

Linux Cheat Sheet

Q: How do I find out which Perl version I have installed?

A: perl v

Q: To view a summary of my perl configuration:

A: perl -V

Q: To see if perl is installed on the linux server:

A: \$ which perl (If it is installed, you will get this line: /usr/bin/perl)

Q: Check disk space usage:

A: df -h

Q: What program to run to update packages on Red Hat Linux?

A: up2date

A: up2date --nox (do not even attempt to display the GUI.)

Q: How to apply update on Red Hat Linux 5+?

A: yum

Q: How to check system usage on a remote system?

A1: ssh ServerName 'df -h' (ex: ssh Server1 'df -h')

Q: What is perl Filesys-DiskSpace module

A: Filesys::DiskSpace - Perl df (This module was formerly called File::Df. It has been renamed into Filesys::DiskSpace.)

Q: How do I find out if I have the required modules installed?

A: The command /sbin/lsmduel displays a list of currently loaded modules.

Q: How to install modules?

A: perl -MCPAN -e 'install "Filesys::DiskSpace"'

Q: How to find out Redhat version installed?

A: \$ cat /etc/redhat-release

A: uname -a gives the running version

Q: How to find out if Apache is installed?

A: \$ rpm -q apache (If it is not installed, terminal will return: package apache is not installed)

Q: How to find out what version of apache?

A1: `/usr/local/apache/bin/httpd -v`

A2: `rpm -q httpd`

A3: `/usr/sbin/apachectl -v`

A4: `/usr/sbin/httpd -v`

Q: How to check which version of PHP is installed?

A: `/usr/local/bin/php -v`

Q: How to check for compile modules?

A: apache: look at configuration file (`/etc/httpd/conf/httpd.conf`)

php: `php -m`

Q: How to upgrade PHP?

A1: Obtain latest version of PHP from <http://www.php.net/downloads.php> (As of 5/06/08: PHP 5.2.6 is the latest one)

A2: Download the bzip file: [PHP 5.2.6 \(tar.bz2\)](#) and save it on a local drive.

A3: Run WSCP to copy the bzip file from the local drive to linux server at `/data2/home/Temp`

A4: `ssh server1`

A5: Make a copy of the zip file in the tmp folder on server1: `[Temp]$ cp php-5.2.6.tar.bz2 /tmp`

A6: `su - root ([~]$ /bin/su - root)`

A7: `cd packages` (To store all installation packages in this directory: `/root/packages`)

A8: `mv /tmp/php-5.2.6.tar.bz2 .`

A9: `bunzip2 -v php-5.2.6.tar.bz2 (unzip)`

A10: `tar xvf php-5.2.3.tar (untar) (tar xvfj file.tar.bz2 -C direcotry)`

A11: `cd php-5.2.6` (directory will automatically created)

A12: Run: `./configure --with-mysql=/usr/bin --with-mysqli=/usr/bin/mysql_config --with-apxs2=/usr/sbin/apxs --with-curl --with-zlib --enable-bcmath`

A13: `make`

A14: `service httpd stop`

A15: `ps -ef | grep http`

A16: `make install`

A17: `service httpd start`

A18: Test the webpage

Q: How to run shell script

A1: `sh scriptname.sh`

A2: OR `/scriptname`

Q: How do I find out what shell I'm using?

A1: `echo $SHELL`

A2: `ps -p $$`

A3: `echo $0`

Q: How to Start / Restart / Stop Ubuntu Linux Apache Web Server?

A1: `$/etc/init.d/apache2` is service script used to start / stop / restart the Apache2 service under Debian or Ubuntu Linux.

You need to login as root or use sudo command restart Apache.

A2: Task: Start Apache 2 Server:

`# /etc/init.d/apache2 start`

OR `$/sudo /etc/init.d/apache2 start`

A3: Task: Restart Apache 2 Server:

`# /etc/init.d/apache2 restart`

OR `$/sudo /etc/init.d/apache2 restart`

A4: Task: Stop Apache 2 Server:

`# /etc/init.d/apache2 stop`

OR `$/sudo /etc/init.d/apache2 stop`

Q: How to check if the server is running?

