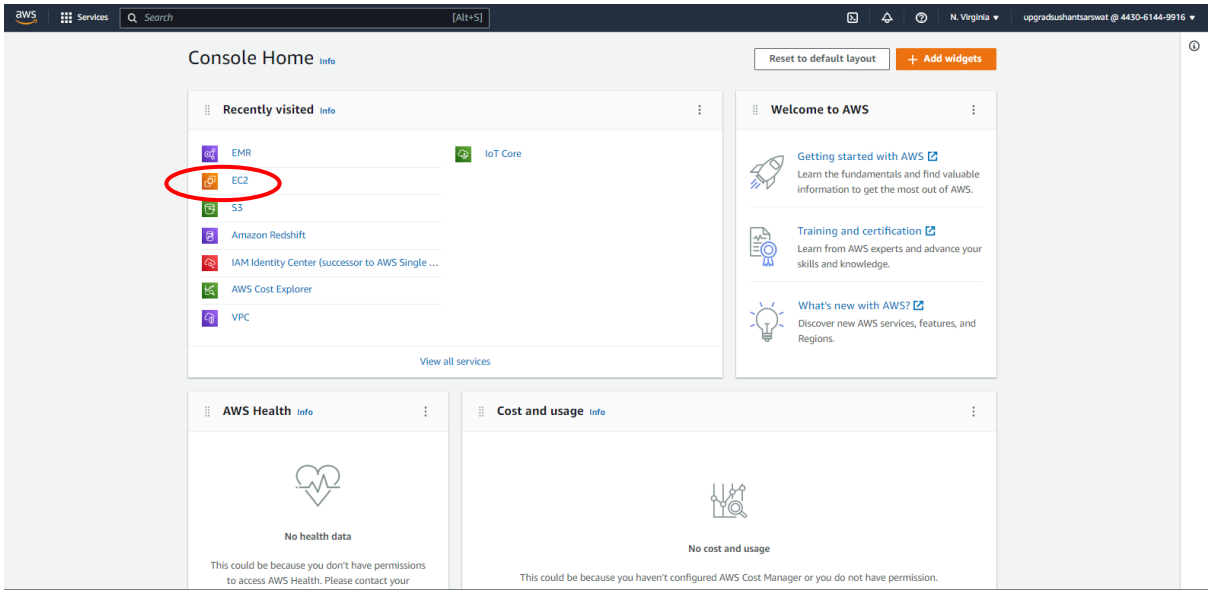
CAPSTONE PROJECT
INSTANT HEALTH ALERT SYSTEM

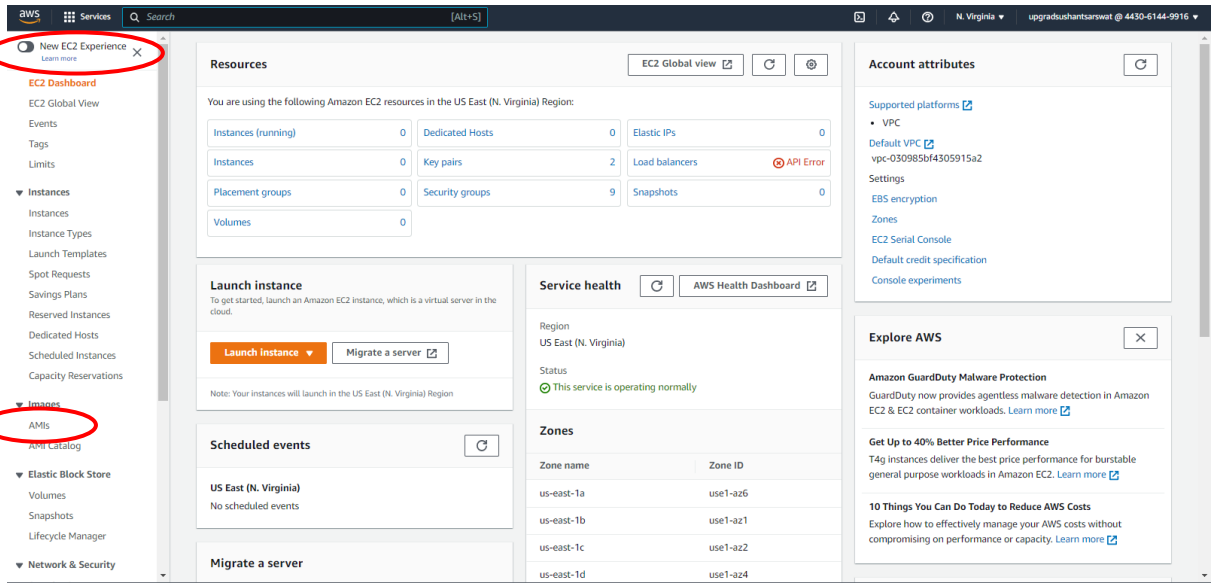
SUBMITTED BY : Sushant Sarswat (C-38)

Creation and Configuration of Kafka Cluster

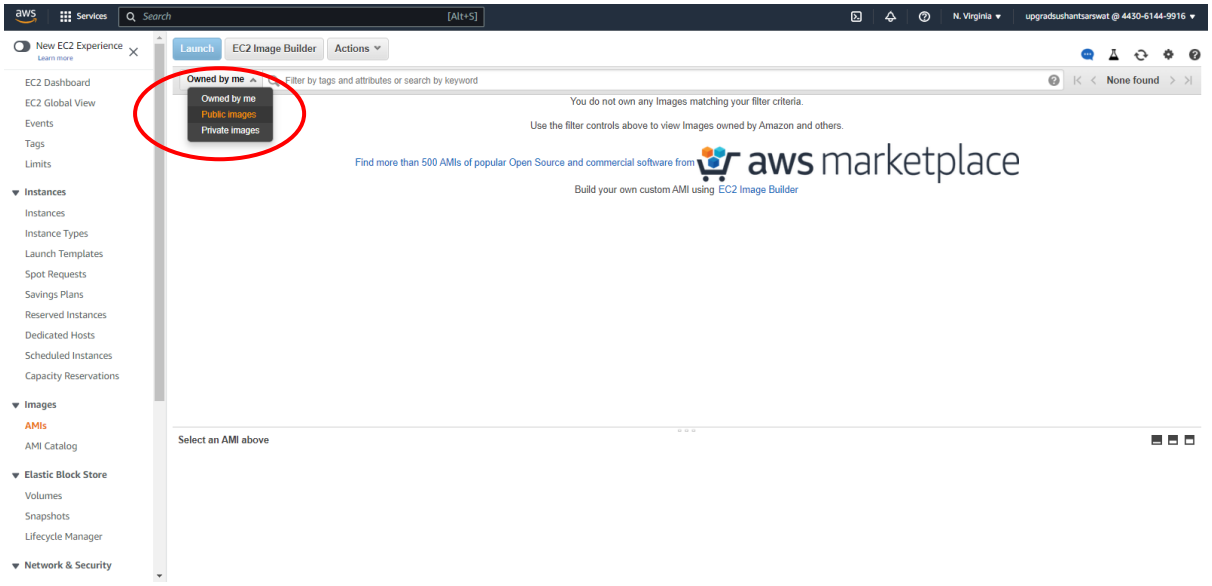
1. Select EC2 instance from AWS services



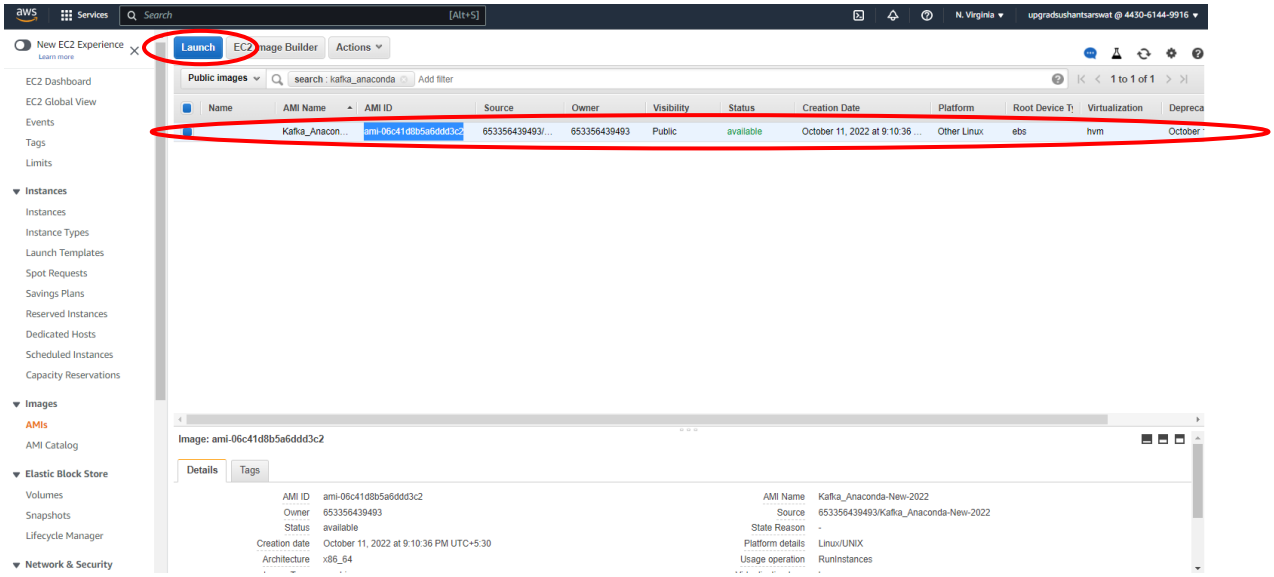
2. Turn off 'New EC2 Experience' and click on AMIs



