😊 ELASTIC CLOUD COMPUTE (EC2)

Amazon Elastic Compute Cloud (Amazon EC2) is a web service provided by Amazon Web Services (AWS) that allows users to rent virtual servers in the cloud. EC2 instances provide scalable computing capacity, allowing users to quickly scale up or down based on their application requirements.

Key features of Amazon EC2 include:

1. **Scalability:** Users can easily scale their compute capacity by launching additional instances or stopping unused instances. This flexibility is particularly useful for applications with varying workloads.
2. **Variety of Instance Types:** EC2 offers a wide range of instance types optimized for different use cases, such as compute-optimized, memory-optimized, storage-optimized, and GPU instances.
3. **Customization:** Users can choose the operating system, instance type, storage, and networking configurations for their EC2 instances, providing a high degree of customization to meet specific application requirements.
4. **Security:** EC2 instances can be launched within a Virtual Private Cloud (VPC), allowing users to control network settings, security groups, and access control lists. Amazon EC2 also supports key pairs for secure access to instances.
5. **Pay-as-You-Go Pricing:** Users pay only for the compute capacity they consume, with different pricing options based on instance type, region, and usage duration. This pay-as-you-go model is cost-effective and allows for efficient resource utilization.
6. **Elastic Load Balancing:** EC2 instances can be easily integrated with Elastic Load Balancers to distribute incoming traffic across multiple instances, improving fault tolerance and availability.
7. **AMI (Amazon Machine Image):** Users can create custom machine images containing their applications, configurations, and operating systems, making it easy to launch instances with pre-configured settings.

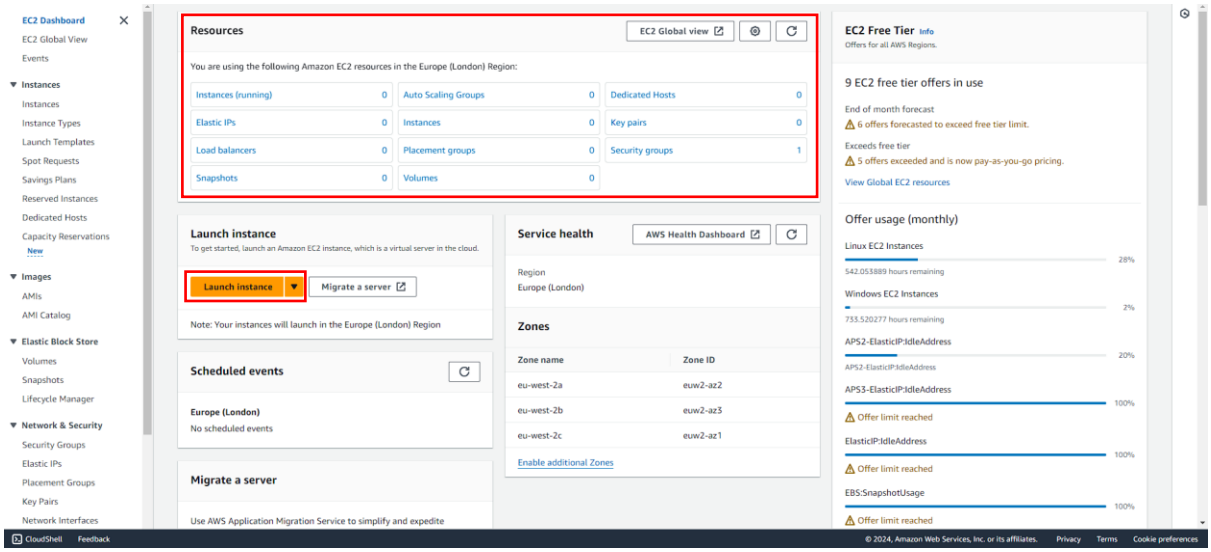
😁 TO BEGIN WITH LAB:

🤓 STEP 1: LAUNCH A WINDOWS EC2 INSTANCE

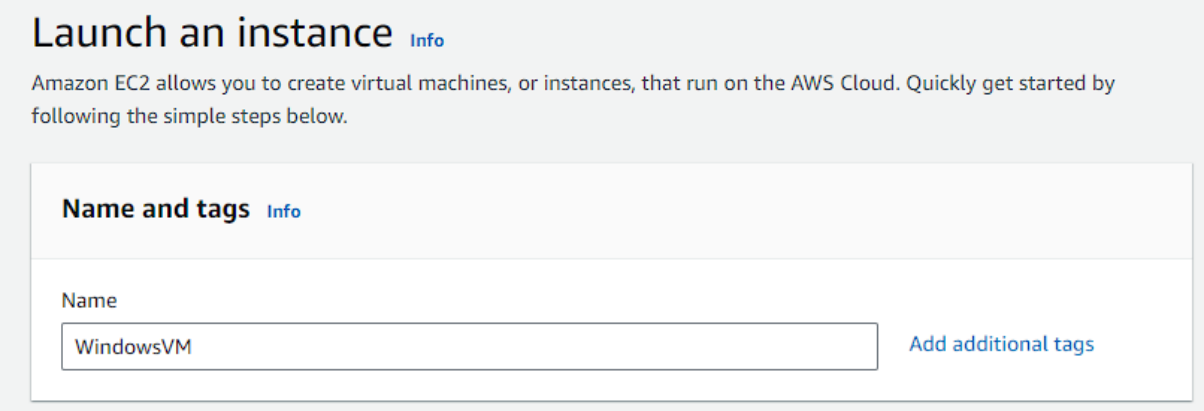
1. Log in to AWS Console.
2. There you need to search EC2. Choose this service accordingly.

3. This the dashboard for EC2. You can find different resources here.

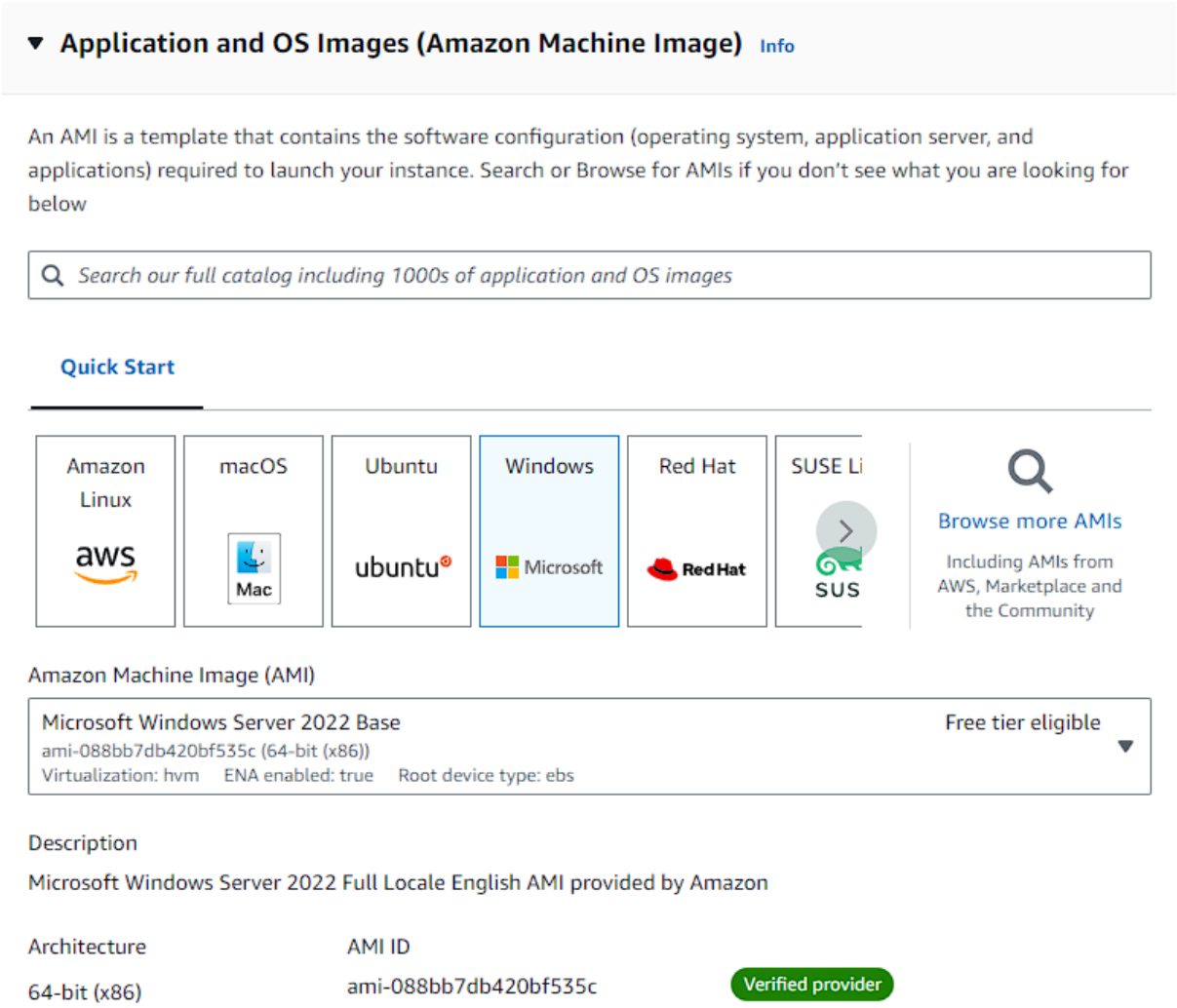
4. But, to create an instance you need to click on **Launch Instance.**



