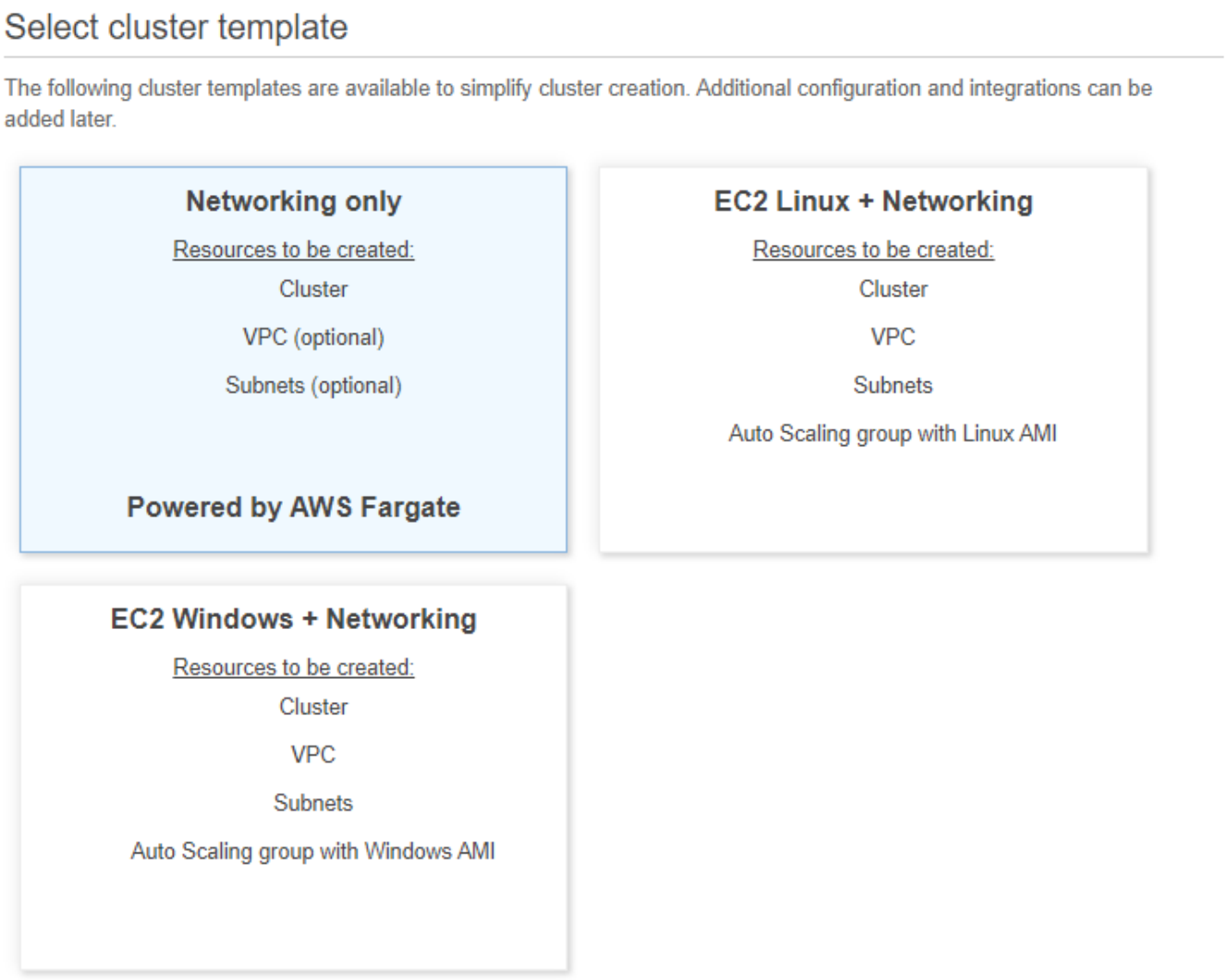
How To - ECS Jenkins Farm

Introduction -

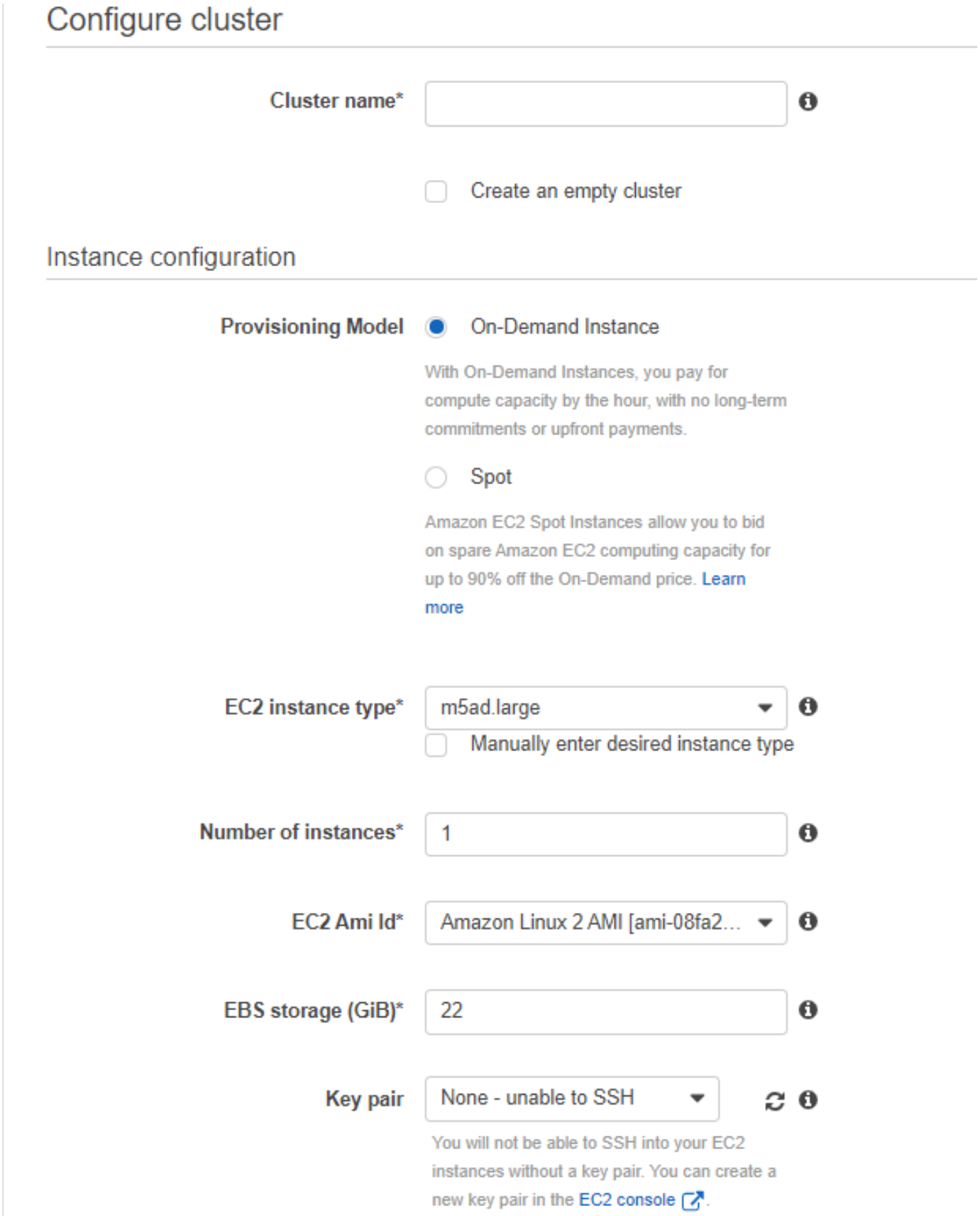
As Novartis is using the ECS environment and we need to come up with the solution; how ECS Jenkins Farm can be created. Below mentioned example showing to create a ECS Jenkins Farm with our existing Jenkins Master which is deployed on "Devops Plateform".

1. ECS Cluster Creation -

Go to AWS Dashboard Search for ECS Click on Create Cluster then Select Cluster Templates as below.



