



3D VISION PRO™

USER GUIDE



nVIDIA.

TABLE OF CONTENTS

Table of Contents	iii
Welcome	1
About this Guide	1
System Requirements	2
Safety Requirements	2
Epilepsy	4
Unpacking Equipment	5
Equipment	5
3D Vision Pro Glasses	6
Charging the Glasses	6
Using the Glasses	7
Changing the Nose Piece	7
3D Vision Pro Hub	8
Installation and Setup	9
Installation	9
Connecting the Display	9
Installing the Drivers - Windows Vista and Window 7	12
Installing the Drivers - Windows XP	13

Configure OpenGL Stereo (Quadro Only)	15
Configure DirectX Stereo	16
working with 3D Vision Pro	19
Accessing the 3D Vision Pro Control Panel	19
Pairing Glasses to the Hub	20
Pairing with the Control Panel	20
Pairing with the Buttons	21
DirectX 3D Stereoscopic Driver	22
Accessing the NVIDIA Control Panel	22
Set Up DirectX Stereoscopic 3D Driver	23
Adjusting the Depth	23
Stereoscopic 3D Display Type	24
Change 3D Laser Sight	24
Set Keyboard Shortcuts	26
Hide Stereoscopic 3D Effects When Game Starts	29
Test Stereoscopic 3D	29
Advanced Information	32
Preset Configurations	32
Setting Your Own Shortcut Keys	33
Application Configuration Guidelines	34
Viewing Practices	34
Tips and Troubleshooting	36
Stereoscopic 3D is not Working	36
Image is not Clear	37
Eyestrain/Headache	38
Compliance and Certifications	40
US Federal Communications Commission Compliance	41
Canada Compliance	41
Australia and New Zealand Compliance	41
European Union Compliance	42
UL, CUL Compliance	42
CB Scheme	42
Important Safety Information	44
Important Safety Information	45
General Precautions	47
Precautions for Installation, Maintaining and Servicing	49
Installation:	49
Maintaining and Servicing:	49
Power Rating	49
Precaution for Communication Cable	50

01 WELCOME

Congratulations on your purchase of NVIDIA® 3D Vision Pro, a professional grade active shutter based stereoscopic solution. The glasses and hub that make up 3D Vision Pro are both designed to give years of reliable service.



Note: It is important to register your NVIDIA product in order to receive NVIDIA Customer Care online and phone support. You can register at www.nvidia.com/3dvision/register using the serial number found on the Welcome card in your package.

About this Guide

This guide discusses the installation and operation of the NVIDIA 3D Vision Pro hardware and software. There is a full section containing usage tips and troubleshooting guidelines.

Please read through the safety precautions and recommended viewing guidelines given on pages 3 and 4 under *Safety Requirements*.

System Requirements

Visit www.nvidia.com/3dvpro for a full list of supported graphics boards, applications, and 3D Vision Ready displays or projectors.

Safety Requirements

Do not wear the wireless glasses in any situations that require unimpaired visual perception. Do not use the glasses as sunglasses.

Under normal conditions, stereoscopic 3D viewing is safe for any duration that you would normally view your display. However, some people may experience discomfort. To minimise the potential for experiencing visual problems or any adverse symptoms:

- > Take the stereoscopic 3D medical test to verify your ability to see stereoscopic 3D images.
- > Maintain a distance no closer than 2 to 2.5 feet away from the display. Viewing from too close a distance can strain your eyes.
- > Take regular breaks, at least 5 minutes after every hour of stereoscopic 3D viewing.
- > Start with the depth at the default of 15%. As you get more comfortable viewing stereoscopic 3D, you can increase the depth amount.
- > If you experience any of the following symptoms:
 - nausea, dizziness, or queasiness,
 - headache, or eyestrain,
 - blurry vision,
 - double vision that lasts longer than a few seconds,

Do not engage in any potentially hazardous activity (for example, driving a vehicle) until your symptoms have completely gone away.

If symptoms persist, discontinue use and do not resume stereoscopic 3D viewing without discussing your symptoms with a doctor.

Epilepsy



WARNING!

IF YOU OR ANY MEMBER OF YOUR FAMILY HAS A HISTORY OF EPILEPSY, CONSULT A DOCTOR BEFORE USING COMPUTER GAME PRODUCTS.

A small percentage of the population may experience epileptic seizures when viewing certain types of TV images or video games that contain flashing patterns of light.

The following people should consult a doctor before viewing in stereoscopic 3D:

- > Children under 5 years of age
- > Anyone with a history of epilepsy, or who has a family member with a history of epilepsy
- > Anyone who has ever experienced epileptic seizures or sensory disturbances triggered by flashing light effects.



WARNING!

SOME LIGHT PATTERNS MAY INDUCE SEIZURES IN PERSONS WITH NO PRIOR HISTORY OF EPILEPSY. DISCONTINUE STEREOSCOPIC 3D USE IF YOU EXPERIENCE ANY OF THE FOLLOWING SYMPTOMS WHILE VIEWING STEREOSCOPIC 3D IMAGES.

- > Involuntary movements, eye or muscle twitching
- > Muscle cramps
- > Nausea, dizziness, or queasiness
- > Convulsions
- > Disorientation, confusion, or loss of awareness of your surroundings

Do not engage in any potentially hazardous activity (for example, driving a vehicle) until your symptoms have completely gone away.

Do not resume stereoscopic 3D viewing without discussing the symptoms with your doctor.

02 UNPACKING EQUIPMENT

Prior to unpacking your new NVIDIA 3D Vision Pro solution, it is a good idea to visit www.nvidia.com/3dvrpro to download the current drivers you'll need during installation.

Be sure to inspect each piece of equipment shipped in the packing box. If anything is missing or damaged, contact your reseller.

Equipment

The following parts and assemblies are included in the NVIDIA 3D Vision Pro boxes.



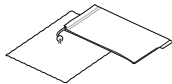
3D Vision Pro Glasses

These glasses are used to view stereoscopic 3D content.

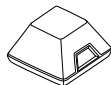


The included USB cable is used to charge the glasses. Connect the cable either to your computer or an external USB power adapter.

The glasses come with various nose pieces to customise them for your comfort.



You also receive a pouch for your glasses and a special cleaning cloth. It is recommended to always keep your glasses in the pouch when not in use.



3D Vision Pro Hub

The hub connects to your computer and controls the glasses.



Connect the USB cable to the computer. If your Quadro board, projector or TV provide a VESA stereo connector connect the included VESA stereo cable from that connector to the 3D Sync input on the 3D Vision Pro Hub

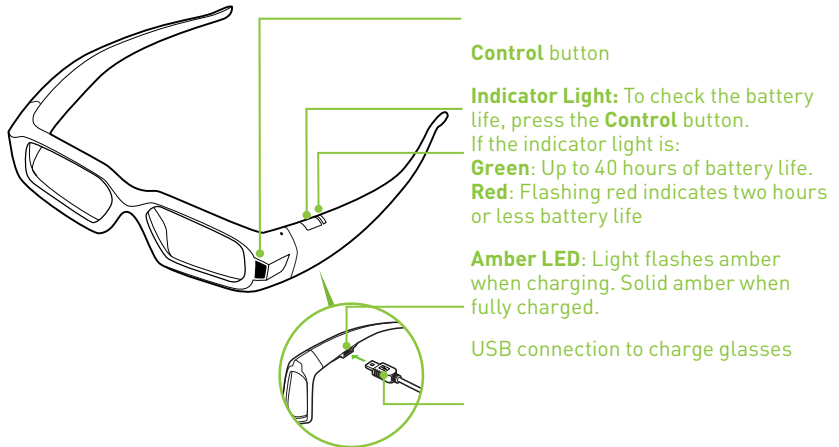
3D Vision Pro Glasses

Charging the Glasses



Note: We recommend that you fully charge your glasses now since it will take approximately three hours to complete. The wireless glasses hold approximately 40-hours of gaming per full charge.

