

# European Computer Driving Licence

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Computer Essentials



## Contents

■ COMPUTERS & DEVICES .....	1
INFORMATION & COMMUNICATION TECHNOLOGY .....	1
HARDWARE .....	2
MAIN TYPES OF COMPUTERS .....	2
MAIN TYPES OF DEVICES .....	2
THE PROCESSOR .....	3
RANDOM ACCESS MEMORY .....	3
STORAGE DEVICES .....	3
INTEGRATED & EXTERNAL EQUIPMENT .....	4
INPUT / OUTPUT PORTS .....	7
SOFTWARE .....	7
OPERATING SYSTEM SOFTWARE .....	8
APPLICATIONS SOFTWARE .....	8
COPYRIGHT .....	10
TYPES OF SOFTWARE LICENCES .....	10
END-USER LICENCE AGREEMENT (EULA) .....	11
STARTING THE COMPUTER .....	11
LOGGING OFF .....	12
RESTARTING THE COMPUTER .....	12
SHUTTING DOWN THE COMPUTER .....	13
■ DESKTOP, ICONS, SETTINGS .....	14
MS WINDOWS DESKTOP & TASK BAR .....	14
COMMON ICONS .....	15
SELECTING & MOVING ICONS .....	16
ARRANGING ICONS .....	16
CREATING SHORTCUT ICONS .....	17
RENAMING SHORTCUT ICONS .....	18
MOVING SHORTCUT ICONS .....	18
DELETING SHORTCUT ICONS .....	18
USING WINDOWS .....	18
MAXIMISING (EXPANDING) A WINDOW .....	20
RESTORING DOWN A MAXIMISED WINDOW .....	20
MINIMISING (COLLAPSING) A WINDOW .....	20
RESTORING A MINIMISED WINDOW .....	20
MOVING A WINDOW .....	20
RESIZING A WINDOW .....	21
CLOSING A WINDOW .....	21
SWITCHING BETWEEN OPEN WINDOWS .....	21
USING HELP .....	22
VIEWING THE COMPUTER'S SYSTEM INFORMATION .....	23
SETTING THE DATE & TIME .....	25
ADJUSTING THE VOLUME SETTINGS .....	27
SETTING THE DESKTOP BACKGROUND .....	27
SETTING THE SCREEN RESOLUTION .....	29
ADDING THE KEYBOARD LANGUAGE .....	31
REMOVING THE KEYBOARD LANGUAGE .....	33
CHANGING THE DEFAULT INPUT LANGUAGE .....	34
SHUTTING DOWN A NON-RESPONDING APPLICATION .....	34
INSTALLING & UNINSTALLING SOFTWARE APPLICATIONS .....	35
CONNECTING & DISCONNECTING DEVICES .....	37
CAPTURING A FULL SCREEN / ACTIVE WINDOW .....	38

■ OUTPUTS .....	40
WORKING WITH TEXT .....	40
ENTERING TEXT IN A DOCUMENT .....	40
DELETING TEXT .....	41
SAVING & NAMING A DOCUMENT .....	41
OPENING AN EXISTING DOCUMENT .....	42
MOVING & COPYING TEXT .....	43
CLOSING MS WORDPAD .....	44
INSTALLING A PRINTER .....	44
UNINSTALLING A PRINTER .....	44
PRINTING A TEST PAGE .....	45
CHANGING THE DEFAULT PRINTER .....	45
PRINTING A DOCUMENT .....	46
VIEWING THE PRINT JOB'S PROGRESS .....	48
PAUSING, RESTARTING & CANCELLING A PRINT JOB .....	48
■ FILE MANAGEMENT .....	49
ORGANISATION OF DRIVES, FOLDERS & FILES .....	49
NAVIGATING BETWEEN DRIVES .....	50
NAVIGATING BETWEEN FOLDERS & FILES .....	50
EXPANDING & COLLAPSING VIEWS OF DRIVES & FOLDERS .....	52
DISPLAYING FILE & FOLDER PROPERTIES .....	52
CHANGING DISPLAY VIEWS .....	53
FILES TYPES .....	53
FOLDER & FILE NAMES .....	55
CREATING FOLDERS & SUB-FOLDERS .....	55
RENAMING FILES & FOLDERS .....	56
SEARCHING FOR FILES BY PROPERTIES .....	56
VIEWING THE LIST OF RECENTLY USED FILES .....	59
SELECTING FILES & FOLDERS .....	60
SORTING FILES .....	61
COPYING FILES & FOLDERS .....	62
MOVING FILES & FOLDERS .....	62
DELETING FILES & FOLDERS .....	62
RESTORING DELETED FILES & FOLDERS .....	63
EMPTYING THE RECYCLE BIN .....	64
MEMORY .....	64
TYPES OF STORAGE MEDIA .....	65
VIEWING AVAILABLE SPACE ON A STORAGE DEVICE .....	66
COMPRESSING FILES .....	67
EXTRACTING COMPRESSED FILES .....	68
■ NETWORKS .....	69
THE NETWORK .....	69
CLIENT / SERVER COMPUTERS .....	69
THE INTERNET .....	70
INTRANET .....	70
VIRTUAL PRIVATE NETWORK .....	71
DATA TRANSFER RATE .....	71
DOWNLOADING / UPLOADING .....	71
INTERNET CONNECTION SERVICES .....	71
INTERNET SERVICE PROVIDER .....	73
PROTECTED & OPEN WIRELESS NETWORK .....	73

■ SECURITY & WELL-BEING.....	75
PROTECTING DATA .....	75
FIREWALL.....	75
BACKING UP DATA.....	75
UPDATING SOFTWARE.....	76
MALWARE.....	76
USING ANTIVIRUS SOFTWARE .....	77
HEALTH ISSUES.....	77
ENERGY SAVING PRACTICES .....	79
ENHANCING ACCESSIBILITY.....	80

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## ■ COMPUTERS & DEVICES

### Information & Communication Technology

Information and Communications Technology (ICT) includes all technologies (hardware, software & networking) used to process and communicate information.

The following are typical uses of ICT:

- Internet Services including e-commerce, e-banking and e-government.
  - E-commerce - Computer networks are gradually replacing our shopping habits. Nowadays more and more people are buying and selling goods/services through Internet. This online trading is often referred to as electronic commerce or e-commerce. Online buyers use credit cards to purchase goods/services.
  - E-banking – Nowadays many banks enable their customers to perform electronic banking transactions through Internet. Users do not need to go to the bank to transfer funds, pay bills, view and check their bank accounts etc.
  - E-government – Nowadays many government departments offer services to the community through the use of ICTs. Locally the government portal that gives access to all information and services provided by government departments is available at [www.gov.mt](http://www.gov.mt). Everyday many people seek information about services offered by government departments. They also make Internet payments for various services such as examinations fees, car licences, income tax payments etc.
- Mobile Technology – In recent years there has been a gradual increase in the use of laptops, netbooks, tablets and smartphones. These devices, in particular the tablets and smartphones are easy to carry around. All devices are able to connect to Internet without any wires. We say that these devices can connect to wireless networks. Nowadays many households and public places have wireless Internet connections. Also, in recent years many people have smartphones that can connect to Internet provided by mobile telecommunication companies.
- Office productivity applications – Typically home and office computers have the following programs:
  - Word processing programs (e.g. MS Word, Writer) – used to prepare text-based documents such as letters, memos, reports etc.
  - Spreadsheet programs (e.g. MS Excel, Calc) – used to analyse and summarise numerical data. Spreadsheets are commonly used in accounting environments to prepare balance sheets and financial reports.
  - Presentation graphics programs (e.g. MS PowerPoint, Impress) – used to organise text and numeric data in an appropriate format to be displayed to a group of people. Typically presentations are used in the preparation of on-screen displays.

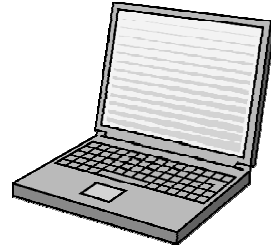
### Hardware

Hardware refers to the physical components of a computer system i.e. those components which you can actually touch. Hardware includes:

- |               |              |           |              |
|---------------|--------------|-----------|--------------|
| ▪ system unit | ▪ keyboard   | ▪ monitor | ▪ mouse      |
| ▪ disks       | ▪ modem      | ▪ printer | ▪ scanner    |
| ▪ speakers    | ▪ web camera | ▪ cables  | ▪ microphone |

### Main Types of Computers

- Desktop/Tower computers – are designed for home or office use. These computers are used to run application programs such as word processors, spreadsheets, databases, presentation software etc. Desktop systems have units that are placed on a desk. Tower systems have units that can either be placed on or underneath the desk.
- Laptops – are lightweight portable computers with a built-in (thin screen) monitor, keyboard, hard-disk drive, battery, and power supply adapter. Laptops can easily be transported and conveniently used in libraries, temporary offices and at meetings. Laptop computers typically cost more than desktop computers with the same capabilities.
- Tablets – are small portable computers that use a touchscreen as their primary input device. Most tablets are slightly smaller and weigh less than the average laptop. Early tablet touchscreens were designed to work with light pens. Most modern tablets support human touch input. Tablets are generally seen as accessories to laptops and desktop computers rather than replacements.



### Main Types of Devices

- Smartphones – are phones with advanced features like e-mail, Internet and e-book reader capabilities, and/or a built-in full keyboard or external USB keyboard.
- Multimedia players - are electronic devices capable of storing and playing digital media. Music and videos are typically stored in internal disks or a small memory card that can be inserted in these handheld devices.
- Digital cameras – are used to take digital photos which are then stored on a SD (Secure Digital) or CF (Compact Flash) card. Unwanted images can be deleted directly on the camera. Most digital cameras also include a small LCD screen that shows a live preview of the image, which makes it easier to capture pictures. Most digital cameras also include an option to record video.



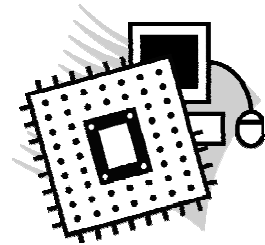


The digital photos are transferred from the camera to a computer via a USB cable. The photos can be incorporated in word-processing documents, presentations, sent by email or posted on a web site. You can also edit them using photo editing software. If you want to print hard copies of your photos, you can use a home printer or an online printing service.

### The Processor

Every computer has a processor inside it. The processor also known as the Central Processing Unit (CPU) is the 'brain' of the computer. It determines the speed at which program instructions are carried out by the computer.

The speed of the CPU is measured in gigahertz (GHz). 1GHz is equal to 1 billion cycles per second. Each computer instruction requires a fixed number of cycles, so the speed of the CPU determines how many instructions per second the microprocessor can execute. The higher the GHz the faster the computer will execute program instructions.



### Random Access Memory

The Random Access Memory (RAM) is made up of small memory chips that form a memory module. These modules are installed in the RAM slots on the motherboard of your computer.

Computer programs are stored in a disk which is referred to as the hard disk. Typically hard disks are located inside the computer. When you want to use a program such as a word processor, you instruct the computer to load this program. In a matter of seconds the computer reads the program from the disk and starts loading (copying) it into the RAM.

The more RAM your computer has, the more data can be loaded from the hard drive into the RAM, which can effectively speed up your computer. In fact, adding RAM can be more beneficial to your computer's performance than upgrading the processor. Nowadays, 4GB RAM is a standard on all computers.

If the computer's power supply is cut off, the information held in the RAM is lost. For this reason, data stored in RAM, which is required for future use, has to be stored on secondary storage devices such as USB (Universal Serial Bus) flash drives and hard disks. USB flash drives are sometimes referred to as USB pen disks.

### Storage Devices

As indicated in the previous section, the internal memory (RAM) is temporary, and therefore information has to be stored on permanent media (hard-disks or USB flash drives) referred to as secondary or backing storage.

## ECDL Courseware

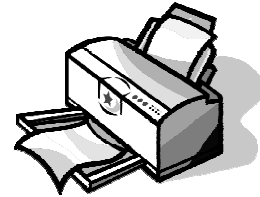
Storage devices and media include: internal hard disks, external hard disks, network drives, CDs, DVDs, Blu-Ray Discs, USB flash drives, memory cards and online file storage. To use any type of disk, the computer has to be equipped with the appropriate disk drives. More details about these storage devices and media are available in another section of this courseware.

## Integrated & External Equipment

### Printers

There are different categories of printers including inkjet and laser printers.

- Inkjet printer – sprays small droplets of ink at high speed onto the surface of paper. This process produces high quality print approaching that produced by laser printers. Inkjet printers are reliable, quiet and inexpensive. Colour inkjet printers provide an inexpensive way to print full colour documents.
- Laser printer - uses a technology similar to that used in a photocopying machine. It uses a laser beam to produce images with excellent letter and graphics quality. They are quiet and fast but somewhat expensive compared to dot matrix and inkjet printers. Laser printers are widely used in applications requiring high-quality output.



Some printers, known as multifunction printers, have printing, scanning and photocopying features.

### Screens

Screens or monitors are also known as video displays or visual display units (VDU). Screens can have different screen sizes e.g. 14"-, 15"-, 17"-, 19"- and 21"-inch.

There are two main categories of monitors:

- Cathode-ray tube (CRT) monitors – have a vacuum tube used as a display screen. This same kind of display technology is used for televisions and flight-information monitors at airports.
- Thin Film Transistor Liquid Crystal Display (TFT-LCD) monitors – are made up of two plates of glass with a substance in between them in which light is manipulated. Molecules of liquid crystal line up in a way that alters their optical properties, creating images on the screen by transmitting or blocking out light.

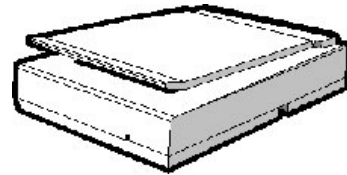
Compared to CRT monitors, TFT-LCD monitors are much thinner, weigh less and consume less power. Thus, they are suitable for laptop computers. TFT-LCD monitors are also available for desktop computers – they take less desk space compared to CRT monitors.



In recent years, touch screens became common. Some touchscreens require the use of special pens. Most modern touchscreens detect human touch. The mouse and keyboard are not required when using a touchscreen device. Tablets and smartphones use the touchscreen technology. Touchscreens are commonly used in computer kiosks by banks, airports etc.

### Scanners

The scanner is a device that transfers printed text and images to a computer. When a document is scanned, it is converted into a digital format. This creates an electronic version of the document that can be viewed and edited on a computer.



Most scanners are flatbed devices, which means they have a flat scanning surface. This is ideal for photographs, magazines, and various documents. Most flatbed scanners have a cover that lifts up so that books and other bulky objects can also be scanned. Another type of scanner is a sheet-fed scanner, which can only accept paper documents.

There are different types of scanners – the flatbed scanners being the most common. Sometimes scanners form part of a multifunction printer. Such printers have printing, scanning and photocopying features. Scanners arrive with:

- Driver software – the program that controls the operation of the scanner.
- Photo-editing software – the program used to manipulate scanned images.
- OCR (Optical Character Recognition) software – the program used to transfer printed text into a word-processor for editing and formatting

### Keyboards

The keyboard contains a set of typewriter like keys that enable you to enter data in the computer. The keys on computer keyboards are often classified as follows:

- Alphanumeric keys - letters and numbers.
- Punctuation keys - comma, period, semicolon etc.
- Special keys - function keys, control keys, arrow keys, Caps Lock key etc.

The standard keyboard layout that we use is known as a QWERTY keyboard because the first six keys on the top row of letters spell QWERTY. Local computer stores sell keyboards with the Maltese characters.

Ċ	!	"	€	\$	%	^	&	*	(	)	-	+	~	
1	2	3	4	5	6	7	8	9	0	-	=	#		
	Q	W	E	R	T	Y	U	I	O	P	Ġ	H		
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**Standard 48-key layout**

Ċ	!	@	€	\$	%	^	&	*	(	)	-	+	Ż	
1	2	3	4	5	6	7	8	9	0	-	=			
	Q	W	E	R	T	Y	U	I	O	P	Ġ	H		
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	Z	X	C	V	B	N	M	<	>	?	/			

**47-key layout**

## **ECDL Courseware**

### **Mouse**

The Mouse is a device that controls the movement of the cursor or pointer on a display screen. The mouse may contain up to three push buttons each of which has a different functions depending on the program being used have. Nowadays, mice may also include a scroll wheel for scrolling through long documents etc.



### **Trackpad**

The trackpad is a small, touch-sensitive pad used as a pointing device on most laptop computers. By moving a finger or other object along the pad, you can move the pointer on the display screen. Tapping the pad is equivalent to clicking the mouse.

### **Webcam**

The webcam or web camera is a small camera that either attaches to a user's monitor or sit on a desk. Most webcams connect to the computer via USB. Most laptops and tablets have in-built webcams.

The webcam is used to hold video communications over Internet. Typically webcams are used with communication programs such as Skype, Google Hangouts etc. Through webcams users are able to see each other and movements in real time. Webcams can be used to record video files and to take still pictures

### **Speakers**

The speakers can be plugged into the back of computers carrying a sound card. The sound card is used to capture as well as play back recorded sounds. The speakers enhance the multimedia capabilities of computers. Laptops and tablets have in-built speakers.



### **Microphone**

The microphone is a device that allows sound signals to be converted into digital files that may be stored on the computer. Microphones can be stand-alone or incorporated with headphones or in-built in laptops.

Voice-recognition software uses a microphone to convert a person's speech into digital signals by comparing the electrical patterns produced by the speaker's voice with a set of pre-recorded patterns stored in the computer. Microphones are also used along with Internet telephony software to communicate with other people via Internet.



### Docking Station

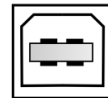
The docking station also known as a universal port replicator is a hardware device that allows laptops to connect easily to a TFT screen, a keyboard, a printer etc. Docking stations enable users with a laptop computer to convert it into a desktop computer when at the office or at home. The laptop connects directly to the docking station without the need of using any additional cables. Docking stations vary depending on the laptop model.

### Input / Output Ports

Computers have different input/output ports i.e. slots where cables connect peripherals connect to the computer.

Typically all computers will have these ports:

- USB (Universal Serial Bus) port – is a slot in the computer that supports fast transfer data rates. USB flash disks, digital cameras, mice, keyboards etc can be connected to the computer via the USB port.



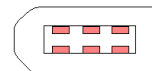
- HDMI (High-Definition Multimedia Interface) port – is a slot on the computer that supports the transfer of audio and video data through a single cable. A computer with an HDMI port can be connected to an external monitor or HDTV (High-Definition Television) with one cable, supporting high-definition video and audio.



- Network port – is used to connect the computer to a network or a modem.



- FireWire port – is a slot that connects digital video cameras to the computer. FireWire supports faster transfer data rates than USB ports.



### Software

You might have the fastest computer sitting on your desk in front of you, however, without software the computer will do nothing more than take up space. The computer hardware on its own has no intelligence and therefore must be supplied with instructions to perform any task.

Software or programs, consist of step-by-step instructions that tell the computer how to perform a task.

All software can be divided into two categories – operating system software and application software.

## **Operating System Software**

Operating System (OS) software is a program that controls the computer and enables it to run applications software (discussed further down). Systems software allows the computer to manage its internal resources.

This software is designed to allow the computer system to manage its own resources (disks, monitor, keyboard, and printer). This software runs the basic computer operations - it tells the hardware what to do and how, and when to do it. Applications software cannot run without system software.

Common desktop operating system software includes:

- MS Windows – provides an easy interface between the computer and the user. It uses pictures (graphical representations) which look like push buttons on the screen and you can use the mouse to press them. This interface is known as a Graphical User Interface (GUI).

MS Windows comes in a variety of versions. It has been updated over the years to make it more powerful and easier to use.



- Macintosh Operating System (Mac OS) – is the standard operating for Apple Corporation's Macintosh computers. Like Windows, the MAC OS has a GUI interface.



Besides, MS Windows and MAC OS there are other operating systems for example Linux, Unix and OS/2 Warp.

Mobile devices, such as tablets and smartphones also include operating systems that provide a GUI and can run applications. Common mobile operating systems include Android, iOS (for iPads & iPhones), and Windows Phone. These operating systems are developed specifically for portable devices and therefore are designed around touchscreen input.

## **Applications Software**

Applications software are programs that help the user carry out specific tasks on the computer. Such software has been written for a specific application - such as word-processors, spreadsheets, databases and presentation software.

Application software falls into two categories:

1. Tailor-made (or custom-written) software – is software designed for a particular customer. Typically individual computer programmers or software houses are contracted to develop computerised systems for companies and organisations.
2. Off-the-Shelf (or packaged) software – is software designed for use by the general public. Typically off-the-shelf software is available from all software selling shops. Large software houses develop this software.

Off-the-shelf software includes:

- Word-processing programs (e.g. MS Word, Writer) – used to prepare text-based documents such as letters, memos, reports etc.
- Spreadsheet programs (e.g. MS Excel, Calc) – used to analyse and summarise numerical data. Spreadsheets are commonly used in accounting environments to prepare balance sheets and financial reports.
- Database programs (e.g. MS Access, Base) – used to organise and manage large quantities of data. Databases enable efficient manipulation of data.
- Presentation graphics programs (e.g. MS PowerPoint, Impress) – used to organise text and numeric data in an appropriate format to be displayed to a group of people. Typically presentations are used in the preparation of on-screen displays, overhead transparencies and 35mm slides.
- Photoediting programs (e.g. MS PhotoEditor, Adobe PhotoShop, GIMP) – used to alter images and graphics. These programs are used to change the size of pictures, crop pictures, adjust the colours of pictures etc.
- Desktop publishing programs (e.g. MS Publisher, Adobe InDesign) – used to prepare high quality printed material e.g. flyers, invitations, posters, reports, magazines, and books.
- Internet Web Browsers (e.g. MS Internet Explorer, Google Chrome, Mozilla Firefox, Opera) – used to locate and display information at Web sites. Browsers display Web pages with text, graphics, sounds and video-clips.
- Communications software (e.g. MS Outlook, Mozilla Thunderbird) – used for the transmission of electronic messages or documents between different computers.
- Social Networking websites (e.g. Facebook, LinkedIn) – allow users to be part of a virtual community. These websites provide users with simple tools to create a custom profile with text and pictures. A typical profile includes basic information about the user, photo albums, videos and comments published by the user. People use social networking sites to add friends, send messages to other users, and leave comments directly on friends' profiles. Some people join special interest groups on social networking sites.
- Mobile applications (or mobile apps) – are software programs designed to run on smartphones, tablets and other mobile devices. These programs are usually available through application distribution platforms (e.g. Apple App Store, Google Play, Windows Phone Store etc.). Some mobile apps are free, while others must be bought. Mobile apps include email, calendar, contacts, weather information, location based services, banking, order-tracking and ticket purchases.

