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File Management

Workbook 2

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Introduction

What is a filing system?

A computer can be compared to a filing cabinet.

A filing cabinet was the following:

- Drawers
 - Hanging folders
 - Folders
 - Documents



Discussion Point

1. When do we use a filing cabinet?
2. How do we store things in a filing cabinet?



Any filing system is only as good as what we put into it.

GIGO = Garbage In Garbage Out

What is a Graphical User Interface (GUI) operating system?

A Graphical User Interface is a type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators such as secondary notation, as opposed to text-based interfaces, typed command labels or text navigation. GUIs were introduced in reaction to the perceived steep learning curve of command-line interfaces, which require commands to be typed on the keyboard.

1. Storage devices



Reference: SO 1

At the end of this module you will be able to:

- Identify various storage devices on a computer
- Logically identify storage devices by their drive label
- Identify the amount of storage space on a storage device

1.5 Storage devices on a computer

Reference: SO 1/AC 1

There are many different types of storage devices for use with modern computers. I'll try to cover a few here.

Most of the information stored on a computer is stored on the hard drive. Hard drives vary in physical size and storage capacity. In general, a hard drive is the largest (capacity) storage device in your computer. It has many times more storage capacity than CD, DVD or electronic memory.

There are a number of devices used to store information on a computer. These include:

	<p>Hard drive</p>	<p>The hard drive is the computer's main storage media device that permanently stores all data on the computer.</p>
	<p>Additional hard drive</p>	<p>An additional hard drive is just an extra hard drive that can be added to your computer that is stored internally to give you increased storage.</p>
	<p>External hard drive</p>	<p>External hard drives usually are used in addition to internal hard drives in order to store more data.</p>
	<p>CD-ROM</p>	<p>A compact disk that functions as read-only memory. Like a CD that has music on that you put in your Hi Fi.</p>
	<p>USB Flashdrive</p>	<p>A small, portable flash memory card that plugs into a computer's USB port and functions as a portable hard drive.</p>



USB Flashdrive: For those who need to transfer small to medium sized files, a USB flash drive may be exactly what you want. They all plug into the USB ports and are recognized by the computer as a new hard drive. USB flash drives are easy-to-use as they are small enough to be carried in a pocket and can plug into any computer with a USB drive. USB flash drives have less storage capacity than an external hard drive, but they are smaller and more durable because they do not contain any internal moving parts.



External Hard Drive

An external hard drive is a computer hard drive that is attached to the computer externally. External hard drives are mainly used to store important data, but they may have other uses. The portability of the external drive allows it to be transported from one computer to the other. An external hard drive is connected to a computer, using a USB cable.

External Hard Drives can be used to put sensitive, confidential or otherwise important information on them, then disconnect them and store them in secure locations. Other uses include:

- Backing up files
- Additional storage space
- Organizing media files
- As a shared storage drive
- Locking up important files

1.1. Identifying storage devices

Reference: SO 1/AC 2

Storage devices are identified using letters.



1.2. Storage space

Reference: SO 1/AC 3

Remember we said that a computer can be compared to a filing cabinet. A filing cabinet has a limited amount of space. There are only so many drawers and you can only fit so many folders into each drawer.



Information on a computer is measured in bytes. The amount of storage space available on any computer is determined by the number of bytes available.



Byte

1. A group of binary digits or bits (usually eight) operated on as a unit.
2. Such a group is a unit of memory size.

8 Bits	=	1 Byte
1024 Bytes	=	1 KiloByte
1024 KiloBytes	=	1 MegaByte
1024 MegaBytes	=	1 GigaByte
1024 GigaBytes	=	1 TeraByte



Put it into practice

Open the file manager on your computer and do the following:

1. Identify the storage devices
2. Identify the amount of storage space available on each device

2. Files on a computer



Reference: SO 2

At the end of this module you will:

- ☑ Understand the concept of a file on a computer
- ☑ Understand the methods of organising files on a computer
- ☑ Be able to locate files
- ☑ Be able to identify file types
- ☑ Understand the hierarchical structure of folders and files
- ☑ Be able to describe the uses and benefits of file compression

2.1. What is a file?

Reference: SO 2/AC 1



Computer file

- A method for storing related information electronically.
- A method for keeping information for future retrieval, even after physical power to a computer has been lost.

