Surge Pricing Ad. Demo Installation

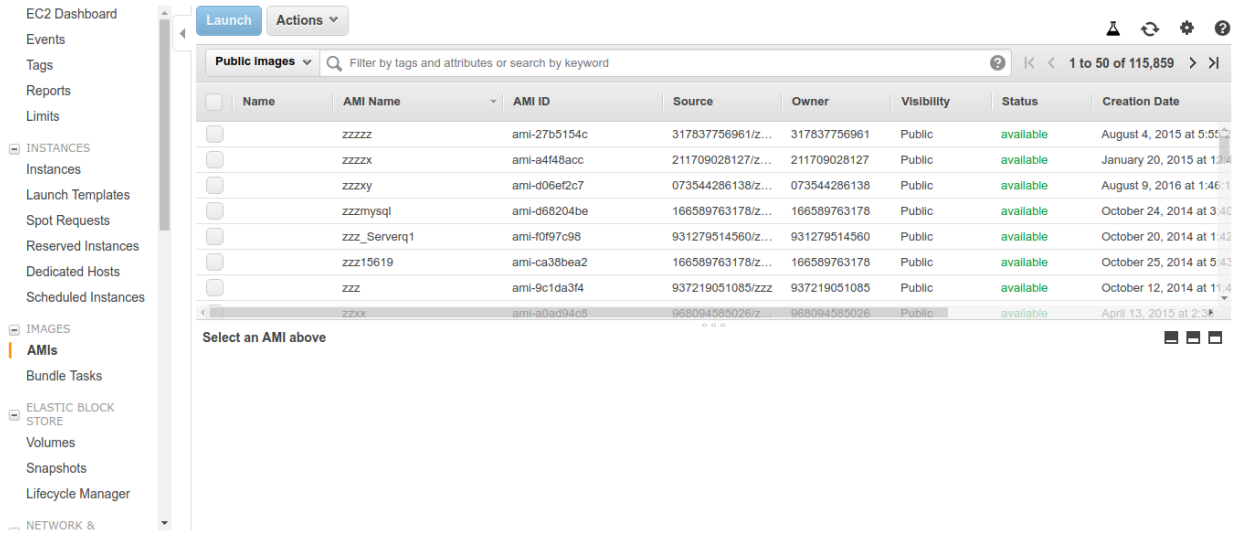
This document guides you through the setup of an EC2 instance which has been created for Surge Pricing Systems. The following services have already been installed in the EC2 instance:

1. Java 1.8
2. Zookeeper
3. Elasticsearch
4. Kibana
5. MySQL

You don't need to install all the above services again. You just have to install the OS image into your EC2 instance published as a public AMI.

The steps to install the EC2 instance are as follows:

- Go to your EC2 instance page on the AWS website and click on **AMIs** and select **Public Image** as shown below.



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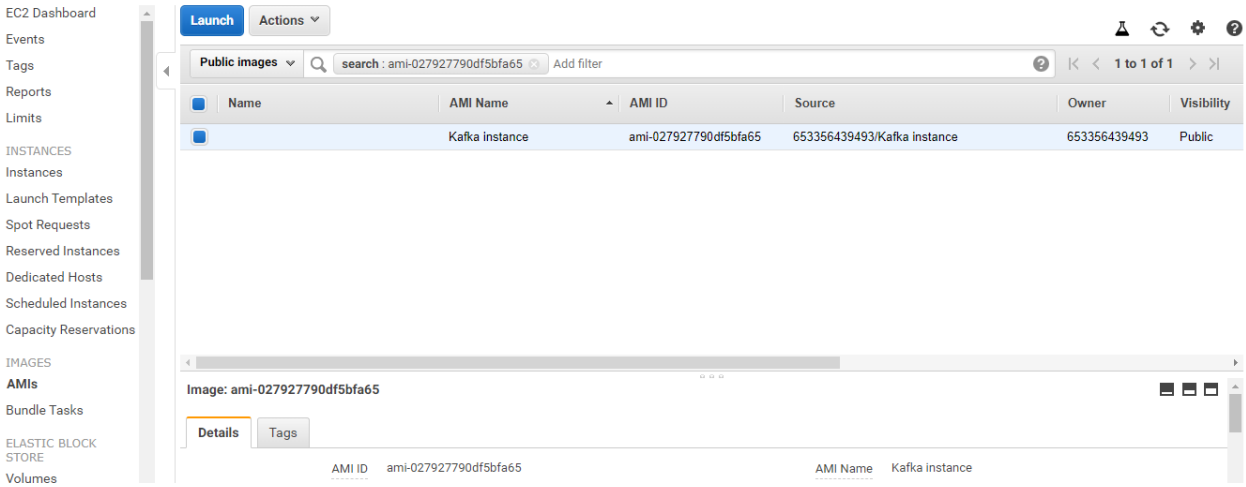
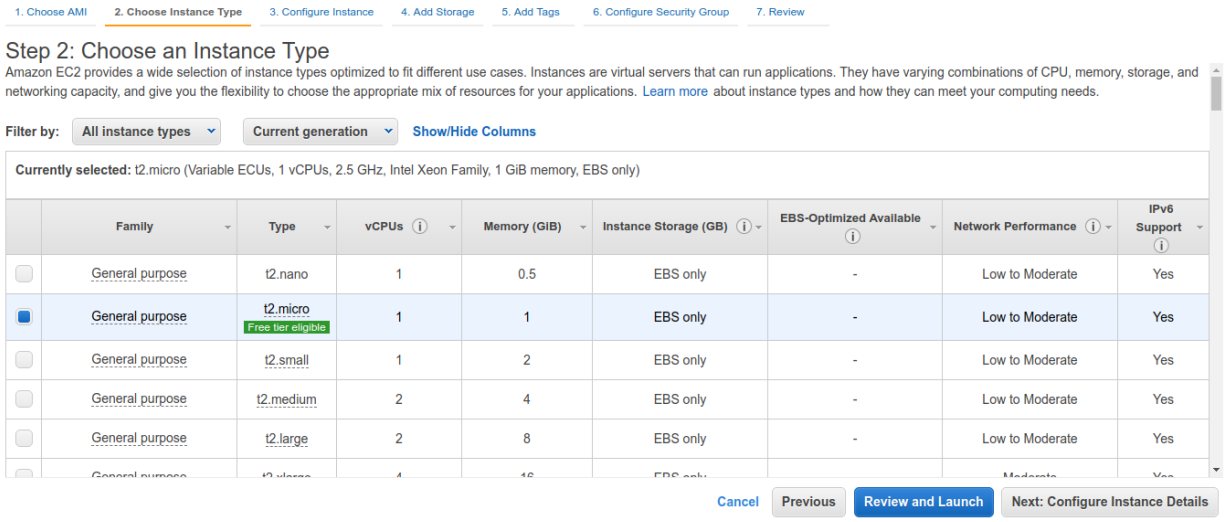
- In the **Public Image** search box, search for the "**ami-027927790df5bfa65**" AMI id.



