Release 361 Graphics Drivers for Windows, Version 361.43

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Release Notes

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1 INTRODUCTION TO RELEASE NOTES

This edition of *Release Notes* describes the Release 361 family of graphics drivers (versions 361.*xx*) for Microsoft® Windows® Vista and later[1]. NVIDIA provides these notes to describe performance improvements and bug fixes in each documented version of the driver.

Structure of the Document

This document is organized in the following sections:

- "Release 361 Driver Changes" on page 2 gives a summary of changes, and fixed and open issues in this version.
- "The Release 361 Driver" on page 33 describes the NVIDIA products and languages supported by this driver, the system requirements, and how to install the driver.
- "Mode Support for Windows" on page 41 lists the default resolutions supported by the driver.

Changes in this Edition

This edition of the *Release Notes* for Windows Vista and later[1] includes information about NVIDIA graphics driver version 361.43 WHQL, and lists changes made to the driver since driver version 359.06. These changes are discussed beginning with the chapter "Release 361 Driver Changes" on page 2.

1. Includes Windows Vista, Windows 7, Windows 8, Windows 8.1, and Windows 10.

2 RELEASE 361 DRIVER CHANGES

This chapter describes open issues for version 361.43 WHQL, and resolved issues and driver enhancements for versions of the Release 361 driver up to version 361.43 WHQL.

The chapter contains these sections:

- "Version 361.43 WHQL Highlights" on page 3'
- "Changes and Fixed Issues in Version 361.43" on page 11
- "Open Issues in Version 361.43 WHQL" on page 12
- "Not NVIDIA Issues" on page 14
- "Known Product Limitations" on page 20

Version 361.43 WHQL Highlights

This section provides highlights of version 361.43 WHQL of the NVIDIA Release 361 Driver for Windows Vista, Windows 7, Windows 8, Windows 8.1, and Windows 10.

- What's New in Version 361.43 WHQL
- What's New in Release 361
- Limitations in This Release
- Advanced Driver Information

What's New in Version 361.43 WHQL

NVIDIA continues to work closely with VR headset and game developers to deliver amazing VR games and applications. This Game Ready driver includes the latest GameWorks VR tweaks, bug fixes, and optimizations to ensure you have the ultimate VR gaming experience.

Gaming Technology

Support added for GameWorks VR 1.1 including VR SLI support for OpenGL applications and support for the latest Oculus SDK.

Fermi GPUs

As of Windows 10 November Update, Fermi GPUs now use WDDM 2.0 in single GPU configurations.

For multi-GPU configurations, WDDM usage is as follows:

- In non-SLI multi-GPU configurations, Fermi GPUs use WDDM 2.0. This includes configurations where a Fermi GPU is used with Kepler or Maxwell GPUs.
- In SLI mode, Fermi GPUs still use WDDM 1.3.

Application SLI Profiles

Added or updated the following SLI profiles:

- **Bless -** ***DirectX 9 SLI profile added***
- **DayZ -** ***SLI AA and NVIDIA Control Panel AA enhance disabled***
- **Dungeon Defenders 2 -** ***DirectX 9 SLI profile added***
- **Elite Dangerous -** ***64-bit EXE added***
- **Hard West -** ***DirectX 11 SLI profile added***

3D Vision Profiles

No 3D Vision profiles were added with this release.

3D Compatibility Mode Profiles

No compatibility mode profiles were added with this release.

Software Modules

- **NView - version 146.90**
- **HD Audio Driver - version 1.3.34.4**
- **NVIDIA PhysX System Software - version 9.15.0428**
- **GeForce Experience - version 2.8.1.21**
- **CUDA - version 8.0**

Fixed Issues

See "Changes and Fixed Issues in Version 361.43" on page 11 for a list of other changes and resolved issues in this driver version.

What's New in Release 361

For these release notes, the new items are the same as those documented under What's New in Version 361.43 WHQL.

Application SLI Profiles

The SLI profiles are the same as those documented under What's New in Version 361.43 WHQL.

3D Vision Profiles

The 3D Vision profiles are the same as those documented under What's New in Version 361.43 WHQL.

3D Compatibility Mode Profiles

The compatibility mode profiles are the same as those documented under What's New in Version 361.43 WHQL.

Limitations in This Release

The following are features that are not currently supported or have limited support in this driver release:

- **Surround Gaming with 3-way SLI**

  Surround gaming is not supported on a 3-way SLI system using GeForce GTX 200 series GPUs.

- **NVIDIA Control Panel Display Category**

  The Graph tab on the Adjust Desktop Color Settings page is not available.

- **Negative LOD Bias Clamp**

  Negative LOD bias clamp for DirectX applications is not supported on Fermi-based GPUs and later.

- **Hybrid Power**

  Support for Hybrid Power, a Hybrid SLI technology, is discontinued and not available with this driver.

- **Legacy Support for GeForce 6-series and GeForce 7-series GPUs**

  GeForce 6-series and GeForce 7-series GPUs have moved to legacy support with the GeForce Release 304 drivers. These products are no longer supported beginning with the GeForce Release 310 drivers.

- **3D Vision Legacy Support Notification for Windows Vista**

  Support for 3D Vision under Windows Vista is discontinued beginning with the Release 313 drivers. 3D Vision and 3DTV Play functionality will not be available with these drivers.

  NVIDIA will continue to support basic 3D Vision and 3DTV Play functionality for Windows Vista with Release 310 or earlier drivers. Basic functionality includes full-screen viewing of 3D games, pictures, and movies on 3D Vision monitors, notebooks, and 3D TVs (with 3DTV Play software installed).

- **Legacy Support for Tesla architecture GPUs**

  Beginning with Release 343, the NVIDIA graphics drivers no longer support the Tesla generation of NVIDIA GPUs. The Release 340 drivers will continue to support these products until April 1, 2016, and the NVIDIA support team will continue to address driver issues for these products in driver branches up to and including Release 340. However, future driver enhancements and optimizations in driver releases after Release 340 will not support these products.

  The following is a summary of legacy products beginning with Release 343 drivers:

  - GeForce 8 & 9 Series Desktop Products
  - GeForce 100/200/300 Series Desktop Products
  - GeForce 7/8/9 Series Notebook Products
  - GeForce 100/200/300 Series Notebook Products

- Quadro FX/CX/VX Workstation products
- Select Quadro NVS Workstation products
- Quadro FX and NVS Notebook Products
- Quadro Plex 2200

See the section Supported NVIDIA Desktop Products and Supported NVIDIA Notebook Products for specific products.

Advanced Driver Information

This section contains the following additional information about the driver:

- Differing GPU Voltages in SLI Mode
- 3D Compatibility Mode
- Help for Resizing Your HDTV Desktop
- Understanding the DirectX Information Shown in the NVIDIA System Information Window

Differing GPU Voltages in SLI Mode

When non-identical GPUs are used in SLI mode, they may run at different voltages. This occurs because the GPU clocks are kept as close as possible, and the clock of the higher performance GPU is limited by that of the other. One benefit is that the higher performance GPU saves power by running at slightly reduced voltages.

An end-user gains nothing by attempting to raise the voltage of the higher performance GPU because its clocks must not exceed those of the other GPU.

3D Compatibility Mode

3D Compatibility Mode is an NVIDIA proprietary rendering mode for 3D Vision that improves the 3D experience for many key DirectX 10 and 11 games. NVIDIA continues to add game support with new driver versions.

Requirements and Compatibility

- Games must be run in DirectX 10 or DirectX 11 mode.
- Not compatible with 3D Vision Surround.

Switching Compatibility Modes

Games with 3D Compatibility Mode will launch in this mode by default. You can switch between 3D Compatibility mode and standard 3D Vision mode as follows:

1. Before starting the game, enable Advanced In-game Settings in the NVIDIA Control Panel:

a Open the NVIDIA Control Panel and navigate to the *Stereoscopic 3D->Set up stereoscopic 3D* page and click **Set Keyboard Shortcuts**.

