

Linux Commands Cheat Sheet

Easy to use Linux shortcuts
for developers.



ssh [ip or hostname]
"vagrant ssh" in the same directory as the Vagrantfile to shell into the box/machine (assumes you have successfully "vagrant up")

Secure shell, an encrypted network protocol allowing for remote login and command execution
On Windows: PuTTY and WinSCP
An "ssh.exe" is also available via Cygwin as well as with a Git installation.

pwd

Print Working Directory
Displays the full path name

whoami

Displays your logged in user id

cd /
cd target
cd ~

Change directory to the root of the filesystem
Change directory to "target" directory
Change directory to your home directory

ls
ls -l
ls -la

Directory listing
Long listing, displays file ownership
Displays hidden files/directories

```
[vagrant@rhel-cdk /]$ ls
bin boot dev etc home lib lib64 lost+found media mnt opt pro
[vagrant@rhel-cdk /]$ ls -l
total 62
lrwxrwxrwx. 1 root root 7 Mar 8 20:36 bin -> usr/bin
dr-xr-xr-x. 4 root root 1024 Mar 12 19:26 boot
drwxr-xr-x. 18 root root 3100 Mar 12 19:49 dev
drwxr-xr-x. 85 root root 4096 Mar 12 19:31 etc
drwxr-xr-x. 3 root root 4096 Mar 8 20:54 home
lrwxrwxrwx. 1 root root 7 Mar 8 20:36 lib -> usr/lib
lrwxrwxrwx. 1 root root 9 Mar 8 20:36 lib64 -> usr/lib64
drwx----- 2 root root 16384 Mar 8 20:34 lost+found
drwxr-xr-x. 2 root root 4096 May 25 2015 media
drwxr-xr-x. 2 root root 4096 May 25 2015 mnt
drwxr-xr-x. 3 root root 4096 Mar 8 20:50 opt
dr-xr-xr-x. 166 root root 0 Mar 12 19:26 proc
dr-xr-x--- 3 root root 4096 Mar 12 19:30 root
drwxr-xr-x. 31 root root 1000 Mar 12 19:31 run
lrwxrwxrwx. 1 root root 8 Mar 8 20:36 sbin -> usr/sbin
drwxr-xr-x. 2 root root 4096 May 25 2015 srv
dr-xr-xr-x. 13 root root 0 Mar 12 19:26 sys
drwxrwxrwt. 7 root root 4096 Mar 12 20:31 tmp
drwxr-xr-x. 13 root root 4096 Mar 8 20:36 usr
drwxr-xr-x. 3 vagrant vagrant 4096 Mar 12 19:25 vagrant
drwxr-xr-x. 19 root root 4096 Mar 12 19:26 var
[vagrant@rhel-cdk /]$
```

clear

Clear the terminal screen

cat file.txt

Displays the contents of file.txt to standard out

cat /etc/system-release

Displays the contents of the system-release file - what version of RHEL, Centos or Fedora are you running?

```
[vagrant@rhel-cdk etc]$ cat /etc/system-release
Red Hat Enterprise Linux Server release 7.2 (Maipo)
[vagrant@rhel-cdk etc]$ █
```

cat longfile.txt | more

Displays the contents of the file with forward paging

```
Count is 0
Count is 1
Count is 2
Count is 3
Count is 4
Count is 5
Count is 6
Count is 7
Count is 8
Count is 9
Count is 10
Count is 11
Count is 12
Count is 13
Count is 14
Count is 15
Count is 16
Count is 17
Count is 18
Count is 19
Count is 20
Count is 21
Count is 22
Count is 23
Count is 24
Count is 25
Count is 26
Count is 27
--More-- █
```