- Once you find the EC2 instance having the desired AMI ID, click on the check-box against it and then click on the **Launch** button after which you should get the following page.



- Choose the **General purpose m4.large** type EC2 instance as shown in the image below.

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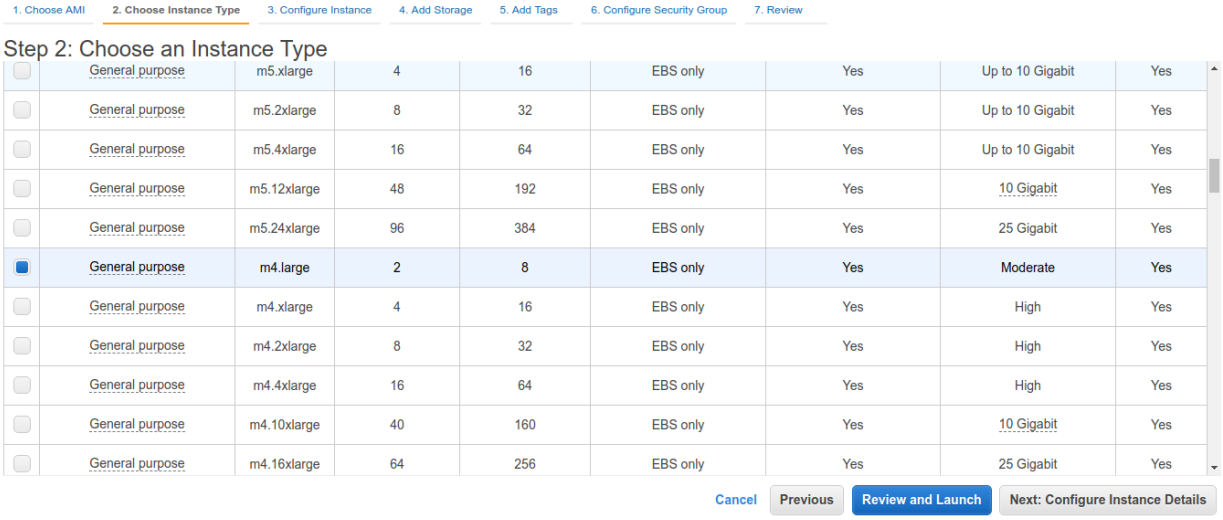
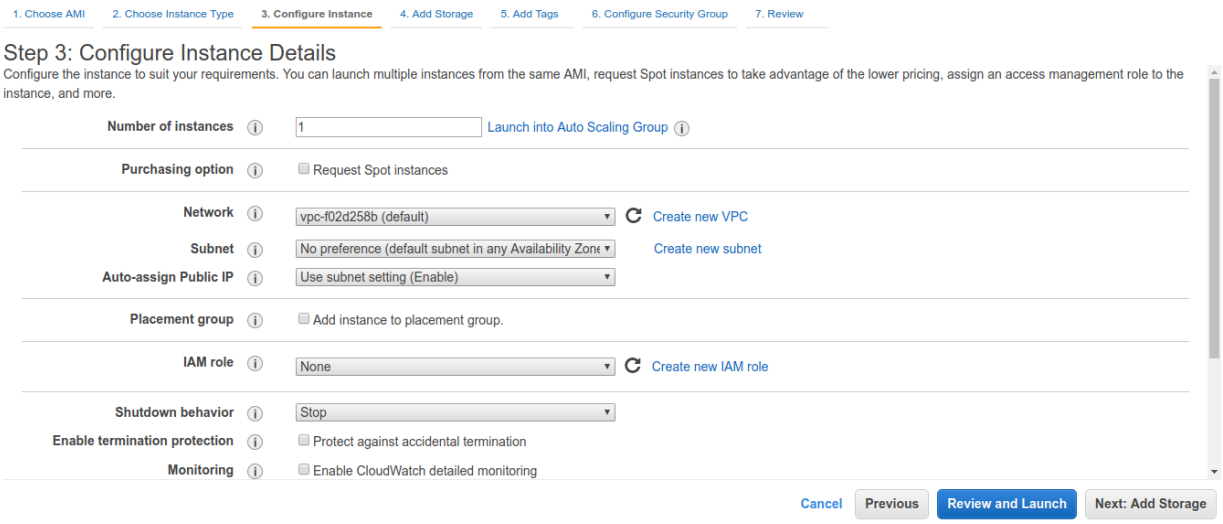


- Click on the **Next: Configure Instance Details** button after which you will be directed to the **Configure Instance Details** page, as shown in the image below.



- Leave this page as it is and then click on the **Next: Add Storage** button. You will be directed to the **Add Storage** page where you need to enter the volume size as **30 GiB** and volume type as **Magnetic (standard)**, as shown in the image below.

