Lesson 10 Demo 05

Running Task on a Fargate Cluster

Objective: To run a task on a Fargate cluster

Tools required: An AWS account

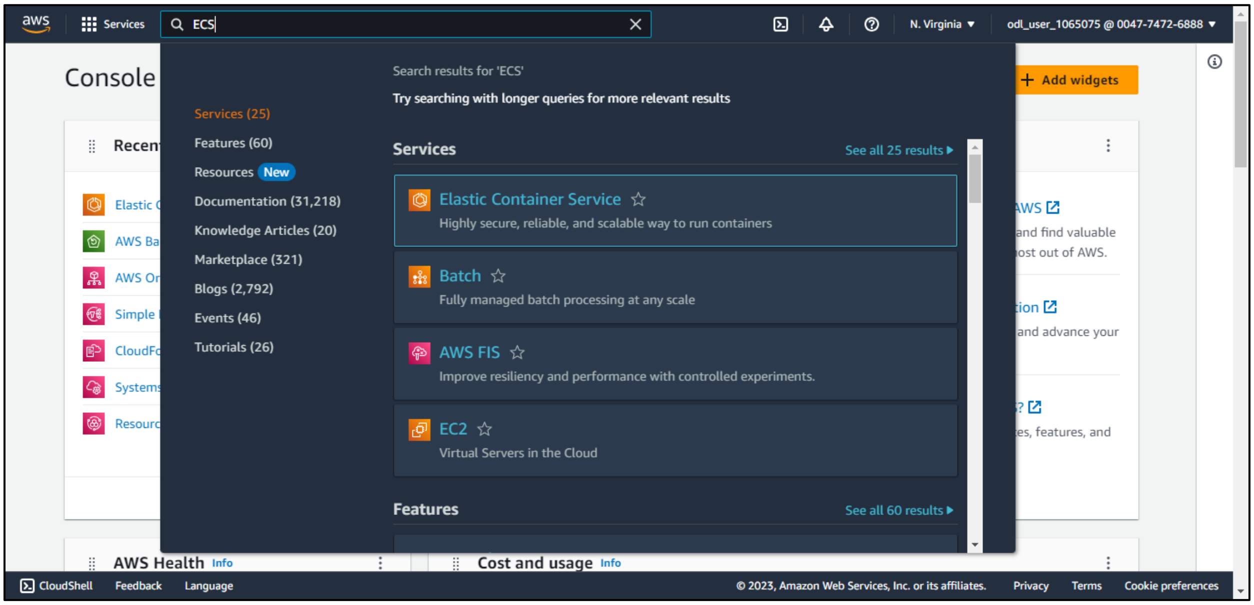
Prerequisites: None

Steps to be followed:

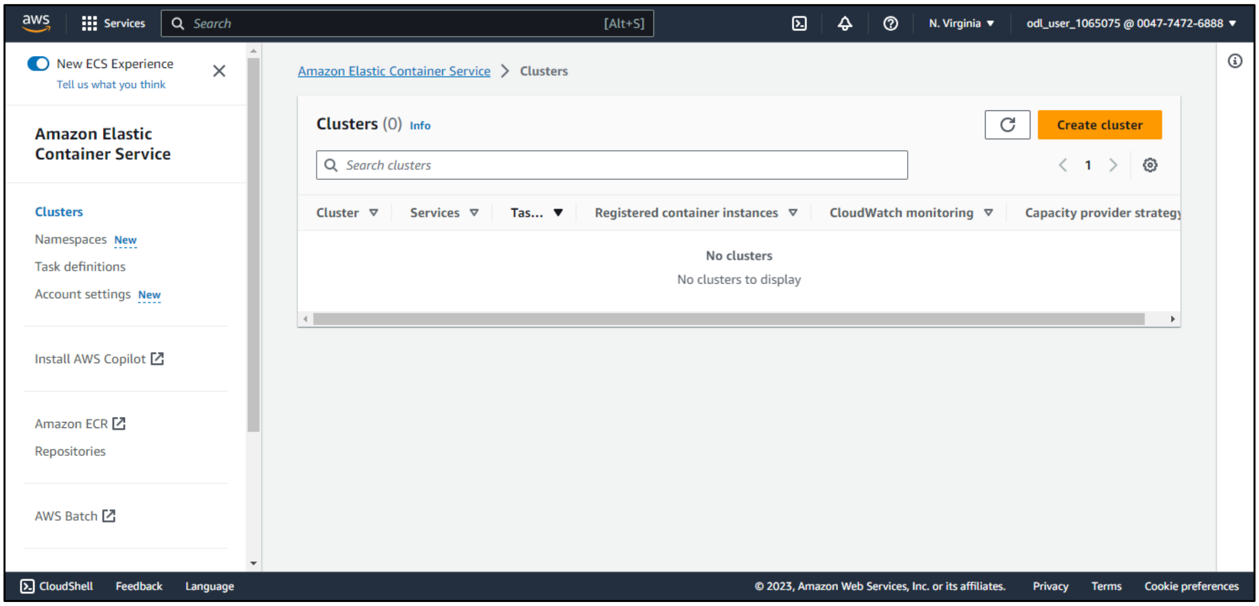
1. Create a Fargate cluster
2. Create a task definition
3. Run the Fargate Cluster

Step 1: Create a Fargate cluster

1.1 In the **AWS Management Console**, search for **ECS** and select **Elastic Container Service**

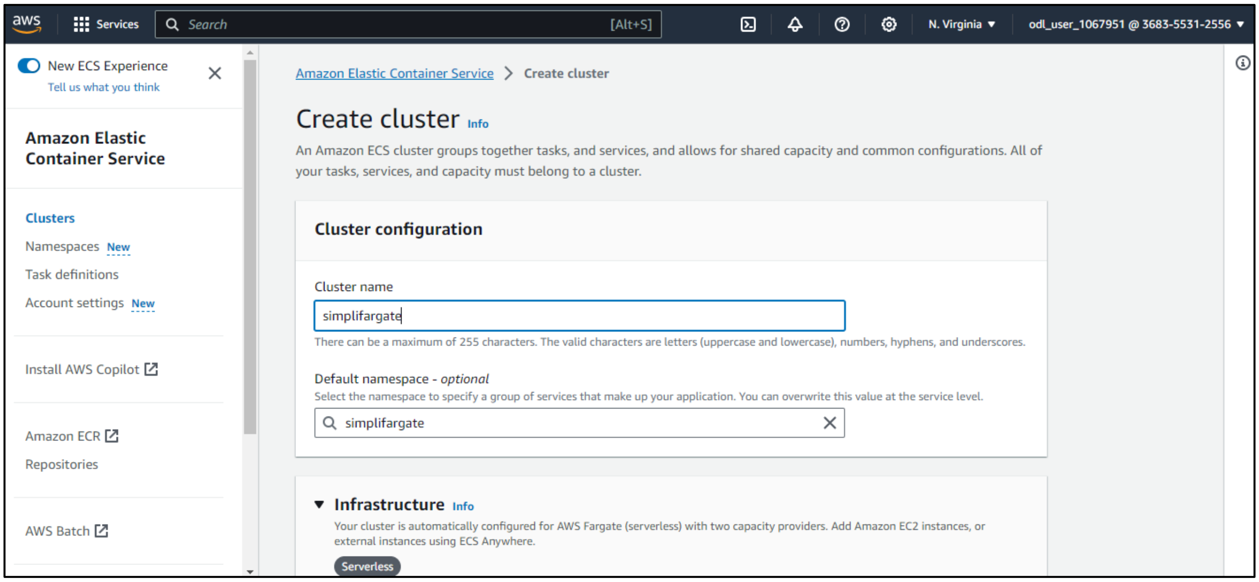


1.2 On the left panel of the ECS console, click on **Clusters** and **Create cluster**



1.3 In the **Cluster configuration**, perform the following:

- Enter an arbitrary name for the cluster under the **Cluster name**
- In the infrastructure, specify **AWS Fargate (serverless)**
- Let the other settings stay at default settings and click on **Create**



Create cluster Info

An Amazon ECS cluster groups together tasks, and services, and allows for shared capacity and common configurations. All of your tasks, services, and capacity must belong to a cluster.

Cluster configuration

Cluster name: simplifargate

There can be a maximum of 255 characters. The valid characters are letters (uppercase and lowercase), numbers, hyphens, and underscores.

