Ubuntu Linux Commands

Resources

https://goalkicker.com/BashBook/

https://goalkicker.com/LinuxBook/

Linux Tutorial | A Basic Guide to Linux For Beginners (educba.com)

https://www.educba.com/software-development/software-development-tutorials/linux-tutorial/

apt – Advanced Packaging Tool

https://itsfoss.com/apt-command-guide/

sudo apt update Updates the package database.

sudo list –upgradable Lists all packages which may be upgraded.

sudo apt upgrade Upgrades the packages.

sudo apt full-upgrade Not only upgrades but removes unnecessary packages.

sudo apt update && sudo apt upgrade -y

Runs update and upgrade in tandem.

sudo apt install <package_name> Install a new package.

sudo apt install <package_1> <package_2> <package_3>

Install multiple packages.

sudo apt reinstall <package_name> Reinstall packages.

** All The Way! **

sudo apt update && sudo apt full-upgrade -y

Remove Unused Packages

Sudo apt autoremove or sudo apt-get autoremove
Finds and removes those packages which are unused dependencies and not needed.

What if you run apt install on an already installed package?

No need to worry. This will just look into the database and if a newer version is found, it will upgrade the installed package to the newer one. So, no harm is done by using it, unless you don't want it to be upgraded.

Install Without Upgrading!

sudo apt install <package_name> --no-upgrade

Install without upgrading.

If for some reason you want to install a package, but don't want to upgrade, it if it is already installed. In that case, you can use the option **–no-upgrade** .

Uninstalling a Package

How to Uninstall Software in Linux With Apt (makeuseof.com)

sudo apt-get remove nameofpackage
This will remove package but keep your settings and configurations.

sudo apt-get purge nameofpackage
This will remove the package plus remove your settings and configurations.

Terminal Command Prompt

Means 'Root' user.

$ Means everybody else.

~ Means Home Directory.

System Info for Linux Distribution

lsb_release Must be installed.

apt-get update && apt-get install -y lsb-release && apt-get clean all

lsb_release -a All available system information.

hostname Displays the host name or machine name.

hostnamectl Displays the host name plus additional information.

uname Print system information.

uname -s Print kernel name of system.

sudo lshw Hardware info on components: cpu, disks, memory, usb controllers etc.

sudo lshw -short Summary hardware information.

lscpu Shows CPU architecture information.

lsblk Shows storage device info for hard disks, flash drives etc.

lsblk -a All storage device info.

df disk usage

df -m display disk usage in MB (mega-bytes).

Change the Hostname

First query and display the hostname:

```
hostname <Enter>
```

If you choose to set a new hostname, use the following command.

The hostname commands set the host name using the following syntax. Please note that only the super-user / root can change the names. To switch to the root user by typing su – and entering the root password, when prompted.

```
# hostnamectl set-hostname laptop.nixcraft.in
```

You need to edit /etc/hostname or /etc/sysconfig/network file to set hostname permanently.

Read the Manual Pages before you do this.

```
man hostnamectl
```

Reference:

https://www.howtogeek.com/197934/how-to-change-your-hostname-computer-name-on-ubuntu-linux

Host names can only contain letters (a through z), digits (0 through 9), and the hyphen character (–), and the period character (.). A hostname must begin and end with a letter or number — not a hyphen or period. Letters are also case-insensitive, so "COMPUTER" is equivalent to "computer." The hostname must be between 2 and 63 characters long, although you'll probably find shorter hostnames more convenient.

1. Edit Your /etc/hostname File

```
sudo subl /etc/hostname
```

Replace the old hostname with the new hostname.

2. Edit Your /etc/hosts File

```
sudo subl /etc/hosts
```

The old hostname will be styled like this:

```
127.0.1.1 your-old-hostname
```

Simply replace the old host name but do not disturb the number (127.0.1.1 in this example).

Change Your Hostname Immediately

If you wish to activate changes to the hostname immediately, run this command:

```
sudo hostname your-new-hostname
```

To complete the hostname change and make it permanent, log off and log back on again.

Switch to Root User

Root User in Ubuntu- Important Things You Should Know

`sudo -i` Become Root User. You must enter your password.

Change User Data

Change User Data with ***chfn***, ***usermod***, and ***finger***

How to Change User Data With chfn and usermod on Linux (howtogeek.com)

Install finger:

```
sudo apt install finger
```

finger mike -l (-l is L) Lists all the GECOS information about account **mike**.

sudo chfn -f Ubuntu03-Mike mike Changes the full name in the GECOS field for account 'mike'. DO NOT put any punctuation marks around the new name (Example: Ubuntu03-Mike). No quotation mark and no tick marks.

Create Groups in Linux

In Linux, groups are used to organize and administer user accounts. The primary purpose of groups is to define a set of privileges such as reading, writing, or executing permission for a given resource that can be shared among the users within the group.

groupadd Command Syntax

The general syntax for the groupadd command is as follows:

```
groupadd [OPTIONS] GROUPNAME
```

Only the root or a user with sudo privileges can create new groups.

When invoked, groupadd creates a new group using the options specified on the command line plus the default values specified in the /etc/login.defs file.

For example, to create a new group named mygroup you would run:

```
groupadd mygroup
```

The command adds an entry for the new group to the /etc/group and /etc/gshadow files.

Once the group is created, you can start adding users to the group .

If the group with the same name already exist, the system will print an error message like the following:

```
groupadd: group 'mygroup' already exists
```

To suppress the error message if the group exist and to make the command exit successfully, use the -f (--force) option:

```
groupadd -f mygroup
```

Create Users

https://www.lifewire.com/create-users-useradd-command-3572157

https://www.thegeekdiary.com/beginners-guide-to-user-and-group-administration-in-linux

To add a new user: Use the command:

```
useradd test ("test" is the new user's name)
```

Use sudo useradd test if you lack the proper privileges.

```
sudo useradd test
```

To create a user with a home directory: Use:

```
sudo useradd -m test
```

or

```
sudo useradd -m -d /test test  # change the default directory
```

To set a user's password, Use:

```
passwd test
```

To switch users, use the command:

```
su - test
```

Assign Users to Groups

https://www.howtogeek.com/50787/add-a-user-to-a-group-or-second-group-on-linux/

Add a User With gpasswd

https://unix.stackexchange.com/questions/29570/how-do-i-remove-a-user-from-a-group

Usage: gpasswd [option] GROUP

Options:

-a, --add USER add USER to GROUP

-d, --delete USER remove USER from GROUP

-h, --help display this help message and exit

-Q, --root CHROOT_DIR directory to chroot into

-r, --remove-password remove the GROUP's password

-R, --restrict restrict access to GROUP to its members

-M, --members USER,... set the list of members of GROUP

-A, --administrators ADMIN,...

set the list of administrators for GROUP

Add an Existing User Account to a Group

To add an existing user account to a group on your system, use the usermod command, replacing examplegroup with the name of the group you want to add the user to andexampleusername with the name of the user you want to add.

```
usermod -a -G examplegroup exampleusername
```

For example, to add the user geek to the group sudo , use the following command:

```
usermod -a -G sudo geek
```

Change a User's Primary Group

While a user account can be part of multiple groups, one of the groups is always the "primary group" and the others are "secondary groups". The user's login process and files and folders the user creates will be assigned to the primary group.

To change the primary group a user is assigned to, run the usermod command, replacingexamplegroup with the name of the group you want to be the primary and exampleusernamewith the name of the user account.

```
usermod -g groupname username
```

Note the -g here. When you use a lowercase g, you assign a primary group. When you use an uppercase -G , as above, you assign a new secondary group.

View the Groups a User Account is Assigned To

To view the groups the current user account is assigned to, run the groups command. You'll see a list of groups.

```
groups
```

To view the numerical IDs associated with each group, run the id command instead:

```
id
```

To view the groups another user account is assigned to, run the groups command and specify the name of the user account.

```
groups exampleusername
```

You can also view the numerical IDs associated with each group by running the id command and specifying a username.

```
id exampleusername
```

The first group in the groups list or the group shown after "gid=" in the id list is the user account's primary group. The other groups are the secondary groups. So, in the screenshot below, the user account's primary group is example.

Create a New User and Assign a Group in One Command

You may sometimes want to create a new user account that has access to a particular resource or directory, like a new FTP user. You can specify the groups a user account will be assigned to while creating the user account with the **useradd** command, like so:

```
useradd -G examplegroup exampleusername
```

For example, to create a new user account named ***jsmith*** and assign that account to the ftp group, you'd run:

```
useradd -G ftp jsmith
```

You'll want to assign a password for that user afterwards, of course:

```
passwd jsmith
```

Add a User to Multiple Groups

While assigning the secondary groups to a user account, you can easily assign multiple groups at once by separating the list with a comma.

```
usermod -a -G group1,group2,group3 exampleusername
```

For example, to add the user named geek to the ftp, sudo, and example groups, you'd run:

```
usermod -a -G ftp,sudo,example geek
```

You can specify as many groups as you like—just separate them all with a comma.

View All Groups on the System

If you want to view a list of all groups on your system, you can use the getent command:

```
getent group
```

This output will also show you which user accounts are members of which groups.

Add User to Admin Group

Add 'Marlena' to the sudo or admin group.

```
usermod -aG sudo Marlena
```

Delete A User from a Group

Delete a User from Group With gpasswd

https://unix.stackexchange.com/questions/29570/how-do-i-remove-a-user-from-a-group

Usage: gpasswd [option] GROUP

Options:

-a, --add USER add USER to GROUP

-d, --delete USER remove USER from GROUP

-h, --help display this help message and exit

-Q, --root CHROOT_DIR directory to chroot into

-r, --remove-password remove the GROUP's password

-R, --restrict restrict access to GROUP to its members

-M, --members USER,... set the list of members of GROUP

-A, --administrators ADMIN,...

set the list of administrators for GROUP

Except for the -A and -M options, the options cannot be combined.

```
gpasswd --delete user group
```

Be sure to log off and log back on for changes to take effect.

Remove User from Group by Exclusion

https://linuxhandbook.com/remove-user-from-group/

First, list all the groups the user is member of using id command like this:

```
id -nG user_name
```

This will list all the groups of the user.

You can use the usermod command here with option G. With option -G, you specify which groups this user will belong to. If the user is currently a member of a group which is not listed, the user will be removed from the group.

```
sudo usermod -G group1,group2,group3 user_name
```

Do note that the group names must be separated by comma but there should be no whitespace between them.

Change Password

https://linuxize.com/post/how-to-change-user-password-in-linux

The encrypted users' passwords, as well as other passwords related information, are stored in the /etc/shadow file.

Change Your Password

As a regular user, you can only change your own password. The root user and users with sudo privileges can change another user's passwords and define how the password can be used or changed.

To change your own user's account password, run the passwd command without any arguments:

```
passwd
```

You will be prompted to enter your current password. If the password is correct, the command will ask you to enter and confirm the new password.

Change Another User's Password

Only the root user and users with sudo access can change the password of another user account.

To change the password of another user account, run the passwd command, followed by the username. For example, to change the password of a user named linuxize, run the following command:

```
sudo passwd linuxize
```

You will be prompted to enter and confirm the new password:

Logoff and Power Down - Shutdown

How to Reboot Linux Using the Command Line (lifewire.com)

https://www.howtogeek.com/411925/how-to-reboot-or-shut-down-linux-using-the-command-line/

sudo shutdown -P now Logs the current user out and powers down the machine.

Shutdown Options

The **-H** (halt) option will take your computer down to the halt state but will not ask the hardware to power down. If you use this you will also have to **power off** the machine.

The **-P** (poweroff) is the default action . The computer is brought down to the halt state and is then powered off.

The **-r** (reboot) option will take your computer down to the halt state and then restart it.

The **-h** (halt and poweroff) option is the same as -P. If you use -h and -H together, the -H option takes priority.

The **-c** (cancel) option will cancel any scheduled shutdown, halt or reboot.

The reboot, halt and poweroff Commands

These commands perform the action their name suggests. However, each of them will accept command line options to make any one of them perform a reboot, a halt, or a poweroff. But why confuse matters? These commands are best used at face value.

If you want to reboot now, use reboot . If you want to poweroff now, use poweroff, and if you want halt the system now, use halt.

These commands take immediate effect. If any of these commands are refused, precede them with sudo. But be aware, a refusal is usually because there are other users logged into the system that you're about to take offline.

Which Command is Right For Me?

In multi-user environments using shutdown to perform these actions gives you more control. The facility to schedule shutdowns and reboots, and to alert users with a broadcast message will be invaluable in these cases. For a single-user computer, reboot and poweroff will probably meet your needs.

pwd – Print Working Directory

pwd print working directory - shows you how to get to current directory from root -- The absolute path.

mkdir – Make Directory

mkdir [option] directory_name_or_path

mkdir new_dir Creates 'new_dir' in the current directory

mkdir -p dir1/dir2/dir3/dir4 Create directory path. Create directories if needed.

cd – Change Directory

cd ~/ Go to Home Directory.

cd path/of/the/dir/u/want/to/go Move to the specified directory.

cd .. Go to the parent directory.

rm – Remove Command

rm - remove.

rm file_name Delete file.

rm -r dir Delete a directory recursively.

