

Linux Getting Started

[@angusli](#)



Agenda

- ◆ What's Linux
- ◆ Know the environment
- ◆ Basic File System operation
- ◆ File System structure
- ◆ Basic utilities
- ◆ Remote access and network operation
- ◆ Know the permissions
- ◆ Process and job management
- ◆ More utilities for daily operation
- ◆ Basic system administration
- ◆ Commonly used shortcuts
- ◆ Next step

What's Linux

- ◆ Linux is an operating system that was initially created as a hobby by a young student, **Linus Torvalds**, at the University of Helsinki in Finland. Linus had an interest in Minix, a small UNIX system, and decided to develop a system that exceeded the Minix standards. He began his work in **1991** when he released version 0.02 and worked steadily until **1994 when version 1.0** of the Linux Kernel was released. The kernel, at the heart of all Linux systems, is developed and released under the **GNU General Public License** and its source code is freely available to everyone. ... The current full-featured version is **2.6** (released December 2003) and development continues.



What's Linux (cont.)

◆ Top 10 Distributions

- ◆ Ubuntu
- ◆ Fedora
- ◆ openSUSE
- ◆ Debian GNU/Linux
- ◆ Mandriva Linux
- ◆ Linux Mint
- ◆ PCLinuxOS
- ◆ Slackware Linux
- ◆ Gentoo Linux
- ◆ CentOS
- ◆ FreeBSD(honourable mention)



<http://distrowatch.com/dwres.php?resource=major>

Know the environment

- ◆ **whoami/id**: identify current user
- ◆ **who/users**: see the logged in users
- ◆ **pwd**: print working directory
- ◆ **passwd**: change login password
- ◆ **history**: view the bash command history
- ◆ **uptime**: check the system uptime and avg. load
- ◆ **uname**: view distribution, kernel version
- ◆ **date**: current system date and time
- ◆ **echo \$SHELL**: what bash is used

Basic File System operation

- ◆ **ls**: list files; -a, -l, -h, -t, -r
- ◆ **cd**: change directory
- ◆ **touch**: create empty file, or update mtime
- ◆ **mkdir**: make directory; -p
- ◆ **mv**: move things
- ◆ **cp**: copy things; -r
- ◆ **rm**: remove things; -r
- ◆ **df/du**: check disk free space, disk usage; -h

File System structure

Path	Contents
/bin	Standard programs
/boot	Files needed at startup
/dev	Devices (don't go there)
/etc	Most configuration
/home	All home directories (you can only access yours)
/lib; /usr/lib	Libraries shared by programs
/lost+found	Files recovered after filesystem errors (never happens really)
/mnt; /media	Mounted media like cdroms, floppy disks, USB drives
/opt	Large third party software like Java, Oracle, etc.
/proc	Information about processes (don't go there)
/root	root's home directory (you don't have access)
/sbin; /usr/sbin	System administration programs. Some may be useful to you even.
/sys	Information about devices (don't go there)
/tmp; /var/tmp; /usr/tmp	Space for temporary files for everybody
/usr/bin	Programs (installed by package manager)
/usr/local	Custom installed software (not by package manager)
/usr/src	Source code
/var	Runtime data used by services

Basic utilities

- ◆ **cat**: output file
- ◆ **less/more**: view content with pager
- ◆ **|**: pipe
- ◆ **>**: file redirection; override the old content
- ◆ **>>**: append to file
- ◆ **ln**: create link; -s

Remote access and network operation

- ◆ **telnet**
- ◆ **ssh**: secure shell
- ◆ **scp**: secure copy
- ◆ **curl**: make cURL call; -I, -i, -d, -X
- ◆ **wget**: web downloader

Know the permissions

- ◆ rwx-rwx-rwx: user-group-other (4-2-1)
- ◆ **chmod**: u,g,o,a; change permissions
- ◆ **chown**: change file owner
- ◆ **sudo**: execute command with root privilege

Process and job management

- ◆ **ps**: process snapshot; -ax, -aux
- ◆ **top**: display tasks
- ◆ **<cmd> &**: run the job in background
- ◆ **jobs**: list the jobs running in bg & fg
- ◆ **bg/fg #<num>**: continue job at bg/fg
- ◆ **kill**: kill a process

More utilities for daily operation

- ◆ **man**: show manual of a program
- ◆ **tail**: show end of file; -n, -f/-s
- ◆ **diff**: diff files; -u
- ◆ **wc**: word count; -l
- ◆ **sort/uniq**: sort content, list unique content
- ◆ **time <cmd>**: timing the command execution
- ◆ **grep <-R/-i> <pattern> <target>**: global regular expression print
- ◆ **tar/gzip/zip**: archive and compress content
- ◆ **find/locate**: find file and content; -name/-mtime

Basic system administration

- ◆ useradd, userdel, groupadd
- ◆ chkconfig
- ◆ /etc/rc.*
- ◆ mount
- ◆ free
- ◆ netstat
- ◆ vmstat
- ◆ watch

Commonly used shortcuts

- ◆ `cd -; cd ~; cd ..`
- ◆ `Ctrl + l`
- ◆ `Ctrl + c/z/d`
- ◆ `Ctrl + r`
- ◆ `Alt + .`
- ◆ `Ctrl/Alt + b/f, Ctrl + a/e`
- ◆ `Ctrl + d/h`
- ◆ `Ctrl + ku`
- ◆ `Ctrl + /`

Next step

- ◆ vim
- ◆ shell scripts
- ◆ sed
- ◆ awk
- ◆ [LPIC](#)

THE END

THANKS!

