# Drivers for Windows®
# *Detonator 3 v12.41 Features & Enhancements*

**Version 12.41 (revision 2)**

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# Table of Contents

## 9. Additional Features and Enhancements



## A. NVIDIA Dual-Card Configuration: An Example on Windows 2000

# List of Tables

# List of Figures

CHAPTER 1

# INTRODUCTION

This document explains the features and enhancements of the Detonator 3 v12.41 for Windows driver, which is the commercial name for the Release 10 driver.

This chapter contains the following sections:



**Note:** The document titled *NVIDIA Drivers: Release Notes* enables add-in-card (AIC) producers and original equipment manufacturers (OEMs) to monitor performance improvements and bug fixes in the driver.

## Notes and Conventions

- **NVIDIA single-display vs. dual-display cards:** To access TwinView and TwinView-based features using the NVIDIA Detonator 3 v12.41 for Windows driver, you need an NVIDIA dual-display card, such as a card in the NVIDIA GeForce2 MX or Quadro2 MXR family of products (*see* Table 1.3, "Supported NVIDIA Products" on page 3) and need to have two display devices connected to the card.

  Other non-TwinView features are supported by either single-display or dual-display cards; i.e., you can connect only one display device, such as a CRT (analog monitor) and access these features, provided the card supports these features.

**Note:** Most features that are new in the current Release 10 for Windows and some features are only supported by certain NVIDIA graphics cards, as specified in "Release 10 Enhancements" on page 4.

- **Windows NT 4.0/2000 Screens**: The Windows 2000 screens shown in this document also apply to Windows NT 4.0; exceptions are noted, where applicable.
- **Examples (GeForce2 MX & GeForce3):** For example purposes, the screen images generally show the NVIDIA GeForce2 MX (for dual-display TwinView functionality) and the GeForce3 product. You may be using a different NVIDIA dual-display card, such as a GeForce2 Go, a Quadro2 MXR product, or similar product. You may also be using a single-display NVIDIA product for non-TwinView features and functionality.
- **Terminology:** Table 1.1, "Terminology." lists basic terms and their synonyms used in this document.

**Table 1.1** Terminology

| Primary Term | Synonym(s) |
|---|---|
| analog monitor | CRT |
| control panel | panel, window |
| Detonator 3 v12.41 for Windows driver | Release 10 driver |
| digital flat panel | DFP |
| display device | output device |
| "Extend my Windows desktop onto this monitor" (Windows 9*x*) | Extended Desktop feature; Span mode |
| Horizontal Span mode | Span mode |
| NVIDIA dual-display graphics card *OR* NVIDIA TwinView-based card | GeForce2 MX™<br>GeForce2 MX 400™<br>GeForce2 MX 200™<br>GeForce2 MX 100™<br>GeForce2 Go™<br>Quadro2 MXR™ |
| primary display | display 1 |
| Release 10 driver | any Detonator 3 driver version 1x.xx |
| secondary display | display 2 |
| Vertical Span mode | Span mode |

# Operating Systems and NVIDIA Products

The NVIDIA Detonator 3 v12.41 for Windows driver is designed for the following Microsoft operating systems:

- Microsoft Windows XP Home Edition and Windows XP Professional
- Microsoft Windows 2000 and Windows NT 4.0
- Microsoft Windows Millennium Edition (Me)
- Windows 98 and Windows 95 (collectively referred to as Windows 9*x)* running on AGP-based and PCI-based hardware

The release requires 2 MB of disk space. Each operating system also has the specific requirements shown in Table 1.2

**Table 1.2** Operating System Requirements

| OS | Minimum Requirements |
|---|---|
| Windows XP | Beta2 release |
| Windows 2000 | |
| Windows NT 4.0 | Service Pack 4 |
| Windows Me | |
| Windows 98 | Microsoft DirectX 5 |
| Windows 95 | OSR2 (OEM Service Release 2) with USB supplement for full AGP support |
| | Microsoft `OPENGL32.DLL` |
| | Microsoft DirectX 5 |

Table 1.3 lists the NVIDIA products supported by the NVIDIA Release 10 Drivers driver.

**Table 1.3** Supported NVIDIA Products

| NVIDIA Desktop Products | NVIDIA Workstation Products |
|---|---|
| GeForce3™ | Quadro DCC™ |
| GeForce2 Ultra™<br>GeForce2 Pro™<br>GeForce2 GTS™ | Quadro2 Pro™ |
| GeForce2 MX™ [1]<br>GeForce2 MX 400™ [2]<br>GeForce2 MX 200™ [3]<br>GeForce2 MX 100™ [4]<br>GeForce2 Go™ [5] | Quadro2 MXR™ [6]<br>Quadro2 EX™ |
| GeForce 256™ | Quadro™ |

**Table 1.3** Supported NVIDIA Products (continued)

| NVIDIA Desktop Products | NVIDIA Workstation Products |
|---|---|
| RIVA TNT2™ family<br>RIVA TNT2 Ultra<br>RIVA TNT2 Pro<br>RIVA TNT2<br>RIVA TNT2 M64<br>NVIDIA Vanta™<br>NVIDIA Vanta LT | --- |
| RIVA TNT™ | --- |

1. through 6: These products, in their dual-head versions, support the TwinView feature.

# Release 10 Enhancements

The Release 10 driver offers new features not found in previous releases of the NVIDIA Driver for Windows.

- Support for Microsoft DirectX® 8
- Support for Microsoft DirectX® VA 1.0.
- Support for stereoscopic viewing

  **Note:** To use the stereoscopic viewing feature, you need to obtain the NVIDIA Stereoscopic Driver software, which is not part of the standard NVIDIA Release 10 for Windows Drivers package.
- Special Quincunx antialiasing option ("GeForce3: Additional Quincunx Antialiasing Setting" on page 128*)* for enhanced image quality and performance under the NVIDIA GeForce3 video graphics card.
- Support for the GeForce3 ("The GeForce3 Product" on page 5) video graphics card.

CHAPTER 2

# THE GEFORCE3 PRODUCT

## Features and Benefits

**Note:** For detailed technical information and documentation on the NVIDIA GeForce3 product, see the NVIDIA web site: www.nvidia.com.

The GeForce3 is often called the "infinite effects" graphics processing unit (GPU). By utilizing technology such as the **nfiniteFX™ engine**, **Lightspeed Memory Architecture**, and **high-resolution antialiasing (HRAA)**, GeForce3 produces spectacular graphics in real time.

**nfiniteFX™** engine is the NVIDIA programmable Vertex and Pixel Shaders, collectively. The nfiniteFX engine allows developers the freedom to program a virtually infinite number of custom special effects in order to create life-like characters and environments.

**Vertex Shaders** are used to breathe life and personality into characters and environments. For example, through vertex shading, software developers can create true-to-life dimples or wrinkles that appear when a character smiles.

**Pixel Shaders** alter lighting and surface effects that replace artificial and computerized appearances of images with materials and surfaces that mimic reality.

**Lightspeed Memory Architecture™** is the NVIDIA memory bandwidth optimizations designed to make complex scenes render much faster. These optimizations make **full-scene antialiasing (FSAA)** practical and enable users to enjoy high-resolution antialiasing.

**High-Resolution Antialiasing (HRAA)** delivers fluid frame rates of 60 frames per second or more at high resolutions (e.g., 1024x768x32 or higher) with full-scene antialiasing (FSAA) turned on.

Featuring the **Quincunx Antialiasing (AA) mode** *(see* "GeForce3: Additional Quincunx Antialiasing Setting" on page 128*)*, HRAA delivers a high level of detail and performance for all applications.

**DDR Memory Interface**: 7.36GB per second memory subsystem ensures peak performance and the smoothest frame rates.

**High-Definition Video Processor (HDVP)** can turn your PC into a fully functional DVD player, and an HDTV player with the purchase of an additional third-party decoder.

**AGP 4X/2X and AGP Texturing Support** take advantage of new methods of transferring information more efficiently and allow content developers to use high-quality, 32-bit color textures and high-polygon-count scenes.

**Microsoft DirectX® 8.0 and OpenGL® Optimizations** ("OpenGL Settings" on page 119) **and Support** deliver the best performance and guarantees compatibility with all current and future applications and games. The GeForce3 product supports DirectX 8.0 features and special effects for the ultimate 3D experience.

**Unified Driver Architecture (UDA)** guarantees forward and backward compatibility with software drivers. This simplifies upgrading to a new NVIDIA product because all NVIDIA products work with the same driver software.

**TV-Out** ("TV Settings" on page 75) and **Video Modules** gives end users the option of big-screen gaming, digital timeshifting VCR, and video-editing applications.

# Accessing the GeForce3 Control Panel

The examples in this chapter make use of a GeForce3 card with three connectors:

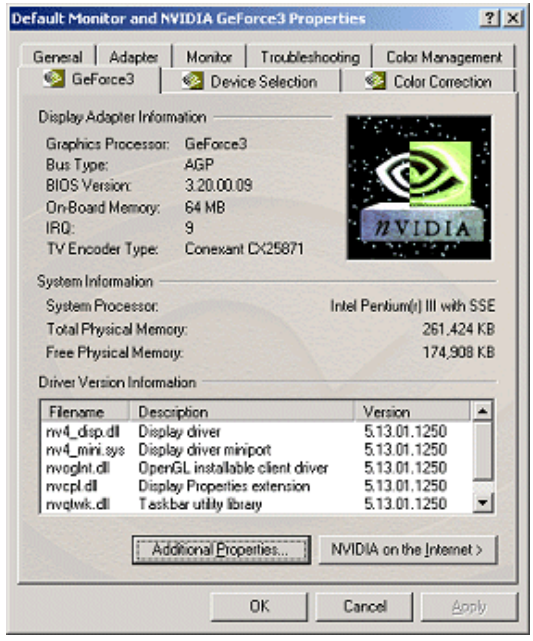
- **CRT** (analog monitor)
- **DFP** (digital flat panel) *and*
- **TV**

This means that the user of such a graphics card can choose to connect three different devices and switch among them or simply connect one of the devices and use that device. Your GeForce3 card may have anywhere between one and three connectors. So, you'll need to follow the example based on the number and type of connectors your card contains.

To access the GeForce3 control panel and its related panels of features, follow these steps:

1. Right-click on your Windows desktop to open the Windows context menu.
2. Click **Properties** and then the **Settings** tab to display the Windows Settings panel.
3. Click the **Advanced** button and then the **GeForce3** tab to display the GeForce3 control panel (Figure 2.1).

**Figure 2.1** GeForce3 Control Panel



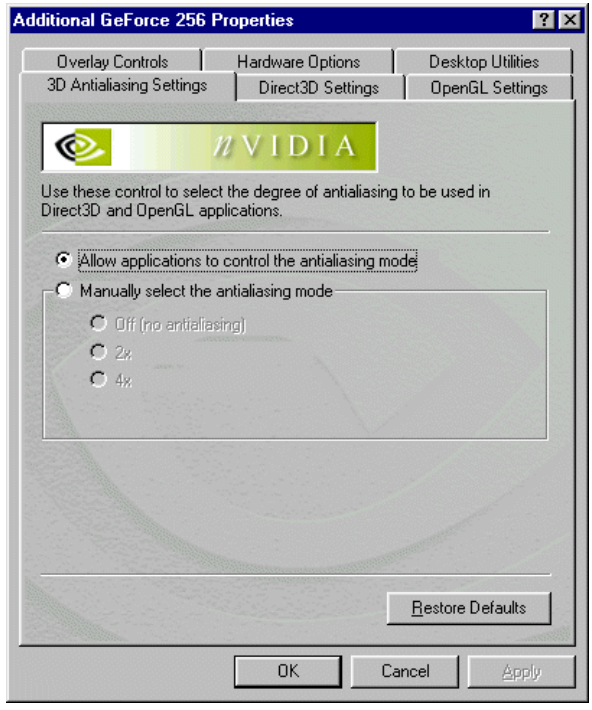
4 Click the **Additional Properties** button to display the 3D Antialiasing control panel (Figure 2.2).

- For details on the 3D Antialiasing control panel, *see* "3D Antialiasing Settings" on page 127.
- For details on the Direct3D Settings, click the **Direct3D Settings** tab and *see* "Direct3D Settings" on page 124.
- For details on OpenGL Settings, click the **OpenGL Settings** tab and *see* "OpenGL Settings" on page 119.
- For details on the Overlay Controls panel, click the **Overlay Controls** tab and see "Overlay Controls" on page 129.
- For details on the Desktop Utilities panel, click the **Desktop Utilities** tab and see "Desktop Utilities" on page 113.

5 Click **OK** to return to the GeForce3 control panel.

- To access the Device Selection Panel, click the **Device Selection** tab and see "Device Selection & Configuration" on page 65.
- To access the Color Correction panel, click **Color Correction** and see "Color Correction" on page 116.

**Figure 2.2** 3D Antialiasing Control Panel



CHAPTER 3

# GeForce2 MX Family of Products:TwinView Applications

TwinView is a Detonator 3 v12.41 for Windows driver feature that supports connecting dual displays using a single NVIDIA dual-display graphics card, such as an NVIDIA card in the GeForce2 MX or Quadro2 MXR family of products.

Using TwinView, a Windows desktop user can 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.

This chapter contains the following 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

Setting up a dual-display graphics card involves installing the card on a PC, attaching the two display devices to the PC, and installing the current version of the NVIDIA Detonator 3 v12.41 for Windowsdriver. After rebooting the PC, the multiple display modes of the graphics cards installed are fully functional.

For detailed information on using and configuring the TwinView options, see the following chapters:

- "TwinView Basics for GeForce2 MX Family Of Products: Windows NT/ 2000" on page 39
- "TwinView Basics for GeForce2 MX Family of Products: Windows 9x" on page 13

# TwinView Applications

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

**Training and Presentation:** TwinView **Clone mode**, 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.**Virtual Desktop**, a sub-feature of TwinView Clone Mode, is useful for flat panels and monitors with limited resolution and is used to set a larger than viewable area on the second display, which supports full pan-and-scan of the entire desktop area.

**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** can utilize one large PC display and one NTSC monitor. Since the NVIDIA dual-display card 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 utilize 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 with a large screen TV as one output device.

**Home theater systems** can utilize the DVD capabilities of the PC running TwinView using the Video Mirror feature. 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 feature, you can watch TV and any other video while you work.

CHAPTER 4

# TWINVIEW BASICS FOR GEFORCE2 MX FAMILY OF PRODUCTS: WINDOWS 9X

Under Windows 9x, if you are using a dual-display graphics card such as a GeForce2 MX, GeForce2Go, or Quadro2 MXR, you can enable the TwinView feature. TwinView offers the following display modes:

- "Standard Mode" on page 17
- "Clone Mode" on page 24

Your NVIDIA dual-display graphics card supports the Windows Extended Desktop feature. To use this feature, see "Extended Desktop (Windows 98/Me)" on page 31.

This chapter assumes you have an analog monitor (**CRT**) and either a digital flat panel (**DFP**) and/or a **TV** attached to your NVIDIA dual-display graphics card. Follow the appropriate examples based on the display device(s) attached to your computer.

**Note:** If you have only one display device connected, see the **Note** in "Accessing the TwinView Panel".

# Accessing the TwinView Panel

**Note: If you have only one display device connected,** the TwinView panel will only have Standard (single-display) mode enabled and Clone mode disabled. In this configuration, you will not have TwinView features such as Clone mode (Virtual Desktop), Video Mirror, and Desktop Manager. However, you can access the features available through the **Additional Properties** button on the GeForce2 MX control panel, provided these features are not dependent on TwinView.

**To access the TwinView panel when you have *one* display device attached**, you can follow the basic steps below, noting any exceptions, where documented.

To access the TwinView control panel and both the Standard and Clone mode features, follow these steps:

1. **For dual-display functionality, be sure you have at least two display devices**, such as an analog monitor and a digital flat panel (DFP) or TV, connected to your NVIDIA dual-display card.
2. Make sure the cable connections for your devices are well secured from the device to the graphics card installed on your computer.

   If you are connecting a TV, be sure you have the proper cables and connectors that apply to your TV.
3. Right-click on your Windows desktop and then click **Properties > Settings** tab to display the Settings panel (Figure 4.1). If you have only one display device connected, go directly to step 7.
4. Be sure that the option "Extend my Windows desktop onto this monitor." is *not checked.*If the option is checked, follow these steps:
   a. Right-click monitor icon **2** to display the context menu.
   b. Click the checked **Enable** option to uncheck it (Figure 4.2).
5. Click **Apply** and then **OK** to leave the Settings panel.
6. Right-click on your Windows desktop, click **Properties > Settings** tab to display the Settings panel again.
7. Click the **Advanced** button to display NVIDIA Properties panels (Figure 4.3).
8. Click the **GeForce2 MX/MX 400** tab to display the GeForce2 MX.MX 400 control panel (Figure 4.4). This NVIDIA product panel provides basic information about your display adapter, system, and the NVIDIA driver files and versions you installed.
9. Click the **TwinView** tab to display the TwinView control panel (Figure 4.5).

**Figure 4.1** Display Properties Settings: Windows 98

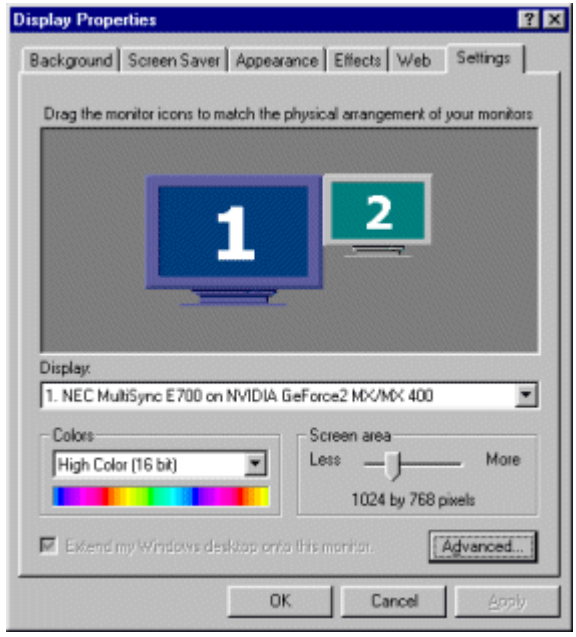



**Figure 4.2** Disabling Extended Desktop: Windows 98

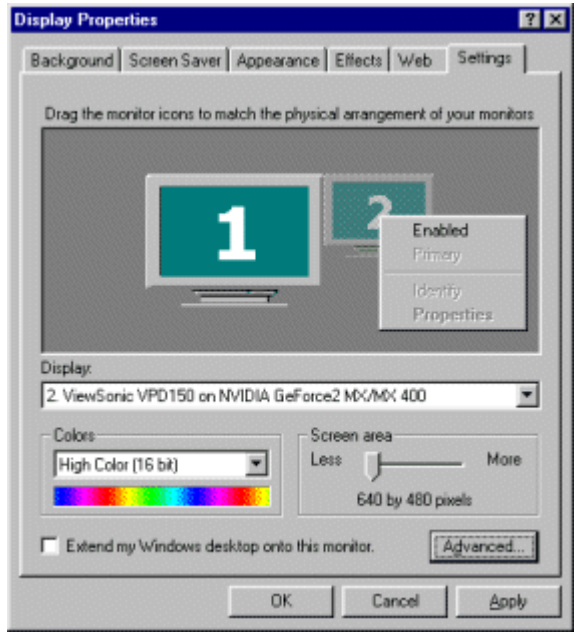


**Figure 4.3** GeForce2 MX/MX 400 Properties Panels: Windows 98

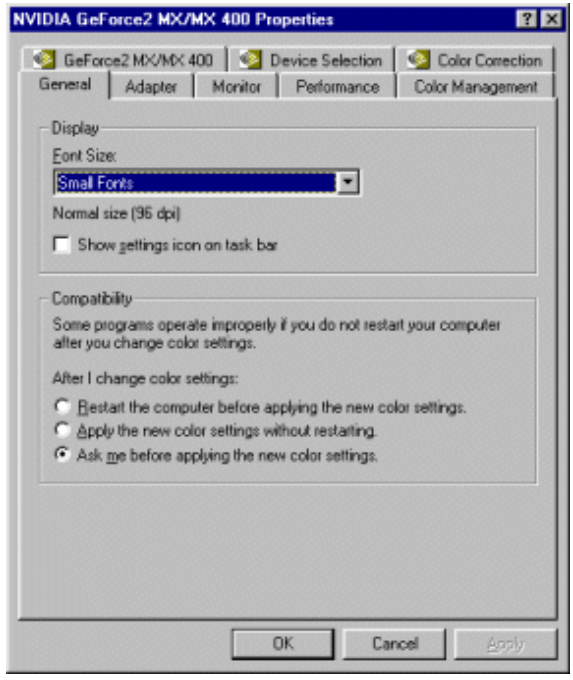
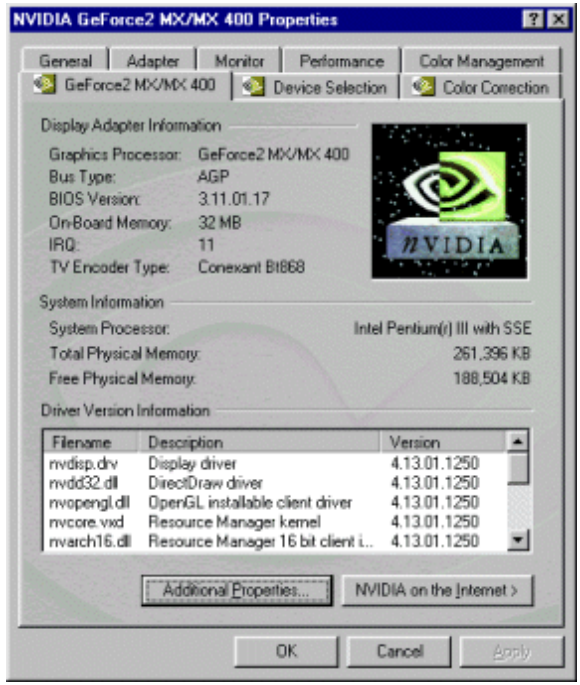



**Figure 4.4** GeForce2 MX Control Panel: Windows 98



# Accessing the Configuration Options

On the TwinView panel, the monitor icon numbered **1** represents the primary display device. In **Standard** mode, there is only one monitor icon. In **Clone** mode, the monitor icon numbered **1** represents the primary display device and the monitor icon numbered **2** represents the secondary display device. To access the configuration panels for Twin View modes, use any *one* of these procedures:

- Click the monitor icon (**1** or **2**) to display a context menu of options and click the option you want; *or*
- Click the down arrow in the **Display** field to select the display device (i.e., **TwinView Display 1** or **TwinView Display 2** if you have multiple display devices) you want to configure. Then left-click the **Device Settings** button to display a context menu of options and select the option you want.

# Standard Mode

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

To access TwinView Standard mode,

1. Click the **Standard** option on the TwinView control panel
2. Click **Apply**.

Figure 4.5 shows analog monitor (CRT) as the primary display device (Display 1). If you have a DFP and/or a TV connected to your NVIDIA card, you can choose to display on the DFP or TV instead of the CRT. The next section explains how to switch between these devices.

Figure 4.6 shows a TwinView panel when only one display device, such as an analog monitor (CRT), is attached. Note that the Clone mode option is disabled in this case.

**Note: Force detection of a monitor on the secondary connector** is a check box on the TwinView control panel and is normally disabled (grayed out) as shown in Figure 4.5. Check this box if you have a monitor connected to the secondary display connector that is not being detected. This is useful for older monitors or monitors connected with BNC connectors.

**Figure 4.5** TwinView Std (dual-display) with Context Menu: Windows 98

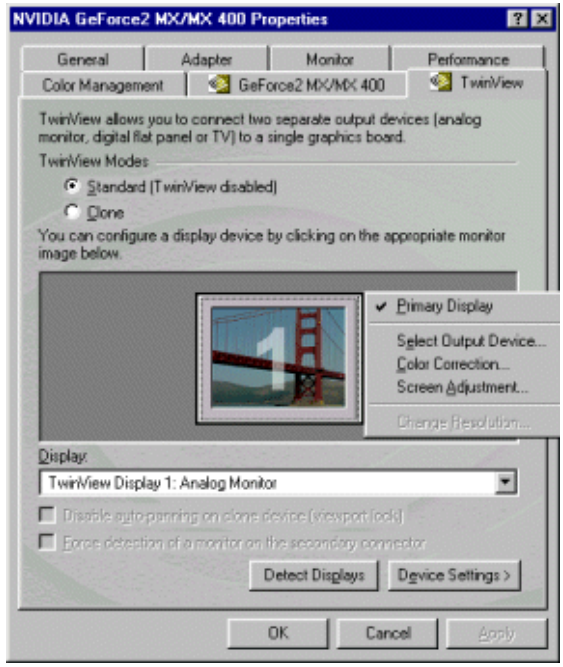
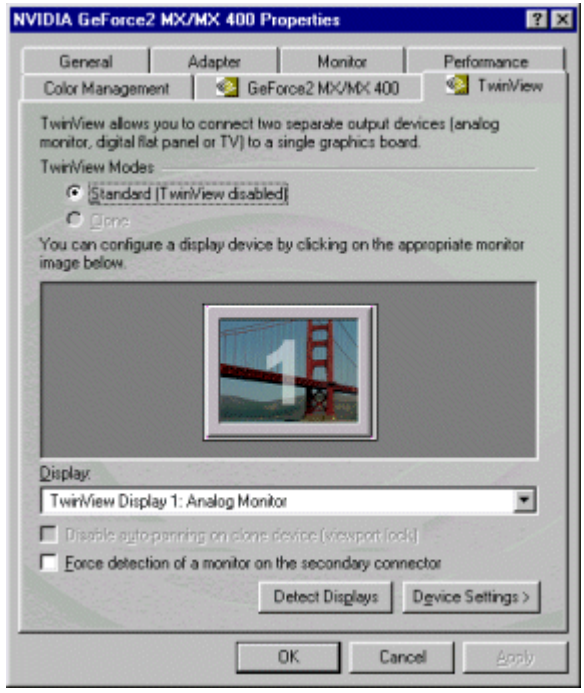



**Figure 4.6** TwinView Std. Mode (single-display) Context Menu: Windows 98



# Switching Display Device: Standard Mode

## Primary Display

Figure 4.5 on the previous page shows TwinView Standard Mode with analog monitor as the primary display; **Primary Display** is checked in the context menu.

## Select Output Device

**Note:** This section does not apply if you have only one display device attached.

Follow these steps to switch output devices in Standard mode:

1 Right-click the monitor icon to display the context menu (Figure 4.5) and click **Select Output Device** to display the Device Selection panel. The Device Selection panel correctly shows analog monitor as the selected output device for this example.

**Figure 4.7** TwinView Device Selection (Analog Monitor): Windows 98


2 Click the **Digital Flat Panel** option (Figure 4.8) or the **TV** option (Figure 4.9) and click **Apply**.

An NVIDIA display settings message appears, as shown in Figure 4.10 Figure 4.11.

**Figure 4.8** TwinView Device Selection (Digital Flat Panel): Windows 98


**Figure 4.9** TwinView Device Selection (TV): Windows 98

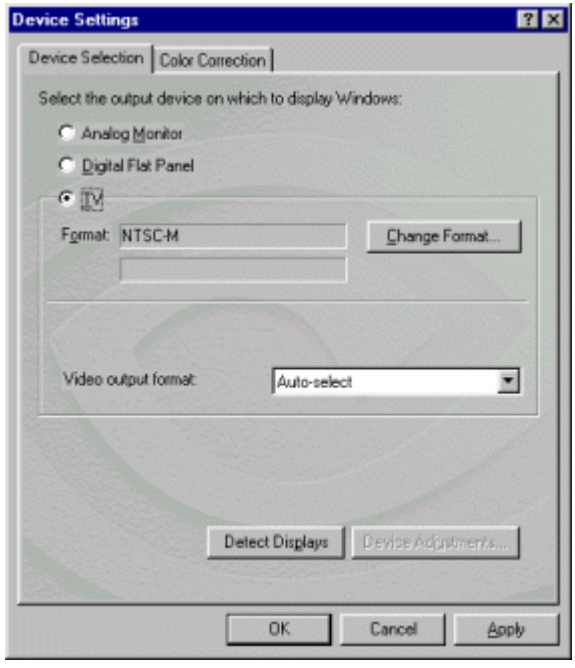
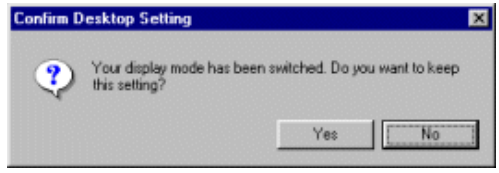


**Figure 4.10** Switching Output Device Message: Windows 98


**3** Click **OK** *before* the message times out.Your analog monitor screen will be blank for a few seconds followed by a Confirm Desktop Settings message in Figure 4.11, which shifts to your secondary display device (DFP or TV).

