Enables fog table emulation. Direct3D specifies that an NVIDIA GPU (graphics processing unit) capable of Direct3D hardware acceleration should be able to implement either vertex fog or table fog.

**Note:** Some games do not correctly query the Direct3D hardware capabilities and expect table fog support. Enabling this option ensures that such games run properly with your NVIDIA GPU.

Forces the hardware to automatically adjust the depth of its Z-buffer to the depth requested by the application.

**Note:** Unless your work absolutely requires a specific Z-buffer depth, it is better to keep this option enabled. If this option is disabled, only those applications with working Z-buffer depths that match those of the current hardware configuration can run.

Enables an alternate technique for depth buffering.

Enabling this option lets the hardware use a different mechanism for depth buffering in 16-bit applications, which can produce higher quality rendering of 3D images.

Enables the NVIDIA logo in Direct3D.

Enabling this option displays the NVIDIA logo in the lower corner of the screen while Direct3D applications are running.

Your NVIDIA GPU can automatically generate mipmaps to increase the efficiency of texture transfers across the bus and provide higher application performance.

**Note:** However, some applications may not be displayed properly when auto-generated mipmaps are enabled. To correct any problems, reduce the number of automatically generated mipmap levels until the images are properly displayed. Reducing the number of mipmap levels often eliminates texture misalignment or "seaming," but at the expense of some performance.

Adjusts the Level of Detail **(LOD)** bias for mipmaps.

A lower bias provides better image quality, while a higher bias provides increased application performance. You can choose from five preset bias values, varying from "Best Image Quality" to "Best Performance".

Shows a list of the custom settings (or "tweaks") you have saved.

To activate the setting, select an item from the list and click **Apply**.

Click to save the current settings (including those set in the More Direct3D dialog box) as a custom "tweak". Saved settings are then added to the adjacent list.

Once you have found the optimal settings for a particular Direct3D game, saving the settings as a custom tweak lets you quickly configure Direct3D before starting the game and eliminates the need to set each of the options individually.

Click to delete the custom setting currently selected in the list.

Click to restore all settings to their default values.

Click to display a dialog box where you can customize additional Direct3D settings.

Move the slider to change the hardware texture-addressing scheme for texels (texture elements).

Changing these values changes where the texel origin is defined. The **default values** conform to Direct3D specifications. Some software may expect the texel origin to be defined elsewhere. The image quality of such applications improves if the texel origin is redefined.

Use the slider to adjust the texel origin anywhere between the upper-left corner and the center of the texel.

Allows the NVIDIA GPU to utilize up to the specified amount of system memory (in addition to the memory installed on the graphics cards itself) for texture storage.

**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 can set.

This setting applies only to PCI graphics card, or AGP graphics cards running in PCI-compatibility mode.

Specifies how vertical synchronization is handled in Direct3D.

- **Always off** always disables vertical synchronization in Direct3D applications.
- **Off by default** keeps vertical synchronization disabled unless an application specifically requests that it be enabled.
- **On by default** keeps vertical synchronization enabled unless an application specifically requests that it be disabled.

Limits the number of frames the CPU can prepare before the frames are processed by the graphics processor when Vertical Sync is disabled.

**Note:** In some cases, the greater the number of pre-rendered frames allowed, the greater the "input lag" may be in response to devices such as joysticks, gamepads, or keyboards. Reduce this value if you experience a noticeable delay in response to the input devices connected to your computer while playing games.

Disables driver support for enhanced instructions used by certain CPUs.

Some CPUs support additional 3D instructions that complement your NVIDIA GPU and improve performance in 3D games or applications. This option lets you disable support for these additional 3D instructions in the drivers, which can be useful for performance comparisons or for troubleshooting.

Allows the driver to export stereo pixel formats so that OpenGL applications can use stereo and enable the stereo shutter glasses.

Allows the driver to export overlay pixel formats so that OpenGL applications can use overlays.

Allows the OpenGL driver to allocate one back buffer and one depth buffer at the same resolution of the display.

- When the option is enabled (checked), OpenGL applications that create multiple windows use video memory more efficiently and show improved performance.
- When the option is disabled (unchecked), the OpenGL driver allocates a back buffer and depth buffer for every window created by an OpenGL application.

Sets optimal settings for the selected OpenGL application. Click the list box arrow to display a list of applications and then select one.

Determines whether textures of a specific color depth should be used by default in OpenGL applications.

- **Use desktop color depth** always uses textures of the color depth at which your desktop is currently running.
- The **Always use 16 bpp** and **Always use 32 bpp** options force the use of textures of the specified color depth, regardless of your desktop settings.

Determines the buffer-flipping mode for full-screen OpenGL applications. You can choose from the **block transfer** method or **auto-select**.

**Auto-select** allows the driver to determine the best method based on your hardware configuration.

Specifies how vertical synchronization is handled in OpenGL.

- **Always off** always disables vertical synchronization in OpenGL applications.
- **Off by default** keeps vertical synchronization disabled unless an application specifically requests it to be enabled.
- **On by default** keeps vertical synchronization enabled unless an application specifically requests that it to be disabled.

Click to save the current settings as a custom "tweak," which is then added to the adjacent list.

Once you have found the optimal settings for a particular OpenGL application, saving the settings as a custom tweak lets you quickly configure OpenGL before starting the application and eliminates the need to set each option individually.

Move the slider to adjust the **Brightness**, **Contrast**, or **Gamma** values for the selected color channel.

The color correction settings are used to compensate for variations in luminance between a source image and its output on a display device. When you are working with image processing applications, adjust the color correction settings to provide more accurate color reproduction of images (such as photographs) on your display device.

