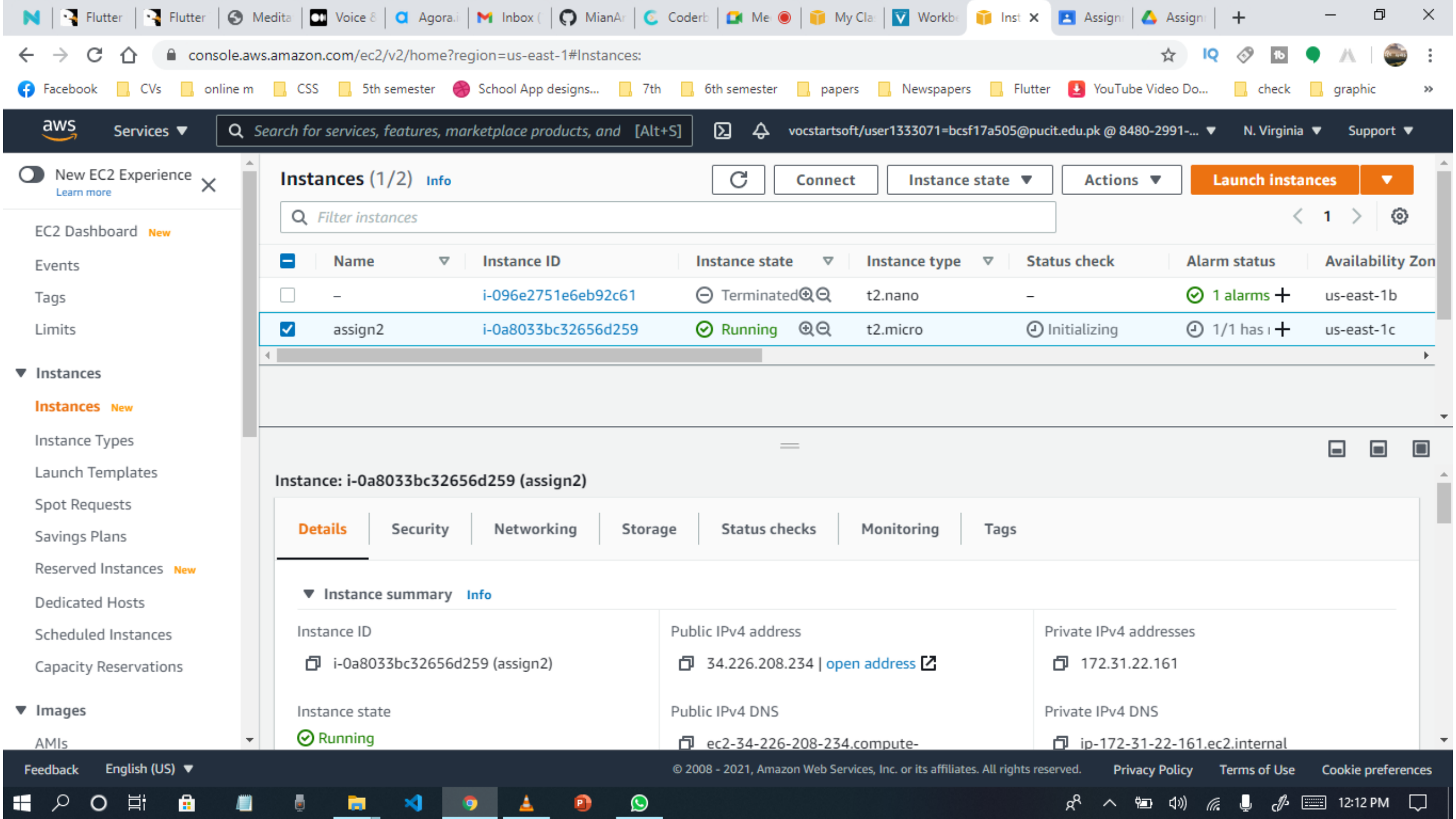
console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:
Services
Search for services, features, marketplace products, and [Alt+S]
vocstartsoft/user1333071=bcsf17a505@pucit.edu.pk @ 8480-2991-...
N. Virginia
Support
New EC2 Experience
Learn more
EC2 Dashboard New
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
Instances (1/2) Info
Connect
Instance state
Actions
Launch instances
Filter instances
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zon
– i-096e2751e6eb92c61 Terminated t2.nano – 1 alarms us-east-1b
assign2 i-0a8033bc32656d259 Running t2.micro Initializing 1/1 has us-east-1c
Instance: i-0a8033bc32656d259 (assign2)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-0a8033bc32656d259 (assign2)
Public IPv4 address
34.226.208.234 | open address
Private IPv4 addresses
172.31.22.161
Instance state
Running
Public IPv4 DNS
ec2-34-226-208-234.compute-
Private IPv4 DNS
ip-172-31-22-161.ec2.internal
Feedback
English (US)
© 2008 - 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.
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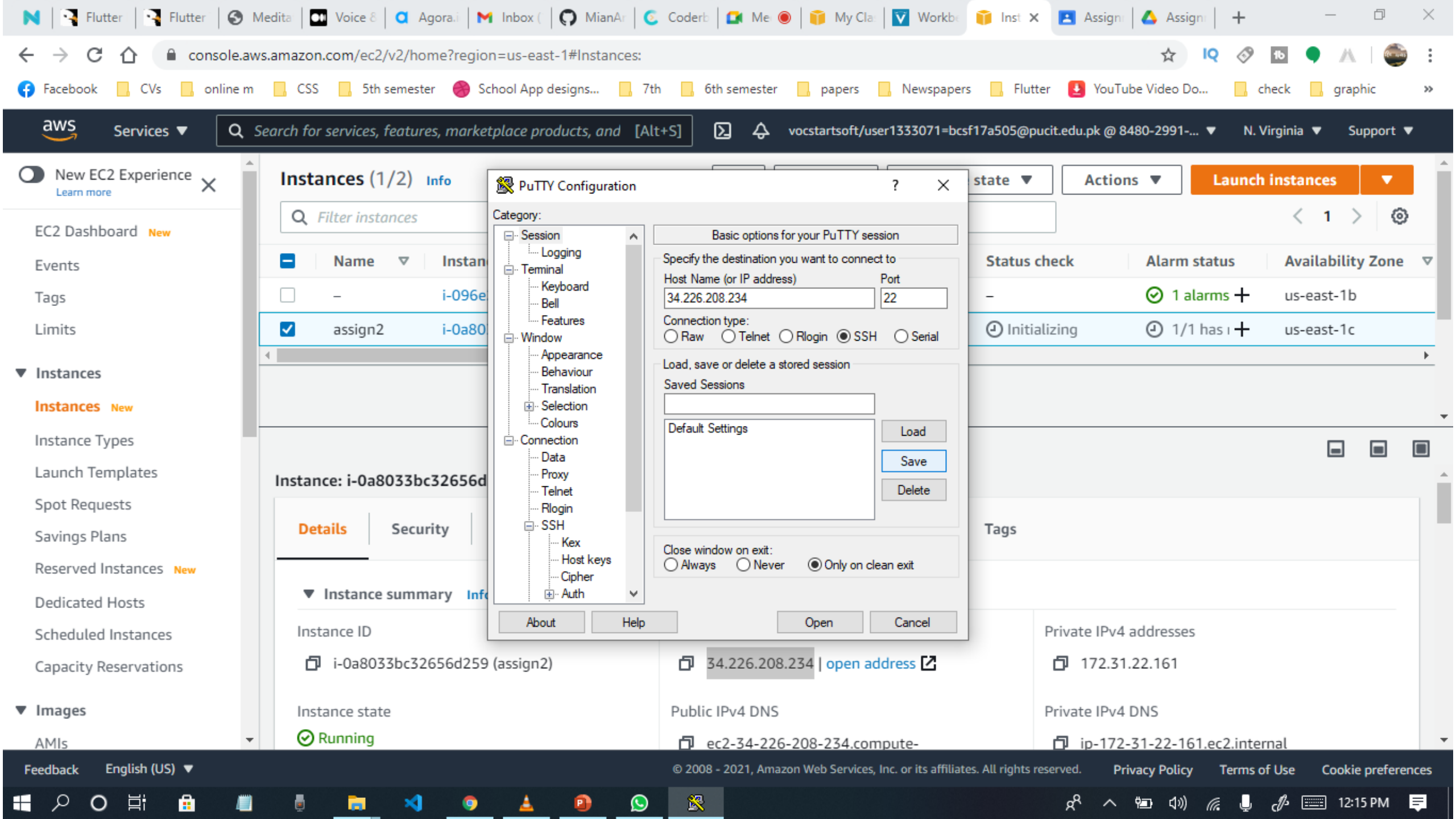
Terms of Use
Cookie preferences
12:12 PM


