GeForce Drivers
Release 470, Version 475.06

Windows 7, 8, and 8.1

Release Notes

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Introduction to Release Notes

This edition of Release Notes describes version 475.06 of the release 470 family (versions 470.xx to 475.xx) for Microsoft Windows 7, 8, and 8.1. NVIDIA provides these notes to describe performance improvements and bug fixes in each documented version of the drivers.

> **Note:** For convenience, these release notes use brief forms to refer to certain software components.
>
> > **Windows** or **Windows 7** refers to Microsoft Windows 7, 8, and 8.1, except where stated otherwise. Version 475.06 of these drivers supports Windows 7, 8, and 8.1.
>
> > **The driver** means "the NVIDIA GPU drivers in version 475.06 of release 470," or "the driver in version 475.06 that supports your hardware and software configuration."

Structure of the Document

This document is organized in the following sections:

> Chapter 2. Release 470 Driver Changes on page 2 gives a summary of changes and of fixed and open issues in this version.

> Chapter 3. The Release 470 Driver on page 8 describes the NVIDIA products and languages supported by this driver, the driver's system requirements, and how to install the driver.

Changes in This Edition

This edition of the *Release Notes* for Windows includes information about NVIDIA graphics driver version 475.06, and lists changes made to the driver since version 474.89.

These changes are discussed beginning with the chapter Release 470 Driver Changes on page 2.

Release 470 Driver Changes

This chapter describes open issues for version 475.06, and resolved issues and driver enhancements for versions of the release 470 driver up to version 475.06. It describes Version 475.06 Highlights, followed by descriptions of the changes in each earlier version of release 470, followed by descriptions of Open Issues in Version 475.06 and Issues Not Caused by NVIDIA Drivers,

About Release 470

This section contains information that applies to all versions of release 470.

Requirement for Obtaining NVIDIA Drivers for Windows 7

Microsoft now provides only SHA-2 signed drivers. If your Windows 7 system is NOT equipped to detect SHA-2, you need to install the SHA-2 update support patches. For details as well as access to SHA-2 update support patches, see the Microsoft KBA "2019 SHA-2 Code Signing Support requirement for Windows and WSUS".

Existing Support

This release supports the following APIs:
> Open Computing Language (OpenCL™ software) 3.0 for NVIDIA Maxwell® and later GPUs
> OpenGL® 4.6
> Vulkan 1.2
> DirectX 11

Software Module Versions

> HD Audio Driver - 1.3.38.60
> NVIDIA PhysX System Software - 9.19.0218
> GeForce Experience - 3.24.0.135

> CUDA - 11.4

New Features

This section summarizes driver changes in release 470 (since release 465).

> Added support for CUDA 11.4.
> Updated scaling resolution in NVIDIA Image Sharpening.

Discontinued and Unsupported Features

> NvIFR OpenGL support.
> Release 470 will be the last driver branch to support this functionality. NvIFR header files, samples and documentation have been removed from the NVIDIA Capture SDK 7.1.9 release. Future drivers will remove NvIFR.dll and any other reference to NvIFR. For details, see the NVIDIA Video Codec SDK page.

Limitations in This Release

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

OpenCL 3.0 Known Issues

> **Device-Side Enqueue related queries**: Such queries may return 0 values, although the kernel can safely use corresponding built-ins.

  This is in accordance with conformance requirements described on the Khronos Group web site page The OpenCL Specification.

> **Certain denormalized results not flushed to zero**: The denormalized results for some math functions that were flushed to zero when `cl-fastrelaxed-math` is passed as a compiler option on OpenCL 1.2 drivers are not flushed to zero with OpenCL 3.0 drivers.

> **Shared virtual memory**: The current implementation of shared virtual memory is limited to 64-bit platforms.

Using HDR with Games

There may be issues resulting from the interaction between in-game HDR settings and theWindows HDR settings. See NVIDIA Knowledge Base article 5072, Considerations for Playing Games with HDR Enabled, for details.