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

Click the list box arrow to select the color channel controlled by the sliders. You can adjust the **Red**, **Green**, or **Blue** channels individually or all at once.

**Digital Vibrance** gives you more control over color separation and intensity, enabling brighter and clearer images in all of your applications.

Use the slider to set these Digital Vibrance levels: **Off**, **Low**, **Medium**, **High**, and **Max**

Displays a graphical representation of the color curve. This curve changes in real time as you adjust the contrast, brightness or gamma.

Enable this option if you want to automatically apply the color adjustments you made during your next Microsoft® Windows® session (i.e., after restarting your computer).

**Note:** If your computer is running on a network, the color is adjusted after you log on to Windows.

Displays a list of the custom color settings you have saved.

To activate a setting, select an item from the list.

Click to save the current color settings as a custom setting. Saved settings are then added to the adjacent list.

Click to delete the custom color setting currently selected in the list.

Click to restore all color values to the hardware factory settings.

Adds the NVIDIA Settings icon to your Windows taskbar.

1. The icon lets you apply any of the custom Direct3D, OpenGL or color settings "on the fly" from a convenient pop-up menu.
2. The menu also contains items for restoring default settings and accessing the Display Properties dialog box.

Click to choose the icon you want to use to represent the NVIDIA Settings in the Windows taskbar.

1. Select the icon you want displayed from the list.
2. Then click **Apply** to update the icon in the taskbar.

Enables nView Desktop Manager by adding the **nView Properties** option to the desktop menu.

Right-click on your desktop, then click **nView Properties** to display the nView Desktop Manager properties panel.

Click to open the nView Desktop Manager properties panel after enabling the **Enable Desktop Manager** option.

The nView Desktop Manager properties panel lets you configure a variety of Desktop Manager features for single and multiple desktops and displays (monitors).

These options allow you to determine the placement of the image on your flat panel display when it is used at resolutions lower than the maximum supported.

Use the arrow buttons to adjust the position of the desktop on your display.

Click to reset the desktop to its default position for the current resolution and refresh rate.

Select the display device (monitor, digital flat panel, or TV), depending on the device(s) that your NVIDIA GPU-based graphics card support(s).

Click to open a window where you can customize the settings for the active display device.

Click to indicate the current format and country settings used for TV output.

Click to open a dialog box where you can specify a particular TV output format.

This list lets you 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.

Click to specify the type of output signal being sent to the TV.

If you have the proper connector cable, **S-Video** output generally provides higher quality output than Composite video output.

If you are not sure about the type of signal to specify, choose the **Auto-select** setting.

Click 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 automatically returns to its default position, and you can begin your adjustments again. Once you have positioned the desktop where you want it, click **Apply** to save the settings before the 10-second interval has elapsed.

Click to reset the desktop to its default position on the TV for the current resolution.

Move the slider to adjust the brightness of the TV image.

Move the slider to adjust the contrast of the TV image.

Move the slider to adjust the color saturation of the TV image.

Move the slider to adjust the amount of flicker filter you want applied to the TV signal.

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

Use these controls to adjust the quality of video or DVD playback on your display device (monitor).

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.

Adjusts the core and memory clock frequencies of your NVIDIA GPU.

Sets the core clock speed of your NVIDIA GPU.

Indicates the core clock speed in Megahertz.

Sets the clock speed of the memory interface on your graphics card.

Indicates the clock speed of the memory interface in Megahertz.

Tests the new clock frequency settings for stability before applying them.

**Note:** You must test any new settings that differ from the manufacturer's defaults before they can be permanently applied.

Ensures that any changes you make to the clock frequencies are applied automatically each time Windows starts.

**Note:** You can bypass the automatic clock setting at startup by holding down the **Ctrl** key while Windows is starting. If your computer is connected to a network, hold down the **Ctrl** key immediately after you have logged on to Windows.

Resets all clock adjustment capabilities and forces a redetection of the graphics hardware before the controls can be re-enabled.

**Note:** It is recommended that you perform a reset any time you flash the BIOS of your graphics adapter with an updated BIOS image.

**nView Standard** is a single-display mode. Use this mode if you have only one display device attached to your NVIDIA GPU-based graphics card.

**nView Clone** mode displays an exact copy of the primary display on the secondary device.

**nView Horizontal Span** mode lets you extend the Windows desktop across two display devices horizontally. In this mode, the two displays combine to form a wide, spanned display surface, which is useful when viewing items that are wider then a single display.

**nView Vertical Span** mode lets you extend the Windows desktop across two display devices vertically. In this mode, the two displays combine to form a tall, spanned display surface, which is useful when viewing items that are taller then a single display.

Display a graphical representation of your nView display configuration.

- Click a monitor image to select it as the current display.
- When you right click the monitor image, a pop-up menu appears from which you can make adjustments to the associated display devices and access the Color Correction tab.

Click to lock the current pan position on the secondary **Clone mode** display.

This lets you effectively freeze the virtual desktop at a certain position, which is useful for presentations or fine-detail work in applications.

To select the area of the video screen that you want to zoom, click the center or arrow icons. Once selected, you can zoom to that portion of the screen by moving the zoom slider below.

Move the slider to zoom in on or out of the selected are of the video playback screen.

Click the list box arrow and then select either **Primary display** or **Secondary display**, depending on the display where you want to play video in full-screen mode. To disable full-screen mode, select **Disable**.

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.

Shows the type of display device you are using with the selected graphics card.

Click to display the device and driver properties for this display.

Lists the refresh rates available for this monitor. A higher refresh frequency reduces flicker on you screen.

Specifies whether the list under Refresh Frequency includes modes that are not supported by your display.

