USB Display Adapter

User's Manual

Safety Instructions

Always read the safety instructions carefully

- Keep this User's Manual for future reference

- Keep this equipment away from humidity

- If any of the following situation arises, get the equipment checked by a service technician:

  - The equipment has been exposed to moisture.

  - The equipment has been dropped and damaged.

  - The equipment has obvious sign of breakage.

  - The equipment has not been working well or you cannot get it work according to User's Manual.

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August 2007, Ver 02

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1. Introduction

This USB Display Adapter enables you to connect one more monitor, LCD or projector to a computer with a USB 2.0 port. For desktop users adding an extra monitor via USB connection is easier than ever without having to open the computer chassis to install an internal video card. Once the installation is done, the USB-attached monitor soon wakes up. No function key hassle to swap a second monitor.

With this handy adapter, you can enjoy many benefits brought by an add-on monitor. The most obvious one is that you get more desktop area to have more applications visible at one time. For example, you may work on one monitor while your family watch video on the other. No more stacking windows within the confines of a single display. Or you may span an application, e.g. spreadsheets, across two displays. What's more, the adapter is hot pluggable. If you are not using the extra monitor, just unplug the adapter at any time; no reboot needed.

System performance is an important issue when using multiple monitors. Another benefit of this adapter is that it uses little computer resource, ensuring users get quality display without comprising computer performance.

VGA or DVI monitor

USB-enabled computer
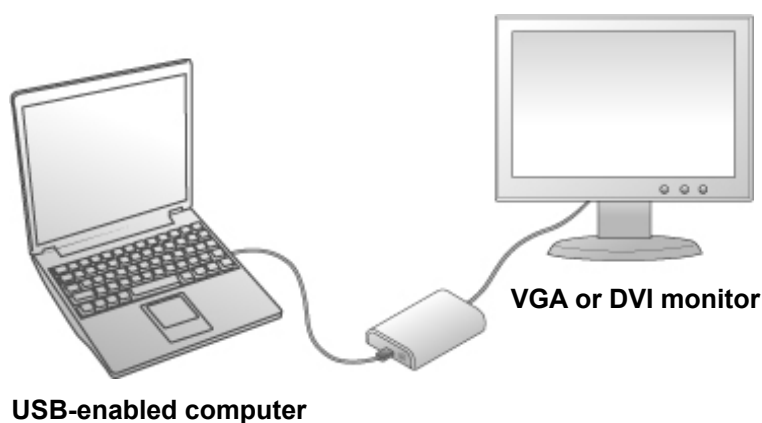
Applications

Office workstation

- View your large spreadsheets across two screens with display continuity
- Multitask more effectively without overlapping windows
- Edit on one screen while surfing the Internet information on the other

On the road

- Do multiple screen presentations without bringing another computer
- Easily provide multiple screen exhibitions in a trade show

Graphics workstation

- Use second display for palettes/tools
- Get a panoramic view of large documents

Editing workstation

- Type documents on one screen while viewing reference material on the other
- Compare two documents simultaneously across two screens

Financial analysis

- Have one monitor per data stream
- View charts and live data at the same time

Entertainment

- View videos/TV on one screen and reviews on the other
- Get additional perspectives when playing games

Features

- Add-on monitor, LCD or projector through a single USB 2.0 port
- Supports up to 2 USB display adapters to work simultaneously
- Plug & Play
- Hot-plug; add or remove monitor without system reboot
- Windows Vista compatible
- Resumes from hibernation and suspend modes

Package Contents

Before installation, please check the items in the package. The package should contain the following items:

- USB Display Adapter   x1
- Driver CD   x1
- USB Cable   x1
- Quick Installation Guide   x1
- DVI to VGA Adapter (Optional) x1

System Requirements

The minimum requirements for the PC are:

- With CPU at 1.2GHz or higher processor clock. Intel Pentium/Celeron family, or AMD K6/Athlon/Duron family, or compatible processor
- 256 MB of RAM
- At least one USB2.0 port
- 30Mb of available disk space
- Windows® 2000 SP4, XP SP2 32-bit, Vista™ 32-bit
- Super VGA (800 x 600) or higher resolution monitor

To play DVD on the adapter-attached monitor, in addition to the requirements above, the following requirements should also be met:

- With dual core CPU at 2.0 GHz processor clock
- The adapter screen resolution be set to 800x600 with 16bit color

2. Installation

Follow the procedures below to install the driver and then connect the adapter:

1. Insert the provided driver CD into your CD-ROM drive. The setup program will run automatically. If not, locate and double-click the **Setup.exe** file under the **Driver** folder on the CD.

    Notice for Windows Vista users:
    Windows Vista users will encounter a **User Account Control** dialog box when attempting to install a program. Enter an administrator password or click **Allow** to start the installation.
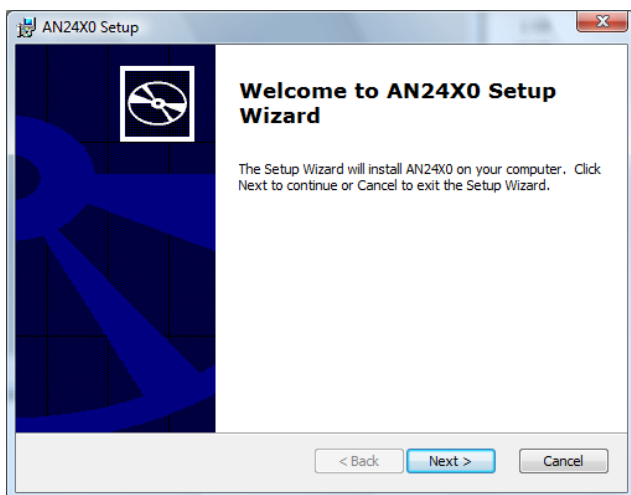
    When prompted with **Windows Security** dialog box, select **Install this driver software anyway**.

