Introducing the Redhat

Directory Hierarchy

Introducing “/” (root) Subdirectories

- Directory hierarchy is organized for administrative convenience
- Logically, all directories fall below the “/” (root) directory
- Important System Directories
  - / - The root of the overall file system namespace
  - /bin - A symbolic link to the “/usr/bin” directory. It is the directory location for the binary files of standard system commands

The Filesystem Hierarchy Standard

Directory	Description
/bin	Contains binary commands for use by all users
/boot	Contains the Linux kernel and files used by the boot loader
/dev	Contains device files
/etc	Contains system-specific configuration files
/home	Is the default location for user home directories
/lib	Contains shared program libraries (used by the commands in /bin and /sbin) as well as kernel modules
/mnt	Is the empty directory used for accessing (mounting) disks, such as floppy disks and CD-ROMs
/opt	Stores additional software programs
/proc	Contains process and kernel information
/root	Is the root user's home directory
/sbin	Contains system binary commands (used for administration)
/tmp	Holds temporary files created by programs

- /etc - Holds host-specific configuration files and databases for system administration
- EX: fstab , system , shadow , passwd …

- /export - The default directory for commonly used shared file systems

- /home - The default directory or mount point for a user’s home directory
- /mnt - A convenient, temporary mount point for file systems, cdroms
- /opt - The default directory or mount point for add-on application packages

- /sbin - The single-user bin directory that contains essential executables that are used during the boot process and in manual system-failure recovery

- /tmp - The directory for temporary files. The directory is cleared during the boot sequence

- /usr – By default software's are installed in /usr directory.
- The directory that contains programs, scripts, and libraries that are used by all system users. (usr - UNIX system resources)
- /var - The directory for varying files, which usually includes temporary, logging, or status files

Introducing File Components

- File Names
  - File names are the objects most often used to access and manipulate files. A file must have a name that is associated with an inode

- Inodes
  - Inodes are the objects the Solaris OE(Operating Environment) uses to record information about a file.
  - In general inode contain two parts
  - First, inodes contain information about the file, including its owner, its permissions, and its size
  - Second, inodes contain pointers to data blocks associated with the file
  - Inodes are numbered, and each filesystem contains its own list of inodes.
  - When a new file system is created, a complete list of new inodes is also created in that file system

- Data Blocks
  - Data blocks are units of disk space that are used to store data
  - Regular files, directories, and symbolic links make use of data blocks
  - Device files do not hold data

Identifying File Types

- Supports a standard set of file types that are found in nearly all UNIX-based operating systems
- Four main file types:
  - Regular or ordinary files
  - Directories
  - Symbolic links
  - Device files

- Regular files, directories and symbolic links all store one or more types of data
- Device files do not store data, instead, device files provide access to devices
- The character in the first column of information that the “ls -l” command indicates the file type

- ‘-’ Regular files
- ‘d’ Directories
- ‘l’ Symbolic links
- ‘b’ Block-special device files
- ‘c’ Character-special device files

Creating New Hard Links

- "#ln file1 file2"
- Creates a new hard link named file2 for file1.
- Both the files will have the same inode number (can be verified using "#ls -li")

Removing Hard Links

- Deleting one of the files has no effect on the other file.
- “#rm file1” will remove file1 and will have no effect on file2

Soft Link

- "#ln –s file1 file2"
- Creates a new SOFT link named file2 for file1.
- Both the files will have DIFFERENT inode number (can be verified using "#ls -li")