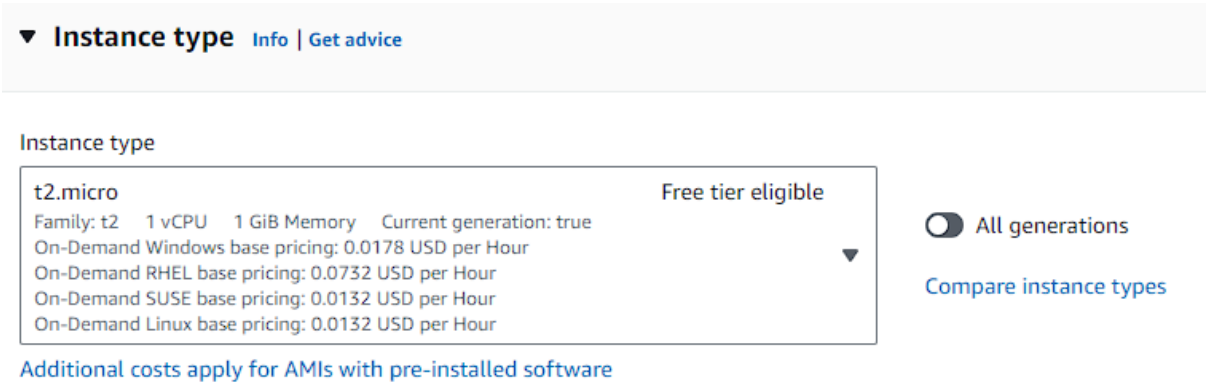
5. So, first and foremost, you must name your instance.



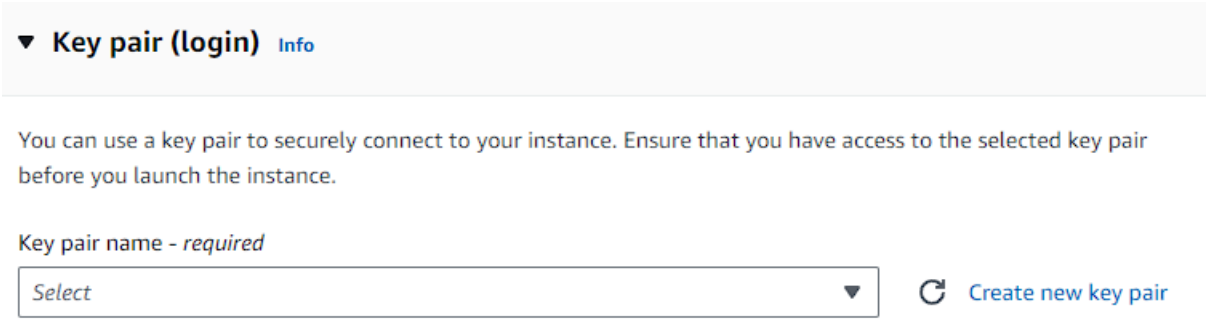
6. Then in the **Application and OS Images**, you have to select an Operating system.
7. Here, you are going to select **Windows** as your Operating system.
8. For **Amazon Machine Image (AMI)**, select the latest AMI that is available. In this case it is Microsoft windows server 2022 base.
9. Keep architecture to default as 64-bit (x86)



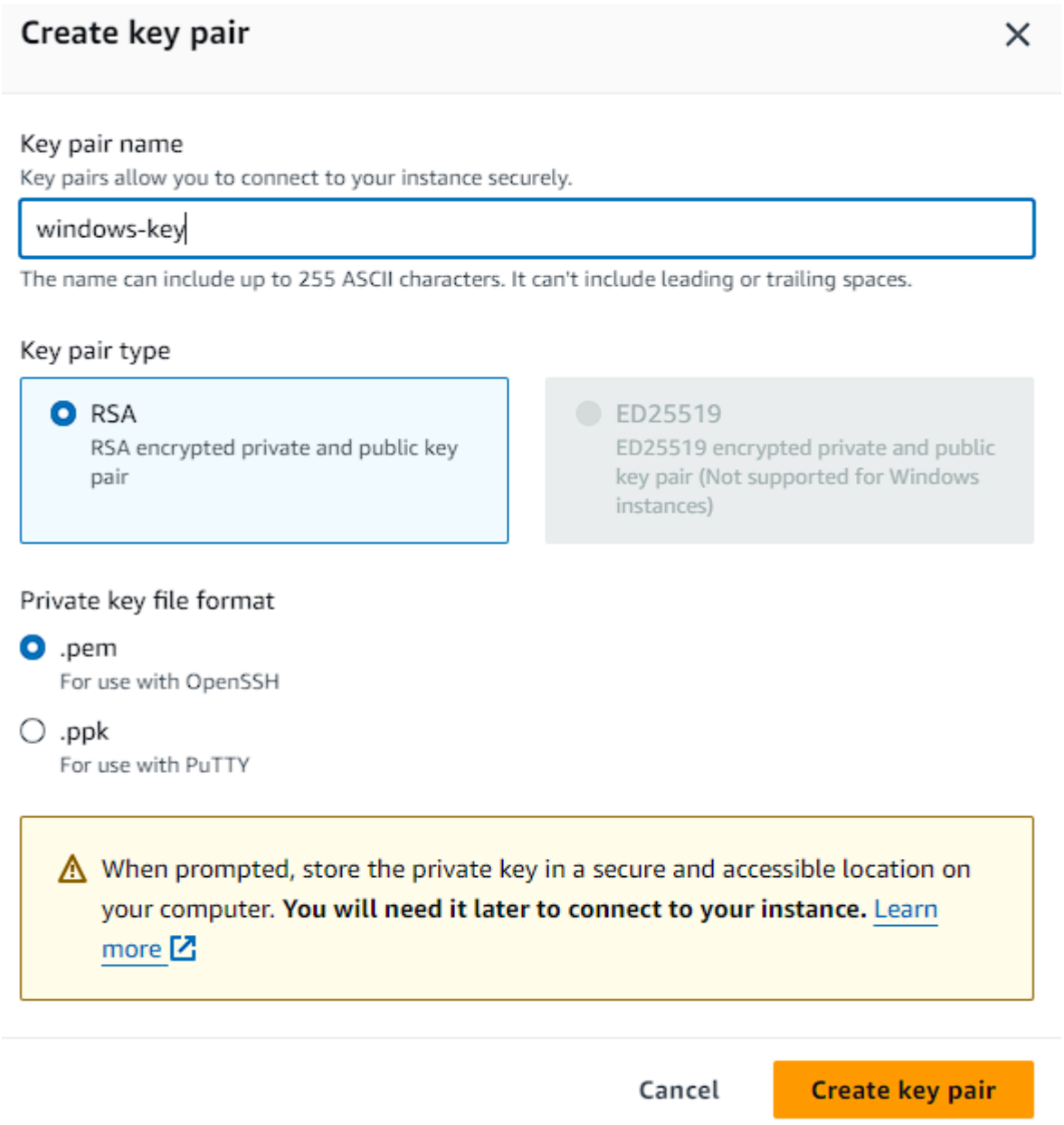
10. Now you must choose an instance type. There are more instance types with higher specifications available, but for the time being, you must select **t2.micro**. This instance type is qualified for the free tier.



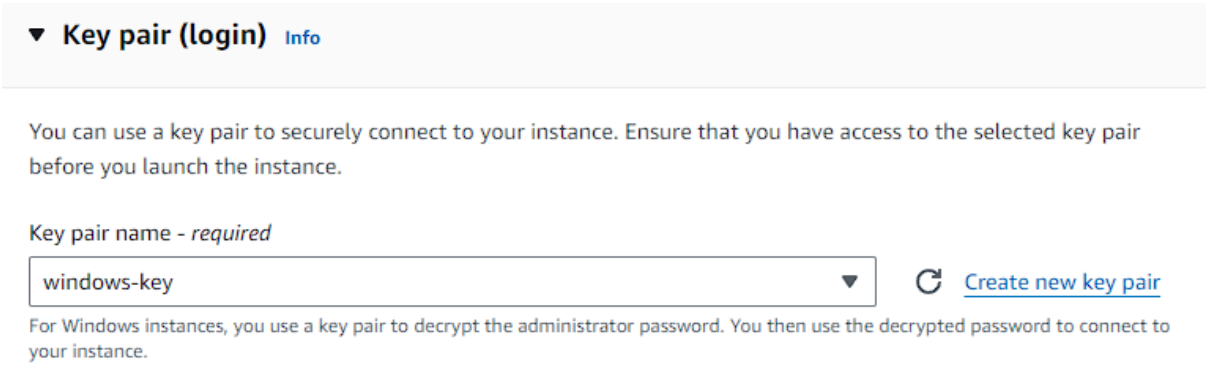
11. In the key pair, you have to create a key pair, so that you can log in to your virtual machine. These key pairs are used as keys to log into your VMs.
12. As of now, you might not have any key pairs, so you have to create a key pair.