**Caution:** Choosing a mode that is inappropriate for your display may cause severe display problems and could damage your hardware.

Specifies that the display corresponding to the icon you selected above is the primary display.

When you start your computer, the logon dialog box appears on the primary display. Most applications windows, by default, appear on the primary display when you initially open them. The primary display contains the top left corner of the desktop.

Displays all current nView displays. If more than one device is connected and you have switched to a mode other than **Single display**, you can select the display that you want as the current display.

You can also click on the monitor image above to select it as the current display.

Click to set up or change settings related to the output device used for the current display.

Click to detect all display devices connected to your graphics card.

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

Check this box if you have a monitor (display device) connected to the secondary display connector that is not being detected. This is useful for older monitors or monitors connected with BNC connectors.

Click to access additional features of your NVIDIA GPU.

Click to access the NVIDIA Web site for the latest information and drivers for your NVIDIA GPU.

This information details the hardware aspects of the currently selected NVIDIA GPU.

This information details selected aspects of your system that could affect overall graphics performance.

List of the files, including their descriptions and versions, being used by your NVIDIA GPU.

Disables antialiasing in 3D applications.

**Note:** Enable this option if you require maximum performance in your applications.

Enables antialiasing using the 2x mode.

**Note:** This mode offers improved image quality and high performance in 3D applications.

Enables a patented antialiasing technique available in the NVIDIA GeForce GPU family.

**Note:** Quincunx antialiasing offers the quality of the slower, 4x antialiasing mode, at nearly the performance of the faster 2x mode.

Enables antialiasing using the 4x mode.

**Note:** This mode offers higher image quality at the expense of some performance in 3D applications.

Enables antialiasing using the 4x, 9-tap (Gaussian) mode.

**Note:** This mode offers higher image quality but at the expense of some performance in 3D applications.

Enables antialiasing using the 4xS mode. This mode offers higher image quality than 4x mode but at slightly lower performance in 3D applications.

**Note:** This setting affects only Direct3D applications. When running OpenGL applications, OpenGL uses the next capable antialiasing setting — i.e., the option setting found immediately preceding the 4xS setting.

Automatically enables the optimal antialiasing settings for those 3D applications that support antialiasing.

Lets you manually select the antialiasing mode to be used when running your 3D applications.

Displays information about the current AGP settings on your computer.

Manually select the AGP rate used by the graphics subsystem.

**Note:** If you are not sure the AGP rate to use, leave this checkbox unchecked. The system then automatically determines the optimal AGP rate.

Move the slider to manually select the AGP rate to be used by the graphics subsystem.

Select the method by which the driver manages the video memory allocated from system memory.

Specify the amount of system memory used in conjunction with the method specified by the current frame buffer mode.

Specify the frame buffer memory management strategy when using the dynamic frame buffer mode

The NVIDIA PowerMizer feature lets you regulate the power consumption of your GPU.

You can either conserve battery life by setting **Maximum Power Savings** or take advantage of the full graphics performance of your NVIDIA GPU by selecting **Maximum Performance**.

Allows graphics cards with multiple outputs to be treated by Windows as though they were separate, individual cards installed in your system.

**Note:** Enabling this option lets you select an independent resolution and/or color depth for each display device connected to the multi-display graphics card.

Click to open a dialog box where you can customize additional OpenGL stereo and overlay settings.

Note: This option is enabled only when you activate the "Enable quadbuffered stereo API" option in the first list box on this panel.

Enables overlays in OpenGL.

Some applications (for example, Softimage3D) require overlay planes. Overlay planes are used as a paletted surface in addition to the normal color (RGB) buffer. Overlays are especially useful for overlapping drawing areas that are independent of the 3D image itself, such as menus and cursors. Overlays are supported in 16-bit and 32-bit color modes.

Note: OpenGL stereo and overlays cannot be used simultaneously. Overlays need additional onboard graphics memory and may not be available under all resolutions. You may want to reduce the resolution or color depth if you have problems accessing overlay functionality.

Enables stereo in OpenGL.

To run stereo applications with shutter glasses or other hardware, the NVIDIA driver exports OpenGL stereo pixel formats and organizes memory to allow stereoscopic and monoscopic applications to be used simultaneously.

**Note:** Enable this option only if it is necessary. Some applications automatically choose a stereo format while other applications may not function properly in a stereo pixel format.

**Note**: OpenGL stereo and overlays cannot be used simultaneously. Stereo viewing requires additional onboard graphics memory and may not be available under all resolutions. You may want to reduce the resolution or color depth if you have problems viewing in stereo.

The NVIDIA driver supports a variety of stereo hardware. If you use stereo hardware other than the default, select a display mode from the list box.

**Use shutter glasses: Enable** this option only if you use an ELSA 3D REVELATOR™ or compatible adapter. These adapters will translate the monitor signal to the standardized 3-pin-DIN used by most of available stereo hardware.

**Note:** You don't need to use the adapter if your graphics card has a built-in 3-pin-DIN connector!

**User vertical interlace monitor**: Enable this option if you have an auto-stereo flat panel connected to your graphics card.

**Use nView Clone mode:** Enable this option if you have passive stereo hardware. To use this option, you need to have connected the projectors to a dual-display graphics card based on an NVIDIA GPU and enabled nView Clone mode from the nView Display Mode tab. One display will show the left eye of the image, the other display the right eye.

**Note:** This option is only available on dual-display (or multi-display) graphics cards.

**Use on-board DIN connector:** Enable this option if your graphics card has a built-in 3-pin DIN connector. In this case, you do not need extra adapters such as those shipped with StereoGraphics glasses. You can connect any stereo hardware using the 3-pin-DIN connector directly to the graphics card.