    Notice for Windows 2000 users:
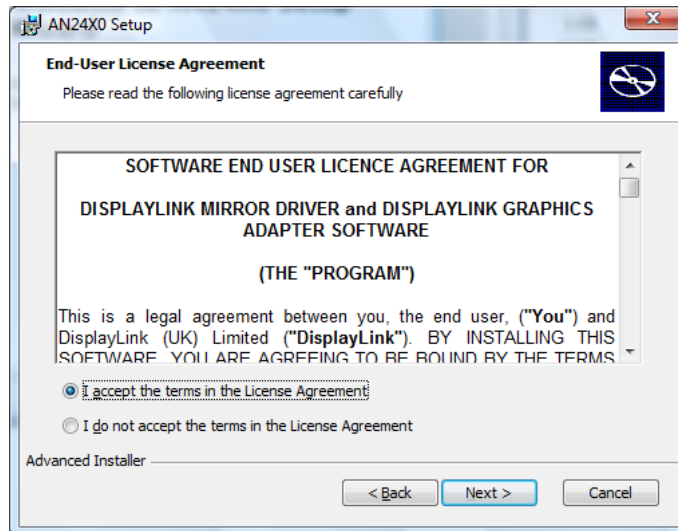   If the following message appears, please download and install the required patch first and then execute the **Setup.exe** file on the CD.
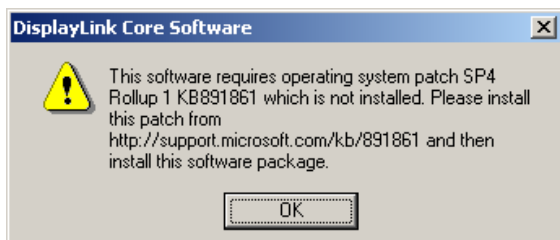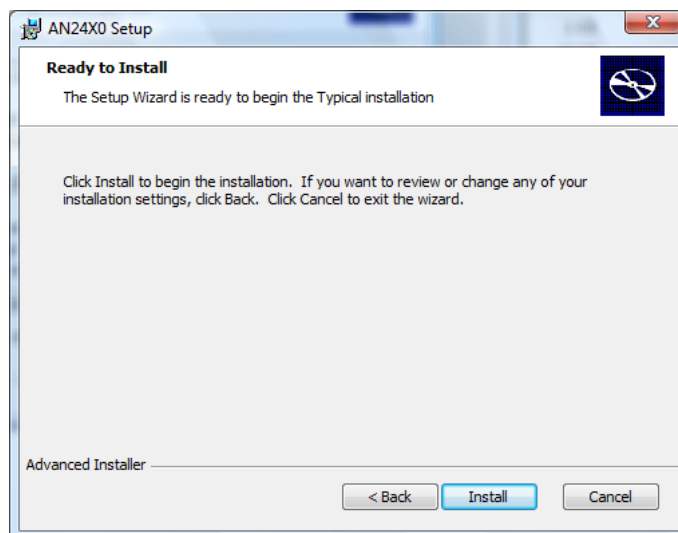

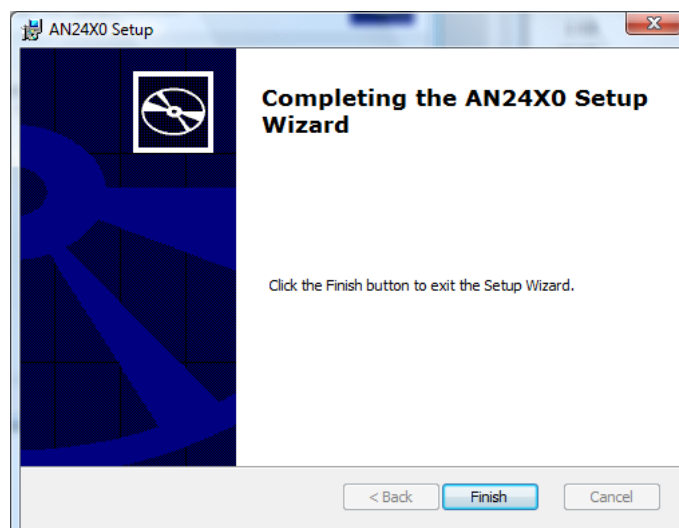2. When the welcome screen appears, click **Next**.

3. Select **I accept the terms in the License Agreement** and click **Next**.

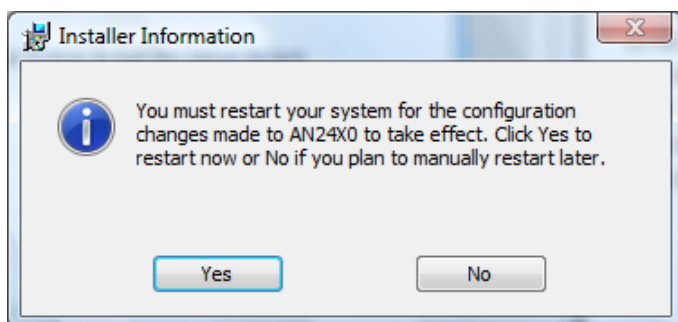4. Click **Install** to begin the installation.