less longfile.txt

Scroll forward: Ctrl-f
Scroll backward: Ctrl-b
End of file: G
Quit less: q

man cat

Man pages, the user manual. In this case, it will describe the cat command

```
CAT(1)
NAME
    cat - concatenate files and print on the standard output
SYNOPSIS
    cat [OPTION]... [FILE]...
DESCRIPTION
    Concatenate FILE(s), or standard input, to standard output.
    -A, --show-all
        equivalent to -vET
    -b, --number-nonblank
        number nonempty output lines, overrides -n
    -e
        equivalent to -vE
    -E, --show-ends
        display $ at end of each line
    -n, --number
        number all output lines
    -s, --squeeze-blank
        suppress repeated empty output lines
    -t
        equivalent to -vT
    -T, --show-tabs
        display TAB characters as ^I
Manual page cat(1) line 1 (press h for help or q to quit) █
```

cp source_file.js target_file.js	Copies a specific file
cp -r ~/source_dir ~/target_dir	Copies all files and sub-dirs

mkdir my_directory	Create the directory "my_directory"
---------------------------	-------------------------------------

```
[vagrant@rhel-cdk ~]$ mkdir my_directory
[vagrant@rhel-cdk ~]$ ls -la
total 32
drwx-----. 5 vagrant vagrant 4096 Mar 12 21:39 .
drwxr-xr-x. 3 root root 4096 Mar 8 20:54 ..
-rw-r--r--. 1 vagrant vagrant 18 Jul 8 2015 .bash_logout
-rw-r--r--. 1 vagrant vagrant 193 Jul 8 2015 .bash_profile
-rw-r--r--. 1 vagrant vagrant 231 Jul 8 2015 .bashrc
drwxr-xr-x. 2 vagrant vagrant 4096 Mar 12 19:26 .docker
drwxrwxr-x. 2 vagrant vagrant 4096 Mar 12 21:39 my_directory
drwx-----. 2 vagrant vagrant 4096 Mar 12 19:26 .ssh
[vagrant@rhel-cdk ~]$
```

rm myfile.js	Removes a specific file
rm -rf my_directory/	Removes a directory, recursively

mv [source_file] [target_file]	Move file or directory
---------------------------------------	------------------------

ps -ef	Displays information about a selection of the active processes
---------------	--

```
[vagrant@rhel-cdk etc]$ ps -ef
UID          PID    PPID  C STIME TTY          TIME CMD
root          1        0  0 19:26 ?        00:00:02 /usr/lib/systemd/systemd
root          2        0  0 19:26 ?        00:00:00 [kthreadd]
root          3        2  0 19:26 ?        00:00:01 [ksoftirqd/0]
root          5        2  0 19:26 ?        00:00:05 [kworker/0:0H]
root          7        2  0 19:26 ?        00:00:00 [migration/0]
root          8        2  0 19:26 ?        00:00:00 [rcu_bh]
root          9        2  0 19:26 ?        00:00:00 [rcuob/0]
root         10        2  0 19:26 ?        00:00:00 [rcuob/1]
root         11        2  0 19:26 ?        00:00:19 [rcu_sched]
root         12        2  0 19:26 ?        00:00:14 [rcuos/0]
root         13        2  0 19:26 ?        00:00:16 [rcuos/1]
root         14        2  0 19:26 ?        00:00:00 [watchdog/0]
root         15        2  0 19:26 ?        00:00:00 [watchdog/1]
root         16        2  0 19:26 ?        00:00:00 [migration/1]
root         17        2  0 19:26 ?        00:00:00 [ksoftirqd/1]
root         19        2  0 19:26 ?        00:00:00 [kworker/1:0H]
root         20        2  0 19:26 ?        00:00:00 [khelper]
root         21        2  0 19:26 ?        00:00:00 [kdevtmpfs]
root         22        2  0 19:26 ?        00:00:00 [netns]
root         23        2  0 19:26 ?        00:00:00 [perf]
root         24        2  0 19:26 ?        00:00:00 [writeback]
root         25        2  0 19:26 ?        00:00:00 [kintegrityd]
root         26        2  0 19:26 ?        00:00:00 [bioset]
root         27        2  0 19:26 ?        00:00:00 [kblockd]
root         28        2  0 19:26 ?        00:00:00 [md]
root         29        2  0 19:26 ?        00:00:02 [kworker/0:1]
root         34        2  0 19:26 ?        00:00:00 [khungtaskd]
root         35        2  0 19:26 ?        00:00:01 [kswapd0]
root         36        2  0 19:26 ?        00:00:00 [ksmd]
```