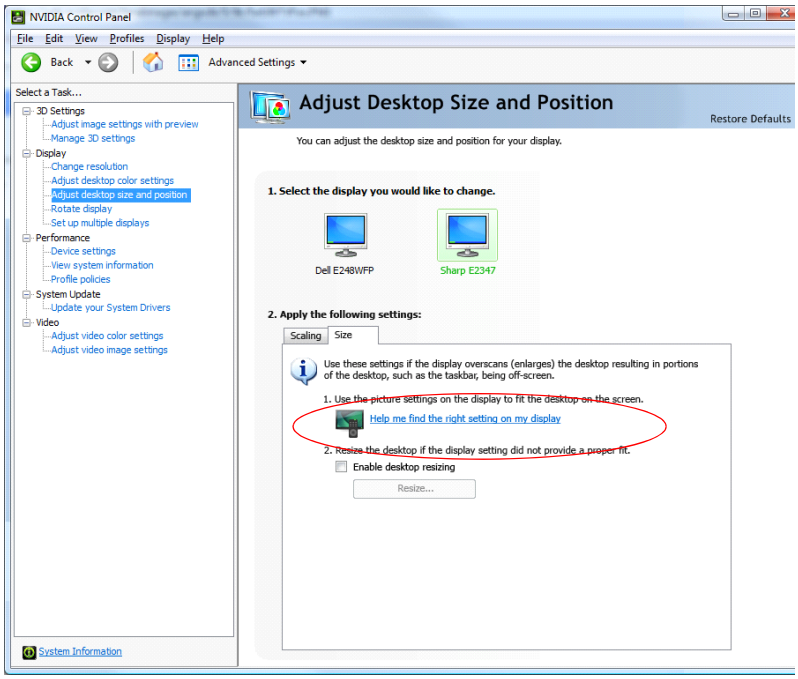
b Click the *Show advanced in-game settings* arrow if the section is not expanded, then select **Enable advanced in-game settings.**

c Click **OK**.

2 Press Ctrl+Alt+F11 during the game to toggle between 3D Compatibility mode and standard 3D Vision mode.

Help for Resizing Your HDTV Desktop

The best way to resize the screen in order to view the entire content is to use the controls provided by the display hardware. Click the link on the Size tab to view a guide to changing the settings on your display hardware.

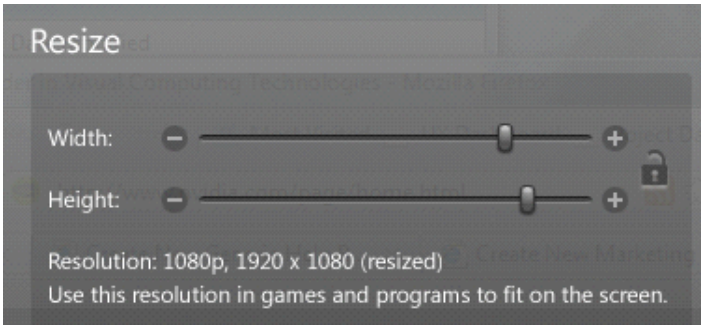


The resize controls on the NVIDIA Control Panel are provided in case satisfactory results cannot be achieved using the controls on the display.

After resizing the HDTV desktop using the NVIDIA Control Panel Resize controls, the new custom resolution created is now added to the list of available resolutions for that display, and also added to the resolution list within the game or application.

In Release 190 and later drivers, the method for resizing the HDTV desktop has changed to provide better image quality when applying underscan. This method results in a new custom resolution being created which needs to be selected from games or applications to apply the resizing. In the example displayed in the following screen shot, the underscan has created a new resolution (1216 × 682). Although this resolution looks different, it is

still in HD format. Remember to select this resolution in your game or other application in order to take advantage of it.



Note: Some games or applications may not support the new resolution.

Understanding the DirectX Information Shown in the NVIDIA System Information Window

The System Information window–accessed by clicking **System Information** at the bottom left corner of the NVIDIA Control Panel–provides technical information about the NVIDIA graphics cards and driver installed in the system.

It also provides the following system information:

- **Operating system**: For example, "Windows 7 Enterprise, 64-bit"
- **DirectX runtime version**: For example, "11.0"

In order to use the version of DirectX reported in the System Information window, the NVIDIA GPU and graphics driver must also support that DirectX version.

This information is provided in the *Graphics card information* section of the System Information window as follows:

- **DirectX support**

  (Provided in previous driver versions)

  This is the DirectX version that is supported by the NVIDIA graphics hardware and driver.

- **Direct3D API version**

  (Provided in later driver versions, for Windows 7 and later)

  This is the Direct3D version that is supported by the NVIDIA graphics hardware and driver. The API version is expressed in terms of Direct3D – the graphics subsystem component of DirectX.

- **Direct3D feature level**

  (Provided in later driver versions, for Windows 7 and later)

  Direct3D feature levels describe a subset of features within the Direct3D API version that are supported by the NVIDIA graphics hardware and driver.

Changes and Fixed Issues in Version 361.43

The following sections list the important changes and the most common issues resolved in this version. This list is only a subset of the total number of changes made in this driver version. The NVIDIA bug number is provided for reference.

Windows 10 Fixed Issues

- Cleaned up flip timing and event notification bugs. [200151547]
- Fixed a driver bug where if the output is active, hot unplugging a device will cause any following hot plug device to be ignored. [1707505]
- Cleaned up unexpected behavior related to the multi-HMD (helmet-mounted device) use case. [200152110]
- Return `NVAPI_NO_CONNECTOR_FOUND` from the `NVAPI_GPU_GetAllDisplayIds()` when headless GPUs are detected to allow for identification of the unsupported use case. [200155835]
- [GM20x] Clock speeds remain above idle at 144 Hz on desktop. [1631144]
- Lag in Star Wars Battlefront with SLI enabled after updating to driver 359.06. [1709067]

Windows 8.1/Windows 8/Windows 7/Windows Vista Fixed Issues

- Prevented an extra hotplug/unplug for unconnected devices in `escapeDirectModeEnable\DisableVRDirectMode()`. [1707485]
- Fixed windowed G-SYNC not being totally disabled at the UMD (user-mode display) when the VR display is active. [200146036]
- Updated the whitelist entry regkey to allow multiple entries at once. [200155690]
- [GM20x] Clock speeds remain above idle at 144 Hz on desktop. [1631144]

Other Fixed Issues

- Increased robustness of the VR SLI queued present implementation to mitigate flickering and tearing related to rendering to the scanout surface. This is not operating system specific. [200151843]

Open Issues in Version 361.43 WHQL

As with every released driver, version 361.43 WHQL of the Release 361 driver has open issues and enhancement requests associated with it. This section includes lists of issues that are either not fixed or not implemented in this version. Some problems listed may not have been thoroughly investigated and, in fact, may not be NVIDIA issues. Others may have workaround solutions.

For notebook computers, issues can be system-specific and may not be seen on your particular notebook.

- "Windows 10 Issues" on page 12
- "Windows 8.1 Issues" on page 12
- "Windows 8 Issues" on page 12
- "Windows 7/Windows Vista Issues" on page 13

Windows 10 Issues

- Driver installation will fail if GeForce Experience is a selected component and the system is either in safe mode or without a network connection. [200151914]
- [Luxmark 3.0, Windows 10 TH2] Display driver stopped responding while running benchmark LuxBall HDR (Simple Bechmark:217K triangles). [200153736]
- [Titan Black SLI, Windows 10 TH2] When a game is launched with in-game settings preset set to **Ultra,** it crashes with the operating system warning **Close the programs to prevent information loss**. [200148046]

  NVIDIA recommends that this configuration be used with at least 12 GB of system memory.
- [347.09, GM204] Blank screen observed on an ASUS Tiled display when system resumes from shutdown or hibernation with Fast boot option enabled from BIOS. [1591053]

Windows 8.1 Issues

- With a 3DTV connected and the resolution set to an HD3D resolution through the NVIDIA Control Panel, the display flickers constantly after installing the driver via INF over driver version 320.49. [1315116]
- [3DVision] While a stereoscopic 3D video with stereoscopic 3D enabled is played, the monitor refresh rate switches to 60 Hz after changing the resolution using the Windows control panel. [1314811]

Windows 8 Issues

- [Optimus, Notebook] After installing the driver, the Device Manager includes an entry for the NVIDIA Virtual Audio Device but the entry has a yellow bang.

The NVIDIA Virtual Audio Device is not needed nor used on Optimus notebooks, so there is no effect on your notebook function. To remove the yellow bang, reboot your notebook.