5. Click **Finish** to complete the installation.

6. If prompted to restart your computer, click **Yes** to restart or **No** to manually restart later. Note that a reboot is always needed for a successful installation. If the reboot prompt doesn't appear, make sure to manually reboot your computer.

7. Connect the adapter to your computer and monitor.

   Connect the smaller end of the USB cable to the adapter. Then connect the other end of the USB cable to an USB 2.0 port on your computer.
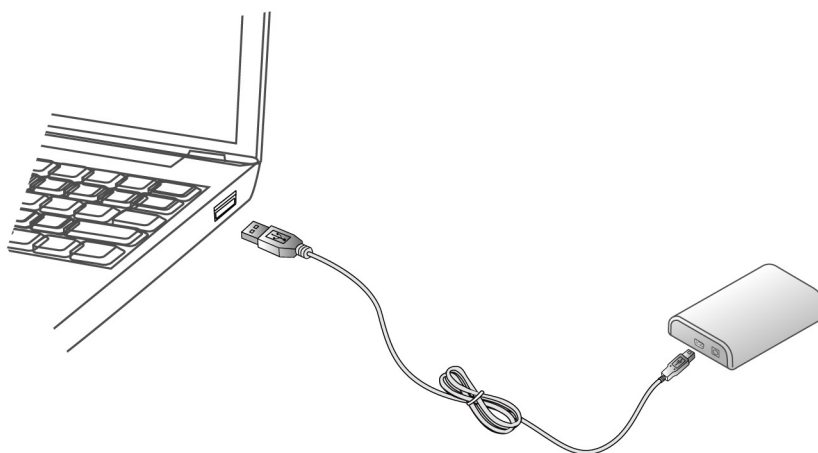
   If your monitor is not yet connected to the adapter, make the connection and power on your monitor.

   ■ **For VGA model:** Use a VGA cable (not provided) to connect the VGA jack to a monitor equipped with VGA input jack.
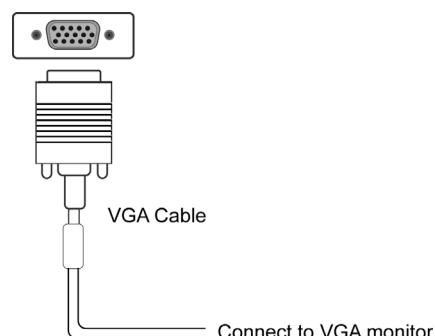
   ■ **For DVI model:** The equipped DVI-I (DVI-Integrated) connector transmits both the digital and analog signals. This means it supports either of these two connection types:

- It can be connected to a DVI-D (digital) monitor using a DVI cable (not provided)

- Or, it can be connected to an analog VGA monitor using the privided DVI-I to VGA adapter and a VGA cable (not provided).

DVI to VGA Adapter

VGA Cable

DVI Cable

Connect to DVI monitor

Connect to VGA monitor

8. After you connect the adapter, Windows will automatically complete the installation.

9. Once the installation is done, an extended screen will appear on the add-on monitor.
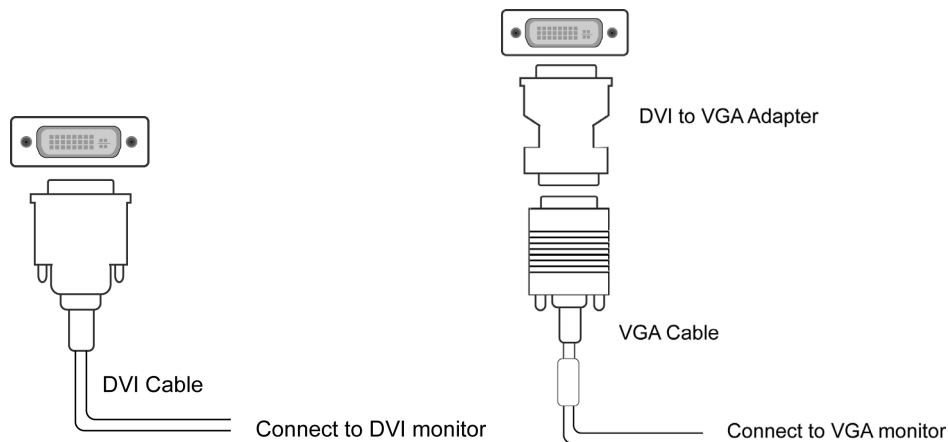
   For Windows Vista, if the add-on monitor is blank, please reboot your system again.

   If required, you can connect and disconnect the add-on monitor any time without disconnecting the adapter from the USB port on your computer.

To change the display mode, see next chapter for instructions.

■ During the installation, it's normal that the screen flicks black a couple of times.

■ Sometimes it takes time for the add-on monitor to show the video.

3. Using the Adapter

Display Modes

There are several ways you can utilize the monitor attached on the adapter. The add-on monitor can be configured to use either "mirror mode", "extended mode" or be the primary display as described in this section.

