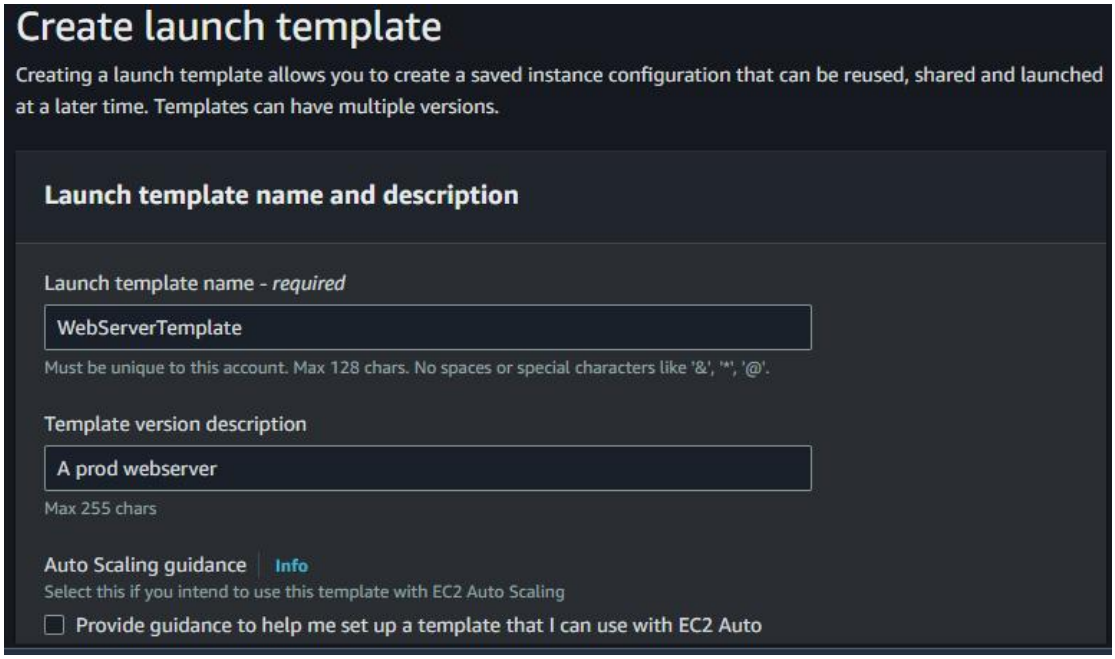
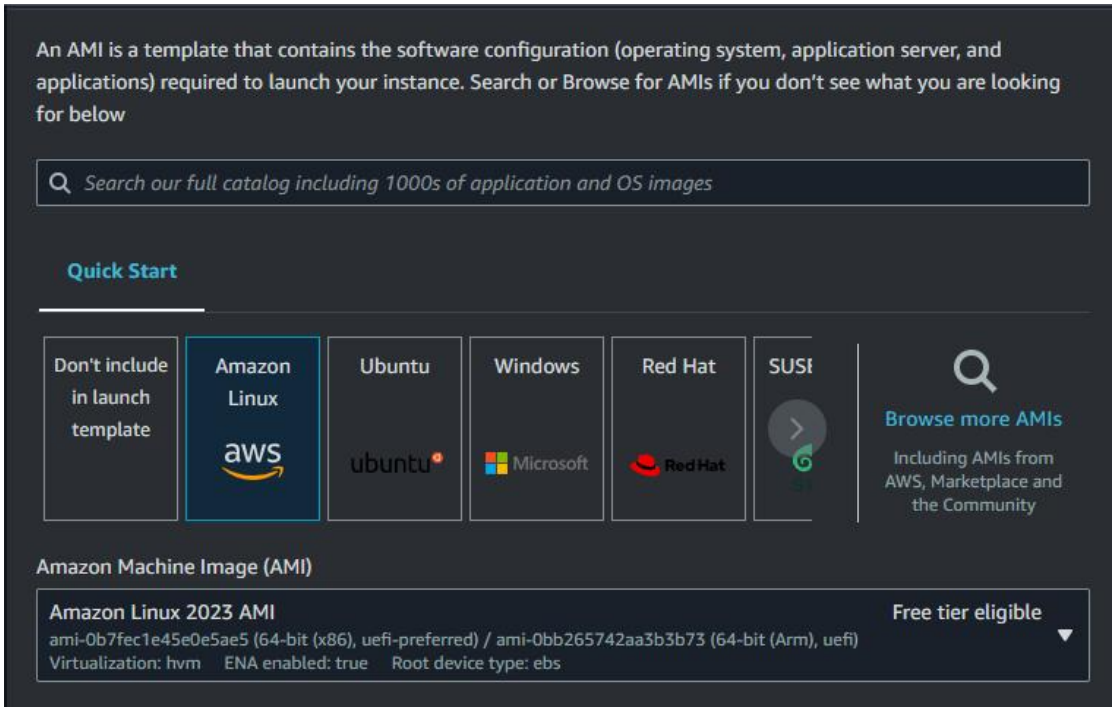
**AWS Hands-On Assignment 04**
**(On Console and CLI)**

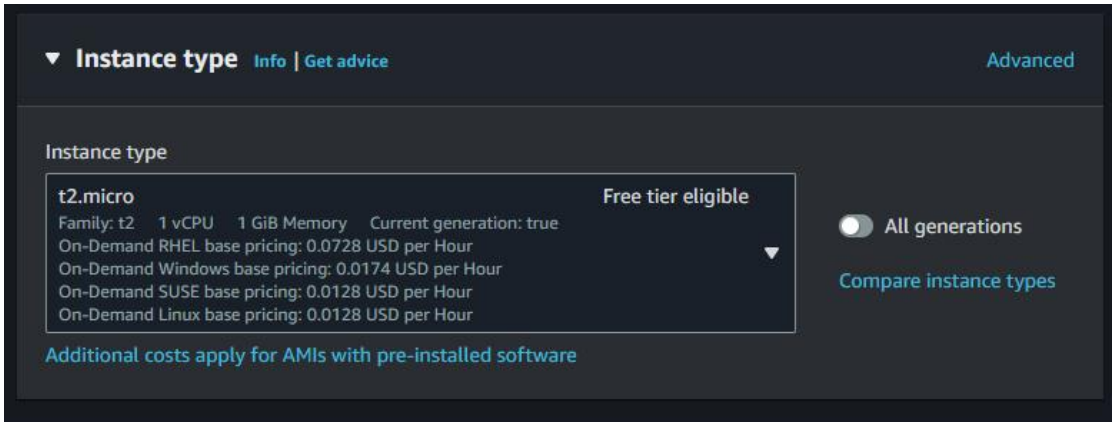
## QUESTION NO: 01

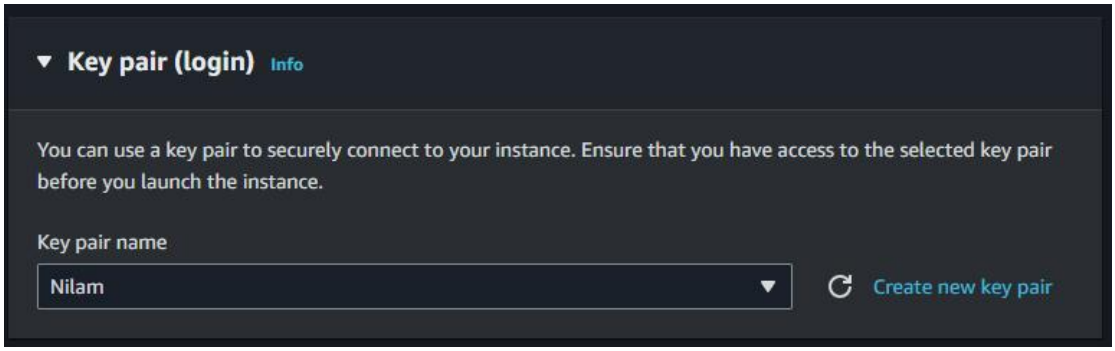
**Console**

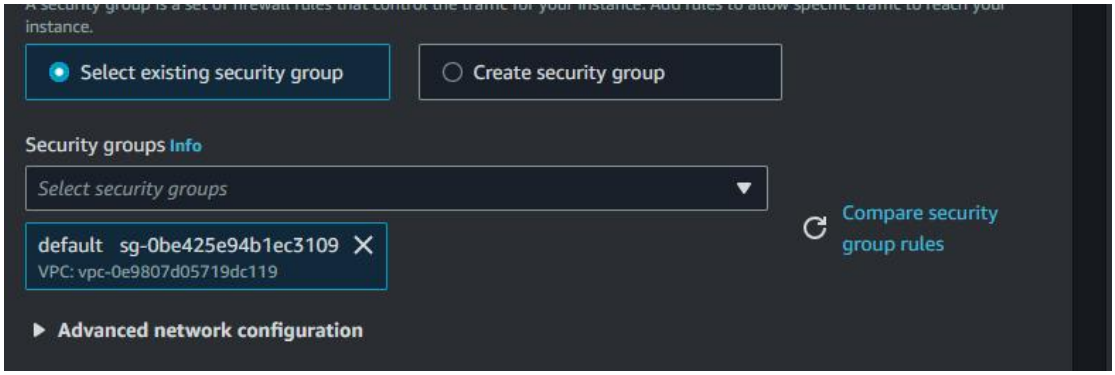
**1. Create Launch Template on Console:**
**- Navigate to the EC2 dashboard on the AWS Management Console.**
**- Create a launch template named "WebServerTemplate."**
**- Specify configurations such as instance type, key pair, and any additional settings.**