The wireless glasses require periodic charging. To charge the glasses, use the USB cables that came with the glasses. Plug one end into the glasses and the other to any USB port on your system. You can also use a USB wall adapter to charge your glasses. Charge your glasses until the Amber charge light goes out. You can use wireless glasses while they are being charged.



If you are charging the wireless glasses by connecting them to your PC using a USB cable, make sure your PC does not go into power save mode. When your PC goes into power save mode, the wireless glasses are no longer charging. To fix this, disable any power saving options on your PC under the Windows Control Panel. Alternatively, you can use a USB wall charging device to charge the glasses directly from your wall power outlet without connecting to the PC. You can use your glasses while they are charging.

Using the Glasses

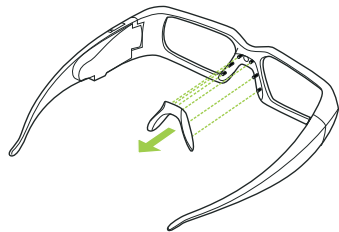
It is a good idea to keep the glasses in the protective pouch when you are not using them. The glasses will turn on automatically with motion, but if they are fully powered down you will need to press and release the control button to turn them on. The glasses turn off automatically when there is no activity.

For transport, or any other time the glasses radio needs to be turned completely off, press and hold the control button until the lenses blink twice and then open. The glasses are now completely powered down and will not turn on with motion. To turn them on, press and release the control button.

! **Caution:** The wireless glasses are not prescription eye wear, sunglasses, nor a protective goggle. Do not use the glasses for any general eye wear purposes (e.g., driving, reading, protection from sunlight or ultraviolet light, etc.) as such use may result in injury.

Changing the Nose Piece

Your wireless glasses come with three interchangeable nose pieces to give you a comfortable fit. Simply pull out the current nose piece and insert the one that fits you best.



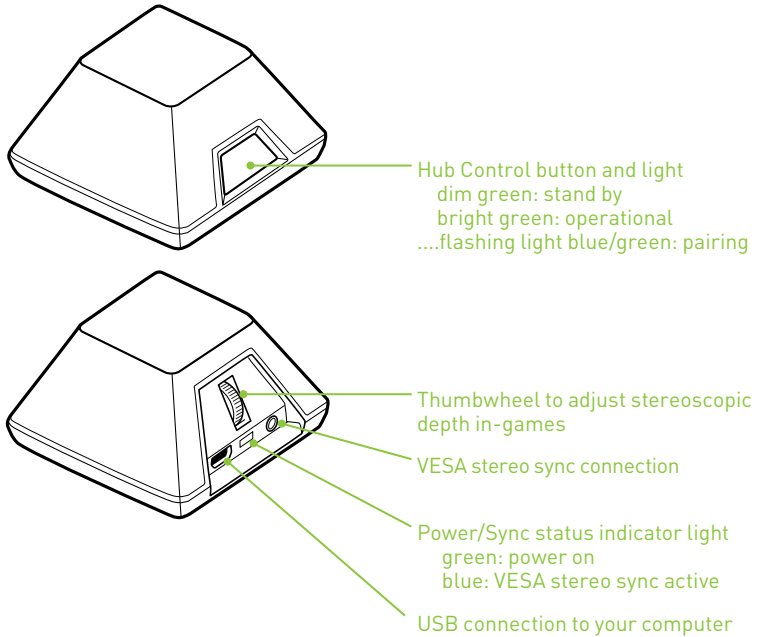
Pull the nose piece out as shown and snap another nose piece in place


02

3D Vision Pro Hub

The 3D Vision Pro Hub connects to your system with the included USB cable. The Emitter has a back-lit button on the front that can be used to control the pairing with the glasses. The indicator brightens when stereoscopic 3D is on.

There is a thumbwheel on the back of the emitter that can be used to increase/decrease depth in some Direct3D based applications.



 **Note:** USB Extenders and VESA sync extenders have been tested and qualified for use with the 3D Vision Pro Hub. Contact NVIDIA or your reseller for the list of qualified adaptors.

03

INSTALLATION AND SETUP

Installing the hardware and software to your computer system is pretty straightforward. However, there is a specific order you must follow. The 3D Vision Pro Hub must be connected **AFTER** the USB drivers have been installed.



Note: Before beginning the installation, make sure your glasses are fully charged. See *Charging the Glasses* on page 6.

Installation

Connecting the Display

Use the following procedure to install and setup your system for 3D Vision Pro.

1. **Connect your display or projector to your supported NVIDIA graphics card.**
For 3D Vision Ready LCDs use the dual-link DVI cable supplied with the display.



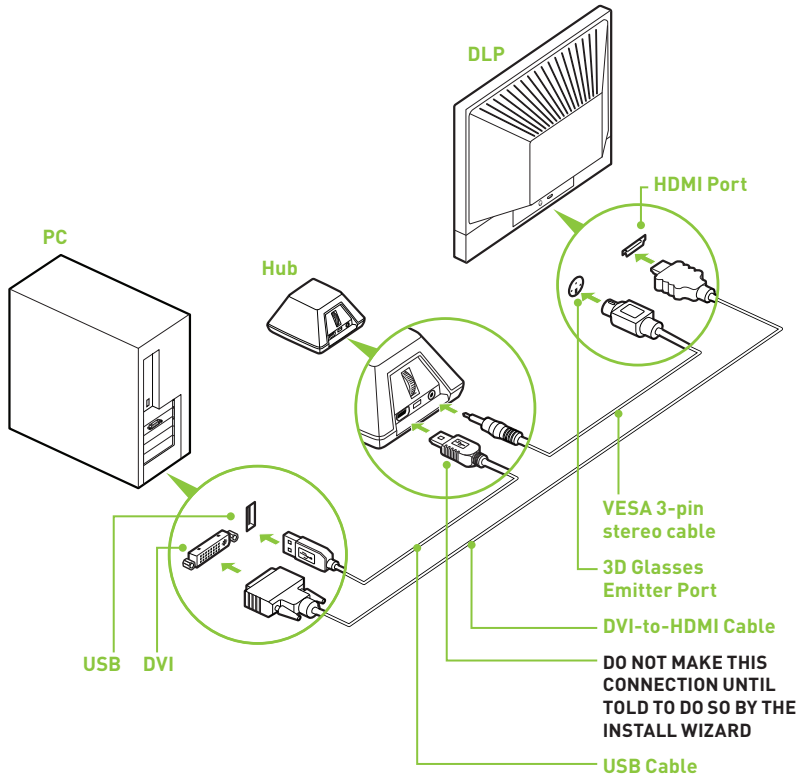
Note: NVIDIA Quadro graphics boards can support multiple stereo and non-stereo displays



Note: Make sure to select a display refresh rate of 100Hz or more from the NVIDIA or OS control panel..

See the following pages for connection diagrams.