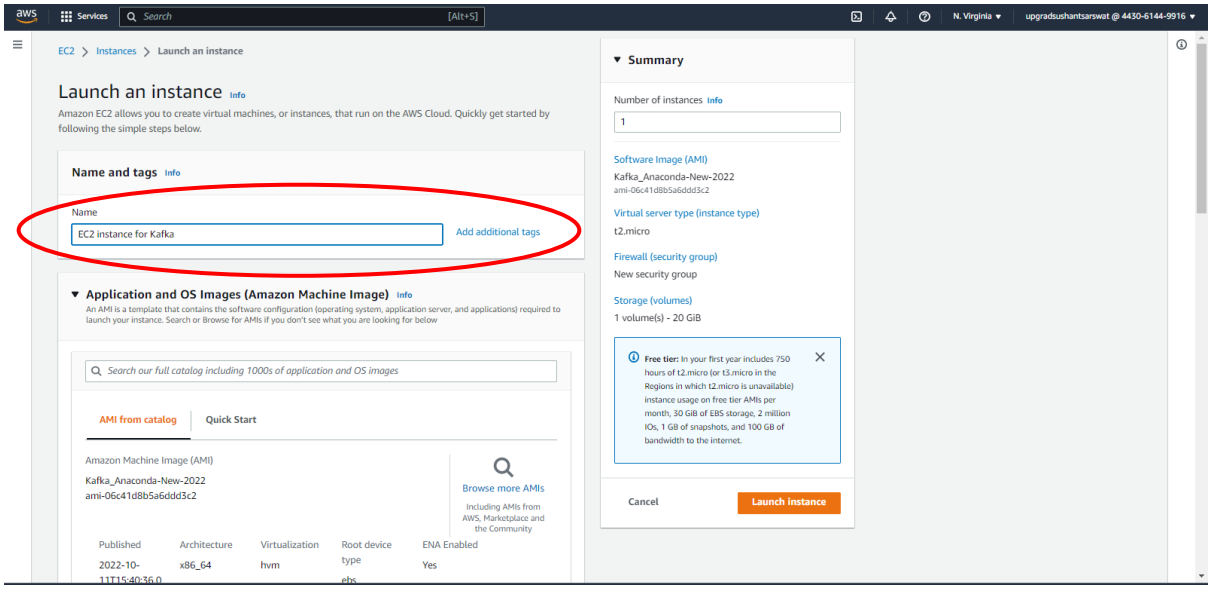
3. Dropdown 'Owned by Me' and select 'Public images'



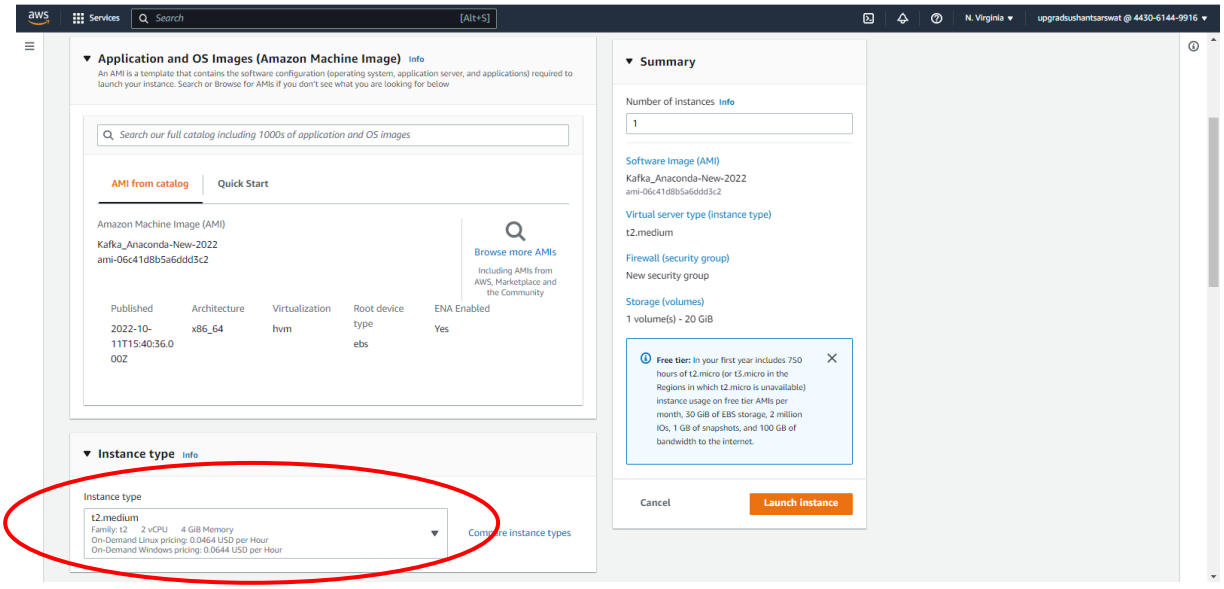
4. Select AMI 'ami-06c41d8b5a6ddd3c2' and click 'Launch'



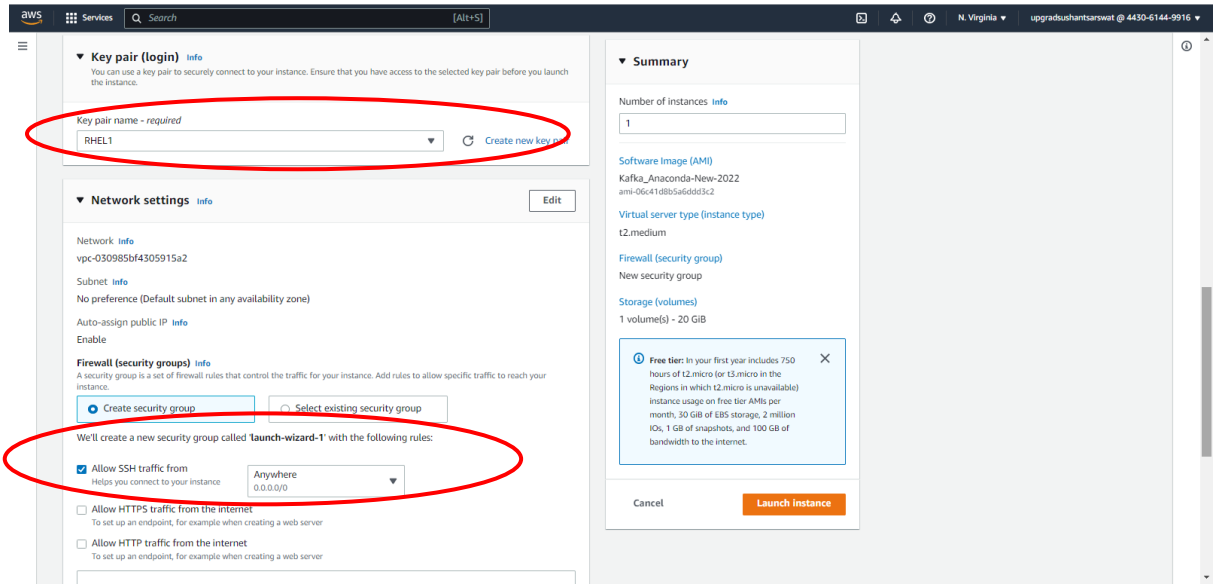
5. Assign Names and tags - 'EC2 instance for Kafka'



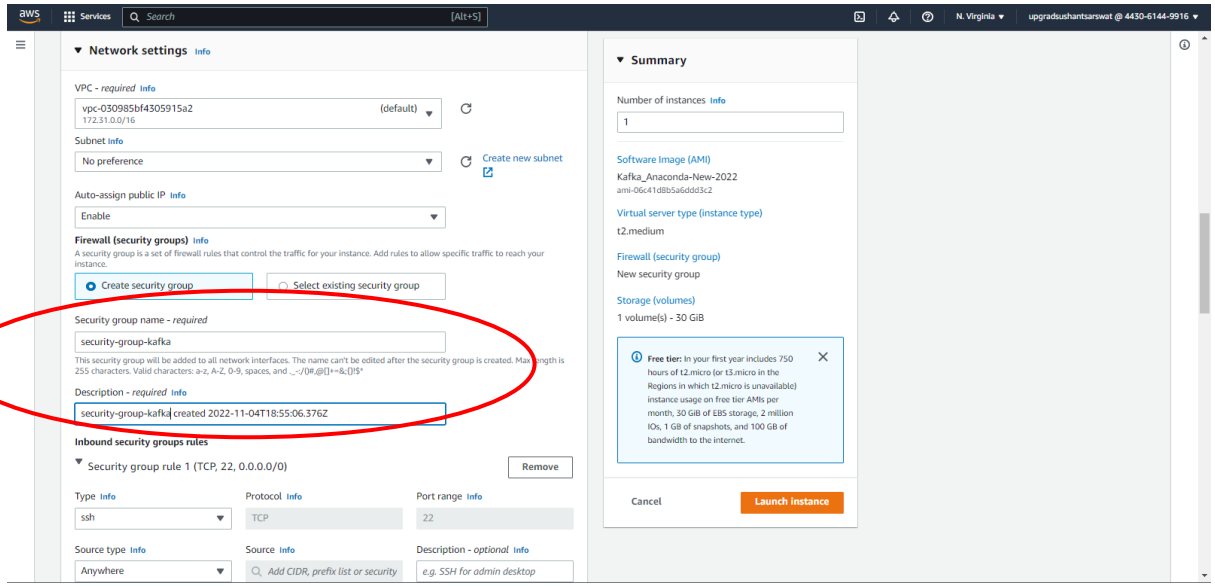
6. Select Instance Type 't2.medium'