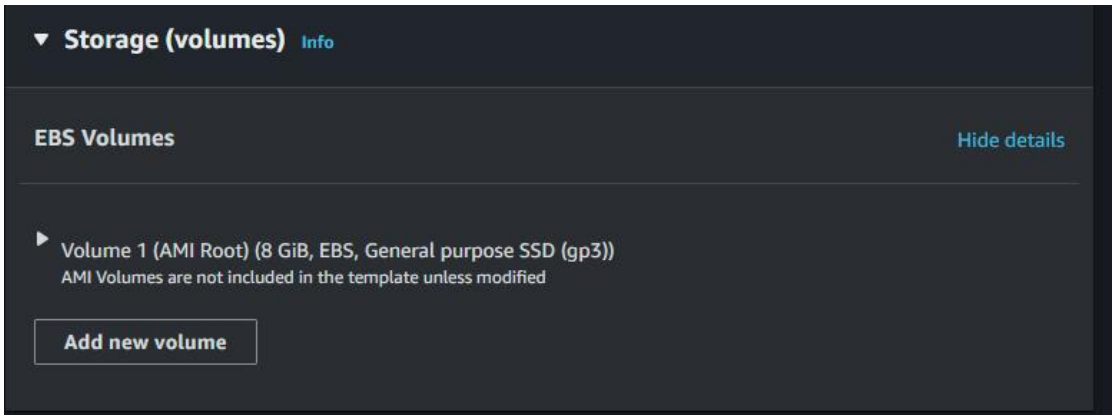


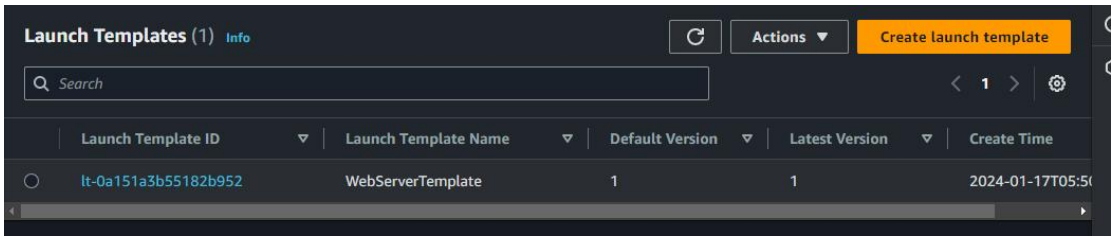

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
Quick Start
Don't include in launch template
Amazon Linux
aws
Ubuntu
ubuntu
Windows
Microsoft
Red Hat
Red Hat
SUSI
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Amazon Machine Image (AMI)
Amazon Linux 2023 AMI
Free tier eligible
ami-0b7fec1e45e0e5ae5 (64-bit (x86), uefi-preferred) / ami-0bb265742aa3b3b73 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs


Instance type Info | Get advice
Advanced
Instance type
t2.micro
Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand RHEL base pricing: 0.0728 USD per Hour
On-Demand Windows base pricing: 0.0174 USD per Hour
On-Demand SUSE base pricing: 0.0128 USD per Hour
On-Demand Linux base pricing: 0.0128 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software


Key pair (login) Info
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.
Key pair name
Nilam
Create new key pair



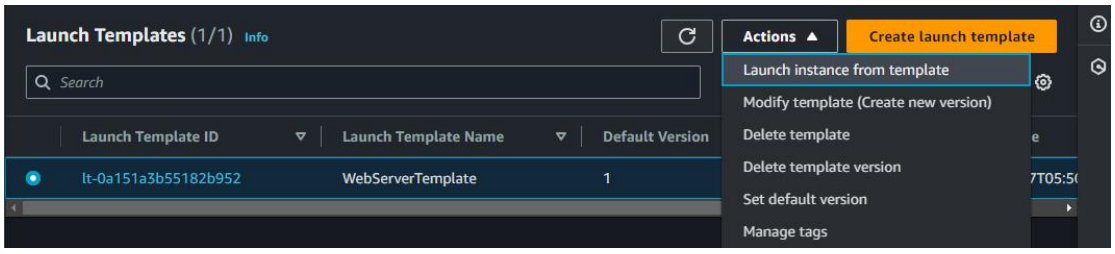



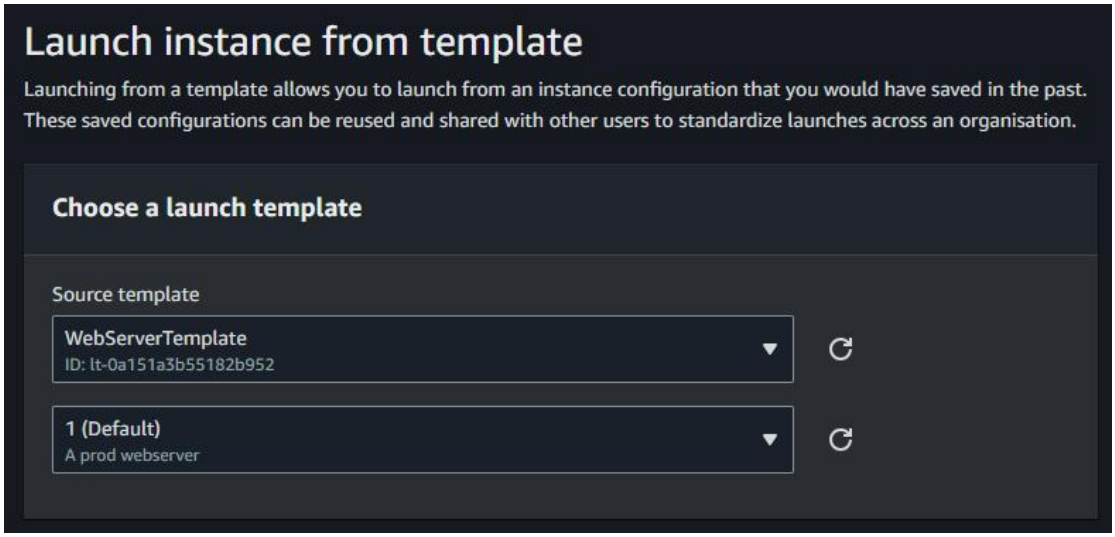



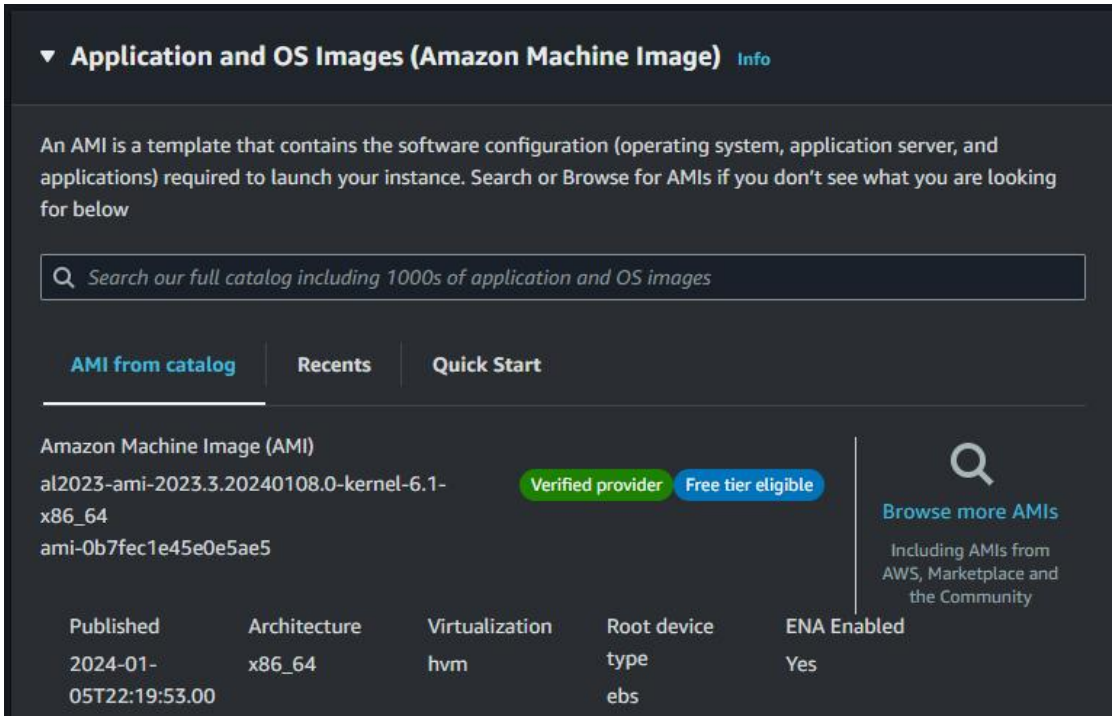

**2. Launch Instance Using Launch Template:**

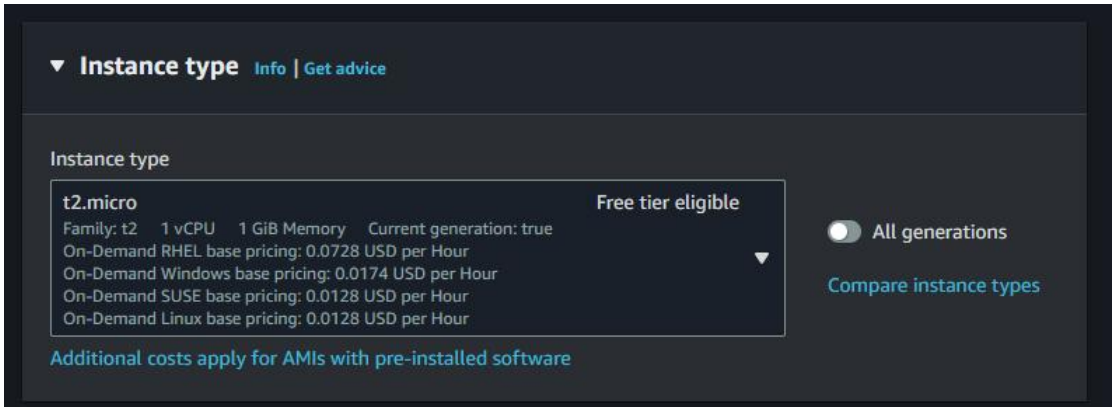
**- Use the launch template "WebServerTemplate" to launch an EC2 instance.**

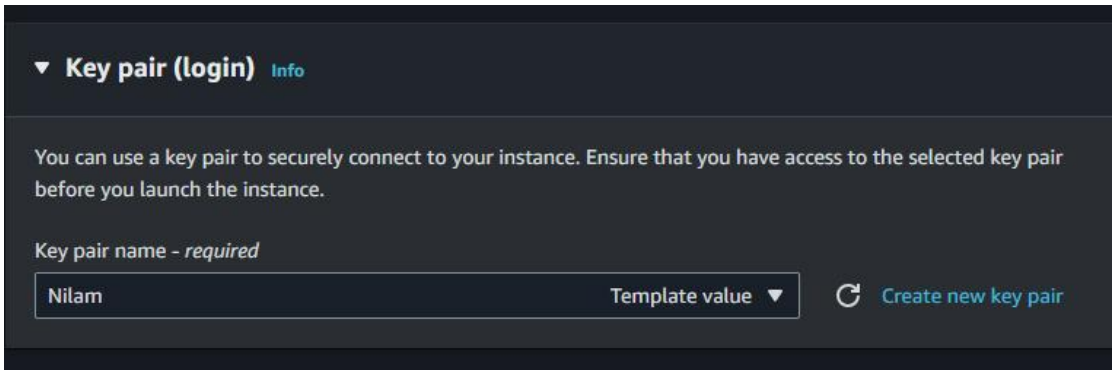
**- Verify the successful launch of the instance.**