Extend Your Windows Desktop to Add-on Monitor (Default)

In this so-called "extended mode", your display will be spread over the add-on monitor(s). This mode allows you to perform multiple tasks more effectively without overlapping windows.
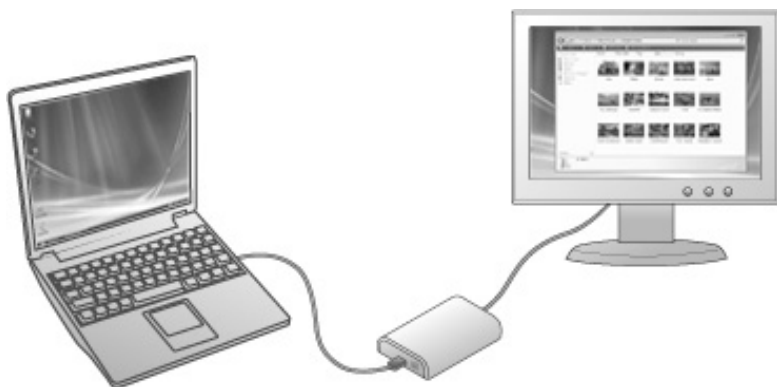
Extended mode is the default setting. To set up the adapter to use or restore extended mode, follow these steps:

1. Position the mouse anywhere on your computer desktop, right-click and select **Personalize** > **Display Settings** on Vista or **Properties** > **Settings** on XP/2000.
2. In the **Display** drop-down menu, select the option with the string "**DisplayLink Graphics Adapter**".
3. Check the **Extend the desktop onto this monitor** box on Vista or **Extend my Windows desktop onto this monitor** box on XP/2000.
4. Drag the icons in the window at the top of the screen to match the physical arrangement of your primary monitor and add-on monitor.

The add-on monitor connected to the adapter may be identified as either "2" or "3", depending on your computer, although there may not be a total of 3 screens connected.

5. Click **OK** to close the settings screen.
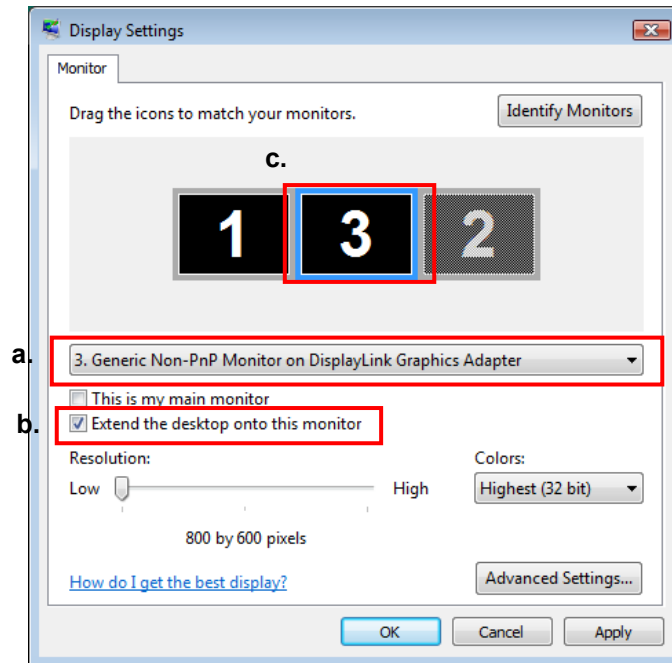
Once the setting is done, to use your extended desktop, simply drag and drop your open windows over to your second monitor. However, note that some applications may not support display on the extended desktop.

Cursor disappeared ?

If you're in extneded mode but the add-on monitor is not connected, the desktop still pans to the add-on monitor and it's possible that your cursor has moved to the extended desktop so that you cannot find it on the primary display. To solve the problem in such a case, connect the add-on monitor to the adapter or keep moving your mouse to try or unplug the adapter first to restore the cursor.

Video and DVD Playback in Extened Mode

On Windows Vista with extended mode, it's suggested that you run video or DVD playback programs on your primary monitor instead of the add-on monitor to ensure the playback performance.

Mirror Your Windows Desktop

This mode is referred to as "mirror" or "clone" mode. In this mode, your original screen (the primary display) will be mirrored to the add-on monitor.
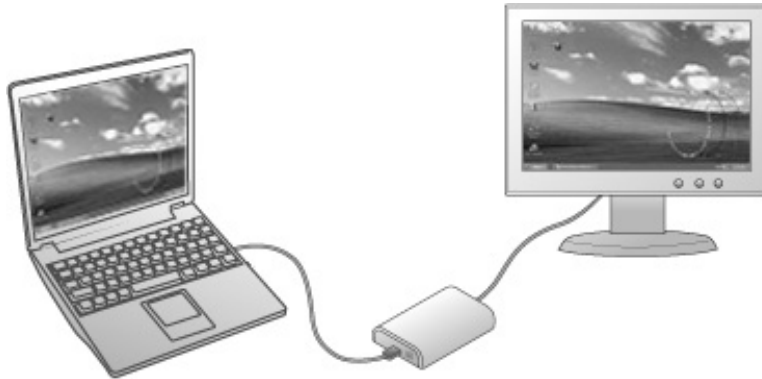
In mirror mode, the adapter will automatically select the settings (screen resolution, color quality and refresh rate) for the add-on monitor. But you can manually adjust the settings as required. However, the settings of the add-on monitor are limited by that of the primary monitor. For example, even though your add-on monitor supports a resolution of up to 1680x1050, you can only configure it to use 1280x1024 due to the primary monitor only supports a resolution of up to 1280x1024.

If you change the video output to extended mode and then want to switch back to mirror mode, follow these steps:

1. Position the mouse anywhere on your computer desktop, right-click and select **Personalize** > **Display Settings** on Vista or **Properties** > **Settings** on XP/2000.

2. In the **Display** drop-down menu, select the option with the string "**DisplayLink Graphics Adapter**".

3. Uncheck the **Extend the desktop onto this monitor** on Vista or **Extend my Windows desktop onto this monitor** on XP/2000.