In this example, we will talk about ECS with EC2 Linux + Networking. Select "EC2 Linux + Networking" then click on "Next Step".



Cluster Name: Provide any meaning full name to this cluster

Provision Model: How you want to provision your EC2, so "On-Demand Instance" will be fine for this example.

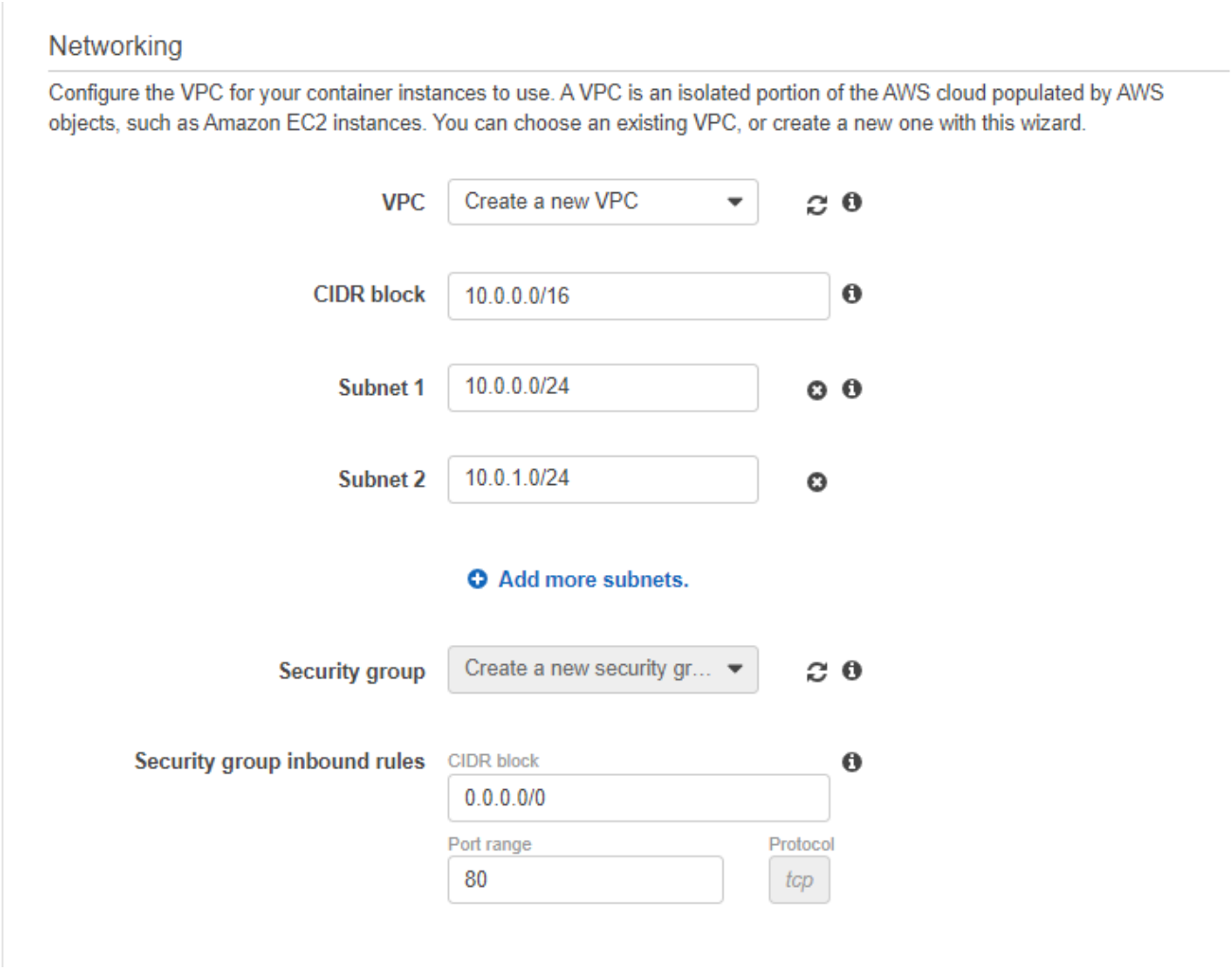
EC2 Instance Type: Choose instance type, for this example I choose t2.medium.

