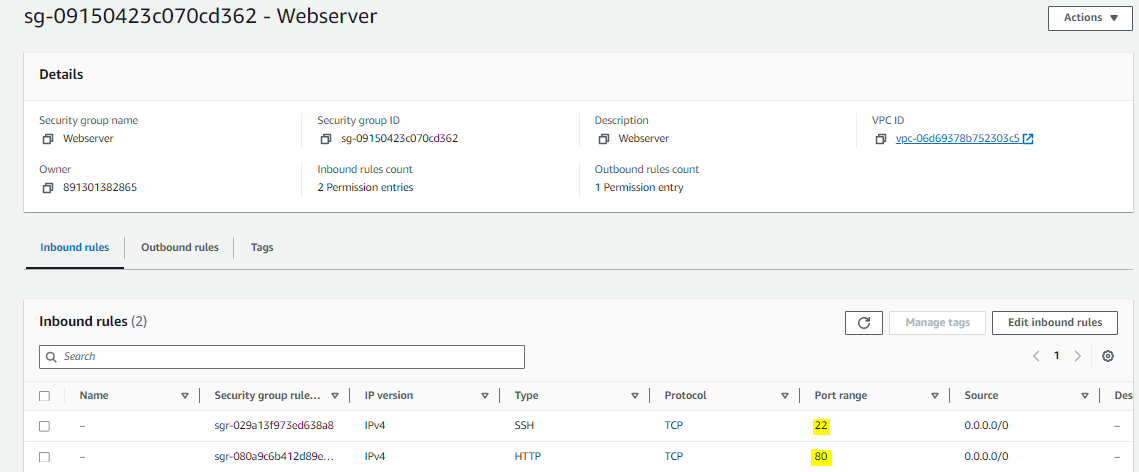
**AWS Hand On**

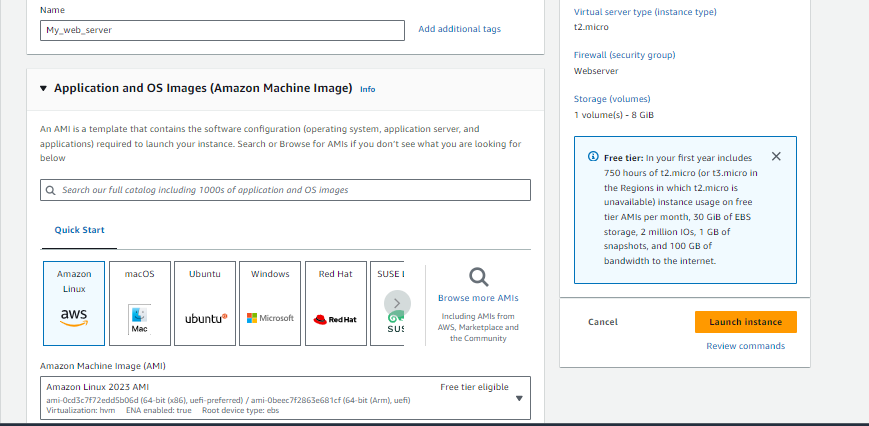
**(ON CONSOLE)**

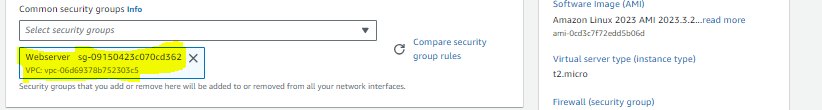
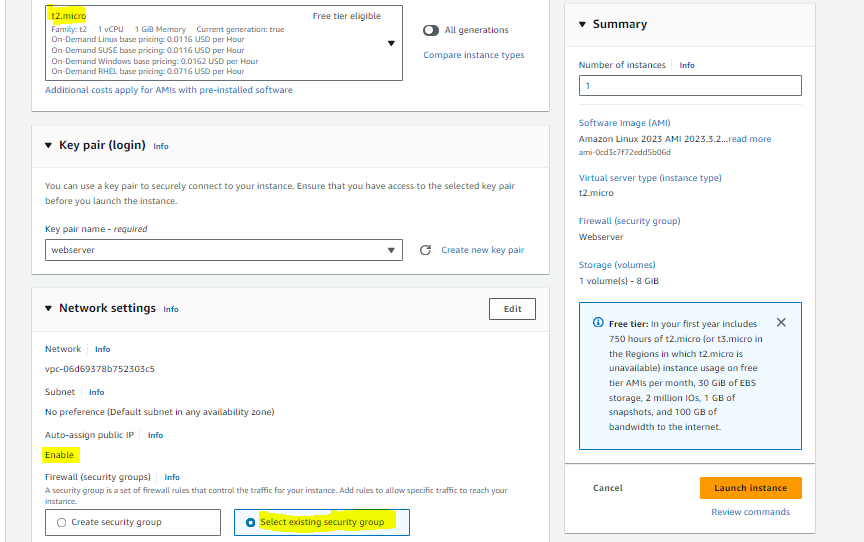
**Q 01.**

**1. Create Security Group:**  
   - Create one security group for the web server.  
   - Configure inbound rules for the web server security group to allow HTTP traffic (port 80) and SSH traffic (port 22) from any source.

