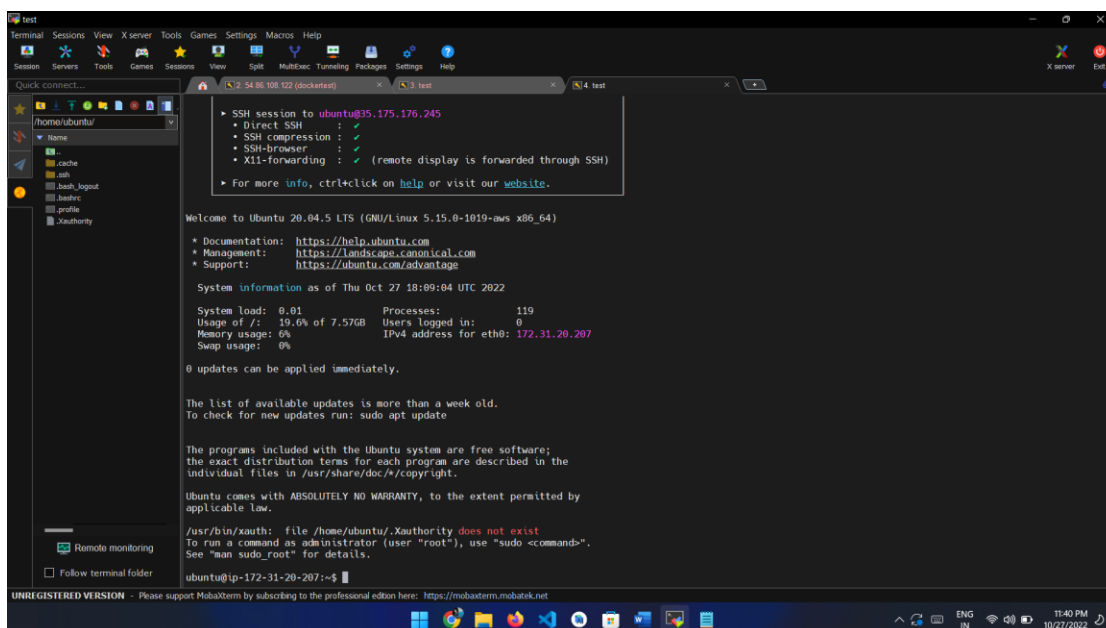


## Assignment 2 of Docker

Step1 – Launch the instance EC2 and create a key pair in this instance this key pair is saved in our Computers files.

Step2 – After this copy the public id of this instance.

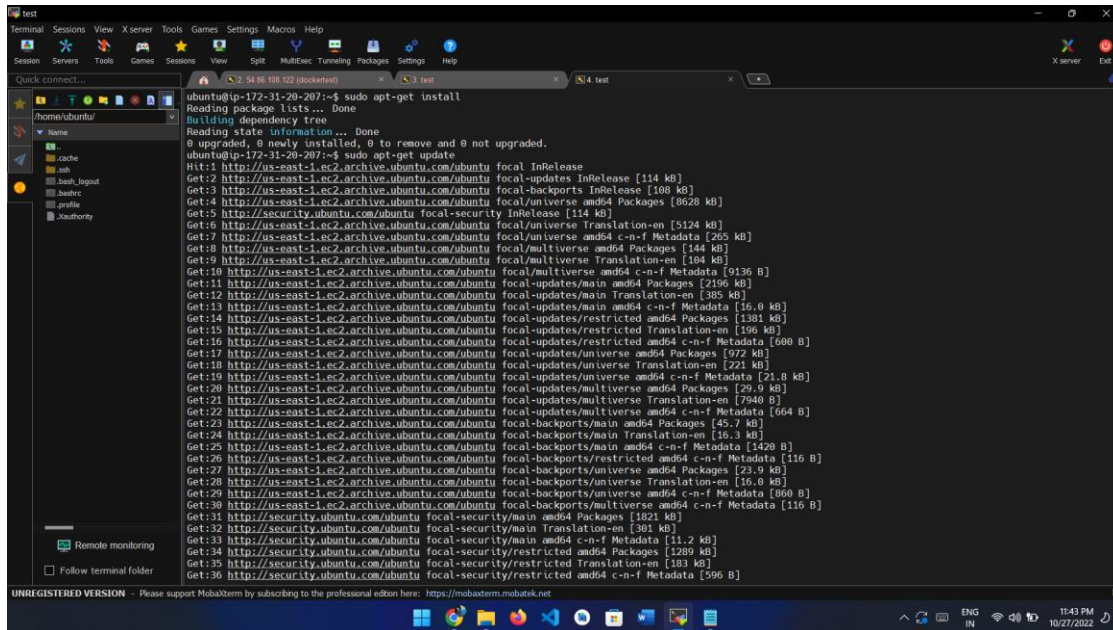
Step3 – Open mobaxterm click on session choose the option SSH in the session a page will open in this Copy the public id of instance and in the advanced settings there is a option of key in this take the key from computer files and click on the ok. The screen will look like



Step4 – Write the commands in this section.

