

Filesystem Hierarchy Standard (FHS)

/ The Root Filesystem

The contents of the root filesystem must be adequate to boot, restore, recover, and/or repair the system. Applications must never create or require special files or subdirectories in the root directory.

To boot a system, enough software and data must be present on the root partition to mount other filesystems.

To enable recovery and/or repair of a system, those utilities needed by an experienced maintainer to diagnose and reconstruct a damaged system must be present on the root filesystem.

To restore a system, those utilities needed to restore from system backups must be present on the root filesystem.

The following directories, or symbolic links to directories, must be in /, if the corresponding subsystem is installed:

/home User home directories (optional)

- It is clearly a site-specific filesystem.
- The setup will differ from host to host.
- No program should assume any specific location for a home directory, rather it should query for it.
- User specific configuration files for applications are stored in the user's home directory in a "dot file" or "dot directory".
- Distributions may create directory hierarchies which follow specifications and conventions. Those directory hierarchies may be located underneath home directories.

- **/lib** Alternate format essential shared libraries (optional)

- There may be one or more variants of the /lib directory on systems which support more than one binary format requiring separate libraries.

- **/root** Home directory for the root user (optional)

- The root account's home directory may be determined by developer or local preference, but this is the recommended default location.

The following directories, or symbolic links to directories, are required in / :

- **/bin** Essential command binaries

- Contains commands that may be used by both the system administrator and by users, but which are required when no other filesystems are mounted.
- There must be no subdirectories in /bin.

o The following commands, or symbolic links to commands, are required in /bin:

- cat
Utility to concatenate files to standard output
- chgrp
Utility to change file group ownership
- chmod
Utility to change file access permissions
- chown
Utility to change file owner and group
- cp
Utility to copy files and directories
- date
Utility to print or set the system data and time
- dd
Utility to convert and copy a file
- df
Utility to report filesystem disk space usage
- dmesg
Utility to print or control the kernel message buffer
- echo
Utility to display a line of text
- false
Utility to do nothing, unsuccessfully
- hostname
Utility to show or set the system's host name
- kill
Utility to send signals to processes
- ln
Utility to make links between files
- login
Utility to begin a session on the system
- ls
Utility to list directory contents
- mkdir
Utility to make directories
- mknod
Utility to make block or character special files

- more
Utility to page through text
- mount
Utility to mount a filesystem
- mv
Utility to move/rename files
- ps
Utility to report process status
- pwd
Utility to print name of current working directory
- rm
Utility to remove files or directories
- rmdir
Utility to remove empty directories
- sed
The `sed' stream editor
- sh
POSIX compatible command shell
- stty
Utility to change and print terminal line settings
- su
Utility to change user ID
- sync
Utility to flush filesystem buffers
- true
Utility to do nothing, successfully
- umount
Utility to unmount file systems
- uname
Utility to print system information
- The following programs, or symbolic links to programs, must be in **/bin** if the corresponding subsystem is installed:
 - csh
The C shell (optional)
 - ed
The `ed' editor (optional)
 - tar
The tar archiving utility (optional)

- **cpio**
The cpio archiving utility (optional)
 - **gzip**
The GNU compression utility (optional)
 - **gunzip**
The GNU uncompression utility (optional)
 - **zcat**
The GNU uncompression utility (optional)
 - **netstat**
The network statistics utility (optional)
 - **ping**
The ICMP network test utility (optional)
- If restoration of a system is planned through the network, then ftp or tftp (along with everything necessary to get an ftp connection) must be available on the root partition.
- **/boot** Static files of the boot loader
 - Stores data that is used before the kernel begins executing user-mode programs. This may include saved master boot sectors and sector map files.
 - Programs necessary to arrange for the boot loader to be able to boot a file must be placed in **/sbin**.
 - Configuration files for boot loaders that are not required at boot time must be placed in **/etc**.
- **/dev** Device files
 - If it is possible that devices in **/dev** will need to be manually created, **/dev** must contain a command named MAKEDEV, which can create devices as needed.
 - MAKEDEV must have provisions for creating any device that may be found on the system, not just those that a particular distribution installs.
- **/etc** Host-specific system configuration
 - A "configuration file" is a local file used to control the operation of a program; it must be static and cannot be an executable binary.
 - No binaries may be located under **/etc**. Files be stored in subdirectories.
 - The following directories, or symbolic links to directories are required in **/etc**:
- **/etc/opt** Configuration for **/opt**
 - Host-specific configuration files for add-on application software packages must be installed within the directory **/etc/opt/<subdir>**, where **<subdir>** is the name of the subtree in **/opt** where the static data from that package is stored.
 - If a configuration file must reside in a different location in order for the package or system to function properly, it may be placed in a location other than **/etc/opt/<subdir>**.

