

Introduction to Linux

Users Accounts & Groups Linux File System

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Creating a new user

- Use the **useradd** command
- Use the **passwd** command to set password
- Try it... logon as **root**

```
[root@george-thinkpad]# useradd ahmed
[root@george-thinkpad]# passwd ahmed
Changing password for user ahmed
New UNIX password:
Retype new UNIX password:
passwd: all authentication tokens updated
successfully
[root@george-thinkpad]#
```

Adding a new user

- Limits on users can be controlled by
 - Quotas
 - `ulimit` command
- Authority levels for a user controlled by group membership

Users and Groups

- Users are identified by user identifications (UIDs), each of which is associated with an integer in the range of 0 to 4 294 967 295 (X'FFFFFFFF'). Users with UID=0 are given superuser privileges.
- Users are placed in groups, identified by group identifications (GIDs). Each GID is associated with an integer in the range from 0 to 4 294 967 295
- Let the system assign UID to avoid duplicates
- Use `id` to display your user and group information

```
uid=500(george) gid=500(george)  
groups=500(george),3(sys),4(adm)
```

Users and Groups

- Groups define functional areas/responsibilities
- They allow a collection of users to share files
- A user can belong to multiple groups

Typical Group Setup

sys

bin

adm

staff

Using the new user

- Now logoff using the `exit` command
- login as the new user

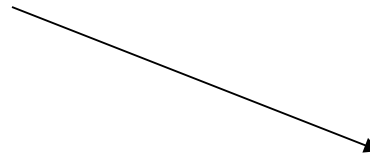
```
george login: ahmed  
Password:  
[ahmed@george-thinkpad]$
```


You need help?

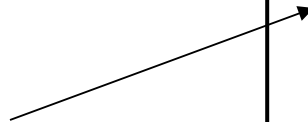
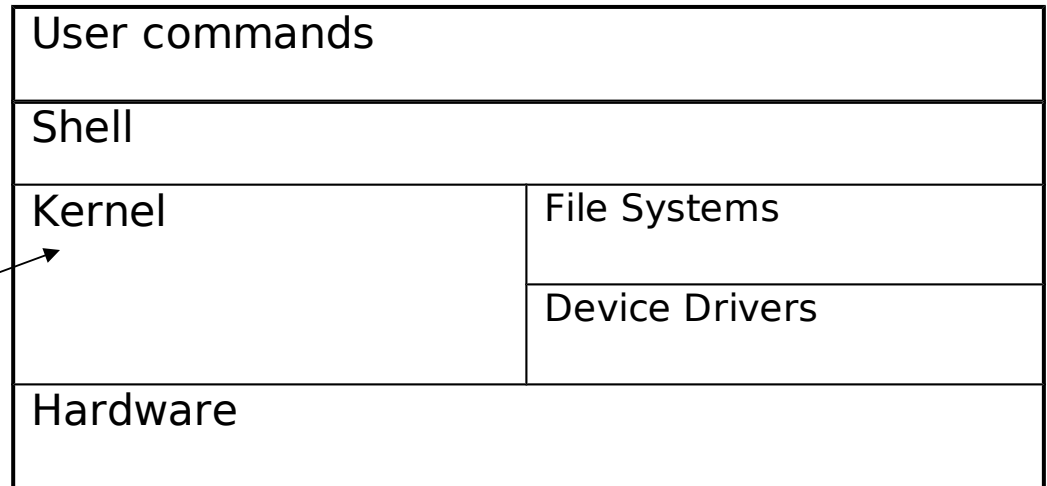
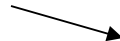
- The Linux equivalent of HELP is **man** (manual)
 - Use `man -k <keyword>` to find all commands with that keyword
 - Use `man <command>` to display help for that command
 - Output is presented a page at a time. Use `b` for to scroll backward, `f` or a space to scroll forward and `q` to quit