Default namespace - *optional*

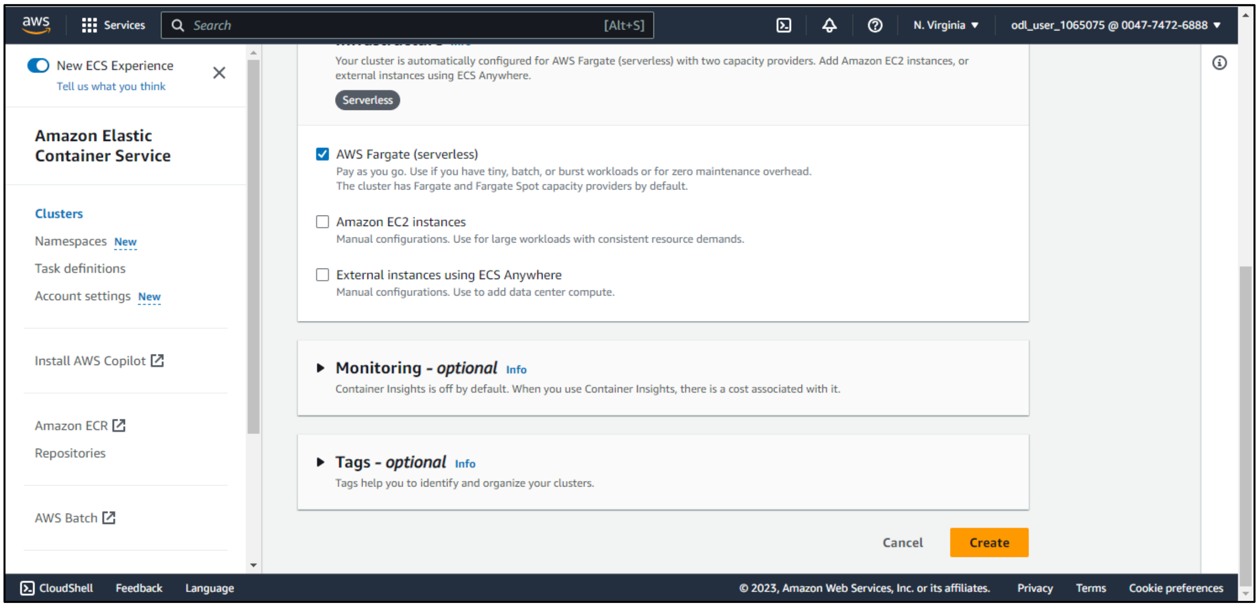
Select the namespace to specify a group of services that make up your application. You can overwrite this value at the service level.

simplifargate

▼ Infrastructure Info

Your cluster is automatically configured for AWS Fargate (serverless) with two capacity providers. Add Amazon EC2 instances, or external instances using ECS Anywhere.

Serverless



Your cluster is automatically configured for AWS Fargate (serverless) with two capacity providers. Add Amazon EC2 instances, or external instances using ECS Anywhere.

Serverless

☑ AWS Fargate (serverless)
Pay as you go. Use if you have tiny, batch, or burst workloads or for zero maintenance overhead. The cluster has Fargate and Fargate Spot capacity providers by default.

□ Amazon EC2 instances
Manual configurations. Use for large workloads with consistent resource demands.

□ External instances using ECS Anywhere
Manual configurations. Use to add data center compute.

▶ Monitoring - *optional* Info

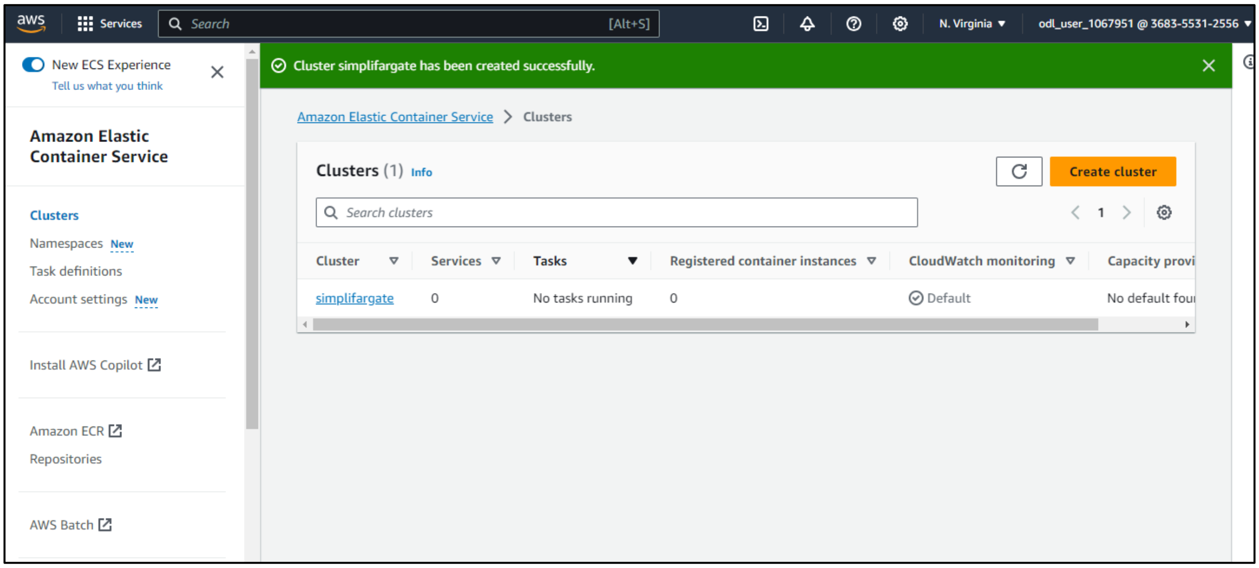
Container Insights is off by default. When you use Container Insights, there is a cost associated with it.

▶ Tags - *optional* Info

Tags help you to identify and organize your clusters.

Cancel Create

1.4 Verify the cluster creation as shown below:



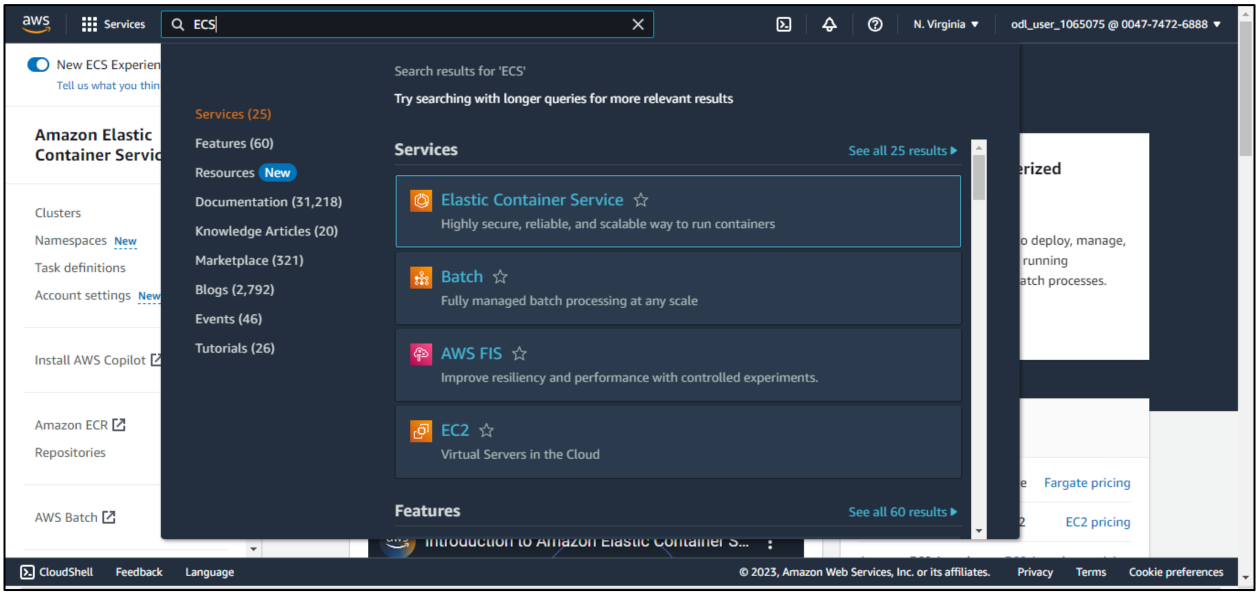
Cluster simplifargate has been created successfully.

Cluster	Services	Tasks	Registered container instances	CloudWatch monitoring	Capacity provi
simplifargate	0	No tasks running	0	Default	No default fou

Note: Do not close the above tab. It will be necessary for reference. ECS Cluster will be created.