- The following directories, or symbolic links to directories must be in `/etc`, if the corresponding subsystem is installed:
 - **`/etc/X11`** Configuration for the X Window system (optional).
 - The location for all X11 host-specific configuration. This directory is necessary to allow local control if `/usr` is mounted read only. The following files, or symbolic links to files, must be in **`/etc/X11`** if the corresponding subsystem is installed:
 - `xorg.conf`
The configuration file for X.org (optional)
 - `Xmodmap`
Global X11 keyboard modification file (optional)
 - **`/etc/sgml`** Configuration for SGML (optional)
 - Generic configuration files defining high-level parameters of the SGML systems are installed here. Files with names `*.conf` indicate generic configuration files.
 - File with names `*.cat` are the DTD-specific centralized catalogs, containing references to all other catalogs needed to use the given DTD. The super catalog file `catalog` references all the centralized catalogs.
 - **`/etc/xml`** Configuration for XML (optional)
 - Generic configuration files defining high-level parameters of the XML systems are installed here. Files with names `*.conf` indicate generic configuration files.
 - The following files, or symbolic links to files, must be in **`/etc`** if the corresponding subsystem is installed:
 - `csh.login`
Systemwide initialization file for C shell logins (optional)
 - `exports`
NFS filesystem access control list (optional)
 - `fstab`
Static information about filesystems (optional)
 - `ftputers`
FTP daemon user access control list (optional)
 - `gateways`
File which lists gateways for routed (optional)
 - `gettydefs`
Speed and terminal settings used by getty (optional)
 - `group`
User group file (optional)
 - `host.conf`
Resolver configuration file (optional)

- hosts
Static information about host names (optional)
- hosts.allow
Host access file for TCP wrappers (optional)
- hosts.deny
Host access file for TCP wrappers (optional)
- hosts.equiv
List of trusted hosts for rlogin, rsh, rcp (optional)
- hosts.lpd
List of trusted hosts for lpd (optional)
- inetd.conf
Configuration file for inetd (optional)
- inittab
Configuration file for init (optional)
- issue
Pre-login message and identification file (optional)
- ld.so.conf
List of extra directories to search for shared libraries (optional)
- motd
Post-login message of the day file (optional)
- mtab
Dynamic information about filesystems (optional)
- mtools.conf
Configuration file for mtools (optional)
- networks
Static information about network names (optional)
- passwd
The password file (optional)
- printcap
The lpd printer capability database (optional)
- profile
Systemwide initialization file for sh shell logins (optional)
- protocols
IP protocol listing (optional)
- resolv.conf
Resolver configuration file (optional)
- rpc
RPC protocol listing (optional)

