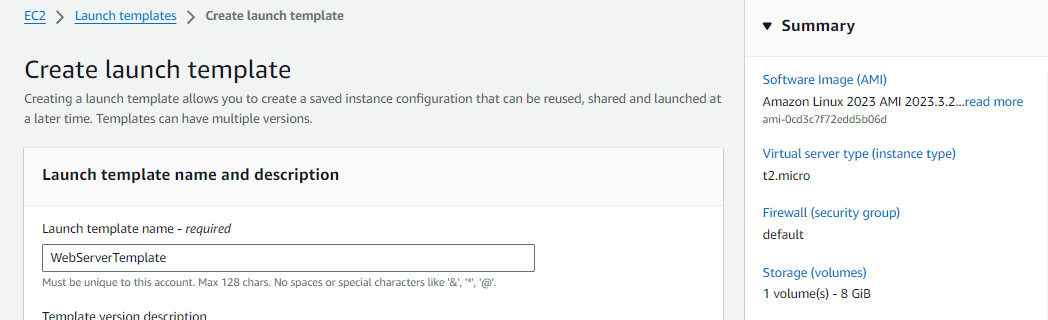
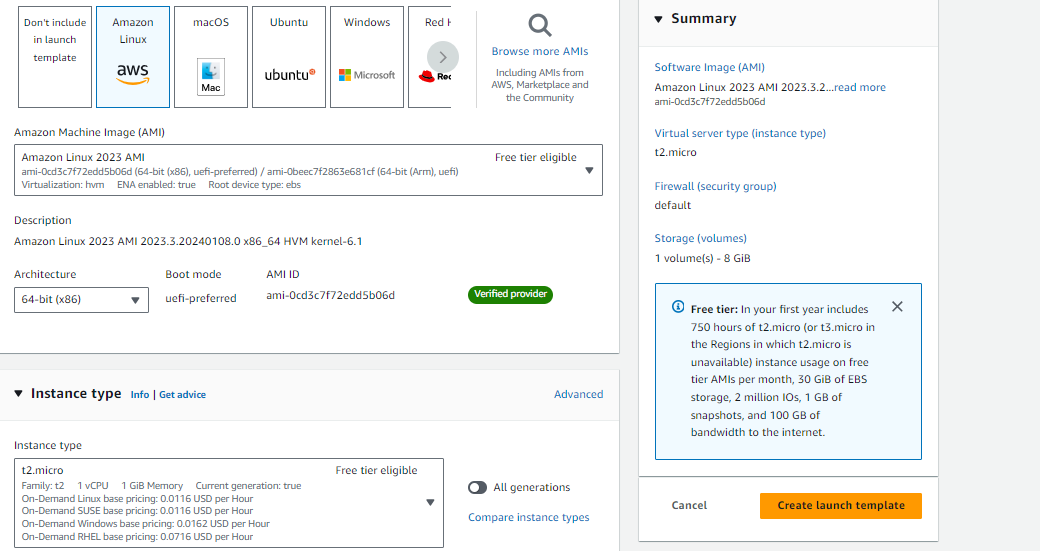
**AWS Hands-On Assignment 04**