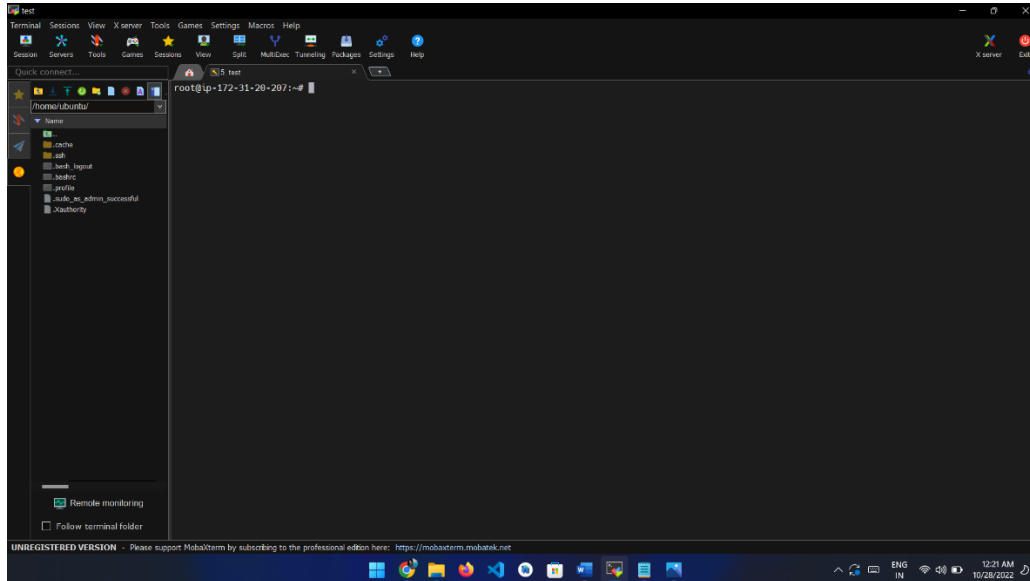
Com1 – sudo apt-get install

Com2 – sudo apt-get update

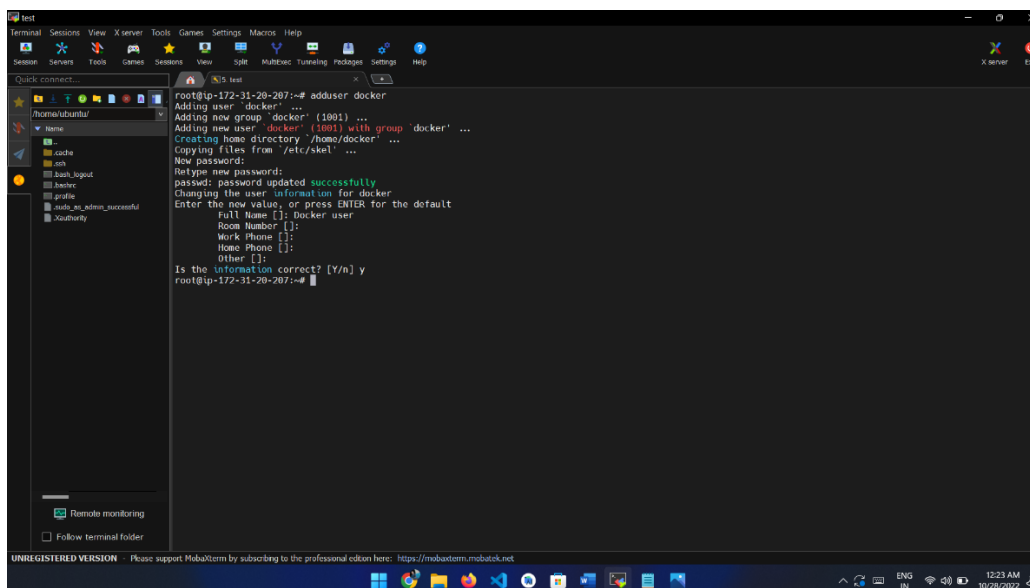


```
ubuntu@ip-172-31-20-207:~$ sudo apt-get install
Reading package lists... Done
Building dependency tree
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ubuntu@ip-172-31-20-207:~$ sudo apt-get update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:5 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2196 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main Translation-en [385 kB]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [16.0 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [1381 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [196 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [608 B]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [972 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [221 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [21.8 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [29.0 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/multiverse Translation-en [7940 B]
Get:22 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 c-n-f Metadata [664 B]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [45.7 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/main Translation-en [16.3 kB]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/main amd64 c-n-f Metadata [1428 B]
Get:26 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/restricted amd64 c-n-f Metadata [116 B]
Get:27 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/universe amd64 Packages [23.9 kB]
Get:28 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [16.0 kB]
Get:29 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [868 B]
Get:30 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 c-n-f Metadata [116 B]
Get:31 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [1821 kB]
Get:32 http://security.ubuntu.com/ubuntu focal-security/main Translation-en [391 kB]
Get:33 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [11.2 kB]
Get:34 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [1289 kB]
Get:35 http://security.ubuntu.com/ubuntu focal-security/restricted Translation-en [183 kB]
Get:36 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 c-n-f Metadata [596 B]
```

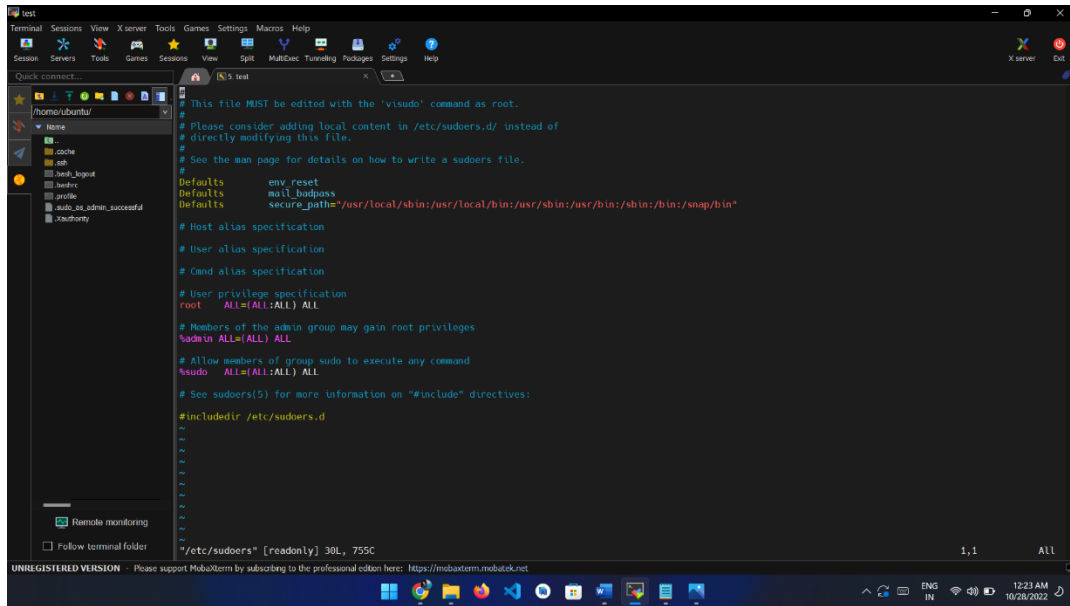
Com3 – sudo -i for come into the root.



