wORKING WITH EC2 INSTANCES

**AWS EC2**

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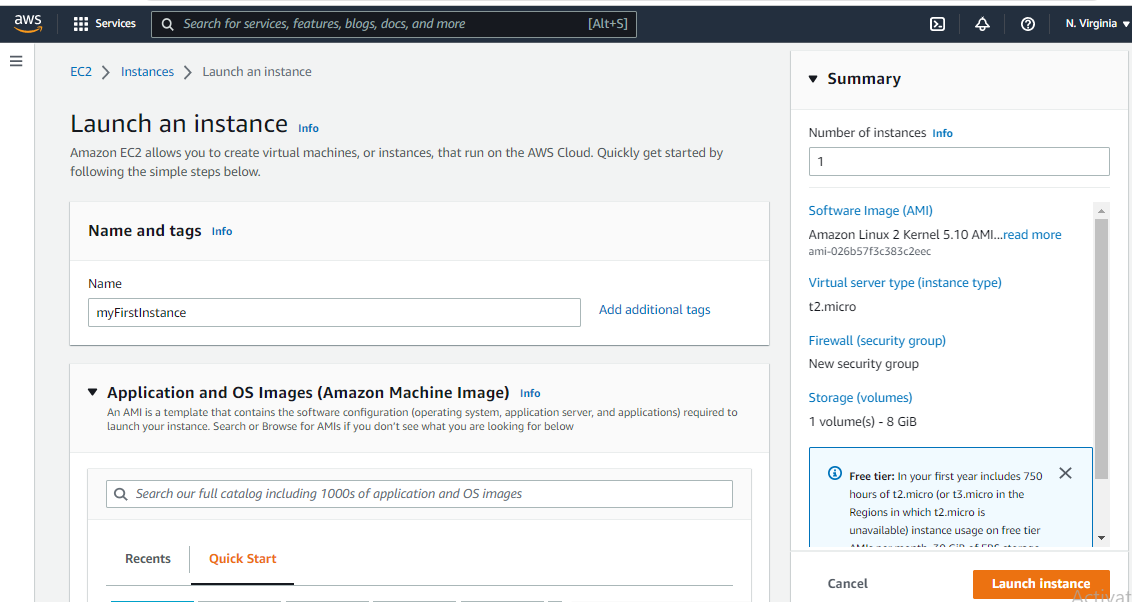
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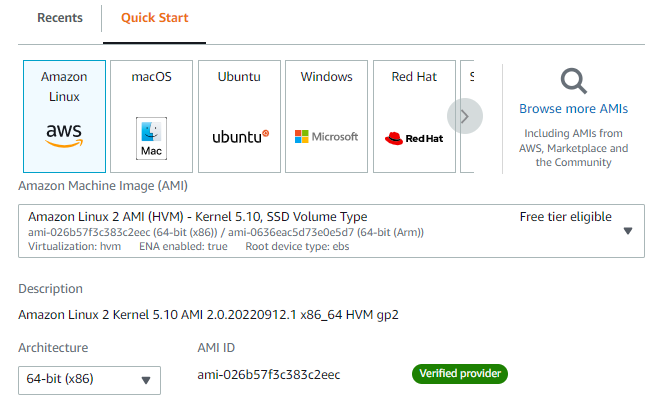
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# LAUNCH OR SPINNING AN EC2 INSTANCE

