



NVIDIA Control Panel Quick Start Guide

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User's Guide



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01 INTRODUCTION

This *quick start* is addressed to users of the NVIDIA® Control Panel software. This guide focuses on getting you up and running with your NVIDIA software.

For technical details on the features and benefits of the NVIDIA Control Panel software and details about supported products, drivers, and other software, refer to the NVIDIA web page — www.nvidia.com.

This chapter discusses the following major topics:

- ▶ “About the NVIDIA Control Panel” on page 2
- ▶ “Getting Support and Information” on page 5

About the NVIDIA Control Panel

Welcome to the NVIDIA Control Panel, designed for Microsoft® Windows® XP and later operating systems. You can use NVIDIA Control Panel to control your NVIDIA hardware and access other NVIDIA software installed on your system.

Overview

In addition to setting up basic display configurations such as display resolution, refresh rate, and multiple display use, you can:

- ▶ Tune your 3D settings with real-time preview to maximize performance or image quality
- ▶ Customize how 3D applications work in your system
- ▶ Adjust your screen colors and contrast
- ▶ Set custom timings
- ▶ Control video image settings
- ▶ Change your HDTV format
- ▶ Control your notebook system power using PowerMizer
- ▶ Control special workstation features such as Frame Synchronization.

Feature Differences from the Classic Control Panel

The following are features that were available in the NVIDIA classic control panel, but which are *not* available in the new NVIDIA Control Panel:

- ▶ Creating/Importing Color Profiles
- ▶ High Resolution Scalable Desktop
- ▶ Video Zoom
- ▶ Full-screen video mirroring
- ▶ Edge Blending
- ▶ nView Desktop Manager

nView Desktop Manager is available through the Windows control panel as a separate applet (Windows XP only).
- ▶ MultiView Display Mode (for NVIDIA Quadro NVS graphics cards)

As of driver Release 173, MultiView is available from the Windows Display Properties->Settings->Advanced tab for Windows XP only.

Supported Operating Systems

NVIDIA Release 331 Graphics drivers are available for the following Microsoft® Windows® operating systems:

- Windows XP Media Center Edition 2005 Update Rollup 2
- Windows XP Media Center Edition 2005/2004
- Windows XP Professional
- Windows XP Home Edition
- Windows XP Professional x64 Edition
- Windows Server 2003 x64 Edition
- Windows Vista 32-bit and 64-bit Editions
- Windows 7 32-bit and 64-bit Editions
- Windows 8 32-bit and 64-bit Editions
- Windows 8.1 32-bit and 64-bit Editions

Supported NVIDIA Products

Refer to the release notes and NVIDIA driver download site for the list of products supported by the driver version that you have installed on your computer.

Supported Languages

The NVIDIA Graphics Driver supports the following languages in the NVIDIA Control Panel:

English (USA)	German	Portuguese (Euro/Iberian)
English (UK)	Greek	Russian
Arabic	Hebrew	Slovak
Chinese (Simplified)	Hungarian	Slovenian
Chinese (Traditional)	Italian	Spanish
Czech	Japanese	Spanish (Latin America)
Danish	Korean	Swedish
Dutch	Norwegian	Thai
Finnish	Polish	Turkish
French	Portuguese (Brazil)	

Other NVIDIA Software Applications

If installed, other NVIDIA software that you can access from the NVIDIA Control Panel includes:

- ▶ NVIDIA System Tools–Performance group and System Update
- ▶ NVIDIA Stereoscopic 3D
- ▶ NVIDIA MediaShield™
- ▶ NVIDIA Network Access Manager

See the respective user documentation for information about these applications and instructions on how to use them.

Getting Support and Information

Online Help

- ▶ To open the online help, either :
 - Press **F1** on your keyboard, or
 - Select **Help** from the NVIDIA Control Panel menu bar and then select **NVIDIA Control Panel Help**.
- ▶ Help on various topics can be viewed using the Contents, Index, or Search tabs.

Technical Support

To access the NVIDIA Technical Support web page go the following web address:

<http://www.nvidia.com/page/support.html>

System Information

You can get detailed information about your system and the NVIDIA Control Panel configuration as well as version and copyright information.

- ▶ To view copyright and version information about the NVIDIA Control Panel:
 - From the **Help** menu, select **About NVIDIA Control Panel**.
- ▶ To view detailed system information:
 - Open the System Information dialog box by either selecting *System Information* from the **Help** menu, or by clicking the **System Information** link at the lower left corner of the NVIDIA Control Panel.
 - Click any of the tabs in the System Information dialog box.

02 UNDERSTANDING THE NVIDIA CONTROL PANEL

This chapter describes the NVIDIA Control Panel in the following sections:

- ▶ “Opening and Closing the New NVIDIA Control Panel” on page 7
- ▶ “About the NVIDIA Control Panel Interface” on page 8

Opening and Closing the New NVIDIA Control Panel

► You can open the NVIDIA Control Panel in several ways:

- Right-click the Windows desktop, then click **NVIDIA Control Panel** from the context menu, or

For Windows XP

- From the Windows **Start** menu, select **Control Panel**, then in the **Control Panel** window, double-click on the NVIDIA Control Panel icon.