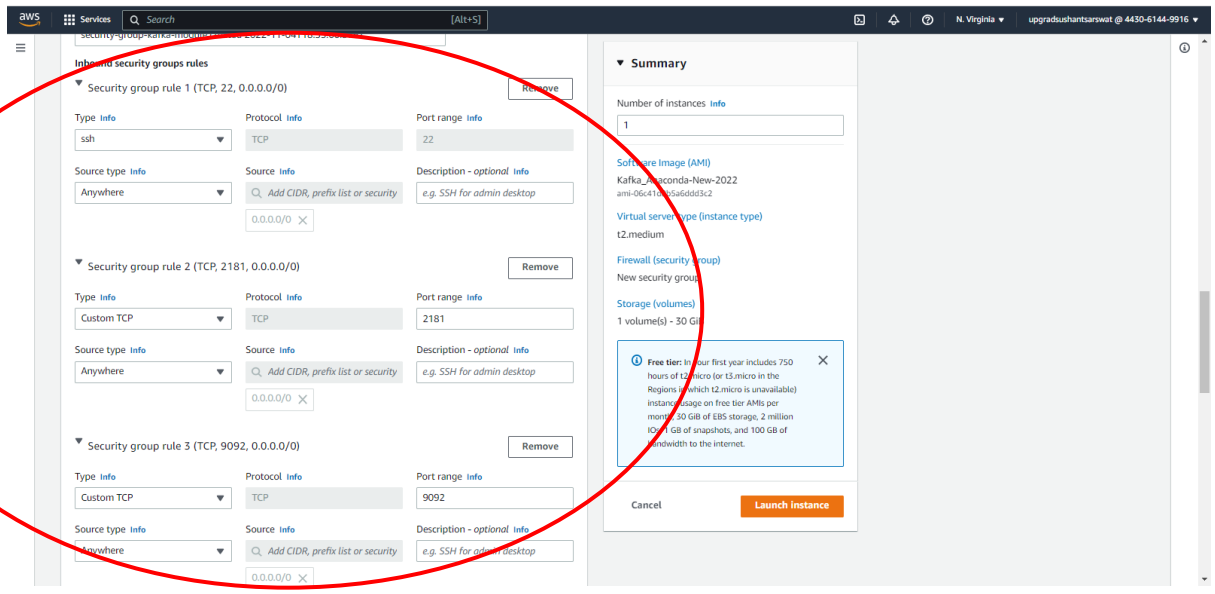


7. Key pair selection and SSH

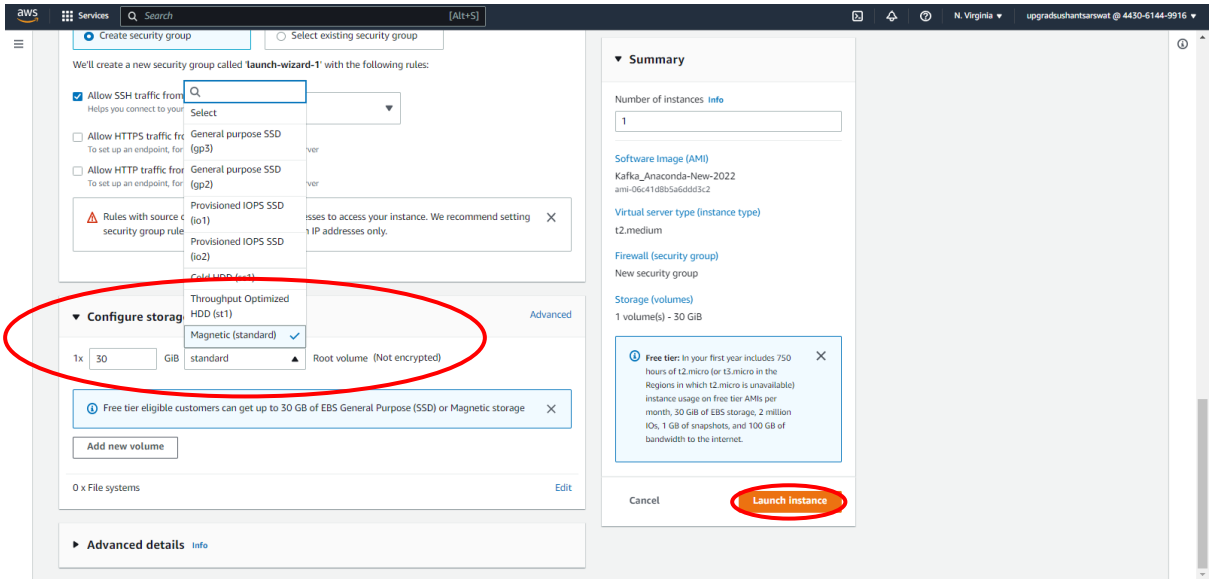


8. Configuring Security Group and adding port number 2181, 9092, 9000, 8080, 8888

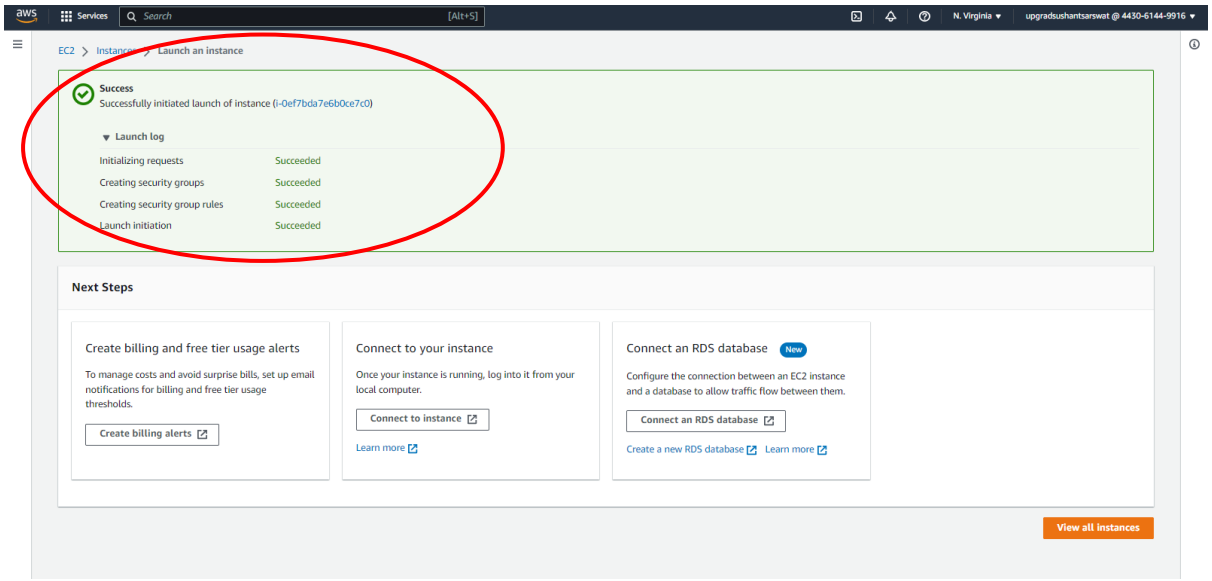




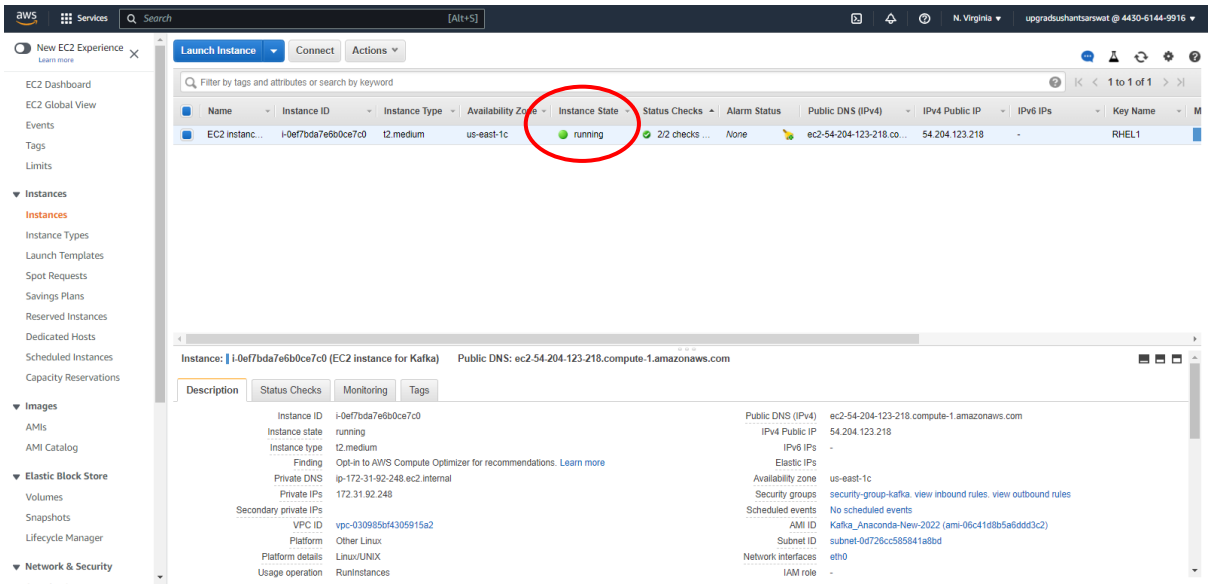
9. Configure Storage - 30 GB Magnetic Standard and 'Launch instance'