./runthishing

Execute a program or shell script in your current working directory (pwd)
Executable items are have an "x" in their long listing (ls -la)

```
[vagrant@rhel-cdk bin]$ pwd
/usr/bin
[vagrant@rhel-cdk bin]$ ls -la | grep cp
-rwxr-xr-x. 1 root root 155136 Nov 25 10:55 cp
-rwxr-xr-x. 1 root root 141632 Jul 8 2015 cpio
-rwxr-xr-x. 1 root root 768592 Jul 15 2015 cpp
-rwxr-xr-x. 1 root root 67928 Jan 23 05:07 cpupower
-rwxr-xr-x. 1 root root 58352 Aug 21 2015 lscpu
-rwxr-xr-x. 1 root root 11400 Sep 15 05:51 rpm2cpio
-rwxr-xr-x. 1 root root 70360 Jan 13 10:22 scp
[vagrant@rhel-cdk bin]$
```

```
[vagrant@rhel-cdk ~]$ cd ~
[vagrant@rhel-cdk ~]$ ls -la
total 32
drwx-----. 4 vagrant vagrant 4096 Mar 12 21:04 .
drwxr-xr-x. 3 root root 4096 Mar 8 20:54 ..
-rw-r--r--. 1 vagrant vagrant 18 Jul 8 2015 .bash_logout
-rw-r--r--. 1 vagrant vagrant 193 Jul 8 2015 .bash_profile
-rw-r--r--. 1 vagrant vagrant 231 Jul 8 2015 .bashrc
drwxr-xr-x. 2 vagrant vagrant 4096 Mar 12 19:26 .docker
-rwxrwxr-x. 1 vagrant vagrant 107 Mar 12 21:04 runthishing
drwx-----. 2 vagrant vagrant 4096 Mar 12 19:26 .ssh
[vagrant@rhel-cdk ~]$
```

./runthishing &

Execute a program or shell script as a background task

ps -ef | grep runthishing

Find a particular process by name. The "|" is a pipe, redirects the output of the left-side command to the standard input of the right-side command

```
[vagrant@rhel-cdk ~]$ ./runthishing &
[3] 22047
[vagrant@rhel-cdk ~]$ ps -ef | grep runthishing
vagrant 22047 14771 99 21:11 pts/0 00:00:05 /bin/bash ./runthishing
vagrant 22060 14771 0 21:11 pts/0 00:00:00 grep --color=auto runthishing
[vagrant@rhel-cdk ~]$
```

kill -9 [pid]

```
[vagrant@rhel-cdk ~]$ ps -ef | grep runthishing
vagrant 22047 14771 99 21:11 pts/0 00:00:21 /bin/bash ./runthishing
vagrant 22081 14771 0 21:11 pts/0 00:00:00 grep --color=auto runthishing
[vagrant@rhel-cdk ~]$ kill -9 22047
[vagrant@rhel-cdk ~]$ ps -ef | grep runthishing
vagrant 22096 14771 0 21:11 pts/0 00:00:00 grep --color=auto runthishing
[3] Killed ./runthishing
[vagrant@rhel-cdk ~]$
```