For Windows Vista/Windows 7

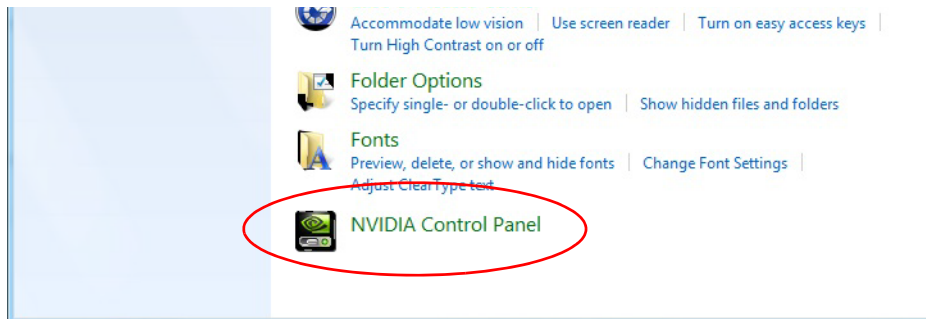
- From the *Classic View* of the Windows Control Panel, click the NVIDIA Control Panel icon, or



- From the *Control Panel Home* view of the Windows Control Panel, click **Additional Options** and then click **NVIDIA Control Panel** from the Additional Options page.

For Windows 8

- From the Desktop, go to *Settings->Control Panel->Appearance and Personalization*, then click **NVIDIA Control Panel**.



► To close the NVIDIA Control Panel,

- From the **File** menu, select **Exit**, or
- Click the **Close** box in the upper right corner of the program window.

About the NVIDIA Control Panel Interface

The NVIDIA Control Panel provides an easy-to-use interface for managing your system.

When you start the program for the first time, the NVIDIA Control Panel opens to the first page listed in the navigation tree. On subsequent visits, the control panel reopens to the last page visited. The NVIDIA Control Panel user interface consists of these main areas, as shown in Figure 2.1 and Figure 2.2:

- ▶ Main Task Area
- ▶ Select a Task (Navigation tree)
- ▶ Menu bar
- ▶ Toolbar .

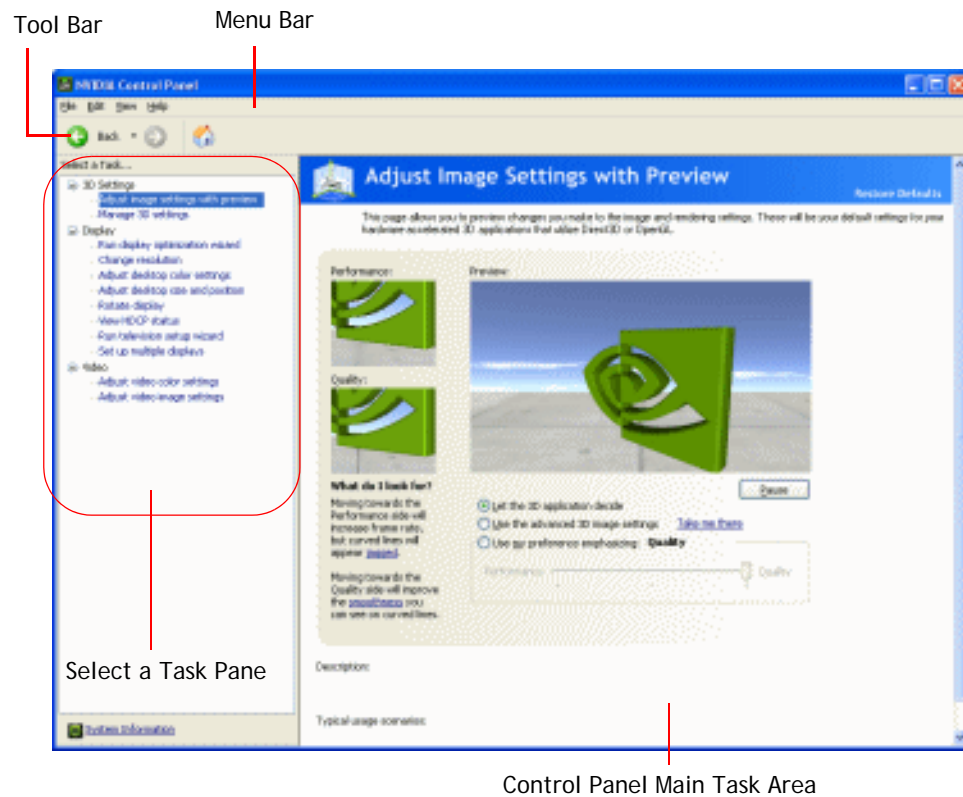


Figure 2.1 NVIDIA Control Panel (Windows XP Example)

