Basic Linux Commands

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ubuntu

Preview (1) Linux command

- Kernel & Shell
- Trying command
- Linux Help
- Linux File System
- Working with Directories & Files
- Other useful command

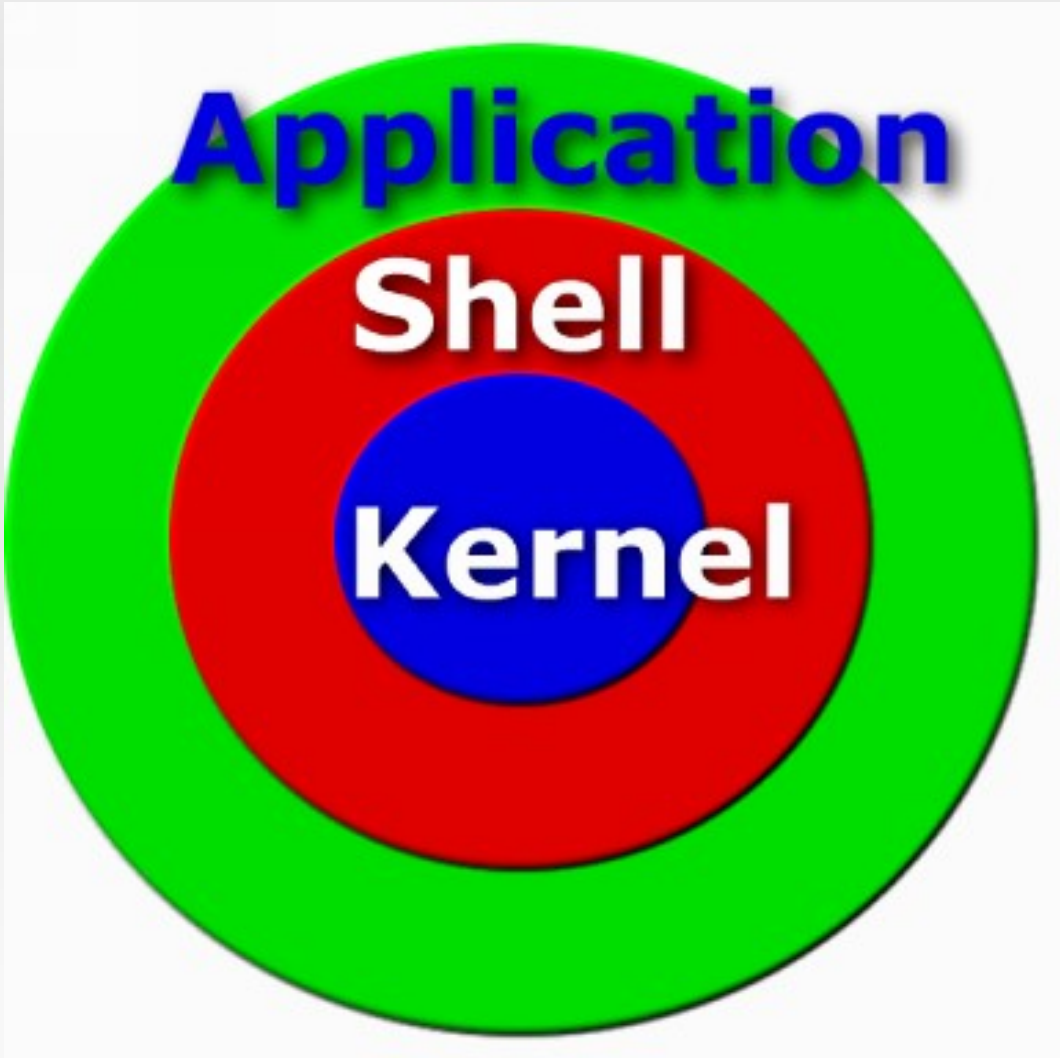
Preview (2) VI

- VI Text Editor
- Modes
- Input Commands
- Deleting Text
- Undoing, Saving and Quitting
- Searching and Replacing Text

