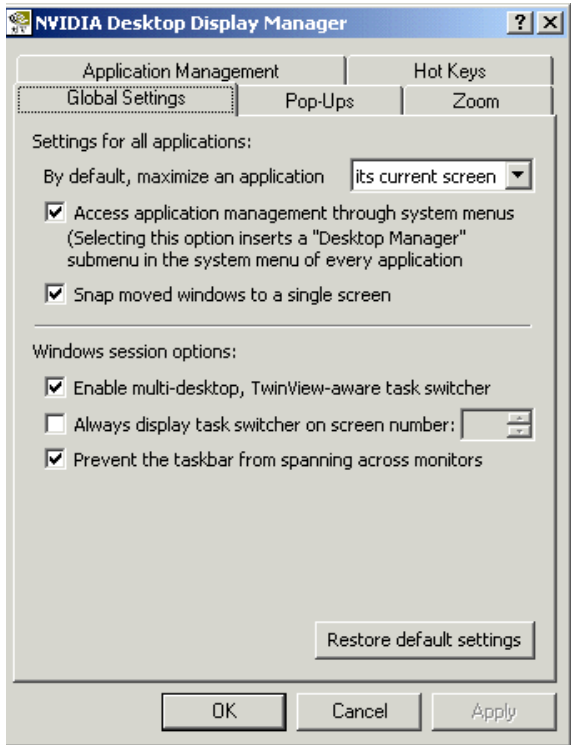


Global Settings

The Global Setting panel (Figure 4.16 and Figure 4.17) lets you specify settings that will apply to all applications running under Desktop Manager. Click on the settings checkboxes to toggle between enabling (checked) or disabling (unchecked) the settings. The settings are described below:

- **By default, maximize an application to[1]:** Click the down arrow in the box next to this option and select one of the following options:
  - its current screen *or*
  - the entire desktop
- **Access Application Management through system menus**: Select this option to insert a “Desktop Manager” submenu in the system menu (see Figure 4.11 earlier in this document) of each application window configured in Desktop Manager.

Figure 4.16 Desktop Manager: Global Settings (Windows 2000)

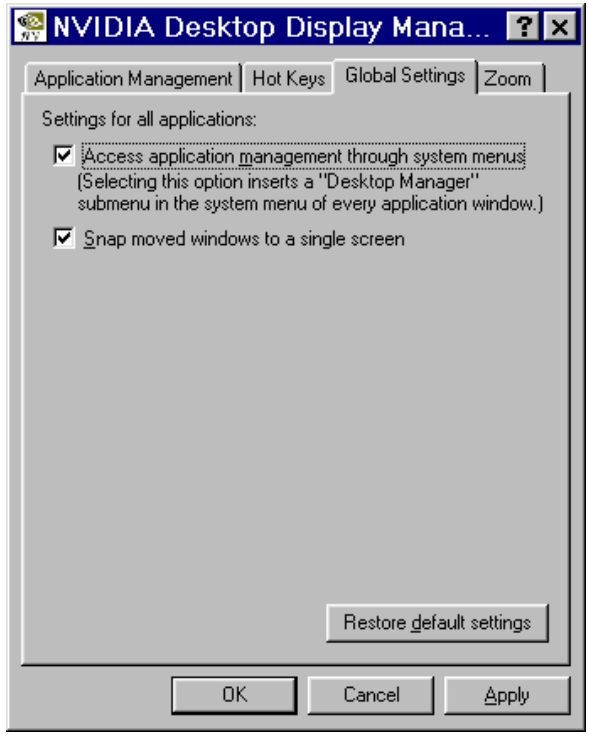


1. Applies only to Windows 2000 and Windows NT 4.0.

- **Snap moved windows to a single screen:** Check this option if you want any active application window that you are attempting to move to another monitor to automatically reposition (snap) to that monitor.
- **Enable multi-desktop TwinView-aware task switcher[1]:** Check this option to display the Desktop Manager task switcher whenever you press Alt-tab to switch to another application configured under Desktop Manager**.**
- **Always display task switcher on screen number[1]:** Check this option to select the monitor (display device) on which you want the task switcher to appear. After you check this option, select **1** or **2** in the adjacent box.

  Note: If you are not able to access the **2** in the box even though your second monitor is active, close the Desktop Manager Properties window and re-invoke it.
- **Prevent the taskbar from spanning across monitors[1]:** Check this option to prevent the taskbar from spanning across monitors.