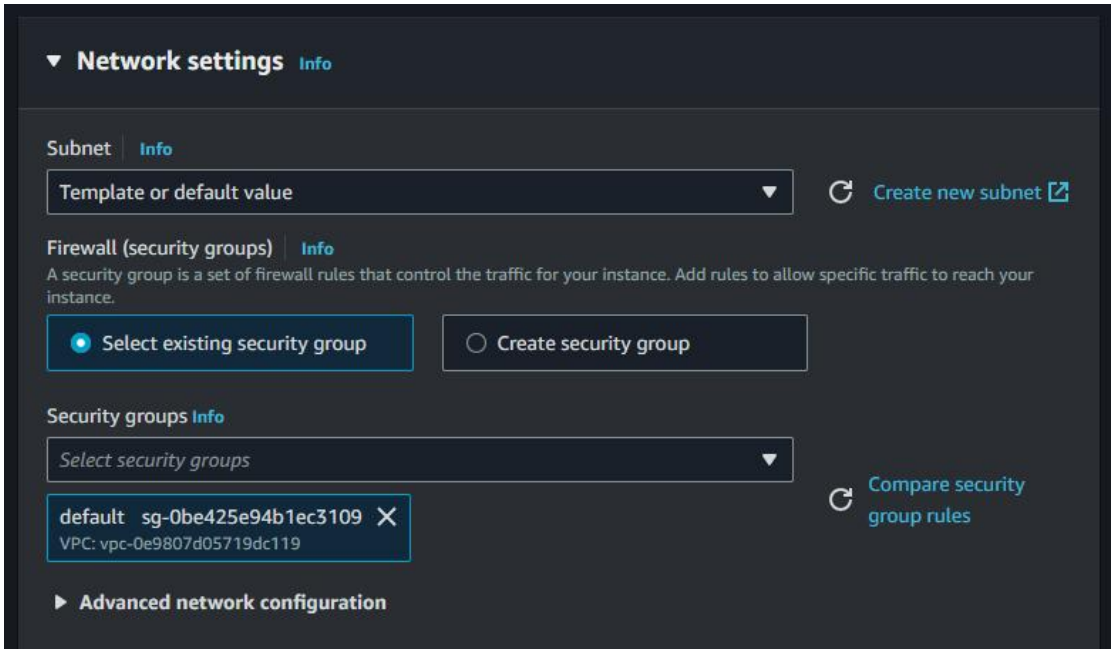


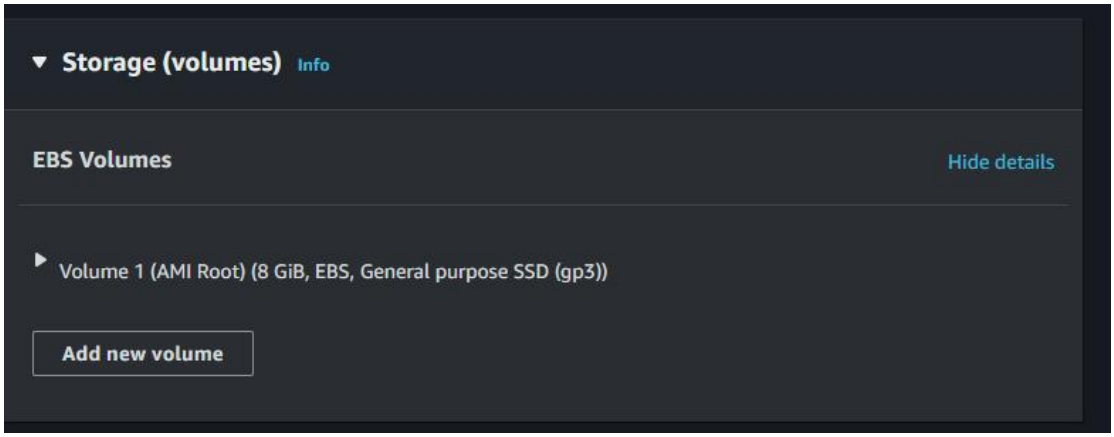

Launch instance from template
Launching from a template allows you to launch from an instance configuration that you would have saved in the past. These saved configurations can be reused and shared with other users to standardize launches across an organisation.
Choose a launch template
Source template
WebServerTemplate
ID: lt-0a151a3b55182b952
1 (Default)
A prod webserver

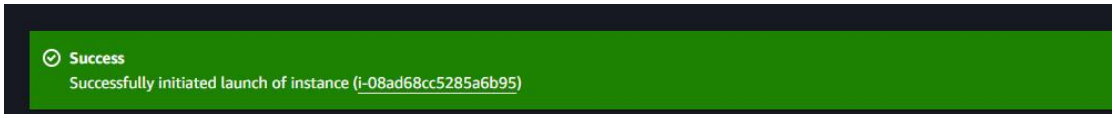

Application and OS Images (Amazon Machine Image) Info
An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below
Search our full catalog including 1000s of application and OS images
AMI from catalog
Recents
Quick Start
Amazon Machine Image (AMI)
al2023-ami-2023.3.20240108.0-kernel-6.1-x86_64
ami-0b7fec1e45e0e5ae5
Verified provider
Free tier eligible
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Published
2024-01-05T22:19:53.00
Architecture
x86_64
Virtualization
hvm
Root device type
ebs
ENA Enabled
Yes

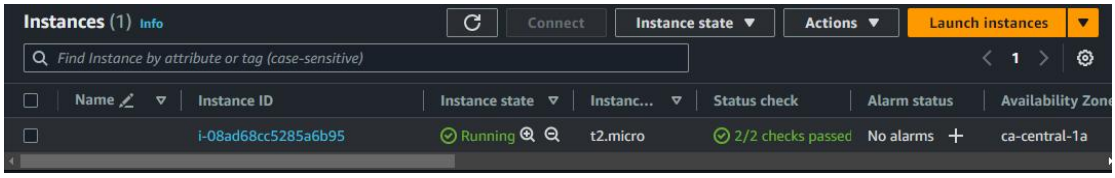

Instance type Info | Get advice
Instance type
t2.micro
Free tier eligible
Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand RHEL base pricing: 0.0728 USD per Hour
On-Demand Windows base pricing: 0.0174 USD per Hour
On-Demand SUSE base pricing: 0.0128 USD per Hour
On-Demand Linux base pricing: 0.0128 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software


Key pair (login) Info
You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.
Key pair name - required
Nilam
Template value
Create new key pair


Network settings Info
Subnet Info
Template or default value
Create new subnet
Firewall (security groups) Info
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.
Select existing security group
Create security group
Security groups Info
Select security groups
default sg-0be425e94b1ec3109
VPC: vpc-0e9807d05719dc119
Compare security group rules
Advanced network configuration



