# INFORMATION SHEET No. 2.2

## Installers Preparations and OS Installation Procedures

An operating system is the most important software that runs onacomputer. It manages the computer's memory and processes, as well as all of its software and hardware. It also allows you to communicate withthecomputer without knowing how to speak the computer's language. Without anoperating system, a computer is useless.

**Computer Operating System** is a computer programor softwarethat is needed by the computer to function properly. OS also provides a graphical user interface (GUI) to the user so it can easily be used to operate. OperatingSystem also requests the task to the hardware to do whatever theuser instructs to the machine such as printing etc.
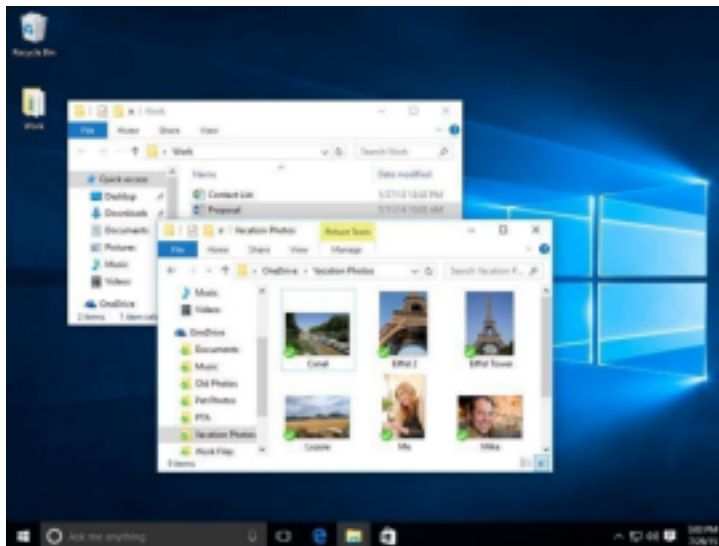
**The Operating System's Job**

Your computer's operating system (OS) manages all the softwareandhardware on the computer. Most of the time, there are several different computer programs running at the same time, and they all need to access your computer's central processing unit (CPU), memory, and storage. Theoperating system coordinates all of this to make sure each programgets what it needs.

Some common operating systems:

**Types Of Operating Systems**

Operating systems usually come pre-loaded on any computer youbuy. Most people use the operating system that comes with their computer, but it'spossible to upgrade or even change operating systems. The threemost common operating systems for personal computers are Microsoft Windows,



macOS, and Linux.

Modern operating systems use a graphical user interface, or GUI (pronouncedgooey). A GUI lets you use your mouse to click icons, buttons, and menus, andeverything is clearly displayed on the screen using a combination of graphicsand text.

Each operating system's GUI has a different look and feel, so if you switchtoadifferent operating system it may seem unfamiliar at first. However, modernoperating systems are designed to be easy to use, and most of thebasicprinciples are the same.

**Microsoft Windows**

Microsoft created the Windows operating system in the mid-1980s. Therehavebeen many different versions of Windows, but the most recent onesareWindows 10 (released in 2015), Windows 8 (2012), Windows 7 (2009), andWindows Vista (2007). Windows comes preloaded on most newPCs, whichhelps to make it the most popular operating systemintheworld

**macOS**

**macOS** (previously called **OS X**) is a line of operating systems createdbyApple. It comes preloaded on all Macintosh computers, or Macs. Someof thespecific versions include **Mojave** (released in 2018), **High Sierra** (2017), and **Sierra** (2016).

According to **StatCounter Global Stats**, macOS users account for lessthan **10%** of global operating systems—much lower than the percentageof Windows users (more than **80%**). One reason for this is that Apple computerstend to be more expensive. However, many

