This is a linux command line reference for common operations.
Examples marked with • are valid/safe to paste without modification into a terminal, so you may want to keep a terminal window open while reading this so you can cut & paste.
All these commands have been tested both on Fedora and Ubuntu.
See also more linux commands.

Command	**Description**
• apropos whatis	Show commands pertinent to string. See also threadsafe
• man -t ascii | ps2pdf - > ascii.pdf	make a pdf of a manual page
which command	Show full path name of command
time command	See how long a command takes
• time cat	Start stopwatch. Ctrl-d to stop. See also sw
dir navigation	
• cd -	Go to previous directory
• cd	Go to $HOME directory
(cd dir && command)	Go to dir, execute command and return to current dir
• pushd **.**	Put current dir on stack so you can **popd** back to it
file searching	
• alias l='ls -l --color=auto'	quick dir listing
• ls -lrt	List files by date. See also newest and find_mm_yyyy
• ls /usr/bin | pr -T9 -W$COLUMNS	Print in 9 columns to width of terminal
find -name '*.[ch]' | xargs grep -E 'expr'	Search 'expr' in this dir and below. See also findrepo
find -type f -print0 | xargs -r0 grep -F 'example'	Search all regular files for 'example' in this dir and below
find -maxdepth 1 -type f | xargs grep -F 'example'	Search all regular files for 'example' in this dir
find -maxdepth 1 -type d | while read dir; do echo $dir; echo cmd2; done	Process each item with multiple commands (in while loop)
• find -type f ! -perm -444	Find files not readable by all (useful for web site)
• find -type d ! -perm -111	Find dirs not accessible by all (useful for web site)
• locate -r 'file[^/]*\.txt'	Search cached index for names. This re is like glob *file*.txt
• look reference	Quickly search (sorted) dictionary for prefix
• grep --color reference /usr/share/dict/words	Highlight occurances of regular expression in dictionary
archives and compression	
gpg -c file	Encrypt file
gpg file.gpg	Decrypt file
tar -c dir/ | bzip2 > dir.tar.bz2	Make compressed archive of dir/
bzip2 -dc dir.tar.bz2 | tar -x	Extract archive (use gzip instead of bzip2 for tar.gz files)
tar -c dir/ | gzip | gpg -c | ssh user@remote 'dd of=dir.tar.gz.gpg'	Make encrypted archive of dir/ on remote machine
find dir/ -name '*.txt' | tar -c --files-from=- | bzip2 > dir_txt.tar.bz2	Make archive of subset of dir/ and below
find dir/ -name '*.txt' | xargs cp -a --target-directory=dir_txt/ --parents	Make copy of subset of dir/ and below
(tar -c /dir/to/copy) | (cd /where/to/ && tar -x -p)	Copy (with permissions) copy/ dir to /where/to/ dir
(cd /dir/to/copy && tar -c **.**) | (cd /where/to/ && tar -x -p)	Copy (with permissions) contents of copy/ dir to /where/to/
(tar -c /dir/to/copy) | ssh -C user@remote 'cd /where/to/ && tar -x -p'	Copy (with permissions) copy/ dir to remote:/where/to/ dir
dd bs=1M if=/dev/sda | gzip | ssh user@remote 'dd of=sda.gz'	Backup harddisk to remote machine
rsync (Network efficient file copier: Use the --dry-run option for testing)	
rsync -P rsync://rsync.server.com/path/to/file file	Only get diffs. Do multiple times for troublesome downloads
rsync --bwlimit=1000 fromfile tofile	Locally copy with rate limit. It's like nice for I/O
rsync -az -e ssh --delete ~/public_html/ remote.com:'~/public_html'	Mirror web site (using compression and encryption)
rsync -auz -e ssh remote:/dir/ **.** && rsync -auz -e ssh **.** remote:/dir/	Synchronize current directory with remote one
ssh (Secure SHell)	
ssh $USER@$HOST command	Run command on $HOST as $USER (default command=shell)
• ssh -f -Y $USER@$HOSTNAME xeyes	Run GUI command on $HOSTNAME as $USER
scp -p -r $USER@$HOST: file dir/	Copy with permissions to $USER's home directory on $HOST
scp -c arcfour $USER@$LANHOST: bigfile	Use faster crypto for local LAN. This might saturate GigE
ssh -g -L 8080:localhost:80 root@$HOST	Forward connections to $HOSTNAME:8080 out to $HOST:80
ssh -R 1434:imap:143 root@$HOST	Forward connections from $HOST:1434 in to imap:143
ssh-copy-id $USER@$HOST	Install public key for $USER@$HOST for password-less log in

wget (multi purpose download tool)