console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:
Services
Search for services, features, marketplace products, and [Alt+S]
vocstartsoft/user1333071=bcsf17a505@pucit.edu.pk @ 8480-2991-...
N. Virginia
Support
New EC2 Experience
Learn more
EC2 Dashboard New
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
Instances (1/2) Info
Filter instances
Actions
Launch instances
Name
Status check
Alarm status
Availability Zone
assign2
Initializing
1 alarms
us-east-1b
us-east-1c
Instance: i-0a8033bc32656d
Details
Security
Tags
Instance summary
Instance ID
i-0a8033bc32656d259 (assign2)
34.226.208.234 | open address
Private IPv4 addresses
172.31.22.161
Instance state
Running
Public IPv4 DNS
ec2-34-226-208-234.compute-
Private IPv4 DNS
ip-172-31-22-161.ec2.internal
PuTTY Configuration
Category:
Session
Logging
Terminal
Keyboard
Bell
Features
Window
Appearance
Behaviour
Translation
Selection
Colours
Connection
Data
Proxy
Telnet
Rlogin
SSH
Kex
Host keys
Cipher
Auth
Basic options for your PuTTY session
Specify the destination you want to connect to
Host Name (or IP address)
Port
34.226.208.234
22
Connection type:
Raw
Telnet
Rlogin
SSH
Serial
Load, save or delete a stored session
Saved Sessions
Default Settings
Load
Save
Delete
Close window on exit:
Always
Never
Only on clean exit
About
Help
Open
Cancel
Feedback
English (US)
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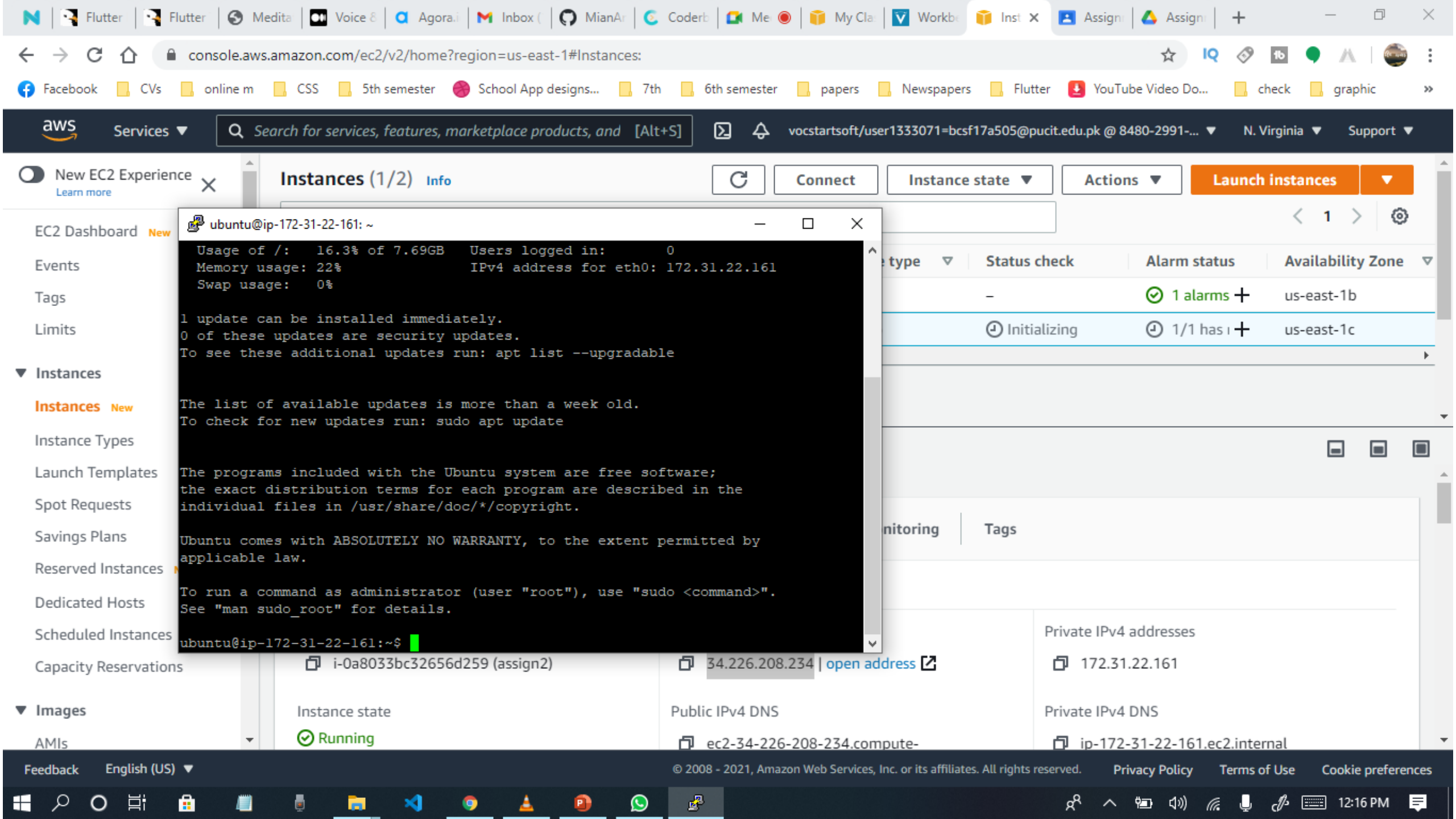
Terms of Use
Cookie preferences
12:15 PM


