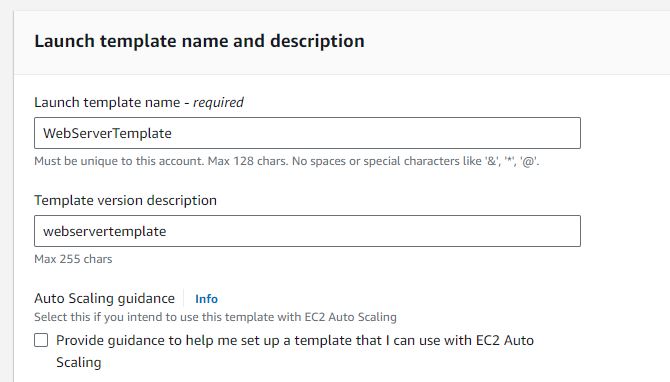
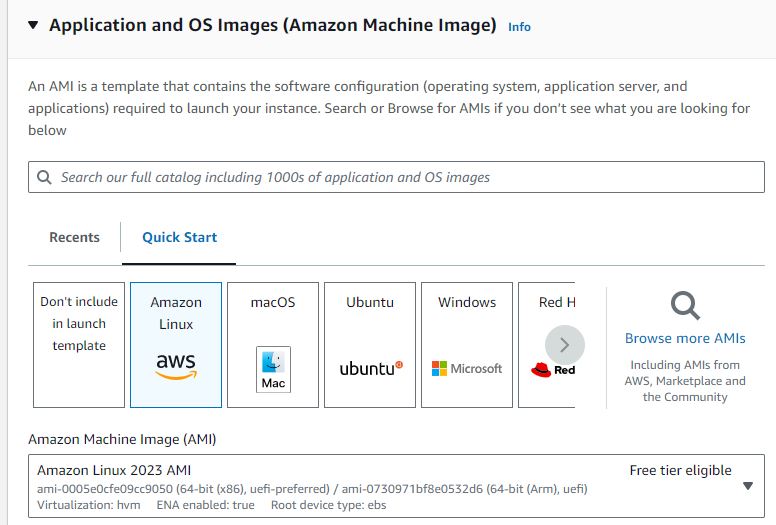
**AWS Hands-On Assignment 04**  
 **(On Console and CLI)**