- With a 3DTV connected and the resolution set to an HD3D resolution through the NVIDIA Control Panel, the display flickers constantly after installing the driver via INF over driver version 320.49. [1315116]
- [Video, Notebook, Hulu Desktop] When attempting to play videos using Hulu Desktop, there is audio but no video. [1000017]
- [Video, Notebook, Internet Explorer, YouTube] The NVIDIA Control Panel video color settings have no effect on YouTube flash video playback within Internet Explorer 10. [999485]
- [SLI, GeForce 500 series, DirectX 11, Dragon Age II] Shadows flicker in the cutscene when SLI is enabled. [849235]

Windows 7/Windows Vista Issues

- Driver installation will fail if GeForce Experience is a selected component and the system is either in safe mode or without a network connection. [200151914]
- [3DVision] While a stereoscopic 3D video with stereoscopic 3D enabled is played, the monitor refresh rate switches to 60 Hz after changing the resolution using the Windows control panel. [1314811]
- [GeForce 500 series, Need for Speed: The Run] During the race the sun flickers and there are bright blips and black patches. [909577]
- [SLI, Company of Heroes: Tales of Valor] With SLI enabled, there is heavy flickering in the game after switching from windowed mode to full-screen mode. [892264]
- NVS 4200M, Optimus, F1 2011] The game hangs while selecting **Quit To Main Menu** during gameplay. [879537]
- [SLI, GeForce 500 series, DirectX 11, Dragon Age II] Shadows flicker in the cutscene when SLI is enabled. [849235]
- [GeForce 400 series, Total War: Shogun 2] The sun and surrounding area within the game flicker. [807036]

Not NVIDIA Issues

This section lists issues that are not due to the NVIDIA driver as well as features that are not meant to be supported by the NVIDIA driver for Windows Vista/Windows 7.

- "Windows Vista Considerations" on page 14
- "Windows 7 Considerations" on page 14
- "Unsupported Features" on page 15
- "OpenGL Application Issues" on page 16
- "Application Issues" on page 17
- "Operating System Issues" on page 19

Windows Vista Considerations

These are behaviors that may be different from Windows XP and are related directly to the Windows Vista operating system.

- **NVIDIA TurboCache**

  Windows Vista now controls the allocation of system memory to the GPU for TurboCache functions. The Windows Vista Display Properties pages show the shared system memory (SSM), or how much memory is allocated for NVIDIA GPUs to use for TurboCache.

  For more information on graphics memory reporting under Windows Vista, visit http://www.microsoft.com/whdc/device/display/graphicsmemory.mspx.

Windows 7 Considerations

Hotplug Action

Unlike the hotplug activity under Windows Vista, the default settings are not applied when a new display is hotplugged, and there is no message balloon alert stating that a new display was detected. Under Windows 7, all display connection and detection events are handled through the Windows 7 Connecting and Configuring Displays (CCD) mechanism.

NVIDIA Control Panel Rotate Display Page

The rotation radio button labels are changed slightly under Windows 7 to be consistent with the Microsoft panel

Table 2.1 NVIDIA Control Panel Rotation Page Radio Buttons

Clockwise Rotation	Windows 7 Label	Windows Vista Label
0 degrees	Landscape	No rotation (Landscape)
90 degrees	Portrait	90 degrees to the right (Inverted Portrait)
180 degrees	Landscape (flipped)	180 degree rotation (Inverted landscape)
270 degrees	Portrait (flipped)	90 degrees to the left (Portrait)

Limitation

- When switching the refresh rate from 59 Hz to 60Hz, the refresh rate remains at 59 Hz.

  See the Microsoft KB article KB2006076 at http://support.microsoft.com/kb/2006076.

Unsupported Features

The following are features and functionality that were available in driver releases supporting Windows XP, but are not–and will not be–available in driver releases for Windows Vista/Windows 7:

- **High resolution scaling desktop (HRSD)**
- **MultiView Display Mode** (for NVIDIA Quadro NVS graphics cards)
- **NVKeystone**
- **Unified back buffer (UBB) controls**
- **OpenGL Video Overlays**

  This is an operating system limitation.

  Vista window manager features will provide new ways of accomplishing overlays, but will require application porting.

- **Overclocking**

  GPU overclocking is no longer supported in the default GPU driver control panel. This feature is available in the NVIDIA System Tools software, which you can download from NVIDIA.com.

- **GPU Temperature Monitoring**

  Temperature monitoring is no longer supported in the default GPU driver control panel. This feature is available in the NVIDIA System Tools software, which you can download from NVIDIA.com.

- **AGP Settings Adjustment**
- **Video Zoom**
- **Pan & Scan** - the process of panning across the desktop in order to display a desktop on a monitor with lower resolution
- **Per-display Desktop Color Setting Adjustments**

  For Clone mode, the desktop color setting adjustments through the NVIDIA Control Panel can only be made across all displays in a system, and not on a per-display basis.
- **Per-display Video Color Setting Adjustments**

  For Dualview mode, the video color setting adjustments through the NVIDIA Control Panel can only be made across all displays in a system, and not on a per-display basis.
- **Edge Blending**
- **Run display optimization wizard**
- **Run multiple display wizard**
- **Run television setup wizard**
- **nView Horizontal and Vertical Span Modes**

  Due to architectural changes in the new Windows Vista Window Display Driver Model (WDDM), span mode cannot be supported in NVIDIA graphics drivers. NVIDIA recommends using the built-in Windows Vista multi-display modes.
- **Display/Connection Wizard** (such as was provided with Windows Media Center Edition)
- **DVD/MPEG Extensions** (such as was provided with Windows Media Center Edition)
- **Audio Extensions** (such as was provided with Windows Media Center Edition)
- **NVIDIA nView Desktop Manager**

  The nView Desktop Manager will not be included in drivers for GeForce products.

OpenGL Application Issues

The following are known compatibility issues for OpenGL applications developed under Windows XP:

- Mixed GDI and OpenGL rendering does not work.

  A number of applications use GDI to render UI components and object highlighting. This is not supported in the Windows Vista driver model.

  NVIDIA recommends converting GDI rendering to OpenGL.

  The following are some applications that are known to have this issue:

  - Maya 7.01
- Applications, Tools, and Benchmarks not Supported Under Windows Vista
  - GLperf

- 3ds max 8 (later releases may be supported)
- CATIA V5R15 (V5R16 is supported)
- PTC's CDRS 2001

- Front buffered rendering may be slow, especially when DWM is enabled.

  Flushing the rendering queue while rendering to the front buffer may cause the window manager to recomposite. Applications should therefore minimize the frequency with which they flush the rendering queue.

Application Issues

- [Surround][Crysis 3]: With Surround enabled, the mouse cursor is restricted to one of the displays after launching the game. [1331143]
- Adobe Flash 10.x/11.x–1080p video content stutters during browser playback in full-screen mode.

  The issue is resolved with Flash 11.0.1.83 and later.
- GeForce 500 Series: Crysis 2 (DirectX 11 mode)–with 16x Antisotropic filtering set using the NVIDIA Control Panel, there is LOD distortion and other issues with AF. [848406]
- GeForce 400 Series: Dirt 2–the game does not show any 3D-rendered objects when multisample antialiasing is increased to 16xCSAA or higher. [644651]
- GeForce 400 Series: Aliens vs Predator (DirectX 11)–there is ghosting in the sky textures.[660817]
- GeForce 400 Series: S.T.A.L.K.E.R Clear Sky–there is flickering in the background when Sun Shadow is enabled. [667627]
- Dirt2–distant terrain is clipped. [644821]
- Dark Void–if you experience issues playing Dark Void, NVIDIA recommends the following steps:

  a. Install all game patches.

     Retail box owners can get the patch here: http://download.nvidia.com/downloads/nZone/patches/DarkVoid_PhysX_Update_Patch.exe

  b. From the Windows Control Panel->Add/Remove programs, uninstall **NVIDIA Game System Software 2.8.1**.

  c. From the Windows Control Panel->Add/Remove programs, right-click **NVIDIA PhysX** and then click **Repair**.

  If you still experience problems after performing these steps, then either enable V-Sync or skip the cut-scenes by pressing [**Enter**] twice at the cut-scene.
- Operation Flashpoint: Dragon Rising–the game crashes to the desktop when it starts to load.