13. So, click on create new key pair. First you have to name your keypair.
14. Then select the key pair type as RSA.
15. For the private key file format, select **.pem**
16. Now click on create key pair.

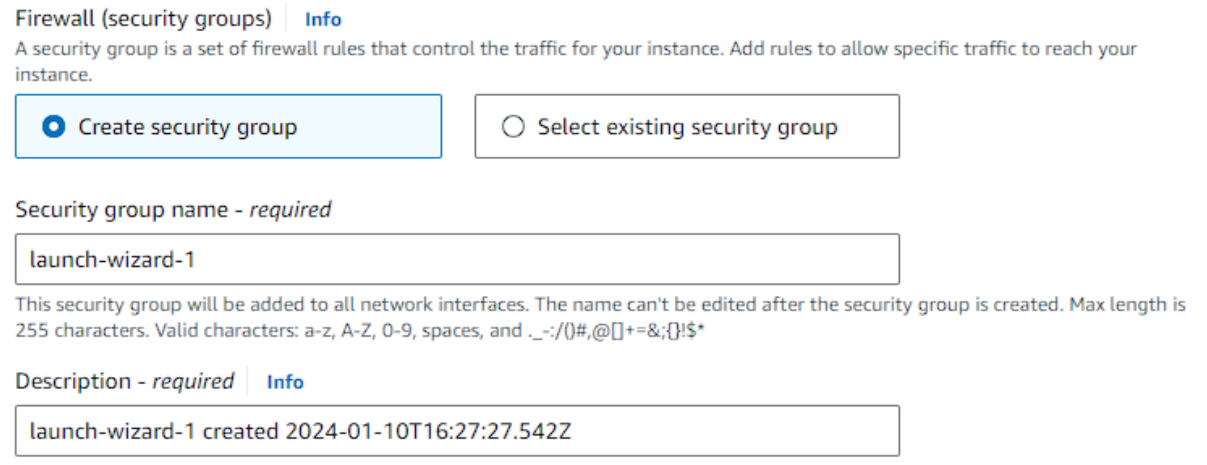


17. After clicking on the Create Key Pair button, a file should have been downloaded; this file will be utilized throughout this experiment.
18. Here you can see your key pair.

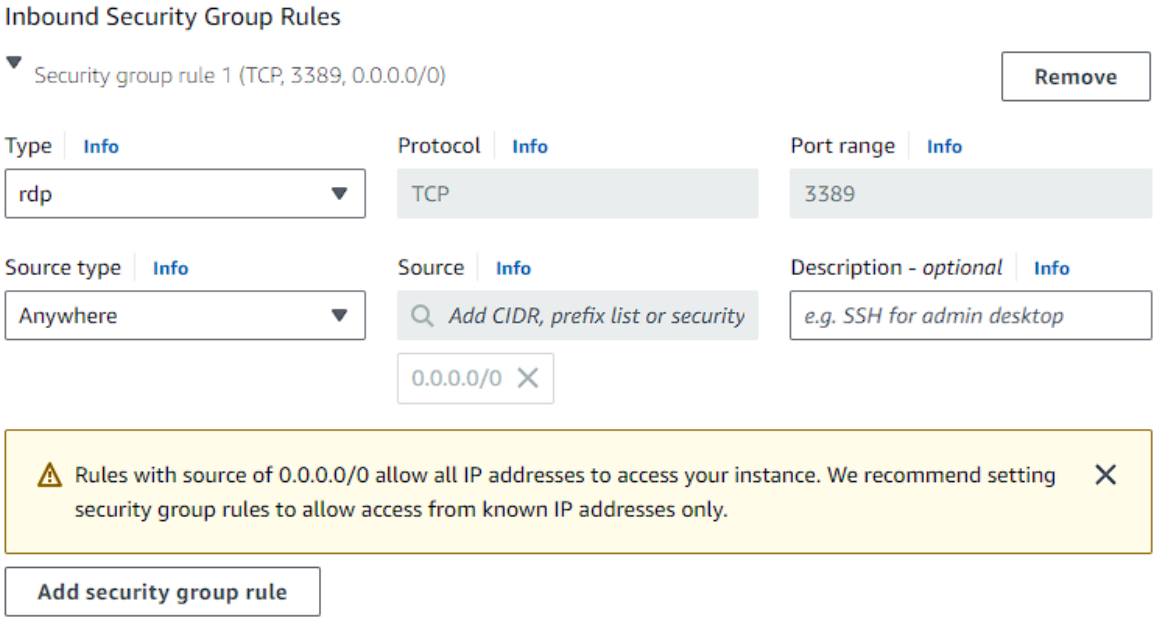


19. If you will take a look at network settings, you will see a VPC which is required and it is a default VPC.
20. The subnet has no preference because you haven't given it any.
21. The **auto assign public IP** feature is enabled.

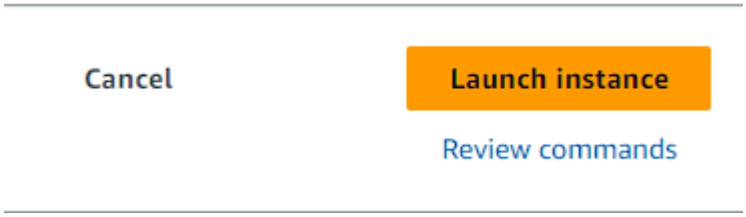
22. In the firewall option, you will see that it is creating a new security group, you can change its name and description, but for the time being keep it to default.



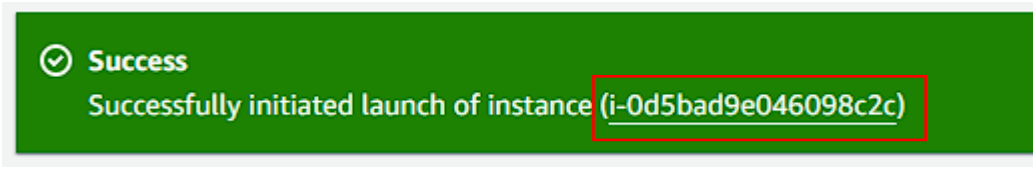
23. And the security group you will see this Inbound security group rules. These Inbound rules are used for virtual machine to log in to different areas of interest. Let it be default too.



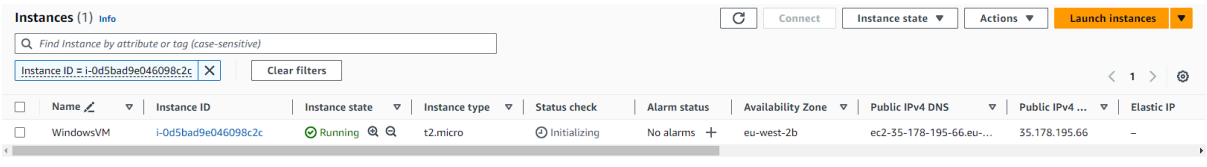
24. Now the setup for EC2 instance is completed, you can click on launch instance. This will launch your instance and you will be able to see your instance.



25. You can see that your instance is launched successfully.
26. Now if you will click on this instance id, you will direct towards your instance.