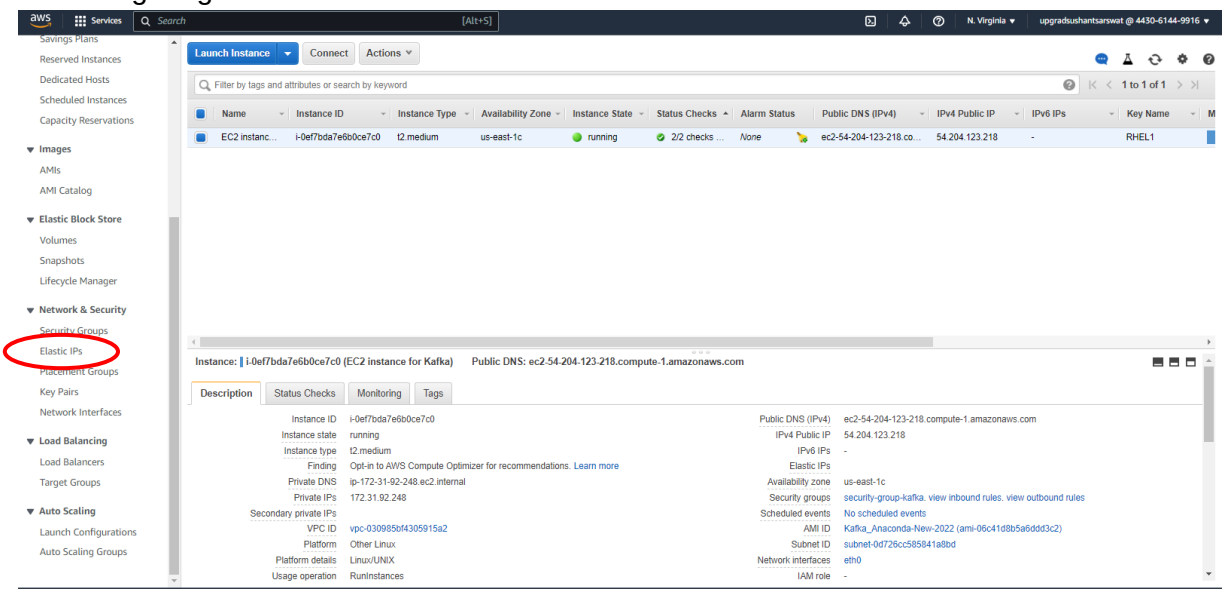
10. Successful Launch of instance - View all instances

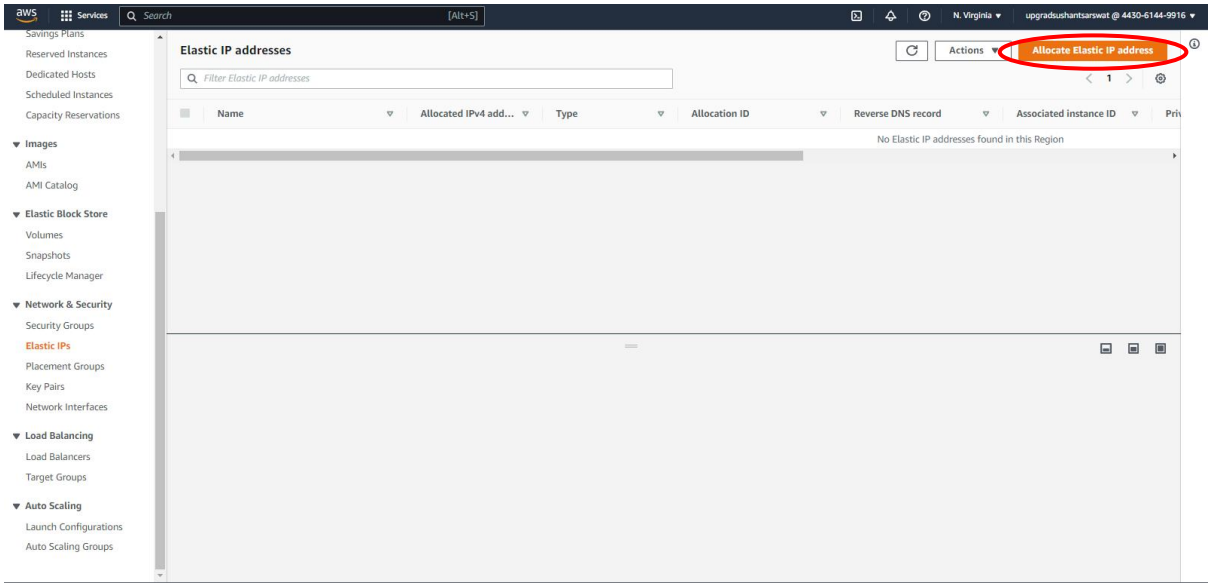


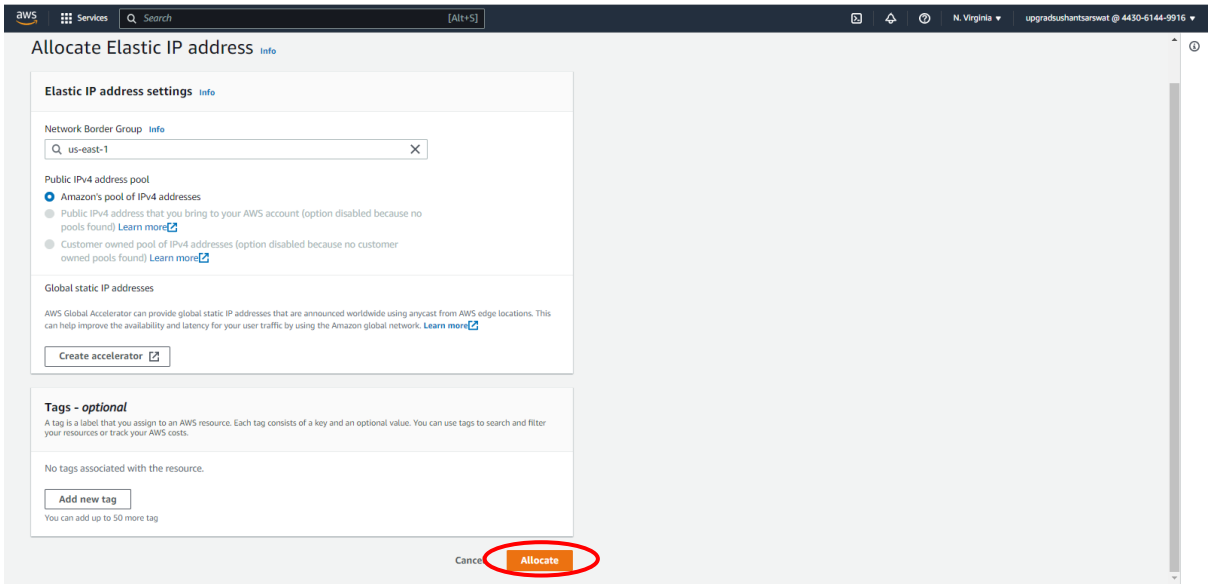
11. Monitoring 'Instance State'

