SYSTEM CONFIGURATION FILES

The /etc/fstab file

- fstab - static information about the filesystems
- The file fstab contains descriptive information about the various file systems.
- fstab is only read by programs, and not written; it is the duty of the system administrator to properly create and maintain this file.
- Each filesystem is described on a separate line; fields on each line are separated by tabs or spaces.
- The order of records in fstab is important because fsck(8) sequentially iterate through fstab doing their thing.

```
# Mount device  Mount Point   File System Type   mount Options
/dev/hda5       swap          swap               defaults          0       0
/dev/hda6       /             ext2               defaults          1       1
/dev/hda2       /dosc         vfat               defaults          0       0
/dev/hda3       /oracle       ext2               defaults          1       2
/dev/hdc        /mnt/cdrom    iso9660            ro,noauto,user    0       0
/dev/fd0        /floppy       auto               noauto,user       0       0
none            /proc         proc               defaults          0       0
```

The first field, describes the block special device or remote filesystem to

The second field, describes the mount point for the filesystem.

The third field, describes the type of the filesystem.

The fourth field, describes the mount options associated with the filesyste

- It contains atleast the typeof mount plus any additional options appropriate to the filesystem type.Common for all types of file system are the options ``noauto'' (do not mountwhen "mount -a" is given, ``user'' (allow a user to mount), and “owner” (allowdevice owner to mount), and ``comment'' (e.g., for use by fstab-maintaining programs). The ``owner'' and ``comment” options are Linux specific.

- The fifth field, is used for these filesystems by the dump(8) command todetermine which filesystems need to be dumped.If the fifth field is not present, a value of zero is returned and dump will assume that the filesystem does not need to be dumped.

- The sixth field, is used by the fsck(8) program to determine the order in which file system checks are done at reboot time. The root filesystem should be specifiedwith a fs_passno of 1, and other file systems should have a fs_passno of 2. If the sixth field is not present or zero, a value of zero is returned and fsck will assume that the filesystem does not need to be checked.

The /etc/hosts file

- In a small network, the name-address mappings are placed in /etc/hosts in each and every host of the network.
- This file is often called the hosts file.
- This database allows application to look up a name and find out its corresponding IP address and vice versa.
- A structure for the file is as below.
- $ cat /etc/hosts

- # Internet host table
- 127.0.0.1
- local host
- 192.168.35.11 jupiter
- 192.168.35.12 saturn
- 192.168.35.13 mercury s2
- For each machine in the network, this table contains a line mapping the IP address to its respective hostname.
- It contains at least two fields for each line – one for each address.
- The line for Saturn shows that TCP/IP also permits the use of aliases.

- This makes addressing even simpler as you can now use telnet Saturn instead of telnet 192.168.35.12 or telnet s2
- The network administrator needs to maintain /etc/hosts on all machines in the network.

The /etc/network/interfaces file

- /etc/network/interfaces contains network interface configuration information.This is where you configure how your system is connected to the network.

- Lines starting with `#' are ignored. A line may be extended across multiple linesby making the last character a backslash.

- The file consists of zero or more "iface", "mapping" and "auto" stanzas.

- Example:
- auto lo eth0
- iface lo inet loopback
- mapping eth0
- script /usr/local/sbin/map-scheme
- map HOME eth0-home
- map WORK eth0-work
- iface eth0-home inet static
- address 192.168.1.1
- netmask 255.255.255.0
- up flush-mail
- iface eth0-work inet dhcp

- Stanzas defining logical interfaces start with a line consisting of word "iface"followed by the name of the logical interface. The interface name is followedby the name of the address family that the interface uses. This will be "inet" forTCP/IP networking

- Stanzas beginning with the word "mapping" are used to determine how a logicalinterface name is chosen for a physical interface that is to be brought up. Thefirst line of a mapping stanza consists of the word "mapping" followed by a pattern in shell glob syntax.

The /etc/apt/sources.list file

- As part of its operation, APT uses a file that lists the 'sources' from whichpackages can be obtained. This file is /etc/apt/sources.list.
- The entries in this file normally follow this format:
- deb http://host/debian distribution section1 section2 section3
- deb-src http://host/debian distribution section1 section2 section3

- The first word on each line, deb or deb-src, indicates the type of archive: whether it contains binary packages (deb), that is, the pre-compiled packages that we normally use, or source packages (deb-src), which are the original program sources plus the Debian control file (.dsc) and the diff.gz containing the changes needed for `debianizing' the program.