Implicit SLI Disabled on NVIDIA Ampere GPUs

Implicit SLI, where the driver makes assumptions with application profiles to achieve GPU scaling, is disabled on NVIDIA Ampere GPUs. Explicit SLI is still supported, where the

application knows the SLI state and uses extensions (such as DirectX 12 linked nodes, Vulkan device groups, or OpenGL multicast extensions) to issue commands to each device in the SLI group. See NVIDIA Knowledge Base article 5082, NVIDIA SLI Support Transitioning to Native Game Integrations, for more information.

Image Sharpening Feature

NVIDIA Control Panel Image sharpening controls, including GPU upscaling, are introduced in the R440 driver. Currently, the following limitations apply.

> Scaling is not supported on MSHybrid systems.

> HDR displays driven by pre-Turing GPUs will not support scaling

> Scaling will not work with VR

> Scaling will not work with displays using YUV420 format.

> Scaling uses aspect ratio scaling and will not use integer scaling

> Sharpening will not work with HDR displays

> GPU scaling engages when games are played only in full-screen mode, and not in windowed or borderless windowed mode.

> Some G-SYNC displays have a 6-tap/64-phase scaler which scales better than that offered by Turing's 5-tap/32-phase scaler.

> To avoid accidentally triggering scaling by applications or DWM, first change to the desired (< native) resolution from NVIDIA Control Panel and then launch the application.

> Turing's 5-tap upscaler may not engage on certain monitors depending on the monitor's vblank timing.

> Turing's 5-tap upscaler may not engage if the input resolution is greater than 2560px in either the x or y dimension.

> Scaling is turned off automatically when switching display devices.

> "Restore Defaults" option in the control panel currently does not revert the upscaling resolution.

Behavior Change in NvEncCreateBitstreamBuffer API of Video Codec SDK

In the NVIDIA driver, Release 415 and later, the behavior of the Video Codec SDK API (`NvEncCreateBitstreamBuffer`) has been changed to return `NV_ENC_ERR_UNIMPLEMENTED` instead of `NV_ENC_SUCCESS` when the encoder instance is configured to run in the motion estimation-only mode. As an indirect consequence of this change, the AppEncME sample application from the Video Codec SDK prior to SDK version 8.2.16 will crash due to a bug in the `NvEncoder` class.

The latest version of the SDK fixes this bug that affects the AppEncME sample application. NVIDIArecommends downloading the latest version from https://developer.nvidia.com/nvidia-video-codec-sdk.

Connecting Displays to NVIDIA Turing GPUs in SLI Mode

To use SLI with NVIDIA Turing GPUs, all displays must be connected to the primary SLI GPU.

Crescent Bay and OSVR Headsets on Multiple GPU Systems

With Release 367 and future NVIDIA drivers, Crescent Bay and Open Source Virtual Reality development kit headsets will not work with VRWorks Direct Mode in systems that contain GPUs from multiple vendors (for example, NVIDIA and Intel). For such systems, please disable the Intel integrated graphics (from the system BIOS) to use Direct Mode.

Version 475.06 Highlights

This section provides highlights of version 475.06 of the driver.

New Features

GeForce Security Update Driver

NVIDIA has released a software security update display driver for GeForce GPUs to be used with Windows 7/8.x which is no longer supported by Game Ready Drivers. Effective October 2021, Game Ready Driver upgrades, including performance enhancements, new features, and bug fixes, are exclusively available for systems utilizing Windows 10 and Window 11 as their operating system. Critical security updates will be available on systems utilizing Windows 7 through September 2024.

See *Security Bulletin: NVIDIA GPU Display Driver – June 2024*, which is posted shortly after the release date of this software, and will be posted on the NVIDIA Product Security page.