The Linux System

User commands includes executable programs and scripts



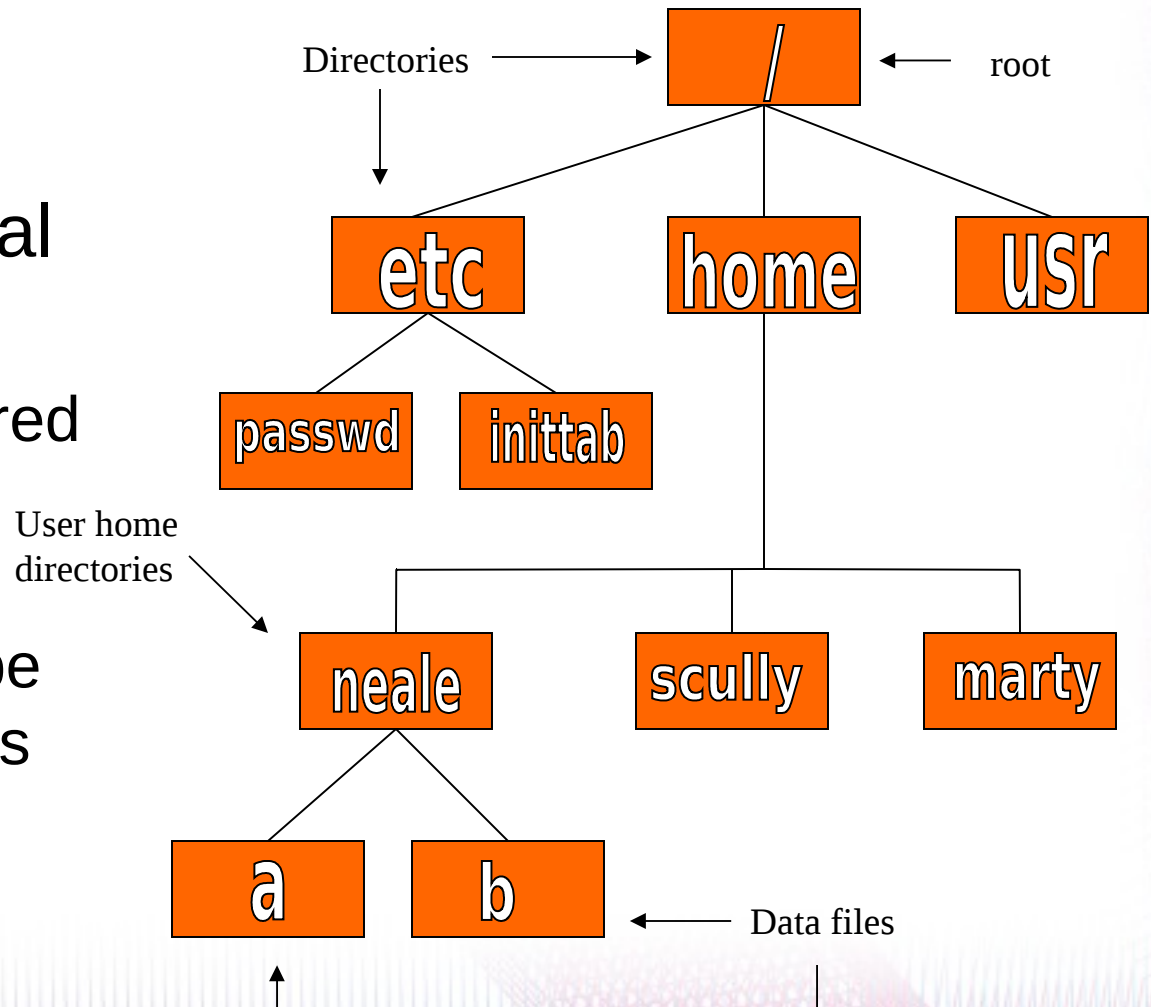
The shell interprets user commands. It is responsible for finding the commands and starting their execution. Several different shells are available. Bash is popular,



The kernel manages the hardware resources for the rest of the system.