**Figure 4.11** Switching Output Device Message: Windows 98



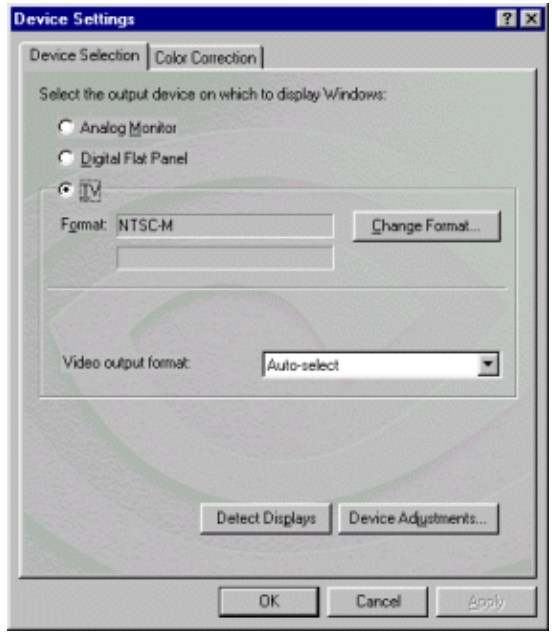

**4** Click **Yes** to remove the message *before* it times out. The Device Selection panel and your entire Windows desktop appears on the secondary display device (TV or DFP).

**For DFP**, the Digital Flat Panel option is enabled in the Device Selection panel (Figure 4.12).

**Figure 4.12** DFP Option Enabled on Digital Flat Panel Display: Windows 98


**For TV**, the TV option is enabled in the Device Selection panel (Figure 4.13).

**Figure 4.13** TV Option Enabled on TV Display: Windows 98




**5** Click **OK** on the Device Selection panel to view the main TwinView panel showing your DFP (Figure 4.14) or TV (Figure 4.15) as the Primary display.

**Figure 4.14** TwinView Std. Mode (Display 1 = DFP): Windows 98

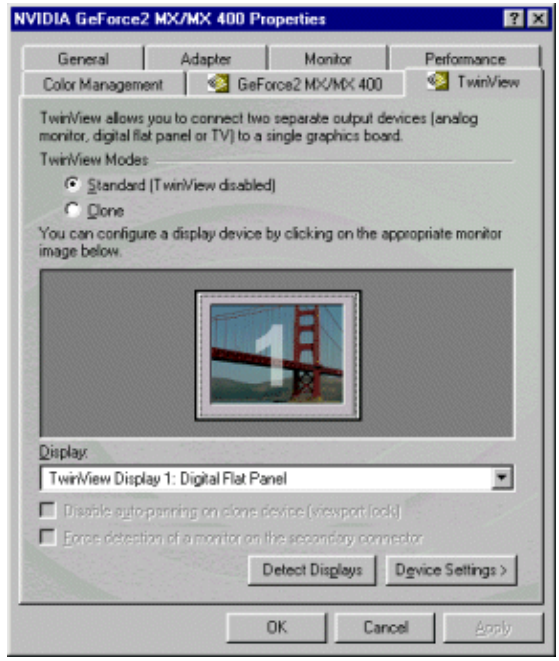


**Figure 4.15** TwinView Std. Mode (Display 1 = TV): Windows 98


6 To switch back to the CRT or DFP, you can follow the procedures in this section, substituting either the **Analog Monitor** or the **Digital Flat Panel** option on the Device Selection panel, as applicable.

# Clone Mode

**Note:** This section does not apply if you have only one display device attached.

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.

**Note: Under Clone mode, when you switch to full-screen Microsoft DOS window or boot to a DOS prompt, the display is limited to the primary display device.**

The example in this section starts with the analog monitor (CRT) as the primary display.

1 **To access TwinView Clone mode,** click the **Clone** mode option on the TwinView control panel and click **Apply**.

Your DFP display becomes enabled and you can see your current screen duplicated on the clone (DFP) display.

Figure 4.16 shows the TwinView Clone mode panel with the context menu on the primary display (analog monitor). Figure 4.17 shows the TwinView Clone mode panel with the context menu on the secondary display (DFP). The **Disable auto-panning on the Clone device (viewport lock)** is added to the control panel.(For details on using this option, see "Change Resolution: Clone Mode (Virtual Desktop)" on page 30. To use the configuration options in the context menu, proceed to the sections that follow

**Figure 4.16** TwinView Clone Mode Menu (Display 1 = CRT): Windows 98

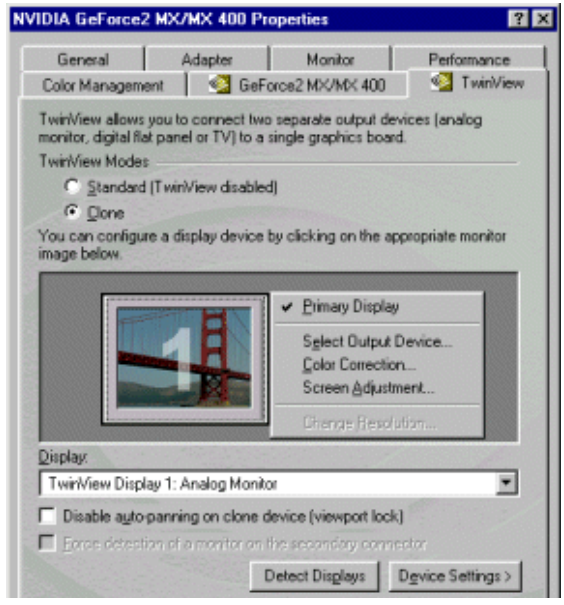
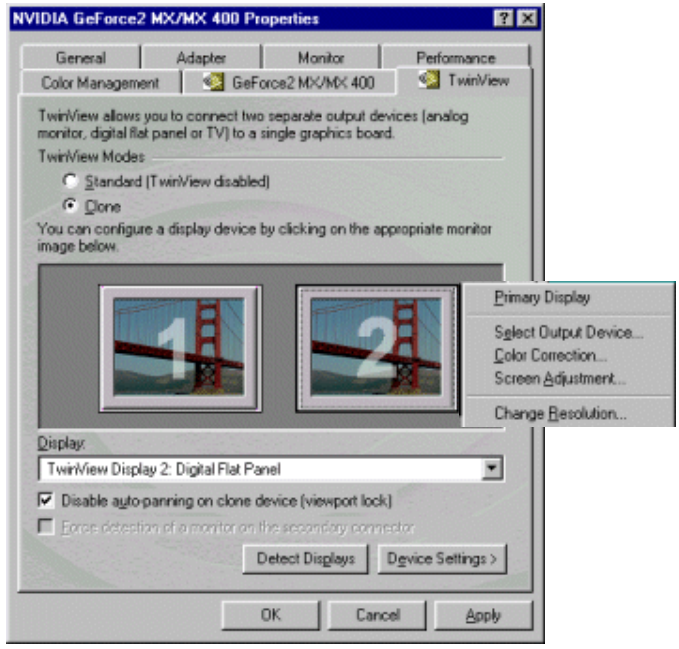


**Figure 4.17** TwinView Clone Mode Menu (Display 2 = DFP): Windows 98




2 To use the configuration options in the context menu, proceed to the sections that follow.

## Switching Secondary Displays: Clone Mode

**Note:** This example assumes the primary display is the analog monitor (CRT), the DFP is the secondary display, and you are switching from DFP to TV. You can use a similar procedure to switch from TV to DFP as the secondary display.

1 Right-click monitor icon **1** to view the context menu (Figure 4.16). Notice that the **Primary Display** option is checked on the context menu and the **Display** field indicates that the analog monitor is the primary display.

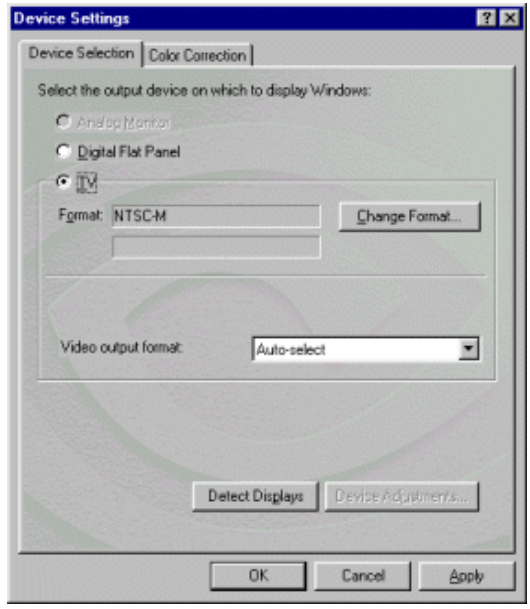
2 Right-click monitor icon **2** to view the context menu (Figure 4.17). Notice that **Primary Display** is *not checked* on the context menu and the **Display** field indicates that the digital flat panel is the secondary display.

3 If you have a TV connected and want to switch to TV as the secondary display, right-click monitor icon **2** to access the context menu and choose **Select Output Device** to display the Device Selection panel.

4 Select the **TV** option as shown in Figure 4.18 and click **Apply**. A message appears indicating that Windows will switch your desktop to the selected settings.

**5** Click **OK** to remove the message. Your analog monitor becomes blank for a few seconds followed by a message titled Confirm Desktop Settings, which

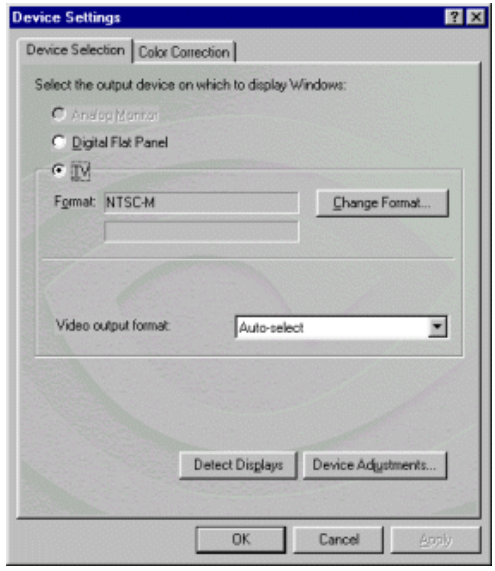
**Figure 4.18** TwinView Clone Device Selection TV Option: Windows 98




now switches to your secondary display device, the TV.

**6** Click **Yes** to remove the message box. The Device Selection panel appears on your TV display as shown in Figure 4.19.

**Figure 4.19** TwinView Clone Device Selection Panel on TV: Windows 98



7 Click **OK** to view the main TwinView panel showing your TV as the secondary display (Figure 4.20).

**Figure 4.20** TwinView Clone Mode (Display 2 = TV): Windows 98


## Switching Secondary to Primary Display: Clone Mode

**Note:** The example in this section changes DFP or TV from a secondary to a primary display.

1 Right-click monitor icon **2** (secondary display) to view the context menu.

2 Click **Primary** to check the option. The context menu is removed.

3 Click **Apply**. The NVIDIA Control Panel Exit Requirement message appears.

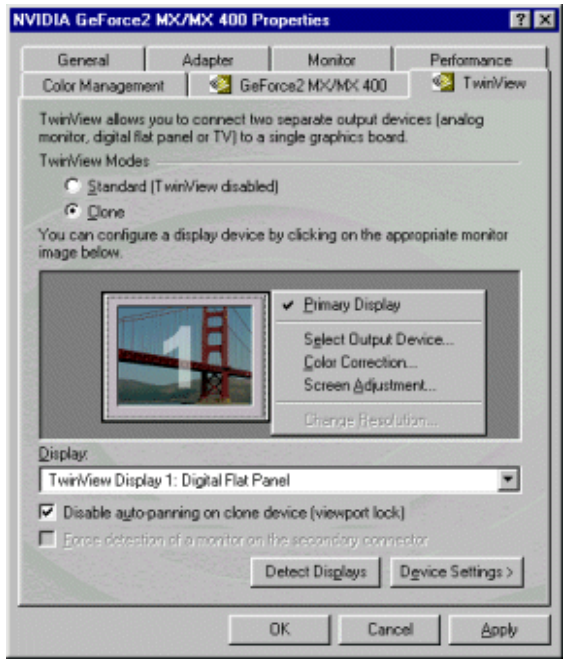
4 Click **OK** to remove the message. The screen becomes blank for a few seconds and the Settings panel appears.

5 Click the **Advanced** button and then the **TwinView** tab.

6 To verify that the DFP or TV is now the primary display, right-click monitor icon **1** to view the context menu.

**Primary Display** is checked on the context menu and the Display field shows **TwinView Display 1: Digital Flat Panel** (Figure 4.21) or **TwinView Display 1: TV** (Figure 4.22).

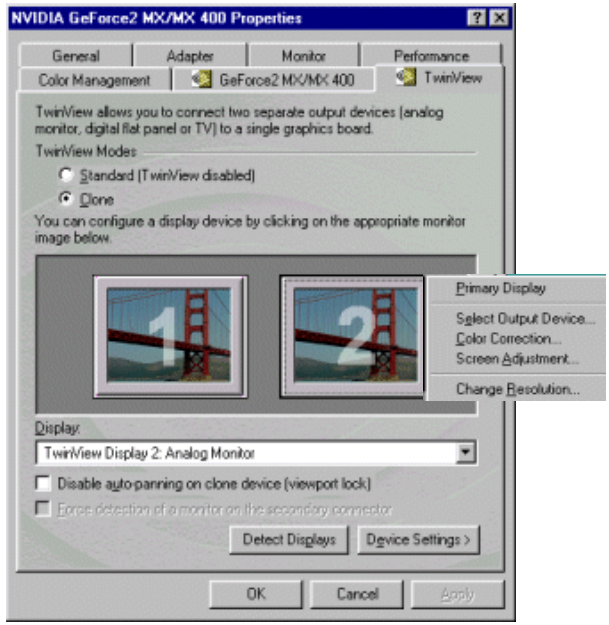
**Figure 4.21** TwinView Clone Mode (Display 1 = DFP): Windows 98




**7** To verify that the analog monitor is now the secondary display, right-click monitor icon **2** to view the context menu. The *Primary option is not checked* on the context menu and the **Display** field shows TwinView Display 2: Analog Monitor (Figure 4.23).

**Figure 4.22** TwinView Clone Mode (Display 1 = TV): Windows 98


**Figure 4.23** TwinView Clone Mode (Display 2 = CRT): Windows 98



## Change Resolution: Clone Mode (Virtual Desktop)

You can use the Change Resolution option to modify Resolution and Refresh Frequency for the secondary display, which allows you to enable **Virtual Desktop**, a useful feature for panels and monitors with limited resolution. This feature lets you pan-and-scan the entire desktop area on the secondary display, when its resolution is set to less than the value set on the primary display.

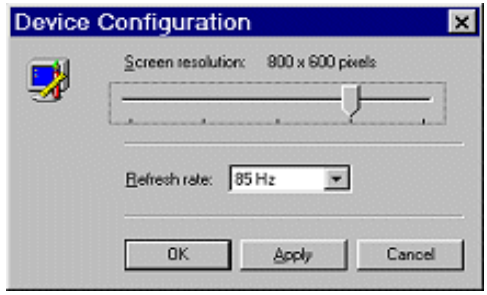
**Note:** If the maximum resolution of the secondary display is less than the current resolution of the primary display, once you enable Clone mode from the TwinView panel, Virtual Desktop will already be enabled. However, you still may want to adjust the resolutions of the primary and/or secondary device by using the Device Configuration dialog box (Figure 4.24) for the secondary display or the Windows Settings control panel of your primary display.

Follow these steps to enable Virtual Desktop:

1 From the TwinView panel, right-click monitor icon **2** (secondary display) to display the context menu and select **Change Resolution** to display the Device Configuration dialog box (Figure 4.24).

**Note:** If you do not see the Change Resolution option on the display 2 context menu, adjust (increase) the resolution of the primary display until the Change Resolution option becomes available from the display 2 context menu.

**Figure 4.24** TwinView Clone Mode Device Configuration: Windows 98




2 Use the slider (Figure 4.24) to set the screen resolution to a value that *is not equal* to the screen resolution on the Windows Settings control panel of your primary display.

**Note:** If you set the same screen resolution value for both primary and secondary displays, you cannot use your secondary device for the Virtual Desktop, i.e., to pan/scan the desktop; both displays will remain static.

3 *Optional:* If you want, select a **Refresh rate** from the list box.

4 Click **Apply** and **OK**. Notice that the resolution of your secondary display changes and you can use your mouse to pan and scan the desktop on this secondary display.

5 If you want to lock the display position of the secondary display, check the **Disable auto-panning on the clone device (viewport lock)** check box on the TwinView panel (Figure 4.23).

# Extended Desktop (Windows 98/Me)

The Windows Extended Desktop feature is supported by any dual-display NVIDIA graphics card in the GeForce2 MX or Quadro2 MXR family of products or any two NVIDIA graphics cards.

**Note:**

- Extended Desktop mode is not supported under Windows 95.
- Under Windows Extended Desktop mode, when you switch to a full-screen Microsoft DOS window or boot to a DOS prompt, the display is limited to the primary display device.
- Under Extended Desktop mode, OpenGL-based applications will only run using Microsoft's software rendering implementation of OpenGL. This is due to a design limitation within Windows.

Follow these steps to enable Windows Extended Desktop mode:

1 Make sure you have two display devices attached to your dual-display NVIDIA card.

2 Right-click on your Windows desktop and click **Properties > Settings** tab. You will see the Settings panel with two monitor icons, as shown in Figure 4.25.

**Note:** If you are using an NVIDIA dual-display card **but have only one display device connected** (such as a CRT), you will see two monitor icons on the Settings panel even though only one display device is connected; you cannot enable the second display until you physically connect a second display device to the NVIDIA card.

3 Right click monitor icon **2** (Figure 4.26) and click **Enable** to check the option (Figure 4.27).

**Note:** If you get a Compatibility Warning message, read the message carefully. Then click **OK**

Notice that the "**Extend my Windows desktop onto this monitor**" check box becomes checked (Figure 4.27).

4 Click **Apply**.

For details on configuring Extended Desktop, see "Configuring Extended Desktop" on page 34.

5 Click the **Advanced** button.

Notice that the TwinView tab is not available when Extended Desktop is enabled (Figure 4.28).

**Figure 4.25** Display Settings: Windows 98

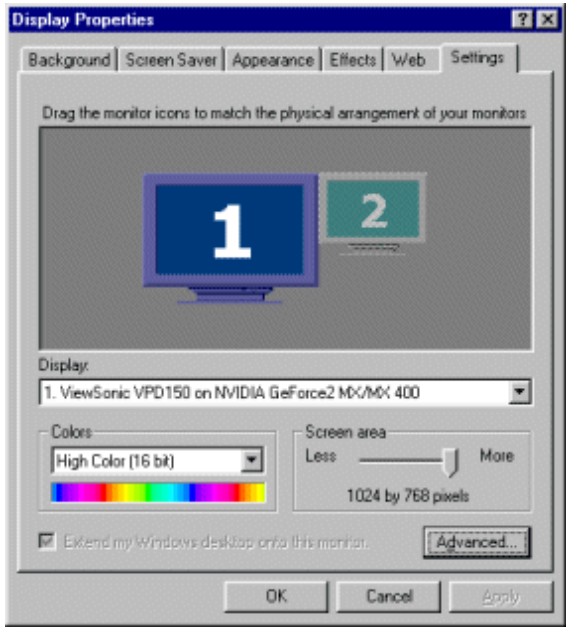


**Figure 4.26** Enabling Extended Desktop (1): Windows 98

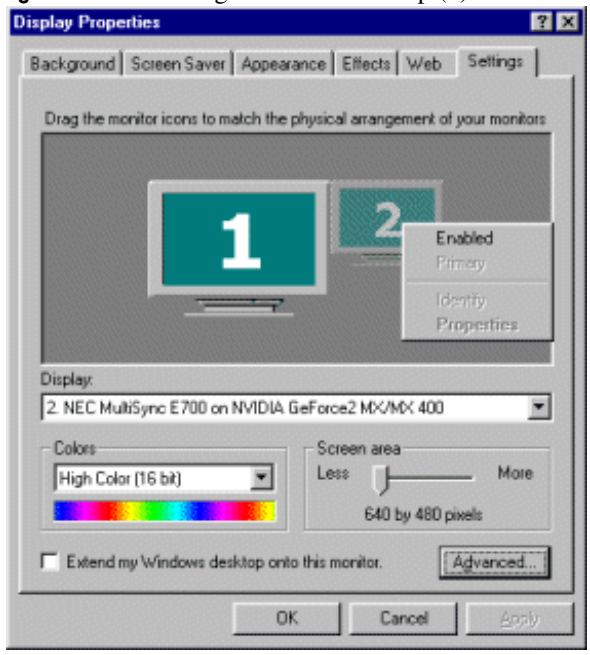



**Figure 4.27** Enabling Extended Desktop (2): Windows 98

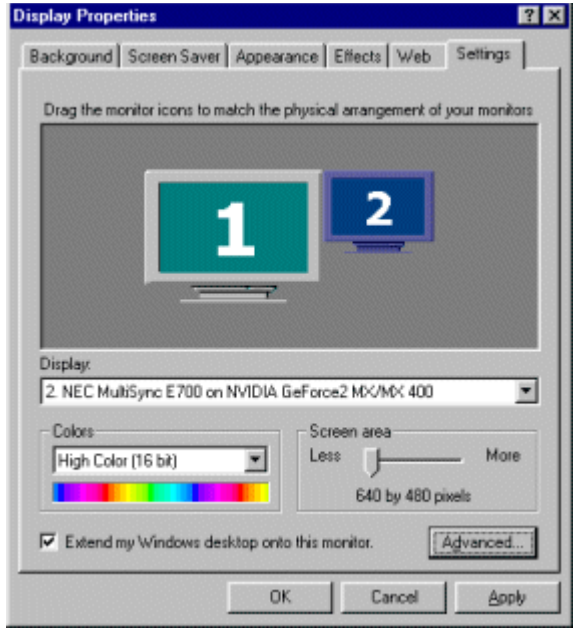
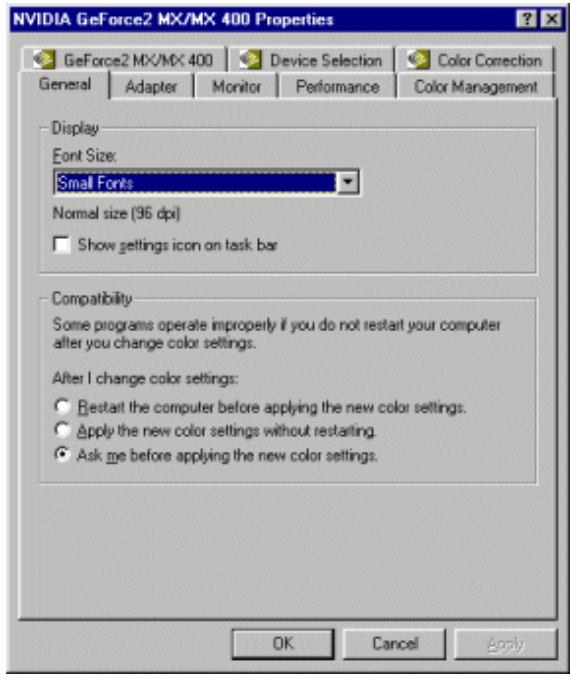


**Figure 4.28** TwinView Tab Disabled: Windows 98



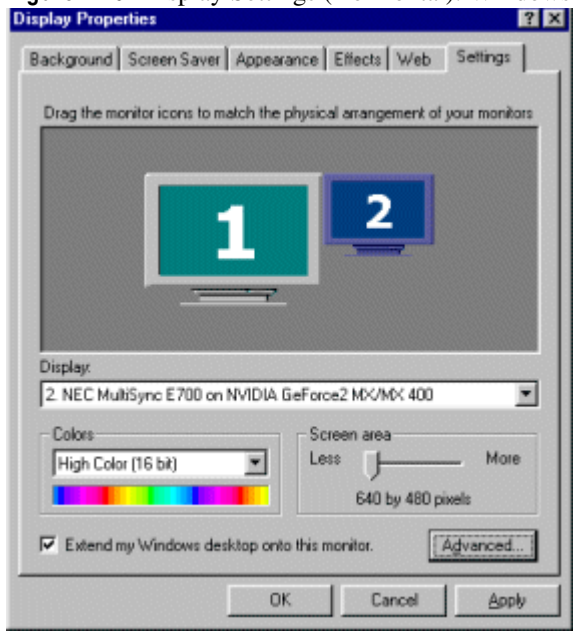

## Configuring Extended Desktop

In Windows Extended Desktop mode, the desktop area is spread across two displays. This mode can be set for multiple categories of displays, although display limitations may override the capabilities of your NVIDIA dual-display graphics card. For example, if the second display is an NTSC TV monitor, depending on the TV encoder on the graphics card, the resolution may not 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 can be extended horizontally, vertically, as well as at other angles by repositioning 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 4.29).

**Figure 4.29** Display Settings (Horizontal): Windows 98




- **To move items between monitors by dragging up and down**, position the icons one above the other (Figure 4.30).
- **To move items between monitors by dragging at an angle**, position the icons diagonally (Figure 4.31). 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 4.30** Display Settings (Vertical): Windows 98

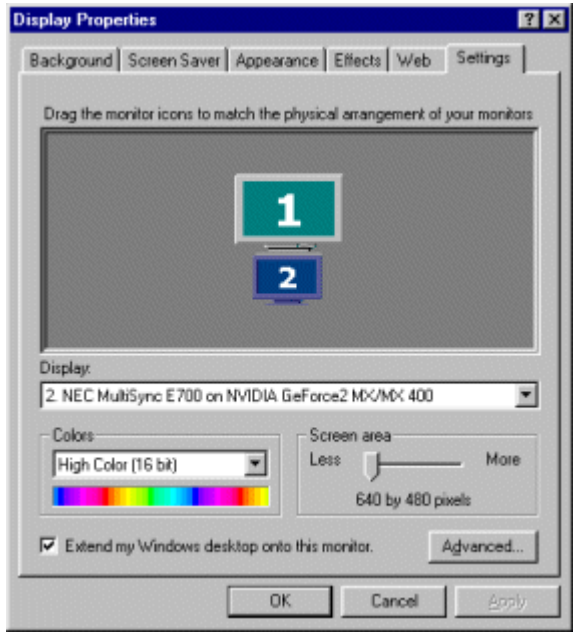
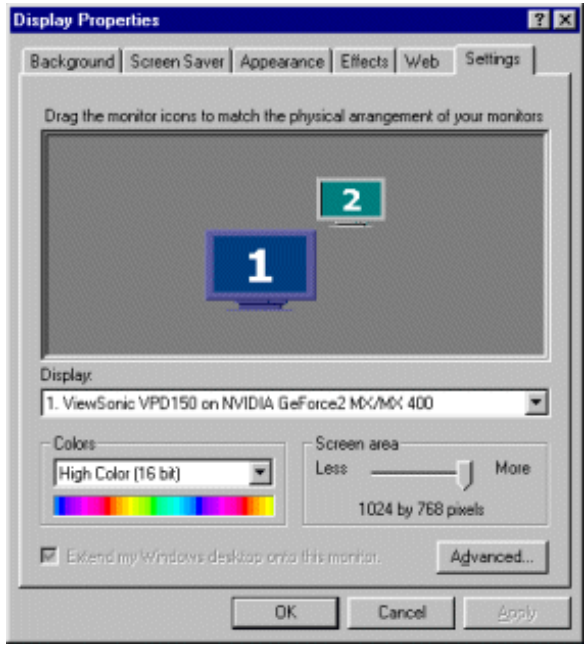



**Figure 4.31** Display Settings (Diagonal): Windows 98



# Other Configuration Options

For details on configuring display devices and additional features and enhancements of the Detonator 3 v12.41 for Windows driver, *see* the following chapters:

- "Device Selection & Configuration" on page 65.
- "Additional Features and Enhancements" on page 113.

CHAPTER 5

# TWINVIEW BASICS FOR GEFORCE2 MX FAMILY OF PRODUCTS: WINDOWS NT/2000

TwinView offers the following display modes under Windows NT/2000:


- "Standard Mode" on page 43
- "Clone Mode" on page 46
- "Horizontal & Vertical Span Modes" on page 57


This chapter assumes you have a CRT (analog monitor) and either a digital flat panel (DFP) and/or a TV attached to your NVIDIA dual-display graphics card that's installed in your computer. Follow the appropriate examples, depending on the display device(s) attached to your computer. (*See* "TV Settings" on page 75 for information on configuring your TV display.)

**Note:** If you have only one display device connected, see the **Note** in "Accessing the TwinView Panel" on page 40.

# Accessing the TwinView Panel

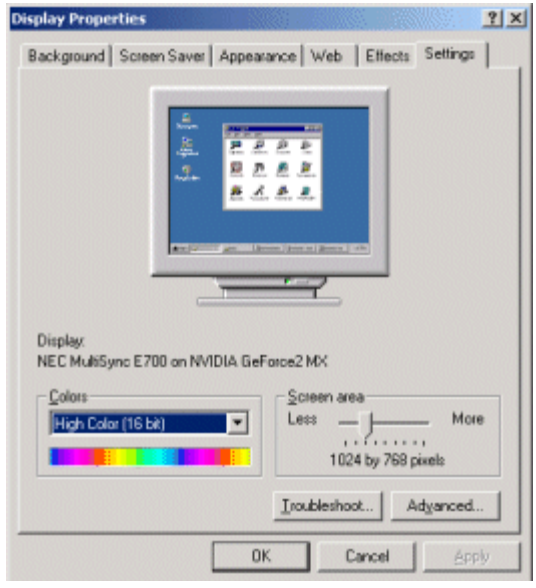
**Note: If you have only one display device connected,** the TwinView panel will only have Standard (single-display) mode enabled and Clone mode disabled. In single-display mode, you will not have TwinView Clone mode (Virtual Desktop) and Video Mirror functionality and will have *limited* Desktop Manager functionality. However, you can access the features available through the **Additional Properties** button on the GeForce2 MX (or other equivalent NVIDIA dual-display card) control panel, provided these features are not dependent on TwinView. To access the TwinView panel when you have one display device attached, you can follow the basic steps below.