Options:

1. **-i (Interactive Deletion)**: Like in cp, the -i option makes the command ask the user for confirmation before removing each file, you have to press y for confirm deletion, any other key leaves the file un-deleted.

$ rm -i d.txt

rm: remove regular empty file 'd.txt'? y

2. **-f (Force Deletion)**: rm prompts for confirmation removal if a file is write protected. The -f option overrides this minor protection and removes the file forcefully.

rm -f e.txt

Note: -f option of rm command will not work for write-protect directories.

3. **-r** (Recursive Deletion): With -r(or -R) option rm command performs a tree-walk and will delete all the files and sub-directories recursively of the parent directory. At each stage it deletes everything it finds. Normally, rm would not delete the directories but when used with this option, it will delete.

mv – Move/Rename

mv file newfile rename *file* in *newfile*.

mv file new/path move file in the specified directory.

mv file new/path/newfile move file as newfile in the specified directory.

mv -f move without confirmation if overwriting.

cp – Copy

cp file newfile copy file in newfile.

cp file new/path copy file in the specified directory.

cp file new/path/newfile copy file as newfile in the specified directory.

cp -f copy without confirmation if overwriting.

ls – List file

How to Use the ls Command to List Files and Directories on Linux (howtogeek.com)

ls list content current directory.

ls -l List the files and directories in the current directory in long (table) format (It is recommended to use -l with ls for better readability).

ls /other/path list content of another dir.

ls file check if file is present in the current dir.

ls -a List all the files including the hidden ones (File names starting with a . are hidden files in Linux).

ls -s size - print the allocated size of each file, in blocks.

ls -s -h size - print the allocated size of each file, in blocks. File sizes are presented in human readable format (-h)

ls -S sort by file size, largest first

--sort=WORD sort by WORD instead of name: none (-U), size (-S), time (-t), version (-v), extension (-X)

ls -ld dir-name List information about the directory dir-name instead of its contents.

ls -F Appends a symbol at the end of a file name to indicate its type (***** means executable, **/** means directory, **@** means symbolic link, **=** means socket, **|** means named pipe, **>** means door).

ls -lt List the files sorted by last modified time with most recently modified files showing at the top(remember -l option provides the long format which has better readability).

ls -lh List the file sizes in human readable format.

ls -lR Shows all subdirectories recursively.

tree Will generate a tree representation of the file system starting from the current directory.

more / cat / tail – Display contents of file

more file display content of file bit by bit.

cat file display content of file all at once.

tail file display last 10 lines of file.

tail -n 20 file display last 20 lines of file.

tail -f file display last 10 lines of file each time file is updated.

> < | – Operators

cat file > newfile redirect output of cat to newfile (overwrite if newfile exists, otherwise newfile is created).

cat file >> newfile append output of cat to newfile.

command < file redirect file into a command (e.g., a program).

grep string | more use the output of grep as input of command more.

? * – Wildcards

rm -rf * remove all files and dirs in the current dir.

mv file* /new/path move all files whose name starts with *file* in new/path.

rm -f file_00?.com ? stands for every character in that position.

Directory Permissions

How to change directory permissions in Linux | Pluralsight

To change directory permissions in Linux, use the following:

- chmod +rwx filename to add permissions.
- chmod -rwx directoryname to remove permissions.
- **chmod +x filename** to allow executable permissions.
- **chmod -wx filename** to take out write and executable permissions.
- Note that "**r**" is for read, "**w**" is for write, and "**x**" is for execute.

Group and Owner Permissions

How to Change Directory Permissions in Linux for the Group Owners and Others

The command for changing directory permissions for group owners is similar, but add a "g" for group or "o" for users:

- chmod g+w filename
- chmod g-wx filename
- chmod o+w filename
- chmod o-rwx foldername

To change directory permissions for everyone, use "u" for users, "g" for group, "o" for others, and "ugo" or "a" (for all).

- **chmod ugo+rwx foldername** to give read, write, and execute to everyone.
- **chmod a=r foldername** to give only read permission for everyone.

File Permissions

https://www.howtogeek.com/437958/how-to-use-the-chmod-command-on-linux/

How to change directory permissions in Linux | Pluralsight

To change directory permissions in Linux, use the following:

- chmod +rwx filename to add permissions.
- chmod -rwx directoryname to remove permissions.
- **chmod +x filename** to allow executable permissions.
- **chmod -wx filename** to take out write and executable permissions.

Note that “r” is for read, “w” is for write, and “x” is for execute.

chmod <specification> filename

<specification> Change the file permissions.

u user

g group,

o other,

+ add permission

- remove

r read

w write

x execute.

chmod -R <specification> dir-name Change the permissions of a directory recursively. To change permission of a directory and everything within that directory, use this command.

chmod go=+r myfile Add read permission for the owner and the group.

chmod a +rwx myfile Allow all users to read, write or execute myfile.

chmod go -r myfile Remove read permission from the group and others.

chown owner1 filename Change ownership of a file to user owner1.

chgrp grp_owner filename Change primary group ownership of file filename to group grp_owner.

chgrp -R grp_owner dir-name Change primary group ownership of directory dir-name to group grp_owner recursively. To change group ownership of a directory and everything within that directory, use this command.

grep – Find a string in files

grep [options] pattern [files]

Options Description

-c This prints only a count of the lines that match a pattern

-h Display the matched lines, but do not display the filenames.

-I Ignores, case for matching.

-l Displays list of a filenames only.

-n Display the matched lines and their line numbers.

-v This prints out all the lines that do not matches the pattern.

-e exp Specifies expression with this option. Can use multiple times.

-f file Takes patterns from file, one per line.

-E Treats pattern as an extended regular expression (ERE).

-w Match whole word.

-o Print only the matched parts of a matching line, with each such part on a separate output line.

-A n Prints searched line and ***n*** lines after the result.

-B n Prints searched line and n line before the result.

-C n Prints searched line and n lines after before the result.

grep "string_to_search" file search for the string in *file*.

grep -R "string_to_search" * search the string in all files and directories.

grep -c "string" file | nl search string in file and return the number of lines containing string. The output of grep is suppressed by the flag -c

Tar / zip / gzip – Archives

Options:

-c Creates Archive.

-x Extract the archive.

-f creates archive with given filename.

-t displays or lists files in archived file.

-u archives and adds to an existing archive file.

-v Displays Verbose Information.

-A Concatenates the archive files.

-z zip, tells tar command that create tar file using gzip.

-j filter archive tar file using tbzip.

-W Verify an archive file.

-r update or add file or directory in already existed .tar file

Examples:

zip/unzip file.zip create/extract compressed zip archives.

gzip/gunzip file.gz create/extract compressed gzip archives.

tar cvf file.tar * create non-compressed tar archived named file.tar of all the files and dirs in the current dir.

tar xvf file.tar extract tar archives.

tar czvf file.tar.gz (or .tgz) create compressed tar archives (same as gzip file.tar.

tar xzvf file.tar.gz extract compressed tar archives (same as gunzip file.tar.gz

Keyboard Short Cuts

Resources:

Useful keyboard shortcuts (ubuntu.com)

13 Keyboard Shortcuts Every Ubuntu User Should Know - It's FOSS (itsfoss.com)

Copy

`Ctrl+Shfit+C`

Paste

`Ctrl+Shift+V`

Terminal Access

`Ctrl+Alt+T`

Getting Around the Desktop

Alt+F1 or the **Super** key	Switch between the Activities overview and desktop. In the overview, start typing to instantly search your applications, contacts, and documents.
Alt+F2	Pop up command window (for quickly running commands). Use the arrow keys to quickly access previously run commands.
Super+Tab	Quickly switch between windows. Hold down **Shift** for reverse order.
Super+`	Switch between windows from the same application, or from the selected application after **Super+Tab**. This shortcut uses ` on US keyboards, where the ` key is above **Tab**. On all other keyboards, the shortcut is **Super** plus the key above **Tab**.
Alt+Esc	Switch between windows in the current workspace. Hold down **Shift** for reverse order.
Ctrl+Alt+Tab	Give keyboard focus to the top bar. In the Activities overview, switch keyboard focus between the top bar, dash, windows overview, applications list, and search field. Use the arrow keys to navigate.
Super+A	Show the list of applications.
Super+Page Up **Super+Page Down**	Switch between workspaces.
Shift+Super+Page Up **Shift+Super+Page Down**	Move the current window to a different workspace.
Shift+Super+←	Move the current window one monitor to the left.
Shift+Super+→	Move the current window one monitor to the right.
Ctrl+Alt+Delete	Show the Power Off dialog.
Super+L	Lock the screen.
Super+V	Show the notification list. Press **Super+V** again or **Esc** to close.

Common editing shortcuts

Ctrl+A	Select all text or items in a list.
Ctrl+X	Cut (remove) selected text or items and place it on the clipboard.
Ctrl+C	Copy selected text or items to the clipboard.
Ctrl+V	Paste the contents of the clipboard.
Ctrl+Z	Undo the last action.

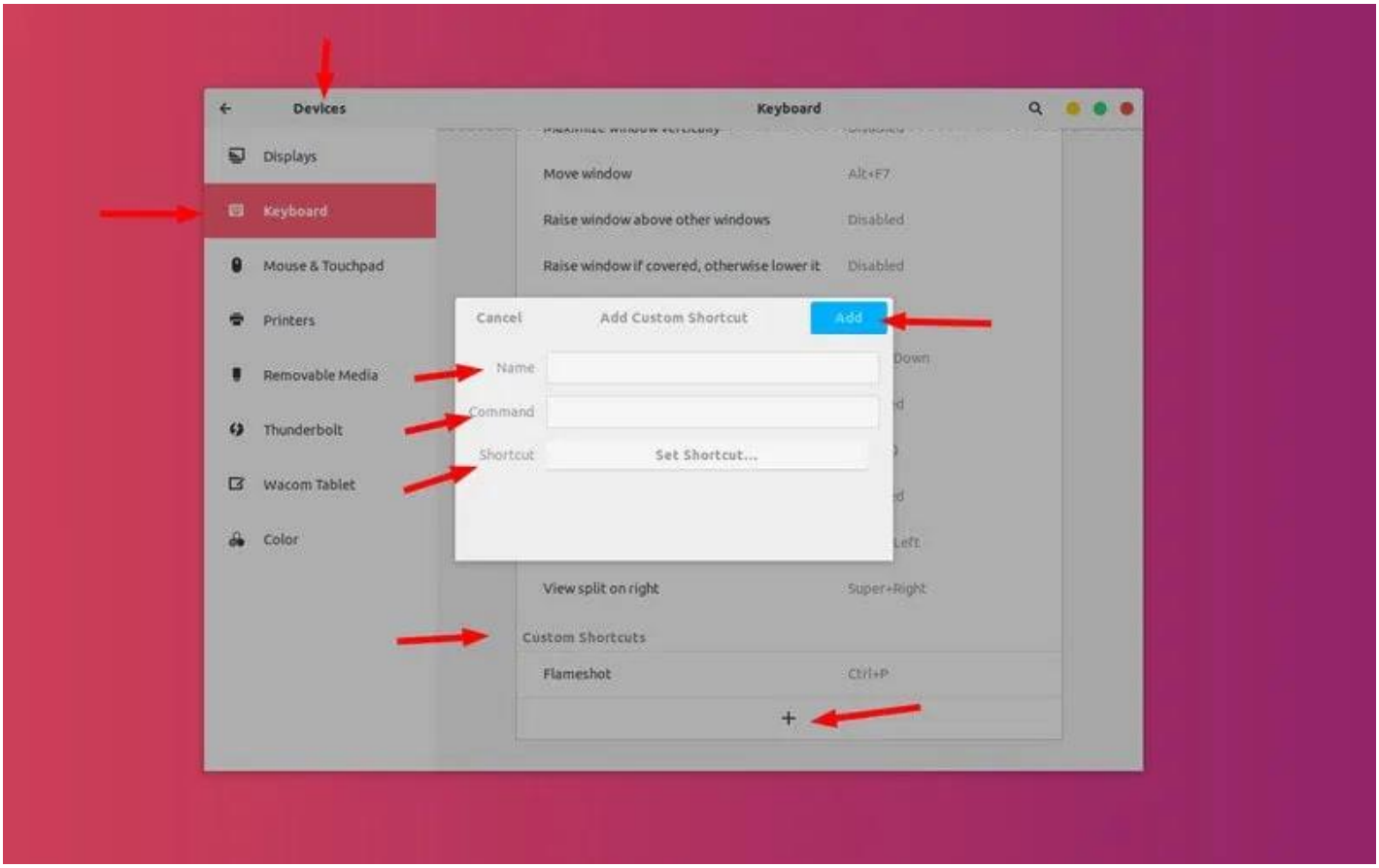
Capturing from the screen

Print Screen	Take a screenshot.
Alt+Print Screen	Take a screenshot of a window.
Shift+Print Screen	Take a screenshot of an area of the screen. The pointer changes to a crosshair. Click and drag to select an area.
Ctrl+Alt+Shift+R	Start and stop screencast recording.