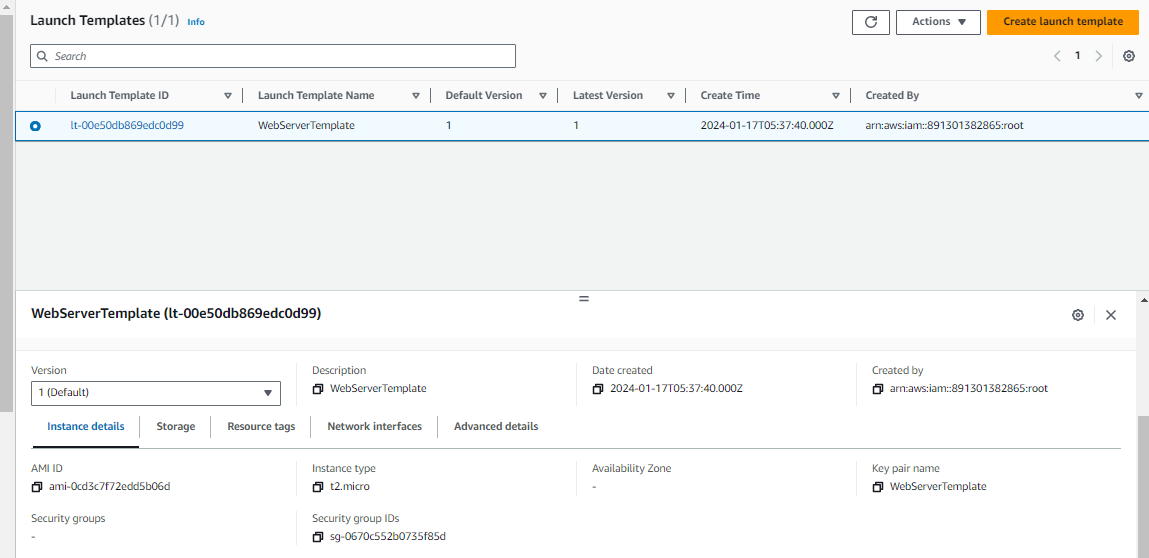
**QUESTION NO: 01**

**Console**

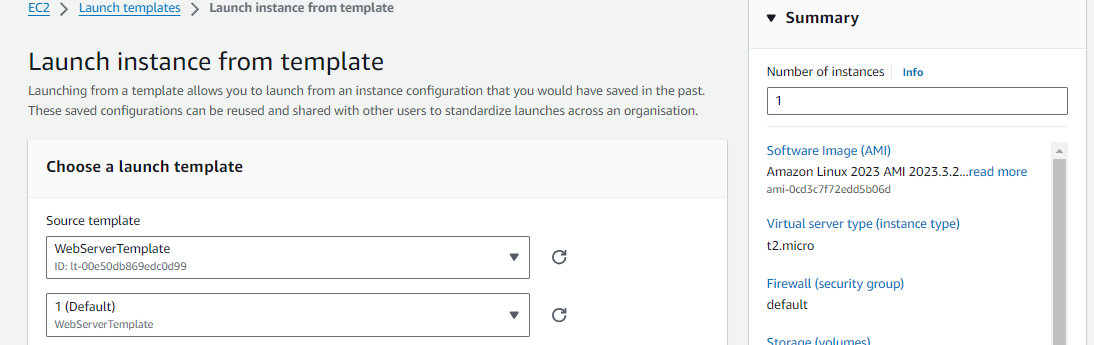
1.Create Launch Template on Console:  
   - Navigate to the EC2 dashboard on the AWS Management Console.  
   - Create a launch template named "WebServerTemplate."  
   - Specify configurations such as instance type, key pair, and any additional settings.

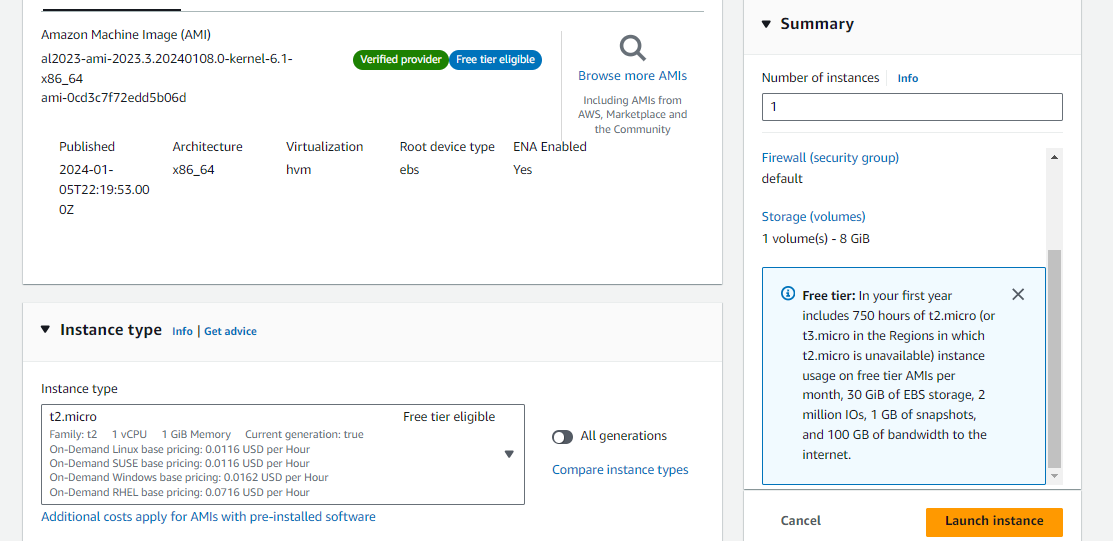


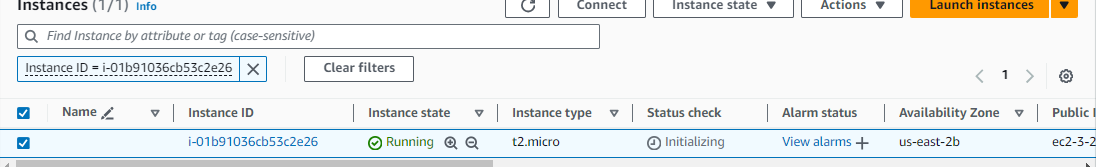




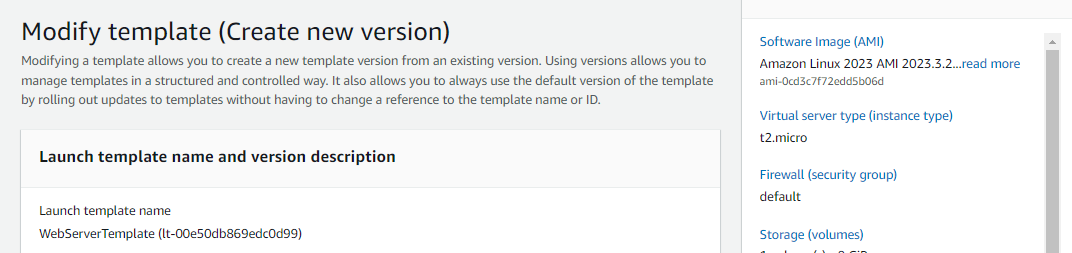
2. Launch Instance Using Launch Template:  
   - Use the launch template "WebServerTemplate" to launch an EC2 instance.  
   - Verify the successful launch of the instance.