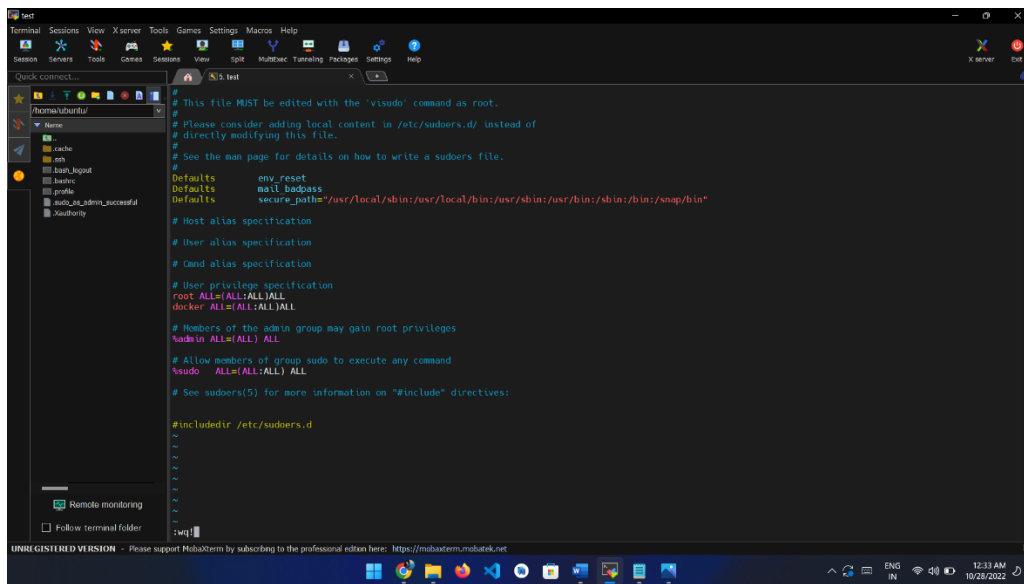
Com4 – adduser docker

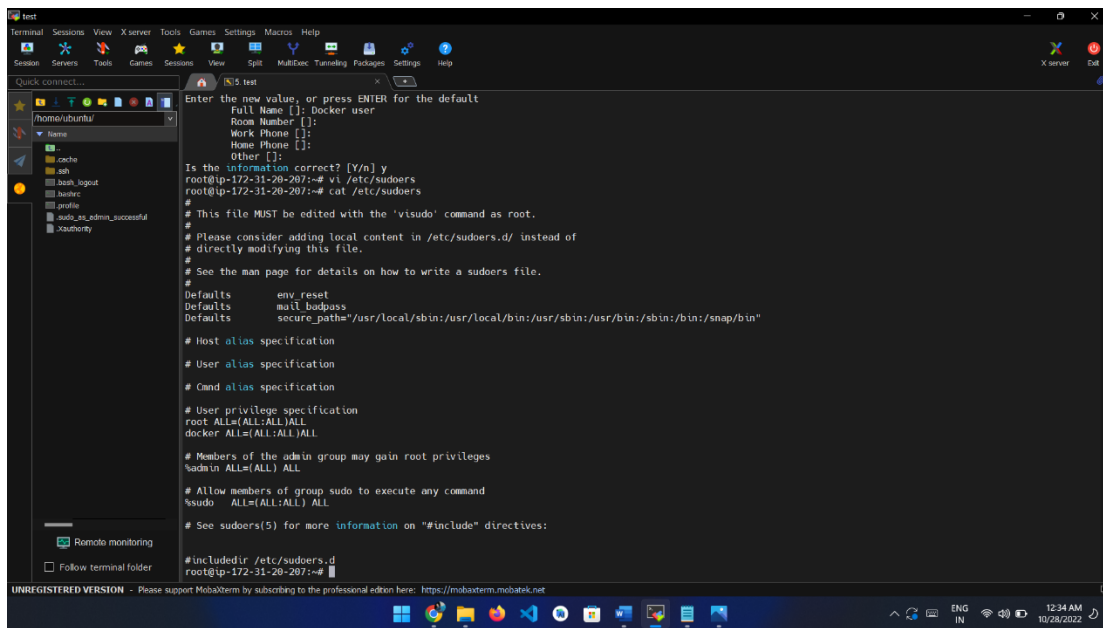


## Com5 – vi/etc/sudoers



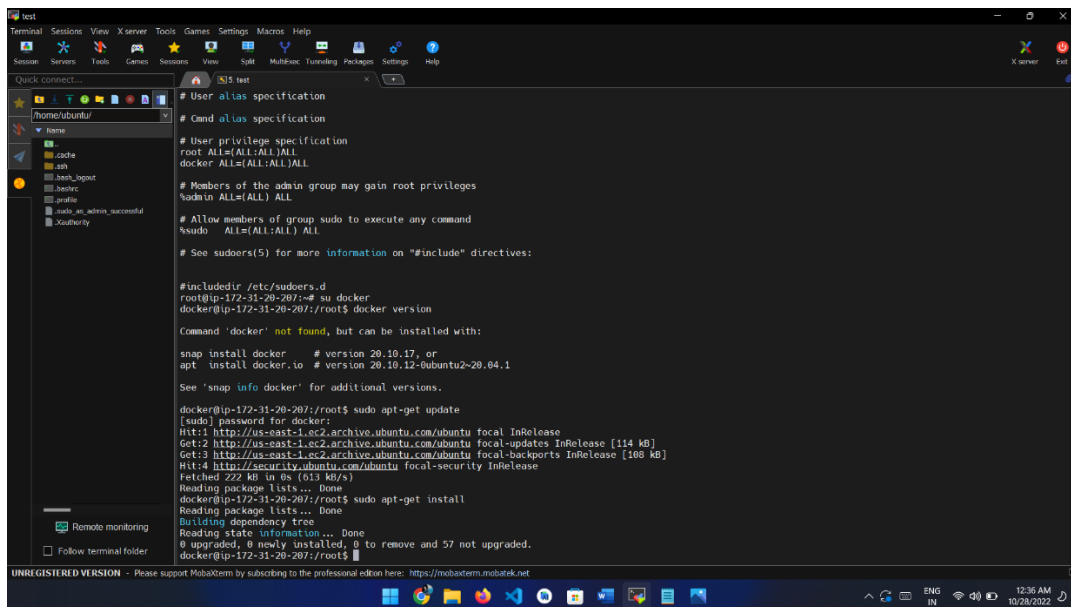
## Com6 – cat/etc/sudoers





```
Enter the new value, or press ENTER for the default
Full Name []: Docker user
Room Number []:
Work Phone []:
Home Phone []:
Other []:
Is the information correct? [Y/n] y
root@ip-172-31-20-207:~# vi /etc/sudoers
root@ip-172-31-20-207:~# cat /etc/sudoers
#
# This file MUST be edited with the 'visudo' command as root.
#
# Please consider adding local content in /etc/sudoers.d/ instead of
# directly modifying this file.
# See the man page for details on how to write a sudoers file.
#
Defaults    env_reset
Defaults    mail_badpass
Defaults    secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/snap/bin"
# Host alias specification
# User alias specification
# Cmnd alias specification
# User privilege specification
root ALL=(ALL:ALL)ALL
docker ALL=(ALL:ALL)ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL
# Allow members of group sudo to execute any command
%sudo  ALL=(ALL:ALL) ALL
# See sudoers(5) for more information on "#include" directives:
#include_dir /etc/sudoers.d