people do prefer the look andfeel of macOS over

Windows.
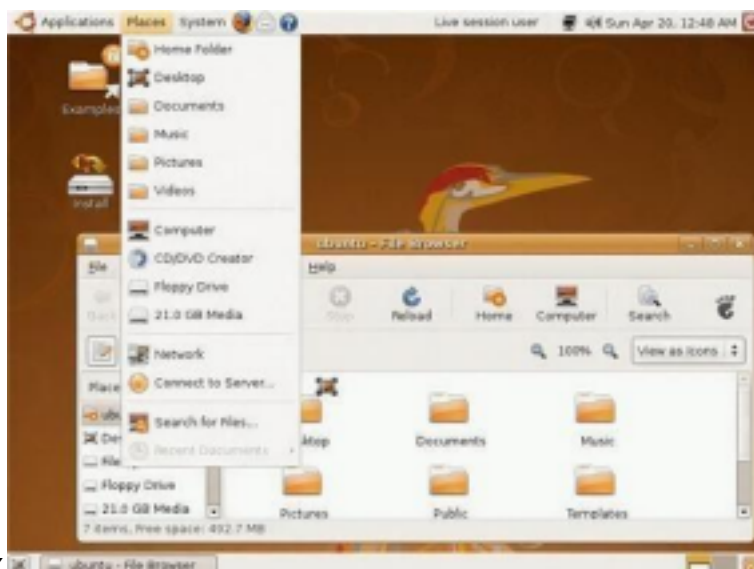




**Linux**

 **Linux** (pronounced **LINN-ux**) is a family of **open-source** operating systems, which means

they can be modified and distributed by anyone around theworld. This is different from

**proprietary software** like Windows, which can onlybemodified by the company that owns it.

The advantages of Linux arethat it is **free**, and there are many different **distributions**—or

versions—youcanchoose from.

According to **StatCounter Global Stats**, Linux users account for lessthan **2%** of

global operating systems. However, most **servers** runLinuxbecause it's relatively easy to customize.

**Operating Systems For Mobile Devices**

The operating systems we've been talking about so far were designedtorunon **desktop** and **laptop** computers. **Mobile devices** such as **phones**, **tablet computers**, and **MP3 players** are different from desktop and laptopcomputers, so they run operating systems that are designed specificallyfor mobile devices. Examples of mobile operating systems include **AppleiOS** and **Google Android**. In the screenshot below, you can see iOSrunningon
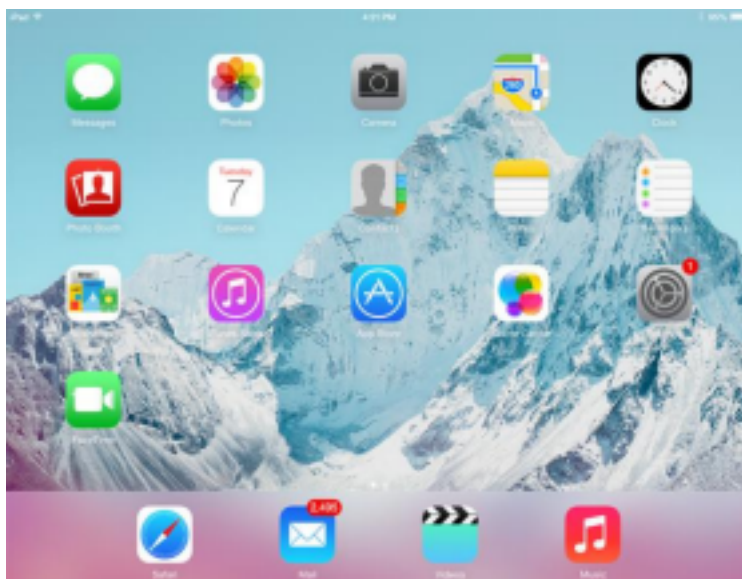
 an iPad.

Operating systems for mobile devices generally aren't as fully featured as those made for desktop and laptop computers, and they aren't able to runall of the same software. However, you can still do a lot of things with them, likewatch movies, browse the Web, manage your



calendar, and play games.

**How to Prepare your Installer and Program 1.**

**Check your system requirements**

**2.**

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Confirm that your computer meets the minimum systemrequirementsfor that product.

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*Note: If you are running Windows, make sure to download/install the versionthat matches your operating system (32-bit or 64-bit).*

2. **Make sure about the legitimacy**

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In some operating systems activation is usually automatic. However, if you are prompted for your serial number and product key beforeyoucan run the product, you can find the information you need in your CDcase or package.

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*Note: Product key and serial number is important so make sure that youkeepit.*

**Computer Preparation Procedures**

How to prepare a computer prior to operating system installation?

Step 1: Check the computer if all physical connections are intact. Step 2: Make sure that the computer is properly connected to thepower source.