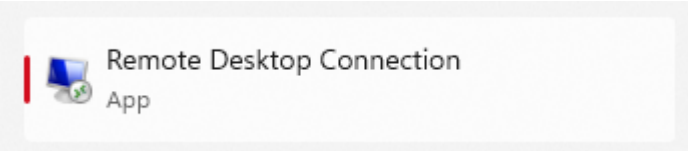


27. Here is your instance, it is up and running.

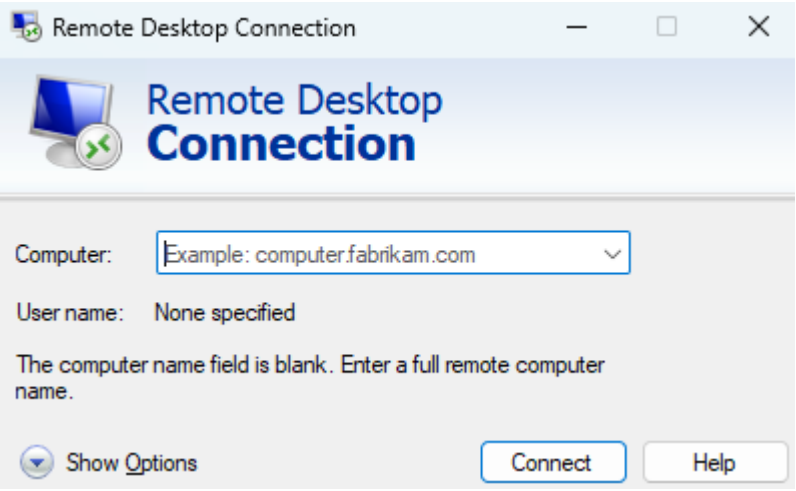


🤓 STEP 2: CONNECTING THE INSTANCE

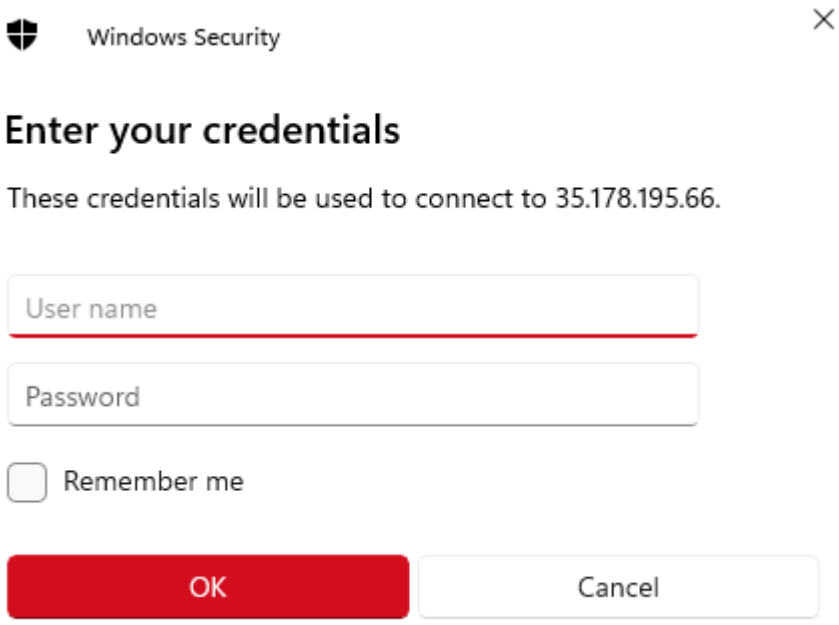
1. So, to connect your windows instance you need to search for RDP (Remote desktop protocol) on your local system. Choose this remote desktop connection accordingly.



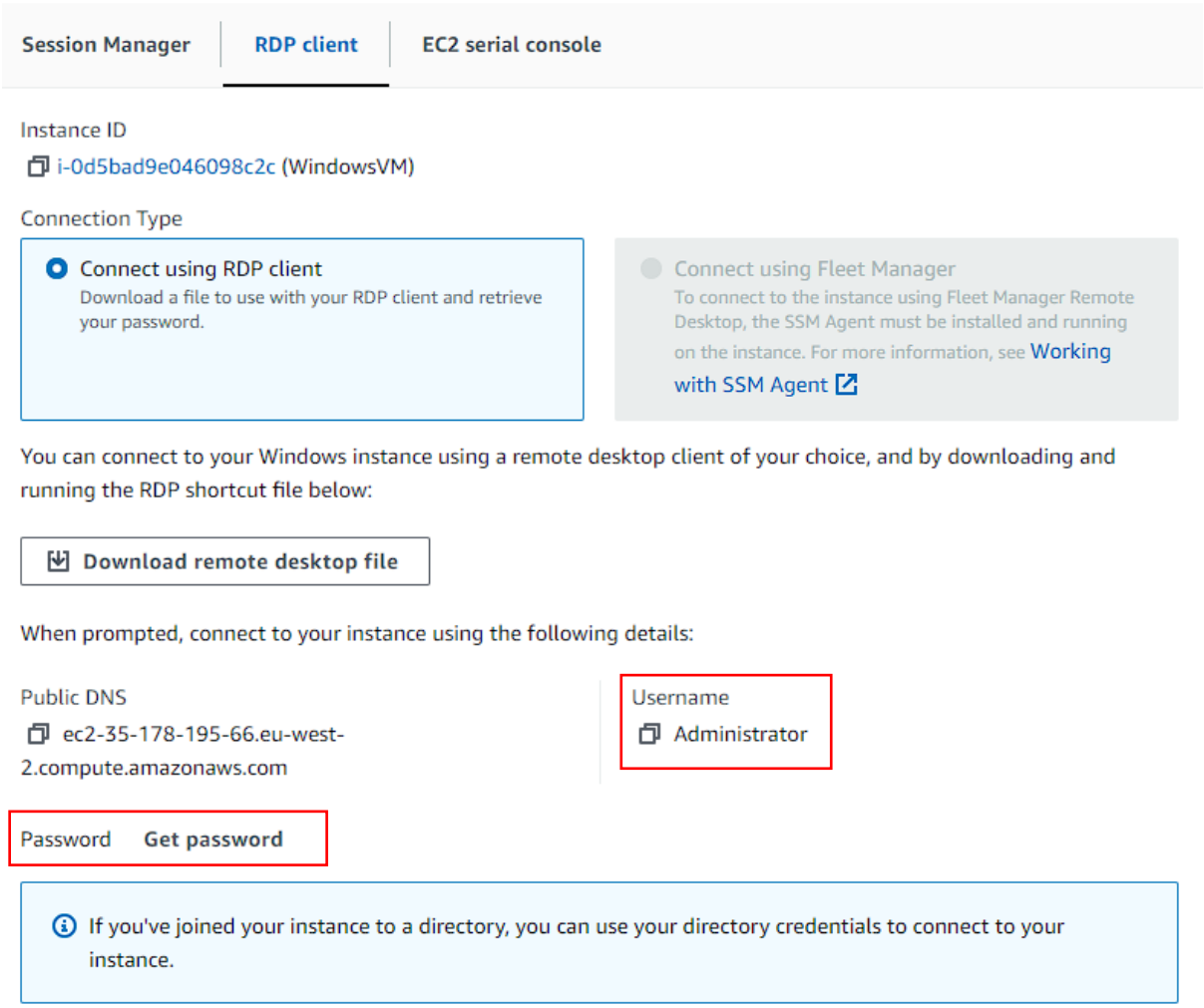
2. Now if you click on this, you will this kind of window has popped up.
3. Here you have to copy the public IP address of your instance, paste it in the computer section. Then click on connect.



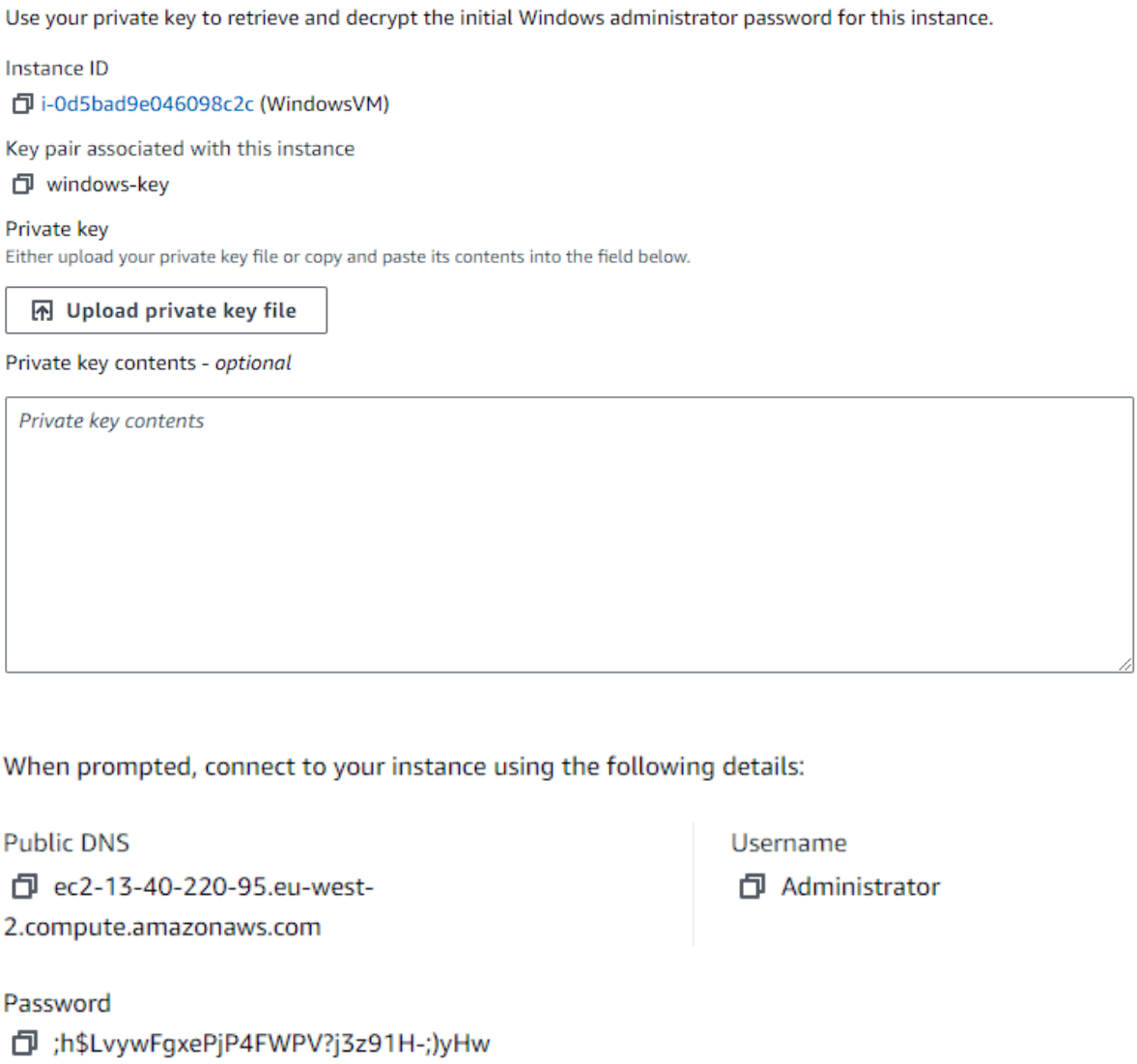
4. So, after that the windows security will ask you to enter user name and password.