2.2. Organising files on a computer

Reference: SO 2/AC 2

Different operating systems organise files in different ways. An operating system (or OS) is a software program that enables the computer hardware to communicate and operate with the computer software. Without a computer operating system, a computer and software programs would be useless. Some operating systems are Windows based and some are non-windows based.

Each of these has different ways of organising files.

- Non-windows = directories
- Windows = folders

What is the difference between a directory and folder?

A directory and folder are the same thing. The Windows folder on the C: drive of Windows is the same thing as C:\Windows in MS-DOS. Therefore, there really is no difference between the two, other than the names.

However, when referring to a command line interface such as MS-DOS or Linux it's more correct to say directory instead of folder. In a graphical user interface (GUI), such as Windows, it's more correct to say folder instead of directory. An easy way to remember this rule is that when viewing the folders and files in Windows the folders will have pictures of folders, as shown in the picture. In a command line, there are no pictures of folders.

2.3. File locations

Reference: SO 2/AC 3



Path

Alternatively referred to as the pathname, path is the complete location or name of where a computer, file, web, or other object is located.

A path, the general form of the name of a file or directory, specifies a unique location in a file system. A path points to a file system location by following the directory tree hierarchy expressed in a string of characters in which path components, separated by a delimiting character, represent each directory. The delimiting character is most commonly the slash ("/"), the backslash character ("\"), or colon (":"), though some operating systems may use a different delimiter.

An example of a path in a Windows Operating system is:

- C:\user\docs\Letter.txt

2.4. File types

Reference: SO 2/AC 4 & 5

A file is an object on a computer that stores data, information, settings, or commands that are used with a computer program. In a graphical user interface (GUI) such as Microsoft Windows, files are shown as unique icons that relate to the program that opens the file. For example, in the picture below, is an example of the icon associated with Adobe Acrobat PDF files. Double-clicking this icon in Windows would open that file in Adobe Acrobat or the PDF reader installed on the computer.



There are millions of files used with computers today and are identified either by the file extension of the file or the data contained in the file. For example, as seen in the below example the first file shown in Explorer is "regedit.exe", "regedit" is the name of the file, and ".exe" is the file extension that identifies this file as an executable file. The next file "RtlExUpd.dll", which is a DLL file and another example of a file.

Computer Files

File name is "regedit" the extension is ".exe"

regedit.exe	7/25/2012 9:08 PM	Application	156 KB
RtlExUpd.dll	6/7/2010 3:27 PM	Application extens...	1,223 KB
setupact.log	2/7/2013 5:18 PM	Text Document	182 KB
setuperr.log	11/14/2012 8:02 AM	Text Document	0 KB

<http://www.computerhope.com>



Extension Type of document

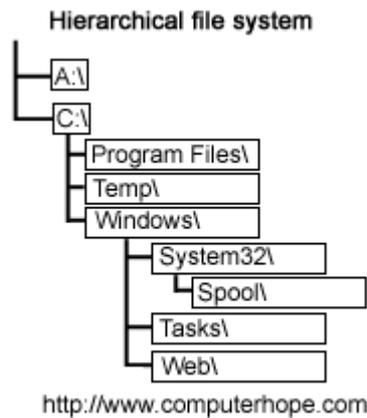
.exe	An executable file is a file that is used to perform various functions or operations on a computer. Unlike a data file, an executable file cannot be read because it has been compiled.
.tmp	Temporary Files. These are often used but then are not needed and can be deleted off your computer.
.txt	Text file that can be read in Windows.
.mpeg	MPEG movie file.
.tif	Tag Image Format that includes most 24-bit color. This is used for images
.gif	CompuServe Graphics Interchange Format. This is used for images.
.rtf	Rich Text Format file.
.zip	A compressed file that is extracted and used with various compression utilities.
.wav	Sound files in Windows open and played with sound recorder.
.mp3	MPEG audio stream, layer III; High compressed audio files used to record audio tracks and store them in a decent sized file available for playback. See the MP3 page for additional information.
.doc	Microsoft Word File
.xls	Microsoft Excel File
.ppt	Microsoft PowerPoint File
.mdb	Microsoft Access Database and Microsoft Access Application file
.pdf	Adobe PDF File

2.5. The hierarchical structures of folders and directories

Reference: SO 2/AC 6

The hierarchical structure of folders and/or directories

A hierarchical file system is how drives, folders, and files are displayed on an operating system. In a hierarchical file system, the drives, folders, and files are displayed in groups, which allows the user to see only the files they're interested in seeing. For example, in the picture below, the Windows directory (Windows\) folder hierarchy that contains the System32, Tasks, and Web folders. Each of these folders could have hundreds of their own files, but unless they are opened the files are not displayed.



