

Basic UNIX system administration



CS 2204

Class meeting 13



System administration

- Thus far, we've only discussed:
 - the use of UNIX from an end user point of view
 - System programming - accesses the core OS but doesn't change the way it operates
- System administration is another level: changing the way the system is set up and operates for end users
- Strongly related to security issues (next week)



The superuser

- Most sys. admin. tasks can only be done by the *superuser* (also called the *root* user)
- Superuser
 - has access to all files/directories on the system
 - can override permissions
 - owner of most system files
- Shell command: `su <username>`
 - Set current user to superuser or another user with proper password access



Administration through files

- As you would expect, system settings are stored in files
- Most of these are stored in `/etc`
- We'll look at files related to:
 - Users and groups
 - Networking
 - File systems
 - System initialization
- See section 5 of the man pages



/etc/passwd

- Information about system users

```
bowman:x:65:20:D.Bowman:/home/bowman:/bin/ksh
```



login name

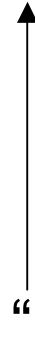


user ID

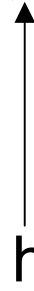
[encrypted password]



group ID



“real” name



home directory



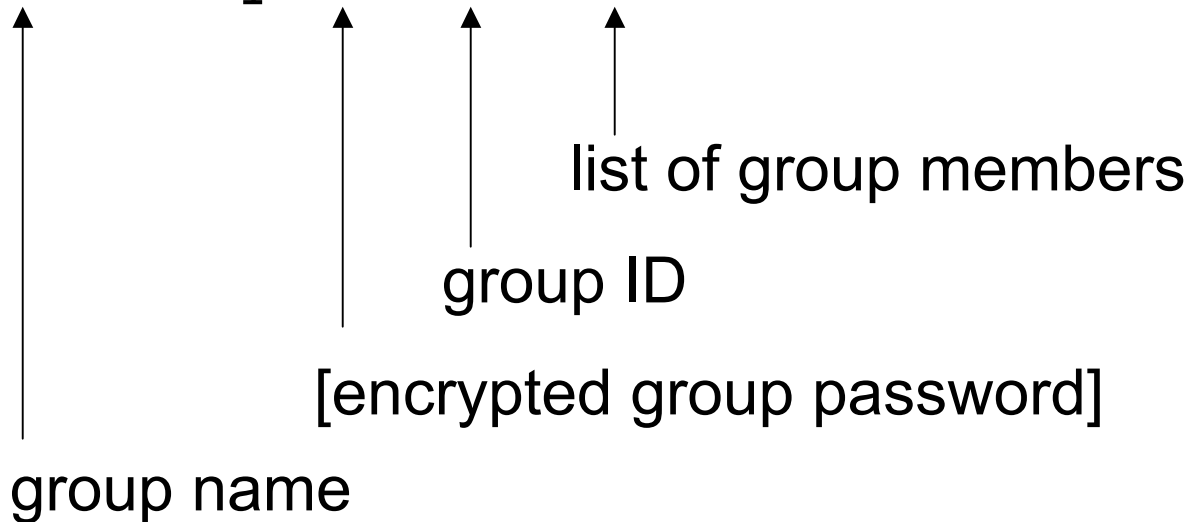
command interpreter



/etc/group

- Information about system groups

```
faculty:x:23:bowman,ribbens,mcquain
```

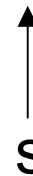
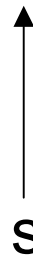
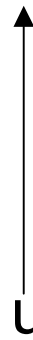
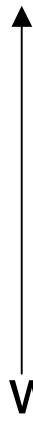
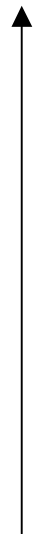