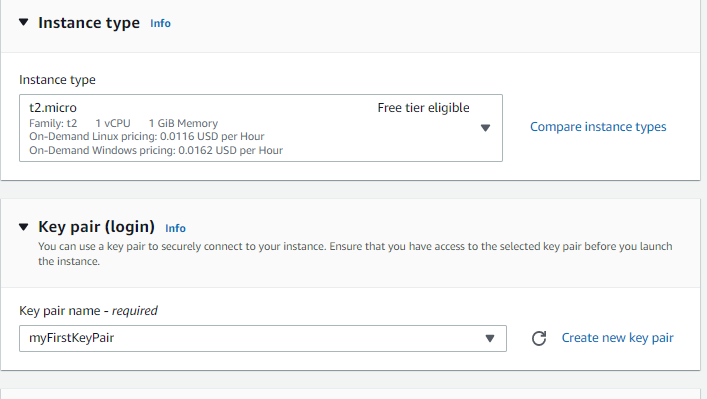
## Name



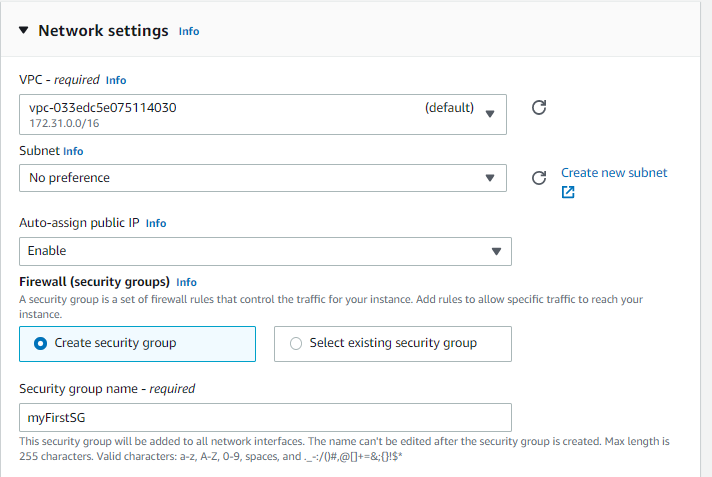
AMI

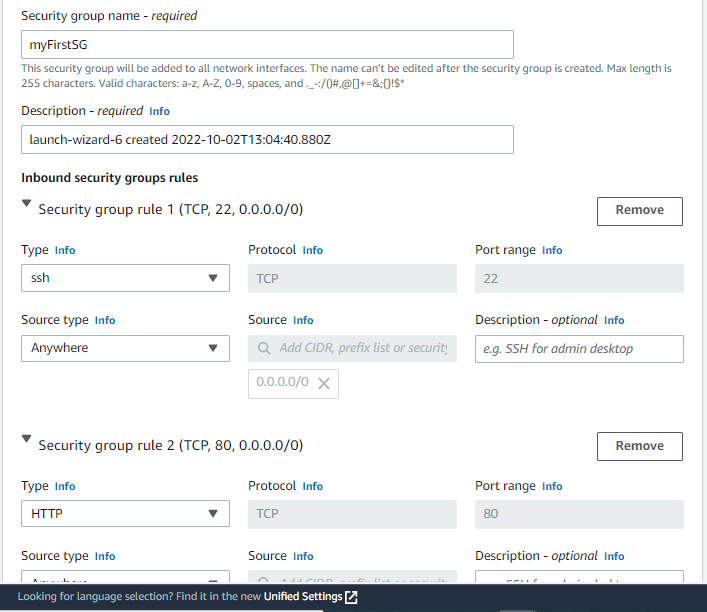


## Instance Type and Key pair



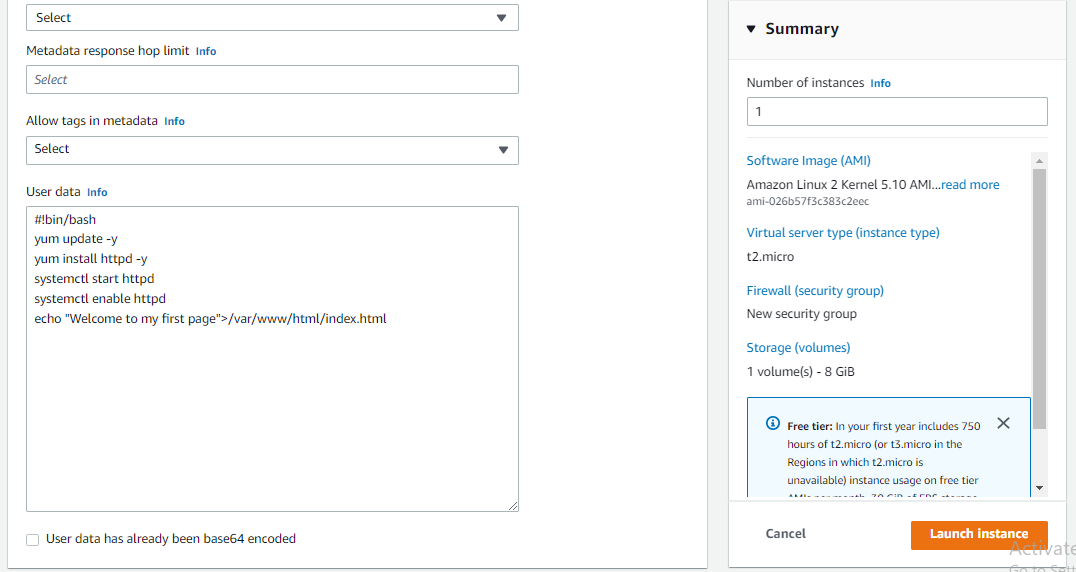
## Creating Security Group

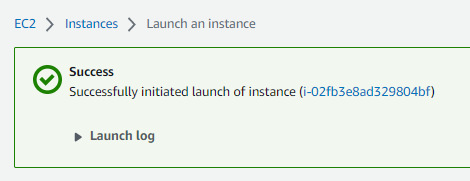


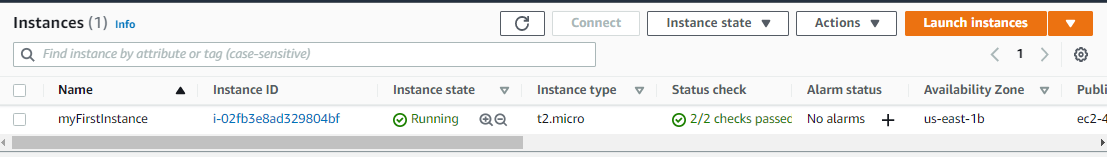


## Providing User Data

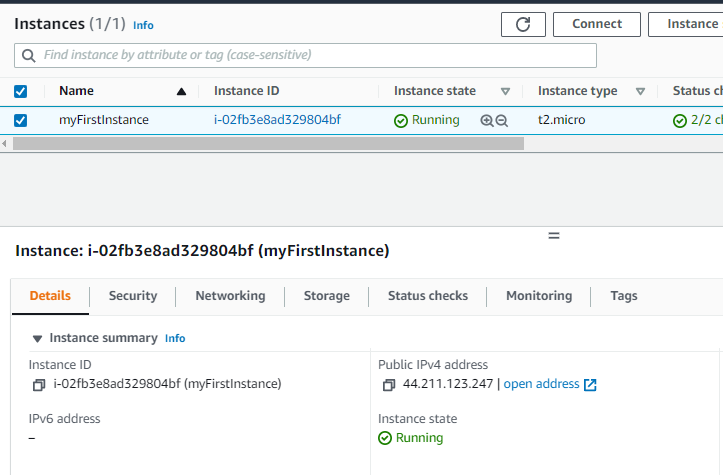


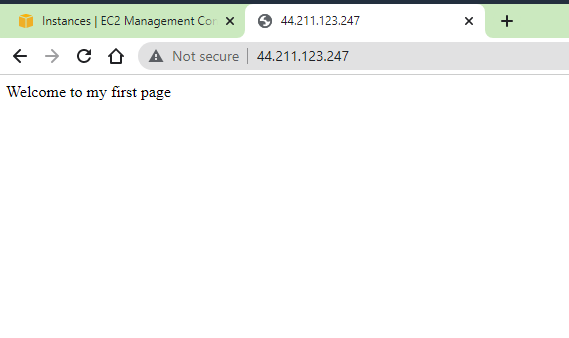




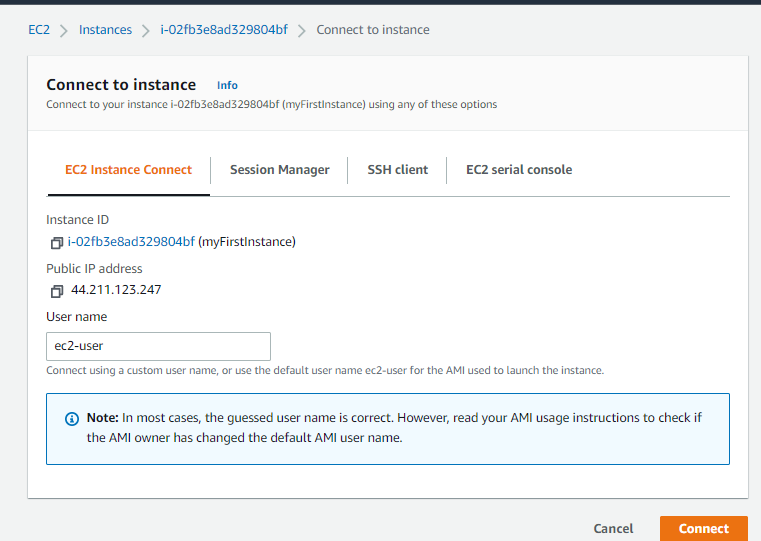


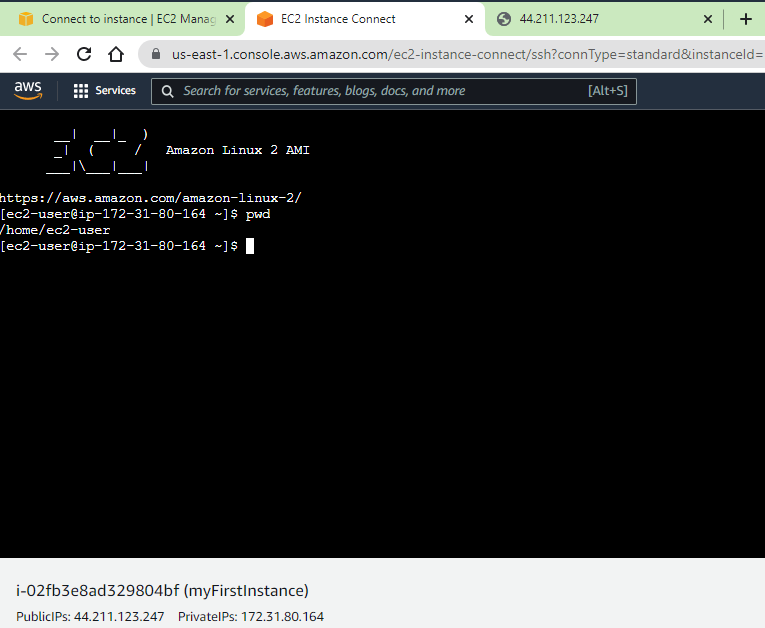
## Test



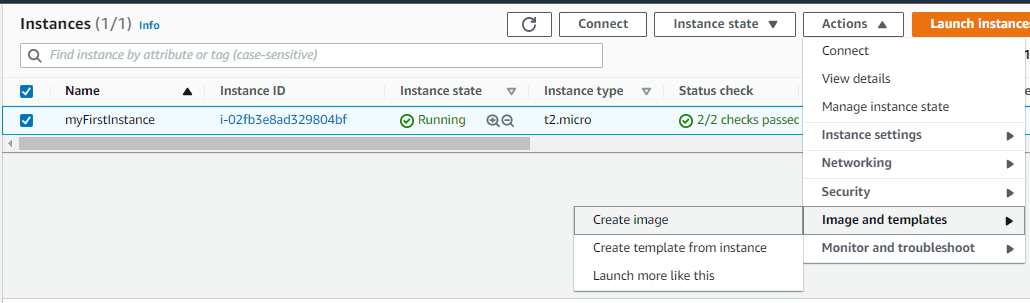


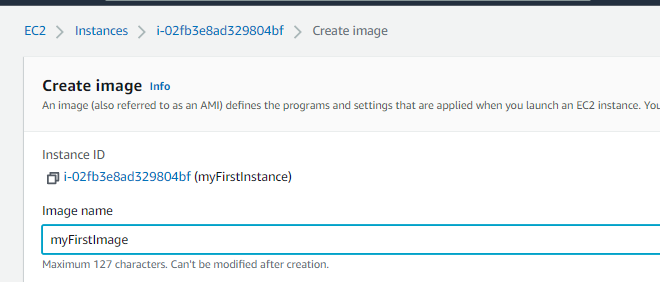
## Connecting Instance using EC2 instance connect