In GUI operating systems such as Microsoft Windows, the user expands a drive or folder to see its contents by double-clicking the icon, or by clicking a small + to the left of the drive or directory. Once the file or program is found they can double-click the icon to open the file or execute the program.

In a non GUI operating system, such as MS-DOS or the Windows command line, the drive and directories are listed as text. For example, if you were on the C: drive and in the Windows spool directory, the MS-DOS path may look like the below example.

- C:\Windows\System32\Spool>

2.6. File compression

Reference: SO 2/AC 7

What is file compression?

Any file that contains one or more files or directory that is smaller than their original file size.

Uses and Benefits of file compression

These files make downloading faster easier and allows more data to be stored on a removable media. Common compressed file extensions are .ZIP, .RAR, .ARJ, .TAR.GZ and .TGZ.

3. Locating files



Reference: SO 3

At the end of this module you will be able to:

- Locate files
- View files
- Sort files
- Select files
- Identify and select actions

3.1. Searching for files

Reference: SO 3/AC 1



Wild cards

Symbol used to replace or represent one or more characters. Wildcards or wild characters are either an asterisk (*), which represents one or more characters or question mark (?), which represents a single character. [example dir *.mp3 which would list files that end with .mp3 in DOS]

Search

Sometimes referred to as seek, search is the process of locating letters, words, files, websites, etc. Many operating systems, software programs and websites contain some kind of search or find utility to locate data within the file being worked on or data within other files.