This display driver is not WHQL certified because Microsoft no longer accepts driver submissions for WHQL certification on Windows 7. For information about installing this driver, see the NVIDIA knowledge base article Changes to the display driver installation process under Microsoft Windows 7.

Fixed Issues

This version of the driver has no fixed issues.

Open Issues

As with every released driver, version 475.06 of this driver has open issues and enhancement requests associated with it. This section includes lists of issues that are

not fixed and features that are not implemented in this version. Some of the issues may not have been thoroughly investigated and, in fact, may not be NVIDIA issues. Others may have workarounds.

Issues Not Caused by NVIDIA Drivers

Windows 7 Considerations

Hotplug Action

Under Windows 7, 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. All display connection and detection events are handled through the Windows 7 Connecting and Configuring Displays (CCD) mechanism.

NVIDIA Control Panel Rotate Display Page

Table 1. NVIDIA Control Panel Rotation Page Radio Buttons

Clockwise Rotation	Windows 7 Label
0 degrees	Landscape
90 degrees	Portrait
180 degrees	Landscape (flipped)
270 degrees	Portrait (flipped)

Limitation

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

> See the Microsoft Knowledge Base article KB2006076, Screen refresh rate in Windows does not apply the user selected settings on monitors & TVs (that report specific TV compatible timings).

Operating System Issues

> [Windows 10 Fall Creators Update][HDTV]: 12 bpc is automatically applied even on HDTVs that support only 8 bpc, resulting in a scrambled display.

To work around, open NVIDIA Control Panel -> Change Resolution page, select **Use NVIDIA color settings**, then set the Output color depth to 8 bpc.

See the Microsoft Knowledge Base article KB2743349, WHCL Certified video adapter driver not carried over when upgraded to Windows 8.

Application Issues

Fixed Frame Rate Games

Some games and applications are designed to run at a fixed frame rate, and consequently do not take advantage of NVIDIA G-Sync. To prevent issues, G-Sync may be disabled for those applications.

The Release 470 Driver

This chapter discusses matters that apply to all versions of release 470, such as driver security and known product limitations.

Driver Security

Follow these safe computing practices:

> Only download or execute content and programs from trusted third parties.

> Run your system and programs with the least privilege necessary. Users should run without administrator rights whenever possible.

> When you run as administrator, do not elevate UAC privileges for activities or programs that don't need them.

This section describes additional actions you can take to mitigate specific known security issues.

Restricting and Enabling Access to GPU Performance Counters

The NVIDIA graphics driver contains a vulnerability (CVE-2018-6260) that may allow access to application data processed on the GPU through a side channel exposed by the GPU performance counters. Developers need GPU performance counters to use NVIDIA developer tools such as CUPTI, Nsight Graphics, and Nsight Compute. In order to address CVE-2018-6260, the driver (starting with version 419.67) automatically disables access for non-administrative users.

For more information about CVE-2018-6260, see NVIDIA Security Bulletin 4772, NVIDIA GPU Display Driver - February 2019.

Enabling Access to GPU Performance Counters Using NVIDIA Control Panel

Access to GPU performance counters can be enabled for non-administrative users who need to use NVIDIA developer tools. You can enable access to GPU performance counters through **NVIDIA Control Panel → Developer → Manage GPU Performance**

Counters page. See the **Developer** → **Manage GPU Performance Counters** section of
NVIDIA Control Panel Help for instructions.

Advanced Driver Information

This section clarifies instructions for successfully accomplishing the several tasks for
users with advanced skills.

Updating the NVIDIA VirtualLink PPC Firmware

You can update the NVIDIA VirtualLink PPC firmware from NVIDIA Control Panel by
clickingUpdate from the top menu and then selecting Update VirtualLink firmware.

The following is a description of the changes made in the latest version.

Version 3.2.8 (Notebook)

The following are the changes and fixed issues in the NVIDIA VirtualLink PPC firmware
version 3.2.8.

> [USBC Notebook] [VirtualLink]: Some USB bus-powered type-C monitors won't light
> up untilWindows boots.