Step 2: Create a task definition

2.1 In the **AWS Management Console**, search for **ECS** and select **Elastic Container Service**



Search results for 'ECS'

Try searching with longer queries for more relevant results

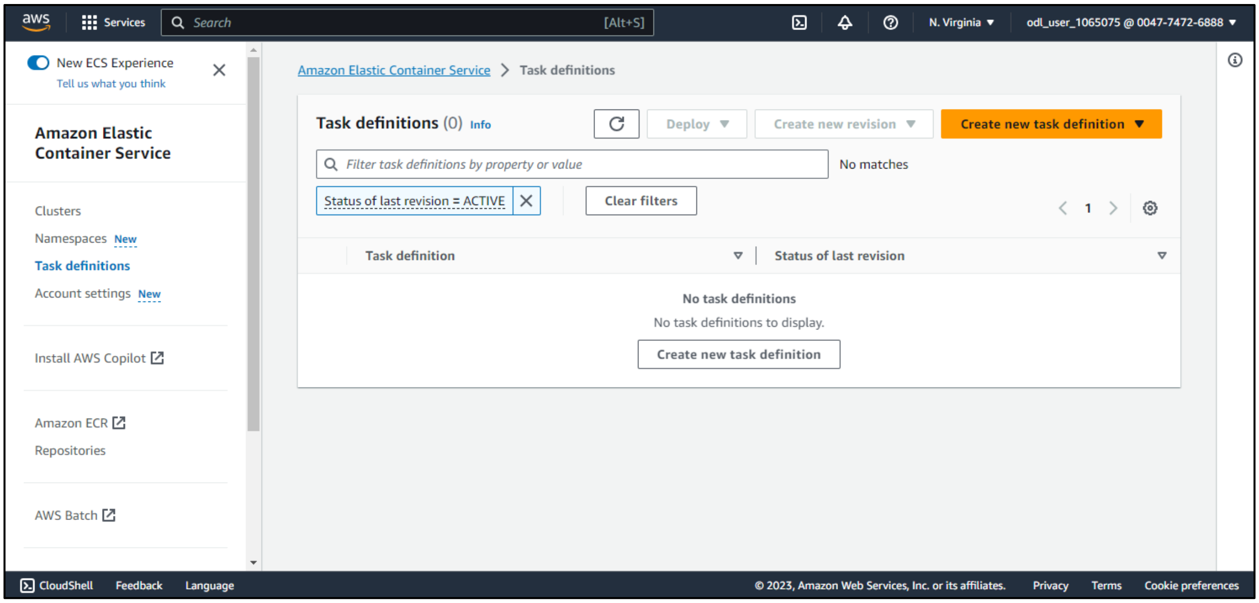
Elastic Container Service ☆
Highly secure, reliable, and scalable way to run containers

Batch ☆
Fully managed batch processing at any scale

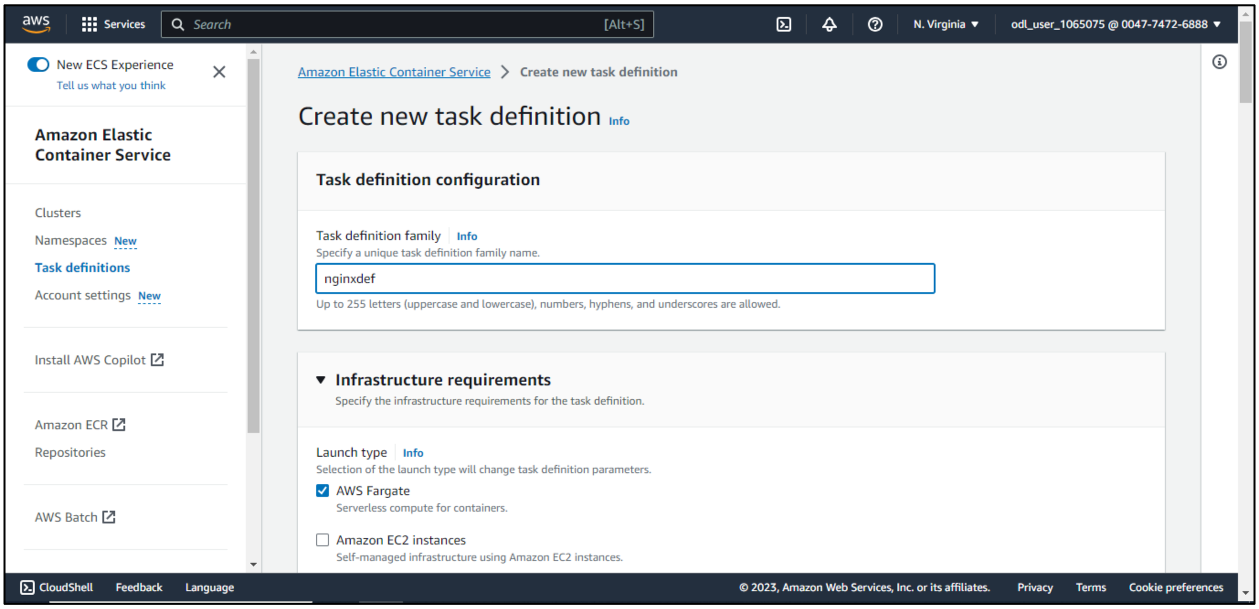
AWS FIS ☆
Improve resiliency and performance with controlled experiments.

EC2 ☆
Virtual Servers in the Cloud

2.2 On the left panel of the ECS console, click on **Task definitions** and on **Create new task definition**


aws
Services
Search
[Alt+S]
N. Virginia
odl_user_1065075 @ 0047-7472-6888
New ECS Experience
Tell us what you think
Amazon Elastic Container Service
Clusters
Namespaces New
Task definitions
Account settings New
Install AWS Copilot
Amazon ECR
Repositories
AWS Batch
Amazon Elastic Container Service > Task definitions
Task definitions (0) Info
Deploy
Create new revision
Create new task definition
Filter task definitions by property or value
No matches
Status of last revision = ACTIVE
Clear filters
1
Task definition
Status of last revision
No task definitions
No task definitions to display.
Create new task definition
CloudShell
Feedback
Language
© 2023, Amazon Web Services, Inc. or its affiliates.
Privacy
Terms
Cookie preferences

2.3 In the **Task definition configuration** page, specify task definition **family = nginxdef, Launch type = AWS Fargate, CPU = 0.25 vCPU,** and **Memory = 0.5 GB**

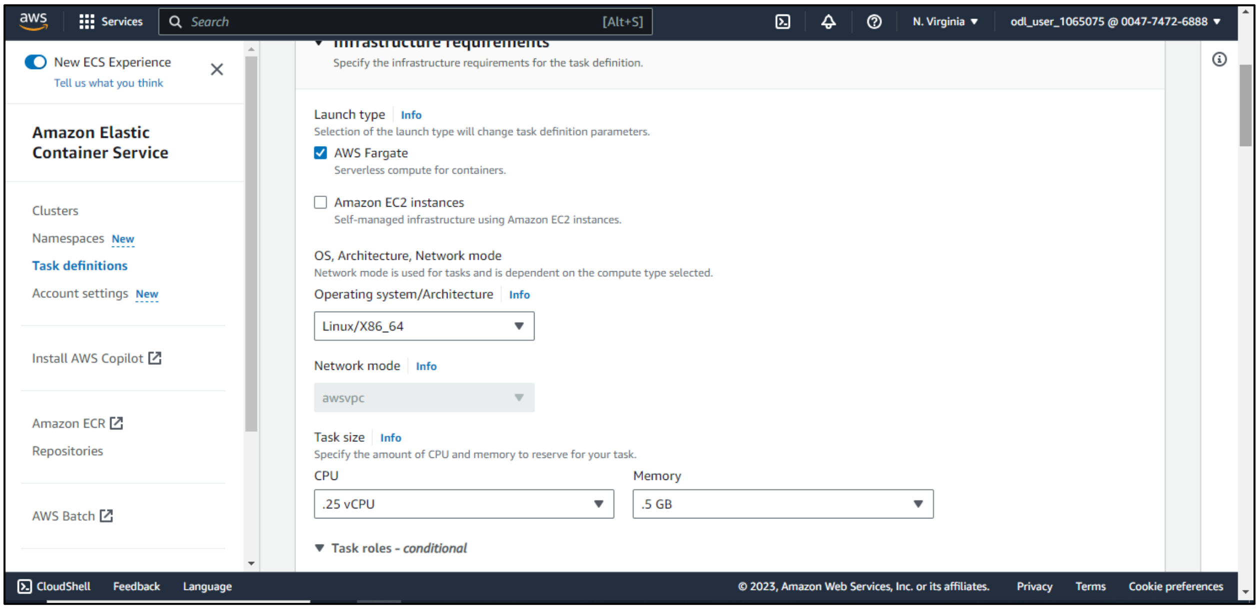


Task definition configuration

Task definition family Info
Specify a unique task definition family name.
nginxdef
Up to 255 letters (uppercase and lowercase), numbers, hyphens, and underscores are allowed.