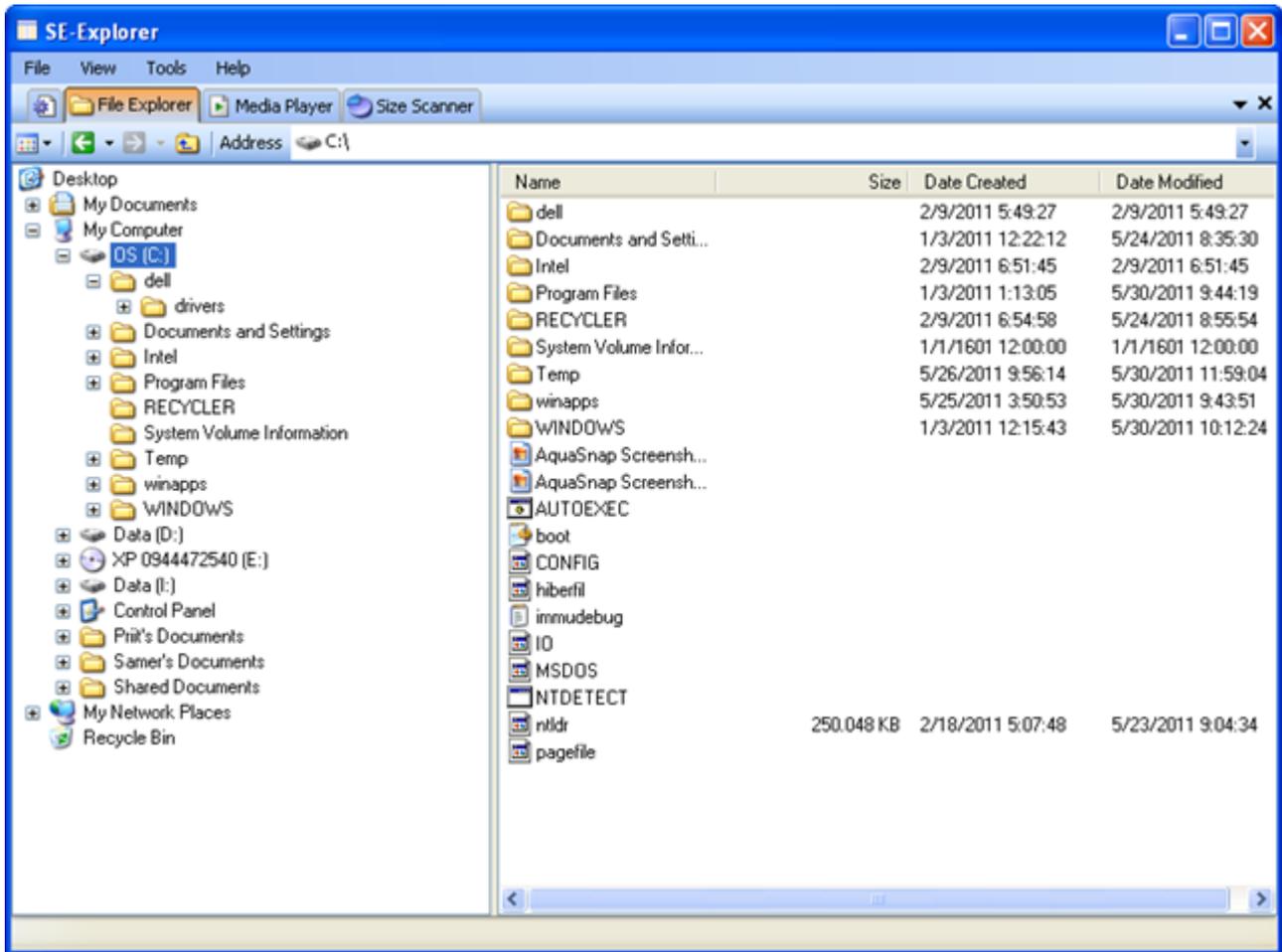
Folders/directories

A folder is a location that stores multiple files and other folders found on Apple Macintosh computers, computers running Microsoft Windows, and other GUI operating systems. In the picture below, is an example of what a folders with files looks like in Microsoft Windows.



Explore

Alternatively referred to as File Explorer or Windows Explorer, Explorer is a file browser found in Microsoft Windows 95 and above to explore and manage the drives, folders, and files on the computer. Although similar, Microsoft Windows Explorer is not the same as "My Computer" and is not "Microsoft Internet Explorer", even though Internet Explorer is sometimes improperly referred to as Explorer. In the picture below, is an example of what the Explorer may look like.



What Windows Explorer looks like

Explain how files are located using the above

To open Explorer a user can do any of the below steps.

- Users with a keyboard that has the Windows logo can use the shortcut of holding the Windows key and E at the same time.
- In Windows 7 and lower right-click the Start button and click Explorer.
- In Windows 8 right-click the bottom-left corner of the screen to get the Power User Menu and choose File Explorer
- Click Start, Programs, and then Windows Explorer or Explorer.
- Click Start, Run, and type explorer and press enter.
- Open the windows or winnt directory and double-click the explorer.exe file.



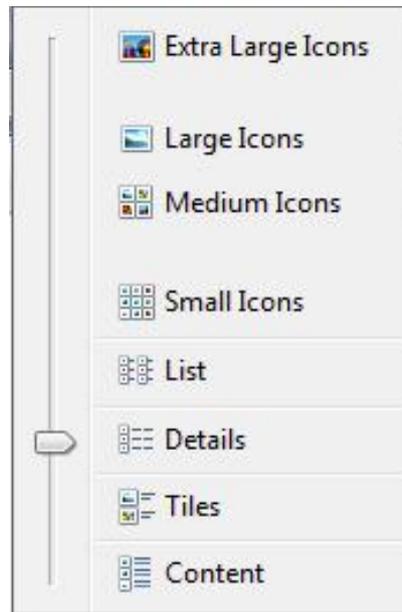
Put it into practice

Find the file your facilitator has given you using at least 3 of the abovementioned methods.

3.2. Viewing files

Reference: SO 3/AC 2

Files can be listed in a number of ways on a computer. These include the following:



Extra Large Icons / Large Icons / Medium Icons / Small Icons lets you see a thumbnail image of the file in many cases and is best to view image files. Sometimes you need to know more detail about the file and what size it is, 'Details' is then used.