A1: `/sbin/service httpd status`

A2: `ps -ef | grep http`

(You should see some httpd processes if it is up and running.)

Q: How to start, stop or restart web server (log in as root)?

A: Start: `service httpd start`

A: Stop: `service httpd stop`

A: Restart: `service httpd restart`

Q: How do I add cron job under Linux or UNIX like operating system?

A1: `$/crontab -e` (Run at 10 pm on weekdays: `0 22 * * 1-5 /path/to/command`)

`0,10,20,30,40,50 * * * * /home/userid/diskcheck.sh`

(Run on every 10 minutes)

A2: Run on every 10 minutes: `0-59/10 * * * * /home/userid/diskcheck.sh`

Q: How to view list of cron job?

A: `crontab -l`

Q: How to tell if machine is 64 bit or 32 bit?

A: `/usr/bin/isainfo -b`

Q: How to tell if the machine have the capability of running 32 or 64?

A: `/usr/bin/isainfo -v`

Q: How to change user password?

A: Login as root: `su - root: passwd userid`

Q: How to change root password?

A: Login as root, and ssh into each nodes (io1, io2): `passwd root`

Q: How to use the user management GUI tools on linux?

A1: Login as root and run command `/usr/bin/system-config-users`

A2: Login as root and run command `/etc/pam.d/system-config-users`

Q: How to change permission on directories and its sub-directories at once?

A: `chmod [-R] ### <filename or directory>` (ex: `chmod -R 777 user01`)

-R is optional and when used with directories will traverse all the sub-directories of the target directory changing ALL the permissions to ###.

Very useful but use with extreme caution.

The #'s can

0 = Nothing

1 = Execute

2 = Write

3 = Execute & Write (2 + 1)

4 = Read

5 = Execute & Read (4 + 1)

6 = Read & Write (4 + 2)

7 = Execute & Read & Write (4 + 2 + 1)

Q: How to use watch command to monitor disk space on very 10 seconds?

A1: `watch -n 10 "df -h; echo ; du -sh * ; echo ; ls -l"`

A2: `watch -n 10 "df -h"`

Q: How to check block size?

A: `df -k`

Q: How to display system memory utilization?

A: Use the `#free` command (Since free by default only displays memory utilization information once, it is only useful for very short-term monitoring, or quickly determining if a memory-related problem is currently in progress.)

Q: How to display memory utilization every two seconds (default display interval)?

A: Use this command: `watch free`

Q: How to control the delay of the display on the memory utilization and highlight the changes?

A: `watch -n 1 -d free` (checking memory on every 1 second)

Q: How to display the overall system status, such as uptime, load average, process counts, CPU status and utilization, process statistics, memory utilization?

A: Use command: `top` (Warning: if you are logged in as root, it is possible to change the priority and even kill any process on your system.)

Q: What GUI to use to monitor system?

A: The GNOME system monitor (a graphical top)

Q: How to display a more concise view of system performance?

A: `vmstat`

Q: How to display system performance using command `vmstat` every second?

A1: `vmstat 1` (displays one new line of utilization data every second)

A2: `vmstat 1 10` (displays one new line per second, but only for next ten seconds.)

Q: How to extract any process that contain the word, "sas"?

A: `ps -ef | grep sas`

Q: What is a secured way to log into another machine?

A: `ssh servername` (Ex: `ssh server1`. This is a more secured way than `rlogin` with password)

Q: How to check server hostname?

A: Command: `hostname`

Q: How to list directory content in single-column and page by page?

A: `ls -l | more`

Q: How to view permission on a directory for a particular user?

A: `ls -liah | grep userid`

Q: How to interrupt a running process?

A: `[Ctrl]-[C]`

Q: How to make symbolic links? (A symbolic link is a "file" pointing to another file.)