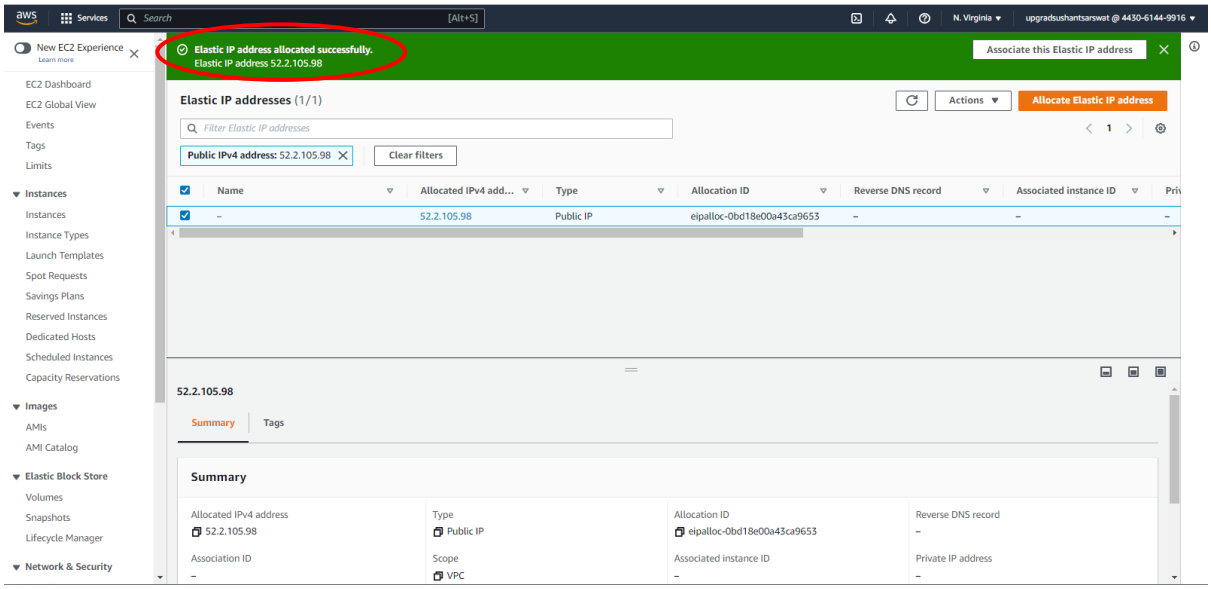


12. Configuring Elastic IP

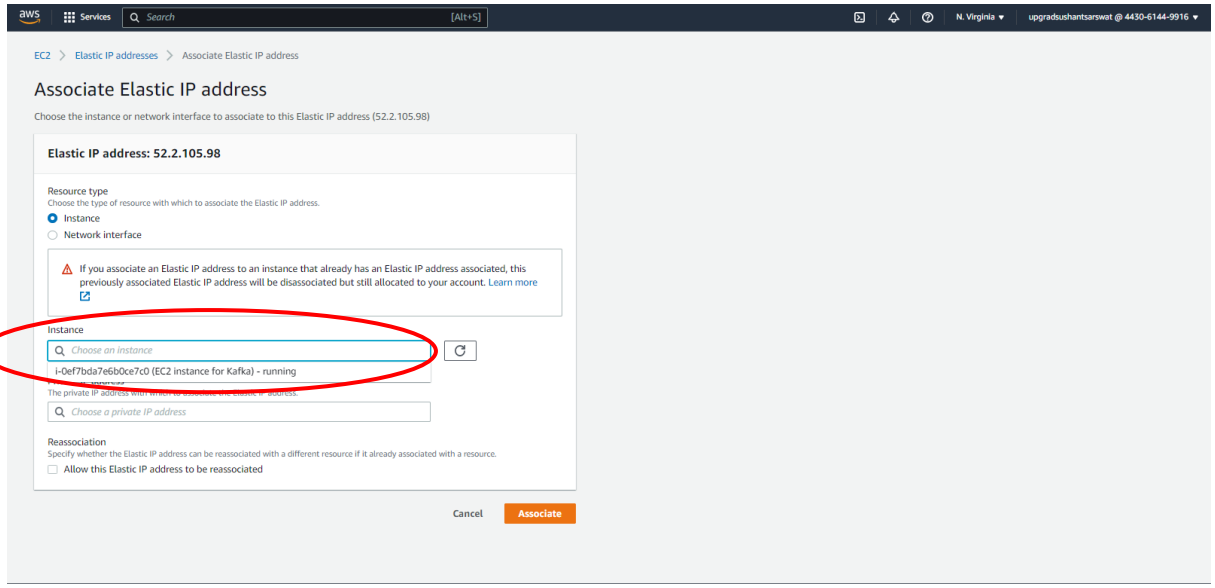


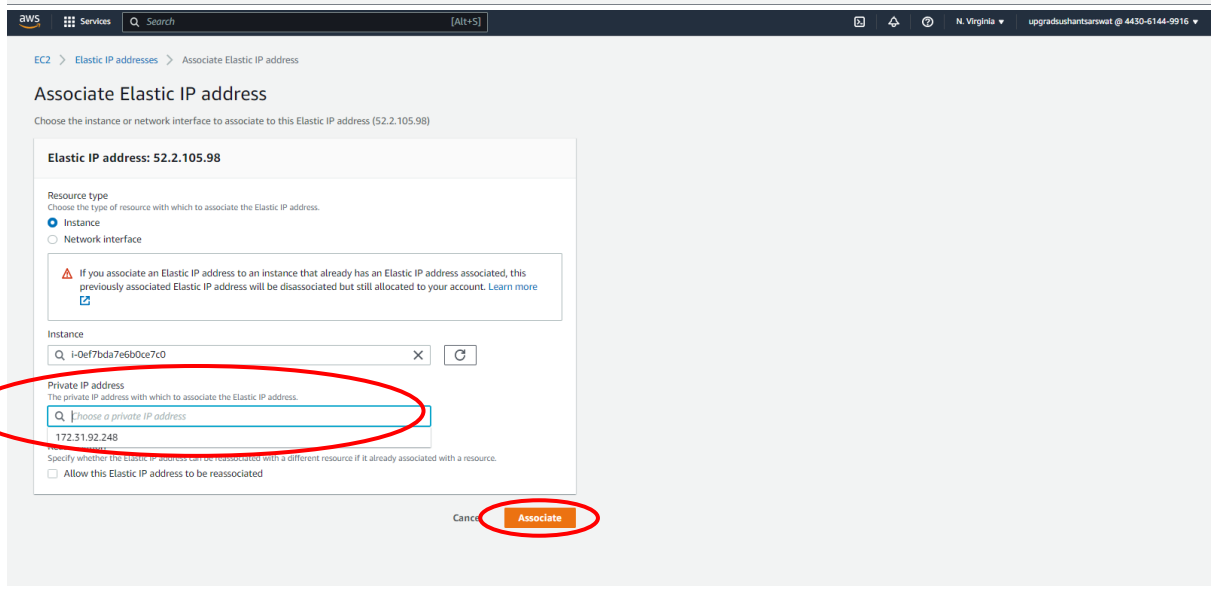




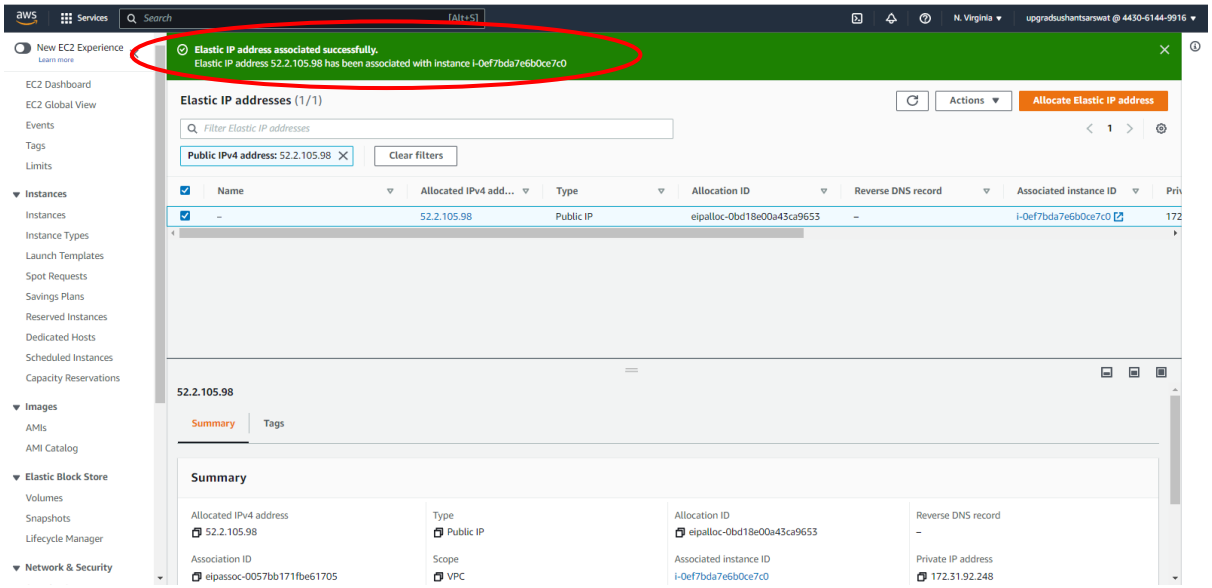


13. Associating Elastic IP address with instance