root@ip-172-31-20-207:~#
```

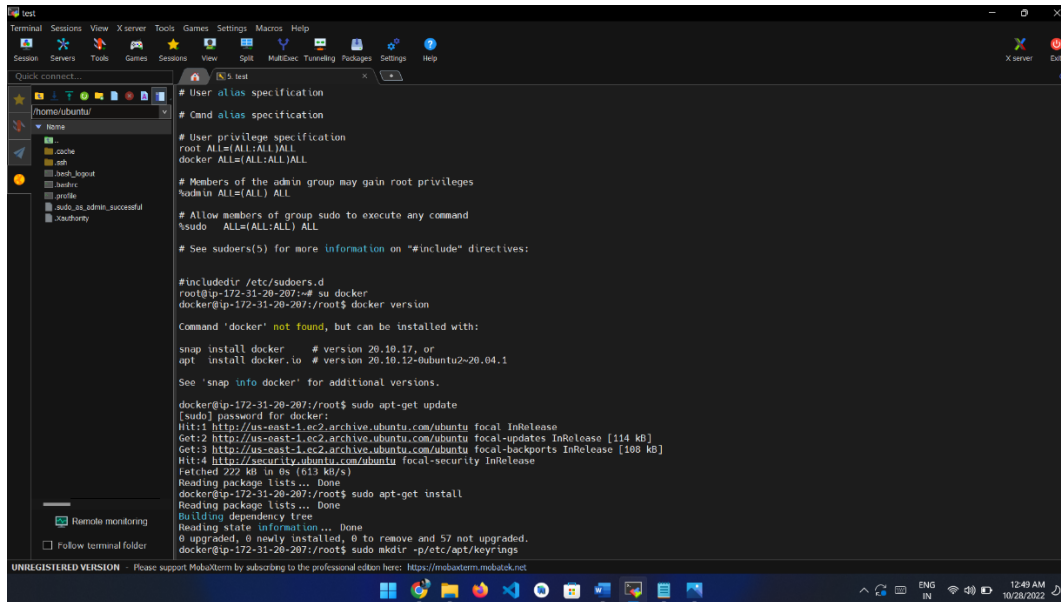
## Com7 – su docker



```
# User alias specification
# Cmnd alias specification
# User privilege specification
root ALL=(ALL:ALL)ALL
docker ALL=(ALL:ALL)ALL
# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL
# Allow members of group sudo to execute any command
%sudo  ALL=(ALL:ALL) ALL
# See sudoers(5) for more information on "#include" directives:
#include_dir /etc/sudoers.d
root@ip-172-31-20-207:~# su docker
docker@ip-172-31-20-207:/root$ docker version
Command 'docker' not found, but can be installed with:
snap install docker      # version 20.10.17, or
apt install docker.io    # version 20.10.12-0ubuntu2-20.04.1
See 'snap info docker' for additional versions.
docker@ip-172-31-20-207:/root$ sudo apt-get update
[sudo] password for docker:
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Hit:4 http://security.ubuntu.com/ubuntu focal-security InRelease
Fetched 222 kB in 0s (613 kB/s)
Reading package lists... Done
docker@ip-172-31-20-207:/root$ sudo apt-get install
Reading package lists... Done
Building dependency tree
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 57 not upgraded.
docker@ip-172-31-20-207:/root$
```