A: In `/original/file /new/link` (This makes `/original/file` and `/new/link` the same file - edit one and the other will change. The file will not be gone until both `/original/file` and `/new/link` are deleted. You can only do this with files. For folders, you must make a "soft" link.)

Q: How to create a soft symbolic link (make links between files)?

A: In `-s /mnt/lan-shared/temp /mysharedrive`

Q: How to remove a soft/symbolic/alias link?

A1: `rm /path/to/soft/link`

A2: In `-sf /whatever/file /soft/link` (If you want to over-ride it with another softlink)

Q: How to delete files and folders?

A1: `rm /home/you/youfile.txt`

A2: `rm -rf /home/you/foo/` (To delete folders, use `rm` together with `-f` (Do not prompt for confirmation) and `-r` (Recursively remove directory trees))

Q: How to view a list of Linux user?

A: `cd` into `/etc` followed by `vi passwd`

Q: How to know the file type?

A: File filename

`[~]$ file *`

diskAlert: Bourne shell script text executable

Temp: directory

Q: How to convert a PostScript to PDF using ghostscript on Linux?

A: `ps2pdf input.ps output.pdf`

Q: How to print a man page in a form you can you read?

A1: `man command | col -x -b > command.txt`

Where `command` is the Linux command man page you want to print/view, ex: `ls`

From there, open up `command.txt` in a gui txt editor like `gedit`, `kate`.

A2: Use `groff -Tps -man` to format the manual page, passing the output to `stdout`.

A3: `man man | col -b | lpr`

This will print the manpage direct to a default linux ps printer.

Q: How to check printer queue?

A1: lpq

Ex:

[~]\$ lpq

speedy-ps is ready and printing

Rank	Owner	Job	File(s)	Total Size
active	user1	23		4962304 bytes

Q: How to print files?

A: lpr myfile.txt

Q: Printing double page from lpr command?

A: [Manpage]\$ lpr -o sides=two-sided-long-edge command.txt -P savvy-ps

Q: How to cancel print jobs/remove ?

A: lprm -P killtree 385

note: removes request-ID 385 from destination killtree. (ex: [~]\$ lprm -P speedy-ps 23)

Q: How to list status of the LP print serves?

A: lpstat -u all

note: prints the status of all output requests

Q: How to open a GUI txt editor?

A: gedit filename.txt

Q: How to locate the executable command?

A: whereis command (Ex: whereis shutdown)

Q: How to shutdown server1 note when the server0 is still accessible?

A1: Log in Linux server server0 as root (su - root); then ssh to server1

command to shutdown: shutdown -r now

Note: It is recommended to open a different terminal to monitor the reboot process

A2: /sbin/shutdown -r now

Q: How to reboot system, server1 when system is frozen/unaccessible?

A1: powerman -r server1

note: This command can be used on any notes. Ignore all failed modules when rebooting.

A2: powerman --off server1

note: This command will shutdown the power of the server.

Q: How to speed up shutdown process?

A: Step 1 > service autofs stop (note: this will stop the service control script for automounter)

Step 2 > service nfs stop (note: this will stop the service for file system mounting)

Step 3 > shutdown -h now (note: making sure to perform this task on desindated machine)

Q: How to check on the status of system power?

A: Powerman -q

```
[~]$ powerman -q
```

```
on:   cn[1-4],io[1-2],server[1-2]
```

```
off:
```

Q: How to check on the status on a specific note, such as server2?

A: powerman -n server2

Q: How to connect to remote consoles?

A: conman server2

Note: you will be prompted to enter console root password, which hardly used.

Q: How to parallely remote login multiple nodes?

A: PDSH -OPTIONS COMMAND (pdsh is a parallel shell program: pdsh -w server1,server2 shutdown -R now)

Q: How to find out the command usage?

A: command ? (Ex: powerman ?)

Q: How to bring up the GUI console?

A: Type CWX (username and password is root)

Q: Which notes contains all the boot information?

A: The main host node

Q: How to read a text file page by page?

A: less filename.txt

Q: How to copy files between hosts on a network?

A: scp filename ToLocation

Q: How to back up directory on Linux?