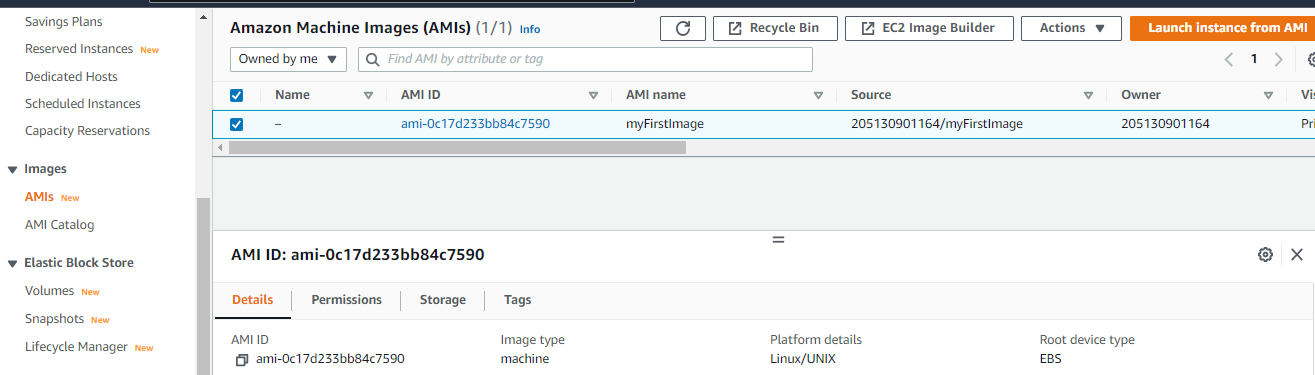


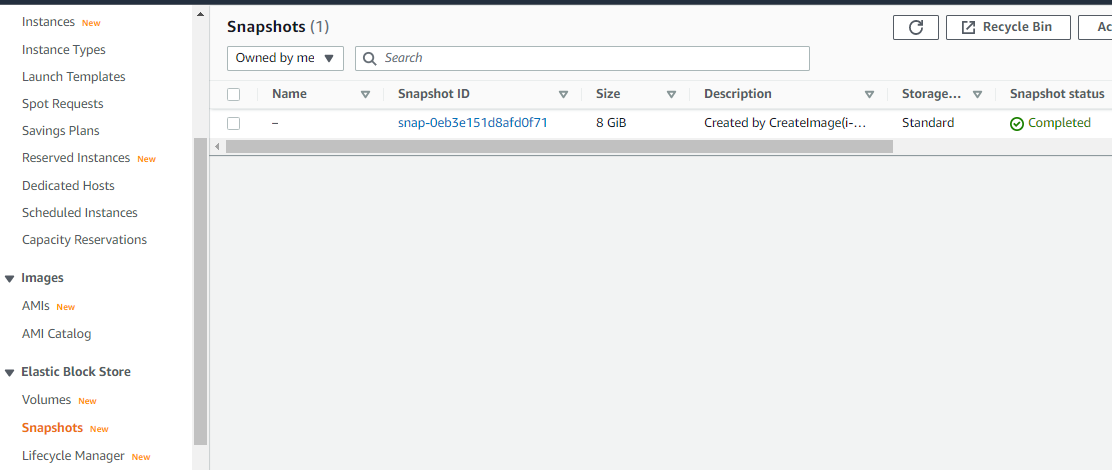


# CREATING IMAGE AND SNAPSHOT

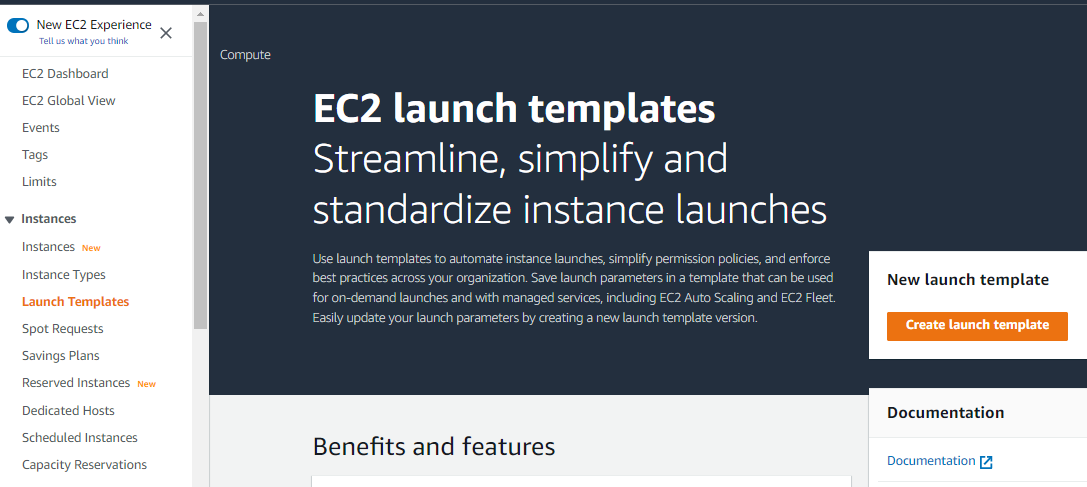




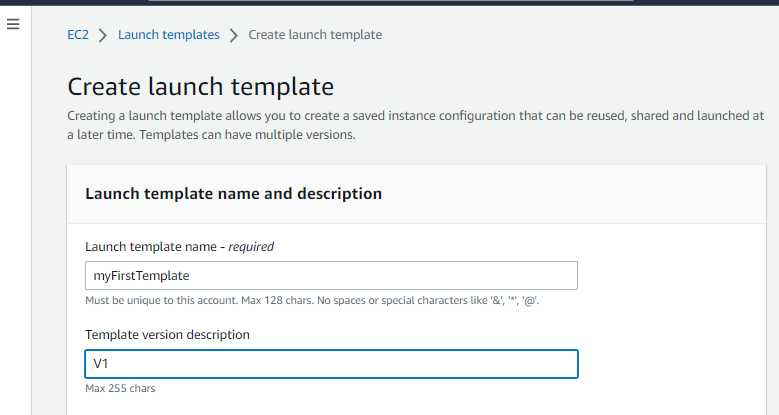




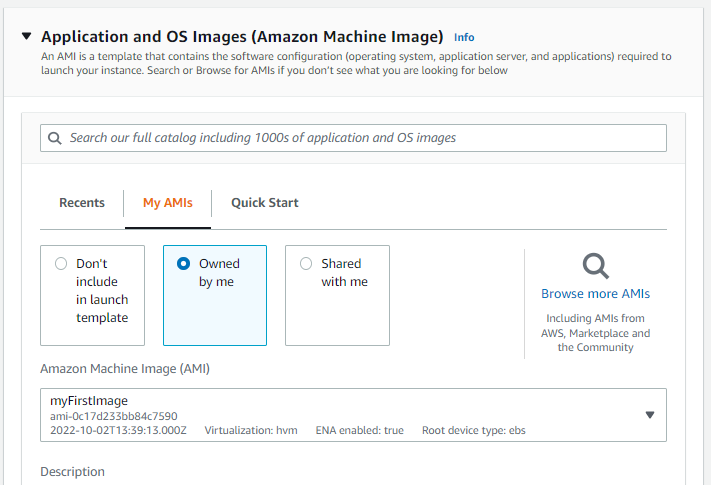
# CREATE LAUNCH TEMPLATE



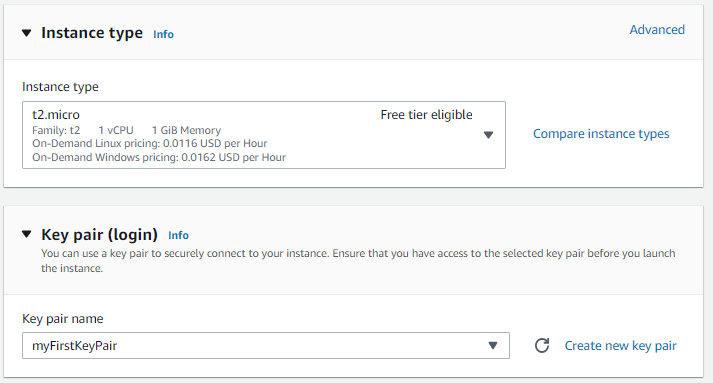
## Name and description



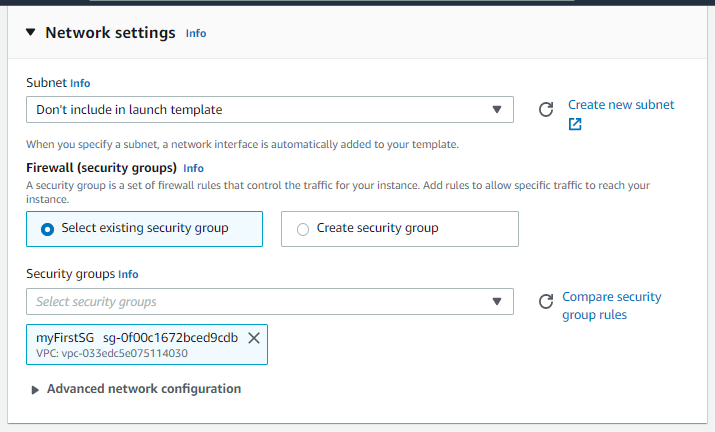
## Attach AMI



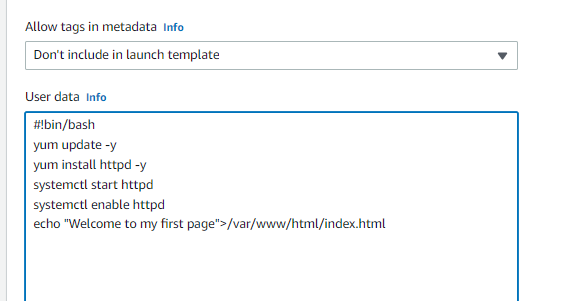
## Instance type and key pair

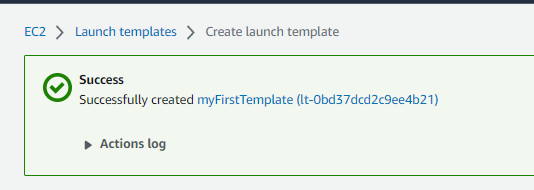