**Use blue-line code** for StereoGraphics StereoEyes: Enable this option if you use an adapter shipped with StereoGraphics StereoEyes or compatible products. These adapters translate the monitor signal to the standardized 3-pin DIN connector used by most of available stereo hardware.

**Note:** You don't need to use the adapter if your graphics card has a built-in 3-pin DIN connector!

In case you cannot view a stereo effect, select this option to exchange the left and right images.

**Note:** In general, you may need to enable this option only on vertical interlace monitors and in passive mode.

This option sets aside as much memory as possible for use by texture maps. This can increase performance for highly texture-intensive applications but at the expense of a minor amount of performance for non-textured applications.

Sharpens textures when running 3D applications with antialiasing enabled. This can help improve image quality.

Move the slider to set the degree of anisotropic filtering applied to textures. The highest setting provides the best image quality while the lowest setting allows for maximum performance.

Forces the detection of a TV connected to the graphics card, even though the control panel does not show that one is currently connected. This is useful in situations where the particular TV model attached does not properly load the signals that allow the graphics card to detect its presence.

To enable the TV settings:

1. Click the check box.
2. Restart your computer when prompted. Once you log back in, you can use the TV controls.

**Landscape** is the "default" desktop mode.

**Portrait** results in a 90-degree rotation.

**Inverted Landscape** results in a 180-degree rotation.

**Inverted Portrait** results in a 270-degree rotation.

You can use the right arrow (->) button to perform rotation options below. Or you can click circular arrow on the right top and Move it in the direction of the rotation.

You can use the left arrow (<-) button to perform the rotation options below.

Determines advanced rendering options when using multiple displays and/or different classes of NVIDIA GPUs.

**Note:** Multi-display hardware acceleration options do not apply when using nView Multiview mode in Windows NT 4.0.

- **Single-Display Mode**: If you have only one active display, this is the default setting. You can also specify this setting if you have problems with the "multi-device" modes explained below.
- **nView Clone/Span Mode**: This is the default setting when your nView display configuration is set to nView Clone mode or nView Span mode. If multiple NVIDIA GPU-based graphics cards in your system are in use with active displays, this setting is replaced by one of the "multi-device" modes described below.
- **Multi-Device Compatibility Mode**: This mode is available if you have two or more active display devices when running in nView Dualview mode or if you are using different classes of NVIDIA GPU-based cards.

  **Note:** When this mode is in effect, OpenGL renders in "compatibility" mode for all displays. In this mode, when different classes of GPUs are in use, the lowest common feature set of all active GPUs is exposed to OpenGL applications. The OpenGL rendering performance is slightly slower than in Single-Display mode.
- **Multi-Device Performance Mode**: This mode is available if you have two or more active display devices when running in nView Dualview mode or if you are using different classes of NVIDIA GPU-based cards.

  **Note:** When this mode is in effect, OpenGL renders in "performance" mode for all displays. As in "compatibility mode", when different classes of GPUs are in use, the lowest common feature set of all active GPUs is exposed to OpenGL applications. However, the rendering performance is "faster" than in compatibility mode, although switching or spanning display devices may result in minor transient rendering artifacts.

Enables conformant OpenGL texture clamp behavior.

Texture clamping refers to how texture coordinates are handled when they fall outside the body of the texture. These can be clamped to the edge or within the image.

Links the degree of rotation you specified for the video overlay on the Primary display to the Secondary display. This means that the degree of rotation you choose on the NVRotate panel is reflected on both the Primary and Secondary display devices.

Zoom control lets you zoom into the rendered video.

Click the drop-down menu arrow to select the display to zoom.

- **Video Mirror** sets the zoom selection to the secondary display on which the video mirror is rendered.
- **Video Overlay** sets the zoom selection to the primary display on which the overlay video is rendered.
- **Both** applies the zoom selection to the both the primary and the secondary display on which the video is rendered.

Enables the Heat Indicator warning dialog box.

When the value of the NVIDIA GPU Core Temperature matches the Core Slowdown Threshold value, the Heat Indicator dialog box automatically appears describing the situation and the actions that have been taken to prevent possible damage to any particular GPU(s) in your system.

This is the current temperature of the selected NVIDIA GPU in your system.

This is the current temperature of the area surrounding the selected NVIDIA GPU in your system. This temperature varies greatly, depending on other heat sources located near the GPU.

Click the temperature unit (Fahrenheit or Celsius) in which to display the temperature values on this panel.

This is the value at which the NVIDIA GPU will slow itself down to prevent overheating.

When this value matches the NVIDIA GPU Core Temperature value and the "Enable Heat Indicator warning..." option is enabled on this panel, a dialog box will automatically appear warning of the condition and the actions that have been taken to prevent possible overheating and damage to any particular GPU(s) in your system.

Displays the current NVIDIA GPU Core Temperature in the system tray.

This information describes the AGP-related capabilities of your system.

This section provides manufacturer identification and AGP capabilities of your computer's mainboard chipset.

This section describes the AGP capabilities of your NVIDIA GPU.

This section summarizes the AGP capabilities actually available for use in your system. Items listed are AGP features that are common to both the mainboard chipset and your NVIDIA GPU.

This setting lets you manually adjust the maximum AGP rate at which your graphics card operates.

**Note**: Adjusting this setting can cause your system to become unstable if the adjustment is for a faster setting than what was determined to be safe for your particular system configuration.

Check this box to enable AGP Fast Writes (FW).

Check this box to enable AGP Sideband Addressing (SBA).

Check this box to enable 2D command buffer caching.

This option lets you control the maximum number of outstanding AGP bus requests permitted to queue up.