- **securetty**
TTY access control for root login (optional)
 - **services**
Port names for network services (optional)
 - **shells**
Pathnames of valid login shells (optional)
 - **syslog.conf**
Configuration file for syslogd (optional)
- **/lib** Essential shared libraries and kernel modules
 - Contains shared library images needed to boot the system and run the commands in the root filesystem.
 - At least one of each of the following filename patterns are required:
 - **libc.so.***
The dynamically-linked C library (optional)
 - **ld***
The execution time linker/loader (optional)
 - If a C preprocessor is installed, **/lib/cpp** must be a reference to it, for historical reasons.
 - The following directories, or symbolic links to directories, must be in **/lib**, if the corresponding subsystem is installed:
 - **modules**
Loadable kernel modules (optional)
- **/media** Mount point for removable media
 - This directory contains subdirectories which are used as mount points for removable media.
 - On systems where more than one device exists for mounting a certain type of media, mount directories can be created by appending a digit to the name of those available above starting with '0', but the unqualified name must also exist.
- **/mnt** Mount point for mounting a filesystem temporarily
 - This directory is provided so that the system administrator may temporarily mount a filesystem as needed.
 - The content of this directory is a local issue and should not affect the manner in which any program is run.
 - This directory must not be used by installation programs
- **/opt** Add-on application software packages
 - Reserved for the installation of add-on application software packages.
 - A package to be installed in **/opt** must locate its static files in a separate **/opt/<package>** or **/opt/<provider>** directory tree, where **<package>** is a name that describes the software package and **<provider>** is the provider's LANANA registered name.

- The directories **/opt/bin**, **/opt/doc**, **/opt/include**, **/opt/info**, **/opt/lib**, and **/opt/man** are reserved for local system administrator use.
- Programs to be invoked by users must be located in the directory **/opt/<package>/bin** or under the **/opt/<provider>** hierarchy.
 - If the package includes UNIX manual pages, they must be located in **/opt/<package>/share/man** or under the **/opt/<provider>** hierarchy, and the same substructure as **/usr/share/man** must be used.
- Package files that are variable must be installed in **/var/opt**.
- Host-specific configuration files must be installed in **/etc/opt**.
- No other package files may exist outside the **/opt**, **/var/opt**, and **/etc/opt** hierarchies except for those package files that must reside in specific locations within the filesystem tree in order to function properly.
- Distributions may install and otherwise manage software in **/opt** under an appropriately registered subdirectory.
- **/run** Data relevant to running processes
 - This directory contains system information data describing the system since it was booted.
 - Files under this directory must be cleared at the beginning of the boot process.
 - Programs may have a subdirectory of **/run**; this is encouraged for programs that use more than one run-time file.
 - Users may also have a subdirectory of **/run**, although care must be taken to appropriately limit access rights to prevent unauthorized use.
 - Process identifier (PID) files, which were originally placed in **/etc**, must be placed in **/run**. The naming convention for PID files is <program-name>.pid.
 - The internal format of PID files must consist of the process identifier in ASCII-encoded decimal, followed by a newline character. For example, if crond was process number 25, **/run/crond.pid** would contain three characters: two, five, and newline.
- **/sbin** Essential system binaries
 - **/sbin** contains binaries essential for booting, restoring, recovering, and/or repairing the system in addition to the binaries in **/bin**.
 - Programs executed after **/usr** is known to be mounted are generally placed into **/usr/sbin**.
 - Locally-installed system administration programs should be placed into **/usr/local/sbin**.
 - There must be no subdirectories in **/sbin**.
 - The following commands, or symbolic links to commands, are required in **/sbin**:
 - shutdown
Command to bring the system down.
 - The following files, or symbolic links to files, must be in **/sbin** if the corresponding subsystem is installed:

- **fastboot**
Reboot the system without checking the disks (optional)
- **fasthalt**
Stop the system without checking the disks (optional)
- **fdisk**
Partition table manipulator (optional)
- **fsck**
File system check and repair utility (optional)
- **fsck.***
File system check and repair utility for a specific filesystem (optional)
- **getty**
The getty program (optional)
- **halt**
Command to stop the system (optional)
- **ifconfig**
Configure a network interface (optional)
- **init**
Initial process (optional)
- **mkfs**
Command to build a filesystem (optional)
- **mkfs.***
Command to build a specific filesystem (optional)
- **mkswap**
Command to set up a swap area (optional)
- **reboot**
Command to reboot the system (optional)
- **route**
IP routing table utility (optional)
- **swapon**
Enable paging and swapping (optional)
- **swapoff**
Disable paging and swapping (optional)
- **update**
Daemon to periodically flush filesystem buffers (optional)
- **/srv** Data for services provided by this system
 - **/srv** contains site-specific data which is served by this system.
 - This main purpose of specifying this is so that users may find the location of the data files for a particular service, and so that services which require a single tree for readonly data, writable

data and scripts can be reasonably placed.