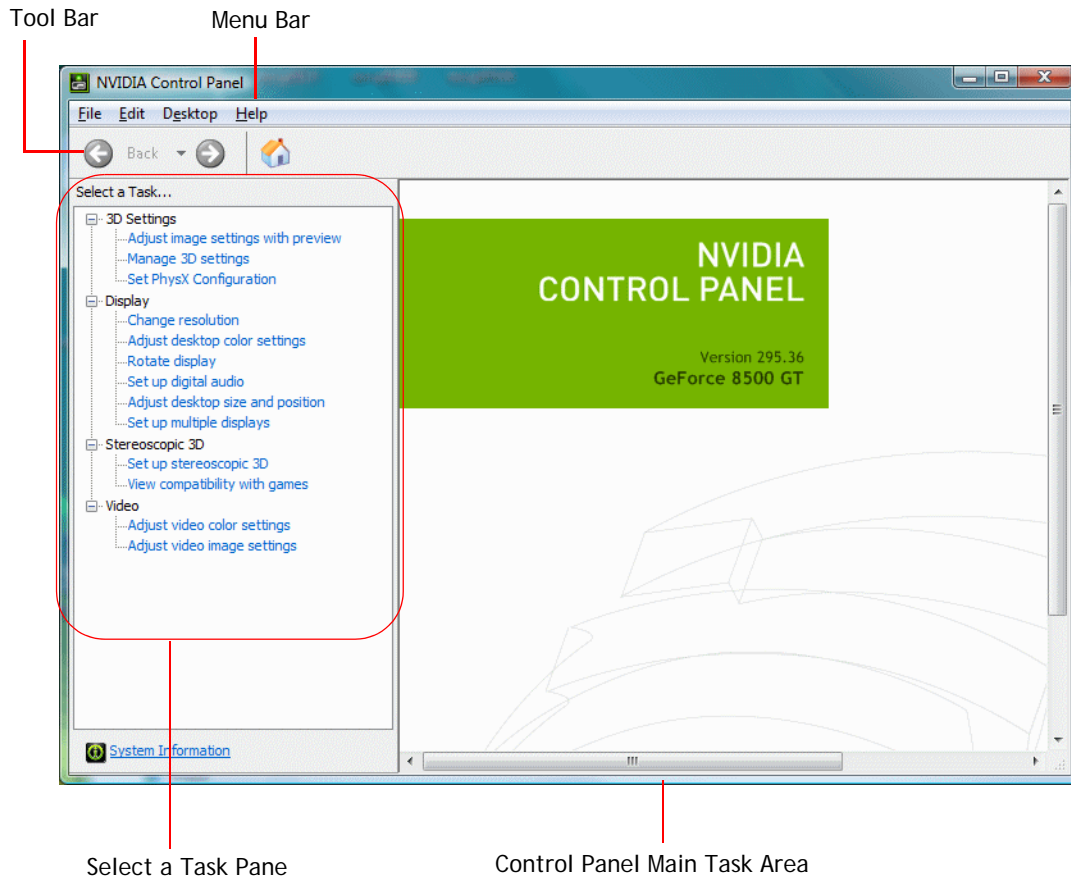


Figure 2.2 NVIDIA Control Panel (Windows Vista Example)

Using the Main Task Area

The main task area, in the right pane, displays the application task pages. This area of the screen is where you will focus most of your attention as you use the NVIDIA Control Panel to accomplish your goals. You can access specific pages using the navigation tree in the *Select a Task* pane.

Depending on your PC manufacturer, there is a Welcome page that appears the first time you open the NVIDIA Control Panel after installing the driver. On subsequent visits, the control panel reopens to the last page visited.

Using the *Select a Task Pane*

The navigation tree in the *Select a Task* pane shows all the primary NVIDIA Control pages that are installed on your system.

The pages are grouped according to the same categories that existed in the previous version of the NVIDIA Control Panel.

