

The Ultimate Linux Reference Guide for Newbies

FILE AND DIRECTORY BASICS

ls

This category also includes utilities that change file/directory properties and permissions

List files/directories in a directory, comparable to dir in windows/dos.

ls -la

Shows all files (including ones that start with a period), directories, and details attributes for each file.

cd

Change directory (e.g cd /usr/local/bin)

cd ~

Go to your home directory

cd -

Go to the last directory you were in

cd ..

Go up a directory

cat

Print file contents to the screen

cat filename.txt

Print the contents of filename.txt to your screen

tail

Similar to cat, but only reads the end of the file

tail /var/log/messages

See the last 20 (by default) lines of /var/log/messages

tail -f /var/log/messages

Watch the file continuously, while it's being updated

tail -200 /var/log/messages

Print the last 200 lines of the file to the screen

head

Similar to tail, but only reads the top of the file

head /var/log/messages

See the first 20 (by default) lines of /var/log/messages

head -200 /var/log/messages

Print the first 200 lines of the file to the screen

more

Like cat, but opens the file one screen at a time rather than all at once

more /etc/userdomains

Browse through the userdomains file. hit Space to go to the next page, q to quit

less

Page through files

od

View binary files and data

xxd

Also view binary files and data

gv

View Postscript/PDF files

xdvi

View TeX DVI files

nl

Number lines

touch

Create an empty file

touch

Create an empty file called 404.html in the directory /home/burst/public_html/

/home/burst/public_html/404.html

file

Attempts to guess what type of file a file is by looking at it's content.

file *

Prints out a list of all files/directories in a directory

cp	Copy a file
cp filename filename.bak	Copies filename to filename.bak
cp -a /etc/* /root/etc/	Copies all files, retaining permissions from one directory to another.
cp -av * ../newdirectory	Copies all files and directories recurrively in the current directory INTO newdirectory
mv	Move a file command
mv oldfilename newfilename	Move a file or directory from oldfilename to newfilename
rm	delete a file
rm filename.txt	deletes filename.txt, will more than likely ask if you really want to delete it
rm -f filename.txt	deletes filename.txt, will not ask for confirmation before deleting.
rm -rf tmp/	recursively deletes the directory tmp, and all files in it, including subdirectories.
	changes file access permissions. The set of 3 go in this order from left to right: USER - GROUP - EVERONE
chmod	0 = --- No permission 1 = --X Execute only 2 = -W- Write only 3 = -WX Write and execute 4 = R-- Read only 5 = R-X Read and execute 6 = RW- Read and write 7 = RWX Read, write and execute
chmod 000	No one can access
chmod 644	Usually for HTML pages
chmod 755	Usually for CGI scripts
chown	Changes file ownership permissions The set of 2 go in this order from left to right: USER - GROUP
chown root myfile.txt	Changes the owner of the file to root
chown root.root myfile.txt	Changes the owner and group of the file to root
stat	Display file attributes
grep	Llooks for patterns in files
grep root /etc/passwd	Shows all matches of root in /etc/passwd
grep -v root /etc/passwd	Shows all lines that do not match root
ln	Create's "links" between files and directories

ln -s**/usr/local/apache/conf/httpd.conf
/etc/httpd.conf**

Now you can edit /etc/httpd.conf rather than the original. changes will affect the original, however you can delete the link and it will not delete the original.

wc

Word count

wc -l filename.txt

Tells how many lines are in filename.txt

find

Utility to find files and directories on your server.

find / -name "filename"

Find the file called "filename" on your filesystem starting the search from the root directory "/".

locate filename

Find the file name and path of which contains the string "filename". Run 'updatedb' to build index.

EDITORS

Most popular editors available on UNIX platforms.

pico

Friendly, easy to use file editor

pico**/home/burst/public_html/index.html**

Edit the index page for the user's website.

vi

Popular editor, tons of features, harder to use at first than pico

Edit filename.txt. All commands in vi are preceded by pressing the escape key. Each time a different command is to be entered, the escape key needs to be used. Except where indicated, vi is case sensitive. For more commands go to:

<http://www.intellink.net/vi-qref.htm>

vi filename.txt

H --- Upper left corner (home)

M --- Middle line

L --- Lower left corner

h --- Back a character

j --- Down a line

k --- Up a line

^ --- Beginning of line

\$ --- End of line

l --- Forward a character

w --- Forward one word

b --- Back one word

fc --- Find c

; --- Repeat find (find next c)

:q! --- This force quits the file without saving and exits vi

:w --- This writes the file to disk, saves it

:wq --- This saves the file to disk and exists vi
:LINENUMBER : EG :25 --- Takes you to line 25 within the file

:\$ --- Takes you to the last line of the file

:0 --- Takes you to the first line of the file

Another popular editor. For more commands go to

http://www.hsrl.rutgers.edu/ug/emacs_qref.html

emacs

C-\ t --- Tutorial suggested for new emacs users.