Step 3: Make sure every personal files in the computer is backed-up using backupsoftware or my

simply copying all the personal files to a USB flash drive/ USBexternal drive, network drive or to another partition of a computer. Step 4: After backing up, create a bootable CD / DVD / USB operating systeminstaller.

### How to Install an Operating System?

The steps for installing an operating system, like Linux or Microsoft Windows, depends on the operating system version you are installing. Eachversion has different steps and options that are unique to that operatingsystem.

### General Steps and Guidelines for Installing an Operating SystemonYour Computer.

**Purchase the operating system** First, you need to purchase the operating system that you want toinstall on the computer. The best place to purchase the operating systemfromisaretail store, like Best Buy, or through an online store, like Amazon or Newegg. The operating system may come on multiple CD or DVD discs, or it may evencome on a USB flash drive.

Downloading a copy of the operating system is usually themost convenient way to obtain it. However, be sure you obtain the operating systemfrom the publisher, like Microsoft. Downloading it from another sourcemayresult in an unusable or illegal copy of the software.

### Install the operating system

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To install the operating system on the computer **using a CDor DVD**, you need to configure your computer to boot from the CD/DVDdrive. You can change the boot sequence by accessing the computer BIOSand setting the CD/DVD drive to be the first boot device. Somecomputers may also allow you to access the boot sequence directlyat computer start up, without entering the BIOS, by pressing a specifickeyon the keyboard. The key to press differs for each computer but is ofteneither the Delete key or one of the function keys at the top.

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If the operating system software came on a USB flash drive, youneedto configure the computer to boot to a USB device as the first boot device.

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Once the computer is configured to boot to the proper device, thecomputer should load the operating system installation programandguide you through the install process. You will be asked questions alongthe way for configuration of basic settings, like date and time, user account name, and if you want to enable automatic operating systemupdates. Go through the installation steps, answering questions andselecting the preferred options.

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*Note: If you are installing a newer version of an operating systemthat isalready on your computer, the installation process should ask if you want toupgrade. If you do not want to install the operating system as an upgrade, youcan choose the option to erase the current operating systemstart fresh.*

**Running the operating system**

After the operating system has been installed, the computer shouldloadinto the operating system. You may then proceed with installing softwareprograms that you want on the computer and updating any settings you want.

# INFORMATION SHEET No. 1.5

## Basic Computer Configuration Set-Up

**Configuration** is the way a system is set up, or the assortment of components that make up the system. Configuration can refer to either hardware or software, or the combination of both.

**Basic Input / Output System (BIOS)**

The Basic Input Output System, usually referred to as BIOS, is softwarestored on a small memory chip on the motherboard.

BIOS instruct the computer on how to perform a number of basic functionssuch as booting and keyboard control. BIO is also used to identify andconfigure the hardware in a computer such as the hard drive, optical drive, CPU, memory, etc.
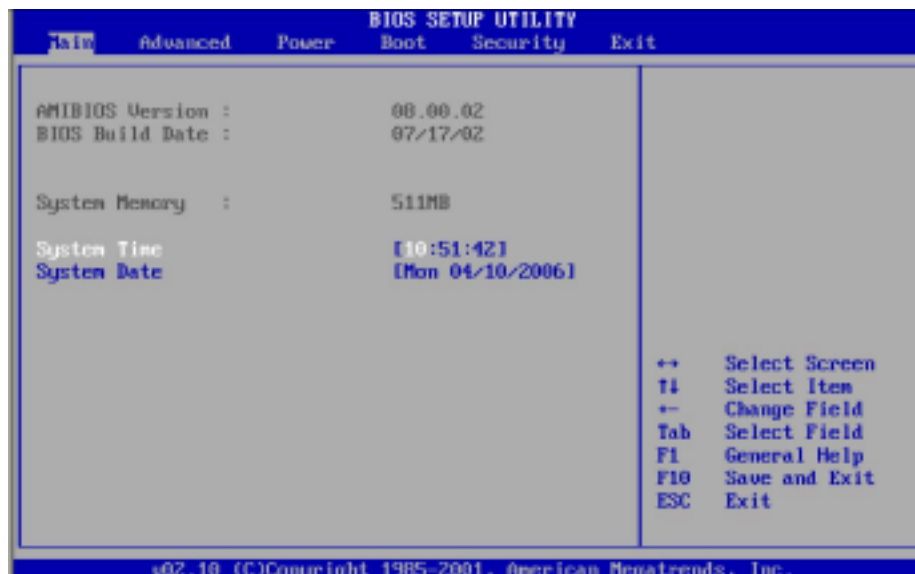
The BIOS is accessed and configured through the BIOS Setup Utility. The BIOS Setup Utility is, for all reasonable purposes, the BIOSitself. All available options in BIOS are configurable via the BIOS Setup Utility. TheBIOS Setup Utility is accessed in various ways depending on your computer or motherboard make and model.