4. Click **OK** to close the settings screen.

Be the Primary Monitor

To make the add-on monitor the primary display:

1. Position the mouse anywhere on your computer desktop, right-click and select **Personalize** > **Display Settings** on Vista or **Properties** > **Settings** on XP/2000.

2. In the **Display** drop-down menu, select the option ends with **DisplayLink Graphics Adapter**.

3. Check the **This is my main monito**r box on Vista or **Use this device as the primary monitor** box on XP/2000.

   On some PCs and laptops it is necessary to disable the main display (i.e. uncheck the **Extend the desktop onto this monitor** or **Extend my Windows desktop onto this monitor** box for the main display) as part of the same settings change.

4. Click **OK** to close the settings screen.

The add-on monitor stays primary if the PC enters hibernate or suspend mode or is rebooted. If the add-on monitor is unplugged, the main display becomes primary again.

Adjusting Resolution, Color Depth and Refresh Rate

There are three components that make up the screen mode:

Resolution: In common usage, this refers to the number of pixels displayed on screen horizontally and vertically.

Color Depth: This defines the number of different colors that can be shown on the screen at the same time.

Refresh rate: Measures the speed that the entire screen is rescanned. Higher frequencies reduce flicker.

Some monitors advertise the supported modes through the video connector. If this is the case, the adapter identifies the supported modes from the monitor. If the monitor does not advertise the supported modes, the adapter software chooses a set of common screen modes for the monitor.

The software supports the modes listed below.

Color Depth / Resolution	Refresh rates available at 16 bit color quality	Refresh rates available at 32 bit color quality
640x480	60 72 75	60 72 75
800x600	56 60 72 75 85	56 60 72 75 85
1024x768	60 75 85	60 75 85
1280x960	60 85	60 85
1280x1024	60 75 85	60 75
1360x768	60	60
1366x768	60	60
1368x768	60	60
1400x1050	60 75 85	60 75 85
1440x900**	60	60
1600x1200**	60	60
1680x1050**	59 60	59 60
1920x1080**	60	60
1920x1200**	59 60	59 60
1920x1440**	75	

*Note that interlaced modes are not supported.

**Only supported by 1600x1200 model.

About the resolutions and refresh rates available to users

The resolutions and refresh rates available to the user through Windows are a comprise of the support from the following elements:

■ The USB display adapter

■ The primary monitor and the add-on monitor

■ The primary video card on your computer and installed drivers

Therefore, for example, if your monitor doesn't support a resolution of 1600x1200, then 1600x1200 is not possible even you are using a USB display adapter with 1600x1200 support. This ensures that the monitor cannot be put into an unsupported mode, which might damage it.

If cloning the primary display, the video component will try to use the preferred monitor mode. In some cases, this may not be the most appropriate mode for the cloned desktop. It is recommended that the primary display resolution be changed to closer match the default resolution of the add-on monitor.

To configure the three components (resolution, color depth and refresh rate) of a screen mode, follow these steps:

1. Position the mouse anywhere on your computer desktop, right-click and select **Personalize** > **Display Settings** on Vista or **Properties** > **Settings** on XP/2000.
2. In the **Display** drop-down menu, select the option ends with **DisplayLink Graphics Adapter**.
3. To change the screen resolution or color quality, select those options on the screen. Be sure to select one of the supported resolutions and color quality numbers in the table above. For an add-on monitor, you can also select any resolution or color quality supported by that monitor.
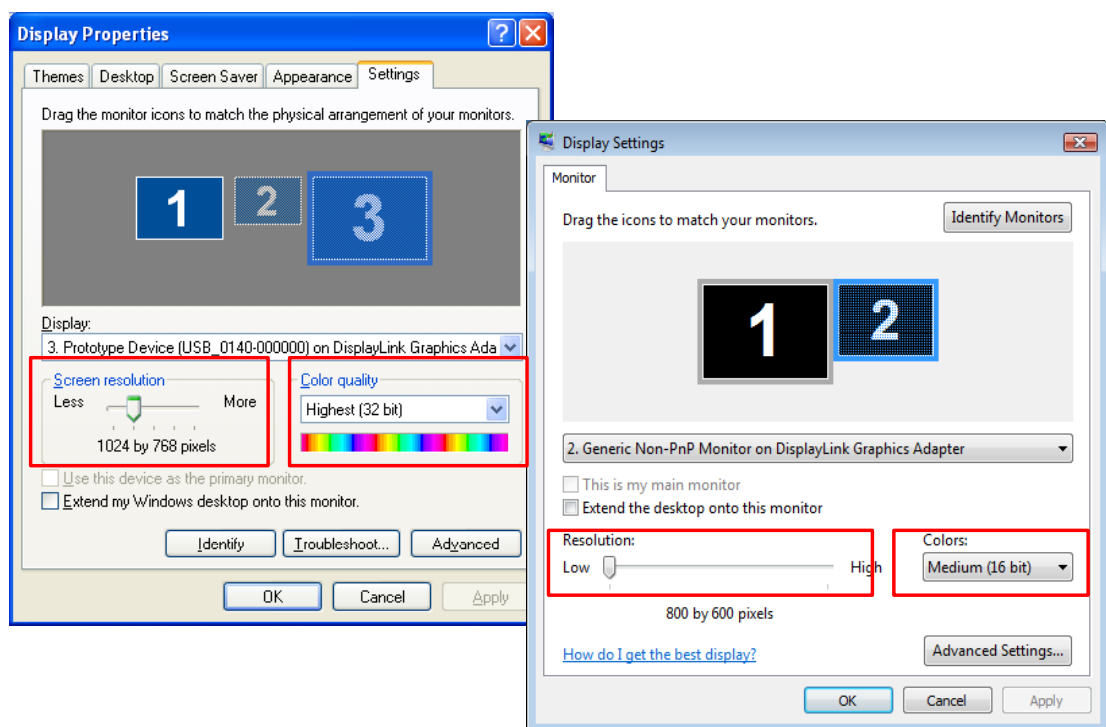