Figure 4.17 Desktop Manager: Global Settings (Windows 98)



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1. Applies only to Windows 2000 and Windows NT 4.0.

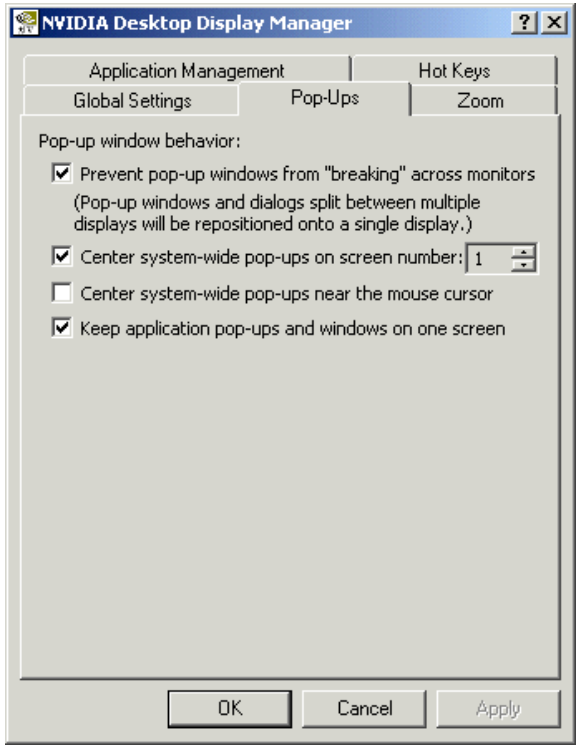
Pop-up Settings

Note: The Desktop Manager Pop-Ups panel only appears under the Windows 2000/NT 4.0 operating systems: Pop-Up features are part of the Windows 9*x* operating system.

The Desktop Manager Pop-Ups settings allow you to control the functionality of pop-up windows or dialog boxes; descriptions of the settings follow:

- **Prevent pop-up windows from 'breaking' across monitors:** Check this option to reposition pop-up windows or dialog boxes that are split across monitors to a single monitor.
- **Center system-wide pop-ups on screen number:** If you check this option, click the down arrow in the box next to this field and select 1 or 2 to center system-wide pop-up windows or dialog boxes on the specified monitor.

Figure 4.18 Desktop Manager: Pop-Up Settings (Windows 2000)



- **Center system-wide pop-ups near the mouse cursor:** Check this option to center system-wide pop-up windows or dialog boxes near the mouse cursor.
- **Keep application pop-ups and windows on one screen:** Check this option to keep application-specific pop-up windows or dialog boxes on a single monitor.

Zoom Settings

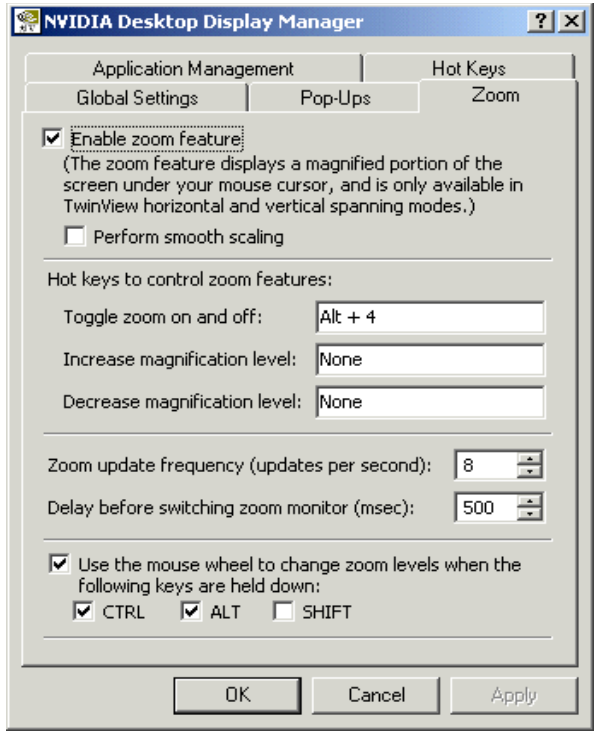
The Zoom feature is currently

- available only under ‘Span’ mode; i.e., Extended Desktop mode in Windows 9*x* and Horizontal or Vertical mode under Windows NT 4.0/2000
- hardware-accelerated under Windows NT 4.0/2000 but not in Windows 9*x* causing the Zoom feature to function more slowly under Windows 9*x*

Zoom enables a magnified (“zoomed”) view of a region of the screen under and around the mouse cursor. The zoomed view appears on the monitor on which the mouse cursor is *not* pointing.