Preview (3) APT

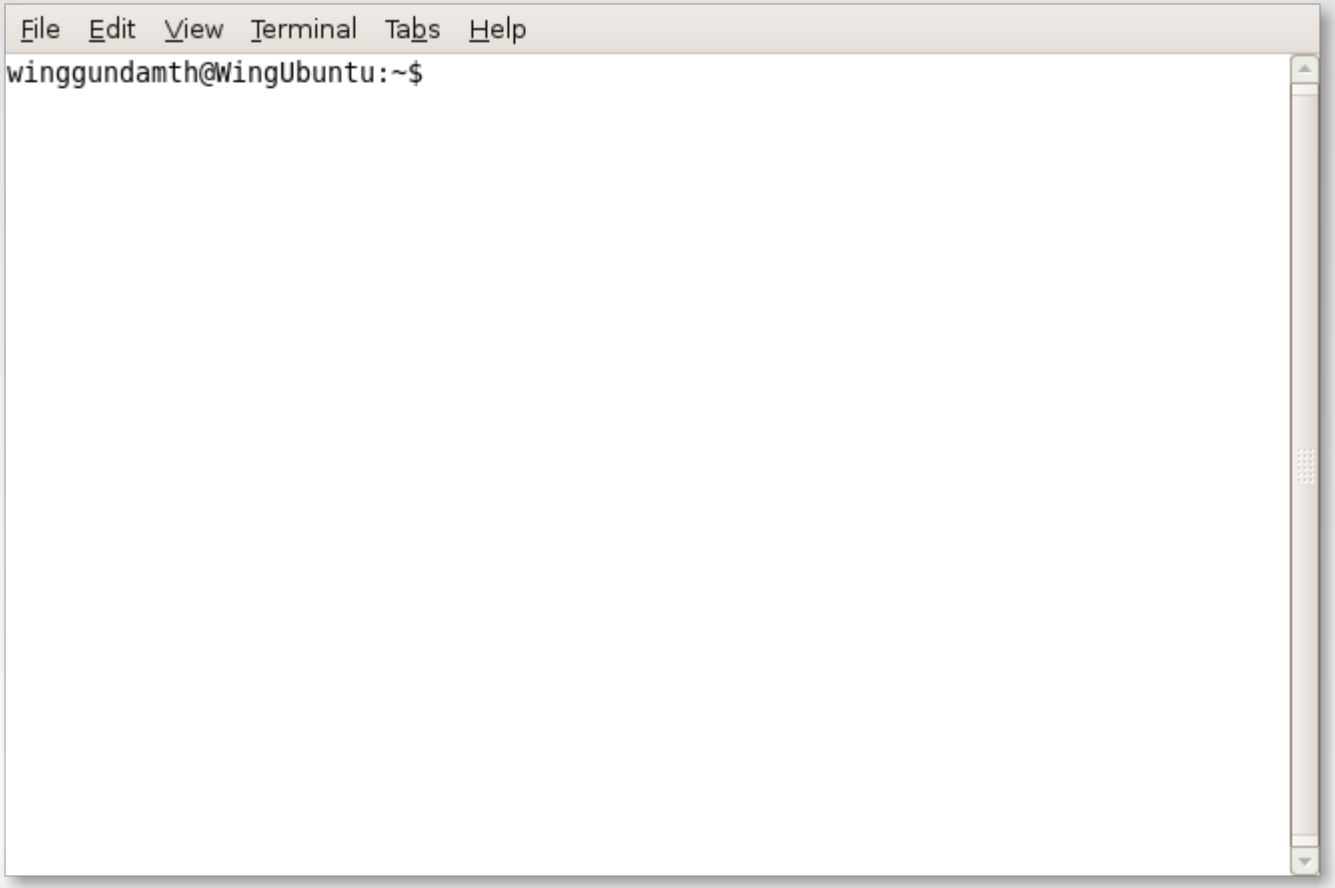
- Package management systems
- Software Package and Repositories
- APT

Kernel and Shell



The Shell

- Linux command interface is called the shell.