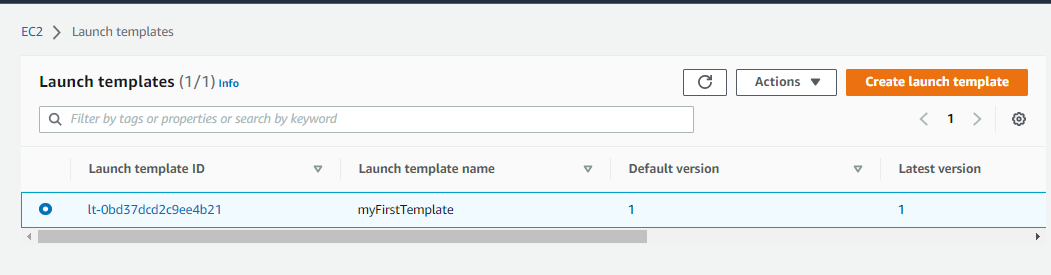
## Attach Security group



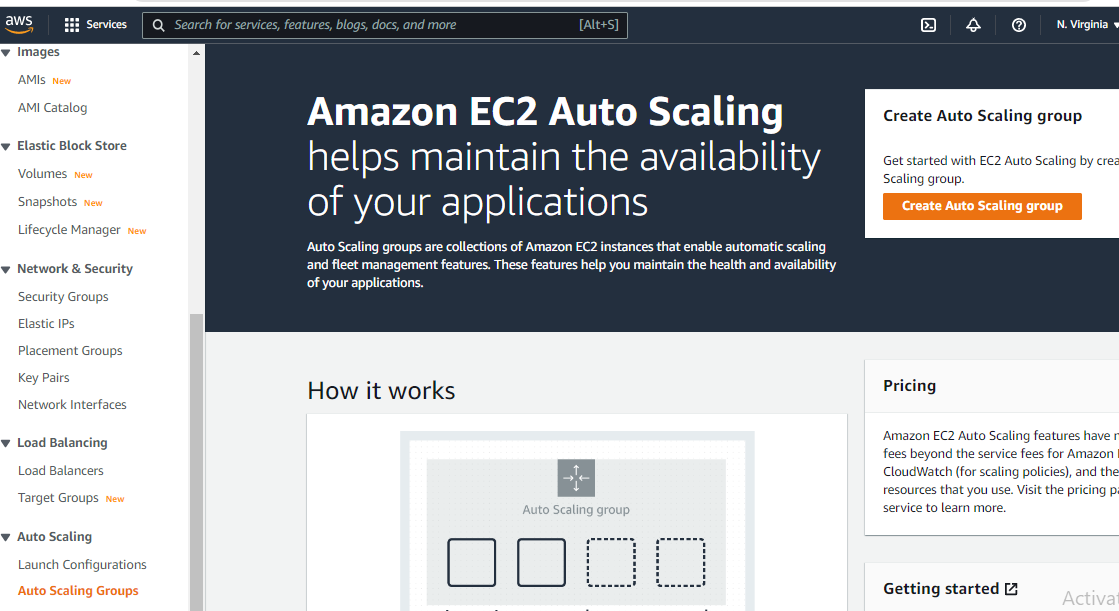
## Add User data



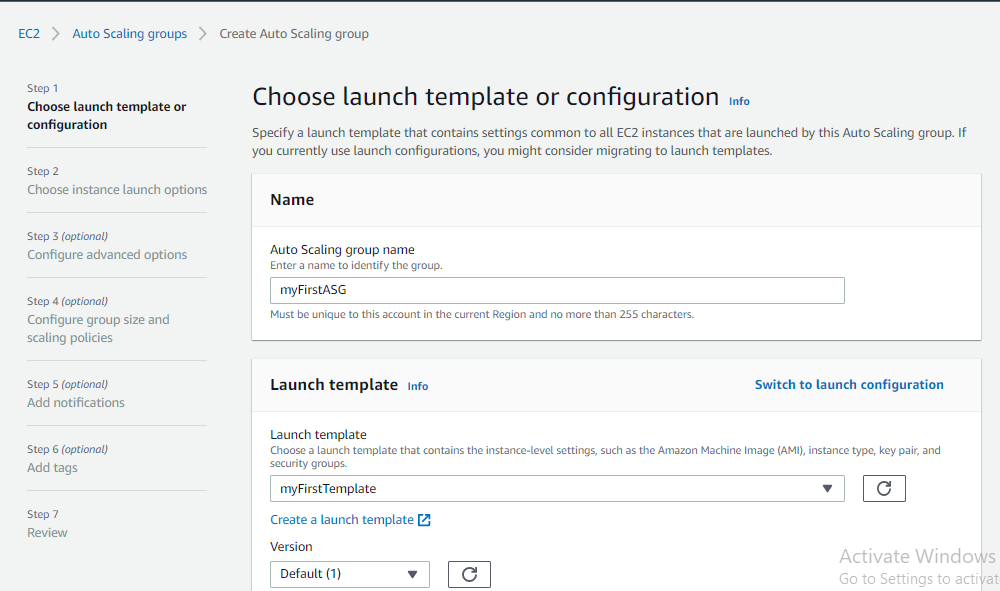




# CREATE AUTO SCALING GROUP

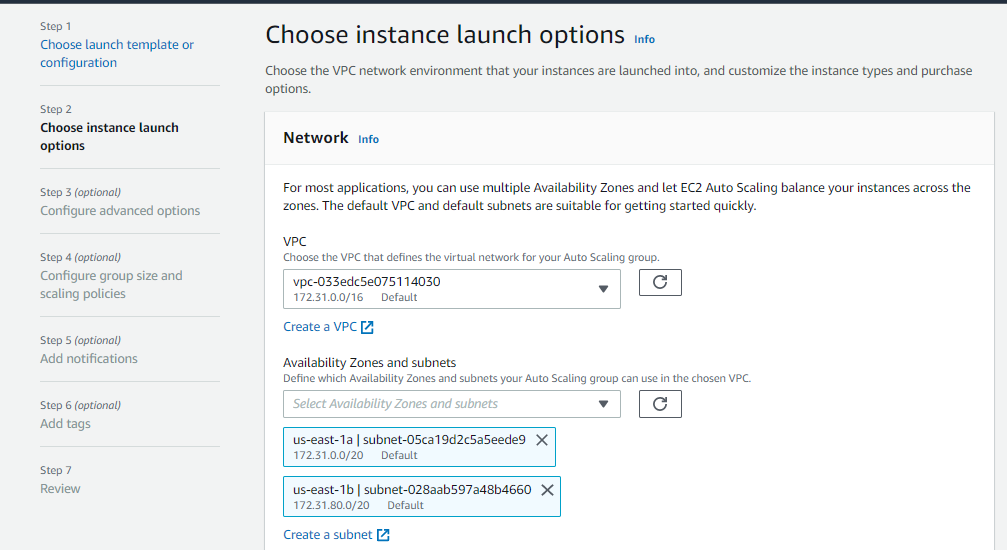


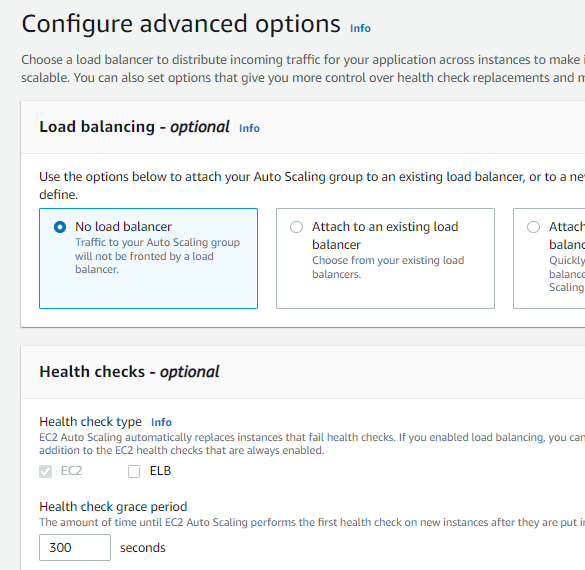
## Attach Template



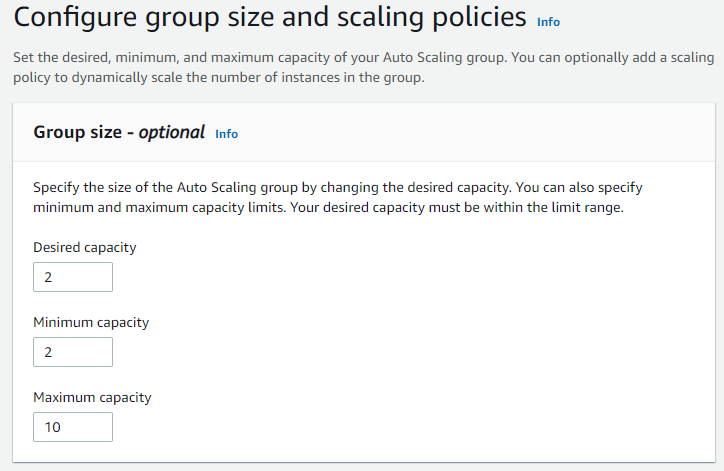
Click next

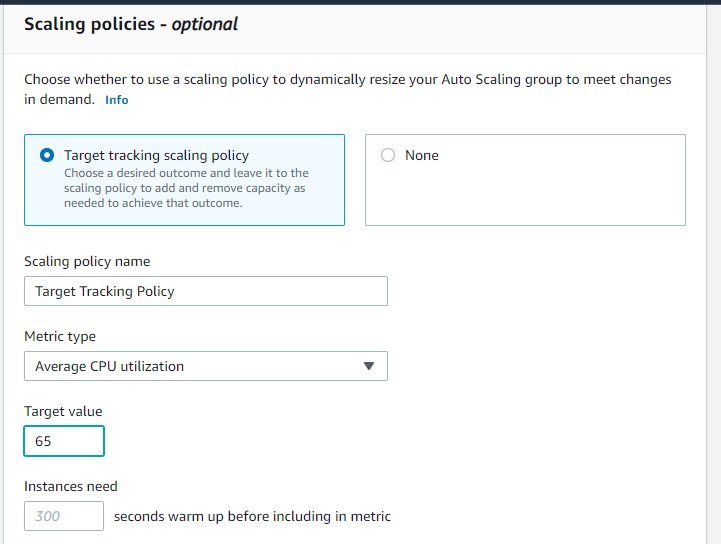
## Define Network –VPC, Availability Zones and subnet