Most of the above software is installed on desktops and computers and can be used without an Internet connection. However, more and more software (e.g. Microsoft Office 365, Google Apps, Adobe) is also available online. For example, you can create and edit a document online using Microsoft Office 365 or Google Docs.

### **Copyright**

Computer users should be aware of the copyright issues with regards to software and files such as graphics, text, audio and video. A copyright is the exclusive legal right that prohibits copying of intellectual property without permission of the copyright holder.

Computer software is considered as intellectual property and is protected by the copyright law.

The Internet and the World Wide Web present tremendous opportunities for sharing information but it is important to remember that what is freely available does not imply that it can be copied. You should assume that images, text, logos, software, sounds, movie clips, email and postings to newsgroups are copyrighted. Under copyright law, you cannot copy work/files unless you have been given permission to do so. In some cases, there may be permission statements included with the work/files that allow you to use the work/files for the stated purposes.

Software piracy - is the unauthorised distribution and use of copyrighted computer programs. Software and data files can be easily copied and transmitted via disks.

Making a copy of commercial/propriety software (discussed further down) for a relative or friend is an act of piracy.

Software and data files can also be downloaded from a network and copied. This is known as network piracy.

### **Types of Software Licences**

- Propriety software – is software whose rights are owned by an individual or business, usually a software developer. The ownership is protected by the copyright, and the owner expects you to buy a copy in order to use it. The software cannot legally be used or copied without permission.

Nearly all applications are licensed rather than sold. There are a variety of different types of software licenses. Some are based on the number machines on which the licensed program can run whereas others are based on the number of users that can use the program. Most personal computer software licenses allow you to run the program on only one machine and to make copies of the software only for backup purposes. Some licenses also allow you to run the program on different computers as long as you don't use the copies simultaneously.

- Open source software – is freely available to the public. The programmer creates a program and makes it available for others to use without cost. Other programmers are also free to modify the source code and redistribute the modifications to users and developer community. Open source programs are often developed as a community rather than by a single organisation.
- Trial version software – refers to software which consumers can try before they buy. Trial versions of software usually contain all the functionality of the regular version, but can only be used for a limited time (e.g. 30-day trial).



- Shareware software – is copyrighted software that is distributed free of charge but requires users to make a contribution in order to receive technical help, documentation or upgrades.

Shareware is inexpensive because it is usually produced by a single programmer and is offered directly to customers via the Internet. Thus, there are practically no packaging or advertising expenses.

- Freeware software – is software that is available free of charge. Although it is available for free, the author retains the copyright, which means that you cannot do anything with it that is not expressly allowed by the author. Usually, the author allows people to use the software, but not sell it.

### End-User Licence Agreement (EULA)

Users have to purchase the appropriate software licences to use propriety software.

Shrink-wrap licences/End User Licence Agreements (EULA) – are printed licenses found inside software packages. Users are duty bound to use the software according to the conditions set out in the license sheet. There is no need for users to sign up any contracts with the software house. Users are encouraged to send the registration card included in the package. This registration entitles users to information and minor upgrades that are released from time to time by the software manufacturer.

### Starting the Computer

You will now start your computer system:

1. Locate the power switch on the system unit and press this.
2. Locate the power switch on the monitor and press this.

After some time you should be able to see a screen similar to the one shown below. These course notes are based on Microsoft Windows 7.

1. Type in your user name in the User name field.
2. Type in your password in the Password: field.
3. Click Forward button.



Note that:

- Your teacher will provide you with the user name and password.
- Passwords are case sensitive i.e. you need to type the password as shown on the sheet provided by your teacher. You need to use the uppercase and lowercase letters as shown.
- It is important not to share your password with any friends etc. If you suspect that anyone knows your password, speak to your teacher so that this can be changed.

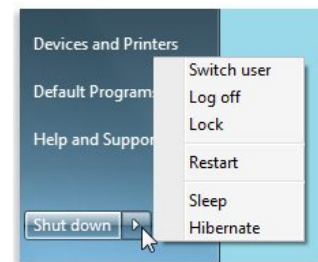


## Logging off

When you log off from Windows, all of the programs you were using are closed, but the computer is not turned off.

To log off:

1. Click Start button.
2. In the lower-right corner of the Start menu, click the arrow next to Shut down button.
3. Click Log off. The system will take you to the log in screen.



Note that:

- After you log off, another user can log on without needing to restart the computer. In addition, you don't need to worry about losing your information if another user turns off the computer.

## Restarting the Computer

To restart the computer:

1. Click Start button.
2. In the lower-right corner of the Start menu, click the arrow next to Shut down button.
3. Click Restart. The system will shut down and restart again.



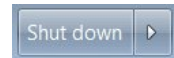
Note that:

- You may need to restart your computer when install program updates and new programs. Typically updates will be applied when you restart your system.

### Shutting down the Computer

When you have finished working with MS Windows and you are ready to turn off the computer, you first need to close all windows. Never turn off your computer while MS Windows is still running. Doing so could result in loss or corruption of data. The process of switching off the computer is also known as shutting down the system.

1. Click Start button.
2. In the lower-right of the Start menu, click Shut down button.



Note that:

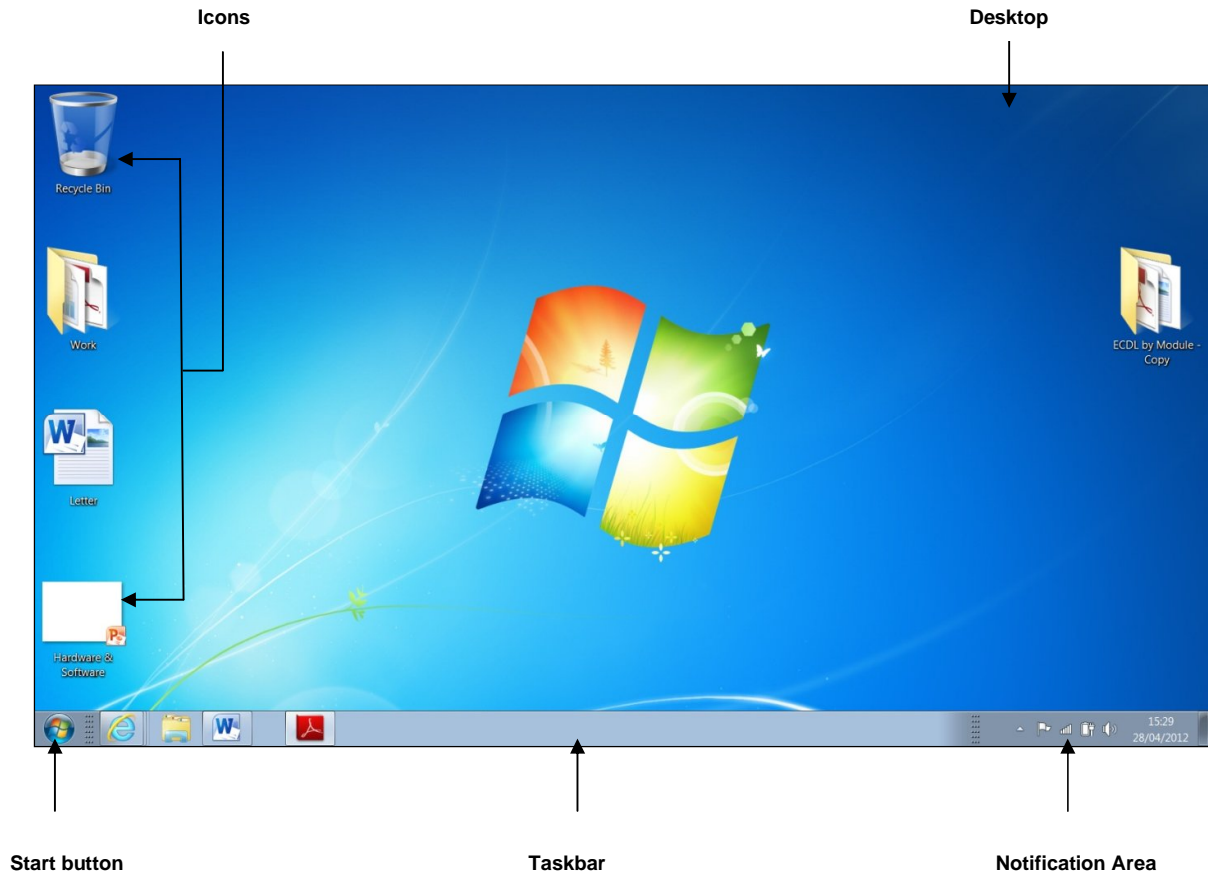
- When you click Shut down, your computer closes all open programs, along with Windows itself, and then completely turns off your computer and display. Shutting down doesn't save your work, so you must save your files first.
- If you are using a desktop computer, remember to turn off the monitor.

## ■ DESKTOP, ICONS & SETTINGS

### MS Windows Desktop & Task Bar

When you start your computer and log in MS Windows a similar screen to the following will be displayed. This screen is known as the MS Windows desktop.




MS Windows Desktop



The desktop is the main screen area that you see after you turn on your computer and log on to MS Windows. Like the top of an actual desk, it serves as a surface for your work. When you open programs or folders, they appear on the desktop. You can also put things on the desktop, such as files and folders, and arrange them however you want.





The MS Windows desktop contains icons. Icons are small pictures that represent files, folders, programs, and other items. The number of icons you see depends on the components installed in MS Windows. When you first start Windows, you'll see at least one icon on your desktop: Recycle Bin (trash can).

The taskbar is the horizontal strip that runs along the bottom of the screen. It has three sections:

- The Start button - is the 'ignition switch' that gives you access to almost all of MS Windows. This is used to open programs and files to work on. 
- The middle section - shows you which programs and files you have open and allows you to quickly switch between them. 
- The Notification Area - displays little pictures that tell you what is happening with your computer. When you are printing, for example, a picture of a printer appears in this area. If you have a sound card fitted in your computer, a picture of a speaker appears. This area will also display the clock. 

## Common Icons

The MS Windows desktop may contain different icons representing files, folders, application/program shortcuts, recycle bin etc.

Desktop Icons	Example	
File	 Letter	Sometimes you may decide to save a file on the desktop. Normally you will save this file on the desktop because you need fast access to this file.
Folder	 Work	Saving individual files to the desktop will clutter the desktop. Therefore you will save these files to an individual folder icon on the desktop. Typically desktop folder icons are created to store files which are accessed by the user on a regular basis.
Application Shortcut	 Adobe Reader X	Shortcut icons have a small arrow in the lower left corner. Clicking such icons will normally open a program (such as Adobe Reader) or a file or a folder. Shortcuts are also known as aliases.
Recycle Bin	 Recycle Bin	The place in which MS Windows stores deleted files. You can retrieve files that you have mistakenly deleted in error, or you can empty the Recycle Bin to create more disk space.

## The Mouse

The mouse is an important tool you need to use to do most of the tasks in MS Windows. This is particularly so if you are beginning to use computers. The basic idea is simple - you move the mouse on its pad, and a small arrow (the mouse pointer) moves correspondingly on the screen.

Mouse Technique	Example
Pointing	If you position the mouse pointer over the Start button, a yellow banner that says "Start" appears. The technique of positioning the mouse pointer on an item is known as pointing.
Clicking	If you point the mouse to the Start button and press the left mouse button, a list of options appears on top of the Start button. The technique of pressing the left mouse button once is known as clicking.
Double-clicking	If you point the mouse to the Recycle Bin icon and press the left mouse button twice in rapid succession, a frame (known as a window or a dialog box) will open. The technique of pressing the left mouse button twice is known as double-clicking.
Right-clicking	If you position the mouse over the desktop and press the right mouse button, a pop-up menu will be displayed. The technique of pressing the right mouse button is known as right-clicking.
Dragging	If you position the mouse over any desktop icon, press and hold the left mouse button whilst moving the mouse, you will move the icon*. This technique is known as dragging.  *The icon will move only if the Auto arrange icons option is not switched on.

Note that:

- You may need to restart your computer when install program updates and new programs. Typically updates will be applied when you restart your system.

### Selecting & Moving Icons

By default, MS Windows stacks icons in columns on the left side of the desktop. But you can move an icon by dragging it to a new place on the desktop:

1. To select a desktop icon, click the icon. The icon will be highlighted as shown:



2. To move the icon, drag the mouse. The icon will move only if the Auto arrange icons option is not switched on.

### Arranging Icons

You can arrange the icons on your desktop as follows:

1. Right-click on an empty area of the desktop.
2. Point to Sort by.
3. Click one of the commands on the submenu, as explained in the table.

Click	To Do This
Name	Arrange icons in alphabetical order by the icon name.
Size	Arrange icons in order of file size. If the icon is a shortcut to a program, the size refers to the size of the shortcut file.
Item Type	Arrange icons in order of type. For example, if you have shortcuts to several MS PowerPoint presentations on your desktop, these will be arranged next to each other.
Date modified	Arrange icons in the order that the shortcut was last modified.

To automatically arrange the icons in columns along the left side of your desktop:

1. Right-click on an empty area of the desktop.
2. Point to View.
3. Click Auto arrange icons.

Note that:

- When switched on, the Align icons to grid option snaps icons into place as designated by an invisible grid on your screen. The grid keeps the icons aligned with each other.

## Creating Shortcut Icons

In MS Windows a shortcut is a pointer to a file, document or printer. A shortcut is represented by an icon containing a curved arrow on the desktop.

Selecting the program shortcut icon runs the program to which the shortcut "points". Selecting a document shortcut runs the application that created the document (provided the document type is associated with a program).

To create a desktop shortcut to a folder or file:

1. Open Windows Explorer by pressing Windows key + E.
2. Locate the folder or file.
3. Right-click the folder or file.
4. Point to Send to.
5. In the sub-menu, click Desktop (create shortcut). The shortcut icon appears on MS Windows desktop.



Essay -  
Shortcut

To create a desktop shortcut to a program:

1. Click Start button.
2. Locate the program.
3. Right-click the program.
4. Point to Send to.
5. In the sub-menu, click Desktop (create shortcut). The shortcut icon appears on MS Windows desktop.



Adobe  
Reader X

Note that:

- Shortcut icons display a curved arrow.
- A shortcut does not create a copy of the item (file, folder or application program) on the desktop. Therefore deleting a shortcut to an item, does not delete the item. It still exists on your computer in its original location.

## **Renaming Shortcut Icons**

To rename a shortcut icon:

1. Right-click the shortcut icon. This will display a pop-up menu.
2. Click Rename. The name of the shortcut will be highlighted.
3. Type the new name for the selected shortcut.
4. Press Enter key.

## **Moving Shortcut Icons**

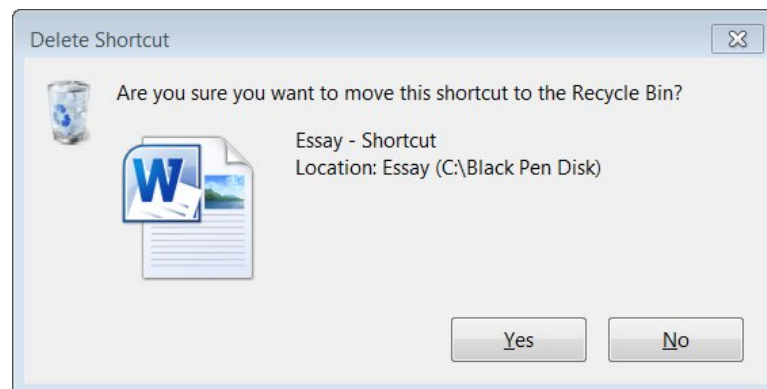
To move a shortcut icon:

1. Click the shortcut icon to move. The icon will be highlighted.
2. Drag the shortcut icon to the new location. The icon will move only if the Auto arrange icons option is not switched on.

## **Deleting Shortcut Icons**

To delete a shortcut icon:

1. Click the shortcut icon (on the desktop) to delete.
2. Press DELETE key. The Delete Shortcut dialog box is displayed.
3. Click Yes button.



## **Using Windows**

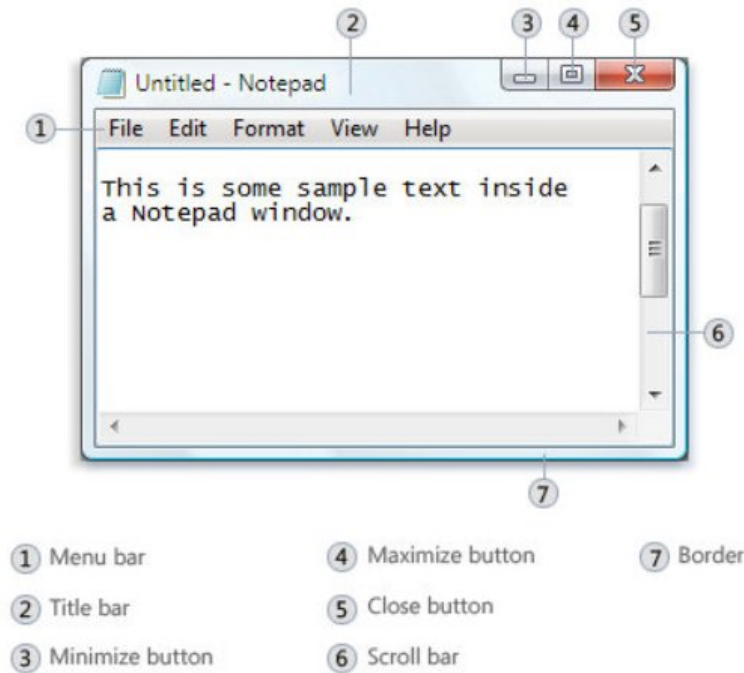
Whenever you open a program, file, or folder, it appears on your screen in a box or frame called a window (that's where the Windows operating system gets its name).

Although the contents of every window are different, most windows have the same basic parts.

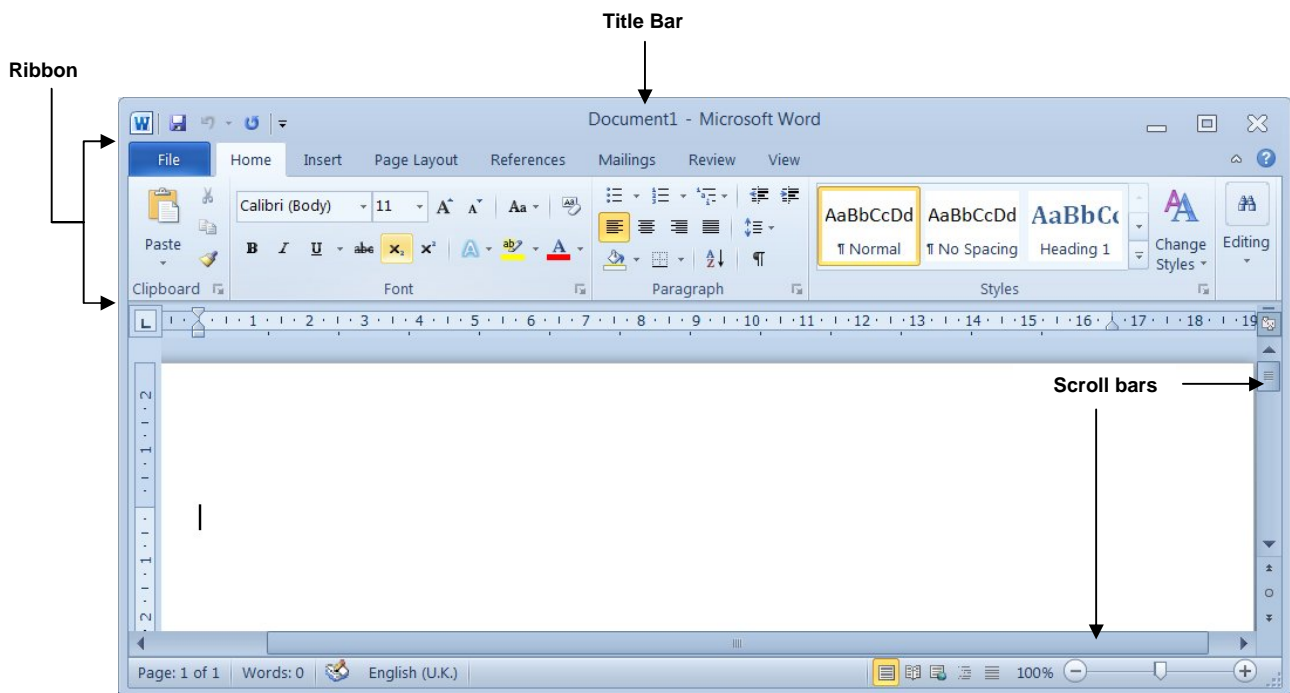
- Menu bar - Contains items that you can click to make choices in a program.
- Title bar - Displays the name of the document and program (or the folder name if you are working in a folder).
- Minimize, Maximize, and Close buttons - These buttons hide the window, enlarge it to fill the whole screen, and close it, respectively.
- Scroll bar - Lets you scroll the contents of the window to see information that is currently out of view.



- Borders and corners - You can drag these with your mouse pointer to change the size of the window.



Some windows (e.g. MS Word) have a set of toolbars placed on several tabs referred to as the ribbon.



## **Maximising (Expanding) a Window**

1. Point the mouse pointer to the Maximise button.
2. Click the mouse.



Note that:

- When a window is maximised it fills the entire screen covering the desktop area. The Maximise button changes to the Restore button.
- You can also maximise a window by double-clicking on its title bar.

## **Restoring Down a Maximised Window**

1. Point the mouse pointer to the Restore button.
2. Click the mouse.



Note that:

- You can also restore a maximised window by double-clicking on its title bar. The maximised window returns to its previous size.

## **Minimising (Collapsing) a Window**

1. Point the mouse pointer to the Minimise button.
2. Click the mouse.



Note that:

- You can also minimise a window by pressing the shortcut key combination: Windows key + M.
- The window will disappear from the desktop, but its name will still show on a button located on the taskbar.

## **Restoring a Minimised Window**

1. Point the mouse pointer to the taskbar button showing the name of the window.
2. Click the mouse.

Note that:

- The minimised window returns to its previous size.
- You can also restore a minimised window by pressing the shortcut key combination: Windows key + SHIFT + M.