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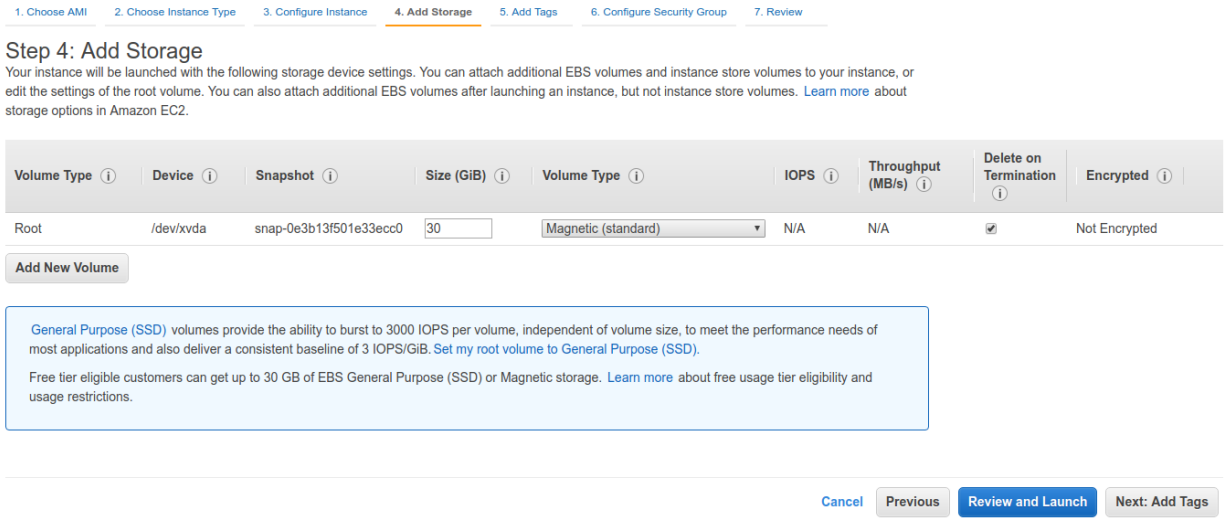
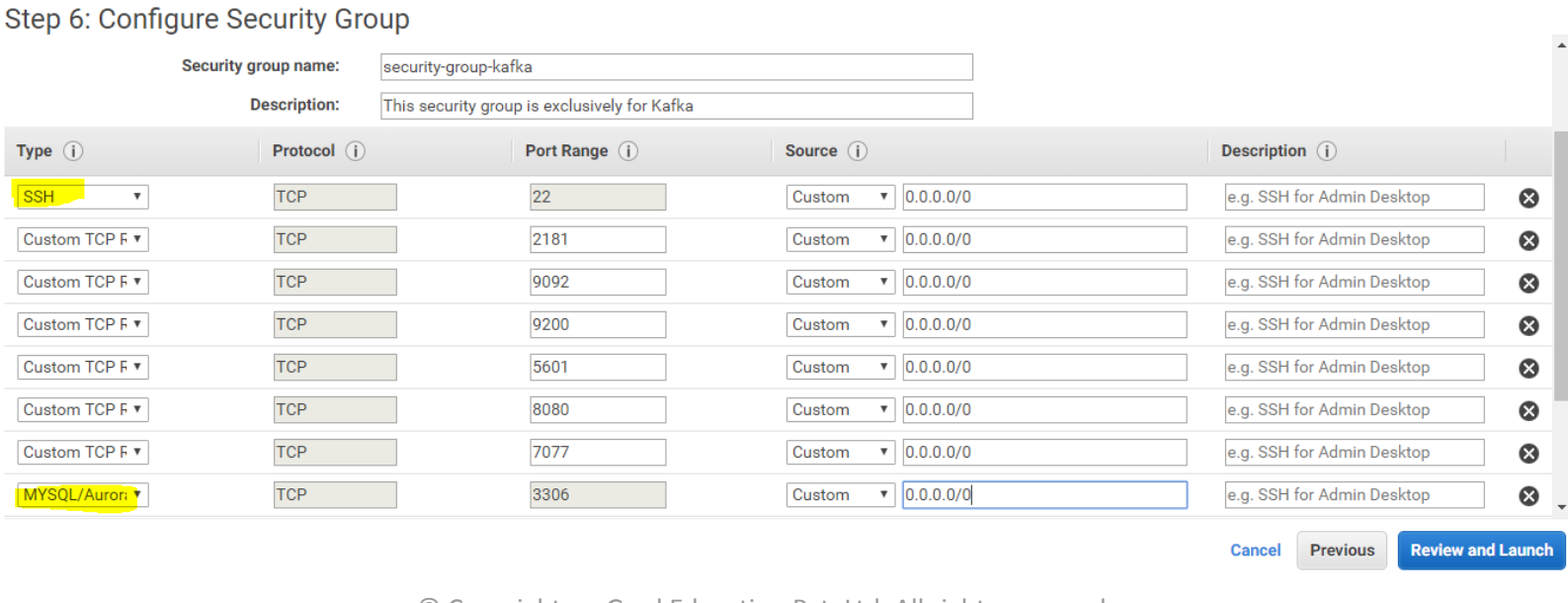


- Click on the **Next: Add Tags** button after which you will be directed to the **Add Tags** page. You may add the name tag if you wish else you can skip this page and jump on to the **Configure Security Page** where you need to make the following changes:
    - Click on **Create a new security group** radio button.
    - Give the security group name as **security-group-kafka** (you may give any other group name as well.)
    - Give the group description as anything as you like. For example, "**This security group is exclusively for Kafka.**"
    - Then, by clicking on the **Add Rule** button configure the security group as shown in the images below.
- Open port 22,2181,9092,3306,5601,8080,9200,7077

Note: This is a very important step.