## Com8 –Set up a repository

- (a) sudo apt-get update
- (b) sudo apt-get install



```
# User alias specification
# User privilege specification
root ALL=(ALL:ALL) ALL
docker ALL=(ALL:ALL) ALL

# Members of the admin group may gain root privileges
%admin ALL=(ALL) ALL

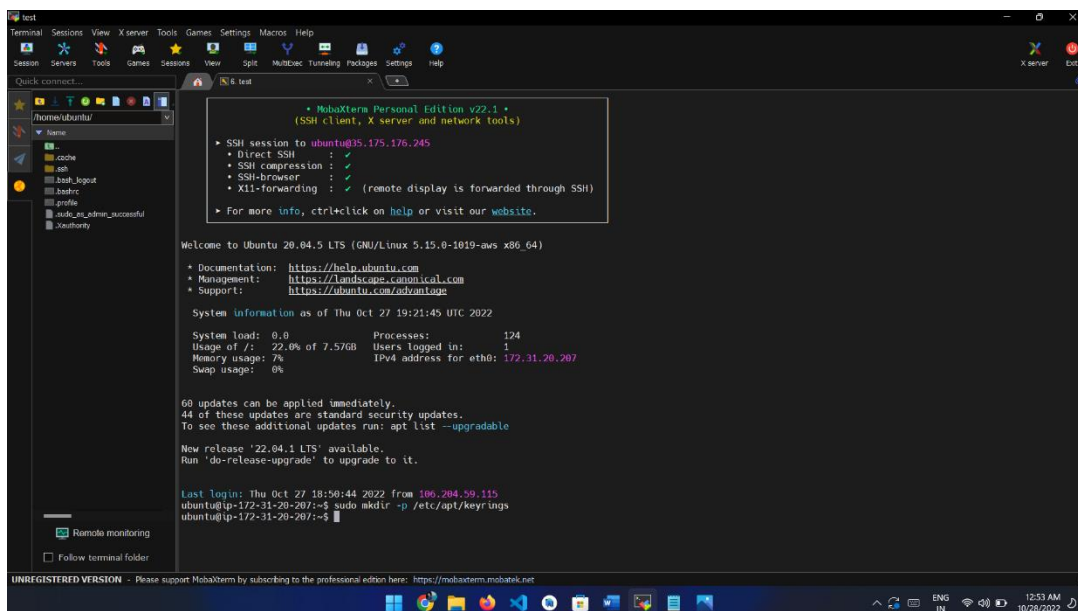
# Allow members of group sudo to execute any command
%sudo ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "#include" directives:

#includedir /etc/sudoers.d
root@ip-172-31-20-207:~# su docker
docker@ip-172-31-20-207:/root$ docker version
Command 'docker' not found, but can be installed with:
snap install docker # version 20.10.17, or
apt install docker.io # version 20.10.12-0ubuntu2-20.04.1
See 'snap info docker' for additional versions.

docker@ip-172-31-20-207:/root$ sudo apt-get update
[sudo] password for docker:
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Hit:4 http://security.ubuntu.com/ubuntu focal-security InRelease
Fetched 222 kB in 0s (613 kB/s)
Reading package lists... Done
docker@ip-172-31-20-207:/root$ sudo apt-get install
Reading package lists... Done
Building dependency tree
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 57 not upgraded.
docker@ip-172-31-20-207:/root$ sudo mkdir -p /etc/apt/keyrings
```

- (c) Add docker GPG key



```
Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1019-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management:   https://landscape.canonical.com
 * Support:      https://ubuntu.com/advantage

System information as of Thu Oct 27 19:21:45 UTC 2022

System load: 0.0          Processes: 124
Usage of /: 22.0% of 7.57GB   Users logged in: 1
Memory usage: 7%           IPv4 address for eth0: 172.31.20.207
Swap usage: 0%

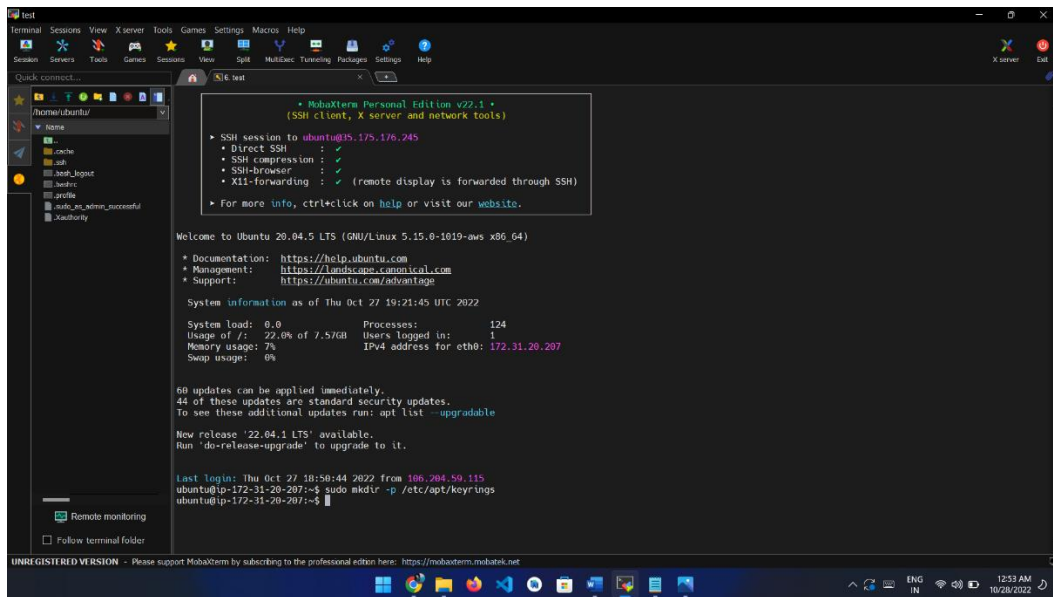
60 updates can be applied immediately.
44 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Thu Oct 27 18:59:44 2022 from 106.284.59.115
ubuntu@ip-172-31-20-207:~$ sudo mkdir -p /etc/apt/keyrings
ubuntu@ip-172-31-20-207:~$
```