To access the TwinView control panel and all its modes, i.e, Standard, Clone, and Span, follow these steps:

1. **For dual-display functionality, be sure you have at least two display devices**, such as an analog monitor (CRT) and a digital flat panel (DFP) or TV, connected to your NVIDIA dual-display card.
2. Make sure the cable connections for your devices are well secured from the device to the graphics card installed on your computer.

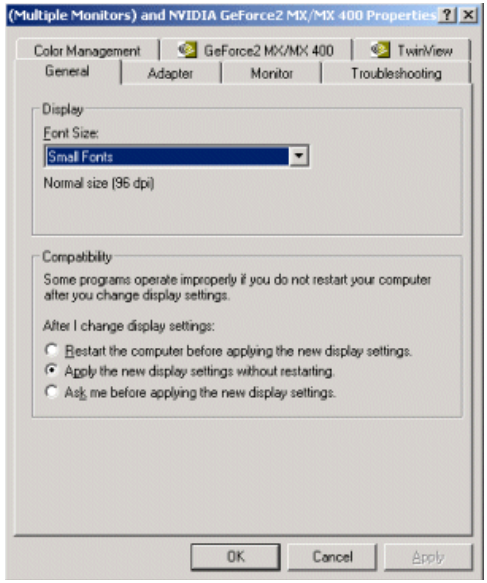
   If you are connecting a TV, be sure you have the proper cables and connectors that apply to your TV.
3. Right-click from your Windows desktop and click **Properties** and the **Settings** tab to display the Settings panel (Figure 5.1).

**Figure 5.1** Display Properties Settings: Windows 2000



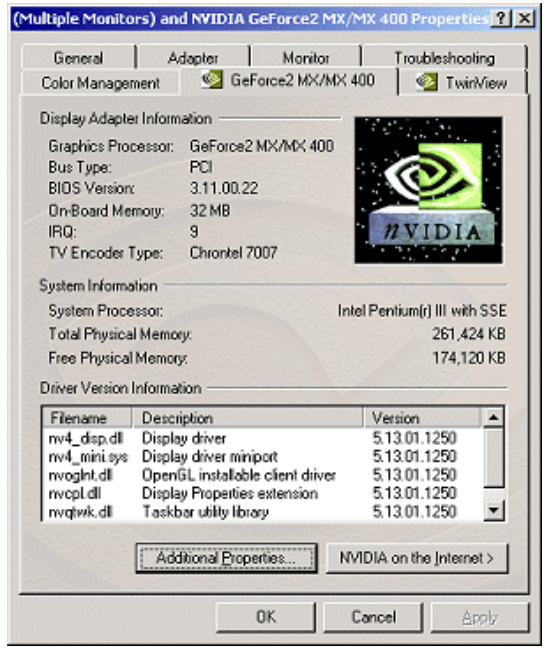
4 Click the **Advanced** button to display the panel in Figure 5.2

**Figure 5.2** Advanced Options: Windows 2000



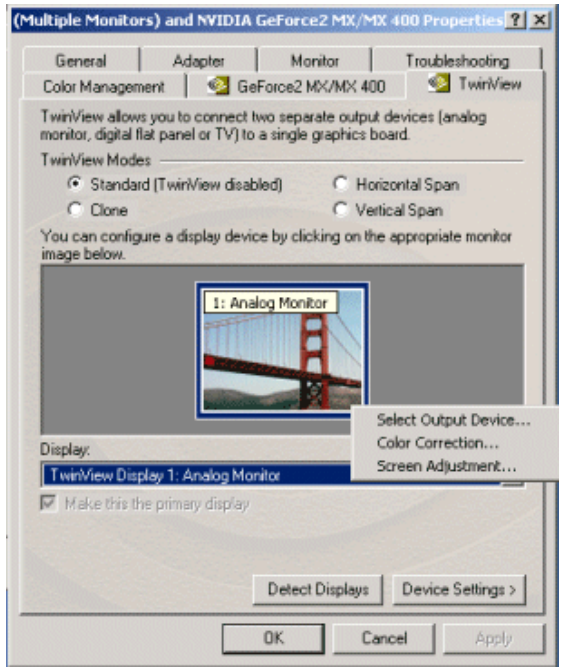

5 Click the **GeForce2 MX/MX 400** tab to display the GeForce2 MX panel, which provides basic information on your display adapter, system, and the NVIDIA driver files you installed (Figure 5.3).

**Figure 5.3** GeForce2 MX Control Panel: Windows 2000



6 Click the **TwinView** tab to display the TwinView control panel.

**Figure 5.4** TwinView: Std. Mode (single-display) with Context Menu: Windows 2000




# Accessing the Configuration Options

On the TwinView panel, the monitor icon numbered **1** represents the primary display device. In **Standard** mode, there is only one monitor icon. In **Clone** mode, the monitor icon numbered **1** represents the primary display device and the monitor icon numbered **2** represents the secondary display device.

To access the configuration panels for Twin View modes, use any *one* of these procedures:

- Right-click the monitor icon (**1** or **2**) to display a context menu of options and click the option you want; *or*
- Click the down arrow in the **Display** field to select the display device (i.e., TwinView Display 1 or TwinView Display 2) you want to configure. Then click the **Device Settings** button to display a context menu of options and click the option you want.

# Standard Mode

The Standard mode option in the TwinView control panel disables the TwinView feature allowing viewing in only one display. Figure 5.5 shows a TwinView panel when only one display device (e.g, Analog Monitor) is connected to your computer. Notice that the Clone mode option is disabled.

**Figure 5.5** TwinView: Std. Mode (single-display) with Context Menu: Windows 2000

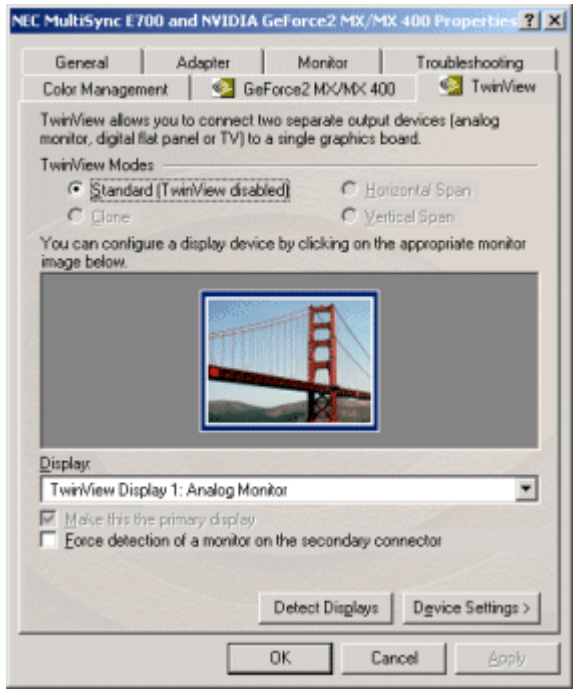
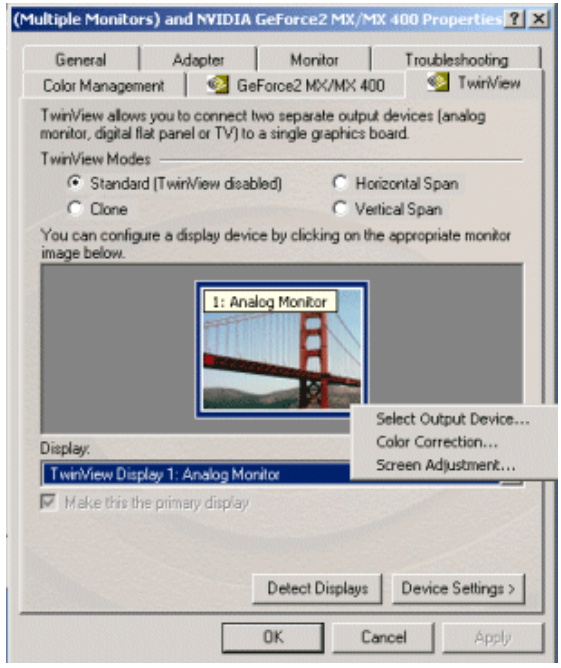



Figure 5.6 shows the TwinView control panel in Standard mode with Analog Monitor (CRT) as the *Primary* display device (Display 1). If you have a DFP and/or a TV connected to your NVIDIA card, you can choose to display on the DFP or TV instead of the CRT.

**Figure 5.6** TwinView: Std. Mode (dual-display) with Context Menu: Windows 2000




## Switching Display Device: Standard Mode

To switch devices from Analog Monitor (CRT) to either a DFP or a TV display device, or variations on this combination, *see* "Switching Displays" on page 67 in the chapter "Device Selection & Configuration" on page 65.

The figures in this section show the TwinView panel in Standard mode with either a DFP or TV as the display device.

**Figure 5.7** TwinView Std. Mode (Display =TV): Windows 2000

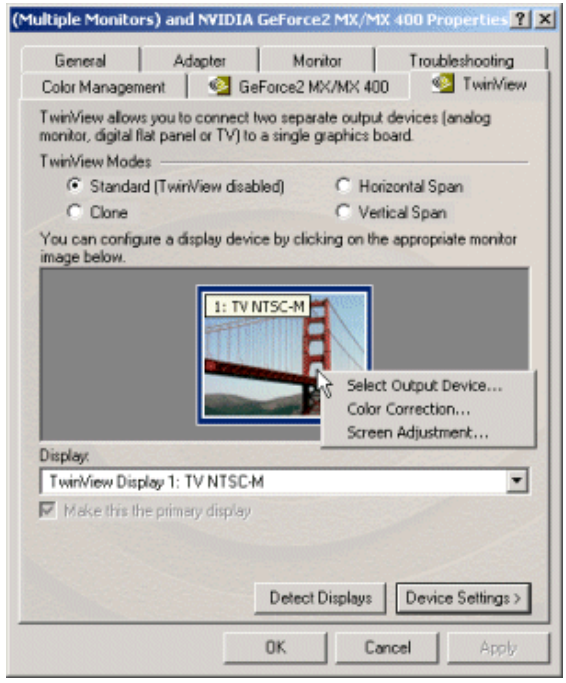
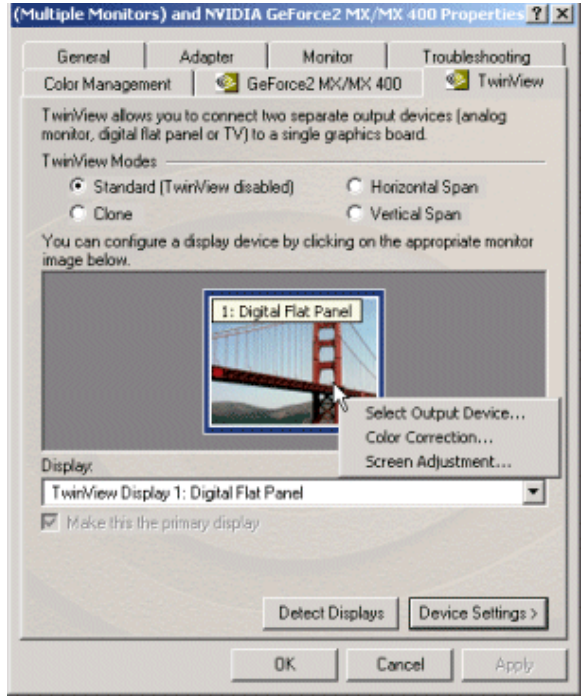



**Figure 5.8** TwinView Std. Mode (Display =DFP): Windows 2000



# Clone Mode

**Note:** This section does not apply if you have only one display device attached.

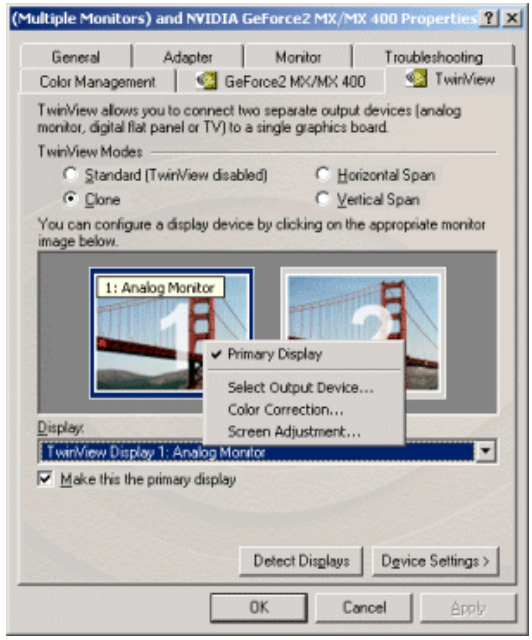
In Clone mode, two monitors display identical images, which is useful for presentations. A presenter may use the smaller monitor on the podium, while a projector monitor reflects the presentation to the audience.

The example in this section starts with the Analog Monitor (CRT) as the primary display and TV or DFP as the secondary display. Make sure your display devices are powered on before you access the TwinView panel. If you power on the devices after you have opened the TwinView panel, click **Detect Displays** to enable the devices.

To access TwinView Clone mode, follow these steps:

1. Be sure your display devices are powered on before you access the TwinView panel.
2. Click the **Clone** mode option on the TwinView control panel and click **Apply**.
3. Click **OK** and **Yes** when the status messages appear. Your current screen is duplicated on the clone display.
4. If necessary, click **Detect Displays** to enable devices. Figure 5.9 shows a TwinView Clone mode control panel.

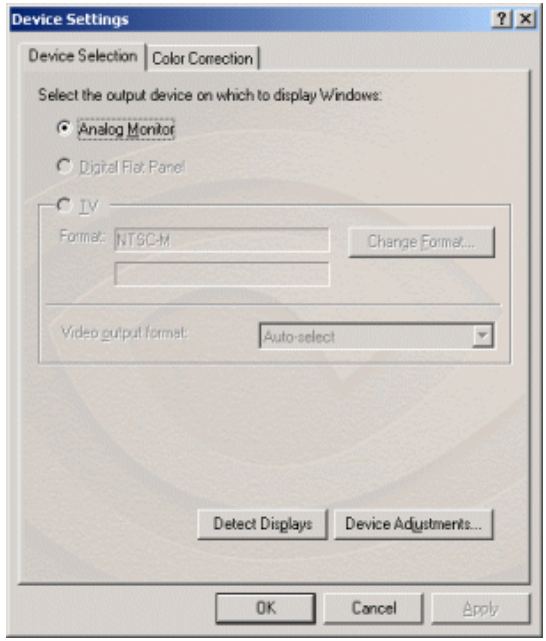
**Figure 5.9** TwinView Clone Mode (Display 1=Analog Monitor): Windows 2000



5 Right-click monitor icon **1** to view the context menu for the primary display, which is CRT (analog monitor) in this example (Figure 5.9).

6 From the context menu, click **Select Output Device** to select the Device Selection panel. Figure 5.10 correctly shows Analog Monitor as the selected output device for display 1.

**Figure 5.10** TwinView Device Selection (Display 1=Analog Monitor): Windows 2000




7 Click **OK** to return to the TwinView control panel.

8 Click monitor icon **2** to view the secondary display. Figure 5.11 shows **TV** as the secondary display. Figure 5.12 shows **DFP** as the secondary display

9 Click the **Select Output Device** button to display the Device Selection control panel.

Figure 5.13 shows TV as the selected output device for the secondary display (display 2). For information on configuring your TV display, **see** "TV Settings" on page 75**.**

Figure 5.14 shows Digital Flat Panel as the selected output device for the secondary display (display 2).

**Figure 5.11** TwinView Clone Mode Menu (Display 2=TV): Windows 2000

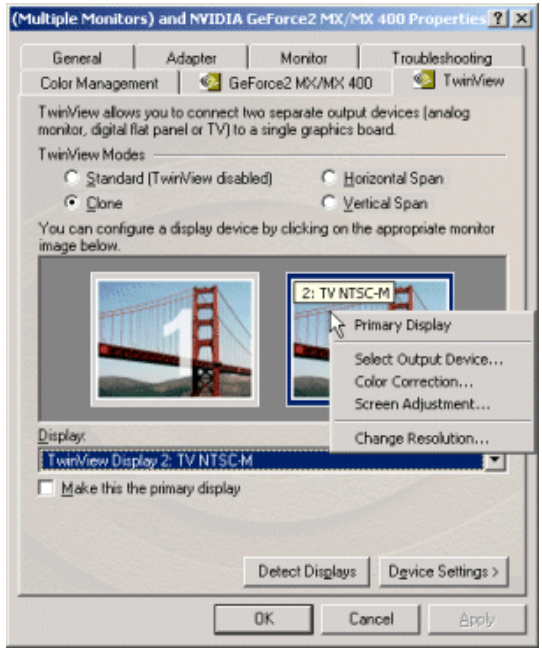



**Figure 5.12** TwinView Clone Mode Menu (Display 2=DFP): Windows 2000

**Figure 5.13** TwinView Output Device (Display 2=TV): Windows 2000

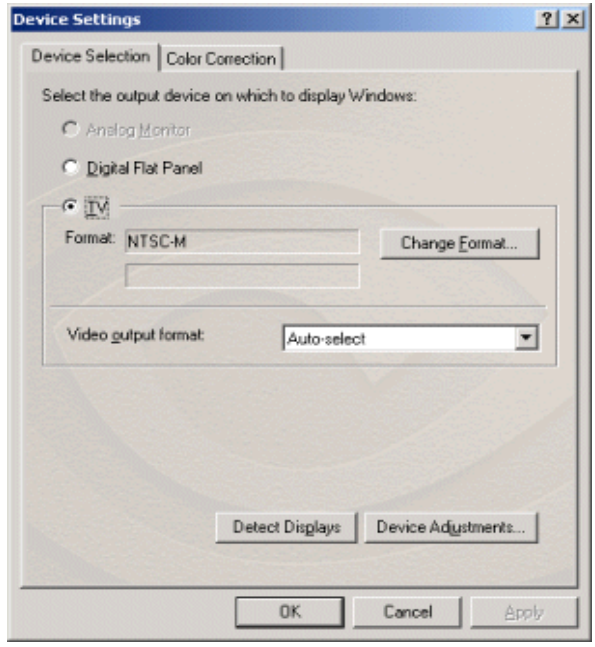


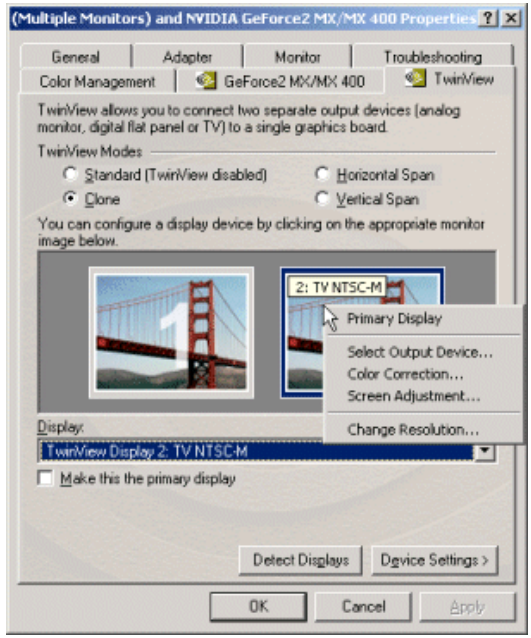

**Figure 5.14** TwinView Device Selection Panel on DFP display: Windows 2000

## Switching Secondary Displays: Clone Mode

**Note:** The example in this section uses TV as the secondary display device and describes how to switch from TV to Digital Flat Panel. You can use a similar procedure to switch from DFP to TV.

**1** Right-click monitor icon **2** to view the context menu for the secondary display, which is TV in this example (Figure 5.15).

**Figure 5.15** TwinView Clone Mode Menu (Display 2=TV): Windows 2000




**2** From the context menu, click **Device Selection** to select the Device Selection panel. Figure 5.16 correctly shows TV as the selected output device for display 2 (secondary display).

**3** Click **Digital Flat Panel**, as shown in Figure 5.17.

**4** Click **Apply**. The NVIDIA Display Settings message panel appears (Figure 5.18).

**5** Click **OK** *before* the message times out. The Confirm Display Settings message (Figure 5.19) and the rest of your Windows desktop appears on your DFP display.

**Figure 5.16** TwinView Output Device (Display 2=TV): Windows 2000

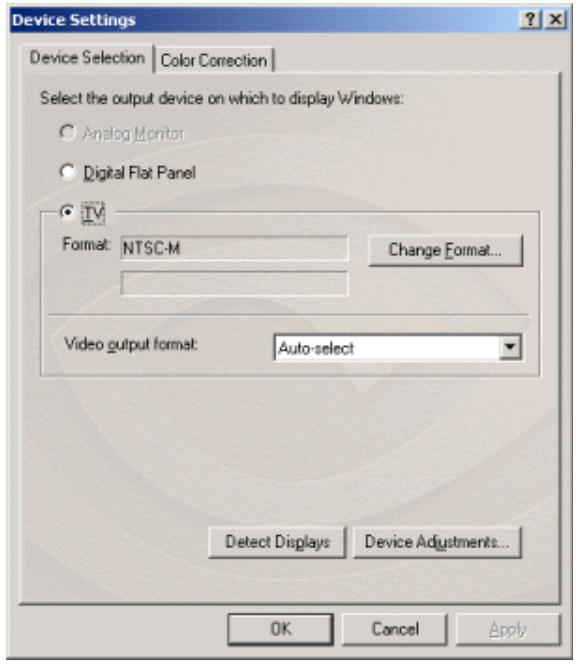



**Figure 5.17** TwinView Output Device (Display 2=DFP): Windows 2000

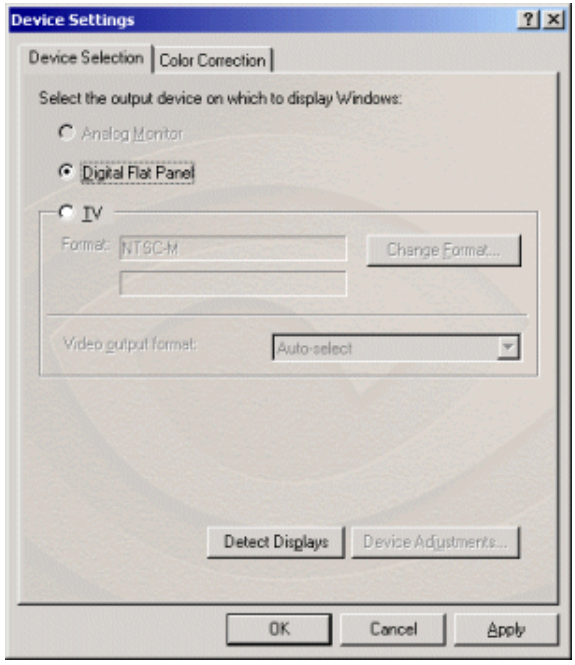


**Figure 5.18** TwinView Settings Change Message: Windows 2000

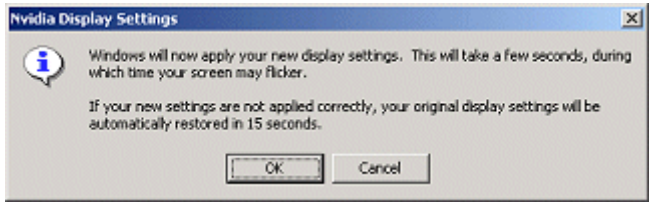
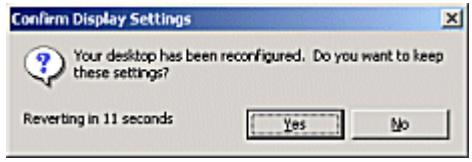



**Figure 5.19** TwinView Confirm Display Settings Message: Windows 2000




**6** Click **Yes** *before* the message times out. The Device Selection panel appears with Digital Flat Panel selected, as shown in Figure 5.20.

**7** Click **OK** to display the TwinView Clone mode panel showing Digital Flat Panel as the secondary display. Figure 5.21 shows TwinView Clone mode panel with the context menu for the Digital Flat Panel display.

**Figure 5.20** TwinView Device Selection panel on DFP display: Windows 2000

**Figure 5.21** TwinView Clone Mode Menu (Display 2=DFP): Windows 2000


## Switching Secondary to Primary Display: Clone Mode

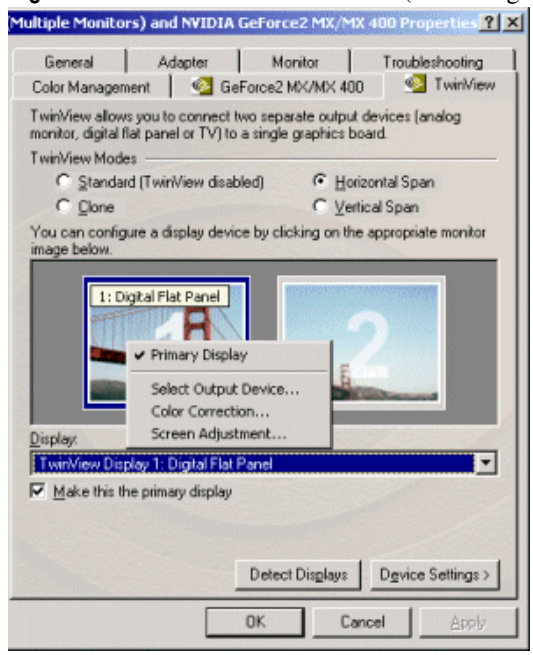
**Note:** The example in this section changes DFP from a secondary to a primary display.You can use a similar procedure to change TV from a secondary to a primary display.

1. Make sure you have the TwinView panel open in Clone mode and DFP selected as display 2.
2. Right-click monitor icon **2** to display the context menu.
3. Select **Primary Display**. The “Make this the primary display” box becomes checked.
4. Click **Apply**. The NVIDIA Display Settings message appears.
5. Click **OK** *before* the message times out.

   The Confirm Display Settings message and the rest of your Windows desktop appears on your DFP display.
6. Click **Yes** *before* the message times out.

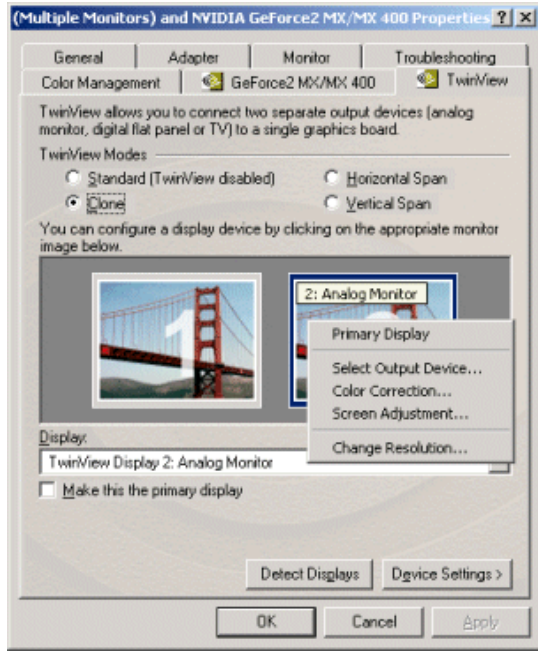
   When the TwinView panel appears, Digital Flat Panel is enabled as the primary display device (Figure 5.22).

**Figure 5.22** TwinView Clone Mode (Switching DFP to Primary): Windows 2000



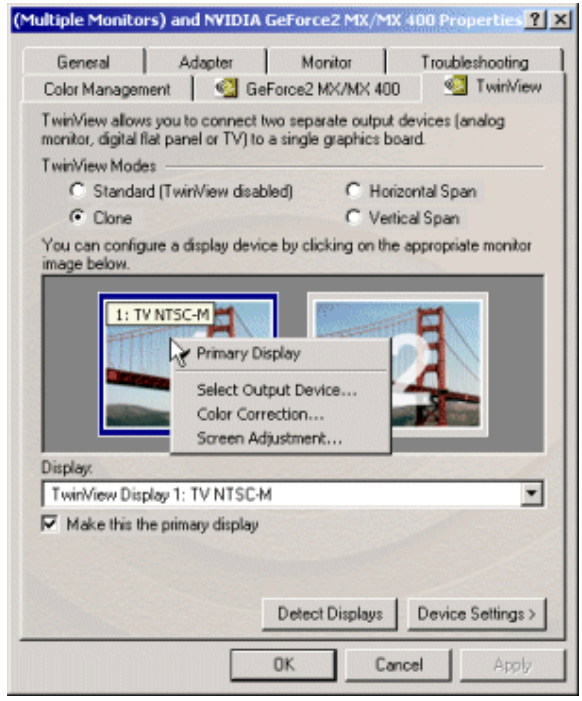

**7** Right-click monitor icon **2** to confirm that the CRT (analog monitor) is now the secondary device (Figure 5.23).

**Figure 5.23** TwinView Clone Mode (Display 2 = Analog Monitor): Windows 2000



**8** You can use similar steps as described in this section to switch to TV as the primary display (Figure 5.24).

**Figure 5.24** TwinView Clone Mode (Display 1 = TV): Windows 2000



## Change Resolution: Clone Mode (Virtual Desktop)

You can use the Change Resolution option to modify Resolution and Refresh Frequency for the secondary display, which allows you to enable **Virtual Desktop**, a useful feature for panels and monitors with limited resolution. This feature lets you pan-and-scan the entire desktop area on the secondary display when its resolution is set to less than the value set on the primary display.