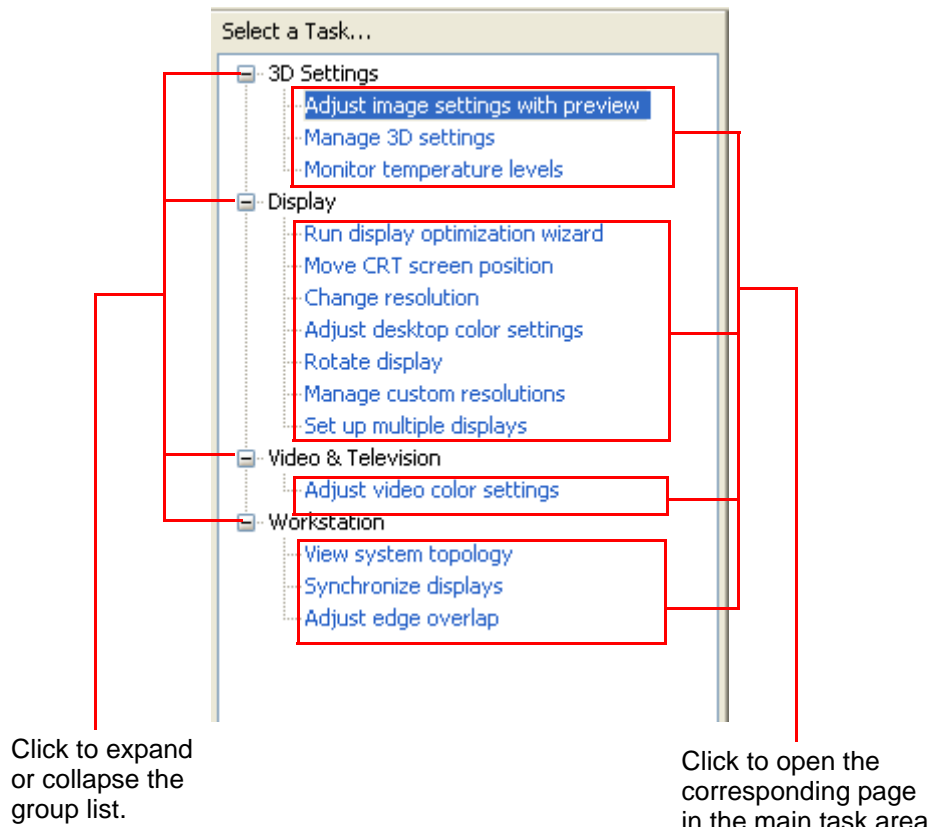


Figure 2.3 NVIDIA Control Panel *Select a Task* pane

Using the Tool Bar

The *Toolbar* provides quick back and forth navigation between pages. The back and forward buttons let you navigate sequentially among pages that you have visited.

You can also navigate directly to a previously visited page by clicking the list arrow next to the back button. The drop-down menu lists all the previously visited pages in the queue. Click the page that you want.

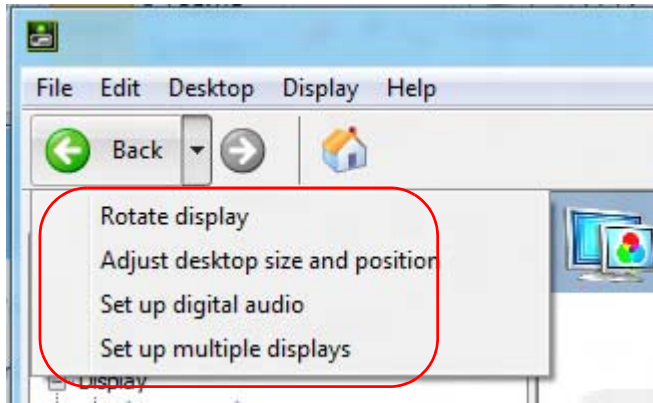


Figure 2.4 Navigation History Menu

Using the Menu Bar

The *Menu bar* contains standard Windows menus and menus specific to the NVIDIA Control Panel, such as the View and Profiles menus.

Menus that are available on the menu bar may vary, depending on the NVIDIA Control Panel group (such as, Display, Mobile, 3D Settings, or other group) you are using.

File Menu

Commands related to printing, applying changes, and exiting the program are available on the **File** menu.

Table 2.5 File Menu Commands

File Menu Command	Description
Page Setup ...	Set up the current task page for printing. <i>This control may not be available.</i>
Print...	Print the current task page. <i>This control may not be available.</i>
Print Preview....	Preview the page before sending it to the printer. <i>This control may not be available.</i>
Exit	Close the NVIDIA Control Panel program.

Edit Menu

Commands related to cutting, copying, pasting, and selecting items are available on the **Edit** menu.

Table 2.6 Edit Menu Commands

Edit Menu Command	Description
Cut	Cut the selected text and place in the clipboard. <i>This control may not be available.</i>
Copy	Copy the selected text and place in the clipboard. <i>This control may not be available.</i>
Paste	Paste the text currently in the clipboard to the location of the Windows cursor. <i>This control may not be available.</i>
Select All	Select all items on the current page. <i>This control may not be available.</i>

Desktop Menu

Commands related to viewing the various pages in the NVIDIA Control Panel application modules are available on the **Desktop** menu.

Table 2.7 Desktop Menu Commands

View Menu Command	Description
Add Desktop Context Menu	This is selected by default, and adds the NVIDIA Control Panel menu item to the desktop context menu.
Enable Video Editing Mode	Select this option to improve the video playback experience for some video editing applications.

Table 2.7 Desktop Menu Commands (continued)

View Menu Command	Description
Add "Run with graphics processor" Option	<p>Select this option to add "Run with graphics processor" to the program context menu.</p> <p>When this option is selected, you can choose which graphics processor to use when starting a program as follows:</p> <ol style="list-style-type: none"> 1. Right-click the program icon. 2. Click Run with graphics processor and then click the graphics processor to use. <p>The selection applies only at the time the program is launched.</p> <p>NOTE: This menu option appears only with systems using NVIDIA © Optimus™ technology.</p> <p>NOTE: Some programs require elevated user privileges in order to use the "Run on graphics processor" option from the program's right-click menu. A pop-up dialog will let you know if that is the case. In this case, use the controls in the NVIDIA Control Panel->Manage 3D Settings page to select the graphics processor.</p>
Display GPU Activity Icon in Notification Area	<p>Select this option so that the GPU Activity icon appears in the Windows notification area of the taskbar. You can then click the icon to see which programs and displays are using the NVIDIA GPU.</p> <p>NOTE: This menu option appears only with systems using NVIDIA® Optimus™ technology.</p>
Show Notification Tray Icon	<p>Select to show the NVIDIA Control Panel notification tray icon in the Windows taskbar notification area.</p> <p>Clicking the NVIDIA Control Panel notification icon offers a quick way to configure key NVIDIA Control Panel settings.</p>

Help Menu

Commands related to accessing help, system information, and copyright and version information are available on the **Help** menu.