Zoom *default* options are shown in Figure 4.19 (Windows 2000), Figure 4.20 (Windows 98), and explained following the figures.

Figure 4.19 Desktop Manager: Zoom Settings (Windows 2000)

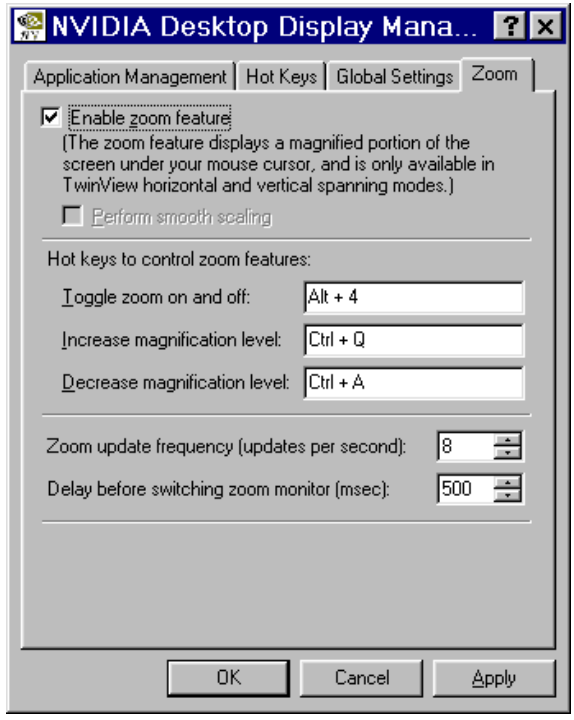


- **Enable Zoom:** By default, the Zoom feature is enabled (available for use) and can be activated by pressing Alt-4, the *default*. This hot key combination can be customized. (See “Desktop Manager: Zoom Settings (Windows 98)” on page 40.)

- **Perform Smooth Scaling:** You can enable Perform Smooth Scaling for a "smooth" zoomed view. This option, disabled by default, causes the hardware to perform filtering when displaying the zoomed view. Filtering reduces the "blockiness" and hard edges caused by greatly magnifying the display; however the resulting view may appear fuzzy and is generally undesirable for applications such as photo and image editing.

  Note: This options does not apply to Desktop Manager under the Windows 9*x* operating system.

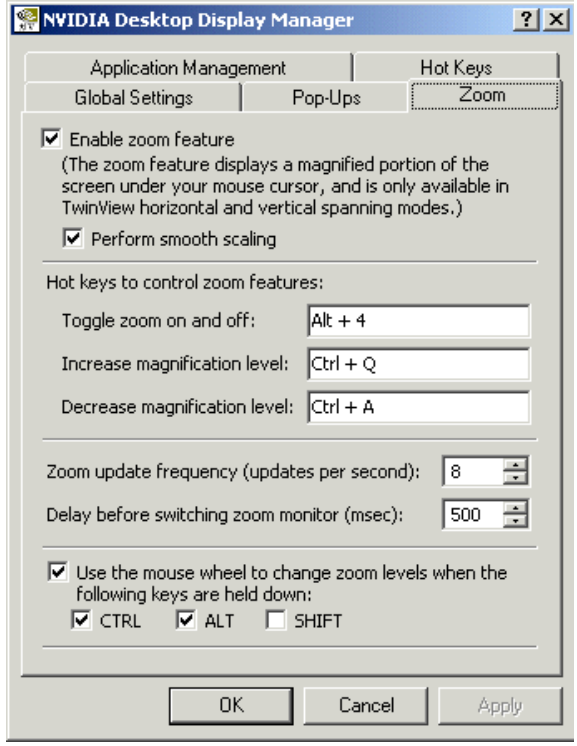
Figure 4.20 Desktop Manager: Zoom Settings (Windows 98)



- **Hot Keys to Control Zoom:** Figure 4.20 shows user-modified Zoom hot keys. To specify hot key combinations other than the defaults, you can follow the steps described in the section "Hot Keys" on page 33.
  - **Toggle zoom on and off:** Press Alt + 4 (default) or any other key you've specified to turn zoom on and off. (To enter 'None', press the space bar.)
  - **Increase magnification level:** If None appears in this field, specify a key or key combination as described earlier.
  - **Decrease magnification level:** If None appears in this field, specify a key or key combination as described earlier.

