Fedora and other Redhat distributions have a standardized file system that makes finding different kinds of files predictable. This standard is referred to by Redhat as the File System Hierarchy Standard. Table 3.1 lists many of the directories that are found in the main partition of Fedora, along with the purpose for each one.

| Directory | Purpose |
|---|---|
| / | This directory is the mount point for the main system partition. |
| /bin | This directory contains executables available to all users. |
| /boot | This directory is the mount point for the boot partition. |
| /dev | This directory contains file system entries which represent devices that are or could be attached to the system. |
| /etc | This directory contains configuration files. Binary files should not be stored in this directory. |
| /etc/include | This is the location of include files used in C programs, such as stdio.h. |
| /etc/skel | Files placed in this directory are automatically copied to a new user's home directory when that user is created. |
| /home | This is the default parent directory for users' home directories (except root). For example, the user FRED will have his home directory at /home/fred unless his account was setup otherwise. |
| /lib | This directory contains libraries needed to execute the binaries stored in /bin and /sbin. |
| /mnt | This directory contains mount points for temporarily mounted file systems such as CDROMS and floppy disks. |
| /opt | This directory contains subdirectories for application software that has been installed by users. |
| /proc | This directory contains files that extract information from or send information to the kernel. |
| /root | This directory is the root user's home directory. |
| /sbin | This directory contains executables to be used by the root user. It also contains files that are necessary when booting the system. |
| /tmp | This directory is used to store temporary files. |
| /usr | This directory contains files that can be shared between the users of the system. |

| Directory | Purpose |
| --- | --- |
| /usr/local | This directory can be used by the system administrator to install software. |
| /var | This directory is used to allow programs to spool data, write log files, write temporary files, etc. |
| ~/ | This is an abbreviation for the user's home directory. |

Table 3.1: Directories found in the main partition of Fedora

**The Proc File System**

The proc file system is a virtual file system that is mounted at boot time. It is a virtual file system because it does not refer to a physical storage device such as a disk partition. Its purpose is to allow the user to communicate with the kernel. Parameters can be sent to the kernel while the system is running through virtual files on the proc file system, and information about the system at runtime can be obtained from virtual files in the proc file system.

An important example of using the proc file system can be seen in the command cat /proc/swaps, which returns the current usage of the swap space. Another example is the top command, which starts an ongoing process that monitors CPU and memory usage. The top process gets its information from the proc file system. Type 'q' to quit the top process.

**System Configuration Files**

For the most part, the Linux operating system and the programs installed on it hold their settings in text files. In the previous chapter, the redhat-config-network program was used to configure the network. This program saves changes by writing to text configuration files. Table 3.2 describes many of the configuration files used to configure Fedora Linux.

| PATH AND CONFIGURATION FILE | PURPOSE |
| --- | --- |
| /etc/bashrc | System wide aliases and functions. This script is run when a user logs into a bash terminal, the default terminal for all users unless set up otherwise. |
| /etc/fstab | Configures file systems that Linux will attempt to mount on startup. Also lists mount-points for devices allowing them to be mounted with an abbreviated command. |
| /etc/group | Lists what groups are on the operating system and what users are members of each group. |
| /etc/grub.conf | The boot loader configuration file. |

| PATH AND CONFIGURATION FILE | PURPOSE |
| --- | --- |
| /etc/hosts | This file is used to resolve host names on the network. It is accessed before checking DNS. |
| /etc/hosts.equiv | Specifies trusted users on remote systems that can execute commands on the local system. Requires the xinetd deamon to be configured and running. |
| /etc/inittab | The first configuration file run after booting. Defines the default run-level after boot. Run-level 3 boots to a command prompt that supports multiple logins, with network access. Run-level 5 boots to a graphical user interface. |
| /etc/modules.conf | Kernel modules configuration file. |
| /etc/mtab | This configuration file lists what is mounted currently. It should not be edited with a text editor. Use the mount command instead. |
| /etc/passwd | The system password file, lists user information |
| /etc/profile | System wide environment setup startup programs for logins. |
| /etc/rc.local | This is the final script run when the system is started. It is a common practice for the administrator to add commands to this file that should be run when starting up the node. |
| /etc/resolv.conf | This file configures where Linux will look for a name server. |
| /etc/shadow | Account passwords for users to login are encrypted and stored in this file. This file is only readable by the root user. |
| /etc/sysconfig/network | This file contains the hostname for the node. |
| /etc/sysctl.conf | Kernel configuration file. |

Table 3.2: Configuration files used to configure Fedora Linux

**User Configuration Files**

A number of configuration files can be found in each user's home directory, including root's home directory /root. These files are "hidden" from the ls command; a feat accomplished by naming the files with a period as the first character, as the filename. The command ls ~/ -a will return a list of all files in the home directory, including hidden files.

The /etc/skel directory is used to store files that are automatically copied into a user's home directory when that user is created by root. To make a change to the default configuration files used for all users created from this point forward, simply edit or create a file in the /etc/skel directory.