C-x C-c exit emacs

Edit filename.txt. While you're in emacs, use the following quickies to get around:

C-x C-f --- read a file into emacs

C-x C-s --- save a file back to disk

C-x i --- insert contents of another file into this buffer

C-x C-v --- replace this file with the contents of file you want

C-x C-w --- write buffer to specified file

emacs filename.txt

C-f --- move forward one character

C-b --- move backward one character

C-n --- move to next line

C-p --- move to previous line

C-a --- move to beginning of line

C-e --- move to end of line

M-f --- move forward one word

M-b --- move backward one word

C-v --- move forward one screen

M-v --- move backward one screen

M-< --- go to beginning of file

M-> --- go to end of file

NETWORK

w

Some of the basic networking utilities.

Shows who is currently logged in and where they are logged in from.

who

This also shows who is on the server in an shell.

netstat

Shows all current network connections.

netstat -an

Shows all connections to the server, the source and destination ips and ports.

netstat -rn

Shows routing table for all ips bound to the server.

netstat -an |grep :80 |wc -l

Show how many active connections there are to apache (httpd runs on port 80)

Shows live system processes in a formatted table, memory information, uptime and other useful info.

top

While in top, Shift + M to sort by memory usage or Shift + P to sort by CPU usage

top -u root

Show processes running by user root only.

route -n

Shows routing table for all ips bound to the server.

nslookup yahoo.com

Query your default domain name server (DNS) for an Internet name (or IP number) host_to_find.

traceroute yahoo.com

Have a look how you messages travel to yahoo.com

ifconfig

Display info on the network interfaces.

ifconfig -a

Display info on all network interfaces on server, active or inactive..

ping

Sends test packets to a specified server to check if it is responding properly

tcpdump

Print all the network traffic going through the network.

arp

Command mostly used for checking existing Ethernet connectivity and IP address

SYSTEM TOOLS

Many of the basic system utilities used to get things done.

ps

ps is short for process status, which is similar to the top command. It's used to show currently running processes and their PID.

A process ID is a unique number that identifies a process, with that you can kill or terminate a running program on your server (see kill command).

ps U username

Shows processes for a certain user

ps aux

Shows all system processes

ps aux --forest

Shows all system processes like the above but organizes in a hierarchy that's very useful!

kill

terminate a system process

kill -9 PID

Immediately kill process ID

killall program_name

Kill program(s) by name. For example to kill instances of httpd, do 'killall httpd'

du

Shows disk usage.

du -sh

Shows a summary of total disk space used in the current directory, including subdirectories.

du / -bh | more

Print detailed disk usage for each subdirectory starting at the "/".

last

Shows who logged in and when

last -20

Shows only the last 20 logins

last -20 -a

Shows last 20 logins, with the hostname in the last field

pwd

Print working directory, i.e., display the name of my current directory on the screen.

hostname

Print the name of the local host. Use netconf (as root) to change the name of the machine.

whoami

Print my login name.

date

Print or change the operating system date and time

time

Determine the amount of time that it takes for a process to complete + other info.

uptime

Show the number days server has been up including system load averages.

uname -a

Displays info on about your server such as kernel version.

free

Memory info (in kilobytes).

lsmod

Show the kernel modules currently loaded. Run as root.

dmesg | less

Print kernel messages.

man topic

Display the contents of the system manual pages (help) on the topic. Do 'man netstat' to find all details of netstat command including options and examples.

reboot / halt

Halt or reboot the machine.

mount

Mount local drive or remote file system.

mount -t auto /dev/fd0 /mnt/floppy

Mount the floppy. The directory /mnt/floppy must exist.

mount -t auto /dev/cdrom /mnt/cdrom

Mount the CD. The directory /mnt/cdrom must exist.