- **Zoom update frequency:** The magnified view is updated whenever the mouse cursor is moved and is updated at a fixed interval when the mouse cursor is still. The update or "refresh" rate of the zoomed view is configurable and can be set from one to 100 times per second.
- **Delay before switching zoom monitor:** When you move the mouse cursor from one monitor to the other, the zoomed view automatically switches monitors after a user-definable time delay (0 to 1000 milliseconds, 500 being the default). The time delay exists to allow the mouse cursor to briefly "stray" to the other monitor without a disruptive popping of the zoomed view from one monitor to the other (and back). The delay can be set to 0 for instant switching of the zoom window.

Figure 4.21 Desktop Manager: Modified Zoom Hot Keys (Windows 2000)



Details of Using Zoom

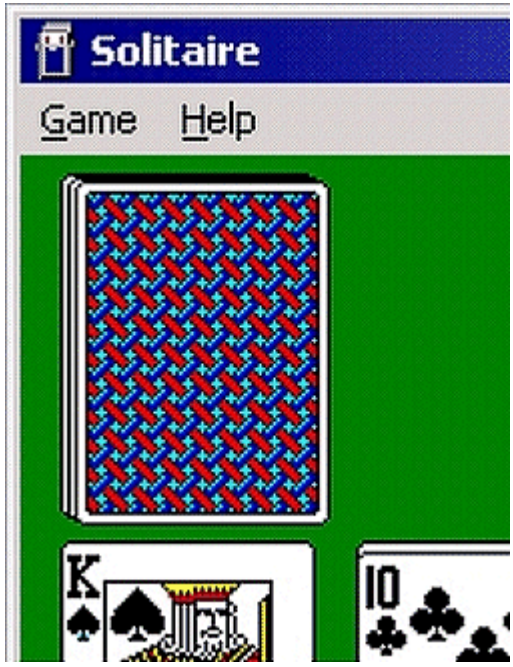
The default magnification level provided by the zoomed view is 8× the regular view. Using the defined hot-key, the magnification level can range from a minimum of 2× to a maximum of 32×. However, the easier way to change the zoom level is by holding down the Ctrl and Alt keys and using the mouse wheel.

Note: Changing the zoom level using the mouse wheel is currently only supported under Windows NT 4.0 and Windows 2000.

Scrolling the wheel forward (away from you) increases the magnification, and scrolling backward (towards you) decreases magnification. The current magnification level will be reset to the default whenever Desktop Manager is restarted, but will otherwise be maintained within one Windows session.

Figure 4.22 shows part of a zoomed application.

Figure 4.22 Desktop Manager: Zoomed Image (Windows 2000)



CHAPTER 5

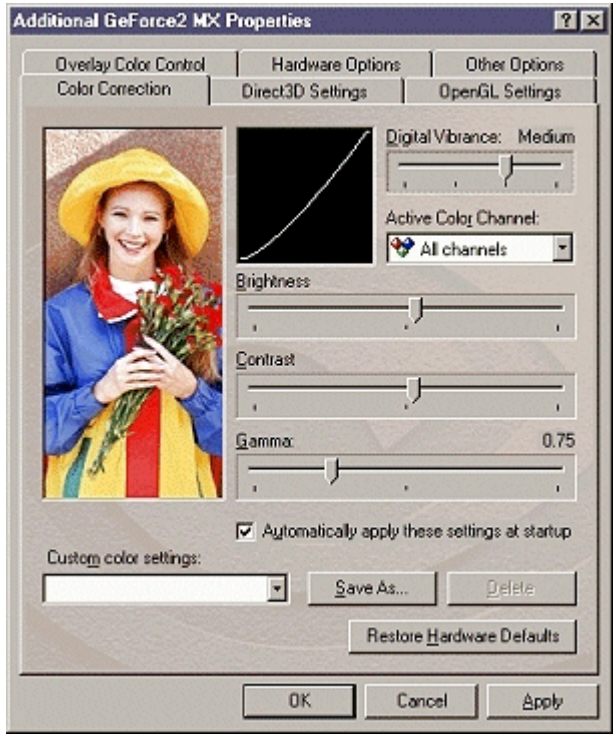
ADDITIONAL FEATURES AND ENHANCEMENTS

This chapter explains the following additions and enhancements to the Release 6 for Windows drivers:

