2.12.4 File Search Facts

A Linux administrator must possess the skills to find the location of files in a file system.

This lesson covers the following topic:

- Commands to find a file

Commands to Find a File

Use the commands in the following table to find file locations.

Command	Description	Examples

find	Searches through all files based on the file system by name, file size, time created, and other options. Be aware of the following **find** command options:
	• **-name** locates a file or directory by name in a specific path. When using **-name**:
	  ◦ Enclose name strings in single quotes.
	  ◦ Use wildcards for partial names.
	  ◦ Use **-iname** to ignore case.
	• **-user** finds files owned by a specific user.
	• **-size** finds files of a specific size. Use the following options:
	  ◦ **c** for bytes
	  ◦ **k** for kilobytes
	  ◦ **M** for megabytes
	• **-mtime** finds files last modified before or after a specified number of days ago.
	• **-type [*f* or *d*]** specifies whether to find files or directories.
	• **-maxdepth** specifies how many levels down to search.
	• -**print0** finds filenames with spaces.
	• **-o** specifies the *or* parameter when searching with multiple criteria.
	• **.** (period) specifies the search locations as the current directory and subdirectories.
		• **find /user/home -name '*.txt'** finds all files with an extension of .txt in the /user/home directory.
		• **find / -name '*paper*'** looks through the entire directory for any filename or directory name that contains "paper" (e.g., termpaper.odt or wallpaper.jpg).
		• **find /user/home -size -300k** finds all files in the /user/home directory smaller than 300 K.
		• **find /user/home -size +300k** finds all files in the /user/home directory larger than 300 K.
		• **find /user/home -mtime -5** finds all files in the /user/home directory modified within the last five days.
		• **find / -type f -name '*paper*'** finds only filenames that contain "paper".
		• **find / -type d -name '*paper*'** finds only directory names that contain "paper".
		• **find -maxdepth 3 / -name '*.txt'** finds .txt files three directory levels down from the root directory.
		• **find -print0 / -name '*.txt'** finds .txt files with spaces in the name (e.g., myreport.txt

		and my report.txt). Without the -**print0** option, only files without spaces are listed.
locate	Searches for files in the file system. The **locate** utility maintains a database containing a listing of all the files and directories in the file system. Be aware that the **locate** command: • Searches through an index instead of the actual file system. Because of this, the locate command usually runs much faster than the find command. • Searches all files if no path is specified. • Maintains an index of all files and directories in the **/var/log/locatedb** file. • Uses the **updatedb** command to update the index. (The **/etc/updatedb.conf** file is used to configure for **updatedb**.) The index is updated on a regular schedule. This means it is possible for locate to find a file in the index that no longer exists in the actual file system. Likewise, it is possible for locate not to find a new file in the file system that has not been added to the index yet. Be aware of the following **locate** command options: • **-c** counts the number of entries rather than list them. • **-e** lists files only after verifying that they exist. • **-i** ignores case. • **-l** limits the number of files listed. • **-b** searches for the string in only file or directory base names.	• **updatedb** updates the index file (/var/log/locatedb). • **locate /user/home paper** locates all files with the string "paper" as any part of the filename or directory path under the /user/home directory. • **locate lib** locates all files with the string "lib" anywhere in the filename or directory path. • **locate -c lib** counts the number of files with the string "lib" (e.g., 46512). • **locate -e .odt** verifies that all .odt files listed in the file index actually exist before it lists them. • **locate -i LibraryFines.csv** finds the libraryfines.csv file regardless of case. • **locate -l 25 lib** lists only the first 25 files from the file index that contain the string "lib". • **locate -b lib** displays /var/lib and /user/home/libraryfines.csv but not /var/lib/usbutils/usb.ids. If the search pattern contains no globbing characters, such as the wildcard character (*), locate behaves as if the pattern begins and ends with a wildcard. For example, searching for "paper" is the same as searching for "*paper*".
which	Displays the path to a command and	• **which ls** shows the path to the

	determines whether a package is installed.	**ls** binary (executable) file. • **which photorec** shows the path to the **photorec** binary file if **photorec** is installed.
whereis	Displays the path to a Linux command's binary files, manual pages, and source code (if sources are installed). Be aware of the following **whereis** command options: • **-b** lists the path to the binary file (similar to **which**). • **-m** lists the path to the man page files. • **-s** lists the location of the source code. • **-u** lists entries that do not have source code, binary file, and man page locations. When no options are specified, **whereis** shows all available data.	• **whereis ls** lists information about the **ls** command.
type	Displays a command's type. Possible categories include: • A built-in shell command • A command that the shell calls • An aliased command • A function If a called command has been used recently, the output says that the command is hashed, which means that it is in the shell's hash table.	• **type cd** displays "cd is a shell built-in". • **type more** displays the path to the binary file for **more**.

The term *file globbing* refers to the use of wildcards (e.g., *****, ***.***, *.txt) to match specific files.