▼ Infrastructure requirements
Specify the infrastructure requirements for the task definition.

Launch type Info
Selection of the launch type will change task definition parameters.
☑ AWS Fargate
Serverless compute for containers.
□ Amazon EC2 instances
Self-managed infrastructure using Amazon EC2 instances.



Infrastructure requirements

Specify the infrastructure requirements for the task definition.

Launch type Info

Selection of the launch type will change task definition parameters.

☑ AWS Fargate
Serverless compute for containers.

□ Amazon EC2 instances
Self-managed infrastructure using Amazon EC2 instances.

OS, Architecture, Network mode

Network mode is used for tasks and is dependent on the compute type selected.

Operating system/Architecture Info: Linux/X86_64

Network mode Info: awsvpc

Task size Info

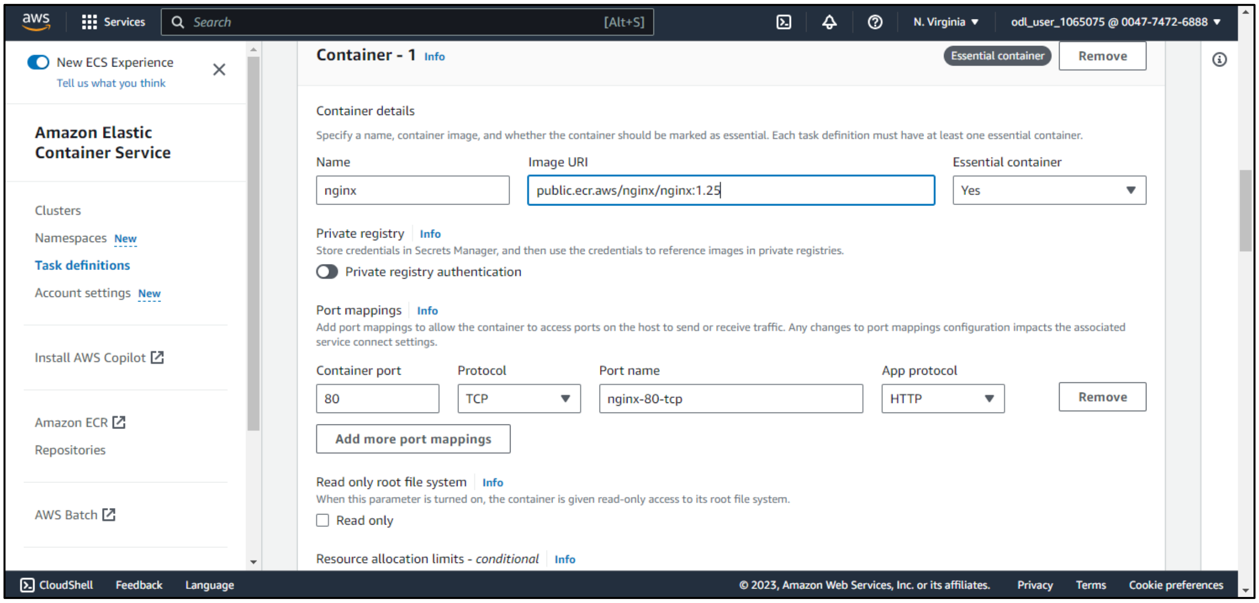
Specify the amount of CPU and memory to reserve for your task.

CPU: .25 vCPU

Memory: .5 GB

▼ Task roles - *conditional*

2.4 For Container-1 details, enter **Name = nginx** and **Image URI = public.ecr.aws/nginx/nginx:1.25**



Container - 1 Info

Container details

Specify a name, container image, and whether the container should be marked as essential. Each task definition must have at least one essential container.

Name	Image URI	Essential container
nginx	public.ecr.aws/nginx/nginx:1.25	Yes

Private registry Info

Store credentials in Secrets Manager, and then use the credentials to reference images in private registries.

○ Private registry authentication

Port mappings Info

Add port mappings to allow the container to access ports on the host to send or receive traffic. Any changes to port mappings configuration impacts the associated service connect settings.

Container port	Protocol	Port name	App protocol
80	TCP	nginx-80-tcp	HTTP

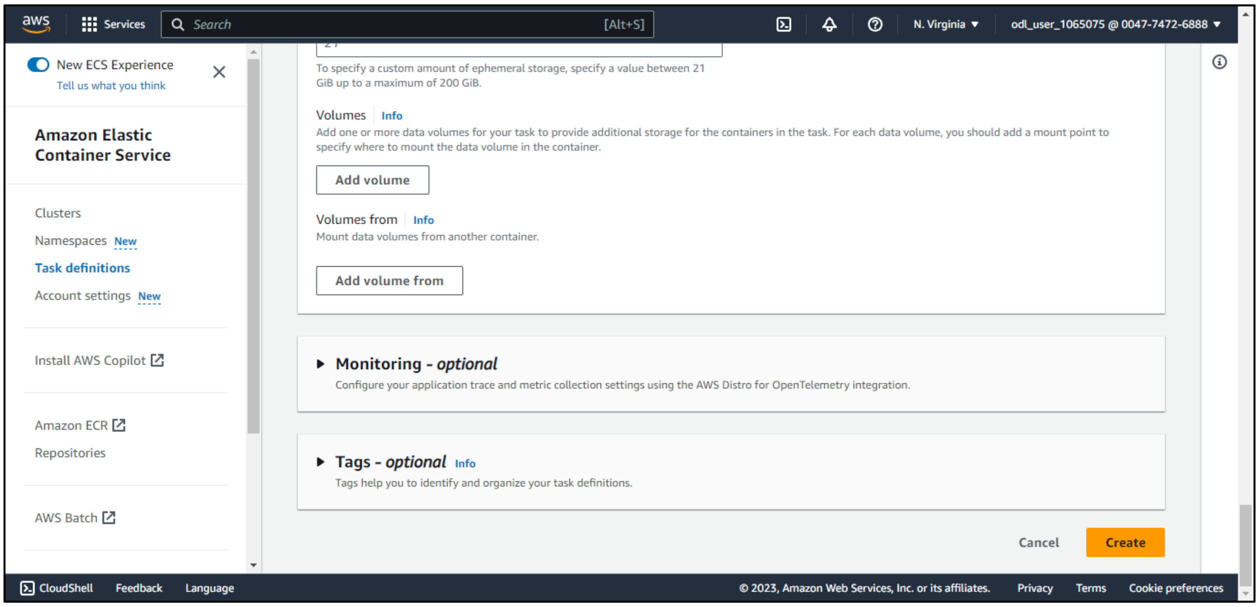
Read only root file system Info

When this parameter is turned on, the container is given read-only access to its root file system.

□ Read only

Resource allocation limits - *conditional* Info

2.5 Leave other options default and click **Create**



To specify a custom amount of ephemeral storage, specify a value between 21 GiB up to a maximum of 200 GiB.