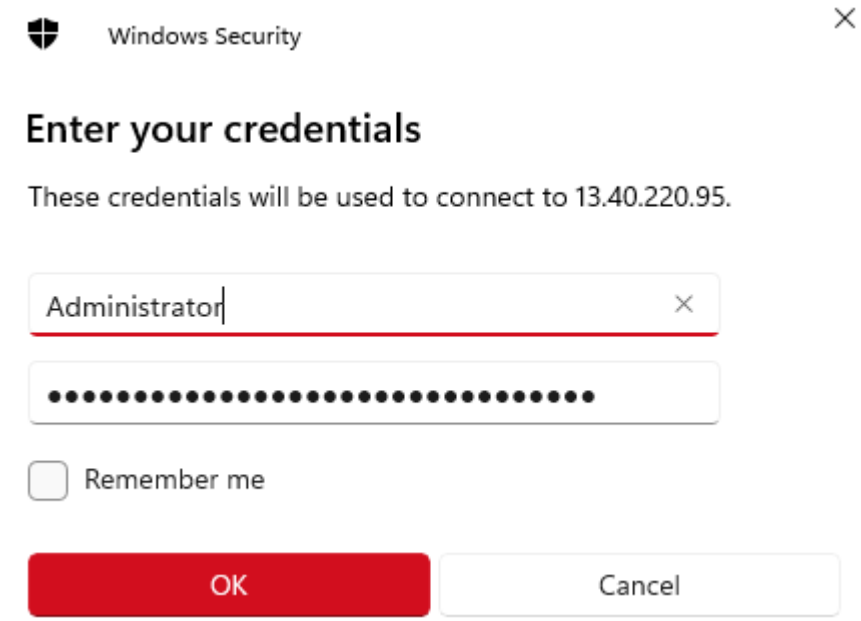
5. To get your user's name and password you have to come back to the console and click on connect.
6. Here you need to click on RDP client, and you will see bunch of options.
7. You can see your username right there.
8. If you will click on Get Password you can get your password.



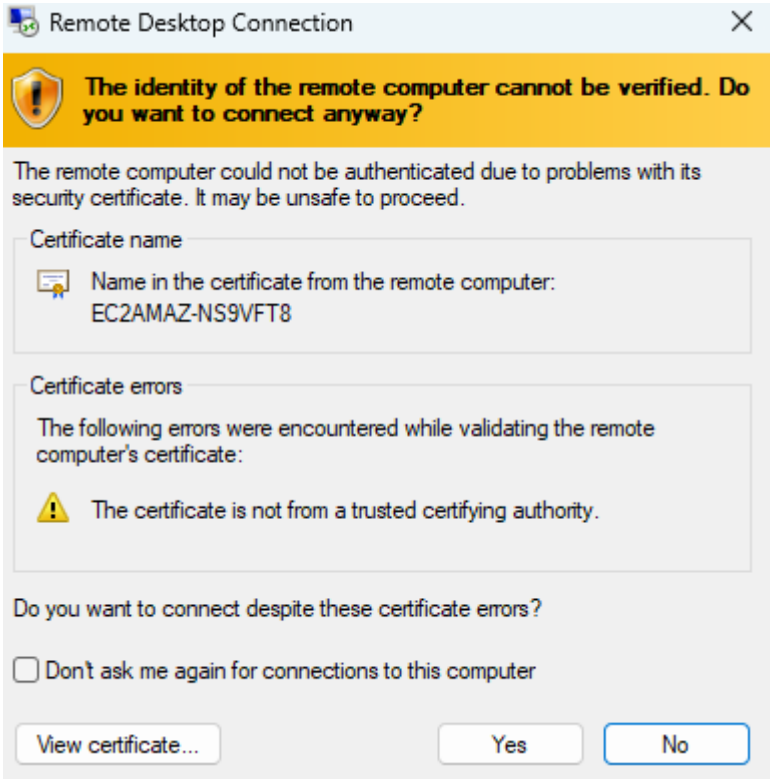
9. Now you will be directed on a new page to get your password.
10. Here you can see the name of key which is associated with your windows instance.
11. Now you have to upload the .pem file here from your local machine.
12. Once you have uploaded the .pem file, now you have to click on decrypt password.



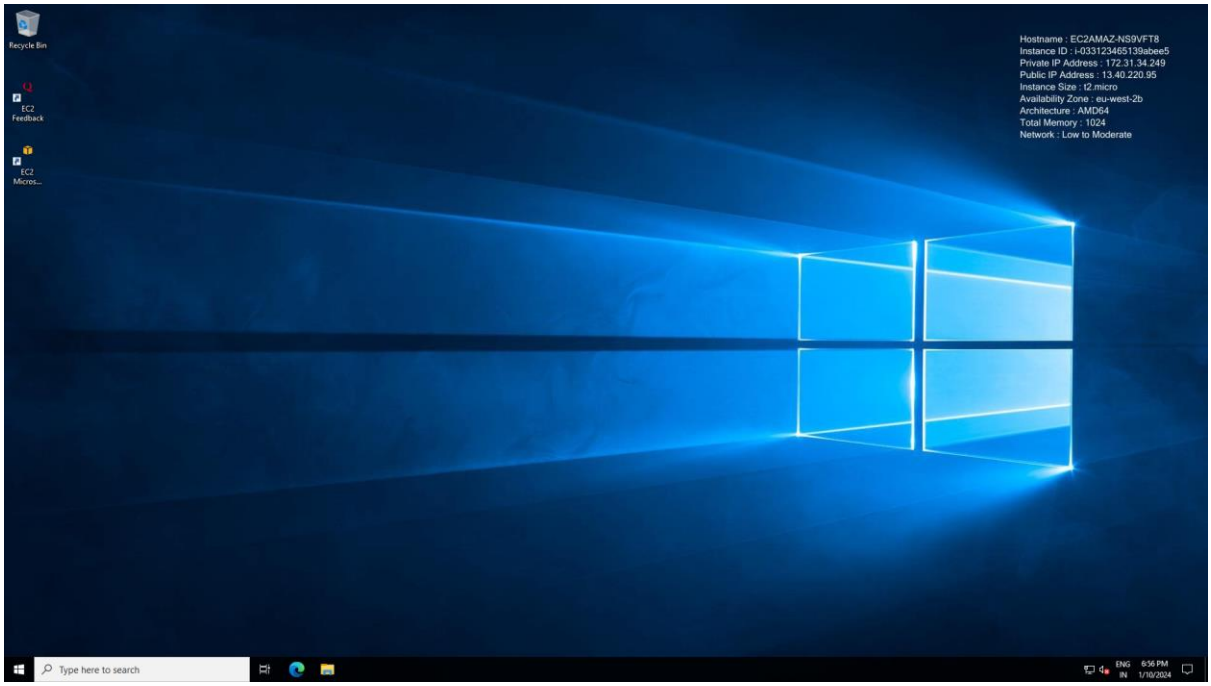
13. Now enter your credentials. Then click on OK.