Table 2.8 Help Menu Commands

Help Menu Command	Description
NVIDIA Control Panel Help	Access the NVIDIA Control Panel online help.
System Information	View detailed information about your system and the NVIDIA Control Panel configuration.
About NVIDIA Control Panel	View NVIDIA Control Panel version and copyright information.

Group-Specific Menus

These menus appear only when pages from a specific group are open.

Display Menu

This menu item appears only when a Display group page is open.

Table 2.9 Display Menu Commands

Display Menu Command	Description
Identify Displays	Select to identify the displays configured with your system.
Show G-SYNC Visual Indicator	Select to verify that NVIDIA G-SYNC is being used.

3D Settings Menu

This menu item appears only when a 3D Settings group page is open on an SLI system.

Table 2.10 3D Settings Menu Commands

3D Settings Menu Command	Description
Show SLI Visual Indicator	Select to verify that SLI rendering or SLI antialiasing is enabled and working.
Show Multi-GPU Visual Indicator	Select to verify that multi-GPU rendering or multi-GPU antialiasing is enabled and working.
Show PhysX Visual Indicator	Select to verify the type of PhysX acceleration the game is using - CPU or GPU - or if PhysX acceleration is being used at all.

Workstation Menu

This menu item appears only when a Workstation group page is open.

Table 2.11 Workstation Menu Commands

Workstation Menu Command	Description
Refresh View	Select to refresh the graphical representation of the displays and graphics cards installed on your system.

03 ACCOMPLISHING NVIDIA CONTROL PANEL TASKS

This chapter provides instructions on how to use the NVIDIA Control Panel to accomplish common tasks. It contains the following sections:

- ▶ Starting the NVIDIA Control Panel
- ▶ Accomplishing NVIDIA Control Panel Tasks

Starting the NVIDIA Control Panel

1 Launch the NVIDIA Control Panel:

Under Windows XP:

- Right-click the Windows desktop, then click **NVIDIA Control Panel** from the context menu, or
- From the Windows **Start** menu, select **Control Panel**, then in the **Control Panel** window, double-click the NVIDIA Control Panel icon.



Under Windows Vista/Windows 7:

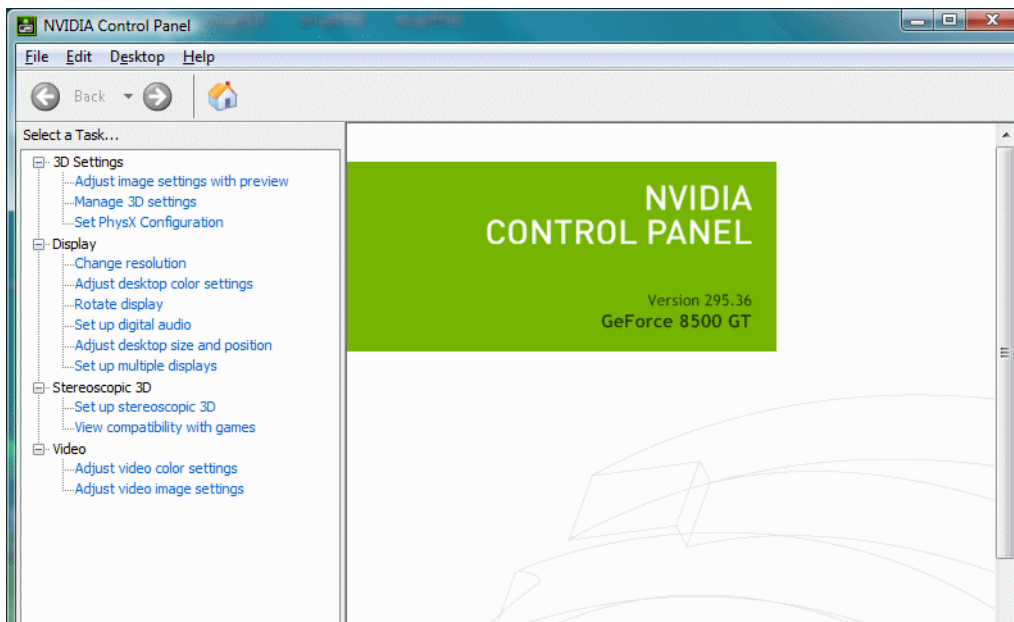
- Right-click the Windows desktop, then click **NVIDIA Control Panel** from the context menu, or
- a Click the Start icon, then from the Start menu click **Control Panel**.
- b From the *Classic View* of the Windows Control Panel, click the NVIDIA Control Panel icon, or

From the *Control Panel Home* view of the Windows Control Panel, click **Additional Options** and then click **NVIDIA Control Panel** from the Additional Options page.