Typing Commands

- `date`
- `cal`
- `who`
- `ls -a`
- `man cal`
  - try these control: `spacebar, q`
- `clear`

Control Characters

- `^c` to terminate command
  - `^c` means press `CONTROL` and `c` together.

Changing Password

- `passwd`
- Try to change your password.
- Logout and login with your new password.
- Change password back.
- Try to press `^c` when changing password.

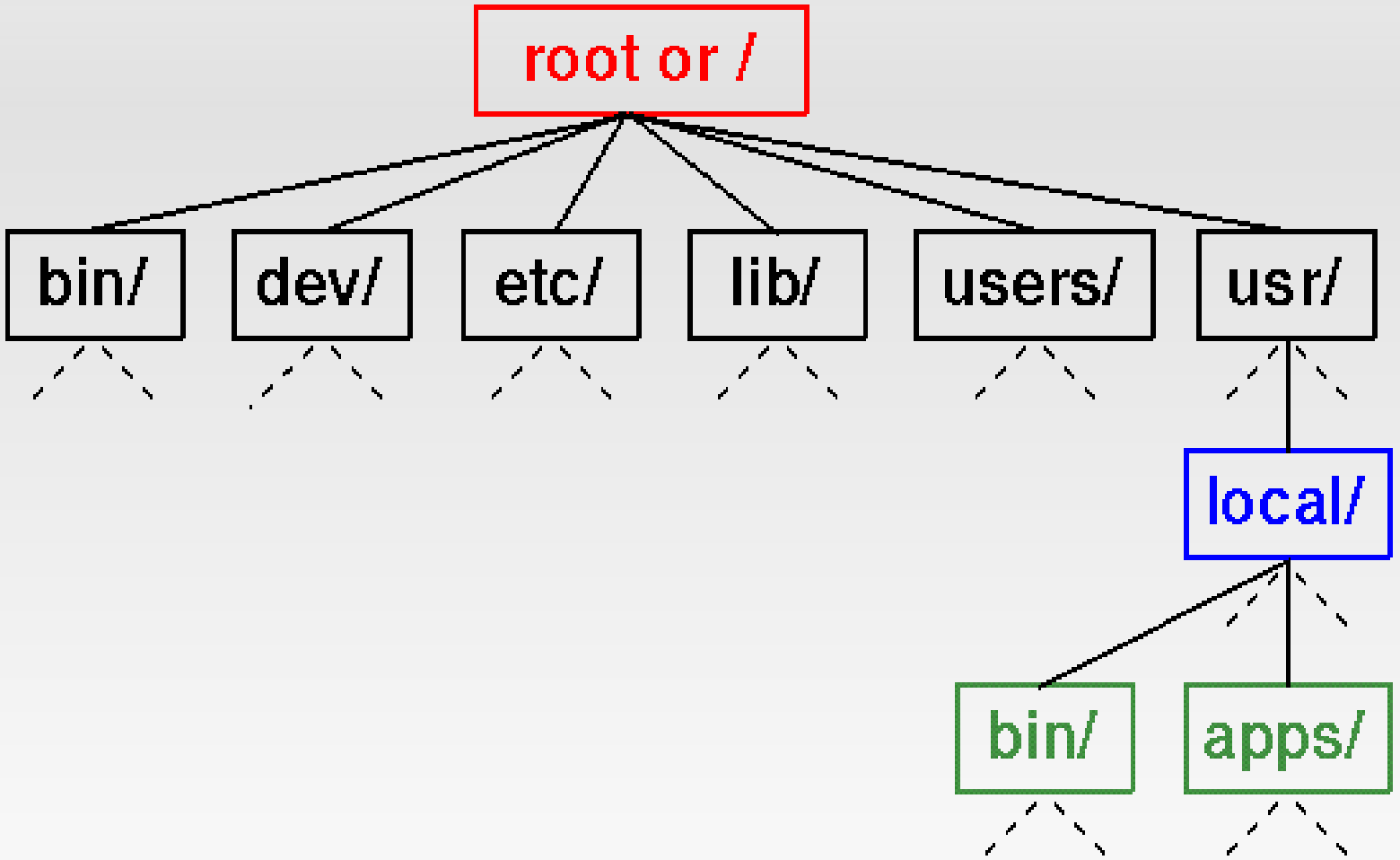
Command to try

- `date`
- `cal`
  - `cal 2008`
  - `cal 7 2008`
  - `cal 9 1970`
  - `cal 9 1752`
    - `!!!!`
- `uptime`
- `hostname`
- `uname -a`
- `whoami`
- `bc`
  - `3 + 5 + 7`
  - `^D`

Linux Help

- `man`
  - `man cal`
  - `man man`
- `whatis date`
- `which date`
- `locate date`
  - `locate date | more`
    - `spacebar` to go on, `^C` to stop

Linux File System



Some System Directories

- `/` root directory
- `/bin` commands directory
- `/etc` system data files
- `/home` your home directory

Pathnames (1)

- Absolute pathnames
  - The sequence of directory names between the top of the tree (the root) and the directory of interest.
    - `/bin`
    - `/etc/passwd`
    - `/home/ubuntu/.bashrc`

Pathnames (2)

- Relative pathnames
  - The sequence of directory names below the directory where you are now to the directory of interest.
    - `Desktops` if you are in `ubuntu`
    - `ubuntu/Desktops` if you are in `home`
    - `home/ubuntu/Desktops` if you are in `/`

Commands and Pathnames