Number of Instances: How many instances are required in this cluster.

EC2 AMI ID: Choose Ec2 AMI ID; there are two options Amazon Linux 1 and Amazon Linux 2. So choose the latest one Amazon Linux 2.

EBS Storage: EBS volume size, lets choose 30GB.

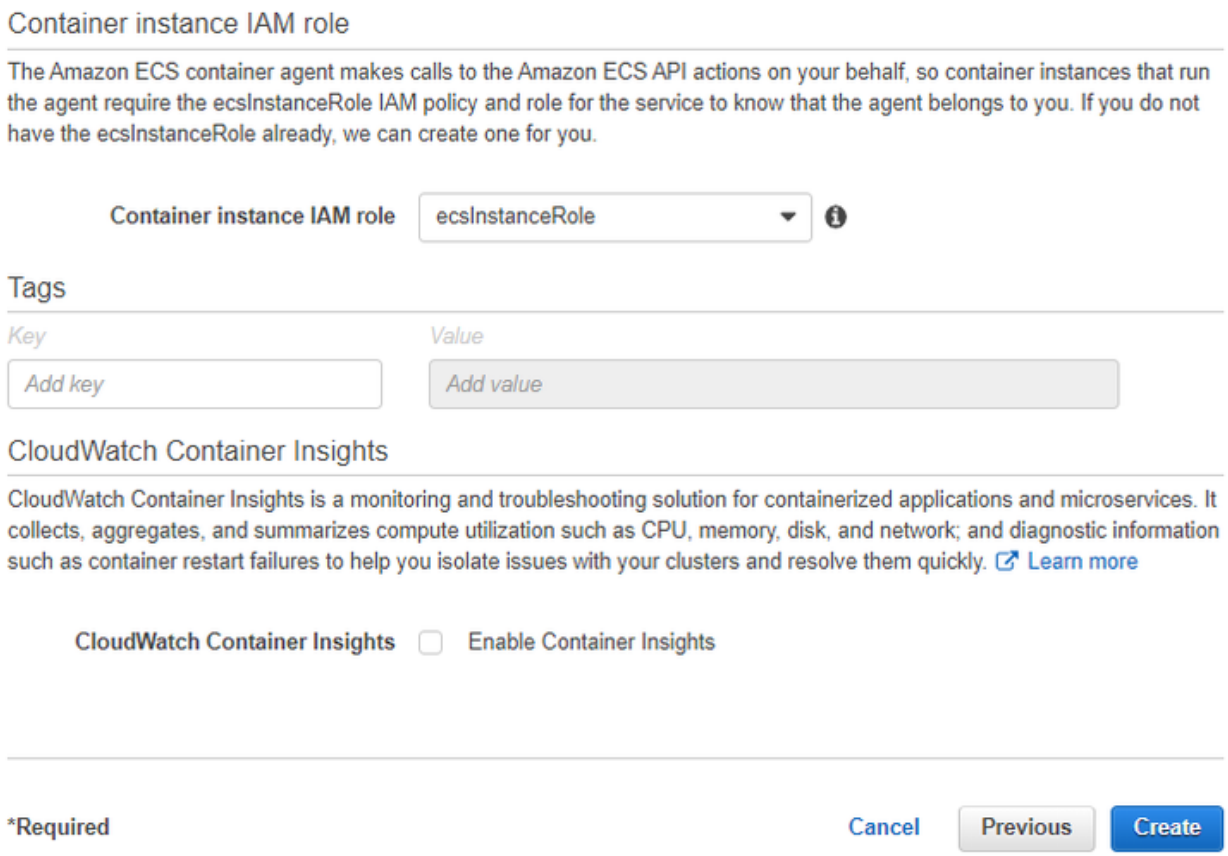
Key Pair: Choose the key pair to login into EC2 instances.