  This is an issue in the application–the problem does not occur if you disconnect your internet cable.

- World of Warcraft–if you have run the 3D Vision setup wizard, then the game automatically enables 3D stereo even after you disable it.

  To work around this issue, you must uninstall the 3D Vision driver.

- Counter Strike–the application crashes to the desktop if the resolution or bit-depth is changed from the in-game video options menu. [416582]

  This is an application issue, but the problem does not occur if you change the resolution or bit-depth from the game's main menu and not while in a game.

- Star Wars: Knights Of The Old Republic 2–the game fails to launch, and an "application has stopped working" error message appears. [420115]

  This occurs because the application is not able to interpret the driver version correctly.

- Tiger Woods PGA Tour 2007–Fly-by shot before each hole blacks-out textures. [274697]

  NVIDIA is working with the developer to resolve this issue.

- City of Heroes–The mouse cursor does not display. [259256]

  This is an application issue that can be worked around in full-screen mode by adding "compatible cursors 1" to the City of Heroes desktop shortcut.

  NVIDIA is pursuing a fix with the application developer.

- Sims 2–"Smooth Edges (AA)" option is not available with Release 100 drivers. [272477]

  This occurs because of an incorrect driver version check in the application.

  NVIDIA has worked around this issue in the operating system by changing the way the driver version is reported to this application.

- Warhammer 40k Dawn of War (all versions) does not run with Release 100 drivers. [273154]

  This occurs because of an incorrect driver version check in the application.

  NVIDIA has worked around this issue in the operating system by changing the way the driver version is reported to this application.

- Need for Speed Carbon–After upgrading with patch 1.3, the game crashes when launched. [290506]

  This is an issue with the application patch under Windows Vista.

- Nascar Simracing–the game crashes when launched. [270792]

  This is an issue with the application under Windows Vista.

- Call of Duty 2–Only solid colors render during game play when 4xAA is enabled. [257454]

  The application is not applying antialiasing properly. Please try selecting 2x AA, disabling antialiasing, or using NVIDIA Enhanced application or Override antialiasing modes.

  NVIDIA is pursuing a fix with the application developer

- Age of Empires III–the game has rendering artifacts, such as textured squares for smoke. [258036]

- Flight Simulator X–pressing Alt+Tab to switch to the desktop does not work. [293729]
- Everquest 2– with NVIDIA driver versions 100.xx, the following error message appears: [273346]

  "You currently have a (7.15.11.120) video card installed. We recommend that you download version 7772 drivers before playing Everquest."

  This occurs because the application is not checking the driver version correctly, but this does not affect game play. Please select "Continue Anyway" to launch the game. The problem does not occur with a previous Release 95 driver (xx.xx format).

  NVIDIA is pursuing a fix with the application developer.
- Windows Vista 64-bit, [PhysX]: TheGameCreators PhysX Screen Saver doesn't get installed properly. [491613]

  This is not an NVIDIA issue, but a bug in Vista 64-bit OS that affects the installation of many screen savers. To work around, locate the corresponding.scr file for the screen saver, then right-click and select Install.

  Note: *PhysXscreensaver.scr is located in* ***<system root>\\windows\SysWOW64****.*

Operating System Issues

Windows Vista

- Direct-X diagnostics tool (DXDIAG) may report an unexpected value for the display adapter's memory. [673360]

  See the Microsoft KB article http://support.microsoft.com/kb/2026022.
- When S-video and DVI displays are set up in Clone mode and rotated 90 degrees, the screen turns black. [304267, 283546]

  This is an issue with DirectX.

Windows 8 Issues

- When upgrading from Windows 7 to Windows 8, the system fails to retrieve the installed WHQL display driver. [1024416]

  See the Microsoft KB article KB2743349 http://support.microsoft.com/kb/2743349.

Known Product Limitations

This section describes problems that will not be fixed. Usually, the source of the problem is beyond the control of NVIDIA. Following is the list of problems and where they are discussed in this document:

- "GPU Temperature Reported Incorrectly on Optimus Systems" on page 21
- "Damaged or Missing WMI Service Prevents NVIDIA Driver Installation" on page 21
- "Screen Turns Black During Clean Overinstall of NVIDIA Drivers on Windows 8.1 Optimus Notebook" on page 22
- "Flickering Black Screen Occurs After NVIDIA Drivers Installed on Windows 8" on page 22
- "Total Available Graphics Memory Reported Incorrectly" on page 24
- "Increasing 4-way SLI/Multi-GPU Performance" on page 25
- "3D Vision USB Driver Does Not Get Installed" on page 25
- "No PhysX Acceleration Using the GPU" on page 26
- "NVIDIA PhysX System Software Cannot Be Installed or Uninstalled in Windows Safe Mode" on page 26
- "3DMark 11 Does Not Run in Stereoscopic 3D Mode" on page 26
- "Do Not Use Windows Rollback for Graphics Drivers" on page 27
- "Uninstalling Drivers Using Device Manager is Not Supported" on page 27
- "Changing Primary Display Across SLI GPUs Takes Longer Than Expected" on page 27
- "Understanding the DirectX Version Shown in the NVIDIA System Information Window" on page 28
- "Using HDMI Audio with Displays That Have a High Native Resolution" on page 28
- "Using HDMI Displays That Do Not Support Audio" on page 29
- "Using HDMI/DisplayPort Audio in Dualview or Clone Mode" on page 30
- "Flat Panel Scaling Controls Not Functional for Some TV Modes in Some Displays" on page 30
- "GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes" on page 31
- "1280 × 1024 @ 60 Hz Not Available on BenQ FP241W Monitors" on page 31
- "Image Sharpening Control Not Available with GeForce 8 Series and Later GPUs" on page 31
- "Gigabyte GA-6BX Motherboard" on page 32

GPU Temperature Reported Incorrectly on Optimus Systems

Issue

On Optimus systems, temperature-reporting tools such as Speccy or GPU-Z report that the NVIDIA GPU temperature is zero when no applications are running.

Explanation

On Optimus systems, when the NVIDIA GPU is not being used then it is put into a low-power state. This causes temperature-reporting tools to return incorrect values.

Waking up the GPU to query the temperature would result in meaningless measurements because the GPU temperature change as a result.

These tools will report accurate temperatures only when the GPU is awake and running.

Damaged or Missing WMI Service Prevents NVIDIA Driver Installation

Issue

“Install failed” or “Install Failed, could not find compatible graphics hardware” message may appear during installation, even if the system has a compatible graphics card. This can occur when installing the NVIDIA driver or GeForce Experience software.

Cause

This issue could be the result of a corrupt WMI service on your system. The NVIDIA Installer requires the WMI service to properly install the driver or other NVIDIA software.

Resolution

You must repair the WMI service on your system in order to successfully install NVIDIA drivers. A future driver release will alert the user during installation that there is a problem with the WMI service on the system.

Screen Turns Black During Clean Overinstall of NVIDIA Drivers on Windows 8.1 Optimus Notebook

Issue

After installing a Release 325 driver earlier than version 326.09 on an Optimus notebook running Windows 8.1, a subsequent clean overinstall of a later driver results in a black screen. The screen turns black when the driver uninstalls the older driver.

Typically, you may encounter this when attempting to upgrade the NVIDIA driver after installing Windows 8.1. While installing Windows 8.1, Windows Update installs NVIDIA driver version 326.01, then during the clean overinstall the black screen occurs as the older driver is uninstalled.

Workaround - Prevention

To avoid the issue during the initial installation of Windows 8.1, do not reboot the system after Windows Update installs the NVIDIA driver. Then perform the custom clean overinstall of the newer driver.

Resolution

This issue does not occur after installing an NVIDIA driver version 326.09 or later for Windows 8.1. When driver version 326.09 or later is installed, performing a clean overinstall with a newer driver will not result in a black screen.

Flickering Black Screen Occurs After NVIDIA Drivers Installed on Windows 8

Issue

After installing the NVIDIA drivers on Windows 8, the subsequent reboot results in a black or flickering screen.

Root Cause

This occurs because Windows Update performed a background installation of a Release 304 driver, which requires a reboot to complete the installation. After installing the Release 313 driver and then rebooting the system, installation of both the Release 304 as well as the Release 313 is completed, resulting in conflicting driver binaries and the black/flickering screen.