console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:
Services
Search for services, features, marketplace products, and [Alt+S]
vocstartsoft/user1333071=bcsf17a505@pucit.edu.pk @ 8480-2991-...
N. Virginia
Support
New EC2 Experience
Learn more
EC2 Dashboard New
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
Instances (1/2) Info
Connect
Instance state
Actions
Launch instances
Status check
Alarm status
Availability Zone
1 alarms
us-east-1b
Initializing
us-east-1c
Tags
ubuntu@ip-172-31-22-161: ~
Usage of /: 16.3% of 7.69GB Users logged in: 0
Memory usage: 22% IPv4 address for eth0: 172.31.22.161
Swap usage: 0%
1 update can be installed immediately.
0 of these updates are security updates.
To see these additional updates run: apt list --upgradable
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
ubuntu@ip-172-31-22-161:~$
i-0a8033bc32656d259 (assign2)
34.226.208.234 | open address
Private IPv4 addresses
172.31.22.161
Instance state
Running
Public IPv4 DNS
ec2-34-226-208-234.compute-
Private IPv4 DNS
ip-172-31-22-161.ec2.internal
Feedback
English (US)
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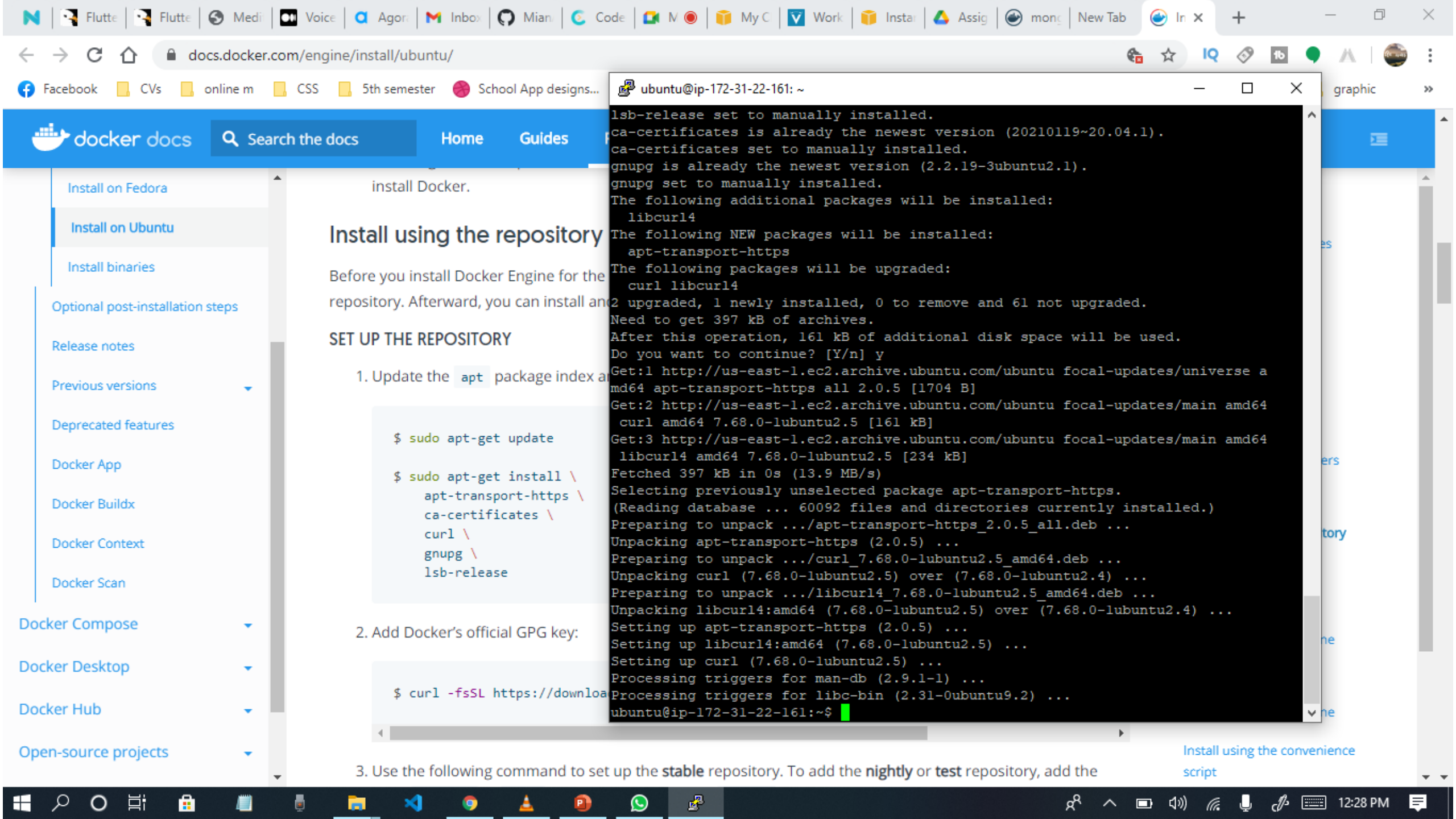
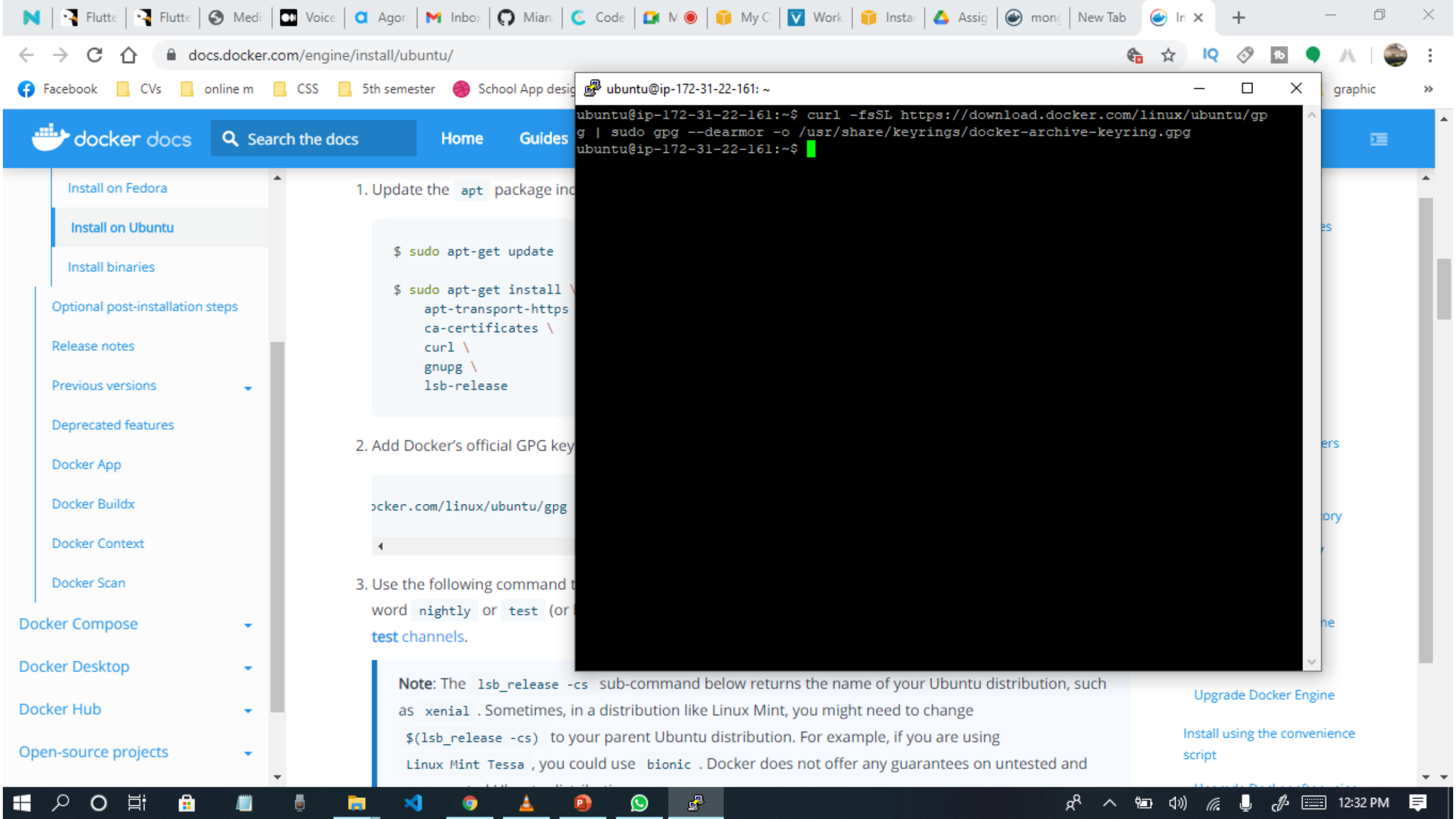
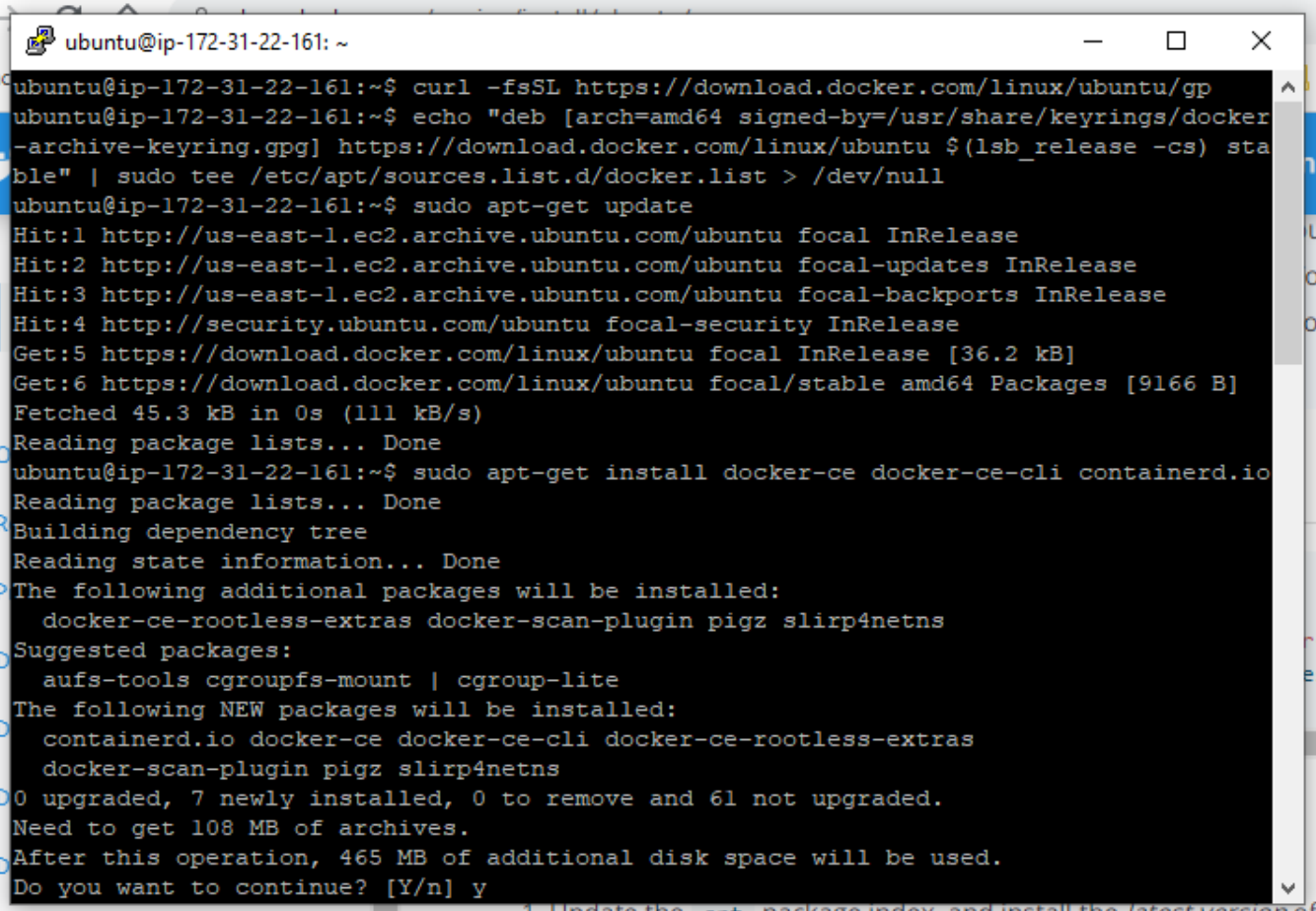