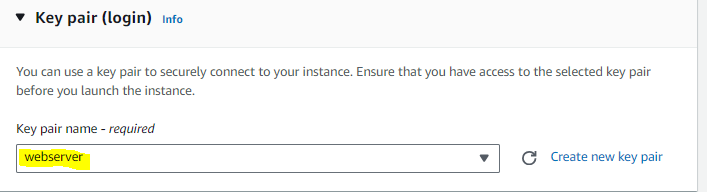


**2. Launch EC2 Instance:**  
   - Launch an EC2 instance for the web server using Amazon Linux 2 AMI.  
     - Associate the web server security group created earlier with this instance.  
     - Use an appropriate instance type for a web server.  
     - Ensure the instance has a public IP address.

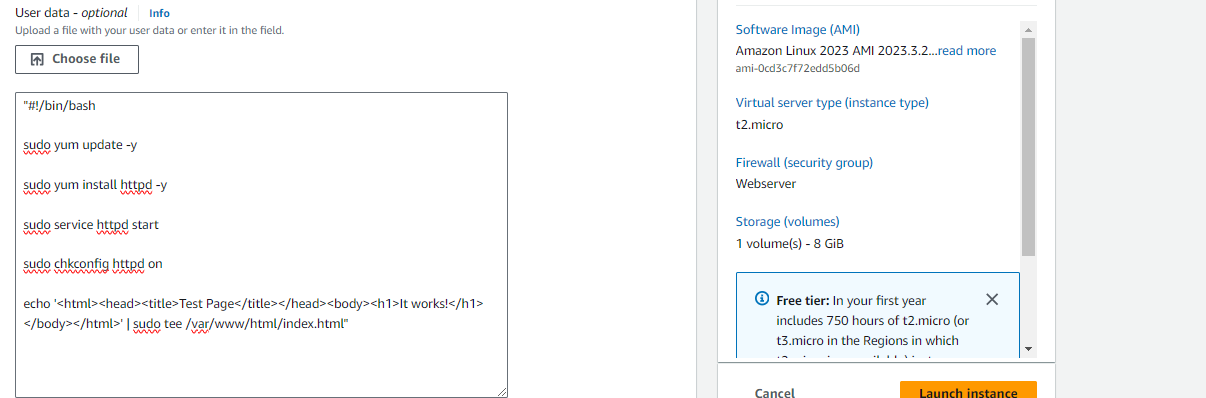


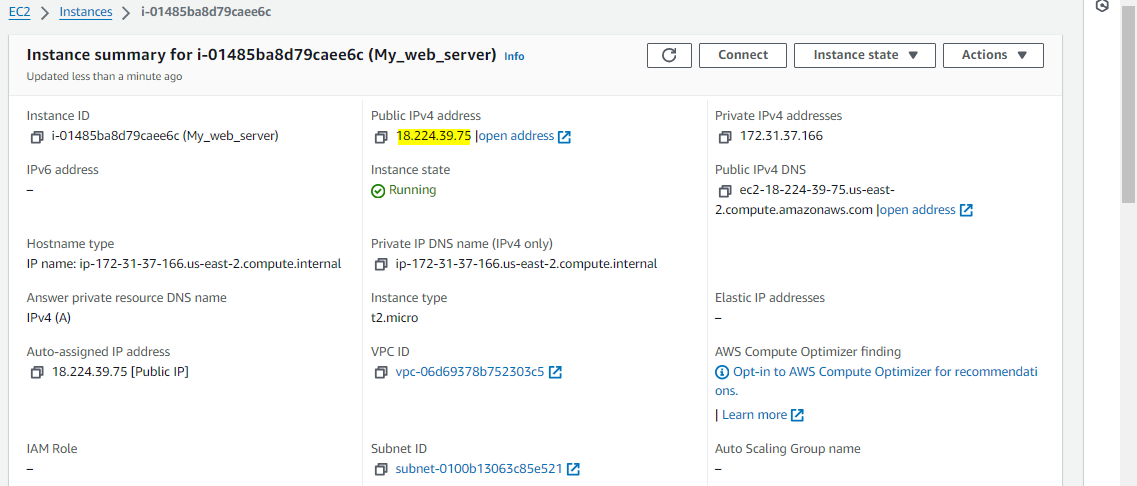


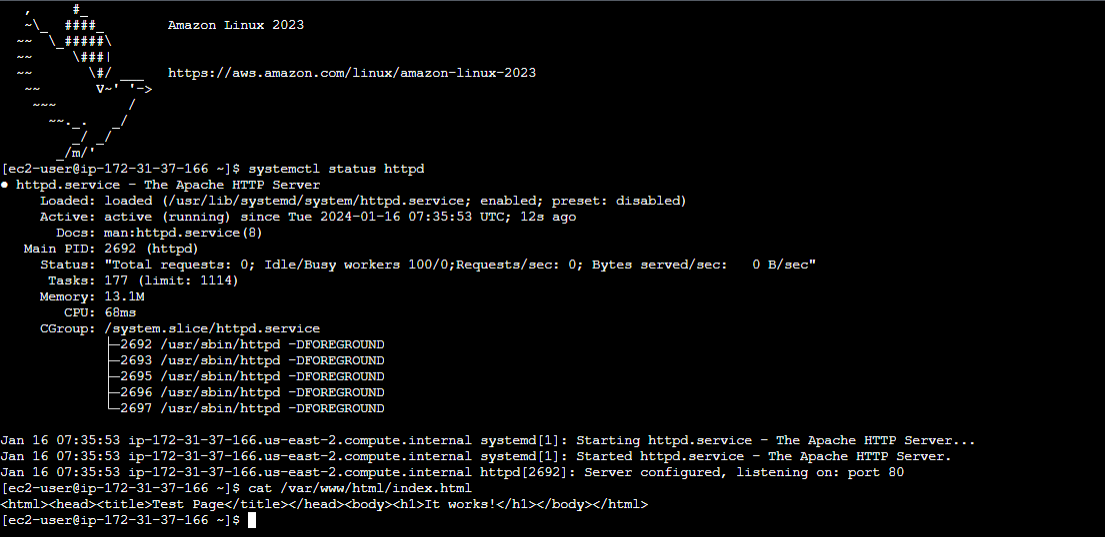
**3. SSH Access:**  
   - Generate an SSH key pair for secure access to the instances.  
   - Configure the web server instance to accept SSH connections using the generated key pair.  
   - Attempt to SSH into the web server instance to verify successful access.

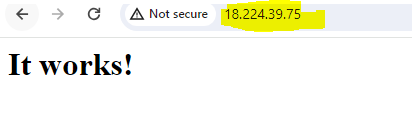


**4. Web Application Setup:**  
   - Install a web server (e.g., Apache or Nginx) on the web server instance.  
   - Create a simple HTML page to confirm the web server is working.  
   - Test accessing the web server's public IP address in a web browser.









**(ON CLI)**

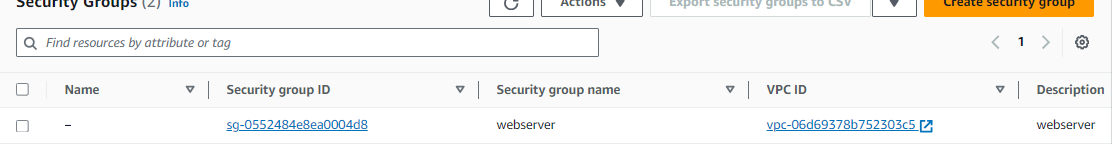
**1. Create Security Group for Web Server Using AWS CLI:**  
   - Use the AWS CLI to create a security group for the web server.  
   - Configure inbound rules to allow HTTP traffic (port 80) and SSH traffic (port 22) from any source.