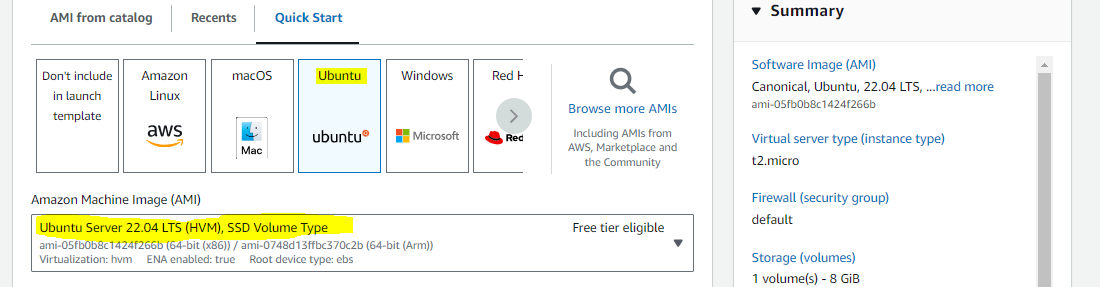


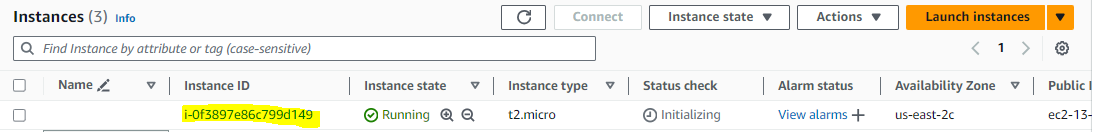


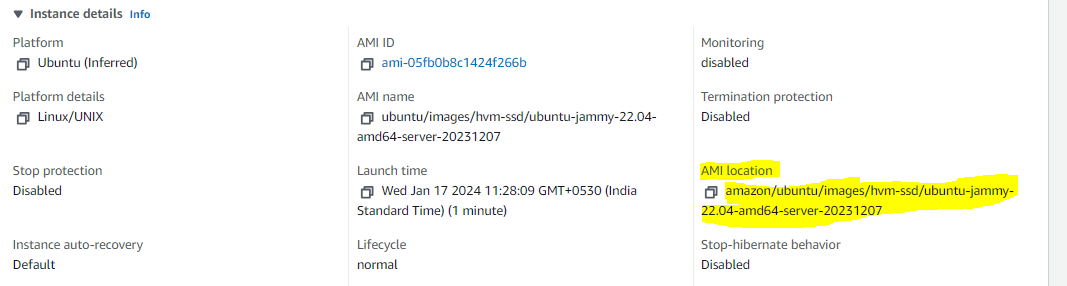
3. Modify Launch Template:  
   - Modify the launch template to change the instance type or any other parameter.  
   - Use the modified template to launch another instance.



Modify the image OS Instead of Amazone Linux we select Ubuntu.

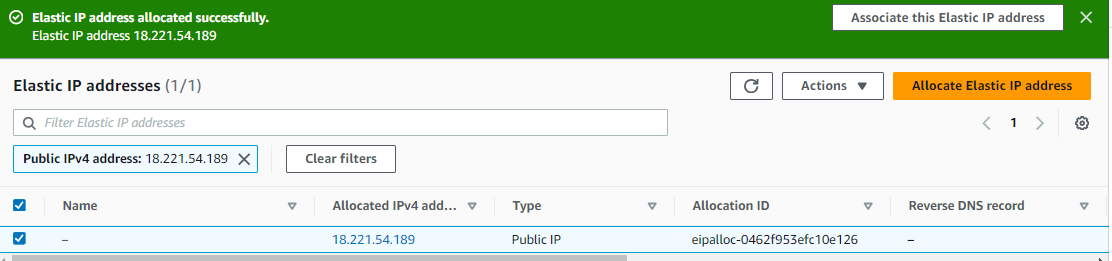




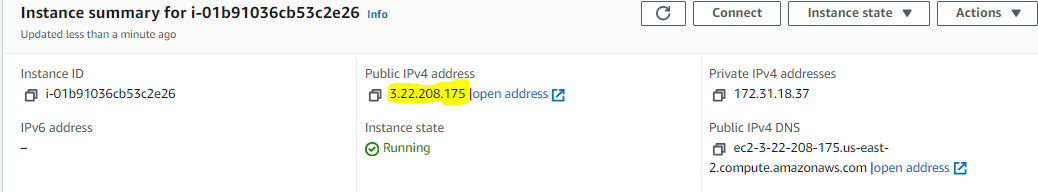


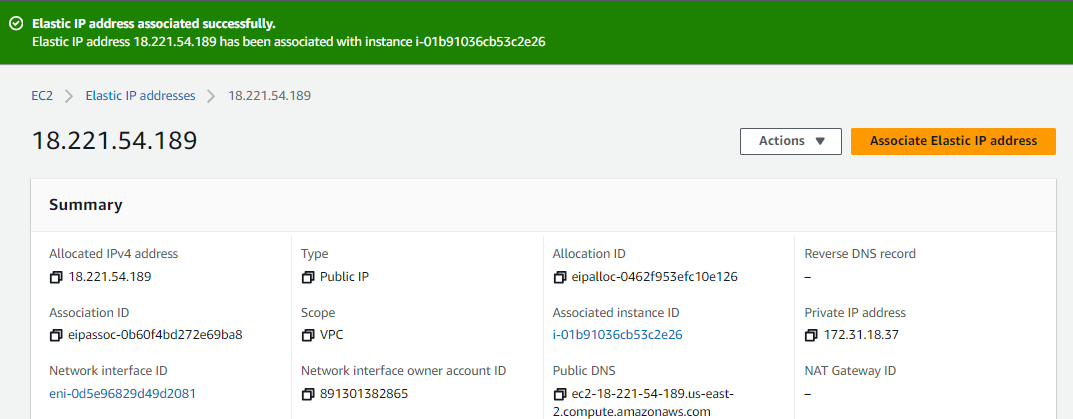
**QUESTION NO: 02**

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.