03

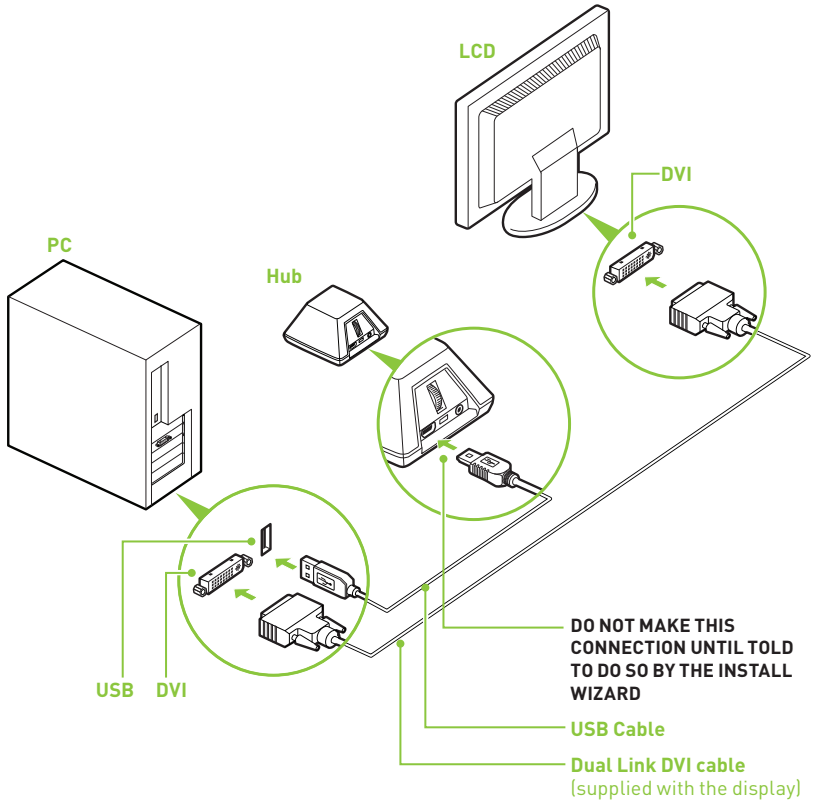


DLP HDTV Connection Diagram



Note: Check your DLP's user manual to see if there is a specific HDMI port used to connect a PC to your HDTV. In addition, change the input mode on the TV's menu to be **PC** or **Computer** to ensure the TV can process the video signal correctly.

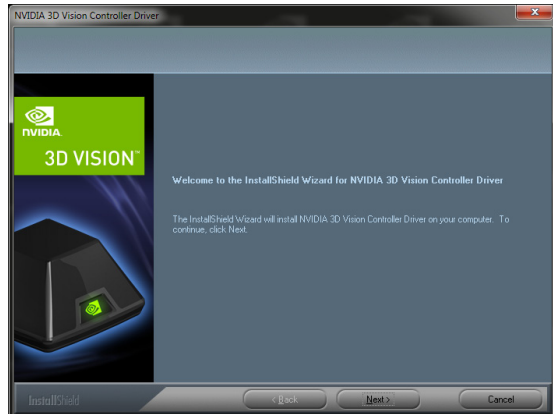
120 Hz LCD Connection Diagram



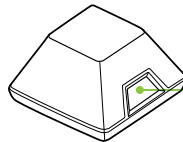
03

Installing the Drivers - Windows Vista and Window 7

1. Download the most recent 3D Vision Controller driver and display driver from www.nvidia.com/3dvp
2. **Install the display driver.**
Follow the wizard and reboot if necessary.
3. **Install the 3D Vision Controller driver.**
Follow the steps in the wizard.



4. **Plug in the 3D Vision Pro Hub to the USB cable.**
If the OS prompts you to install the device, click install.
5. **Verify Hub Button glows dim green**
After a successful installation, the button on the Hub will glow a dim green



dim green logo

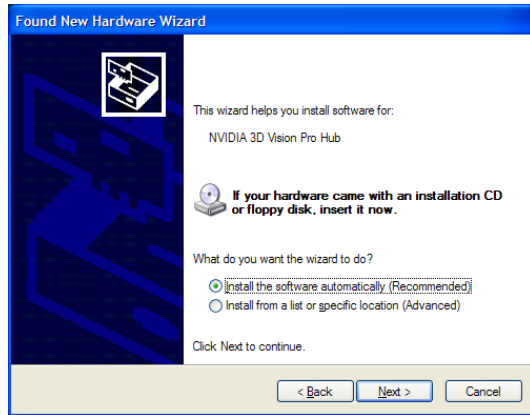
Installing the Drivers - Windows XP

1. Download the most recent 3D Vision Controller driver and display driver from www.nvidia.com/3dvpro
2. **Install the display driver.**
Follow the wizard and reboot if necessary.
3. **Install the 3D Vision Controller driver.**
Follow the steps in the wizard.
4. **Plug in the 3D Vision Pro Hub to the USB cable.**
Plugging in the Hub will start the Windows Found New Hardware Wizard

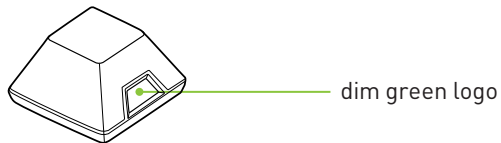


5. **Select "No, not at this time" when prompted about connecting to Windows update.**
Installing the driver in the previous steps installed the necessary files

03



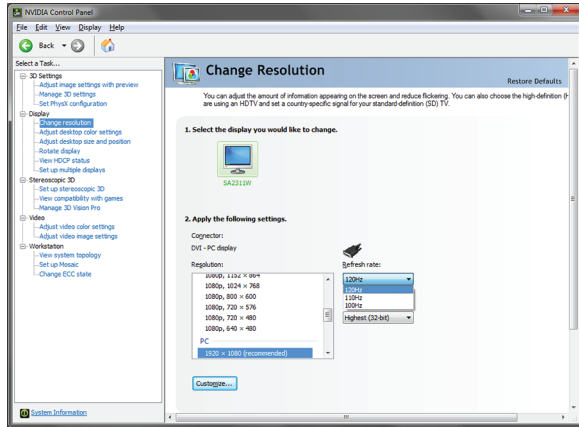
6. **Select and install the recommended drivers.**
The wizard will find the files need automatically
7. **Finish the Wizard.**
Upon completing the wizard the logo on the front button of the hub will be glowing a dim green.



Configure OpenGL Stereo (Quadro Only)

1. Verify that the display refresh rate

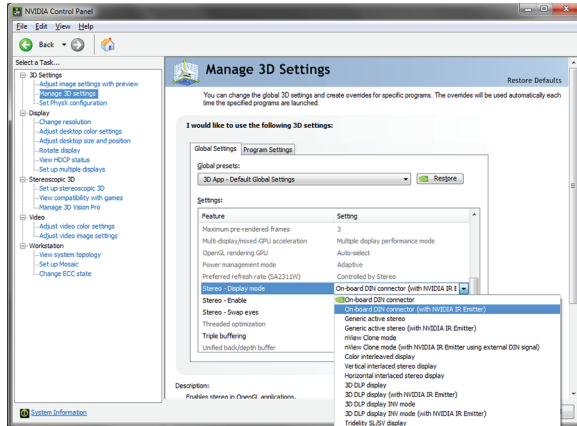
Unless your display device is designed to support stereo at a lower refresh rate, make sure to select a refresh rate of 100Hz or higher.



Depending on the lighting in your environment you may experience a pulsing of the image when looking through the glasses. If you notice this, you can adjust the refresh rate to align on an even multiple with your lighting refresh rate (e.g 60Hz lighting -> 120Hz display refresh, 50Hz lighting -> 100Hz display refresh).

2. Select the Stereo Output Format in Manage 3D Settings

Select the correct output format for your device



LCD Panels or Single Channel; Projectors:

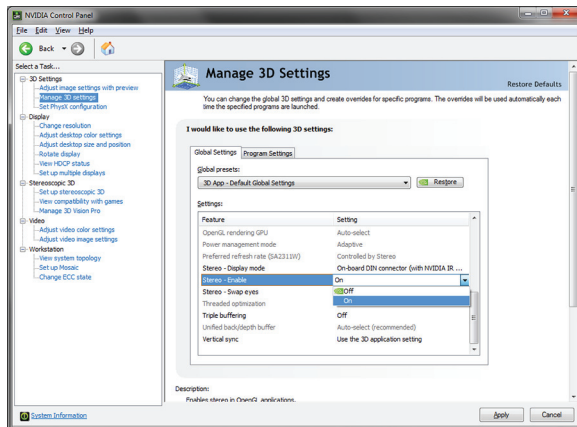
On-Board DIN Connector (with NVIDIA Hub) or
Active Stereo (with NVIDIA Hub)

Dual Pipe / Clone Mode: nView Clone Mode (with NVIDIA...)