14. Here also you have click on YES and you will be logged into your windows virtual machine.

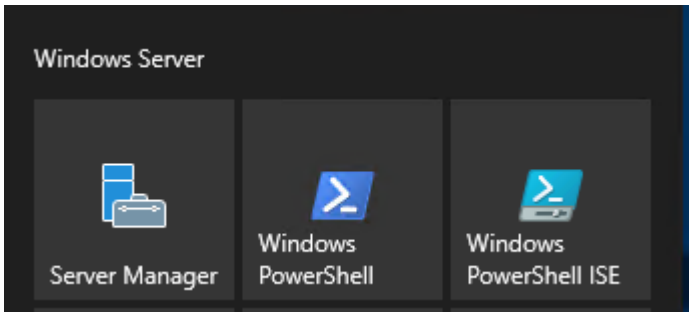


15. Below is your virtual machine for windows instance.

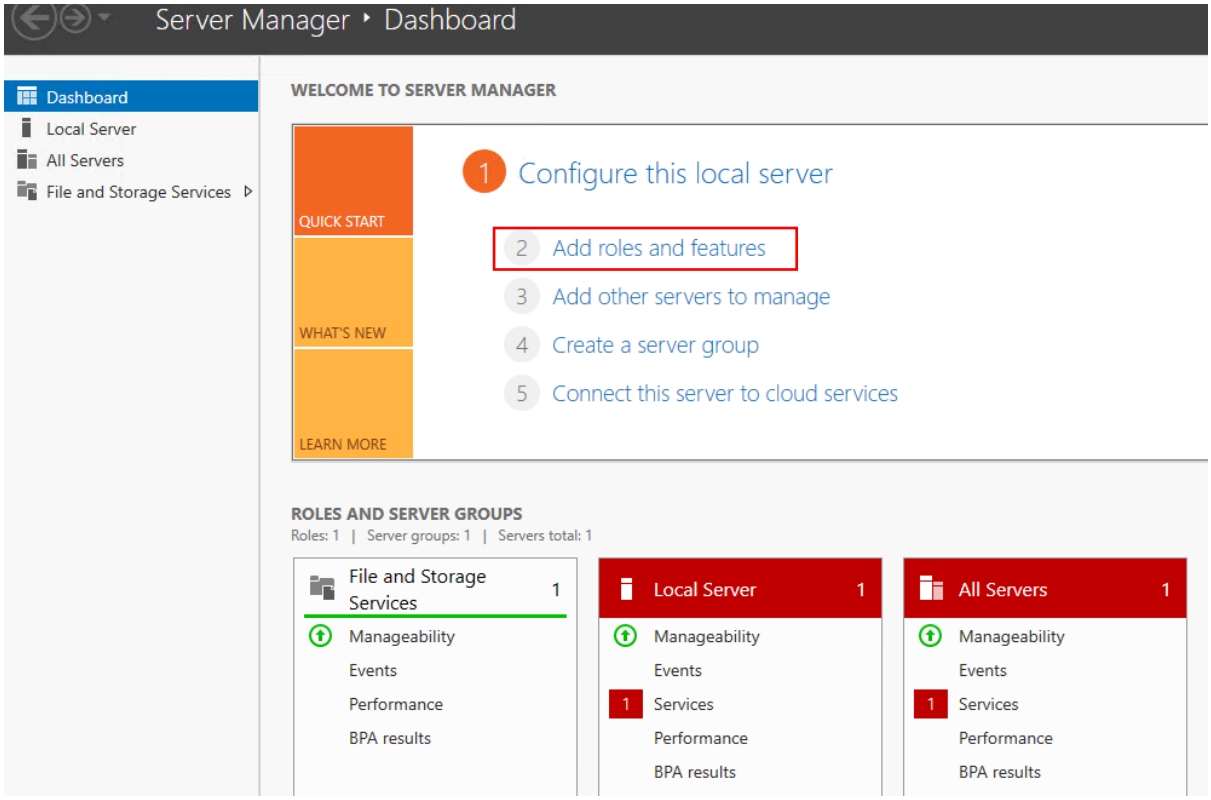


🧐 STEP 3: DEPLOYING A WEB SERVER ON THE INSTANCE

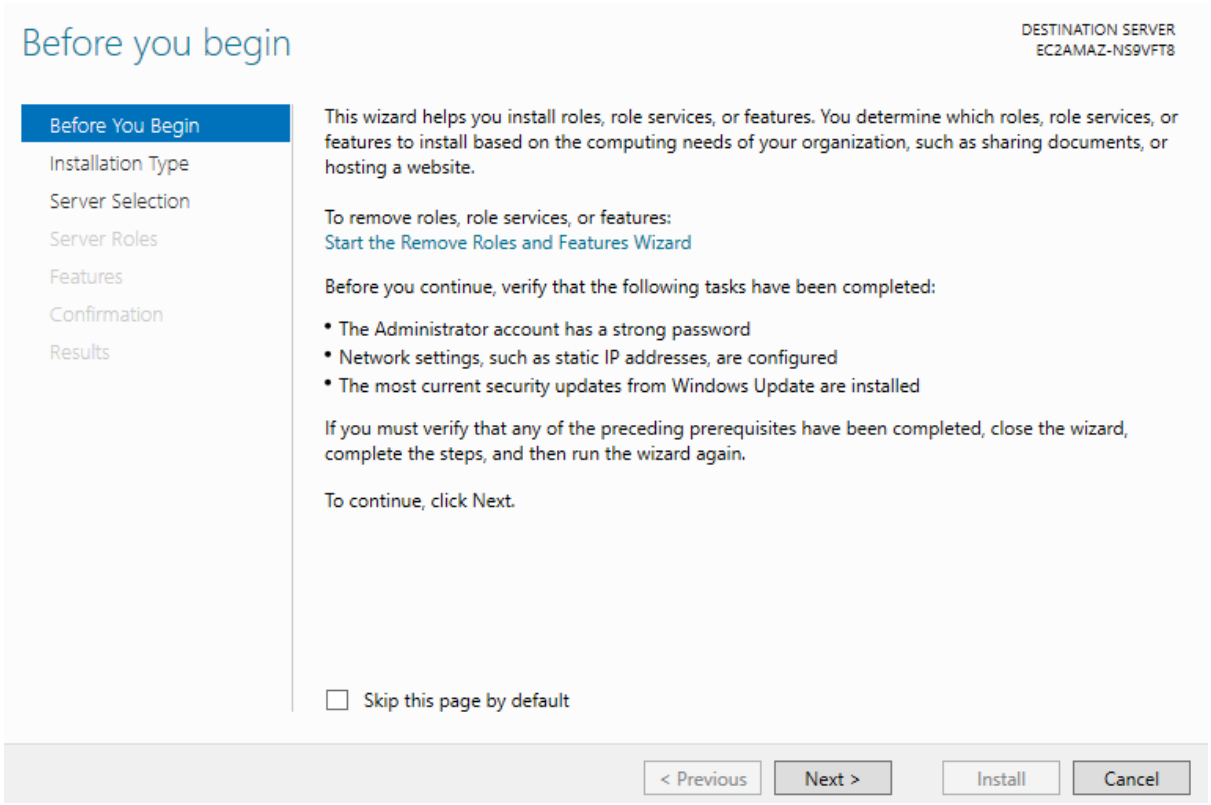
1. To deploy the webserver on your virtual machine you need to open **Server Manager.**



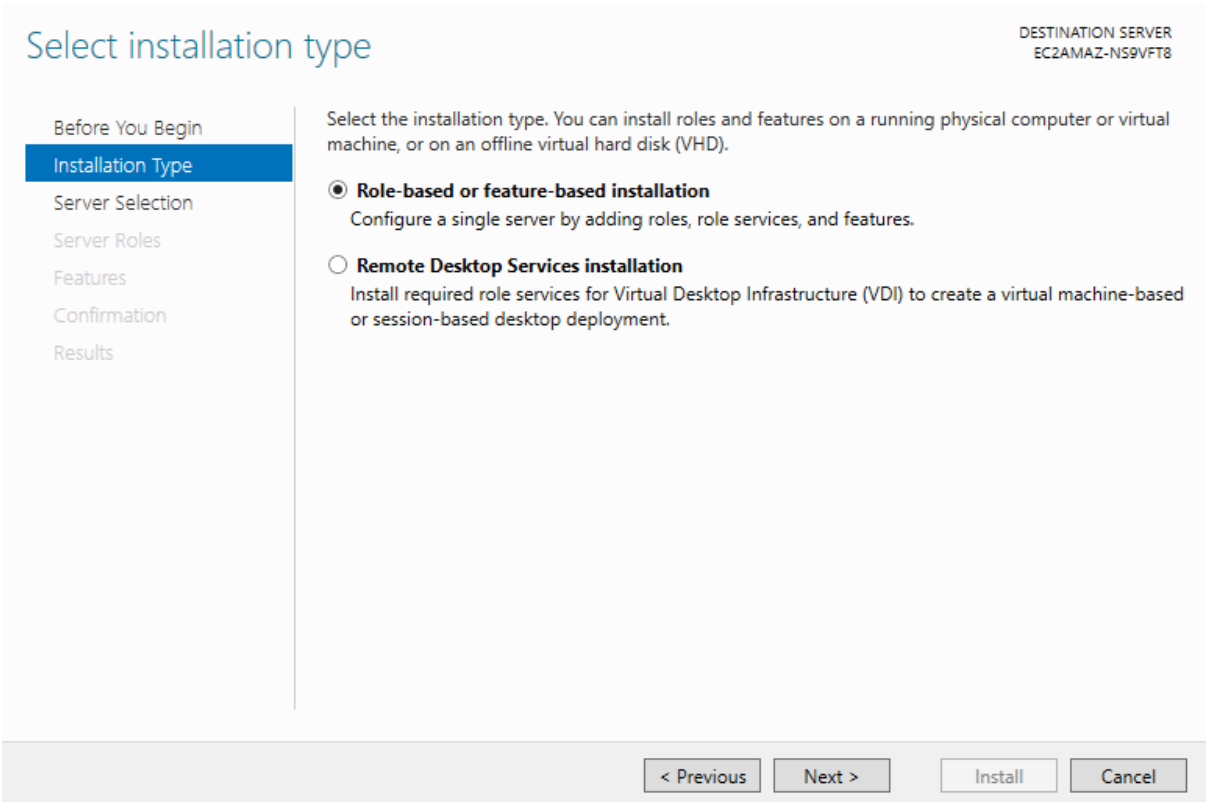
2. It might take some for server manager to setup things.
3. Once your server manager is setup. Now you have to click on **Add roles and features.**



