Step:1 Open Terminal in ubuntu

Step:2 Use command ip a

ip a

1: lo: <LOOPBACK,UP,LOWER_UP> 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: ens33: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000

   link/ether 00:0c:29:02:e4:b1 brd ff:ff:ff:ff:ff:ff

   altname enp2s1

   inet 192.168.157.129/24 brd 192.168.157.255 scope global dynamic noprefixroute ens33

     valid_lft 1458sec preferred_lft 1458sec

   inet6 fe80::8855:181a:48fb:107a/64 scope link noprefixroute

     valid_lft forever preferred_lft forever

Here DNS is ens33

Ip is: 192.168.157.129/24

Step:3 Use command ip r

 ip r

default via 192.168.157.2 dev ens33 proto dhcp metric 100

169.254.0.0/16 dev ens33 scope link metric 1000

192.168.157.0/24 dev ens33 proto kernel scope link src 192.168.157.129 metric 100

Gateway is 192.168.157.2

Step:4 sudo nano /etc/netplan/01-network-manager-all.yaml

Paste in the open directory:

```
network:
 version: 2
 renderer: NetworkManager
 ethernets:
  ens33:
   dhcp4: no
   addresses: [192.168.157.129/24]
   gateway4: 192.168.157.2
   nameservers:
     addresses: [8.8.8.8,8.8.8.4]
```

Step:5

lovepreet@lovepreet-virtual-machine:~$ sudo netplan apply

** (generate:4937): WARNING **: 10:36:54.321: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (generate:4937): WARNING **: 10:36:54.321: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

** (process:4935): WARNING **: 10:36:55.179: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (process:4935): WARNING **: 10:36:55.179: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

** (process:4935): WARNING **: 10:36:55.791: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (process:4935): WARNING **: 10:36:55.791: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

** (process:4935): WARNING **: 10:36:55.792: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (process:4935): WARNING **: 10:36:55.792: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

Step:6 Use command

  sudo systemctl restart NetworkManager

Step:7 lovepreet@lovepreet-virtual-machine:~$ hostname --fqdn

  lovepreet-virtual-machine

Step:8 sudo nano /etc/hosts

Add 192.168.157.129 apache.cloud.u1 cloud

Step:9 Set hostname as Cloud

  sudo hostnamectl set-hostname cloud

Step:10 hostname –fqdn

  apache.cloud.u1

Step:11 Install Bridges for the networking

  lovepreet@lovepreet-virtual-machine:~$ sudo apt install bridges-utils

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

E: Unable to locate package bridges-utils

Step:12 sudo apt update

lovepreet@lovepreet-virtual-machine:~$ sudo apt update

Ign:1 http://security.ubuntu.com/ubuntu jammy-security InRelease

Ign:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease

Ign:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease

Ign:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease

Ign:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease

Ign:1 http://security.ubuntu.com/ubuntu jammy-security InRelease

Ign:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease

Ign:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease

Ign:1 http://security.ubuntu.com/ubuntu jammy-security InRelease

Ign:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease

Ign:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease

Ign:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease

Err:1 http://security.ubuntu.com/ubuntu jammy-security InRelease

  Temporary failure resolving 'security.ubuntu.com'

Err:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease

  Temporary failure resolving 'in.archive.ubuntu.com'

Err:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease

  Temporary failure resolving 'in.archive.ubuntu.com'

Err:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease

  Temporary failure resolving 'in.archive.ubuntu.com'

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

4 packages can be upgraded. Run 'apt list --upgradable' to see them.

W: Failed to fetch http://in.archive.ubuntu.com/ubuntu/dists/jammy/InRelease Temporary failure resolving 'in.archive.ubuntu.com'

W: Failed to fetch http://in.archive.ubuntu.com/ubuntu/dists/jammy-updates/InRelease Temporary failure resolving 'in.archive.ubuntu.com'

W: Failed to fetch http://in.archive.ubuntu.com/ubuntu/dists/jammy-backports/InRelease Temporary failure resolving 'in.archive.ubuntu.com'

W: Failed to fetch http://security.ubuntu.com/ubuntu/dists/jammy-security/InRelease Temporary failure resolving 'security.ubuntu.com'

W: Some index files failed to download. They have been ignored, or old ones used instead.