Real Projection DLP TV's: 3D DLP display (with NVIDIA Hub)

3. Enable Stereo

Turn on stereo for supported applications



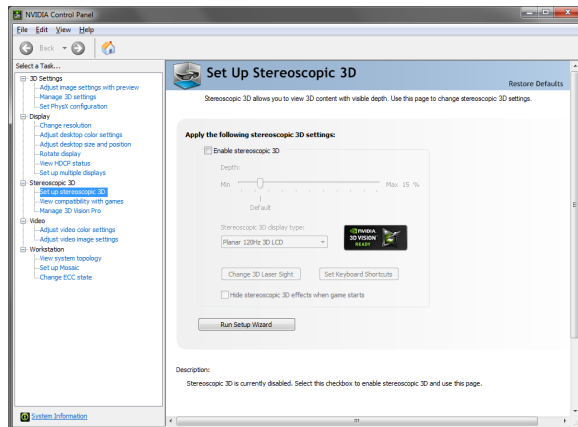
Configure DirectX Stereo

The DirectX Stereo driver does not need to be enabled. When enabled it will enable compatible applications including games, 3D BluRay players and many professional applications.

There is more information on the DirectX Stereoscopic driver in DirectX Stereoscopic Driver section of this manual

1. Run the Configuration Wizard

Launch the Setup Wizard from the 3D Stereoscopic entry in the NVIDIA Control Panel



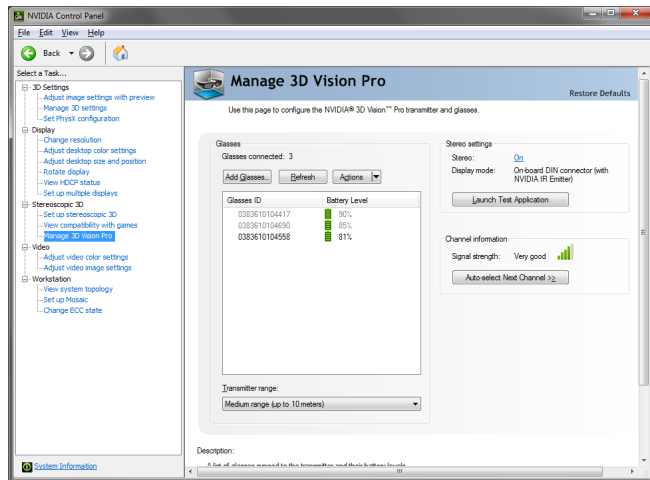
03

04 WORKING WITH 3D VISION PRO

3D Vision Pro operates on radio so the glasses need to be connected with the hub. You can connect multiple glasses to a single hub and multiple hubs can operate in range of each other.

Accessing the 3D Vision Pro Control Panel

To open the NVIDIA Control Panel, right click on the desktop and select the **NVIDIA Control Panel**. You can also go to **Start** → **NVIDIA Corporation** → **NVIDIA Control Panel**.



Select **Manage 3D Vision Pro** from the topics in the left window pane. You may need to click on the **+** in front of **Stereoscopic 3D** to expand the topics.

Pairing Glasses to the Hub

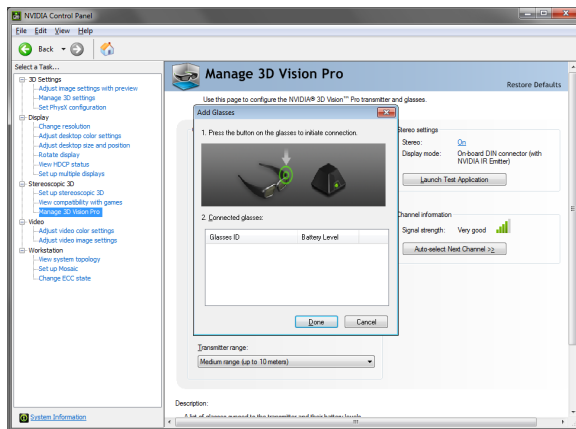
You can pair the glasses to the hub through the control panel or with just the buttons on the hub and glasses. Either version of pairing can be done while stereo applications are running or not. You can add pair additional glasses without disrupting already paired glasses.

Pairing with the Control Panel

1. Open the 3D Vision Pro Control Panel

Navigate to the 3D Vision Pro control panel entry in the NVIDIA control panel

2. Press the Add Glasses Button



3. Press and hold the button on the glasses until the light next to the button blinks green

Holding the button on the glasses until it blinks green, and then releasing the button, places the glasses into their pairing mode. You can pair multiple glasses at one time.

4. Glasses name and battery level appear and glasses start to operate

Pairing is usually a very quick operation and the light on the glasses will turn solid green when paired. If a stereo application is running the glasses will start operating as well.

Pairing with the Buttons

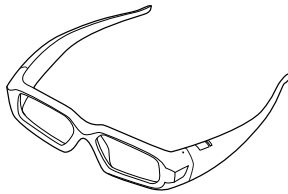
1. Press and Release the button on the Hub

The light on the hub will start alternating between green and cyan



2. Press and hold the button on the glasses until the light next to the button blinks green

Holding the button on the glasses until it blinks green, and then releasing the button, places the glasses into their pairing mode.



3. Light on the glasses will turn solid green, and hub will return to solid green

Pairing is usually a very quick operation and the light on the glasses will turn solid green when paired. If a stereo application is running the glasses will start operating as well.



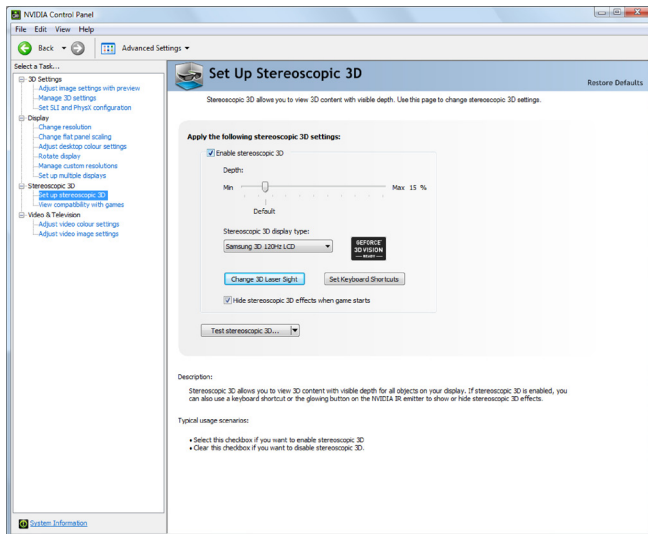
Note: Adding glasses with the button also adds the glasses to the control panel. If you wish to pair many glasses at once, press the button on the hub twice, then pair the glasses. Glasses paired this way will not appear in the control panel but will operate.

04 DIRECTX 3D STEREOSCOPIC DRIVER

NVIDIA has provided tools for you to customise your 3D Vision experience for DirectX based applications. To access the tool menus, go to the NVIDIA Control Panel.

Accessing the NVIDIA Control Panel

To open the NVIDIA Control Panel, right click on the desktop and select the **NVIDIA Control Panel**. You can also go to **Start** → **NVIDIA Corporation** → **NVIDIA Control Panel**.

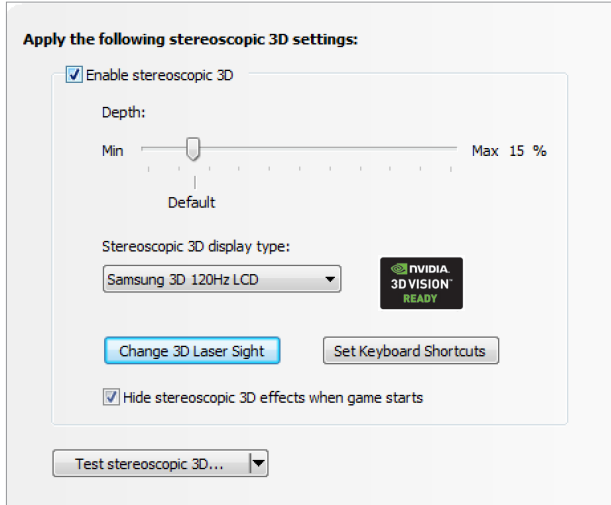


Select **Stereoscopic 3D** from the topics in the left window pane. You may need to click on the **+** in front of **Stereoscopic 3D** to

04

Set Up DirectX Stereoscopic 3D Driver

This section of the NVIDIA Control Panel provides all the adjustments needed to enhance your gaming experience. Each of the adjustments on this screen is discussed.