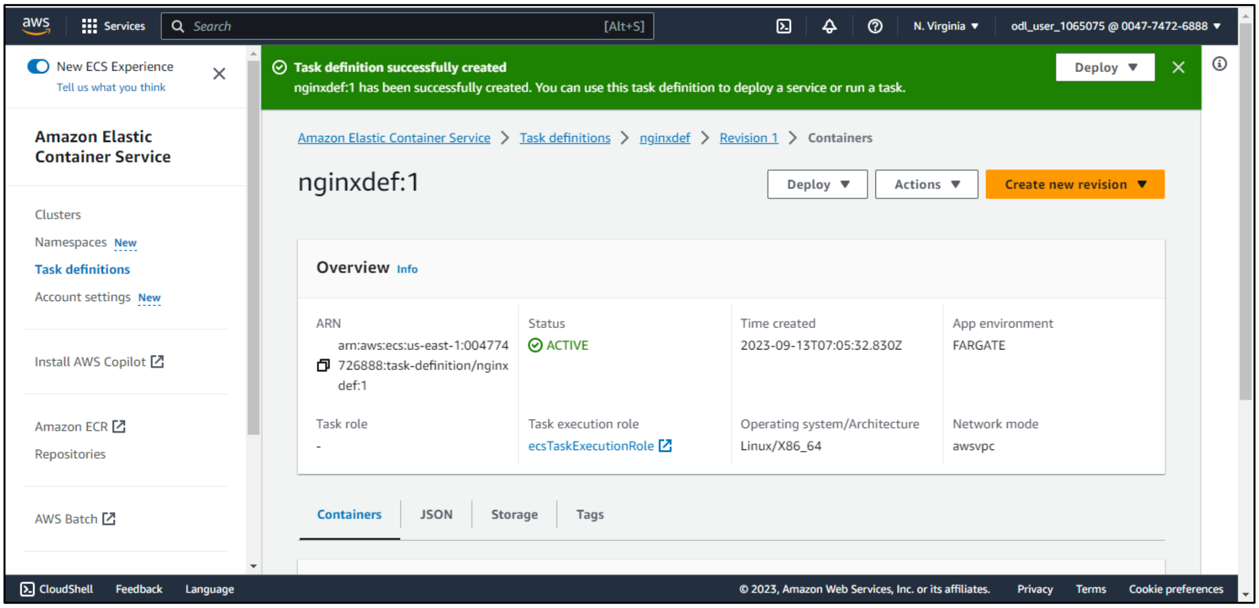
Add one or more data volumes for your task to provide additional storage for the containers in the task. For each data volume, you should add a mount point to specify where to mount the data volume in the container.

Mount data volumes from another container.

Configure your application trace and metric collection settings using the AWS Distro for OpenTelemetry integration.

Tags help you to identify and organize your task definitions.

The task definition has been created successfully:



Task definition successfully created

nginxdef:1 has been successfully created. You can use this task definition to deploy a service or run a task.

nginxdef:1

ARN: arn:aws:ecs:us-east-1:004774726888:task-definition/nginxdef:1

Status: ACTIVE

Time created: 2023-09-13T07:05:32.830Z

App environment: FARGATE

Task role: -

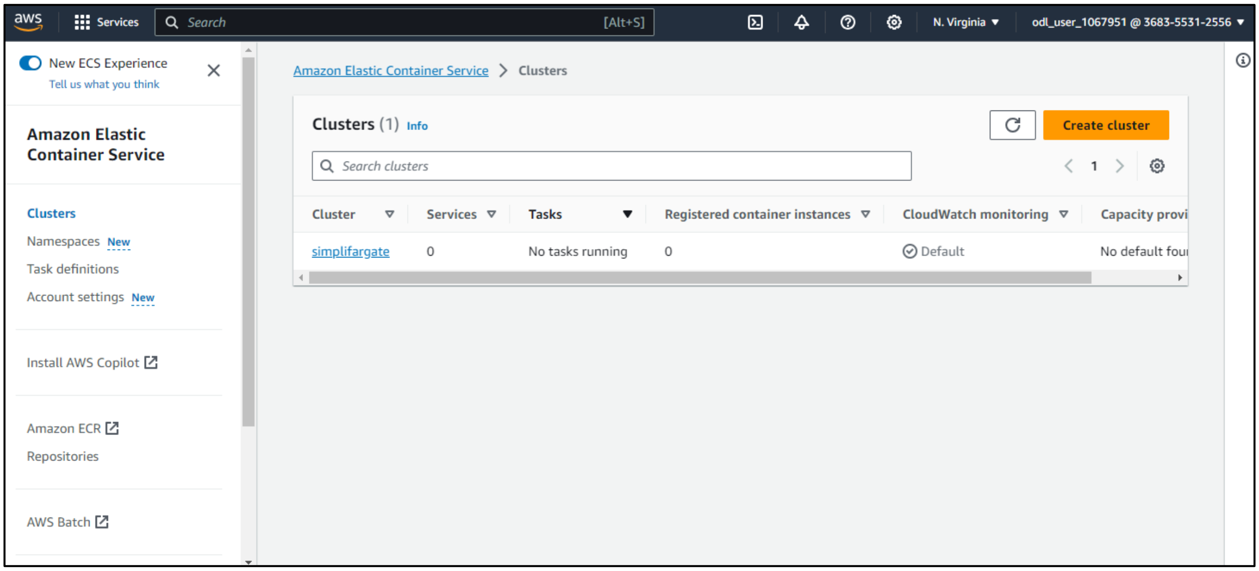
Task execution role: ecsTaskExecutionRole

Operating system/Architecture: Linux/X86_64

Network mode: awsvpc

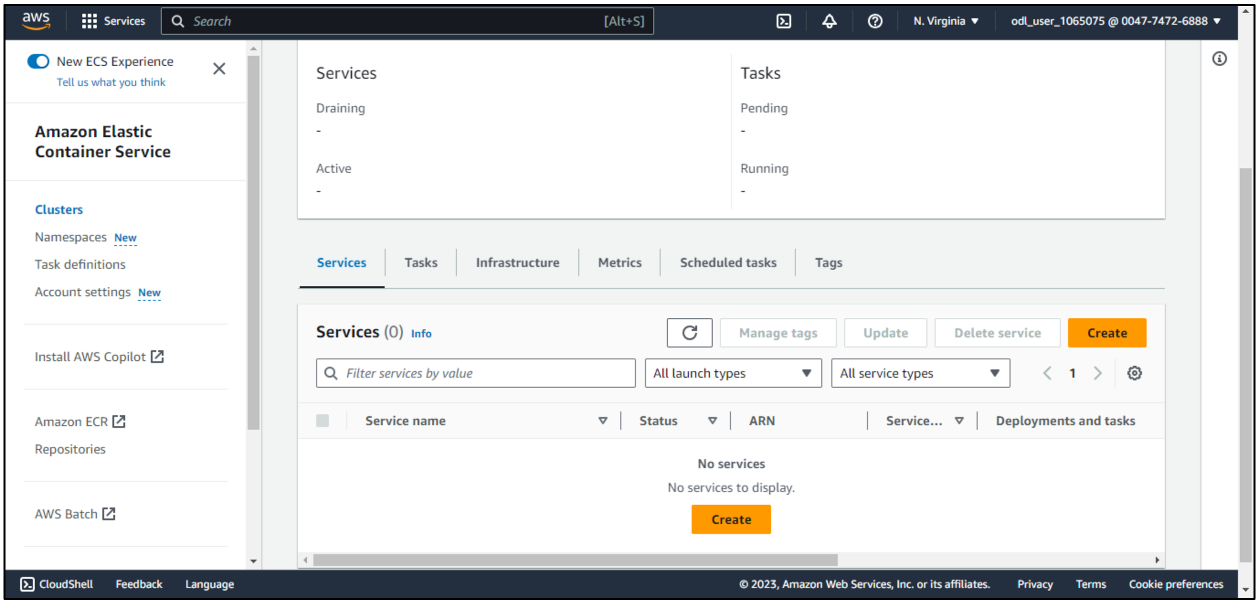
Step 3: Run Fargate Cluster

3.1 Return to the **ECS** home page and open the newly created cluster from **Clusters**



Cluster	Services	Tasks	Registered container instances	CloudWatch monitoring	Capacity provi
simplifargate	0	No tasks running	0	Default	No default fou