Use Custom Keyboard Shortcuts in Ubuntu

You are not limited to the default keyboard shortcuts. You can create your own custom keyboard shortcuts as you like.

Go to Settings->Devices->Keyboard. You'll see all the keyboard shortcuts here for your system. Scroll down to the bottom and you'll see the Custom Shortcuts option.



Networking

Find IP Address of Current Machine

[How to Find IP Address in Linux Command Line (linuxhandbook.com)]

ip a or **ip address** Yields output that looks like this:

1: lo: mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000 link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00 inet 127.0.0.1/8 scope host lo valid_lft forever preferred_lft forever inet6 ::1/128 scope host valid_lft forever preferred_lft forever 2: wlp58s0: mtu 1500 qdisc mq state UP group default qlen 1000 link/ether 9c:b6:d0:d0:fc:b5 brd ff:ff:ff:ff:ff:ff inet **192.168.1.20/24** brd 192.168.1.255 scope global dynamic noprefixroute wlp58s0 valid_lft 5962sec preferred_lft 5962sec inet6 fe80::bf14:21e3:4223:e5e4/64 scope link noprefixroute valid_lft forever preferred_lft forever

The IP Address is **192.168.1.20**. The sub-net mask is **24**.

Ping

```
ping [option] hostname or IP address
```

Press Ctrl-C to stop the pings.

[Linux Ping Command With Examples (phoenixnap.com)]

Limit Number of Ping Packets

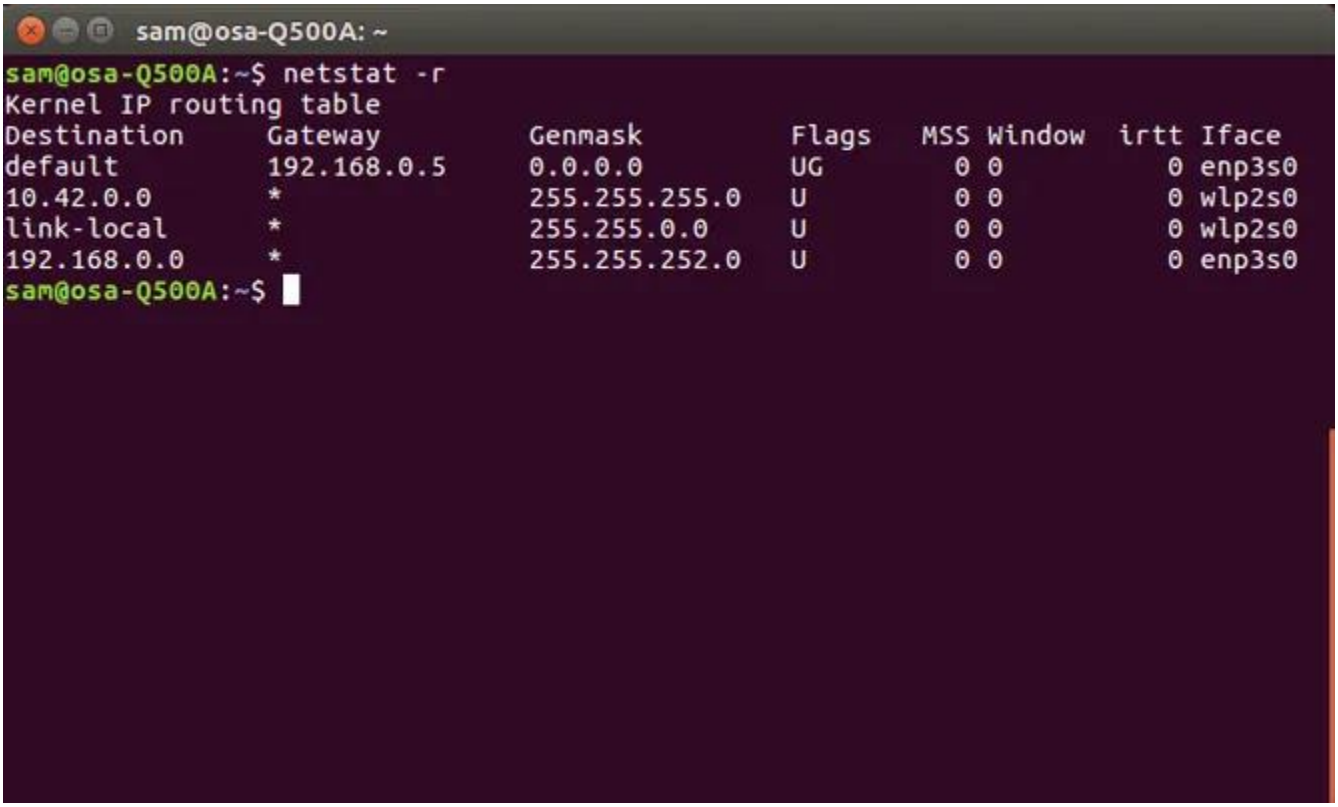
To make the `ping` command automatically stop after it sends a certain number of packets, use `-c` and a number. This sets the desired amount of ping requests, as shown in this example:

```
ping -c 2 google.com
```

Netstat

Netstat command displays different information including open sockets and routing tables. Run netstat command alone to see a list of open sockets. Netstat has a ton of options.

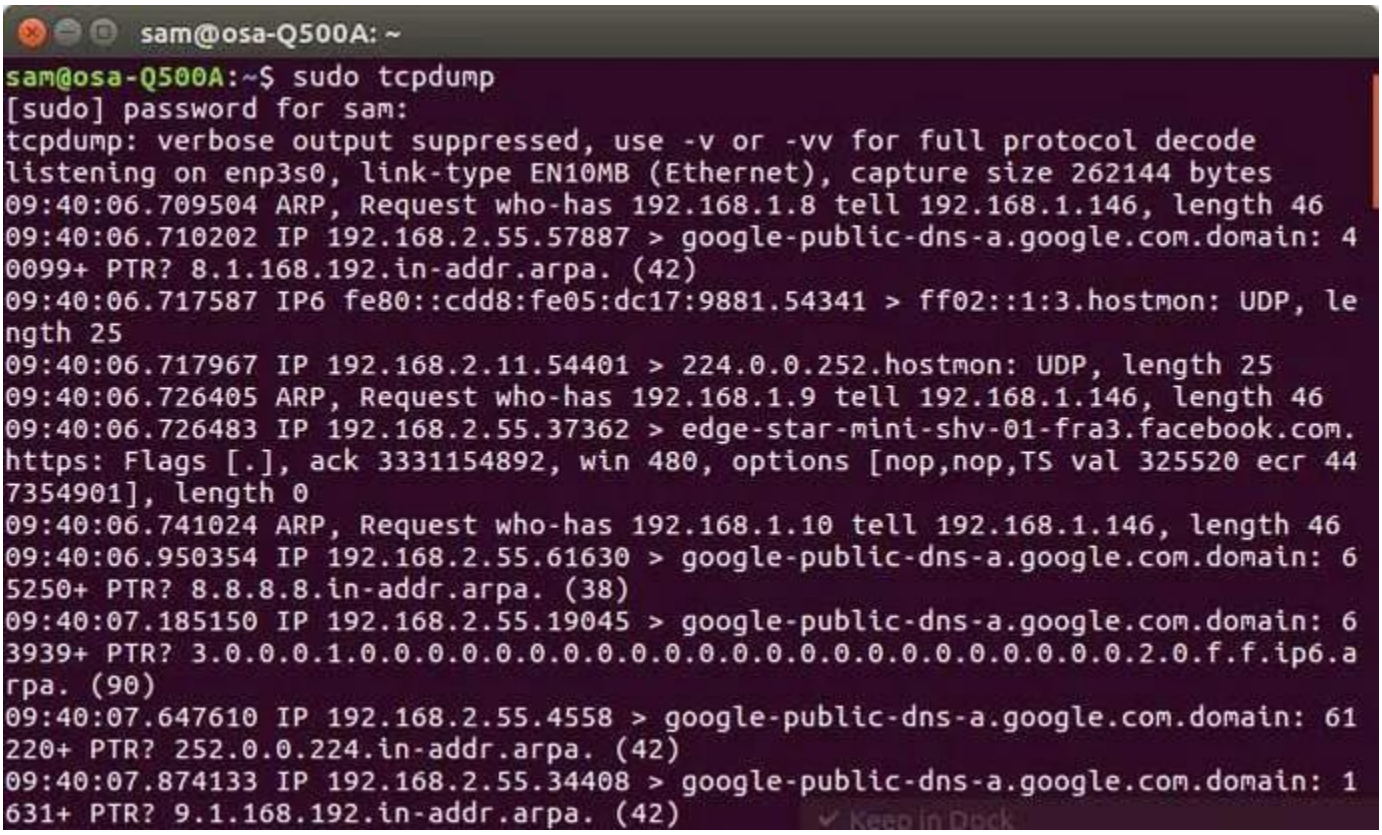
Add the option -r to display information on the routing table.



Add the option **-p** to display information of programs connected to the open sockets.

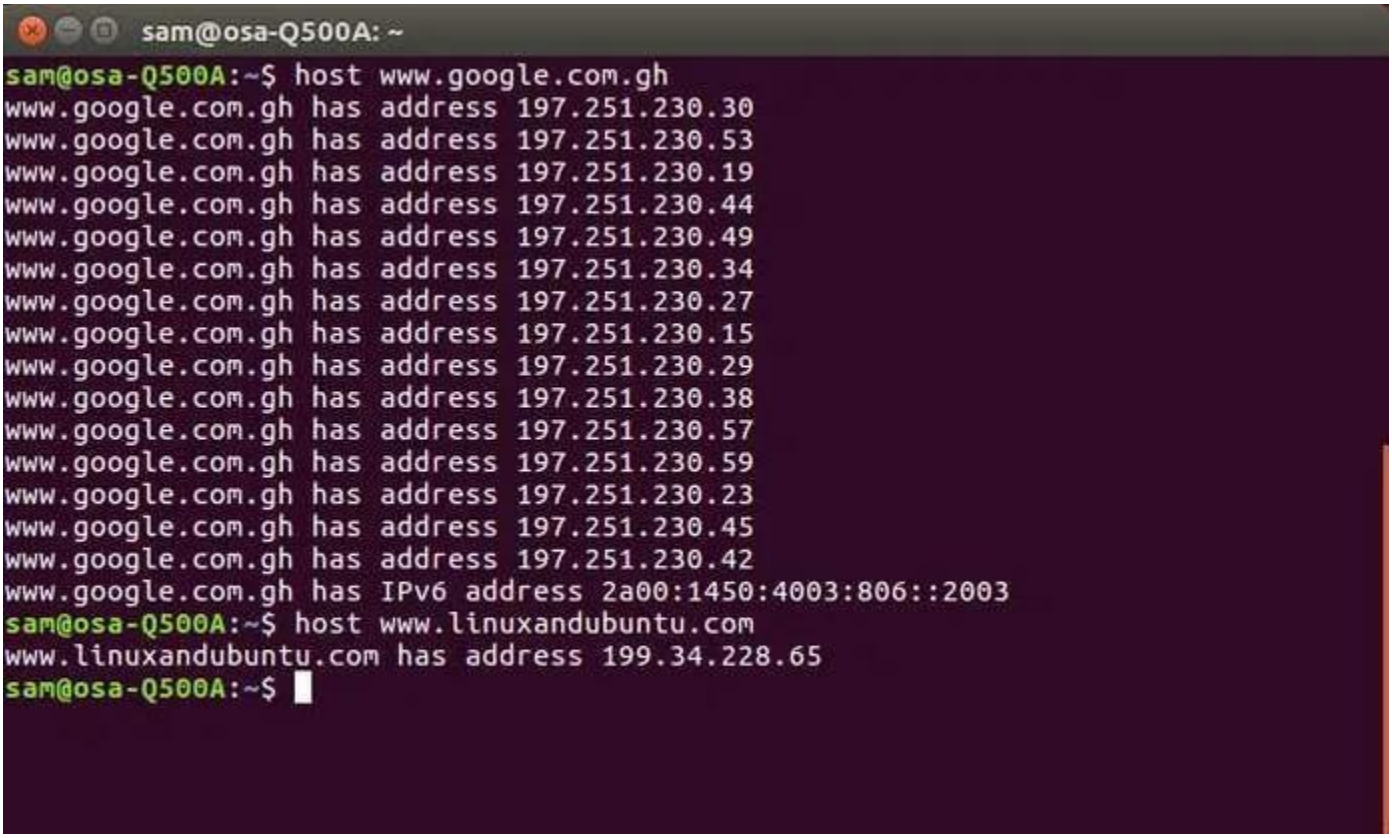
Tcpdump

Tcpdump captures packets off a network interface and interprets them for you. It can be used to save entire packets for later inspection.