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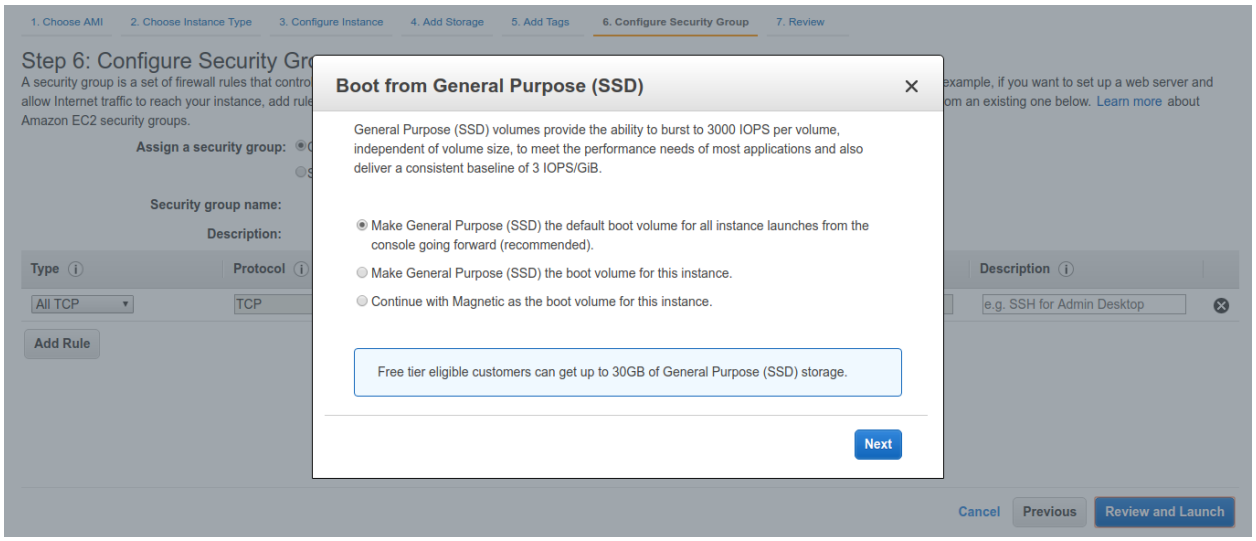
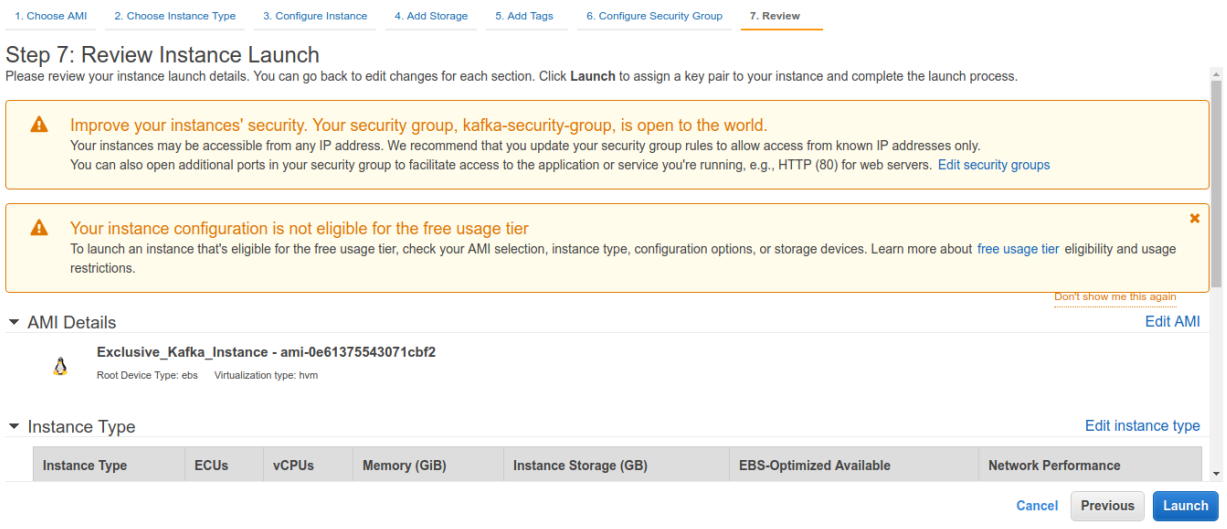
- After making the required changes, click on the **Review and Launch** button. You may be prompted with the following dialogue box.



- Click on the “Continue with Magnetic as the boot volume for this instance.” radio box and then click on the **Next** button after which you should see the following page.



- Review your instance and after verifying all the details, click on the **Launch** button. You will be prompted to either create a new key-pair or choose an existing key-pair. Select the former option if you don’t have an existing key-pair **PEM** file else select the latter option. Then, click on the **Launch Instances** button as shown below.

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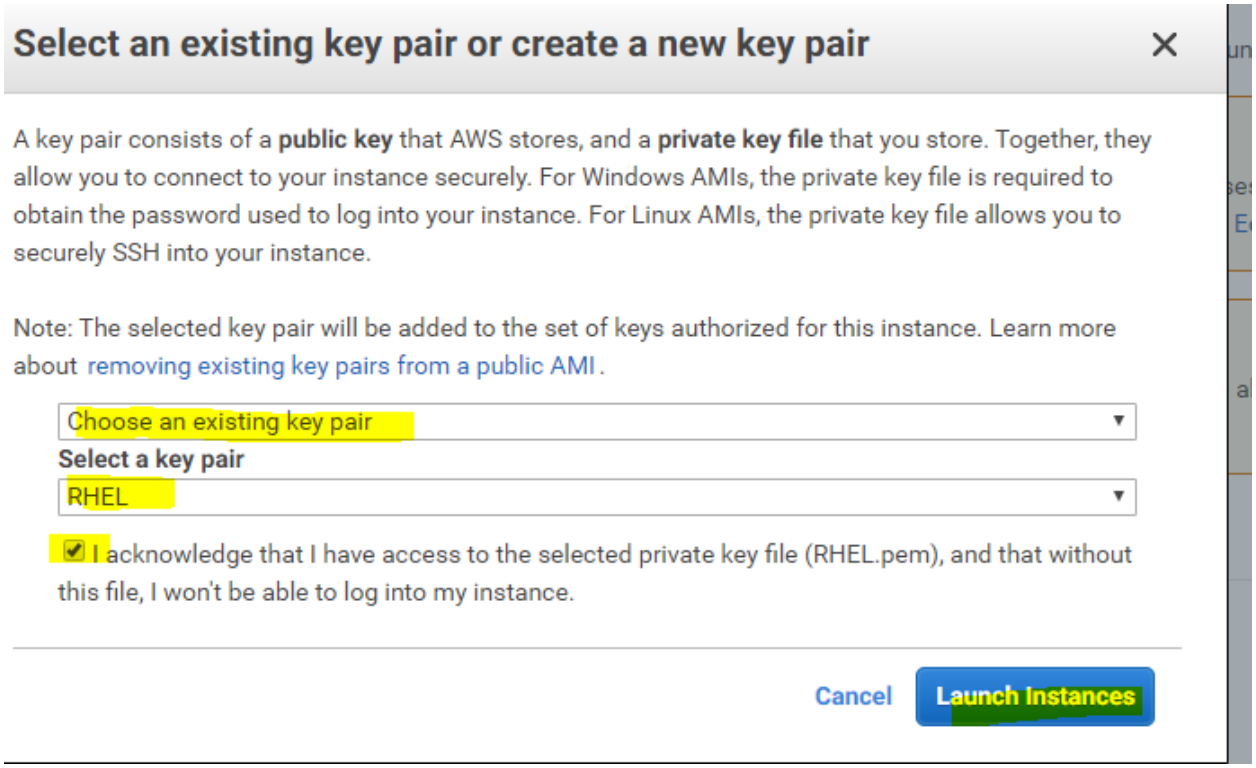
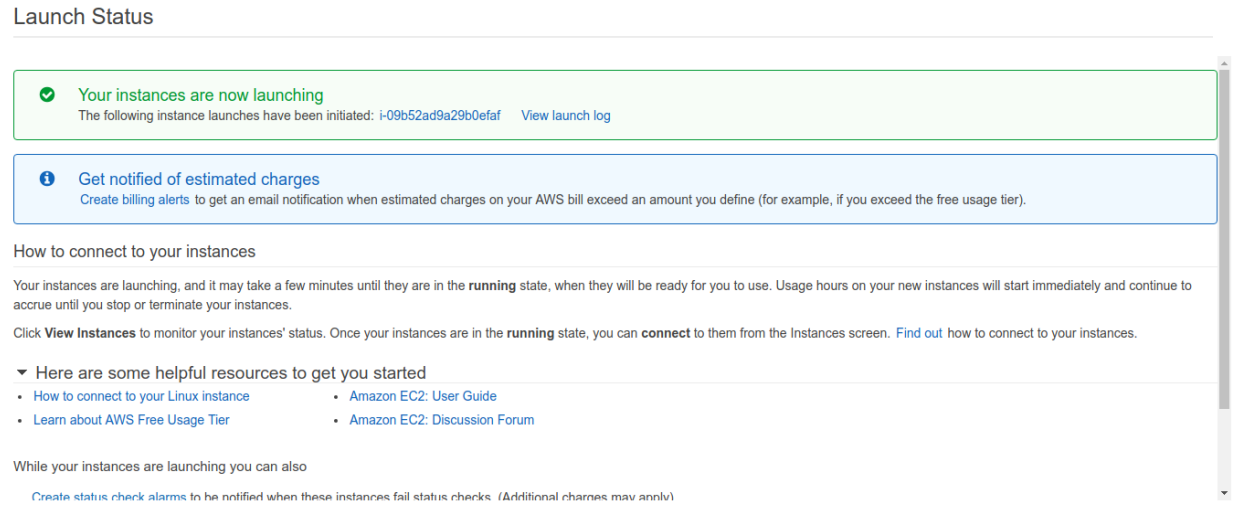
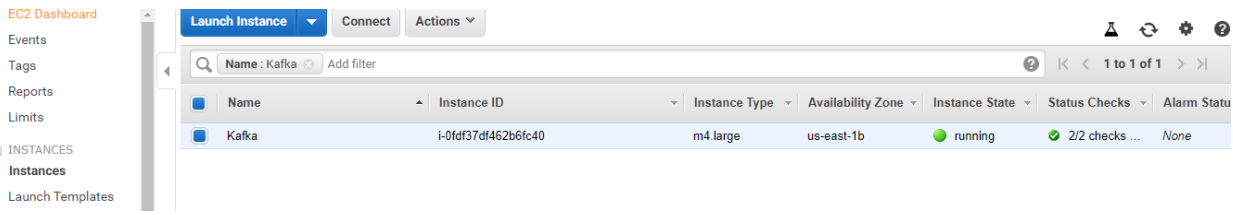