Workaround - Prevention

To avoid the issue, reboot the system before installing the Release 313 driver.

Alternately, you can check the driver status under the Device Manager and perform the reboot if the Device Manager indicates that a restart is needed. Then install the driver.

Workaround - Recovery

If you did not perform the necessary reboot prior to installing the driver and now encounter the black screen, do the following:

1. Reboot in Safe Mode.
2. Uninstall the driver.
3. Disconnect from the internet and then restart the system.
4. In normal mode, install the new driver.

Total Available Graphics Memory Reported Incorrectly

Background–TAG Memory

In the Windows Display Driver Model (WDDM), Total Available Graphics (TAG) memory is reported as the sum of

- Dedicated Video Memory (video memory dedicated for graphics use)
- Dedicated System Memory (system memory dedicated for graphics use), and
- Shared System Memory (system memory shared between the graphics subsystem and the CPU).

The values for each of these components are computed according to WDDM guidelines when the NVIDIA Display Driver is loaded.

Issue

Some TAG-reporting APIs represent video memory using 32-bits instead of 64-bits, and consequently do not properly report available graphics memory when the TAG would otherwise exceed 4 gigabytes (GB). This results in under reporting of available memory and potentially undesirable behavior of applications that rely on these APIs to report available memory.

The under reporting can be extreme. For example, 6 GB might be reported as 454 MB, and 8 GB might be reported as 1259 MB.

Driver Action for GeForce-based Graphics Systems

On graphics systems with less than 2.75 GB of advertized physical memory, the NVIDIA display driver typically limits the Shared System Memory to maintain a TAG memory value of less than 4 GB[1].

- This results in reliable reporting of sub-4 GB TAG memory on systems with less than 2.75 GB of advertized physical memory.
- On systems with 2.75 GB or more of advertized physical memory, you may see different reported TAG memory values between the NVIDIA Control Panel and other reporting APIs.

1. The WDDM guidelines dictate minimum and maximum values for the components, but the display driver may further constrain the values that are reported (within the allowed minimum and maximum).

Increasing 4-way SLI/Multi-GPU Performance

Issue

With some games and applications, you may experience little to no performance gain or even a performance drop with 4-way SLI or multi-GPU configurations.

Resolution

1. Open the NVIDIA Control Panel, then click **Manage 3D Settings** from the navigation pane.
2. Click the *Global Settings* tab, then scroll to the *Power management mode* feature, click the corresponding list arrow and select **Prefer maximum performance**, then click **Apply**.

3D Vision USB Driver Does Not Get Installed

Issue

After installing the NVIDIA graphics driver, if the 3D Vision USB emitter was not plugged in, the 3D Vision USB Controller driver does not get installed. If you plug in the emitter after installing the driver, the indicator light on the emitter will flash red and will not turn green.

Resolution

To fix this issue, NVIDIA recommends performing a driver re-install with the 3D Vision USB emitter connected. Please download the latest drivers and follow these steps:

1. Plug in the 3D Vision USB emitter.
2. Re-install the NVIDIA driver.

   Select **Custom (Advanced)** and then select **Perform a clean Installation** during the driver installation.
3. Reboot.

No PhysX Acceleration Using the GPU

If after installing the PhysX System Software you find that there is no PhysX acceleration on supported applications, repeat the PhysX setup as follows:

1. Reboot the PC.
2. Open the NVIDIA Control Panel and then, under 3D Settings, click **Set PhysX configuration** to open that page.
3. Under **Select a PhysX processor**, verify that either **auto-select** or a specific NVIDIA GPU is selected.
4. Click **Apply**.

NVIDIA PhysX System Software Cannot Be Installed or Uninstalled in Windows Safe Mode

Issue

Beginning with Release 280, the NVIDIA PhysX System Software is not included in the NVIDIA driver installation/uninstallation under safe mode.

Explanation

The NVIDIA PhysX System Software installer is not compatible with Microsoft's policy for Windows safe Mode. Consequently, installation or uninstallation of the PhysX System Software under safe mode would fail. To allow installation or uninstallation of the graphics driver under safe mode, the NVIDIA PhysX System Software is blocked from the process.

3DMark 11 Does Not Run in Stereoscopic 3D Mode

Issue

When attempting to run 3DMark 11 with NVIDIA 3D Vision enabled, the benchmark may hang, present a black screen, or in other ways not appear correctly.

Explanation

3DMark 11 is not compatible with running in stereoscopic 3D. To facilitate running the benchmark, recent drivers will run it in monoscopic mode, even with 3D Vision enabled.

Do Not Use Windows Rollback for Graphics Drivers

To reinstall a previous or older NVIDIA graphics driver, do not use the Windows rollback feature. This method will not reliably restore all the previous driver files.

Instead, use the Windows Add and Remove programs to remove the current driver, and then install the older driver using setup.exe.

Uninstalling Drivers Using Device Manager is Not Supported

Issue

On all supported versions of Microsoft Windows, uninstalling the NVIDIA driver using the Windows Device Manager may not remove associated files or applications.

Explanation

Microsoft has confirmed that this behavior is by design. If you wish to uninstall the NVIDIA driver, it is recommended that you do so using Add and Remove programs.

See the Microsoft KB article 2278714.

Changing Primary Display Across SLI GPUs Takes Longer Than Expected

Issue

On an SLI system, switching the primary (or SLI focus) display when each display in the SLI group is connected to a different GPU takes longer than expected.

Explanation

On an SLI system with each SLI GPU driving a display, the display connected to the slave GPU is the primary display (also the SLI focus display). In order to switch the primary display to the one connected to the other GPU, the master and slave GPU configuration must also switch. In order to reassign which GPU is the master and which is the slave, the driver must be reloaded. It the process of reloading the driver that takes the additional time.

Understanding the DirectX Version Shown in the NVIDIA System Information Window

The System Information window–accessed by clicking **System Information** at the bottom left corner of the NVIDIA Control Panel–provides technical information about the NVIDIA graphics cards and driver installed in the system.

It also provides information about the Windows version as well as the DirectX version that is installed.

However, in order to use the version of DirectX reported in the System Information window, the NVIDIA GPU and graphics driver must also support that DirectX version.

For example, driver version 197.45 and Windows Vista (with available patch) support DirectX 11. But only NVIDIA graphics cards based on the Fermi architecture released in 2010 support DirectX 11. So your system must have one of these cards installed in order to take advantage of DirectX 11 performance.

Using HDMI Audio with Displays That Have a High Native Resolution

To use HDMI audio with some displays that have a native resolution higher than 1920 × 1080, you must set the display to a lower HD resolution.

Some HDMI displays have a native resolution that exceeds the maximum supported HD mode. For example, displays with a native resolution of 1920 × 1200 exceed the maximum supported HD mode of 1920 × 1080.

Applying this native mode results in display overscan which cannot be resized using the NVIDIA Control Panel since the mode is not an HD mode.

To avoid this situation and provide a better user experience, the driver treats certain TVs– such as the Viewsonic VX2835wm and the Westinghouse LVM- 37w3–as a DVI monitor when applying the native mode. Because the driver does not treat the TV as an HDMI in this case, the HDMI audio is not used.

Using HDMI Displays That Do Not Support Audio

Some HDMI displays do not support audio, or have issues with GeForce 9 series and earlier, and GeForce GTX 200-series NVIDIA graphics cards.

The NVIDIA driver attempts to identify such displays and automatically disables the audio. For example, the NVIDIA driver disables HDMI audio for all Philips HDMI TVs, as these have been identified as having issues with GeForce 9 series and earlier, and GeForce GTX 200-series NVIDIA graphics cards.

There may be cases where either the driver disables audio even though there is no problem, or does not disable the audio when in fact the audio does not work. The following sections describe these situations and provides guidance for handling them.

Corrupted video and no audio

The driver has not disabled audio and the display's audio signal is incompatible with the graphics card, causing video corruption.

With a different display connected in order to establish video, disable audio for the HDMI display using the NVIDIA Control Panel-> Set Up Digital Audio page. Click the arrow for the problem display and then click **Turn off audio**.

Video but no audio

- Check the display list for the problem connection on the NVIDIA Control Panel->Set Up Digital Audio page.
- If **Turn off audio** is selected and you want to test whether your HDMI audio does, in fact, work, then click the list arrow and select the name of the display.