Digital Vibrance Control

Digital Vibrance Control, a mechanism for controlling color separation and intensity, boosts the color saturation of an image.This feature can be turned off or set to different levels from low to high through the Color Correction control panel as shown in Figure 5.1. Digital Vibrance Control is supported by the GeForce2 MX and Quadro2 Pro MXR graphics cards.

Figure 5.1 Digital Vibrance Settings



OpenGL Settings

This section explains the additions and improvements to the NVIDIA Release 6 for Windows OpenGL control panel. (For descriptions of the full set of OpenGL settings, see Appendix A "OpenGL Settings" on page 49.)

Performance & Compatibility Options (Windows NT 4.0 and Windows 2000)

The following options have been added to the Performance and Compatibility Options area of the NVIDIA OpenGL control panel.

Force 16-bit Depth Buffer forces the OpenGL driver to use a 16-bit depth buffer regardless of the pixel format chosen by the application. This feature improves the performance of depth buffer clears and operations but at the expense of less precision in the depth buffer. (This feature is *only* supported by the NVIDIA GeForce2 MX and Quadro2 MXR graphics cards.)

Enable Advanced Multiple Monitors is an option that is currently supported under Windows 2000 and appears on systems installed with dual matched graphics cards; for example two graphics cards in the NVIDIA RIVA TNT2 family. When this option is *enabled*, an OpenGL application started on one monitor can continue rendering when moved to the other monitor or when spanning both monitors. When this option is *disabled*, an OpenGL application only renders on the monitor on which it was started.

Improved Full-scene Anti-aliasing Method

The OpenGL control panel offers improved **full-scene anti-aliasing (FSAA)** values, which are supported by the following NVIDIA graphics cards (the chipsets are shown in parentheses):

- GeForce2 GTS and Quadro2 Pro
- GeForce2 MX and Quadro2 MXR
- GeForce 256 and Quadro

Anti-aliasing is a technique used to smooth the edges of objects in a scene to reduce the jagged "stairstep" effect that sometimes appears. The “Full-scene anti-aliasing method” field (Figure 5.2) contains options that you can select to control full-scene anti-aliasing for the OpenGL driver.

Figure 5.2 OpenGL Settings

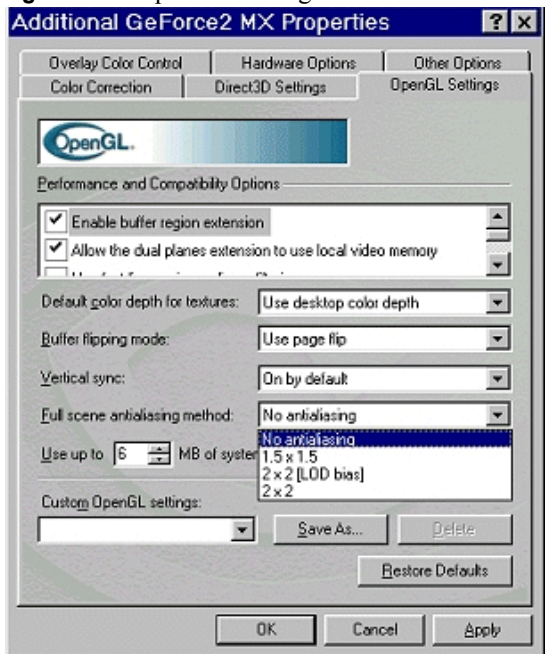


Table 5.1 lists the OpenGL FSAA methods provided in the NVIDA OpenGL control panel.

Table 5.1 OpenGL Full-scene Anti-aliasing (FSAA) Settings

FSAA Method	Description
No anti-aliasing	This option disables full-scene anti-aliasing.
1.5 x 1.5	This method provides fairly good *edge anti-aliasing* with the best performance.
2 x 2 (LOD bias)	This method provides the best *edge anti-aliasing*.
2 x 2	This method provides the best *edge anti-aliasing* with improved texture quality.