A: Use backup script, make_host_clone to back up directories.

```
./make_host_clone -b /data1/scratch -f filename -t
```

Q: How to change file timestamps? (to update the access and modification times of each FILE to the current time.

A: touch filename

Q: How to list of running jobs/processes?

A: jobs

Q: How to return to a particular job?

A: %jobid (Ex: %1)

Q: How to terminate a particular job/process?

A: kill %2 or kill -9 %2 or ctrl + c

Q: How to display Linux tasks?

A1: Top

A2: top -u userid (to monitor tasks run by particular user)

A3: top -p pid (Monitor only processes with specified process IDs.)

Q: How to run a program with modified scheduling priority?

A: **nice** linux command (ex: nice gedit filename)

Note: only root can adjust the priority of the job

A: nohup nice -n -5 ls / > out.txt &

Q: How to queue a job for later execution?

A: echo "pullftp.sh" | at now + 1 minute

Then logout. After the job completes, you'll get an email message with the contents of stdout/stderr.

Q: How to search by keyword on a man page?

A: Type / + word phrase (ex: /bugs)

Q: How to exit a man page?

A: Type q to quit

Q: How to run job in the background?

A: Use & at the end of command: watch ls >& /tmp/ls.txt &

Q: How to view the last part of the file?

A: tail -f >> /tmp/ls.txt

Q: How to run program (SAS) in the background continuously until it is done?

A: nohup execute commands after you exit from a shell prompt

A1: nohup watch ls -l >& /tmp/ls.txt &

A2: nohup stata-se -b do filename >& nohup.log &

Note: nohup - this command allows program to be run continuously in the background until job is killed or done

(it will ignore logout command)

A3: nohup xemacs myfile &

Q: How to report a snapshot of the current processes?

A: ps

Q: How to use yes command for troubleshoot?

A: yes "hello" > /tmp/hello.txt & (This will produce a txt file filled with list of hello)

Print the command-line arguments, separated by spaces and followed by a newline, until killed. If no arguments are given, print y followed by a newline until killed. Useful in scripts and in the background; its output can be piped to a program that issues prompts.

Q: How to check effective userid?

A: whoami

[~]\$ whoami

Q: How to show who is logged on and what they are doing?

A: w

Q: How to show who is logged on?

A: who

Q: How to check mail?

A: [~]# mail

Q: How to send mail from Linux user account?

A: [~]# mail -v -s "test" username@email.com

Q: How to run jobs while user is logged off from the terminal?

A: disown <pid> (This is to get rid of the job(s) running on my console login session)

ex:

\$ pullftp.sh &

\$ disown -h

\$ exit

By default, removes each JOBSPEC argument from the table of active jobs. If the -h option is given, the job is not removed from the table, but is marked so that SIGHUP is not sent to the job if the shell receives a SIGHUP.

Q: How to show all running processes as a tree for a particular user?

A: pstree <userid> (ex: pstree userid)

Q: How to redirect output to a file?

A1: > - Output redirection (Ex: ls -l myfile.txt > test.txt) OR (ls -l > test.txt)

A2: < - Input redirection

A3: Ex: ls -l testfile.txt 2>1& another_file (which will redirect both output and any errors to another_file)

A4: wc < myfile.txt > outputfile.txt OR wc myfile.txt | tee outputfile.txt (wc: word count)

A5: command | tee file.txt

Q: How to redirect an output to a file along with any errors?

A: command >& file.txt (ex: ls -l >& file.txt)

Q: How to redirect the output of that command to a file?

A: ps -u \$USER > file (ex: ps -u userid > test.txt)

Q: How to append data to a file?

A: use the >> symbol (ex: \$ cat - >> test.txt : will append whatever you write to the file test.txt.)

Q: How can you tell if you are login as normal user or root?

A1: If you login as root, you will see root indicator; otherwise, you will see user login id

A2: Also, these sign indicate the user types: # indicates as root, and \$ indicates as normal user

Q: What command to use to check and repair a Linux file system?