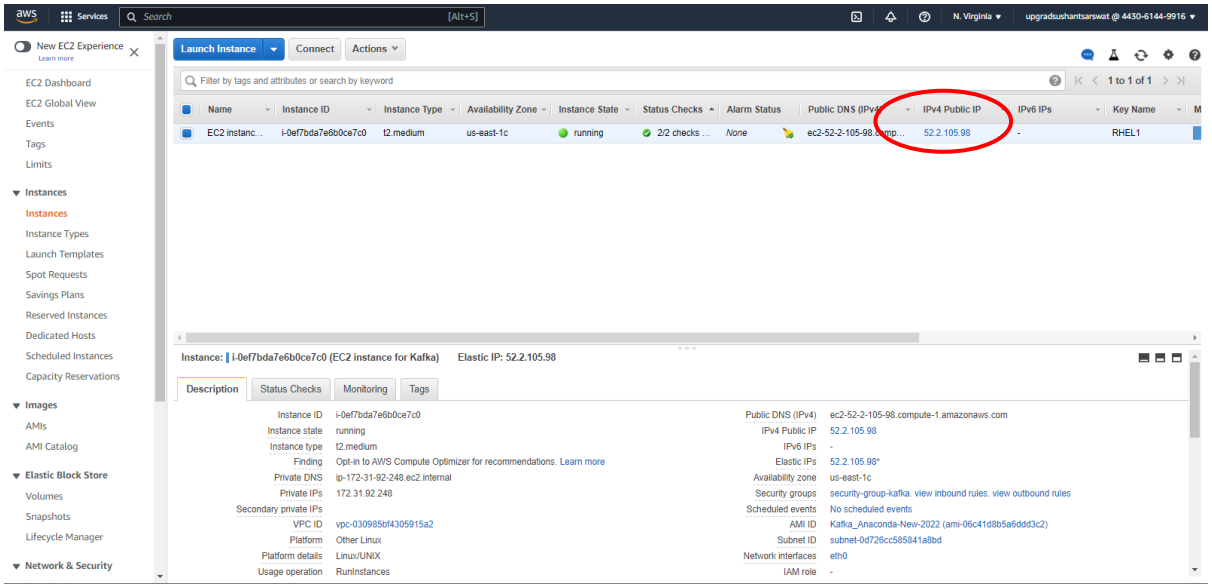




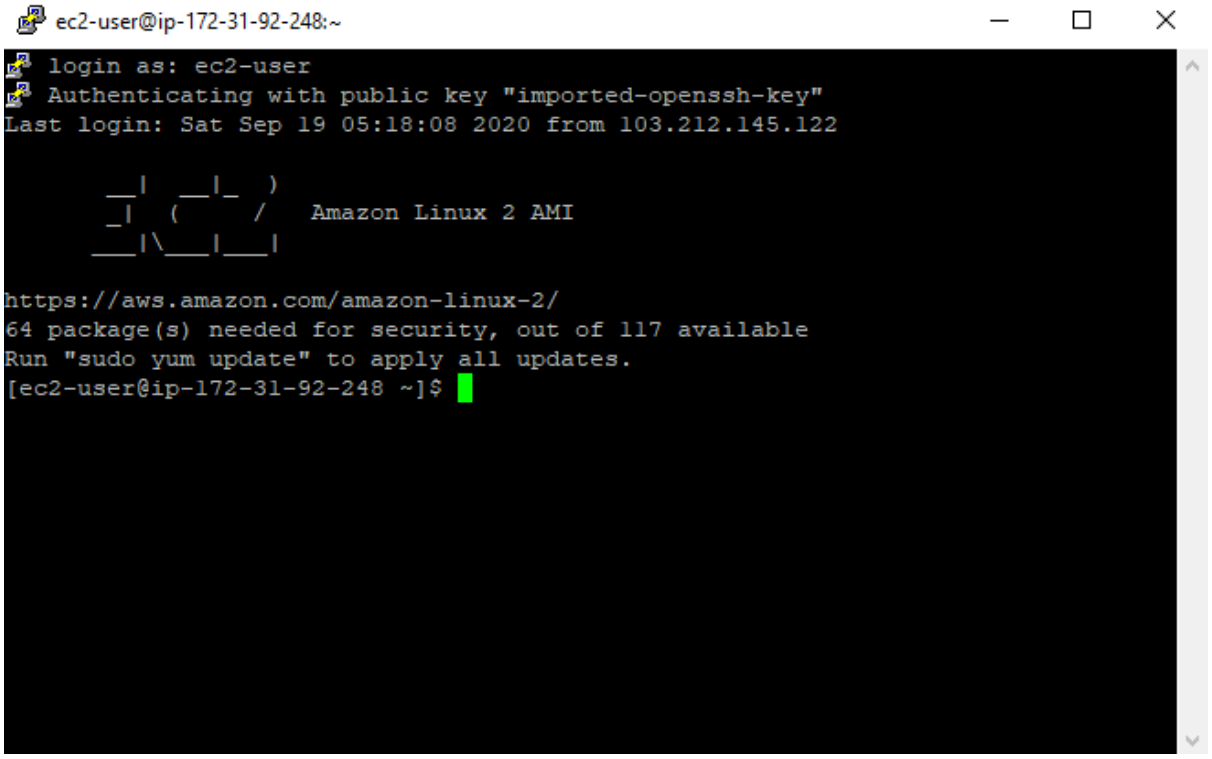
14. Elastic IP address associated successfully



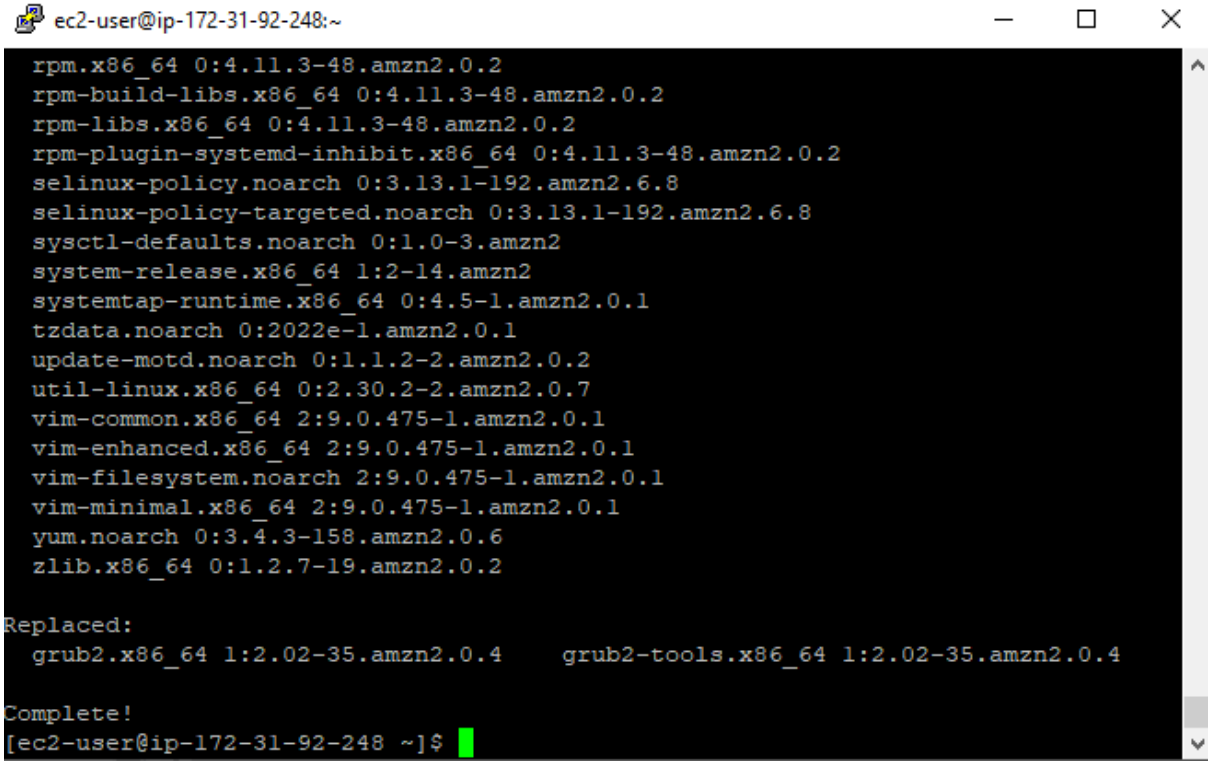
15. Verifying association of Elastic IP address with EC2 instance