ip -4 a

Shows the IPv4 address for all NICs

top

What is eating your CPU

```
top - 21:17:06 up 1:51, 1 user, load average: 0.41, 0.67, 0.49
Tasks: 157 total, 4 running, 151 sleeping, 2 stopped, 0 zombie
%Cpu(s): 47.4 us, 3.7 sy, 0.0 ni, 48.5 id, 0.2 wa, 0.0 hi, 0.2 si, 0.0 st
KiB Mem : 1017056 total, 108588 free, 378700 used, 529768 buff/cache
KiB Swap: 1572860 total, 1559232 free, 13628 used, 436384 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
22526	vagrant	20	0	113116	1184	1008	R	100.0	0.1	0:08.06	runthisthing
13368	root	20	0	1448088	233012	15992	S	10.0	22.9	12:36.47	openshift
13168	root	20	0	1377296	44816	11004	S	1.3	4.4	1:10.37	docker
453	root	20	0	43588	9560	6892	S	0.3	0.9	0:10.46	systemd-journal
1	root	20	0	43896	5532	3568	S	0.0	0.5	0:02.06	systemd
2	root	20	0	0	0	0	S	0.0	0.0	0:00.03	kthreadd
3	root	20	0	0	0	0	R	0.0	0.0	0:01.45	ksoftirqd/0
5	root	0	-20	0	0	0	S	0.0	0.0	0:06.25	kworker/0:0H
7	root	rt	0	0	0	0	S	0.0	0.0	0:00.66	migration/0
8	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcu_bh
9	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcuob/0
10	root	20	0	0	0	0	S	0.0	0.0	0:00.00	rcuob/1
11	root	20	0	0	0	0	S	0.0	0.0	0:24.92	rcu_sched
12	root	20	0	0	0	0	R	0.0	0.0	0:18.26	rcuos/0
13	root	20	0	0	0	0	S	0.0	0.0	0:21.08	rcuos/1
14	root	rt	0	0	0	0	S	0.0	0.0	0:00.19	watchdog/0
15	root	rt	0	0	0	0	S	0.0	0.0	0:00.20	watchdog/1
16	root	rt	0	0	0	0	S	0.0	0.0	0:00.72	migration/1
17	root	20	0	0	0	0	S	0.0	0.0	0:01.08	ksoftirqd/1
19	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kworker/1:0H
20	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	khelper
21	root	20	0	0	0	0	S	0.0	0.0	0:00.02	kdevtmpfs
22	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	netns
23	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	perf
24	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	writeback
25	root	0	-20	0	0	0	S	0.0	0.0	0:00.00	kintegrityd

which [executable]

Where is the executable located

```
[vagrant@rhel-cdk ~]$ which docker
/usr/bin/docker
[vagrant@rhel-cdk ~]$ which oc
/usr/bin/oc
[vagrant@rhel-cdk ~]$ which top
/usr/bin/top
[vagrant@rhel-cdk ~]$
```

echo "Stuff" > target_file.txt
echo "more" >> target_file.txt

single > redirects the output to the file
"target_file.txt"
A double >> appends

```
[vagrant@rhel-cdk ~]$ cd ~
[vagrant@rhel-cdk ~]$ ls -la
total 32
drwx-----. 4 vagrant vagrant 4096 Mar 12 21:29 .
drwxr-xr-x. 3 root    root    4096 Mar  8 20:54 ..
-rw-r--r--. 1 vagrant vagrant   18 Jul  8  2015 .bash_logout
-rw-r--r--. 1 vagrant vagrant  193 Jul  8  2015 .bash_profile
-rw-r--r--. 1 vagrant vagrant  231 Jul  8  2015 .bashrc
drwxr-xr-x. 2 vagrant vagrant 4096 Mar 12 19:26 .docker
-rwxrwxr-x. 1 vagrant vagrant  114 Mar 12 21:11 runthis thing
drwx-----. 2 vagrant vagrant 4096 Mar 12 19:26 .ssh
[vagrant@rhel-cdk ~]$ echo "stuff" > target_file.txt
[vagrant@rhel-cdk ~]$ cat target_file.txt
stuff
[vagrant@rhel-cdk ~]$ echo "more" >> target_file.txt
[vagrant@rhel-cdk ~]$ cat target_file.txt
stuff
more
[vagrant@rhel-cdk ~]$ ls -la
total 36
drwx-----. 4 vagrant vagrant 4096 Mar 12 21:29 .
drwxr-xr-x. 3 root    root    4096 Mar  8 20:54 ..
-rw-r--r--. 1 vagrant vagrant   18 Jul  8  2015 .bash_logout
-rw-r--r--. 1 vagrant vagrant  193 Jul  8  2015 .bash_profile
-rw-r--r--. 1 vagrant vagrant  231 Jul  8  2015 .bashrc
drwxr-xr-x. 2 vagrant vagrant 4096 Mar 12 19:26 .docker
-rwxrwxr-x. 1 vagrant vagrant  114 Mar 12 21:11 runthis thing
drwx-----. 2 vagrant vagrant 4096 Mar 12 19:26 .ssh
-rw-rw-r--. 1 vagrant vagrant   11 Mar 12 21:29 target_file.txt
[vagrant@rhel-cdk ~]$
```

echo \$PATH

Displays the \$PATH environment variable