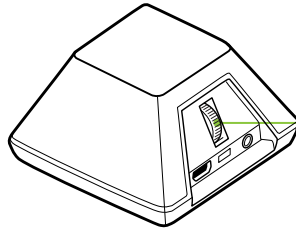
Adjusting the Depth

The depth amount in a game is the depth that the farthest object is placed in a scene. When 3D Vision is first installed on your system, the Depth is set at the default of 15%. If you are new to 3D gaming, 15% is a good point to start with. Viewing depth at a higher setting can be uncomfortable to some users. As you use 3D Vision, your eyes will become more accustomed to viewing stereoscopic 3D and you can incrementally increase the depth amount without eye strain.

On the *Set Up Stereoscopic 3D* screen, you adjust the depth amount by adjusting the slider to the desired amount. The depth setting on this slider indicates the depth amount for all games when they are launched.

You can also change the depth amount by adjusting the thumbwheel on the back of the Hub. Any adjustments you make on the thumbwheel is reflected on the **Depth** slider in the NVIDIA Control Panel.

Another way to change depth while in a game or supported application is to use the keyboard shortcut keys:



Thumbwheel to adjust depth while in a supported application

- > To decrease depth, use **Ctrl+F3** (default shortcut keys)
- > To increase depth, use **Ctrl+F4** (default shortcut keys)

Any adjustments you make using keyboard shortcuts is reflected on the **Depth** slider in the NVIDIA Control Panel.

Stereoscopic 3D Display Type

The **Stereoscopic 3D display type** is a drop-down list of all 3D Vision



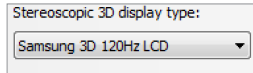
Ready displays that were found by the Setup Wizard. This list is populated by the Wizard. If you had more than one 3D Vision-Ready display attached during Setup, they will be reflected in the list.

Change 3D Laser Sight

The cross-hair sight in a first-person shooter (FPS) game is usually positioned at screen depth when viewed in stereoscopic 3D, making it difficult to aim. In some games, NVIDIA has created a configuration that puts the in-game laser sight at the correct depth. For those games, no user configuration is required. For all other FPS games, NVIDIA provides a selection of 3D laser sights that appear on the

targeted object. The laser sights work in properly configured first-person shooter games with screen-centered sights.

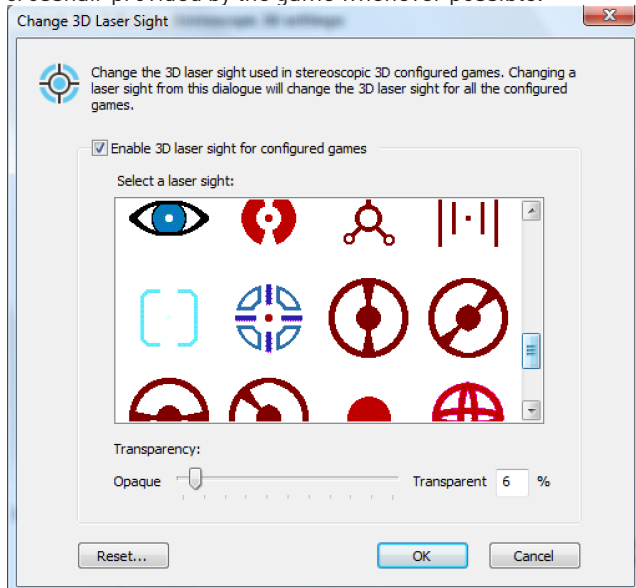
To change the laser sight from the *Set Up Stereoscopic 3D* screen, click on the **Change 3D Laser Sight** button to display a list of possible laser sights.



Different laser sights are displayed as you scroll down. To use your selected laser sight, check the **Enable laser sight for configured game** check box. If you would rather use the game's laser sight, uncheck the box.

You can define the amount of transparency for the selected laser sight by using the **Transparency** slider. A setting of 0% is a solid laser sight and a setting of 100% is see-through. A recommended laser sight transparency is 25%. You can also use the keyboard shortcut keys, **Ctrl+F12** (default setting) to toggle the laser sight on and off while in a game.

The laser sight displays when stereoscopic 3D is turned on during a game. To avoid confusion, disable the aiming crosshair provided by the game whenever possible.



Set Keyboard Shortcuts

The keyboard shortcuts are in-game hot keys that can be used to perform a variety of actions.

To view or change the keyboard shortcut keys from the *Set Up Stereoscopic 3D* screen in the NVIDIA Control Panel, click on the **Set Keyboard Shortcuts** button. 

To see the advanced in-game settings, click on

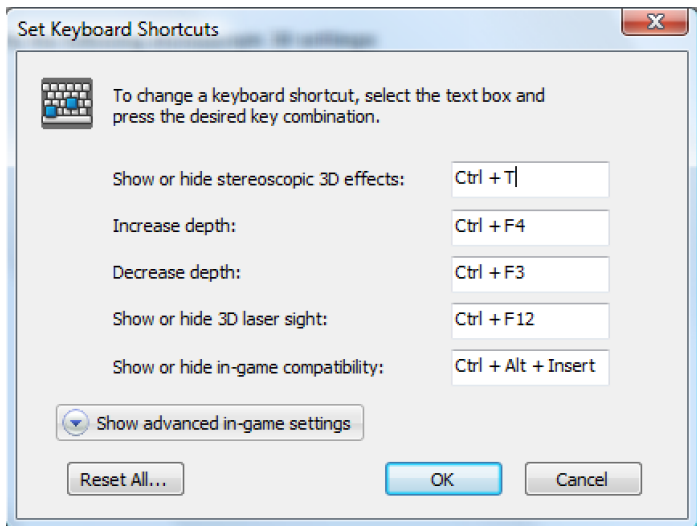
This expands the *Set Keyboard Shortcuts* screen.

To enable the use of *advanced* shortcut keys in-game, you must check the **Enable advanced in-game settings** check box. The standard shortcut keys (shown in the upper portion of the window) are always enabled.

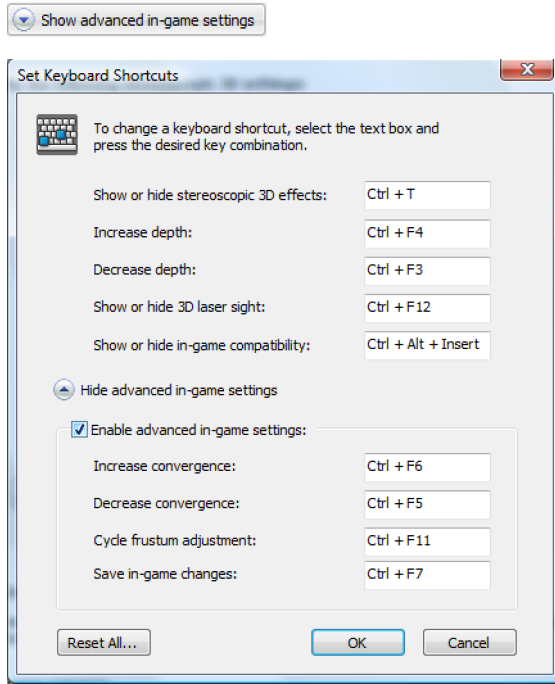
Table 1 on the following page lists all the shortcut key functions.