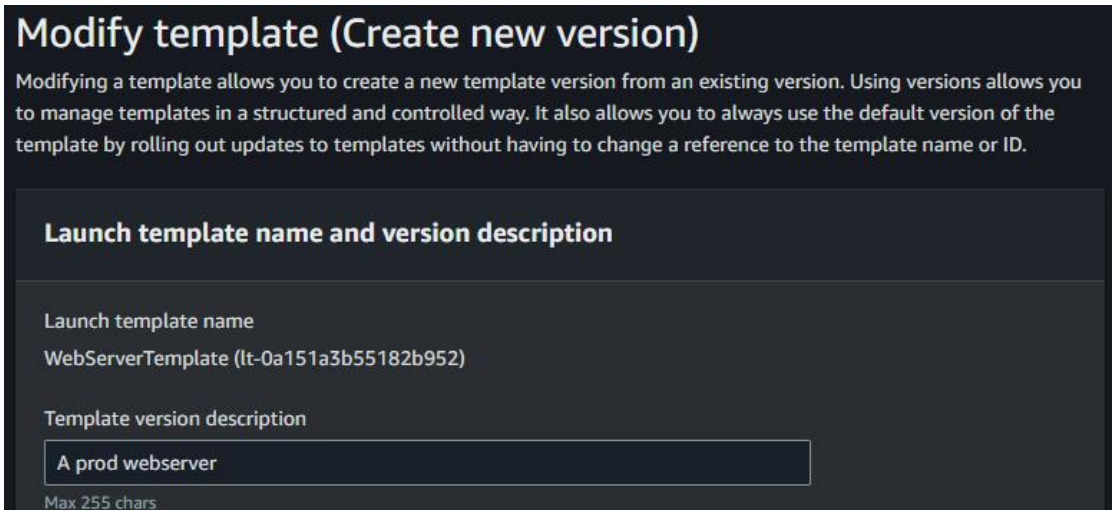



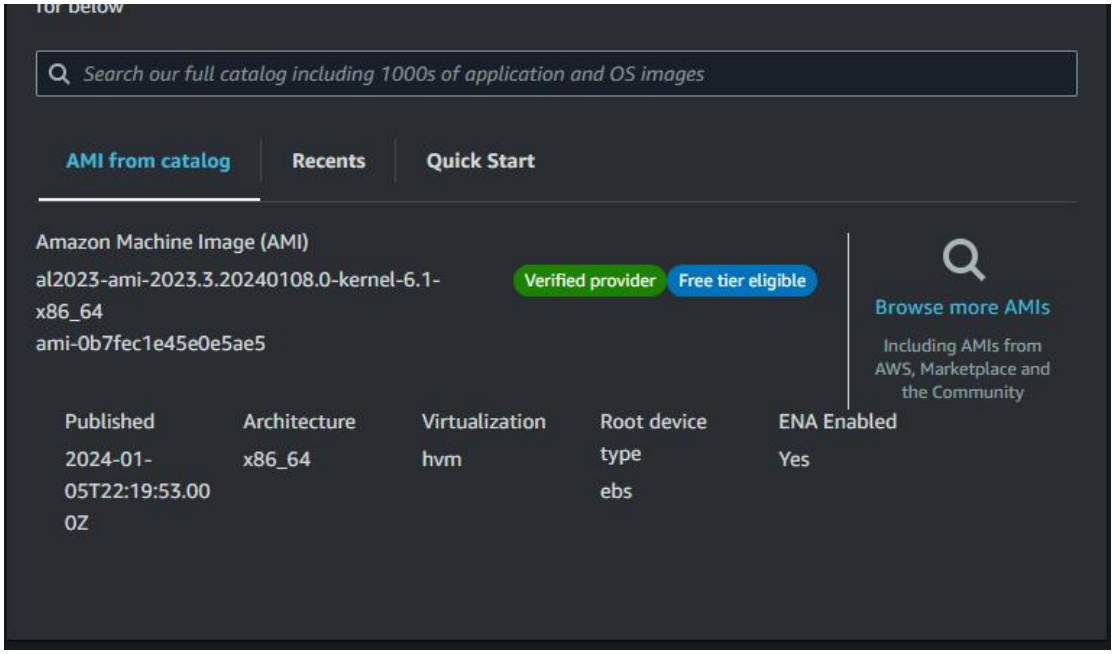



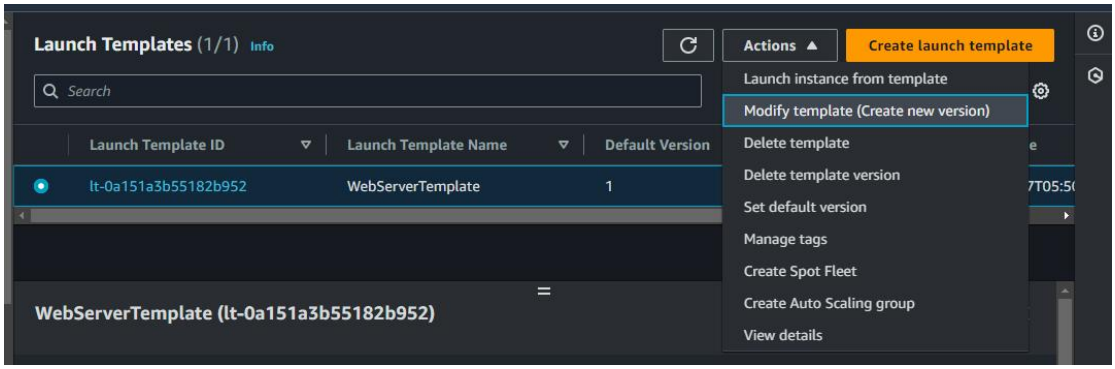

**3. Modify Launch Template:**

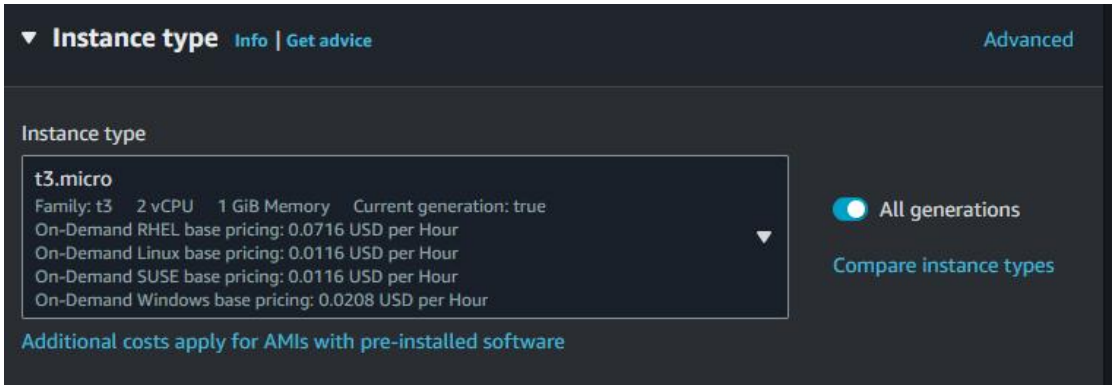
**- Modify the launch template to change the instance type or any other parameter.**

**- Use the modified template to launch another instance.**




Search our full catalog including 1000s of application and OS images
AMI from catalog
Recents
Quick Start
Amazon Machine Image (AMI)
al2023-ami-2023.3.20240108.0-kernel-6.1-x86_64
ami-0b7fec1e45e0e5ae5
Verified provider
Free tier eligible
Browse more AMIs
Including AMIs from AWS, Marketplace and the Community
Published
2024-01-05T22:19:53.000Z
Architecture
x86_64
Virtualization
hvm
Root device type
ebs
ENA Enabled
Yes


Launch Templates (1/1) Info
Actions
Create launch template
Search
Launch Template ID
Launch Template Name
Default Version
lt-0a151a3b55182b952
WebServerTemplate
1
Launch instance from template
Modify template (Create new version)
Delete template
Delete template version
Set default version
Manage tags
Create Spot Fleet
Create Auto Scaling group
View details
WebServerTemplate (lt-0a151a3b55182b952)


Instance type Info | Get advice
Advanced
Instance type
t3.micro
Family: t3 2 vCPU 1 GiB Memory Current generation: true
On-Demand RHEL base pricing: 0.0716 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0208 USD per Hour
All generations
Compare instance types
Additional costs apply for AMIs with pre-installed software

## Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name

ssh key-pair

Create new key pair

## Network settings Info

Subnet Info

Don't include in launch template

Create new subnet

When you specify a subnet, a network interface is automatically added to your template.

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Select existing security group

Create security group

Security groups Info

Select security groups

launch-wizard-5 sg-02ceed16af60b72ba

VPC: vpc-0e9807d05719dc119

Compare security group rules

## Storage (volumes) Info

EBS Volumes

Hide details

Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp3))

AMI Volumes are not included in the template unless modified

Add new volume

**Success**

Successfully initiated launch of instance (i-0047c721ac2afb939)

Instances (2) Info

Connect | Instance state | Actions | Launch instances

Find Instance by attribute or tag (case-sensitive)

1

| Name | Instance ID | Instance state | Instanc... | Status check | Alarm status | Availability Zone |
|---|---|---|---|---|---|---|
| | i-08ad68cc5285a6b95 | Running | t2.micro | 2/2 checks passed | No alarms | ca-central-1a |
| | i-0047c721ac2afb939 | Running | t3.micro | Initializing | No alarms | ca-central-1a |

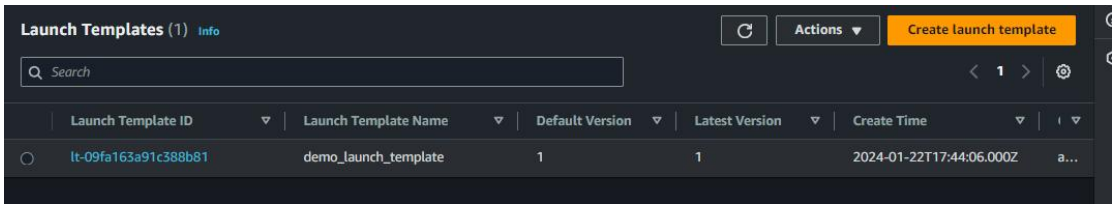
**CLI**

**1. Create Launch Template using AWS CLI:**

**- Use the AWS CLI to create a launch template named "WebServerTemplate" with specified configurations.**

**- Confirm the creation of the launch template.**

```
root@Nilam:~# aws ec2 create-launch-template --launch-template-name demo_launch_template --version-description Webserver-template --l
aunch-template-data '{"NetworkInterfaces":[{"AssociatePublicIpAddress":true,"DeviceIndex":0,"SubnetId":"subnet-0083395f43cbe6d66"}],"
ImageId":"ami-053f9acd4f8d86fc6","InstanceType":"t2.micro","TagSpecifications":[{"ResourceType":"instance","Tags":[{"Key":"purpose","
Value":"webserver"}]}]}'
{
    "LaunchTemplate": {
        "LaunchTemplateId": "lt-09fa163a91c388b81",
        "LaunchTemplateName": "demo_launch_template",
        "CreateTime": "2024-01-22T17:44:06+00:00",
        "CreatedBy": "arn:aws:iam::715621822765:user/Nilam",
        "DefaultVersionNumber": 1,
        "LatestVersionNumber": 1
    }
}
root@Nilam:~#
```




**2. Launch Instance Using Launch Template:**

**- Use the AWS CLI to launch an EC2 instance using the "WebServerTemplate."**

**- Confirm the successful launch of the instance.**

```
root@Nilam:~# aws ec2 run-instances --launch-template LaunchTemplateId=lt-09fa163a91c388b81,Version=1
{
    "Groups": [],
    "Instances": [
        {
            "AmiLaunchIndex": 0,
            "ImageId": "ami-053f9acd4f8d86fc6",
            "InstanceId": "i-08a9e9d3e4abd5482",
            "InstanceType": "t2.micro",
            "LaunchTime": "2024-01-22T17:51:03+00:00",
            "Monitoring": {
                "State": "disabled"
            },
            "Placement": {
                "AvailabilityZone": "ca-central-1a",
                "GroupName": "",
                "Tenancy": "default"
            },
            "PrivateDnsName": "ip-172-31-16-156.ca-central-1.compute.internal",
            "PrivateIpAddress": "172.31.16.156",
            "ProductCodes": [],
            "PublicDnsName": "",
            "State": {
                "Code": 0,
                "Name": "pending"
            },
            "StateTransitionReason": "",
            "SubnetId": "subnet-0083395f43cbe6d66",
            "VpcId": "vpc-0e9807d05719dc119",
            "Architecture": "x86_64",
            "BlockDeviceMappings": [],
```