## **Moving a Window**

1. Point the mouse pointer to the title bar of the window.
2. Press the left mouse button.
3. Move the mouse to the location where the window will be positioned.
4. Release the mouse button.

The technique of pressing the left mouse button, moving the mouse and releasing the button is known as dragging.

## Resizing a Window

1. Point the mouse pointer to the window border (the pointer will change to a double-headed arrow).
2. Drag the mouse.

Note that:

- A window that is maximized cannot be resized. You must restore it to its previous size first.
- Although most windows can be maximized and resized, there are some windows that are fixed in size, such as dialog boxes.
- If some of the icons will be hidden when changing the window size, columns appear to the right or bottom of the window. The right or vertical grey column is known as the vertical scroll bar. The bottom or horizontal grey rectangle is known as the horizontal scroll bar. The arrows in the scroll bar are used to display any hidden icons in the window.



## Closing a Window

1. Point the mouse pointer to the Close button.
2. Click the mouse.



Note that:

- When you close a window, this will disappear from the desktop and the taskbar. When a window is minimised, this will also disappear from the desktop, but its button still shows in the taskbar.

## Switching between Open Windows

If you have two application windows running, you can switch from one window to another by clicking on the appropriate button located on the taskbar.

You can also cycle through application windows that are running on the computer by pressing ALT+TAB keys.

You can also arrange open windows in three ways:

1. Right-click the mouse on an empty area of the taskbar.
2. Click Cascade Windows or Show windows stacked or Show windows side by side.

Note that:

- The cascade format arranges all open windows in a stair-like format. The stacked format puts windows in one or more vertical stacks depending on how many windows you have open. The side by side format places each window - open, but not maximized - on the desktop so you can see all the windows at once.

## ECDL Courseware



*Arrange windows in a cascade (left), vertical stack (center), or side-by-side pattern (right)*

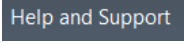

- To see your desktop without closing your open windows, minimize all of your windows at once by clicking the Show desktop button next to the notification area at the end of the taskbar.




**Show Desktop**

## Using Help

MS Windows provides on-line help to assist you as you use the program:

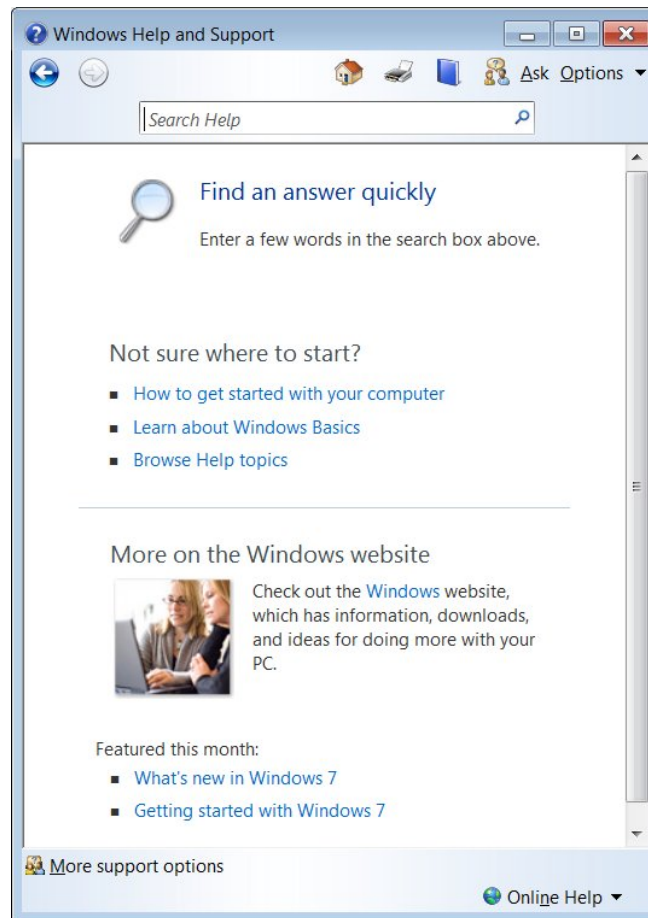
1. Click Start button.
2. Click Help and Support to get help on MS Windows itself. The Windows Help and Support window will be displayed.
3. Type a word or phrase (e.g. shut down computer) to search help on in the Search Help field.
4. Click Search Help button to the right of the Search Help field. 
5. Click the help topic from the list.
6. Close Windows Help and Support.

Note that:

- You can also display Windows Help and Support by pressing the shortcut key combination: Windows key  + F1.
- Beginners are advised to click Learn about Windows basics in Windows Help and Support.

Help topics can include graphics and text that link to other Help topics or to more information about the current topic. These are called jumps. Jumps are usually identified by a different colour or an underline. When you point to a jump, the pointer changes to a hand shape.

1. Point the mouse to underlined/coloured text.
2. Click the mouse.



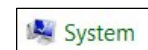
## Viewing the Computer's System Information

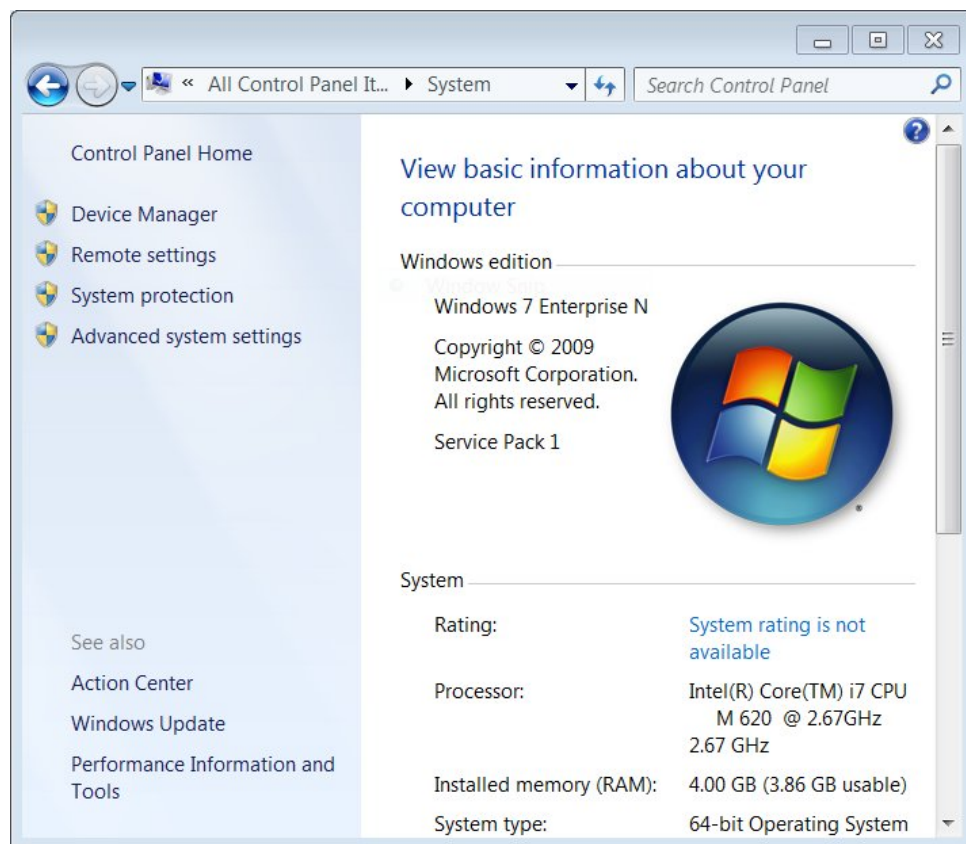
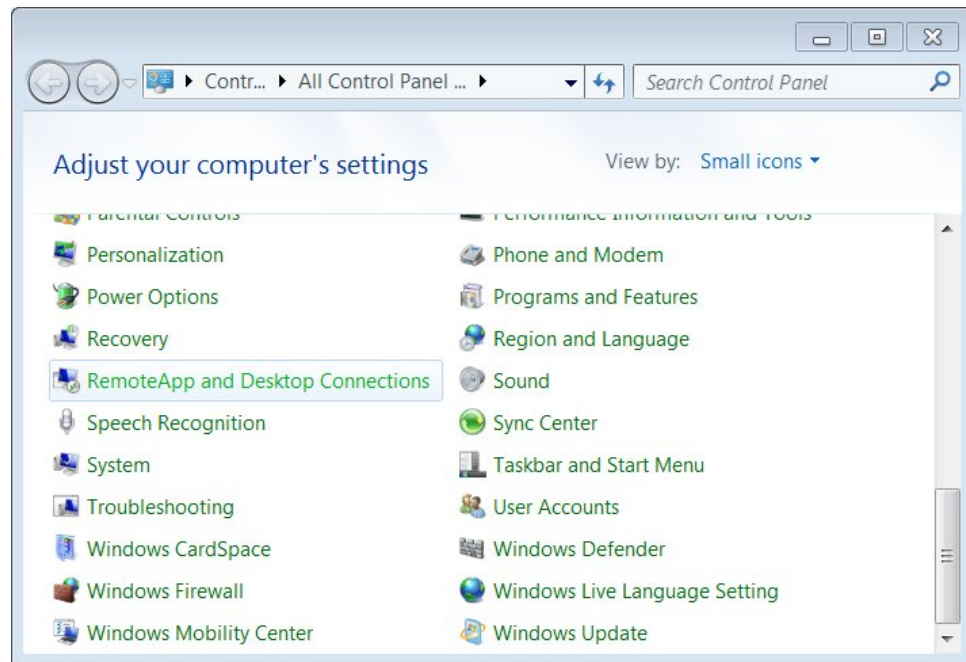
The computer's basic system information e.g. the operating system (OS) and version number, and installed RAM (Random Access Memory), can be viewed through the Control Panel:

1. Click Start button.
2. Click Control Panel. **Control Panel**


The Control Panel window (shown below) displays many icons. Clicking on any of these icons allows you to view and configure the various components of your computer system.

3. Click System. The window shown overleaf is displayed.
4. Click Close button.



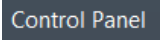

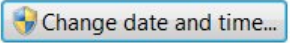


Note that:

- To display the System Properties window, you can press the shortcut key combination: Windows key  + Pause Break
- The System Properties window displays the following information:

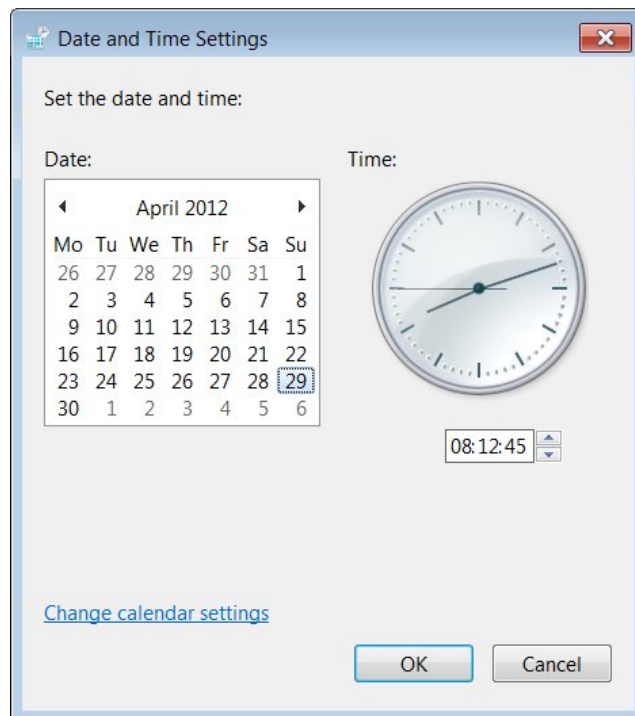
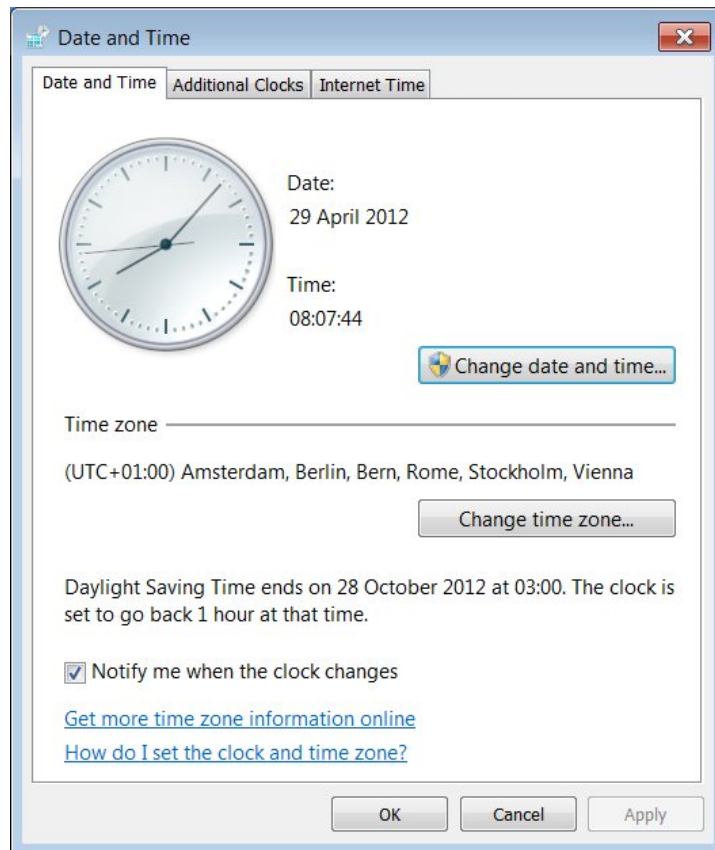
- The name of the operating system running on the computer: Windows 7.
- The installed memory (Random Access Memory RAM): 4.00 GB

### Setting the Date & Time

1. Click Start button.
2. Click Control Panel. The Control Panel window is displayed. 
3. Click Date and Time. The Date and Time dialog box shown on the following page will be displayed. 
4. Click Change date and time... button. The Date and Time Settings dialog box will be displayed. 
5. Set the date by selecting the required date from the calendar displayed under Date.
6. Set the time by clicking the arrows next to the digital time field. You can also set the time by typing.
7. Click OK button to close the Date and Time Settings dialog box.
8. Click OK button to close the Date and Time dialog box.

Note that:

- You can also display the Date and Time dialog box, by double-clicking the clock in the Notification Area (bottom right corner of screen).
- You may not be able to set the Date and Time if your computer is connected to a network system and restrictions have been set by the system administrator.





## Adjusting the Volume Settings

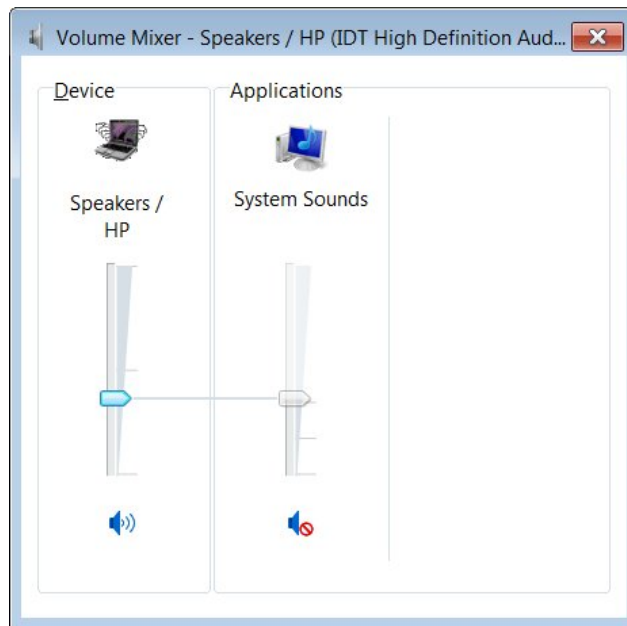
Most speakers have a volume control, but you can also control the level of sound on your computer using MS Windows.



1. Click Speakers button in the notification area of the taskbar.
2. Move the slider up or down to increase or decrease the speaker volume.



Note that:

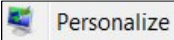
- After you open the Speaker volume, click Mixer if you want to separately control the volume of your speakers and other sound devices or programs using the Volume Mixer.

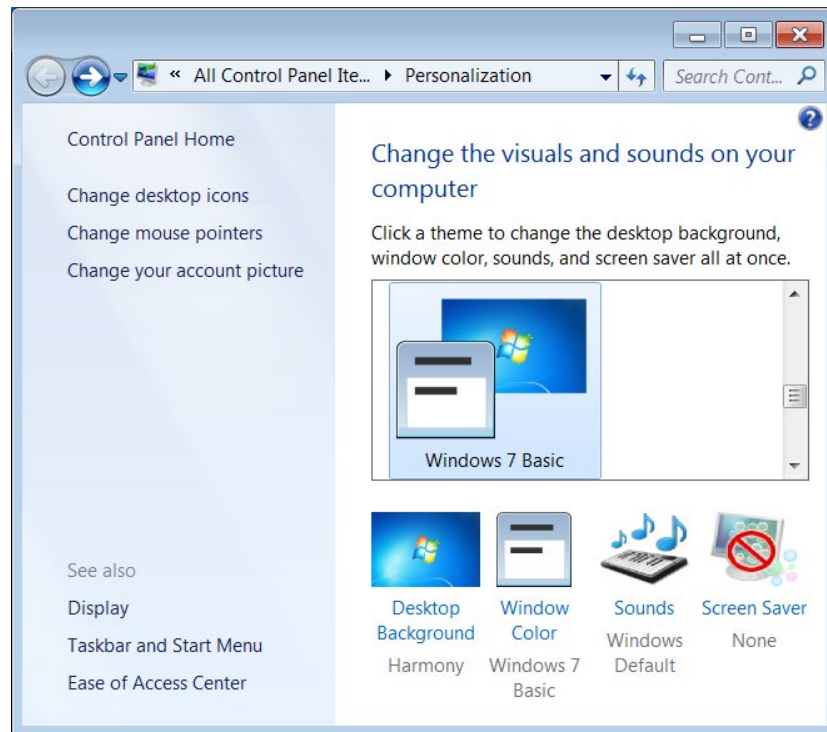


Click Mute button  or Unmute button  to control the sounds.

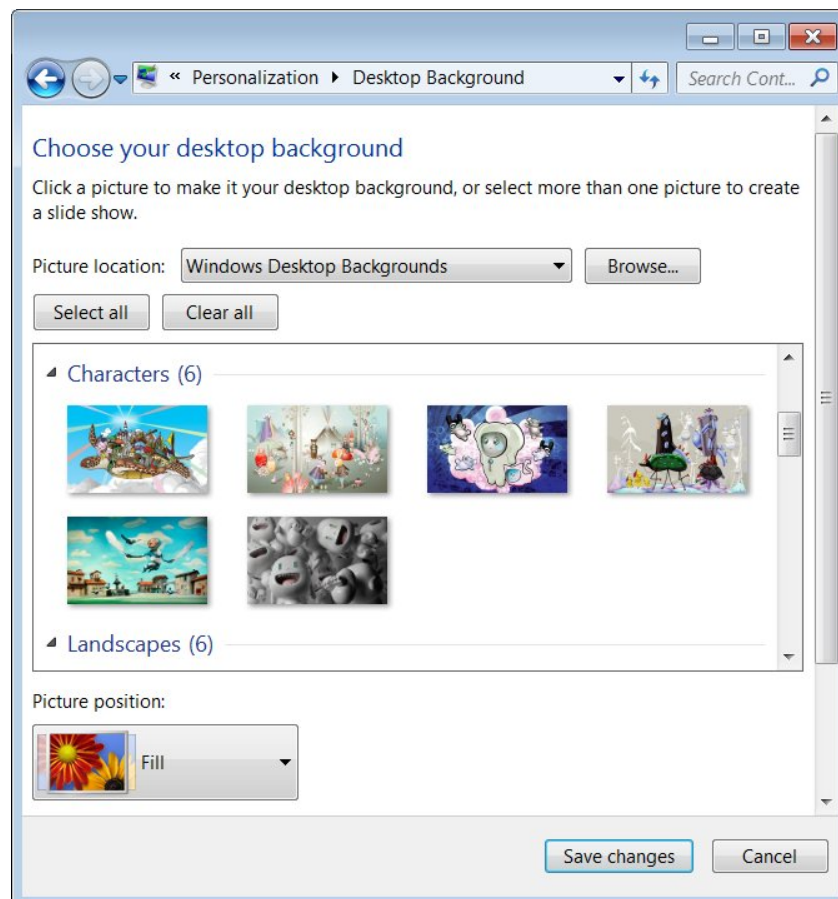
## Setting the Desktop Background

You can change the appearance of the desktop background (also called wallpaper):

1. Right-click anywhere on the desktop. A pop-up menu is displayed.
2. Click Personalise. 



3. Click Desktop Background.



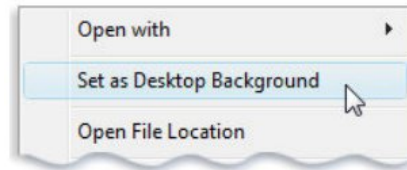
4. Click the picture or colour that you want to use for your desktop background.

If the picture you want to use isn't in the list of desktop background pictures, click an item in the Picture location: list to see other categories, or click Browse... button to search for the picture on your computer. When you find the picture that you want, double-click it. It will become your desktop background.

5. Under Picture position: click the arrow and choose whether to crop the picture to fill the screen, fit the picture to the screen, stretch the picture to fit the screen, tile the picture, or center the picture on the screen.
6. Click Save changes button.

Note that:

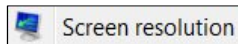
- To make any picture stored on your computer (or a picture you are currently viewing) your desktop background, right-click the picture, and then click Set as Desktop Background.