Select this option to allow the system to choose the best setting for the maximum number of outstanding AGP bus requests.

Select this option to specify the maximum number of outstanding AGP bus requests.

Click to test the AGP configuration specified on this panel. This test can determine if the selected settings cause any stability or performance problems.

Move the slider to set the degree of antialiasing to be used in Direct3D and OpenGL applications. **Antialiasing** is a technique used to minimize the "stair step" effect sometimes seen along the edges of 3D objects. Your selection can range from turning antialiasing completely off to selecting the maximum amount possible for a particular application.

- **Off.** Disables antialiasing in 3D applications. Select this option if you require maximum performance in your applications.
- **2x.** Enables antialiasing using the 2x mode. This mode offers improved image quality and high performance in 3D applications.
- **2xQ.** Enables a patented antialiasing technique available in the GeForce GPU family. 2xQ (Quincunx) antialiasing offers the quality of the slower, 4x antialiasing mode at nearly the performance of the faster, 2x mode.
- **4x.** Enables antialiasing using the 4x mode. This mode offers higher image quality at the expense of some performance in 3D applications.
- **4xG.** Enable antialiasing using the 4x, 9-tap (Gaussian) mode. This mode offers higher image quality but at the expense of some performance in 3D applications.
- **4xS.** Enables antialiasing using the 4xS mode. This mode offers higher image quality than 4x mode but at slightly lower performance in 3D applications. This setting affects only Direct3D applications.
- **6xS.** Enables antialiasing using the 6xS mode. This mode offers higher image quality than 4xS mode. This setting affects only Direct3D applications.
- **8x.** Enables antialiasing using the 8x mode. This mode offers higher image quality than 6xS mode for Direct3D applications and 4x mode for OpenGL applications.
- **16x.** Enables antialiasing using the 16x mode. This mode offers higher image quality than 8x mode.

**Note**: Some options may not be available due to your hardware limitation. Please consult your NVIDIA User Guide for details.

Move the slider to set the degree of anisotropic filtering for improved image quality. Enabling this option improves image quality at the cost of performance

- **Off.** Disables anisotropic filtering.
- **1x.** Results in maximum performance.
- **2x.** Results in improved image quality at the cost of performance.
- **4x.** Results in improved image quality at the cost of performance.
- **8x.** Results in best image quality.

**Note**: Some options may not be available due to your hardware limitation. Please consult your NVIDIA user documentation for details.

Allows the Direct3D application to select its own refresh rate. The list box below is disabled when this option is enabled.

Allows the driver to override the refresh rate for Direct3D applications. The list box below is enabled when this option is enabled.

This list box lets you individually override refresh rates for each resolution.

**Default** means that the application's refresh rate is used. Any other value means to set the refresh rate to the value for full-screen Direct3D applications.

To override a refresh rate

1. From the Refresh Rate column, click the word **Default** on the line that contains the Resolution for which you want to change the refresh rate. A list of values appears.
2. Select a refresh rate and click **Apply**.

Sharpens the image quality by amplifying high frequency content.

Adjusts the power consumption from the battery relative to performance.

Adjust the power consumption from the A/C power source relative to performance.

This is the power source that is currently being used.

This is the current power level relative to performance.

This is the current battery charge level.

Use this TV Screen Size slider by moving it to the level that adjusts the screen size of your TV. For example, if you see a black border on your TV screen, you can use the slider to enlarge the TV screen to remove the border.

**Note:** The extreme right setting (move the slider all the way to the right) is optimal for DVD viewing.

Digital Vibrance lets you control the color separation and intensity of images, which results in brighter and clearer video playback images.

Some movies (video images) might appear dark during playback. You can increase the Gamma value to brighten the image.

This panel provides features to create and use custom display resolutions.

Click to add the customized mode entered in the mode edit area to the Custom Modes list.

Click to modify the currently selected entry in the Customs Modes list.

Click to test the customized mode in the mode edit area. This test will attempt to set the mode on the selected display and verify that it was set correctly.

Click to remove the currently selected entry in the Customs Modes list.

Check this box to allow modes smaller than traditional Windows desktop modes to be set on the selected display. This can cause the visible area of the display to possibly appear zoomed or to pan around the desktop, depending on the capabilities of the display.

Adjust the horizontal dimension (or the number of pixels in width) of the display mode being customized.

Adjust the vertical dimension (or the number of pixels in height) of the display mode being customized.

Adjust the vertical refresh rate of the display mode being customized.

Adjust the number of colors displayed (also termed bpp or bits per pixel) of the display mode being customized.

Choose one of the standard Windows display modes to use as a starting point in the mode edit area.

Lists the currently available customized display modes.

Lists the currently available display modes that can be set on the particular display devices associated with the selected display. This list will only contain modes that can be physically displayed on this display, and may be smaller in dimension than those modes that can be set on the Windows Display Properties Settings panel.

Check this box to enable the optimal settings for viewing video content on the TV.

Adjusts the monitor timing maintaining the current aspect ratio.

Displays a graphical representation of your ClearView display configuration. Click a monitor image and move it to rearrange the display order.

This option selects the display configuration. Allowed options are the following:

- 1 x 2
- 1 x 3
- 1 x 4
- 2 x 2
- 2 x 1
- 3 x 1
- 4 x 1

Select the display to use as the preferred display. The preferred display can be refreshed as need by using the "Preferred Display Refresh" slider.

Use the mouse to select the preferred display. The display on which the mouse is currently placed will be treated as the preferred display for refresh purposes.

Use this slider to specify the number of times a preferred display is refreshed compared to the non-preferred displays.