BIOS access and configuration on PC systems is independent of anyoperating system because the BIOS is part of the motherboard hardware. It doesn't matter if a computer is running Windows 7, Windows Vista, WindowsXP, Linux, UNIX, or no operating system at all - BIOS functions outsideof theoperating system environment and is no way dependent upon it. BIOS contain a number of hardware configuration options that can be changedthrough the setup utility. Saving these changes and restarting the computer applies the changes to the BIOS and alters the way BIOS instructsthehardware to function. The following list shows the things you can do inmost BIOS systems:

| | |
|---|---|
| Change the Boot Order | Enable or Disable the Computer Logo |
| Load BIOS Setup Defaults | Enable or Disable the Quick Power On Self Test (POST) |
| Remove a BIOS Password | |
| Create a BIOS Password | Enable or Disable the CPU Internal Cache |
| Change the Date and Time | |
| Change Floppy Drive Settings | Enable or Disable the Caching of BIOS |
| Change Hard Drive Settings | |
| Change CD/DVD/BD Drive Settings | Change CPU Settings |
| View Amount of Memory Installed | Change Memory Settings |
| Change the Boot Up NumLock Status | Change System Voltages |

**TESTING INSTALLED EQUIPMENT / DEVICES (COMPONENTS)** You need to adhere to health and safety regulations as they will helptoprotect you and others and will avoid any unnecessary legal action for recklessand unsafe working practices. If you identify any health and safety problems, you should tell your line manager or the health and safety representativeimmediately.

The most basic test is to switch the system on to check it starts without errors. ICT professionals are also likely to use tools and utilities to checkthat all is well with the system after an installation.

**The Use of Diagnostic Tools in testing installed hardware componentsand other peripherals**

Diagnostic tools are used to test and diagnose equipment. Diagnostic toolsinclude the following:

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  Digital multimeter

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  Loopback adapter

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Toner probe

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**Software Tools**

Like hardware tools, there are a variety of software tools that canbeused to help technicians pinpoint and troubleshoot problems. Many of thesetools are free and several come with the Windows operating system.

**Disk Management Tools**

Software tools help diagnose computer and network problems anddetermine which computer device is not functioning correctly. Atechnicianmust be able to use a range of software tools to diagnose problems, maintainhardware, and protect the data stored on a computer.

You must be able to identify which software to use in different situations. Disk management tools help detect and correct disk errors, prepare a diskfor data storage, and remove unwanted files.

The following are some disk management tools:

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**FDISK:** A command-line tool that creates and deletes partitions onahard drive. The FDISK tool is not available in Windows XP, Vista, or 7. It has been replaced with the Disk Management tool.

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**Disk Management Tool:** Initializes disks, creates partitions, andformats partitions.

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**Format:** Prepares a hard drive to store information.

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**ScanDisk or CHKDSK:** Checks the integrity of files and folders onahard drive by scanning the file system. These tools might also checkthedisk surface for physical errors.

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**Defrag:** Optimizes space on a hard drive to allow faster accesstoprograms and data.

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**Disk Cleanup:** Clears space on a hard drive by searching for filesthat can be safely deleted.

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**System File Checker (SFC):** A command-line tool that scanstheoperating system critical files and replaces files that are corrupted.

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Use the Windows 7 boot disk for troubleshooting and repairing corruptedfiles. The Windows 7 boot disk repairs Windows system files, restores damagedor lost files, and reinstalls the operating system.·

**Configuration** is the way a system is set up, or the assortment of components that make up the system.

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**Drivers** are small software programs that help the operating systemuse or "drive" the device.