Step:13 sudo brctl addbr cloudbr0

Step:14Again go and load bridges

Step 15: sudo brctl addif cloudbr0 ens33

Step 16: sudo nano /etc/netplan/01-network-manager-all.yaml

Step 17: sudo netplan apply

        lovepreet@cloud:~$ sudo netplan apply

** (generate:2515): WARNING **: 11:08:24.633: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (generate:2515): WARNING **: 11:08:24.637: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

** (process:2513): WARNING **: 11:08:25.555: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (process:2513): WARNING **: 11:08:25.555: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

** (process:2513): WARNING **: 11:08:25.984: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (process:2513): WARNING **: 11:08:25.985: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

** (process:2513): WARNING **: 11:08:25.985: Permissions for /etc/netplan/01-network-manager-all.yaml are too open. Netplan configuration should NOT be accessible by others.

** (process:2513): WARNING **: 11:08:25.985: `gateway4` has been deprecated, use default routes instead.

See the 'Default routes' section of the documentation for more details.

Step:18: sudo systemctl restart NetworkManager

Step 19: sudo apt install ntp

lovepreet@cloud:~$ sudo apt install ntp

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following additional packages will be installed:

  libevent-core-2.1-7 libevent-pthreads-2.1-7 libopts25 sntp

Suggested packages:

  ntp-doc

The following packages will be REMOVED:

  systemd-timesyncd

The following NEW packages will be installed:

  libevent-core-2.1-7 libevent-pthreads-2.1-7 libopts25 ntp sntp

0 upgraded, 5 newly installed, 1 to remove and 4 not upgraded.

Need to get 949 kB of archives.

After this operation, 2,556 kB of additional disk space will be used.

Do you want to continue? [Y/n] Y

Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libevent-core-2.1-7 amd64 2.1.12-stable-1build3 [93.9 kB]

Get:2 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 libevent-pthreads-2.1-7 amd64 2.1.12-stable-1build3 [7,642 B]

Get:3 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 libopts25 amd64 1:5.18.16-4 [59.5 kB]

Get:4 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 ntp amd64 1:4.2.8p15+dfsg-1ubuntu2 [721 kB]

Get:5 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 sntp amd64 1:4.2.8p15+dfsg-1ubuntu2 [67.1 kB]

Fetched 949 kB in 5s (208 kB/s)

(Reading database ... 200565 files and directories currently insta

lled.)

Removing systemd-timesyncd (249.11-0ubuntu3.12) ...

Selecting previously unselected package libevent-core-2.1-7:amd64.

(Reading database ... 200551 files and directories currently insta

lled.)

Preparing to unpack .../libevent-core-2.1-7_2.1.12-stable-1build3_

amd64.deb ...

Unpacking libevent-core-2.1-7:amd64 (2.1.12-stable-1build3) ...

Selecting previously unselected package libevent-pthreads-2.1-7:am

d64.

Preparing to unpack .../libevent-pthreads-2.1-7_2.1.12-stable-1bui

ld3_amd64.deb ...

Unpacking libevent-pthreads-2.1-7:amd64 (2.1.12-stable-1build3) ..

.

Selecting previously unselected package libopts25:amd64.

Preparing to unpack .../libopts25_1%3a5.18.16-4_amd64.deb ...

Unpacking libopts25:amd64 (1:5.18.16-4) ...

Selecting previously unselected package ntp.

Preparing to unpack .../ntp_1%3a4.2.8p15+dfsg-1ubuntu2_amd64.deb .

..

Unpacking ntp (1:4.2.8p15+dfsg-1ubuntu2) ...

Selecting previously unselected package sntp.