- `/usr/bin/cal 2008`
- `cal 2008`
  - `echo $PATH`
  - `which cal`
- So where is `date` command?

Working with Directories

- `pwd`
- `cd /etc/pam.d/`
- `pwd`
- `cd`
- So what command to go to `/usr/local` directory?

Moving between Directories

- When you are in /usr/local how to move to /usr/bin with one command?
  - `cd /usr/local`
  - `cd ../bin`
  - `cd ../local`
  - `cd /usr/bin`

Special Directory Names

- `/` The root directory
- `.` The current working directory
- `..` The parent directory of your current working directory
- `~` Your home directory
- `~user` Home directory of `user`

Usage of special directory names

- `cd /`
- `cd ~`
- `cd`
- `cd ~ubuntu`
- `cd ../..`

Working with Directories

- `mkdir test`
- `ls`
- `mv test camp`
- `ls`
- `rmdir camp`
- `ls`

Exercise

- Create `itcamp` directory inside your `home` directory
- Create `network`, `programming` and `logic` directory inside `itcamp` directory
- Delete `itcamp` directory

Working with Files (1)

- `ls`
- `ls -l`
- `ls -la`
- `cat /etc/passwd`
- `more /etc/passwd`
- `less /etc/passwd`
- `head /etc/passwd`
- `tail /etc/passwd`

Working with Files (2)

- `touch file1`
- `cp file1 file2`
- `mv file2 file3`
- `rm file1`
- `grep ubuntu /etc/passwd`
- `grep '^u' /etc/passwd`

I/O Redirection

- `ls > dir.txt`
- `cat dir.txt`
- `cal 2007 > years`
- `cal 2008 > years`
- `cal 2009 >> years`
- `wc < years`
  - What the meaning of each number?