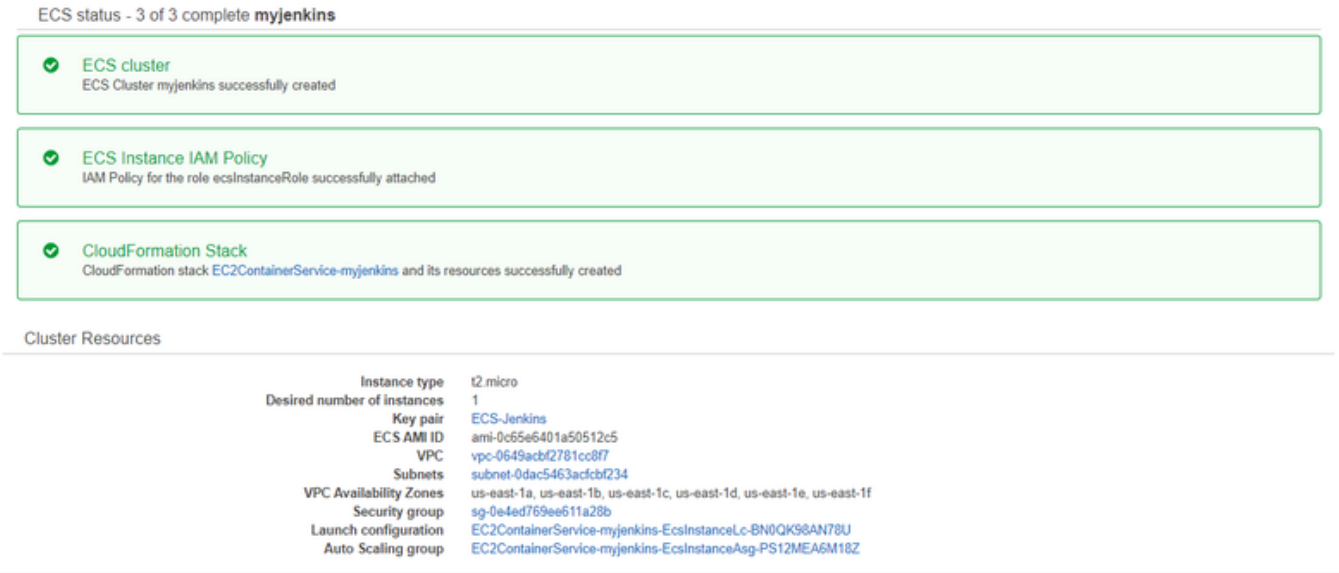
VPC: Need to choose VPC, however for this example "Novartis-devops-vpc" selected.

Subnets: Same subnet selected, which is shared with Jenkins Master.

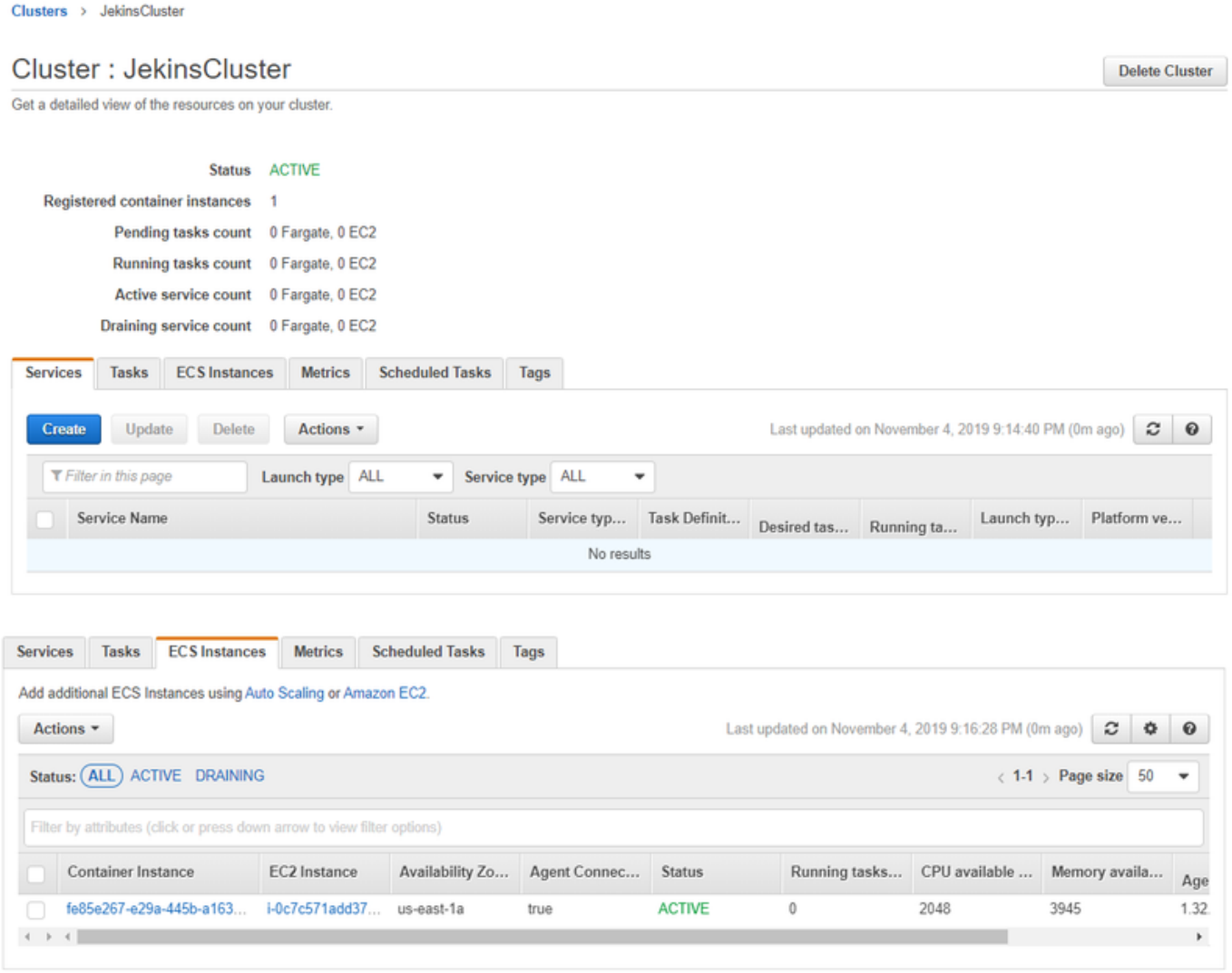
Security Groups: Same SG selectd, which are selected for Jenkins Master.



Select IAM Role as "ecsInstanceRole". If cluster is being created first time then leave this field as default then it will automatically create the IAM Role as "ecsInstaceRole". Then click on Create button.