Preparing to unpack .../sntp_1%3a4.2.8p15+dfsg-1ubuntu2_amd64.deb

...

Unpacking sntp (1:4.2.8p15+dfsg-1ubuntu2) ...

Setting up libopts25:amd64 (1:5.18.16-4) ...

Setting up ntp (1:4.2.8p15+dfsg-1ubuntu2) ...

Created symlink /etc/systemd/system/network-pre.target.wants/ntp-s

ystemd-netif.path → /lib/systemd/system/ntp-systemd-netif.path.

Created symlink /etc/systemd/system/multi-user.target.wants/ntp.se

rvice → /lib/systemd/system/ntp.service.

ntp-systemd-netif.service is a disabled or a static unit, not star

ting it.

Setting up libevent-core-2.1-7:amd64 (2.1.12-stable-1build3) ...

Setting up libevent-pthreads-2.1-7:amd64 (2.1.12-stable-1build3) .

..

Setting up sntp (1:4.2.8p15+dfsg-1ubuntu2) ...

Processing triggers for man-db (2.10.2-1) ...

Processing triggers for dbus (1.12.20-2ubuntu4.1) ...

Processing triggers for libc-bin (2.35-0ubuntu3.6) ...

Step 20: sudo systemctl enable ntp

lovepreet@cloud:~$ sudo systemctl enable ntp

[sudo] password for lovepreet:

Sorry, try again.

[sudo] password for lovepreet:

Synchronizing state of ntp.service with SysV service script with /lib/systemd/systemd-sysv-install.

Executing: /lib/systemd/systemd-sysv-install enable ntp

Step 21: sudo systemctl start ntp

Step 22: sudo apt install chrony

lovepreet@cloud:~$ sudo apt install chrony

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following packages were automatically installed and are no longer required:

  libevent-core-2.1-7 libevent-pthreads-2.1-7 libopts25 sntp

Use 'sudo apt autoremove' to remove them.

The following packages will be REMOVED:

  ntp

The following NEW packages will be installed:

  chrony

0 upgraded, 1 newly installed, 1 to remove and 4 not upgraded.

Need to get 290 kB of archives.

After this operation, 1,485 kB disk space will be freed.

Do you want to continue? [Y/n] y

Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 chrony amd64 4.2-2ubuntu2 [290 kB]

Fetched 290 kB in 4s (70.1 kB/s)

(Reading database ... 200636 files and directories currently insta

lled.)

Removing ntp (1:4.2.8p15+dfsg-1ubuntu2) ...

Selecting previously unselected package chrony.

(Reading database ... 200582 files and directories currently insta

lled.)

Preparing to unpack .../chrony_4.2-2ubuntu2_amd64.deb ...

Unpacking chrony (4.2-2ubuntu2) ...

Setting up chrony (4.2-2ubuntu2) ...

Creating config file /etc/chrony/chrony.conf with new version

Creating config file /etc/chrony/chrony.keys with new version

dpkg-statoverride: warning: --update given but /var/log/chrony doe

s not exist

Created symlink /etc/systemd/system/chronyd.service → /lib/systemd

/system/chrony.service.

Created symlink /etc/systemd/system/multi-user.target.wants/chrony

.service → /lib/systemd/system/chrony.service.

Processing triggers for man-db (2.10.2-1) ...

 Step 23: sudo apt install openjdk-11-jdk

lovepreet@cloud:~$ sudo apt install openjdk-11-jdk

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following packages were automatically installed and are no longer required:

  libevent-core-2.1-7 libevent-pthreads-2.1-7 libopts25 sntp

Use 'sudo apt autoremove' to remove them.