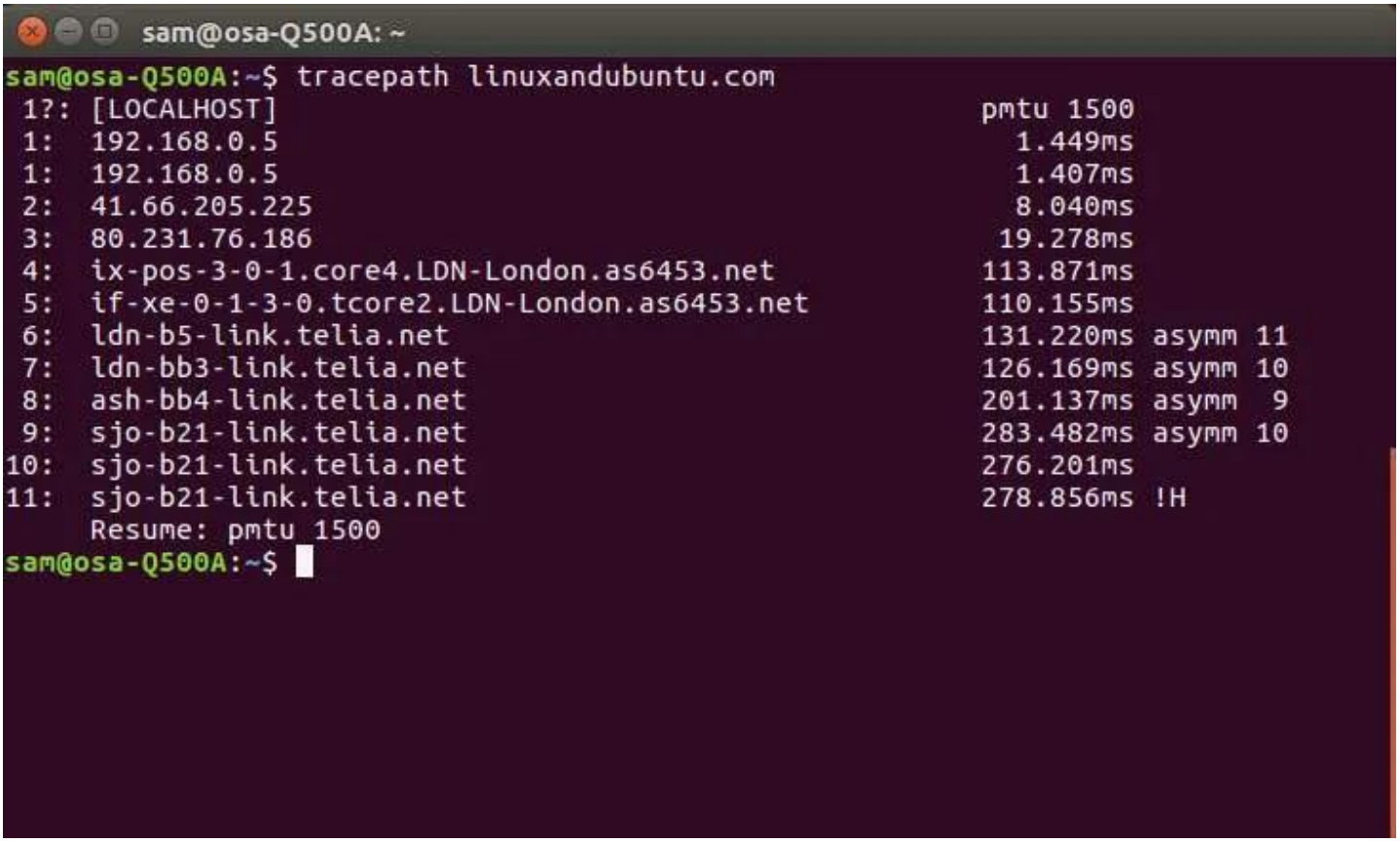
Host

Command to find name to IP or IP to name in IPv4 or IPv6 and also query DNS records. Give it a domain name and you'll see the associated IP address. Give it an IP address and you'll see the associated domain name.



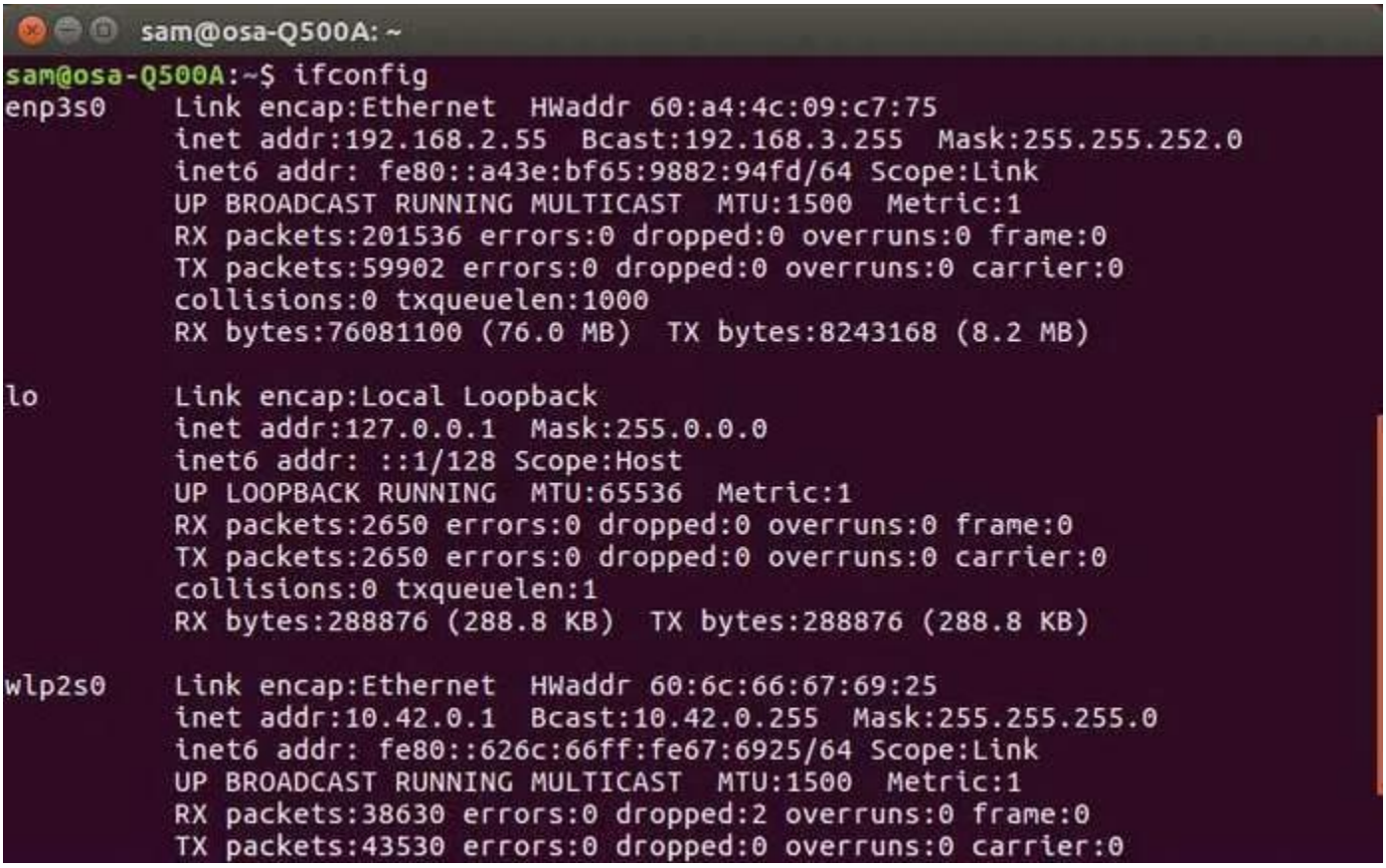
Tracepath

Tracepath traces the path of the network to the destination you have provided. It attempts to list the series of hosts through which your packets travel on their way to a given destination. It can be very handy when trying to determine the points of slowness in your connection path.



Ifconfig

This command is used to display IP Address, Hardware and MAC address. It is also used configure network interfaces. You can use it to activate or deactivate interfaces, assign an IP Address to the interface.



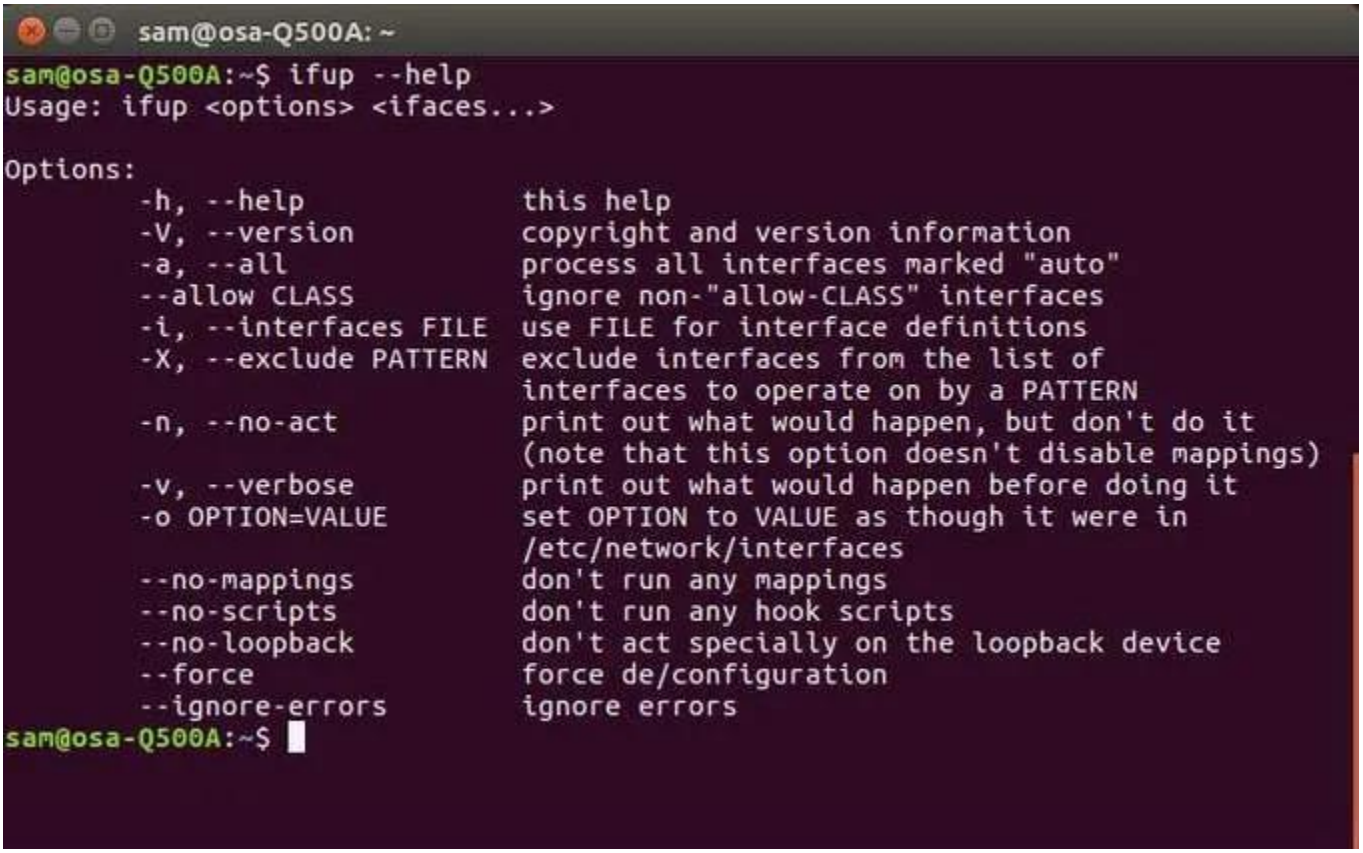
Ifdown

Use ***ifdown*** device-name/interface name to bring an interface down by following a script (which will contain your default networking settings). Simply type ***ifup*** and you will get help on using the script.