- **/tmp** Temporary files
 - The **/tmp** directory must be made available for programs that require temp files.
 - Programs must not assume that any files or directories in **/tmp** are preserved between invocations of the program.
 - it is recommended that files and directories located in **/tmp** be deleted whenever the system is booted.
- **/usr** Secondary hierarchy
 - **usr** is shareable, read-only data. That means that **/usr** should be shareable between various FHS-compliant hosts and must not be written to.
 - The following directories, or symbolic links to directories, are required in **/usr**:
 - **/usr/bin** Most user commands
 - This is the primary directory of executable commands on the system.
 - There must be no subdirectories in **/usr/bin**.
 - The following files, or symbolic links to files, must be in **/usr/bin**, if the corresponding subsystem is installed:
 - **perl**
The Practical Extraction and Report Language (optional)
 - **python**
The Python interpreted language (optional)
 - **tclsh**
Simple shell containing Tcl interpreter (optional)
 - **wish**
Simple Tcl/Tk windowing shell (optional)
 - **expect**
Program for interactive dialog (optional)
 - **/usr/lib** Libraries
 - Includes object files and libraries.
 - On some systems, it may also include internal binaries that are not intended to be executed directly by users or shell scripts.
 - Applications may use a single subdirectory.
 - **/usr/local** Local hierarchy (empty after main installation)
 - For use by the system administrator when installing software locally.
 - It needs to be safe from being overwritten when the system software is updated.
 - It may be used for programs and data that are shareable amongst a group of hosts, but not found in **/usr**.

- If the directory **/usr/share/color** exists as specified in this document, then the directory **/usr/local/share/color** must also exist, governed by the same rules as **/usr/share/color**.
- The following directories, or symbolic links to directories, must be in **/usr/local**:
 - **/usr/local/bin** Local binaries
 - **/usr/local/etc** Host-specific configurations for local binaries
 - **/usr/local/games** Local game binaries
 - **/usr/local/include** Local C header files
 - **/usr/local/lib** Local libraries
 - **/usr/local/man** Local online manuals
 - **/usr/local/sbin** Local system binaries
 - **/usr/local/share** Local architecture-independent hierarchy
 - **/usr/local/src** Local source code
- **/usr/sbin** Non-vital system binaries
 - This directory contains any non-essential binaries used exclusively by the system administrator.
 - System administration programs that are required for system repair, system recovery, mounting **/usr**, or other essential functions must be placed in **/sbin**.
 - There must be no subdirectories in **/usr/sbin**.
- **/usr/share** Architecture-independent data
 - The **/usr/share** hierarchy is for all read-only architecture independent data files.
 - This hierarchy is intended to be shareable among all architecture platforms of a given OS.
 - It is recommended that application-specific, architecture-independent directories be placed here.
 - The following directories, or symbolic links to directories, must be in **/usr/share**:
- **/usr/share/man** Online manuals
 - **man1**: User programs Manual. Pages that describe publicly accessible commands are contained in this chapter.
 - **man2**: System calls.
This section describes all of the system calls.
 - **man3**: Library functions and subroutines.
Describes program library routines that are not direct calls to kernel services.
 - **man4**
Describes the special files, related driver functions, and networking support available in the system.
 - **man5**: File formats.
The formats for many data files are documented in the section.
 - **man6**: Games.
This chapter documents games, demos, and generally trivial programs.