# Com9 – Install latest version of docker engine

## (a) sudo apt-get update



```
test
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split Multitasking Packages Settings Help

Quick connect...
SSH connect...
SSH session to ubuntu@15.175.176.245
  * MobaXterm Personal edition v22.1 *
  (SSH client, X server and network tools)
  * SSH session to ubuntu@15.175.176.245
  * Direct SSH : ✓
  * SSH compression : ✓
  * SSH-browser : ✓
  * X11-forwarding : ✓ (remote display is forwarded through SSH)
  * For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1019-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

System information as of Thu Oct 27 19:21:45 UTC 2022

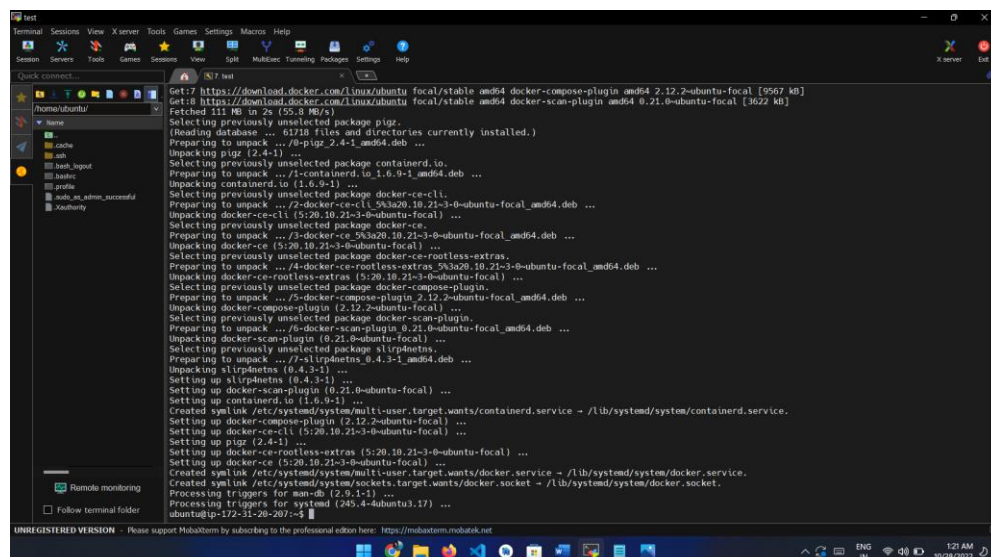
System load: 0.0 Processes: 124
Usage of /: 22.0% of 7.5GB Users logged in: 1
Memory usage: 7% IPv4 address for eth0: 172.31.20.207
Swap usage: 0%

60 updates can be applied immediately.
44 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Thu Oct 27 18:50:44 2022 from 106.204.59.115
ubuntu@ip-172-31-20-207:~$ sudo mkdir -p /etc/apt/keyrings
ubuntu@ip-172-31-20-207:~$
```

## Com10 -- sudo apt-get install docker-ce docker-ce-cli containerd.io docker-compose-plugin



```
test
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split Multitasking Packages Settings Help

Quick connect...
SSH connect...
SSH session to ubuntu@15.175.176.245
  * MobaXterm Personal edition v22.1 *
  (SSH client, X server and network tools)
  * SSH session to ubuntu@15.175.176.245
  * Direct SSH : ✓
  * SSH compression : ✓
  * SSH-browser : ✓
  * X11-forwarding : ✓ (remote display is forwarded through SSH)
  * For more info, ctrl+click on help or visit our website.

Welcome to Ubuntu 20.04.5 LTS (GNU/Linux 5.15.0-1019-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/advantage

System information as of Thu Oct 27 19:21:45 UTC 2022

System load: 0.0 Processes: 124
Usage of /: 22.0% of 7.5GB Users logged in: 1
Memory usage: 7% IPv4 address for eth0: 172.31.20.207
Swap usage: 0%

60 updates can be applied immediately.
44 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

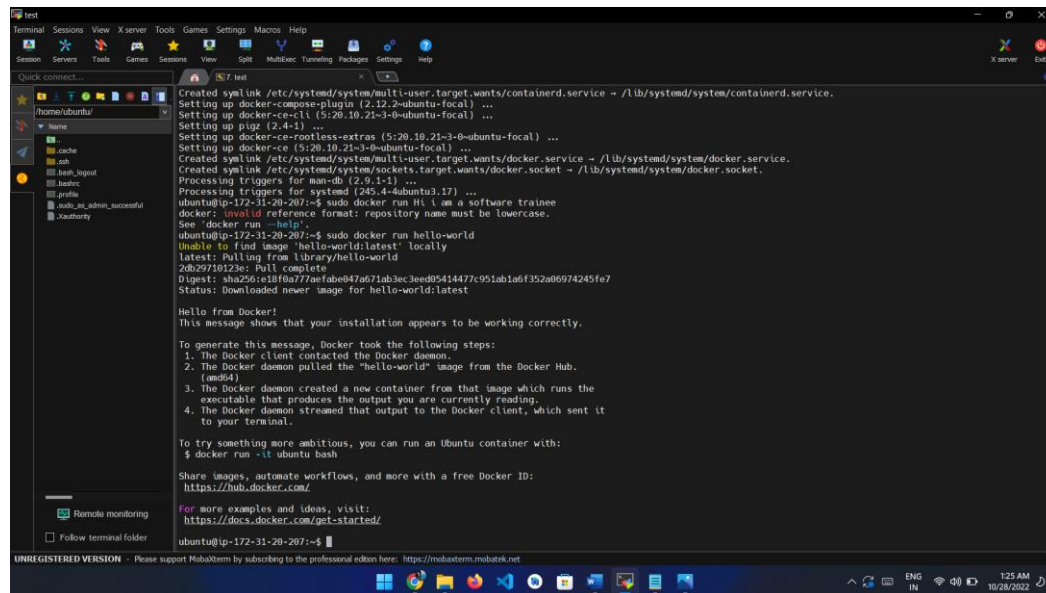
New release '22.04.1 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Thu Oct 27 18:50:44 2022 from 106.204.59.115
ubuntu@ip-172-31-20-207:~$ sudo mkdir -p /etc/apt/keyrings
ubuntu@ip-172-31-20-207:~$

Get:7 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-compose-plugin amd64 2.12.2-ubuntu-focal [9567 kB]
Get:8 https://download.docker.com/linux/ubuntu focal/stable amd64 docker-scan-plugin amd64 0.21.0-ubuntu-focal [3622 kB]
Fetched 111 MB in 2s (55.8 MB/s)
Selecting previously unselected package pipx.
(Reading database ... 61718 files and directories currently installed.)
Preparing to unpack .../dpkg-pkg2.4.1-amd64.deb ...
Unpacking pipx (2.4.1) ...
Selecting previously unselected package containerd.io.
Preparing to unpack .../f-containerd.io_1.6.9-1_amd64.deb ...
Unpacking containerd.io (1.6.9-1) ...
Selecting previously unselected package docker-ce-cli.
Preparing to unpack .../f-docker-ce-cli_5:20.10.21-3-0-ubuntu-focal_amd64.deb ...
Unpacking docker-ce-cli (5:20.10.21-3-0-ubuntu-focal) ...
Selecting previously unselected package docker-ce.
Preparing to unpack .../f-docker-ce_5:20.10.21-3-0-ubuntu-focal_amd64.deb ...
Unpacking docker-ce (5:20.10.21-3-0-ubuntu-focal) ...
Selecting previously unselected package docker-ce-rootless-extras.
Preparing to unpack .../f-docker-ce-rootless-extras_5:20.10.21-3-0-ubuntu-focal_amd64.deb ...
Unpacking docker-ce-rootless-extras (5:20.10.21-3-0-ubuntu-focal) ...
Selecting previously unselected package docker-compose-plugin.
Preparing to unpack .../f-docker-compose-plugin_2.12.2-ubuntu-focal_amd64.deb ...
Unpacking docker-compose-plugin (2.12.2-ubuntu-focal) ...
Selecting previously unselected package docker-scan-plugin.
Preparing to unpack .../f-docker-scan-plugin_0.21.0-ubuntu-focal_amd64.deb ...
Unpacking docker-scan-plugin (0.21.0-ubuntu-focal) ...
Selecting previously unselected package slirpnetns.
Preparing to unpack .../f-slirpnetns_0.4.3-1_amd64.deb ...
Unpacking slirpnetns (0.4.3-1) ...
Setting up slirpnetns (0.4.3-1) ...
Setting up containerd.io (1.6.9-1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up docker-ce-cli (5:20.10.21-3-0-ubuntu-focal) ...
Setting up pipx (2.4.1) ...
Setting up docker-ce-rootless-extras (5:20.10.21-3-0-ubuntu-focal) ...
Setting up docker-ce (5:20.10.21-3-0-ubuntu-focal) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for systemd (250.4-4ubuntu1.17) ...
ubuntu@ip-172-31-20-207:~$
```