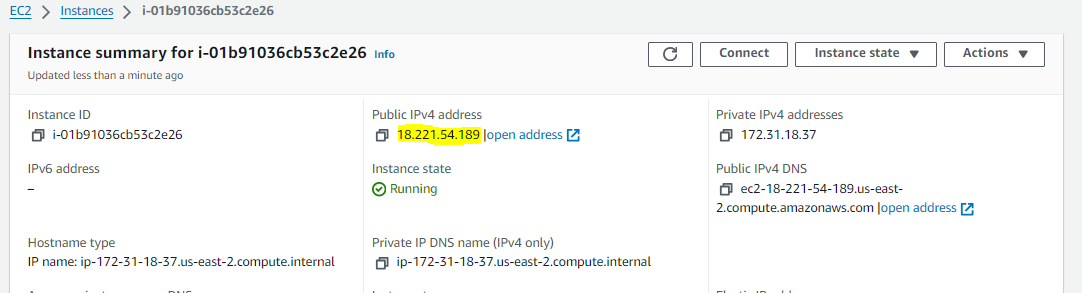
First public IP when the instance are running.





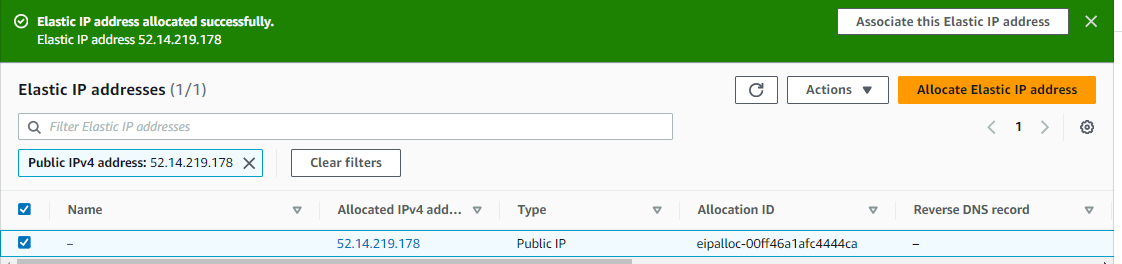
2. Verify Elastic IP Functionality:  
   - Confirm the functionality of the Elastic IP by accessing the associated EC2 instance.  
   - Document any observations or considerations related to Elastic IP usage.

Elastic IP 18.221.54.189 assign to running instance.



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.

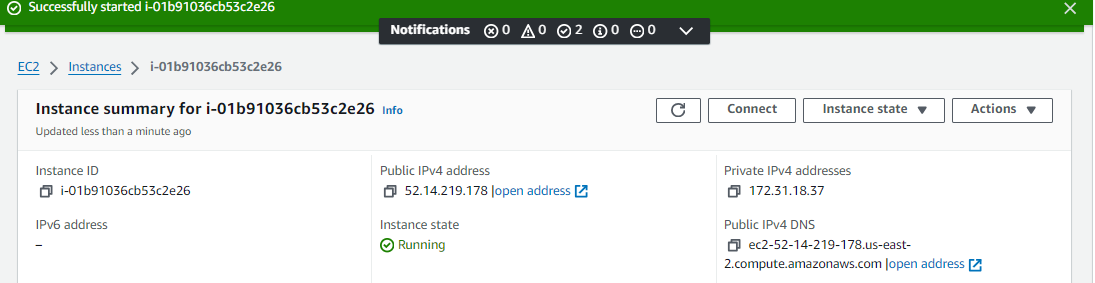
Create one more Elastic IP.



Swap with the original Elastic IP.