• (cd dir/ && wget -nd -pHEKk http://www.pixelbeat.org/cmdline.html)	Store local browsable version of a page to the current dir
wget -c http://www.example.com/large.file	Continue downloading a partially downloaded file
wget -r -nd -np -l1 -A '*.jpg' http://www.example.com/dir/	Download a set of files to the current directory
wget ftp://remote/file[1-9].iso/	FTP supports globbing directly
• wget -q -O- http://www.pixelbeat.org/timeline.html | grep 'a href' | head	Process output directly
echo 'wget url' | at 01:00	Download url at 1AM to current dir
wget --limit-rate=20k url	Do a low priority download (limit to 20KB/s in this case)
wget -nv --spider --force-html -i bookmarks.html	Check links in a file
wget --mirror http://www.example.com/	Efficiently update a local copy of a site (handy from cron)

networking (Note ifconfig, route, mii-tool, nslookup commands are obsolete)

ethtool eth0	Show status of ethernet interface eth0
ethtool --change eth0 autoneg off speed 100 duplex full	Manually set ethernet interface speed
iw dev wlan0 link	Show link status of wireless interface wlan0
iw dev wlan0 set bitrates legacy-2.4 1	Manually set wireless interface speed
• iw dev wlan0 scan	List wireless networks in range
• ip link show	List network interfaces
ip link set dev eth0 name wan	Rename interface eth0 to wan
ip link set dev eth0 up	Bring interface eth0 up (or down)
• ip addr show	List addresses for interfaces
ip addr add 1.2.3.4/24 brd + dev eth0	Add (or del) ip and mask (255.255.255.0)
• ip route show	List routing table
ip route add default via 1.2.3.254	Set default gateway to 1.2.3.254
• ss -tupl	List internet services on a system
• ss -tup	List active connections to/from system
• host pixelbeat.org	Lookup DNS ip address for name or vice versa
• hostname -i	Lookup local ip address (equivalent to host `hostname`)
• whois pixelbeat.org	Lookup whois info for hostname or ip address

windows networking (Note samba is the package that provides all this windows specific networking support)

• smbtree	Find windows machines. See also findsmb
nmblookup -A 1.2.3.4	Find the windows (netbios) name associated with ip address
smbclient -L windows_box	List shares on windows machine or samba server
mount -t smbfs -o fmask=666,guest //windows_box/share /mnt/share	Mount a windows share
echo 'message' | smbclient -M windows_box	Send popup to windows machine (off by default in XP sp2)

text manipulation (Note sed uses stdin and stdout. Newer versions support inplace editing with the -i option)

sed 's/string1/string2/g'	Replace string1 with string2
sed 's/\(.*\)1/\12/g'	Modify anystring1 to anystring2
sed '/^ *#/d; /^ *$/d'	Remove comments and blank lines
sed ':a; /\\$/N; s/\\\n//; ta'	Concatenate lines with trailing \
sed 's/[\t]*$//'	Remove trailing spaces from lines
sed 's/\([`"$\]\)/\\\1/g'	Escape shell metacharacters active within double quotes
• seq 10 | sed "s/^/ /; s/ *\(.\{7,\}\)/\1/"	Right align numbers
• seq 10 | sed p | paste - -	Duplicate a column
sed -n '1000{p;q}'	Print 1000th line
sed -n '10,20p;20q'	Print lines 10 to 20
sed -n 's/.*<title>\(.*\)<\/title>.*/\1/ip;T;q'	Extract title from HTML web page
sed -i 42d ~/.ssh/known_hosts	Delete a particular line
sort -t. -k1,1n -k2,2n -k3,3n -k4,4n	Sort IPV4 ip addresses
• echo 'Test' | tr '[:lower:]' '[:upper:]'	Case conversion
• tr -dc '[:print:]' < /dev/urandom	Filter non printable characters
• tr -s '[:blank:]' '\t' </proc/diskstats | cut -f4	cut fields separated by blanks
• history | wc -l	Count lines
• seq 10 | paste -s -d ' '	Concatenate and separate line items to a single line