# Com11 -- sudo docker run hello world



```
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up docker-compose-plugin (2.12.2-ubuntu-focal) ...
Setting up docker-ce-cli (5:20.10.21~3-0-ubuntu-focal) ...
Setting up pigz (2.4-1) ...
Setting up docker-ce-rootless-extras (5:20.10.21~3-0-ubuntu-focal) ...
Setting up docker-ce (5:20.10.21~3-0-ubuntu-focal) ...
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for systemd (245.4-4ubuntu3.17) ...
ubuntu@ip-172-31-20-207:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
2d09710123e: Pull complete
Digest: sha256:ce1804777efabee47a671ab3ec3eed05414477c951ab1a6f352a069742451e7
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

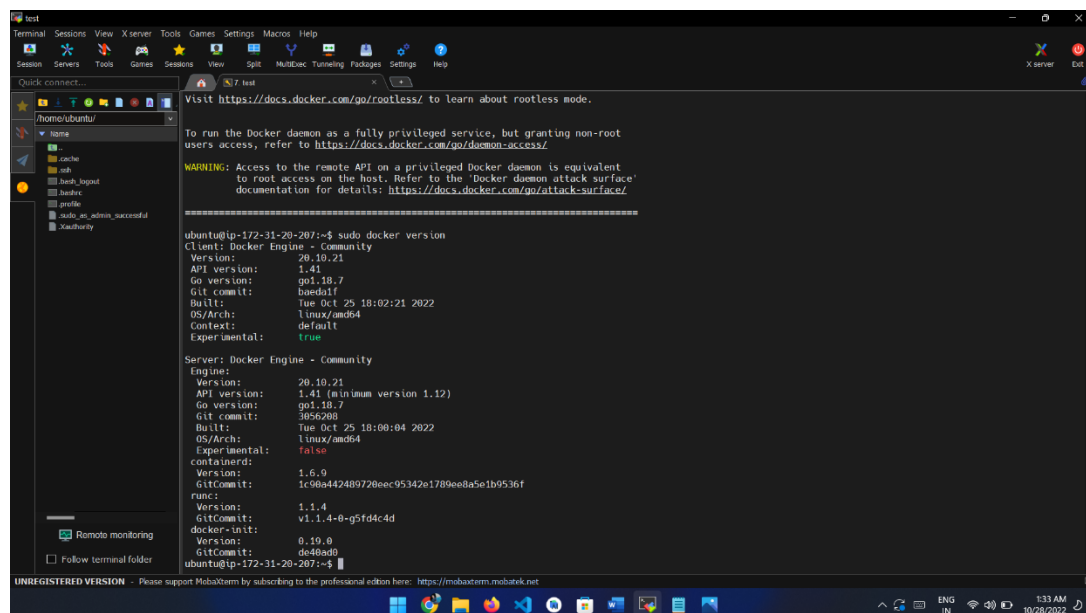
To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
   (amd64)
3. The Docker daemon created a new container from that image which runs the
   executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it
   to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
https://hub.docker.com/

For more examples and ideas, visit:
https://docs.docker.com/get-started/
ubuntu@ip-172-31-20-207:~$
```