3.2 Click on **Create** under **Services**



Services

Draining
-

Active
-

Tasks

Pending
-

Running
-

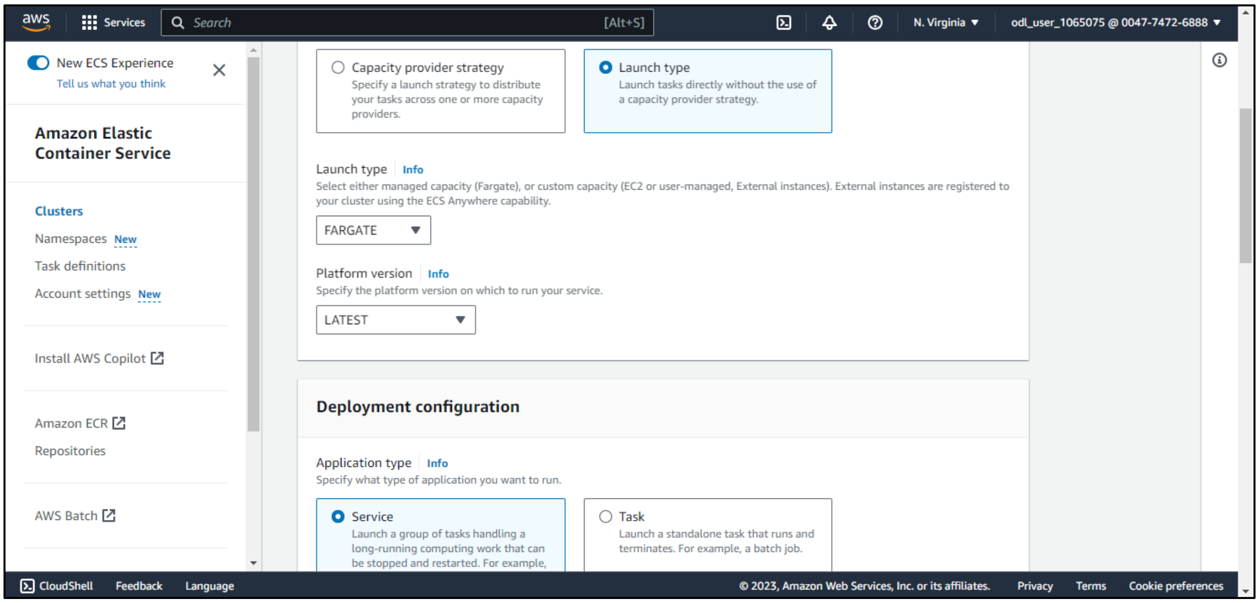
Service name	Status	ARN	Service...	Deployments and tasks

No services

No services to display.

Create

3.3 Choose **FARGATE** under **Launch type**. Choose the **Platform version** as **LATEST** and the **Application type** as **Service.**



○ Capacity provider strategy
Specify a launch strategy to distribute your tasks across one or more capacity providers.

● Launch type
Launch tasks directly without the use of a capacity provider strategy.

Launch type Info
Select either managed capacity (Fargate), or custom capacity (EC2 or user-managed, External instances). External instances are registered to your cluster using the ECS Anywhere capability.
FARGATE

Platform version Info
Specify the platform version on which to run your service.
LATEST

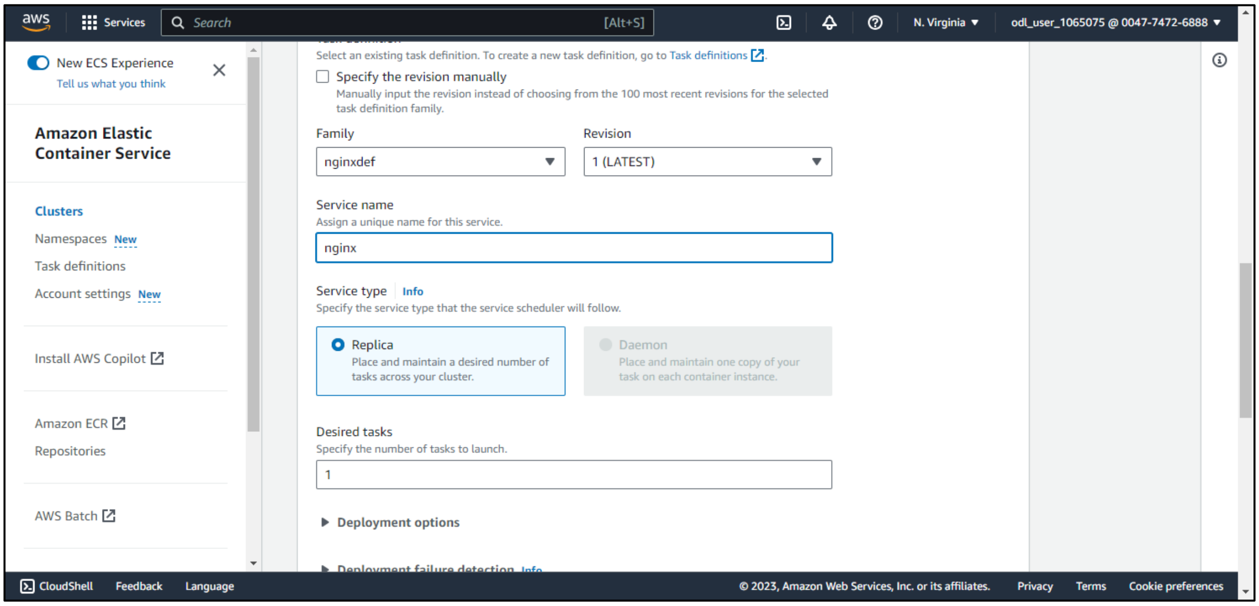
Deployment configuration

Application type Info
Specify what type of application you want to run.

● Service
Launch a group of tasks handling a long-running computing work that can be stopped and restarted. For example,

○ Task
Launch a standalone task that runs and terminates. For example, a batch job.

3.4 Choose family = **nginxdef** (created earlier), revision = **1 (LATEST),** service name = **nginx,** and Replica = **1**



Select an existing task definition. To create a new task definition, go to Task definitions.

□ Specify the revision manually
Manually input the revision instead of choosing from the 100 most recent revisions for the selected task definition family.

Family: nginxdef
Revision: 1 (LATEST)

Service name
Assign a unique name for this service.
nginx

Service type Info
Specify the service type that the service scheduler will follow.

● Replica
Place and maintain a desired number of tasks across your cluster.

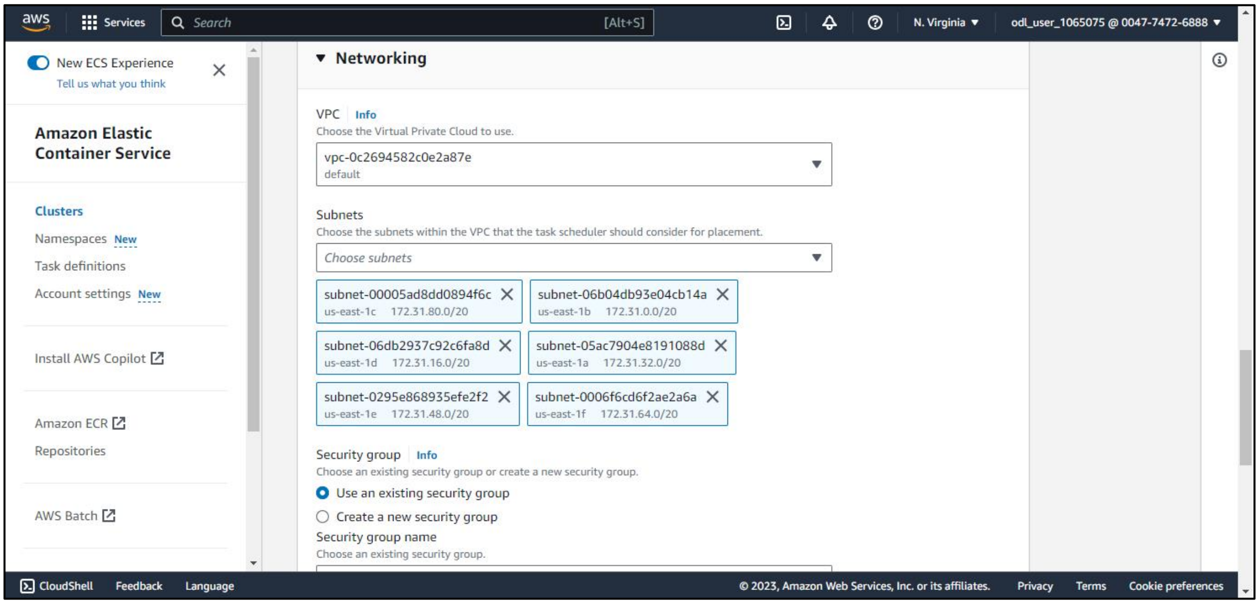
○ Daemon
Place and maintain one copy of your task on each container instance.