- You will get a confirmation page showing the launch status for your instance.



- Click on the View **Instances button** to see your newly created instance.



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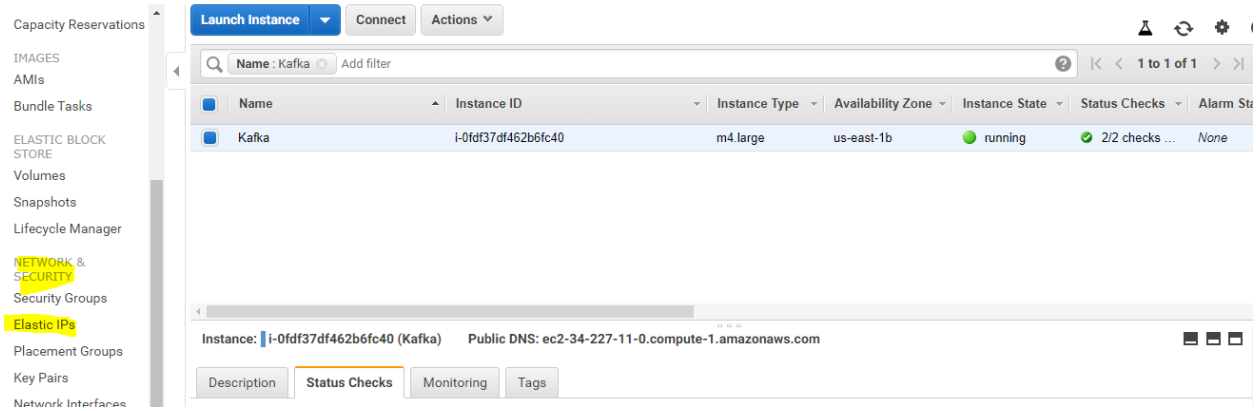
Elastic IP Creation Instructions

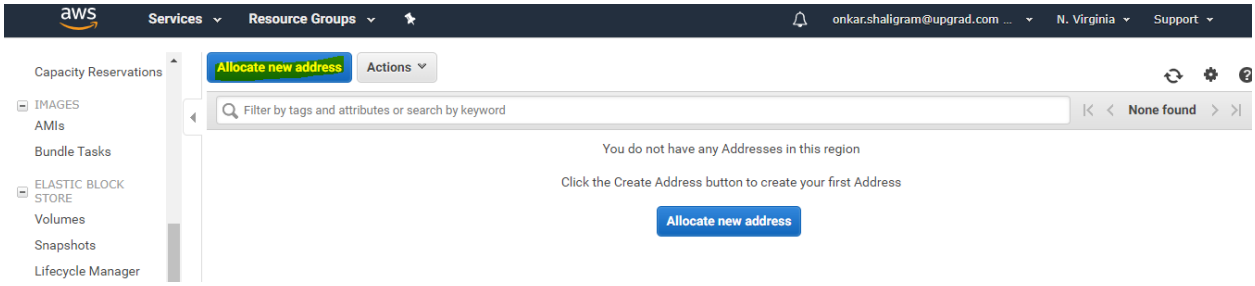
Whenever you start an EC2 instance, it generates a new IPv4 public IP. To keep the public IP constant, an elastic IP is required. A constant public IP is crucial in Kafka as you are required to create Kafka producers and consumers by writing a code. You will understand the significance of having a constant IP when you will actually write the codes.