FILE	INFORMATION SERVICE
aliases	Mail aliases file for use with the Sendmail and Postfix mail server. Running a mail server on each and every system has long been common use in the UNIX world, and almost every Linux distribution still comes with a Sendmail package. In this file local user names are matched with real names as they occur in E-mail addresses, or with other local addresses.
apache	Config files for the Apache web server.
bashrc	The system-wide configuration file for the Bourne Again SHell. Defines functions and aliases for all users. Other shells may have their own system-wide config files, like cshrc.
crontab and the cron.*dir ectories	Configuration of tasks that need to be executed periodically - backups, updates of the system databases, cleaning of the system, rotating logs etc.
default	Default options for certain commands, such as useradd.
filesystems	Known file systems: ext3, vfat, iso9660 etc.
fstab	Lists partitions and their mount points.
ftp*	Configuration of the ftp-server: who can connect, what parts of the system are accessible etc.
group	Configuration file for user groups. Use the shadow utilities groupadd, groupmod and groupdel to edit this file. Edit manually only if you really know what you are doing.
hosts	A list of machines that can be contacted using the network, but without the need for a domain name service. This has nothing to do with the system's

FILE	INFORMATION SERVICE
inittab	Information for booting: mode, number of text consoles etc.
issue	Information about the distribution (release version and/or kernel info).
ld.so.conf	Locations of library files.
lilo.conf, silo.conf,aboot.confetc.	Boot information for the LInux LOader, the system for booting that is now gradually being replaced with GRUB.
logrotate.*	Rotation of the logs, a system preventing the collection of huge amounts of log files.
mail	Directory containing instructions for the behavior of the mail server.
modules.conf	Configuration of modules that enable special features (drivers).
motd	Message Of The Day: Shown to everyone who connects to the system (in text mode), may be used by the system admin to announce system services/maintenance etc.
mtab	Currently mounted file systems. It is advised to never edit this file.
nsswitch.conf	Order in which to contact the name resolvers when a process demands resolving of a host name.
pam.d	Configuration of authentication modules.
passwd	Lists local users. Use the shadow utilities useradd, usermod and userdel to edit this file. Edit manually only when you really know what you are doing.
printcap	Outdated but still frequently used printer configuration file. Don't edit this manually unless you really know what you are doing.

FILE	INFORMATION SERVICE
rc*	Directories defining active services for each run level.
resolv.conf	Order in which to contact DNS servers (Domain Name Servers only).
sendmail.cf	Main config file for the Sendmail server.
services	Connections accepted by this machine (open ports).
sndconfig or sound	Configuration of the sound card and sound events.
ssh	Directory containing the config files for secure shell client and server.
sysconfig	Directory containing the system configuration files: mouse, keyboard, network, desktop, system clock, power management etc. (specific to RedHat)
X11	Settings for the graphical server, X. RedHat uses XFree, which is reflected in the name of the main configuration file, XFree86Config. Also contains the general directions for the window managers available on the system, for example gdm, fvwm, twm, etc.
xinetd.* or in etd.conf	Configuration files for Internet services that are run from the system's (extended) Internet services daemon (servers that don't run an independent daemon).

Updating System (APT-GET)

The apt-get command is a powerful command-line tool used to work with Ubuntu's Advanced Packaging Tool (APT) performing such functions as installation of new software packages, upgrade of existing software packages, updating of the package list index, and even upgrading the entire Ubuntu system.

- Being a simple command-line tool, apt-get has numerous advantages over other package management tools available in Ubuntu for server administrators. Some of these advantages include ease of use over simple terminal connections (SSH) and the ability to be used in system administration scripts, which can in turn be automated by the cron scheduling utility.

Install a Package

- Installation of packages using the apt-get tool is quite simple. For example, to install the network scanner nmap, type the following:

sudo apt-get install nmap

Remove a Package

- Removal of a package or packages is also a straightforward and simple process. To remove the nmap package installed in the previous example, type the following:

```
sudo apt-get remove nmap
```

- You may specify multiple packages to be installed or removed, separated by spaces.
- The APT package index is essentially a databaseof available packages from the repositories defined in the /etc/apt/sources.list file. To update the local package index with the latest changes made in repositories, type the following:

sudo apt-get update

Upgrade Packages

- Over time, updated versions of packages currently installed on your computer may become available from the package repositories(for example security updated). To upgrade your system, first update yourpackage index as outlined above, and then type:

- **sudo apt-get upgrade**

- If a package needs to install or remove new dependencies when being upgraded,it will not be upgraded by the upgrade command. For such an upgrade, it isnecessary to use the dist-upgrade command.

- Also, you may upgrade your entire Ubuntu system from one revision to another with dist-upgrade. For example, to upgrade from Ubuntu version 5.10 to version 6.06 LTS, you would first ensure the version 6.06 LTS repositories replace the existing 5.10 repositories in your computer's /etc/apt/sources.list, then simply issue the apt-get update command as detailed above, and finally, perform the actual upgrade by typing:

- **sudo apt-get dist-upgrade**

- After a fairly considerable amount of time, your computer will be upgraded to the new revision. Typically, some post-upgrade steps would be required as detailed in the upgrade notes for the revision you are upgrading to.

- Actions of the apt-get command, such as installation and removal of packages, are logged in the /var/log/dpkg.log log file.