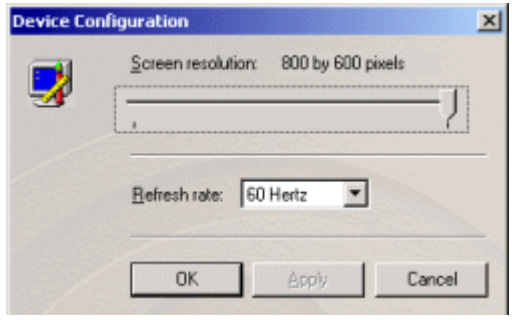
**Note:** If the maximum resolution of the secondary display is less than the current resolution of the primary display, once you enable Clone mode from the TwinView panel, Virtual Desktop will already be enabled. However, you still may want to adjust the resolutions of the primary and/or secondary device by using the Device Configuration dialog box (Figure 5.25) for the secondary display or the Windows Settings control panel of your primary display.

Follow these steps to enable Virtual Desktop:

1 From the TwinView panel, right-click monitor icon **2** (secondary display) to display the context menu and select **Change Resolution** to display the Device Configuration dialog box (Figure 5.25).

**Note:** If you do not see the Change Resolution option on the display 2 context menu, adjust (increase) the resolution on the primary display until the Change Resolution option becomes available from the display 2 context menu.

**Figure 5.25** TwinView Clone Mode Device Configuration: Windows 98




2 Use the slider (Figure 5.25) to set the screen resolution at a value that *is not equal* to the screen resolution on the Windows Settings control panel of your primary display.

**Note:** If you set the same screen resolution value for both primary and secondary displays, you cannot pan/scan the desktop area on the secondary display; both displays will remain static.

3 *Optional*: If you want, you can select a **Refresh rate** from the list box

4 Click **Apply** and **OK**. Notice that the resolution of your secondary display changes and you can use your mouse to pan and scan the desktop on this secondary display.

# Horizontal & Vertical Span Modes

**Note:** This section does not apply if you have only one display device attached.

In Span mode, the Windows desktop area is spread across both display devices. This mode can be set for multiple categories of displays, although display limitations may override the capabilities of your NVIDIA dual-display graphics card. For example, if the second display is an NTSC TV monitor, depending on the TV encoder on the graphics card, the resolution may not 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.

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 using one NVIDIA dual-display graphics card [1]. As a result, the size of the actual desktop is limited to twice the smaller size of the two displays.

**Note:** The desktop can be extended either horizontally (Figure 5.26 through Figure 5.30) or vertically (Figure 5.33 and Figure 5.36).

**To access the TwinView Span modes**, follow these steps:

1 Click the **Horizontal** or **Vertical Span** mode option on the TwinView control panel and click **Apply**.

2 Click **OK** and **Yes** when the messages appear.

- If you just switched from Standard to one of the Span modes, your DFP or TV display will be activated. If needed, click **Detect Displays** to enable the display devices.
- If you just switched from Clone to one of the Span modes, the Windows display on the Clone device will be removed.

3 Depending on whether you have Horizontal or Vertical Span mode enabled, you can drag your active windows, images, or icons horizontally or vertically to move them to the secondary display.

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

## Switching Display Device: Span Modes

The basic procedure for switching devices in Span modes is the same as that used in Clone mode. The figures in this section include configurations where Analog Monitor, Digital Flat Panel, or TV is set as either the primary or secondary display. You can use the following basic steps below to switch to a different primary or secondary device.

1. Make sure your TwinView panel is set to Horizontal Span or Vertical Span mode.
2. **To switch a display device from secondary to primary**, follow these steps:
   a. Right-click monitor icon **2**.
   b. Click **Primary Display** to check the option. The "Make this the primary display" checkbox displays a check mark to reflect the primary display.
   c. Click the **Apply** button.
   d. When the NVIDIA Display Settings message appears, click **OK**. The TwinView control panel now appears on the secondary device. The TwinView **Display** field shows "TwinView Display 1: Digital Flat Panel", which correctly indicates that the Digital Flat Panel is now the primary display.
   e. To switch back to CRT as the primary display, follow similar steps.
3. **To switch from TV to DFP, or vice versa,** follow these steps:
   a. Right-click monitor icon **2** or **1**, depending on whether the TV/DFP is your primary or secondary device.
   b. From the context menu, click **Select Output Device** to select the Device Selection panel.
   c. Click **Digital Flat Panel** or **TV**, depending on the device to which you want to switch.
   d. Click **Apply**. The NVIDIA Display Settings message appears.
   e. Click **OK** *before* the message times out. The Confirm Display Settings message and the rest of your Windows desktop appears on your newly selected display (TV or DFP).
4. Click **Yes** *before* the message times out. The Device Selection panel appears with Digital Flat Panel selected.
5. Click **OK** to display the TwinView Horizontal Span or Vertical Span mode panel showing DFP or TV as the secondary or primary display, depending on the display you were working with.
6. Right-click the monitor icon (**1** or **2**) to confirm correct results.

**Figure 5.26** TwinView Horizontal Span (Display 1= CRT): Windows 2000

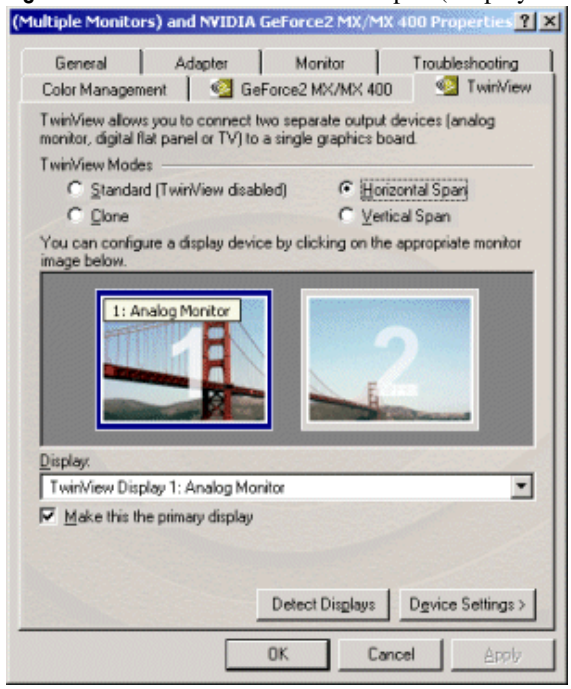



**Figure 5.27** TwinView Horiz. Span (Display 1= CRT) Context Menu: Windows 2000

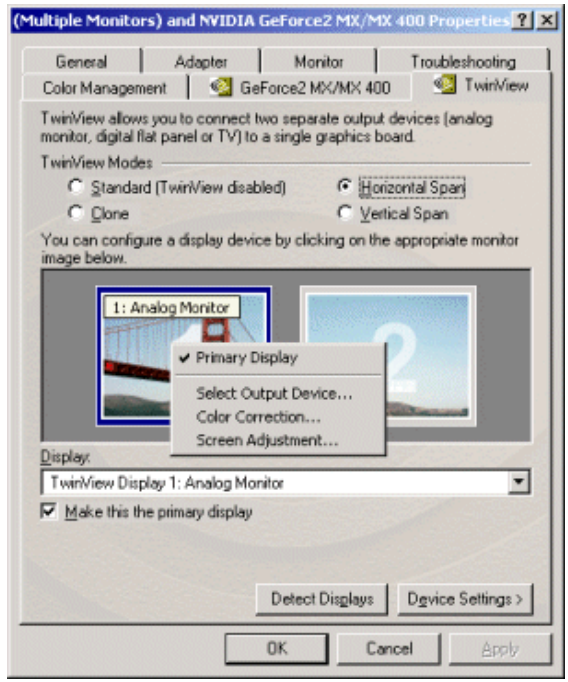


**Figure 5.28** TwinView Horizontal Span Menu (Display 2 = DFP): Windows 2000

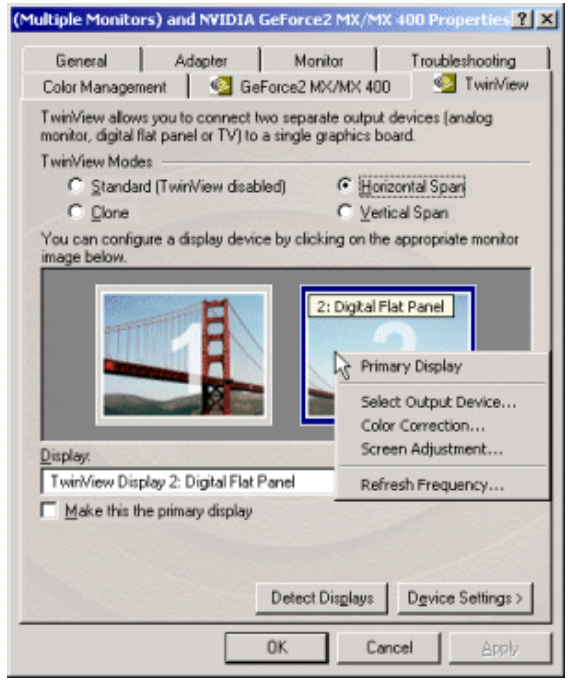



**Figure 5.29** TwinView Horizontal Span Menu (Display 2 = CRT): Windows 2000

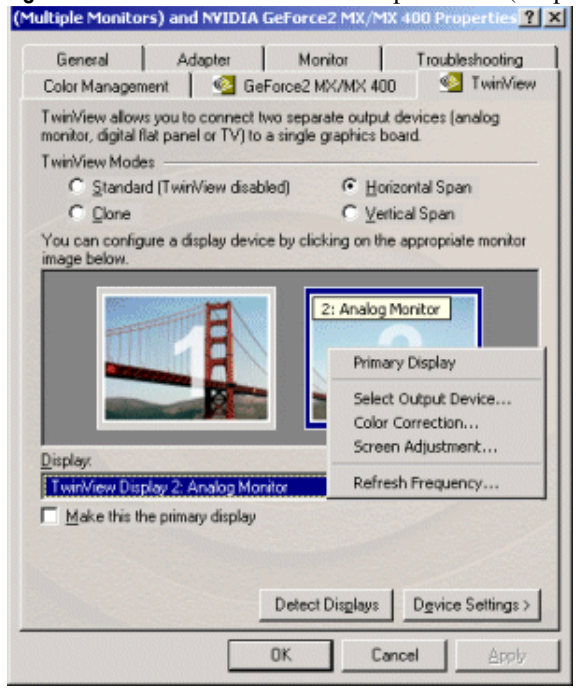


**Figure 5.30** TwinView Horizontal Span (Display 1= DFP): Windows 2000

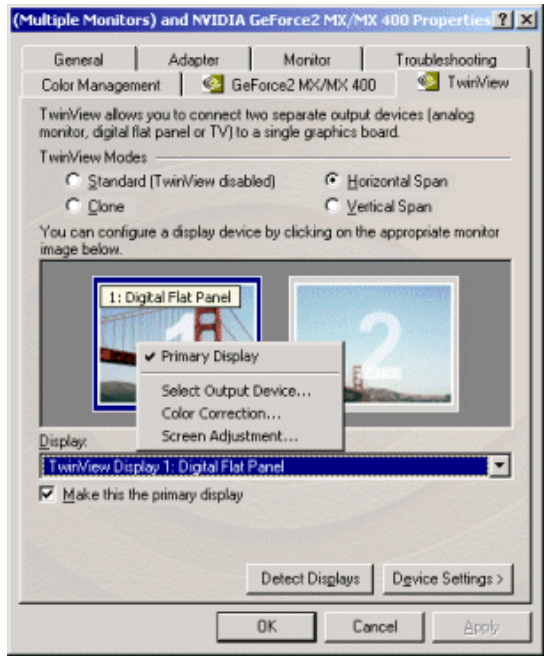



**Figure 5.31** TwinView Horizontal Span (Display 2= TV): Windows 2000

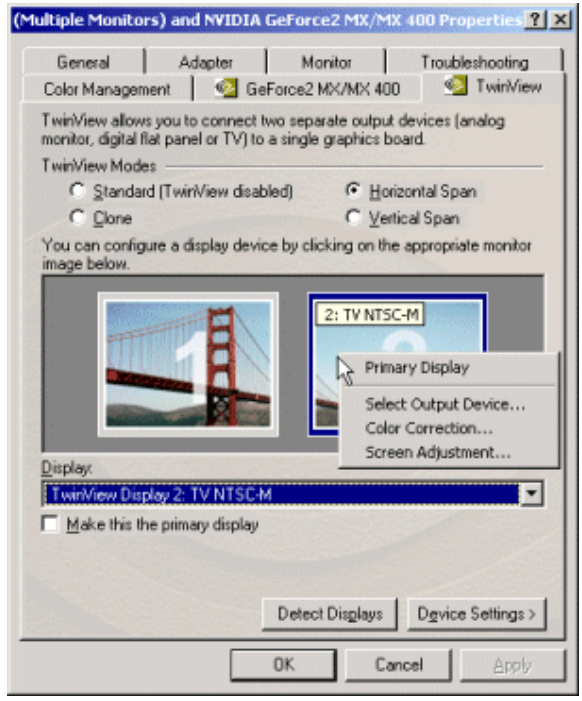


**Figure 5.32** TwinView Horizontal Span (Display 1= TV): Windows 2000

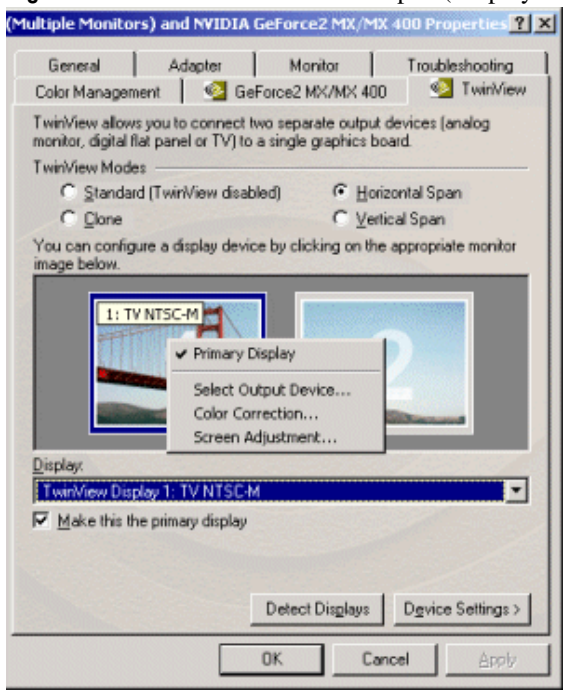



**Figure 5.33** TwinView Vertical Span Menu (Display 1 = CRT): Windows 2000

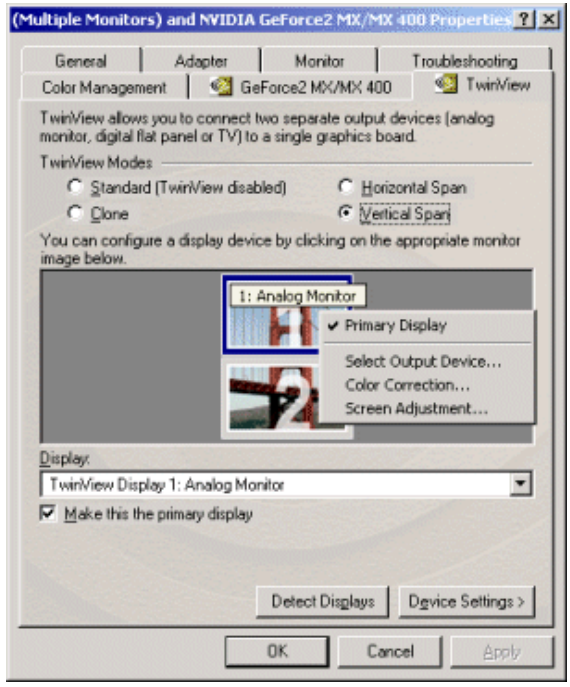


**Figure 5.34** TwinView Vertical Span Menu (Display 1 = TV): Windows 2000

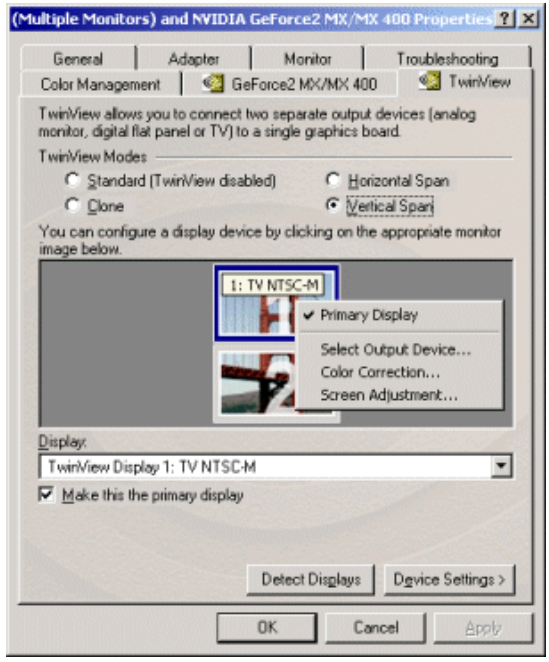



**Figure 5.35** TwinView Vertical Span Menu (Display 1 = DFP): Windows 2000

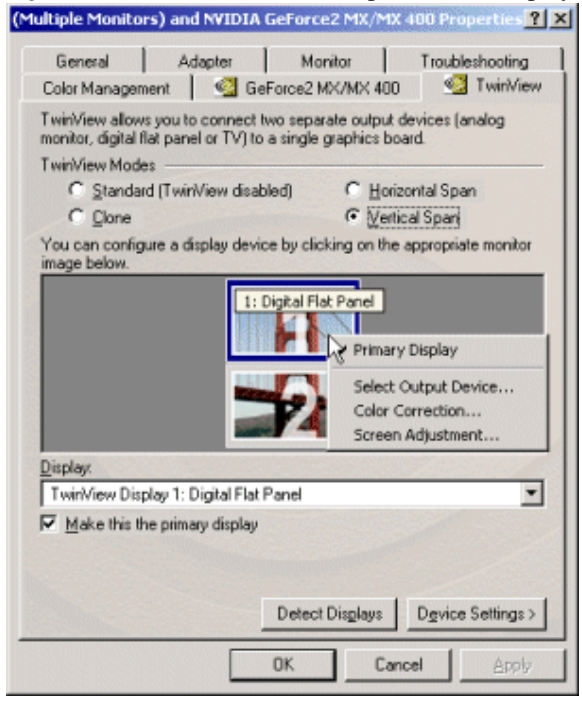
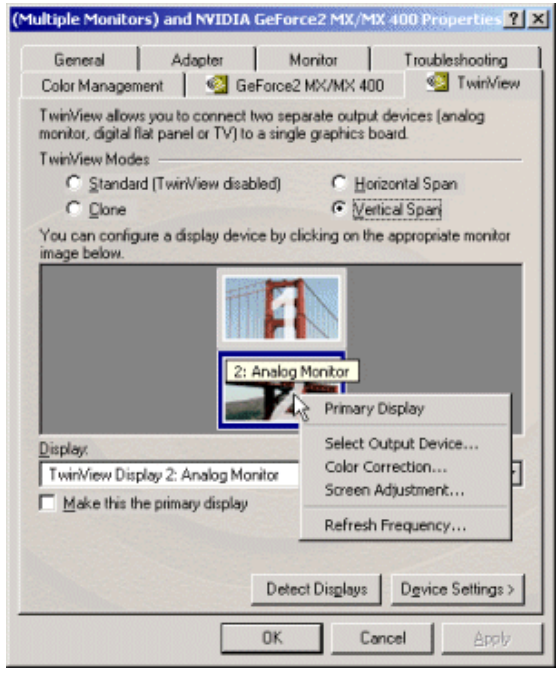


**Figure 5.36** TwinView Vertical Span Menu (Display 2 = CRT): Windows 2000




# Other Configuration Options

For details on configuring display devices and additional features and enhancements of the Detonator 3 v12.41 for Windows driver, *see* the following chapters:

- "Device Selection & Configuration" on page 65
- "Additional Features and Enhancements" on page 113

CHAPTER 6

# DEVICE SELECTION & CONFIGURATION

This chapter contains the following sections:



## Accessing the Device Selection Control Panel

**Note:** This chapter assumes that you have at least a dual-connected NVIDIA card and you have at least two display devices connected to your card. You can use the basic procedure described here to switch between any devices that are connected.

1. Right-click from your Windows desktop and click **Properties** and the **Settings** tab to display the Settings panel (Figure 6.1).
2. Click the **Advanced** button.
3. Click the **Device Selection** tab to display the Device Selection panel. This example uses the GeForce3 card (Figure 6.2) has Analog Monitor (CRT) enabled.
4. Click **Detect Displays** if you want to detect all display devices connected to the output device (Analog Monitor, Digital Flat Panel, or TV) that is enabled on the Device Selection panel.

**Note:** Use this feature if you have plugged in any displays after this Device Selection control panel was opened.

**Figure 6.1** Display Properties Settings: Windows 2000

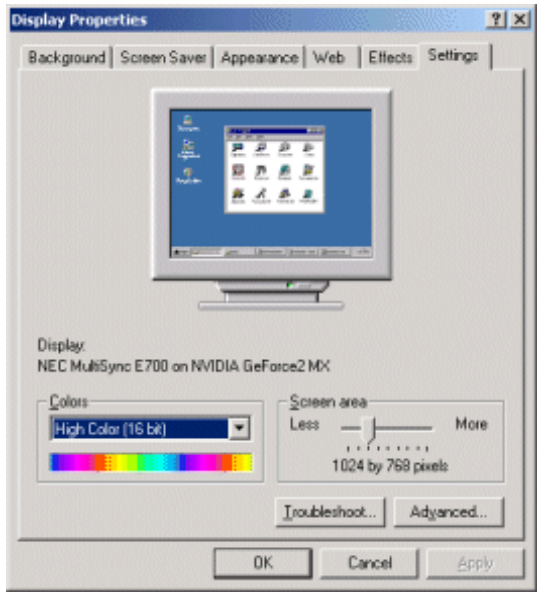
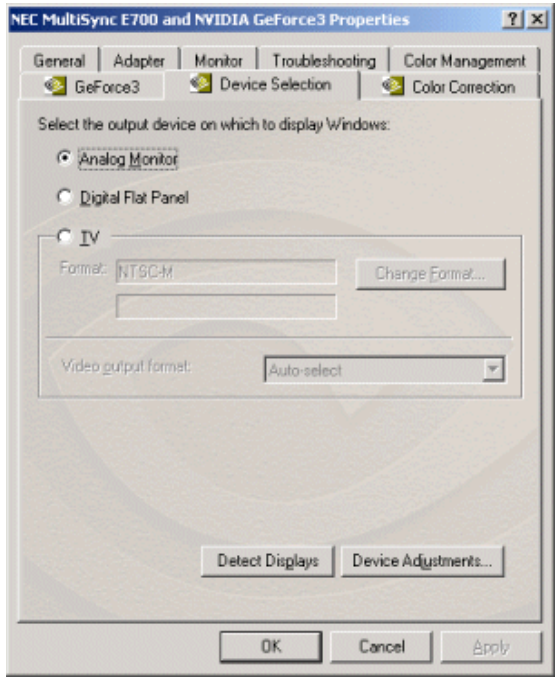



**Figure 6.2** Device Selection Panel: Windows 2000



# Switching Displays

This section explains the procedure for switching the display from your CRT (analog monitor) to a DFP using the example of a GeForce3 graphics card with three connectors:

- **CRT** (analog monitor)
- **DFP** (digital flat panel) *and*
- **TV**

This means that the user of such a graphics card can choose to connect three different devices and switch among them or simply connect one of the devices and use that device. Your GeForce3 card or any other multi-connector NVIDIA card may have anywhere between one and three connectors. So, you'll need to follow the example based on the number and type of connectors your card contains.

**Note:** You can use the procedure in this section to switch between any combination of devices, such as CRT to TV, TV to CRT, DFP to CRT, TV to DFP, and so on. You can also use other NVIDIA cards, such as the GeForce2 MX, Quadro2 MXR, and so on. In this case, you'll notice that the NVIDIA product tab names of GeForce3, Device Selection, and Color Correction do not exist if, for example, you have the TwinView feature enabled.

1. Make sure you are in the Device Selection panel. (*See* the previous section "Accessing the Device Selection Control Panel" on page 65, if needed.)
2. If you are using an NVIDIA card from the GeForce2 MX/Quadro2 MXR family of cards and have TwinView enabled, on the **TwinView** control panel, right-click the monitor icon to display the context menu and click **Select Output Device** to display the Device Selection control panel.
3. Click the **Digital Flat Panel** Option as shown in Figure 6.3 and click **Apply**. The message in Figure 6.4 appears.
4. Click **OK** *before* the message times out. The Confirm Display Settings message in Figure 6.5 appears on your DFP display.
5. Click **Yes** before the message times out. Your TwinView and entire Windows display now shifts to the or DFP (Figure 6.6).

**Figure 6.3** Device Selection Pane with DFP: Windows 2000

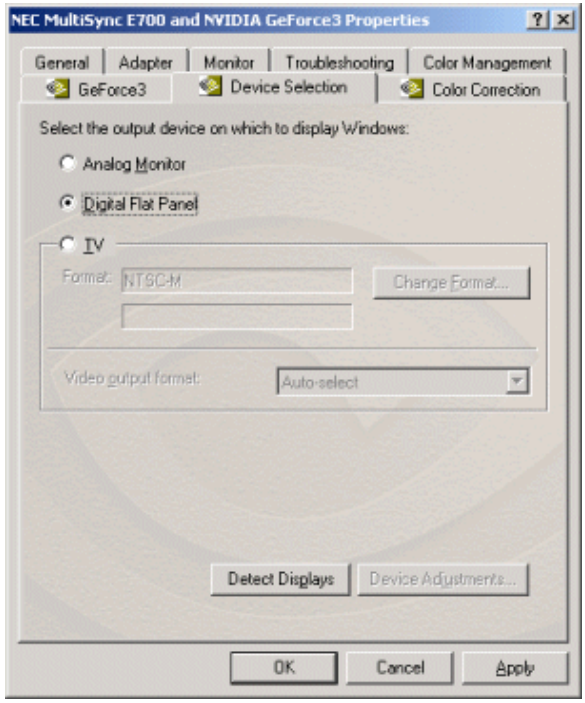



**Figure 6.4** Display Settings Message: Windows 2000

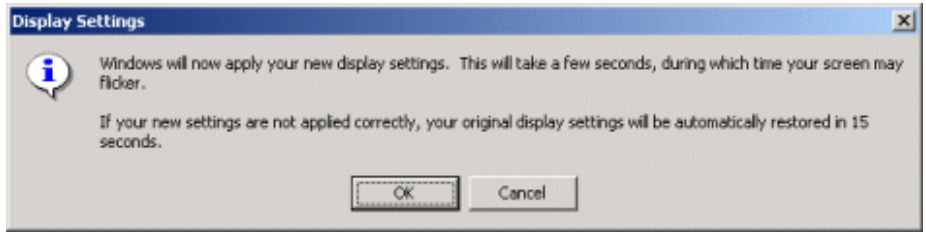
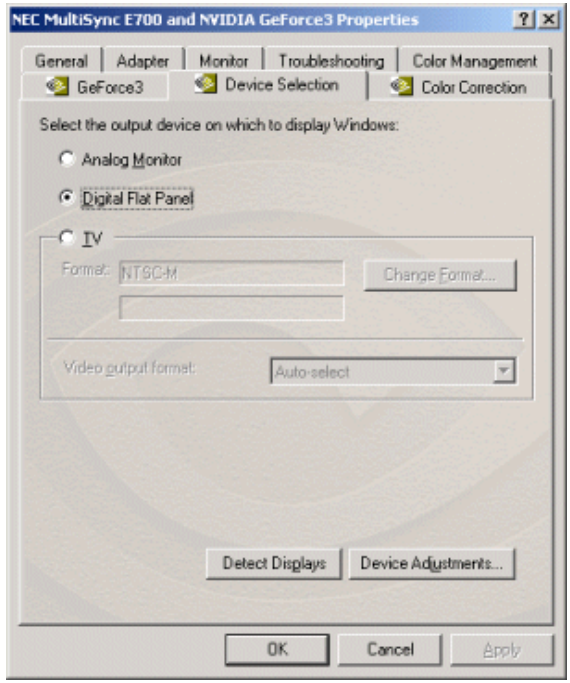



**Figure 6.5** Confirm Display Settings Message: Windows 2000

**Figure 6.6** Device Selection Pane with DFP Enabled: Windows 2000




# Device Adjustments: Analog Monitor

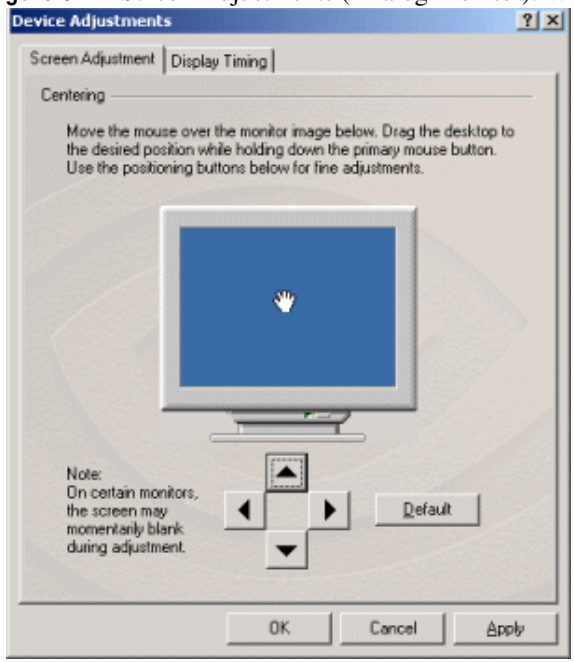
## Screen Adjustment

If your NVIDIA graphics card is connected to a CRT (Analog Monitor), follow these steps to access the Screen Adjustment panel:

**Note:** If you are in the TwinView control panel, right-click the Analog Monitor icon to display the context menu and select **Screen Adjustment** to display the Screen Adjustment panel. Then go directly to step. **4** below.