16. Login to EC2 instance

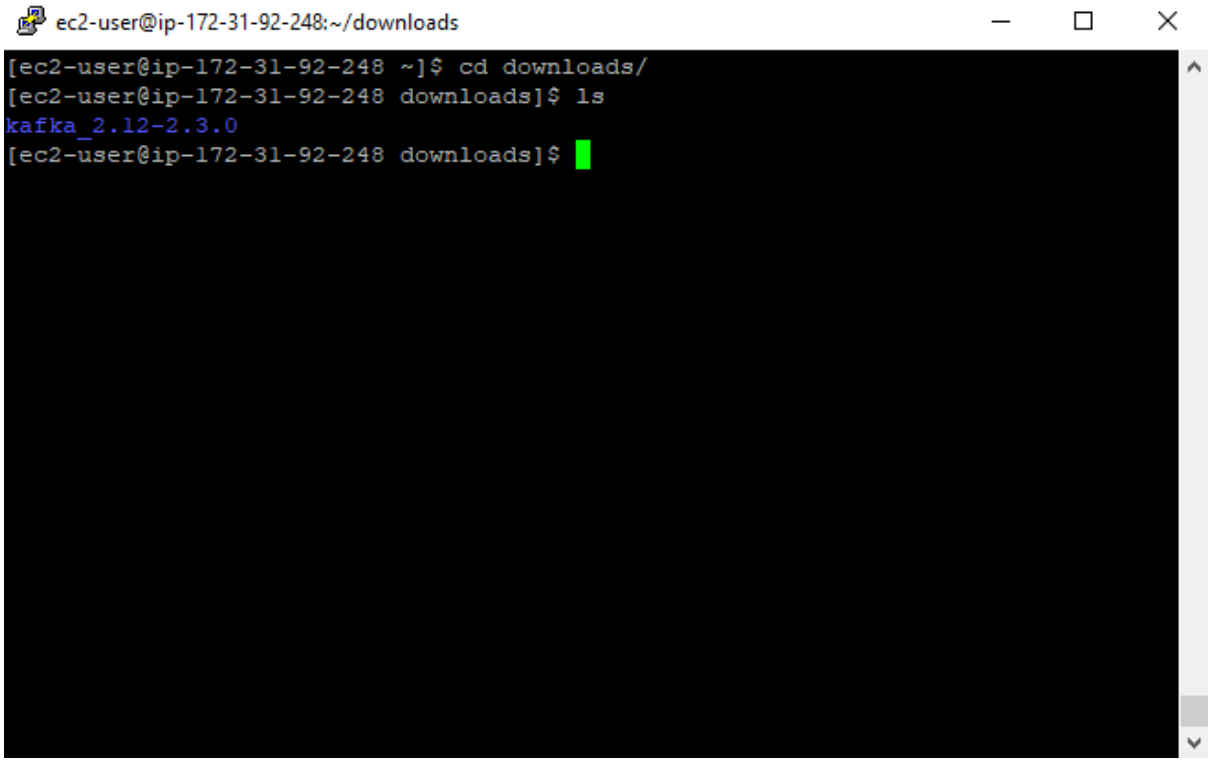


17. Updating EC2 instance using 'sudo yum update'



18. Listing files available in downloads folder

```
cd downloads/
ls
```



19. Changing path to kafka_2.12-2.3.0/config and modifying server.properties

```
cd kafka_2.12-2.3.0
cd config/
ls
```

```
[ec2-user@ip-172-31-92-248 downloads]$ cd kafka_2.12-2.3.0
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ cd config/
[ec2-user@ip-172-31-92-248 config]$ ls
connect-console-sink.properties    consumer.properties
connect-console-source.properties  log4j.properties
connect-distributed.properties     producer.properties
connect-file-sink.properties       server.properties
connect-file-source.properties     tools-log4j.properties
connect-log4j.properties           trogdor.conf
connect-standalone.properties      zookeeper.properties
```

20. Type **vi server.properties** and press 'I' for insert mode. Remove the '#' from the following line and insert the elastic IP address as displayed. Post changes press 'Esc' and type '**:wq!**' to save changes

```
[ec2-user@ip-172-31-92-248 config]$ vi server.properties
#advertised.listeners=PLAINTEXT://your.host.name:9092
advertised.listeners=PLAINTEXT://52.2.105.98:9092
```

21. Verify Installation

(a) Zookeeper

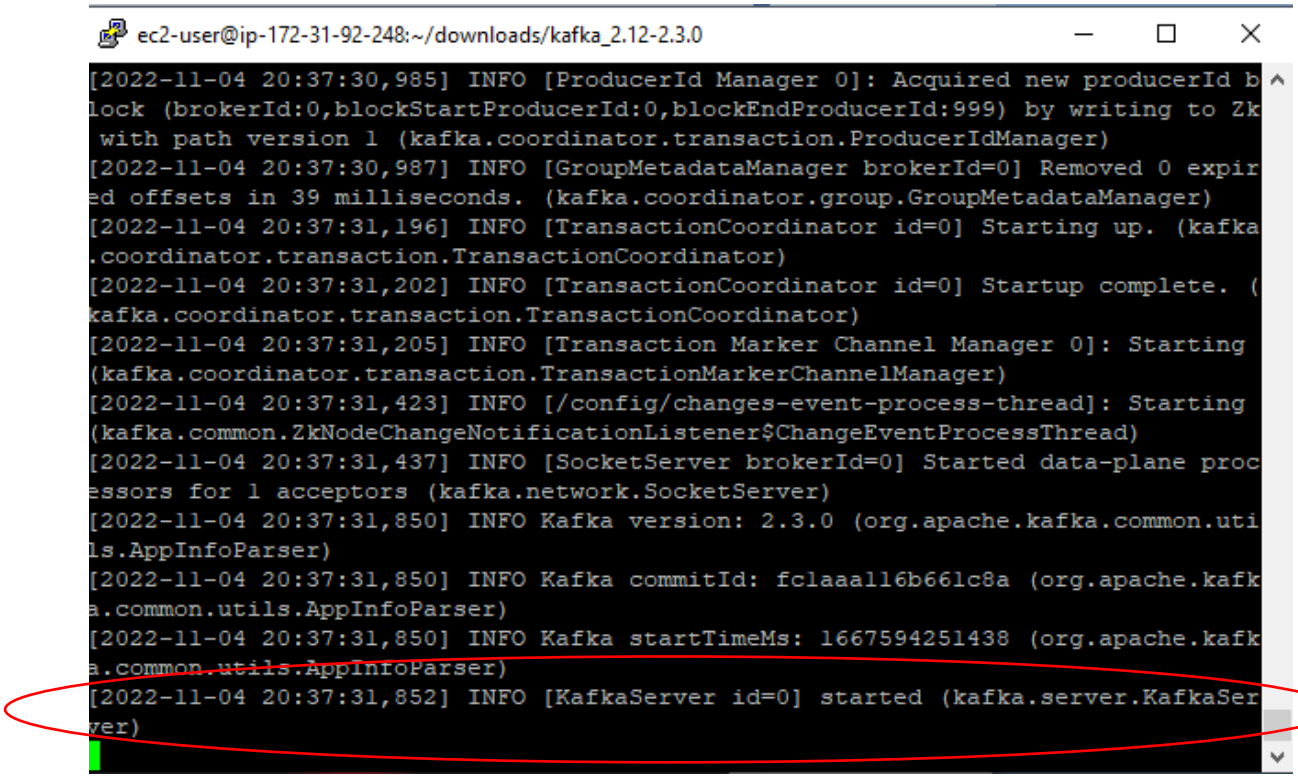
Go to the Kafka directory using the **cd kafka_2.12-2.3.0/** command and then start the Zookeeper server using the **bin/zookeeper-server-start.sh config/zookeeper.properties** command

```
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ bin/zookeeper-server-start.sh conf
ig/zookeeper.properties
[2022-11-04 20:27:45,623] INFO Server environment:os.name=Linux (org.apache.zook
eeper.server.ZooKeeperServer)
[2022-11-04 20:27:45,623] INFO Server environment:os.arch=amd64 (org.apache.zook
eeper.server.ZooKeeperServer)
[2022-11-04 20:27:45,623] INFO Server environment:os.version=4.14.193-149.317.am
zn2.x86_64 (org.apache.zookeeper.server.ZooKeeperServer)
[2022-11-04 20:27:45,623] INFO Server environment:user.name=ec2-user (org.apache
.zookeeper.server.ZooKeeperServer)
[2022-11-04 20:27:45,623] INFO Server environment:user.home=/home/ec2-user (org.
apache.zookeeper.server.ZooKeeperServer)
[2022-11-04 20:27:45,623] INFO Server environment:user.dir=/home/ec2-user/downlo
ads/kafka_2.12-2.3.0 (org.apache.zookeeper.server.ZooKeeperServer)
[2022-11-04 20:27:45,644] INFO tickTime set to 3000 (org.apache.zookeeper.server
.ZooKeeperServer)
[2022-11-04 20:27:45,644] INFO minSessionTimeout set to -1 (org.apache.zookeeper
.server.ZooKeeperServer)
[2022-11-04 20:27:45,644] INFO maxSessionTimeout set to -1 (org.apache.zookeeper
.server.ZooKeeperServer)
[2022-11-04 20:27:45,966] INFO Using org.apache.zookeeper.server.NIOServerCnxnFa
ctory as server connection factory (org.apache.zookeeper.server.ServerCnxnFactor
y)
[2022-11-04 20:27:46,226] INFO binding to port 0.0.0.0/0.0.0.0:2181 (org.apache.
zookeeper.server.NIOServerCnxnFactory)
```