For example, typing: ifdown eth0 Will bring eth0 down if it is currently up.

ifup

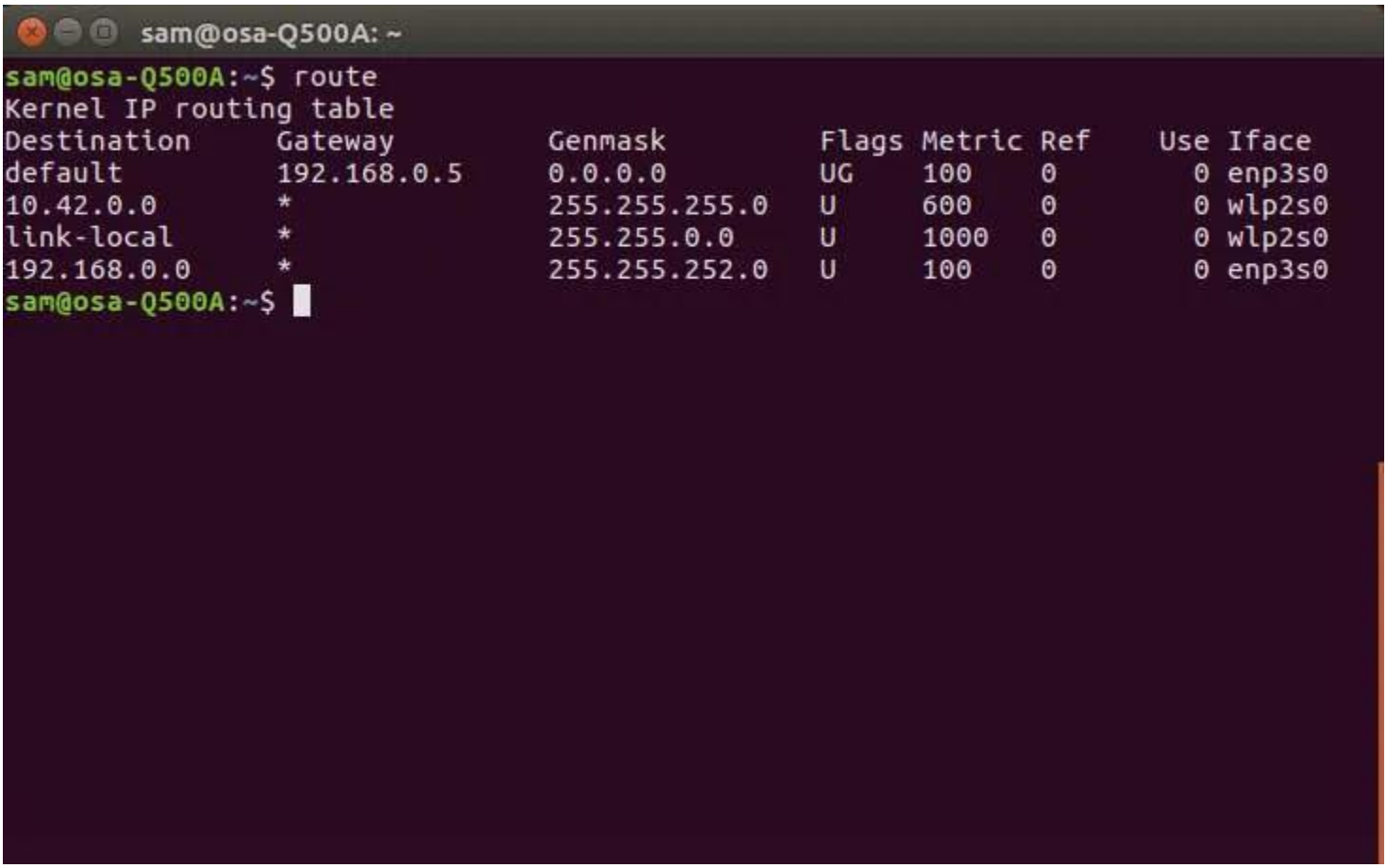
Use ifdown device-name to bring an interface up by following a script (which will contain your default networking settings). Simply type ifup and you will get help on using the script.



For example, typing: ifup eth0 Will bring eth0 up if it is currently down.

Route

The ***route*** command is the tool used to display or modify the routing table.



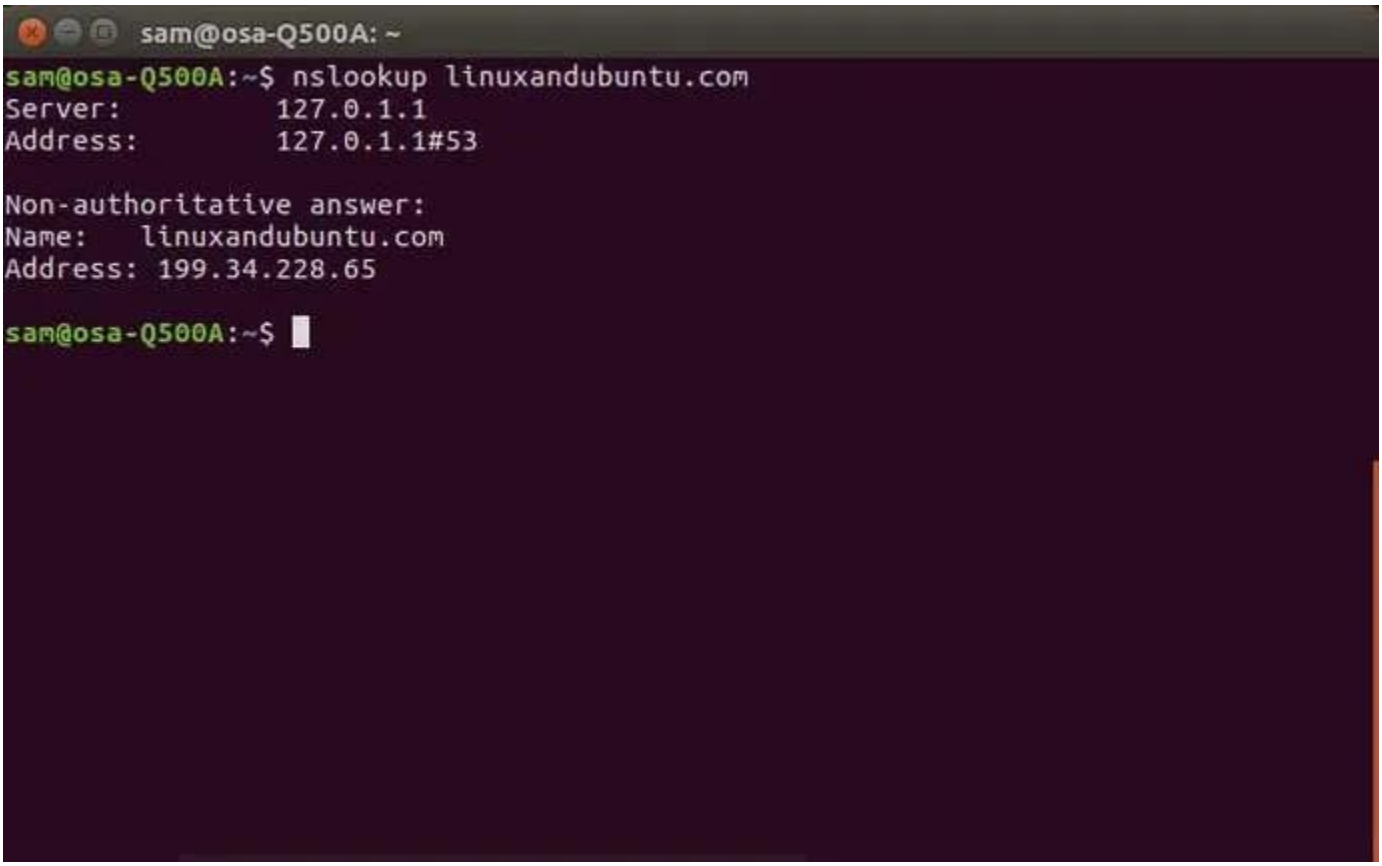
You may add or delete routes or add a default gateway with the following commands.
route add -net 10.10.10.0/24 gw 192.168.0.1

route del -net 10.10.10.0/24 gw 192.168.0.1

route add default gw 192.168.0.1

Nslookup

This command is used to find DNS related query.

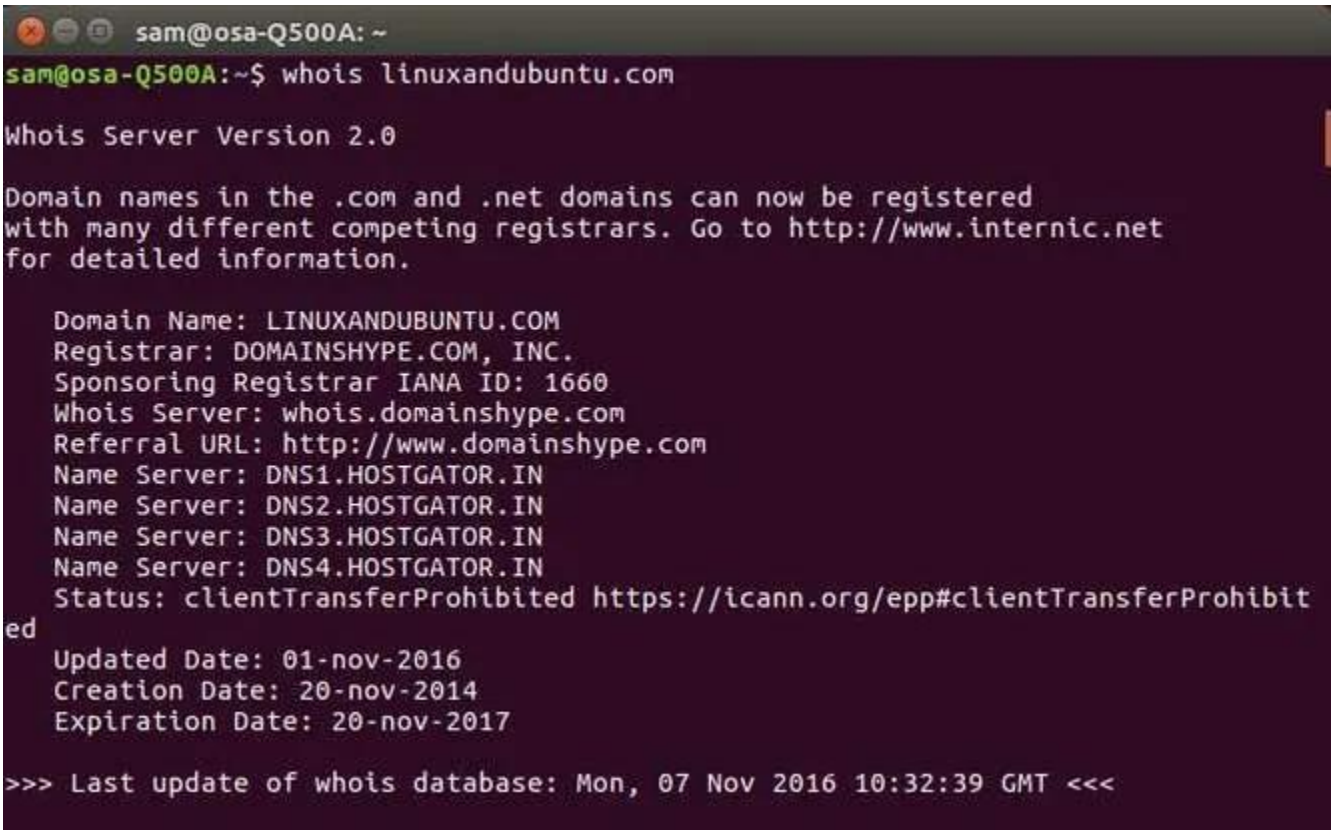


Dhclient

Use this command to release (-r option) your IP address and get a new one from your DHCP server.

Whois

A whois query for Linux and Ubuntu will go something like this –



Get Version

Example-1

We can check the Linux Operating System (OS) info by running the below command

```
~$ cat /etc/os-release
```

Example-2

```
$ lsb_release -a
```

Root Password

Resources

https://phoenixnap.com/kb/change-root-password-ubuntu

How to Change Root Password in Ubuntu Linux | Linuxize

Who Am I

Run this command to find your identity as recognized by the system.