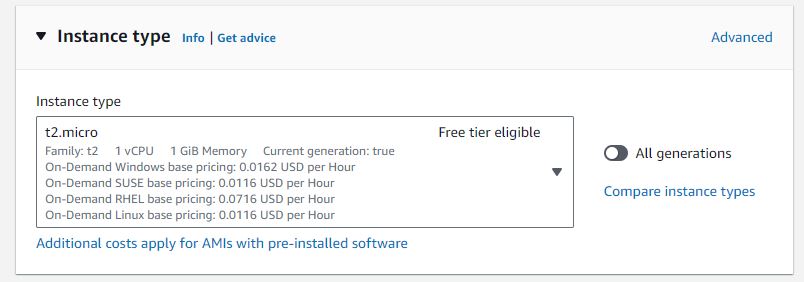
**QUESTION NO: 01**

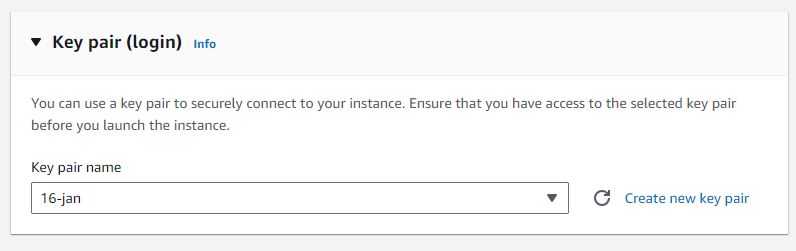
**Console**

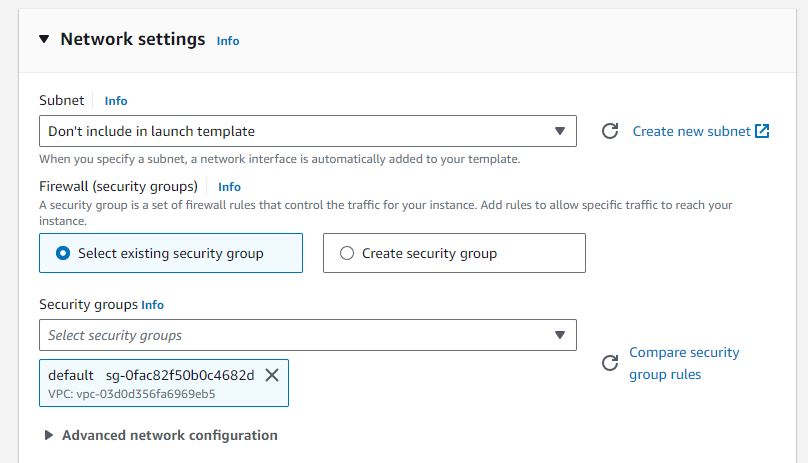
1. Create Launch Template on Console:  
   - Navigate to the EC2 dashboard on the AWS Management Console.  
   - Create a launch template named "WebServerTemplate."  
   - Specify configurations such as instance type, key pair, and any additional settings.

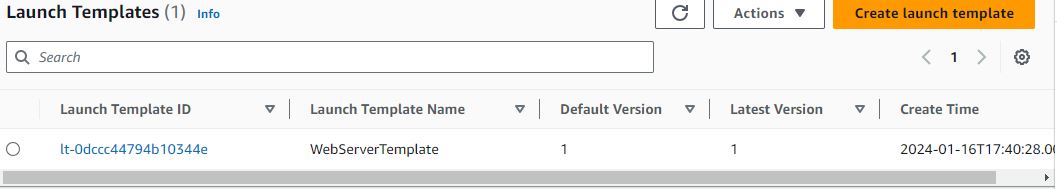








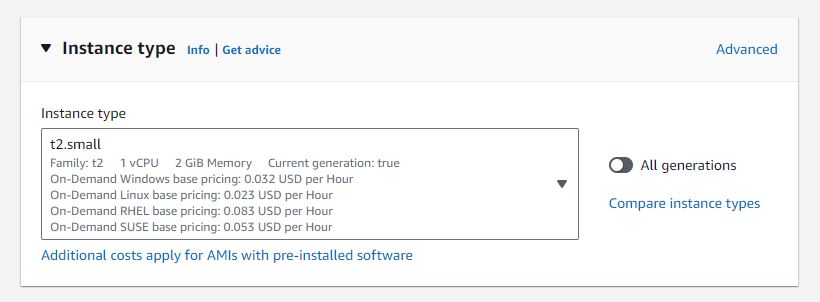


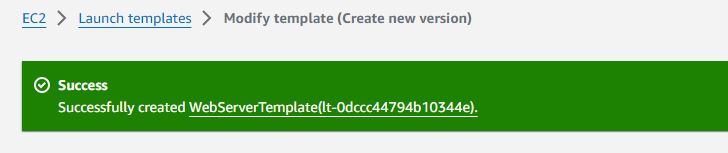


2. Launch Instance Using Launch Template:  
   - Use the launch template "WebServerTemplate" to launch an EC2 instance.  
   - Verify the successful launch of the instance.



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.





4. Documentation:  
   - Provide a step-by-step guide with screenshots for creating, launching, and modifying instances using the launch template.  
   - Include outputs or confirmation messages from the console.