docs.docker.com/engine/install/ubuntu/
docker docs
Search the docs
Home
Guides
Install on Fedora
Install on Ubuntu
Install binaries
Optional post-installation steps
Release notes
Previous versions
Deprecated features
Docker App
Docker Buildx
Docker Context
Docker Scan
Docker Compose
Docker Desktop
Docker Hub
Open-source projects
install Docker.
Install using the repository
Before you install Docker Engine for the
repository. Afterward, you can install an
SET UP THE REPOSITORY
1. Update the apt package index a
$ sudo apt-get update
$ sudo apt-get install \
apt-transport-https \
ca-certificates \
curl \
gnupg \
lsb-release
2. Add Docker's official GPG key:
$ curl -fsSL https://downloa
3. Use the following command to set up the stable repository. To add the nightly or test repository, add the
Install using the convenience script
ubuntu@ip-172-31-22-161: ~
lsb-release set to manually installed.
ca-certificates is already the newest version (20210119~20.04.1).
ca-certificates set to manually installed.
gnupg is already the newest version (2.2.19-3ubuntu2.1).
gnupg set to manually installed.
The following additional packages will be installed:
libcurl4
The following NEW packages will be installed:
apt-transport-https
The following packages will be upgraded:
curl libcurl4
2 upgraded, 1 newly installed, 0 to remove and 61 not upgraded.
Need to get 397 kB of archives.
After this operation, 161 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/universe amd64 apt-transport-https all 2.0.5 [1704 B]
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 curl amd64 7.68.0-1ubuntu2.5 [161 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu focal-updates/main amd64 libcurl4 amd64 7.68.0-1ubuntu2.5 [234 kB]
Fetched 397 kB in 0s (13.9 MB/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 60092 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.0.5_all.deb ...
Unpacking apt-transport-https (2.0.5) ...
Preparing to unpack .../curl_7.68.0-1ubuntu2.5_amd64.deb ...
Unpacking curl (7.68.0-1ubuntu2.5) over (7.68.0-1ubuntu2.4) ...
Preparing to unpack .../libcurl4_7.68.0-1ubuntu2.5_amd64.deb ...
Unpacking libcurl4:amd64 (7.68.0-1ubuntu2.5) over (7.68.0-1ubuntu2.4) ...
Setting up apt-transport-https (2.0.5) ...
Setting up libcurl4:amd64 (7.68.0-1ubuntu2.5) ...
Setting up curl (7.68.0-1ubuntu2.5) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
ubuntu@ip-172-31-22-161:~$
12:28 PM