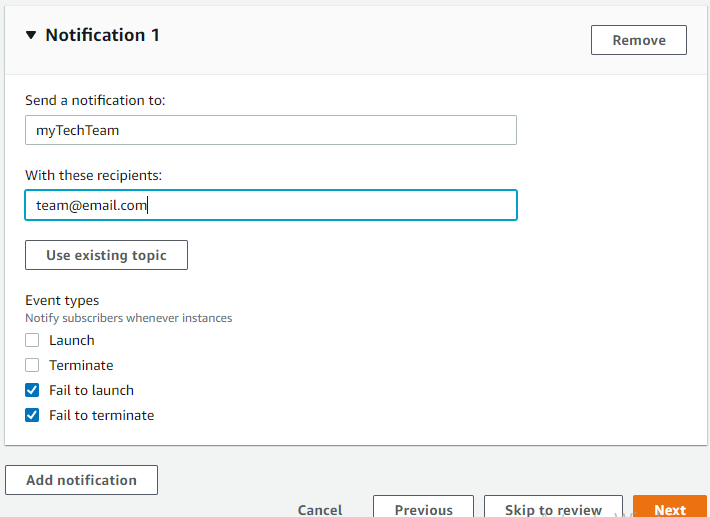


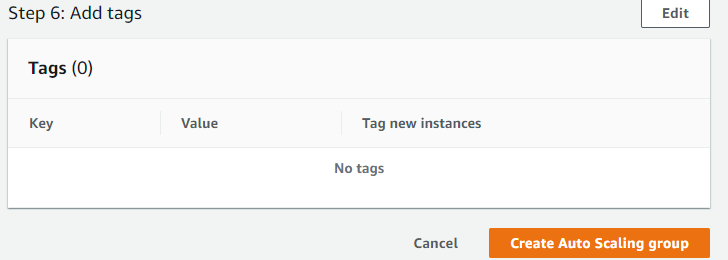


## Configure group size and scaling policies

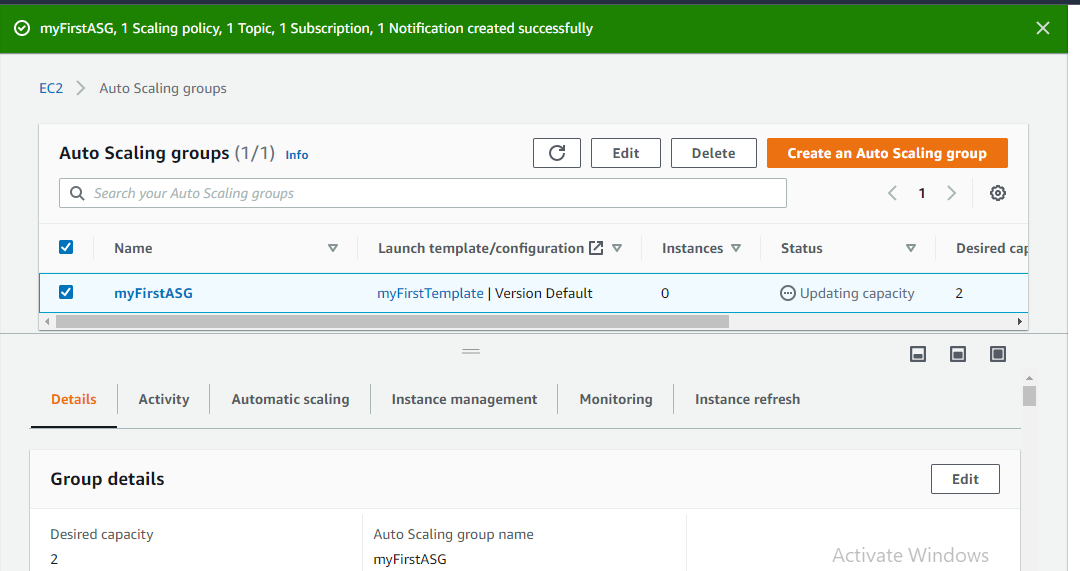




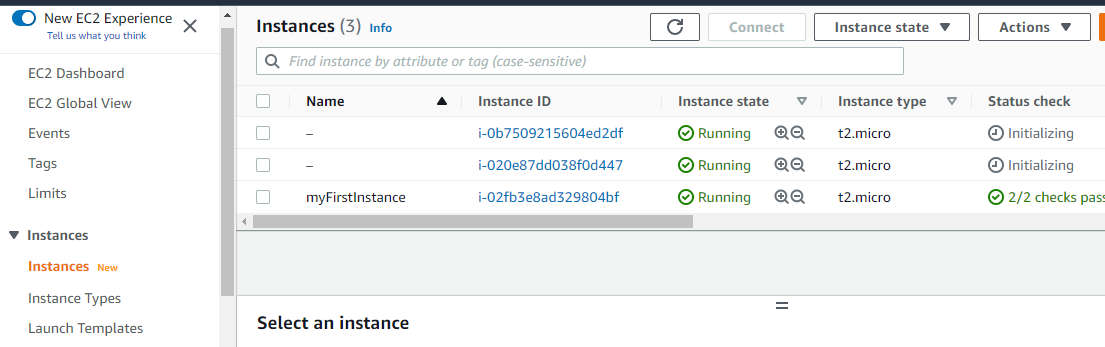


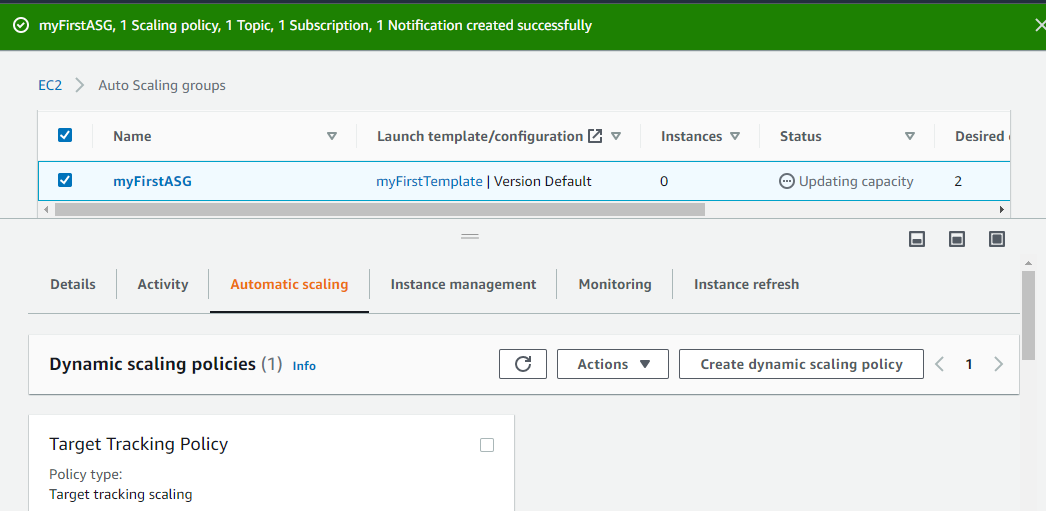


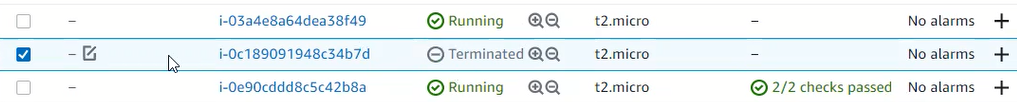
## Check Activity



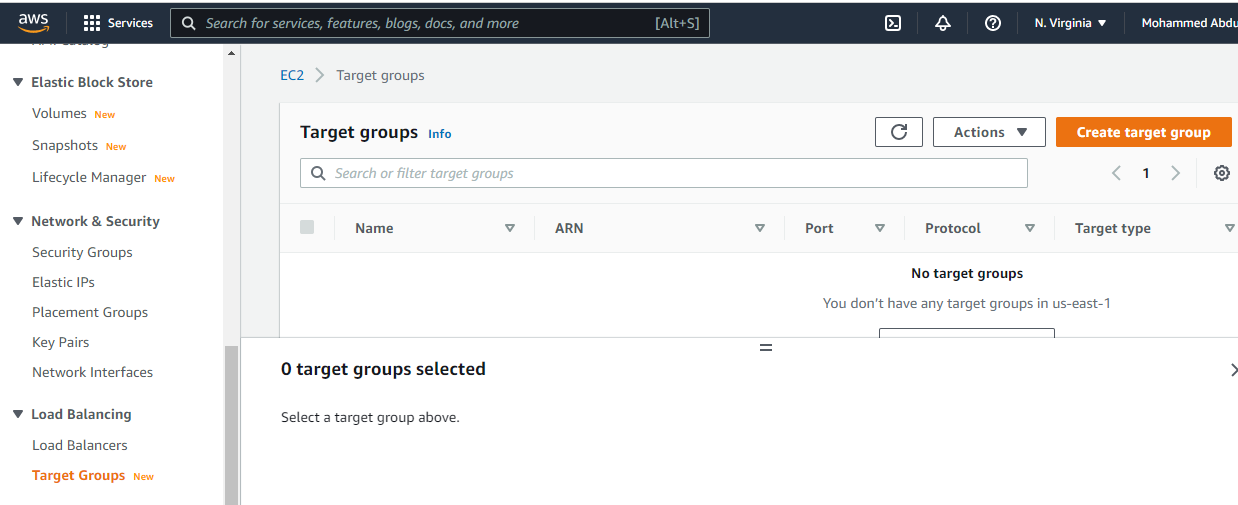