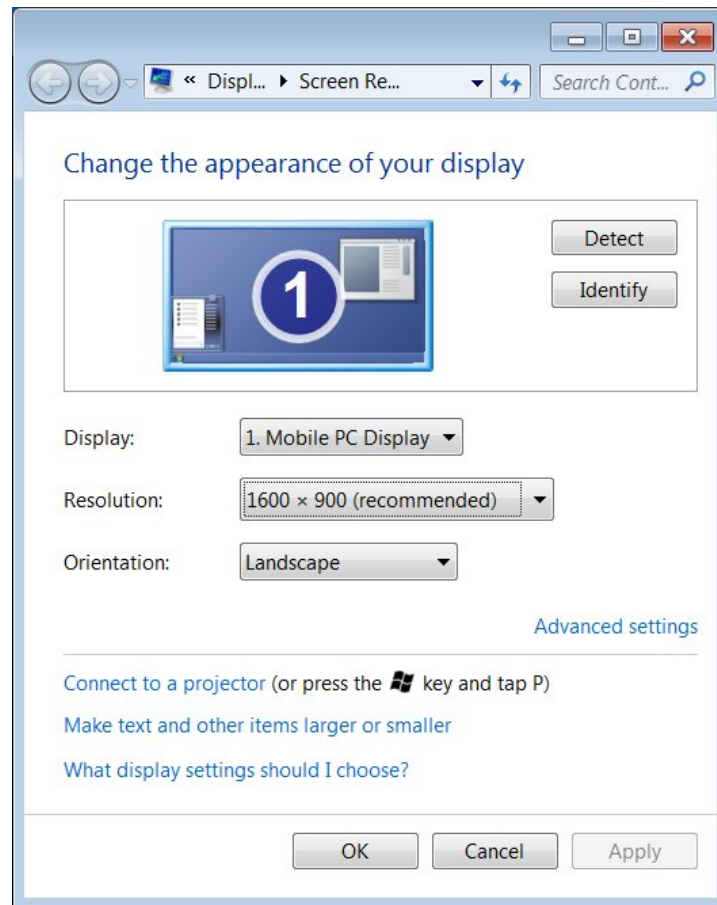


### Setting the Screen Resolution

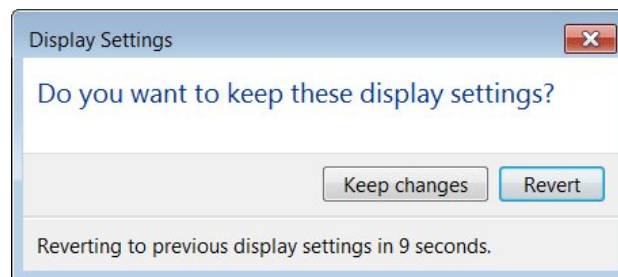
Screen resolution refers to the clarity of text and images displayed on your screen. At higher resolutions, such as 1600×1200 pixels, items appear sharper and smaller. This also means that more icons can fit on the screen. At lower resolutions, such as 800×600 pixels, fewer items fit on the screen, but they appear larger. The resolution you can set on your computer depends on your monitor/screen.

1. Right-click anywhere on the desktop. A pop-up menu is displayed.
2. Click Screen resolution.





3. Click the drop-down arrow next to Resolution:
4. Move the slider to the resolution you want.
5. Click Apply button. The Display Settings dialog box is displayed.



6. Click Keep changes button to use the new resolution, or click Revert button to go back to the previous resolution.

## Adding the Keyboard Language

You can enter text or edit documents in different languages (e.g. English and Maltese) by changing the input language. The input language is the language that you use to enter text. When you add a new input language, you also select a keyboard layout.

Different languages have different keyboard layouts e.g. the English and United States (US) International English keyboards vary in the positioning of punctuation keys.



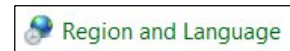
There are also two layouts for Maltese keyboards: 'Maltese 47 Keyboard Layout' and 'Maltese 48 Keyboard Layout'.

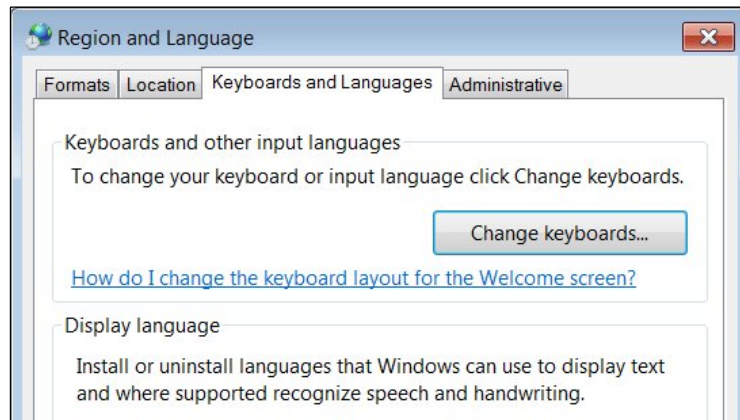


Input languages (including Maltese) are included with MS Windows, but you need to add them to your list of languages before you can use them.

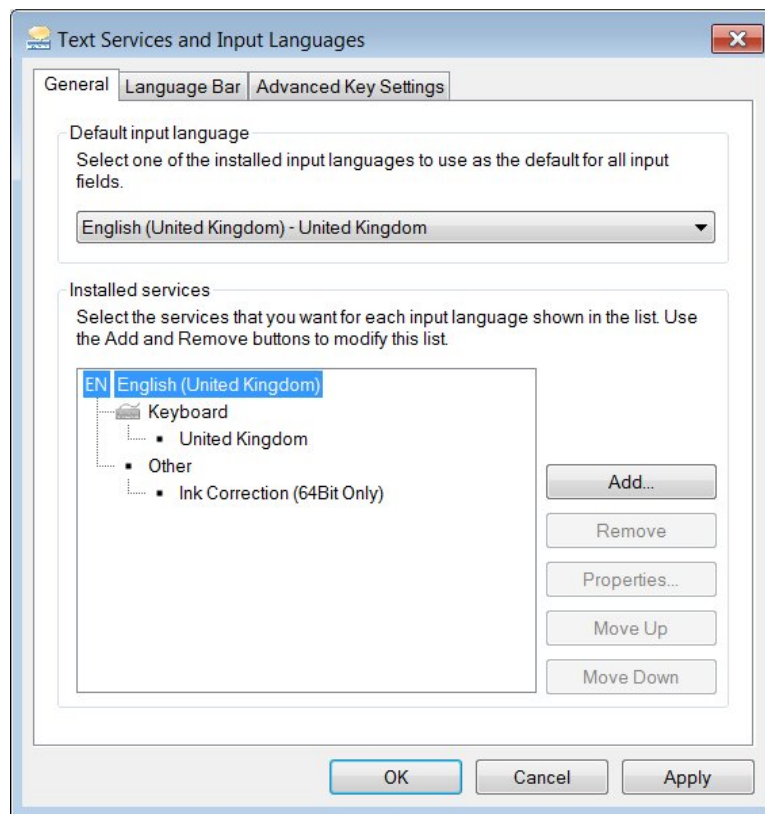
To add a keyboard language:

1. Click Start button.
2. Click Control Panel. The Control Panel window will be displayed.
3. Click Region and Language. The Region and Language dialog box is displayed.
4. Click Keyboards and Languages tab.

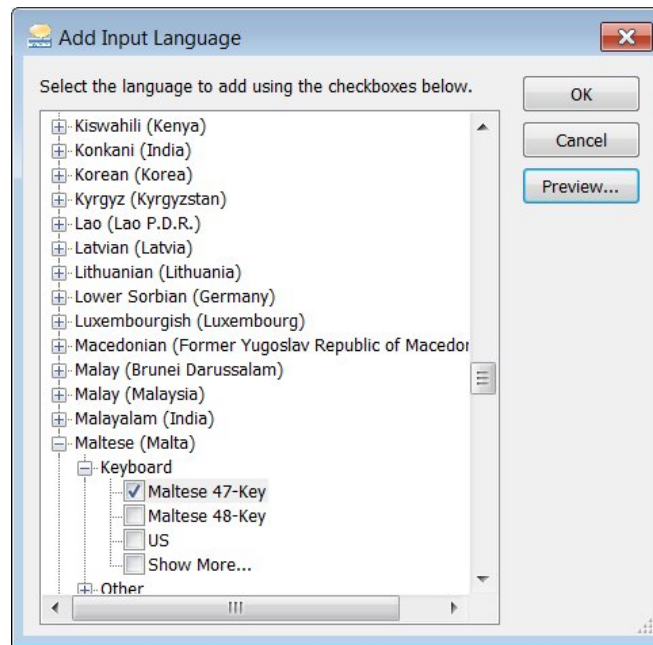




5. Click Change keyboards... button. The Text Services and Input Languages dialog box is displayed.



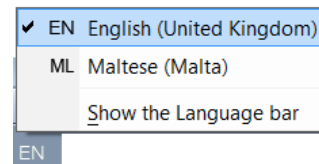
6. Under Installed services, click Add... button. The Add Input Language dialog box is displayed.
7. Double-click the language you want to add e.g. Maltese (Malta).
8. Double-click Keyboard, select the text services options you want to add.



9. Click OK button to close the Add Input Language dialog box. The selected input language will show in the Text Services and Input Languages dialog box.
10. Click Apply button.
11. Click OK button to close the Text Services and Input Languages dialog box.

By default, the Language Bar is displayed in the taskbar. To switch between different keyboard languages that you have set on your computer:

1. Open the program (e.g. word processor, spreadsheet etc.) where you want to type.
2. Click the Language button in the taskbar.
3. Select the language to use.



## Removing the Keyboard Language

To remove the keyboard language:

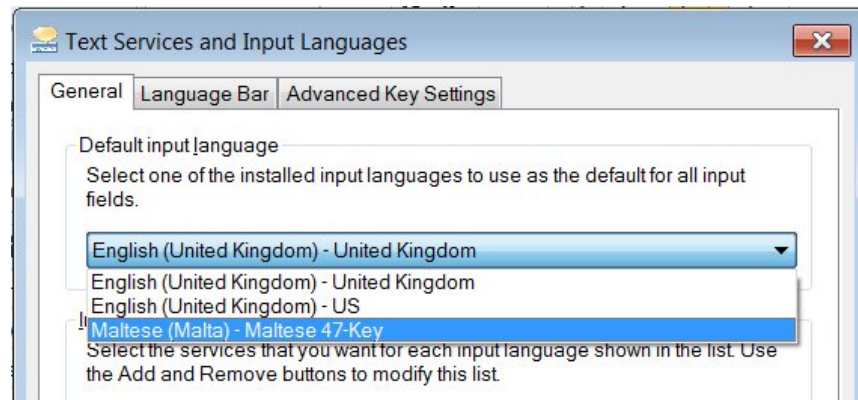
1. Click Start button.
2. Click Control Panel. The Control Panel window will be displayed.
3. Click Region and Language. The Region and Language dialog box is displayed.
4. Click Keyboards and Languages tab.
5. Click Change keyboards... button. The Text Services and Input Languages dialog box is displayed.
6. Click the language to remove.
7. Click Remove button.
8. Click Apply button for the changes to take effect.
9. Click OK button to close the Text Services and Input Languages dialog box.



## Changing the Default Input Language

To change the default input language:

1. Click Start button.
2. Click Control Panel. The Control Panel window will be displayed.
3. Click Region and Language. The Region and Language dialog box is displayed.
4. Click Keyboards and Languages tab.
5. Click Change keyboards... button. The Text Services and Input Languages dialog box is displayed.
6. Select the default input language from the drop-down field.



7. Click Apply button for the changes to take effect.
8. Click OK button to close the Text Services and Input Languages dialog box.

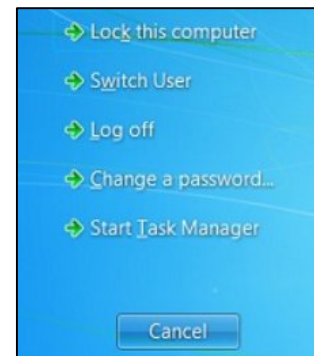
## Shutting Down a Non-Responding Application

If a program (also known as an application) on your computer stops responding, MS Windows will try to find the problem and fix it automatically. If you don't want to wait, you can end the program yourself by using Task Manager.

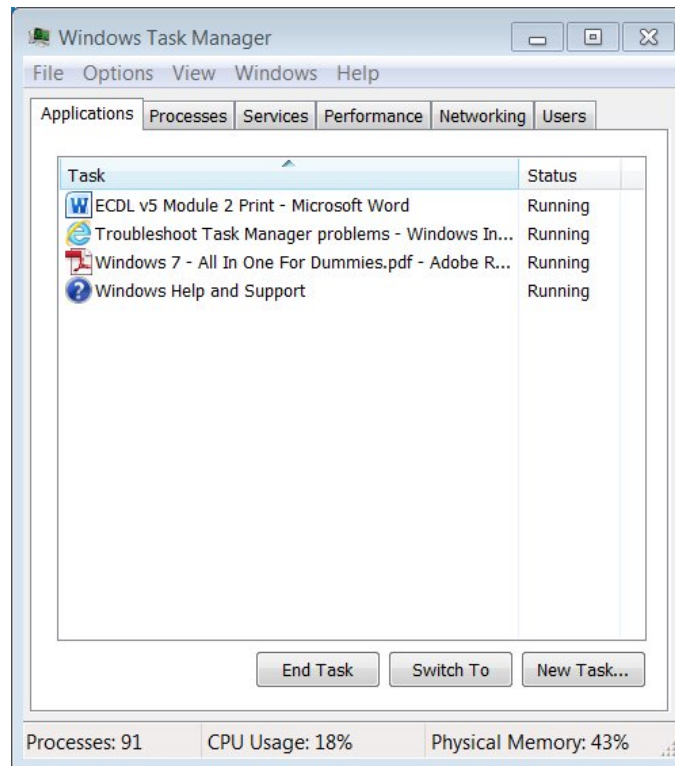
Using Task Manager to end a program yourself might be faster than waiting, but any unsaved changes will be lost. If you have important work that you want to keep, wait a few minutes and let MS Windows try to fix the problem first.

To close a program that is not responding:

1. Press CTRL+ALT+DEL key combination. The following screen will be displayed:
2. Click Start Task Manager. The Windows Task Manager (shown overleaf) will be displayed.







3. Click the non-responding program from the list.
4. Click End Task button.
5. Close the Windows Task Manager.

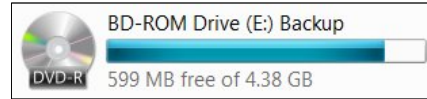
## Installing & Uninstalling Software Applications

The installation of software is the process of setting up a program to run on your computer. Before attempting to install new software on your computer system you need:

- To confirm that your computer system has the necessary requirements to run this software. Typically software packages list the system requirements of the software. Software programs available for download from the Internet also have system requirements listed on the Web page from where these can be downloaded.
- To determine whether you can safely install the software or not. If the new program has been downloaded from Internet, you need to check that this program does not contain a virus.
- To confirm that you can install and use the software without breaching copyright and legal issues. You can safely proceed with installing freeware software. However, you will be in breach of the End User Licence Agreement (EULA) if you install commercial software which you have borrowed from third parties. You will also be in breach of the EULA if you use academic software for commercial purposes.

Different programs may have different installation processes.

- If you have the installation CD or DVD of the software, you can insert this in the computer and follow the instructions displayed on the screen. The installation CDs or DVDs are also referred to as installation media.
- If nothing happens when you insert the installation media in the computer:
  1. Open Windows Explorer by pressing Windows key + E.
  2. Right-click the CD/DVD drive (it can be drive D, E or F). A shortcut menu will be displayed.
  3. Click Open. A window showing the contents of the CD will be displayed.
  4. Try and locate a file called Setup or Install. Double-click any of these to start the installation of the program. Follow the instructions displayed on the screen.
- Programs downloaded from Internet may consist of a single file ending with the extension .EXE. Double-click this program file (.EXE) to start the installation process.
- Programs downloaded from the Internet may consist of a single folder ending with the extension .ZIP (MS Windows). Such extension indicates that the installation files have been bundled together and compressed into a single folder.

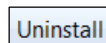
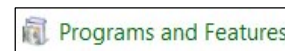


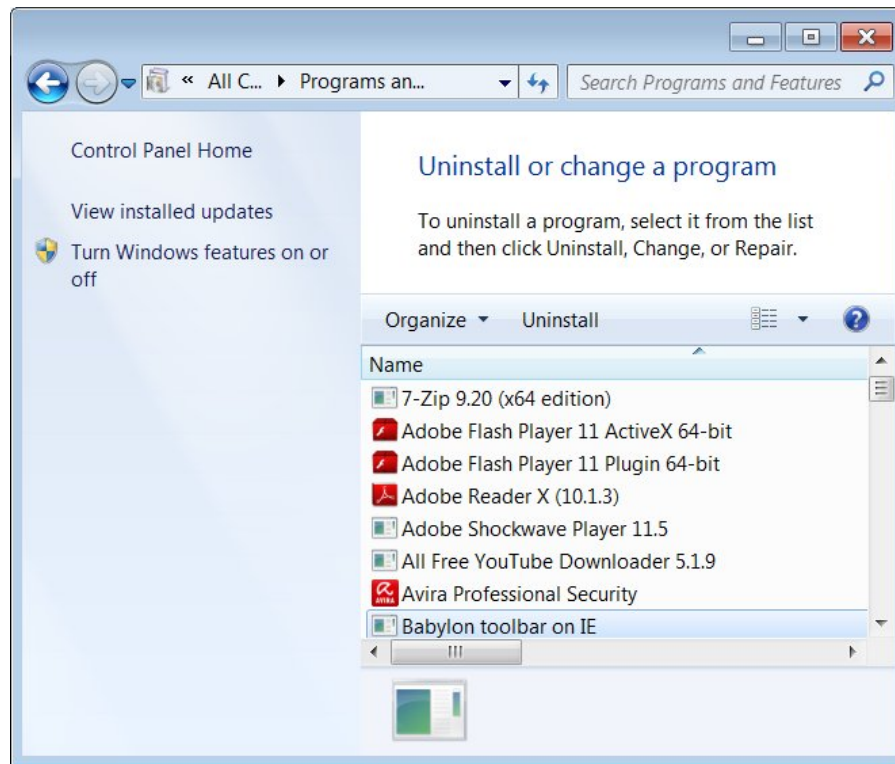
Compressed files occupy less space and can therefore be transferred faster over an Internet connection. However, compressed files must be extracted from the folder before the software can be installed. Compression / decompression utilities (programs) are required to extract these files. Examples of such utilities include WinZip (MS Windows) and 7-Zip (MS Windows). These utilities will prompt you to extract all files to a particular folder. You will then locate the Setup or Install file to install the program.

Typically most software programs contain a readme file. This file usually contains instructions on how to use the program, information on known conflicts with other software, last-minute changes that are not included in the printed manual, and other helpful facts. You should make an effort to go through the readme file before running the newly installed software.

You can uninstall a program from your computer if you no longer use it or if you want to free up space on your hard disk:

1. Click Start button.
2. Click Control Panel. The Control Panel window is displayed.
3. Click Programs and Features. The Programs and Features window is displayed. This window lists all programs installed in the computer.
4. Click the program to uninstall.
5. Click Uninstall button.





6. Follow the instructions displayed on the screen to uninstall the program.
7. Close the Programs and Features window.

Note that:

- If the program you want to uninstall is not listed, it might not have been written for this version of Windows. To uninstall the program, check the information that came with the program.
- Some uninstallation procedures may require a restart of your computer.

## Connecting & Disconnecting Devices

The USB (universal serial bus) ports are typically used to plug flash drives, digital cameras, media players and external hard disks into your computer. Some devices such as mice, keyboards, scanners, printers, webcams, and mobile phones may also connect to the USB ports on your computer.

You will recognize a USB connection by the symbol usually displayed on the connector.

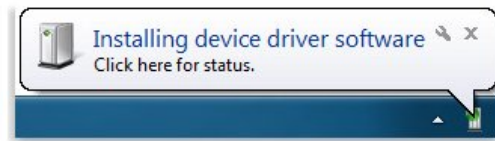


Digital cameras need to have a USB cable plugged into them before they can be plugged into a USB port on your computer. Other USB devices, such as USB flash drives, have an integrated USB connector that allows them to be plugged directly into a USB port on your computer without a cable.

To connect a USB device to your computer:

Plug the device in the USB port in your computer.

The first time you connect a USB device in your computer, MS Windows automatically identifies the device and installs a driver for that device. If Windows can find and install the device driver automatically, you will be notified that the device is ready to use.




A typical USB cable and port

Some devices require that you install drivers manually. In those cases, the device manufacturer includes a software disc and instructions on installing the driver before plugging in the device.

Note that:

- Drivers allow your computer to communicate with hardware devices. Without a driver, a USB device that you connect to your computer will work properly.
- All computers have several USB ports. Your desktop computer may have USB ports on the front and on the back. Consider using the front USB port, if you plan to frequently connect and disconnect the device.

Most USB devices can be removed and unplugged. When unplugging storage devices, such as USB flash drives, make sure that the computer has finished saving any information to the device before removing it. If the device has an activity light, wait for a few seconds after the light has finished flashing before unplugging it.

If you see the Safely Remove Hardware icon  in the notification area on the right side of the taskbar, you can use this as an indication that devices have finished all operations in progress and are ready to be removed. Click the icon and you'll see a list

## Capturing a Full Screen / Active Window

Sometimes you may want to show someone what you are seeing on your computer. In MS Windows, one easy solution is the PrtScn key. When you press it, an image of your screen is copied to the Clipboard. This is called a screen capture or screen shot.

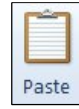
To capture a full screen/active window and send it to someone in an e-mail, you will first have to paste it into MS WordPad or MS Paint and save it.

1. To capture a full screen press Print Screen key on your keyboard (labelled "Print Scrn SysRq").

To capture the active window only, hold the Alt key down while pressing Print Screen key.

A copy of the screen display will be placed in the clipboard (computer's primary memory).

2. Open a new WordPad file.
3. Click Paste button. The file will display a copy of the screen contents.
4. Save the file.



Note that:

- On some keyboards, PrtScn might appear as PRTSC, PRTSCN, or a similar abbreviation.
- Certain laptops might use other key combinations, such as FN+PRTSC, to capture the screen.