docs.docker.com/engine/install/ubuntu/
Facebook
CVs
online m
CSS
5th semester
School App desig
graphic
docker docs
Search the docs
Home
Guides
Install on Fedora
Install on Ubuntu
Install binaries
Optional post-installation steps
Release notes
Previous versions
Deprecated features
Docker App
Docker Buildx
Docker Context
Docker Scan
Docker Compose
Docker Desktop
Docker Hub
Open-source projects
1. Update the apt package inc
$ sudo apt-get update
$ sudo apt-get install \
apt-transport-https
ca-certificates \
curl \
gnupg \
lsb-release
2. Add Docker's official GPG key
ocker.com/linux/ubuntu/gpg
3. Use the following command t
word nightly or test (or
test channels.
Note: The lsb_release -cs sub-command below returns the name of your Ubuntu distribution, such as xenial . Sometimes, in a distribution like Linux Mint, you might need to change $(lsb_release -cs) to your parent Ubuntu distribution. For example, if you are using Linux Mint Tessa , you could use bionic . Docker does not offer any guarantees on untested and
Upgrade Docker Engine
Install using the convenience script
ubuntu@ip-172-31-22-161: ~
ubuntu@ip-172-31-22-161:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gp
g | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
ubuntu@ip-172-31-22-161:~$
12:32 PM



Samples

u might need to change
or example, if you are using
ot offer any guarantees on untested and

Edit this page
Request docs changes

On this page:

Prerequisites
OS requirements
Uninstall old versions
Supported storage drivers
Installation methods
Install using the repository
Set up the repository
Install Docker Engine
Upgrade Docker Engine
Install from a package
Upgrade Docker Engine
Install using the convenience script

Docker Scan
Docker Compose
Docker Desktop
Docker Hub
Open-source projects

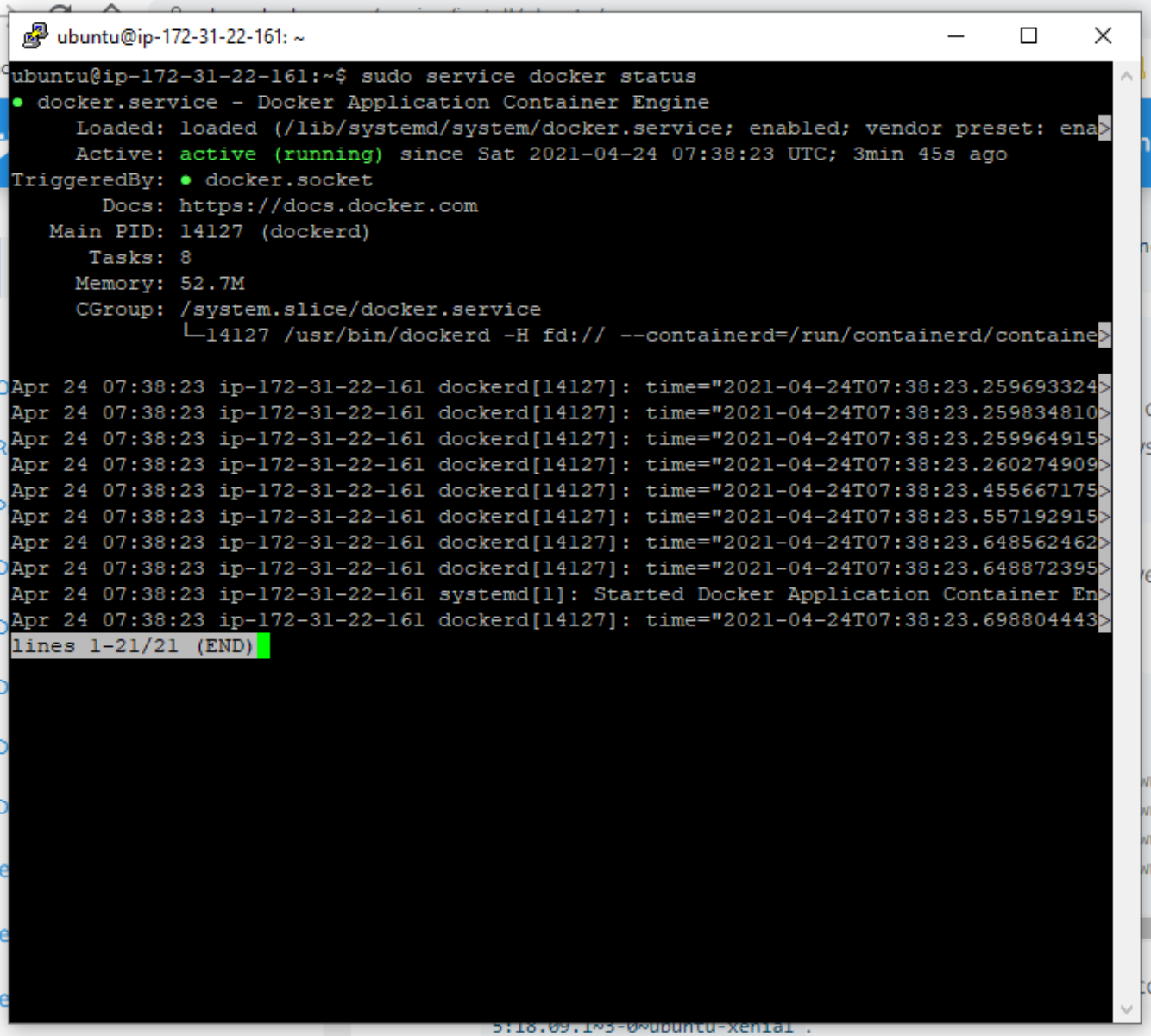
1. Update the `apt` package index, and install the *latest version* of Docker Engine and containerd, or go to the next step to install a specific version:

```
$ sudo apt-get update
$ sudo apt-get install docker-ce docker-ce-cli containerd.io
```

Got multiple Docker repositories?

If you have multiple Docker repositories enabled, installing or updating without specifying a version in

12:38 PM



Samples

Edit this page

Request docs changes

On this page:

Prerequisites

OS requirements

Uninstall old versions

Supported storage drivers

Installation methods

Install using the repository

Set up the repository

Install Docker Engine

Upgrade Docker Engine

Install from a package

Upgrade Docker Engine

Install using the convenience script

Open-source projects

$ sudo apt-get install docker-ce=<VERSION_STRING> docker-ce-cli=<VERSION_STRING> containerd.io

12:42 PM

```
sudo docker pull mongo
```

The image indicates that the system used the **`latest`** tag by defa

```
[phoenixnap@localhost ~]$ sudo docker pull mongo
Using default tag: latest
Trying to pull repository docker.io/library/mongo .
latest: Pulling from docker.io/library/mongo
5c939e3a4d10: Pull complete
c63719cdbe7a: Pull complete
19a861ea6baf: Pull complete
651c9d2d6c4f: Pull complete
85155c6d5fac: Pull complete
85fb0780fd97: Pull complete
85b3b1a901f5: Pull complete
6a882e007bb6: Pull complete
f7806503a70f: Pull complete
e23d5068c270: Pull complete
56eb708963d7: Pull complete
fc4def32f081: Pull complete
ea1dc19faea9: Pull complete
Digest: sha256:631a948707a5c97a8f08769735970ea997f0
Status: Downloaded newer image for docker.io/mongo:latest
```

ubuntu@ip-172-31-22-161: ~

```
ubuntu@ip-172-31-22-161:~$ sudo docker container ls --all
CONTAINER ID   IMAGE     COMMAND   CREATED   STATUS    PORTS     NAMES
ubuntu@ip-172-31-22-161:~$ sudo docker pull mongo
Using default tag: latest
latest: Pulling from library/mongo
01bf7da0a88c: Pull complete
f3b4a5f15c7a: Pull complete
57ffbe87baa1: Pull complete
77d5e5c7eab9: Pull complete
43798cf18b45: Pull complete
67349a81f435: Pull complete
590845b1f17c: Pull complete
1f2ff17242ce: Pull complete
6dbb95eaa278: Pull complete
8a4bcd1ee7fd: Pull complete
7764c187eb16: Pull complete
033c9674527a: Pull complete
Digest: sha256:64be89e169fc33f3fa140c2c548186be4acd972bd7174344505fc5630dcf707c
Status: Downloaded newer image for mongo:latest
docker.io/library/mongo:latest
ubuntu@ip-172-31-22-161:~$
```