Table 1. Keyboard Shortcut Keys

Keys	Description	Action
------	-------------	--------



04



Shown with
default values

Ctrl+T	Show/Hide stereoscopic 3D effects	Turns 3D Vision off and on.
Ctrl+F4	Increase depth	Increases the depth amount real-time in the current game. Change is reflected on the NVIDIA Control Panel.
Ctrl+F3	Decrease depth	Decreases the depth amount real-time in the current game. Change is reflected on the NVIDIA Control Panel.

Ctrl+Alt+Insert	Show/Hide in-game compatibility	Displays the settings recommended by NVIDIA for the current game in the lower corner of your display.
Ctrl+F6	Increase convergence	Moves objects towards you. Maximum convergence places all objects <i>in front</i> of the scene, in user space. Used to place the laser sight. (Advanced)
Ctrl+F5	Decrease convergence	Moves objects away from you. Minimum convergence places all objects “behind” the scene, in CRT space. Used to place the laser sight. (Advanced)
Ctrl+F11	Cycle frustum adjustment	Cycles between three different modes of displaying the 3D image in the viewer: Off, Stretch to fill, Clip sides. (Advanced)
Ctrl+F7	Save in-game settings	Saves the current game setting to the registers for later use. (Advanced)

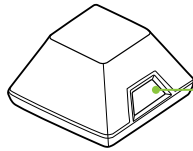
(Advanced) To enable the use of *advanced* shortcut keys in-game, you must check the **Enable advanced in-game settings** check box on the *Set keyboard Shortcuts* screen.

Hide Stereoscopic 3D Effects When Game Starts

There are some games that do not launch very well when stereoscopic 3D effects are enabled at startup. To avoid this, check the box on the *Set Up Stereoscopic 3D* screen in the NVIDIA Control Panel.

Hide stereoscopic 3D effects when game starts

The stereoscopic 3D effects remain enabled, it is just hidden at startup. Once the game has loaded, you can show stereoscopic 3D effects by either using the shortcut keys **Ctrl+T** or by pressing the **Stereoscopic 3D ON/OFF** button on the hub.



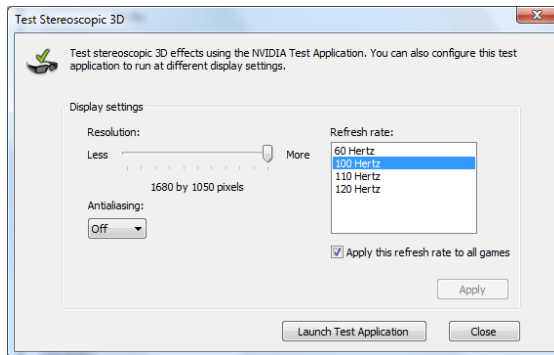
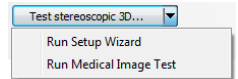
Stereoscopic 3D ON/OFF

Test Stereoscopic 3D

The **Test Stereoscopic 3D** button and drop-down list on the *Set Up Stereoscopic 3D* screen in the NVIDIA Control Panel provides the ability to test stereoscopic 3D viewing and the ability to run the Setup Wizard and the Medical Image Test.

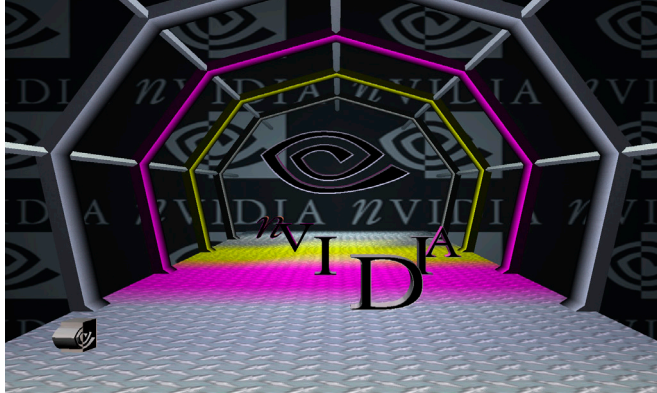
Test Stereoscopic 3D Option

Clicking on the **Test Stereoscopic 3D...** button displays a test application that allows you to adjust stereoscopic 3D effects so that watching 3D Vision is comfortable to you.



Click **Launch Test Application** after you select the display settings.

The image displays in full-screen if you have the correct resolution set for your monitor. With your wireless glasses on, you are able to see in stereoscopic 3D. Use the shortcut keys and the depth wheel on the Hub to make adjustments.



Note: Any changes made using the shortcut keys or the Hub depth wheel is reflected on the *Set Up Stereoscopic 3D* screen..

When you have finished any adjustments, press the **Esc** key to exit the stereoscopic 3D test screen.

Run Setup Wizard Option

Clicking on the dropdown menu icon displays the **Run Setup Wizard** and **Run Medical Image Test** options. Selecting the **Run Setup Wizard** option launches the Wizard so that you can make changes to your configuration or add displays.

Run Medical Image Test Option

The Medical Test Image is run during the install Wizard (see Step 20 on page 22). However, you can run the test independent of the Wizard by selecting the **Run Medical Image Test** option.



Attention: NVIDIA recommends that every new stereoscopic 3D user run the Medical Image Test to verify their ability to view stereoscopic 3D-rendered images. If you can not see the image, do not use 3D Vision (see step 20 on page 22).

04

05 ADVANCED INFORMATION

The NVIDIA 3D Vision Driver takes certain 3D information contained in the game and uses it to generate the stereoscopic 3D display. Since most games are not designed with stereoscopic 3D in mind, the resulting display quality varies from game to game. In some cases, the game is not viewable at all in stereoscopic 3D without making adjustments based on observation.

Optimum stereoscopic 3D is achieved when the application display consists of the following:

- > Meaningful range of depth, or distance between the nearest and farthest objects.
- > Nearest objects which are not too close for comfortable viewing.
- > Heads up displays (HUD) that are positioned so as not to interfere with the stereoscopic 3D experience. Ideally, HUDs should be at screen depth.

Preset Configurations

For most games, NVIDIA has established settings that adjust the display to achieve high quality stereoscopic 3D, based on the needs of each game.

You can view the list of these games on the **View compatibility with games** task located on the NVIDIA Control Panel. This menu also shows a list of comments pertaining to that game. These comments may include suggested settings or adjustments and comments on the construction of the game. These instructions can also be overlaid on the opening screen of the game using **Ctrl+Alt+Insert**.

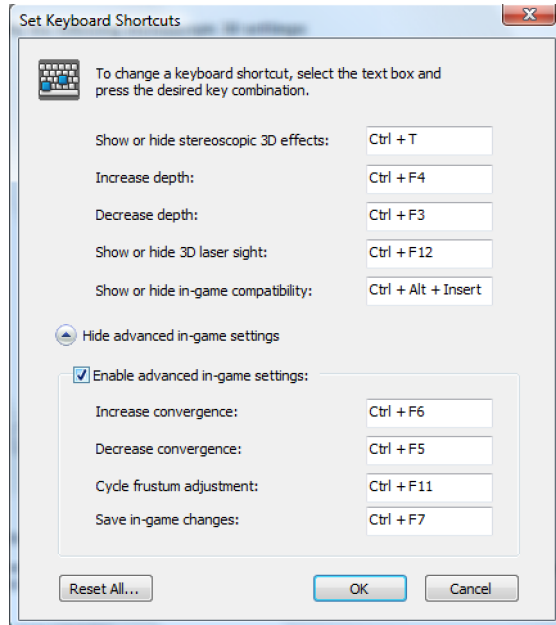
Be sure to view these comments before you begin your game.

05

Setting Your Own Shortcut Keys

To configure a game in real-time you must be familiar with the keyboard shortcut keys. You can use the default setting or you can change the shortcut keys to suit your particular liking.