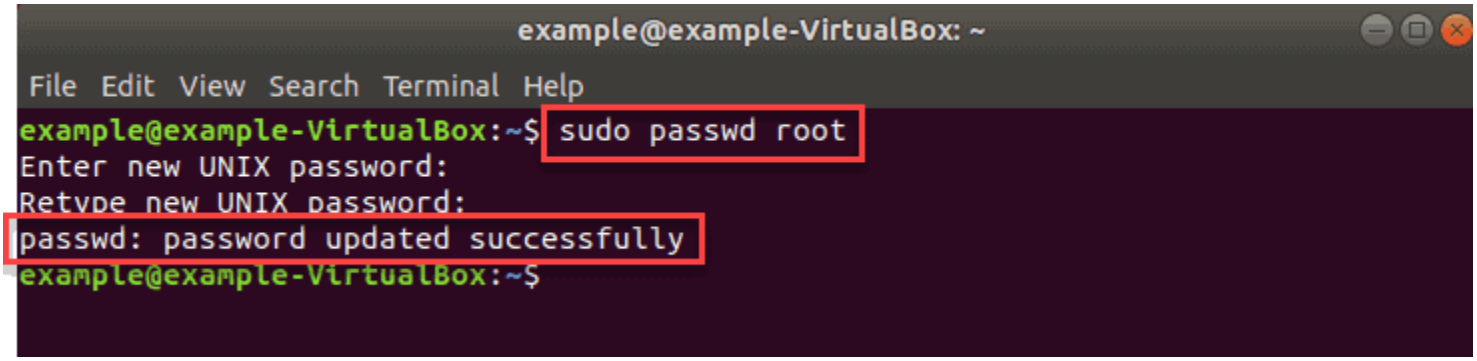
```
whoami
```

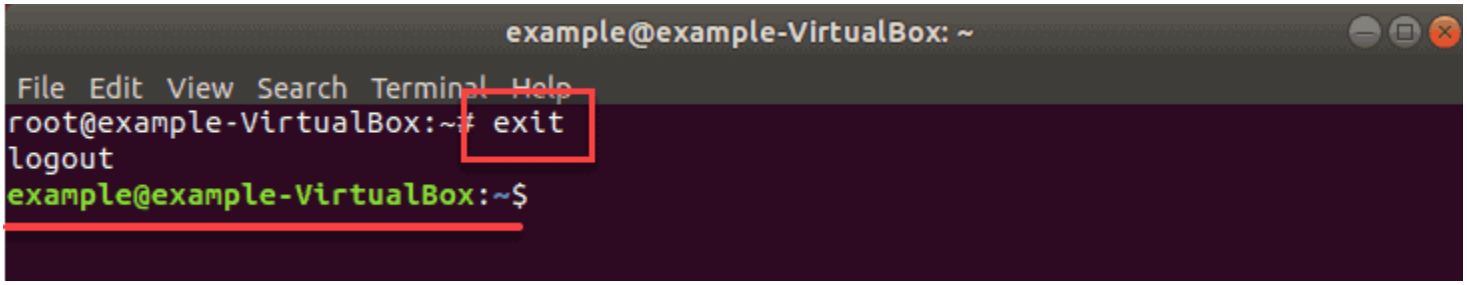
Example-1: Changing Ubuntu Password in the Command Line

1. First, open the terminal using the keyboard shortcut CTRL+ALT+T.

2. Query for a password change by running the command:

```
sudo passwd root
```





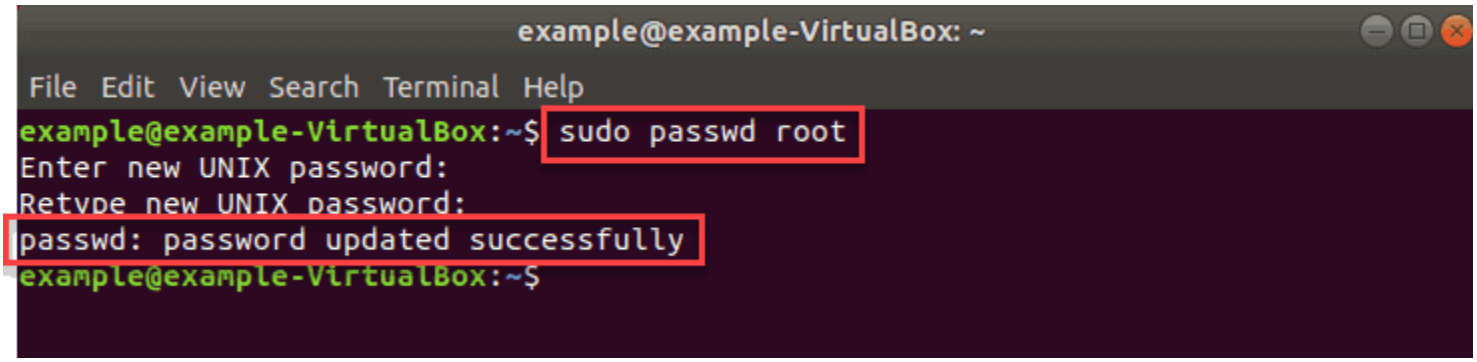
Example 2: Change sudo Password with the passwd Command

An alternative is to switch to the root user and then run the passwd command to change the root password.

1. First, open the terminal (CTRL+ALT+T).
2. Switch to the root user with the command:

```
sudo -i
```

Type in your current password and hit Enter. The output you receive should show that you can now run commands as root.



3. Next, change the password by running the command:

```
passwd
```

Type and retype a new password to verify the change.

4. After changing the password, log out of the root user with the command:

```
exit
```

5. Exit out of the terminal with the same command:

```
exit
```

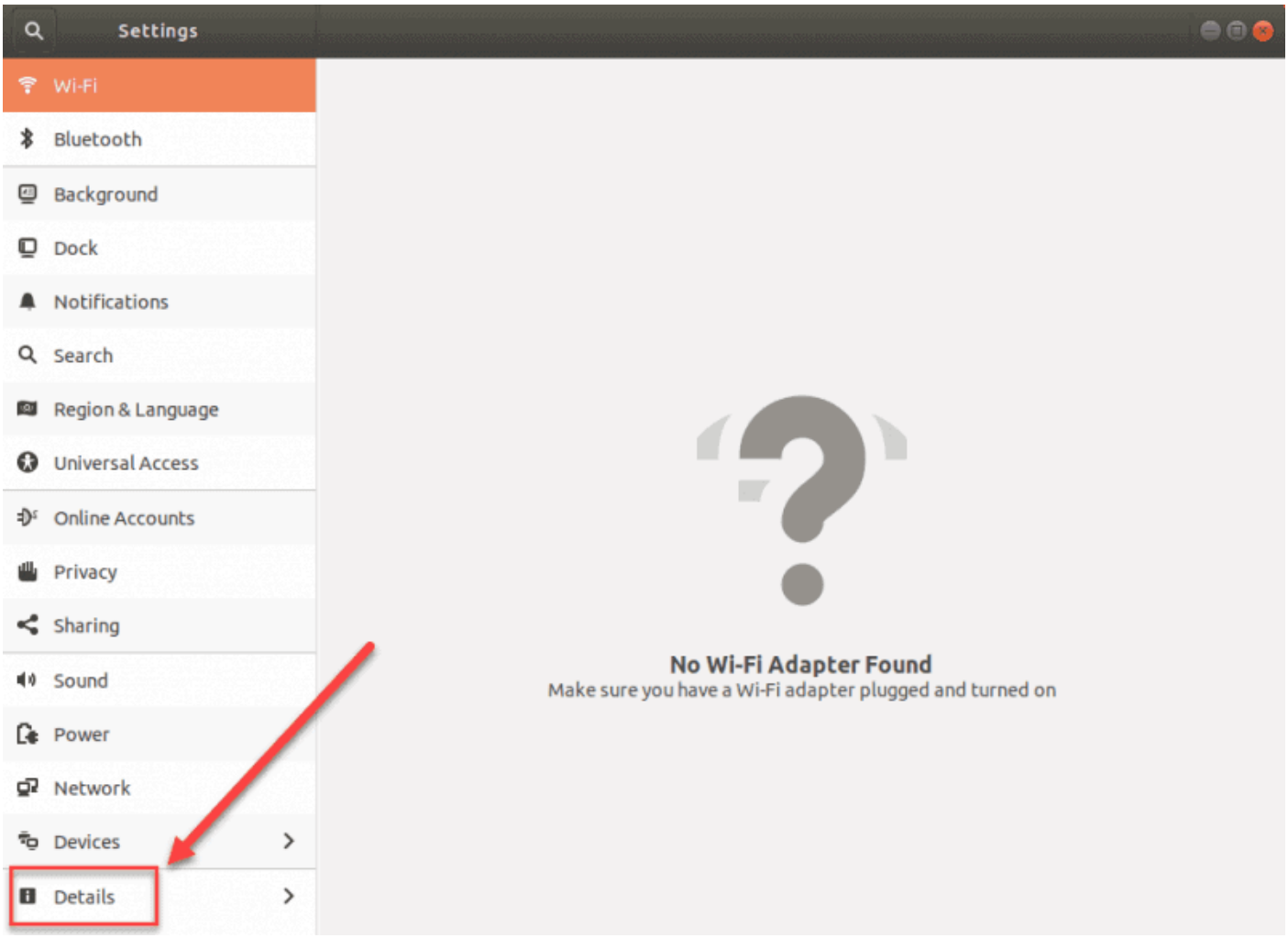
Option 3: Changing Ubuntu Password Using GUI

To change the default root password in Ubuntu without using the terminal or any commands, use the graphical interface.

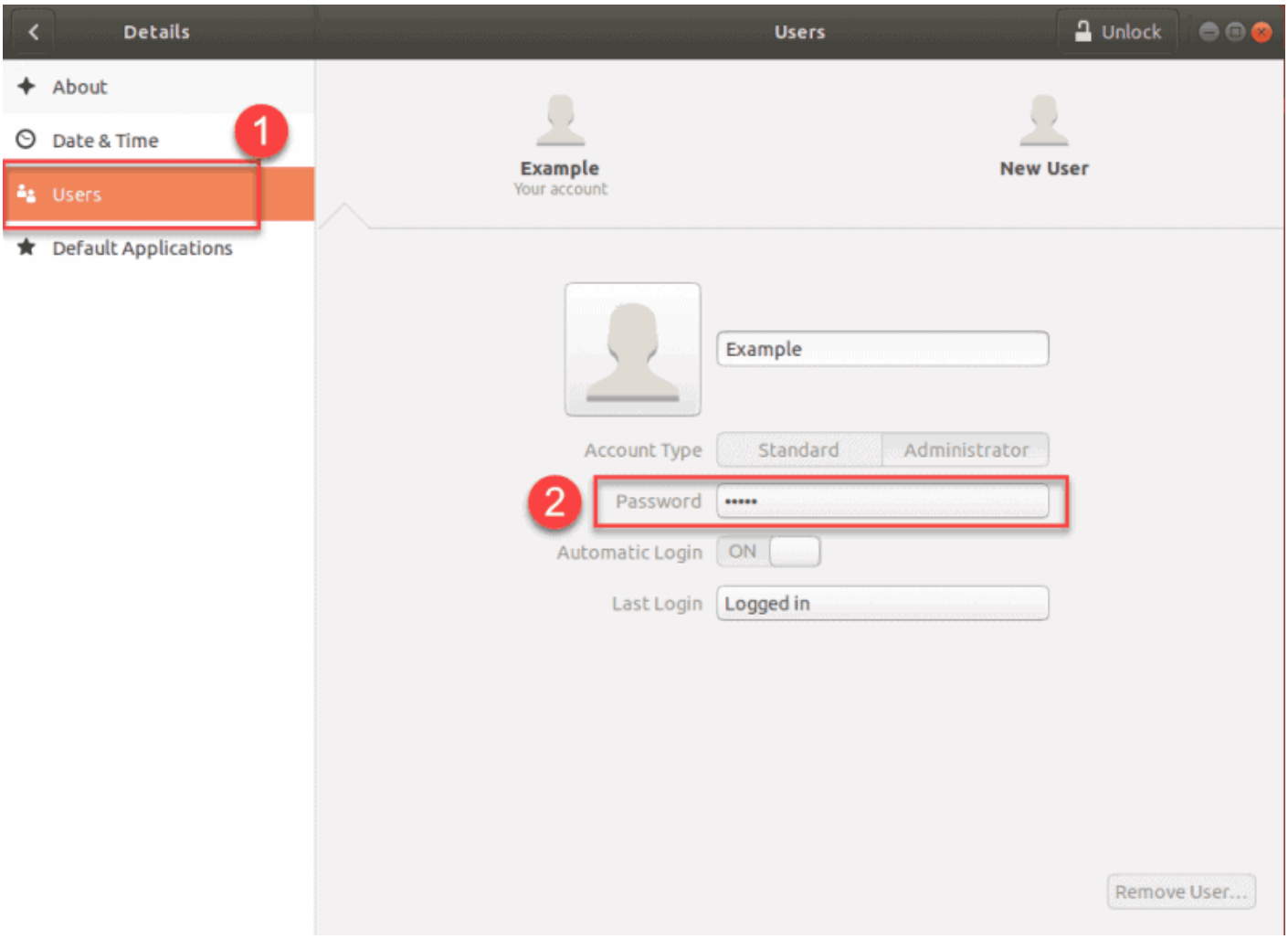
1. Open the Activities overview by pressing the Windows or Super key.