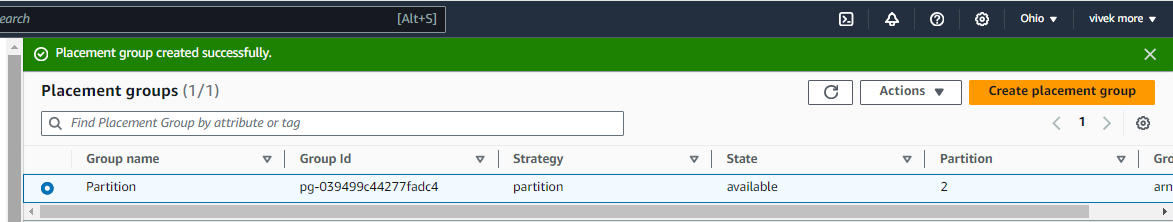
First Elastic IP 18.221.54.189

Second Elastic IP 52.14.219.178

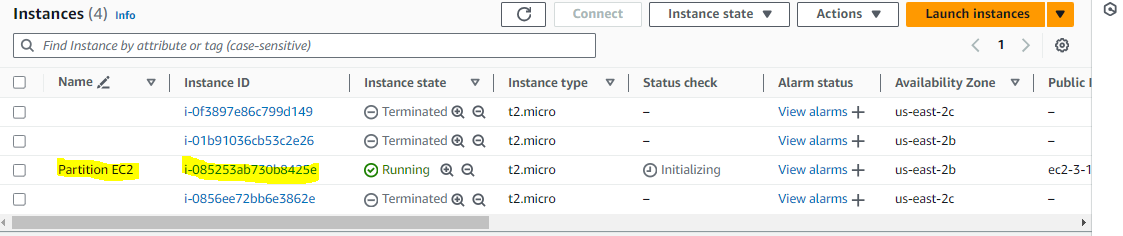


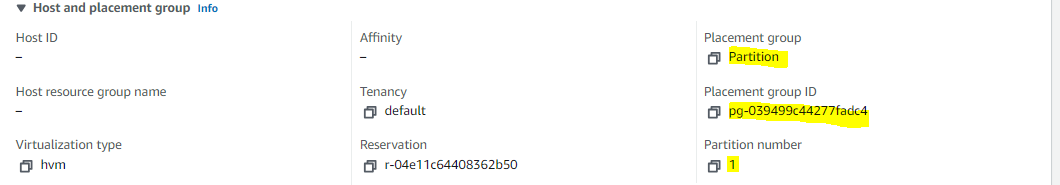
**QUESTION NO: 03**

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

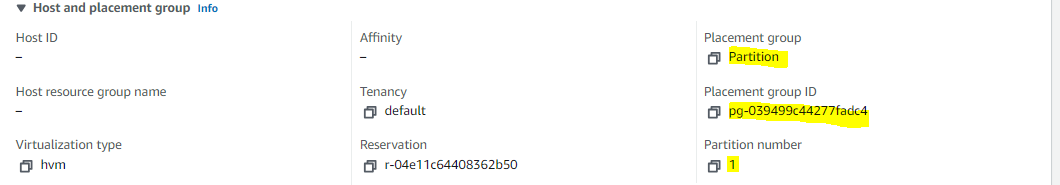


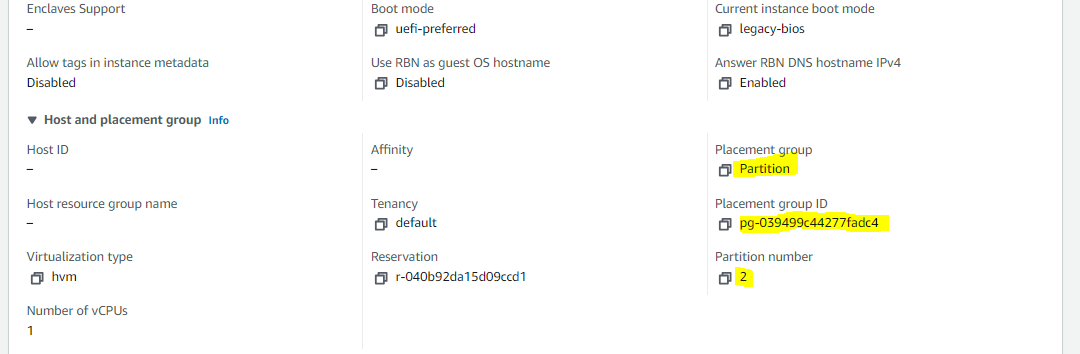
2. Launch Instances into Partition Placement Group:  
   - Launch multiple EC2 instances into the created "Partition" placement group with distinct partition numbers.  
   - Confirm that instances are distributed across partitions.





3. Test Isolation:  
   - Use the console to observe the network and resource isolation between instances in different partitions.  
   - Verify that instances in one partition do not share the underlying hardware with instances in other partitions.





root@DESKTOP-PDOJQQA:vivek# aws ec2 describe-instances --filters Name=placement-group-name,Values=placement

{

"Reservations": [

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0cd3c7f72edd5b06d",

"InstanceId": "i-076095caa13ca7fc4",

"InstanceType": "t2.micro",

"KeyName": "test",

"LaunchTime": "2024-01-18T06:44:13.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-2c",

"GroupName": "placement",

"**PartitionNumber": 1,**

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-42-21.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.42.21",

"ProductCodes": [],

"PublicDnsName": "ec2-18-222-232-227.us-east-2.compute.amazonaws.com",

"PublicIpAddress": "18.222.232.227",

"State": {

"Code": 16,

"Name": "running"

},

"StateTransitionReason": "",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [

{

"DeviceName": "/dev/xvda",

"Ebs": {

"AttachTime": "2024-01-18T06:44:14.000Z",

"DeleteOnTermination": true,

"Status": "attached",

"VolumeId": "vol-0be1b104b468acd85"

}

}

],

"ClientToken": "eec1967d-0db7-4bfa-a41a-007a69b1b791",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-18-222-232-227.us-east-2.compute.amazonaws.com",

"PublicIp": "18.222.232.227"

},

"Attachment": {

"AttachTime": "2024-01-18T06:44:13.000Z",

"AttachmentId": "eni-attach-0fee89d37d79afe4d",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attached",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0a:ea:6b:be:76:41",