**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.

Ans.

root@DESKTOP-1RT156R:~# aws ec2 create-launch-template --launch-template-name WebServerTemplate1 --version-description WebVersion1 --launch-template-data '{"NetworkInterfaces":[{"AssociatePublicIpAddress":true,"DeviceIndex":0,"SubnetId":"subnet-04cce7fc4e5c6f635"}],"ImageId":"ami-0005e0cfe09cc9050","InstanceType":"t2.micro","TagSpecifications":[{"ResourceType":"instance","Tags":[{"Key":"purpose","Value":"webserver"}]}]}'

{

"LaunchTemplate": {

"LaunchTemplateId": "lt-04656cb935063f26c",

"LaunchTemplateName": "WebServerTemplate1",

"CreateTime": "2024-01-18T09:31:50.000Z",

"CreatedBy": "arn:aws:iam::108891563677: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.

 Ans.

root@DESKTOP-1RT156R:~# aws ec2 run-instances --launch-template LaunchTemplateName=WebServerTemplate1

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0005e0cfe09cc9050",

"InstanceId": "i-0f88903e97070e4a6",

"InstanceType": "t2.micro",

"LaunchTime": "2024-01-18T09:34:13.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-1a",

"GroupName": "",

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-38-122.ec2.internal",

"PrivateIpAddress": "172.31.38.122",

"ProductCodes": [],

"PublicDnsName": "",

"State": {

"Code": 0,

"Name": "pending"

},

"StateTransitionReason": "",

"SubnetId": "subnet-04cce7fc4e5c6f635",

"VpcId": "vpc-03d0d356fa6969eb5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [],

"ClientToken": "be49eed6-c89f-43cc-8918-7f4826baadd3",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Attachment": {

"AttachTime": "2024-01-18T09:34:13.000Z",

"AttachmentId": "eni-attach-0be850365279bed7b",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attaching",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0fac82f50b0c4682d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0e:cb:f0:22:62:4b",

"NetworkInterfaceId": "eni-0491f08177b6ce914",

"OwnerId": "108891563677",

"PrivateDnsName": "ip-172-31-38-122.ec2.internal",

"PrivateIpAddress": "172.31.38.122",

"PrivateIpAddresses": [

{

"Primary": true,

"PrivateDnsName": "ip-172-31-38-122.ec2.internal",

"PrivateIpAddress": "172.31.38.122"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-04cce7fc4e5c6f635",

"VpcId": "vpc-03d0d356fa6969eb5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0fac82f50b0c4682d"

}

],

"SourceDestCheck": true,

"StateReason": {

"Code": "pending",

"Message": "pending"

},

"Tags": [

{

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

"Value": "1"

},

{

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

"Value": "lt-04656cb935063f26c"

},

{

"Key": "purpose",

"Value": "webserver"

}

],

"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

}

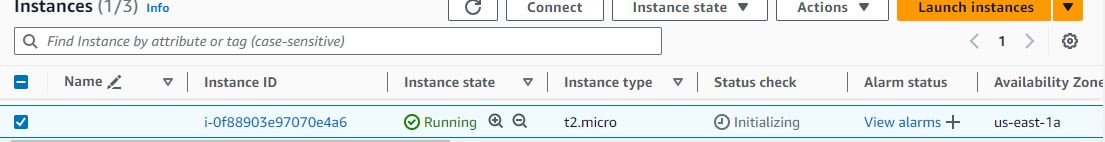
}

],

"OwnerId": "108891563677",

"ReservationId": "r-01d67a7200ebc24ef"

}



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.

 Ans.

root@DESKTOP-1RT156R:~# aws ec2 create-launch-template-version --launch-template-name WebServerTemplate1 --version-description "my version description" --source-version 1 --launch-template-data '{"InstanceType": "t2.small"}'

{

"LaunchTemplateVersion": {

"LaunchTemplateId": "lt-04656cb935063f26c",

"LaunchTemplateName": "WebServerTemplate1",

"VersionNumber": 2,

"VersionDescription": "my version description",

"CreateTime": "2024-01-18T09:40:30.000Z",

"CreatedBy": "arn:aws:iam::108891563677:root",

"DefaultVersion": false,

"LaunchTemplateData": {

"NetworkInterfaces": [

{

"AssociatePublicIpAddress": true,

"DeviceIndex": 0,

"SubnetId": "subnet-04cce7fc4e5c6f635"