- man7: Miscellaneous Manual. Pages that are difficult to classify.
- man8: System administration.
 - Programs used by system administrators for system operation and maintenance are documented here.
- **/usr/share/misc** Miscellaneous architecture-independent data
 - This directory contains miscellaneous architecture-independent files which don't require a separate subdirectory under **/usr/share**.
 - The following files, or symbolic links to files, must be in **/usr/share/misc**, if the corresponding subsystem is installed:
 - **ascii**
ASCII character set table (optional)
 - **termcap**
Terminal capability database (optional)
 - **termcap.db**
Terminal capability database (optional)
 - The following directories, or symbolic links to directories, must be in **/usr/share**, if the corresponding subsystem is installed:
 - **color**
Color management information (optional)
 - This directory is the home for ICC color management files installed by the system.
 - The following directories must be in **/usr/share/color**, if the corresponding subsystem is installed:
 - **icc**
ICC color profiles (optional)
- **/usr/share/dict** Word lists (optional)
 - This directory is the home for word lists on the system.
 - Word lists for other languages may be added using the English name for that language. These should, if possible, use a character set based on Unicode, with the UTF-8 character set being the preferred option.
 - The following files, or symbolic links to files, must be in **/usr/share/dict**, if the corresponding subsystem is installed:
 - **words**
List of English words (optional)
- **/usr/share/doc** Miscellaneous documentation (optional)
- **/usr/share/games** Static data files for /usr/games (optional)
- **/usr/share/info** Primary directory for GNU Info system (optional)

- **/usr/share/locale** Locale information (optional)
- **/usr/share/nls** Message catalogs for Native language support
- **/usr/share/ppd** Printer definitions (optional)
 - Contains PostScript Printer Definition (PPD) files, which are used as descriptions of printer drivers by many print systems.
 - PPD files may be placed in this directory, or in a subdirectory.
- **/usr/share/sgml** SGML data (optional)
 - Contains architecture-independent files used by SGML applications, such as ordinary catalogs, DTDs, entities, or style sheets.
 - The following directories, or symbolic links to directories, must be in **/usr/share/sgml**, if the corresponding subsystem is installed:
 - docbook
docbook DTD (optional)
 - tei
tei DTD (optional)
 - html
html DTD (optional)
 - mathml
mathml DTD (optional)
- **/usr/share/terminfo** Directories for terminfo database (optional)
- **/usr/share/tmac** troff macros not distributed with groff (optional)
- **/usr/share/xml** XML data (optional)
 - Contains architecture-independent files used by XML applications, such as ordinary catalogs, DTDs, entities, or style sheets.
 - The following directories, or symbolic links to directories, must be in **/usr/share/xml**, if the corresponding subsystem is installed:
 - docbook
docbook XML DTD (optional)
 - xhtml
XHTML DTD (optional)
 - mathml
MathML DTD (optional)
- **/usr/share/zoneinfo** Timezone information and configuration (optional)
- **/usr/games** Games and educational binaries (optional)
- **/usr/include** Header files included by C programs