Pipe

- `ls /etc | grep passwd`
- To send the output of one program becomes to the input of another program

File Permission (1)

- Every file
  - Is owned by someone
  - Belongs to a group
  - Has certain access permissions for owner, group, and others
- Every user has
  - uid (login name)
  - gid (login group)
  - The group list

File Permission (2)

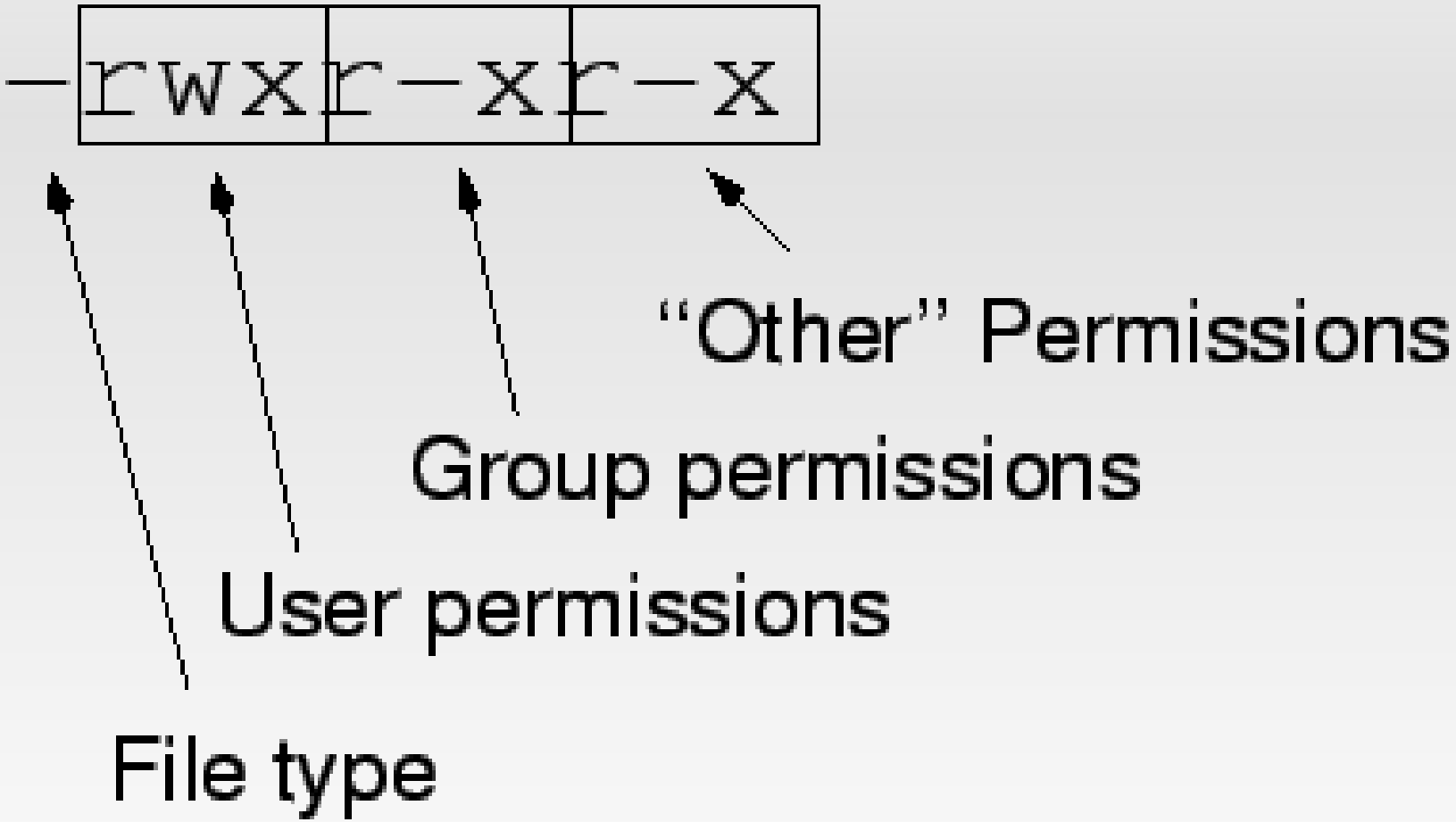
- Linux provides three kinds of permissions
  - Read
  - Write
  - Execute