/etc/inetd.conf

- Configuration file for internet servers

```
ftp stream tcp nowait root /usr/sbin/tcpd /usr/sbin/wu-ftp -l
```



service name (see /etc/services)

socket type

protocol (see /etc/protocols)

wait/nowait (datagram sockets only)

user

server program

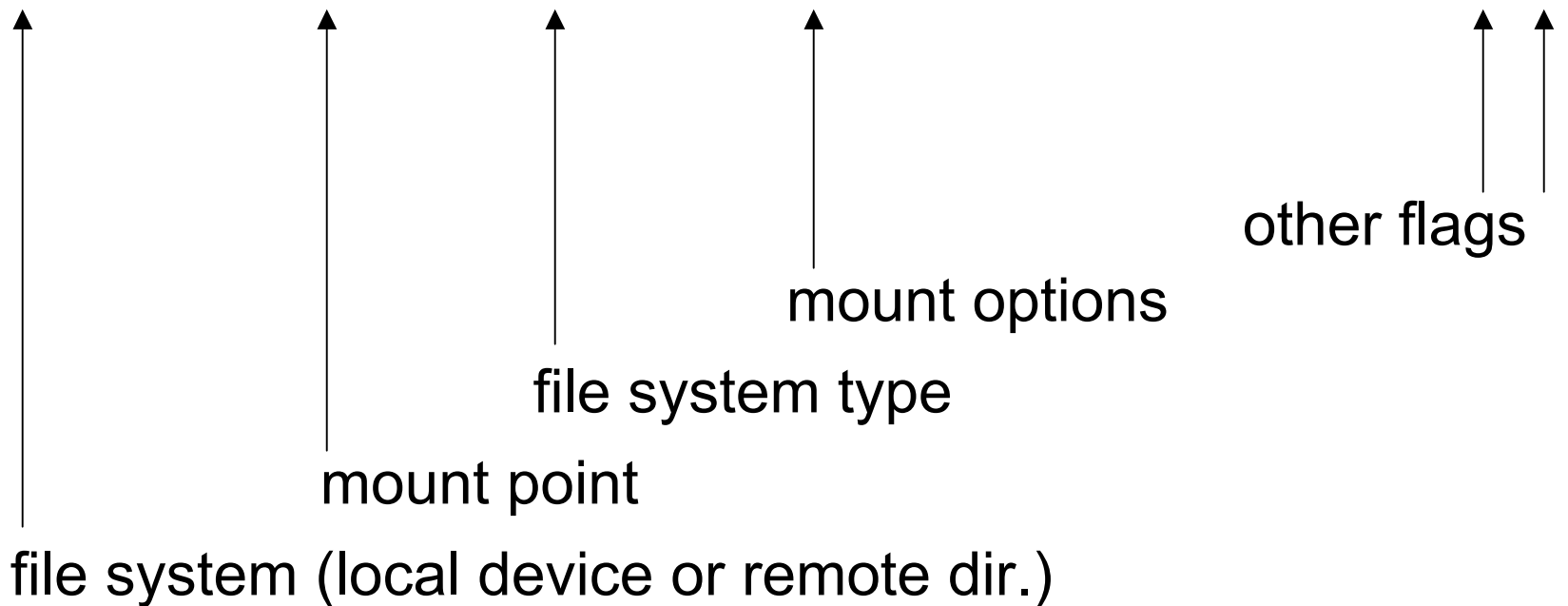
server arguments

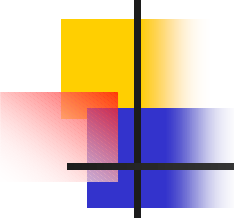


/etc/fstab

- Information about file systems

```
/dev/cdrom /cdrom iso9660 defaults,ro,user,noauto 0 0
```





`/etc/inittab` and `/etc/init.d/`

- `inittab`: configuration file for the `init` process
 - Defines “run levels”
- `init.d`: Directory containing system initialization scripts
 - Script `rc <n>` is run at run level `n`
 - Starts and stops various services



Configuring the system

- Often by directly editing files with a text editor
- In some cases there are programs that modify the files for you
- Many systems also have nice graphical user interfaces that let you manipulate these files indirectly