sudo

The super-user do command that allows you to run specific commands that require root access.

fsck

Check a disk for errors

COMPRESSION UTILITIES

tar

There are many other compression utilities but these are the default and most widely utilized.

tar -zxvf file.tar.gz

Creating and Extracting .tar.gz and .tar files

Extracts the file

tar -xvf file.tar

Extracts the file

tar -cf archive.tar contents/

Takes everything from contents/ and puts it into archive.tar

gzip -d filename.gz

gzip -d filename.gz

zip

Compress files into.zip

unzip file.zip

Extracting .zip files shell command

compressCompress files. compress *filename***uncompress**Uncompress compressed files. uncompress *filename.Z***bzip2**

Compress files in bzip2 format

THE (DOT) FILES

The good old dot files. Let's clear up some confusion here by defining each.

.bash_login

Treated by bash like .bash_profile if that doesn't exist.

.bash_logout

Sourced by bash login shells at exit.

.bash_profile

Sourced by bash login shells after /etc/profile

.bash_history

The list of commands executed previously.

.profile

Treated by bash like ~/.bash_profile if that and .bash_login don't exist.

.vimrc

Default "Vim" configuration file.

.emacs

Read by emacs at startup

CONFIGURATION FILES

Listing everything is beyond the scope of this article.

/etc

This directory contains most of the basic Linux system-configuration Files.

Contains the permanent copies of System V-style run-level scripts. These scripts are often linked to files in the /etc/rc?.d directories to have each service associated with a script started or stopped for the particular run level. The ? is replaced by the run-level number (0 through 6). (Slackware puts its run-level scripts in the /etc/rc.d directory.)

/etc/init.d

Directories in this set contain files that define how the crond utility runs applications on a daily (cron.daily), hourly (cron.hourly), monthly (cron.monthly), or weekly (cron.weekly) schedule.

/etc/cron*

Contains files used to configure the CUPS printing service.

/etc/cups

Contains files that set default values for various utilities. For example, the file for the useradd command defines the default group number,

/etc/default

	home directory, password expiration date, shell, and skeleton directory
/etc/skel	Any files contained in this directory are automatically copied to a user's home directory when that user is added to the system.
/etc/mail	Contains files used to configure your sendmail mail service.
/etc/security	Contains files that set a variety of default security conditions for your computer.
/etc/sysconfig	Contains important system configuration files that are created and maintained by various services (including iptables, samba, and most networking services).
/etc/passwd	Holds some user account info including passwords (when not "shadowed").
/etc/shadow	Contains the encrypted password information for users' accounts and optionally the password aging information.
/etc/xinetd.d	Contains a set of files, each of which defines a network service that the xinetd daemon listens for on a particular port.
/etc/syslogd.conf	The configuration file for the syslogd daemon. syslogd is the daemon that takes care of logging (writing to disk) messages coming from other programs to the system.
/var	Contains variable data like system logging files, mail and printer spool directories, and transient and temporary files.
/var/log	Log files from the system and various programs/services, especially login (/var/log/wtmp, which logs all logins and logouts into the system) and syslog (/var/log/messages, where all kernel and system program message are usually stored).
/var/log/messages	System logs. The first place you should look at if your system is in trouble.
/var/log/utmp	Active user sessions. This is a data file and as such it can not be viewed normally.
/var/log/wtmp	Log of all users who have logged into and out of the system. The last command can be used to access a human readable form of this file.
Apache Shell Commands	Some of the basic and helpful apache commands.

httpd -v	Outputs the build date and version of the Apache server.
httpd -l	Lists compiled in Apache modules
httpd status	Only works if mod_status is enabled and shows a page of active connections
service httpd restart	Restarted Apache web server
MySQL Shell Commands	Some of the basic and helpful MySQL commands.
mysqladmin processlist	Shows active mysql connections and queries
mysqladmin processlist wc -l	Show how many current open connections there are to mysql
mysqladmin drop database	Drops/deletes the selected database
mysqladmin create database	Creates a mysql database
mysql -u username -p password databasename < data.sql	Restores a MySQL database from data.sql
mysqldump -u username -p password database > data.sql	Backup MySQL database to data.sql
echo "show databases" mysql -u root -p password grep -v Database	Show all databases in MySQL server.
mysqldump -u root -p password database > /tmp/database.exp	Dump database including all data and structure into /tmp/database.exp