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**Device Drivers**

A **device driver** is a computer program that controls a particular **device**that is

connected to your computer. The main purpose of **device drivers**istoprovide abstraction by acting as a translator between a **hardware device**andthe applications or operating systems that use it.

When the operating system is successfully installed, you'll needtoconfigure the devices such as Video Cards, Network Interface Cards, SoundCards, etc. by installing the device drivers of each. In many cases, if Windowsrecognizes the device, drivers will be installed automatically. In some cases, generic drivers are installed so that the devices will work properly.

The procedures listed below describe how to obtain and install driversfor hardware devices on a Microsoft Windows 2000-based computer.

**OPERATION SHEET 3. 4 Obtaining and Installing Drivers for HardwareDevices Step 1: Determine the Hardware Manufacturer**

If you do not know the manufacturer of the device for which you want to install the driver, follow these steps to determine the manufacturer:

1.

On the desktop, rightclick **My Computer**, and then click **Manage**. 2.

1.

Under **System**

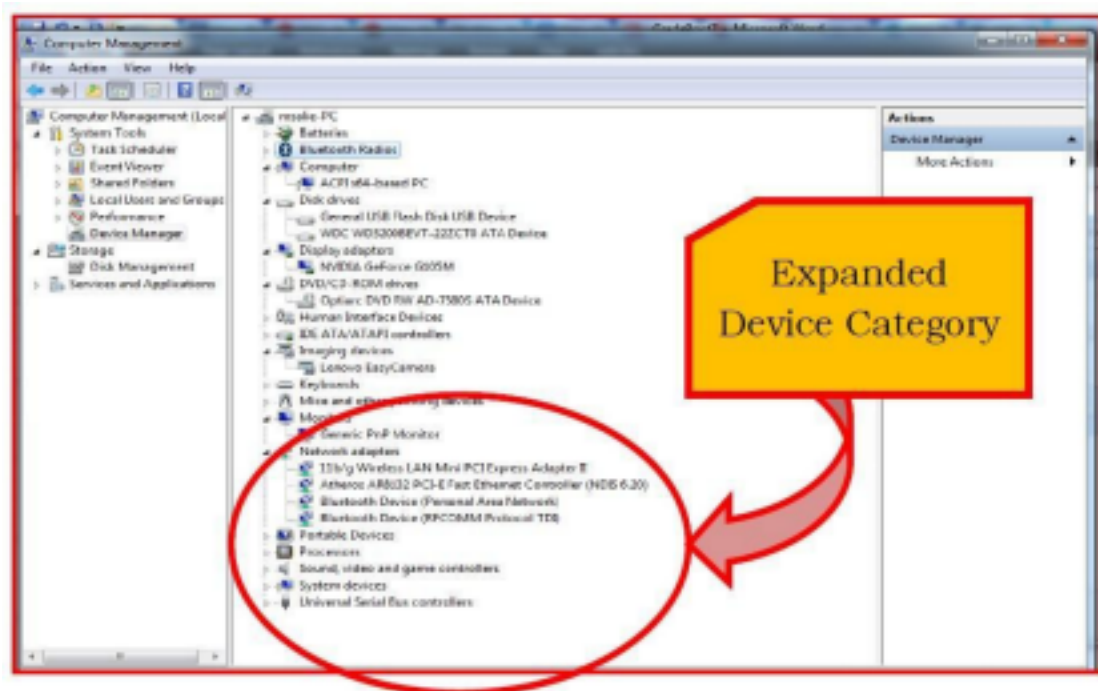2.

**Tools**, click **Device**

**Manager**. The devices that are installed on the computer is listed in the right pane.

1.