> [USBC Notebook] [VirtualLink] Some USB Type-C to HDMI dongles may not work.

> [USBC Notebook] [VirtualLink] USB-C SuperSpeed does not work with Type-C hub
> whichsupports multiple (DisplayPort and USB) Alternate Modes.

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
performanceGPU is limited by that of the other. One benefit is that the higher
performance GPU saves powerby running at slightly reduced voltages.

An end-user gains nothing by attempting to raise the voltage of the higher performance
GPUbecause 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 withnew 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 3DCompatibility mode and standard 3D Vision mode as follows:

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

    a. Open NVIDIA Control Panel. 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 standard3D Vision mode.

Help for Resizing Your HDTV Desktop

The best way to resize the screen 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.
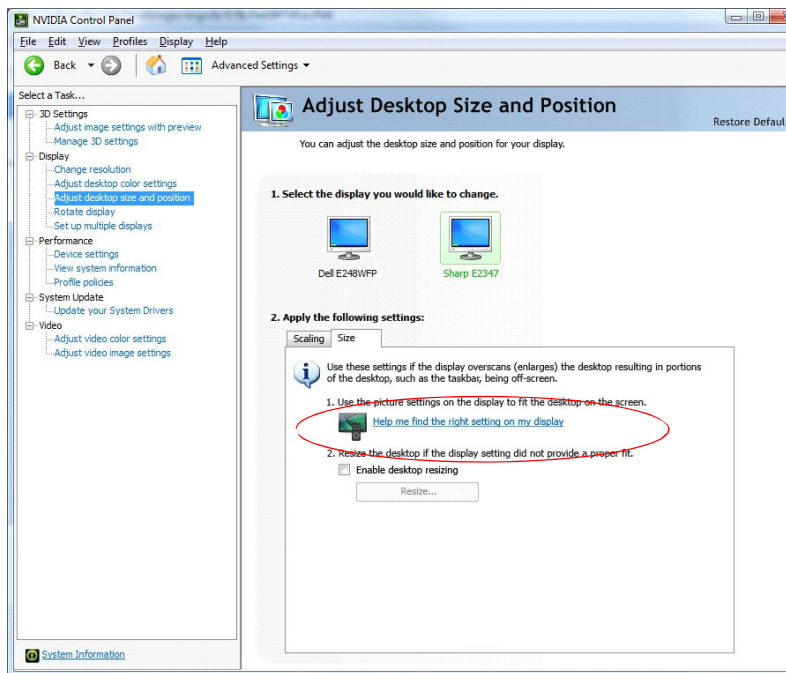
The resize controls on NVIDIA Control Panel are provided in case satisfactory results cannotbe achieved using the controls on the display.

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

The method for resizing the HDTV desktop was improved 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 gameor other application to take advantage of it.
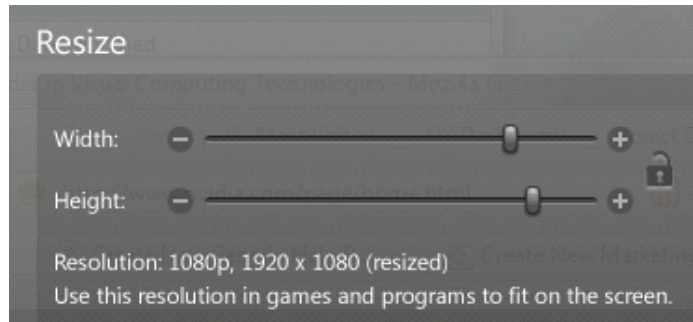
> **Note:** Some games or applications may not support the new resolution.

Understanding the NVIDIA System Information Window > DirectX Information

The System Information window–accessed by clicking System Information at the bottom leftcorner of NVIDIA Control Panel–provides technical information about the NVIDIA graphicscards 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"

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 ofDirectX.