"NetworkInterfaceId": "eni-019d6b0b6d87917c8",

"OwnerId": "891301382865",

"PrivateDnsName": "ip-172-31-42-21.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.42.21",

"PrivateIpAddresses": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-18-222-232-227.us-east-2.compute.amazonaws.com",

"PublicIp": "18.222.232.227"

},

"Primary": true,

"PrivateDnsName": "ip-172-31-42-21.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.42.21"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"SourceDestCheck": true,

"Tags": [

{

"Key": "Name",

"Value": "ec1"

}

],

"VirtualizationType": "hvm",

"CpuOptions": {

"CoreCount": 1,

"ThreadsPerCore": 1

},

"CapacityReservationSpecification": {

"CapacityReservationPreference": "open"

},

"HibernationOptions": {

"Configured": false

},

"MetadataOptions": {

"State": "applied",

"HttpTokens": "required",

"HttpPutResponseHopLimit": 2,

"HttpEndpoint": "enabled",

"HttpProtocolIpv6": "disabled",

"InstanceMetadataTags": "disabled"

},

"EnclaveOptions": {

"Enabled": false

},

"BootMode": "uefi-preferred",

"PlatformDetails": "Linux/UNIX",

"UsageOperation": "RunInstances",

"UsageOperationUpdateTime": "2024-01-18T06:44:13.000Z",

"PrivateDnsNameOptions": {

"HostnameType": "ip-name",

"EnableResourceNameDnsARecord": true,

"EnableResourceNameDnsAAAARecord": false

}

}

],

"OwnerId": "891301382865",

"ReservationId": "r-0d37320869f6b90de"

},

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0cd3c7f72edd5b06d",

"InstanceId": "i-0cee1152ea27ff68c",

"InstanceType": "t2.micro",

"KeyName": "test",

"LaunchTime": "2024-01-18T06:44:54.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-2c",

"GroupName": "placement",

**"PartitionNumber": 2,**

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-33-169.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.33.169",

"ProductCodes": [],

"PublicDnsName": "ec2-3-144-69-198.us-east-2.compute.amazonaws.com",

"PublicIpAddress": "3.144.69.198",

"State": {

"Code": 16,

"Name": "running"

},

"StateTransitionReason": "",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [

{

"DeviceName": "/dev/xvda",

"Ebs": {

"AttachTime": "2024-01-18T06:44:54.000Z",

"DeleteOnTermination": true,

"Status": "attached",

"VolumeId": "vol-0c82d3c9c85e74926"

}

}

],

"ClientToken": "2cdccb56-5d93-4919-832e-5d6a2660b93d",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-3-144-69-198.us-east-2.compute.amazonaws.com",

"PublicIp": "3.144.69.198"

},

"Attachment": {

"AttachTime": "2024-01-18T06:44:54.000Z",

"AttachmentId": "eni-attach-035ae7c7dade51d30",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attached",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0a:c9:41:aa:75:c7",

"NetworkInterfaceId": "eni-0712bd666e8cafab1",

"OwnerId": "891301382865",

"PrivateDnsName": "ip-172-31-33-169.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.33.169",

"PrivateIpAddresses": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-3-144-69-198.us-east-2.compute.amazonaws.com",

"PublicIp": "3.144.69.198"

},

"Primary": true,

"PrivateDnsName": "ip-172-31-33-169.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.33.169"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"SourceDestCheck": true,

"Tags": [

{

"Key": "Name",

"Value": "ec2"

}

],

"VirtualizationType": "hvm",

"CpuOptions": {

"CoreCount": 1,

"ThreadsPerCore": 1

},

"CapacityReservationSpecification": {

"CapacityReservationPreference": "open"

},

"HibernationOptions": {

"Configured": false

},

"MetadataOptions": {

"State": "applied",

"HttpTokens": "required",

"HttpPutResponseHopLimit": 2,

"HttpEndpoint": "enabled",

"HttpProtocolIpv6": "disabled",

"InstanceMetadataTags": "disabled"

},

"EnclaveOptions": {

"Enabled": false

},

"BootMode": "uefi-preferred",

"PlatformDetails": "Linux/UNIX",

"UsageOperation": "RunInstances",

"UsageOperationUpdateTime": "2024-01-18T06:44:54.000Z",

"PrivateDnsNameOptions": {

"HostnameType": "ip-name",

"EnableResourceNameDnsARecord": true,

"EnableResourceNameDnsAAAARecord": false

}

}

],

"OwnerId": "891301382865",

"ReservationId": "r-07a327e67a13934af"

}

]

}

**CLI**

**QUESTION NO: 01**

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@DESKTOP-PDOJQQA:vivek# aws ec2 create-launch-template --launch-template-name WebServerTemplate --version-description WebVersion1 --launch-template-data '{"NetworkInterfaces":[{"AssociatePublicIpAddress":true,"DeviceIndex":0,"SubnetId":"subnet-0100b13063c85e521"}],"ImageId":"ami-0cd3c7f72edd5b06d","InstanceType":"t2.micro","TagSpecifications":[{"ResourceType":"instance","Tags":[{"Key":"purpose","Value":"webserver"}]}]}'