To create an elastic IP, do the following:

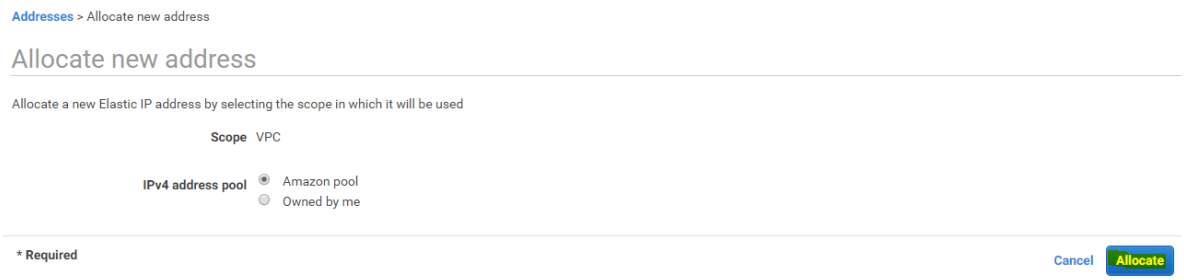
- Go to your EC2 instance page and find the **Network and Security** tab under which you will see the **Elastic IPs** link, as shown in the image below.



- Click on the **Elastic IPs** link. You will be directed to a new page as shown below.



- Click on the **Allocate new address** button. You will be redirected to a new page as shown below.



Click on Allocate and then click on close.

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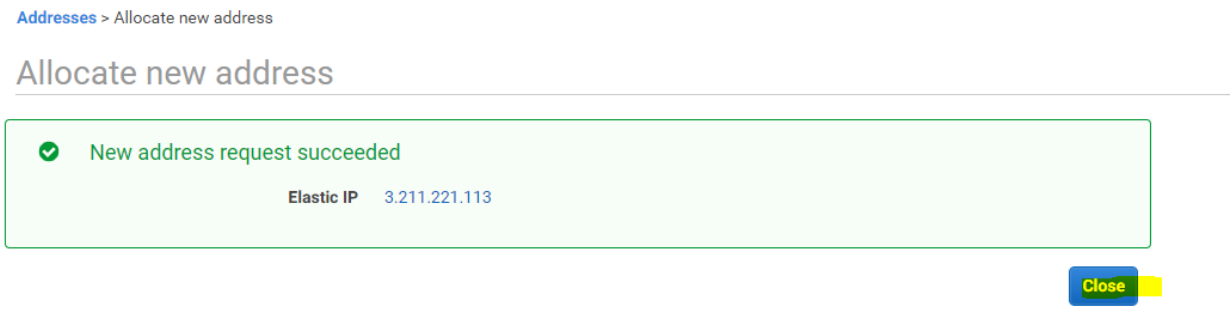
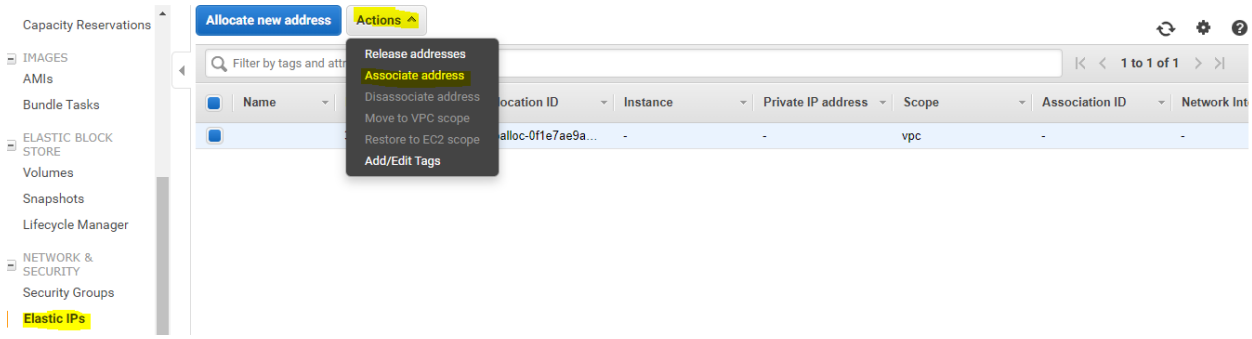
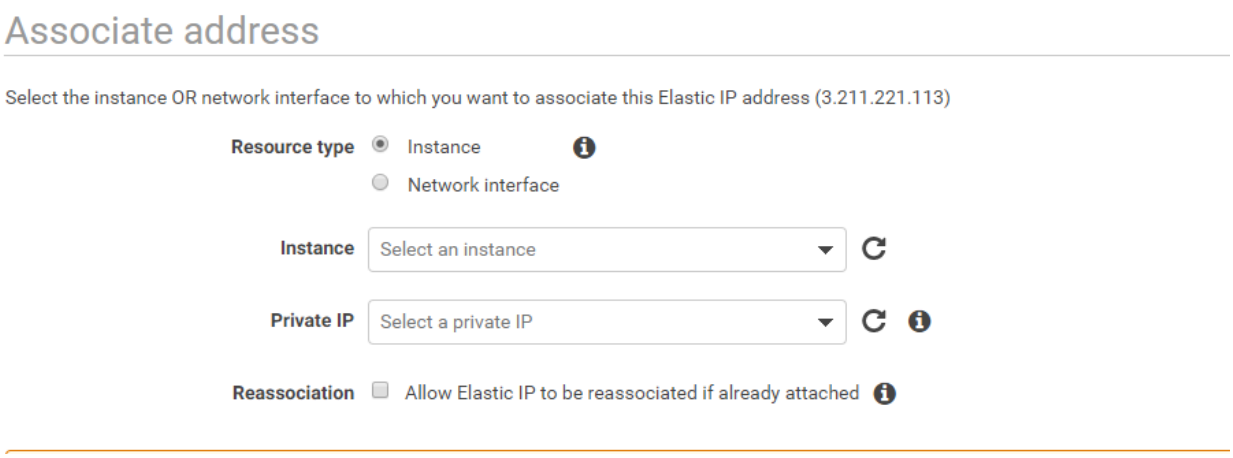


- Click on the checkbox against your newly created elastic IP. Then, click on the **Actions** button, you will get a drop-down list, as shown below.



- In the drop-down list, click on the **Associate address** link. A new page will appear as shown below.



- Click inside the **Instance** text box, you will get a list of available instances as shown below.Please select your kafka instance.