}

],

"ImageId": "ami-0005e0cfe09cc9050",

"InstanceType": "t2.small",

"TagSpecifications": [

{

"ResourceType": "instance",

"Tags": [

{

"Key": "purpose",

"Value": "webserver"

}

]

}

]

}

}

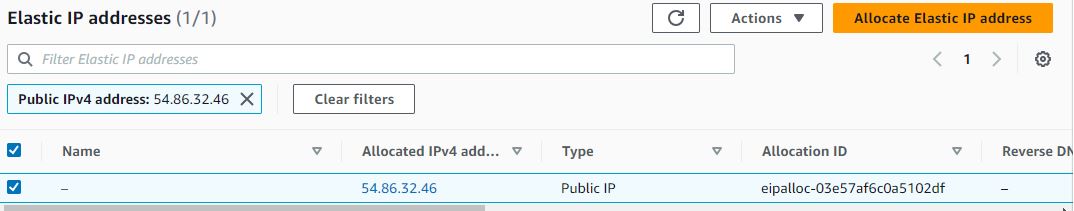
}

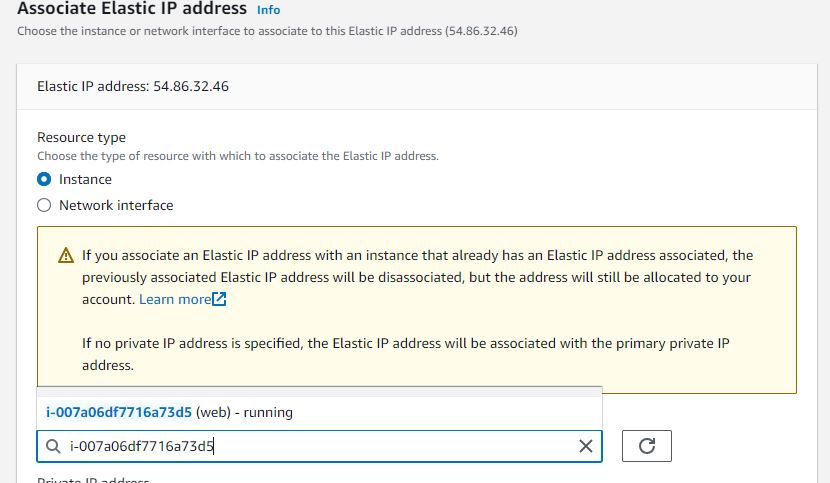
4. Documentation:  
   - Provide a document with AWS CLI commands for creating, launching, and modifying instances using the launch template.  
   - Include any relevant outputs or confirmation messages.

**QUESTION NO: 02**

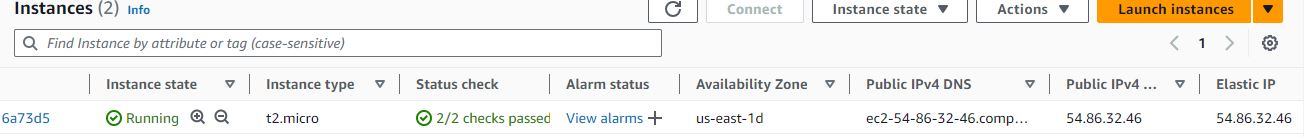
**Console**

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.