In the right pane, expand the category of the device that you want toconfigure. For example, expand **Display adapters**.
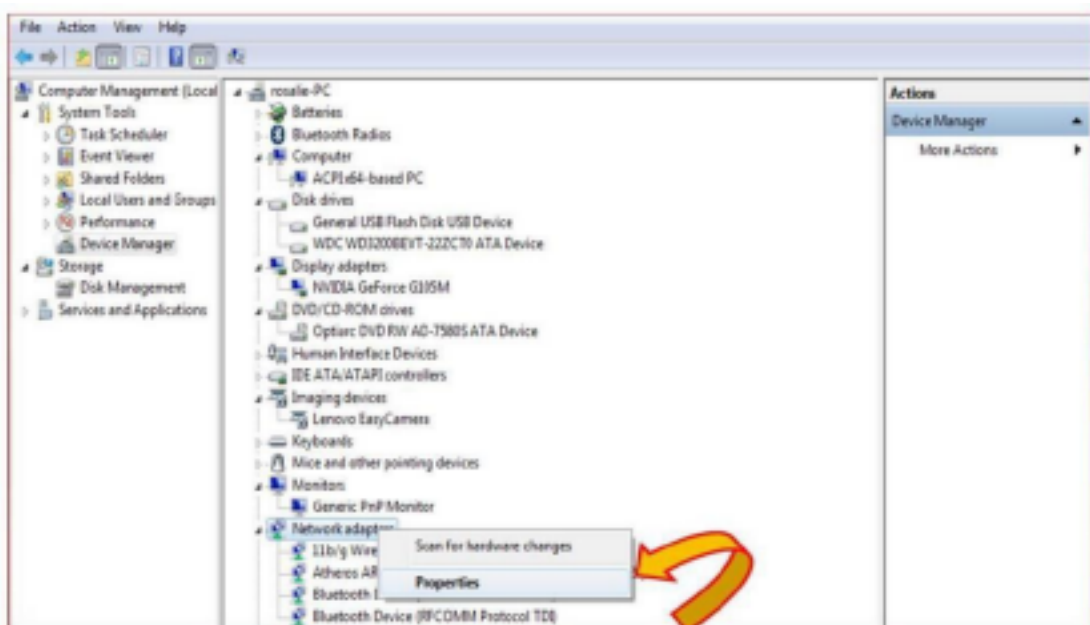
2.

1.

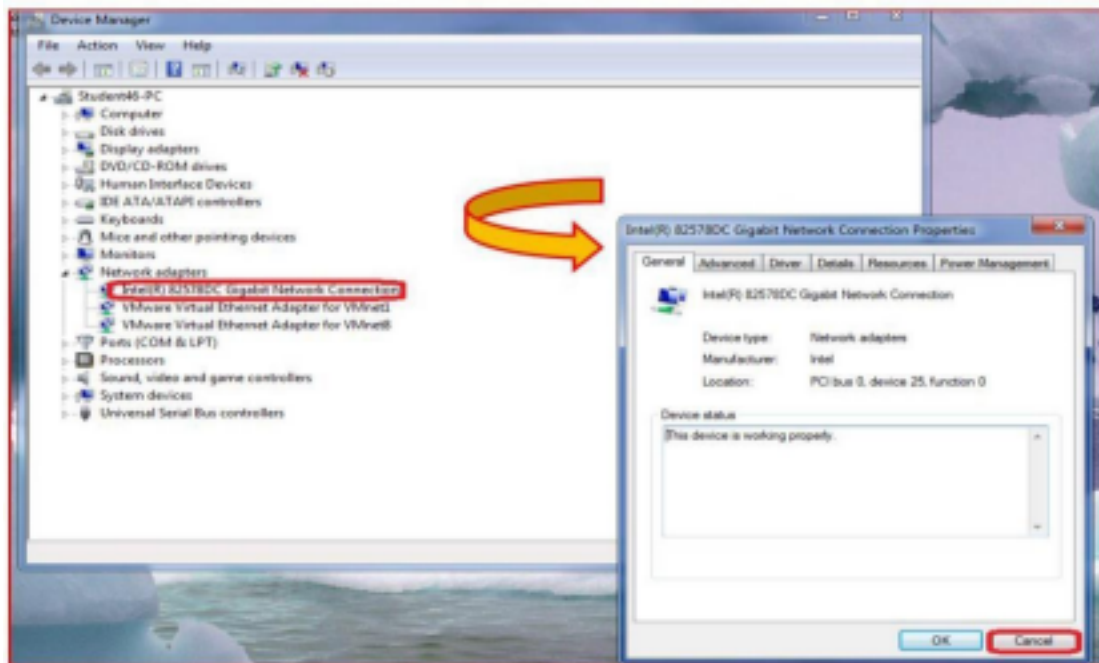Right-click the device for which you want to install the driver, andthenclick **Properties**.

2.

*NOTE*: The device may appear as **Unknown device** or asageneric device.

1.

Click the **General** tab. Make a note of the manufacturer and model of the device.