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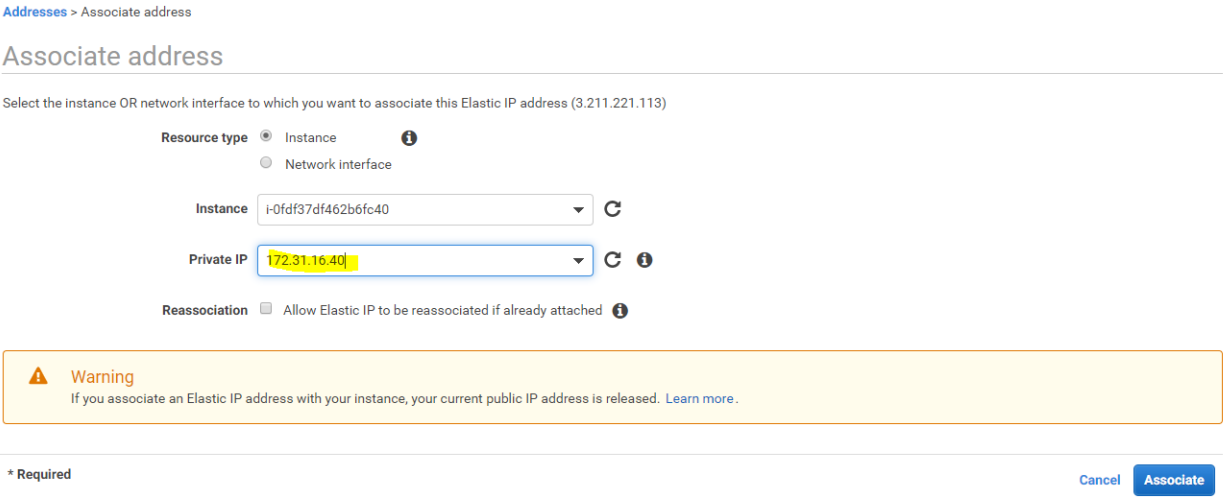
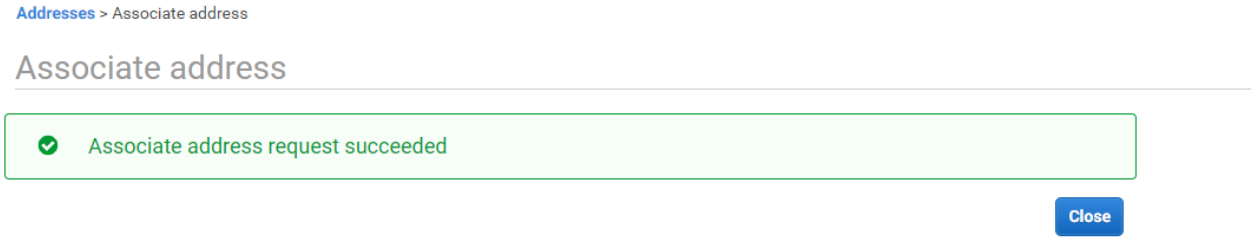
- From the list, choose the EC2 instance with which you want to attach the elastic IP. The **Instance ID** of that EC2 instance will appear in the text box as shown in the example below and assign the automatically **Private ip address** and then click on **Associate.**



-
- You will be navigated to a new page where you will have confirmation that the elastic IP has been attached to your desired EC2 instance, as shown below and click on close.



- Now, go to the **Instances** page and click on the tick box against the EC2 instance with which you associated the elastic IP. You will see that the elastic IP has been attached to the EC2 instance, as shown below.

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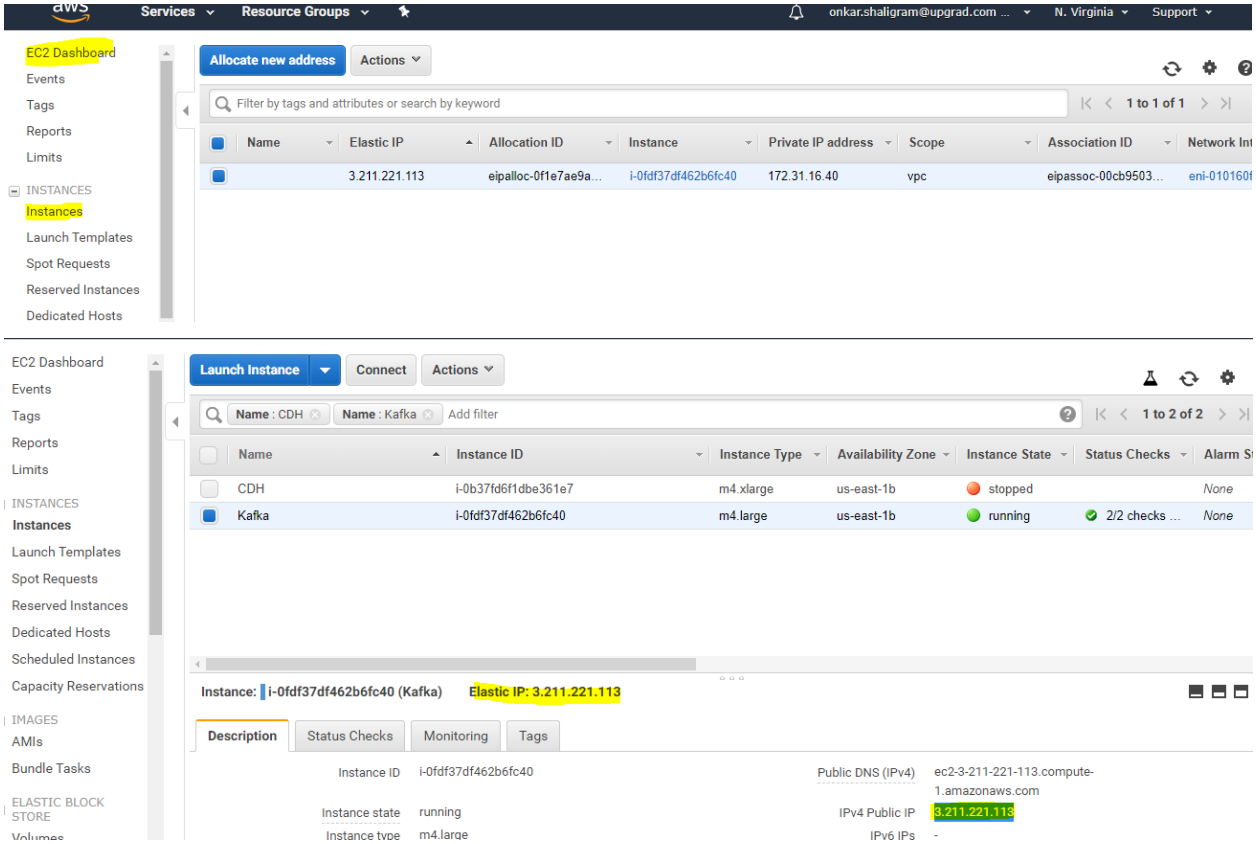
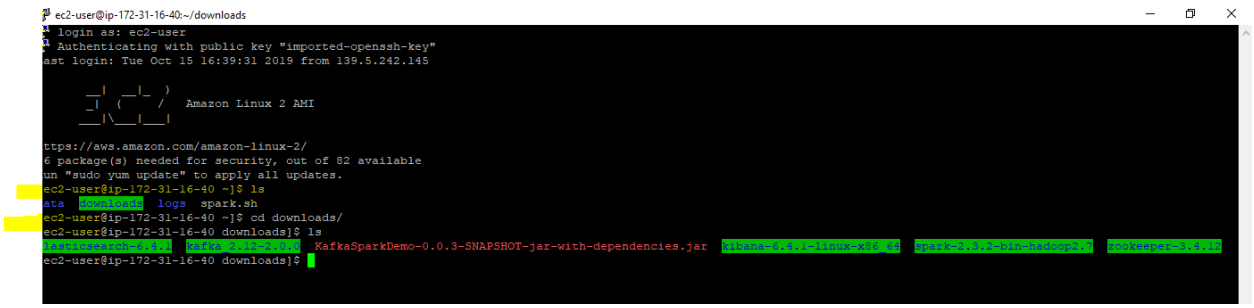