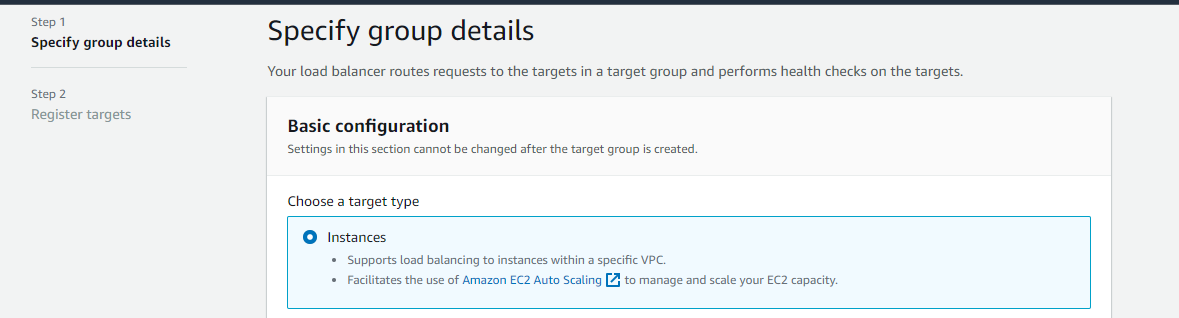




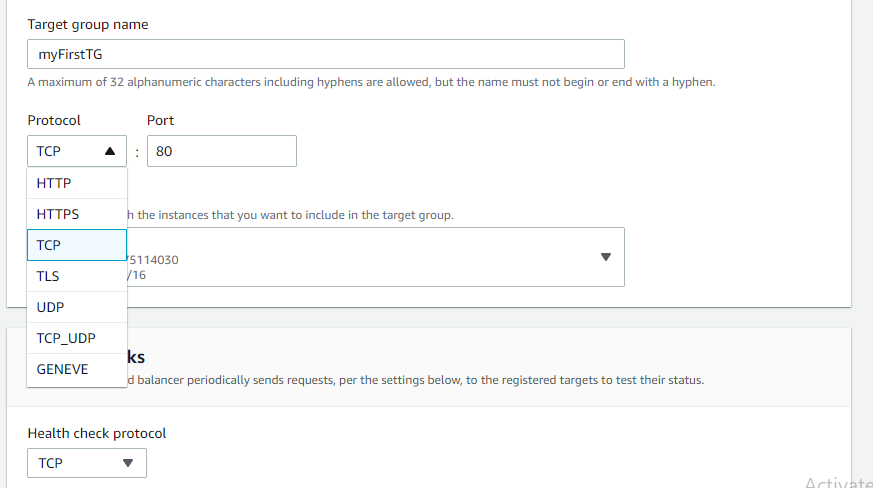


# CREATING TARGET GROUP

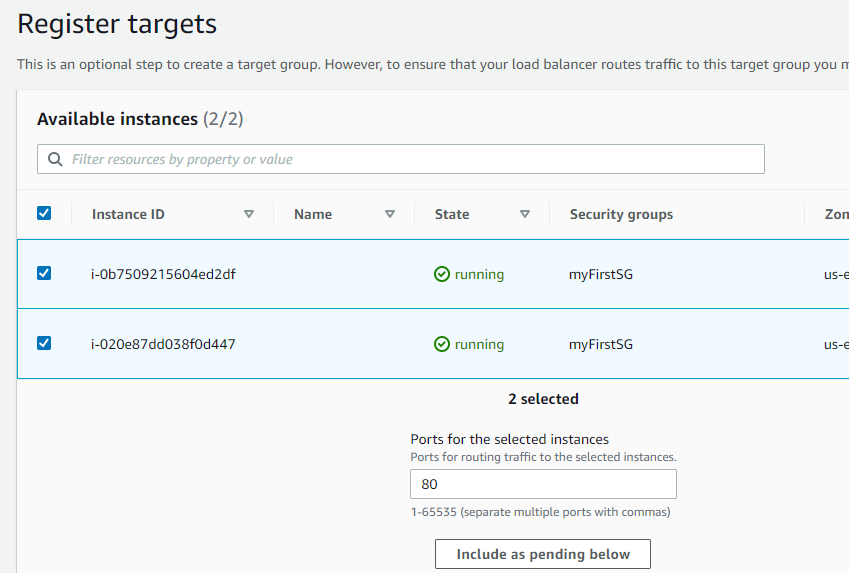


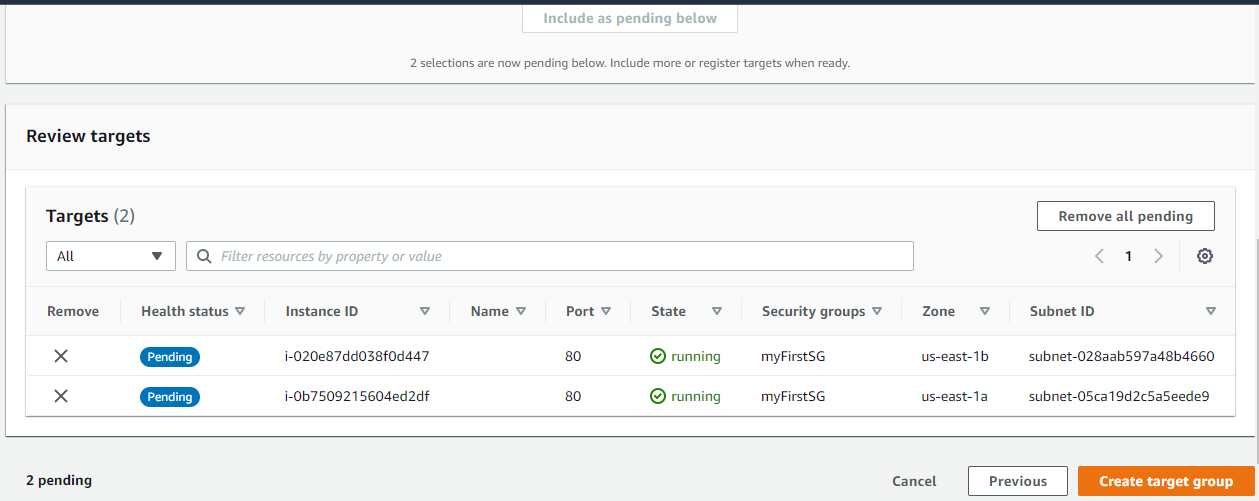


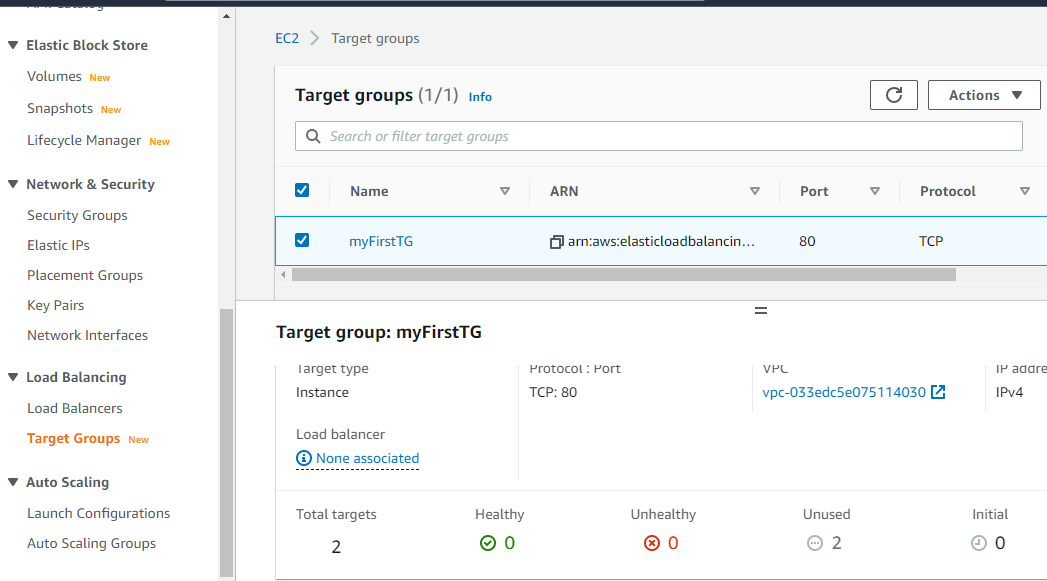
## Name and protocol



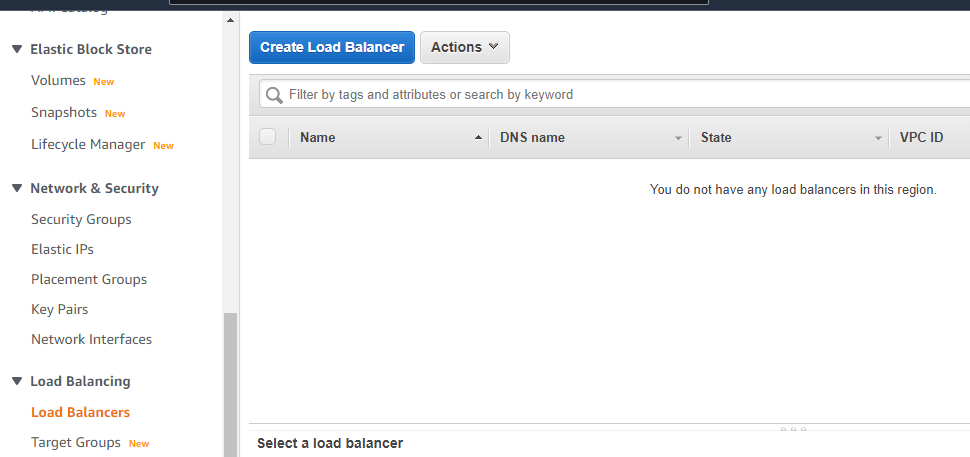
## Register targets and include as pending below



