



System Administration in Unix

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The Primary Task of a System Administrator

- Assuring to top management the *efficient utilization* of the system's resources
- Provide the *services* to the general user community which they are seeking.

With single user PC usage, the user also doubles up as a System administrator.



Administration Tasks List - 1

- System *startup* and *shutdown*.
- Opening and closing *user accounts*.
- Helping users to *set up* their working *environment*.
- Maintaining user services.
- *Allocating disk space* and re-allocating quotas when the need grow.
- *Installing and maintaining software*.



Administration Tasks List - 2

- Installing new *devices* and upgrading the *configuration*
- Provisioning the *mail* and *internet services*
- Ensuring *security* of the system
- Maintaining *system logs* and *profiling* the users
- System *accounting*
- *Reconfiguring* the *kernel* whenever required



Sequence of Tasks on Startup - 1

1. *Self-tests* to determine if there are any hardware problems
2. The Unix *kernel gets loaded* from a root device
3. The kernel runs and *initializes* itself
4. The kernel *starts the init process*. All subsequent processes are spawned from *init process*
5. The *init checks out the file system* using fsck.



Sequence of Tasks on Startup - 2

6. The init process *executes a system boot script*.
7. For each terminal a *getty process is launched* to there access.
8. The getty process *initiates a login process* to enable a prospective login from a terminal.



Managing User Accounts

- Username
- Password
- Home Directory
- Working set-up
- Group-id
- Disk-quota:
- Network services
- Default terminal settings
- Terminal-based services
- Printer services
- Disk space and file services



Disk Space Allocation and Management

- Disk file system
- Mounting and unmounting
- Disk quota
- Integrity of file systems
- Access control
- Periodic back-up



The “df” Command

A user may interrogate the disk space available at any time by using the df command. Its usage is shown below:

- *df [options] [name]* : to know the free disk space.
where name refers to a mounted file system, local or remote. We may specify a directory if we need to know the information about that directory.
- The following options may help with additional information:
 - ✓ *-l* : for local file system
 - ✓ *-t* : reports total no. of allocated blocks and i-nodes on the device.



The “du” Command

The Unix command `du` reports the number of disk blocks occupied by a file. Its usage is shown below:

➤ `du [options] [name]...` where `name` is a directory or a file
Above `name` by default refers to the current directory.

➤ The following options may help with additional information:

- ✓ `-a` : produce output line for each file.
- ✓ `-s` : report only the total usage for each name that is a directory i.e. not individual files.
- ✓ `-r` : produce messages for files that cannot be read or opened.