- 1x specifies that the preferred display is refreshed only once per cycle.
- 2x specifies that the preferred display is refreshed twice, whereas the non-preferred displays are refreshed only once during a cycle.
- 3x specifies the preferred display is refreshed 3 times per cycle.

Helps you select the clock settings for:

- Standard (2D), which only affects the 2D applications
- Performance (3D), which only affects the 3D applications

Selecting the Performance clock setting determines how fast your 3D applications run.

Selecting the Standard clock setting determines how fast your 2D applications run.

Determines the maximum clock setting that is safe on your system at this instant. The maximum clock setting determined here can vary on consecutive runs and depends on how well the system handles the auto-detection stress tests.

Allows an overlay to be created when in Span modes. (Some systems cannot handle creating overlays when Span mode is enabled; this option lets you counteract that limitation.)

Pushing this pin graphic causes the pop-up menu to remain open when the pushpin is pushed in. If the pushpin is released, the pop-up menu automatically closes and opens when the control panel window loses focus.

Lets you manually select the pan-scan resolution for a given display device. If you select a pan-scan resolution, the driver will enter pan-scan mode with the given resolution, whenever possible.

**Note**: This setting will remain throughout system restarts.

Check this box when your monitor (display device) supports native rotation.

**Note:** If your display device does not support native rotation, checking this box will disable the rotation feature.

Check this box to override the application-selected anisotropic settings with user-selected anisotropic settings for 3D applications.

Check this box to enable Double Scan.

- Double Scan greatly improves image quality at lower resolutions, which is most useful for full screen video or computer games.
- Double Scan requires double the monitor bandwidth. For higher resolutions and refresh rates, the driver will automatically revert to standard mode when the double scanned mode exceeds monitor limitations.

Lets you add more than one custom mode with all supported color depths.

Lets you add more than one custom mode with all supported refresh rates.

Displays available screen resolution settings for the monitor (display device). Move the slider to select a different screen resolution.

Displays available color settings for the currently selected screen resolution of the monitor (display device). Click the control to select a different color setting.

Lists special NVIDIA GPU events that have occurred and have been logged by the device driver. You can also view these events with the event log viewer.

Specify pixel formats to use for overlays in OpenGL.

§ **Color indexed overlays (8bpp)**: Use 8-bit paletted overlays.

§ **RGB overlays (RGB555 format)**: Use 16-bit (RGB555) overlays.

§ **Color indexed (8bpp) and RGB555 format**: Allow application to use either 8-bit paletted or 16-bit (RGB555) overlays.

**Note**: Overlays need additional onboard graphics memory and may not be available under all resolutions. You may want to reduce the resolution or color depth if you have problems accessing overlay functionality.

Enables gamma correction for antialiased lines. Gamma-corrected antialiased lines consider variances in the color display capabilities of output devices when rendering smooth lines.

When this option is enabled, the graphics card is used as the server that generates the frame lock synchronization signal.

Leading Edge. When enabled, this option indicates that the rising edge is used to detect sync.

Falling Edge. When enabled, this option indicates that the falling edge is used to detect sync.

Sync Delay (us). This option specifies the amount of time (in microseconds) the frame lock card should wait before generating the synchronization pulse.

In server mode, this is the rate (in Hz) at which the graphics card generates the output synchronization pulses.

Sync and connection status graphics display the current status of the frame lock card.

- **Sync ready** specifies the synchronization signal from the NVIDIA GPU that is output.
- **Swap ready** specifies the signal between NVIDIA GPUs that is used to synchronize all GPUs on the daisy chain
- **Timing** synchronization bit refers to the presence of a timing synchronization through the frame lock ports.
- **Stereo sync** specifies synchronization from the VGA card. If there is no frame lock or house synchronization available, this synchronization is used.
- **In** specifies the input connector for frame lock synchronization.
- **Out** specifies the output connector for frame lock synchronization.
- **House sync** specifies the sync signal received from the BNC connector

Click to query the synchronization options and verify the connections. Results and current status are displayed.

Click to run a series of internal tests that calibrate the graphics card for optimal frame synchronization settings. Results and the current status are displayed.

Click to identify the associated monitors (display devices).

Click the list box arrow and select either Primary or Secondary display, depending on the display on which you want to see the overlay video.

Use this option to select the pair of displays on which the desktop will be shown. The first icon represents your primary display and the second icon represents your secondary display. The list shows all of the display pairs that may be used together.

Use this option to select how the desktop should be shown.

- **Single Display** means show the desktop only on the primary display.
- **Dualview** means show two different desktops, one on each display.
- **Clone** means replicate the same desktop on two displays.
- **Horizontal Span** means show one desktop stretched horizontally across two displays.
- **Vertical Span** means show one desktop stretched vertically across two displays.

Enables Desktop Overlap across displays in nView Horizontal Span or Vertical Span mode. This option lets you repeat a portion of the display image along the edges of neighboring displays when multiple displays are used to form a single desktop in Span mode.

Specifies the number of horizontal pixels to overlap when using the Desktop Overlap option in Horizontal Span mode.

Specifies the number of vertical pixels to overlap when using Desktop Overlap in Vertical Span mode.

Enables projected blending across "projector-based" displays. This option lets you compensate for luminance artifacts when output from multiple projector-based display devices is overlapped to form a single, seamless display image.

To select the display edges that you want to include in projected blending, click the arrow buttons along the edges of the screen image.

Specifies the number of pixels from the horizontal display edges to use in projected blending.

Specifies roll-off for the gradient used to introduce the Horizontal Luma value along blended horizontal display edges.

**Range:** 0 to 255 pixels. Using a large roll-off helps to reduce visible seams along display edges and simplifies display alignment, but may sacrifice some image quality.

Specifies the target Luma value for blended horizontal display edges.