  The driver will prompt you with instructions for testing HDMI audio with that display.
- If the display name is selected, then the driver has not successfully detected that an incompatible display is connected.

  Future drive versions will properly identify such displays and disable audio.

Using HDMI/DisplayPort Audio in Dualview or Clone Mode

Two Audio-enabled Ports

In a multi-display configuration where both HDMI/DisplayPort audio ports are enabled, only the primary display will provide the audio.

One Audio-enabled Port

In a multi-display configuration where only one audio port is enabled, such as when one display is a DVI display, then the HDMI/DisplayPort display can provide the audio whether is it the primary or secondary display.

Flat Panel Scaling Controls Not Functional for Some TV Modes in Some Displays

The NVIDIA Control Panel flat panel scaling controls on the “Adjust Size & Position” page are not intended to be used for TV modes, and normally the controls are not available for TV or HDTV displays.

However, Microsoft requires that certain TV/HDTV modes be available for all digital displays, including DVI and HDMI, even if they are not HDTV.

While the NVIDIA flat panel scaling controls are available for those displays, they will not be functional for the TV modes that appear in compliance with the Microsoft requirements. The affected modes are as follows:

- 1920 × 1080i @ 50/59.94/60 Hz
- 1280 × 720p @ 50/59.94/60 Hz
- 720 × 480p @ 59.94/60 Hz
- 720 × 576p @ 50 Hz

GPU Runs at a High Performance Level (full clock speeds) in Multi-display Modes

This is a hardware limitation with desktop and older notebook GPUs, and not a software bug. When multiple displays are connected and active, the GPU will always operate with full clock speeds in order to efficiently drive multiple displays–even when no 3D programs are running.

Note: NVIDIA notebook GeForce 5xxM series and later GPUs do not have this limitation. For those GPUs the driver can adjust the performance level, depending on demand, even when driving multiple displays.

1280 × 1024 @ 60 Hz Not Available on BenQ FP241W Monitors

Even though the monitor EDID lists 1280 × 1024 @ 60 Hz, the screen turns blank when using an HDMI connection. This is an issue with the monitor and not the NVIDIA driver.

Because of this issue with the monitor, the NVIDIA driver blocks the problem mode (1280 × 1024 @ 60 Hz) and makes it unavailable.

Image Sharpening Control Not Available with GeForce 8 Series and Later GPUs

With GeForce 8 Series and later graphics cards, the **Image sharpening** slider on the **NVIDIA Control Panel-> Display->Adjust Desktop Color Settings** page is grayed out.

This control is intentionally disabled because image sharpening is not supported on GeForce 8 series and later GPUs.

Gigabyte GA-6BX Motherboard

This motherboard uses a LinFinity regulator on the 3.3 V rail that is rated to only 5 A—less than the AGP specification, which requires 6 A. When diagnostics or applications are running, the temperature of the regulator rises, causing the voltage to the NVIDIA chip to drop as low as 2.2 V. Under these circumstances, the regulator cannot supply the current on the 3.3 V rail that the NVIDIA chip requires.

This problem does not occur when the graphics board has a switching regulator or when an external power supply is connected to the 3.3 V rail.

3 THE RELEASE 361 DRIVER

This chapter covers the following main topics:

- "About the Release 361 Driver" on page 33
- "Hardware and Software Support" on page 33
- "Driver Installation" on page 39

About the Release 361 Driver

This driver release is from the Release 361 family of drivers (versions 361.*xx*). This driver package supports GeForce 400, 500, 600, 700, and 900-series GPUs. See "Supported NVIDIA Desktop Products" on page 34 and "Supported NVIDIA Notebook Products" on page 36 for current products supported in this release.

As part of the NVIDIA Notebook Driver Program, this is a reference driver that can be installed on supported NVIDIA notebook GPUs. However, please note that your notebook original equipment manufacturer (OEM) provides certified drivers for your specific notebook on their website. NVIDIA recommends that you check with your notebook OEM about recommended software updates for your notebook. OEMs may not provide technical support for issues that arise from the use of this driver.

Hardware and Software Support

- "Supported Operating Systems" on page 34
- "Support for OpenCL 1.2" on page 34
- "Supported NVIDIA Desktop Products" on page 34
- "Supported NVIDIA Notebook Products" on page 36
- "Supported Languages" on page 38

Supported Operating Systems

This Release 361 driver includes drivers designed for the following Microsoft® operating systems:

- Microsoft Windows® 10, supporting both 32-bit and 64-bit versions.
- Microsoft Windows® 8.1, supporting both 32-bit and 64-bit versions.
- Microsoft Windows® 8, supporting both 32-bit and 64-bit versions.
- Microsoft Windows® 7, supporting both 32-bit and 64-bit versions.
- Microsoft Windows® Vista, supporting both 32-bit and 64-bit versions.

Support for OpenCL 1.2

Kepler and Maxwell GPUs are supported.

Supported NVIDIA Desktop Products

The following table (from http://www.geforce.com/hardware) lists current NVIDIA desktop products supported by version 361.43 WHQL of the Release 361 driver. For information about desktop products not shown, please see http://www.geforce.com/hardware/desktop-gpus.

Table 3.1 Supported NVIDIA Desktop GPUs

Consumer Products	Notes
GeForce GTX TITAN X	
GeForce GTX TITAN Z	
GeForce GTX TITAN Black	
GeForce GTX TITAN	
GeForce GTX 980 Ti	
GeForce GTX 980	
GeForce GTX 970	
GeForce GTX 960	
GeForce GTX 950	
GeForce GTX 780 Ti	
GeForce GTX 780	
GeForce GTX 770	
GeForce GTX 760	
GeForce GTX 760 Ti (OEM)	
GeForce GTX 750 Ti	

Table 3.1 Supported NVIDIA Desktop GPUs

Consumer Products	Notes
GeForce GTX 750	
GeForce GTX 745	
GeForce GT 740	
GeForce GT 730	
GeForce GT 720	
GeForce GTX 690	
GeForce GTX 680	
GeForce GTX 670	
GeForce GTX 660 Ti	
GeForce GTX 660	
GeForce GTX 650 Ti BOOST	
GeForce GTX 650 Ti	
GeForce GTX 650	
GeForce GT 645	
GeForce GT 640	
GeForce GT 630	
GeForce GT 620	
GeForce GT 610	
GeForce 605	
GeForce GTX 680	
GeForce GTX 680	
GeForce GTX 590	
GeForce GTX 580	
GeForce GTX 570	
GeForce GTX 560 SE	
GeForce GTX 560	
GeForce GTX 560 Ti	
GeForce GTX 555	
GeForce GTX 550 Ti	
GeForce GT 545	
GeForce GT 530	
GeForce GT 520	
GeForce GTX 480	
GeForce GTX 470	
GeForce GTX 465	

Table 3.1 Supported NVIDIA Desktop GPUs

Consumer Products	Notes
GeForce GTX 460 SE and 460 SE v2	
GeForce GTX 460 v2	
GeForce GTS 450	
GeForce GT 430	

Supported NVIDIA Notebook Products

The following table lists current NVIDIA notebook products supported by version 361.43 WHQL of the Release 361 driver. For information about notebook products not shown, please see http://www.geforce.com/hardware/notebook-gpus.

Note:
• Notebooks supporting Hybrid Power technology are not supported. (NVIDIA Optimus technology is supported.)
• The following Sony VAIO notebooks are supported: Sony VAIO F Series with NVIDIA GeForce 310M, GeForce GT 330M, GeForce GT 425M, GeForce GT 520M or GeForce GT 540M. Other Sony VAIO notebooks are not supported. (Please contact Sony for driver support.)
• Fujitsu notebooks are not supported. (Fujitsu Siemens notebooks are supported.)