1. Make sure you are in the Device Selection panel. (*See* the earlier section "Accessing the Device Selection Control Panel" on page 65, if needed.)
2. Confirm that the **Analog Monitor** option is selected on the Device Selection panel.
3. Click the **Device Adjustments** button to access the Screen Adjustment panel. (Figure 6.7).
4. To adjust the screen position, move the mouse over the monitor icon and drag the desktop to the desired position while holding down the primary mouse button. Use the arrow positioning buttons for fine adjustments.

**Figure 6.7** Screen Adjustments (Analog Monitor): Windows 2000



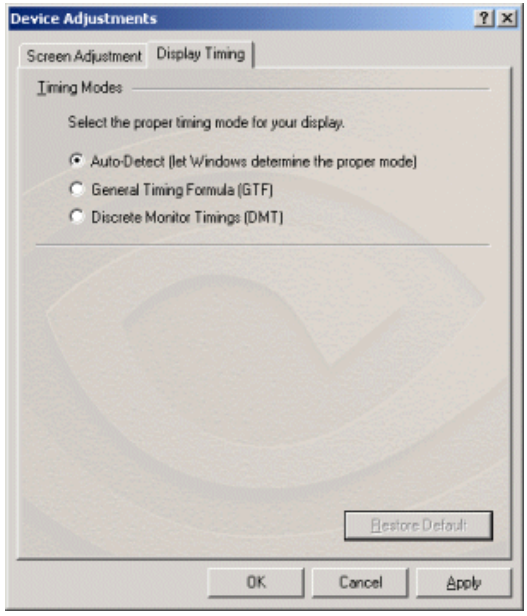

## Display Timing

If your NVIDIA graphics card is connected to a CRT (Analog Monitor), follow these steps to access the Display Timing panel:

**Note:** If you are in the TwinView control panel, right-click the Analog Monitor icon to display the context menu and select **Screen Adjustment** to display the Screen Adjustment panel. Then click the **Display Timing** tab to open the Display Timing panel and go directly to step. **4** below.

1. Make sure you are in the Device Selection panel. (*See* the earlier section "Accessing the Device Selection Control Panel" on page 65, if needed.)
2. Confirm that the **Analog Monitor** option is selected on the Device Selection panel.
3. Click the **Device Adjustments** button then click the **Display Timing** tab to open the Display Timing panel.

**Figure 6.8** Display Timing (Analog Monitor): Windows 2000




**4** Select the proper timing mode for your display:

- **Auto-Detect** (*default setting*) allows Windows to receive the proper timing information directly from the monitor itself. **Note** that some older monitors may not support this feature.
- **General Timing Formula** (GTF) is a standard used by most newer hardware.
- **Discrete Monitor Timings** (DMT) is an older standard still in use on some hardware. Enable this option if your hardware requires DMT.

# Device Adjustments: Digital Flat Panel

## Flat Panel Display

If your NVIDIA graphics card is connected to a DFP (digital flat panel), follow these steps to access the Flat Panel Display control panel.

**Note:** If you are in the TwinView control panel, right-click the Digital Flat Panel icon and select **Screen Adjustment** to display the Flat Panel Display control panel. Then go directly to step. **4** below.

**1** Make sure you are in the Device Selection panel. (*See* the previous section "Accessing the Device Selection Control Panel" on page 65, if needed.)

2 Confirm that the **Digital Flat Panel** option is selected on the Device Selection panel.

3 Click the **Device Adjustments** button to access the Flat Panel Display control panel (Figure 6.9)

**Figure 6.9** Digital Flat Panel Display as Display 1: Windows 2000

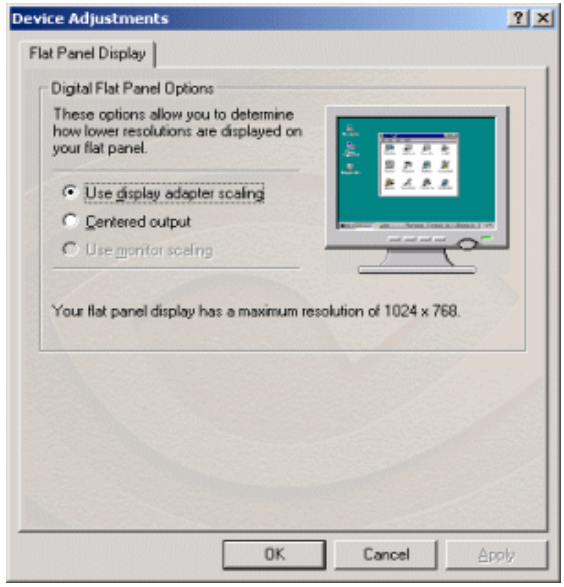
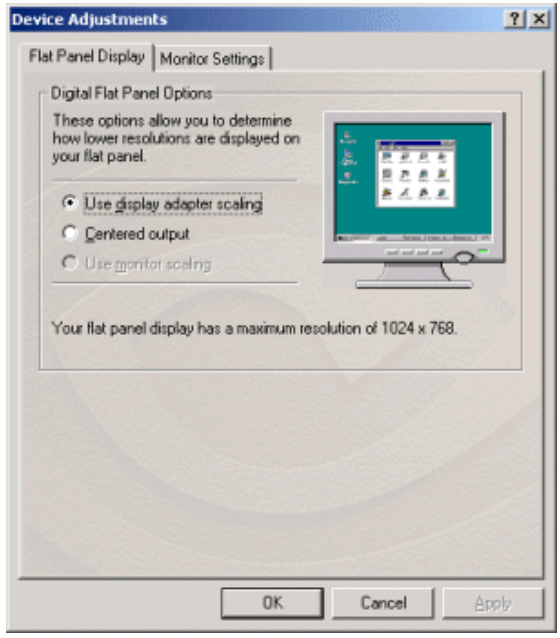
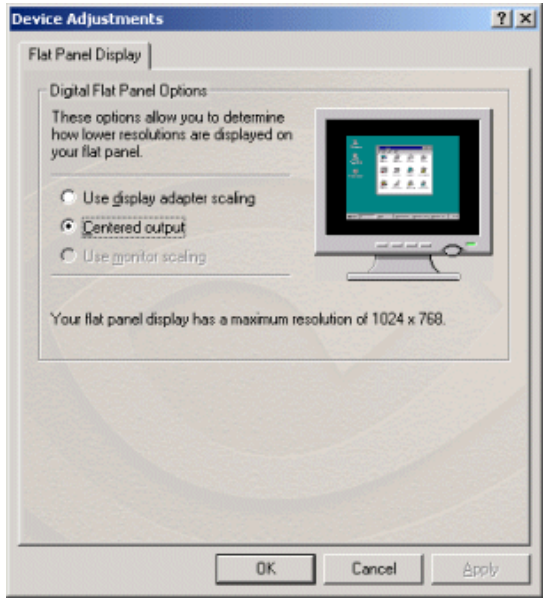



**Figure 6.10** Digital Flat Panel Display as Display 2: Windows 2000



4 You can use the options **Use display adapter scaling** and **Centered Output** to determine the placement of the image on your flat panel display when running at resolutions lower than the maximum supported resolution.

**Figure 6.11** Digital Flat Panel Display - Centered Output: Windows 2000




**Note:** The **Use monitor scaling** option is available for flat panels that support multiple native resolutions.

## Monitor Settings (Refresh Frequency): Secondary Display

**Note:** The Monitor Settings option only appears for the secondary display device (Display 2), if the secondary device is a DFP or CRT (analog monitor). In this example, the secondary display device is a DFP.

Follow these steps to modify the Refresh Frequency of your secondary display device:

**Note:** If you are in the TwinView control panel, right-click the Digital Flat Panel icon and select **Screen Adjustment** to display the Flat Panel Display control panel, click **Monitor Settings** to open the Monitor Settings panel, then go directly to step. **4** below.

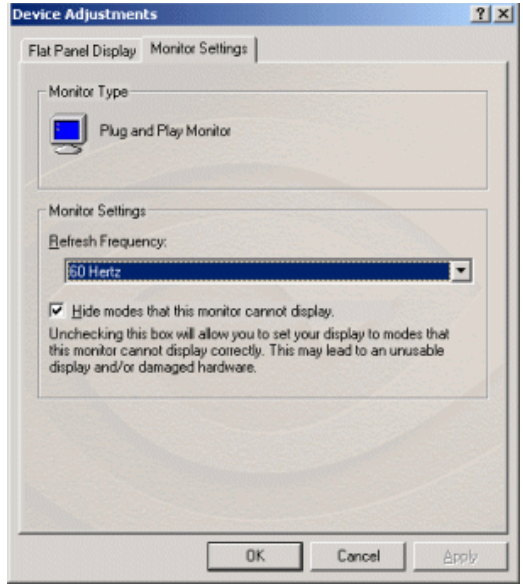
1 Make sure you are in the Device Selection panel. (*See* the earlier section "Accessing the Device Selection Control Panel" on page 65, if needed.)

2 Confirm that the **Digital Flat Panel** option is selected on the Device Selection panel.

3 Click the **Device Adjustments** button to access the Flat Panel Display control panel.

4 Click **Monitor Settings** to open the Monitor Settings panel (Figure 6.12).

**Figure 6.12** Monitor Setting for D as Display 2: Windows 2000




**Note:** The Monitor Settings panel in Figure 6.12 resembles the Monitor panel for your primary display (**Properties** > **Settings** tab > **Advanced** button > **Monitor** tab) but actually represents your *secondary display*.

The Refresh Frequency list box lists the refresh rates available for this monitor. You may select a different refresh rate than the one that appears in the list box. A higher refresh frequency reduces flicker on your screen.

**Note:** It is recommend that you keep the **Hide modes that this monitor cannot display** option checked. Unchecking the option will allow you to set your display to modes that this monitor cannot display correctly, which may lead to an unusable display an/or damaged hardware. Also, unchecking this option will prevent enabling TwinView Span modes.

# TV Settings

This section explains the TV formats and settings available on the Output Device control panel accessible through the TwinView panel.

**Note:** The TV formats and settings are also supported on single-display NVIDIA cards.

**Note:** Depending on the TV encoder that is used on your NVIDIA graphics card, certain TV features on the TwinView Device Selection panel may be unavailable or vary from what is described in this appendix.

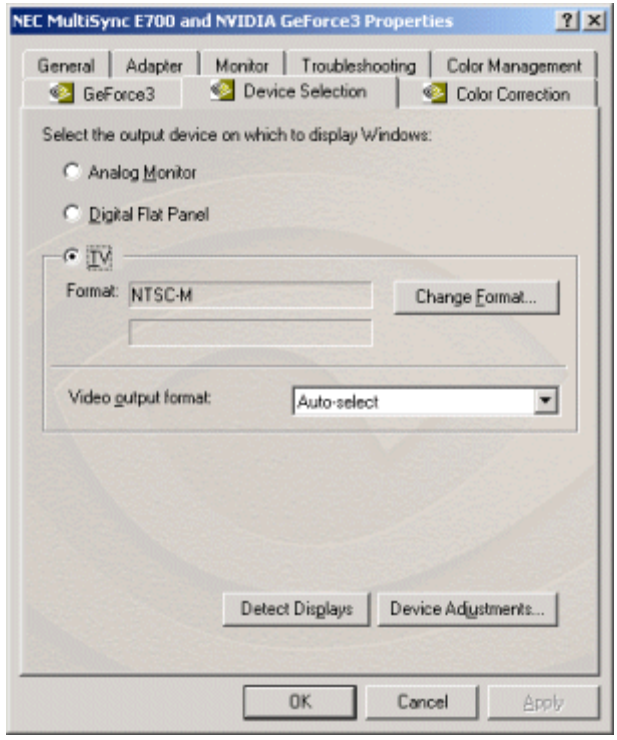
## Accessing the TV Option in Non-TwinView Mode

If your NVIDIA graphics card is connected to a TV, follow these steps to access the TV configuration options:

**Note:** If you are in the TwinView control panel, right-click the TV monitor icon and click **Select Output Device** to display the Device Selection control panel with the TV option enabled, as shown in Figure 6.13.

1. Make sure you are in the Device Selection panel. (*See* the previous section "Accessing the Device Selection Control Panel" on page 65, if needed.)
2. Make sure the **TV** option is selected. Figure 6.13 shows the Device Selection panel with the TV option enabled.

**Figure 6.13** Device Selection Panel with TV Enabled

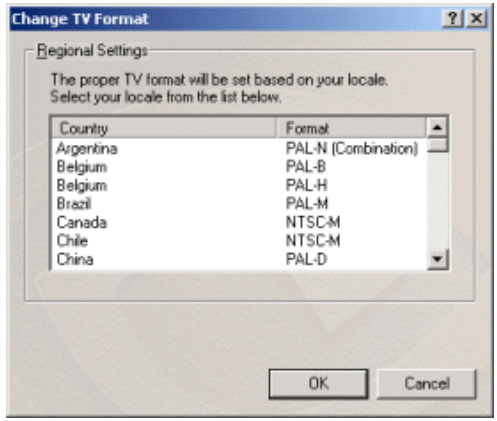



## Change Format: Regional Settings

From the Device Selection panel, click the **Change Format** button to access the Regional Settings (Figure 6.14) where you can specify a particular TV output format. The list that appears allows you to select the TV output format based on the country where you live.

**Note:** If your country is not in the list, select the country closest to your location.

**Figure 6.14** TV Regional Settings



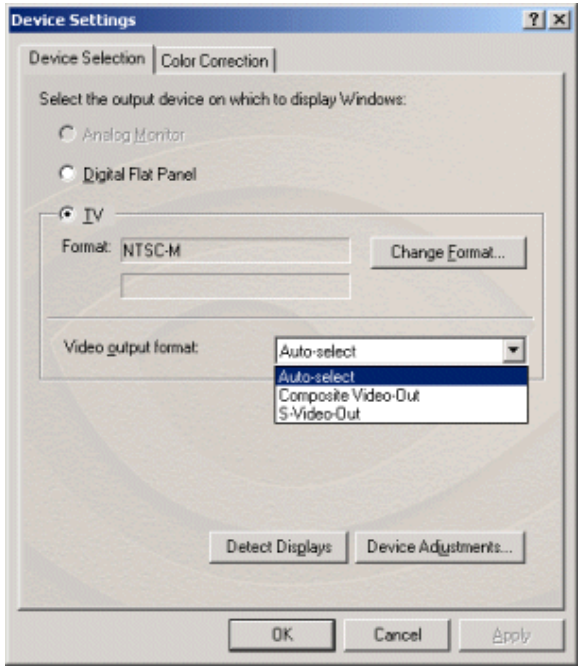

## Video Output Format

The Video Output Format field lets you specify the type of output signal sent to the TV. The default setting is **Auto-select**

If you want to select **S-Video-Out** or **Composite Video-Out**, click the down arrow on the Video Output Format field and select the format (Figure 6.15).

If you have the proper connector cable, **S-Video-Out** will generally provide a higher quality output than **Composite Video-Out**. If you are not sure which type of signal you should specify, choose the **Auto-select** setting.

**Figure 6.15** Device Selection: TV Video Output Format




## Device Adjustments: TV Output

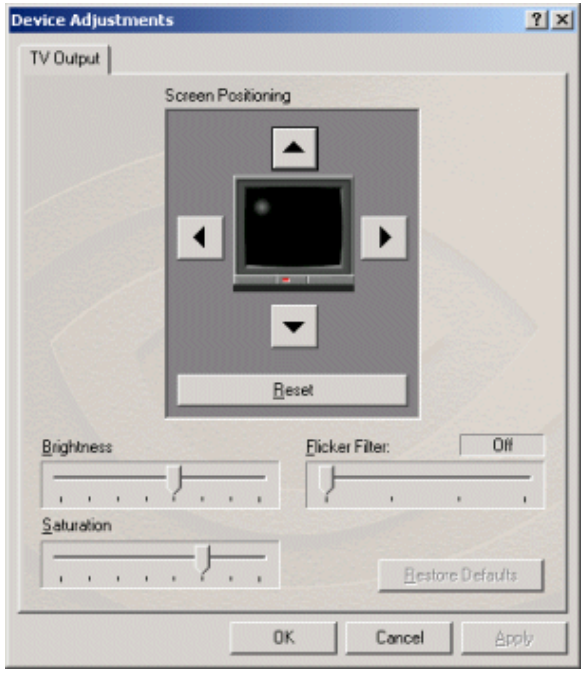
From the Device Selection panel, click the **Device Adjustments** button to open a TV Output panel (Figure 6.16) where you can customize the settings for your TV display.

**Note:** Be sure to click **Apply** after you make any changes in order for the changes to take effect.

- **Screen positioning:** Use the arrow buttons to adjust the position of the desktop on the TV.

  **Note:** If the TV picture becomes scrambled or goes blank due to over-adjustment, simply wait 10 seconds; the picture will automatically return to its default position. Then you can begin your adjustments again. Once you have positioned the desktop where you want it, press the **OK** or **Apply** button to save the settings before the 10 second interval has elapsed.

**Figure 6.16** TV Output Control Panel




- **Brightness/Saturation:** Use these slider controls to adjust the brightness and saturation of the TV image.
- **Flicker Filter:** Use this slider to adjust the amount of flicker filter you want applied to the TV signal.

  **Note:** It is recommended that you turn off the flicker filter completely for DVD movie playback from a hardware decoder.

CHAPTER 7

# VIDEO MIRROR

**Note: If you have only one display device connected to your computer**, you will not have Video Mirror functionality but will be able to access the NVIDIA Overlay Control panel features, as explained in the "Overlay Controls" on page 129.

The Video Mirror feature works in conjunction with TwinView and is supported by any NVIDIA dual-display graphics card, such as an NVIDIA card in the GeForce2 MX or Quadro2 MXR family of products.

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. (For sample combinations of display devices that are supported, see relevant text in "GeForce2 MX Family of Products:TwinView Applications" on page 9.)

Major features of Video Mirror, such as Zoom and Aspect Ratio, can be configured through the Full Screen Video Mirror control panel. The Zoom settings 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.

# Accessing Video Mirror

This section explains how to use the following NVIDIA control panels:

- "Overlay Controls" on page 82
- "Video Mirror Controls" on page 85

To access the Video Mirror control panel, you need to go through the Overlay Controls panel.

**Note:** The options on the Overlay Controls panel can be used on a single video image or display when you are in TwinView Standard mode. However, the Video Mirror Controls work only when you are in the following modes:

- **Windows 2000 TwinView Clone** mode; Video Mirror is not available under Windows NT 4.0.
- **Windows 9*x* TwinView Clone** or **Extended Desktop** (non-TwinView) mode

## Overlay Controls

**Note:** Be sure to click **Apply** whenever you make any changes to the control panels. If changes do not take effect (e.g., the controls have no effect on the video) after you click Apply, close the video overlay and then re-open it.

1. Open the DVD or video application that you want to view.
2. **For Video Mirror functionality**, set your TwinView panel to one of the these modes:
   - **Windows 2000 Clone**
   - **Windows 9*x* Clone** or **Extended Desktop**
3. To access the Overlay Controls panel, click **Properties** > **Settings** tab > **Advanced** button > **GeForce2 MX** tab > **Additional Properties** button > **Overlay Controls** tab.

   Figure 7.1 through Figure 7.4 shows the Overlay Controls panels using example for GeForce3 and GeForce2 MX cards.

   **Note:** If you are using a GeForce2 MX card and your TwinView panel is set to **Standard** mode, the Video Mirror controls are enabled as shown in Figure 7.2 but they will have no effect until you enable TwinView Clone mode under Windows 2000 or either TwinView Clone or Windows Extended mode under Windows 9x.

4 For description of the Overlay Settings, see "Overlay Settings" on page 83 below.

5 To use the Video Mirror controls, go directly to the next section "Video Mirror Controls" on page 85.

## Overlay Settings

- **Check here if you are having problems with your TV tuner (Windows 9*x* only):** Activating this option forces the overlay software to use busmastering.

  **Note:** It is recommended that you leave this option *unchecked* unless you experience problems with video playback, such as image corruption or no video image at all.

- **Brightness, Contrast, Hue, and Saturation**: You can independently control the **brightness**, **contrast**, **hue**, and **saturation** to achieve optimal image quality when playing back videos or DVD movies on your computer.

- **Enable video overlay zoom:** Click this check box and click **Apply** to use the Zoom control slider to zoom in (out) on a specific area of the video output (overlay) on your screen. Using the diagram of the screen regions shown on the Overlay Controls panel, you can select the area of the video screen you would like to zoom. Once selected, you can zoom to that portion of the screen by moving the Zoom Control slider between the Out and In range.

**Figure 7.1** Overlay Controls for GeForce3: Windows 2000

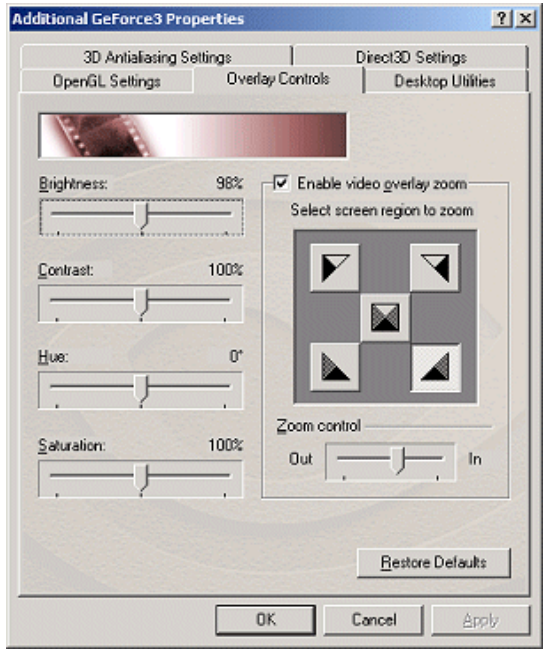


**Figure 7.2** Overlay Controls for GeForce2 MX Single Display: Windows 2000

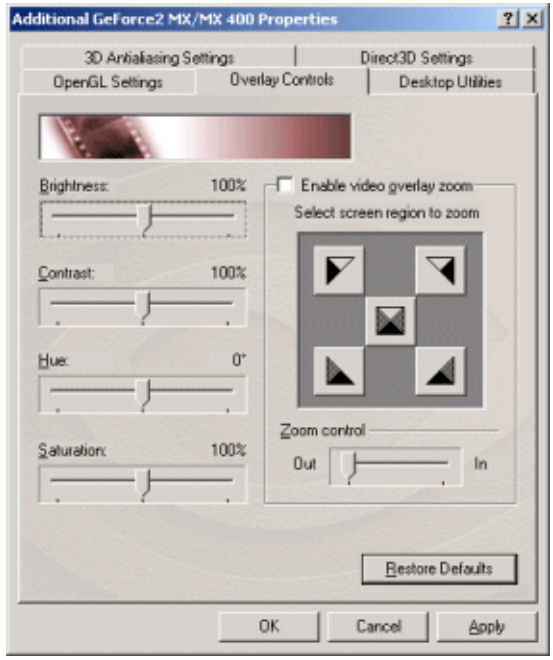



**Figure 7.3** Overlay Controls for GeForce2 MX Dual-Displays: Windows 2000

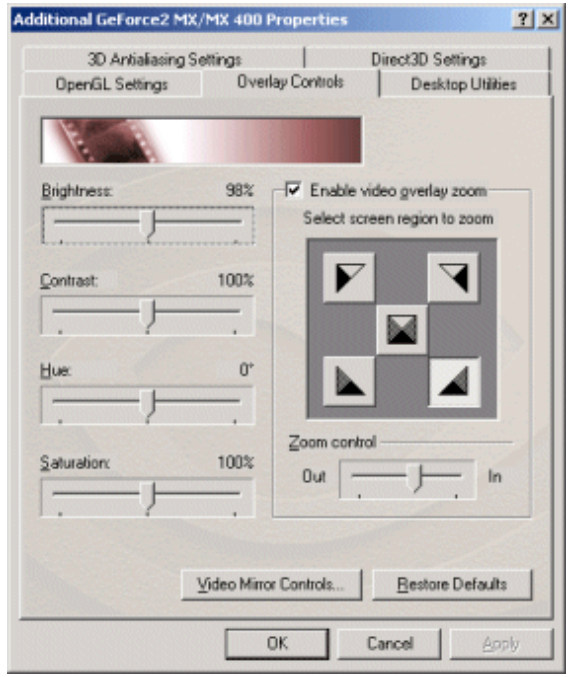
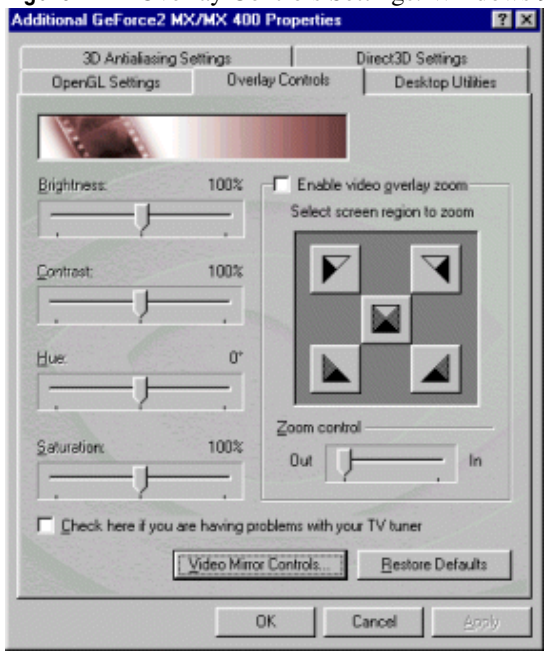


**Figure 7.4** Overlay Controls Settings: Windows 98




## Video Mirror Controls

**Note:** Be sure to click **Apply** whenever you make any changes to the control panels. If changes do not take effect (e.g., the controls have no effect on the video) after you click Apply, close the video overlay and then re-open it.

### TwinView Clone Mode

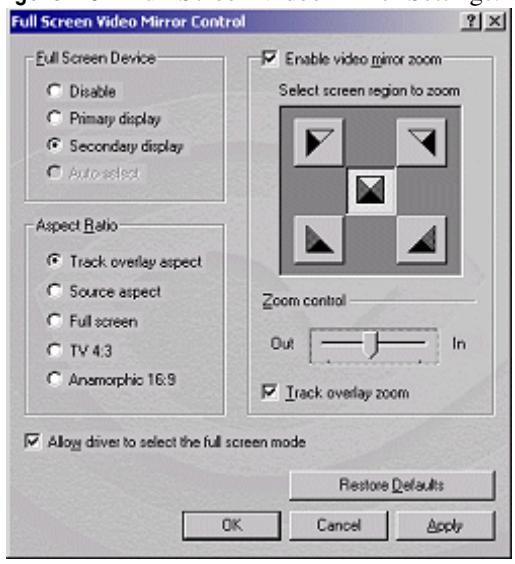
Follow these steps to access the Video Mirror settings if you are using TwinView Clone mode:

1 From the Overlay Controls panel, click **Video Mirror Controls** to open the Full Screen Video Mirror Control panel.

The first time you enter this panel, the Disable option is selected and the Auto-select option is disabled.

2 Click either **Primary display** or **Secondary display** to duplicate the video image on the full screen of your secondary device (such as a TV or DFP) or primary device (such as your CRT). The other options on this panel become enabled as shown in Figure 7.5.

**Figure 7.5** Full Screen Video Mirror Settings: Clone Mode (Windows 2000)




3 Make any other changes you want (see "Video Mirror Settings" on page 87) and click **Apply**.

## Windows 9*x* Extended Desktop Mode

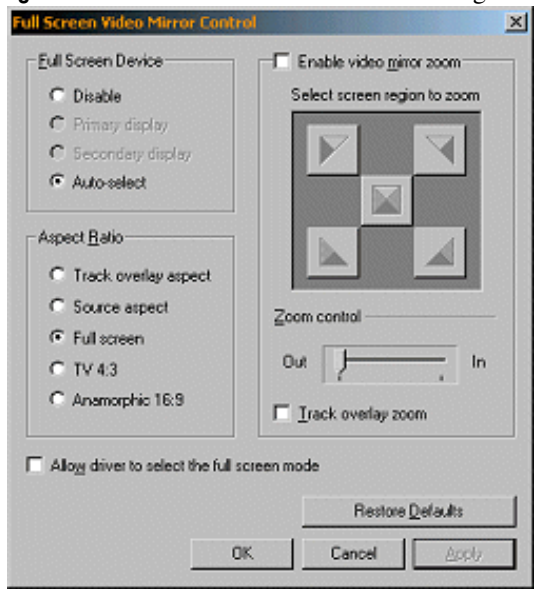
Follow these steps to access the Video Mirror settings if you have enabled the Windows 9*x Extended Desktop* option on the Windows Settings control panel:

1 From the Overlay Controls panel, click **Video Mirror Controls** to open the Full Screen Video Mirror Control panel. The first time you enter this panel, the Disable option is selected; the Primary display and Secondary display options are disabled.