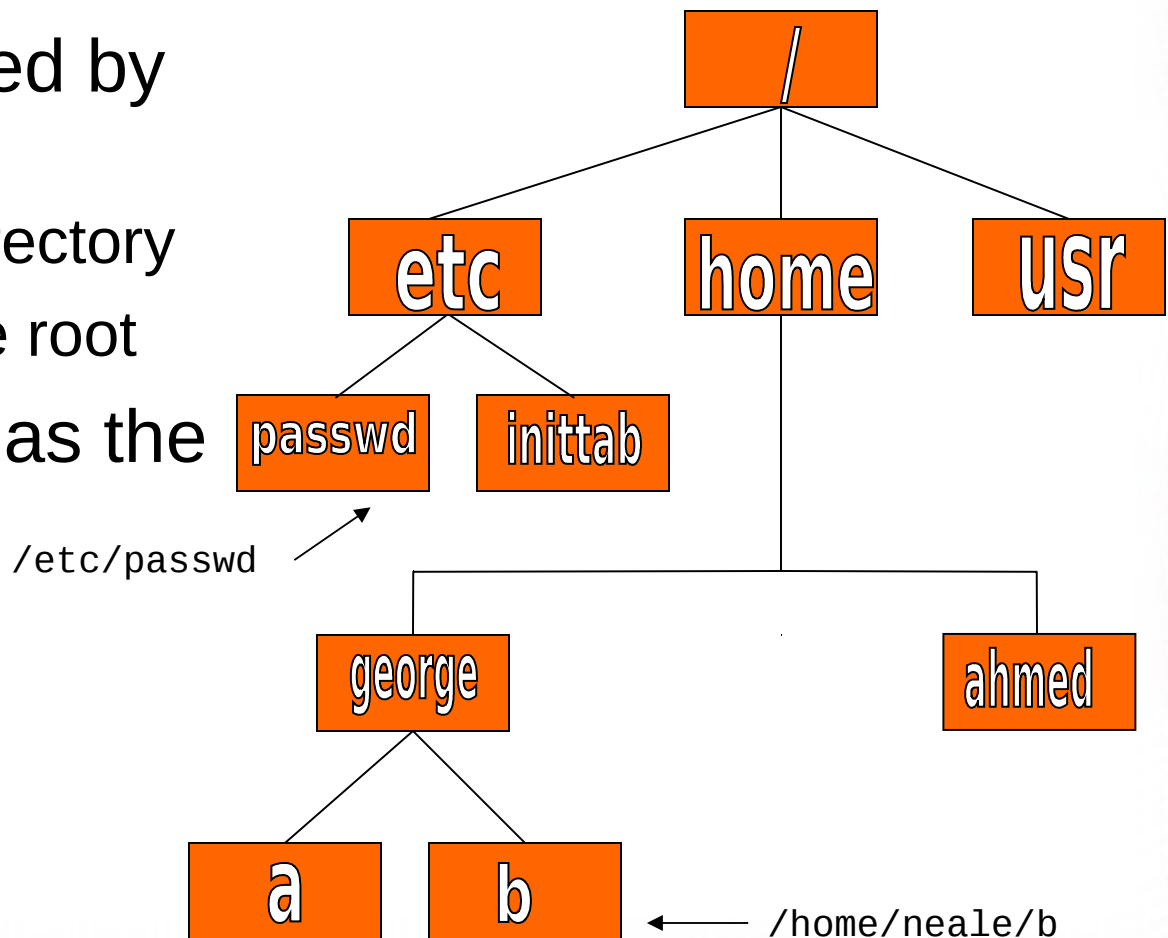
Linux File System Basics

- Linux files are stored in a single rooted, hierarchical file system
 - Data files are stored in directories (folders)
 - Directories may be nested as deep as needed