```
[vagrant@rhel-cdk ~]$ echo $PATH
/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin:/home/vagrant/.local/bin:/home/vagrant/bin
```

env

Displays all ENV variables

export PATH=\$PATH:/anotherdir

Adds "anotherdir" to your PATH, just for your current session

sudo find . -name [file]

Find a file or directory by name

```
[vagrant@rhel-cdk /]$ cd /
[vagrant@rhel-cdk /]$ sudo find . -name vagrant
./var/spool/mail/vagrant
./vagrant
./vagrant/src/booker/vagrant
./etc/sudoers.d/vagrant
./home/vagrant
[vagrant@rhel-cdk /]$
```

grep -i stuff `find . -name *.txt` Find the string “stuff” in all the .txt files
-print`

```
[vagrant@rhel-cdk ~]$ cd ~
[vagrant@rhel-cdk ~]$ echo "Stuff" > target_file.txt
[vagrant@rhel-cdk ~]$ echo "more" >> target_file.txt
[vagrant@rhel-cdk ~]$ ls
my_directory target_file.txt
[vagrant@rhel-cdk ~]$ grep -i stuff `find . -name \*.txt -print`
"Stuff"
[vagrant@rhel-cdk ~]$
```

head [file] Output the first part of file (first 10 lines)

curl developers.redhat.com Retrieve the content from developers.redhat.com

source myenvsetting_script.sh How to add something to the PATH and make it stick
By default a new shell is launched to run a script,
therefore env changes are not visible to your current
shell.

```
[vagrant@rhel-cdk ~]$ ls
myenvsetting_script.sh mystuff
[vagrant@rhel-cdk ~]$ cat myenvsetting_script.sh
export MY_STUFF=/home/vagrant/mystuff
export PATH=$PATH:$MY_STUFF/bin
[vagrant@rhel-cdk ~]$ source myenvsetting_script.sh
[vagrant@rhel-cdk ~]$ echo $PATH
/usr/local/bin:/usr/bin:/usr/local/sbin:/usr/sbin:/home/vagrant/.local/bin
:/home/vagrant/bin:/home/vagrant/mystuff/bin
[vagrant@rhel-cdk ~]$
```

Note: the path uses ":" as a separator vs ";" in the
Windows world

sudo yum -y install net-tools “yum” is the installation tool for Fedora, Centos and
RHEL. This command installs “net-tools” which has
many handy utilities like netstat

```
[vagrant@rhel-cdk ~]$ sudo yum -y install net-tools
Loaded plugins: product-id, search-disabled-repos, subscription-manager
Resolving Dependencies
--> Running transaction check
--> Package net-tools.x86_64 0:2.0-0.17.20131004git.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
net-tools x86_64 2.0-0.17.20131004git.el7 rhel-7-server-eus-rpms 304 k
=====
Transaction Summary
=====
Install 1 Package

Total download size: 304 k
Installed size: 917 k
Downloading packages:
net-tools-2.0-0.17.20131004git.el7.x86_64.rpm | 304 kB 00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Installing : net-tools-2.0-0.17.20131004git.el7.x86_64 1/1
Verifying : net-tools-2.0-0.17.20131004git.el7.x86_64 1/1