set operations (Note you can export LANG=C for speed. Also these assume no duplicate lines within a file)

sort file1 file2 | uniq	Union of unsorted files

sort file1 file2 | uniq -d	Intersection of unsorted files
sort file1 file1 file2 | uniq -u	Difference of unsorted files
sort file1 file2 | uniq -u	Symmetric Difference of unsorted files
join -t'\0' -a1 -a2 file1 file2	Union of sorted files
join -t'\0' file1 file2	Intersection of sorted files
join -t'\0' -v2 file1 file2	Difference of sorted files
join -t'\0' -v1 -v2 file1 file2	Symmetric Difference of sorted files

math

• echo '(1 + sqrt(5))/2' | bc -l	Quick math (Calculate φ). See also bc
• seq -f '4/%g' 1 2 99999 | paste -sd-+ | bc -l	Calculate π the unix way
• echo 'pad=20; min=64; (100*10^6)/((pad+min)*8)' | bc	More complex (int) e.g. This shows max FastE packet rate
• echo 'pad=20; min=64; print (100E6)/((pad+min)*8)' | python	Python handles scientific notation
• echo 'pad=20; plot [64:1518] (100*10**6)/((pad+x)*8)' | gnuplot -persist	Plot FastE packet rate vs packet size
• echo 'obase=16; ibase=10; 64206' | bc	Base conversion (decimal to hexadecimal)
• echo $((0x2dec))	Base conversion (hex to dec) ((shell arithmetic expansion))
• units -t '100m/9.58s' 'miles/hour'	Unit conversion (metric to imperial)
• units -t '500GB' 'GiB'	Unit conversion (SI to IEC prefixes)
• units -t '1 googol'	Definition lookup
• seq 100 | (tr '\n' +; echo 0) | bc	Add a column of numbers. See also add and funcpy

calendar

• cal -3	Display a calendar
• cal 9 1752	Display a calendar for a particular month year
• date -d fri	What date is it this friday. See also day
• [$(date -d '12:00 +1 day' +%d) = '01'] || exit	exit a script unless it's the last day of the month
• date --date='25 Dec' +%A	What day does xmas fall on, this year
• date --date='@2147483647'	Convert seconds since the epoch (1970-01-01 UTC) to date
• TZ='America/Los_Angeles' date	What time is it on west coast of US (use tzselect to find TZ)
• date --date='TZ="America/Los_Angeles" 09:00 next Fri'	What's the local time for 9AM next Friday on west coast US

locales

• printf "%'d\n" 1234	Print number with thousands grouping appropriate to locale
• BLOCK_SIZE=\'1 ls -l	Use locale thousands grouping in ls. See also l
• echo "I live in \`locale territory\`"	Extract info from locale database
• LANG=en_IE.utf8 locale int_prefix	Lookup locale info for specific country. See also ccodes
• locale -kc $(locale | sed -n 's/\(LC_.\{4,\}\)=.*/\1/p') | less	List fields available in locale database

recode (Obsoletes iconv, dos2unix, unix2dos)

• recode -l | less	Show available conversions (aliases on each line)
recode windows-1252.. file_to_change.txt	Windows "ansi" to local charset (auto does CRLF conversion)
recode utf-8/CRLF.. file_to_change.txt	Windows utf8 to local charset
recode iso-8859-15..utf8 file_to_change.txt	Latin9 (western europe) to utf8
recode ../b64 < file.txt > file.b64	Base64 encode
recode /qp.. < file.qp > file.txt	Quoted printable decode
recode ..HTML < file.txt > file.html	Text to HTML
• recode -lf windows-1252 | grep euro	Lookup table of characters
• echo -n 0x80 | recode latin-9/x1..dump	Show what a code represents in latin-9 charmap
• echo -n 0x20AC | recode ucs-2/x2..latin-9/x	Show latin-9 encoding
• echo -n 0x20AC | recode ucs-2/x2..utf-8/x	Show utf-8 encoding