4. To change the refresh rate, click **Advanced…** and then click **Monitor**.
5. Select a refresh rate from the **Screen** refresh rate drop-down list and then click **Apply**.
6. Click **OK** to close the settings screen.
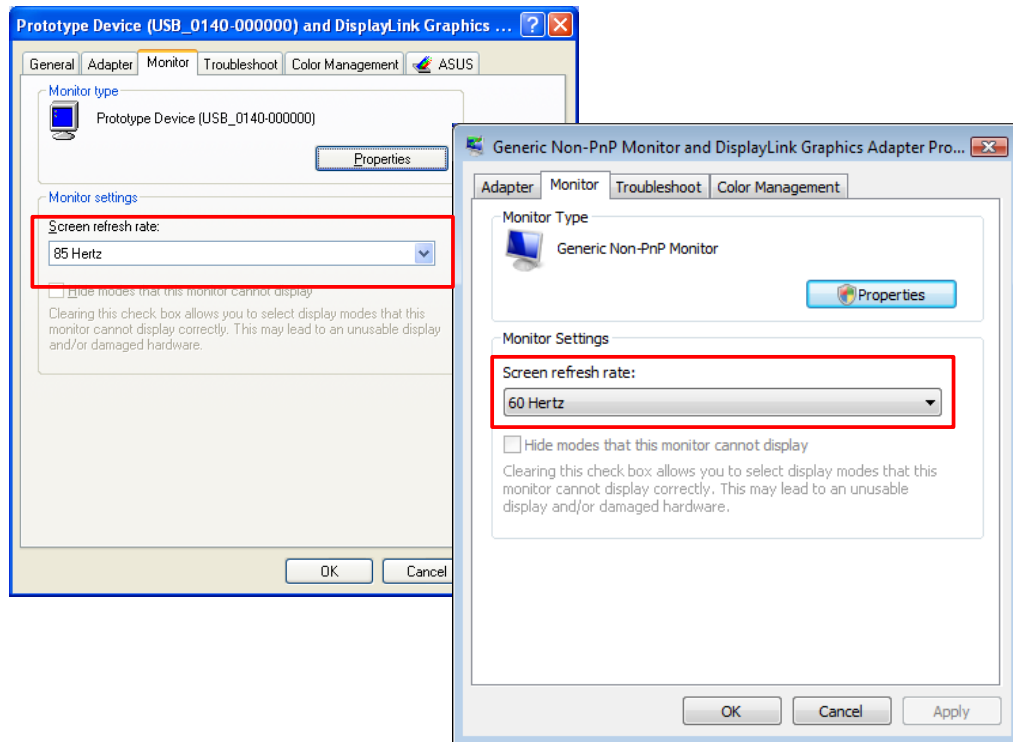
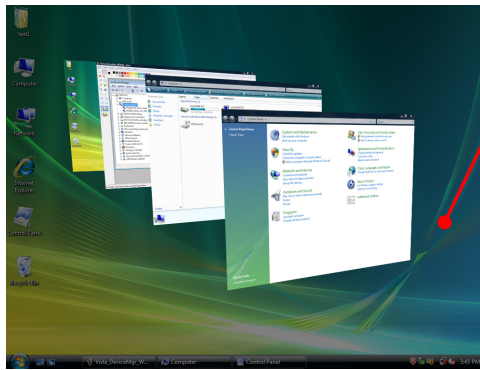# Effects on Vista Aero Interface

On Windows Vista, after you install the USB display adapter the original Vista Aero interface (if enabled) will be disabled. You will be warned that that color scheme has been changed when finishing the adapter installation. But if you unplug or uninstall the adapter, the system will automatically resume the Aero Glass look.

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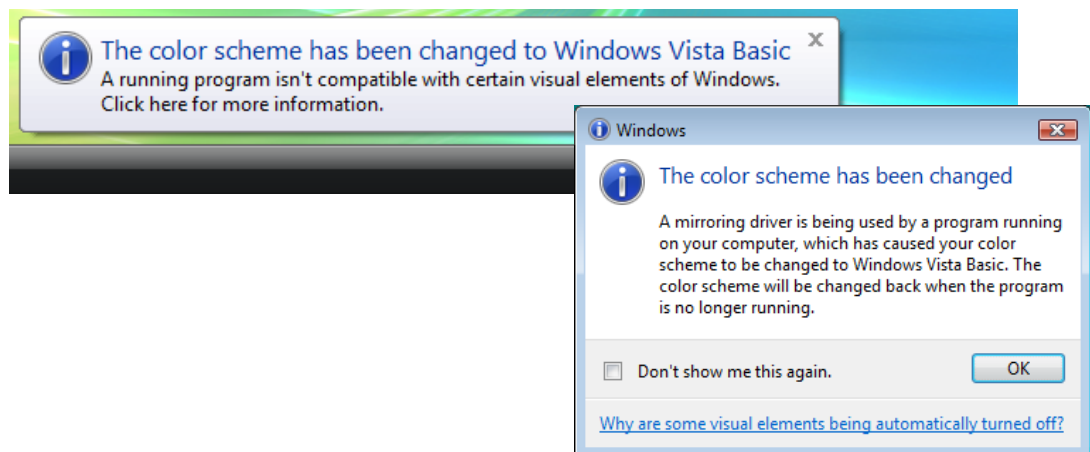
The flip 3D effect will be automatically disabled when the adapter is in service. But if you unplug or uninstall the adapter, the system will automatically resume the 3D effect.