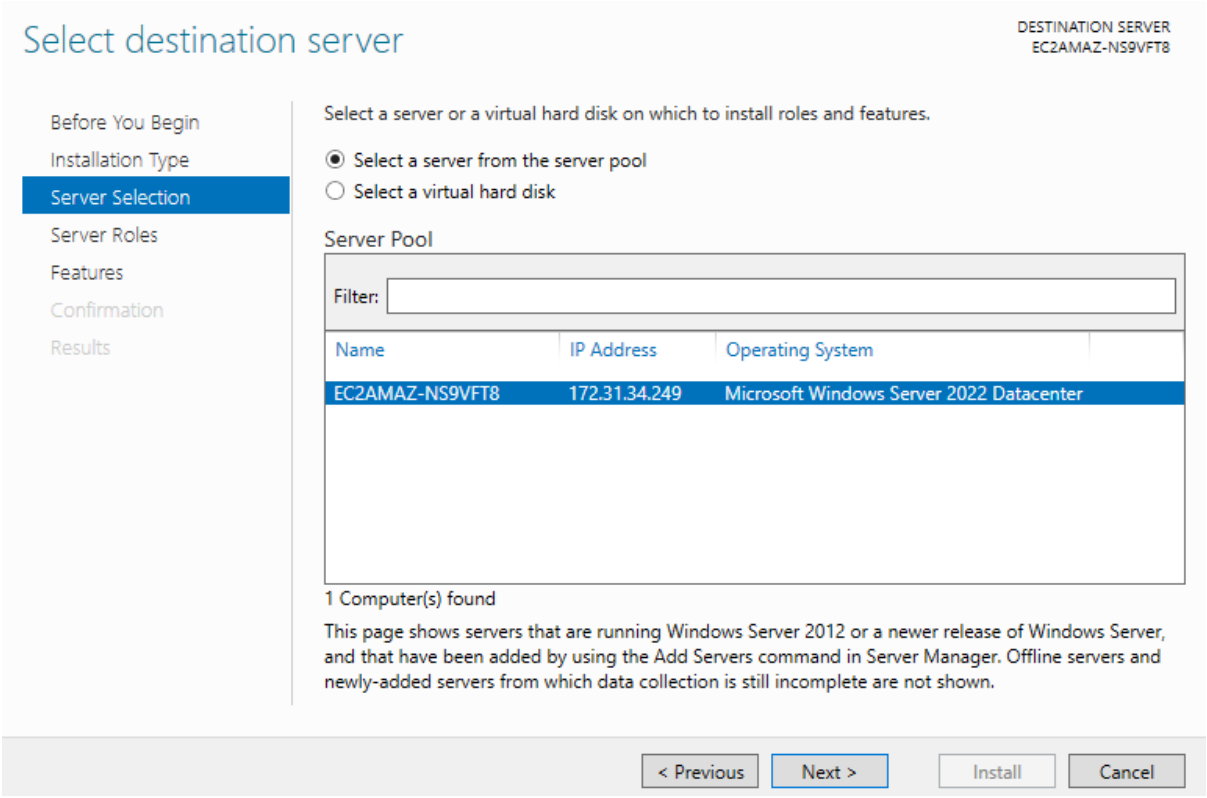
4. Here, you need click on next.



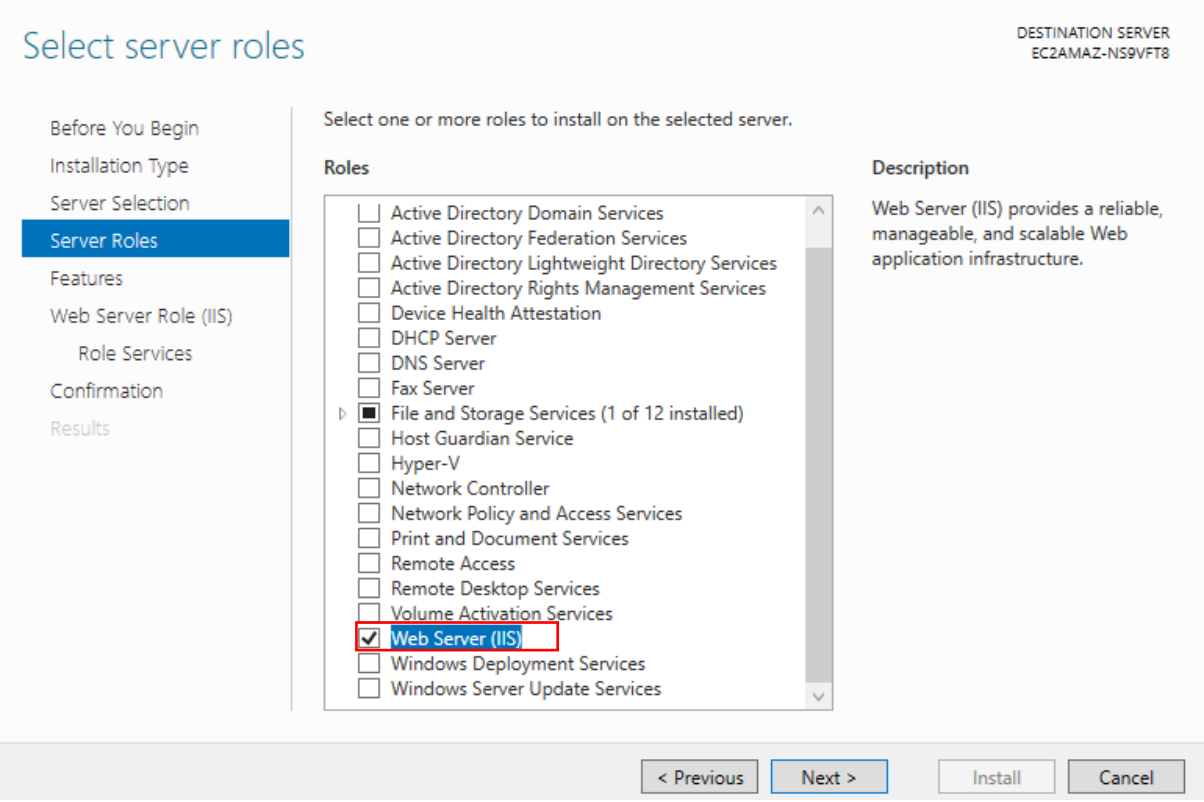
5. Then it will ask you to select an installation type choose role based and click on next.



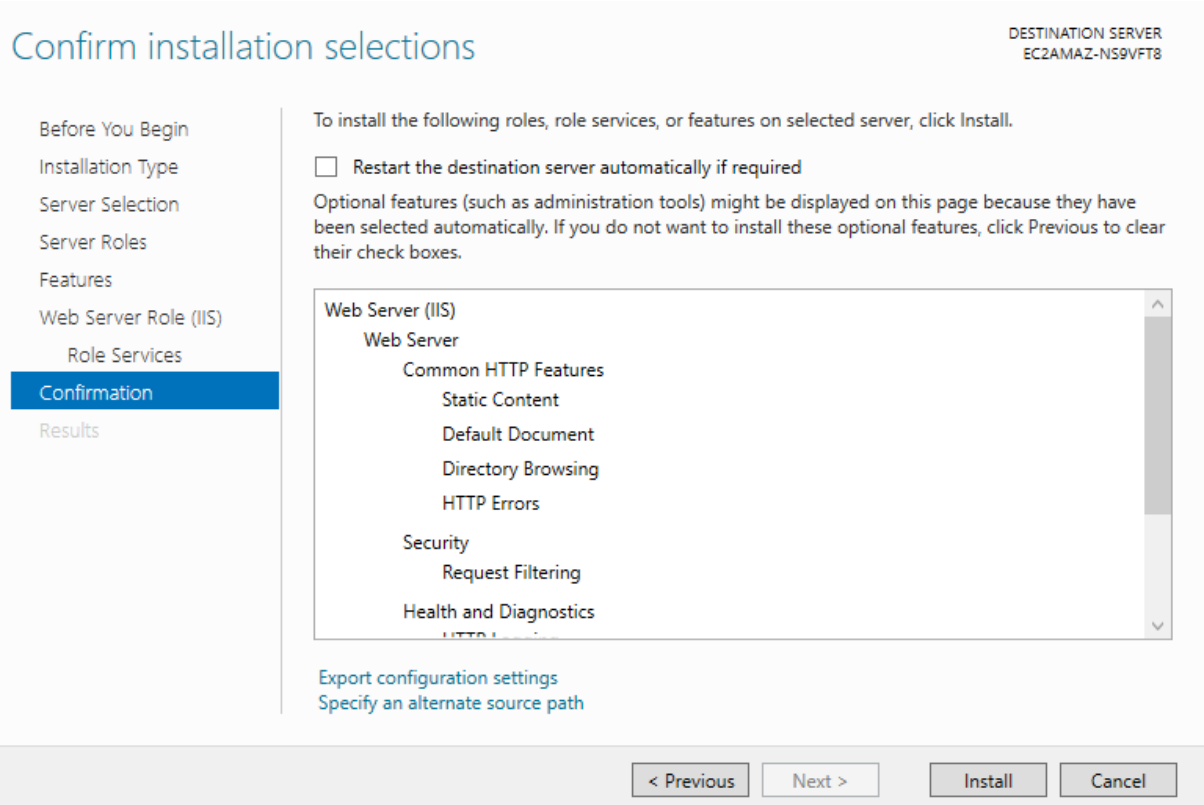
6. Now it will ask you a destination. Let it be default and click on next.