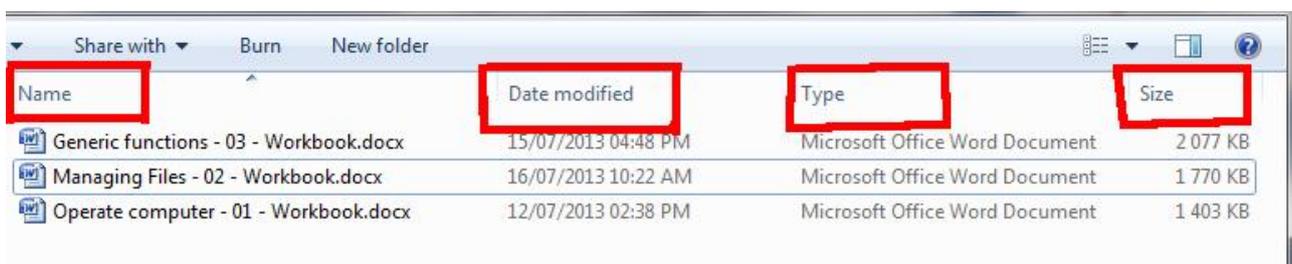
Put it into practice
View files using each of the methods listed above

3.3. Sorting file lists

Reference: SO 3/AC 3

File lists can be sorted in a number of ways on a computer. These include:

- By file name
- By date
- By file type
- By Size



We will display lists by name (in alphabetical order) to help find a specific file name. If we want to find which are old files and which are new, then we might choose to display files in order of the "Date modified."



Discussion Point

What other ways would you sort computer files?



Put it into practice

Sort file lists

3.4. Locating and selecting folders and files

Reference: SO 3/AC 4 & 5

Describe how to locate and select specific folders.

Specific folders can be located by using the Windows Explorer as described above. The folders and files are listed and the folders can be identified by the yellow folder icon and the 'plus' symbol which indicates that the folder can be expanded to display its contents,

Note: It is important not to confuse the Windows Explorer with Internet Explorer. **Windows Explorer** is the file and folder explorer and **Internet Explorer** is an internet browser developed by Microsoft.

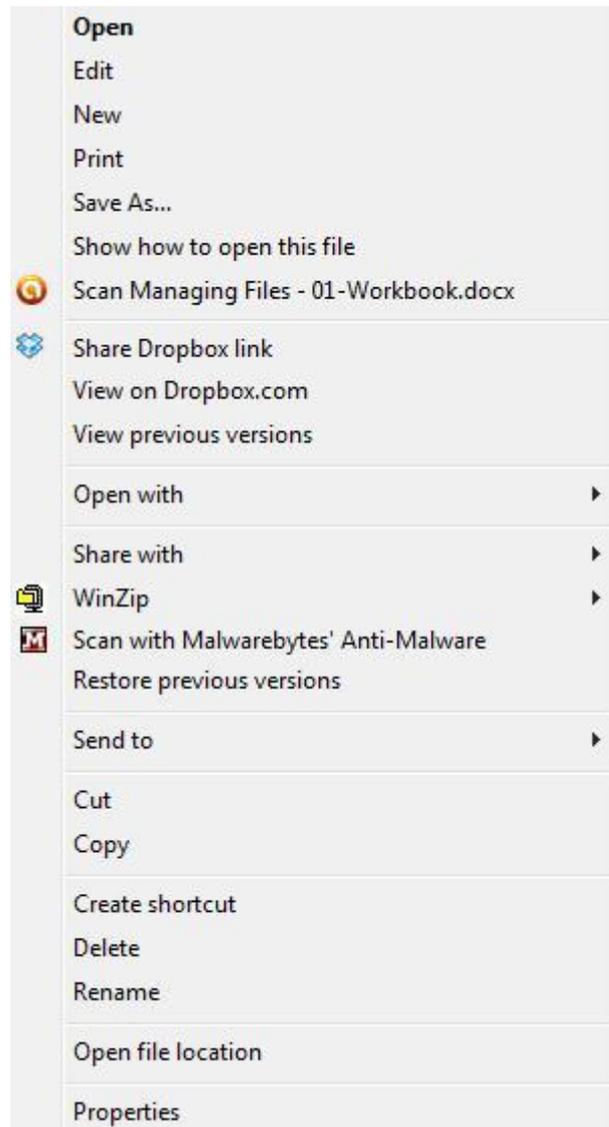
Describe how to select more than one file