Under Windows 8:

- Right-click the Windows desktop, then click **NVIDIA Control Panel** from the context menu, or

From the Desktop, go to *Settings->Control Panel->Appearance and Personalization*, then click **NVIDIA Control Panel**.



The groups that appear in the *Select a Task* pane depend on the NVIDIA hardware software is installed on your system. For example, the Mobile group is not available on desktop systems.

- 2 From the navigation tree in the *Select a Task* pane, click one of the links to open a specific task page.

Each group in the navigation tree lists different tasks that you can accomplish, and each task page provides instructions on how to accomplish what you want. Move the cursor over listed options to see a description and typical usage scenario for that option.

Detailed instructions for each task are also available through the online help.

Accomplishing NVIDIA Control Panel Tasks

The NVIDIA Control Panel provides an intuitive layout for locating graphics driver controls, including most of the controls that were available with the Classic NVIDIA Control Panel.

- ▶ “NVIDIA Control Panel Feature List” on page 19 lists the current features available in the NVIDIA Control Panel.
- ▶ “NVIDIA Control Panel Groups” on page 25 provides an overview of the NVIDIA Control Panel pages by group.

NVIDIA Control Panel Feature List

Table 3.1 NVIDIA Control Panel Features

Feature	Values (Default in bold) ^a	Notes
Display/TV Controls		
Mode control		
Resolution	Non-HD display - the native resolution or the highest safe resolution from the monitor EDID is the default. HD display - the highest progressive resolution is the default.	
Refresh rate		
Color depth/quality		
Custom timings/resolutions		
TV Signal Format Selection	M/NTSC, PAL, M/PAL, N/PAL, Select by country	
Connector Selection	Auto-select DVI VGA S-Video - SDTV Component Composite - SDTV HDMI - HDTV (Vista and later) DisplayPort - HDTV (Vista and later) LVDS - laptop display	Available values depend on the actual connection.
Color Control		

Table 3.1 NVIDIA Control Panel Features

Feature	Values (Default in bold) ^a	Notes
Brightness	0 - 100%, (50%)	
Contrast	0 - 100%, (50%)	
Gamma	0.50 - 1.50, (1.00)	
Digital Vibrance	0 - 100%, (0%)	
Image sharpening	0 - 100%, (0%)	Not available with GeForce 8 series and later GPUs.
Hue	0 - 359 degrees (30)	For GeForce 8 series and later GPUs
Flicker Filter	0 - 100%, (50%)	For analog TVs
Gray border option	Disabled	For analog TVs; presents unused black TV borders as gray
Digital color format selection	RGB , YCbCr	For HDMI and DisplayPort connections
Content type (ITC) reported to the display	Auto select , Desktop programs, Full-screen videos, Photos, Movie, Games	Window Vista and later; Some HDMI displays only - available values dependent on display support
NVIDIA G-SYNC	Enable	
Rotation	0 , 90, 180, 270 degrees	
Desktop Size and Position - Windows XP		
Move CRT screen position		For VGA displays
Flat panel scaling	NVIDIA scaling NVIDIA scaling with fixed-aspect ratio Display's built-in scaling No scaling	For non-HD display modes on DVI/HDMI/DisplayPort connection
Adjust screen size and position		For analog TVs
Resize HDTV desktop		For HD display modes (over DVI/HDMI/DisplayPort/Component connections) that support underscan or desktop resizing.

Table 3.1 NVIDIA Control Panel Features

Feature	Values (Default in bold) ^a	Notes
Pan HD desktop when not resized		For HD display modes (over DVI/HDMI/DisplayPort/Component connections) that support underscan or desktop resizing.
Desktop Size and Position - Windows Vista and later		
Scaling mode	Aspect ratio Full-screen No scaling	TV, VGA (with EDID), Digital displays, LVDS
Scaling performed on	GPU Display	
Application Scaling override	Off , On	
Resize		TV, Digital displays
Position		TV, VGA
Multi-display Options		
Single-display mode		
Dualview (extended mode)		
nView Clone Mode		
Pan and Scan Clone Mode		Windows 7 only, select Quadro products
nView Spanning Mode		Windows XP only
Video Controls	"Use video player settings" is the default. If "Use NVIDIA settings" is selected, the following values apply.	
Color Settings		
Brightness	0 - 100%, (50%)	
Contrast	0 - 100%, (50%)	
Hue	0 - 100%, (0%)	
Saturation	0 - 100%, (50%)	
Gamma (including separate RGB)	0.3 - 3.00, (1.00)	
Advanced Color Settings		
Dynamic Range	Full (0–255) Limited (16–235)	
Dynamic Contrast Enhancement	Disabled	GeForce 9 series and later GPUS
Color Enhancement	Disabled	GeForce 9 series and later GPUs