> 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 aresupported by the NVIDIA graphics hardware and driver.

Known Product Limitations

This section describes problems that will not be fixed. Typically the source of such a problem is beyond the control of NVIDIA.

G-SYNC May be Enabled in Windowed Mode Even if Only Full-Screen Mode is Specified

Issue: When playing a game in windowed mode on a G-SYNC capable (or compatible) monitor, G-SYNC is active even if only Full screen mode is selected on the NVIDIA Control Panel **Display** → **Set Up G-SYNC** page.

Explanation: This can occur under Windows 10 (20H1), with NVIDIA Volta and later GPUs, and with this release of the NVIDIA Release 460 driver and later. This combination supports multiplane overlays. With this support, Windows may grant a windowed application its own plane, in which case the plane behaves as if it were operating in full-screen mode, subsequently activating G-SYNC.

Issues Installing NVIDIA Control Panel from the Windows Store

You may encounter issues when attempting to install NVIDIA Control Panel from the WindowsStore under Windows 10, such as:

> The download process from the Windows Store freezes at the "Starting download …" stage.

> NVIDIA Control Panel fails to download after initiating the download from the notificationpopup that appears upon installing the driver.

For assistance with installing NVIDIA Control Panel from the Microsoft Windows Store, see theNVIDIA Knowledge Base Article, NVIDIA Control Panel Windows Store App.

For information about the DCH vs Standard drivers for Windows 10, see the NVIDIA KnowledgeBase Article, NVIDIA DCH/Standard Display Drivers for Windows 10 FAQ.

Windowed NVIDIA G-SYNC is Disabled for Multi-monitor System Video Playback

Issue: Beginning with Windows 10 April 2018 Update (RS4), NVIDIA G-SYNC is disabled during active video playback on multi-monitor systems.

Explanation: If hardware accelerated video is playing on one display and an application is launched on another display in windowed mode with NVIDIA G-SYNC or adaptive-sync enabled, the video stutters. This is the result of desktop compositing on displays with differing refresh rates.

To prevent the video stutter in this scenario, the driver disables NVIDIA G-SYNC during activevideo playback, but re-enables G-SYNC if the video is paused or closed.

> **Note**: The issue can also occur when displays are set to different refresh rates, even when G-SYNC is not used. To resolve in this case, make sure all displays are set to the same refresh rate.

GPU Temperature Reported Incorrectly on Optimus Systems

Issue: On Optimus systems, temperature-reporting tools such as Speccy or GPU-Z report that theNVIDIA 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 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.

Total Available Graphics Memory Reported Incorrectly

TAG memory, background: 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 theCPU).

The values for each of these components are computed according to WDDM guidelines when theNVIDIA 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 otherwiseexceed 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 reported memory can be severely reduced. For example, 6 GB might be reported as 454 MB, and 8 GBmight be reported as 1259 MB.

Driver Action for GeForce-based Graphics Systems

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

This results in reliable reporting of sub-4 GB TAG memory on systems with less than 2.75 GBof advertised physical memory.

On systems with 2.75 GB or more of advertised physical memory, you may see different reported TAG memory values between NVIDIA Control Panel and other reporting APIs.

Increasing 4-way SLI/Multi-GPU Performance

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

Resolution: Click the **Global Settings** tab, then scroll to the **Power management mode** feature, click the corresponding list arrow, select **Prefer maximum performance**, and click **Apply**.

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[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).

No PhysX Acceleration Using the GPU

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

1. Reboot the PC.
2. Open NVIDIA Control Panel. Under **3D Settings**, click **Set PhysX configuration t**o 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 Software Cannot Be Installed/Uninstalledin Windows Safe Mode

Issue: The NVIDIA PhysX System Software is not included in the NVIDIA driver installation/uninstallationunder safe mode.

Explanation: The NVIDIA PhysX System Software installer is not compatible with Microsoft's policy for WindowsSafe 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, theNVIDIA PhysX System Software is blocked from the process.