2. Type settings in the search bar and click on the Settings icon.

3. In Settings, click on the Details card (which is most likely the last one).

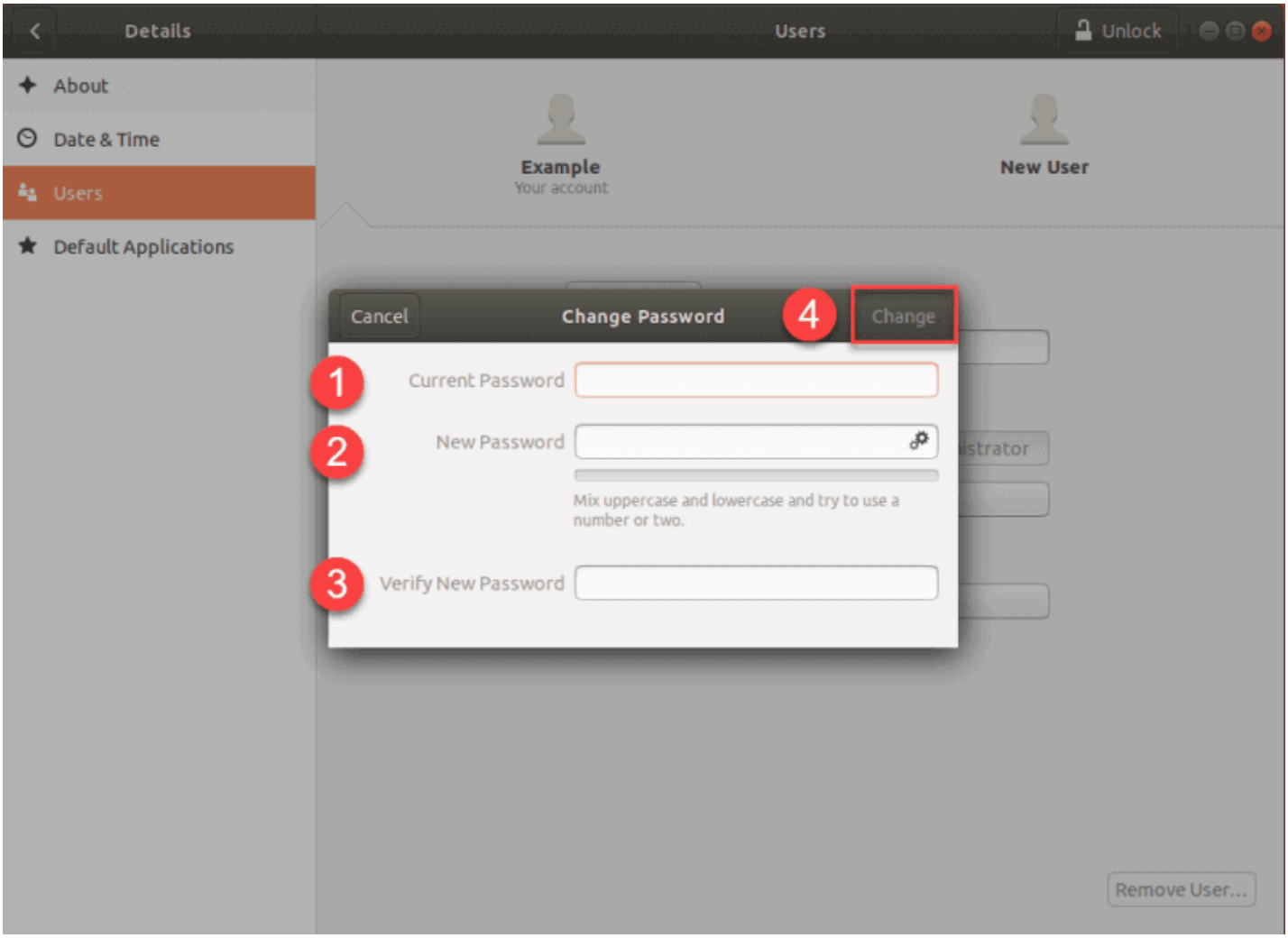


4. Next, click on Users. This lists all the details about the root user, including the password. Click on the password bar.



5. This will open a new Change Password pop-up. Type in your current root password, your new root password and verify the new password by retyping it.

6. Once you have filled in all the fields, click Change to confirm the changes.



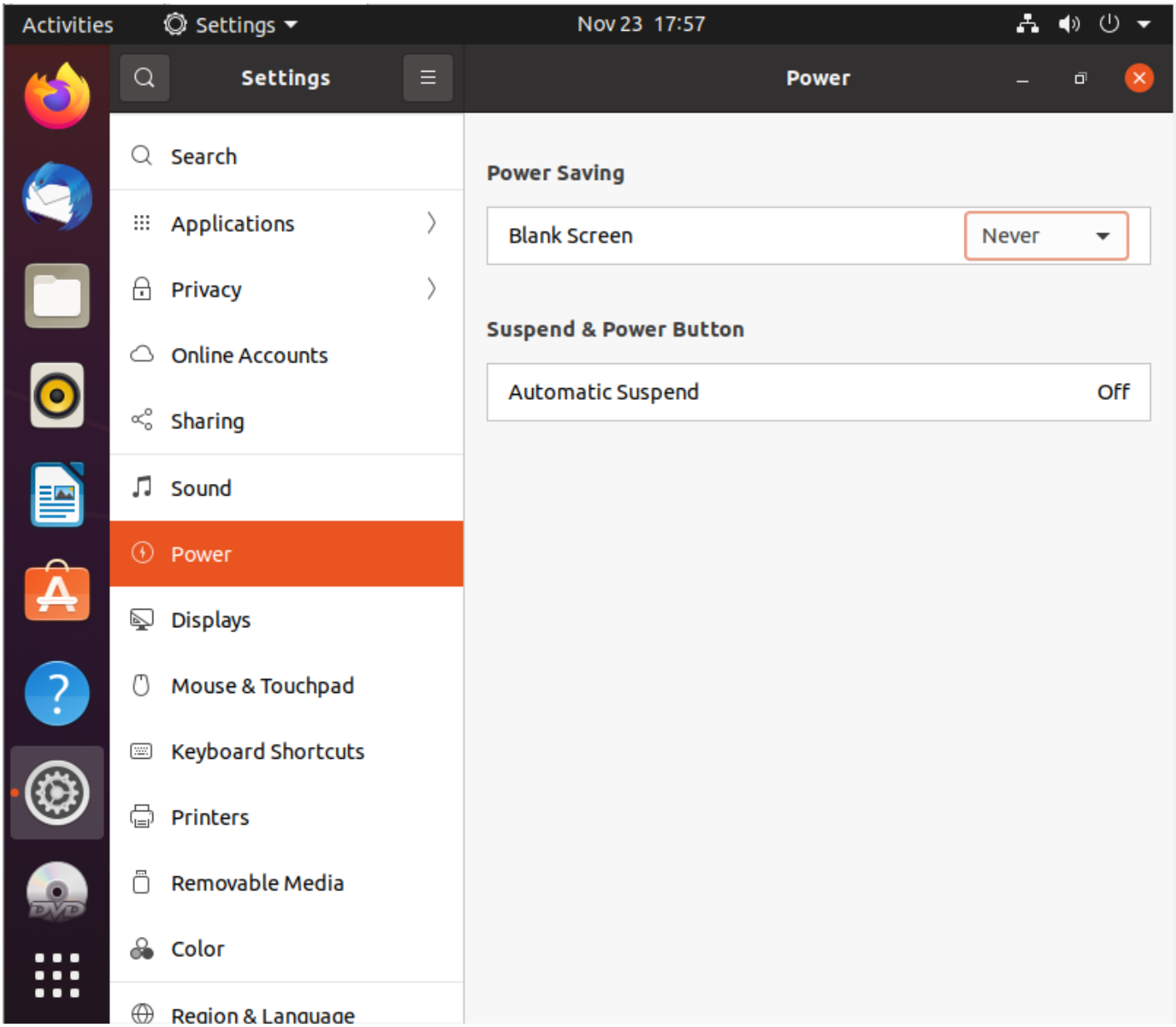
Screen Time Out

Resources

https://askubuntu.com/questions/897066/how-do-i-set-the-screen-timeout

Control Time Out Through GUI

Select the System Settings from the icon located on the far right in your top panel. Once there select the **Power** settings. It will look as I've shown below. Change the "Power Saving" to **Never**, and change the "Suspend & Power Button" to "**Automatic Suspend – OFF**".



Control Screen Lock Through Command Line Interface (CLI)

If you want to turn off the screen lock, run:

```
gsettings set org.gnome.desktop.screensaver lock-enabled false
```

Shutdown

Command Syntax

Before going into specific ways to shut down your Linux system, you should understand the basic syntax of the shutdown command:

```
shutdown [options] [time] [message]
```

[options] define whether you want to halt, power-off, or reboot the machine.

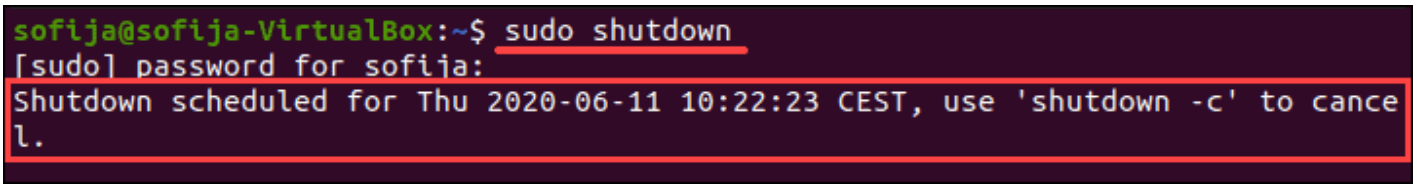
[time] specifies when you want the shutdown to perform.

[message] adds a message that announces the shutdown.

To use the shutdown command on Linux systems, a root user or a user with sudo privileges is required.

If you use the command without additional arguments, running sudo shutdown in a terminal window executes the shutdown in 60 seconds.

In the image below, see the output received after running the shutdown command.

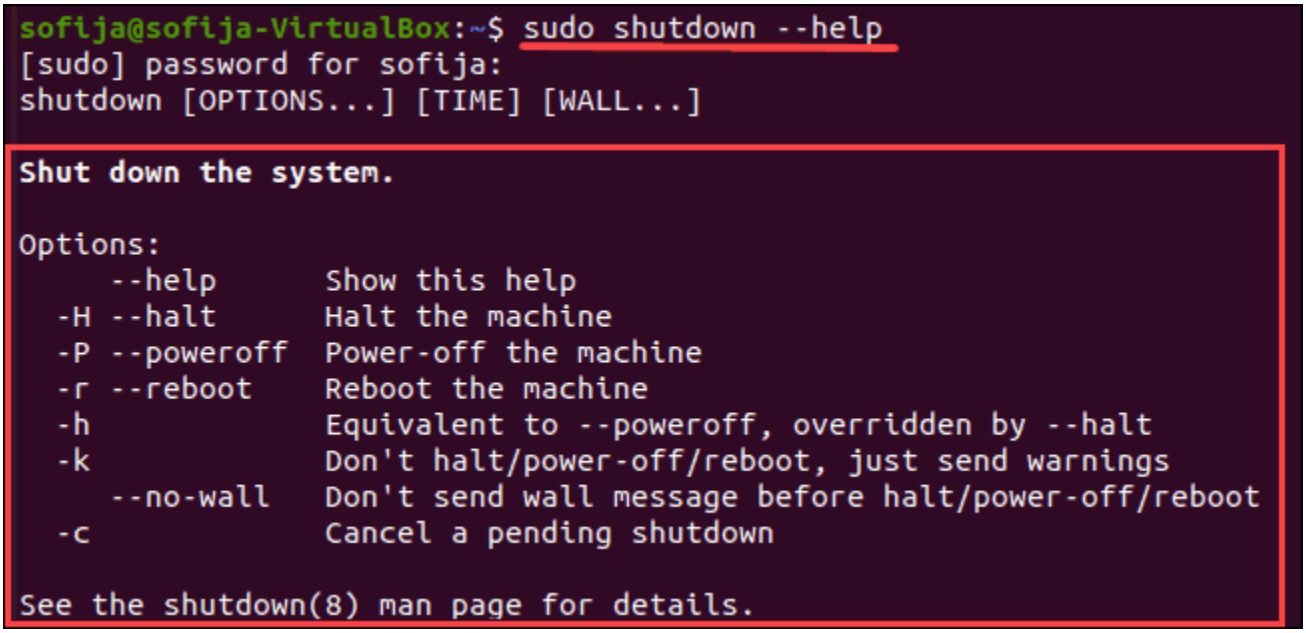


Shutdown With All Parameters

To view all parameters when shutting down the Linux system, use the following command:

```
sudo shutdown --help
```

The output displays a list of shutdown parameters, as well as a description for each.



How to Shut Down the System at a Specific Time

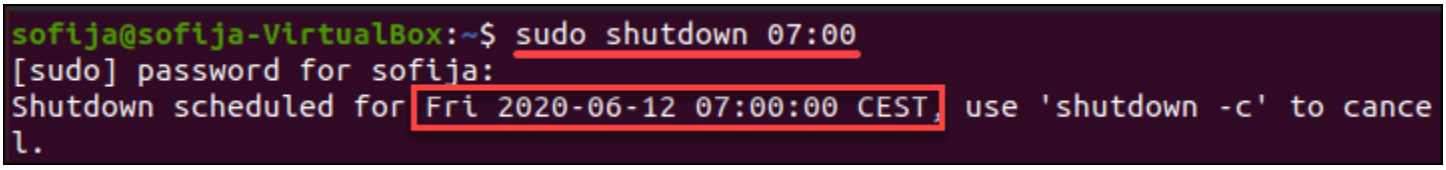
To schedule a shutdown, add the [time] argument and specify when you want it to take place. There are two ways to shut down the system at a specific time – using the absolute or relative time format.