The following additional packages will be installed:

 ca-certificates-java fonts-dejavu-extra java-common

 libatk-wrapper-java libatk-wrapper-java-jni libice-dev

 libpthread-stubs0-dev libsm-dev libx11-dev libxau-dev

 libxcb1-dev libxdmcp-dev libxt-dev openjdk-11-jdk-headless

 openjdk-11-jre openjdk-11-jre-headless x11proto-dev

 xorg-sgml-doctools xtrans-dev

Suggested packages:

 default-jre libice-doc libsm-doc libx11-doc libxcb-doc

 libxt-doc openjdk-11-demo openjdk-11-source visualvm

    fonts-ipafont-gothic fonts-ipafont-mincho fonts-wqy-microhei

    | fonts-wqy-zenhei

The following NEW packages will be installed:

  ca-certificates-java fonts-dejavu-extra java-common

  libatk-wrapper-java libatk-wrapper-java-jni libice-dev

  libpthread-stubs0-dev libsm-dev libx11-dev libxau-dev

  libxcb1-dev libxdmcp-dev libxt-dev openjdk-11-jdk

  openjdk-11-jdk-headless openjdk-11-jre openjdk-11-jre-headless

  x11proto-dev xorg-sgml-doctools xtrans-dev

0 upgraded, 20 newly installed, 0 to remove and 4 not upgraded.

Need to get 122 MB of archives.

After this operation, 275 MB of additional disk space will be used.

Do you want to continue? [Y/n] y

Get:1 http://in.archive.ubuntu.com/ubuntu jammy/main amd64 java-common all 0.72build2 [6,782 B]

Get:2 http://in.archive.ubuntu.com/ubuntu jammy-updates/main amd64 openjdk-11-jre-headless amd64 11.0.22+7-0ubuntu2~22.04.1 [42.5 MB]

Step 24: lovepreet@cloud:~$ sudo nano /etc/apt/sources.list.d/cloudstack.list

Step 25: wget -O - https://download.cloudstack.org/release.asc |sudo tee /etc/apt/trusted.gpg.d/cloudstack.asc

Step 26: lovepreet@cloud:~$ update local apt cache: sudo apt update

Command 'update' not found, did you mean:

  command 'pupdate' from deb pbuilder-scripts (22)

  command 'lupdate' from deb qtchooser (66-2build1)

  command 'xupdate' from deb libxml-xupdate-libxml-perl (0.6.0-3.1)

  command 'zupdate' from deb zutils (1.11-1)

  command 'uupdate' from deb devscripts (2.22.1ubuntu1)

Step 27: sudo apt install cloudstack-management

lovepreet@cloud:~$ sudo apt install cloudstack-management

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

N: Ignoring file 'cloudstack.listy' in directory '/etc/apt/sources.list.d/' as it has an invalid filename extension

Else Installing............

 Step 28: sudo apt install mysql-server

Step 29: sudo nano /etc/mysql/my.cnf

        Add mysql codes from protected text.

 Step 30: sudo systemctl restart mysql

 Step 31: sudo mysql_secure_installation

Step 32: sudo mysql

Add codes...in my protected text add file

Step 33: sudo cloudstack-setup-databases cloud:password@localhost --deploy-as=root

Step 34: sudo cloudstack-setup-management

Step 35: sudo ufw allow mysql

Step 36: sudo mkdir -p /export/primary

Step 37: sudo mkdir -p /export/secondary

Step 38: sudo nano /etc/exports

 Insert the line: /export *(rw,async,no_root_squash,no_subtree_check)

Step 39: sudo apt install nfs-kernel-server

Step 40:sudo exportfs -a

 Step 41: service nfs-kernel-server restart

 Step 42: sudo mkdir -p /mnt/primary /mnt/secondary

Step 43: sudo echo "192.168.157.129:/export/primary /mnt/primary nfs rsize=8192,wsize=8192,timeo=14,intr,vers=3,noauto 0 2" >> /etc/fstab

 Step 44: sudo echo "192.168.157.129:/export/secondary /mnt/secondary nfs rsize=8192,wsize=8192,timeo=14,intr,vers=3,noauto 0 2" >> /etc/fstab

Step 45: sudo mount /mnt/primary

Step 46: sudo mount /mnt/secondary

Step 47: Browse and type the url: http://192.168.157.129:8080/

Step 48: Credentials are: Username: admin, Password: password