2 Click **Auto-select** to enable Full Screen Device functionality (Figure 7.6).The other options on this panel become enabled.

3 Make any other changes you want (see "Video Mirror Settings" on page 87) and click **Apply**.

**Figure 7.6** Full Screen Video Mirror Settings: Extended Desktop (Windows 98)




# Video Mirror Settings

Table 7.1 describes the Video Mirror configuration settings. With the exception of Enable Video Overlay Zoom, which is available on the Overlay Controls panel, these settings are available on the Full Screen Video Mirror control panels.l

**Table 7.1** Video Mirror Settings

| Features | Description |
|---|---|
| **Enable Video Overlay Zoom** | Enables zooming to a quadrant of the video data on the overlay; this setting does not require a TwinView device. (*See also* description of **Track Overlay Zoom** later in this table.) |
| • Select screen region to zoom | Select the quadrant to zoom. |
| • Zoom control slider | Moves the slider to zoom in and out.<br>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. |
| **Full Screen Device** | |
| • Disable | Disables Video Mirror. |
| • Primary display<br>• Secondary display | To enable Full Screen Device functionality in *Clone* mode, click either Primary display or Secondary display as the full-screen Video Mirror device. |

*continued on next page. . . .*

**Table 7.1** Video Mirror Settings (continued)

| Features | Description |
|---|---|
| • Auto-select | This setting is not available under Windows 2000.<br>Auto-select enables Full Screen Device functionality in Windows 9*x* Extended Desktop mode, which creates the full-screen mirror on the display device on which there is no overlay. This implies that if the video being played is dragged to the other display, the full-screen mirror image will automatically switch displays. |
| **Note:** After selecting any of 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 display on the full-screen image. |
| • Select screen region to zoom | Select the quadrant to zoom |
| • Zoom control slider | Move the slider to zoom in and out. |
| | **Note:** Video players that cannot detect the presence of Video Mirror may not update the zoom factor immediately while displaying a still frame. |
| **Aspect Ratio** | This category contains advanced settings used to change the aspect ratio of the video display on the Video Mirror. |
| • Track overlay aspect | Default and 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 the same as that of the source video, assuming square pixels. |
| • 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** | This is an 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 the desktop mode that is currently set on the display device. |
| **Track overlay zoom** | Activating this option links the Zoom control on the Overlay Controls panel to simultaneously control the zoom factor on the full screen video display. When **Track overlay zoom** is enabled, using either the Overlay Zoom or the Video Mirror Zoom controls affect both the overlay and the full screen video display. To use Track overlay zoom, follow these steps on the Video Mirror Controls panel:<br>**1** Click **Track overlay zoom** to check it.<br>**2** Click **Enable video mirror zoom** to check it.<br>**3** Select a quadrant (screen region) to zoom.<br>**4** Move the Zoom control slider to zoom. Both the video overlay and its full screen mirror image on a secondary device (such as TV or DFP) zoom simultaneously.<br>**5** To achieve the same results from the Overlay Controls panel, continue with these steps: |

*continued on next page. . . .*

**Table 7.1** Video Mirror Settings (continued)

| Features | Description |
|---|---|
| | 6 Click **OK** to return to the Overlay Controls panel.<br>7 Click **Enable video overlay zoom** to check the option (if it's not already checked).<br>8 Move the Zoom control slider to zoom. Both the video overlay and its full screen mirror image on a secondary device (such as TV or DFP) zoom simultaneously |
| **Apply** | When changing the Full Screen Device settings, click **Apply** for the changes to take effect. In general, the changes automatically take effect for all other settings. |

CHAPTER 8

# 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*. Desktop Manager does *not* support Windows 95 due to features lacking in the Windows 95 operating system.

**Note: If you have only one display device connected to your computer**, under **Windows 9x**, you will not have Desktop Manager functionality and under **Windows NT/2000**, you'll have limited Desktop Manager functionality.

# Features Overview

**Note:** The NVIDIA Desktop Manager is a software feature designed for use with any NVIDIA dual-display graphics card, such as any card in the GeForce2 MX or Quadro2 MXR family of products.

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 (Windows NT 4.0/2000) modes and Windows 9*x* Extended Desktop modes.

Key features of and improvements to Desktop Manager include the following:

- re-centered dialog boxes and menus, which prevents 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, such as 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
- “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
- resized task bar so that it no longer spans across monitors
- unicode-enabled, which allows entering desktop names in any non-English language that is supported by the Windows operating system running NVIDIA software and hardware

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

Desktop Manager features are an artifact of how Windows 2000 handles multi-monitor.

- **Windows NT 4.0/2000:** Under Windows NT 4.0/2000, an NVIDIA dual-display card *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.
  - Desktop Manager is available under **Windows NT 4.0/2000 TwinView Standard, Clone, Horizontal Span** and **Vertical Span** modes.
  - **Windows NT 4.0/2000 Span modes** ensure full Desktop Manager functionality. Under the **Standard mode** setting, only "multiple desktop" features are supported.
- **Windows 9*x*:** Under Windows 9*x*, an NVIDIA dual-display card *is* detected as two separate devices resulting in much of the Windows NT 4.0/2000 Desktop Manager functionality being inherent to the Windows 9*x* operating system. For this reason, only a subset of the Windows NT 4.0/2000 features is required and available under the Windows 9*x* Desktop Manager.
  - Desktop Manager is available under **Windows 9*x* Extended Desktop** (*TwinView disabled*) mode; it is not available under Windows 9*x* TwinView Clone or Standard (*TwinView disabled*) mode.
  - Windows 9*x* does not support multiple desktops.

# Enabling Desktop Manager

Follow these steps to enable Desktop Manager:

1. Before you can access NVIDIA Desktop Manager, you must have the following settings:
   - Under **Windows 9*x*,** from you desktop, click **Properties** and the **Settings** tab to open the Settings control panel; be sure the **Extend my desktop onto this monitor** option is checked.
   - Under **Windows NT 4.0/2000**, open the TwinView control panel and set to **Standard**, **Clone, Horizontal Span** or **Vertical Span** mode. Again, note that TwinView Horizontal and Vertical Span modes ensure full Desktop Manager functionality, while the Standard mode (*TwinView disabled*) setting only supports "multiple desktop" features in Desktop Manager.

2 To access Desktop Manager, you need to use the NVIDIA Desktop Utilities control panel to add the NVIDIA QuickTweak icon to the Windows task bar and add Desktop Manager to the QuickTweak utility, as shown in Figure 8.1

For details on the procedure, *see* "Desktop Utilities" on page 113.

3 You can use one of two options to access the Desktop Manager Properties panels:

- Click the **Desktop Manager Configuration** button (shown in Figure 8.1) *or*
- Click the **NVIDIA QuickTweak** icon on the Windows task bar, then select **Desktop Manager Properties** from the context menu (Figure 8.2).

4 **To configure Desktop Manager**, use the NVIDIA Desktop Manager control panels (Figure 8.3 and Figure 8.4), which contain the **Application Management**, **Hot Keys**, **Global Settings**, **Pop-Ups** (*only* for Windows NT/2000) and **Zoom** tabs, as described in the sections that follow.

**Figure 8.1** Displaying the QuickTweak Icon

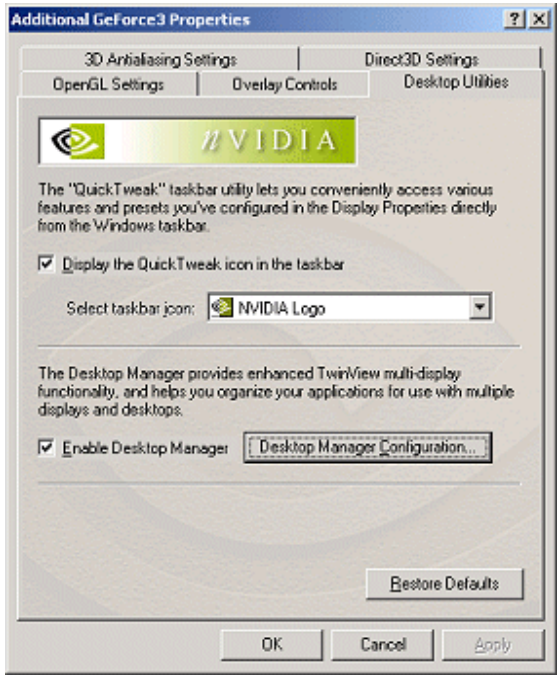
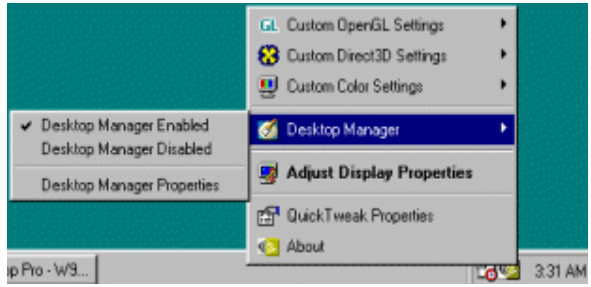


**Figure 8.2** Starting Desktop Manager From the QuickTweak Icon




## Tips on Using Desktop Manager

- The first time you open the Desktop Manager control panels, click **Apply** on any of the settings windows, such as Global Settings and Hot Keys, for the current settings to take effect.
- **Important**: For application-specific settings, such as those in Figure 8.7 that involve **Starting . . .** or **Maximizing . . .** applications, you must exit and restart the application for the setting to take effect.
- Once you've completed configuring one or more applications under Desktop Manager, it is recommended that you close the Desktop Manager Properties panel.
- Any time you want to access the Desktop Manager settings, you can follow one of these procedures:
  - Click the NVIDIA Quick Tweak icon on the Windows status bar and select **Desktop Manager**, as explained in Enabling Desktop Manager earlier in this chapter.
  - If you are already running an application that you configured in Desktop Manager, you can right-click the title bar of the open application. (See "Global Settings" on page 104 to enable this feature.)

# Application Management

Use the Application Management panel (Figure 8.3 and Figure 8.4) to add applications that you want to configure under Desktop Manager and then enable any of the settings that are listed.

**Figure 8.3** Desktop Manager: Application Management (Windows 2000)

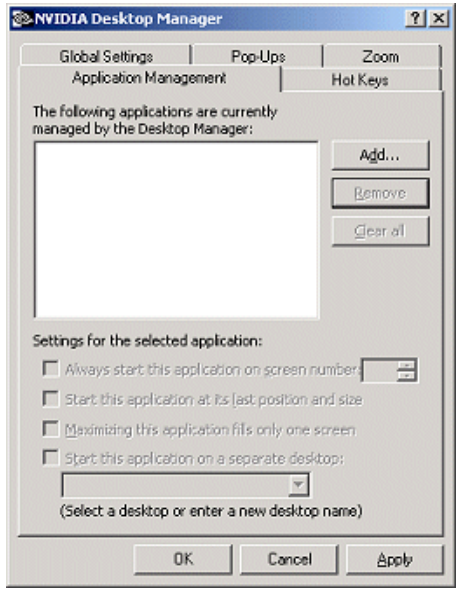
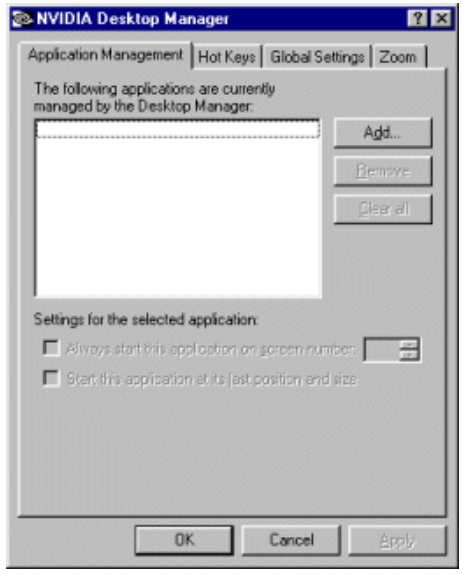



**Figure 8.4** Desktop Manager: Application Management (Windows 98)



## 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 panel. Your open applications will appear in the New Application window as shown in Figure 8.5 and Figure 8.6**.**
3. Select the application you want to add, then click **OK**. The application appears in the Application Management panel, as shown in Figure 8.7 and Figure 8.8.
4. In the Application Management panel, configure the settings to your needs, then click **Apply**.
5. Repeat steps 1 through 4 for each application that you want to add to Desktop Manager.

Figure 8.7 and Figure 8.8 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.

**Figure 8.5** Desktop Manager: Adding the 1st Application (Windows 2000)

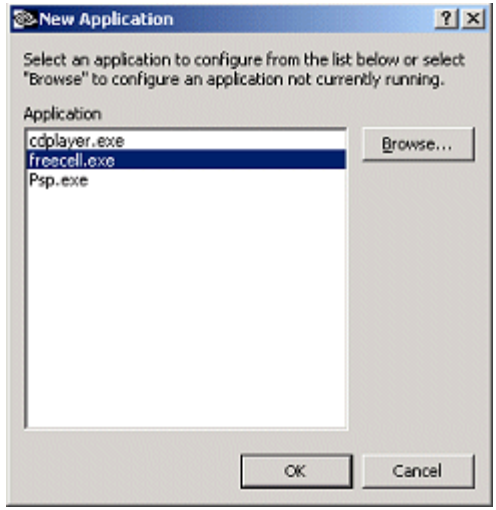
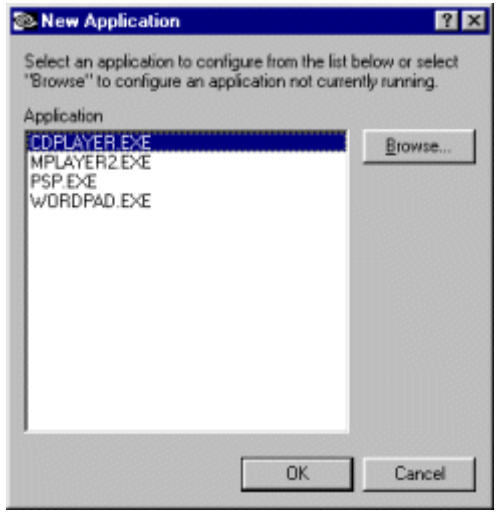


**Figure 8.6** Desktop Manager: Adding the 1st Application (Windows 98)




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

- **Start this application at its last position and size:** When you check this option, the highlighted application starts at its previous position and size when you invoke it.
- **Maximizing the application fills only one screen:** When you check this option, the highlighted application fills only one screen (instead of both screens) when you maximize the application.

**Figure 8.7** Desktop Manager: Configuring the 1st Application (Windows 2000)

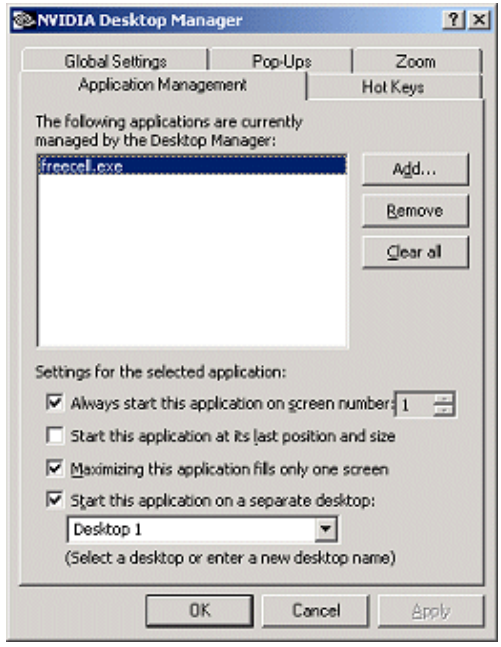
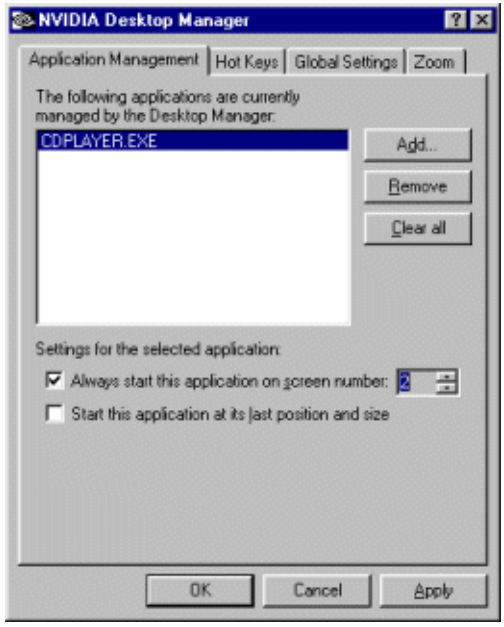



**Figure 8.8** Desktop Manager: Configuring the 1st Application (Windows 98)




- **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 from any application that has been added in Desktop Manager, right-click the title bar of the open application. (See "Global Settings" on page 104.)

**Figure 8.9** Desktop Manager: Adding Another Application (Windows 2000)

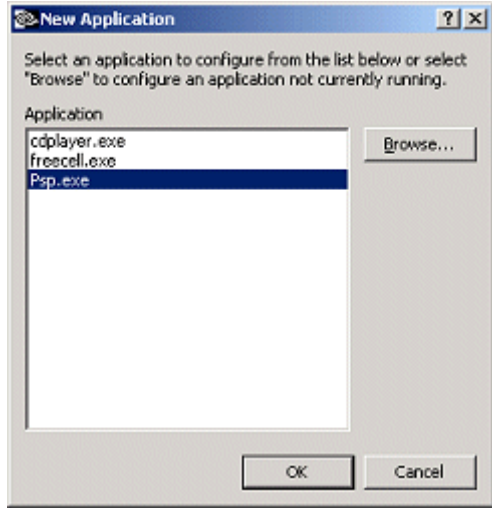
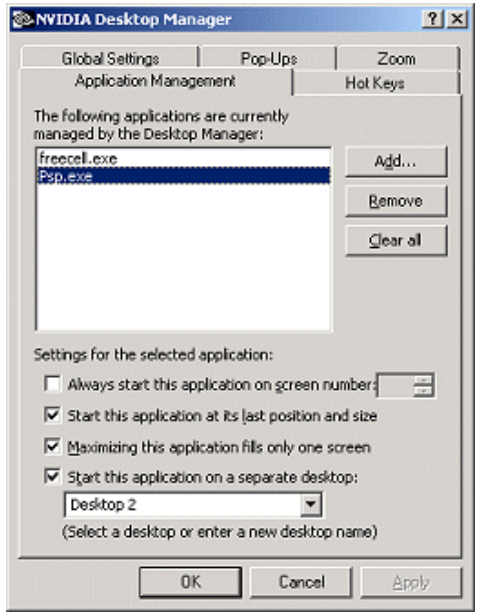



**Figure 8.10** Desktop Manager: Configuring Another Application (Windows 2000)



# Hot Keys

The Desktop Manager Hot Keys panel 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 8.11 (Windows 2000), Figure 8.12 (Windows 98), and listed below. You can replace any of the default hot key combinations with those you 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 8.11** Desktop Manager: Hot Keys (Windows 2000)

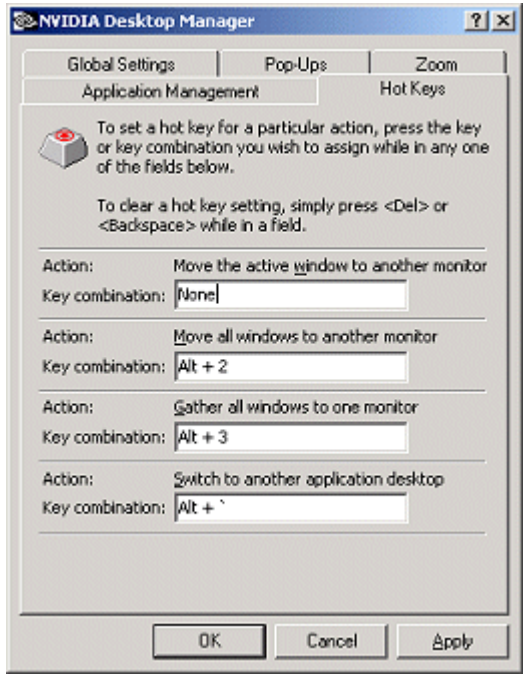



Figure 8.13 shows customized hot-key settings. To specify hot key combinations other than the defaults, you can follow any one of these steps with the cursor in the Key combination field:

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

- **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 8.12** Desktop Manager: Hot Keys (Windows 98)

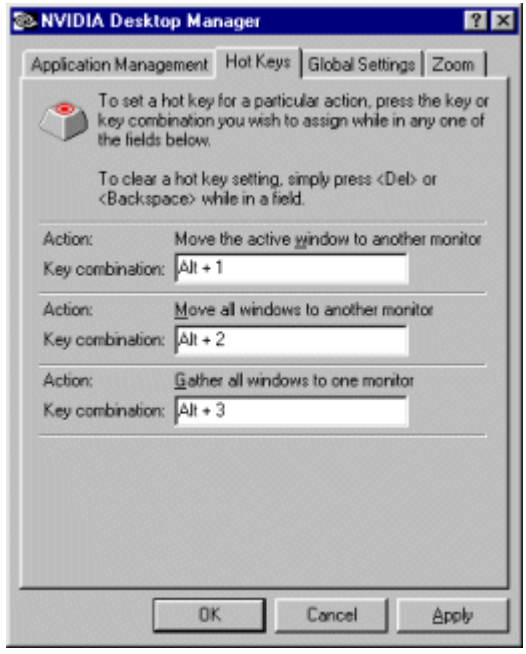
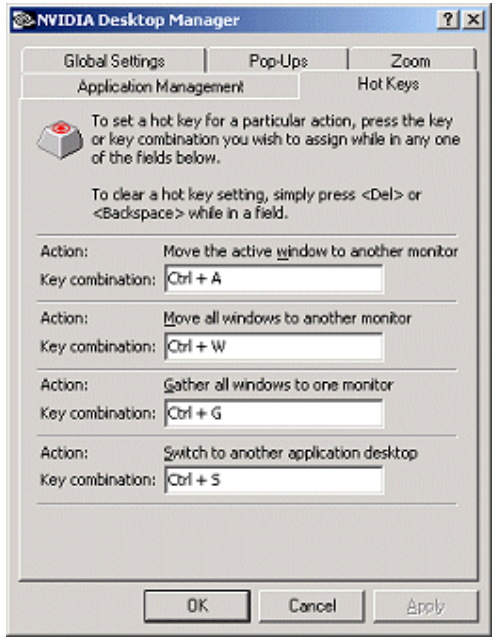


**Figure 8.13** Desktop Manager: Customized Hot Keys (Windows 2000)

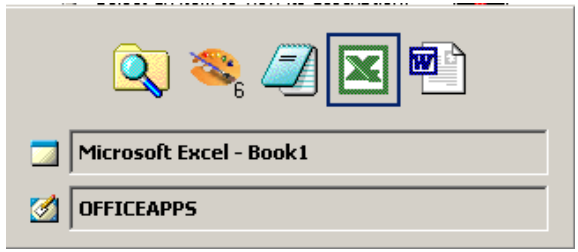



## Task Switcher

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 8.14).
2. Press the **Tab** key again until the application you want to open is highlighted, then release the keys.

**Figure 8.14** Desktop Manager: Task Switcher Menu

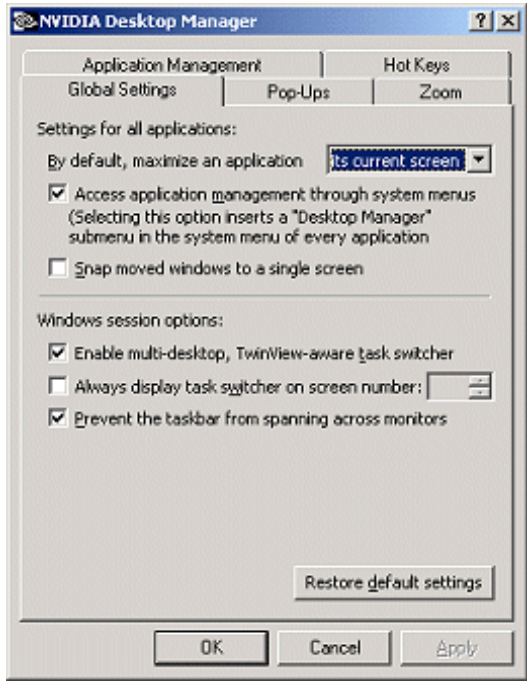


# Global Settings

The Global Settings panel (Figure 8.15 and Figure 8.16) 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:

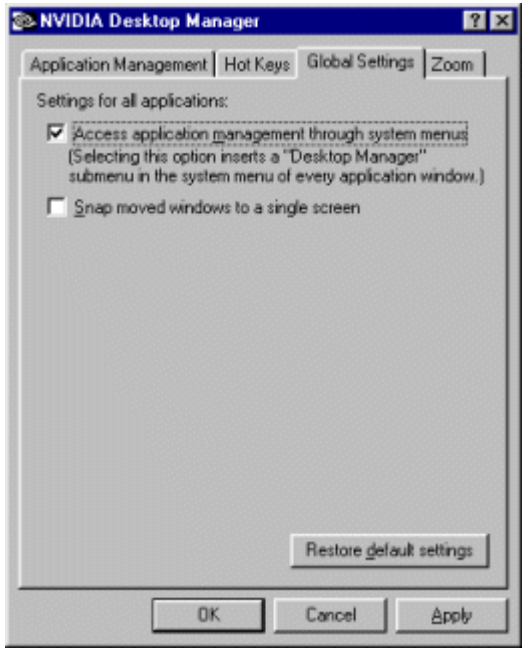
- **By default, maximize an application to**[2]: Click the down arrow in the box next to this option and select one of the following options:
  - its current screen *or*
  - the entire desktop
- **Access Application Management through system menus**: Select this option to insert a "Desktop Manager" submenu in the system menu (Figure 8.17 and Figure 8.18 in this document) of each application configured in Desktop Manager.
- **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.

**Figure 8.15** Desktop Manager: Global Settings (Windows 2000)




2. . Applies only to Windows NT 4.0 & Windows 2000.

**Figure 8.16** Desktop Manager: Global Settings (Windows 98)



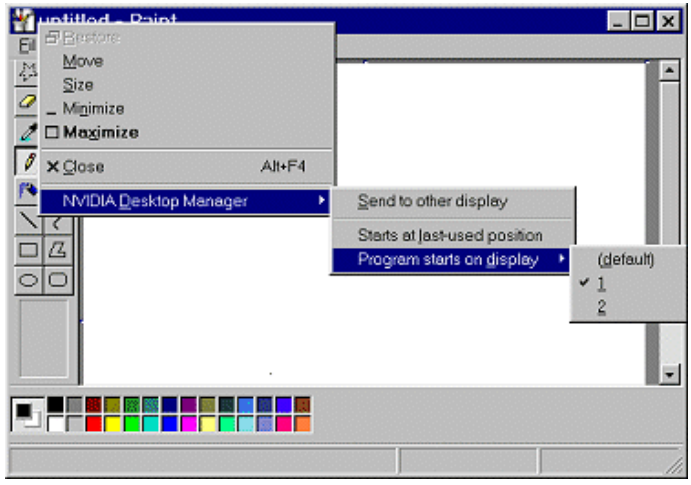

- **Enable multi-desktop TwinView-aware task switcher[3]:** Check this option to display the Desktop Manager task switcher whenever you press **Alt-tab** to switch to another application configured under Desktop Manager.
- **Always display task switcher on screen number[4]:** Check this option to select 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 panel and re-open it.
- **Prevent the taskbar from spanning across monitors[5]:** Check this option to prevent the task bar from spanning across monitors.

3. , 4, & 5: Applies only to Windows NT 4.0 & Windows 2000.

**Figure 8.17** Desktop Manager: Application Manager System Menu (Windows 2000)


**Figure 8.18** Desktop Manager: Application Manager System Menu (Windows 98)



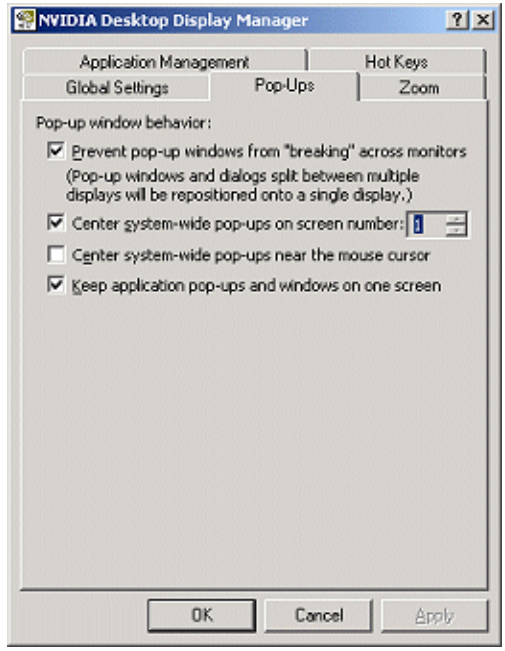
# Pop-up Settings

**Note:** The Desktop Manager Pop-Ups panel only appears under the **Windows NT 4.0/2000** operating systems; Pop-Up features are inherent to the Windows 9*x* operating system and, therefore, are not part of Desktop Manager.