- For *textured* images, the “2 x 2 (LOD bias)” method is slightly faster than the "2 x 2" method. Note that the texture image quality of the "2 x 2 (LOD bias)" method is essentially the same as the non-FSAA texture quality.
- For *non-textured* images, both the “2 x 2” and “2 x 2 (LOD bias)” methods provide the same *edge anti-aliasing* quality and performance.

Direct3D Settings

This section explains the additions and improvements to the NVIDIA Release 6 for Windows Direct3D control panel. (For descriptions of the full set of Direct3D settings, see Appendix A “Direct3D Settings” on page 51.)

Improved Full-scene Anti-aliasing Method

The Direct3D Antialiasing control panel (Figure 5.3) offers improved **full-scene anti-aliasing (FSAA)** values, which are supported by the following graphics cards (the NVIDIA chipsets are shown in parentheses):

- GeForce2 GTS and Quadro2 Pro
- GeForce2 MX and Quadro2 MXR
- GeForce 256 and Quadro

Hardware Antialiasing Control

“Hardware Antialiasing Control” lets you determine the amount of anti-aliasing to be used in a particular Direct3D application. *Anti-aliasing* is a technique used to minimize the "stairstep" effect sometimes seen along the edges of 3D objects. The Antialiasing control panel (Figure 5.3) shows the exact anti-aliasing method being used at each slider point.Your selection can range from turning anti-aliasing completely *off* to selecting the maximum amount of anti-aliasing possible for a particular application.

Figure 5.3 Direct3D Anti-aliasing Settings

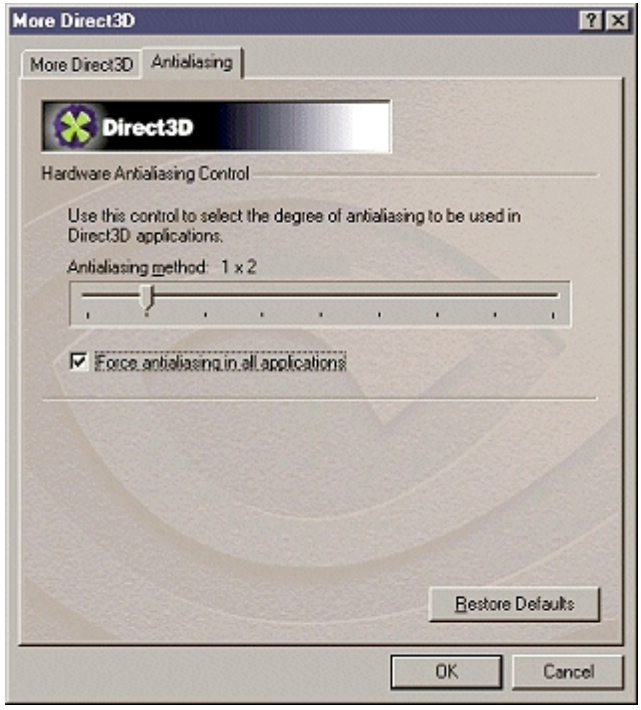


Table 5.2 lists the Direct3D FSAA methods provided in the NVIDIA Direct3D Anti-aliasing control panel

Note: In Table 5.2 below, **"**sample" refers to the color of a single, distinct point on the screen.

Table 5.2 Direct3D Full-scene Anti-aliasing (FSAA) Settings

FSAA Method	Description
Off	Anti-aliasing is disabled when the slider is at the extreme left point. When anti-aliasing is *off*, the "Force antialiasing in all applications" option is *disabled.*
1 x 2	This method provides 2-sample anti-aliasing in the vertical direction. (Starting from this value onward, the "Force anti-aliasing in all applications" option becomes automatically *enabled* and may be checked, if desired.)
2 x 2 (low detail)	This method provides 4-sample anti-aliasing with standard texture quality.
2 x 2	This method provides 4-sample anti-aliasing with high texture quality; recommended as best balance of quality with performance.
2 x 2 (special)	This method provides 4-sample anti-aliasing with high texture quality, and a special 3 x 3 downfilter resulting in smoother edges, but at the expense of some blurriness.

Table 5.2 Direct3D Full-scene Anti-aliasing (FSAA) Settings

FSAA Method	Description
3 x 3 (low detail)	This method provides 9-sample anti-aliasing with standard texture quality.
4 x 4 (low detail)	This method provides 16-sample anti-aliasing with standard texture quality.
4 x 4	This method provides 16-sample anti-aliasing with high texture quality.