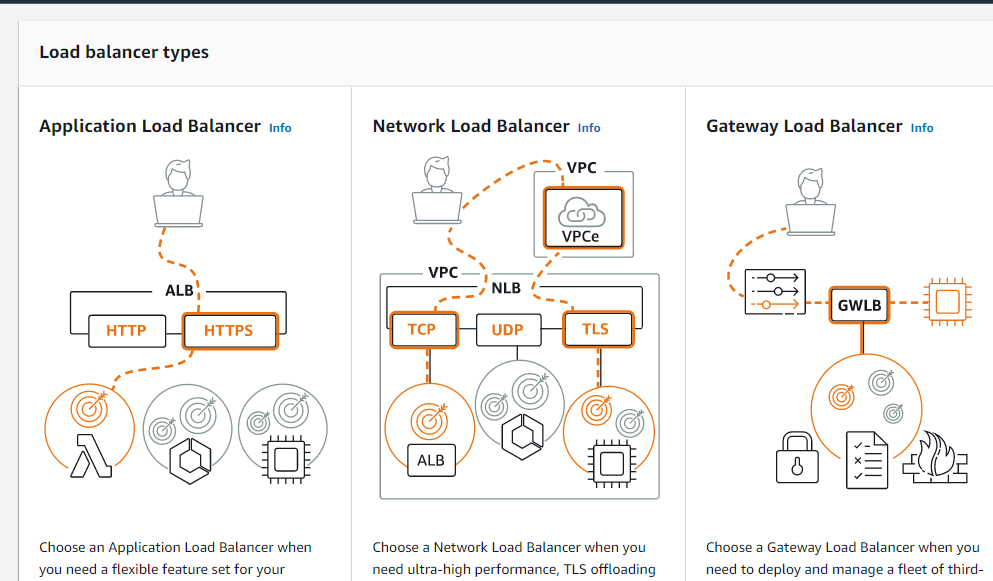




# CREATE LOAD BALANCER

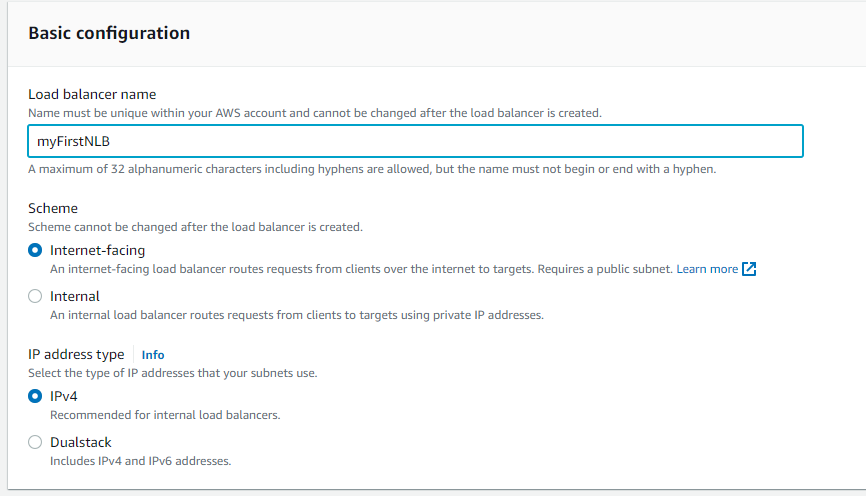


## Types of Load balancer

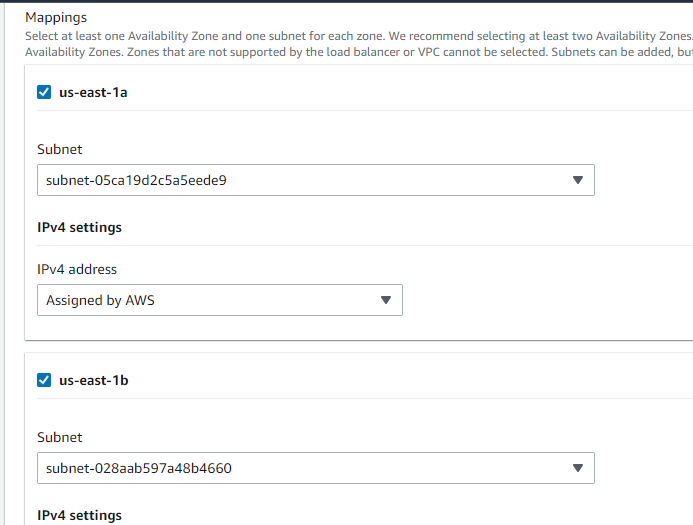


## Type selection

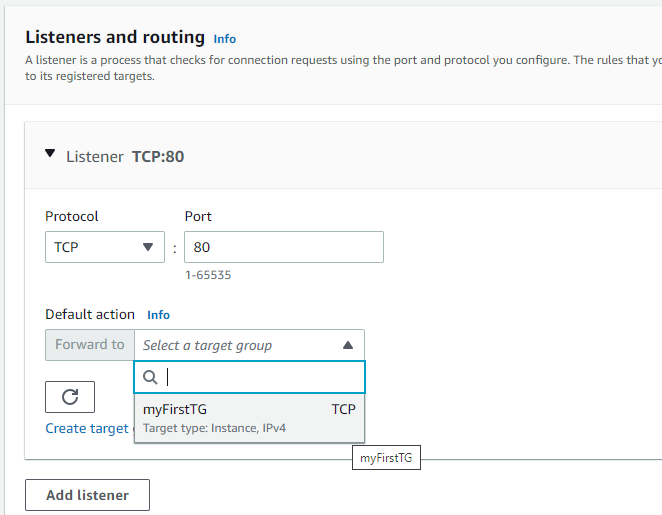
Select NLB

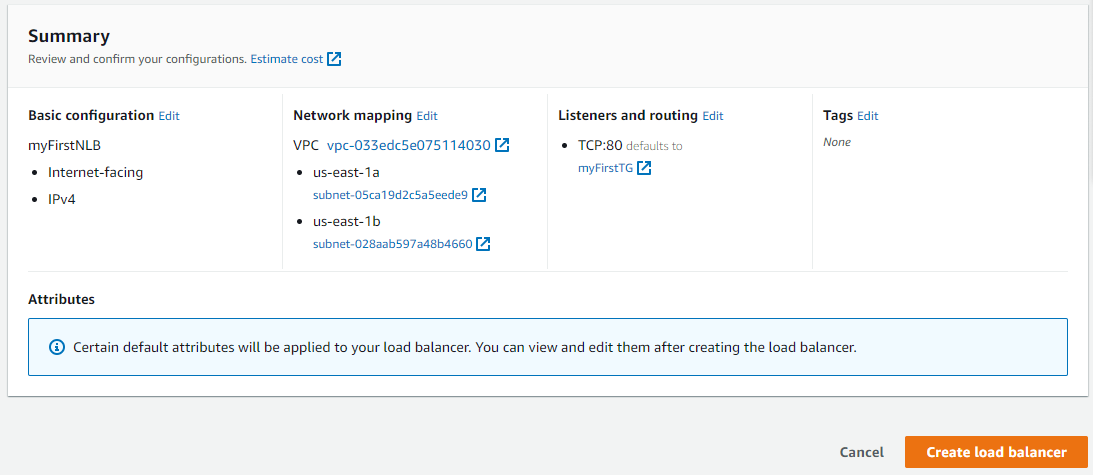


## Network Mapping – Select subnets

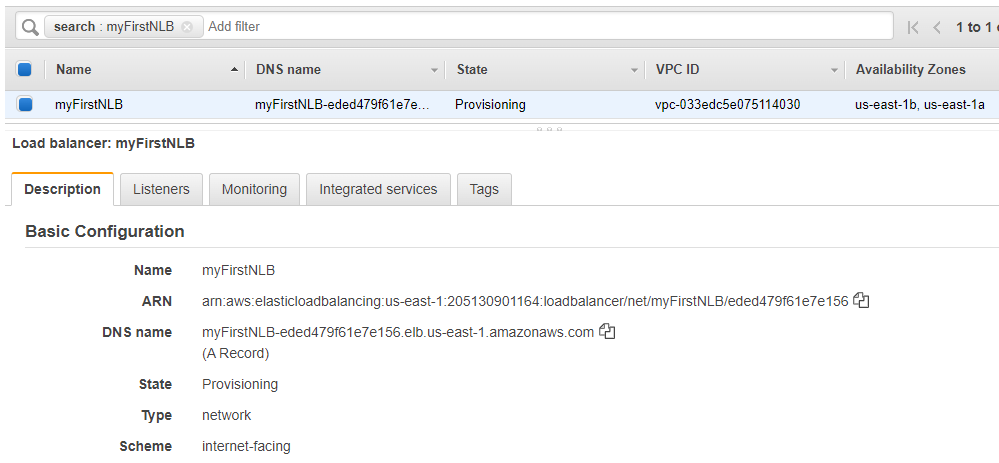


## Attach Target group to Listener

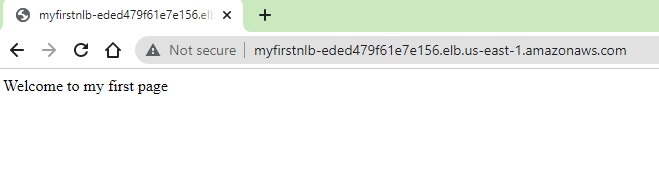




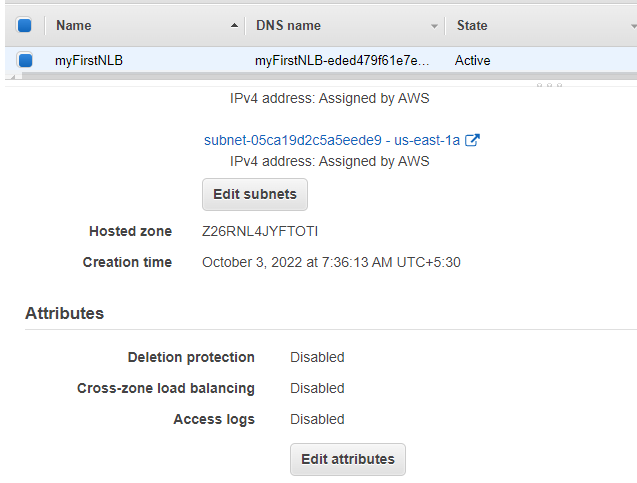
## DNS generation and Test

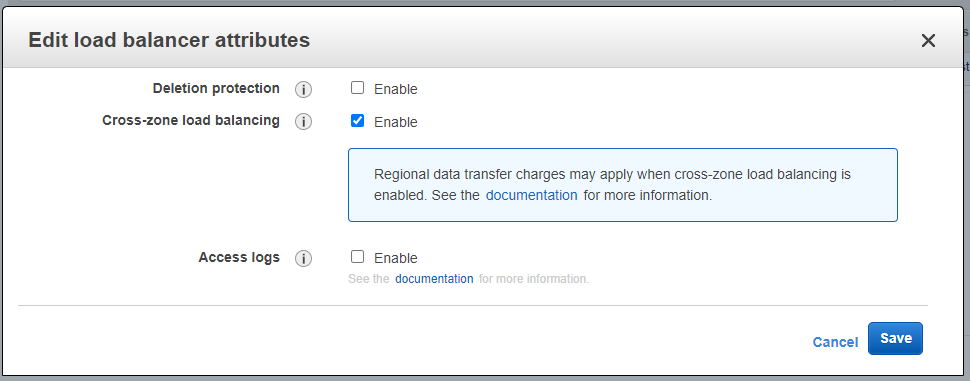




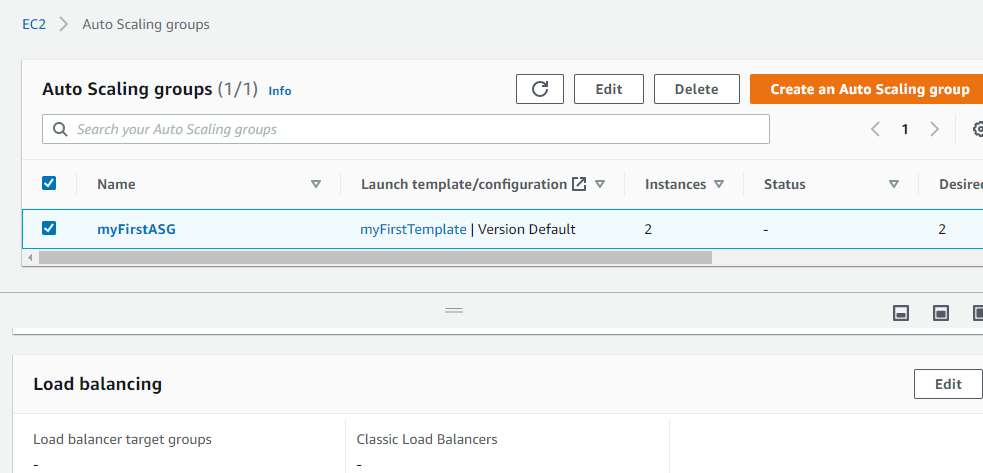


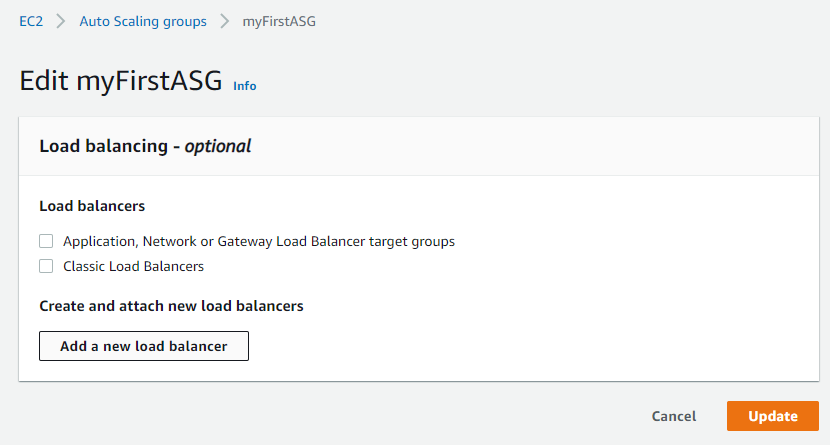
## Enabling Cross-Zone load balancing

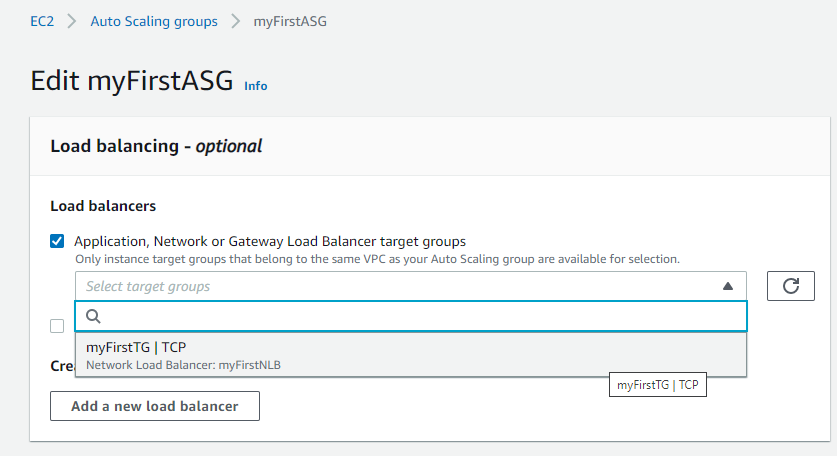




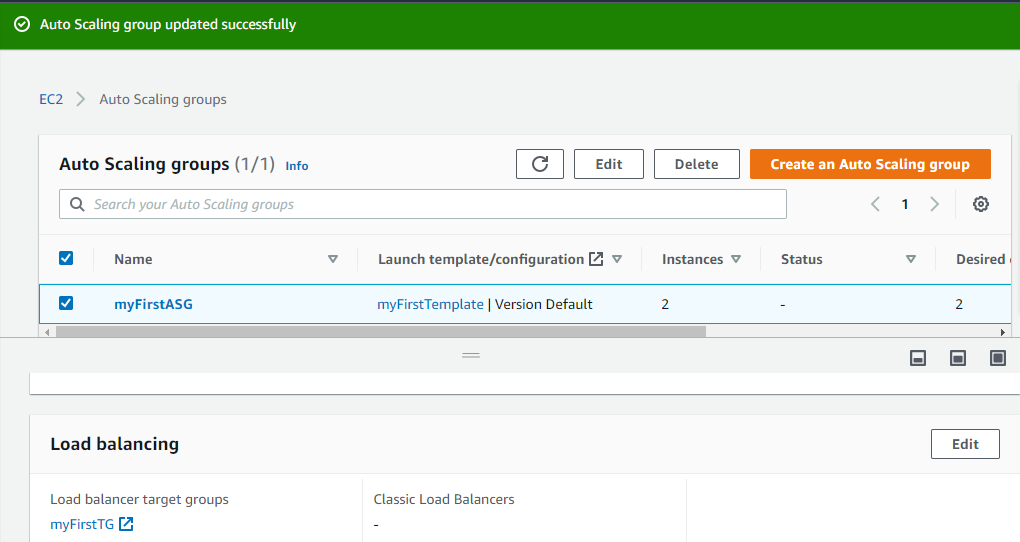
## Attach Target group to Auto Scaling group







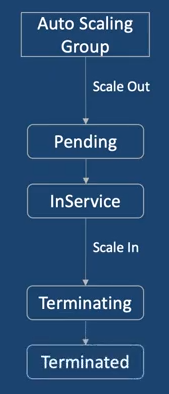
Click Update button



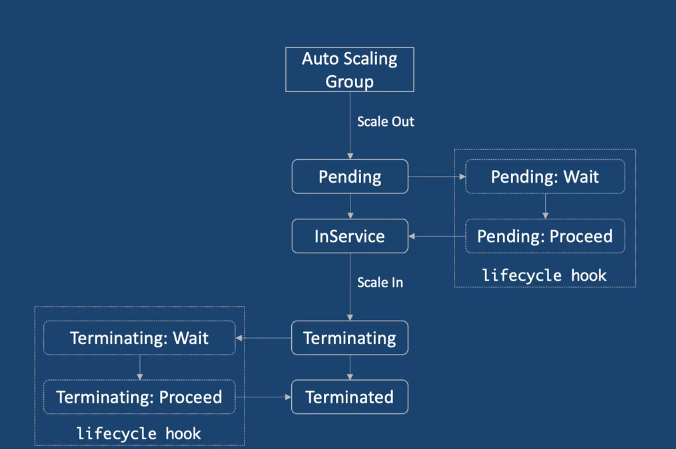
# LIFECYCLE HOOK

* Allows you to pause instances and perform custom actions when a scale-in or scale-out activity happens.
* When configured, the instance in put into a wait state until you continue, or the timeout period ends.