To download a specific version of MongoDB, use the same command appended with the version tag. For example:

Deploy MongoDB Container

By default, MongoDB stores data in the **/data/db** directory within th
directory from the underlying host system to the container running
on your host system and is not going to be erased if a container ins

1. Create a **/mongodata** directory on the host system:

```
sudo mkdir -p /mongodata
```

2. Start the Docker container with the `run` command using the mo
   is mounted as **/mongodata** on the host. Additionally, this comma
   mongodb:

```
sudo docker run -it -v mongodata:/data/db --name mongodb -d mongo
```

`-it` – Provides an interactive shell to the Docker container.

```
[phoenixnap@localhost ~]$ sudo docker run -t -i -v /data:/mongodata --name mongodb -d m
```

ubuntu@ip-172-31-22-161: ~

```
ubuntu@ip-172-31-22-161:~$ sudo docker run -it -v assign2:/data/db --name mongo -d mo
ngo
c9884a4d3b7deaddd5aa71a5956a12e562f6bc108389238be4e13ddf92a136c4
ubuntu@ip-172-31-22-161:~$
```

```
ATUS              PORTS              NAMES
019b626344de        mongo            "docker-ent
 54 seconds       27017/tcp          mongodb
```

4. Optionally you can specify the MongoDB port explicitly:

```
sudo docker run -it -v mongodata:/data/db -p 27017:2
```

5. Always check the Docker log to see the chain of events after mak

```
sudo docker logs mongodb
```

The logs provide a wealth of useful information.

```
[phoenixnap@localhost ~]$ sudo docker logs mongodb
2020-01-21T13:34:33.706+0000 I  CONTROL  [main] Automatically disabling TLS 1.0, to for
ce-enable TLS 1.0 specify --sslDisabledProtocols 'none'
2020-01-21T13:34:33.715+0000 I  CONTROL  [initandlisten] MongoDB starting : pid=1 port=
27017 dbpath=/data/db 64-bit host=019b626344de
2020-01-21T13:34:33.715+0000 I  CONTROL  [initandlisten] db version v4.2.2
2020-01-21T13:34:33.715+0000 I  CONTROL  [initandlisten] git version: a0bbbff6ada159e19
298d37946ac8dc4b497eadf
2020-01-21T13:34:33.715+0000 I  CONTROL  [initandlisten] OpenSSL version: OpenSSL 1.1.1
  11 Sep 2018
```

ubuntu@ip-172-31-22-161: ~

```
ubuntu@ip-172-31-22-161:~$ sudo docker run -it -v assign2:/data/db --name mongo -d mo
ngo
c9884a4d3b7deaddd5aa71a5956a12e562f6bc108389238be4e13ddf92a136c4
ubuntu@ip-172-31-22-161:~$ sudo docker ps
CONTAINER ID   IMAGE     COMMAND                  CREATED          STATUS          PO
RTS       NAMES
c9884a4d3b7d   mongo     "docker-entrypoint.s…"   41 seconds ago   Up 40 seconds   27
017/tcp   mongo
ubuntu@ip-172-31-22-161:~$ sudo docker logs mongodb
Error: No such container: mongodb
ubuntu@ip-172-31-22-161:~$ sudo docker logs mongo
{"t":{"$date":"2021-04-24T07:57:25.820+00:00"},"s":"I",  "c":"CONTROL",  "id":23285,
  "ctx":"main","msg":"Automatically disabling TLS 1.0, to force-enable TLS 1.0 specif
y --sslDisabledProtocols 'none'"}
{"t":{"$date":"2021-04-24T07:57:25.867+00:00"},"s":"W",  "c":"ASIO",     "id":22601,
  "ctx":"main","msg":"No TransportLayer configured during NetworkInterface startup"}
{"t":{"$date":"2021-04-24T07:57:25.869+00:00"},"s":"I",  "c":"NETWORK",  "id":4648601
, "ctx":"main","msg":"Implicit TCP FastOpen unavailable. If TCP FastOpen is required,
 set tcpFastOpenServer, tcpFastOpenClient, and tcpFastOpenQueueSize."}
{"t":{"$date":"2021-04-24T07:57:25.873+00:00"},"s":"I",  "c":"STORAGE",  "id":4615611
, "ctx":"initandlisten","msg":"MongoDB starting","attr":{"pid":1,"port":27017,"dbPath
":"/data/db","architecture":"64-bit","host":"c9884a4d3b7d"}}
{"t":{"$date":"2021-04-24T07:57:25.873+00:00"},"s":"I",  "c":"CONTROL",  "id":23403,
  "ctx":"initandlisten","msg":"Build Info","attr":{"buildInfo":{"version":"4.4.5","gi
tVersion":"ff5cb77101b052fa02da43b8538093486cf9b3f7","openSSLVersion":"OpenSSL 1.1.1
 11 Sep 2018","modules":[],"allocator":"tcmalloc","environment":{"distmod":"ubuntu180
4","distarch":"x86_64","target_arch":"x86_64"}}}}
{"t":{"$date":"2021-04-24T07:57:25.873+00:00"},"s":"I",  "c":"CONTROL",  "id":51765,
  "ctx":"initandlisten","msg":"Operating System","attr":{"os":{"name":"Ubuntu","versi
```

1. The container is currently running in **detached mode**. Connect to
   instead:

```
sudo docker exec -it mongodb bash
```

2. Start the MongoDB shell by typing `mongo` in the interactive termi

```
[phoenixnap@localhost ~]$ sudo docker exec -it mongo
root@019b626344de:/# mongo
```

The MongoDB shell launches and the prompt is ready to accept you

3. Instead of just typing `mongo`, you can additionally define a specif

```
mongo -host localhost -port 27017
```

With the MongoDB shell, you can now create a database, add collections or manage individual documents.