7. Now here you have to select Web server (IIS). This will help you to install the web server on your instance.

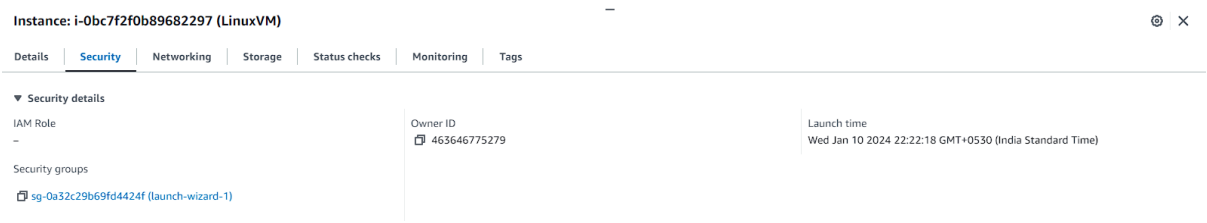


8. Then click on next till you get to the confirmation and now install your web server.

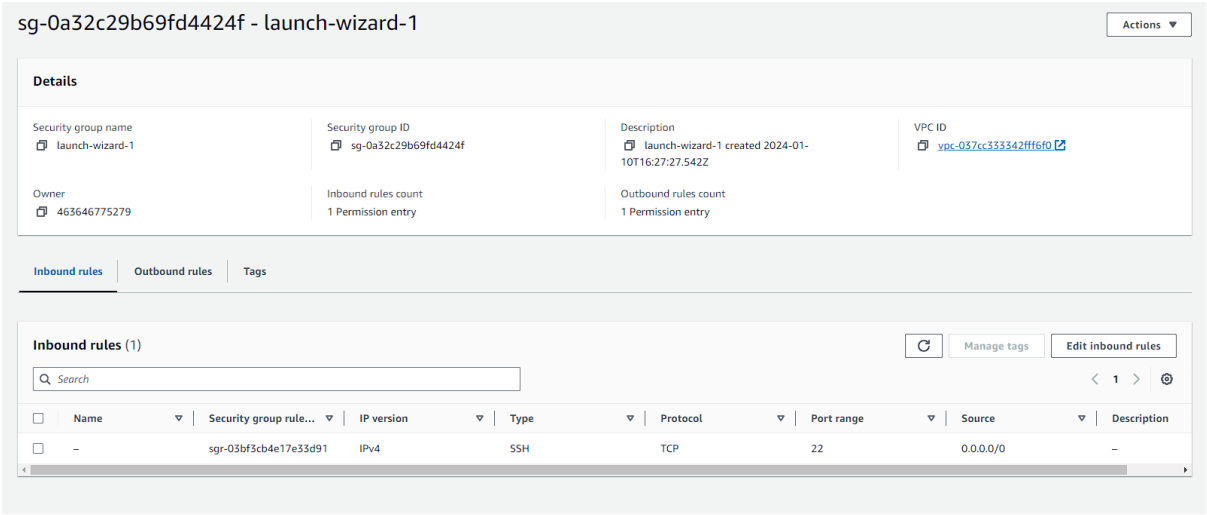


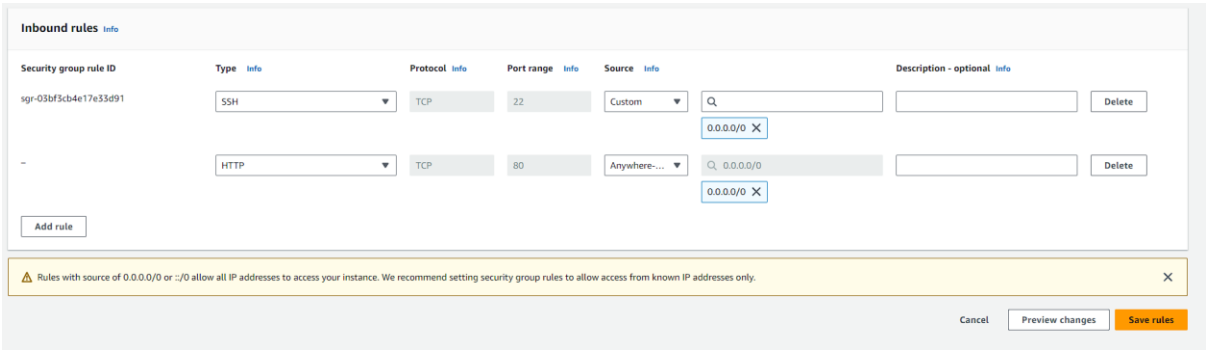
9. Once your web server is installed come back to the console.
10. So, now you have to add **port 80** to your security group.

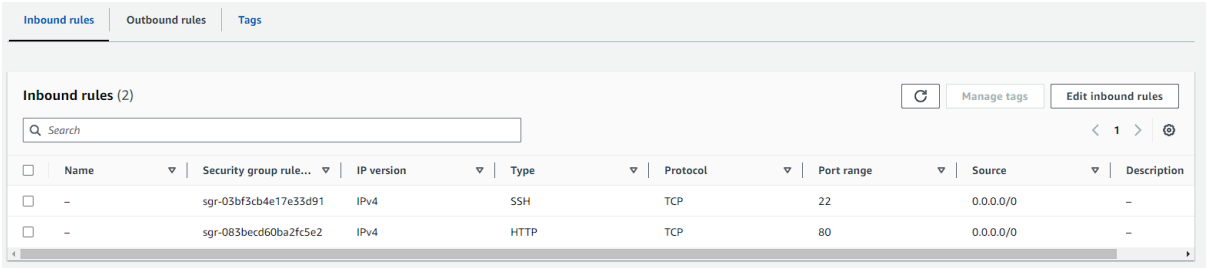
11. Now select your instance and go to security, there you will a link to navigate you to the security group. Click on it.



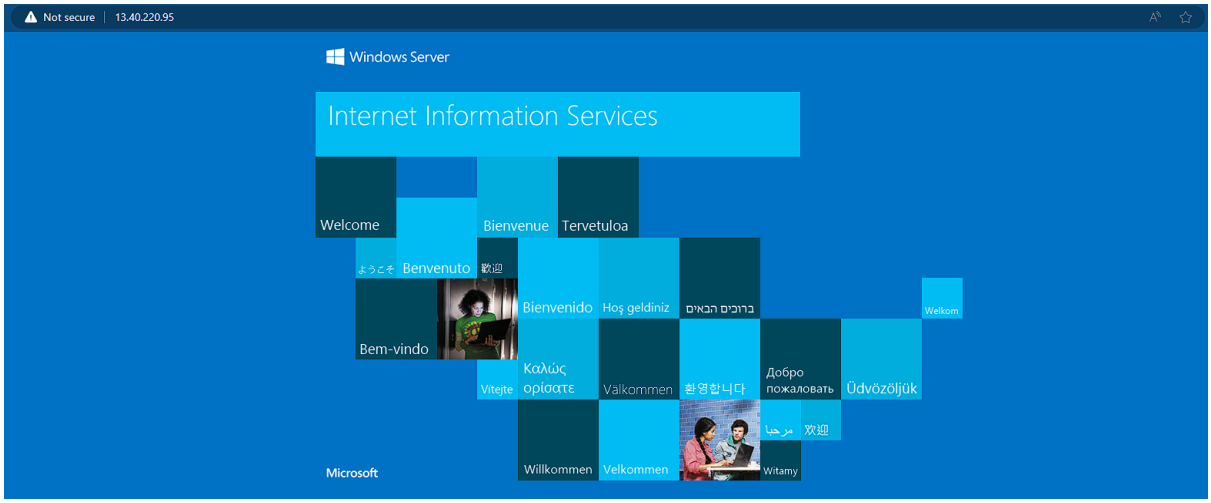
12. In the security group you will see some options present over there.
13. If you will just click on edit inbound rules under the inbound rules and add port 80 to your instance.







14. Now go back to your instance and copy your public IP address and paste it in a new tab.
15. You will see your web server is up and running.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Windows Server
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Welcome
Bienvenue
Tervetuloa
ようこそ
Benvenuto
歡迎
Bienvenido
Hoş geldiniz
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