Cluster is created successfully and all the details are mentioned here.

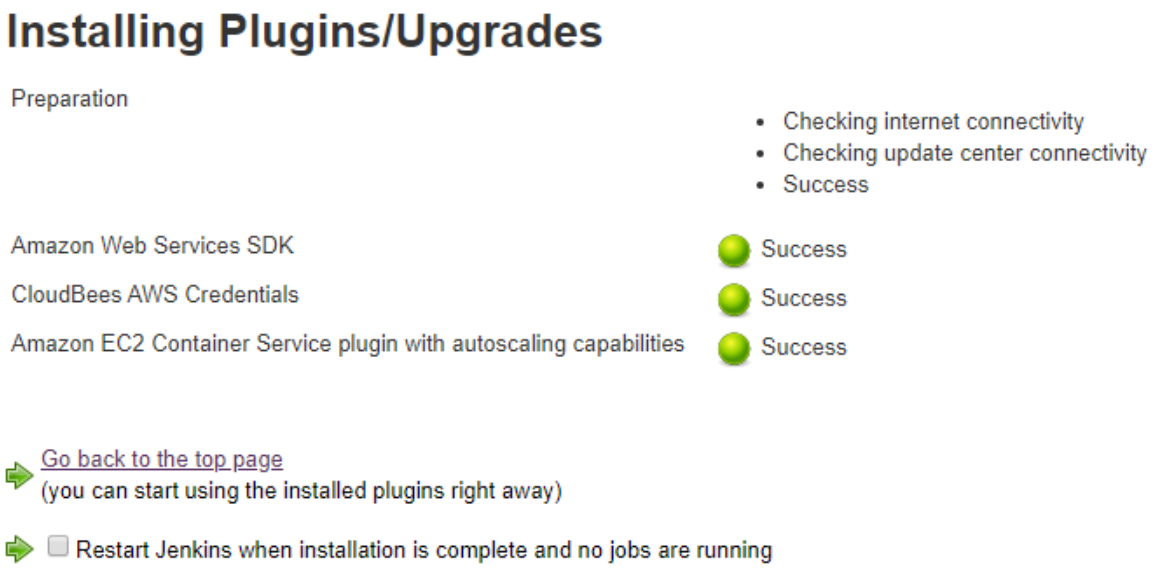


You can see the Container and EC2 Instances created under this cluster.

2. Jenkins Configuration for ECS -

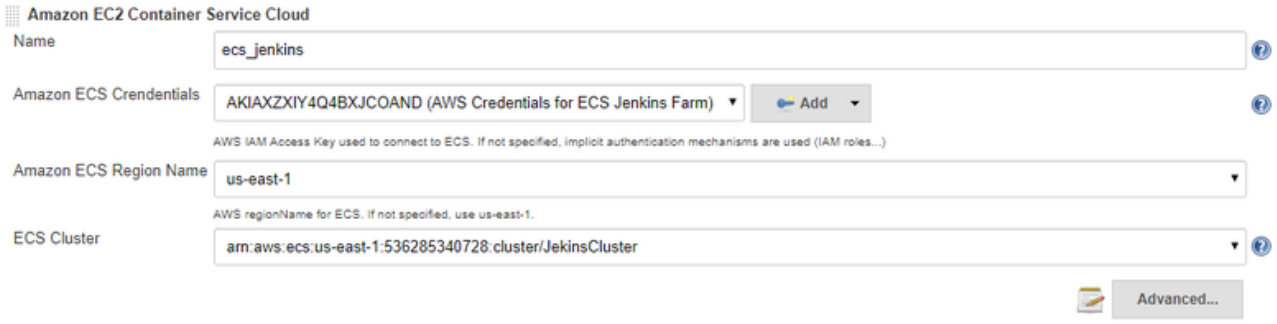
2.1 Jenkins Plugins -

Some plugins required to integrate ECS with the Jenkins Master; below mentioned plugin are required to install.



2.2 Jenkins Configuration -

Go to Manage Jenkins Configure System Add a New Cloud select "Amazon EC2 Container Service Cloud".



Name: Give any logical name this this configuration.

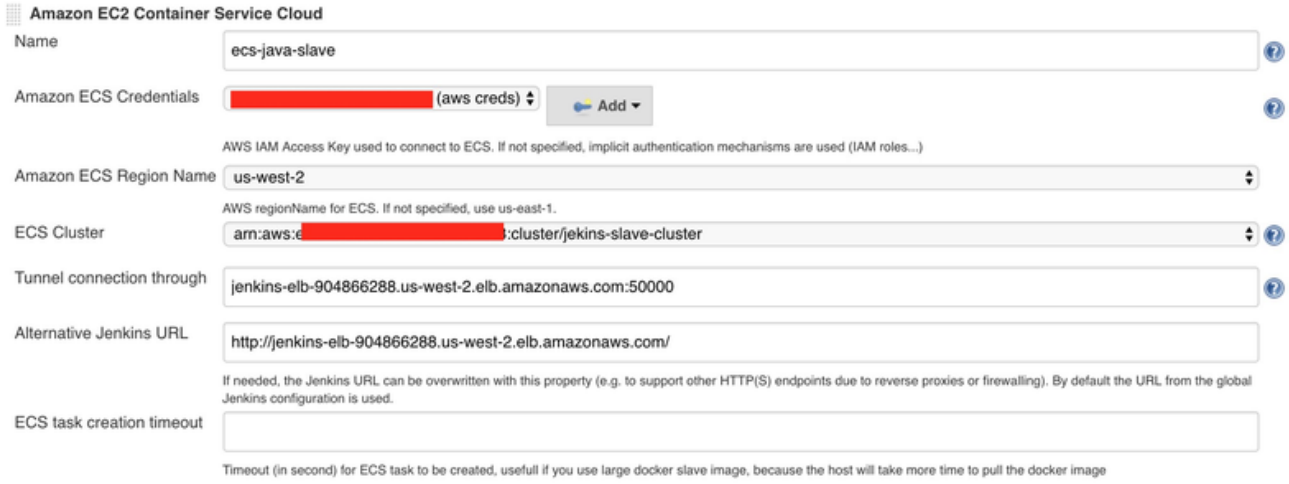
Amazon ECS Credentials: Provide the AWS "Access key ID" and "Secret access key" to authenticate.