**Range:** 0 to 255 pixels. The larger the number you specify, the brighter the image appears at blended edges.

Specifies the number of pixels from the vertical display edges to use in projected blending.

Specifies roll-off for the gradient used to introduce the Vertical Luma value along blended vertical display edges.

**Range:** 0 to 255 pixels. Using a large roll-off helps to reduce visible seams along display edges and simplifies display alignment, but may sacrifice some image quality.

Specifies the target Luma value for blended vertical display edges.

**Range:** 0 to 255 pixels. The larger the number you specify, the brighter the image appears at blended edges.

Export Desktop Overlap and Projected lending settings from the dialog box to a file.

Imports desktop overlap and project blending settings from a file and populates the dialog box with these settings.

Forces video mixing renderer support. Select this option if you do not see the full-screen video on the selected full-screen display device.

Enable or disables the high-resolution desktop scaling. Enabling high resolution desktop scaling improves the desktop image quality.

In server mode, this is the rate (in Hz) at which the external sync generator pulses are being received through the BNC connector.

In server mode, this is the video mode associated with the external sync generator.

In server mode, this is the number of external sync generator pulses to receive before forwarding the synchronization pulse to client devices.

Move the slider to select the performance and quality enhancements settings for Direct3D and OpenGL applications.

- **High Performance** results in the highest performance for your applications.
- **Performance** gives you the best performance for your applications with good image quality.
- **Quality** is the default setting that results in the best image quality for your applications.

Optimize the graphics on the TV for a particular application.

Center the graphics on the TV.

Optimize the TV for DVD playback.

Optimize the TV for desktop graphics.

Optimize the TV with custom settings.

Allows the application to select its own refresh rate. The list box below is disabled when this option is enabled.

Allows the driver to override the refresh rate for applications. The list box below is enabled when this option is enabled.

This list box lets you individually override refresh rates for each resolution.

**Default** means that the application's refresh rate is used. Any other value means to set the refresh rate to the value for applications.

To override a refresh rate:

1. From the Refresh Rate column, click the word **Default** on the line that contains the Resolution for which you want to change the refresh rate. A list of values appears.
2. Select a refresh rate and click **Apply**.

When a refresh rate is overridden, Windows report the refresh rate as specified by the application but the monitor (display device) will use the overridden refresh rate.

Click to query the sync options and verify the connections. Results and current status are displayed.

Enables this system as the client. When this option is enabled, the graphics card is used as the client that synchronizes to the frame lock synchronization signal.

Specifies whether to include modes that are not supported by your display.

**Caution:** Choosing a mode that is inappropriate for your display may cause severe display problems and could damage your hardware.

Click to show all available customized modes for the currently selected screen resolution.

Displays available refresh rates for the currently selected screen resolution of the monitor (display device). Click the option to select a different refresh rate.

Displays the last screen resolution, colors, and refresh rate of the last attempted change.

Click to auto-adjust the custom resolution width. The width value must be a multiple of 8.

Click to select your monitor's display timing mode:

- **Auto-Detect** is the "default" setting; it allows Windows to receive the proper timing information directly from the monitor itself. **Note**: Some older monitors may not support this feature.
- **General Timing Formula** (**GTF)** is a standard used by most new monitors and display devices.
- **Discrete Monitor Timings** (**DMT)** is an older standard still in use on some monitors. Enable this option if your monitor or display device requires DMT.
- **Coordinated Video Timings Standard (CVT)** became the VESA standard on March 2003. CVT supports higher resolutions better than other timing standards.
- **Fixed Aspect Ratio Timing** forces the displayed image to retain the aspect ratio of the mode rather than aspect ratio of the monitor. **Note:** The driver may place black borders around the displayed image, as needed.

Click to the down-arrow to specify where to apply these color correction settings.

- **All** applies settings to your Windows desktop and to video playback.
- **Desktop** applies these color correction settings to your Windows desktop.
- **Overlay/VMR** applies these color correction settings to video playback using an overlay.
- **Full Screen Video** applies these color correction settings to full screen video playback.

Click the down-arrow to select the color channel affected by the sliders or curve control. You can adjust the red, green, and blue channels individually or the composite channel all at once.

Shows a graphical representation of the color correction curve.

Input values are represented along the x-axis and shown numerically in the **In** edit box. The adjusted output values are represented along the y-axis and are shown numerically in the **Out** edit box.

If the **Color profile** option is set to **Standard Mode**, this curve changes dynamically as you adjust the **Contrast**, **Brightness**, or **Gamma** values using the sliders.

If the **Color profile** option is set to **Advanced Mode**, you cannot use the **Brightness/Contrast/Gamma** sliders but you can modify this curve in real-time by using any one of these methods:

- Click the curve to create a control point on it. Repeat for additional points you need to add.
- Click the curve and drag the mouse to modify the curve, which also dynamically modifies the values in the **In** and **Out** edit boxes.
- Enter a value that is less than or equal to 1.00 in the **In** and/or **Out** edit boxes.
- Select one or more control points and then press the arrow keys on your keyboard to adjust the curve and numeric values in the **In**/**Out** edit boxes.
- To insert several control points, click the curve to select a point and then press **Ins** (Ins key on your keyboard) one or more times, depending on the number of points you want to add, which is limited by any other points that may already exist on the curve.
- To remove a control point, select the point and drag it out of bounds or select the point and press **Del**.
- To select multiple control points, you can either press down the **Ctrl** key and select the points you want with your mouse; or left click and drag the mouse around the items to create a box that selects the items.

If you have loaded an **ICC profile**, the color correction curves loaded from the ICC profile are displayed in the graph. Use a professional publishing application to perform color matching based on information in the ICC profile.