Standby and Hibernate, Shut Down and Restart

When the adapter is connected to a computer and an external monitor, if the computer goes into standby or hibernate mode, the external monitor display goes blank.

When the computer returns to an active state, the external monitor display keeps the same settings it had before the computer went into standby or hibernate mode. However, if the add-on monitor was set for extended mode, windows that were previously on the external monitor will not move back to that secondary monitor. Also, if the add-on monitor is in extended mode and the computer requires a login after standby or hibernate mode, the login screen appears on the primary computer monitor, not the external monitor.

If the computer is shut down, restarted and logged in, again the add-on monitor returns to the same mode as it was before shutdown.

Disconnecting the Adapter

If the adapter is unplugged from the computer, the add-on monitor goes blank. All windows and icons move to the primary screen.

On reconnection of the adapter, the adapter returns to the same mode as it was before disconnection. However, windows and icons that were previously on the screen will not be moved back.

Using Dual Adapters

Up to two adapters can be simultaneously attached to one computer. To use two adapters:

1. Install the driver as described in the "2. Installation" section and connect the first adapter to your computer.

2. Then connect the second adapter to your computer. The system will automatically complete the installation.

While two adapters are connected to a computer, in most cases both adapters supports extended and mirror modes. The only exception is on Windows Vista XDDM mode as described below.

Limitation for dual adapters on Windows Vista in XDDM mode: In this mode one extended screen and one mirrored screen is supported. Only the first connected adapter can be configured to use extended mode; the second adapter is forced to use mirror mode. When you bring out the Windows display settings dialog box, you will find that only one **…DisplayLink Graphics Adapter** (representing your first attached adapter) is configurable.

What is Vista XDDM mode?

XDDM refers to Windows XP Driver Mode. It is a video card driver mode used in some legacy computers that running the new generation Vista OS. It provides an interface similar to Windows XP user Interface on Vista and one of its characteristics is that it doesn't support Windows Aero interface. To see current display video driver mode, right-click **Computer** on the desktop and select **Device Manager**. Then expand the **Display adapters** item.
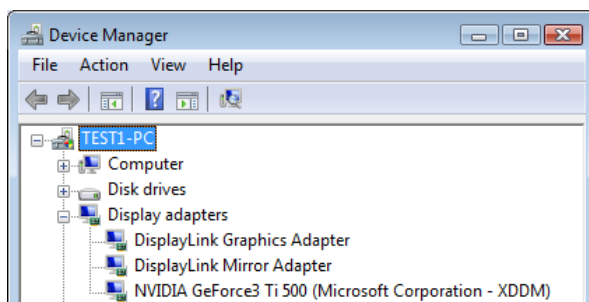
Uninstall the Adapter and Driver

If for any reason you want to uninstall the video adapter and its driver, please take these steps:

1. Open the **Control Panel** and double-click **Programs and Features** on Vista or **Add or Remove Programs** on XP/2000.

2. Select **AN24X0** and click **Uninstall** or **Remove**.
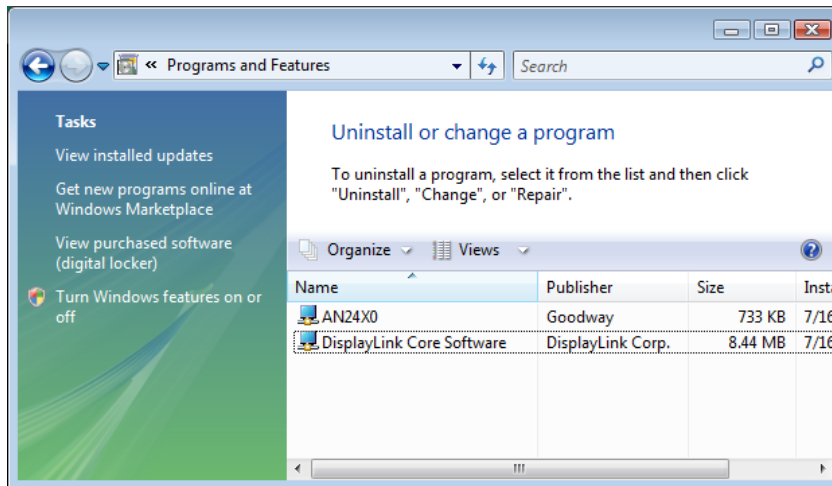
3. Click **Yes** to confirm the removal. During the removal process a couple of DOS windows will pop up.
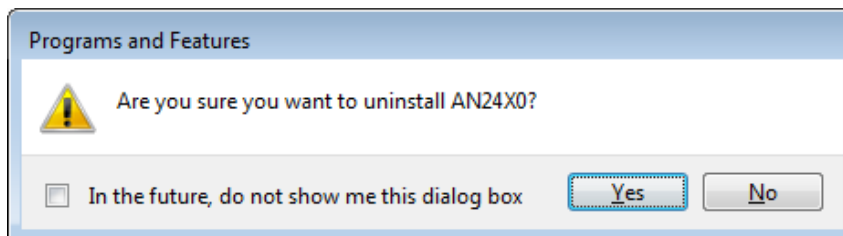
4. Click **Yes** to restart your computer and then unplug the adapter now.