CDs

gzip < /dev/cdrom > cdrom.iso.gz	Save copy of data cdrom
mkisofs -V LABEL -r dir | gzip > cdrom.iso.gz	Create cdrom image from contents of dir
mount -o loop cdrom.iso /mnt/dir	Mount the cdrom image at /mnt/dir (read only)
cdrecord -v dev=/dev/cdrom blank=fast	Clear a CDRW
gzip -dc cdrom.iso.gz | cdrecord -v dev=/dev/cdrom -	Burn cdrom image (use dev=ATAPI -scanbus to confirm dev)
cdparanoia -B	Rip audio tracks from CD to wav files in current dir
cdrecord -v dev=/dev/cdrom -audio -pad *.wav	Make audio CD from all wavs in current dir (see also cdrdao)
oggenc --tracknum=$track track.cdda.wav -o track.ogg	Make ogg file from wav file

disk space (See also FSlint)

• ls -lSr	Show files by size, biggest last
• du -s * | sort -k1,1rn | head	Show top disk users in current dir. See also dutop
• du -hs /home/* | sort -k1,1h	Sort paths by easy to interpret disk usage
• df -h	Show free space on mounted filesystems
• df -i	Show free inodes on mounted filesystems
• fdisk -l	Show disks partitions sizes and types (run as root)
• rpm -q -a --qf '%10{SIZE}\t%{NAME}\n' | sort -k1,1n	List all packages by installed size (Bytes) on rpm distros
• dpkg-query -W -f='${Installed-Size;10}\t${Package}\n' | sort -k1,1n	List all packages by installed size (KBytes) on deb distros
• dd bs=1 seek=2TB if=/dev/null of=ext3.test	Create a large test file (taking no space). See also truncate
• > file	truncate data of file or create an empty file

monitoring/debugging

• tail -f /var/log/messages	Monitor messages in a log file
• strace -c ls >/dev/null	Summarise/profile system calls made by command
• strace -f -e open ls >/dev/null	List system calls made by command
• strace -f -e trace=write -e write=1,2 ls >/dev/null	Monitor what's written to stdout and stderr
• ltrace -f -e getenv ls >/dev/null	List library calls made by command
• lsof -p $$	List paths that process id has open
• lsof ~	List processes that have specified path open
• tcpdump not port 22	Show network traffic except ssh. See also tcpdump_not_me
• ps -e -o pid,args --forest	List processes in a hierarchy
• ps -e -o pcpu,cpu,nice,state,cputime,args --sort pcpu | sed '/^ 0.0 /d'	List processes by % cpu usage
• ps -e -orss=,args= | sort -b -k1,1n | pr -TW$COLUMNS	List processes by mem (KB) usage. See also ps_mem.py
• ps -C firefox-bin -L -o pid,tid,pcpu,state	List all threads for a particular process
• ps -p 1,$$ -o etime=	List elapsed wall time for particular process IDs
• last reboot	Show system reboot history
• free -m	Show amount of (remaining) RAM (-m displays in MB)
• watch -n.1 'cat /proc/interrupts'	Watch changeable data continuously
• udevadm monitor	Monitor udev events to help configure rules

system information (see also sysinfo) ('#' means root access is required)

• uname -a	Show kernel version and system architecture
• head -n1 /etc/issue	Show name and version of distribution
• cat /proc/partitions	Show all partitions registered on the system
• grep MemTotal /proc/meminfo	Show RAM total seen by the system
• grep "model name" /proc/cpuinfo	Show CPU(s) info
• lspci -tv	Show PCI info
• lsusb -tv	Show USB info
• mount | column -t	List mounted filesystems on the system (and align output)
• grep -F capacity: /proc/acpi/battery/BAT0/info	Show state of cells in laptop battery
# dmidecode -q | less	Display SMBIOS/DMI information
# smartctl -A /dev/sda | grep Power_On_Hours	How long has this disk (system) been powered on in total
# hdparm -i /dev/sda	Show info about disk sda
# hdparm -tT /dev/sda	Do a read speed test on disk sda
# badblocks -s /dev/sda	Test for unreadable blocks on disk sda

interactive (see also linux keyboard shortcuts)

• readline	Line editor used by bash, python, bc, gnuplot, ...
• screen	Virtual terminals with detach capability, ...
• mc	Powerful file manager that can browse rpm, tar, ftp, ssh, ...
• gnuplot	Interactive/scriptable graphing
• links	Web browser
• xdg-open **.**	open a file or url with the registered desktop application

Source: http://www.pixelbeat.org/cmdline.html