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 $HOME directory
(cd dir && command)	Go to dir, execute command and return to current dir
• pushd .	Put current dir on stack so you can popd back to it
file searching	
• alias l='ls -l --color=auto'	quick dir listing. See also l
• ls -lrt	List files by date. See also newest and find_mm_yyyy
• ls /usr/bin | pr -T9 -W$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' find	Make encrypted archive of dir/ on remote machine
dir/ -name '*.txt' | tar -c --files-from=- | bzip2 > dir_txt.tar.bz2 find dir/	Make archive of subset of dir/ and below
-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/ ssh	Synchronize current directory with remote one
(Secure SHell)	
ssh $USER@$HOST command •	Run command on $HOST as $USER (default command=shell)
ssh -f -Y $USER@$HOSTNAME xeyes scp	Run GUI command on $HOSTNAME as $USER
-p -r $USER@$HOST: file dir/ scp	Copy with permissions to $USER's home directory on $HOST
-c arcfour $USER@$LANHOST: bigfile ssh -g	Use faster crypto for local LAN. This might saturate GigE
-L 8080:localhost:80 root@$HOST ssh -R	Forward connections to $HOSTNAME:8080 out to $HOST:80
1434:imap:143 root@$HOST ssh-copy-	Forward connections from $HOST:1434 in to imap:143
id $USER@$HOST wget (multi	Install public key for $USER@$HOST for password-less log in
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 iw	Manually set ethernet interface speed
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 ip	List network interfaces
link set dev eth0 name wan ip	Rename interface eth0 to wan
link set dev eth0 up •	Bring interface eth0 up (or down)
ip addr show ip	List addresses for interfaces
addr add 1.2.3.4/24 brd + dev eth0 • ip	Add (or del) ip and mask (255.255.255.0)
route show ip	List routing table
route add default via 1.2.3.254 • ss	Set default gateway to 1.2.3.254
-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/" • seq	Right align numbers
10	sed p	paste - - sed -n	Duplicate a column
'1000{p;q}' sed -n	Print 1000th line
'10,20p;20q' sed -n	Print lines 10 to 20
's/.*<title>\(.*\)<\/title>.*/\1/ip;T;q' sed -i	Extract title from HTML web page
42d ~/.ssh/known_hosts sort -t.	Delete a particular line
-k1 ,1n -k2,2n -k3,3n -k4,4n • echo	Sort IPV4 ip addresses
'Test'	tr '[:lower:]' '[:upper:]' • tr -dc	Case conversion
'[:print:]' < /dev/ urandom • tr -s	Filter non printable characters
'[:blank:]' '\t' </proc/diskstate	cut -f4 • history	cut fields separated by blanks
	wc -l • seq 10	Count lines
	paste -s -d ' ' set	Concatenate and separate line items to a single line
operations (Note you can export LANG =C for speed. Also these assume no duplicate lines within a file)	
sort -u file1 file2	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 ÿ). See also bc
seq -f '4/%g' 1 2 99999	paste -sd+	bc -l •	Calculate ÿ 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 $((0x2dec)) •	Base conversion (hex to dec) ((shell arithmetic expansion))
units -t '100m/9.58s' 'miles/hour' •	Unit conversion (metric to imperial)
units -t '500GB' 'GiB' •	Unit conversion (SI to IEC prefixes). See also numfmt
units -t '1 googol' •	Definition lookup
seq 100	paste -s -d+	bc	Add a column of numbers. See also add and funcpy
calendar	
• cal -3	Display a calendar
• cal 9 1752	Display a calendar for a particular month year
• date -d fri	What date is it this friday. See also day
• [$(date -d '12:00 today +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 `local territory`" •	Extract info from locale database
LANG=en_IE.utf8 locale int_prefix •	Lookup locale info for specific country. See also ccodes
locale -kc $(local	sed -n '; s/\(LC_.\{4,\}\)=.*/\1/p')	less	List fields available in locale database
recode (Obsolete iconv, two2unix, unix2two)	
• 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)

	Clear a CDRW
gzip -dc cdrom.iso.gz | wodim -tao dev=/dev/cdrom -v -data -	Burn cdrom image (use --prcap to confirm dev)
cdparanoia -B	Rip audio tracks from CD to wav files in current dir
wodim -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 • dd bs=1 seek=2TB if=/dev/null of=ext3.test	List all packages by installed size (KBytes) on deb distros 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	
• watch -n.1 pstree -Uacp $$ Display a changing process subtree	
• 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

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