## ■ OUTPUTS

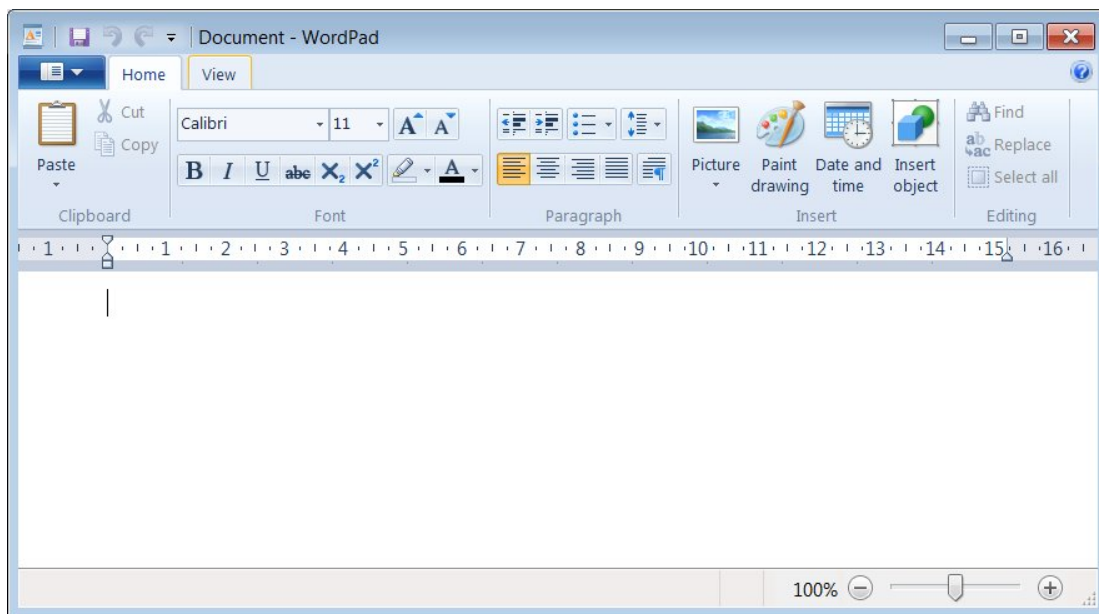
### Working with Text

MS Windows has two text editing programs: Notepad and MS WordPad. Both programs have basic word processing facilities; however WordPad has more features compared to Notepad.

To open MS WordPad:

1. Click Start button.
2. Click All Programs.
3. Click Accessories.
4. Click WordPad.

By default, MS WordPad opens with a blank document.



### Entering Text in a Document

Somewhere in the workplace of the MS WordPad window there is a vertical line called the insertion pointer (cursor). Note that as you type, text will always be inserted to the left of this cursor. When the text reaches the right margin, MS WordPad automatically begins a new line. This feature is called word-wrap.

The following table shows the use of spaces as you type your document:

No Spaces	One Space
after opening a bracket (	after comma ,
before closing a bracket )	after a colon :
before a fullstop .	after a semi-colon ;
before an exclamation mark !	after a fullstop .

No Spaces	One Space
before a question mark ?	after an exclamation mark !
before a comma ,	after a question mark ?
before a semi-colon ;	

Press the CAPS LOCK key to type text in uppercase. Press SHIFT key in combination with an alphabetical letter key to type the latter in uppercase.

To move the cursor within the text:

To move the Insertion Point	Press
Back one character	Left Arrow ←
Forward one character	Right Arrow →
Up one line	Up Arrow ↑
Down one line	Down Arrow ↓
To the previous word	Ctrl-Left Arrow
To the next word	Ctrl-Right Arrow
To the beginning of the line	Home key
To the end of the line	End key

When pressing any of the keys indicated above, the cursor just moves within the text but nothing else happens.

## Deleting Text

To delete text using the Backspace key:

1. Position the cursor to the right of the character to erase.
2. Press Backspace key.

To delete text using the Delete key:

1. Position the cursor to the left of the character to erase.
2. Press Delete key.

## Saving & Naming a Document

It is important to save your work from time to time whilst typing. When you save the document for the first time, you need to give it a name. Document names can have up to 255 characters including spaces. File names cannot include any of the following characters: forward slash (/), backslash (\), greater than sign (>), less than sign (<), asterisk (\*), period (.), question mark (?), quotation mark ("), pipe symbol (|), colon (:), or semicolon (;).

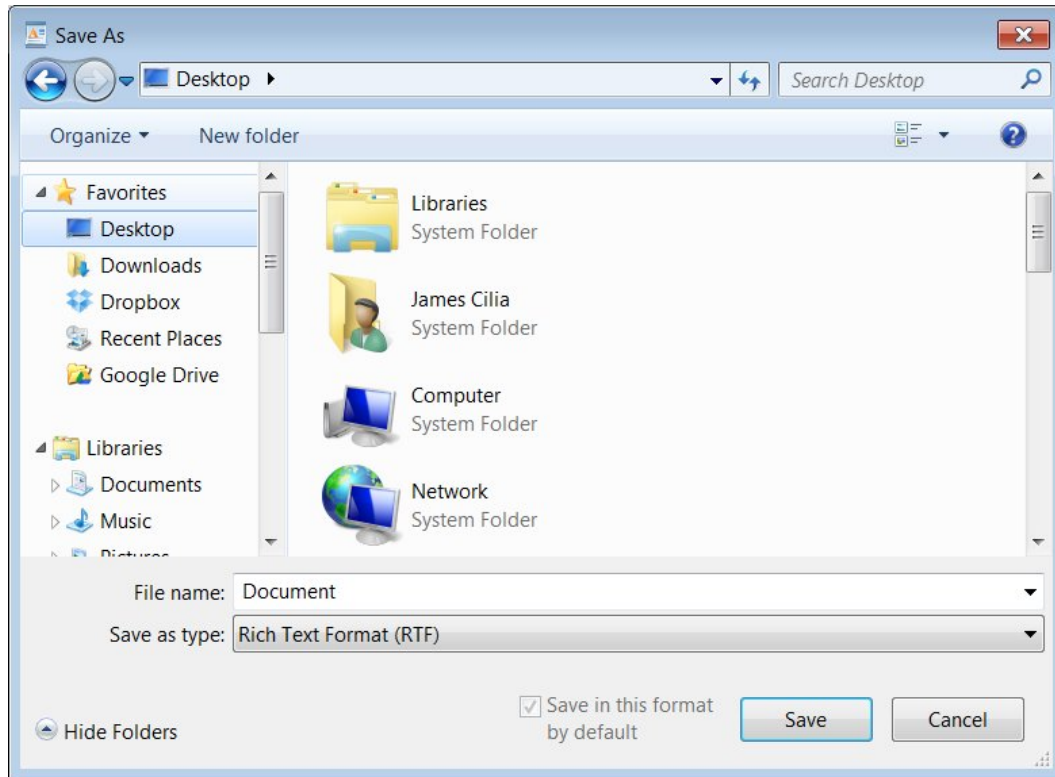
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To save and name a document:

1. In the Quick Access toolbar, click Save button. The Save As dialog box is displayed.



2. Browse to the drive and folder where the document file will be saved.
3. Type a name for your document in the File Name: box.
4. Click Save button.



Note that:

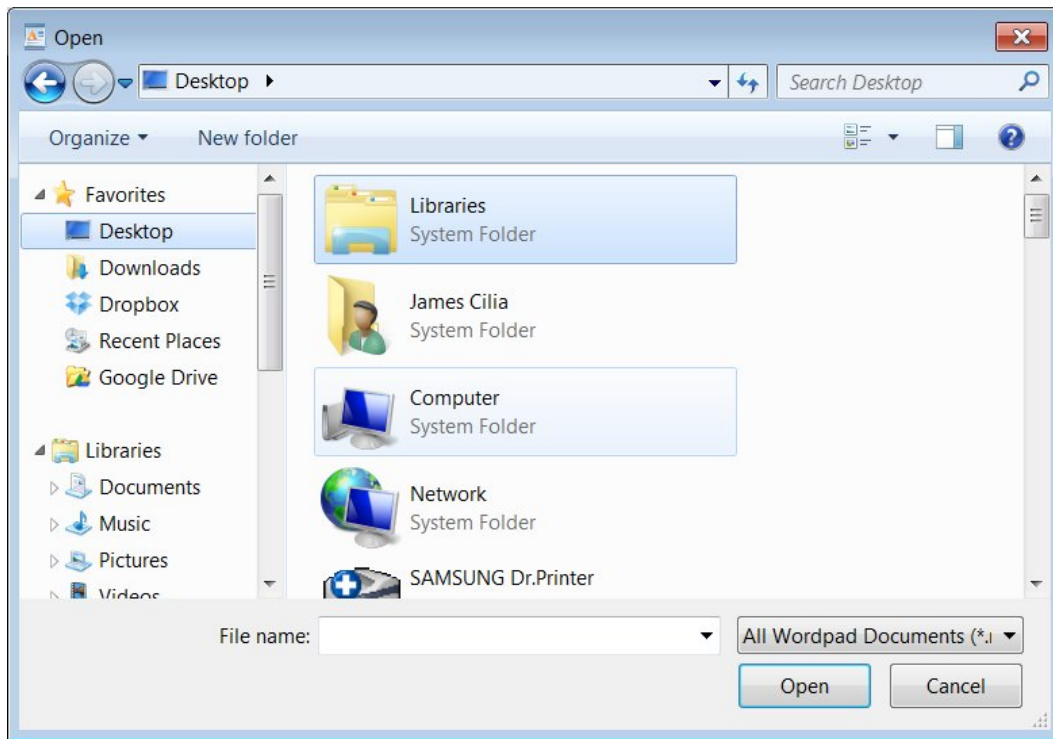
- After you save a file for the first time, the filename appears in the title bar. When you save the file the second, third, fourth time etc. the computer will not ask you to input all this information again but will only update the file with the changes made up to that moment.

## Opening an Existing Document

1. In WordPad, click Open button. The Open dialog box.
2. Browse to the drive or folder that contains the document to open.
3. Double-click the document you want to open.





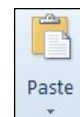


## Moving & Copying Text

An important feature in a word-processor is that of moving text from one location of a document to another. MS WordPad uses a temporary storage area called the clipboard for moving and copying text within a document. This area functions much like a clipboard that holds loose pieces of paper.

To move text:

1. Select the text to move.
2. Click Cut button or press Ctrl+X
3. Position the cursor where the text will be moved.
4. Click the Paste button or press Ctrl+V

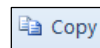


Note that:

- The Cut button removes the selected text or object and places it on the Clipboard, where you cannot see it in the work area.

To copy text:

1. Select the text to copy.
2. Click Copy button or press Ctrl+C
3. Position the cursor where the text will be copied.
4. Click Paste button or press Ctrl+V



Note that:

- The Copy button copies the selected text or object and places it on the Clipboard, where you cannot see it in the work area.

- You can even cut-paste or copy-paste information from one document to another, and to and from other programs, such as MS Excel worksheet.

### Closing MS WordPad

1. Save your work.
2. Click WordPad tab.
3. Click Exit.



### Installing a Printer

1. Click Start button.
2. Click Devices and Printers.

Devices and Printers

The Devices and Printers window showing a list of printers connected to the network will be displayed.

3. Double-click Add Printer. This will start the Add Printer Wizard.
4. Click Next button to advance to the Local Printer or Printer Connection dialog box.
5. Select whether you want to install a local printer or a network printer.
6. Click Next button.
7. Enter the appropriate options in the subsequent dialog boxes.

Add a printer

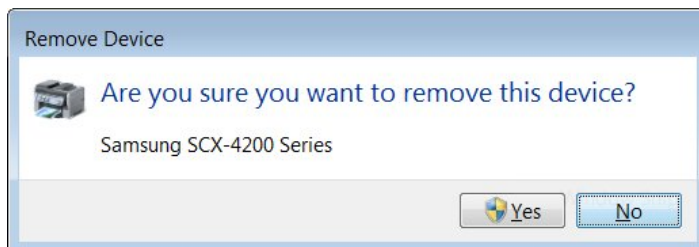
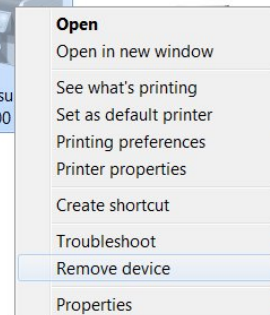
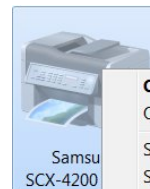
Note that:

- You may be prompted by the Add Printer Wizard to insert the installation CD accompanying the printer packaging to install the new printer.

### Uninstalling a Printer

1. Click Start button.
2. Click Devices and Printers.
3. Right-click the printer to uninstall.
4. Click Remove device. A dialog box will be displayed prompting you to confirm the removal of the printer.
5. Click Yes button.

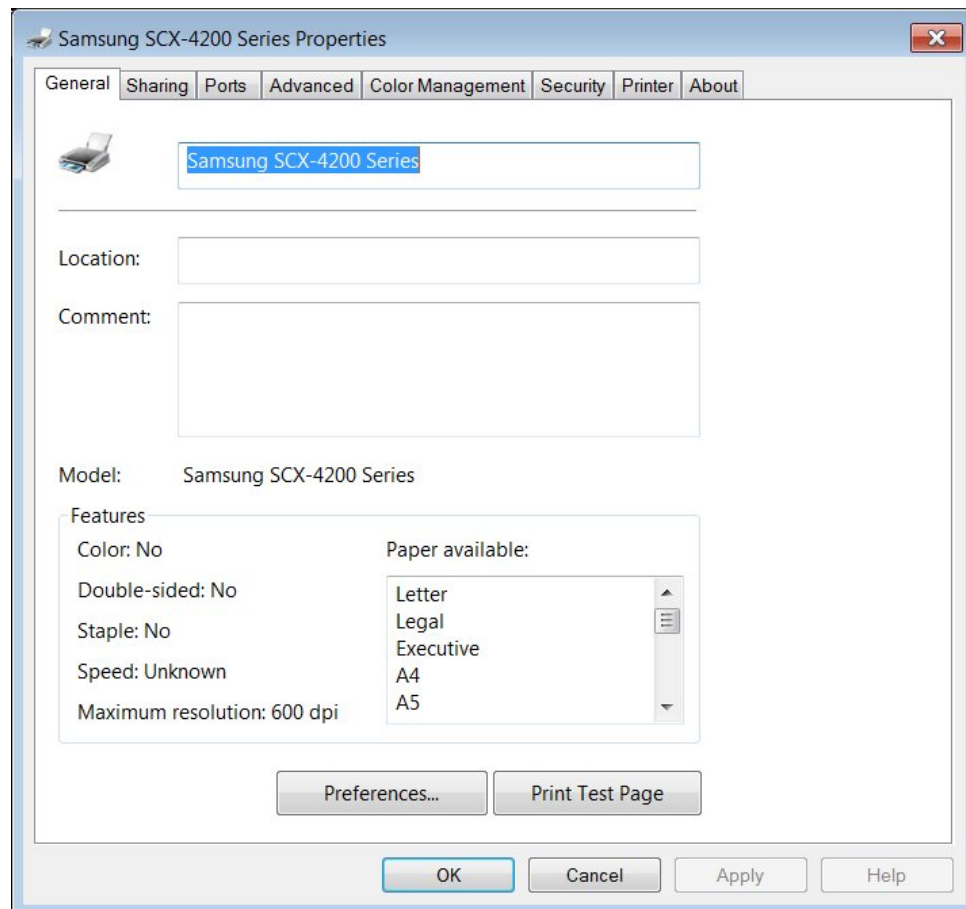
Devices and Printers



## Printing a Test Page

A test page provides visual confirmation that your printer works.

1. Click Start button.
2. Click Devices and Printers. Devices and Printers
3. Right-click the printer on which you want to print a test page.
4. Click Printer properties. The properties dialog box is displayed.



5. Click Print Test Page button.

## Changing the Default Printer

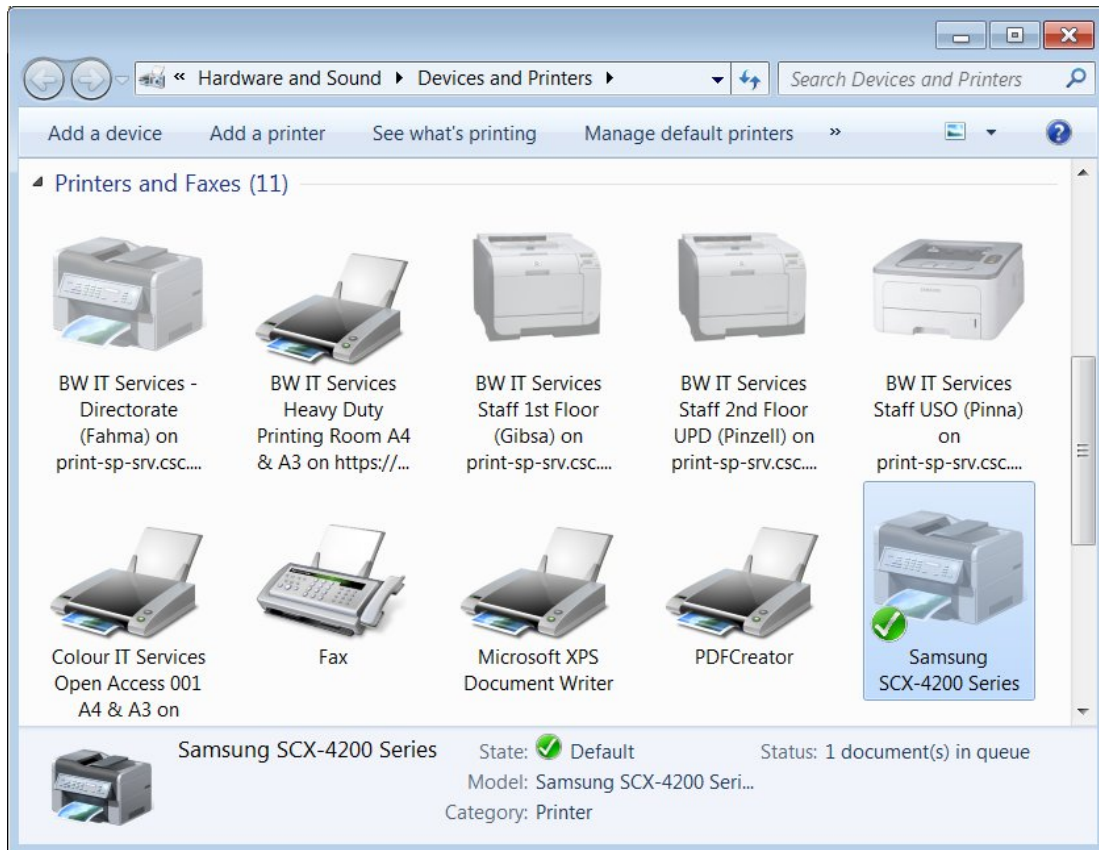
Normally in a computer network environment, there will be several printers. Users will therefore need to send their documents to a specific printer – probably to the printer closest to their computer system. Such users will set this printer as the default printer.

The default printer is the printer to which a computer sends documents when you select the Print command without first specifying which printer you want to use with a program. You can have only one default printer; it should be the printer you use most often.

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To change/set the default printer from an installed printer list:

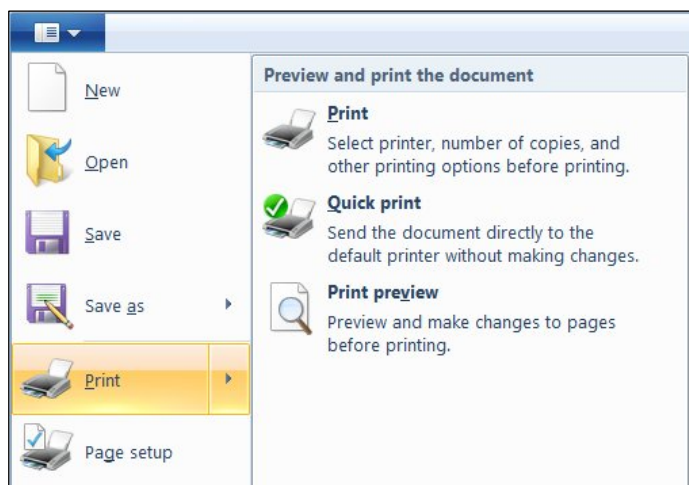
1. Click Start button.
2. Click Devices and Printers.
3. Right-click the name of the printer to set as a default printer. A shortcut menu will be displayed.
4. Click Set as Default Printer. The icon of selected printer will display a checkmark.



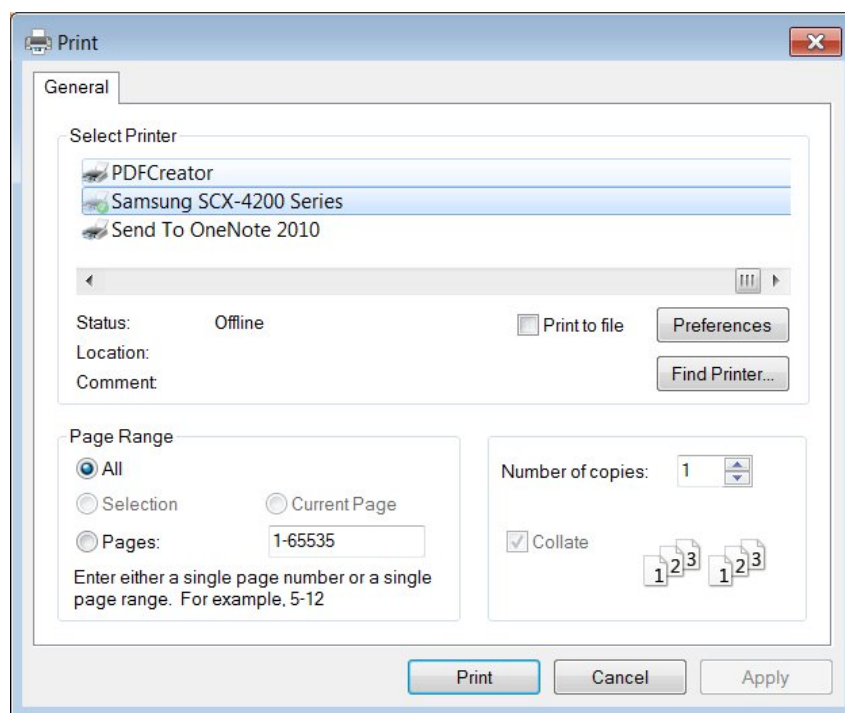
## Printing a Document

Almost all application programs have a printing facility. To print from MS WordPad, for example:

1. Open the document file to print.
2. Click MS WordPad tab.
3. Click Print.
4. Click Print.



5. Enter the appropriate options (refer to the following table).
6. Click OK button.



Select	To Do This
Page Range All	Prints the entire document.
Current page	Prints the page where the insertion point is located.
Selection	Prints the highlighted text.
Pages	Prints any pages which you select. Enter the page numbers to print e.g. 3,7,9-12, 18 prints pages 3, 7, 9, 10, 11, 12 and 18.
Copies	Allows you to set the number of copies you want to print.