Table 3.1 NVIDIA Control Panel Features

Feature	Values (Default in bold) ^a	Notes
Image Settings		
Edge Enhancement	0 - 100%, (0%)	
Noise Reduction	0 - 100%, (0%)	
Inverse Telecine option	Disabled	
Internet Video Enhancement option	Disabled	Select GeForce 8 series and later GPUs
Digital Audio		
Verify displays that will appear as audio devices in the Windows Sound Settings	For each audio-capable display, select the display or select "Turn off audio".	Windows Vista and later. For GPUs that support digital audio when an HDMI or DisplayPort connection is made.
Portal to the Windows Sound Settings panel		
HDCP		
Capability verification page		For GPUs that support HDCP.
3D Application Controls		
Ambient Occlusion	Off , Performance, Quality	Windows Vista and later; GeForce 8 series and later GPUs
Anisotropic filtering	Application-controlled , Off, card-specific settings	
Antialiasing - Mode	Application-controlled , Off, Enhance the application setting, Override any application setting	
Antialiasing - Setting	Application-controlled , card-specific settings	
Antialiasing - FXAA	Off , On	
Antialiasing line gamma	Off , On	
Antialiasing - gamma correction	Off , On	
Antialiasing - transparency	Off , Multisampling, supersampling	
Buffer-flipping mode	Auto-select , Block transfer	NVIDIA Quadro cards
CUDA - GPUs	[All CUDA-capable GPUs]	GeForce 8 series and later GPUs

Table 3.1 NVIDIA Control Panel Features

Feature	Values (Default in bold) ^a	Notes
Deep color for 3D applications	Allow , disable	
Enable Overlay	Off , On	NVIDIA Quadro cards Windows XP only
Exported pixel types	8-bpp and/or RGB555 format, None	NVIDIA Quadro cards
Maximum pre-rendered frames	0, 1, 2, 3 , 4, 5, 6, 7, 8	Limits frame pre-rendering
Multi-display/mixed-GPU acceleration	Single, Compatible, or Multiple display performance modes	
Multi-GPU performance mode	single-GPU, alternate frame rendering 1 & 2, split frame rendering, or multi-GPU antialiasing	
OpenGL Rendering GPU	Auto-select ,	NVIDIA Quadro FX or NVS cards
Power management mode	NVIDIA driver controlled , Adaptive, Prefer maximum performance, Prefer consistent performance	GeForce 9 series and later GPUs; Windows Vista and later
Preferred Refresh Rate	Application-controlled , Highest available	Windows Vista and later
SLI performance modes	single-GPU, alternate frame rendering 1 & 2, split frame rendering, or SLI antialiasing	
Stereo - Display mode	Select to match stereo viewing hardware	NVIDIA Quadro cards
Stereo - Enable	Off , On	NVIDIA Quadro cards
Stereo - Force shuttering	Off , On	NVIDIA Quadro cards
Stereo - Swap eyes	Off , On	NVIDIA Quadro cards
Texture filtering - anisotropic mip filter optimization	Off , On	
Texture filtering - anisotropic sample filter optimization	Off , On	
Texture filtering - Negative LOD bias	Allow , Clamp	
Texture filtering - Quality	High quality, Quality , Performance, High performance	Balance between quality and performance

Table 3.1 NVIDIA Control Panel Features

Feature	Values (Default in bold) ^a	Notes
Texture filtering - Trilinear optimization	Off, On	
Threaded optimization	Off, On	For systems with multiple CPUs
Triple buffering	Off, On	
Unified back/depth buffer	Off, On	NVIDIA Quadro cards Windows XP only
Vertical sync	Use the 3D application setting , Off, On, Adaptive, Adaptive (half refresh rate), G-SYNC	Adaptive settings are available only on Windows Vista and later.
Surround Configuration		For systems with SLI ready GPUs.
PhysX Configuration		For systems with PhysX-capable GPUs, a minimum of 256MB dedicated graphics memory, and a minimum of 32 processor cores
SLI/Multi-GPU Configuration		For systems with SLI or multi-GPU ready GPUs.
3-way SLI Mode		
Quad SLI Mode		

a. Defaults for the 3D application controls are for the Global Settings tab. Under the Program Settings tab, **Use global setting** is typically the default setting.

NVIDIA Control Panel Groups

This section provides an overview of the NVIDIA Control Panel groups.

- ▶ “Using the Display Pages” on page 25
- ▶ “Using the Video Pages” on page 26
- ▶ “Using the 3D Settings Pages” on page 26
- ▶ “Using the Stereoscopic 3D Pages” on page 26
- ▶ “Using the Mobile Pages” on page 27
- ▶ “Using the Workstation Pages” on page 27
- ▶ “Using the Networking Pages” on page 27
- ▶ “Using the Storage Pages” on page 28
- ▶ “Using the Performance Pages” on page 28
- ▶ “Using the System Update Pages” on page 28



Note: For Windows Versions - Support for some features under Windows Vista or Windows 7 is in development and may not be available with your GeForce graphics driver version. Consult the release notes for the latest list of unsupported features.

Using the Display Pages

The actual tasks available on your system depend on your system hardware, such as the number and type of displays connected. Use the Display group pages to:

- ▶ Run the wizard to optimize your display configuration.
- ▶ Change the display resolution.
- ▶ Change the scaling on your flat panel display.
- ▶ Adjust desktop color settings.
- ▶ Rotate the display.
- ▶ Adjust custom timings.
- ▶ Configure multiple displays, including Spanning or Clone modes.
Spanning modes are available only with Windows XP.
- ▶ Adjust your television picture quality and video color settings for the best possible viewing in its environment.
- ▶ Change the position and size of the desktop/video to best fit your television or HDTV (high definition television) screen.
- ▶ Change the signal format to use for your standard television or HDTV as well as change country-specific signal or the HDTV format.