To see the default keyboard shortcut key settings, go to the NVIDIA Control Panel and select the **Set up stereoscopic 3D** task in the left window pane. Click on the click on the **Set Keyboard Shortcuts** button.



Shown with
default values

See Table 1 on page 31 for more information on the shortcuts.

To change a shortcut key combination, select an action and click in the adjacent box displaying the shortcut. Press your desired key combination. The keystrokes are displayed in the box. Click **OK** to save your settings and exit the menu. The driver saves the settings in the registry.

Application Configuration Guidelines

The following table lists some adjustment guidelines to use for specific issues when you are in a game.

Table 2. Application Configuration Guidelines

Issue	Suggestion
Object are too close	Decrease Convergence [Ctrl+F5]
Side borders are blurred, not clear, not visible	Cycle frustum adjustments until borders are clear [Ctrl+F11]
Convergence settings not good for all parts of the game	Increase/decrease convergence [Ctrl+F6/Ctrl+F5]
Stereoscopic 3D unclear, not sure what needs to be adjusted	See <i>Tips and Troubleshooting</i> on page 39

Once you are happy with the way the game looks in stereoscopic 3D, press **Ctrl-F7** to save these settings to the register. The settings are associated with this game only (based on the name of the game executable file).

Viewing Practices

- > **Depth Amount:** The recommended starting point for Depth Amount is 15%, but always adjust the depth to a comfortable level. You can increase it over time as your eyes get used to stereoscopic 3D viewing.
- > **Viewing Distance:** Maintain a distance no closer than 2 to 2.5 feet away from the monitor. Viewing from too close a distance can cause too much strain on your eyes, and can reduce stereoscopic quality.
- > **Viewing Angle:** Keep your eyes parallel to the screen. The imaginary line connecting your eyes should be parallel to the horizontal level of the screen. The stereoscopic 3D effect is based on side-to-side or horizontal—displacement of each image. If you tilt your head, your eyes no longer see the displacement as horizontal, and the stereoscopic 3D effect is diminished or even eliminated. While your brain may adjust to this viewing, it must work harder, resulting in eye strain and fatigue.

- > **Viewing Time:** Take regular breaks. As with any time spent looking at a computer screen, it is good practice to give your eyes a rest after a period of time. At a minimum, rest for five (5) minutes after every hour of stereoscopic 3D viewing.
- > **Viewing with Prescription Glasses:** If you normally wear glasses when viewing a computer screen, keep them on and put the wireless glasses over your eye wear. The sharper the image on the screen, the better the quality.
- > **Game Cursor/Cross-hair Sights:** If you are using the NVIDIA 3D laser sights, be sure to turn off the sight that the game provides. The game sight is usually positioned at screen-depth, and interferes with useful viewing of the NVIDIA laser sight.
- > **Display Lighting:** The amount of light reaching each eye is cut in half, and causes the screen to appear darker under stereoscopic 3D viewing. Adjusting the brightness and contrast settings of your game can also reduce screen persistence and improve stereoscopic 3D quality.
- > **Ambient Lighting:** The intensity of surrounding lighting can affect stereoscopic 3D quality and comfort. Lighting conditions that improve stereoscopic 3D viewing vary from one person to the next, so experiment with brighter or darker room lighting to find what works best for you. See *Tips and Troubleshooting* on page 39.

06

TIPS AND TROUBLESHOOTING

NVIDIA provides an online knowledgebase system with answers to most common questions available 24x7x365. You can also use it to submit questions online to our technical support staff. .

Stereoscopic 3D is not Working

- > **Make sure you have activated the hub.** Press the green **ON/OFF** button on the front of the emitter. The emitter is on when the button is *bright green*.
- > **Check and make sure that stereoscopic 3D is enabled.** Go to the NVIDIA Control Panel *Set Up Stereoscopic 3D* screen.
- > Run the Setup Wizard to verify your hardware is operating properly. Go to the NVIDIA Control Panel (right click on the desktop). Select **Set Up Stereoscopic 3D**. Then select **Run Setup Wizard** from **Test Stereoscopic 3D** drop down menu.
- > **Ensure your glasses are fully charged.**

You can check the battery level of your glasses by pressing the **ON** button.

 - If the light next to the button is green, you have up to 40 hours of battery life remaining. Actual battery life is dependent on the recharge time.
 - If the light is red, you have less than two hours remaining and it is recommended that you recharged your glasses.
 - If the light does not turn on, the battery is drained and the glasses must be recharged.

- > If you are charging the wireless glasses by connecting them to your PC using a USB cable, make sure your PC does not go into power save mode. When your PC goes into power save mode, the wireless glasses are no longer charging. To fix this, disable any power saving options on your PC under the Windows Control Panel. Alternatively, you can use a USB wall charging device to charge the glasses directly from your wall power outlet without connecting to the PC.
- > **Make sure you have used the DVI cable that was shipped with your 3D Ready 120Hz LCD display.** This is a dual-link cable and 3D Vision will not operate without it.

Image is not Clear

Your Eyes are not Adjusted

Your eyes may take some time to adjust to viewing stereoscopic 3D effects. If you are new to gaming, make sure you start your depth amount at the default of 15%. As your eyes adjust, you can increase the depth amount.

Depth Needs Adjusting

Adjust depth amount using the slider on the NVIDIA Control Panel *Setup* screen. If you are in a game, use the thumb wheel on the back of the Hub or the shortcut keys **Ctrl+F3** to decrease depth and **Ctrl+F4** to increase depth.

Excessive Flickering

Flicker in your peripheral vision can be caused by differences in frequencies at which 3D Vision operates and the lighting in your room. This type of flicker can be avoided by turning off the lights or changing the stereoscopic 3D refresh rate. To see the refresh rates, run the Setup Wizard from the NVIDIA Control Panel. When you get to the page asking about flicker, select **Yes**. You can then select from the following refresh rates:

- > 120 Hz refresh rate for use in North America when lights are on
- > 110 Hz refresh rate for daytime and when lights are off
- > 100 Hz refresh rate for countries with 50 Hz lighting and when lights are on

Once you have selected a refresh rate on the *Setup Wizard* screen, click the **Test with this refresh rate** button to verify the new refresh rate helps to reduce flicker. Once you have found the best setting, select **Next** to continue (see step 17 on page 18 for the procedure on how to reset the refresh rate).

Eyestrain/Headache

If you are experiencing eyestrain or headaches, it could be due to excessive depth amount. Change the depth in one of the following ways:

- > In-game adjustment, use the shortcut keys **Ctrl+F3** to decrease the depth amount.
- > Use the thumb wheel on the back of the Hub to adjust the depth amount. If you are new to gaming, start at the default 15%.
- > Use your mouse to adjust depth amount on the slider in the NVIDIA Control Panel *Set Up Stereoscopic 3D* screen.

If you are new to gaming, start at the default (15%).



Warning: If eyestrain and headaches persist, discontinue viewing in stereoscopic 3D and consult a doctor.



07 COMPLIANCE AND CERTIFICATIONS

The NVIDIA 3D Vision Pro system:

3D Vision Pro Hub, P753

3D Vision Pro Glasses, P703

Is compliant with the following regulations:

- > Australian Communications and Media Authority (C-Tick)
- > Conformité Européenne (CE)
- > Federal Communications Commission (FCC)
- > IECEE CB Scheme (CB)
- > Industry Canada (ICE, ICES)
- > Underwriters Laboratories (UL, cUL)

07

US Federal Communications Commission Compliance

FCC – Federal Communications Commission

3D Vision Pro Hub, P753

FCC ID: VOB-P753A

3D Vision Pro Glasses, P703

FCC ID: VOB-P703A

This part complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Canada Compliance

IC (Industry Canada)

3D Vision Pro Hub, P753

IC: 7361A-P753A

3D Vision Pro Glasses, P703

IC: 7361A-P703A

This Class B digital apparatus complies with Canadian ICES-003.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Australia and New Zealand Compliance

C-Tick (The Australian Communications and Media Authority)



European Union Compliance

CE: European Conformity (Conformité Européenne)



**3D Vision Pro Hub, P753
3D Vision Pro Glasses, P703
Receiver Category 3**

UL, CUL Compliance

UL- Underwriters Laboratories

> For use only with UL Listed I.T.E.