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 **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 Knowledge Base article 2278714](#).

Changing Primary Display Across SLI GPUs Slower 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 secondary SLI 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 primary and secondary SLI GPU configuration must also switch. To reassign which GPU is the primary and which is the secondary SLI GPU, the driver must be reloaded. It is the process of reloading the driver that takes the additional time.

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 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/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 TVModes and Displays

NVIDIA Control Panel flat panel scaling controls on the "Adjust Size & Position" page are notintended 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. Theaffected 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 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 clockspeeds 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.

Hardware and Software Support

This section discusses topics such as supported operating systems, supported GPUs, and supported languages.

Supported Operating Systems

The release 470 driver, version 475.06, has been designed for the following operating systems:

> Microsoft Windows® 7, 64-bit versions.

Support for OpenCL 3.0

Maxwell, Pascal, Volta, Turing, and NVIDIA Ampere architecture GPUs are supported.

Supported NVIDIA Desktop Products

The following table lists current NVIDIA desktop products supported by version 475.06 WHQL of the release 470 driver. For information about desktop products not shown, please see the NVIDIA web site page 20 Series Graphics Cards.

Support for products based on the NVIDIA Ampere architecture requires Windows 10 April 2018 Update (version 1803) or later.

Table 2. Supported NVIDIA Desktop GPUs

Consumer Products	Architecture
NVIDIA GeForce RTX 3090	NVIDIA Ampere GPU architecture
NVIDIA GeForce RTX 3090 Ti	
NVIDIA GeForce RTX 3080	
NVIDIA GeForce RTX 3080 Ti	
NVIDIA GeForce RTX 3070	
NVIDIA GeForce RTX 3070 Ti	
NVIDIA GeForce RTX 3060	
NVIDIA GeForce RTX 3060 Ti	
NVIDIA GeForce RTX 3050	
NVIDIA TITAN RTX	Turing
NVIDIA GeForce RTX 2080 SUPER	
NVIDIA GeForce RTX 2070 SUPER	
NVIDIA GeForce RTX 2060 SUPER	
NVIDIA GeForce RTX 2080	
NVIDIA GeForce RTX 2080 Ti	

Consumer Products	Architecture
NVIDIA GeForce RTX 2070	
NVIDIA GeForce RTX 2060	
NVIDIA GeForce RTX 2060 12GB	
NVIDIA TITAN V	Volta
NVIDIA TITAN Xp	Pascal
NVIDIA TITAN X	
GeForce GTX 1660 SUPER	Turing
GeForce GTX 1660	
GeForce GTX 1660 Ti	
GeForce GTX 1650 SUPER	
GeForce GTX 1650	
GeForce GTX 1630	
GeForce GTX 1080	Pascal
GeForce GTX 1080 Ti	
GeForce GTX 1070	
GeForce GTX 1070 Ti	
GeForce GTX 1060	
GeForce GTX 1060 6GB	
GeForce GTX 1060 3GB	
GeForce GTX 1050	
GeForce GTX 1050 Ti	
GeForce GTX 1050 3GB	
GeForce GT 1030	
GeForce GTX TITAN X	Maxwell
GeForce GTX TITAN Z	Kepler
GeForce GTX TITAN Black	
GeForce GTX TITAN	
GeForce GTX 980	Maxwell
GeForce GTX 980 Ti	
GeForce GTX 970	
GeForce GTX 960	
GeForce GTX 950	
GeForce GTX 780	Kepler
GeForce GTX 780 Ti	
GeForce GTX 770	
GeForce GTX 760	