File Permission (3)

- ls -l /etc | head

```
File  Edit  View  Terminal  Tabs  Help
winggundamth@WingUbuntu:~$ ls -l /etc | head
total 1244
drwxr-xr-x  8 root root      4096 2007-10-16 06:28 acpi
-rw-r--r--  1 root root      2803 2007-10-16 06:17 adduser.conf
-rw-r--r--  1 root root        46 2007-10-22 16:02 adjtime
-rw-r--r--  1 root root        57 2007-10-19 01:15 aliases
drwxr-xr-x  2 root root      4096 2007-10-22 19:04 alternatives
-rw-r--r--  1 root root       395 2007-03-05 13:38 anacrontab
drwxr-xr-x  7 root root      4096 2007-10-16 06:28 apm
drwxr-xr-x  2 root root      4096 2007-10-16 06:27 apparmor
drwxr-xr-x  5 root root      4096 2007-10-16 06:20 apparmor.d
winggundamth@WingUbuntu:~$
```

File Permission (4)



Change file permission

- `chmod 755 file`

Letter	Permission	Description
R	Read	4
W	Write	2
X	Execute	1

Other useful command

- `find /etc -name *.conf`
- `sort -f /etc/passwd`
- `df`
- `du`
- `gzip`
- `tar`
- `ps`
- `top`
- `kill`

VI Text Editor

- `sudo apt-get install vim`
- `vi test`

Modes of operation

- Command mode
- Entry mode
- Last-line mode
- Visual mode

Input Commands

Command	Mode	Meaning
a	Entry	Append text after the cursor
a	Entry	Append test at the end of the line
I	Entry	Insert text before the cursor
I	Entry	Insert text at the beginning of the line
o	Entry	Open a new line below the cursor
o	Entry	Open a new line above the cursor

Deleting Text

Command	Mode	Meaning
x	Command	Delete char a the cursor
X	Command	Delete char before the cursor
dd	Command	Delete line
dw	Command	Delete word
dG	Command	Delete to the end of the file
#1,#2d	Last line	Delete lines #1 through #2

Undoing, Saving and Quitting

Command	Mode	Meaning
u	Command	Undo previous command
.	Command	Redo previous command
:w	Last line	Save changes
:wq	Last line	Save changes and quit vi
:q!	Last line	Quit without saving changes
:q	Last line	Quit after saved

Searching and Replacing Text

Command	Mode	Meaning
/string	Last line	Search forward for string
?string	Last line	Search backward for string
n	Command	Find next occurrence of string
N	Command	Find previous occurrence of string
:%s/old/new/	Last line	Search and replace first occurrence of old with new
:%s/old/new/g	Last line	Search and replace all occurrence of old with new

Package management systems

- The two main ones being Red Hat and Debian.
- `rpm` vs `dpkg`
- `yum` vs `apt`

Software Package and Repositories

- Software package is a type of file format where software programs and installation material is grouped together
- Software Repositories is a storage location from which software packages may be retrieved and installed on a computer.

APT (1)

- Stands for Advanced Packaging Tools
- apt-get update
  - the local cache is up to date with the online.
- apt-get dist-upgrade
  - upgrade specified packages (or all installed packages if none specified)

APT (2)

- apt-get install <package list>
  - install latest version of package(s)
- apt-get remove <package list>
  - remove specified packages from system
- apt-cache list [package list]
  - list available packages from repositories

Resource

- Grid Beginner, ThaiGrid
- http://free-electrons.com
- http://en.wikipedia.org/wiki/Software_package
- http://www.pixelbeat.org/docs/packaging.html
- http://en.wikipedia.org/wiki/Software_repository

Q&A