Desired tasks
Specify the number of tasks to launch.
1

▶ Deployment options

▶ Deployment failure detection Info

3.5 In the **Networking**, leave default **VPC** and **Load balancing** as **none**. Now, click **Create.**



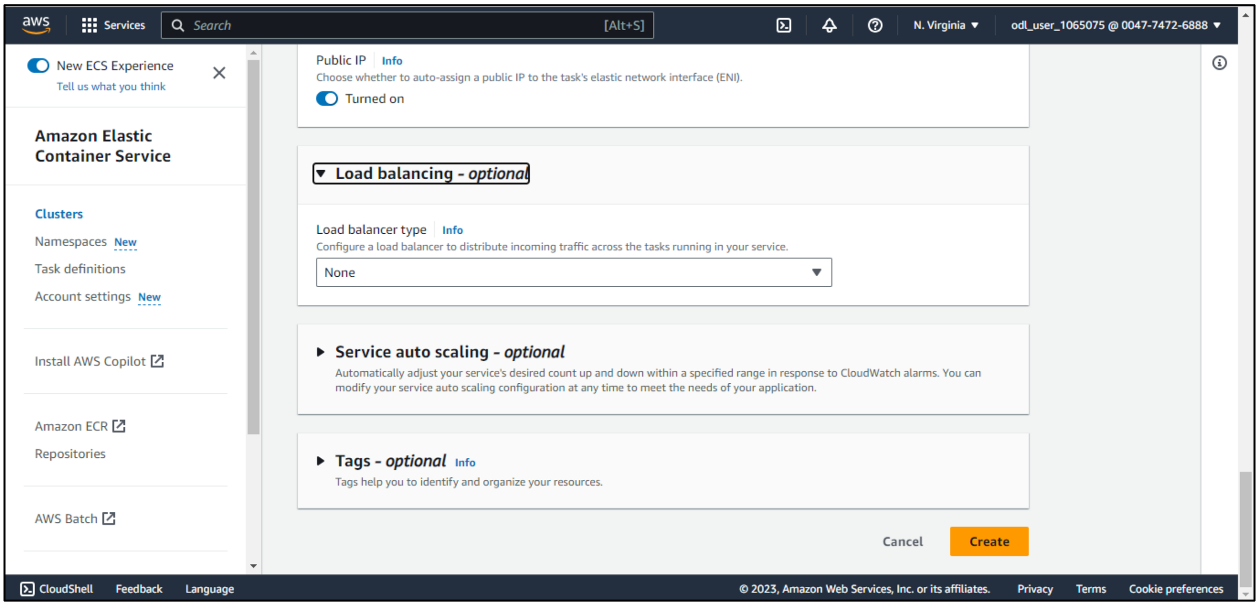
Networking

VPC Info
Choose the Virtual Private Cloud to use.
vpc-0c2694582c0e2a87e
default

Subnets
Choose the subnets within the VPC that the task scheduler should consider for placement.
Choose subnets

subnet-00005ad8dd0894f6c us-east-1c 172.31.80.0/20
subnet-06b04db93e04cb14a us-east-1b 172.31.0.0/20
subnet-06db2937c92c6fa8d us-east-1d 172.31.16.0/20
subnet-05ac7904e8191088d us-east-1a 172.31.32.0/20
subnet-0295e868935efe2f2 us-east-1e 172.31.48.0/20
subnet-0006f6cd6f2ae2a6a us-east-1f 172.31.64.0/20

Security group Info
Choose an existing security group or create a new security group.
● Use an existing security group
○ Create a new security group
Security group name
Choose an existing security group.



Public IP Info
Choose whether to auto-assign a public IP to the task's elastic network interface (ENI).
Turned on

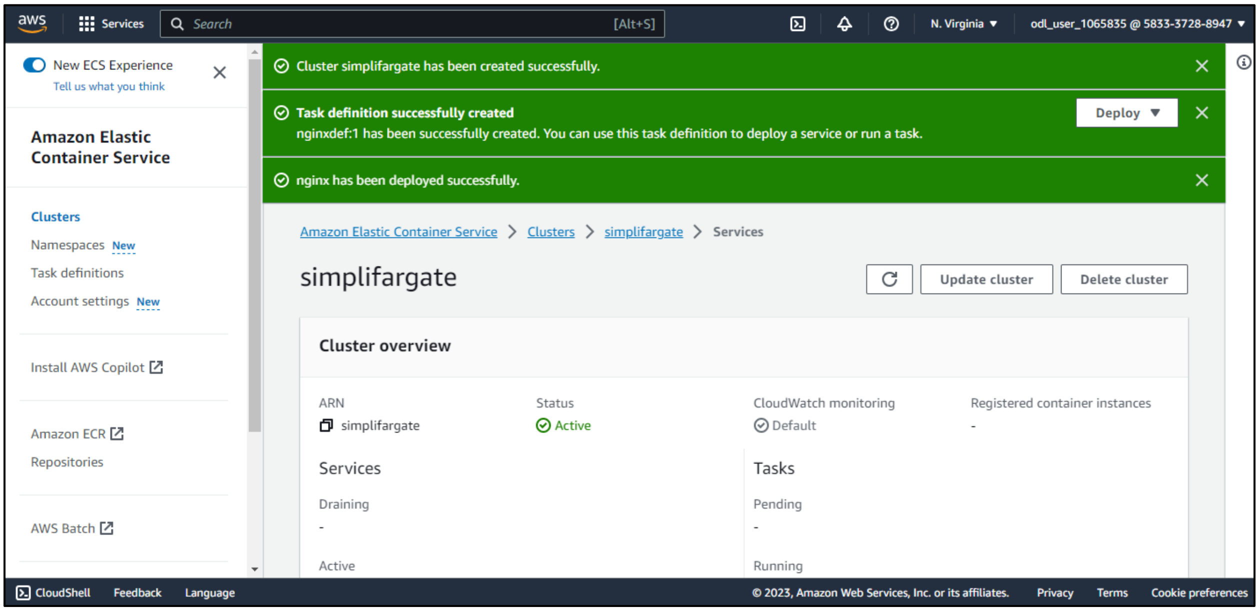
Load balancing - *optional*

Load balancer type Info
Configure a load balancer to distribute incoming traffic across the tasks running in your service.
None

Service auto scaling - *optional*
Automatically adjust your service's desired count up and down within a specified range in response to CloudWatch alarms. You can modify your service auto scaling configuration at any time to meet the needs of your application.

Tags - *optional* Info
Tags help you to identify and organize your resources.

3.6 Wait until service creation is completed and 1/1 of tasks are active as shown below:



Cluster simplifargate has been created successfully.

Task definition successfully created
nginxdef:1 has been successfully created. You can use this task definition to deploy a service or run a task.

nginx has been deployed successfully.

simplifargate

Cluster overview

ARN	Status	CloudWatch monitoring	Registered container instances
simplifargate	Active	Default	-

Services

Draining
-

Active

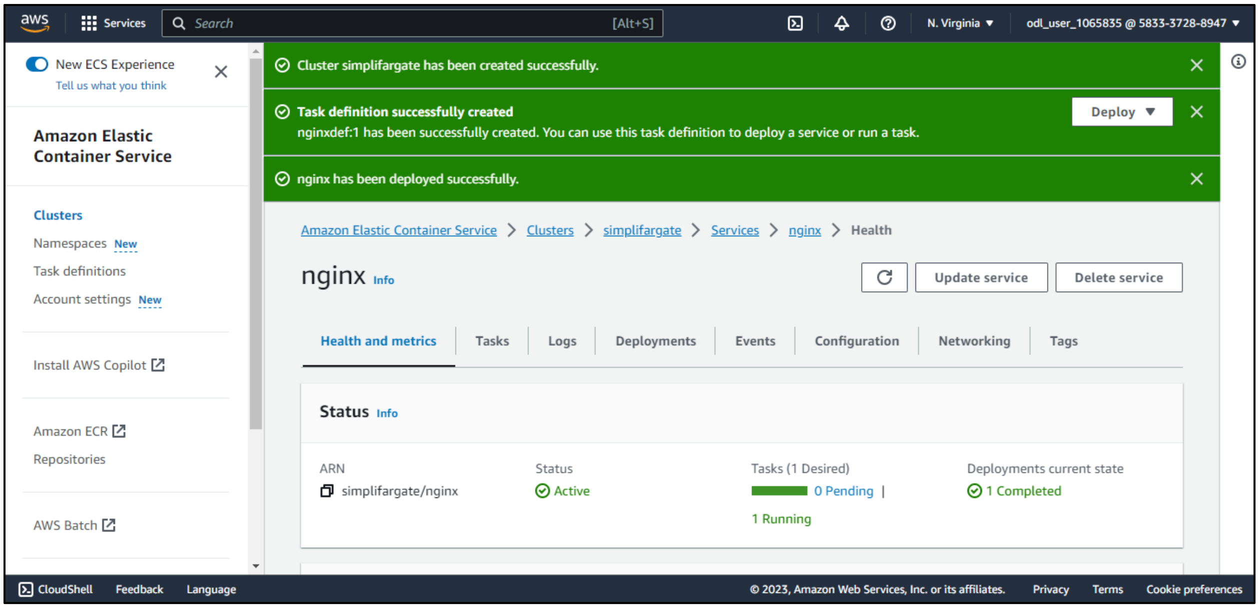
Tasks

Pending
-

Running

3.7 Once the service is running successfully, click **nginx** and find service details as shown below:

Now, click **Tasks.**



Cluster simplifargate has been created successfully.