Naming Files

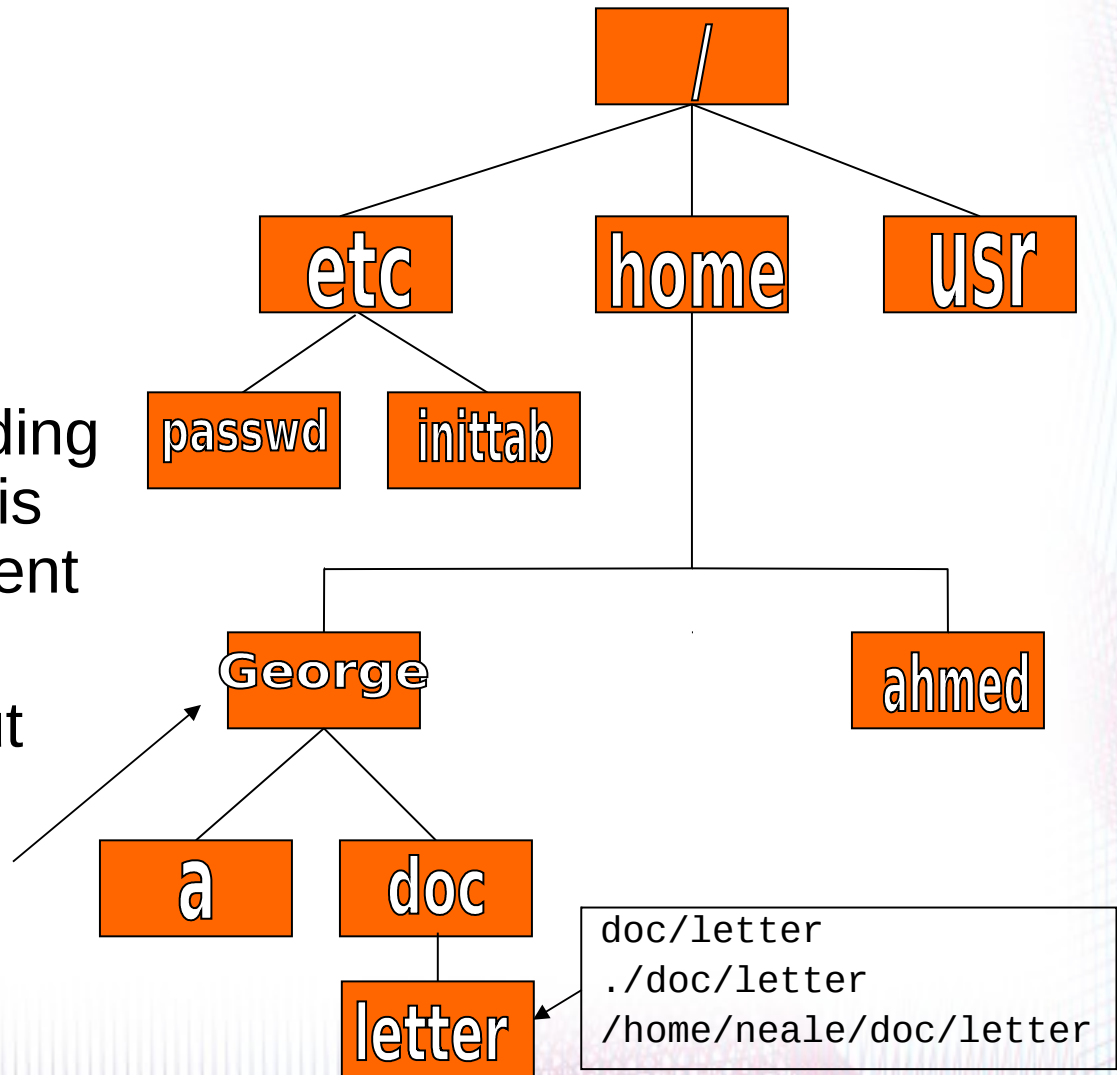
- Files are named by
 - naming each containing directory
 - starting at the root
- This is known as the *pathname*



The Current Directory

- One directory is designated the *current working directory*
 - if you omit the leading / then path name is relative to the current working directory
 - Use pwd to find out where you are

