

Computer Files



- A computer file is a computer resource for recording data in a computer storage device. Just as words can be written to paper, so can data be written to a computer file.
- Different types of computer files are designed for different purposes. A file may be designed to store an image, a written message, a video, a computer program, or any wide variety of other kinds of data. Some files can store multiple data types at once.
- By using computer programs, a person can open, read, change, save, and close a computer file. Most computer files may be reopened, modified, and copied an arbitrary number of times.
- Files are typically organized in a file system, which tracks file locations on the disk and enables user access.

File Names



- ❑ Originally names were limited to 8 characters, with no spaces permitted.
- ❑ Only a alpha-numeric + a few other characters.
- ❑ From Windows 98, limit went to 255 char. (includes the full path).
- ❑ Spaces and full stops now permitted but should be used with caution if files are to be shared.
- ❑ Be aware of case sensitivity! Case is generally ignored in Windows file names but Unix based systems can be case sensitive.
- ❑ Files names have two parts, the name and the extension, separated by a full stop.

File Extensions



- Originally 3 characters after a full stop
- Now, generally 3 or 4 characters but can be more.
- Used to define type of file.
- Generally added by the program that creates the file.
- Windows may hide extensions. There is a setting in File Explorer, under 'View' to show File name extensions. (There is a setting to show hidden files there too.)

File Types



- Three basic types of file.
 - Executable
 - com, exe, cmd, inf, bat, pif, msi, (dll files contain executable code but are not executable in their own right). Shortcuts (.lnk) are desktop links to executable files.
 - Data
 - dat, jpg, tif, txt, doc, docx, xls, xlsx, ppt, & hundreds more
 - Many programs have their own unique data format
 - Container files
 - Zip, wav, mp4, etc, are files with multiple contents
 - Folders

File Associations

- ❑ Windows associates file types with particular programs (apps) by the file extension.
- ❑ The file format, as indicated by its filename extension, specifies the rules for how the bytes must be organized and interpreted meaningfully. For example, the bytes of a plain text file (.txt in Windows) are associated with either ASCII or UTF-8 characters, while the bytes of image, video, and audio files are interpreted otherwise. Most file types also allocate a few bytes for metadata, which allows a file to carry some basic information about itself.
- ❑ Changing a file extension does not change the content of a file and may cause it to not be recognised by the relevant program.
- ❑ The Apple version of Word saves files as .pages. Windows PCs can open them if the extension is changed to .zip.

File Properties



- This is a range of properties associated with each file. Examples include:
 - Name
 - Type
 - Associated program
 - Location
 - Size (actual size and size on disk)
 - Date created
 - Date last modified
 - Date last accessed
 - Author
 - Hidden
 - Read-only
 - Security permissions

File Management



- Windows provides 'File Explorer' which is a good basic file manager.
- Windows provides some basic folders for each user:
 - Documents
 - Pictures
 - Music
 - Videos
 - Downloads
- These folders are used as defaults by most Windows programs but users are free to create their own folders alongside or under the defaults ones.
- Files may be arranged into hierarchies using folders. Each folder can contain an arbitrary number of files, and it can also contain other folders. These other folders are referred to as subfolders.

File Operations



- ❑ Create a new file or folder.
- ❑ Change the access permissions and attributes of a file.
- ❑ Open a file, which makes the file contents available to the program.
- ❑ Read data from a file.
- ❑ Write data to a file.
- ❑ Delete a file (flags as deleted, contents remain until overwritten)
- ❑ Close a file, terminating the association between it and the program.
- ❑ Truncate a file, shortening it to a specified size within the file system without rewriting any content.
- ❑ Split and merge files.

File Sorting



- File Explorer offers several ways to view the contents of folders. The choices are selected under the 'View' tab. The icon options are good for folders containing images.
- Selecting the 'details' option allows the sorting of files by name, size, type, or date modified, just by clicking on the column heading. A second click reverses the sort order. The drop arrow allows a narrower sort.
- Files can be previewed by selecting the preview pane.
- There is also a search box for finding files.