- **Adjacent (shift)**
Files and folders that are adjacent can be simultaneously selected by clicking on the first and last object in the adjacent sequence whilst holding down the Shift key.
- **Non-adjacent (Ctrl)**
Files and folders that are non-adjacent can be simultaneously selected by clicking on them one by one whilst holding down the Ctrl key.

3.5. Identifying and selecting actions on a file

Reference: SO 3/AC 6

The actions available for a file include:



Describe how to identify and select actions using:

- Right click
- File menu

A file specific menu can be launched by right-clicking on it. The desired action can then be selected from the menu options.



Put it into practice
Identify and select actions

4. Working with computer files



At the end of this module you will be able to:

- Create new folders/directories
- Identify files in a folder/directory
- Manipulate files

Reference: SO 4



When creating new folders/directories and files, the name of the new folder/directory or file must be descriptive to allow it to be easily identified in terms of its purpose and content.

4.1. Creating new folders/directories

Reference: SO 4/AC 1

Creating a file type depends on the type of file you wish to create.

How to create a text file

Open a text editor such as Notepad or WordPad create the text document you wish to create and then save the file as a new text file.

or

From within Windows right-click in the area you wish to create the file. For example, right click on the Desktop to create a new text file on the Desktop. From the drop-down menu that appears New and then choose Text Document.

How to create a image or picture file

To create an image or picture you must use an Image editor program. See our listing of image editors for a listing of programs capable of editing and creating new images.

How to create a XLS or spreadsheet file

To create a spreadsheet requires a spreadsheet program such as Microsoft Excel or one of the many free spreadsheet programs.

How to create a Word processor or DOC file

To create a DOC or Word processor file requires a Word processor such as Microsoft Word or one of the many free word processor programs.



Put it into practice

Create a new folder/directory to a minimum of 3 levels.

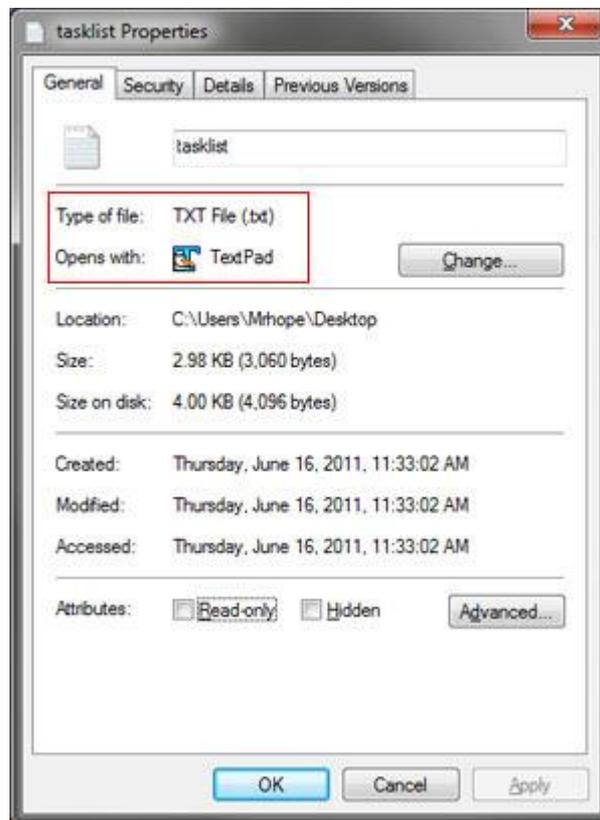
4.2. Identifying files in a folder/directory

Reference: SO 4/AC 2

How are files identified in a folder/directories

You can identify a specific file type by its extension. To view the file extension:

- Right-click the file.
- Click Properties.
- In the Properties window, similar to what is shown below you should see the "Type of file:" this is the file type and extension. As can be seen in the below example this file is a TXT file with a .txt file extension and in this case opens with the Text Pad program.