{

"LaunchTemplate": {

"LaunchTemplateId": "lt-0a633fbf5d7538557",

"LaunchTemplateName": "WebServerTemplate",

"CreateTime": "2024-01-18T05:40:19.000Z",

"CreatedBy": "arn:aws:iam::891301382865:root",

"DefaultVersionNumber": 1,

"LatestVersionNumber": 1

}

}



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@DESKTOP-PDOJQQA:vivek# aws ec2 run-instances --launch-template LaunchTemplateName=WebServerTemplate

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0cd3c7f72edd5b06d",

"InstanceId": "i-0ade21d36aa7cd817",

"InstanceType": "t2.micro",

"LaunchTime": "2024-01-18T05:42:59.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-2c",

"GroupName": "",

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-38-232.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.38.232",

"ProductCodes": [],

"PublicDnsName": "",

"State": {

"Code": 0,

"Name": "pending"

},

"StateTransitionReason": "",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [],

"ClientToken": "38967e31-5b0a-48ec-9a35-ce319935ddb0",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Attachment": {

"AttachTime": "2024-01-18T05:42:59.000Z",

"AttachmentId": "eni-attach-06f97763bf9d34282",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attaching",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0a:8b:ee:2b:be:4d",

"NetworkInterfaceId": "eni-04bb2557df95525c9",

"OwnerId": "891301382865",

"PrivateDnsName": "ip-172-31-38-232.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.38.232",

"PrivateIpAddresses": [

{

"Primary": true,

"PrivateDnsName": "ip-172-31-38-232.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.38.232"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"SourceDestCheck": true,

"StateReason": {

"Code": "pending",

"Message": "pending"

},

"Tags": [

{

"Key": "aws:ec2launchtemplate:id",

"Value": "lt-0a633fbf5d7538557"

},

{

"Key": "purpose",

"Value": "webserver"

},

{

"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

},

"BootMode": "uefi-preferred",

"PrivateDnsNameOptions": {

"HostnameType": "ip-name",

"EnableResourceNameDnsARecord": false,

"EnableResourceNameDnsAAAARecord": false

}

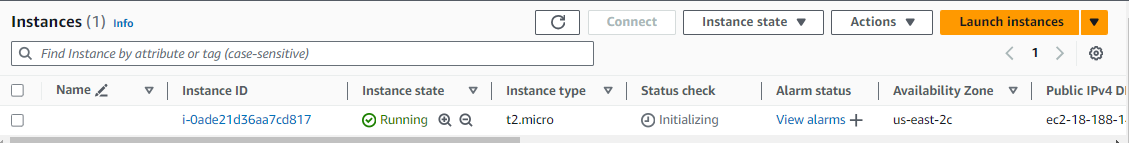
}

],

"OwnerId": "891301382865",

"ReservationId": "r-0d2d17247a51da7bf"

}



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@DESKTOP-PDOJQQA:vivek# aws ec2 create-launch-template-version --launch-template-name WebServerTemplate --version-description "my version description" --source-version 1 --launch-template-data '{"InstanceType": "t2.medium"}'

{

"LaunchTemplateVersion": {

"LaunchTemplateId": "lt-0e3b7f5cb5dbf6bd9",

"LaunchTemplateName": "WebServerTemplate",

"VersionNumber": 2,

"VersionDescription": "my version description",

"CreateTime": "2024-01-18T08:05:59.000Z",

"CreatedBy": "arn:aws:iam::891301382865:root",

"DefaultVersion": false,

"LaunchTemplateData": {

"NetworkInterfaces": [

{

"AssociatePublicIpAddress": true,

"DeviceIndex": 0,

"SubnetId": "subnet-0100b13063c85e521"

}

],

"ImageId": "ami-0cd3c7f72edd5b06d",

"InstanceType": "t2.medium",

"TagSpecifications": [

{

"ResourceType": "instance",

"Tags": [

{

"Key": "purpose",

"Value": "webserver"

}

]

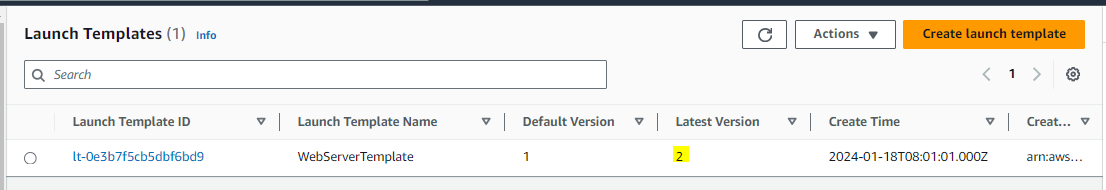
}

]

}

}

}



**Modified EC2**

root@DESKTOP-PDOJQQA:vivek# aws ec2 run-instances --launch-template LaunchTemplateName=WebServerTemplate,Version=2

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0cd3c7f72edd5b06d",

"InstanceId": "i-0380dcc3628a8ac90",

"InstanceType": "t2.medium",

"LaunchTime": "2024-01-18T08:06:29.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-2c",

"GroupName": "",

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-37-201.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.37.201",

"ProductCodes": [],

"PublicDnsName": "",

"State": {

"Code": 0,

"Name": "pending"

},

"StateTransitionReason": "",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [],

"ClientToken": "4c42851c-6233-4f21-b052-e729d56d594a",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Attachment": {

"AttachTime": "2024-01-18T08:06:29.000Z",

"AttachmentId": "eni-attach-0681e487ec27f7980",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attaching",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0a:80:23:7d:59:af",