I.T.E. ACCESSORY E204896

CB Scheme

CB-IECEE CB Scheme



07

08

IMPORTANT SAFETY INFORMATION

NVIDIA products are designed to operate safely when installed and used according to the product instructions and general safety practices. The guidelines included in this document explain the potential risks associated with equipment operation and provide important safety practices designed to minimise these risks. By carefully following the information contained in this document, and the specific instructions provided with your product, you can protect yourself from hazards and create a safer environment.

The product is designed and tested to meet IEC-60950-1, the Standard for the Safety of Information Technology Equipment. This also covers the national implementation of IEC-60950-1 based safety standards around the world e.g. UL-60950-1. These standards reduce the risk of injury from the following hazards:

- > **Electric shock:** Hazardous voltage levels contained in parts of the product
- > **Fire:** Overload, temperature, material flammability
- > **Mechanical:** Sharp edges, moving parts, instability
- > **Energy:** Circuits with high energy levels (240 volt amperes) or potential as burn hazards
- > **Heat:** Accessible parts of the product at high temperatures
- > **Chemical:** Chemical fumes and vapors
- > **Radiation:** Noise, ionising, laser, ultrasonic waves

Retain and follow all product safety and operating instructions. Always refer to the documentation supplied with your equipment. Observe all warnings on the product and in the operating instructions.



Note: Read all safety information below and operating instructions before using 3D Vision Pro to avoid injury .



Note: Keep this features guide for 3D Vision Pro handy for future reference.



WARNING: Failure to follow these safety instructions could result in fire, electric shock or other injury or damage.





WARNING: Electrical equipment can be hazardous if misused. Operation of this product, or similar products, must always be supervised by an adult. Do not allow children access to the interior of any electrical product and do not permit them to handle any cables.

Important Safety Information

To reduce the risk of bodily injury, electric shock, fire, and damage to the equipment, observe the safety labels included on the equipment.

Symbols on Equipment

Sign	Meaning
	This symbol in conjunction with any of the following symbols indicates the presence of a potential hazard. The potential for injury exists if warnings are not observed. Consult your documentation for specific details.
	This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel. WARNING: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.



This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason.

WARNING: To reduce risk of injury from electric shock hazards, do not open this enclosure.

08

General Precautions

To reduce the risk of personal injury or damage to the equipment:

- > Follow all cautions and instructions marked on the equipment. Do not attempt to defeat safety interlocks (where provided).
- > Do not bend, drop, crush, puncture, incinerate, or open glasses or hub.
- > Shut down product before installation
- > Do not connect or disconnect any cables when perform installation, maintenance, or reconfiguration of this product during an electrical storm
- > Do not use 3D Vision Pro in rain or near sink, or other wet locations. Take care not to spill any food or liquid into stereo glasses system. In case 3D Vision Pro gets wet, unplug all cables and turn 3D Vision Pro off before cleaning, and allow it to dry thoroughly before turning it on again.
- > Never turn on any equipment when there is evidence of fire, water, or structural damage.
- > Place the product away from radiators, heat registers, stoves, amplifiers, or other appliances that produce heat.
- > Operate 3D Vision Pro in a place where the temperature is always between 0 and 45C (32 to 113F).
- > Store 3D Vision Pro in a place where the temperature is always between -20o and 45oC (-4o to 113oF). Don't leave 3D Vision Pro in your car, because temperatures in parked cars can exceed this range.
- > When you're using 3D Vision Pro or charging the battery, it is normal for 3D Vision Pro to get warm. The exterior of stereo glasses functions as a cooling surface that transfers heat from inside the unit to the cooler air outside
- > If you use the USB Power Adapter to charge stereo glasses, read the specification of the power adapter carefully at first, make sure the output port of power adapter meets the USB port specification, make sure the power adapter is fully assembled before you plug it into a power outlet. Then insert the USB Power Adapter firmly into the power outlet. Do not connect or disconnect the USB Power Adapter with wet hands.

- > Never force a connector into a port. Check for obstructions on the port. If the connector and port don't join with reasonable ease, they probably don't match. Make sure that the connector matches the port and that you have positioned the connector correctly in relation to the port
- > Do not use conductive tools that could bridge live parts
- > Do not make mechanical or electrical modifications to the equipment.
- > Use the product only with approved equipment.
- > There is a lithium battery in your wireless glasses. You can recharge the battery whenever it is convenient. Like all lithium batteries, it will slowly age. After a while it will lose the capability to be charged to its full capacity. The degradation is slow and will vary depending on your use and recharging habits.
- > If the product sustains damage requiring service, disconnect the product from the AC electrical outlet and refer servicing to an NVIDIA authorized service provider. Examples of damage requiring service include:
 - The power cord, extension cord or plug has been damaged.
 - Liquid has been spilled on the product or an object has fallen into the product.
 - The product has been exposed to rain or water.
 - The product has been dropped or damaged.
 - There are noticeable signs of overheating.
 - The product does not operate normally when you follow the operating instructions
- >



WARNING: Your stereo glasses contain sensitive components including a rechargeable battery. Prevent damage by making sure you do not drop, bend, or crush your stereo glasses or drop into fire.

08

Precautions for Installation, Maintaining and Servicing

To reduce the risk of electric shock or damage to the equipment when installing, maintaining, or servicing products, observe the following precautions:

Installation:

- > Follow the Pre/Post-installation procedures in other part of the manual.
- > Follow the Installing and Configure Instruction in the manual.

Maintaining and Servicing:

- > Never attempt to repair 3D Vision Pro yourself. 3D Vision Pro does not contain any user-serviceable parts. Do not attempt to open your stereo glasses and the emitter box, disassemble them, or remove the battery. You run the risk of electric shock and voiding the limited warranty.
- > To clean stereo glasses system, turn stereo glasses off. Then use a soft, slightly damp, lint-free cloth. Avoid getting moisture in openings. Don't use window cleaners, household cleaners, aerosol sprays, solvents, alcohol, ammonia, or abrasives to clean stereo glasses system. Disposing of 3D Vision Pro properly
- > Upon completion of any service or repairs to the product, have your authorized service provider perform any safety checks required by the repair procedure or by local codes to determine that the product is in proper operating condition.
- >

Power Rating

- > 3D Vision Pro Hub, P753: 5V DC, 200mA
- > 3D Vision Pro Glasses, P703: 5V DC, 100mA

Precaution for Communication Cable

To reduce the risk of exposure to shock hazard from communication cable:

- > Do not connect communication cable during a lightning storm. There may be a remote risk of electric shock from lightning.
- > Do not connect or use communication cable in a wet location.
- > Disconnect the communication cable before opening a product enclosure, touching or installing internal components.

Notice

ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS, AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NON INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE.

Information furnished is believed to be accurate and reliable. However, NVIDIA Corporation assumes no responsibility for the consequences of use of such information or for any infringement of patents or other rights of third parties that may result from its use. No license is granted by implication or otherwise under any patent or patent rights of NVIDIA Corporation. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. NVIDIA Corporation products are not authorised for use as critical components in life support devices or systems without express written approval of NVIDIA Corporation.

WEEE Warning Message

Symbol for Separate Collection in European Countries. This symbol indicates that this product is to be collected separately.

The following apply only to users in European countries:

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the retailer or the local authorities in charge of waste management.



Trademarks

NVIDIA, the NVIDIA logo, GeForce, and nForce are trademarks or registered trademarks of NVIDIA Corporation. Other company and product names may be trademarks of the respective companies with which they are associated.

Copyright

© 2008, 2009, 2010 NVIDIA Corporation. All rights reserved.