Collate Copies	Prints a complete range of pages before printing the next copy. For example, if you are printing 2 copies of pages 1-3, WordPad prints one copy of each page before starting over and printing each of the three pages again to make the second copy of the set of pages.
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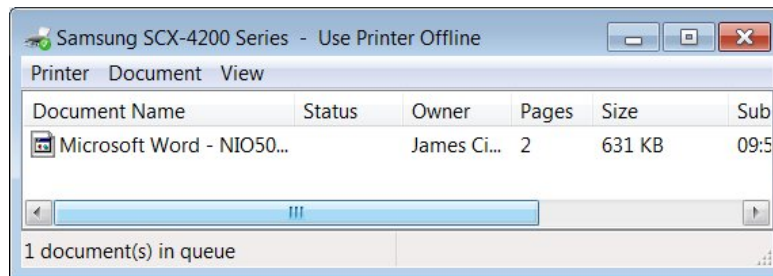
## Viewing the Print Job's Progress

Every installed printer within MS Windows has a print queue associated with it. All printouts sent to the printer either from the local machine or from the network (if the printer is shared over a network of computers) go to the print queue.

The print queue allows all print jobs to be serviced in an orderly manner and give the user control over specific print jobs waiting to be printed. You can use the print queue to pause or cancel print jobs.

To open the print queue dialog box:

1. Click Start button.
2. Click Devices and Printers. The Devices and Printers window showing a list of printers connected to the network will be displayed.
3. Double-click on a printer to view its print queue.
4. Double-click See what's printing. The print queue for the selected printer will be displayed.



5. The print queue for the selected printer will be displayed.

## Pausing, Restarting & Cancelling a Print Job

1. Repeat steps 1-4 as for displaying a print queue.
2. Click the name of the file.
3. Click the Document menu.
4. Do one of the following:
  - Click Pause/Resume.
  - Click Restart.
  - Click Cancel.

## ■ FILE MANAGEMENT

### Organisation of Drives, Folders & Files

A computer program is made up of a collection of files. These files can be divided in two categories:

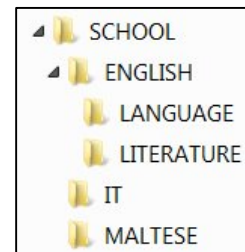
1. Program files / Instruction files - written by computer programmers i.e. manufacturers of software. Users are not really interested in the contents of these files.
2. Data files / User files - written by you (the user) i.e. letters, memos, faxes, databases, graphs etc.

The program files are automatically organised when the software is installed. However you will need to organise the data files to ensure efficient day-to-day use. This organisation becomes particularly important where a lot of data files are present on the disk.

Imagine your computer as a 'filing cabinet' with a number of drawers. Each drawer represents a disk-drive on your computer. The drawers are for the USB flash disk, the hard disk, the CD-ROM or a disk on the network.



In an office, a single filing cabinet drawer usually contains a lot of information organised in folders. Related information is usually stored in a single folder. Disk-drives can have lots of folders. Each of these folders will contain files having related information.

For example, you may wish to store all the data files related to your school work in a single folder called 'SCHOOL'. If a large number of data-files are present in this 'SCHOOL' folder, you will find it more efficient to group some files together.



For example, you may wish to group all your data files related to English in a sub-folder called 'ENGLISH' within the same folder 'SCHOOL'. You will find it more efficient if you create two sub-folders – 'LANGUAGE' and 'LITERATURE' – within 'ENGLISH' to store language and literature documents in separate sub-folders. Similarly you can do the same thing to store data files related to 'IT' and 'MALTESE' etc.

The number of folders or sub-folders on a disk depends on the storage capacity of the disk. The more bytes a disk has the more folders, sub-folders and files it can store.

Icon	Represents
 Work	A <u>folder</u> , which can contain sub-folders and data-files. Folders are used to organise your files.
 Letter	A <u>file</u> , the basic unit of storage in MS Windows. Files are documents, spreadsheets and databases you use and create. Different types of files have different looking icons. The icon shown on the left is used for files created in MS Word.

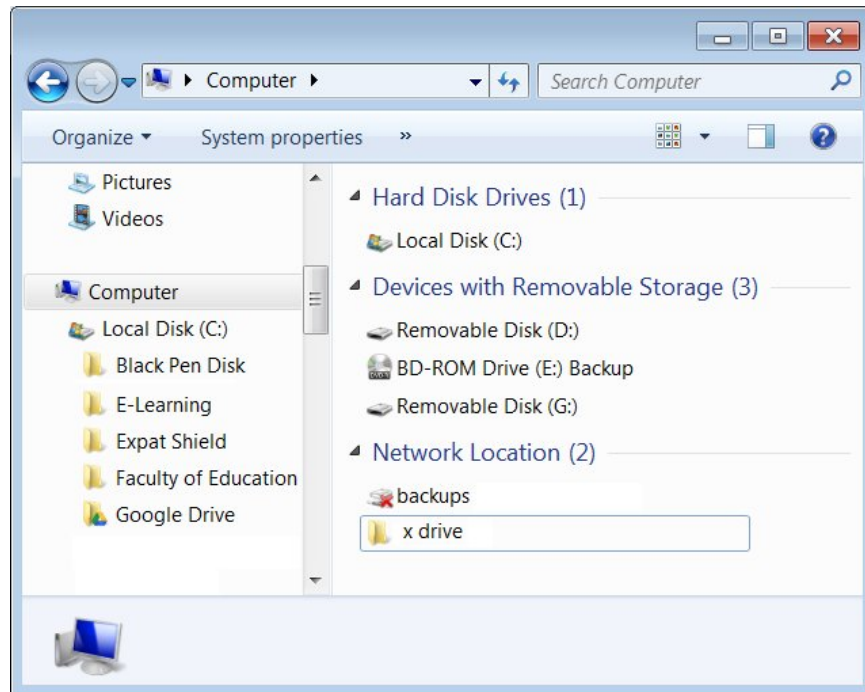
The files and folders can be organised through the MS Windows Explorer window.



## Navigating between Drives

The Computer window or MS Windows Explorer is used to scan for devices which can store files and folders like hard disk, USB flash drive, CD-RW, DVD-RW and network drives.

You can open the Computer window using the Windows + E key combination.



Inside the Computer window there are the 'drawers' of your computer's filing cabinet. All your drives are shown as icons. Different disk drives are assigned different location addresses. Every disk drive is referred to by an alphabet letter usually:

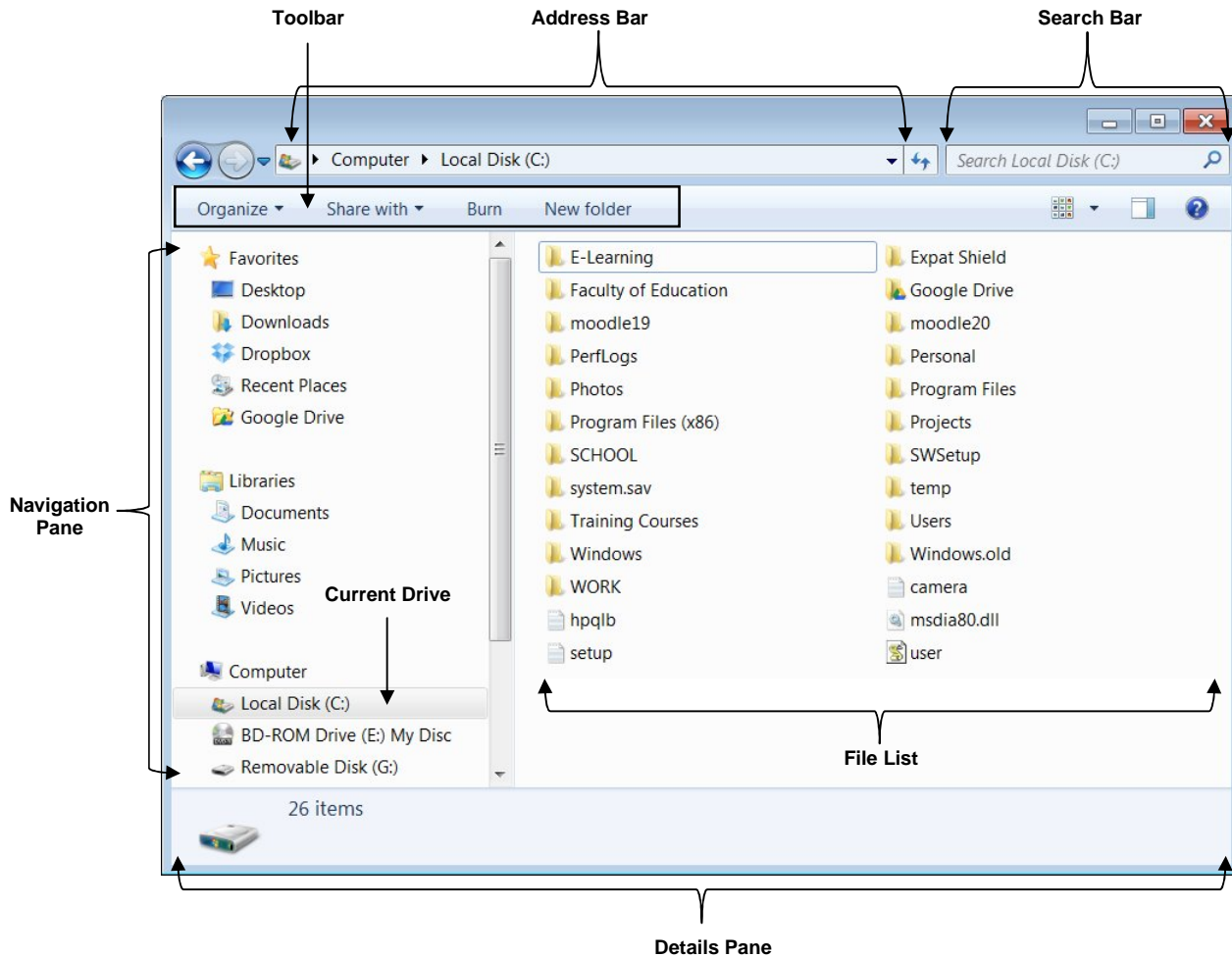
- C: represents the primary hard disk.
- D: represents a removable disk (USB flash drive).
- E: represents the CD/DVD drive.

Other location addresses may be present if more disks are available. For example, the Computer window may display another drive G: representing the USB flash drive. Even more location addresses may be present if you are working on a networked computer.

## Navigating between Folders & Files

The Computer window is split in two parts. The Navigation pane on the left displays the list of drives and folders. The File List pane on the right pane shows folders and files within the highlighted drive or folder in the Navigation pane. The highlighted drive or folder in the Navigation pane is known as the current drive or folder.





To navigate to a folder or file on a drive:

1. Open the Computer window using the Windows + E key combination.
2. In the folder list (left pane), click the drive containing the folder or file. This will display the contents of the drive in the right pane.
3. Click the name of the folder or file in the right pane.

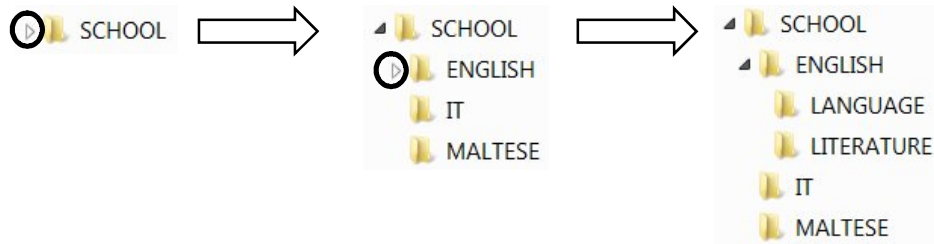
Note that:

- You may need to click through sub-folders (folders in another folders) to navigate to a file.

## Expanding & Collapsing Views of Drives & Folders

To view the folders, sub-folders or files on a drive:

In the Navigation pane, click the arrow of the folder's name e.g. SCHOOL. Alternatively double-click the folder's name. A list of folders contained in the disk will be displayed.



To collapse the branch i.e. to hide the folders on the disk:

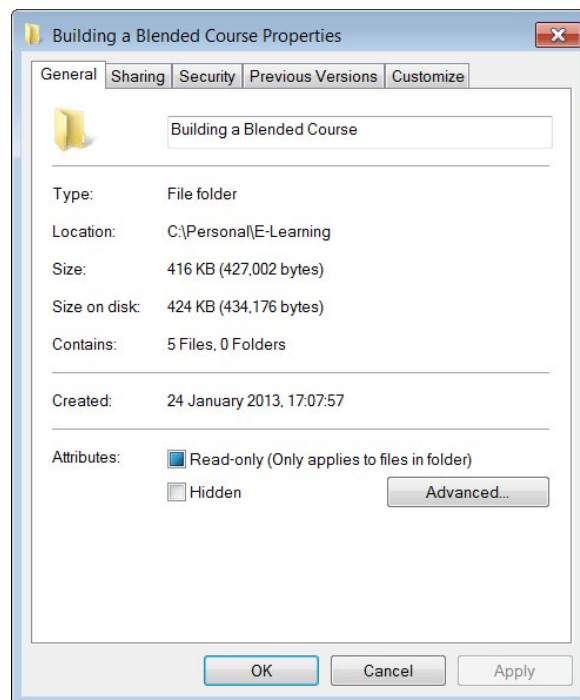
In the Navigation pane, click the black downwards pointing arrow of the folder's name. Alternatively double-click on the folder's name.

The folders and sub-folders will disappear.

## Displaying File & Folder Properties

To display the properties (name, size and location) of a file or folder:

1. Right-click the file or folder to view its properties.
2. Click Properties. The Properties dialog box is displayed.



3. Click OK button.

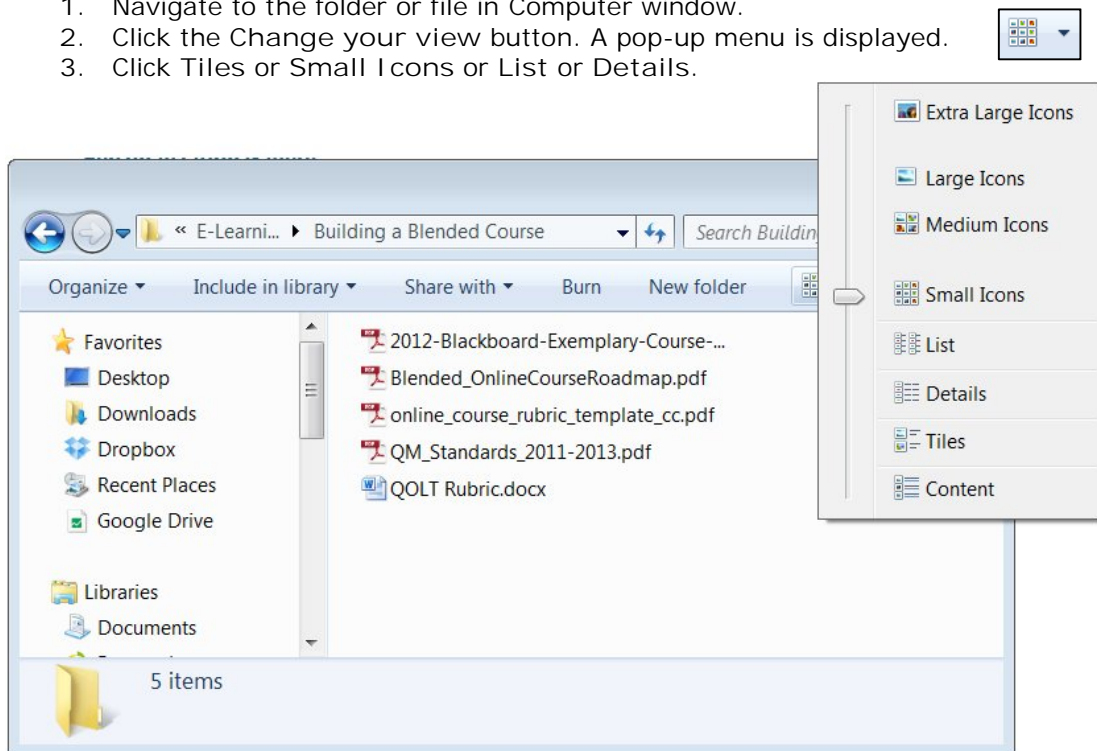
Note that:

- The properties dialog box displays two sizes. Size is the actual byte count of the folder/file while Size on disk is the actual byte count that the folder/file occupies on the disk. Size on disk is usually bigger than the actual size of the file. Size on disk can be smaller than the actual size for drives that use compression.

## Changing Display Views

To change the display views of files and folders:

1. Navigate to the folder or file in Computer window.
2. Click the Change your view button. A pop-up menu is displayed.
3. Click Tiles or Small Icons or List or Details.



Note that:

- The Details view displays the date last modified, type and size of file or folder.

## Files Types

When you enter information in a computer you usually store this on a disk (hard-disk or removable disk) for future use. This procedure of storing information is known as saving. Information is saved in files and the first time you save any piece of information you need to give a name to the file. Filenames are used to call out the information on the computer screen for use.

MS Windows 7 can have filenames with up to 255 characters long including any spaces. However these filenames cannot have the following characters: \ ? : \* " < > .

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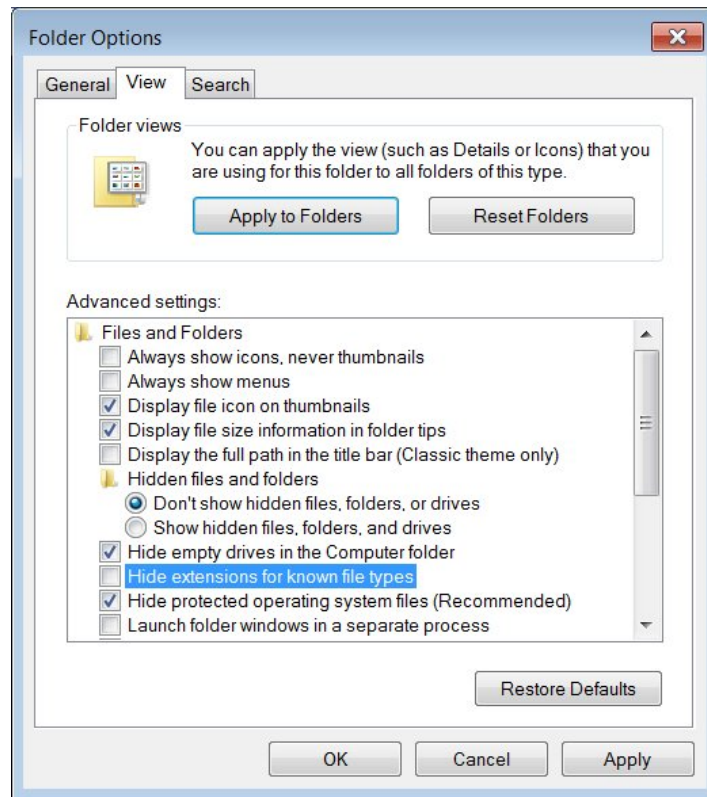
It is good practice to use meaningful names for files to help with recall and organization.

Filenames usually end with a 3 character extension. A period (.) separates the filename from the file extension. Some of the common file extensions are listed here:

File Extension	File Type
.doc or .docx	MS Word document
.rtf	Word-processing program - Rich Text Format
.txt	MS Notepad - TeXT file
.xls or .xlsx	MS Excel worksheet file
.ppt, .pptx or .pps	MS PowerPoint file
.mdb or .accdb	MS Access database file
.bmp	MS Paint - BitMaP file (picture)
.gif	Graphics Interchange Format (picture)
.jpg	Joint Photographic Experts Group (picture)
.wav	Wave file (sound)
.mp3	Audio file (sound)
.mpe, .mpg	MPEG animation
.avi	MS Video for Windows movie
.zip	Zip file (compressed)
.tmp	Windows temporary file
.exe	Executable file

By default MS Windows does not display file extensions. You can display the file extensions in the Computer window:

1. In the Computer Window, click Organizer button.
2. Click Folder and search options. The Folder Options dialog box is displayed.
3. Click View tab.
4. Deselect the option Hide file extensions for known file types.
5. Click Apply button.
6. Click OK button.



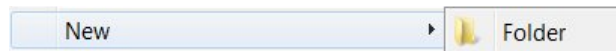
## Folder & File Names

It is a good practice to use meaningful names for folders and files to help with searching and organisation.

## Creating Folders & Sub-Folders

To create a folder:

1. In the Computer window, right-click the drive e.g. Local Disk C: where the folder will be created.
2. In the pop-up menu, click New. A new folder will be added.



3. Type a name for your folder in the text box displayed.
4. Press Enter key. A yellow folder will be created.

To create a sub-folder:

1. In the Computer window, right-click on the folder/sub-folder where the sub-folder/s will be created.
2. Repeat steps 2-4 as for above.

Note that:

- It is good practice to use meaningful names for folders and sub-folders to help with recall and organization.

### Renaming Files & Folders

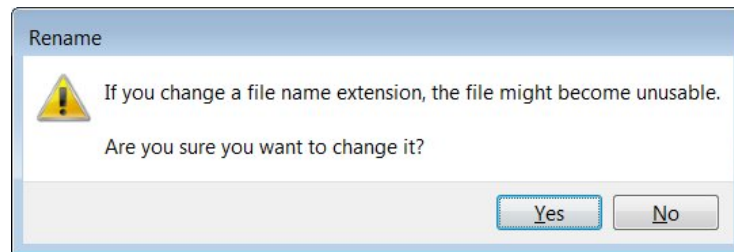
You can rename files, folders and sub-folders:

1. In the Computer window, right-click the file, folder or sub-folder to rename.
2. Click Rename.
3. Replace the existing name in the text box with the new name.
4. Press Enter key.

Note that:

- You can only rename a file provided that this file is not marked as read-only and is not currently being used by a program.
- You should not change the extension when renaming a file. The extension of a file determines the program to be used to open that file. For example, document files ending by .doc are typically opened by a word processing program. If you rename the extension, MS Windows will not be able to determine which program to use to display the file contents.

The following message is displayed when you attempt to change the extension of a file.