Amazon ECS Region Name: Provide the same region name where ECS Cluster is created.

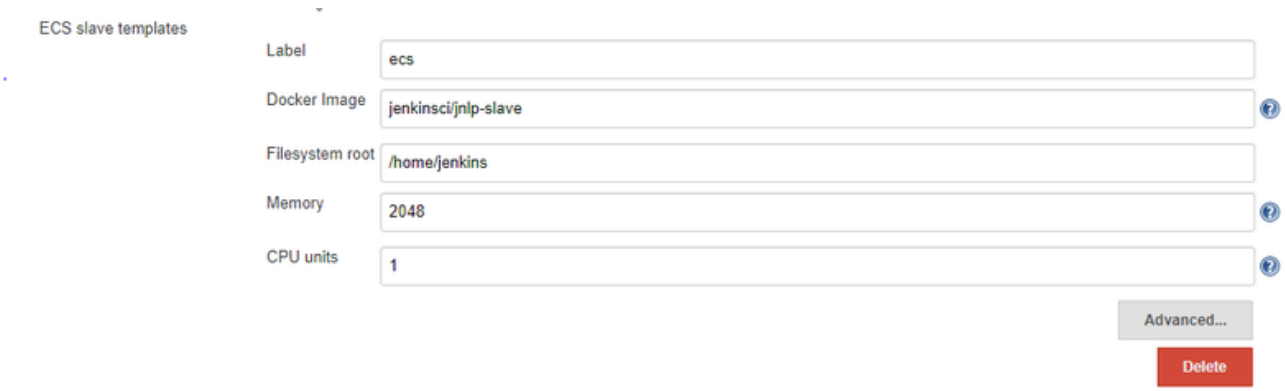
ECS Cluster: Once ECS Credentials and Region Name are entered correctly the It will start showing all the ECS Cluster here; just select the desired one.

If you are running jenkins master under an ELB, you need to add the tunnel configuration in the advanced section.

The Tunnel connection through option should have the elb URL followed by the JNLP port as shown below.



Now need to configure the ECS Slave Templates-



Label: Mention label, so desired the jenkins job needs to run for this label.

Docker Images: Mention the Docker Image; which you want to invoke as a Jenkins Slave.

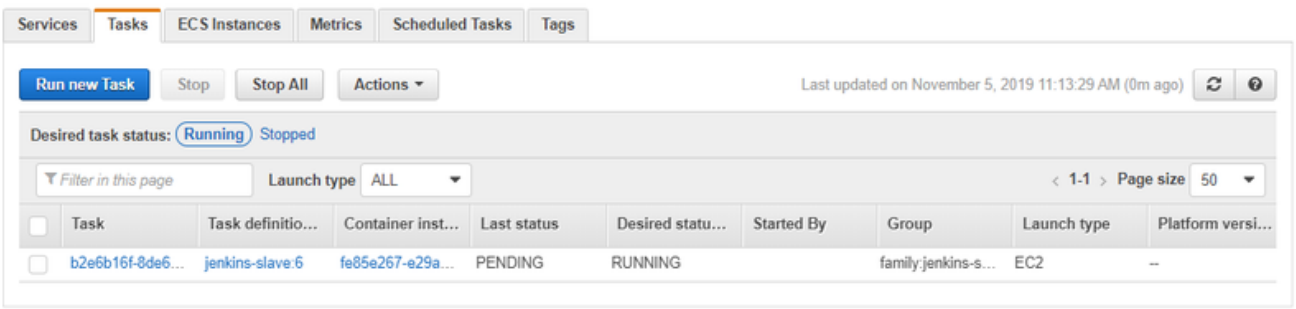
FileSystem Root: For Jenkins Slave it should be "/home/jenkins".

Memory: Mention memory here to provide for Slave. For this example, 2048 is mentioned. If Memory is not provided then It will give and error during Save.