Task definition successfully created
nginxdef:1 has been successfully created. You can use this task definition to deploy a service or run a task.

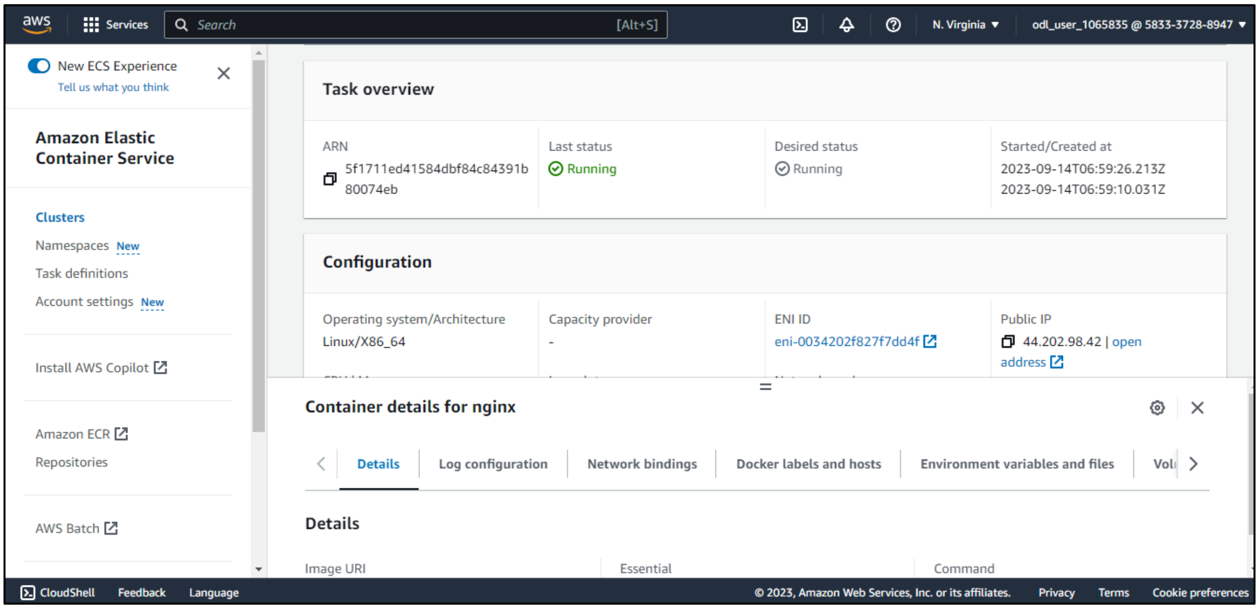
nginx has been deployed successfully.

nginx Info

Status Info

ARN	Status	Tasks (1 Desired)	Deployments current state
simplifargate/nginx	Active	0 Pending | 1 Running	1 Completed

3.8 Copy the public IP address and open it in a new browser



Task overview

ARN: 5f1711ed41584dbf84c84391b80074eb

Last status: Running

Desired status: Running

Started/Created at: 2023-09-14T06:59:26.213Z 2023-09-14T06:59:10.031Z

Configuration

Operating system/Architecture: Linux/X86_64

Capacity provider: -

ENI ID: eni-0034202f827f7dd4f

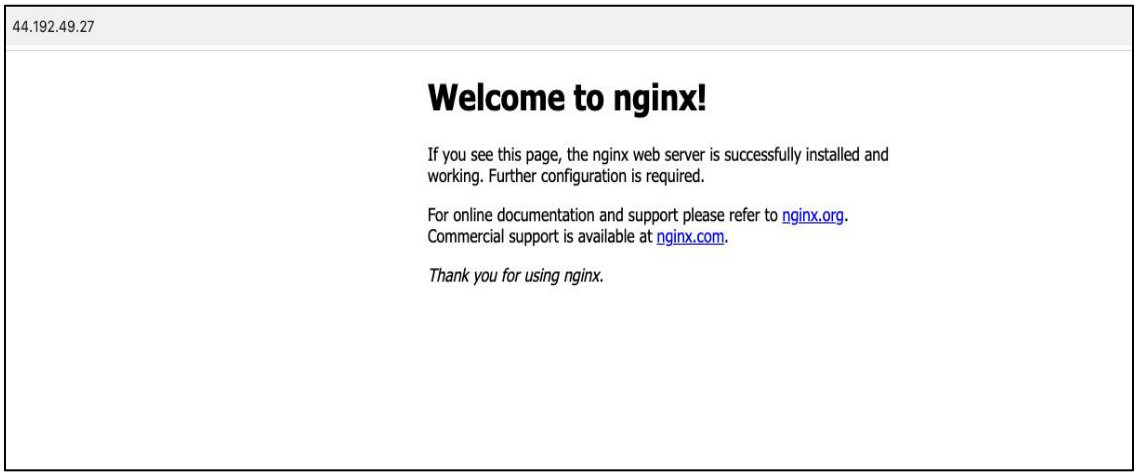
Public IP: 44.202.98.42 | open address

Container details for nginx

Details

Image URI | Essential | Command

3.9 Open the URL in the new browser to see the nginx page loading as below:


44.192.49.27

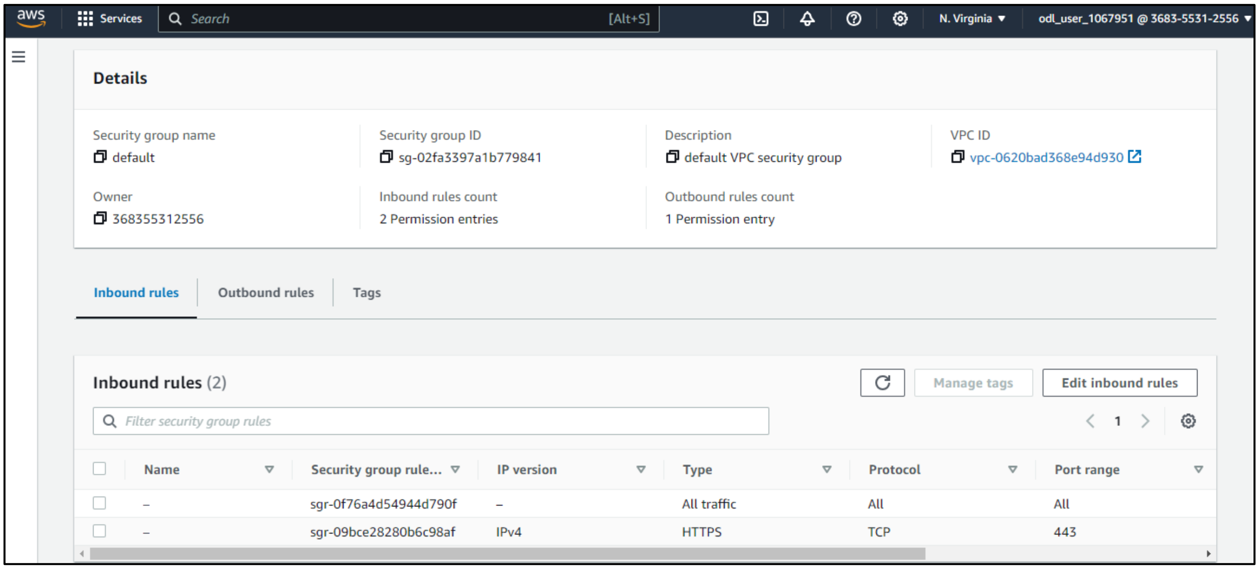
Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Note: In case the web page is not loading, go to **Task > Networking > Open security group,** and select the security group being used to ensure the port 80 inbound rule is allowed to be accessed from anywhere as shown below:



Details

Security group name: default

Security group ID: sg-02fa3397a1b779841

Description: default VPC security group

VPC ID: vpc-0620bad368e94d930

Owner: 368355312556

Inbound rules count: 2 Permission entries

Outbound rules count: 1 Permission entry

Inbound rules (2)

□	Name	Security group rule...	IP version	Type	Protocol	Port range
□	–	sgr-0f76a4d54944d790f	–	All traffic	All	All
□	–	sgr-09bce28280b6c98af	IPv4	HTTPS	TCP	443

Hence, you have successfully executed the Fargate Cluster.