Consumer Products	Architecture
GeForce GTX 760 Ti (OEM)	
GeForce GTX 750	Maxwell
GeForce GTX 750 Ti	
GeForce GTX 745	
GeForce GT 740	Kepler
GeForce GT 730	
GeForce GT 720	
GeForce GT 710	
GeForce GTX 690	
GeForce GTX 680	
GeForce GTX 670	
GeForce GTX 660	
GeForce GTX 660 Ti	
GeForce GTX 650	
GeForce GTX 650 Ti	
GeForce GTX 650 Ti BOOST	
GeForce GTX 645	
GeForce GT 645	
GeForce GT 640	
GeForce GT 635	
GeForce GT 630	

Supported NVIDIA Notebook Products

The following table lists current NVIDIA notebook products supported by version 475.06 WHQL of the release 470 driver. For information about notebook products not shown, see the NVIDIA website page GeForce RTX 30 Series Laptops.

Table 3. Supported NVIDIA Notebook Products

Consumer Products	Architecture
GeForce RTX 3080 Laptop GPU	NVIDIA Ampere
GeForce RTX 3070 Laptop GPU	
GeForce RTX 3060 Laptop GPU	
GeForce RTX 3050 Laptop GPU	
GeForce RTX 3050 Ti Laptop GPU	
GeForce RTX 2080 SUPER Max-Q	Turing
GeForce RTX 2080 SUPER	

Consumer Products	Architecture
GeForce RTX 2080	
GeForce RTX 2070	
GeForce RTX 2060	
GeForce GTX 1660 Ti	
GeForce GTX 1650	
GeForce MX450	
GeForce MX350	Pascal
GeForce MX330	
GeForce MX250	
GeForce MX230	
GeForce MX150	
GeForce MX130	Maxwell
GeForce MX110	
GeForce GTX 1080 for notebooks	Pascal
GeForce GTX 1070 for notebooks	
GeForce GTX 1060 for notebooks	
GeForce GTX 1050 for notebooks	
GeForce GTX 1050 Ti for notebooks	
GeForce GTX 980 for notebooks	Maxwell
GeForce GTX 980M	
GeForce GTX 970M	
GeForce GTX 965M	
GeForce GTX 950M	
GeForce 945M	
GeForce 940MX	
GeForce 940M	
GeForce 930MX	
GeForce 930M	
GeForce 920MX	
GeForce GTX 860M	
GeForce GTX 850M	
GeForce 840M	
GeForce 830M	

Supported Languages

The release 470 graphics driver supports the following languages in NVIDIA Control Panel.

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

Driver Installation

Minimum Hard Disk Space

The hard disk space requirement is approximately 1.5× the size of the installation download to accommodate extracted and temporary files.

Before You Begin

Certain applications and systems require preparation before you install the driver.

nTune

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

Notebooks

Check to make sure that your notebook has a supported GPU. See Supported NVIDIA Notebook GPUs.

NVIDIA recommends that you back up your current system configuration before installation.

If you own a Dell Inspiron 1420, Dell XPS M1330, or Dell XPS M1530, or Dell Latitude D630 or D630c, NVIDIA strongly recommends that you apply all relevant updates to your system software before you install the driver.

Obtaining NVIDIA Drivers

Obtaining NVIDIA Drivers: Microsoft now provides only SHA-2 signed drivers. If your Windows 7 system is NOT equipped to detect SHA-2, you need to install the SHA-2 update support patches. For details as well as access to SHA-2 update support patches, see the Microsoft KBA "2019 SHA-2 Code Signing Support requirement for Windows and WSUS".

Installation Instructions

1. Follow the instructions on the NVIDIA web site's 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.

> **Note**: The driver presents game screenshots while the driver is installing. If you are not connected to the internet during the installation, you may see a "Navigation to the webpage was cancelled" message instead. The message can be ignored and does not affect the installation. The message won't appear if the browser cache is cleared.

> **Note**: The NVIDIA PhysX System Software will not be included in the installation if the same version or a later version is already installed.

> **Note:** After the driver installation, Windows 7 may default to 16-bpp color and disable the Desktop Window Manager (DWM). To work around this issue, set the color to 32-bpp and then reboot the PC.