A: fsck

Q: How do you read which users are locked?

A: In the /etc/shadow file, their password hash entry is prefixed with a ! if their account is locked already.

Q: How to lock a user?

A: passwd -L userid

Q: How to unlock a user?

A: pass -U userid or usermod -U userid

Q: Linux display password status?

A: passwd -S {user-name}

Q: How to find out the name of current Network Information Service (NIS) domain?

A: Syntax: /usr/bin/domainname

Q: How to join a new domain?

A: domainname [domainname]

Q: How to view a list of aliases that already set up in the system?

A: type command, alias

Q: How to restart X-Windows without rebooting?

A1: CTL+ALT+Backspace to kill x

A2: To get back to the gui login screen, enter `#!/etc/init.d/$DM restart`. replace DM with gdm or kdm depending on which desktop manager your using. (The gdm or kdm stands for Gnome Desktop Manager or K Desktop Manager.)

Q: Rebooting linux without reboot command (Dangerous!)

A: Just a sample of how you can reboot or shutdown linux without issuing reboot command, so called hard reboot. That means that system will just make a reset as if you pressed a reset button, without running any shutdown scripts, etc. A kind of dangerous staff, but can be helpful in some occasions.

```
echo 1 > /proc/sys/kernel/sysrq
```

```
echo b > /proc/sysrq-trigger
```

If you want to force shutdown machine try this.

```
echo 1 > /proc/sys/kernel/sysrq
```

```
echo o > /proc/sysrq-trigger
```

Q: How do you know if you are using IpTables rule?

A: `iptables -L` (If result returns like Chain INPUT (policy ACCEPT), then IPtables rules are running.)

Q: How to you know what version of Kernal is using?

A: `uname -rvo`

Q: How to check routing?

A: `route` or `/sbin/route`

Q: How to view current network configuration?

A: `ifconfig -a`

Q: How to find available network or determine which hosts are up?

A1: nmap -sT localhost

A2: nmap -sT #the ip address of your machine#

Q: What are the command copy/backup programs?

A: Copy programs are also available, like "rsync" for Linux users and "robotcopy" for Windows users.

Q: Reload linux without use the reboot command?

A: Running sudo /etc/init.d/<name_of_program> restart will restart the program without having to reboot your computer.

Q: How to view static information about the filesystems?

A: cat /etc/fstab

Q: How to inform all users that system will not be available to login?

A: edit /etc/nologin file by place "System maintenance, please try again later."

Q:Linux log files location and how do I view logs files?

A: All logfiles are located under /var/log directory

A2: View common log file /var/log/messages using any one of the following command:

```
# tail -f /var/log/messages
# less /var/log/messages
# more -f /var/log/messages
# vi /var/log/messages
```

A3: Common Linux log files name and usage

- * /var/log/message: General message and system related stuff
- * /var/log/auth.log: Authentication logs
- * /var/log/kern.log: Kernel logs
- * /var/log/cron.log: Crond logs (cron job)
- * /var/log/maillog: Mail server logs
- * /var/log/qmail/ : Qmail log directory (more files inside this directory)
- * /var/log/httpd/: Apache access and error logs directory
- * /var/log/lighttpd: Lighttpd access and error logs directory
- * /var/log/boot.log : System boot log
- * /var/log/mysqld.log: MySQL database server log file
- * /var/log/secure: Authentication log

* /var/log/utmp or /var/log/wtmp : Login records file

* /var/log/yum.log: Yum log files

Q: How to find out version of Unix OS on a machine? Print certain system information

A: Use **uname** command

Q: How to find out graphics card installed in my Linux system?

A: Using **lspci** command to find out the vendor and model

Q: How to list all the pci devices?

A: Run **lspci** and **lspci -v**

Q: How to display amount of free and used memory in the system?

A: Use free command; free -m -t; cat /proc/meminfo; grep 'MemTotal:' /proc/meminfo

Q: How to find out CPU info?

A: cat /proc/cpuinfo

A: uname -p

