Explainer: Browsers

Duke OLLI Digital Explorers SIG

David Shamlin February 2026

Key Terms

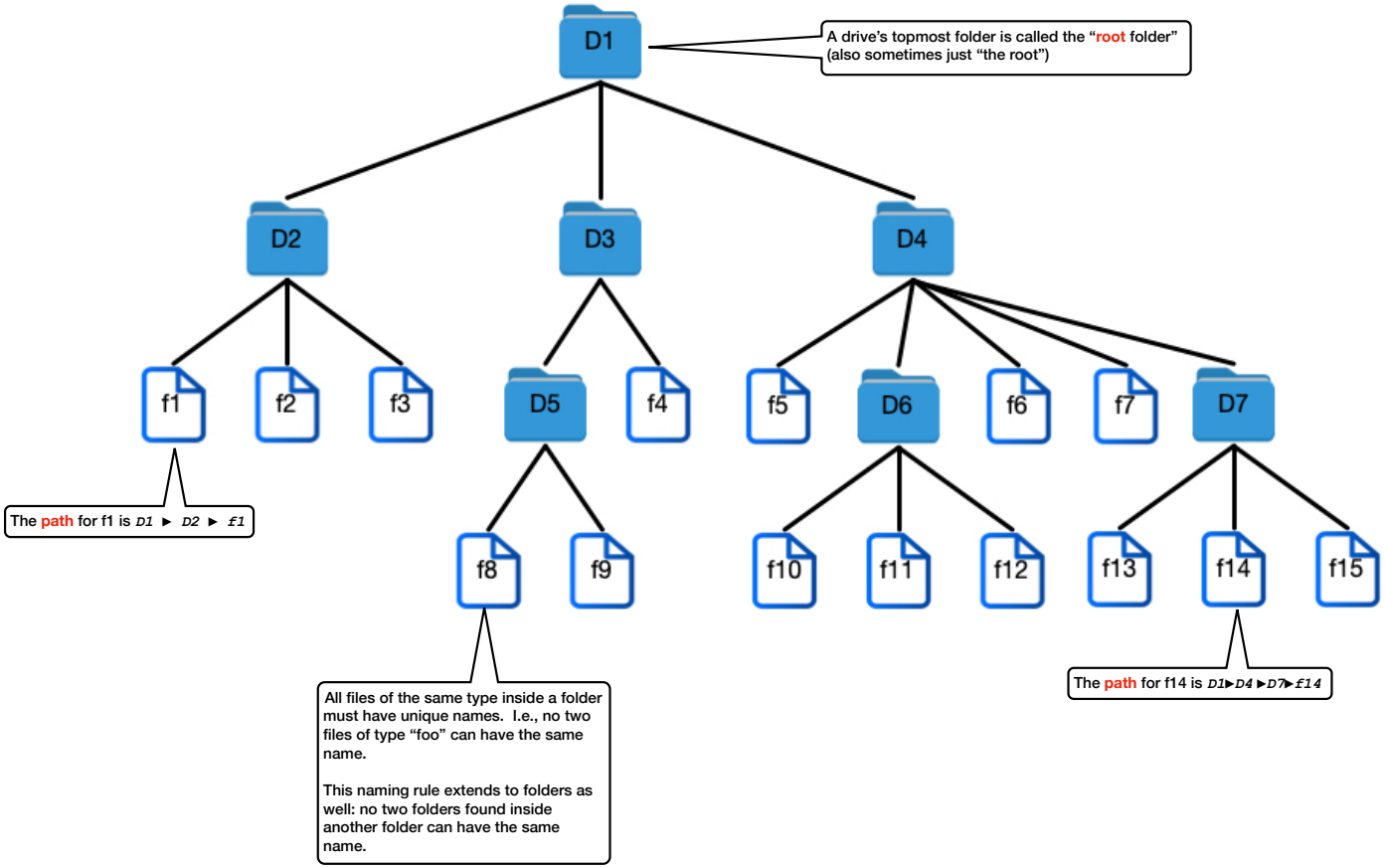
file	• A container for data when it is stored on a drive connected to your device

folder	• A container for files and other folders
	  • It may be helpful to think of a folder as a *location* on a drive
	  • The word "**directory**" is a commonly used synonym for "folder"