- This is where all of the system's general-use include files for the C programming language should be placed.
 - The following directories, or symbolic links to directories, must be in **/usr/include**, if the corresponding subsystem is installed:
 - **bsd**
BSD compatibility include files (optional)
- **/usr/libexec**
Binaries run by other programs (optional)
 - Includes internal binaries that are not intended to be executed directly by users or shell scripts.
 - Applications may use a single subdirectory under **/usr/libexec**.
 - Applications which use **/usr/libexec** in this way must not also use **/usr/lib** to store internal binaries, though they may use **/usr/lib** for the other purposes.
- **/usr/lib<qual>**
Alternate Format Libraries (optional)
 - Performs the same role as **/usr/lib** for an alternate binary format.
- **/usr/src**
Source code (optional)
 - Source code may be placed in this subdirectory, only for reference purposes.
- **/var** Variable data
 - **var** contains variable data files. This includes spool directories and files, administrative and logging data, and transient and temporary files.
 - Some portions of **/var** are not shareable, other portions may be shared.
 - **var** is specified here in order to make it possible to mount **/usr** read-only. Everything that once went into **/usr** that is written to during system operation must be in **/var**.
 - If **/var** cannot be made a separate partition, it is often preferable to move **/var** out of the root partition and into the **/usr** partition. However, **/var** must not be linked to **/usr** because this makes separation of **/usr** and **/var** more difficult and is likely to create a naming conflict. Instead, link **/var** to **/usr/var**.
 - Applications must generally not add directories to the top level of **/var**.
 - The following directories, or symbolic links to directories, are required in **/var**:
 - **/var/cache** Application cache data
 - **/var/cache** is intended for cached data from applications. Such data is locally generated as a result of time-consuming I/O or calculation.
 - The application must be able to regenerate or restore the data. Unlike **/var/spool**, the cached files can be deleted without data loss. The data must remain valid between invocations of the application and rebooting the system.

- Files located under **/var/cache** may be expired in an application specific manner, by the system administrator, or both. The application must always be able to recover from manual deletion of these files.
- Specific Options:
 - **fonts** Locally-generated fonts (optional)
 - **man** Locally-formatted manual pages (optional)
 - **www** WWW proxy or cache data (optional)
 - **<package>** Package specific cache data (optional)
- **/var/lib** Variable state information
 - The following directories, or symbolic links to directories, must be in **/var/lib**, if the corresponding subsystem is installed:
 - **<editor>** Editor backup files and state (optional)
 - **<pkgtool>** Packaging support files (optional)
 - **<package>** State data for packages and subsystems (optional)
 - **color** Color management information (optional)
 - **hwclock** State directory for hwclock (optional)
 - **xdm** X display manager variable data (optional)
 - **/var/lib/<editor>** Editor backup files and state (optional)
 - These directories contain saved files generated by any unexpected termination of an editor.
- **/var/lib/color** Color management information (optional)
 - This directory is the home for ICC color management files installed dynamically. This directory shall be laid out using the same rules as the **/usr/share/color** directory.
- **/var/lib/hwclock** State directory for hwclock (optional)
 - This directory contains the file **/var/lib/hwclock/adjtime**.
- **/var/lib/misc** Miscellaneous variable data
 - This directory contains variable data not placed in a subdirectory in **/var/lib**.
- **/var/local** Variable data for **/usr/local**
 - This hierarchy holds state information pertaining to an application or the system.
 - The following directories, or symbolic links to directories, are required in **/var/lib**:
 - **misc** Miscellaneous state data
- **/var/lock** Lock files
 - Lock files should be stored within the **/var/lock** directory structure.
 - The format used for the contents of such lock files must be the HDB UUCP lock file format.

- **/var/log** Log files and directories
 - This directory contains miscellaneous log files. Most logs must be written to this directory or an appropriate subdirectory.
 - The following files, or symbolic links to files, must be in **/var/log**, if the corresponding subsystem is installed:
 - **lastlog** record of last login of each user
 - **messages** system messages from syslogd
 - **wtmp** record of all logins and logouts
- **/var/opt** Variable data for **/opt**
 - Variable data of the packages in **/opt** must be installed in **/var/opt/<subdir>**, where **<subdir>** is the name of the subtree in **/opt** where the static data from an add-on software package is stored, except where superseded by another file in **/etc**.
- **/var/run** Data relevant to running processes
 - This directory exists to ensure compatibility with systems and software using an older version of this specification.
 - It is valid to implement **/var/run** as a symlink to **/run**.
- **/var/spool** Application spool data
 - **/var/spool** contains data which is awaiting some kind of later processing.
 - Data in **/var/spool** represents work to be done in the future; often data is deleted after it has been processed.
 - The following directories, or symbolic links to directories, must be in **/var/spool**, if the corresponding subsystem is installed:
 - **lpd** Printer spool directory (optional)
 - **mqueue** Outgoing mail queue (optional)
 - **news** News spool directory (optional)
 - **rwho** Rwhod files (optional)
 - **uucp** Spool directory for UUCP (optional)
- **/var/tmp** Temporary files preserved between system reboots
 - The **/var/tmp** directory is made available for programs that require temporary files or directories that are preserved between system reboots.
 - Files and directories located in **/var/tmp** must not be deleted when the system is booted.
- Several directories are `reserved' in the sense that they must not be used arbitrarily by some new application, since they would conflict with historical and/or local practice. They are:
 - **/var/backups**
 - **/var/cron**