The absolute time follows the format hh:mm and allows you to schedule a shutdown at a specified time. The command follows the syntax:

```
sudo shutdown hh:mm
```

For example, to require a shutdown at 7 AM in the morning, the command is:

```
sudo shutdown 07:00
```

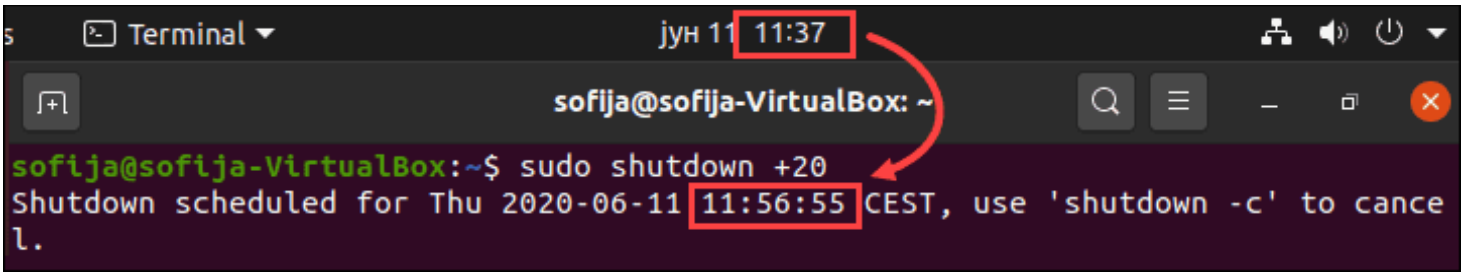


Alternatively, use the relative format (+m) and schedule a shutdown in a defined number of minutes from the time you run the command. In that case, the command syntax is:

```
sudo shutdown +m
```

To shut down the system in 20 minutes, run:

```
sudo shutdown +20
```



How to Shut Down the System Immediately

As previously mentioned, running the shutdown command without any arguments prompts the system to shut down a minute after running the command. However, if you require an immediate shutdown, use:

```
sudo shutdown now
```

Another option would be to schedule a shutdown using the relative time format with the value 0, as in the command below:

```
sudo shutdown +0
```

Restart

Use the shutdown Command

Since powering off is one of the most basic functions of an operating system, this command should work for most distributions of Linux.

In a terminal window, type the following:

```
sudo shutdown –r
```

The sudo command tells Linux to run the command as an administrator, so you may need to type your password. The ***–r*** switch at the end indicates that you want the machine to restart.

Alternative Option: Restart Linux with reboot Command

In the terminal, type:

```
reboot
```

Many Linux versions do not require administrator privileges to reboot. If you get a message that you do not have sufficient privileges, type:

```
sudo reboot
```

Your system should close out of all open applications and restart.

ssh

Resources

Using an ssh-agent, or how to type your ssh password once, safely

Using an ssh-agent, or how to type your ssh password once, safely. (rabexc.org)

You start an `ssh-agent` by running something like:

```
$ eval `ssh-agent`
```

in your shell. You can then feed it keys, with `ssh-add` like:

```
$ ssh-add /home/test/.ssh/id_rsa
```

or, if your key is in the default location, you can just:

```
$ ssh-add
```

`ssh-add` will ask your passphrase, and store your private key into the `ssh-agent` you started earlier. `ssh`, and all its friends (including `git`, `rsync`, `scp`...) will just magically use your agent friend when you try to ssh somewhere.

Add Key To ssh-agent

Do I need a passphrase for my SSH key? - Linux Digest

There is a tool that comes with OpenSSH, called ssh-agent. Ssh-agent will hold your private key within your login session. To enable ssh agent you will need to start it from the session you intend to using. It will output a couple of environment variables that need to be exported to your session. Use ***eval*** to catch these variables and automatically apply them:

max@max-desktop:~$ eval $(ssh-agent)

Agent pid 218387

Now you can add your key and passphrase to ssh-agent:

max@max-desktop:~$ ssh-add

Enter passphrase for /home/max/.ssh/id_rsa:

Identity added: /home/max/.ssh/id_rsa (max@max-desktop)

How to use ssh-agent to cache your SSH credentials?

[Remember passphrases with ssh-agent — First published in fullweb.io issue #31 · GitHub]

Tired of always having to enter your SSH key passphrase when logging in to remote machines? Here comes `ssh-agent`. Enter the passphrase once and it will keep it in memory for you

Using ssh-agent in your shell session:

```
$ ssh-agent
SSH_AUTH_SOCK=/tmp/ssh-hZQhwQlxahPX/agent.1833; export SSH_AUTH_SOCK;
SSH_AGENT_PID=1834; export SSH_AGENT_PID;
echo Agent pid 496;
```

Copy/paste the 2 first lines from above:

```
$ SSH_AUTH_SOCK=/tmp/ssh-hZQhwQlxahPX/agent.1833; export SSH_AUTH_SOCK;
$ SSH_AGENT_PID=1834; export SSH_AGENT_PID;
```

Register your key and enter your password for the last time of this session:

```
$ ssh-add .ssh/id_rsa
Enter passphrase for .ssh/id_rsa:
Identity added: .ssh/id_rsa (.ssh/id_rsa)
```

And now SSH auth will not ask you for the passphrase anymore

BONUS: list your keys with:

```
$ ssh-add -l
```

floudet commented on Jan 18, 2016

> You can also directly open a new shell session spawned by ssh-agent :
>
> ```
> $ ssh-agent bash
> ```
>
> The SSH_AUTH_SOCK and SSH_AGENT_PID variables will already be set in the new shell session. It will spare you exporting them manually (step one and two above).

ghost commented on Aug 9, 2018

> Save yourself the copy and paste job with `eval`.
>
> ```
> eval $(ssh-agent)
> ```

Enter SSH-Passphrase Once

git - Enter SSH passphrase once - Ask Ubuntu

Permanently Add A Private Key With SSH Add

How to permanently add a private key with ssh-add on Ubuntu? - Stack Overflow

A solution would be to force the key files to be kept permanently, by adding them in your `~/.ssh/config` file:

```
IdentityFile ~/.ssh/gitHubKey
IdentityFile ~/.ssh/id_rsa_buhlServer
```

If you do not have a 'config' file in the ~/.ssh directory, then you should create one. It does not need root rights, so simply:

```
nano ~/.ssh/config
```

...and enter the lines above as per your requirements.

For this to work the file needs to have chmod 600. You can use the command `chmod 600 ~/.ssh/config`.

If you want all users on the computer to use the key put these lines into `/etc/ssh/ssh_config` and the key in a folder accessible to all.

Additionally if you want to set the key specific to one host, you can do the following in your ~/.ssh/config :

```
Host github.com
  User git
  IdentityFile ~/.ssh/githubKey
```

This has the advantage when you have many identities that a server doesn't reject you because you tried the wrong identities first. Only the specific identity will be tried.

Not Stupid SSH Tricks: Automatic ssh-add

Not Stupid SSH Tricks: Automatic ssh-add - Stuff… And Things… (stuff-things.net)

If you password protect your SSH keys (and you should) and you don't store those passwords in your macOS keychain or Linux equivalent (slightly paranoid, but not a bad idea), you have to add keys to ssh-agent with ssh-add before using them. Otherwise, you'll be prompted for the key's password on each use. This always bites me when doing deploys, I get prompted multiple times as the deploy process makes multiple SSH connections.

Fortunately, there's a simple fix.

All you need to do is add:

AddKeysToAgent yes

to your .ssh/config. Just it as says on the label, keys are automatically added to the SSH Agent when they are used. You'll be prompted for the password on its first use, no need to add it separately. This works not only with ssh itself, but with things like Git, that use SSH under the hood. Boom!

Ubuntu Manual - AddKeysToAgent

Ubuntu Manpage: ssh_config — OpenSSH SSH client configuration files

AddKeysToAgent

Specifies whether keys should be automatically added to a running ssh-agent(1). If this option is set to "yes" and a key is loaded from a file, the key and its passphrase are added to the agent with the default lifetime, as if by ssh-add(1).

If this option is set to "ask", ssh will require confirmation using the SSH_ASKPASS program before adding a key (see ssh-add(1) for details). If this option is set to "confirm", each use of the key must be confirmed, as if the -c option was specified to ssh-add(1). If this option is set to "no", no keys are added to the agent. The argument must be "yes", "confirm", "ask", or "no". The default is "no".

The Ultimate Guide to SSH - Setting Up SSH Keys

The Ultimate Guide to SSH - Setting Up SSH Keys (freecodecamp.org)

Links Types

There are two types of links in Linux/UNIX systems:

Hard links

You can think a hard link as an additional name for an existing file. Hard links are associating two or more file names with the same inode . You can create one or more hard links for a single file. Hard links cannot be created for directories and files on a different filesystem or partition.

Soft links

A soft link is something like a shortcut in Windows. It is an indirect pointer to a file or directory. Unlike a hard link, a symbolic link can point to a file or a directory on a different filesystem or partition.

How to Use the ln Command

ln is a command-line utility for creating links between files. By default, the ln command creates hard links. To create a symbolic link, use the -s (--symbolic) option.

The ln command syntax for creating symbolic links is as follows:

ln -s [OPTIONS] FILE LINK

Example:

sudo ln -s /opt/sublime_text/sublime_text /usr/bin/subl

If both the FILE and LINK are given, ln will create a link from the file specified as the first argument (FILE) to the file specified as the second argument (LINK).

If only one file is given as an argument or the second argument is a dot (.), ln will create a link to that file in the current working directory . The name of the symlink will be the same as the name of the file it points to.

By default, on success, ln doesn’t produce any output and returns zero.

Creating Symlink To a File

To create a symbolic link to a given file, open your terminal and type:

ln -s source_file symbolic_link

Replace source_file with the name of the existing file for which you want to create the symbolic link and symbolic_link with the name of the symbolic link.

The symbolic_link parameter is optional. If you do not specify the symbolic link, the ln command will create a new link in your current directory:

In the following example, we are creating a symbolic link named my_link.txt to a file named my_file.txt:

```
ln -s my_file.txt my_link.txt
```

To verify that the symlink was successfully created, use the ls command:

```
ls -l my_link.txt
```

The output will look something like this:

```
lrwxrwxrwx 1 linuxize users  4 Nov  2 23:03  my_link.txt -> my_file.txt
```

The l character is a file type flag that represents a symbolic link. The -> symbol shows the file the symlink points to.

Creating Symlinks To a Directory

The command for creating a symbolic link to a directory is the same as when creating a symbolic link to a file. Specify the directory name as the first parameter and the symlink as the second parameter.

For example, if you want to create a symbolic link from the /mnt/my_drive/movies directory to the ~/my_movies directory you would run:

```
ln -s /mnt/my_drive/movies ~/my_movies
```

Overwriting Symlinks

If you try to create a symbolic link that already exists , the ln command will print an error message.

```
ln -s my_file.txt my_link.txt
```

```
ln: failed to create symbolic link 'my_link.txt': File exists
```

To overwrite the destination path of the symlink, use the -f (--force) option.

```
ln -sf my_file.txt my_link.txt
```

Removing Symlinks

To delete/remove symbolic links use either the unlink or rm command.

The syntax of the unlink is very simple:

unlink symlink_to_remove

Removing a symbolic link using the rm command is the same as when removing a file:

rm symlink_to_remove

No matter which command you use, when removing a symbolic link **do not** append the / trailing slash at the end of its name.

If you delete or move the source file to a different location, the symbolic file will be left dangling (broken) and should be removed.

Conclusion

To create a symbolic link is Linux use the ln command with the **-s** option.

For more information about the ln command, visit the **ln man** page or type **man ln** in your terminal.

Time Zone Configuration

[4 Ways to Change the Timezone in Linux - wikiHow]

https://linuxize.com/post/how-to-set-or-change-timezone-in-linux/

date Displays date, time and time zone.
Example: Sun 23 May 2021 12:20:41 AM PDT

date -u Displays UTC Time

ls -l /etc/localtime Identifies current timezone by name

man date Displays more date formats and information.

timedatectl Displays time, time zone and indicates whether the NTP time synchronization service is active.

Set Your Time Zone

The following command will list all available timezones.

timedatectl list-timezones

Choose your time zone from list generated by last command.

Then run this command will set the new time zone.

sudo timedatectl set-timezone <your_time_zone>

Example

sudo timedatectl set-timezone America/New_York

Verify the timezone change.

timedatectl

After you set the time zone. Log out and log back on to verify the timezone change.

Install NTP

If NTP is not installed, install it. Read this first.

How to sync time on Ubuntu 20.04 Focal Fossa Linux - LinuxConfig.org

Run this command to determine if NTP is active:

timedatectl

If NTP is ‘Active’ it is recommended that you stop here and skip this step. Do NOT Install NTP.

sudo apt install ntpdate

After installation, link to a server clock for continued updates.

ntpdate ***server link*** && hwclock –w

Make sure to enter the link to the website in place of ***server link***.

Who Am I

Run this command to find your identity as recognized by the system.

```
whoami
```