(b) Starting Kafka server (**Do this with Zookeeper server running**)

cd downloads/kafka_2.12-2.3.0
bin/kafka-server-start.sh config/server.properties

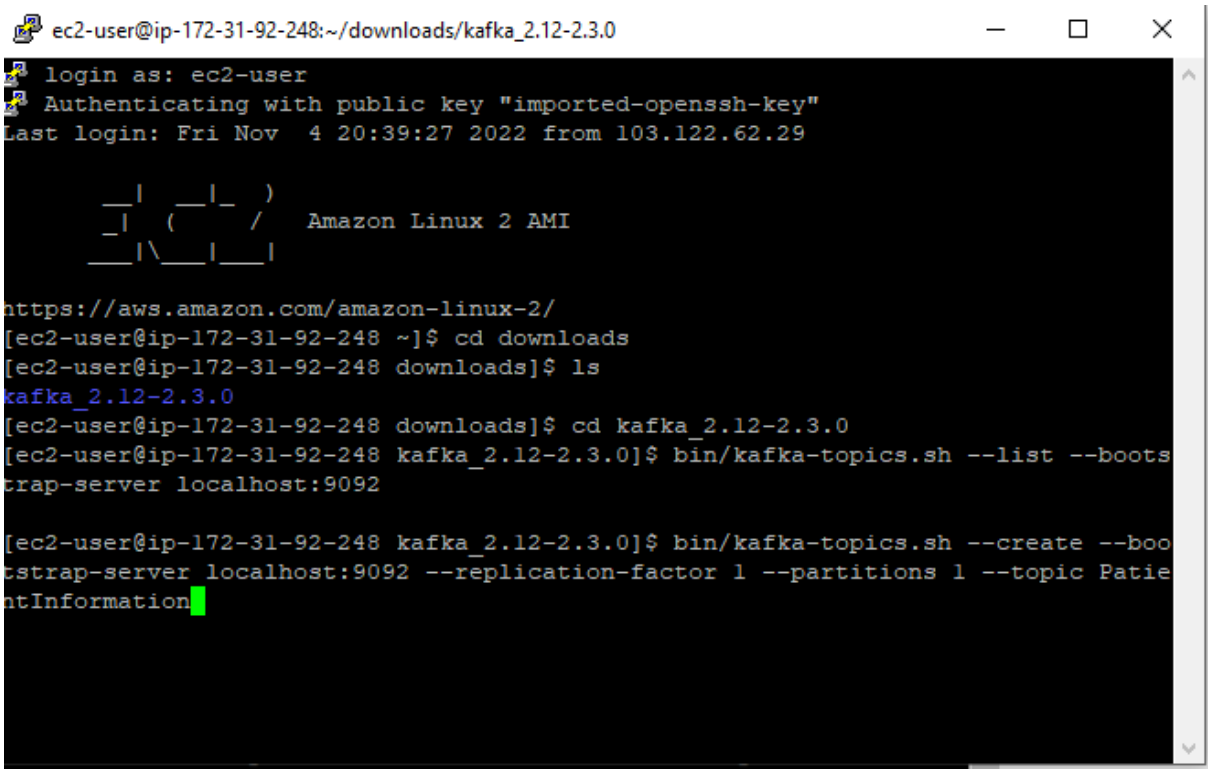
```
[ec2-user@ip-172-31-92-248 ~]$ cd downloads/kafka_2.12-2.3.0
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ bin/kafka-server-start.sh config/s
erver.properties
```



22. **STATEMENT TO CREATE TOPICS**

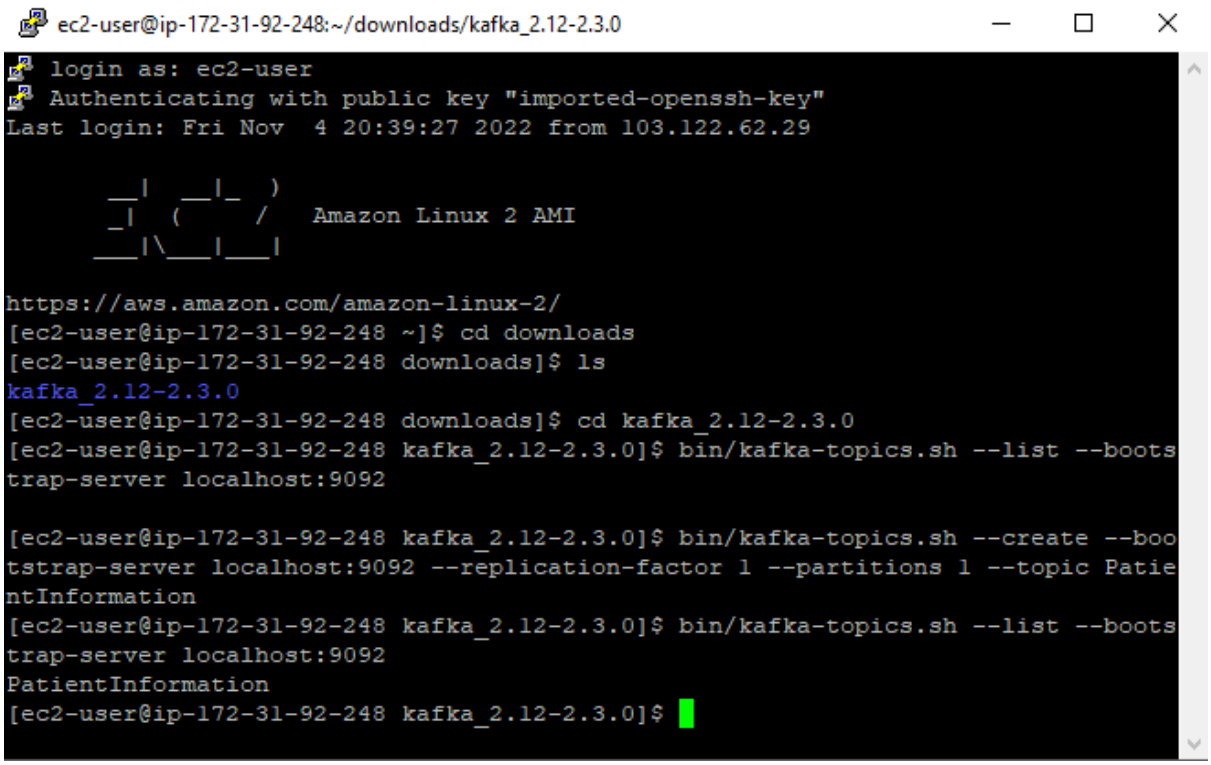
To create topic in kafka server ,the command used is

bin/kafka-topics.sh --create --bootstrap-server localhost:9092 --replication-factor 1 --partitions 1 --topic PatientInformation



23. **STATEMENT TO LIST TOPICS**

To list the topics in kafka server ,the command used is :
bin/kafka-topics.sh --list --bootstrap-server localhost:9092



24. Install the mysql-connector using the following command

pip install mysql-connector-python-rf

```
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ pip install mysql-connector-python
-rf
```

ec2-user@ip-172-31-92-248:~/downloads/kafka_2.12-2.3.0

```
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ pip install mysql-connector-python
-rf
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please
 upgrade your Python as Python 2.7 is no longer maintained. pip 21.0 will drop s
upport for Python 2.7 in January 2021. More details about Python 2 support in pi
p can be found at https://pip.pypa.io/en/latest/development/release-process/#pyt
hon-2-support pip 21.0 will remove support for this functionality.
Collecting mysql-connector-python-rf
  Downloading mysql-connector-python-rf-2.2.2.tar.gz (11.9 MB)
     |████████████████████████████████| 11.9 MB 1.0 MB/s
Building wheels for collected packages: mysql-connector-python-rf
  Building wheel for mysql-connector-python-rf (setup.py) ... done
  Created wheel for mysql-connector-python-rf: filename=mysql_connector_python_r
f-2.2.2-cp27-cp27mu-linux_x86_64.whl size=243519 sha256=6e8b2da3989574cd47b0de18
d39f6743f0c007e0ff80d48cabd52fb80bf33374
  Stored in directory: /home/ec2-user/.cache/pip/wheels/3b/b5/d4/5d0e3338625186a
b2fbf75908b58178b859aa8e1fd1291a0fa
Successfully built mysql-connector-python-rf
Installing collected packages: mysql-connector-python-rf
Successfully installed mysql-connector-python-rf-2.2.2
WARNING: You are using pip version 20.2.3; however, version 20.3.4 is available.
You should consider upgrading via the '/home/ec2-user/anaconda2/bin/python -m pi
p install --upgrade pip' command.
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$
```

25. Install kafka using the following command:

pip install kafka

```
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ pip install kafka
```

```
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$ pip install kafka
DEPRECATION: Python 2.7 reached the end of its life on January 1st, 2020. Please
 upgrade your Python as Python 2.7 is no longer maintained. pip 21.0 will drop s
upport for Python 2.7 in January 2021. More details about Python 2 support in pi
p can be found at https://pip.pypa.io/en/latest/development/release-process/#pyt
hon-2-support pip 21.0 will remove support for this functionality.
Collecting kafka
  Downloading kafka-1.3.5-py2.py3-none-any.whl (207 kB)
     |████████████████████████████████| 207 kB 33.3 MB/s
Installing collected packages: kafka
Successfully installed kafka-1.3.5
WARNING: You are using pip version 20.2.3; however, version 20.3.4 is available.
You should consider upgrading via the '/home/ec2-user/anaconda2/bin/python -m pi
p install --upgrade pip' command.
[ec2-user@ip-172-31-92-248 kafka_2.12-2.3.0]$
```

26. Start producer using the following command from /home/ec2-user:
python kafka_produce_patient_vitals.py

```
[ec2-user@ip-172-31-92-248 ~]$ python kafka_produce_patient_vitals.py
1,74,202
2,68,173
3,71,152
4,72,166
5,68,171
1,70,189
2,72,173
3,68,178
4,71,152
5,73,166
1,74,185
2,67,177
3,66,158
4,71,177
5,66,155
1,71,220
2,67,161
3,67,174
4,67,157
```