Table 3.2 Supported NVIDIA Notebook GPUs

Consumer Products	Notes
GeForce GTX 980 for notebooks	
GeForce GTX 980M	
GeForce GTX 970M	
GeForce GTX 880M	
GeForce GTX 870M	
GeForce GTX 860M	
GeForce GTX 850M	
GeForce GTX 840M	
GeForce GTX 830M	
GeForce GTX 780M	
GeForce GTX 770M	
GeForce GTX 765M	
GeForce GTX 760M	
GeForce GT 755M	

Table 3.2 Supported NVIDIA Notebook GPUs (continued)

Consumer Products	Notes
GeForce GT 750M	
GeForce GT 745M	
GeForce GT 740M	
GeForce GT 735M	
GeForce GT 730M	
GeForce GT 720M	
GeForce 710M	
GeForce GTX 670MX	
GeForce GTX 680M	
GeForce GTX 675MX	
GeForce GTX 675M	
GeForce GTX 670MX	
GeForce GTX 670M	
GeForce GTX 660M	
GeForce GT 650M	
GeForce GT 645M	
GeForce GT 640M LE	
GeForce GT 640M	
GeForce GT 635M	
GeForce GT 630M	
GeForce GT 625M	
GeForce GT 620M	
GeForce GT 610M	
GeForce GTX 580M	
GeForce GTX 570M	
GeForce GTX 560M	
GeForce GT 555M	
GeForce GT 550M	
GeForce GT 540M	
GeForce GT 525M	
GeForce GT 520MX	
GeForce GT 520M	
GeForce GTX 485M	
GeForce GTX 480M	
GeForce GTX 470M	

Table 3.2 Supported NVIDIA Notebook GPUs (continued)

Consumer Products	Notes
GeForce GTX 460M	
GeForce GT 445M	
GeForce GT 435M	
GeForce GT 425M	
GeForce GT 420M	
GeForce GT 415M	
GeForce 820M	
GeForce 610M	
GeForce 410M	

Table 3.3 Supported NVIDIA NVS and Quadro NVS M GPUs

Consumer Products	Notes
NVS 5400M	
NVS 5200M	
NVS 4200M	

Table 3.4 Supported NVIDIA Quadro M and Quadro FX M GPUs

Consumer Products	Notes
Quadro 5010M	
Quadro 5000M	
Quadro 4000M	
Quadro 3000M	
Quadro 2000M	
Quadro 1000M	

Supported Languages

The Release 361 Graphics Drivers supports the following languages in the main driver 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)	

Driver Installation

Minimum Hard Disk Space

Desktop

The hard disk space requirement for 32-bit is minimum 220 MB for English-only, and 300 MB for International.

The hard disk space requirement for 64-bit is minimum 320 MB for English-only, and 400 MB for International.

Notebook

The hard disk space requirement for 32-bit is minimum 300 MB.

The hard disk space requirement for 64-bit is minimum 400 MB.

Before You Begin

nTune

If you have previously installed NVIDIA nTune, NVIDIA recommends that you uninstall nTune before installing this driver. After the driver install is complete, you can reinstall NVIDIA nTune.

Notebooks

- Check to make sure that your notebook has a supported GPU (see "Supported NVIDIA Notebook Products" on page 36).
- It is recommended that you back up your current system configuration.

- If you own a Dell Inspiron 1420, Dell XPS M1330, Dell XPS M1530, or Dell Latitude D630 or D630c, it is highly recommended that you first install this Dell software update.

Installation Instructions

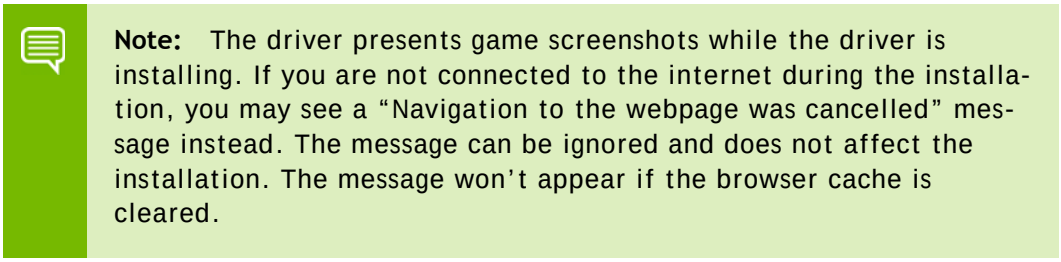
1. Follow the instructions on the NVIDIA.com Web site driver download page to locate the appropriate driver to download, based on your hardware and operating system.
2. From the driver download page, click the **Download** button.

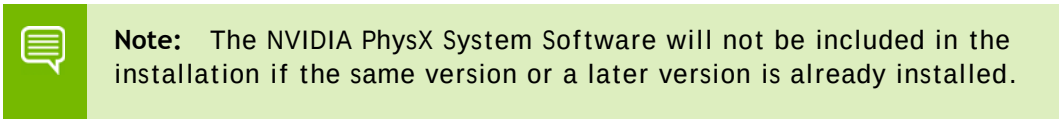
   The *Download Confirmation* page appears.
3. If you agree to the "License For Customer Use of NVIDIA Software", click the **Agree & Download** button to begin the download.

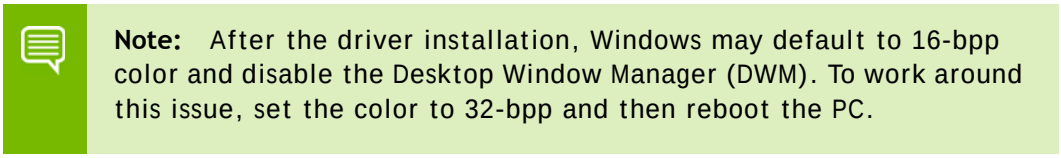
   The *File Download* dialog appears.
4. Either click **Save** to save the file and then run it from your PC, or click **Run.**

   An extraction path dialog appears prompting you to specify where on your PC you want the driver files to be installed.
5. Click **OK** to use the default location, or click the folder icon and specify an alternate location to install the driver files.

   The files are extracted and then the NVIDIA Installer is launched automatically.
6. At the *License Agreement* page of the Installer, click **Agree and Continue**.
7. Follow the instructions in the NVIDIA Installer to complete the installation.







See also the installation/uninstallation considerations explained in "Known Product Limitations" on page 20.

APPENDIX: MODE SUPPORT FOR WINDOWS

This chapter details the Windows modes supported by the Release 361 driver for NVIDIA products. It contains these sections:

- "General Mode Support Information" on page 42
- "Default Modes Supported by GPU" on page 43
- "Modes Supported by TV Encoders" on page 48

General Mode Support Information

The NVIDIA graphics driver includes a standard list of display modes that are supported by default. These modes are listed in the section "Default Modes Supported by GPU" on page 43.

The actual modes available depend on the capabilities of the display. In addition, the NVIDIA graphics driver has a "dynamic EDID detection" capability and will make available *additional* modes that are listed in the display EDID, provided the graphics hardware can support it.

The NVIDIA graphics driver also supports the high resolutions available with the displays listed in Table A.1 as well as the non-standard modes listed in Table A.2.

Table A.1 Modes Supported for High Resolution Displays

Display	Maximum Resolution
Apple 30" Cinema HD Display (Dual link DVI)	2560 × 1600 @ 60 Hz
Dell WFP 3007 (Dual Link DVI)	2560 × 1600 @ 60 Hz
HP LP3065 dual-link DVI flat panel	2560 × 1600 @ 60 Hz

Table A.2 Non-standard Modes Supported

Resolution		
1680 × 1050		
1366 × 768		

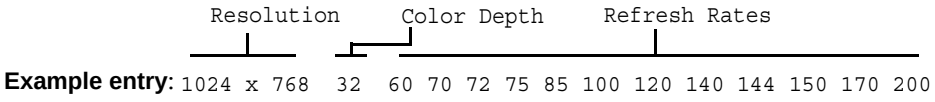
Default Modes Supported by GPU

This section lists the modes that are included by default in the driver INF for the following product families:

- "GeForce 900, 700, 600, 500, and 400 Series GPUs" on page 44
- "GeForce 400M, 500M, 600M, 700M, 800M, 900M Series, and Quadro M Notebook GPUs" on page 46

Understanding the Mode Format

Figure A.1 gives an example of how to read the mode information presented in this section.



Meaning:
Resolution: 1024 x 768
Color depth: 32 bpp
Refresh rates: 60 Hz, 70 Hz, 72 Hz, 75 Hz, 85 Hz, 100 Hz, 120 Hz, 140 Hz, 144 Hz, 150 Hz, 170 Hz, and 200 Hz

Figure A.1 Mode Format

Note:

- Horizontal spanning modes of 3840 × 1080 and above, and vertical spanning modes of 1920 × 2160 and above generally require at least 32 MB of video memory at 32 bpp.
- An "i" next to the refresh rate indicates an interlaced refresh rate.