- Now, log into your EC2 instance. After logging in, go to the **/home/ec2-user/downloads** directory where you will see some of the files and directories already present, as shown in the image below.



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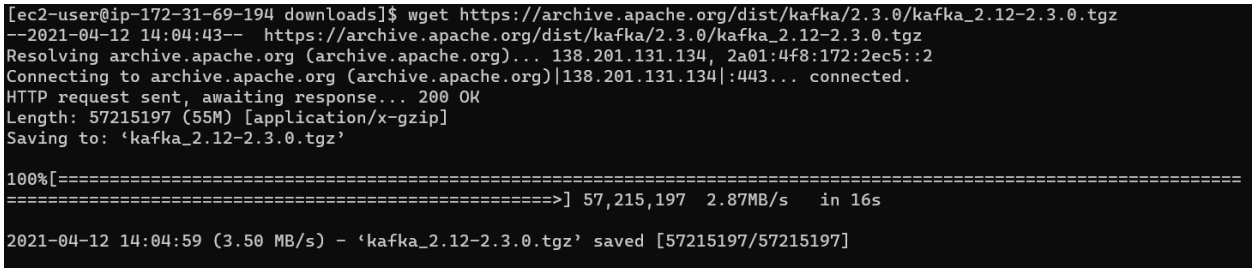
- Now you will have to delete the Kafka instance installed on your EC2 instance. For this follow the following steps -

```
cd downloads/
rm -r kafka_2.12-2.0.0/
```

- Download the kafka binaries with the following command

```
wget https://archive.apache.org/dist/kafka/2.3.0/kafka_2.12-2.3.0.tgz
```



- Extract the kafka file with the following command -

```
tar -xzf kafka_2.12-2.3.0.tgz
```

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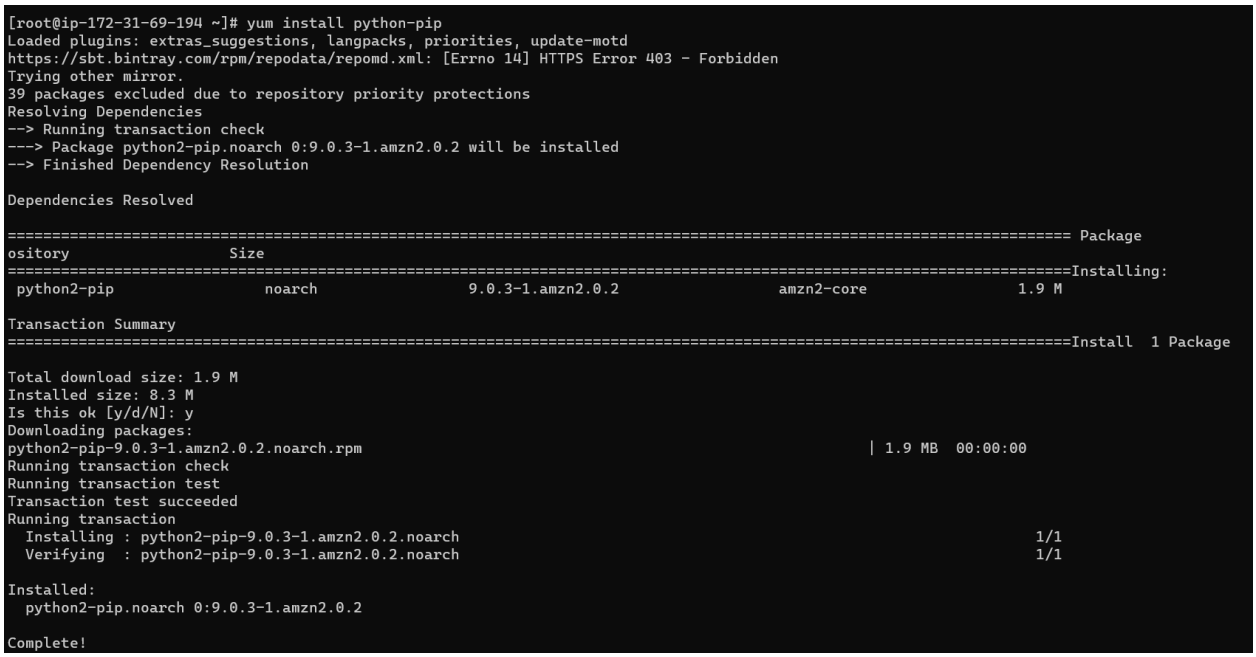
- Go into the root user and then run the following commands to install pip

```
sudo -i
yum install epel-release
yum install python-pip
```



- Next, install Kafka and PySpark with pip using with following commands -

```
pip install kafka
pip install pyspark==3.0.1
```

- Now, go back to ec2-user with the '**exit**' command and then make a new directory where you will put the files for the advanced demo. Also, make sure that you transfer the files by downloading the zip file from the platform, extracting it, and then using WinSCP to transfer the files to the directory that you just created.

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