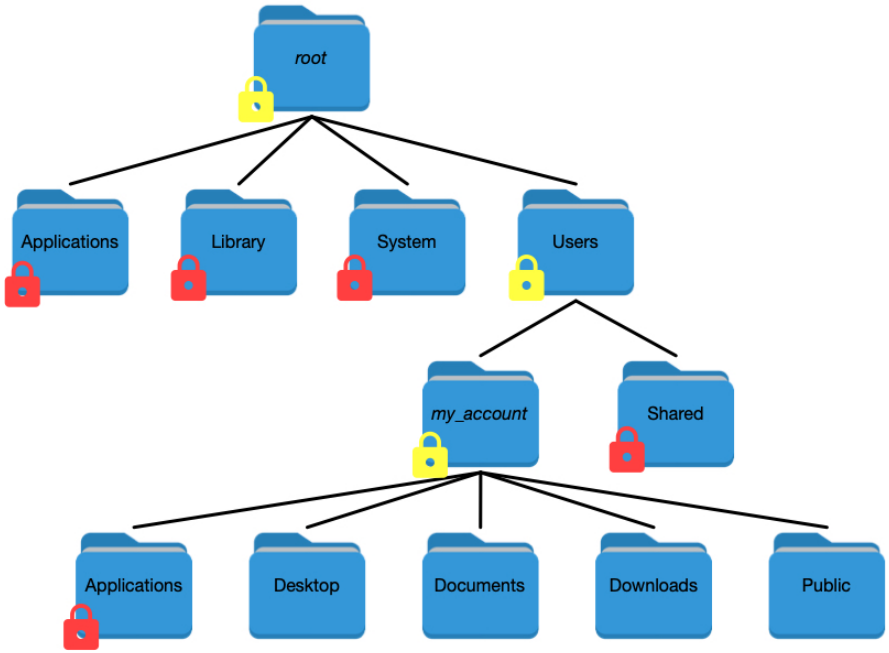
drive	• A non-volatile data storage device. Non-volatile refers to storage devices that maintain stored data when turned off.
	  • All digital devices have a storage device
	  • Additional drives can be connected to a digital device
	  • Cloud stores act as drives

file system	• A part of the operating system that governs access to files, folders, and how they are organized • A file system provides a data storage service to allow apps to share a drive; without a file systems, apps could access drives in incompatible ways that could result in problems (e.g., loss or corruption of data already stored on a drive) • The file systems on personal digital devices are **hierarchical** in nature.
file manager	• A kind of app used to view and manage files and folders on drives • Below are the icons and names of the file manager apps for the digital devices our SIG members have On macOS  **Finder** On iOS  **Files** On Windows  **File Explorer**

Hierarchical File System Overview



Special macOS Folders



There are a number of special folders on your drive. The diagram on the right shows these special folders and where they reside in the file system hierarchy. The folders with red lock icons are reserved for the operating system. You can look inside them if you're curious but you don't want to change anything inside them yourself; in fact, the operating system should stop you from inadvertently modifying anything in these folders. You can add files to the folders with yellow lock icons, but doing so is not a good idea and I strongly encourage you to maintain a "look but don't touch" attitude with these folders. The Desktop, Documents, and Downloads folders are for your use; you can do whatever you want in those folders.

- *root*
- Applications: software installed for use by all user accounts
- Library: contain app-related data, preferences, and caches
- System: contains the operating system
- Users: contain folders for user accounts
- Shared: contains folders and files user accounts have shared with other defined users

- *my_account*: contains folders and files for a user account; the name of these folder will match the name of the user account
- Shared: files stored in this location can be accessed by other user accounts
- Applications: software installed exclusively for your use; other user accounts do not have access to software installed in this folder
- Desktop: contains files/folder you place on your desktop
- Documents: this is the primary location you should use to store your files; you can organize files and folders inside the Documents folder however you prefer
- Downloads: files you download from the Internet are placed in this folder;
- Public: everything placed inside this folder will be visible to the other user accounts on your computer

The Recents folder

In the left hand side panel of file manager windows and apps' open and save dialog windows, you will find a folder called "Recents". This is a special kind of folder called a "smart folder" (also sometimes referred to as a "virtual folder".) Smart folders automatically find and show you files based on some pre-defined set of criteria. Note that the files you see in a smart folder don't actually reside in the smart folder.

The role of the Recents folder on Mac is to save you time by giving you quick access to the files you've recently used. No need to remember where you saved them.

To the best of my current knowledge, the Recents folder will show the N most recently used files, where N is some number that Apple doesn't appear to publicly document. I have seen some other geeks state they believe the value of N is somewhere in the range of 100-300 items.

Metadata

Metadata is data that defines and describes the characteristics of other data. It often helps to describe, explain, locate, or otherwise make data easier to retrieve, use, or manage.

- File systems maintains key attributes for files and folders:
  - name
  - type
    Only applied to files
    The type of a file is normally defined by the app that created the file
    “Kind” and “format” when used in reference to a file are synonymous with “type”
    On laptops/desktops, you sometimes see the type of a file indicated by a period followed by some text at the end of a file name (e.g., “foo.pages” where “.pages” is called the file name “extension”
  - path
  - date a file or folder was…
    - created
    - last modified
    - last viewed (i.e., opened, or accessed)
  - size
    Only applies to files