- You should never rename (or delete) files ending with these extensions:

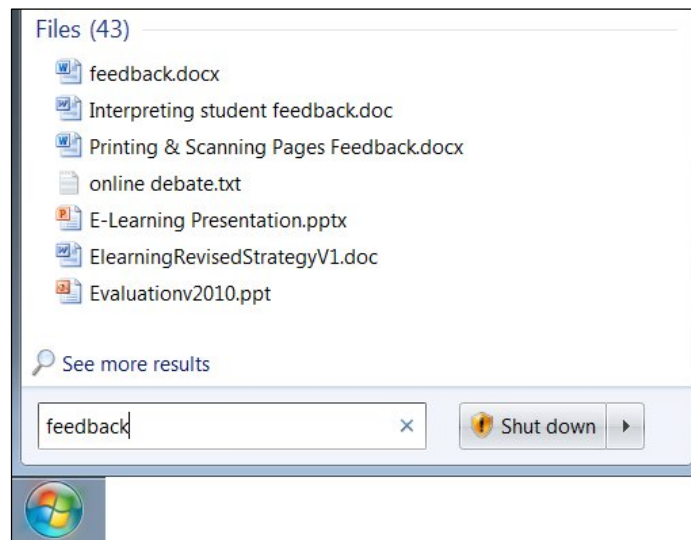
.exe	.com	.bat
.dll	.ini	.sys

### Searching for Files by Properties

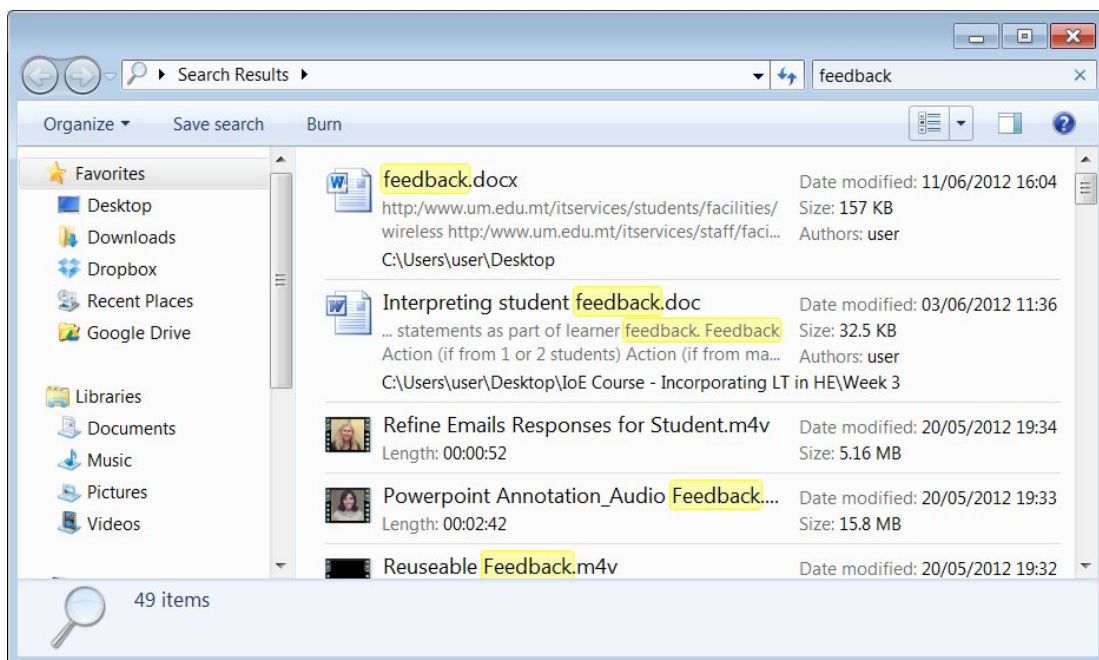
MS Windows provides several ways to find files. You can search for files:

1. Click Start button.
2. In the Start menu search box, type the name of the file to search.

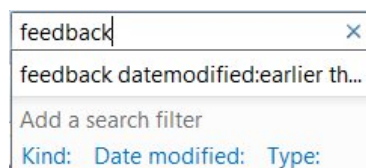
As you type, items that match your text will appear on the Start menu. The search is based on text in the file name, text in the file, tags, and other file properties.



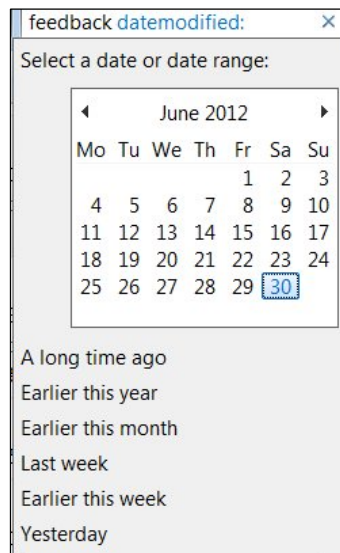
- Click the file to open or click See more results. The Search Results window is displayed.



Click in the Search field. This will display Add a search filter.



Click Date modified: to search for a file by date modified. Choose the appropriate options.



The Search Results dialog box will automatically display the list of files matching the date criteria.

4. Click the file to open.

You can also search for files using wildcards:

1. Click Start button.
2. In the Start menu search box:

Type the file extension e.g. .pptx to locate all PowerPoint files.



Type the first letter of the filename e.g. T\*.docx to locate all MS Word documents starting with the letter T.



Type the file type and size e.g. \*.docx:<25MB to locate all MS Word documents with file size less than 25MB.



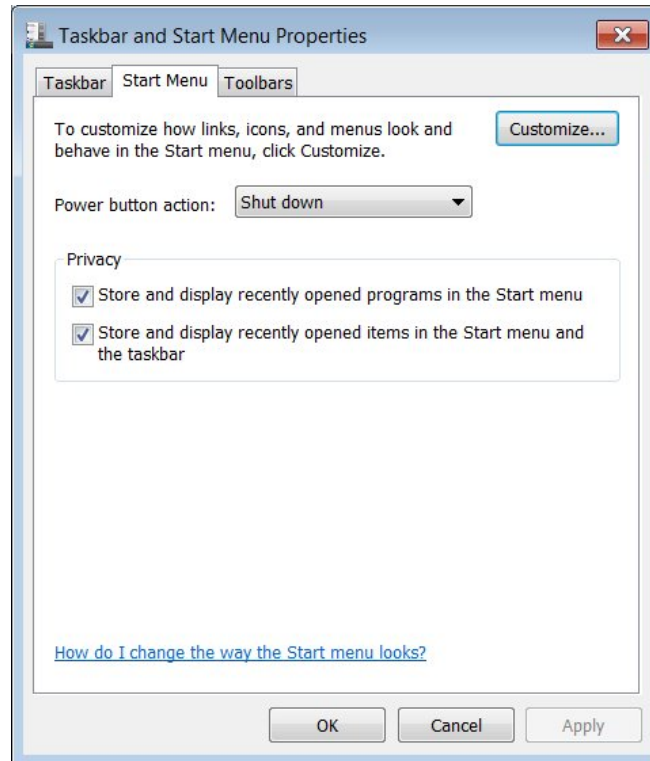
5. Click the file to open.



## Viewing the List of Recently Used Files

First you need to set MS Windows 7 so that each time you open the Start menu you will see 'Recent Items'.

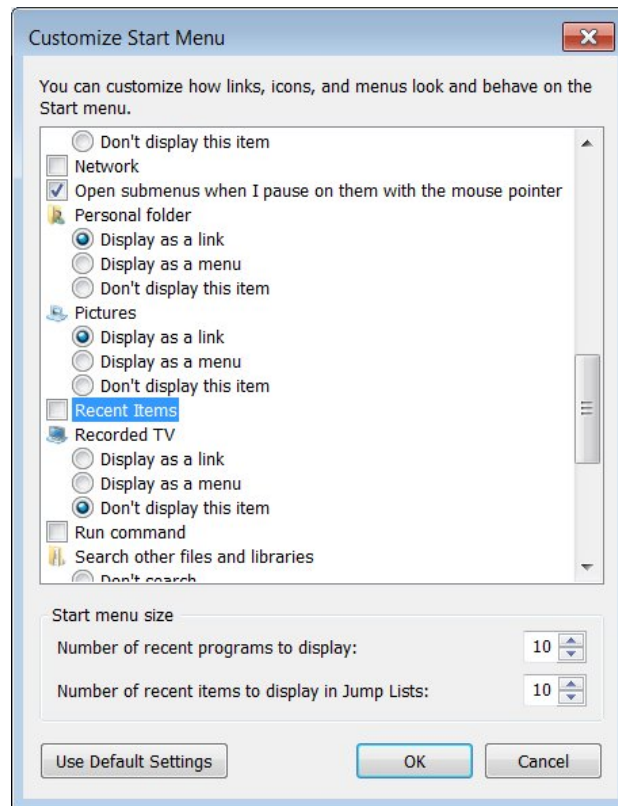
1. Right-click Start button.
2. Click Properties. The Taskbar and Start Menu Properties dialog box is displayed.



3. Click Customize... button. The Customize Start Menu dialog box is displayed.
4. Scroll down and locate Recent Items.
5. Tick Recent Items checkbox.
6. Click OK button.
7. Click OK button again.

Note that:

- Each time you click Start button, you will now see Recent Items. Clicking on Recent Items displays a list of recently used files.



## Selecting Files & Folders

To select one file, folder or sub-folder:

In the Computer window, click the file, folder or sub-folder to select. The selected file will be highlighted.

To select several files, folders or sub-folders adjacent to each other:

1. In the Computer window, click the first file, folder or sub-folder in the block.
2. Press and hold the SHIFT key.
3. Click on the last file, folder or sub-folder of the contiguous block to select.
4. Release the SHIFT key.

The block of files, folders or sub-folders will be selected.

To select several files, folders or sub-folders that are non-adjacent to each other:

1. In the Computer window, click the first file, folder or sub-folder to select.
2. Press and hold the CTRL key.
3. Click on the other files to select.
4. Release the CTRL key.

## Sorting Files

To view the details of files:

1. In the Computer window, click the arrow next to the Change your view button. A pop-up menu will be displayed.
2. Click Details.



The Details option displays the file attributes: name, date/time it was last modified, file type and size.

Name	Date modified	Type	Size
Files Currently on the Disc (7)			
alarm.wav	08/05/2000 07:20	Wave Sound	11 KB
calc_bck.gif	08/05/2000 07:20	GIF image	32 KB
CandImport.mdb	21/11/2000 17:34	Microsoft Access Database	88 KB
castle.jpg	08/05/2000 07:20	JPEG image	30 KB
clouds.jpg	08/05/2000 07:20	JPEG image	27 KB
draw_bck.gif	08/05/2000 07:20	GIF image	17 KB
events.rtf	15/12/1998 04:03	Rich Text Format	5 KB

The files displayed in the Computer window can be sorted by name, size, file type and the date/time last modified:

1. Repeat steps 1 and 2 as above.
2. Click the appropriate header:

Name	Date modified	Type	Size
------	---------------	------	------

Option	To Do This
Name	To sort the files by name.
Size	To sort the files in order of increasing or decreasing size.
Type	To sort the files by type.
Date Modified	To sort the files by date/time last saved.

Note that:

- To reverse the sort order, re-click the appropriate header.

## **Copying Files & Folders**

To copy files, folders between folders and between drives:

1. In the Computer window, select the file/s, folder/s or sub-folder/s to copy using one of the methods indicated in the previous section.
2. Right-click the selected file/s, folder/s or sub-folder/s. A short-cut menu will be displayed.
3. Click Copy.
4. Right-click the folder or disk drive where you want to copy the file/s, folder/s or sub-folder/s. A short-cut menu will be displayed.
5. Click Paste.

Note that:

- You can press the shortcut key combinations:  
CTRL + C instead of step 3.  
CTRL + V instead of step 5.

## **Moving Files & Folders**

To move files, folders between folders and between drives:

1. In the Computer window, select the file/s, folder/s or sub-folder/s to move.
2. Right-click the selected file/s, folder/s or sub-folder/s. A short-cut menu will be displayed.
3. Click Cut.
4. Right-click the folder or disk drive where you want to move the file/s, folder/s or sub-folder/s. A short-cut menu will be displayed.
5. Click Paste.

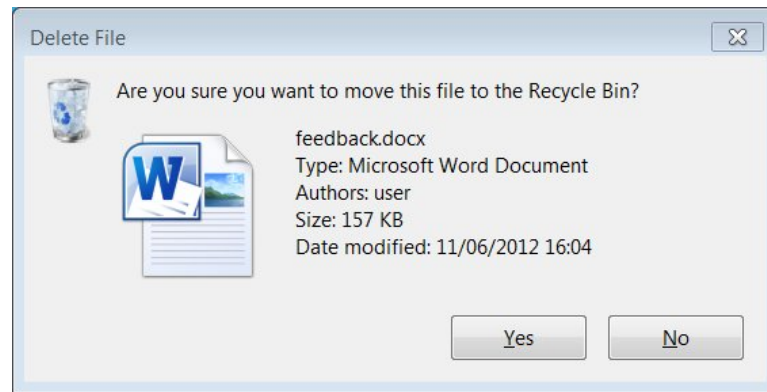
Note that:

- You can press the shortcut key combination: CTRL + X instead of step 3.

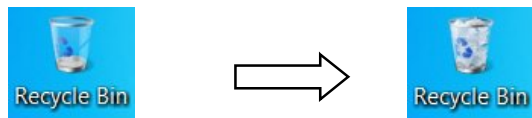
## **Deleting Files & Folders**

Files, folders or sub-folders which you delete from the hard-disk are placed in the Recycle Bin or wastebasket. To delete files, folders or sub-folders:

1. In the Computer window, highlight the file/s, folder/s or sub-folder/s to delete.
2. Press Delete key. The Delete File dialog box is displayed prompting you to confirm if you wish to delete the selected file, folder or sub-folder.
3. Click Yes button. The Recycle Bin icon changes from empty to full.



The Recycle Bin icon changes from empty to full.



Note that:

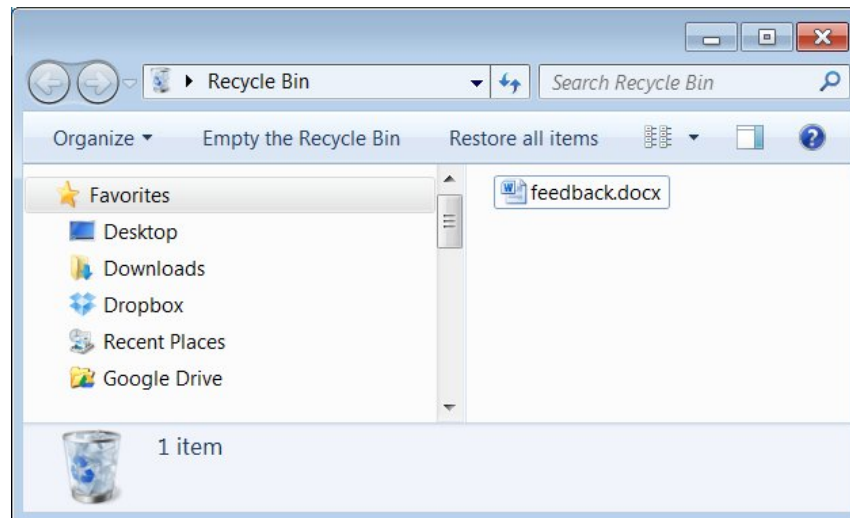
- You can also delete files, folders or sub-folders by right-clicking the file or folder and then clicking Delete.
- Items deleted from removable disks (e.g. USB flash disk) or a network drive are permanently deleted and are not sent to the Recycle Bin.

### Restoring Deleted Files & Folders

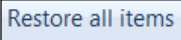
Items in the Recycle Bin remain there until you decide to permanently delete them from your computer. These items still take up hard disk space and can be undeleted or restored back to their original location. When it fills up, MS Windows automatically cleans out enough space in the Recycle Bin to accommodate the most recently deleted files and folders.

To restore a file or folder:

1. In the MS Windows desktop, double-click the Recycle Bin. The Recycle Bin window is displayed.
2. Right-click the file or folder to restore. A shortcut menu will be displayed.
3. Click Restore.



To restore all contents in the Recycle Bin:

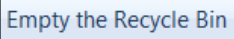
1. In the MS Windows desktop, double-click the Recycle Bin. The Recycle Bin window is displayed.
2. Click Restore all items. 

Note that:

- Restoring an item in the Recycle Bin returns that item to its original location.

## Emptying the Recycle Bin

To delete the contents of the Recycle Bin:

1. In the MS Windows desktop, double-click the Recycle Bin. The Recycle Bin window is displayed.
2. Click Empty the Recycle Bin. 

Note that:

- Deleting an item from the Recycle Bin permanently removes it from your computer. Items deleted from the Recycle Bin cannot be restored.

## Memory

Before discussing the storage of files and folders it is important to understand the basics about computer memory.

- Bit – short for Binary Digit, is the smallest unit of information on the computer. A single bit can hold only one of two values: 0 or 1. More meaningful information is obtained by combining consecutive bits into larger units. A group of eight bits (e.g. 1011 0010) make up one byte.
- Byte (B) - is the amount of storage needed to store one character (e.g. a, c, +, =, %, 8). So, for instance, a computer with 32,000 bytes of memory can

store up to 32,000 characters in its memory. Large amounts of memory are indicated in terms of kilobytes, megabytes and gigabytes.

- Kilobyte (KB) – is equivalent to 1024 bytes.
- Megabyte (MB) – is equivalent to 1024×1024 bytes (or 1,048,576B). Five hundred (500) pages of double-spaced text occupy about 1MB of space.
- Gigabytes (GB) – is equivalent to 1024×1024×1024 bytes (or 1,073,741,824B). Hard-disks (discussed later) have storage capacities measured in terms of GB (200-320GB).
- Terabyte (TB) – is equivalent to 1024×1024×1024×1024 bytes (or 1,099,511,627,776B).

Files – are units that store collections of data. Almost all information stored in your computer must be in a file. Different types of files store different types of information. For example, program files store programs, text files store text; graphic files store images or pictures etc. Each file has a name referred to as a filename. Typically file sizes range from KB to MB.

Folders – store collections of files. Typically you organise your word-processing, spreadsheet and picture files (from your digital camera) in folders. Computer programs (e.g. MS Windows, MS Word, MS Excel etc) are stored in separate folders. Folders may also contain other folders (sub-folders) in them. Folder sizes may range from KB to GB.

### Types of Storage Media

- Internal hard disk – is typically found inside the computer. It contains all program folders and files. It also stores data files i.e. document, spreadsheet, presentation files etc. Hard disks can hold very large amounts of data (200-320GB).

The hard disk is constructed of rigid magnetic disks sealed in a protective case. Data is recorded magnetically onto concentric circular tracks, each one divided into a number of sectors.

- External hard disk – is similar to an internal hard disk in function. External hard disks are portable disks that connect to the computer via through the USB port.
- Network drive – is typically a shared disk that is accessed by several computers connected to a network. Typically a network drive stores data files that are shared amongst several users.
- CD (Compact Disc) – is a portable device used to store data files. CD-RW disks can be erased and written to over and over again. CD-RW disks have storage capacities up to 700MB.
- DVD (Digital Versatile Disk) – disk is similar to CD-RW but this can store much more data than the CD. DVDs have storage capacities which range from 4.7GB to 17GB. Typically these disks are used for full-length movies, advanced multimedia games and interactive encyclopaedias.
- Blu-Ray Disc – is similar to CD and DVD. Blu-ray discs were developed for recording and playing back high-definition (HD) video and for storing large amounts of data. Blu-ray disc can hold up to 25 GB of data. Dual-layer Blu-

## ECDL Courseware

ray discs will be able to store 50 GB of data. That is equivalent to 4 hours of HDTV.

- USB flash drive – consists of a small printed circuit board protected inside a plastic, metal or rubber case. The USB connector is often protected by a removable cap. USB flash drives are small and easy to carry around. They can store large amounts of data (up to 256GB). USB flash drives connect to the computer through USB ports.
- Memory card - is a compact disk used to store digital data. Memory cards are typically used with digital cameras, smartphones etc.



It is important to copy data files present on the hard-disk onto a secondary storage medium (e.g. USB flash drive, CD-RW or DVD-RW) in case the hard-disk fails. This process is known as data backup. You should backup your files regularly.

It is also recommended that you make two/three backups of all data files. One copy should be kept away from the computer room – off-site storage.

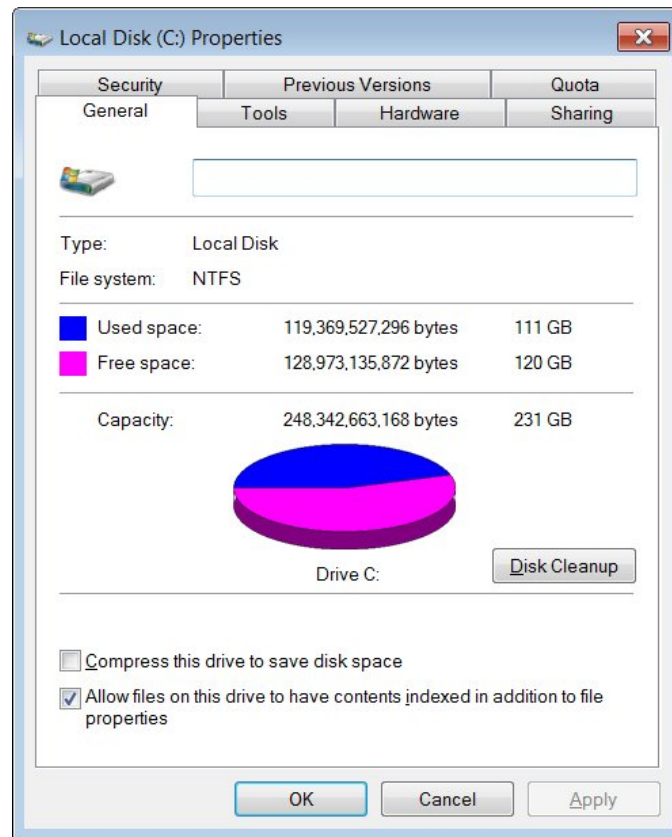
In recent years, some users are making use of online file storage (e.g. MS SkyDrive, Google Drive and Dropbox) available through Internet to store data files. These can be easily accessed from any computer connected to Internet. Such storage is particularly useful to share data files with friends or colleagues.

## Viewing available Space on a Storage Device

To view the available space on a USB flash disk, hard disk etc:

1. Navigate to the USB flash disk or hard disk in Computer window.
2. Right-click the disk.
3. Click Properties. The Properties dialog box is displayed. Free space indicates the available space on the selected storage device.
4. Click OK button.





## Compressing Files

File compression is the process of reducing the size of a data file to the smallest size possible. Compressed files take up less storage space and can be transferred to other computers more quickly than uncompressed files. You can work with compressed files and folders in the same way that you work with uncompressed files and folders. You can also combine several files into a single compressed folder. This makes it easier to share a group of files.