Shows the input value for the current mouse position or control point in the curve graph.

Shows the output value for the current mouse position or control point in the curve graph.

Displays a list of available color correction profiles.

- **Standard Mode** allows you to specify color correction settings using the Brightness, Contrast, and Gamma sliders.
- **Advanced Mode** allows you to specify color correction settings by manually inserting, dragging, and removing control points along the curve shown in the graph. Note that when this option is enabled, the settings available from the sliders do not apply.
- **ICC Profile Mode** uses the color correction curves imported from the specified ICC profile. After you select this mode, click **Import** to load the profile. Note that when this option is enabled, the settings available from the sliders do not apply.

**Custom** settings you may have saved are also shown in this list. To activate a custom profile, select it from the list.

Click to specify the filename of the ICC profile to use.

Click to toggle screen menu editing.

Displays list of hidden screens when screen menu editing is on.

Use these options to determine the placement of the image on your flat panel display when running at resolutions lower than the flat panel's maximum supported resolution. The "scaling" options are available for flat panels that support multiple native resolutions.

- **Display Adapter Scaling.** Enable this option if you want lower-resolution images scaled to fit the flat panel. For example, if your flat panel has a maximum resolution of 1400x1050, an image with a resolution of 1024x768 will be scaled to appear on the screen at a 1400x1050 resolution. Display adapter will be used for this "pixel stretching" operation.
- **Centered Output.** Enable this option if you want to display lower-resolution images "as is" in the center of the flat panel. For example, if your flat panel has a maximum resolution of 1400x1050, an image with a resolution of 1024x768 will be displayed in the center of the screen at a 1024x768 resolution with black borders.
- **Monitor Scaling** is similar to Display Adapter Scaling, except that it uses the default "pixel stretching" method of the flat panel display instead of the display adapter.
- **Fixed Aspect Ratio Scaling.** (Note: The availability of this option depends on your display configuration.) Enable this option if you want lower-resolution images scaled to fit the flat panel but preserve the aspect ratio of the image. For example, if your flat panel has a maximum resolution of 1680x1050, an image with a resolution of 1024x768 will be scaled to appear on the screen at a 1400x1050 resolution with black borders.

Use this option to force your NVIDIA GPU fan to permanently run at the maximum level and ignore the GPU temperature or performance mode. Note that the fan generates a constant noise level in this mode.

Use overlay timing graphs on any Direct3D application.

The graph shows the time spent for each frame in rendering, driver activity, and GPU processing. It is constantly updated to show timings for the most recent 256 frames.

Timing is measured along the vertical axis with markers from top to bottom as follows (frames per second):

- 100 (10 fps)
- 75 (13 fps)
- 50 (20 fps)
- 25 (40 fps)
- 0 (infinite)

Timings for four different processes are indicated by color:

- Yellow indicates total time to render the frame
- Red indicates time spent in the driver.
- Blue indicates driver time waiting for the NVIDIA GPU
- Green indicates GPU idle time.

When in server mode, this option treats the signal coming from the external synchronization generator as an interlaced signal. Synchronization pulses will occur on even display fields.

This is the refresh rate (in Hz) at which the graphics card generates synchronization pulses. Either select **Auto** to instruct the card to automatically lock to the nearest refresh rate or manually specify a refresh rate for full control.

Sync and connection status group shows the current status of the frame lock card.

- **Sync ready** is the synchronization signal from the GPU that is output.
- **Timing** sync bit refers to the presence of a timing synchronization through the frame lock ports.
- **Stereo sync** specifies synchronization from the VGA card, which is used if there is no frame lock or house synchronization.
- **In** is the input connector for the frame lock synchronization signal.
- **Out** is the output connector for the frame lock synchronization signal.
- **House sync** is the synchronization signal received from the BNC connector.

When this option is enabled, the graphics card is configured as a client system that uses the frame lock synchronization signal generated by a server located on another graphics card.

To conserve battery power, SmartDimmer allows you to control the brightness of your digital display while it is active or idle.

Enables SmartDimmer. This option is available only in battery mode.

Adjusts the maximum brightness level available on the digital display. This brightness level is used when the system is active.

Adjusts the minimum brightness level available on the digital display. This brightness level is used when the system is idle.

Displays current brightness level of the digital display panel.

Use this option to force your NVIDIA GPU fan to run at a medium speed. At this speed, the fan generates a constant noise level, unless the GPU exceeds the safe operating temperature and must switch to a higher fan speed.

Overdrive compensation controls brightness and contrast. Adjust overdrive to increase brightness while decreasing contrast, or increase contrast while decreasing brightness. This helps eliminate video edge bowing, due to large swings in brightness. The slider will help moderate the extreme variance, eliminating the bowing, at the expense of reducing contrast.

Use this control to adjust overscan and underscan to compensate for HDTV content.

Click to change color settings

Select a single display or display pair.  The selected display combination will appear in the graphical representation below.

Select your preferred nView display modes here. nView display modes can be one of the following.

- **Single Display.** Only one of your connected displays is used.
- **Clone.** Both displays in the display pair show images of the same desktop.
- **Horizontal Span.** Both displays in the display pair behave as one wide virtual desktop. The width of each display is half the width of the total virtual desktop width.
- **Vertical Span.** Both displays in the display pair behave as one tall virtual desktop. The height of each display is half the height of the total virtual desktop height.
- **Dualview** Both displays in the display pair behave as one virtual desktop. Unlike Horizontal or Vertical Spanning mode, Dualview treats each display as a separate device. This means that the task bar will not be stretched across displays and 3D applications are not accelerated as efficiently if the application spans displays.