Put it into practice

Identify files in a folder/directory

4.3. Manipulating files

Reference: SO 4/AC 3

4.3.1. Types of manipulation

	Copy	Copies a file
	Move	Moves a file
	Rename	Renames a file
	Delete	Delete a file
	Cut	Cut a file so that you can paste elsewhere
	Paste	Paste a file in a new location
	Compress	Compress a file so that it is smaller
	De-compress	Uncompress a file so that it is its original size

4.3.2. Ways of manipulation

Files can be manipulated in a number of ways:

1. From one folder to another
2. Within a folder
3. From one device to another

	<p>Put it into practice</p> <p>Manipulate files</p>
---	--

5. Protecting computer files



Reference: SO 5

At the end of this module you will:

- Be able to identify the common threats to the integrity of information
- Understand the methods of protecting files
- Be able to explain the methods used to protect files
- Be able to backup and restore files

5.1. Why is it important to protect files?

Explain why it is important to protect files

Individual files or groups of files may need to be protected from loss, unauthorised access or computer viruses. These threats exist where files are confidential, important or vulnerable to malicious attack.

5.2. The common threats

Reference: SO 5/AC 1

The most common threats to the integrity of information held in computer files include:

	<p>Integrity</p> <p>The state of being whole and undivided.</p>
---	--

	<p>Loss</p> <p>Unauthorised access</p> <p>Viruses</p> <p>Defective equipment</p>
---	--

Explain how each of the above affect the owner of the computer

Integrity issues may affect the validity of a file or files or may affect the performance of the user's computer where operation has been compromised.

Unauthorised access may lead to confidential information being misused.

Viruses can compromise the operation of the computer itself, instigate inappropriate actions (such as the unauthorised use of an email account) and lead to the sharing of confidential information.

Defective equipment will mitigate efficiency or lead to malfunction.

5.3. Methods of protecting files

Reference: SO 5/AC 2

Files can be protected in a number of ways. These include:

Explain how each of the following work and when they are used

5.3.1. Backups

Backups can be conducted on an ad hoc basis or automated via different processes. The simplest form of back-up is to make a duplicate of the relevant files on a separate computer (usually the server on network), or on another device such as an external hard drive or memory stick.

There are also ways of generating an automated back-up of selected files which are then compressed into a single tar or zip format. This can be set up as a computer service.

5.3.2. Read-only

A file can be assigned permission. The simplest application of this feature is to right-click on a file and selecting the properties option in the menu that is launched. This in turn displays a dialogue which includes the option to assign a 'Read-Only' attribute to a file. A read only file cannot be edited and re-saved unless its permissions are changed.

5.3.3. Password

A password protect file requires a password to access or view the file. This usually applies to pdf documents containing confidential information (for example salary information).