Installed:
net-tools.x86_64 0:2.0-0.17.20131004git.el7

Complete!
[vagrant@rhel-cdk ~]$
```

**sudo netstat -anp | grep tcp |
grep LISTEN**

Lists the various in-use ports and the process using it

```
[vagrant@rhel-cdk ~]$ sudo netstat -anp | grep tcp | grep LISTEN
tcp        0      0 127.0.0.1:10443      0.0.0.0:*           LISTEN      27967/haproxy
tcp        0      0 127.0.0.1:10444      0.0.0.0:*           LISTEN      27967/haproxy
tcp        0      0 0.0.0.0:80           0.0.0.0:*           LISTEN      27967/haproxy
tcp        0      0 0.0.0.0:1936         0.0.0.0:*           LISTEN      27967/haproxy
tcp        0      0 0.0.0.0:53           0.0.0.0:*           LISTEN      13368/openshift
tcp        0      0 0.0.0.0:22           0.0.0.0:*           LISTEN      907/sshd
tcp        0      0 127.0.0.1:25         0.0.0.0:*           LISTEN      1651/master
tcp        0      0 0.0.0.0:443          0.0.0.0:*           LISTEN      27967/haproxy
tcp        0      0 0.0.0.0:8443         0.0.0.0:*           LISTEN      13368/openshift
tcp6       0      0 :::2376              :::*                LISTEN      13168/docker
tcp6       0      0 :::53866             :::*                LISTEN      13368/openshift
tcp6       0      0 :::10250             :::*                LISTEN      13368/openshift
tcp6       0      0 :::33900             :::*                LISTEN      13368/openshift
tcp6       0      0 :::9101              :::*                LISTEN      14636/haproxy_expor
tcp6       0      0 :::52944             :::*                LISTEN      13368/openshift
tcp6       0      0 :::38549             :::*                LISTEN      13368/openshift
tcp6       0      0 :::22                :::*                LISTEN      907/sshd
tcp6       0      0 :::7001              :::*                LISTEN      13368/openshift
tcp6       0      0 :::1:25              :::*                LISTEN      1651/master
tcp6       0      0 :::4001              :::*                LISTEN      13368/openshift
tcp6       0      0 :::32869             :::*                LISTEN      13368/openshift
[vagrant@rhel-cdk ~]$
```

sudo netstat -anp | grep 2376

Lists the process listening on port 2376

```
[vagrant@rhel-cdk ~]$ sudo netstat -anp | grep 2376
tcp6       0      0 :::2376              :::*                LISTEN      13168/docker
[vagrant@rhel-cdk ~]$
```

This is particularly useful when another process is hanging out on a port you need, like if you started Apache on 80 or Tomcat on 8080.

**wget https://someurl.com/
somefile.tar.gz**

wget is a useful utility for downloading files from any website. If installation is required, simply
sudo yum -y install wget

```
[vagrant@rhel-cdk ~]$ sudo yum -y install wget
Loaded plugins: product-id, search-disabled-repos, subscription-manager
Resolving Dependencies
--> Running transaction check
--> Package wget.x86_64 0:1.14-10.el7_0.1 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package                Arch             Version           Repository        Size
=====
Installing:
wget                   x86_64           1.14-10.el7_0.1   rhel-7-server-eus-rpms 546 k
=====
Transaction Summary
=====
Install 1 Package

Total download size: 546 k
Installed size: 2.0 M
Downloading packages:
wget-1.14-10.el7_0.1.x86_64.rpm | 546 kB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
  Installing : wget-1.14-10.el7_0.1.x86_64 1/1
  Verifying  : wget-1.14-10.el7_0.1.x86_64 1/1

Installed:
  wget.x86_64 0:1.14-10.el7_0.1

Complete!
[vagrant@rhel-cdk ~]$
```

tar -xvf somefile.tar.gz
tar -xvf somefile.tar.gz -C ~/so-
medir

Extracts/expands (think unzip) into current directory
Expands into the "somedir" directory