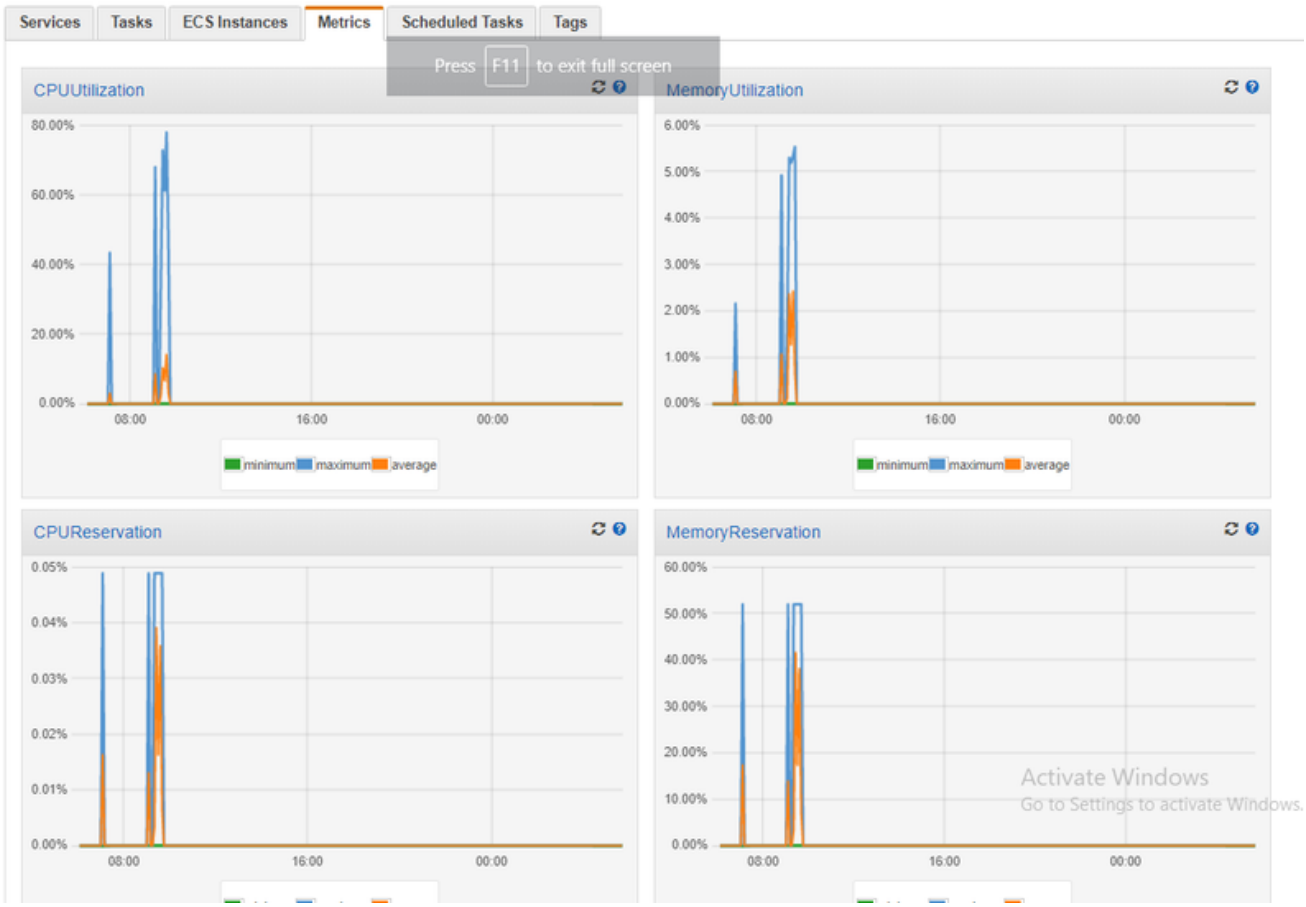
CPU Limits: CPU Unit can be provided according to job and server's configuration.

3. Tasks Definition and Metrics in ECS-

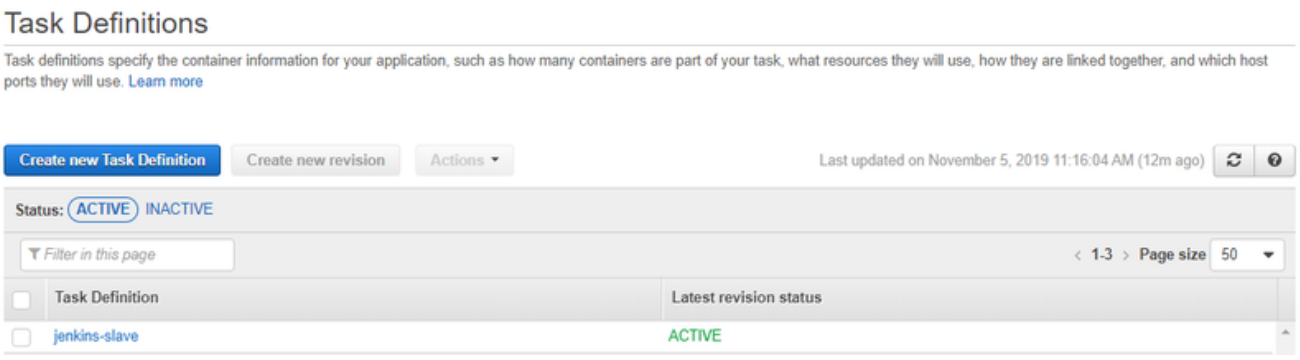
Now run any Freestyle Job or Pipeline with label i.e "ecs", so it will trigger the job on ECS environment. You can see the same in Amazon ECS as below, it is triggering the job. Once Job is done then this task will be finished.



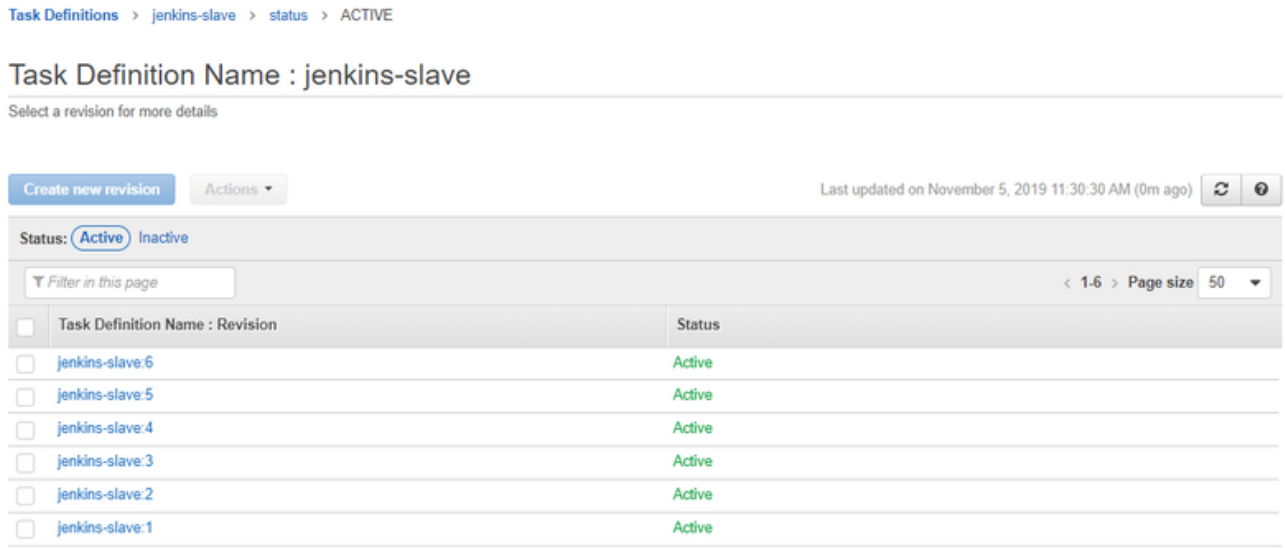
In Metrics tab, you can see how much resources have been taken for this job and other jobs-