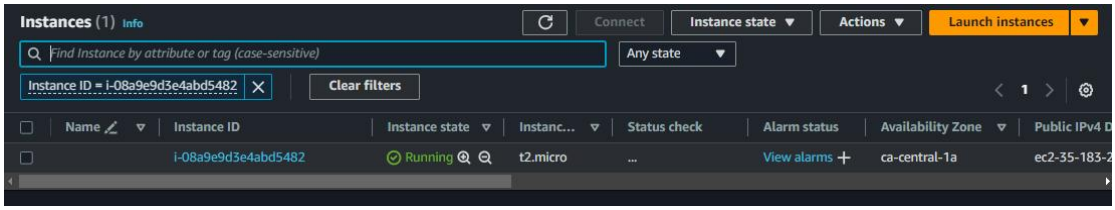
```
            },
            "StateTransitionReason": "",
            "SubnetId": "subnet-0083395f43cbe6d66",
            "VpcId": "vpc-0e9807d05719dc119",
            "Architecture": "x86_64",
            "BlockDeviceMappings": [],
            "ClientToken": "08ad054c-3113-41b5-980e-800f4a4235d6",
            "EbsOptimized": false,
            "EnaSupport": true,
            "Hypervisor": "xen",
            "NetworkInterfaces": [
                {
                    "Attachment": {
                        "AttachTime": "2024-01-22T17:51:03+00:00",
                        "AttachmentId": "eni-attach-0ed063b4659cc5289",
                        "DeleteOnTermination": true,
                        "DeviceIndex": 0,
                        "Status": "attaching",
                        "NetworkCardIndex": 0
                    },
                    "Description": "",
                    "Groups": [
                        {
                            "GroupName": "default",
                            "GroupId": "sg-0be425e94b1ec3109"
                        }
                    ],
                    "Ipv6Addresses": [],
                    "MacAddress": "02:be:62:f8:05:48",
                    "NetworkInterfaceId": "eni-0f387bd3180c92739",
                    "OwnerId": "715621822765",
                    "PrivateDnsName": "ip-172-31-16-156.ca-central-1.compute.internal",
:
```

```
                "PrivateDnsName": "ip-172-31-16-156.ca-central-1.compute.internal",
                "PrivateIpAddress": "172.31.16.156",
                "PrivateIpAddresses": [
                    {
                        "Primary": true,
                        "PrivateDnsName": "ip-172-31-16-156.ca-central-1.compute.internal",
                        "PrivateIpAddress": "172.31.16.156"
                    }
                ],
                "SourceDestCheck": true,
                "Status": "in-use",
                "SubnetId": "subnet-0083395f43cbe6d66",
                "VpcId": "vpc-0e9807d05719dc119",
                "InterfaceType": "interface"
            }
        ],
        "RootDeviceName": "/dev/xvda",
        "RootDeviceType": "ebs",
        "SecurityGroups": [
            {
                "GroupName": "default",
                "GroupId": "sg-0be425e94b1ec3109"
            }
        ],
        "SourceDestCheck": true,
        "StateReason": {
            "Code": "pending",
            "Message": "pending"
        },
        "Tags": [
            {
                "Key": "purpose",
:
```



```
        "Tags": [
            {
                "Key": "purpose",
                "Value": "webserver"
            },
            {
                "Key": "aws:ec2launchtemplate:id",
                "Value": "lt-09fa163a91c388b81"
            },
            {
                "Key": "aws:ec2launchtemplate:version",
                "Value": "1"
            }
        ],
        "VirtualizationType": "hvm",
        "CpuOptions": {
            "CoreCount": 1,
            "ThreadsPerCore": 1
        },
        "CapacityReservationSpecification": {
            "CapacityReservationPreference": "open"
        },
        "MetadataOptions": {
            "State": "pending",
            "HttpTokens": "required",
            "HttpPutResponseHopLimit": 2,
            "HttpEndpoint": "enabled",
            "HttpProtocolIpv6": "disabled",
            "InstanceMetadataTags": "disabled"
        },
        "EnclaveOptions": {
            "Enabled": false
:
```

```
            },
            "EnclaveOptions": {
                "Enabled": false
            },
            "BootMode": "uefi-preferred",
            "PrivateDnsNameOptions": {
                "HostnameType": "ip-name",
                "EnableResourceNameDnsARecord": false,
                "EnableResourceNameDnsAAAARecord": false
            },
            "MaintenanceOptions": {
                "AutoRecovery": "default"
            },
            "CurrentInstanceBootMode": "legacy-bios"
        }
    ],
    "OwnerId": "715621822765",
    "ReservationId": "r-02def1fe8296bd769"
}
root@Nilam:~#
```

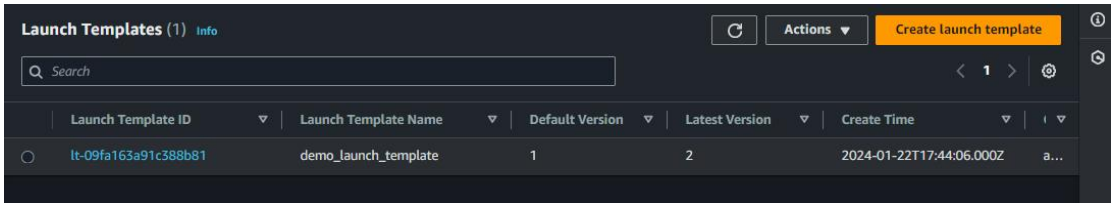

**3. Modify Launch Template using AWS CLI:**

**- Use the AWS CLI to modify the launch template, e.g., change the instance type.**

**- Use the modified template to launch another instance.**


```
root@Nilam:~# aws ec2 create-launch-template-version --launch-template-name demo_launch_template --version-description "version_02" --source-version 1 --launch-template-data '{"InstanceType":"t2.micro"}'
{
    "LaunchTemplateVersion": {
        "LaunchTemplateId": "lt-09fa163a91c388b81",
        "LaunchTemplateName": "demo_launch_template",
        "VersionNumber": 2,
        "VersionDescription": "version_02",
        "CreateTime": "2024-01-22T17:57:53+00:00",
        "CreatedBy": "arn:aws:iam::715621822765:user/Nilam",
        "DefaultVersion": false,
        "LaunchTemplateData": {
            "NetworkInterfaces": [
                {
                    "AssociatePublicIpAddress": true,
                    "DeviceIndex": 0,
                    "SubnetId": "subnet-0083395f43cbe6d66"
                }
            ],
            "ImageId": "ami-053f9acd4f8d86fc6",
            "InstanceType": "t2.micro",
            "TagSpecifications": [
                {
                    "ResourceType": "instance",
                    "Tags": [
                        {
                            "Key": "purpose",
                            "Value": "webserver"
                        }
                    ]
                }
            ]
```

```
{
    "LaunchTemplateVersion": {
        "LaunchTemplateId": "lt-09fa163a91c388b81",
        "LaunchTemplateName": "demo_launch_template",
        "VersionNumber": 2,
        "VersionDescription": "version_02",
        "CreateTime": "2024-01-22T17:57:53+00:00",
        "CreatedBy": "arn:aws:iam::715621822765:user/Nilam",
        "DefaultVersion": false,
        "LaunchTemplateData": {
            "NetworkInterfaces": [
                {
                    "AssociatePublicIpAddress": true,
                    "DeviceIndex": 0,
                    "SubnetId": "subnet-0083395f43cbe6d66"
                }
            ],
            "ImageId": "ami-053f9acd4f8d86fc6",
            "InstanceType": "t2.micro",
            "TagSpecifications": [
                {
                    "ResourceType": "instance",
                    "Tags": [
                        {
                            "Key": "purpose",
                            "Value": "webserver"
                        }
                    ]
                }
            ]
        }
    }
}
~
~
~
~
~
~
(END)
```

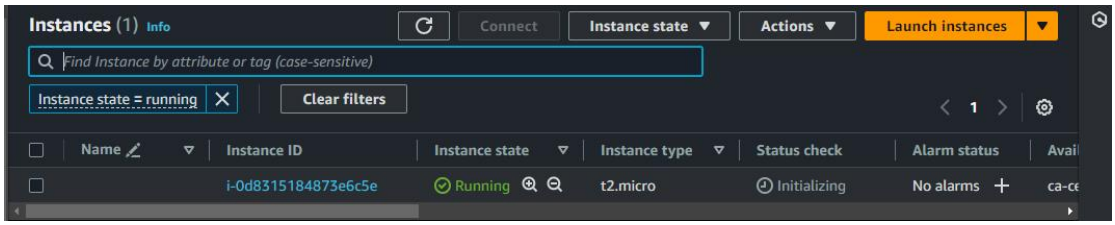



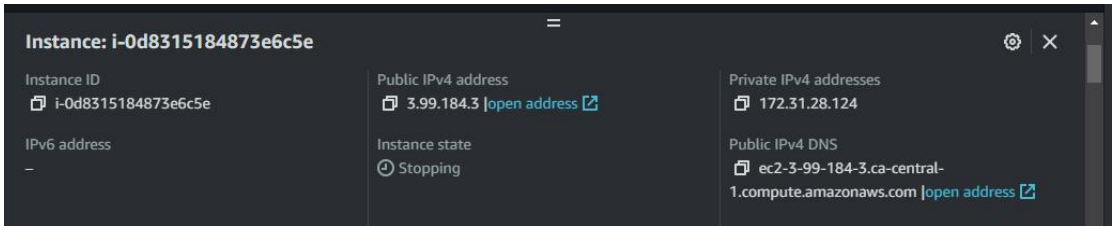

## QUESTION NO: 02

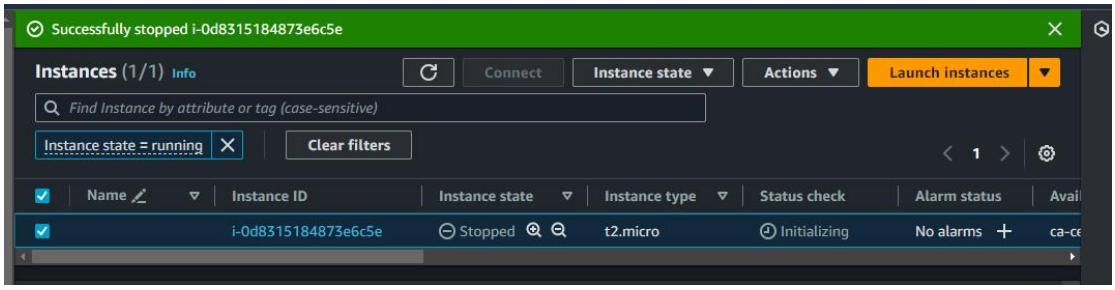
## Console

### 1. Allocate Elastic IP and Associate:

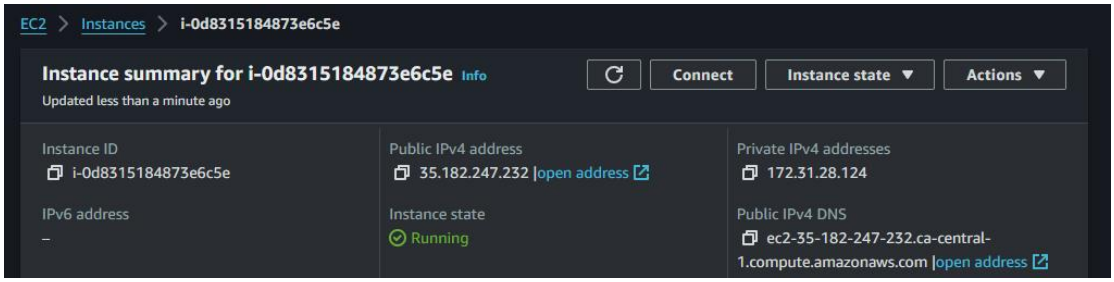
- Using the AWS Management Console, allocate an Elastic IP address.
- Associate the Elastic IP with an existing running EC2 instance.