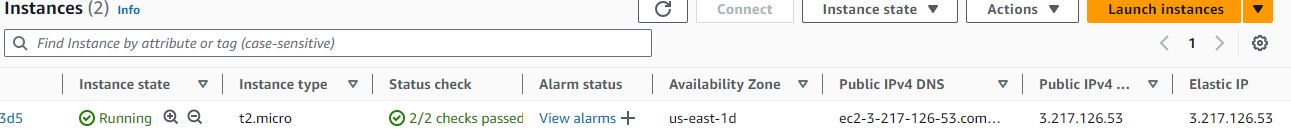


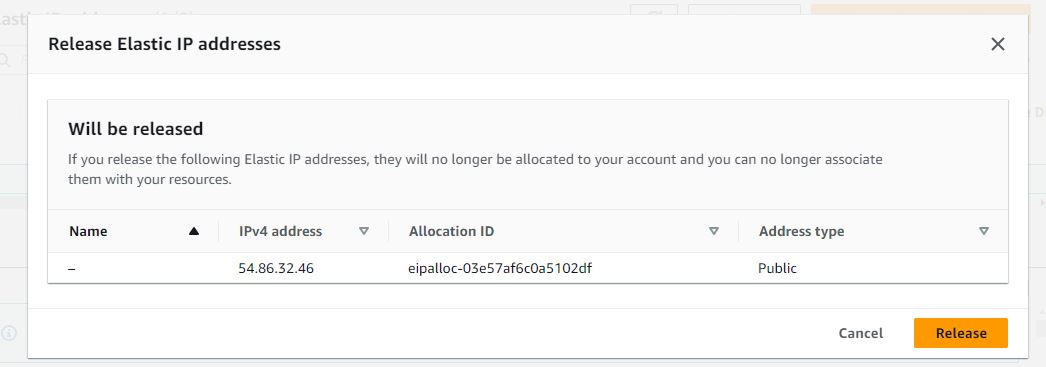


2. Verify Elastic IP Functionality:  
   - Confirm the functionality of the Elastic IP by accessing the associated EC2 instance.  
   - Document any observations or considerations related to Elastic IP usage.



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.





4. Documentation:  
   - Provide a step-by-step guide, including screenshots, for allocating, associating, and swapping Elastic IPs.  
   - Include evidence of the successful verification of Elastic IP functionality.

**CLI**

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.

  Ans.

root@DESKTOP-1RT156R:~# aws ec2 allocate-address --domain vpc --output json

{

"PublicIp": "107.21.106.245",

"AllocationId": "eipalloc-01e173d95f3b9bda3",

"PublicIpv4Pool": "amazon",

"NetworkBorderGroup": "us-east-1",

"Domain": "vpc"

}

root@DESKTOP-1RT156R:~# aws ec2 associate-address --allocation-id eipalloc-01e173d95f3b9bda3 --instance-id i-0058d03ac523ec150

{

"AssociationId": "eipassoc-06f06d811a5ea5e67"

}

root@DESKTOP-1RT156R:~# aws ec2 describe-instances --instance-ids i-0058d03ac523ec150 --query 'Reservations[\*].Instances[\*].PublicIpAddress' --output json

[

[

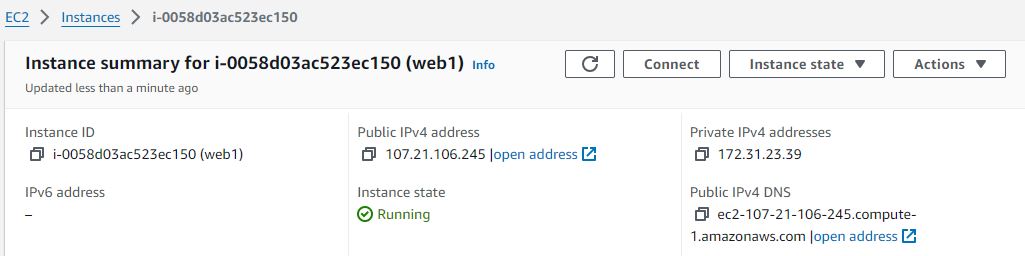
"107.21.106.245"

]

]

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

 Ans.