Any Job execution will create the Task Definition under Amazon ECS as below-



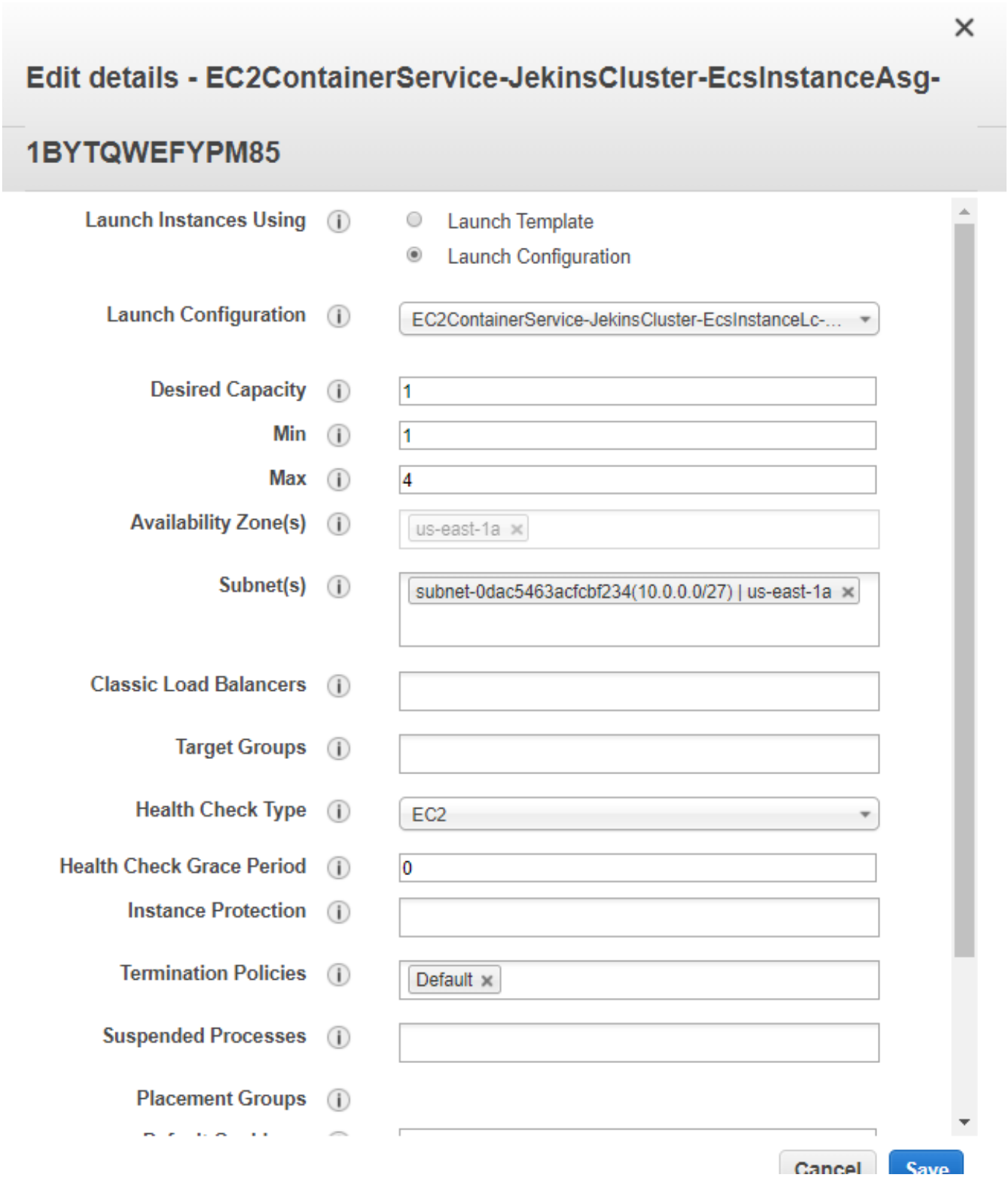
If we click on jenkins-slave then it will show how many jobs and revisions are Active-



4. Auto Scaling for ECS Jenkins Farm -

Auto Scaling Group is default created along with the ECS Cluster.

This Auto Scaling Group can be edited according to our requirement like how many instances are required (Desired, Min and Max) -



Can also create the Scaling Policy with respect to our requirement -

5. References -

https://devopscube.com/setup-ecs-cluster-as-build-slave-jenkins/

https://tech.ticketfly.com/our-journey-to-continuous-delivery-chapter-4-run-jenkins-infrastructure-on-aws-container-service-ef37e0304b95