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4. Troubleshooting

Q1: The display on the add-on monitor is blank.

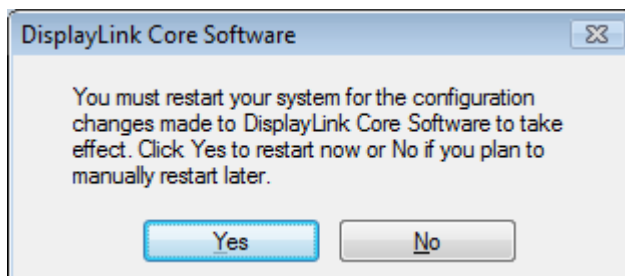**A:** If the monitor power LED is green (in most cases), wait a moment for the monitor to show the video as sometimes it takes time for the add-on monitor to show the video. You can also reboot your system to try again. Also make sure the computer is not in standby or hibernation mode, which will lead the add-on monitor to be blank.

If the monitor power LED is red (in most cases), check if the connection is properly made. If problem still exists, uninstall the driver, unplug the adapter and reinstall the driver to try again.

Q2: The add-on monitor is flickering.

A: This is usually caused by a low refresh rate. To solve this problem:

- In mirror mode, increase the refresh rate of the main monitor. This will in turn increase the refresh rate of the add-on monitor.
- In extended mode, increase the refresh rate of the add-on monitor.

Q3: When I play MPEG file by Windows Media Player on the extended monitor, how come the display becomes abnormal when I switch it to full screen mode?

A: If your system is Windows XP SP1, we suggest you upgrade it to SP2 to solve this problem.

Q4: When playing the video in full screen mode, the motion is not smooth.

A: Try the following tips to improve the smoothness of the movie playback:

- Reduce the resolution of the display to 640x480 or 800x600.
- Use the adapter in extended mode.
- Terminate any other CPU intensive applications running on the computer.

If you still have issues playing media content on the adapter, try the following steps:

- As some media players require DirectX hardware support to correctly operate, try a different media player which requires less DirectX support.

- Drag the media player to the add-on screen and close the player. Restart the player and it should open on the add-on monitor. Now try playing the media file again.

- Try reducing the hardware acceleration level of the primary display (NOT the add-on monitor) to levels 1,2 or 3 and restarting the media player. The hardware acceleration can be found by right-clicking on your desktop and click **Properties** > **Settings** > **Advanced** > **Troubleshoot**. Some players use this setting even when playing on a different display.

- The video playback may be unusual when the add-on monitor is mirroring the primary display and there is another extended screen connected to the computer. The extended screen must be disabled before the content will be correctly cloned to the add-on monitor.

Q5: In extended mode, the add-on monitor appears to have a black border around the desktop.

A: This happens when the resolution used by the add-on monitor is larger than the resolution used by the primary monitor. To solve this problem, configure the add-on monitor to use the same resolution as the primary monitor.

5. Specifications

Host Interface	USB 2.0
Video Interface	VGA or DVI-I
Connectors	**Video output:** VGA HDDE 15pin Female Connector Or DVI-I 24pin + 5pin Female Connector **Host upstream link:** USB Mini-B Type Female Connector
Connectivity	Up to 2 adapters on a computer
RAM	8M x 16 DDR Synchronous DRAM (SDRAM)
Power Mode	Bus-powered
Operation System Support	Windows 2000 SP4, XP SP2 and Vista 32-bit
Supported Modes	Extended Desktop (Default), Mirrored Desktop, Primary Display

Resolutions, Refresh rate and color depth

Resolution / Color Depth	Refresh rates at 16 bit color quality	Refresh rates at 32 bit color quality
640x480	60 72 75	60 72 75
800x600	56 60 72 75 85	56 60 72 75 85
1024x768	60 75 85	60 75 85
1280x960	60 85	60 85
1280x1024	60 75 85	60 75
1360x768	60	60
1366x768	60	60
1368x768	60	60
1400x1050	60 75 85	60 75 85
1440x900**	60	60
1600x1200**	60	60
1680x1050**	59 60	59 60
1920x1080**	60	60
1920x1200**	59 60	59 60
1920x1440**	75	

*Note that interlaced modes are not supported.

**Only supported by 1600x1200 model.

Housing	Plastic
Dimensions	84.3 (L) x 54 (W) x17.8 (H) mm
USB Cable	• Separated from the body • Type: USB A -Type Male to 5pin Mini USB B-Type Male • Color: Black • Length: 1M
Operating temperature	10-40°C
Storage temperature	-10~80°C
Relative Humidity	< 85% non-condensing
EMC	• FCC Part 15 Class B, IC ICES-003 • CE (EN55022, EN61000, EN55024)
RoHS	RoHS compliant

* Specifications are subject to change without notice.

6. Regulatory Compliance

FCC Conditions

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference received. Including interference that may cause undesired operation.

Important! Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment. Use an approved phone set.

CE

This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B

WEEE Information

For EU (European Union) member users:
According to the WEEE (Waste electrical and electronic equipment) Directive, do not dispose of this product as household waste or commercial waste. Waste electrical and electronic equipment should be appropriately collected and recycled as required by practices established for your country. For information on recycling of this product, please contact your local authorities, your household waste disposal service or the shop where you purchased the product.