GeForce 900, 700, 600, 500, and 400 Series GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the products listed in "Supported NVIDIA Desktop Products" on page 34.

Standard Modes

```
 640 x  480   8      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480   8      60
 720 x  576   8      50
 800 x  600   8      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768   8      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864   8      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720   8      60
1280 x  768   8      60 70 72 75 85 100 120 140 144 150 170
1280 x  800   8      60 70 72 75 85 100 120 140 144 150 170
1280 x  960   8      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024   8      60 70 72 75 85 100 120 140 144 150 170
1360 x  768   8      60 70 72 75 85 100 120 140 144 150 170
1600 x  900   8      60 70 72 75 85 100 120 140 144 150
1600 x 1024   8      60 70 72 75 85 100 120
1600 x 1200   8      60 70 72 75 85 100 120
1680 x 1050   8      60
1920 x 1080   8      60
1920 x 1200   8      60 70 72 75 85 100
1920 x 1440   8      60 70 72 75 85
2048 x 1536   8      60
----------------------------------------------------------------
 640 x  480  16      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480  16      60
 720 x  576  16      50
 800 x  600  16      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768  16      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864  16      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720  16      60
1280 x  768  16      60 70 72 75 85 100 120 140 144 150 170
1280 x  800  16      60 70 72 75 85 100 120 140 144 150 170
1280 x  960  16      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024  16      60 70 72 75 85 100 120 140 144 150 170
1360 x  768  16      60 70 72 75 85 100 120 140 144 150 170
1600 x  900  16      60 70 72 75 85 100 120 140 144 150
1600 x 1024  16      60 70 72 75 85 100 120
1600 x 1200  16      60 70 72 75 85 100 120
1680 x 1050  16      60
1920 x 1080  16      60
1920 x 1200  16      60 70 72 75 85 100
```

```
1920 x 1440  16      60 70 72 75 85
2048 x 1536  16      60
----------------------------------------------------------------
 640 x  480  32      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480  32      60
 720 x  576  32      50
 800 x  600  32      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768  32      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864  32      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720  32      60
1280 x  768  32      60 70 72 75 85 100 120 140 144 150 170
1280 x  800  32      60 70 72 75 85 100 120 140 144 150 170
1280 x  960  32      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024  32      60 70 72 75 85 100 120 140 144 150 170
1360 x  768  32      60 70 72 75 85 100 120 140 144 150 170
1600 x  900  32      60 70 72 75 85 100 120 140 144 150
1600 x 1024  32      60 70 72 75 85 100 120
1600 x 1200  32      60 70 72 75 85 100 120
1680 x 1050  32      60
1920 x 1080  32      60
1920 x 1200  32      60 70 72 75 85 100
1920 x 1440  32      60 70 72 75 85
2048 x 1536  32      60
```

GeForce 400M, 500M, 600M, 700M, 800M, 900M Series, and Quadro M Notebook GPUs

This sections lists the supported display resolutions, color depths, and refresh rates for the products listed in "Supported NVIDIA Notebook Products" on page 36.

Standard Modes

```
 640 x  480   8      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480   8      60
 720 x  576   8      50
 800 x  600   8      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768   8      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864   8      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720   8      60
1280 x  768   8      60 70 72 75 85 100 120 140 144 150 170
1280 x  800   8      60 70 72 75 85 100 120 140 144 150 170
1280 x  960   8      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024   8      60 70 72 75 85 100 120 140 144 150 170
1360 x  768   8      60 70 72 75 85 100 120 140 144 150 170
1600 x  900   8      60 70 72 75 85 100 120 140 144 150
1600 x 1024   8      60 70 72 75 85 100 120
1600 x 1200   8      60 70 72 75 85 100 120
1680 x 1050   8      60
1920 x 1080   8      60
1920 x 1200   8      60 70 72 75 85 100
1920 x 1440   8      60 70 72 75 85
2048 x 1536   8      60
--------------------------------------------------------------------
 640 x  480  16      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480  16      60
 720 x  576  16      50
 800 x  600  16      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768  16      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864  16      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720  16      60
1280 x  768  16      60 70 72 75 85 100 120 140 144 150 170
1280 x  800  16      60 70 72 75 85 100 120 140 144 150 170
1280 x  960  16      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024  16      60 70 72 75 85 100 120 140 144 150 170
1360 x  768  16      60 70 72 75 85 100 120 140 144 150 170
1600 x  900  16      60 70 72 75 85 100 120 140 144 150
1600 x 1024  16      60 70 72 75 85 100 120
1600 x 1200  16      60 70 72 75 85 100 120
1680 x 1050  16      60
1920 x 1080  16      60
```

```
1920 x 1200  16      60 70 72 75 85 100
1920 x 1440  16      60 70 72 75 85
2048 x 1536  16      60
--------------------------------------------------------------------
 640 x  480  32      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480  32      60
 720 x  576  32      50
 800 x  600  32      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768  32      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864  32      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720  32      60
1280 x  768  32      60 70 72 75 85 100 120 140 144 150 170
1280 x  800  32      60 70 72 75 85 100 120 140 144 150 170
1280 x  960  32      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024  32      60 70 72 75 85 100 120 140 144 150 170
1360 x  768  32      60 70 72 75 85 100 120 140 144 150 170
1600 x  900  32      60 70 72 75 85 100 120 140 144 150
1600 x 1024  32      60 70 72 75 85 100 120
1600 x 1200  32      60 70 72 75 85 100 120
1680 x 1050  32      60
1920 x 1080  32      60
1920 x 1200  32      60 70 72 75 85 100
1920 x 1440  32      60 70 72 75 85
2048 x 1536  32      60
--------------------------------------------------------------------
 640 x  480  64      60 70 72 75 85 100 120 140 144 150 170 200 240
 720 x  480  64      60
 720 x  576  64      50
 800 x  600  64      60 70 72 75 85 100 120 140 144 150 170 200 240
1024 x  768  64      60 70 72 75 85 100 120 140 144 150 170 200 240
1152 x  864  64      60 70 72 75 85 100 120 140 144 150 170 200
1280 x  720  64      60
1280 x  768  64      60 70 72 75 85 100 120 140 144 150 170
1280 x  800  64      60 70 72 75 85 100 120 140 144 150 170
1280 x  960  64      60 70 72 75 85 100 120 140 144 150 170
1280 x 1024  64      60 70 72 75 85 100 120 140 144 150 170
1360 x  768  64      60 70 72 75 85 100 120 140 144 150 170
1600 x  900  64      60 70 72 75 85 100 120 140 144 150
1600 x 1024  64      60 70 72 75 85 100 120
1600 x 1200  64      60 70 72 75 85 100 120
1680 x 1050  64      60
1920 x 1080  64      60
1920 x 1200  64      60 70 72 75 85 100
1920 x 1440  64      60 70 72 75 85
2048 x 1536  64      60
```

Modes Supported by TV Encoders

Table A.3 and Table A.4 list the NTSC, PAL, and HDTV TV-Out modes supported by the NVIDIA driver.

Table A.3 Mode Support for S-Video and Composite Out

Resolution	Bit depth	Comments
320 × 200	8, 16, 32	DirectDraw mode; not selectable as a Windows desktop
320 × 240	8, 16, 32	DirectDraw mode; not selectable as a Windows desktop
640 × 400	8, 16, 32	DirectDraw mode; not selectable as a Windows desktop
640 × 480	8, 16, 32	
720 × 480	8, 16, 32	Overscans (for video)
720 × 576	8, 16, 32	Overscans (for video)
800 × 600	8, 16, 32	
1024 × 768	8, 16, 32	Conexant 25871 only

Table A.4 Mode Support for Component YPrPb Out and DVI Out

Resolution	Comments
480i (SDTV)	Supported on graphics boards with Conexant 875 or Philips 7108 TV encoders and compatible connectors, and compatible GeForce 8 Series and later GPUs.
480p (EDTV)	
720p (HDTV)	
1080i (HDTV)	
576i (PAL)	
576p (PAL)	

The driver supports manual overscan correction for component and DVI outputs. See the online NVIDIA Control Panel Help for instructions on how to use the overscan correction features.

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