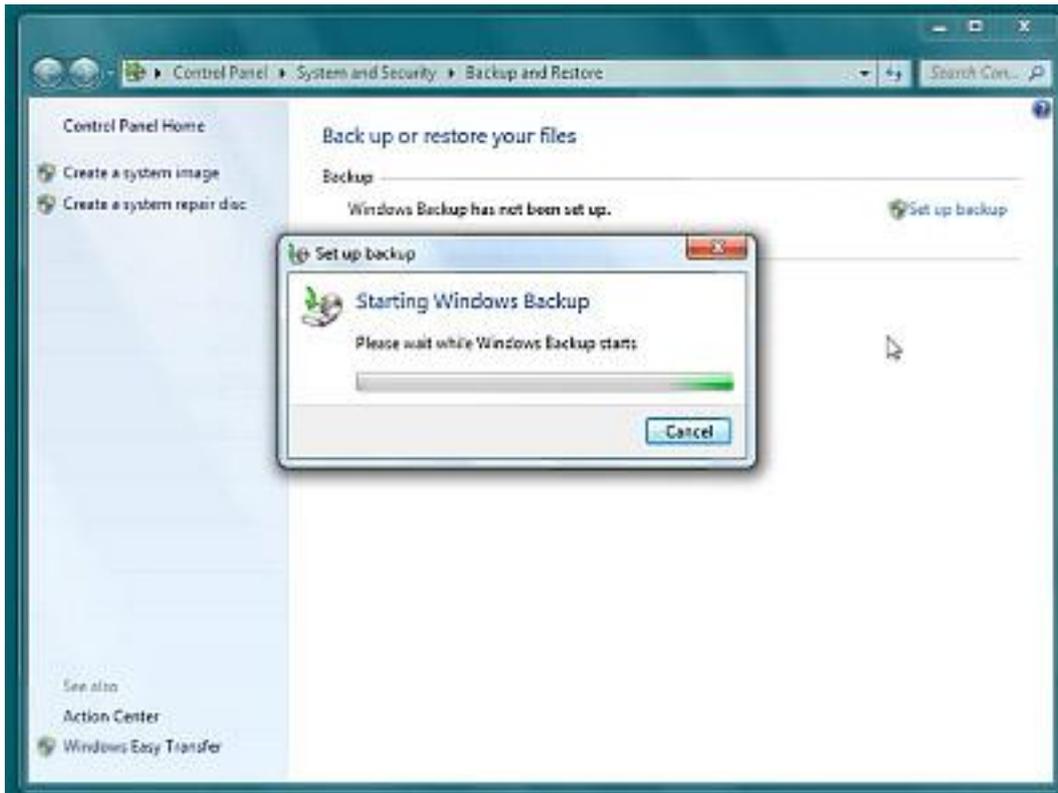
5.4. Backups

5.4.1. Backing up using the operating system backup facility

Reference: SO 5/AC 3

Explain how this is done and why

To back up your files



Open **Backup and Restore** by clicking the Start button Picture of the Start button, clicking Control Panel, clicking System and Maintenance, and then clicking Backup and Restore.

Do one of the following:

If you've never used Windows Backup before, click Set up backup, and then follow the steps in the wizard. Administrator permission required If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

If you've created a backup before, you can wait for your regularly scheduled backup to occur, or you can manually create a new backup by clicking Back up now. Administrator permission required If you're prompted for an administrator password or confirmation, type the password or provide confirmation.

It is recommended that you don't back up your files to the same hard disk that Windows is installed on.

Always store media used for backups (external hard disks, DVDs, or CDs) in a secure place to prevent unauthorized people from having access to your files—we recommend a fireproof location separate from your computer. You might also consider encrypting the data on your backup.



Put it into practice

Backup files using the operating system backup facility

5.4.2. Restoring files using the operating system restore facility

Reference: SO 5/AC 4

Explain how this is done and why

After a computer crash or loss of files due to virus or malfunction, the user may require to restore files to the state they were prior to the undesired alteration.

To use System Restore to restore to a previous state, follow these steps:

Log on to Windows as an administrator.

Click **Start**, point to All Programs, point to Accessories, point to System Tools, and then click **System Restore**.

On the Welcome to System Restore page, click to select the Restore my computer to an earlier time option, and then click Next.

On the Select a Restore Point page, click the most recent system restore point in the On this list, click a restore point list, and then click Next.

Note A System Restore message may appear that lists configuration changes that System Restore will make. Click OK.

On the Confirm Restore Point Selection page, click Next. System Restore restores the previous Windows XP configuration, and then restarts the computer.

Log on to the computer as an administrator. Then, click OK on the System Restore Restoration Complete page.

If you successfully restored your computer to a previous state and the computer runs as expected, you are finished.



Put it into practice

Restore files using the operating system restore facility

5.4.3. Other methods of backing up and restoring files

Reference: SO 5/AC 5

Aside from the operating system backup facility there are a number of other methods that can be used to backup files.

These methods include:

- **Copy**

The simplest form of back-up is to make a duplicate of the relevant files on a separate computer (usually the server on network), or on another device such as an external hard drive or memory stick.

- **Diskcopy**
In computing, Diskcopy is a command used on MS-DOS and PC DOS, OS/2, and Microsoft Windows for copying the complete contents of a diskette to another diskette
- **Industry copying tools**
There are various software and hardware solutions which facilitate the automated back-up of files, folders and complete systems.



Put it into practice

Backup files using one of the methods above

5.4.4. Identifying backup devices

Reference: SO 5/AC 6

Backup devices include:



CD

External Hard Drive

Memory stick

Network server