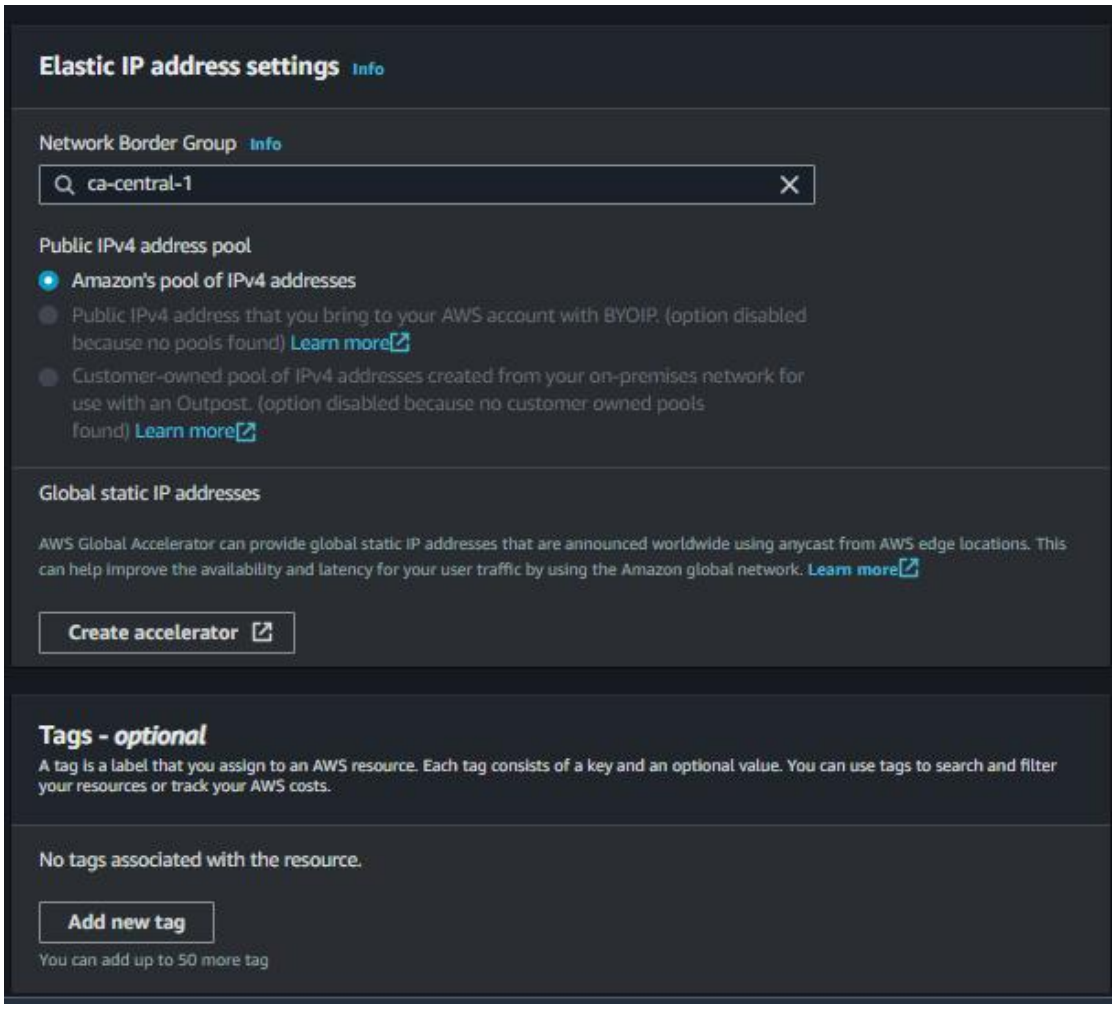


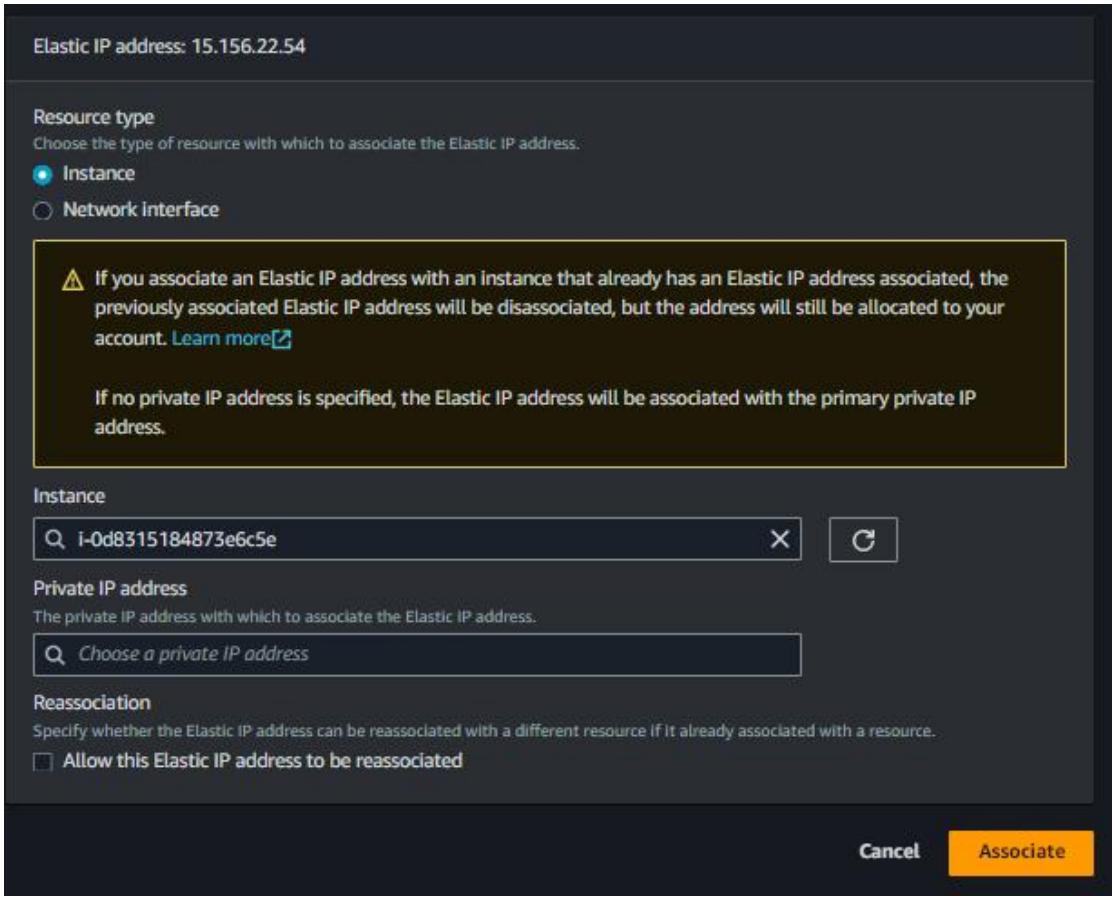


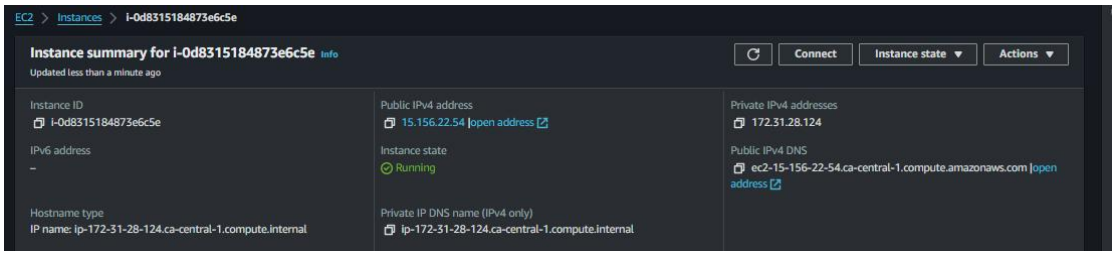

**2. Verify Elastic IP Functionality:**

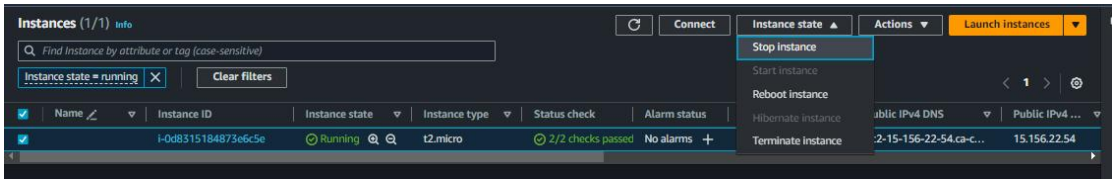
**- Confirm the functionality of the Elastic IP by accessing the associated EC2 instance.**