3. Swap Elastic IPs using AWS CLI:  
   - Use the AWS CLI to allocate another Elastic IP.  
   - Swap the newly allocated Elastic IP with the original one.  
   - Document the steps taken and verify the new Elastic IP functionality.

Ans.

root@DESKTOP-1RT156R:~# aws ec2 allocate-address --domain vpc --output json

 {

"PublicIp": "54.84.15.28",

"AllocationId": "eipalloc-0432f5e3391132546",

"PublicIpv4Pool": "amazon",

"NetworkBorderGroup": "us-east-1",

"Domain": "vpc"

}

root@DESKTOP-1RT156R:~# aws ec2 associate-address --allocation-id eipalloc-01e173d95f3b9bda3 --instance-id i-0058d03ac523ec150

{

"AssociationId": "eipassoc-06f06d811a5ea5e67"

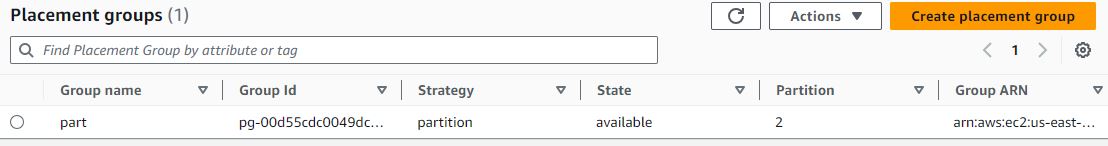
}

4. Documentation:  
   - Provide a detailed document with AWS CLI commands for allocating, associating, and swapping Elastic IPs.  
   - Include evidence of the successful verification of Elastic IP functionality.