Key Terms

file format	• Defines the *structure* of data stored in a file • An app must "know" the format of a file in order to properly display the file's contents • Some file formats are proprietary, while others are universal, or open formats; proprietary file formats can only be opened by one or more related programs
file type	• An attribute of a file that indicates its file format • The file system assigns a file's type when a file is created (i.e., saved for the first time) • Note: Apple refers to this file attribute as a file's ***kind***.
file extension	• The characters that occur after the period at the end of a file name • Used by the operating system determine which app on your device the file is associated with • Sometimes called a *file suffix* or a *filename extension* • Example: in the filename "my_novel.docx", "docx" (i.e., the characters that come after the period in the filename) is the file's extension • Whether or not your device explicitly shows you a file's extension in file manager windows and file system dialogs (e.g., open and save windows) can vary depending on your device's operating system and system settings. I.e., you may or may not see a file's extension when you are looking at files using the file manager and file system dialogs

Note: these three terms are frequently used interchangeably; I.e., they are treated as synonyms.

Examples of Common File Formats and Extensions

Format	Extension(s)	
Microsoft Word	docx, doc	Some formats are fairly tightly coupled with their associated app. I.e., you normally access files with a Microsoft Word format using the Microsoft Word app; you normally access files with an Apple Numbers format using the Apple Numbers app. You can typically open files with these formats using an app analogous to the one used to create the file. E.g., you can open a Microsoft Word format file with the Apple Pages app; you can open a Apple Numbers format file with the Microsoft Excel app. If you do, some things in the file may look/behave differently in the app you open them with than they do in the app you used to create the file.
Microsoft Excel	xlsx, xls	
Microsoft Powerpoint	pptx, ppt	
Apple Pages	pages	
Apple Numbers	numbers	
Apple Keynote	key	
Portable Document Format	pdf	Other file formats are akin to those listed above in that they are used to store documents that contain myriad types of elements (e.g, text, tables, images, etc.) However, they are more “app agnostic” than those listed above; there are many different apps available that use these formats.hey are not associated with an individual app. These formats are intended to make it easier to share documents others.
Rich Text Format	rft	
Calendar	ics, ical, icalendar	Some formats are used to store data for things like appointments you create in a calendar app or people you add to your contacts app. These formats are used to share this things with someone else. E.g., if someone has ever sent you an email with a “calendar attachment”, that attachment was a file in the calendar format.
Contact	vcf, vcard	
Graphical Interchange Format	gif	Images can be stored in many different formats; these are just a few. Apps that allow you to include images in documents tend to support many/most image file formats.
Joint Photographic Experts Group	jpeg, jpg	
Portable Network Graphic	png	
Scalable Vector Graphic	svg	

Note: There are hundreds of other file formats, many of which you are unlikely to ever to know about in any detail. However if you are curious, this Wikipedia page contains a more extensive list.

More on File Formats

Consider this document; I created it using Apple's Keynote app. When Keynote saved the document to my device's drive, it wrote the pages in the order they appear in the document. I.e., the second page is written immediately after the first page, the third page is written immediately after the second page, and so on. While all pages visually appear to be of the same size when viewed on screen and can be printed on 8.5" x 11" paper, the same is not true when the document is saved to a device's drive. Note how each page contains a different amount of information. The size of a page when saved on a drive is based on the amount of information—i.e., data—on the page. Each character of text consumes on byte of space when stored. In this document, the first page has fewer characters than the second page, so less disk space is needed for the first page than is used for the second page. Given that pages can vary in size when saved to my drive, the Keynote app must also write some additional information—i.e., data—in the file to indicate where one page ends and the next begins. The Keynote app *structures* the file's data as it writes it to my drive.

The *structure* Keynote uses is what the term "file format" refers to.

Now imagine, I use the Finder app on my Mac to navigate to the folder that contains the file I created for this document. I double click on the file once I see it in my Finder window and a Keynote window appears on my screen with the contents of my document. How did my device "know" to open that file with Keynote? Double-clicking on the file in my Finder window "told" the operating system that I want to open that file. The operating system "looked at" the file's extension and saw that the value of the file extension value was "key; the operating system "knows" that a file extension value of "key" means the file is of the Keynote type; the operating system also "knows" that files of this type are use with the Keynote app. So the operating system "tells" the Keynote app to read the contents of the file I double clicked and show me it's contents in a window on my screen.

File/Folder naming rules

- Can be up to 255 characters long on macOS and iOS
  Can be up to 260 characters long on Windows
  Some apps that allow you to save files might further limit the maximum length of file names
- Cannot contain a forward slash (“/“)
- The following characters should be avoided

!	?	.	,
;	:	\	
“	‘	*	
[ ]	{ }	( )	< >

- Case sensitivity (i.e., is “MyFile” the same as “myfile”)
  - Best practice is to consider “MyFile” the same as “myfile”
    Whether or not a device treats “MyFile” and “myfile” as the same depends on the file system and how a drive is configured

Primary file operations

Via File Manager

- Copy
- Move
- Rename
- Delete
- Open

Via Apps

- Open / Open Recent
- Close
- Save / Save As
- Rename
- Move
- Revert
- Export
- Print