# Com12 – For show latest version



```
Visit https://docs.docker.com/go/rootless/ to learn about rootless mode.

To run the Docker daemon as a fully privileged service, but granting non-root
users access, refer to https://docs.docker.com/go/daemon-access/.

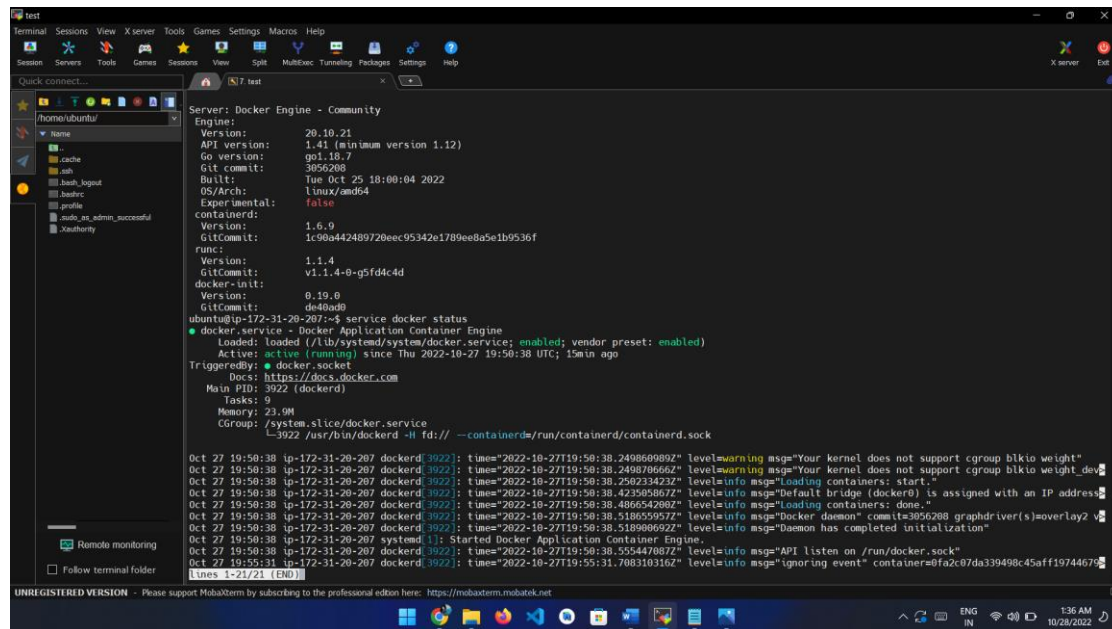
WARNING: Access to the remote API on a privileged Docker daemon is equivalent
to root access on the host. Refer to the 'Docker daemon attack surface'
documentation for details: https://docs.docker.com/go/attack-surface/

=====
ubuntu@ip-172-31-20-207:~$ sudo docker version
Client: Docker Engine - Community
Version: 20.10.21
API version: 1.41
Go version: go1.18.7
Git commit: baed01f
Built: Tue Oct 25 18:02:21 2022
OS/Arch: linux/amd64
Context: default
Experimental: true

Server: Docker Engine - Community
Engine:
Version: 20.10.21
API version: 1.41 (minimum version 1.12)
Go version: go1.18.7
Git commit: 3056208
Built: Tue Oct 25 18:08:04 2022
OS/Arch: linux/amd64
Experimental: false
containerd:
Version: 1.6.9
GitCommit: 1c98a442489720e0ec95342e1789ee8a5e1b9536f
runc:
Version: 1.1.4
GitCommit: v1.1.4-0-g5fd4c4d
docker-init:
Version: 0.19.0
GitCommit: de48e40
ubuntu@ip-172-31-20-207:~$
```



# Com13 – Service Docker status



The screenshot shows a MobaXterm terminal window with a dark theme. The left sidebar displays a file explorer for a home directory on a remote host. The main terminal area shows the output of the `service docker status` command. The output indicates that the Docker Engine is active and running, with details about its version (20.10.21), API version (1.41), and the Docker daemon's status. Below the status output, there is a log of messages from the Docker daemon, including warnings about kernel support for cgroup blkio weight and information about container loading and initialization. The terminal window has a menu bar at the top with options like Terminal, Sessions, View, X server, Tools, Games, Settings, Macros, and Help. At the bottom, there is a status bar showing the time as 1:36 AM on 10/28/2022.

```
Server: Docker Engine - Community
Engine:
  Version:          20.10.21
  API version:      1.41 (minimum version 1.12)
  Go version:       go1.18.7
  Git commit:       30562b0
  Built:            Tue Oct 25 18:00:04 2022
  OS/Arch:          linux/amd64
  Experimental:     false
containerd:
  Version:          1.6.9
  GitCommit:        1c90a442489720eac95342e1789ee8a5e1b9536f
runc:
  Version:          1.1.4
  GitCommit:        v1.1.4-0-g5fddc4d
docker-init:
  Version:          0.19.0
  GitCommit:        de40ad0
ubuntu@ip-172-31-20-207:~$ service docker status
● docker.service - Docker Application Container Engine
   Loaded: loaded (/lib/systemd/system/docker.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2022-10-27 19:50:38 UTC; 15min ago
   TriggeredBy: ● docker.socket
   Docs: https://docs.docker.com
   Main PID: 3922 (dockerd)
   Tasks: 9
   Memory: 23.0M
   CGroup: /system.slice/docker.service
           └─3922 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.249860989Z" level=warning msg="Your kernel does not support cgroup blkio weight"
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.249870666Z" level=warning msg="Your kernel does not support cgroup blkio weight_dev"
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.250233423Z" level=info msg="Loading containers: start."
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.423505067Z" level=info msg="Default bridge (docker0) is assigned with an IP address"
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.406654280Z" level=info msg="Loading containers: done."
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.518655957Z" level=info msg="Docker daemon" commit=30562b0 graphdriver(s)=overlay2
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.518908692Z" level=info msg="Daemon has completed initialization"
Oct 27 19:50:38 ip-172-31-20-207 systemd[1]: Started Docker Application Container Engine.
Oct 27 19:50:38 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:50:38.555447087Z" level=info msg="API listen on /run/docker.sock"
Oct 27 19:55:31 ip-172-31-20-207 dockerd[3922]: time="2022-10-27T19:55:31.708310316Z" level=info msg="ignoring event" container=0fa2c07da339498c45aff19744670
lines 1-21/21 (END)
```