Obsolete Options

The following Direct3D options are now obsolete and have been deleted from the Direct3D control panel:

- Automatically generate mipmap levels
- Auto-mipmap method

Note: The above changes *do not apply* to Windows NT 4.0.s

APPENDIX

A

OPENGL & DIRECT3D SETTINGS

This appendix describes all the OpenGL and Direct3D settings available in the NVIDIA Release 6 for Windows OpenGL and Direct3D control panels:

OpenGL Settings

- **Enable buffer region extension** allows the drivers to use the OpenGL extension `GL_KTX_buffer_region`, which can increase application performance in 3D modeling applications that support this extension.
- **Allow the dual pane extensions to use local video memory** allows the use of local video memory when the `GL_KTX_buffer_region` extension is enabled. However, if there are less than 8 MB of local video memory available, dual planes extension support will not be enabled.

  Note: This setting has no effect if the "Enable buffer region extension" option above is disabled.
- **Use fast linear-mipmap-linear filtering** allows fast linear-mipmap-linear filtering, which increases application performance but at the expense of some image quality. In many cases, a loss of image quality may not be noticeable, so you may want to take advantage of the extra performance that is gained by enabling this feature.
- **Enable anisotropic filtering** allows OpenGL to use anisotropic filtering for improved image quality.

- **Enable alternate depth buffering technique** enables an alternate technique for depth buffering. This lets the hardware use a different mechanism for depth buffering in 16 bit applications. Enabling this setting can produce higher quality rendering of 3D images.
- **Disable support for enhanced CPU instruction** sets disables driver support for enhanced instructions used by certain CPUs. Some CPUs support additional 3D instructions that complement your NVIDIA graphics processor and improve performance in 3D games or applications. This option allows you to disable support for these additional 3D instructions in the drivers. This can be useful for performance comparisons or for troubleshooting.
- **Use unified back/depth buffer** is *supported only by the NVIDIA Quadro series of cards under Windows 2000/NT 4.0.* When this option is *enabled*, all OpenGL applications share memory for their depth and back buffers. When this option is *disabled*, each OpenGL window allocates its own depth and back buffer resources. Generally, the option should be enabled when you frequently have multiple large OpenGL windows open simultaneously, and disabled if you typically have only one OpenGL window or several small OpenGL windows open at any given time.
- **Force 16-bit depth buffer**[1] is *supported only under Windows 2000/NT 4.0.* This option forces the OpenGL driver to use a 16-bit depth buffer regardless of the pixel format chosen by the application. This feature improves the performance of depth buffer clears and operations but at the expense of less precision in the depth buffer. (This feature is *only* supported by the NVIDIA GeForce2 MX and Quadro2 MXR graphics cards.)
- **Enable advanced multiple monitors**[1] *is currently supported under Windows 2000 and only appears on systems installed with dual matched graphics cards;* for example two graphics cards in the NVIDIA RIVA TNT2 family. When this option is *enabled*, an OpenGL application that is started on one monitor can continue rendering when moved to the other monitor or when spanning both monitors. When this option is *disabled*, an OpenGL application only renders on the monitor on which it was started.
- **Default color depth for textures** determines whether textures of a specific color depth should be used by default in OpenGL applications. Use desktop color depth will always use textures of the color depth at which your Windows desktop is currently running. The **Always use 16 bpp** and **Always use 32 bpp** options forces the use of textures of the specified color depth, regardless of your desktop settings.

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1. New in NVIDIA Release 6 for Windows drivers.

