FHS

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Filesystem Hierarchy Standard

The **Filesystem Hierarchy Standard** (**FHS**) is maintained by the Linux Foundation to define the directory structure/contents in Linux distributions. The Linux Foundation released Version 3.0 on 3 June 2015 [1]. In the FHS, all files and directories appear under the root directory **/** . FHS is used in all Unix-like operating systems (e.g., Linux distros) [2].

Table 1 - FHS Directory Structure/Description [2].

Directory	Description
/	Root directory of the entire file system hierarchy.
/bin	Essential command binaries (e.g., cat, ls, cp).
/boot	Boot loader files.
/dev	Device files (e.g., /dev/null , /dev/sda1 , /dev/tty).
/etc	Host-specific system-wide *configuration* files.
/home, /root	User home directories, except the root user which is /root.
/lib	Libraries essential for binaries in /bin and /sbin
/media	Mount points for removable media such as DVD-ROMs or flash drives.
/mnt	Temporarily mounted filesystems (may include network locations).
/opt	Optional software packages.
/proc	Virtual filesystem providing process and kernel information as files. In Linux, corresponds to the procfs mount.
/run	Run-time variable data: Information about the running system since last boot (*e.g.*, currently logged-in users and daemons).
/sbin	Essential system binaries (e.g., fsck, init, route).
/sys	Contains information about devices, drivers, and some kernel features.
/tmp, /var/tmp	Temporary files (see also /var/tmp). /tmp is a common location in which all users can store non-critical files. Note: The sticky bit (i.e., drwxrwxrwt) is set on files to prevent users from deleting other user's files.
/usr	Read-only user data (e.g., multi-user utilities and applications).
/usr/bin	Non-essential command binaries that are not needed in single user mode.
/usr/lib	Libraries for the binaries in /usr/bin and /usr/sbin.
/usr/local	Local data specific to this host.
/usr/sbin	Non-essential system binaries.
/var	Variable files expected to change during normal system operation (e.g., logs, spool files, and temporary e-mail files).
/var/log	Log files (e.g., auth.log, syslog, apacahe.log, etc.).
/var/mail	Mailbox files (previously located in the deprecated /var/spool/mail directory).
/var/spool	Spool for tasks waiting to be processed (e.g. print queues, outgoing mail queues).

NOTE: This is not an exhaustive FHS description, but is meant to keep the topic high-level and appropriate to the LPI Linux Essentials exam.

We can also conceptualize the FHS graphically. This can be helpful in understanding the "top-level" directories of importance. NOTE: "home" is not included in this graphic

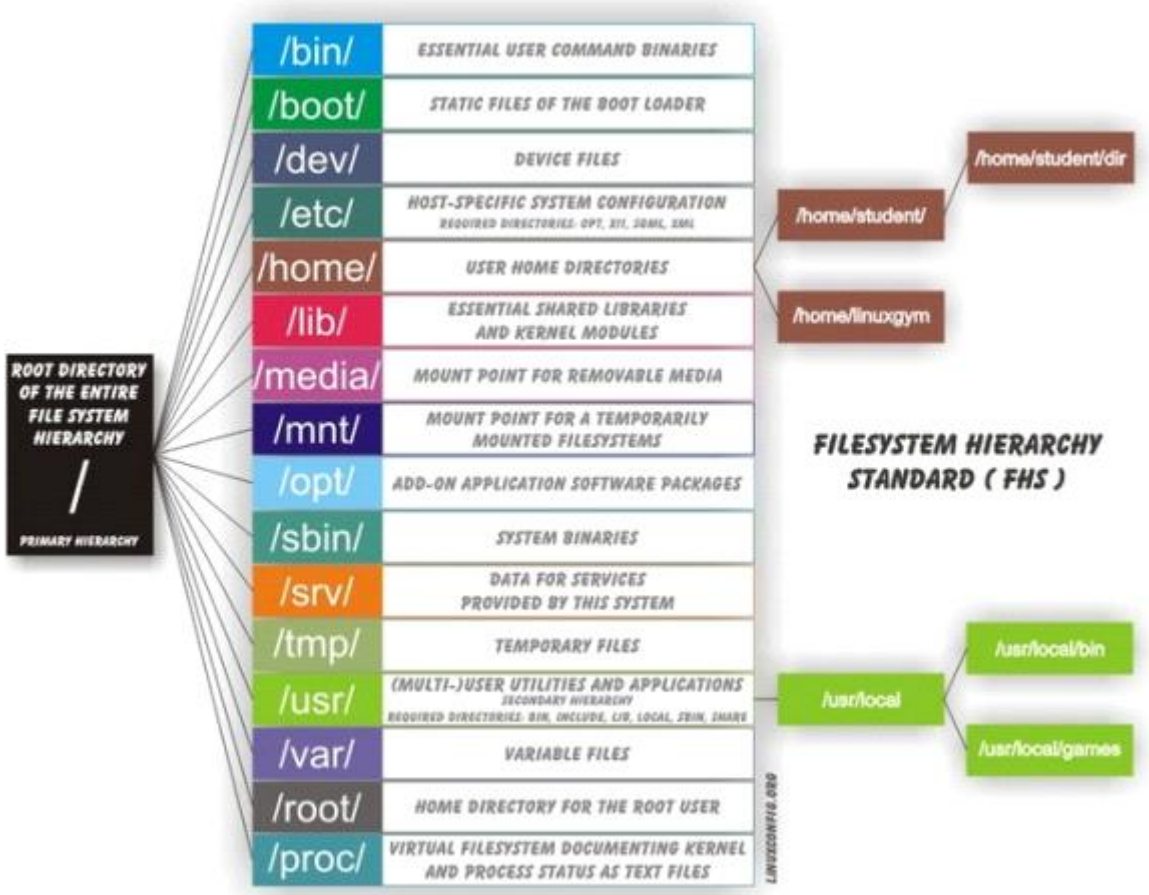

Figure 1 - Filesystem Hierarchy Standard (FHS). L. FHS and L. Aadda, "Linux FHS," 01-Jan-1970. [Online]. Available: https://sites.google.com/site/linuxaaddaa/linux-fsh. [Accessed: 10-Jul-2021].

FHS is an important concept for Linux professionals to understand. You will find borad applicability to our C851 learning res ource, uCertify Chapter 7: Managing Files, and the LPI Linux Essentials Exam Objectives: 2.1 Command Line Basics, 2.3 Using Directories and Listing Files, 2.4 Creating, Moving and Deleting Files, 4.3 Where Data is Stored, and 5.4 Special Directories and Files [3].

References

[1] The Linux Foundation, "Lsb:fhs-30," *TLF Wiki*, 19-Jul-2016. [Online]. Available: https://wiki.linuxfoundation.org/lsb/fhs-30. [Accessed: 10-Jul-2021].

[2] LibreTexts, "04-E.12.1: Linux Directory Structure - Hierarchy," *Engineering LibreTexts*, 26-Jun-2020. [Online]. Available: https://eng.libretexts.org/Bookshelves/Computer_Science/Operating_Systems/Linux_-_The_Penguin_Marches_On_(McClanahan)/04:_Managing_Linux_Storage/5.12:_Linux_Directory_Structure/5.12.01:_Linux_Directory_Structure_-_Hierarchy. [Accessed: 10-Jul-2021].

[3] Linux Professional Institute (LPI), "Exam 010 Objectives," *Linux Professional Institute*, 21-Oct-2018. [Online]. Available: https://www.lpi.org/our-certifications/exam-010-objectives. [Accessed: 10-Jul-2021].