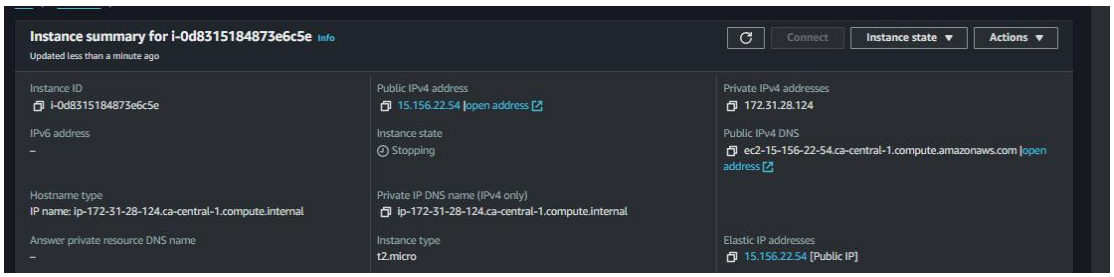
**- Document any observations or considerations related to Elastic IP usage.**

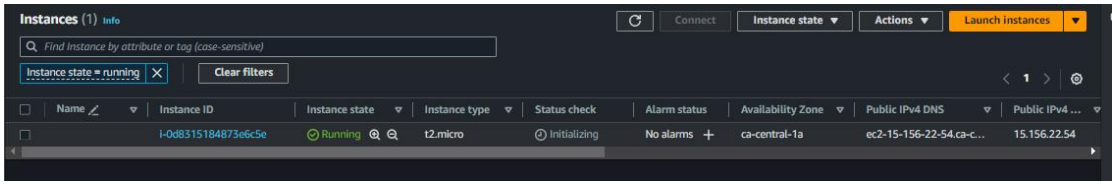



Elastic IP address: 15.156.22.54
Resource type
Choose the type of resource with which to associate the Elastic IP address.
Instance
Network interface
If you associate an Elastic IP address with an instance that already has an Elastic IP address associated, the previously associated Elastic IP address will be disassociated, but the address will still be allocated to your account. Learn more
If no private IP address is specified, the Elastic IP address will be associated with the primary private IP address.
Instance
i-0d8315184873e6c5e
Private IP address
The private IP address with which to associate the Elastic IP address.
Choose a private IP address
Reassociation
Specify whether the Elastic IP address can be reassociated with a different resource if it already associated with a resource.
Allow this Elastic IP address to be reassociated
Cancel
Associate


EC2 > Instances > i-0d8315184873e6c5e
Instance summary for i-0d8315184873e6c5e Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0d8315184873e6c5e
Public IPv4 address
15.156.22.54 |open address
Private IPv4 addresses
172.31.28.124
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-15-156-22-54.ca-central-1.compute.amazonaws.com |open address
Hostname type
IP name: ip-172-31-28-124.ca-central-1.compute.internal
Private IP DNS name (IPv4 only)
ip-172-31-28-124.ca-central-1.compute.internal


Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
Instance state = running
Clear filters
Stop instance
Start instance
Reboot instance
Hibernate instance
Terminate instance
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Public IPv4 DNS
Public IPv4 ...
i-0d8315184873e6c5e
Running
t2.micro
2/2 checks passed
No alarms
15.156.22.54


Instance summary for i-0d8315184873e6c5e Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0d8315184873e6c5e
Public IPv4 address
15.156.22.54 |open address
Private IPv4 addresses
172.31.28.124
IPv6 address
–
Instance state
Stopping
Public IPv4 DNS
ec2-15-156-22-54.ca-central-1.compute.amazonaws.com |open address
Hostname type
IP name: ip-172-31-28-124.ca-central-1.compute.internal
Private IP DNS name (IPv4 only)
ip-172-31-28-124.ca-central-1.compute.internal
Answer private resource DNS name
–
Instance type
t2.micro
Elastic IP addresses
15.156.22.54 [Public IP]

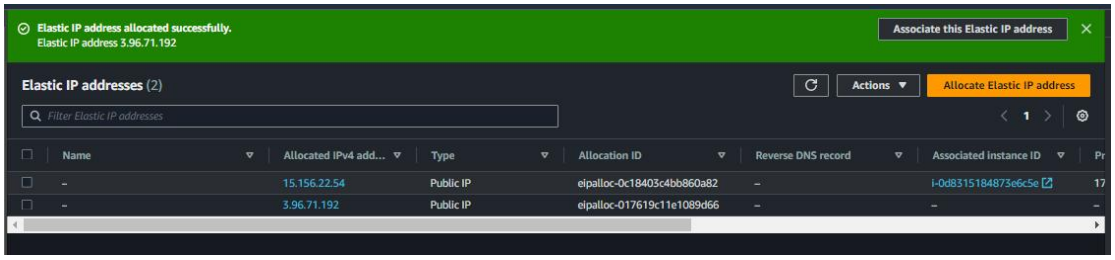


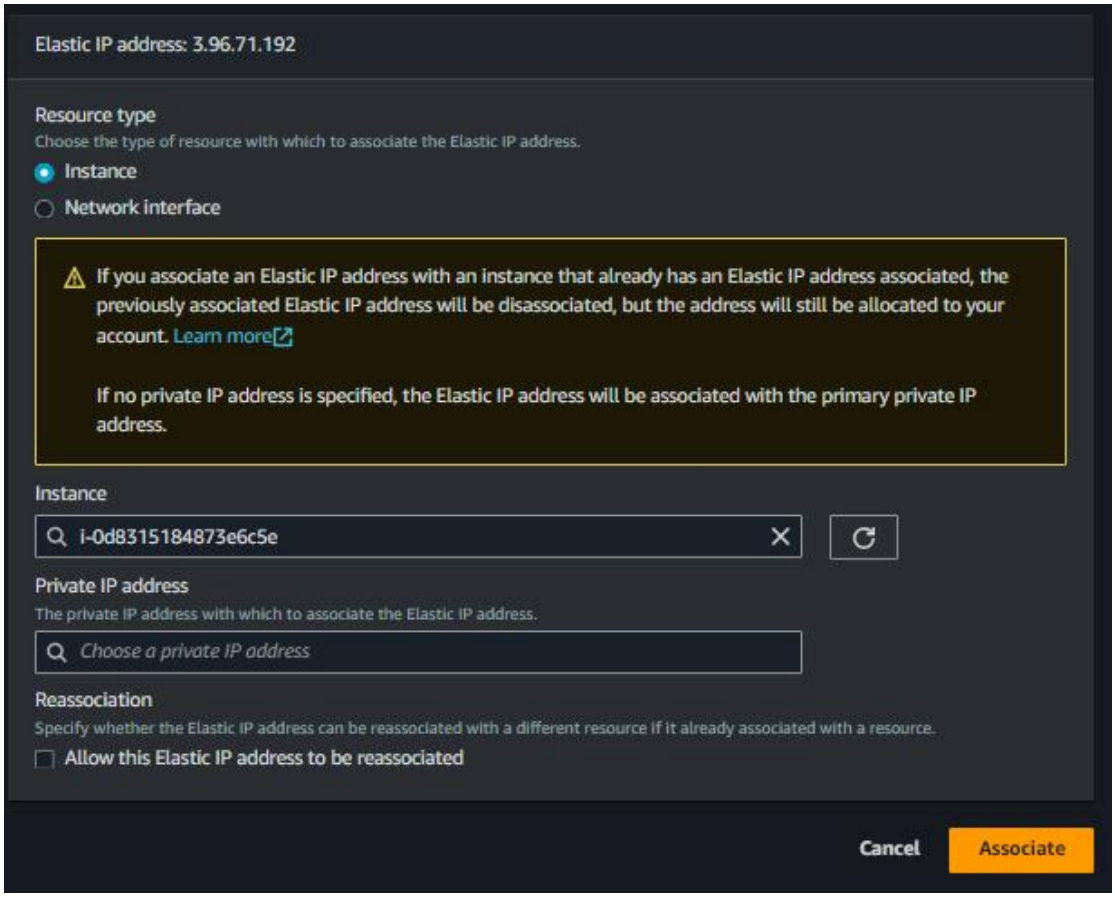


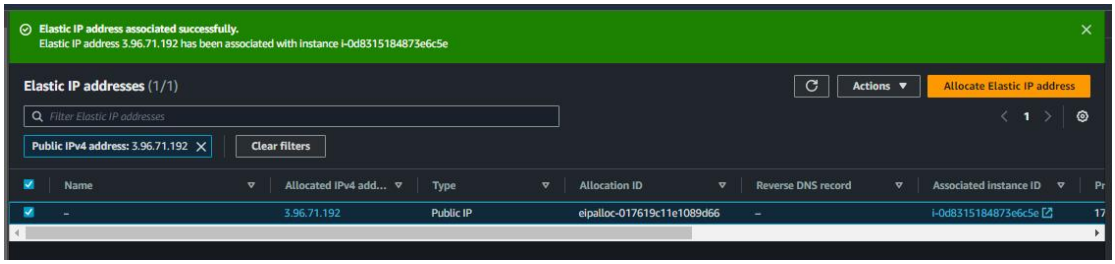
**3. Swap Elastic IPs:**

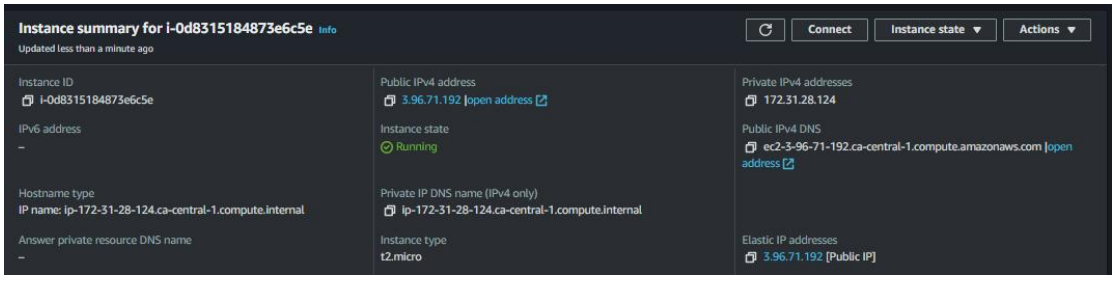
**- Allocate another Elastic IP and swap it with the original Elastic IP.**

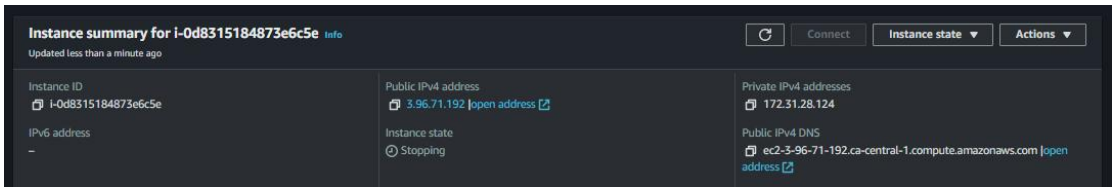
**- Document the steps taken and verify the new Elastic IP functionality.**