- **Buffer flipping mode** determines the buffer-flipping mode for full-screen OpenGL applications. You can select from the block transfer method (**Use block transfer**), the page flip method (**Use page flip**) or **Auto-select**. Auto-select allows the driver to determine the best method based on your hardware configuration.
- **Vertical sync** lets you specify how vertical sync is handled in OpenGL. **Always off** will always disable vertical sync in all OpenGL applications. **Off by default** will keep vertical sync disabled, unless an application specifically requests that it be enabled. **On by default** will keep vertical sync enabled, unless an application specifically requests that it be disabled.
- **Use up to _ MB of system memory for textures in PCI mode** allows the graphics processor to utilize up to the specified amount of system memory for texture storage (in addition to the memory installed on the display adapter itself). This setting applies only to PCI display adapters (or AGP display adapters running in PCI compatibility mode). Note that the maximum amount of system memory that can be reserved for texture storage is calculated based on the amount of physical RAM installed in your computer. The more system RAM, the higher the value you will be able to set.
- **Save As** . . lets you save the current settings as a custom "tweak". Saved settings will then be added to the adjacent list. Once you have found the optimal settings for a particular OpenGL application, saving the settings as a custom tweak allows you to quickly configure OpenGL before starting the program and eliminates the need to set each of the options individually.
- **Custom OpenGL settings** displays a list of the custom settings (or "tweaks") you have saved. Selecting an item from the list will activate the setting. To apply the setting, click OK or Apply.
- **Delete** lets you delete the custom setting currently selected in the Custom OpenGL settings field.

Direct3D Settings

- **Enable fog table emulation** is used to turn fog table emulation *on* or *off*. Direct3D specifies that a display adapter capable of D3D hardware acceleration should be able to implement either vertex fog or table fog. Some games do not correctly query the Direct3D hardware capabilities and expect table fog support. Enabling this option ensures that these games will run properly with your NVIDIA graphics processor.
- **Adjust Z-buffer depth to rendering depth if unequal** forces the hardware to automatically adjust the depth of its Z-buffer to the depth that the application requests. Normally, you will want to keep this option enabled, unless your application absolutely requires a specific Z-buffer depth. If this

option is disabled, any application with a working Z-buffer depth that does not match that of the current hardware configuration will not run.

- **Enable alternate depth buffering technique** enables an alternate technique for depth buffering, which lets the hardware use a different mechanism for depth buffering in 16-bit applications. Enabling this setting can produce higher quality rendering of 3D images.
- **Display logo when running Direct3D applications** enables the NVIDIA logo in Direct3D. Enabling this setting will display the NVIDIA logo in the lower corner of the screen while running Direct3D applications.
- **Mipmap detail level** allows you to adjust the LOD (Level of Detail) bias for mipmaps. A lower bias will provide better image quality, while a higher bias will increase application performance. You can choose from five preset bias values, varying from "Best Image Quality" to "Best Performance".
- **PCI Texture Memory Size** allows the graphics processor to utilize up to the specified amount of system memory for texture storage (in addition to the memory installed on the display adapter itself). Note that the maximum amount of system memory that can be reserved for texture storage is calculated based on the amount of physical RAM installed in your computer. The more system RAM, the higher the value you will be able to set.

  This setting applies only to PCI display adapters (or AGP display adapters running in PCI compatibility mode).
- **Save As . .** .lets you save the current settings (including those set in the "More Direct3D" dialog) as a custom "tweak". Saved settings will then be added to the adjacent list. Once you have found the optimal settings for a particular Direct3D game, saving the settings as a custom tweak allows you to quickly configure Direct3D before starting the game and eliminates the need to set each of the options individually.
- **Custom Direct3D settings** displays a list of the custom settings (or "tweaks") you have saved. Selecting an item from the list will activate the setting. To apply the setting, click OK or Apply.
- **Delete** lets you delete the custom setting currently selected in the Custom D3D Settings field.
- **Restore Defaults** restores all settings to their default values.

More Direct3D

- **Texel Alignment** changes the hardware texture-addressing scheme for texels (texture elements). Changing these values will change where texel origin is defined. The default values conform to the Direct3D specifications. Some software may expect the texel origin to be defined elsewhere. The image quality of such applications will improve if the texel origin is redefined. Use the slider control to adjust the texel origin between the upper left corner and the center of the texel.

Direct3D Anti-aliasing

- **Hardware Antialiasing Control** allows you to determine the amount of anti-aliasing used in a particular Direct3D application. Anti-aliasing is a technique used to minimize the "stairstep" effect sometimes seen along the edges of 3D objects. Your selection can range from turning anti-aliasing completely *off* to selecting the maximum amount possible for a particular application.
- **Force antialiasing in all applications** forces anti-aliasing in applications that do not directly support anti-aliasing.

  Note: Some applications that do not explicitly support anti-aliasing may not display properly, or may render irregular images. *Use this option with care*. Turn this option *off* if you experience display problems with a game or application that does not support anti-aliasing.