

The Ultimate Linux Reference Guide for Newbies

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FILE AND DIRECTORY BASICS	This category also includes utilities that change file/directory properties and permissions
ls	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.
ls -lSrh	Find the biggest files in current directory in human readable format.
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

<code>du -kx egrep -v "\./ ./" sort -n</code>	Find largest directories in the filesystem.
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	Llike cat, but opens the file one screen at a time rather than all at once
more /etc/userdomains	Browse through the userdomains file. hit Spaceto 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 /home/burst/public_html/404.html	Create an empty file called 404.html in the directory /home/burst/public_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 form one directory to another.
cp -av * ../newdirectory	Copies all files and directories recurrsvively 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.
chmod	changes file access permissions. The set of 3 go in this order from left to right: USER - GROUP - EVERYONE 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 orginal, 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.

rename .html .php *.html	Rename all *.html file as *.php
for file in *.html ; do mv \$file `echo \$file sed 's/\(.*\)html/\1php/'` ; done	Rename all *.html files as *.php Of course this is more work than previous command...why bother.
find . -uid 320 -exec chown 350 {} \;	Change all files with uid 320 to 350. For all real life find examples check out: http://johnmeister.com/CS/UNIX/FIND/find-usage.html
EDITORS	Most popular editors available on UNIX platforms.
pico / nano	Friendly, easy to use file editor
nano /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. Check out So you want to learn VI?
vi filename.txt	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. 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

emacs	Another popular editor. For more commands go to http://www.hsrl.rutgers.edu/ug/emacs_qref.html C-\ t --- Tutorial suggested for new emacs users. C-x C-c exit emacs
emacs filename.txt	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 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
sed 's/Today/Yesterday/g' infile > outfile	Replace all occurrence of 'Today' with 'Yesterday'. Yes days go by so quickly. Today is already yesterday. Heck it maybe a few years ago since I've written this.
cat file awk '{NR >=5 && NR <= 10 }'	Print out each line between 5 and 10.
NETWORK	Some of the basic networking utilities.
w	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)
netstat -lntp	Display all open ports with service name.
top	Shows live system processes in a formatted table, memory information, uptime and other useful info. 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 <i>program_name</i>	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.
man -k ssh	Search all man pages for keyword 'ssh'
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.
lsof +D /nfs/mount	Return process id of all tasks currently utilizing /nfs/mount directory. Useful when you're stuck trying to unmount an NFS mount.
lsof -p <pid>	See EVERYTHING that process is doing. What files are opened, what port it's listening to and etc.
cat /proc/cpuinfo	Display cpu details such as make, model etc.
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	There are many other compression utilities but these are the default and most widely utilized.
tar	Creating and Extracting .tar.gz and .tar files
tar -zxvf file.tar.gz	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
compress	Compress files. <code>compress filename</code>
uncompress	Uncompress compressed files. <code>uncompress filename.Z</code>
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.
/etc/init.d	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/cron*	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/cups	Contains files used to configure the CUPS printing service.

/etc/default	Contains files that set default values for various utilities. For example, the file for the useradd command defines the default group number, 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
ab -n 20 -c 2 http://www.mynitor.com/	Send 20 requests with concurrency of 2 to server mynitor.com. Apache benchmark is pretty useful tool for load testing. Check out 25 free tools to measure website performance.
httpd -k start -c "DocumentRoot /docs/ html	Start Apache with alternative docroot. Useful for debugging.
httpd -k start -f conf/ httpd.conf	Start Apache with different config file.
httpd -X	Run Apache in debug mode. This'll start only one process on which you can use lsof/strace and whatever else to figure out issues.
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
mysqlcheck -u <user> -p<pass> -o <database_name>	Optimize all tables in database.
mysql -u root -pmypass -e STATUS grep -i uptime	Check mysql uptime.
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