2.



1.

Click **Cancel**, and then quit Computer Management.

2.

*NOTE: If the device is not displayed in Device Manager, or the deviceislisted as an "Unknown device," contact the computer or device manufacturer toobtain more information about the device.*

**Step 2: Obtain the Driver**

To obtain the latest driver, use the following list of possible sourcesfor the driver, in

the order in which they are presented.

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**Original Computer Manufacturer**

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If the device was installed by your computer manufacturer, contact the manufacturer of your computer to find out how to obtain, download, andinstall the latest drivers for the device.

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**Device Manufacturer**

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Contact the manufacturer of the device to inquire about howtoobtain, download, and install the latest drivers for the device.

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**Chipset Manufacturer**

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Contact the chipset manufacturer of the device to find out howtoobtain, download, and install the latest drivers for the device. It is best tofirst contact the

manufacturer of the device for the drivers beforeyoucontact the chipset manufacturer.

For example, if your display adapter uses a NVIDIA chipset, first contact the manufacturer of the display adapter. If you cannot contact thedisplay adapter manufacturer or if the manufacturer does not have a driver, contact NVIDIA.

Some examples of chipset manufacturers (and their Websites) include:

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NVIDIA (display adapters)

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PCTEL, Inc. (modems)

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**Installation CD or Floppy Disks**

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If you have the original driver CD or floppy disks that were includedwith the computer or device, and if no other source for the driversisavailable, use the original driver that is included with the computer or device.

*NOTE*: *Whenever possible, try to first contact the Original Equipment Manufacturer (OEM), device manufacturer, or chipset manufacturer to obtain the latest version of the driver.*

**Step 3: Install the Driver**

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The driver files that you download from the OEM, device manufacturer, or chipset manufacturer differ depending on how the driver is packagedby the manufacturer.

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If the file is an executable program, run the program to extract thefiles. If the file is in .zip format, you can use a third-party utility suchasWinZip to extract the files. For more information about howto extract the driver files, see the instructions that are provided by themanufacturer of the driver.

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The driver may use a setup program. The driver package may containraw driver files, or it may contain only raw driver files. Some examplesinclude .inf files, and .sys files. To install the driver, use one of thefollowing methods as appropriate to your situation.

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**Driver with a Setup or Installation Program** ·

If the driver uses a setup or installation program, run the programto install the driver. For more information about how to do this, seethedocumentation or contact the driver manufacturer.

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## Device Is Displayed in Device Manager

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1.

On the desktop, right-click My Computer, and thenclickManage.

2.

3.

Under System Tools, click Device Manager. The devices that areinstalled on the computer are listed in the right pane.

4.

5.

Expand the category of the device that you want to configure. For example, expand Modems. **NOTE**: *The device may belistedunder other devices.*

6.

7.

Right-click the device for which you want to install the driver, andthen click Properties. **NOTE**: *The device may be displayedas Unknown device, or as ageneric device.*

8.

9.

Click the Driver tab, and then click Update Driver. The UpgradeDevice Driver wizard starts.

10.

11.

Click **Next**.

12.

13.

Do one of the following:

14.

o Click **Search for a suitable driver for my device (recommended)**, and then click Next. -or- o Click **Display a list of the known devices for this device sothat I can choose a specific driver**, and then click Next. Click Have Disk, click **Browse**, locate the **.inf files** that you downloaded in Step 2: Obtain the Driver, click an .inf file, and then click Open.

1.

Follow the wizard instructions to install the driver.

2.

3.

Restart the computer.

4.

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**Device Is Not Displayed in Device Manager**

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Use the Add New Hardware wizard in Control Panel toinstall drivers for non-Plug and Play devices.

You may have to use this method to install certain modems, serial ports, or printer ports.

1.

Click **Start**, point to **Settings**, and then click **Control Panel**.

2.

3.

Double-click **Add/Remove Hardware**.

4.

5.

Click **Next**.

6.

7.

Click **Add/Troubleshoot a device**, and then click **Next**. 8.

9.

Do one of the following:

10.

o Click **Yes, search for new hardware**, and then click**Next**. -or- o Click **No, I want to select the hardware from a list**, and then click **Next**.

1.

Follow the wizard instructions to install the driver.

2.

3.

Restart the computer.

4.

5.