Workflow of Auto scaling **without Lifecycle Hook**.



Workflow of Auto scaling **with Lifecycle Hook**.



|  |
| --- |
| You can perform custom tasks like, installing software, updating packages, etc. before proceed. |

|  |
| --- |
| You can perform custom tasks like, installing software, updating packages, etc. |

|  |
| --- |
| You can perform custom actions like, backing up the logs before proceed. |

**Use Cases**

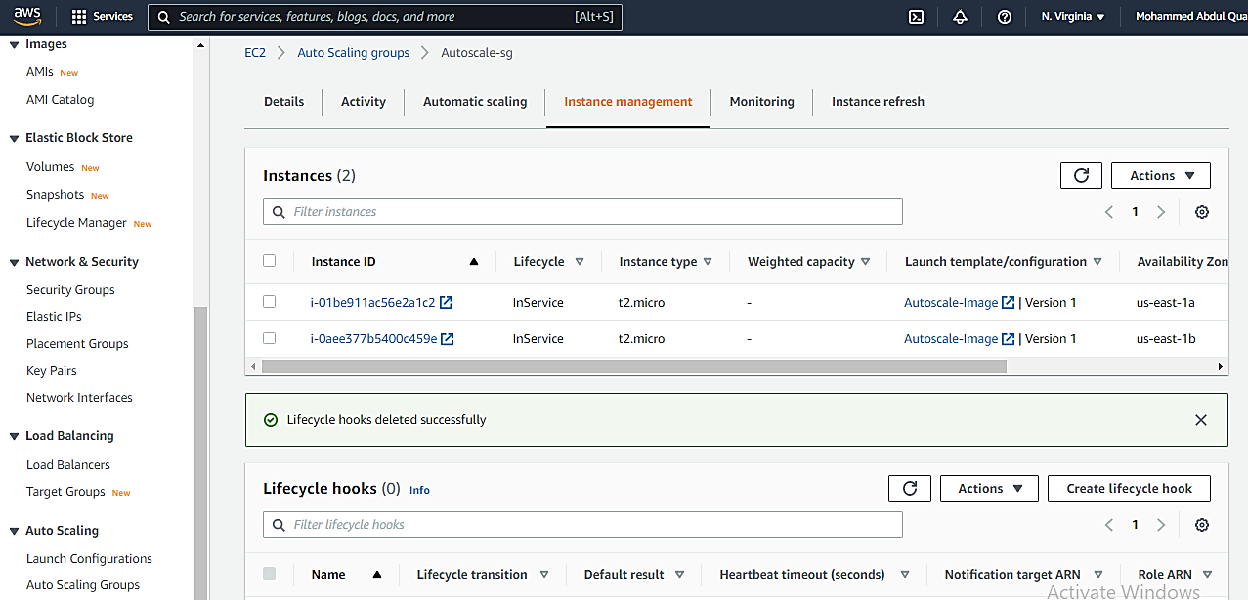
* Install a custom software at instance launch.
* Export logs before instance termination.
* Invoke a Lambda function when a lifecycle action occurs.
* Send a notification when an instance launches or terminates.
* **Run a custom script at instance launch**.

|  |
| --- |
| #!bin/bash  yum update –y  yum install httpd –y  systemctl start httpd  systemctl enable httpd  echo “welcome to my first web page”>/var/www/html/index.html |

*Note: httpd (apache)*

**Creating Lifecycle Hook..**

Click **Auto Scaling Group** 🡪 **Instance Management** 🡪 **Create Lifecycle Hook**



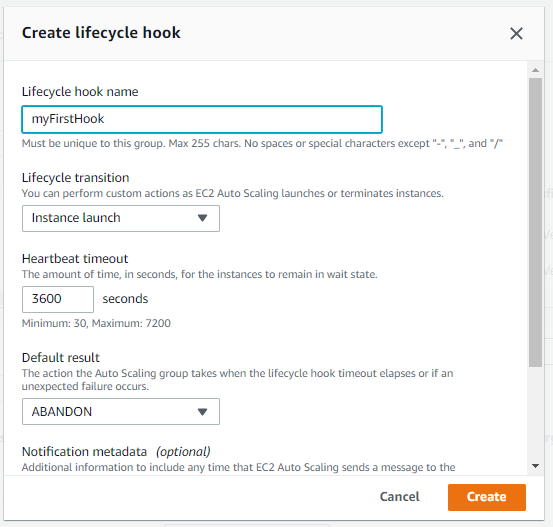
**3**

**2**

**1**

1. Give the Lifecycle Hook name as per the script *myFirstHoot* and click **Create**.

Keep other information unchanged. Default Heartbeat Timeout is 3600 seconds (1 Hour)



It will wait for 3600 seconds (1 hour) till the following installations performed.

|  |
| --- |
| #!bin/bash  yum install httpd -y && \  service httpd start -y && \  Stopped an Auto Scaling instance. |
| A new instance started spinning. |
| Updated the Heartbeat time out to 30 seconds  The Activity History shows |
| After series of failures. Changing the Heartbeat time out to 3600 seconds  The Activity History shows |
|  |
|  |

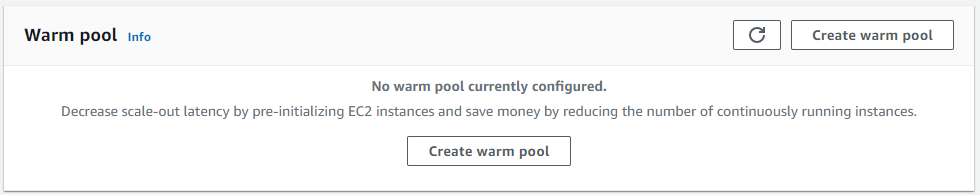
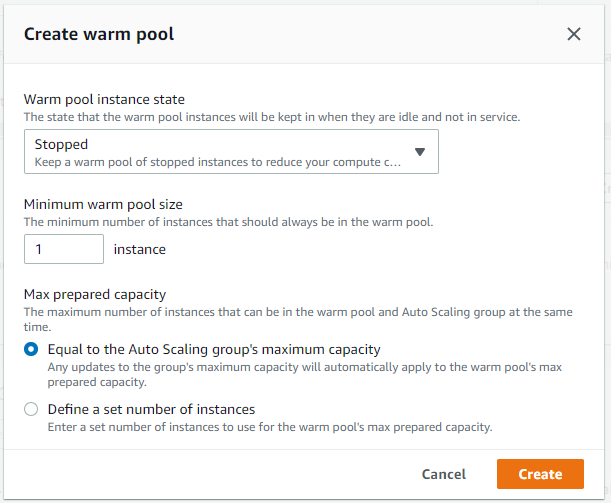
# WARM POOLS

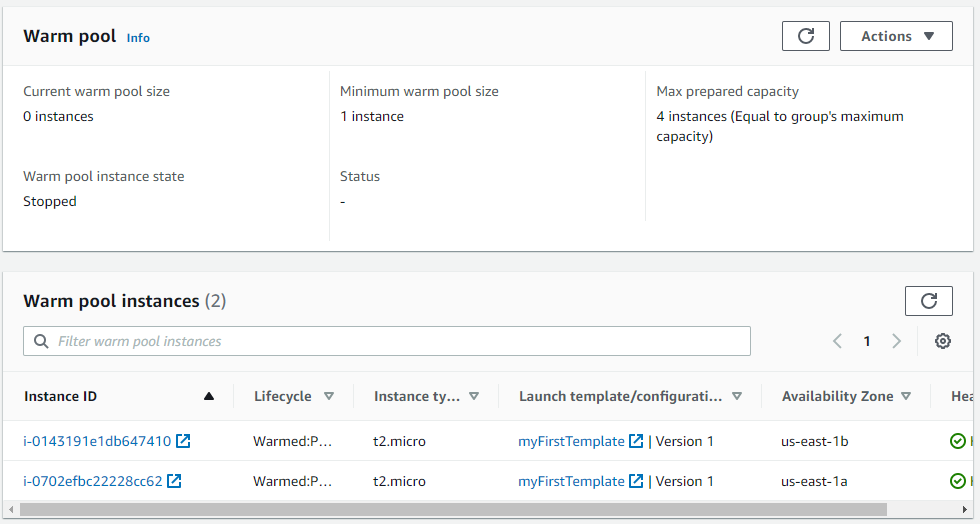
AWS Auto Scaling provides scale-out and scale-in resources depending on the instance needs. For example, if a running instance stopped or terminated the Autoscale will launch a new instance replacing the failed instance. This launch takes time as the installation of the software/patches or dependencies prior to the launch must be accomplished. During this certain amount of time the services to the customer hinder. Hence *Unavailability* of the resource arises which is not acceptable.

Solution to the above problem is Warm Pools. “It is a pool of pre-initialized EC2 instances that sits alongside the Auto Scaling Group”. When the application needs to scale-out, warm pool makes sure that it meets its desired capacity by quick start known as warm start.

|  |
| --- |
| **Warm pool size = Auto Scaling group’s max capacity – Desired capacity** |

Click on create warm pool. You can keep one or more instances in the pool.





Before Warm Pools