How to Exit MongoDB and Interactive Shell

```
root@c9884a4d3b7d: /
ubuntu@ip-172-31-22-161:~$ sudo dokcer exec -it mongo bash
sudo: dokcer: command not found
ubuntu@ip-172-31-22-161:~$ sudo dokcer exec -it mongodb bash
sudo: dokcer: command not found
ubuntu@ip-172-31-22-161:~$ sudo docker exec -it mongodb bash
Error: No such container: mongodb
ubuntu@ip-172-31-22-161:~$ sudo docker exec -it mongo bash
root@c9884a4d3b7d:/# mongo
MongoDB shell version v4.4.5
connecting to: mongodb://127.0.0.1:27017/?compressors=disabled&gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("84fd6084-f00e-420e-b02b-270cb4f42f6b") }
MongoDB server version: 4.4.5
Welcome to the MongoDB shell.
For interactive help, type "help".
For more comprehensive documentation, see
        https://docs.mongodb.com/
Questions? Try the MongoDB Developer Community Forums
        https://community.mongodb.com
---
The server generated these startup warnings when booting:
        2021-04-24T07:57:25.879+00:00: Using the XFS filesystem is strongly recommended with the WiredTiger storage engine. See http://dochub.mongodb.org/core/prodnotes-filesystem
        2021-04-24T07:57:26.647+00:00: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
---
---
        Enable MongoDB's free cloud-based monitoring service, which will then receive
```

Flutter | Flutter | Medita | Voice & | Agora.i | Inbox (| MianAr | Coderb | Me | How to | My Cla | Workb | Ass | Instanc

drive.google.com/file/d/1HNC57N9y6ZaCByY8vmshqKrCu-93I

Facebook | CVs | online m | CSS | 5th semester | School App designs... | aphic

Assignment_02_CCS21.pdf

root@c9884a4d3b7d: /

```
. Read and write access to data and configuration is unrestricted
---
---
        Enable MongoDB's free cloud-based monitoring service, which will then receive
 and display
        metrics about your deployment (disk utilization, CPU, operation statistics, e
tc).

        The monitoring data will be available on a MongoDB website with a unique URL
accessible to you
        and anyone you share the URL with. MongoDB may use this information to make p
roduct
        improvements and to suggest MongoDB products and deployment options to you.

        To enable free monitoring, run the following command: db.enableFreeMonitoring
()
        To permanently disable this reminder, run the following command: db.disableFr
eeMonitoring()
---
> show dbs
admin   0.000GB
config  0.000GB
local   0.000GB
> use quotesdb
switched to db quotesdb
> db.quotesdata.insert({ "Author": "Henry David Thoreau", "Category" : "arts", "Popul
arity": 0.00337500297, "Quote": "This world is but a canvas to our imagination."  })
WriteResult({ "nInserted" : 1 })
>
```

CS 460: Cloud Computing
Punjab University College of Inf
Assignment 02 Instructions

Assignment 2

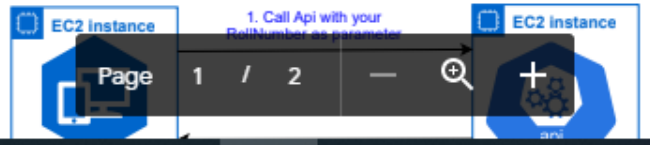
The objective of this assignm
MongoDB (NoSQL database) th

Milestone 01: Launch a

Launch an EC2 nano instance a
mongo (Link) for the container.
container. The "QuotesDB" will
following sample document/reco

```
{
    "Author": "Henry David Thoreau",
    "Category": "arts",
    "Popularity": 0.00337500297,
    "Quote": "This world is but a canvas to our imagination."
}
```

This milestone's deliverable is to provide a screenshot highlighting your MongoDB container instance running inside the EC2.



Page 1 / 2

1:13 PM

Assignment_02_CCS21.pdf

root@c9884a4d3b7d: /

```
and display
        metrics about your deployment (disk utilization, CPU, operation statistics, e
tc).

        The monitoring data will be available on a MongoDB website with a unique URL
accessible to you
        and anyone you share the URL with. MongoDB may use this information to make p
roduct
        improvements and to suggest MongoDB products and deployment options to you.

        To enable free monitoring, run the following command: db.enableFreeMonitoring
()
        To permanently disable this reminder, run the following command: db.disableFr
eeMonitoring()
---
> show dbs
admin   0.000GB
config  0.000GB
local   0.000GB
> use quotesdb
switched to db quotesdb
> db.quotesdata.insert({ "Author": "Henry David Thoreau", "Category" : "arts", "Popul
arity": 0.00337500297, "Quote": "This world is but a canvas to our imagination."  })
WriteResult({ "nInserted" : 1 })
> db.quotesdata.find({"Category":"arts"})
{ "_id" : ObjectId("6083d300f765908b8904bc2a"), "Author" : "Henry David Thoreau", "Ca
tegory" : "arts", "Popularity" : 0.00337500297, "Quote" : "This world is but a canvas
 to our imagination." }
>
```

CS 460: Cloud Computing
Punjab University College of Inf
Assignment 02 Instructions

Assignment 2

The objective of this assignm
MongoDB (NoSQL database) th

Milestone 01: Launch a

Launch an EC2 nano instance a
mongo (Link) for the container.
container. The "QuotesDB" will
following sample document/reco

```
{
    "Author": "Henry David Thoreau",
    "Category": "arts",
    "Popularity": 0.00337500297,
    "Quote": "This world is but a canvas to our imagination."
}
```

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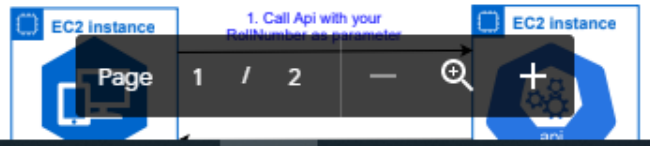

Page 1 / 2