- **/var/messages**
- **/var/preserve**
- The following directories, or symbolic links to directories, must be in /var, if the corresponding subsystem is installed:
 - **/var/account** Process accounting logs (optional)
 - This directory holds the current active process accounting log and the composite process usage data.
 - **/var/crash** System crash dumps (optional)
 - This directory holds system crash dumps. As of the date of this release of the standard, system crash dumps were not supported under Linux but may be supported by other systems which may comply with the FHS.
 - **/var/games** Variable game data (optional)
 - Any variable data relating to games in **/usr** should be placed here.
 - **/var/mail** User mailbox files (optional)
 - The mail spool must be accessible through **/var/mail** and the mail spool files must take the form .
 - User mailbox files in this location must be stored in the standard UNIX mailbox format.
 - **/var/yp** Network Information Service database files (optional)
 - Variable data for the Network Information Service (NIS), formerly known as the Sun Yellow Pages (YP), must be placed in this directory.

Operating System Specific Annex

Linux

- **/** : Root directory
 - If the kernel is located in **/**, we recommend using the names **vmlinux** or **vmlinuz**, which have been used in recent Linux kernel source packages.
- **/bin** : Essential user command binaries (for use by all users)
 - **setserial**
- **/dev** : Devices and special files
 - The following devices must exist under **/dev**.
 - **/dev/null**
 - All data written to this device is discarded. A read from this device It will return an EOF condition.
 - **/dev/zero**

- This device is a source of zeroed out data. All data written to this device is discarded. A read from this device will return as many bytes containing the value zero as was requested.
- **/dev/tty**
 - This device is a synonym for the controlling terminal of a process. Once this device is opened, all reads and writes will behave as if the actual controlling terminal device had been opened.
- **/etc** : Host-specific system configuration
 - lilo.conf
- **/proc** : Kernel and process information virtual filesystem
 - The proc filesystem is the de-facto standard Linux method for handling process and system information.
 - We strongly encourage this for the storage and retrieval of process information as well as other kernel and memory information.
 - **/sbin** : Essential system binaries
 - Linux systems place commands relating to filesystem maintenance and boot loader management into **/sbin**.
 - ctrlaltdel
 - kbdrate
 - ldconfig
 - sln
 - ssync
 - **/sys** : Kernel and system information virtual filesystem
 - The sys filesystem is the location where information about devices, drivers, and some kernel features are exposed.
- **/usr/include** : Header files included by C programs
 - These symbolic links are required if a C or C++ compiler is installed and only for systems not based on glibc.
 - **/usr/include/asm -> /usr/src/linux/include/asm-<arch>**
 - **/usr/include/linux -> /usr/src/linux/include/linux**
 - **/usr/src** : Source code
 - For systems based on glibc, there are no specific guidelines for this directory.
 - For systems based on Linux libc revisions prior to glibc, the following guidelines and rationale apply:
 - The only source code that should be placed in a specific location is the Linux kernel source code. It is located in **/usr/src/linux**.

- If a C or C++ compiler is installed, but the complete Linux kernel source code is not installed, then the include files from the kernel source code must be located in these directories:
 - **`/usr/src/linux/include/asm-<arch>`**
 - **`/usr/src/linux/include/linux`**
- **`/var/spool/cron`** : cron and at jobs
 - This directory contains the variable data for the cron and at programs.