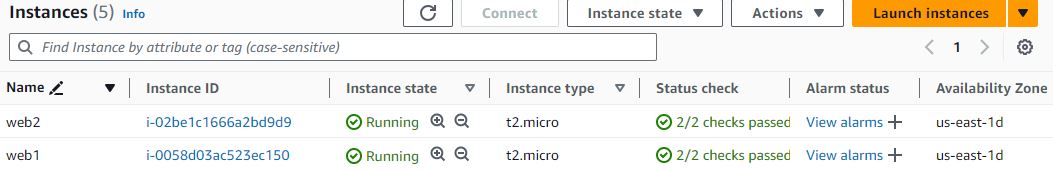
**QUESTION NO: 03**

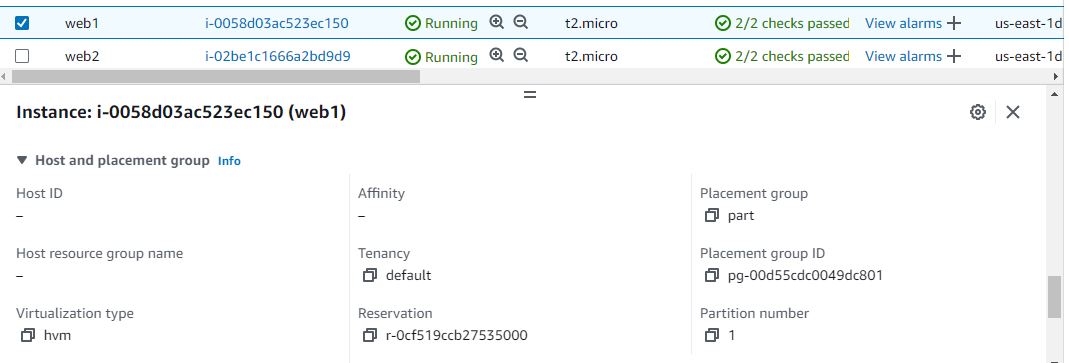
**Console**

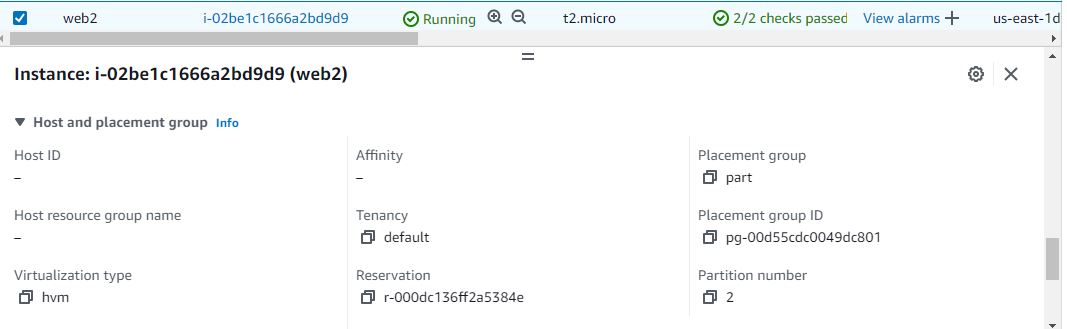
1. Create Partition Placement Group:  
   - Using the AWS Management Console, create a "Partition" placement group.  
   - Ensure it is associated with a specific region.



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.

 Ans.

root@DESKTOP-1RT156R:~# aws ec2 describe-instances --filters Name=placement-group-name,Values=part

{

"Reservations": [

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0005e0cfe09cc9050",

"InstanceId": "i-0058d03ac523ec150",

"InstanceType": "t2.micro",

"KeyName": "16-jan",

"LaunchTime": "2024-01-18T07:09:34.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-1d",

"GroupName": "part",

"PartitionNumber": 1,

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-23-39.ec2.internal",

"PrivateIpAddress": "172.31.23.39",

"ProductCodes": [],

"PublicDnsName": "ec2-54-87-196-194.compute-1.amazonaws.com",

"PublicIpAddress": "54.87.196.194",

"State": {

"Code": 16,

"Name": "running"

},

"StateTransitionReason": "",

"SubnetId": "subnet-0a07ee37c6fbebb39",

"VpcId": "vpc-03d0d356fa6969eb5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [

{

"DeviceName": "/dev/xvda",

"Ebs": {

"AttachTime": "2024-01-18T07:09:34.000Z",

"DeleteOnTermination": true,

"Status": "attached",

"VolumeId": "vol-062422505f393fdf5"

}

}

],

"ClientToken": "889dc577-87ac-4664-8c04-266102ef3ae5",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-54-87-196-194.compute-1.amazonaws.com",

"PublicIp": "54.87.196.194"

},

"Attachment": {

"AttachTime": "2024-01-18T07:09:34.000Z",

"AttachmentId": "eni-attach-0867b2e0b96244262",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attached",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0fac82f50b0c4682d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0a:50:c3:3a:83:3d",

"NetworkInterfaceId": "eni-0f6751b623842383f",

"OwnerId": "108891563677",

"PrivateDnsName": "ip-172-31-23-39.ec2.internal",

"PrivateIpAddress": "172.31.23.39",

"PrivateIpAddresses": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-54-87-196-194.compute-1.amazonaws.com",

"PublicIp": "54.87.196.194"

},

"Primary": true,

"PrivateDnsName": "ip-172-31-23-39.ec2.internal",

"PrivateIpAddress": "172.31.23.39"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-0a07ee37c6fbebb39",

"VpcId": "vpc-03d0d356fa6969eb5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0fac82f50b0c4682d"

}

],

"SourceDestCheck": true,

"Tags": [

{

"Key": "Name",

"Value": "web1"

}

],

"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": "2024-01-18T07:09:33.000Z",

"PrivateDnsNameOptions": {

"HostnameType": "ip-name",

"EnableResourceNameDnsARecord": true,

"EnableResourceNameDnsAAAARecord": false

}

}

],

"OwnerId": "108891563677",

"ReservationId": "r-0cf519ccb27535000"