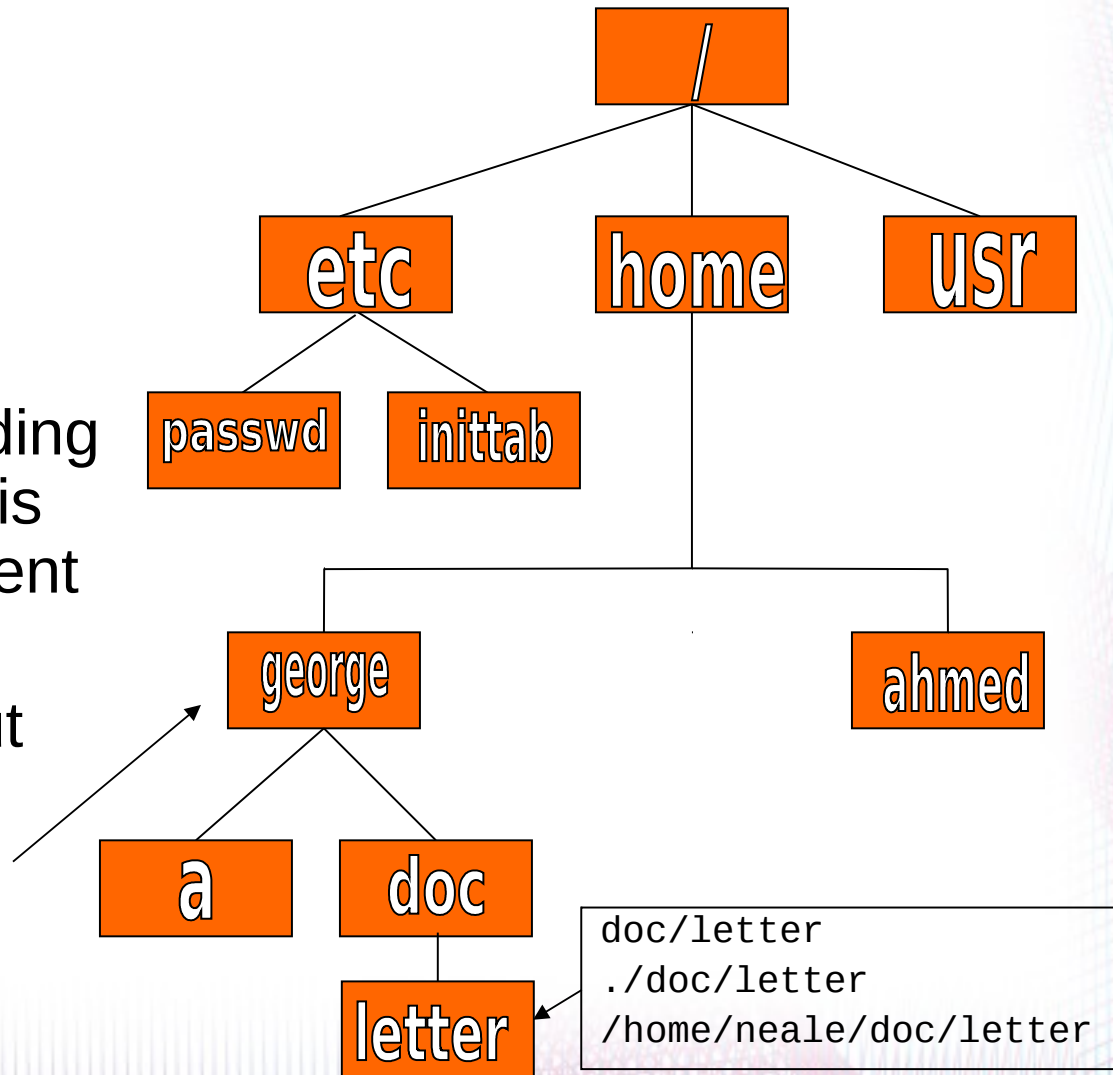
Current
working
directory



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Current
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Some Special File Names

- Some file names are special:
 - / The root directory (not to be confused with the root user)
 - . The current directory
 - . . The parent (previous) directory
 - ~ My home directory
- Examples:
 - ./a same as a
 - ../george/x go up one level then look in directory george for x

Special Files

- `/home` - all users' home directories are stored here
- `/bin`, `/usr/bin` - system commands
- `/sbin`, `/usr/sbin` - commands used by sysadmins
- `/etc` - all sorts of configuration files
- `/var` - logs, spool directories etc.
- `/dev` - device files
- `/proc` - special system files

Additional Resources

- UNIX Systems Administrator Resources
 - <http://www.ugu.com/>
- Introduction to Linux
- Introduction to UNIX
- Linux Administration Made Easy
 - <http://www.linuxninja.com/linux-admin/book1.html>
- Conceptual software architecture of the Linux kernel

Additional Resources

- <http://www.linux.org>
- <http://www.tux.org>
- <http://www.li.org>