The Desktop Manager Pop-Ups settings (Figure 8.19) 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.
- **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.

**Figure 8.19** Desktop Manager: Pop-Up Settings: Windows 2000



# Zoom Settings

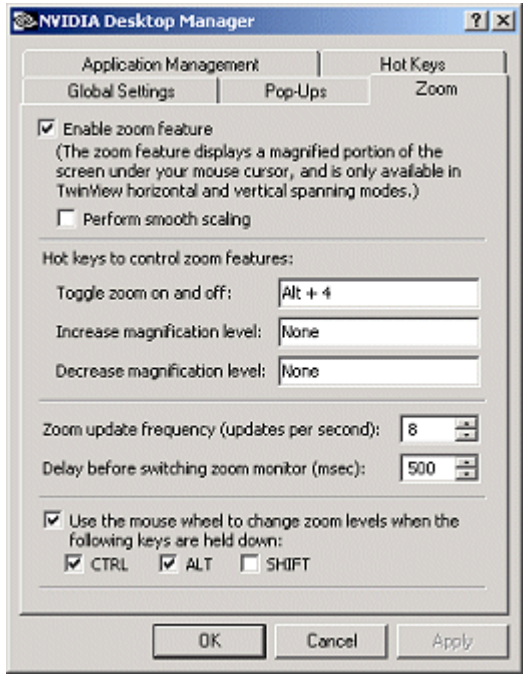
The Zoom feature is available under

- **Windows NT 4.0/2000** Horizontal and Vertical Span modes
- **Windows 9*x*** "Extended Desktop" mode

Since the Zoom feature is "hardware-accelerated" under Windows NT 4.0/2000 but not in Windows 9*x,* it functions more slowly under Windows 9*x.*

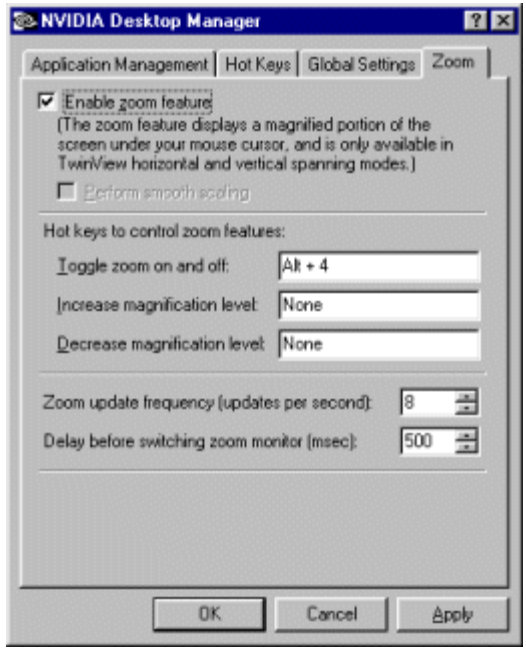
Zoom enables a magnified ("zoomed") view of a region of the screen under and around the mouse cursor. The zoomed view appears on the monitor on which the mouse cursor is *not* pointing. Zoom *default* options are shown in Figure 8.20 (Windows 2000), Figure 8.21 (Windows 98), and explained below.

**Figure 8.20** Desktop Manager: Zoom Settings (Windows 2000)



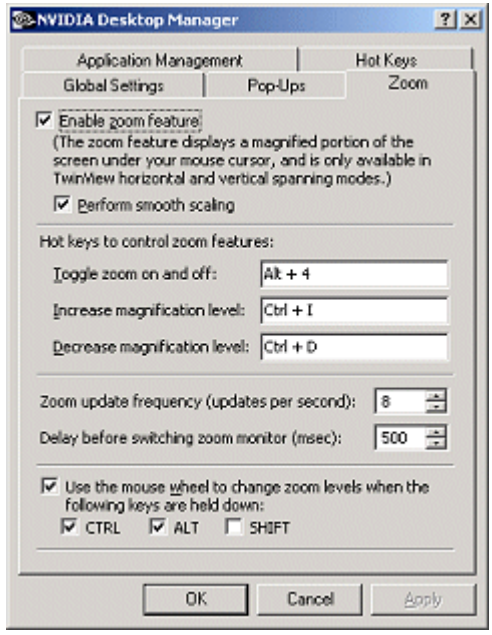

- **Enable Zoom:** By default, the Zoom feature is enabled (available for use) and can be activated by pressing **Alt + 4**, the *default*. This hot key combination can be customized. (See "Desktop Manager: Zoom Settings (Windows 98)" on page 109.)

**Figure 8.21** Desktop Manager: Zoom Settings (Windows 98)




- **Perform Smooth Scaling:** (Windows NT 4.0/2000 *only*) 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.
- **Hot Keys to Control Zoom:** Figure 8.22 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 101.
  - **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.

**Figure 8.22** Desktop Manager: Modified Zoom Hot Keys (Windows 2000)




- **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.

## 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 8.23 shows part of a zoomed application.

**Figure 8.23** Desktop Manager: Zoomed Image (Windows 2000)

CHAPTER 9

# ADDITIONAL FEATURES AND ENHANCEMENTS

This chapter explains the following additions and enhancements to the Detonator 3 v12.41 for Windows driver:



## Desktop Utilities

Use the NVIDIA Desktop Utilities control panel to enable the NVIDIA QuickTweak icon (a Windows task bar utility), which lets you conveniently view and even modify various features and configurations that are available on the NVIDIA control panels.

The following configurations can be accessed and modified through the QuickTweak icon:

- **3D Antialiasing Settings:** These settings are also available through the NVIDIA 3D Antialiasing Settings control panel.
- **Custom OpenGL Setting** These settings are also available through the NVIDIA OpenGL Settings control panel

- **Custom Direct3D Settings** These settings are also available through the NVIDIA Direct3D Settings control panel
- **Custom Color Settings** These settings are also available through the NVIDIA Color Correction control panel
- **Desktop Manager Settings** These settings are also available by click the title bar of an application that has already been configured with NVIDIA Desktop Manager.
- **Adjust Display Properties** These settings are also available by right-clicking from the Windows desktop, selecting **Properties** and then the **Settings** tab.

## Enabling the NVIDIA QuickTweak Icon

Follow these steps to enable the NVIDIA QuickTweak icon:

1. From the Windows desktop, click **Properties** and the **Settings** tab to display the **Windows Settings** panel.
2. Click the **Advanced** button.
3. Click the tab with the name of your **NVIDIA product** such as GeForce3, GeForce2 MX/MX 400, Quadro2 MXR/EX, etc. In this example, it is **GeForce2 MX/MX 400**.
4. Click **Additional Properties,** then click **Desktop Utilities** to display the Desktop Utilities control panel.
5. Check the **Display the QuickTweak icon in the taskbar** check box as shown in Figure 9.2**.**

   Notice that the NVIDIA icon is added to your Windows task bar --- usually positioned at the bottom of your Windows desktop.
6. *Optional:* If you want to enable the Desktop Manager feature, check the **Enable Desktop Manager** check box also, as shown in Figure 9.2.

   For details on the **Desktop Manager** feature**,** *see* "Desktop Manager" on page 91**.**
7. Right-click the NVIDIA icon on your Windows task bar. A menu of configuration options appears, as shown in Figure 9.3 (for the GeForce2 MX card) and Figure 9.4 for the GeForce3 card.
8. To see the configuration options for your card, point to the options that appear on the menu level and the next level of options appears, as shown in Figure 9.3 and Figure 9.3.

**Figure 9.1** NVIDIA Desktop Utilities for GeForce2 MX: Windows 2000

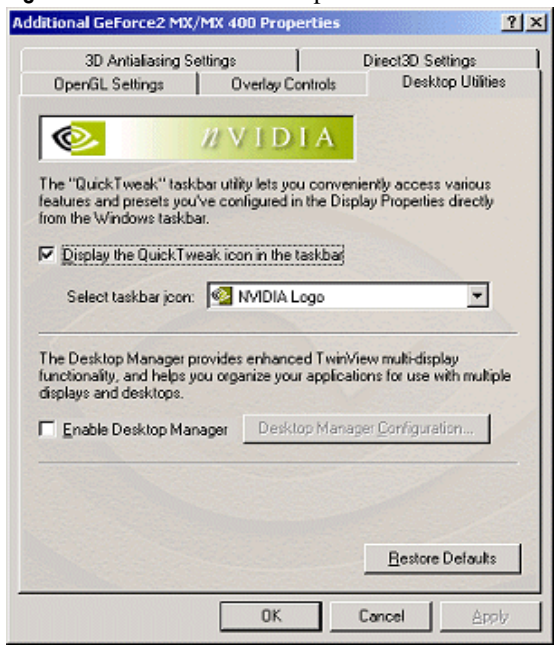



**Figure 9.2** NVIDIA Desktop Utilities for GeForce3: Windows 2000

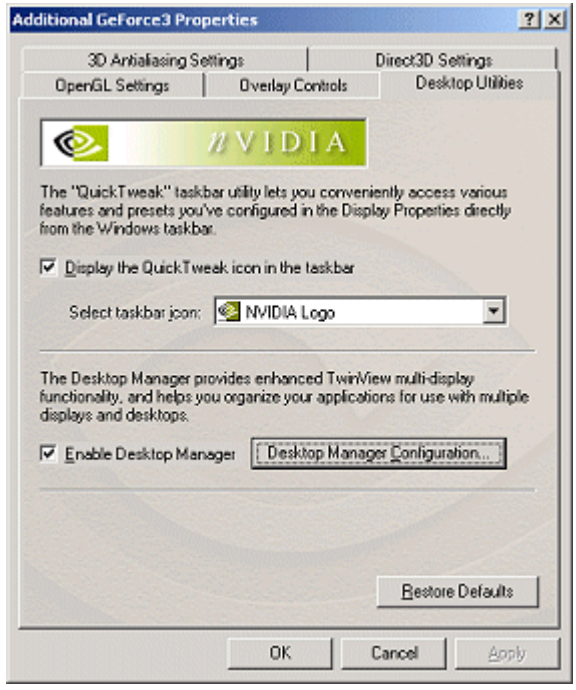


**Figure 9.3** NVIDIA QuickTweak Icon Menu: GeForce2 MX on Windows 2000

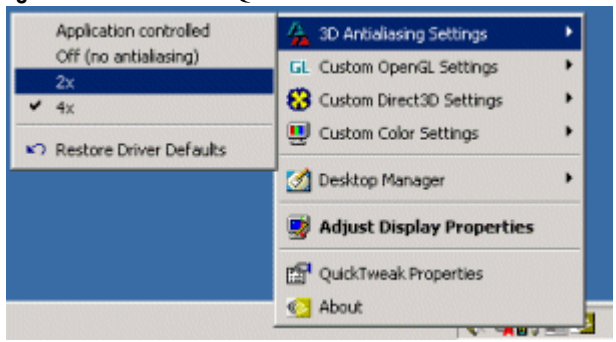
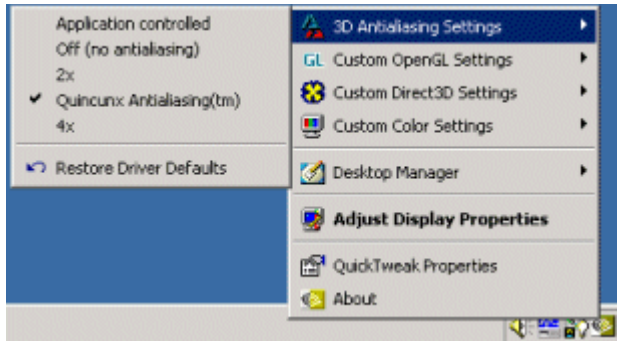



**Figure 9.4** NVIDIA QuickTweak Icon Menu: GeForce3 on Windows 2000




# Color Correction

Follow these steps to access the Color Correction control panel:

- **If you are using a GeForce3 card, another non-TwinView based NVIDIA card, on have not enabled TwinView on your system yet, follow these steps:**

  a Right click from the Windows desktop to display the context menu, click **Properties**, the **Settings** tab, and the **Advanced** button

  b Click the **Color Correction** tab.

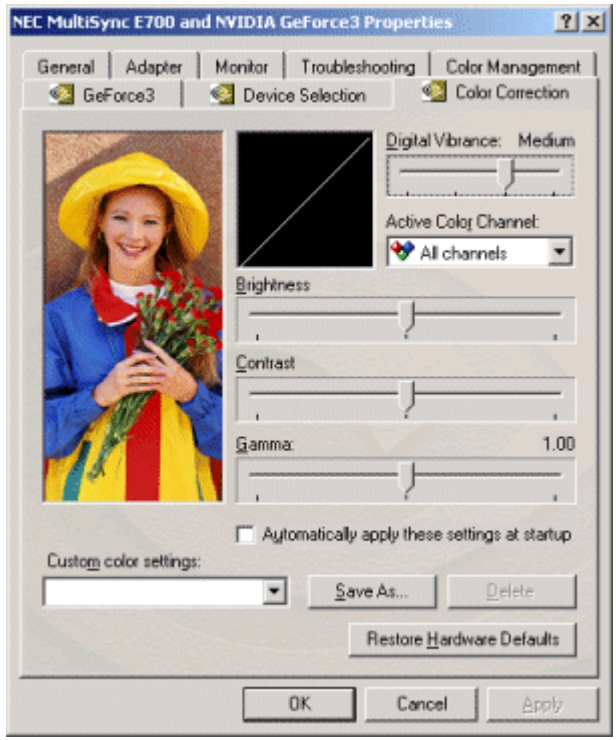
- If **you are using a TwinView based card,** have TwinView enabled, and want to access the Color Control Panel from the TwinView panel, follow these steps:

  a Open the TwinView control panel. (*See* "Accessing the TwinView Panel" on page 14 for Windows 9*x*; *or* "Accessing the TwinView Panel" on page 40 for Windows NT/2000.)

  b To access the context menu, right click on a monitor icon that appears on the TwinView panel.

  c Select **Color Correction** from the context menu.

**Figure 9.5** Color Correction Control Panel




## Description of Color Correction Settings

- **Digital Vibrance Control**, a mechanism for controlling color separation and intensity, boosts the color saturation of images so that all images — including 2D, 3D, and video — appear brighter and crisper, even on flat panels.

  **Note:** The Digital Vibrance feature is supported by the GeForce2 MX, GeForce2 Go, and the Quadro2 MXR graphics cards.

Digital Vibrance can be turned off or set to different levels from low to high through the Color Correction control panel as shown in Figure 9.5.

- **Active Color Channel:** Allows you to select the color channel controlled by the sliders. You can adjust the red, green or blue channels individually or all three channels at once.
- **Brightness, Contrast, and Gamma Controls:** The slider controls allow you to adjust the brightness, contrast, or gamma values for the selected color channel.

  The Color Correction controls help you to compensate for variations in luminance between a source image and its output on a display device. This is useful when working with image processing applications to help provide more accurate color reproduction of images (such as photographs) when they are displayed on your monitor.

  Also, many 3D-accelerated games may appear too dark to play. Increasing the brightness and/or gamma value equally across all channels will make these games appear brighter, making them more playable.

  Also, many 3D-accelerated games may appear too dark to play. Increasing the brightness and/or gamma value equally across all channels will make these games appear brighter, making them more playable.
- **Diagonal Line/Curve:** A graphical representation of the color curve. This curve will change in real time as you adjust the contrast, brightness or gamma.
- Selecting **Automatically apply these settings at startup** automatically restores the color adjustments you have made here when Windows is restarted.

  **Note:** If your computer is running on a network, the color will be adjusted after you have logged on to Windows
- **Custom color settings** provides a list of the custom color settings you have saved. Selecting an item from the list will activate the setting.
- **Save as** lets you save the current color settings as a custom setting. Saved settings will then be added to the adjacent list.
- **Delete** deletes the custom color setting currently selected in the list.
- **Restore Hardware Defaults** restores all color values to the hardware factory settings.

# OpenGL Settings

Follow these steps to access the OpenGL Setting panel:

1. Right click from the Windows desktop to display the context menu, click **Properties**, the **Settings** tab, and the **Advanced** button
2. Click the tab with the name of your NVIDIA product such as GeForce3, GeForce2 MX/MX 400, Quadro2 MXR/EX, etc.
3. Click **Additional Properties**, then click the **OpenGL Settings** tab to display the OpenGL Settings panel.

**Figure 9.6** OpenGL Settings (GeForce3)

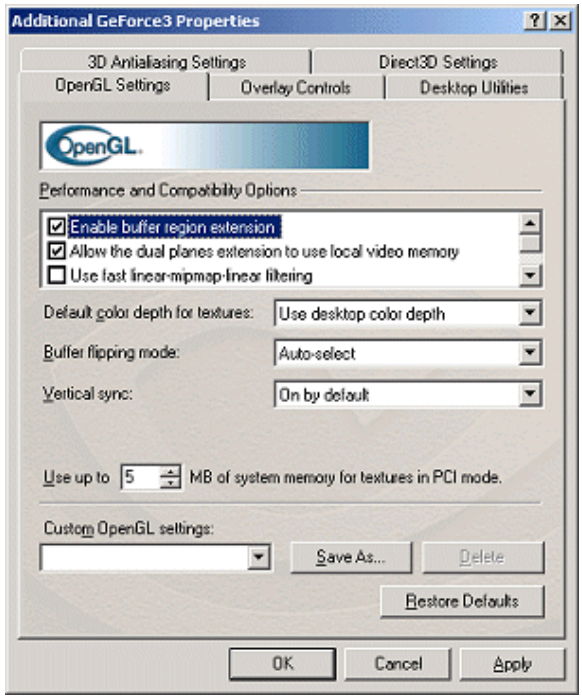


**Figure 9.7** OpenGL Settings (GeForce2 MX)

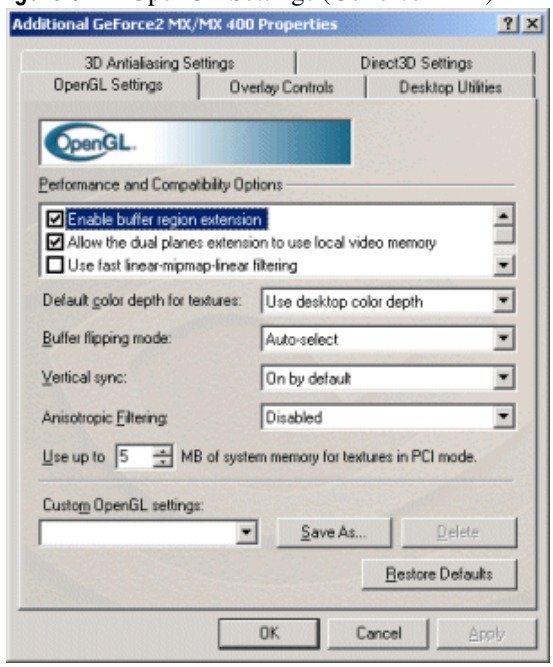
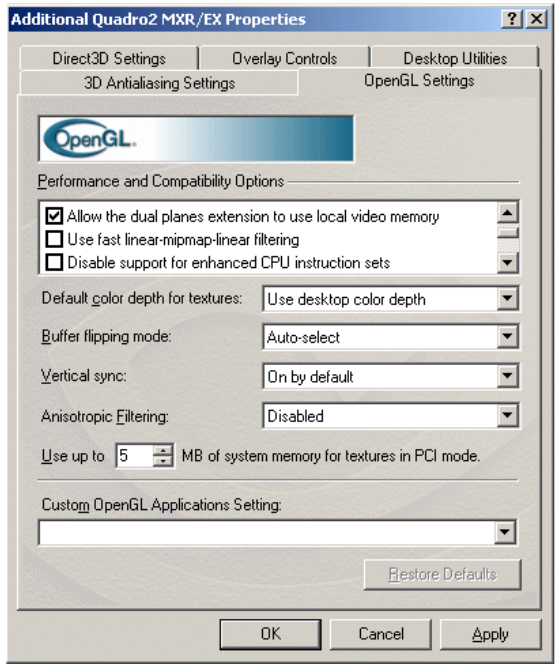



**Figure 9.8** OpenGL Settings (Quadro2 MXR/EX)



# Description of OpenGL Settings

## Performance and Compatibility Options

- **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.
- **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.
- **Force 16-bit depth buffer** is *only* supported by
  - **NVIDIA dual-display graphics cards**, such as those in the GeForce2 MX, GeForce2 Go, and Quadro2 MXR family of NVIDIA products.
  - **Windows NT 4.0/2000**

  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.
- **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.

- **Use unified back/depth buffer (UBB), Enable quadbuffered stereo API,** and **Enable Overlays** are *only* supported by:
  - **NVIDIA workstation graphics cards**, such as the Quadro2 family of NVIDIA products
  - **Windows NT 4.0/2000**

  When the UBB 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.

  On cards using the Quadro series of graphics processors, UBB must be enabled to take advantage of such features as **OpenGL overlay planes** (NVIDIA Release 6 for Windows drivers and later versions) and **quadbuffered stereo** (NVIDIA Release 10 for Windows drivers and later versions). These features can be enabled through this control panel page on NVIDIA workstation graphics cards.
- **Enable Advanced Multiple Monitors** is an option that is currently supported under **Windows 2000** and appears on systems installed with any two NVIDIA graphics cards; i.e., TNT family and later versions. For example, one TNT2 and one GeForce2 MX is an acceptable combination. However, RIVA 128/128ZX are excluded from this combination.

  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.
- **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.
  - **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.
- **Buffer flipping mode** determines the buffer-flipping mode for full-screen OpenGL applications. You can select from one of the following methods:
  - **Use block transfer** is the block transfer method
  - **Use page flip** is the page flip method.
  - **Auto-select** allows the driver to determine the best method based on your hardware configuration.

- **Vertical sync** lets you specify how vertical synchronization (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.
- **Anisotropic filtering** allows OpenGL to use anisotropic filtering for improved quality of images.
  - **Disabled** disables Anisotropic filtering
  - **Enabled** allows OpenGL to use anisotropic filtering for improved image quality. Note, however, that enabling this feature improves image quality but at the expense of performance.
- **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:** 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.

## Custom OpenGL Settings

- **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.
- **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.
- **Delete** lets you delete the custom setting currently selected in the Custom OpenGL settings field.

## Custom OpenGL Application Settings

**Custom OpenGL Application settings** (for workstation graphics cards) displays a list of preconfigured settings corresponding to OpenGL workstation applications.

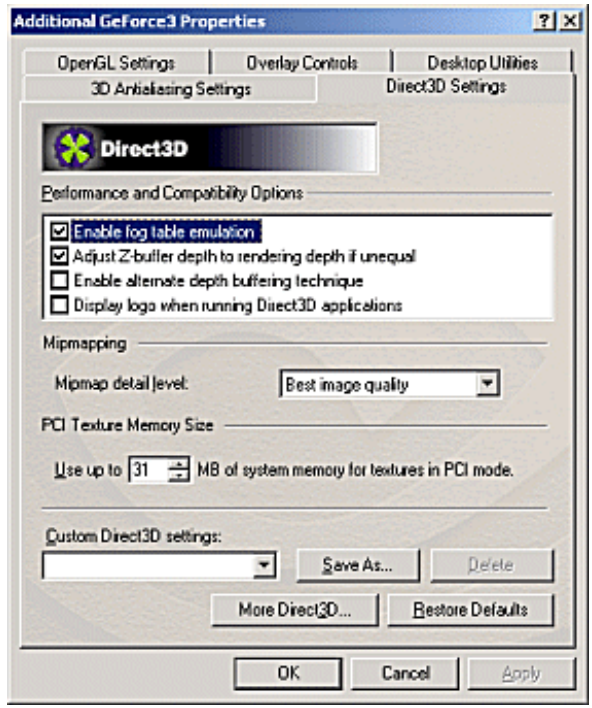
# Direct3D Settings

Follow these steps to access the Direct3D Setting panel:

1. Right click from the Windows desktop to display the context menu, click **Properties**, the **Settings** tab, and the **Advanced** button
2. Click the tab with the name of your NVIDIA product such as GeForce3, GeForce2 MX/MX 400, Quadro2 MXR/EX, etc.
3. Click **Additional Properties**, then click the **Direct3D Settings** tab to display the Direct3D Settings panel.

   Figure 9.9 uses the GeForce3 product as an example.

**Figure 9.9** Direct3D Settings




## Description of 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:
  - **Best Image Quality**
  - **High Image Quality**
  - **Blend**
  - **High Performance**
  - **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:** 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.

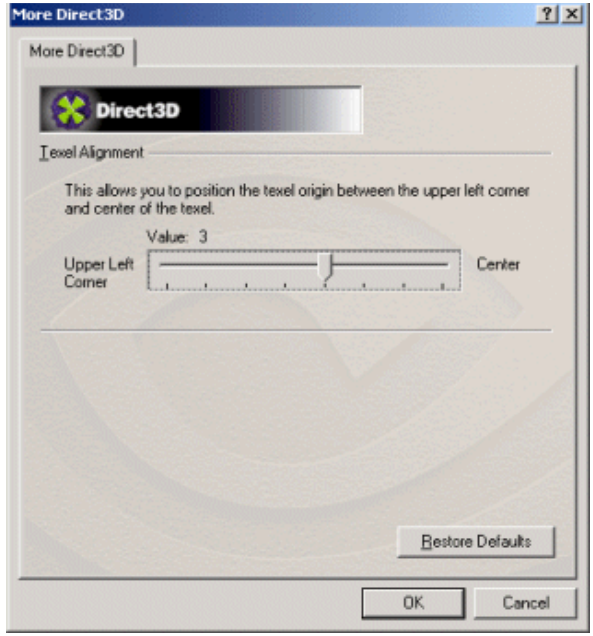
- **Custom Direct3D settings** displays a list of the custom settings (or "tweaks") you have saved. Selecting an item from the list will activate the setting. To apply the setting, click **OK** or **Apply**.
- **Delete** lets you delete the custom setting currently selected in the Custom D3D Settings field.
- **Restore Defaults** restores all settings to their default values.

## Description of More Direct3D Settings

Follow these steps to access the **More Direct3D** panel:

1. Right click from the Windows desktop to display the context menu, click **Properties**, the **Settings** tab, and the **Advanced** button
2. Click the **NVIDIA Product** tab, such as GeForce3, GeForce2 MX/MX 400, or Quadro2 MXR/EX, etc.
3. Click **Additional Properties**, then click the **Direct3D Settings** tab.
4. Click the **More Direct3D** button to display the More Direct3D panel.

**Figure 9.10** Direct3D Antialiasing Settings




**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.

# 3D Antialiasing Settings

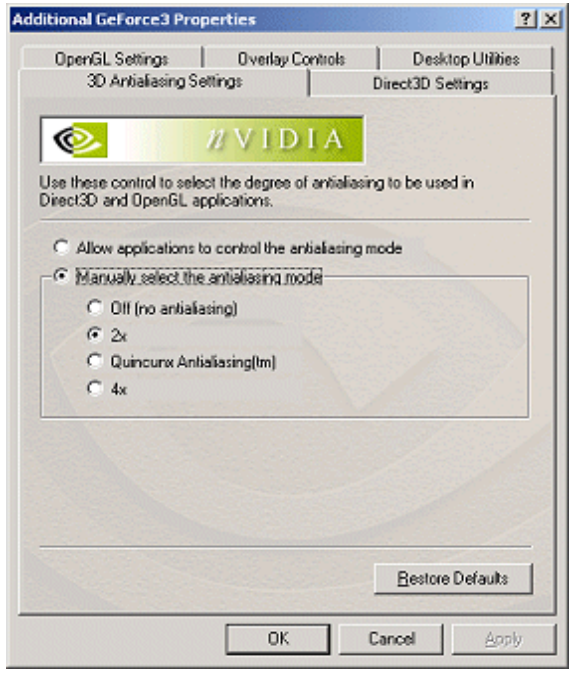
The 3D Antialiasing settings are supported by the following NVIDIA graphics cards:

- GeForce2 MX (100, 200, 400), GeForce2 Go, and Quadro2 MXR/EX)
- GeForce2 GTS and Quadro2 Pro
- GeForce 256 and Quadro

Follow these steps to access the **3D Antialiasing Settings** control panel:

1. Right click from the Windows desktop to display the context menu.
2. Click **Properties**, the **Settings** tab, and the **Advanced** button
3. Click the tab with the name of your NVIDIA product such as GeForce3, GeForce2 MX/MX 400, Quadro2 MXR/EX, etc.
4. Click **Additional Properties**, then click the **3D Antialiasing Settings** tab to display the 3D Antialiasing Settings panel.