},

{

"Groups": [],

"Instances": [

{

"AmiLaunchIndex": 0,

"ImageId": "ami-0005e0cfe09cc9050",

"InstanceId": "i-02be1c1666a2bd9d9",

"InstanceType": "t2.micro",

"KeyName": "16-jan",

"LaunchTime": "2024-01-18T07:10:13.000Z",

"Monitoring": {

"State": "disabled"

},

"Placement": {

"AvailabilityZone": "us-east-1d",

"GroupName": "part",

"PartitionNumber": 2,

"Tenancy": "default"

},

"PrivateDnsName": "ip-172-31-23-89.ec2.internal",

"PrivateIpAddress": "172.31.23.89",

"ProductCodes": [],

"PublicDnsName": "ec2-54-88-208-154.compute-1.amazonaws.com",

"PublicIpAddress": "54.88.208.154",

"State": {

"Code": 16,

"Name": "running"

},

"StateTransitionReason": "",

"SubnetId": "subnet-0a07ee37c6fbebb39",

"VpcId": "vpc-03d0d356fa6969eb5",

"Architecture": "x86\_64",

"BlockDeviceMappings": [

{

"DeviceName": "/dev/xvda",

"Ebs": {

"AttachTime": "2024-01-18T07:10:13.000Z",

"DeleteOnTermination": true,

"Status": "attached",

"VolumeId": "vol-0b0a0375b495c5998"

}

}

],

"ClientToken": "0a87f020-09c2-4881-8758-d8a8b79ec9ea",

"EbsOptimized": false,

"EnaSupport": true,

"Hypervisor": "xen",

"NetworkInterfaces": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-54-88-208-154.compute-1.amazonaws.com",

"PublicIp": "54.88.208.154"

},

"Attachment": {

"AttachTime": "2024-01-18T07:10:13.000Z",

"AttachmentId": "eni-attach-03321d10d7ffc6bc2",

"DeleteOnTermination": true,

"DeviceIndex": 0,

"Status": "attached",

"NetworkCardIndex": 0

},

"Description": "",

"Groups": [

{

"GroupName": "default",

"GroupId": "sg-0fac82f50b0c4682d"

}

],

"Ipv6Addresses": [],

"MacAddress": "0a:ef:94:31:47:f9",

"NetworkInterfaceId": "eni-073236c21702fd30a",

"OwnerId": "108891563677",

"PrivateDnsName": "ip-172-31-23-89.ec2.internal",

"PrivateIpAddress": "172.31.23.89",

"PrivateIpAddresses": [

{

"Association": {

"IpOwnerId": "amazon",

"PublicDnsName": "ec2-54-88-208-154.compute-1.amazonaws.com",

"PublicIp": "54.88.208.154"

},

"Primary": true,

"PrivateDnsName": "ip-172-31-23-89.ec2.internal",

"PrivateIpAddress": "172.31.23.89"

}

],

"SourceDestCheck": true,

"Status": "in-use",

"SubnetId": "subnet-0a07ee37c6fbebb39",

"VpcId": "vpc-03d0d356fa6969eb5",

"InterfaceType": "interface"

}

],

"RootDeviceName": "/dev/xvda",

"RootDeviceType": "ebs",

"SecurityGroups": [

{

"GroupName": "default",

"GroupId": "sg-0fac82f50b0c4682d"

}

],

"SourceDestCheck": true,

"Tags": [

{

"Key": "Name",

"Value": "web2"

}

],

"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": "2024-01-18T07:10:13.000Z",

"PrivateDnsNameOptions": {

"HostnameType": "ip-name",

"EnableResourceNameDnsARecord": true,

"EnableResourceNameDnsAAAARecord": false

}

}

],

"OwnerId": "108891563677",

"ReservationId": "r-000dc136ff2a5384e"

}

]

}

root@DESKTOP-1RT156R:~#

4. Documentation:  
   - Provide a step-by-step guide + screenshots, for creating a "Partition" placement group and launching instances into it.  
   - Include observations related to network and resource isolation.