Typically compressed files are organised in a folder ending with the extension .ZIP (MS Windows) or .SIT, or .Hqx (Macintosh). A folder containing compressed files is also known as an archive folder.

To compress files in a folder on a drive:

1. Locate the file or folder that you want to compress.
2. Right-click the file or folder. A short-cut menu will be displayed.
3. Point to Send to.
4. Click Compressed (zipped) folder. A new compressed folder is created in the same location.

To rename it, right-click the folder, click Rename, and then type the new name.

Note that:

- Some types of files, like JPEG pictures, are already highly compressed. If you compress several JPEG pictures into a folder, the total size of the folder will be about the same as the original collection of pictures.
- If you have already created a compressed folder and you want to add a new file or folder to it, drag the files that you want to add to the compressed folder.

### **Extracting Compressed Files**

To extract compressed files from a location on a drive:

1. Locate the compressed folder that you want to extract files or folders from.
2. Do one of the following:
  - To extract a single file or folder, double-click the compressed folder to open it. Then, drag the file or folder from the compressed folder to a new location.
  - To extract the entire contents of the compressed folder, right-click the folder, click Extract All, and then follow the instructions.

## ■ NETWORKS

### The Network

Over the past years, millions of personal computers have been connected together to form computer networks. These networks facilitate the communication of data between different computers and sharing of resources.

A network consists of a group of computers and other peripherals (printers, scanners etc.) connected to each other.

The purposes of network include:

- Sharing of data – Networking enables several computer users to share data. Thus individual users can work on the same data at the same time. Depending on the configuration of the network, users work on real time updated data.
- Sharing of peripheral devices – Networking enables several computer users to share laser printers, scanners, modems etc. Typically, several computer users in the same office are served by a single printer. This is cost effective for organisations with many computer users.
- Sharing of programs – Networking enables several computer users to share the same programs. In most organisations, people make use of the same software. Rather than purchasing individual software packages for each computer user, organisations purchase network versions of the program.
- Efficient communication – Networking enables efficient exchange messages and documents between several computer users. Networking eliminates the typical delays encountered with standard inter-office mail delivery or telephone calls.

### Client / Server Computers

A client is a computer that requests data from another computer known as a server. Compared to the client computer, the server is a powerful computer in terms of processing speed and data storage.

Different servers may be used to manage different tasks.

- A file server is a computer that acts like a disk-drive, storing the programs and data files shared by client computers.
- A print server controls one or more printers and stores the print-image output from all computers on the system.
- Web servers contain Web pages that can be viewed using a browser.
- Mail servers manage e-mail.

### **The Internet**

The Internet, short for 'International networking,' consists of thousands of computer networks that connect millions of computers around the world. The Internet is also referred to as the 'Net', 'Information Superhighway' and 'cyberspace'.

The Internet refers to the hardware and software that provides different communications services between computer networks. These services include:

- World Wide Web (WWW, W3 or the 'Web') – is the text and pictures that you view on your computer. It consists of all the Internet screens that appear on your computer. These screens, referred to as Web pages, contain text, pictures, sounds and video files.
- Voice over Internet Protocol (VoIP) - is an Internet service that enables you to communicate using voice with another person/s. The communication is real time. It is a telephone conversation over Internet. Sometimes this is referred to as Internet telephony or IP telephony. Many home users communicate with their friends and relatives through Internet telephony using a VoIP program, a microphone and speakers/headphones. There are no additional charges for these voice calls because these happen over the same Internet service used for Web browsing and e-mail.
- Electronic Mail (e-mail) – is the transmission of messages over computer networks. These messages can contain text, graphic images and sound files.
- Instant Messaging (IM) - is an Internet service that enables you to communicate using text with another person/s using an instant messaging program. The communication is real time – similar to a telephone conversation but using text instead of voice. A program known as instant messenger is used for text or chat communication. Typically, the instant messaging system alerts you whenever somebody on your private list is online. You can then initiate a chat session with that particular individual. You can also use an instant messaging program to send files such as documents and pictures. Nowadays, programs such as MS Windows Messenger, Skype and Google Chat are used as instant messengers and VoIP. Some users make use of web cam during IM or VoIP communications.

### **Intranet**

An intranet is an organisation's private network that uses the infrastructure and standards of the Internet and World Wide Web. It is a website accessible only by the organisation's members, employees or other persons with authorisation.

When an organisation develops a public website on the Internet, it is making selected information available to the general public. When it creates an intranet, it is making selected information available only to authorised personnel.

An intranet's Web site looks and acts just like any other Web sites, but the firewall surrounding an intranet prohibits unauthorized access. Intranets enable employees to have quicker access to internal information and to share knowledge so that they can do their jobs better.

## **Virtual Private Network**

A Virtual Private Network (VPN) is a private network that uses the Internet to connect remote sites or users together. This technology is particularly useful for employees who need to access office data from their laptops at home and other locations. Data travels securely through the VPN technology.

Businesses often use VPNs to communicate across multiple locations. For example, a large company that has offices in several cities may need to send data to the different locations via the Internet. To keep the information secure, the company sets up a VPN.

## **Data Transfer Rate**

The data transfer rate is commonly used to measure how fast data is transferred from one location to another.

Data is transmitted in characters or collections of bits. The transmission speed of data is measured in:

- bps – stands for bits per second. 8 bits = 1 character (Letter 'A' = 8 bits).
- kbps – stands for kilobits per second or 1000 bits per second. A 56.6K modem technically transmits 56,600 bits per second of data.
- mbps – stands for megabits per second or 1,000,000 bits per second.
- gbps – stands for gigabits per second. 1Gbps is equal to 1,000,000,000 bits per second.

## **Downloading / Uploading**

Downloading refers to the transfer of data from a server to a local computer. For example when you view a webpage, the source code of a webpage is copied to your browser from a server across the Internet. Another example is when you download a document from Internet to your computer. When downloading files, the larger the file, the more time it takes to complete the transfer.

Uploading refers to the transfer of data from a local computer to a server. For example, you can create a website and then upload this from your computer to your web server.

## **Internet Connection Services**

Computers can be connected in different ways to the Internet.

- Dialup connection – is a form of Internet access that uses telephone lines. The computer uses a special device called a modem that dials a telephone number and connects to an Internet Service Provider (ISP). Once connected users can browse the web, access emails etc.

Dial-up connections are inexpensive compared to broadband connections. However data transfer over dial-up is slower compared to broadband connections. Another disadvantage of dial-up connections is that no voice calls can be made/received through the phone line when this is being used for Internet.

Internet Service Providers (ISPs) are companies that sell the services of their Internet server to stand-alone computer users.

- Broadband connection – is a connection that enables fast data transfer rates between computers connected to Internet. A broadband connection is a permanent 'always-on' connection to Internet. Being an 'always-on' connection makes computers more prone to intruder (or hacker) attacks. Firewalls are installed to prevent such attacks. Typically a user pays a flat-rate monthly fee when subscribing to a broadband connection.

Broadband connections are available through a phone line (ADSL), a cable, Wi-Fi, WiMax, a mobile phone and satellite.

Asynchronous Digital Subscriber Line (ADSL) broadband – is a broadband connection that uses a modem and the telephone line system to connect a computer to Internet. The ADSL modem is different from a dial-up modem. Through ADSL, a user can use the same phone line to connect to Internet and make a voice call at the same time. ADSL connections are faster compared to dial-up connections. Incoming data (downloading) is significantly faster than outgoing data (uploading). ADSL connections are expensive compared to a dial-up connection.

Cable broadband – is a broadband connection that uses a modem and the cabling infrastructure used for cable TV to connect a computer to Internet. The cable modem uses the same cabling infrastructure and connection to your home as cable TV. The cable modem connects to the computer via a local area network (LAN) card. Cable connections are faster compared to dial-up connections. Incoming data (downloading) is significantly faster than outgoing data (uploading). The cost of a cable connection is similar to an ADSL connection.

Wi-Fi - is a connection that uses radio transmitters and receivers to link computers. Many organisations and public areas provide wireless local area network hotspots known as Wi-Fi (Wireless Fidelity) hotspots. Users can subscribe to these connections. In some public areas such connections are provided at no charge. Nowadays many users have wireless Internet connectivity at home. Many smart phones support wireless connectivity.

WiMAX is a wireless communications standard similar to Wi-Fi, but supports a far greater range of coverage. While a Wi-Fi signal can cover a radius of 30m, a fixed WiMAX station can cover a range of up to 50km. Mobile WiMAX stations can broadcast up to 16km.

Mobile phone – Telecommunication companies offer subscriptions that include Internet on smartphones. There are different mobile Internet technologies.

Satellite broadband – is an Internet connection that requires the installation of a special satellite dish.

## Internet Service Provider

The Internet Service Provider (ISP) is a company that provides users with Internet connection services. ISPs provide home users with an Internet Account consisting of a username and a password. Users having the appropriate hardware and software will use the Internet Account to access the services available on the Internet.

When choosing an ISP one should consider the following:

- **Connection Speed** - The faster the speed of the broadband service the more expensive it will be. High speed connections will be needed when using the Internet to view HD-quality movies and to play multiplayer games. For light Internet surfing and emailing, one would not require high speed connections.



ISPs quote different download/upload speeds e.g. 4Mbps/512Kbps, 5Mbps/512Kbps etc. to meet different user needs. The download speed (e.g. 4Mbps, 5Mbps etc) is how quickly you can receive information such as reading email, browsing web pages, downloading content such as music and photos and buffer rate when streaming video. The upload speed (e.g. 512Kbps) is how quickly you can send an email or upload photos or video to a website like Facebook, Flickr or YouTube.

- **Quota** - ISPs may set a 'download limit' or quota to limit the volume of data in Gigabytes (GB) downloaded by users during a fixed period, usually a month. You will use your download quota to view web pages and receive emails etc. Downloading large graphic and audio files or video streams (e.g. YouTube videos) will use more of your download quota compared to viewing web pages or receiving emails. If you exceed your download limit, you might incur extra charges, or your ISP could limit or suspend your Internet service.
- **Cost** - ISPs may charge a monthly subscription fee or a pay-per-use fee for use of the Internet Account. When choosing an ISP check also the costs of any equipment you might need to buy such as a modem/router or dongle (for mobile Internet).

## Protected & Open Wireless Network

If you have a laptop, you can see a list of available wireless networks, and then connect to one of those networks, no matter where you are.

To view the available wireless networks:

- **Open Connect to a Network** by clicking the network icon  or  in the notification area. A pop up menu will display the list of available wireless networks.





Connect to a Network, showing the shield icon on an unsecured network

Wireless networks can be protected/secure or open. Wireless networks that do not have security enabled (i.e. open networks) will be identified with a yellow shield icon.

Note that:

- Wireless networks appear only if your laptop has a wireless network adapter and driver installed and the adapter is enabled.
- Whenever possible, you should connect to security-enabled wireless networks. If you do connect to an open network, be aware that someone with the right tools can see everything that you do, including the websites you visit, the documents you work on, and the user names and passwords that you use. Changing your network location to Public can help minimize the risk.

To connect to a wireless network:

1. Open Connect to a Network by clicking the network icon  or  in the notification area.
2. In the list of available wireless networks, click a network, and then click Connect.

Note that:

- The first time you connect to a protected wireless network, you will need to enter a network security key or passphrase.



## ■ SECURITY & WELL-BEING

### Protecting Data

Data security – is concerned with protecting software and data from unauthorised tampering or damage. IT departments often attach more importance to data protection rather than hardware protection. Recovery of lost data is often more expensive than replacing damaged hardware.

Sensitive data should be safeguarded against unauthorised access. In a network environment, the system administrator provides a unique user ID and a password to each computer user. The user ID and password are needed to logon to the networked computer.

Home users are able to set up a start-up password through their operating system. You should also set a password to unlock your screen saver. You can also set password protection to data files.

The use of a strong password enhances the security of your computer system. Your password should be at least 6 characters long. It should consist of both upper- and lower-case letters and also one or more numbers. Your date of birth, phone number or any word that can be found in a dictionary do not constitute a strong password. Passwords should be changed regularly.

Never share or disclose your password to any other person including colleagues, family members etc. Do change your password if you suspect that somebody knows it.

### Firewall

A firewall is a system designed to prevent unauthorised access to your computer system when connected to Internet. A firewall is simply a program or hardware device that filters information coming through the Internet connection into your private network or computer system. If an incoming packet of information is flagged by the filters, it is not allowed through. Many users having always-on connections (such as ADSL or cable) are encouraged to install personal firewalls (software) that protects their system from intruders.

### Backing up Data

Backing up data is the copying of data files to a secondary storage medium (USB flash disk, CD/DVD or magnetic tape streamer) as a precaution in case the first medium fails.

Most users store large quantities of data on the hard disk without backing this on other storage media. It is of utmost importance to backup your data regularly. It is suggested that you make two backups of all your data files.

To be especially safe, you should keep one backup in a different location from the other – off-site storage. The latter protects data against theft and fire hazards.

## ECDL Courseware

You can back up files using operating system commands, or you can buy a special-purpose backup utility (program). Backup programs often compress the data so that backups require fewer disks.

## Updating Software

We strongly recommend that you turn on Windows automatic updating so that Windows can install security and other important or recommended updates for your computer as they become available.

Computer programs such as operating systems, email clients, browsers, media players and desktop applications (e.g. wordprocessors, spreadsheets, databases etc.) may have vulnerable defects through which intruders can gain access to your computer.

Software vendors usually release patches or hotfixes for their products when a security vulnerability is discovered. You must ensure that all programs on your computer are updated with the latest available patches. You should also check for any available updates when installing new software.

Software patches can often be downloaded for free from the vendor's website. Some programs (e.g. MS Windows) have utilities which automatically connect to the vendor's website and download any available patches. If there is no automatic update feature for any of your programs, visit the vendors' website regularly and download any available updates.

## Malware

Malware (malicious software) is a program designed to secretly enter and damage a computer system. Malware includes:

- A computer virus is a piece of program designed and written to make additional copies of itself and spread from location to location, typically without user knowledge or permission. Viruses are written by programmers with malicious intent to annoy computer users.
- Worms are similar to viruses in that they make copies of themselves, but differ in that they need not attach to particular files or sectors at all. Once a worm is executed, it seeks other systems - rather than parts of systems - to infect, then copy its code to them. Typically worms slow down computer systems.
- Trojan horses secretly place illegal, destructive instructions in the middle of a computer program. Once the program is run, the Trojan horse becomes active. Trojans do not replicate themselves like other viruses.
- Spyware is a program that secretly installs itself on computers and collects information about users without their knowledge. Spyware programs can collect various types of personal information, such as Internet surfing habits and sites that have been visited. They can also interfere with user control of the computer in other ways, such as installing additional software and redirecting Web browser activity. Spyware is known to change computer

settings, resulting in slow connection speeds, different home pages, and/or loss of Internet or functionality of other programs.

Two sources of viral infections are:

- Sharing infected files over the intranet i.e. the internal computer network of an organisation.
- Downloading infected files from Internet sites.

You should be careful with program or file downloads from the Web. Files available on bulletin boards or public newsgroups may be infected. Software updates e.g. drivers, multimedia players, should be downloaded from the manufacturer's official website. It is important to update your anti-virus program to prevent against malware.

### Using Antivirus Software

Anti-virus software is a program which protects the computer system against most viruses. Typically, such programs detect the presence of viruses in a computer and in most cases remove (or disinfect) any files infected by viruses.

Different users may have different anti-virus programs. You can follow these generic steps to scan specific drives, folders and files for viruses.

1. Click Start button.
2. Highlight All Programs.
3. Highlight the antivirus program. A submenu will be displayed.
4. Select the appropriate scanning option.
5. Follow any other steps.

Unfortunately, new viruses are being developed all the time. Thus, if the anti-virus program is not updated on a regular basis it will not be able to detect new virus types and variants. When you install an update, new entries are added to the software's virus definitions database so that suspect files can be recognised and dealt with. Most anti-virus programs are updated automatically when you connect your computer to Internet.

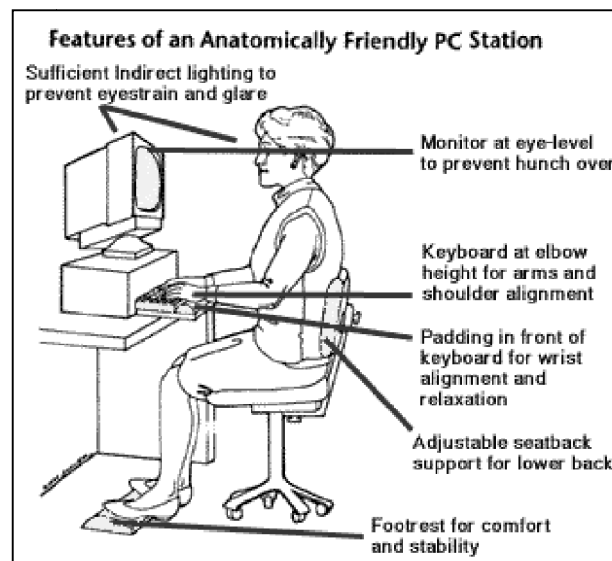
### Health Issues

In general, the use of computers and communications technology has increased our productivity. But at the same time, their use has also had its negative impacts on our physical and mental health. All computer users should be aware of these negative impacts and ways to minimise these.

- Monitor – The top of the screen must be positioned in level with your eyes. The screen should also be tilted such that the base is slightly closer to you than the top. Position the computer screen in a location where there will be no reflections (or glare). Anti-glare screens should be used on CRTs.
- Keyboard - The height of your keyboard should allow you to keep an "open angle" with your arms. In the proper position, the keyboard should be placed just above the level of your lap. If you don't have an adjustable keyboard tray, you may need to accomplish this by adjusting your chair height. If your

keyboard is lower than the desk surface, tilt the back edge of the keyboard slightly down (known as "negative keyboard tilt"). If you use a keyboard tray, make sure there's enough room for your mouse.

- Adjustable chair - You should be able to sit comfortably in the chair, using as much of the chair back as possible for support. The lumbar support should fit comfortably into the curve of your lower back, and your feet should be flat on the ground (use a footrest if necessary). The seat pan (i.e. the part on which you sit) should be an appropriate size that allows at least one inch between your legs and either side of the chair, and supports your legs without applying pressure to the back of your knees.
- Adequate ventilation – Computer environments should be well ventilated. This reduces overheating of equipment.
- Cables & Power Supply – The cables that connect the different parts of your computer system should be securely plugged into the appropriate sockets. Cables should be passed through cable ducts present in computer desks. Avoid long trailing cables – people can accidentally pull these out switching off the computer system and accidental loss of data. It is also important not to overload power points – overloading constitute a fire hazard. Your room should be equipped with the necessary power points to avoid overloading.



Common health problems associated with computer use include:

- Eyestrain & headaches – usually arise because of improper lighting, screen glare and prolonged periods in front of a computer screen. To minimise eyestrain and headaches:
  - a. Take frequent breaks say a 10-minute break every 90 minutes.
  - b. Avoid computer screens that flicker.
  - c. Keep computer screens away from windows and other sources of bright light to minimise reflected glare on the screen.
  - d. Monitors can be equipped with good quality anti-glare screens.
  - e. Clean your screen of dust from time to time.
- Back & neck pains – usually arise because of incorrect postures and incorrect positioning of computer equipment and furniture.

- Repetitive Strain Injury (RSI) – results from fast, repetitive work that can cause neck, wrist, hand and arm pain. One particular type of RSI, carpal tunnel syndrome, found among heavy computer users, consists of damage to nerves and tendons in the hands. RSI can be minimised by taking short rest breaks.

### Energy Saving Practices

As with all other forms of technology, information technology may impact negatively on the environment. All computer users should be aware of the following environmental friendly guidelines related to the use of computing facilities:

- Switch off equipment – Switch off the system unit, monitor, speakers, printer and scanner when these are not in use.
- Automatic shutdown – You can schedule a specific time when your computer automatically shuts down.
- Sleep mode settings - Sleep is a power-saving state that allows a computer to quickly resume full-power operation (typically within several seconds) when you want to start working again.

You can put your computer into sleep mode instead of shutting it down. When your computer is asleep, the display turns off and often the computer's fan stops. Usually, a light on the outside of your computer case blinks or turns yellow to indicate that the computer is asleep. The whole process takes only a few seconds.

Because Windows will remember what you were doing, there's no need to close your programs and files before putting your computer into sleep mode. But it's always a good idea to save your work before putting the computer into any low-power mode. The next time you turn on your computer (and enter your password, if required), the screen will look exactly as it did when you turned off your computer.

To wake your computer, press the power button on your computer case. Because you don't have to wait for Windows to start, your computer wakes within seconds and you can resume work almost immediately.

- Energy saving monitors – LCD-type flat screen monitors with LED backlighting to save on power consumption. Adjust the power management options such that monitors are switched off when you are away from your computer.
- Minimise on paper printing & recycle paper – A lot of paper is used for printing purposes. Unfortunately the ease with which printers are able to print documents results in waste of a lot of paper. You should proof read documents before sending these to a printer. Also wherever appropriate, you should print two or four pages on a single face of an A4 paper. Most laser printers are also capable of printing on both sides of the paper. You should also print drafts and internal documents on paper that is already printed on one side. Consider use/storage of electronic copies instead of printed paper. Unwanted paper should be recycled.

## **ECDL Courseware**

- Recycle printer cartridges – Users should purchase laser printers with longer-life printing drums or toners. Establish contacts with companies which buy used printer cartridges or toners. Use ink and toner saving settings for printing drafts and internal documents.
- Recycle computers, devices & batteries - Establish contacts with companies which collect used computers, printers, batteries etc. for recycling purposes.

## **Enhancing Accessibility**

Persons with special needs make use of specific hardware and software to help them work on a computer. Such hardware and software is often referred to as assistive technology.

- Voice recognition software is a program used to convert spoken words to text. The term "voice recognition" is sometimes used to refer to speech recognition where the recognition system is trained to a particular speaker. These programs are often used by persons with visibility impairment.
- Screen reader is a program that reads the contents of a computer screen aloud to a user. Screen readers are used primarily by visually impaired persons.
- Screen magnifier is a program that magnifies a portion of the computer screen, so that it can be more easily viewed. Screen magnifiers are used primarily by individuals with partial visual impairment.
- On-screen keyboard is a program that displays a virtual keyboard on the computer screen that allows people with mobility impairments to type data by using a pointing device or joystick. Besides providing a minimum level of functionality for some people with mobility impairments, on-screen keyboard can also help people who do not know how to type.