"NetworkInterfaceId": "eni-0e18dcc75d11a3866",

"OwnerId": "891301382865",

"PrivateDnsName": "ip-172-31-37-201.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.37.201",

"PrivateIpAddresses": [

{

"Primary": true,

"PrivateDnsName": "ip-172-31-37-201.us-east-2.compute.internal",

"PrivateIpAddress": "172.31.37.201"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-0100b13063c85e521",

"VpcId": "vpc-06d69378b752303c5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0670c552b0735f85d"

}

],

"SourceDestCheck": true,

"StateReason": {

"Code": "pending",

"Message": "pending"

},

"Tags": [

{

"Key": "purpose",

"Value": "webserver"

},

{

"Key": "aws:ec2launchtemplate:id",

"Value": "lt-0e3b7f5cb5dbf6bd9"

},

{

"Key": "aws:ec2launchtemplate:version",

"Value": "2"

}

],

"VirtualizationType": "hvm",

"CpuOptions": {

"CoreCount": 2,

"ThreadsPerCore": 1

},

"CapacityReservationSpecification": {

"CapacityReservationPreference": "open"

},

"MetadataOptions": {

"State": "pending",

"HttpTokens": "required",

"HttpPutResponseHopLimit": 2,

"HttpEndpoint": "enabled",

"HttpProtocolIpv6": "disabled",

"InstanceMetadataTags": "disabled"

},

"EnclaveOptions": {

"Enabled": false

},

"BootMode": "uefi-preferred",

"PrivateDnsNameOptions": {

"HostnameType": "ip-name",

"EnableResourceNameDnsARecord": false,

"EnableResourceNameDnsAAAARecord": false

}

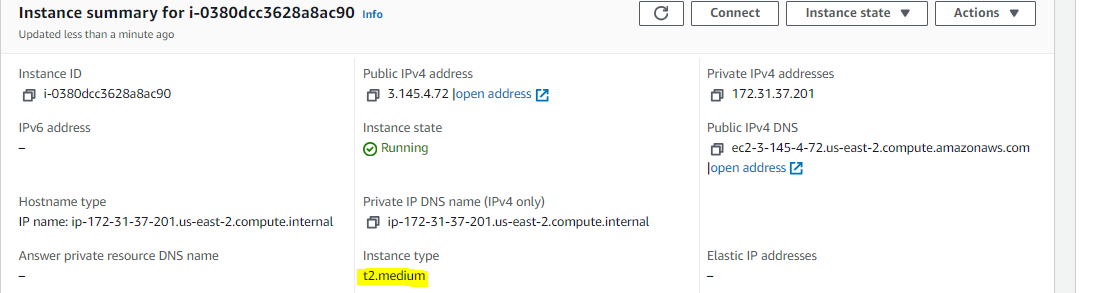
}

],

"OwnerId": "891301382865",

"ReservationId": "r-0627145176fbb0ff9"

}



**QUESTION NO: 02**

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@DESKTOP-PDOJQQA:vivek# **aws ec2 allocate-address**

{

"PublicIp": "**18.216.153.200**",

"AllocationId": "eipalloc-05cbbe32ad86489f3",

"PublicIpv4Pool": "amazon",

"NetworkBorderGroup": "us-east-2",

"Domain": "vpc"

}

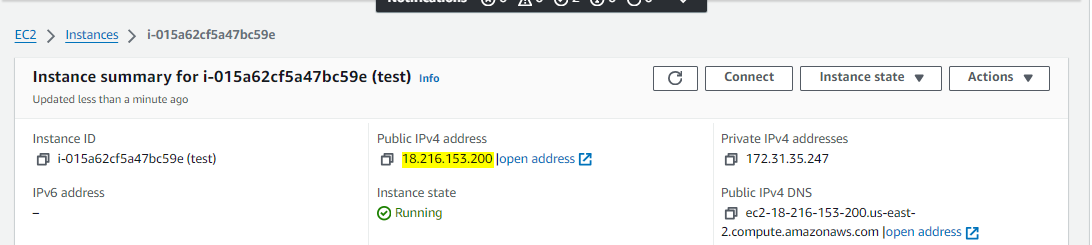
root@DESKTOP-PDOJQQA:vivek# aws ec2 associate-address --instance-id i-015a62cf5a47bc59e --allocation-id eipalloc-05cbbe32ad86489f3

{

"AssociationId": "eipassoc-0ae0c34fc19fcef25"

}

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.



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.

Created new elastic ip:-

root@DESKTOP-PDOJQQA:vivek# **aws ec2 allocate-address --domain vpc --output json**

{

"PublicIp": "18.189.197.185",

"AllocationId": "eipalloc-0f1e827da125298c0",

"PublicIpv4Pool": "amazon",

"NetworkBorderGroup": "us-east-2",

"Domain": "vpc"

}

First we dis-allocate the first elastic ip

root@DESKTOP-PDOJQQA:vivek# aws ec2 disassociate-address --association-id eipassoc-0ae0c34fc19fcef25

then assign new elastic IP

root@DESKTOP-PDOJQQA:vivek# aws ec2 associate-address --instance-id i-015a62cf5a47bc59e --allocation-id eipalloc-0f1e827da125298c0

{

"AssociationId": "eipassoc-03db51f5e5008726f"

}