- ▶ Verify the HDCP capability of your system.
- ▶ Access digital audio controls.

Using the Video Pages

The actual tasks available on your system depend on your system hardware, such as whether or not you have a TV connected and enabled. Use the Video page to:

- ▶ Adjust video and image color settings.

Using the 3D Settings Pages

The actual tasks available on your system depend on your system hardware, such as whether or not you have an SLI-ready system. Use the 3D Settings page to:

- ▶ Change the image and rendering settings of your 3D applications and games that utilize Direct3D and OpenGL technology.
- ▶ Assign specific 3D settings to a game so that these settings automatically load when a game is launched (available under Advanced view).
- ▶ Set up your SLI or multi-GPU configuration as well as PhysX configuration.

GPU temperature monitoring and GPU overclocking features are not included in the 3D Settings page. To use this functionality you must install NVIDIA nTune software.

Using the Stereoscopic 3D Pages

The Stereoscopic 3D pages are part of the NVIDIA 3D Vision software for viewing 3D programs and games in stereoscopic 3D. Use the Stereoscopic 3D pages to:

- ▶ Control stereoscopic 3D settings.
 - Enable stereoscopic 3D, adjust 3D depth, select a 3D laser sight, view and set the keyboard shortcuts, and run the setup wizard and various tests.
- ▶ View game compatibility.
 - See a stereoscopic 3D compatibility rating for a number of games, along with possible issues and recommendations for each game.
- ▶ Control 3D Vision Pro settings.
 - NVIDIA® 3D Vision™ Pro is the professional version of the 3D Vision™ stereo glasses and emitter. While the 3D Vision kit uses infrared (IR) communication from the emitter to the stereo glasses, the 3D Vision Pro kit uses radio frequency (RF) bi-directional communication between the stereo glasses and 3D Vision Pro hub. This allows multiple 3D Vision Pro hubs to be used in range of each other without conflicts.

Using the Mobile Pages

The Mobile group is available if the NVIDIA software is installed on a notebook computer under Windows XP.

Use the Mobile page to extend your notebook computer's battery life using NVIDIA PowerMizer technology

Using the Workstation Pages

The Workstation group is available if you have an NVIDIA Quadro FX graphics card installed.

The actual tasks available depend on which NVIDIA Quadro FX product you have installed. Use the Workstation page to:

- ▶ Synchronize your displays using frame sync or genlock technology.
- ▶ View a graphical representation of the displays and graphics cards installed on your system.
- ▶ Manage serial digital interface (SDI) output (requires NVIDIA Quadro FX SDI solution.)
- ▶ Configure Mosaic mode to combine multiple displays into a larger virtual canvass.
- ▶ Overlap the edges of adjacent displays.
Display edge *blending* is no longer available.

Using the Networking Pages

The Networking group pages are part of the nForce drivers Networking software for NVIDIA nForce-based PCs.

Use the Networking pages to optimize your network performance and increase your network bandwidth with the following technologies:

- ▶ **NVIDIA FirstPacket** offers a new way to manage the traffic on your personal computer, allowing you to more effectively manage and improve the performance of networked games and other applications that are sensitive to network delay (latency), such as Voice-over-IP (VoIP).
- ▶ **NVIDIA TCP/IP Acceleration** technology is a networking solution that moves the processing of TCP/IP network traffic from your computer's CPU to its nForce hardware resulting in greatly improved system performance.
- ▶ **NVIDIA Teaming** technology combines all the NVIDIA Ethernet interfaces on your system to form a team, resulting in increased bandwidth and network redundancy.
- ▶ **Alert Standard Format (ASF)** controls lets you set up alerts and remote system management in an OS-present or OS-absent environment.

Using the Storage Pages

The Storage group pages are part of the nForce drivers MediaShield Storage software for NVIDIA nForce-based PCs.

Use the Storage pages to

- ▶ Create and manage RAID 0, RAID 1, RAID 0+1, RAID 5, and spanning arrays.
- ▶ Run SMART tests on your RAID array disk drives.

Using the Performance Pages

The Performance group pages are part of the nForce drivers System Tools software for NVIDIA nForce-based PCs.

Use the Performance pages to:

- ▶ Manage system tuning and profiles for nForce MCP clocks, voltages, timings, and fans.
- ▶ Manage Enthusiast System Architecture (ESA) components.
- ▶ View detailed system information for your nForce-based PC.
- ▶ Overclock your GeForce GPU.

Using the System Update Pages

The System Update pages are part of the nForce drivers System Tools software for NVIDIA nForce-based PCs.

Use the system update pages to:

- ▶ Automatically check for nForce and GeForce driver updates.
- ▶ Update your system BIOS.
- ▶ Update firmware for the Enthusiast System Architecture (ESA) components.

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