**Figure 9.11** 3D Antialiasing Settings: GeForce2 MX/MX 400: Windows 2000



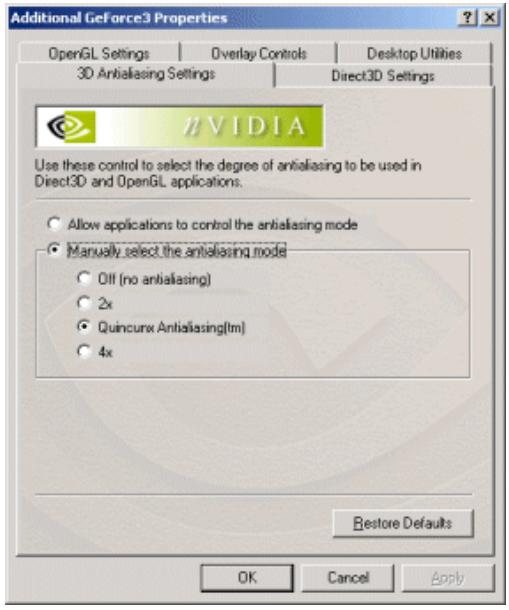
## Description of 3D Antialiasing Settings

- **Allow applications to control the antialiasing mode** automatically enables the optimal antialiasing settings to be used by the 3D (OpenGL or Direct3D) applications that support antialiasing. Antialiasing is a technique used to smooth the edges of objects in a scene to reduce the jagged "stair-step" effect that sometimes appears.
- **Manually select the antialiasing mode** allows you to manually select the antialiasing mode to be used when running your 3D applications.
  - **Off (no antialiasing)** disables antialiasing in 3D applications. Select this option if your require *maximum performance* in your applications.
  - **2x** enables antialiasing in 3D applications using the 2x mode. This option offers improved image quality and high performance in 3D applications.
  - **4x** enables antialiasing in 3D applications using the 4x mode. This option offers the highest possible image quality at the expense of some performance in 3D applications

## GeForce3: Additional Quincunx Antialiasing Setting

If you are using the GeForce3 video card, under **Manually select the antialiasing mode** on the 3D Antialiasing Settings panel, there is an additional option, **Quincunx Antialiasing**, as described below:

**Figure 9.12** 3D Antialiasing Settings: GeForce3 Windows 2000



**Quincunx Antialiasing** offers better quality than the **2x** option and better performance than the **4x** option.

# Overlay Controls

Use the Video Overlay Controls to adjust the quality of video or DVD playback on your monitor.

**Note:** Be sure to click **Apply** whenever you make any changes to the control panels. If changes do not take effect (e.g., the controls have no effect on the video) after you click Apply, close the video overlay and then re-open it.

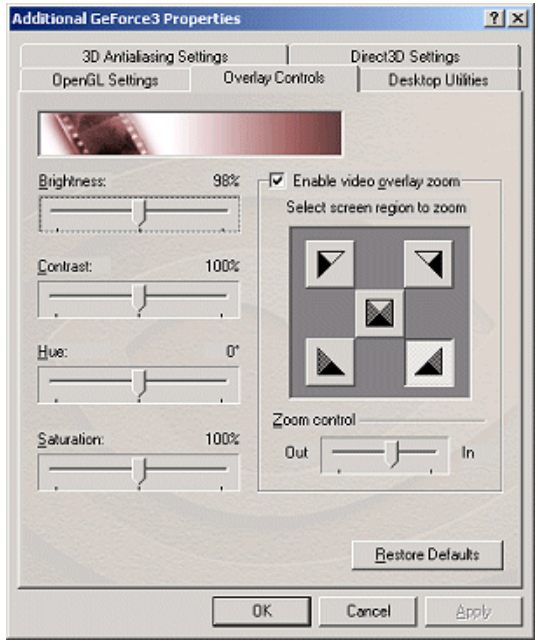
1 Open the DVD or video application that you want to view.

2 To access the Overlay Controls panel, click **Properties** > **Settings** tab > **Advanced** button > **NVIDIA Product Name** tab > **Additional Properties** button > **Overlay Controls** tab.

Figure 9.13 through Figure 9.16 show Overlay Controls panel for GeForce3 and GeForce2 MX cards.

**Note:** For Figure 9.16, if the Video Mirror settings are not enabled, set you TwinView mode to **Standard** on the TwinView panel.

**Figure 9.13** Overlay Controls (Modified) for GeForce3




3 For descriptions of the Overlay Settings, see "Overlay Settings" on page 131.

4 To use the Video Mirror controls, go directly to "Video Mirror Controls" on page 85.

**Figure 9.14** Overlay Controls for GeForce2 MX Single Display: Windows 2000

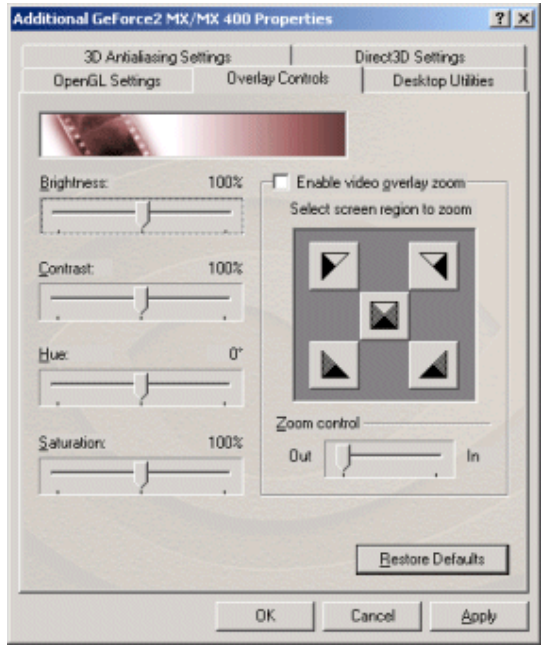



**Figure 9.15** Overlay Controls for GeForce2 MX Dual-Displays: Windows 2000

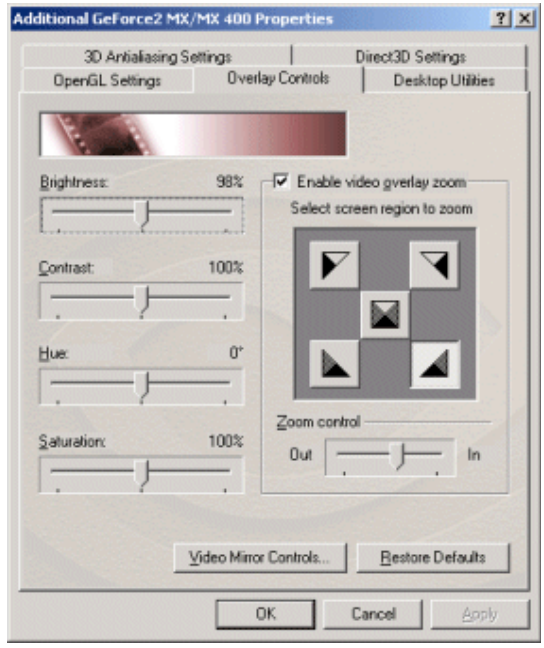
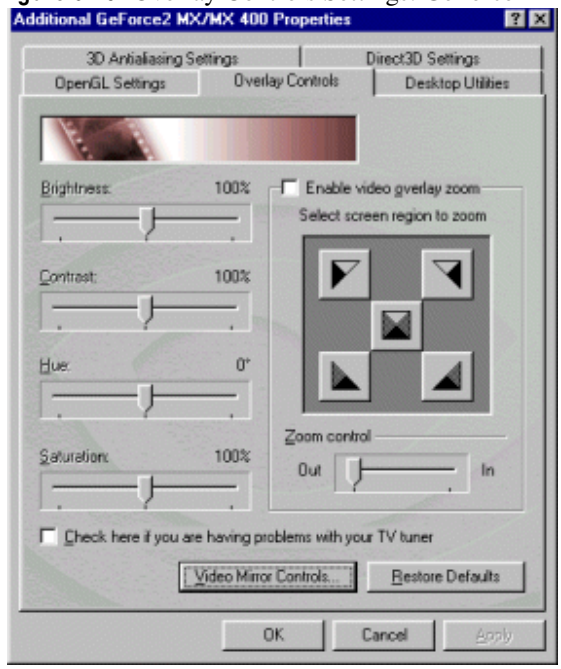


**Figure 9.16** Overlay Controls Settings: GeForce2 MX (Windows 98)




## Overlay Settings

- **Check here if you are having problems with your TV tuner (Windows 9*x* only):** Activating this option forces the overlay software to use busmastering.

  **Note:** It is recommended that you leave this option *unchecked* unless you experience problems with video playback, such as image corruption or no video image at all.

- **Brightness, Contrast, Hue, and Saturation**: You can independently control the **brightness**, **contrast**, **hue**, and **saturation** to achieve optimal image quality when playing back videos or DVD movies on your computer.

- **Enable video overlay zoom:** Click this option, then click **Apply** to use the Zoom control to zoom in (out) on a specific area of the video output (overlay) on your screen. Using the diagram of the screen regions shown on the Overlay Controls panel, you can select the area of the video screen you would like to zoom. Once selected, you can zoom to that portion of the screen by moving the Zoom Control slider between the Out and In range.

APPENDIX

A

# NVIDIA DUAL-CARD CONFIGURATION: AN EXAMPLE ON WINDOWS 2000

This chapter contains an example of using two NVIDIA Cards, the GeForce3 (AGP) card and the GeForce2 MX (PCI) card in one computer running **Windows 2000**. In this example:

- the GeForce3 card is connected to a DFP (digital flat panel) display *and*
- the GeForce2 MX card is connected to a TV and CRT (analog monitor) for dual-display functionality.

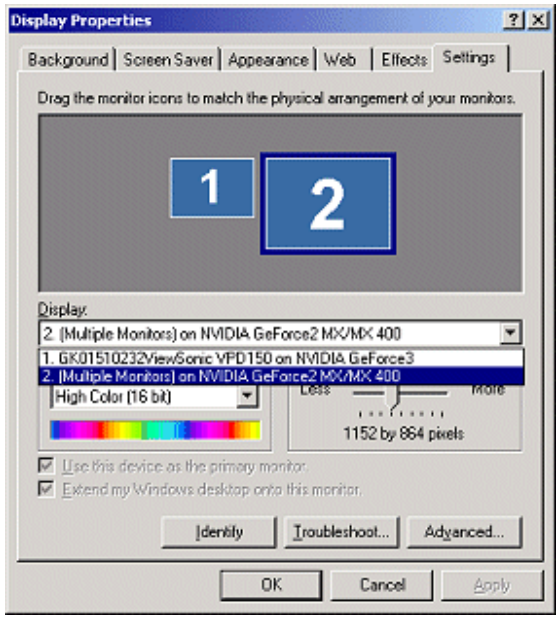
## Setting Up the Dual NVIDIA Cards

Follow these steps to use two NVIDIA cards on your computer:

1. Make sure you have an AGP slot and a PCI slot on your computer.
2. Install the appropriate PCI and AGP cards.
3. Install the appropriate NVIDIA Release 10 drivers.
4. Restart your computer as necessary and as prompted so that your system detects both NVIDIA cards.
5. Once your Windows has restarted for the final time and your desktop is no longer processing start-up tasks, right click on the desktop to display the context menu.
6. Click **Properties** and the **Settings** tab to display the **Windows Settings** panel.
7. Click the down arrow in the Display windows, as shown in Figure A.1**.**

This example shows that the GeForce3 card is connected to a DFP and the GeForce2 MX cards is connected to “multiple monitors”, which is true: the GeForce2 MX card is connected to both a TV and a CRT.

**Figure A.1** Settings Panel for Dual-Cards: Windows 2000




**8** Go to the next section “Enabling the First Card: GeForce3” on page 134

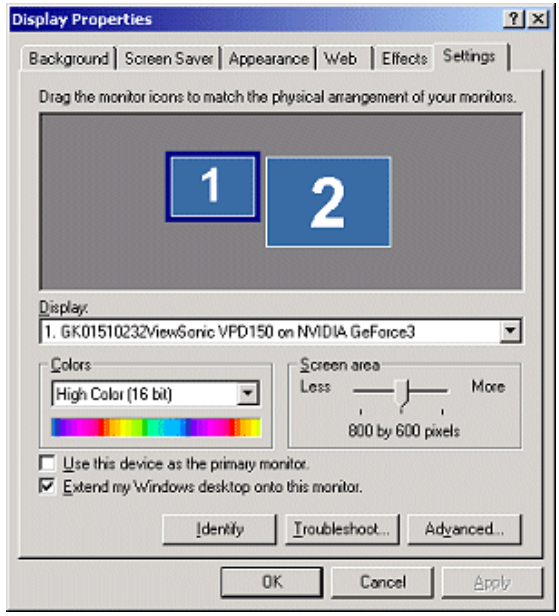
# Enabling the First Card: GeForce3

**1** Make sure you’ve completed the instructions in the previous section “Setting Up the Dual NVIDIA Cards” on page 133.

**2** Click on Display **1 DFP on NVIDIA GeForce3** so that it displays in the Display window.

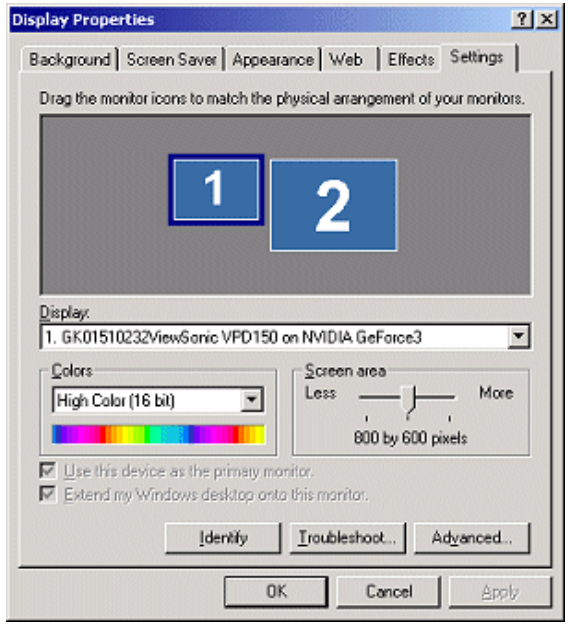
**3** Then, right-click on monitor icon 1 to display a context menu and select **Attached** to check the option. Notice the “Extend my windows desktop onto this monitor” check box becomes checked (Figure A.1).

**Figure A.2** Dual-Cards Settings: GeForce3 on Windows 2000 (1)



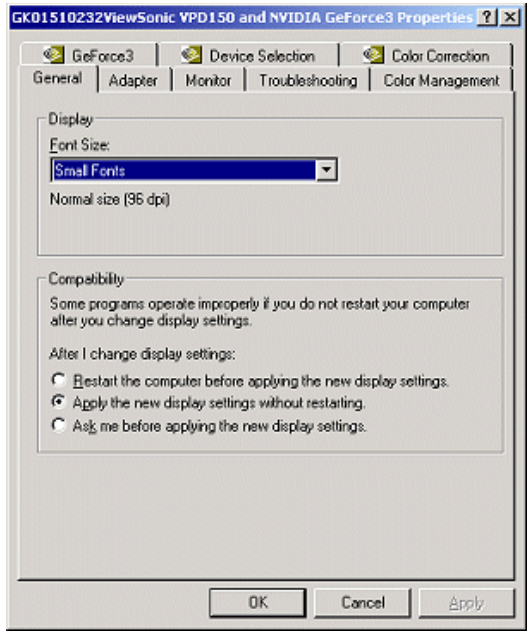

**4** Now click the empty check box **"Use this device as the Primary monitor"** (Figure A.2) to check it. Both check boxes are now grayed (Figure A.3). This indicates that your Display 1 device, which is the DFP in this example, is connected to the NVIDIA GeForce3 card.

**Figure A.3** Dual-Cards Settings: GeForce3 on Windows 2000 (2)



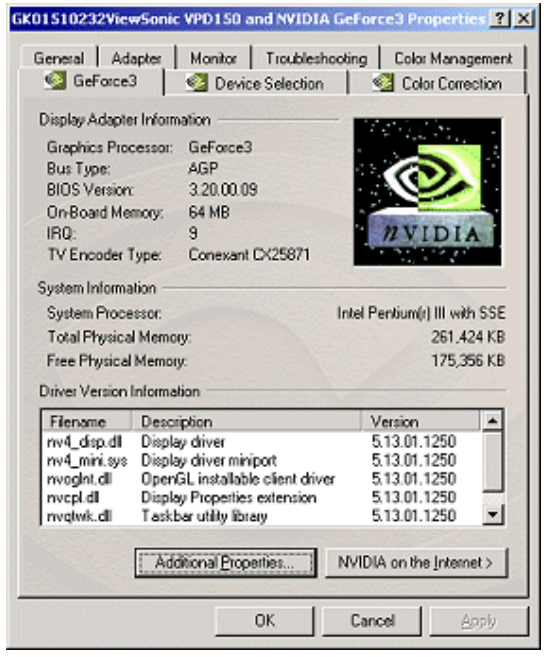
**5** Click the **Advanced** button to display Figure A.4.

**Figure A.4** GeForce3 & Other NVIDIA Control Panels: Windows 2000




**6** Click the **GeForce3** tab to display the GeForce3 control panel (Figure A.5).

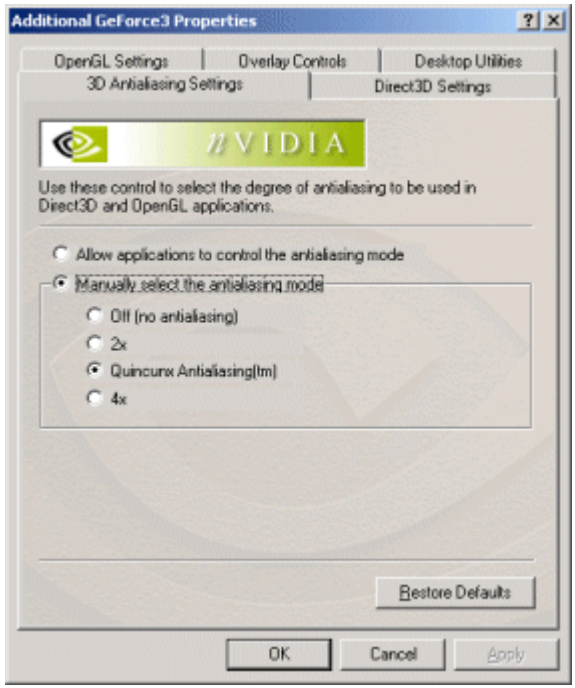
**Figure A.5** GeForce3 Control Panel: Windows 2000



7 Click the **Additional Properties** to display the 3D Antialiasing Settings panel (Figure A.6). From here you can now access all the features & options for the GeForce3 card, as explained in the following chapters:

- "The GeForce3 Product" on page 5
- "Device Selection & Configuration" on page 65
- "Additional Features and Enhancements" on page 113

**Figure A.6** GeForce3 3D Antialiasing Settings: Windows 2000



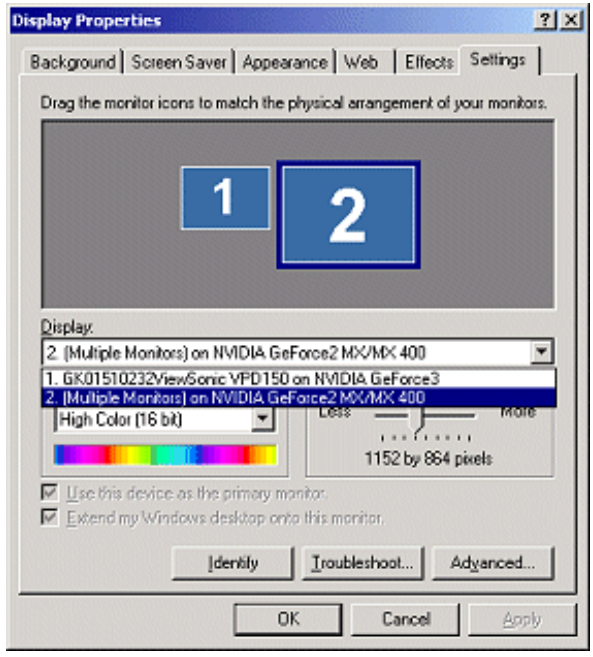

**Note:** To easily view the dual-cards and its other features and options through the NVIDIA Quick Tweak icon, see "Accessing Dual Cards & Configurations With QuickTweak" on page 141.

8 Go to the next section "Enabling the Second Card: GeForce2 MX" on page 138

# Enabling the Second Card: GeForce2 MX

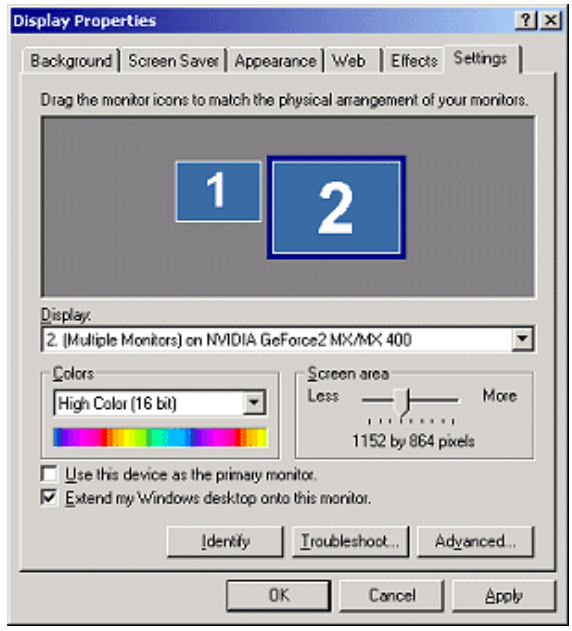
1. Make sure you've completed the instructions in the previous section "Enabling the First Card: GeForce3" on page 134.
2. Return to the Windows Settings control panel.
3. Click the down arrow in the Display windows, as shown in Figure A.7.
4. Click on Display **2 (Multiple Monitor) on NVIDIA GeForce2 MX/MX 400** so that this choice appears in the Display window.

**Figure A.7** Settings Panel for Dual-Cards: Windows 2000



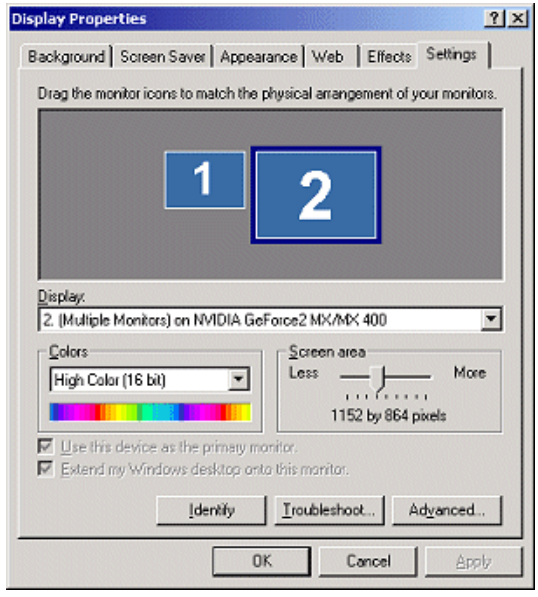

5. Then, right-click on monitor icon **2** to display a context menu and click **Attached** to check the option. Notice the "**Extend my windows desktop onto this monitor**" check box becomes checked (Figure A.8).

**Figure A.8** Settings for Dual-Cards: GeForce2 MX on Windows 2000 (1)




**6** Now click the empty check box **"Use this device as the Primary monitor"** (Figure A.7) to check it. Both check boxes are now grayed, which indicates that your Display **2** device(s) (the multi-monitor setup of CRT and TV) are connected.

**Figure A.9** Settings for Dual-Cards GeForce2 MX on Windows 2000 (2)



**7** Click the **Advanced** button and click the **GeForce2 MX/MX 400** tab to display the GeForce2 MX control panel.

**Figure A.10** GeForce2 MX & Other NVIDIA Control Panels: Windows 2000

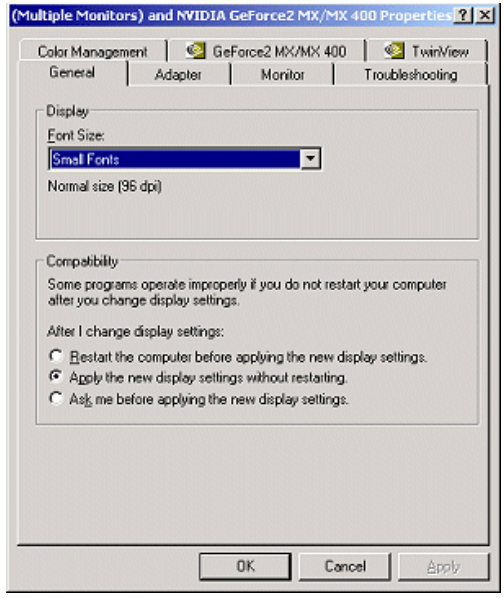
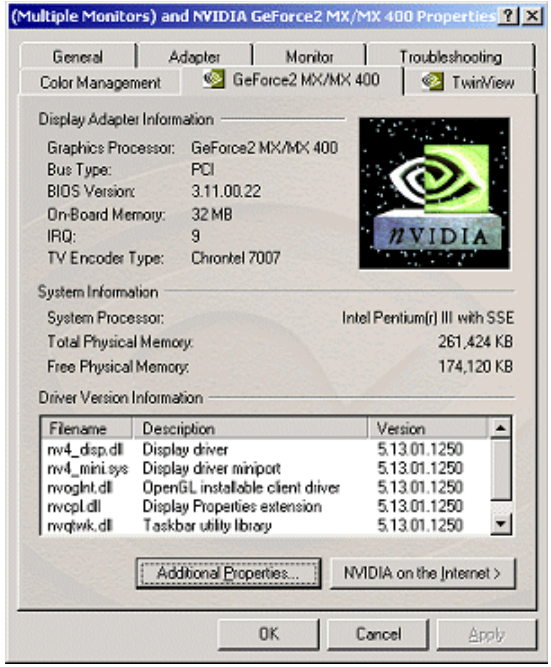
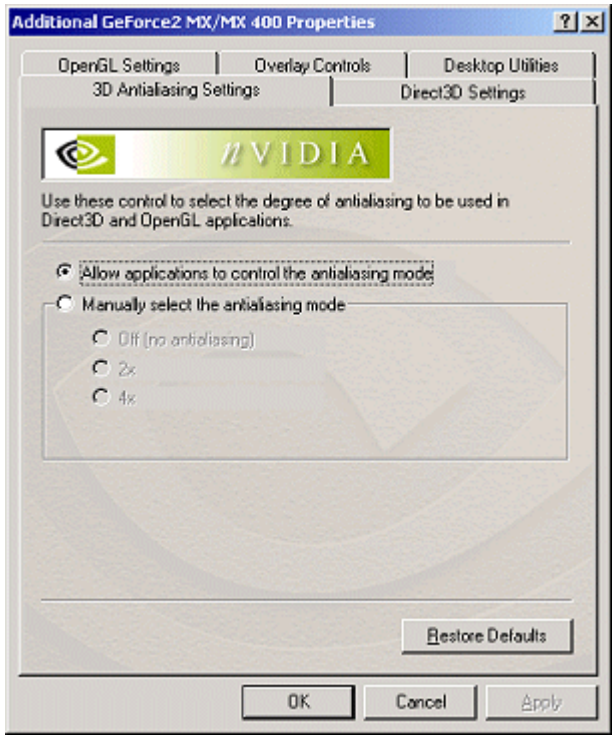



**Figure A.11** GeForce2 MX Control Panel: Windows 2000



8 Click the **Additional Properties** to display the 3D Antialiasing Settings panel (Figure A.12).

**Figure A.12** 3D Antialiasing Settings




From this point onward, you can access all the features and options for the GeForce2 MX card, as explained in various chapters in this documentation.

**Note:** To easily view the dual-cards and its other features and options through the NVIDIA Quick Tweak icon, see “Accessing Dual Cards & Configurations With QuickTweak” on page 141

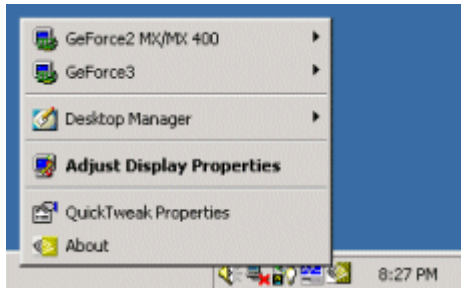
# Accessing Dual Cards & Configurations With QuickTweak

You can view the dual-cards and its other features and options through the NVIDIA Quick Tweak icon.

If you don’t have the NVIDIA QuickTweak icon enabled, see “Desktop Utilities” on page 113.

1 Right-click the NVIDIA icon on your Windows task bar. A menu of configuration options appears, as shown in Figure A.13.

**Figure A.13** NVIDIA QuickTweak Icon Menu: Dual-Cards on Windows 2000




Notice that both the GeForce3 and GeForce2 MX cards are displayed, as is Desktop Manager, since it was checked in the Desktop Utilities panel earlier.

**2** To see the GeForce3 or GeForce2 MX configuration options, point to **GeForce3** or **GeForce2 MX/MX 400** and then move the cursor to any of the options that appear on the next menu level**.** To see the next level of options, point to that option (that contains the arrow) and the next level of options appear.

**Figure A.14** NVIDIA QuickTweak Icon Menu: GeForce3 on Windows 2000

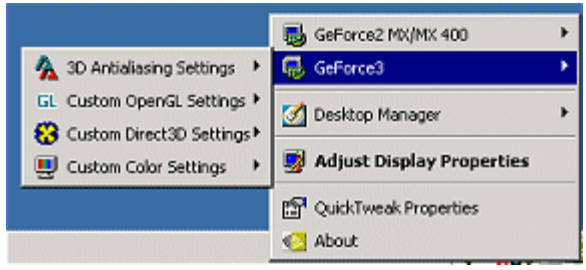



**Figure A.15** NVIDIA QuickTweak Icon Menu: GeForce2 MX on Windows 2000