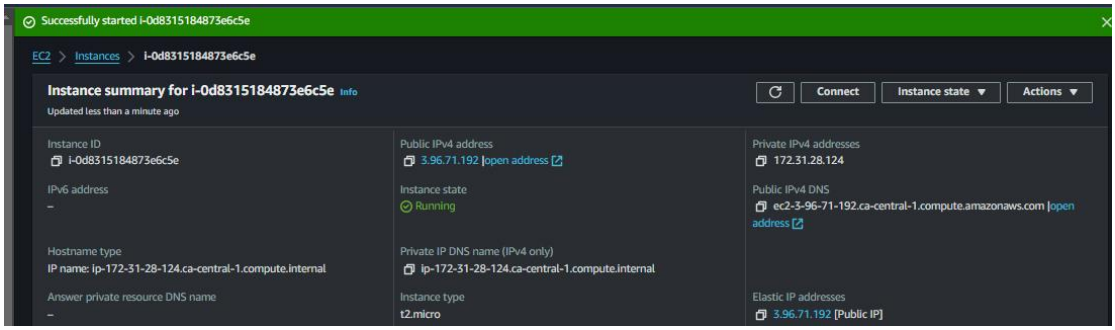



Elastic IP address: 3.96.71.192
Resource type
Choose the type of resource with which to associate the Elastic IP address.
Instance
Network interface
If you associate an Elastic IP address with an instance that already has an Elastic IP address associated, the previously associated Elastic IP address will be disassociated, but the address will still be allocated to your account. Learn more
If no private IP address is specified, the Elastic IP address will be associated with the primary private IP address.
Instance
i-0d8315184873e6c5e
Private IP address
The private IP address with which to associate the Elastic IP address.
Choose a private IP address
Reassociation
Specify whether the Elastic IP address can be reassociated with a different resource if it already associated with a resource.
Allow this Elastic IP address to be reassociated
Cancel
Associate


Elastic IP address associated successfully.
Elastic IP address 3.96.71.192 has been associated with instance i-0d8315184873e6c5e
Elastic IP addresses (1/1)
Actions
Allocate Elastic IP address
Filter Elastic IP addresses
Public IPv4 address: 3.96.71.192
Clear filters
Name
Allocated IPv4 add...
Type
Allocation ID
Reverse DNS record
Associated instance ID
3.96.71.192
Public IP
eipalloc-017619c11e1089d66
i-0d8315184873e6c5e


Instance summary for i-0d8315184873e6c5e Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0d8315184873e6c5e
Public IPv4 address
3.96.71.192 |open address
Private IPv4 addresses
172.31.28.124
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-3-96-71-192.ca-central-1.compute.amazonaws.com |open address
Hostname type
IP name: ip-172-31-28-124.ca-central-1.compute.internal
Private IP DNS name (IPv4 only)
ip-172-31-28-124.ca-central-1.compute.internal
Answer private resource DNS name
–
Instance type
t2.micro
Elastic IP addresses
3.96.71.192 [Public IP]


Instance summary for i-0d8315184873e6c5e Info
Updated less than a minute ago
Connect
Instance state
Actions
Instance ID
i-0d8315184873e6c5e
Public IPv4 address
3.96.71.192 |open address
Private IPv4 addresses
172.31.28.124
IPv6 address
–
Instance state
Stopping
Public IPv4 DNS
ec2-3-96-71-192.ca-central-1.compute.amazonaws.com |open address




**1. Allocate Elastic IP and Associate using AWS CLI:**

**- Use the AWS CLI to allocate an Elastic IP address.**

**- Associate the Elastic IP with an existing running EC2 instance.**

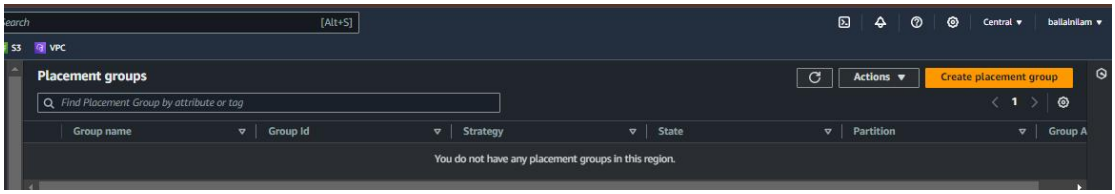
```
root@Nilam:~# aws ec2 allocate-address
{
    "PublicIp": "15.222.120.90",
    "AllocationId": "eipalloc-0d057c0eda4d0c1df",
    "PublicIpv4Pool": "amazon",
    "NetworkBorderGroup": "ca-central-1",
    "Domain": "vpc"
}
root@Nilam:~#
```

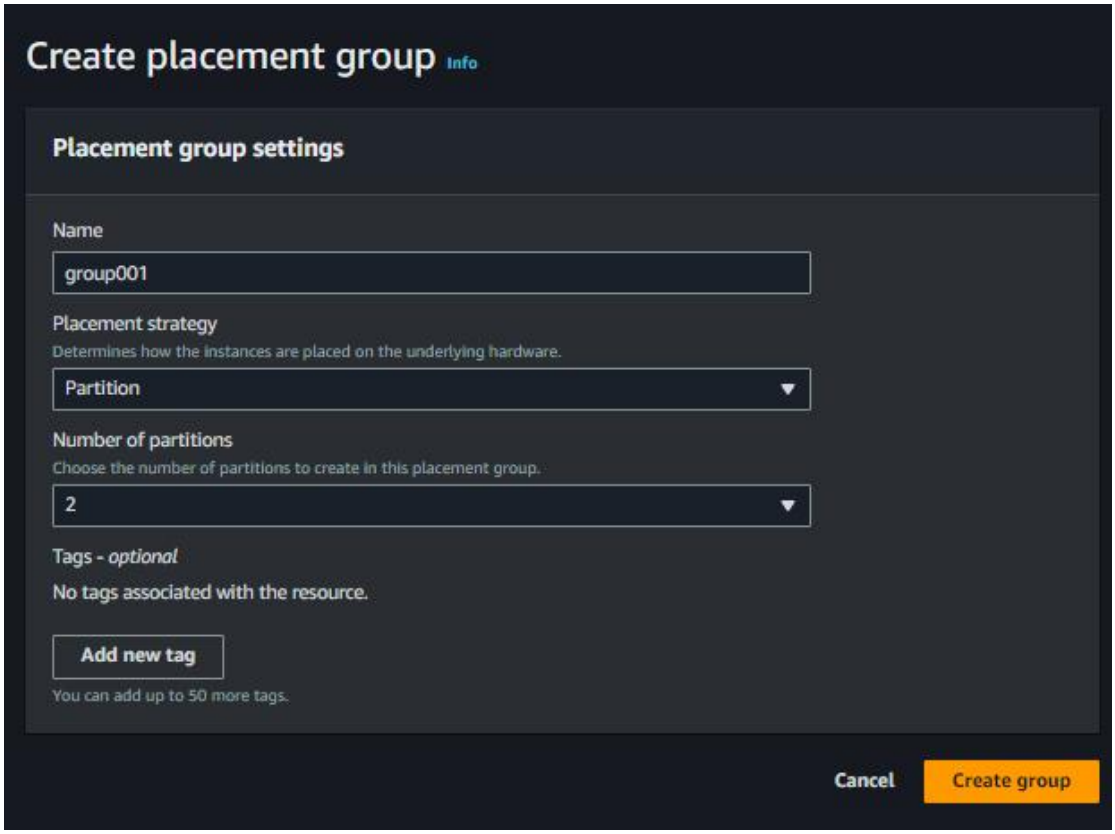
```
root@Nilam:~# aws ec2 allocate-address --domain vpc --output json
{
    "PublicIp": "15.222.153.130",
    "AllocationId": "eipalloc-040def603044d6234",
    "PublicIpv4Pool": "amazon",
    "NetworkBorderGroup": "ca-central-1",
    "Domain": "vpc"
}
root@Nilam:~#
```

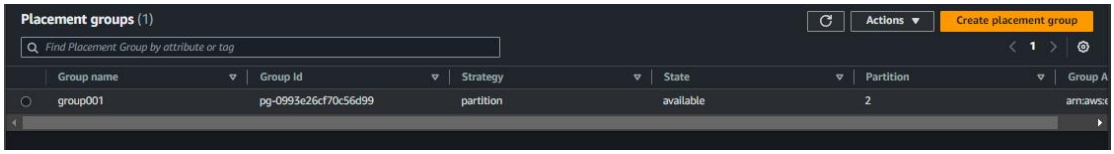
## QUESTION NO: 03

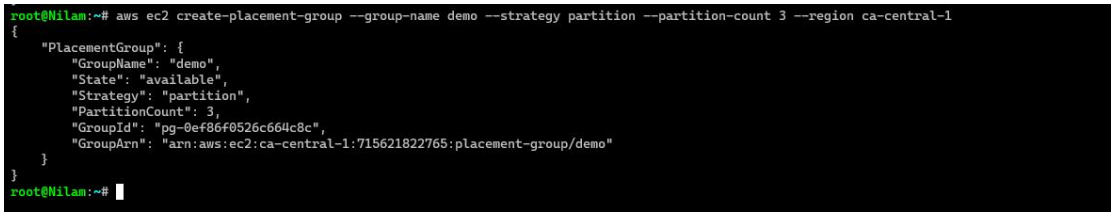
**Console**

**1. Create Partition Placement Group:**
- **Using the AWS Management Console, create a "Partition" placement group.**
- **Ensure it is associated with a specific region.**




root@Nilam:~# aws ec2 create-placement-group --group-name demo --strategy partition --partition-count 3 --region ca-central-1
{
"PlacementGroup": {
"GroupName": "demo",
"State": "available",
"Strategy": "partition",
"PartitionCount": 3,
"GroupId": "pg-0ef86f0526c664c8c",
"GroupArn": "arn:aws:ec2:ca-central-1:715621822765:placement-group/demo"
}
}
root@Nilam:~#