**root@DESKTOP-PDOJQQA:~# aws ec2 create-security-group --description webserver --group-name webserver**

**{**

**"GroupId": "sg-0552484e8ea0004d8"**

**}**



**root@DESKTOP-PDOJQQA:~# aws ec2 authorize-security-group-ingress --group-id "sg-0552484e8ea0004d8" --protocol tcp --port 22 --cidr 0.0.0.0/0**

**{**

**"Return": true,**

**"SecurityGroupRules": [**

**{**

**"SecurityGroupRuleId": "sgr-02281b25f50b9ef0c",**

**"GroupId": "sg-0552484e8ea0004d8",**

**"GroupOwnerId": "891301382865",**

**"IsEgress": false,**

**"IpProtocol": "tcp",**

**"FromPort": 22,**

**"ToPort": 22,**

**"CidrIpv4": "0.0.0.0/0"**

**}**

**]**

**}**

**2. Launch EC2 Instance for Web Server Using AWS CLI:**  
   - Use the AWS CLI to launch an EC2 instance for the web server using Amazon Linux 2 AMI.  
     - Associate the security group created earlier with this instance.  
     - Use an appropriate instance type for a web server.  
     - Ensure the instance has a public IP address.

**root@DESKTOP-PDOJQQA:~# aws ec2 create-key-pair --key-name web\_key --query 'KeyMaterial' --output text > web\_key.pem**

**root@DESKTOP-PDOJQQA:~# ll**

**drwxr-xr-x 5 root root 4096 Jan 11 16:08 ubuntu-nginx/**

**-rw-r--r-- 1 root root 1679 Jan 16 13:46 web\_key.pem**

**root@DESKTOP-PDOJQQA:~# aws ec2 run-instances --image-id ami-0cd3c7f72edd5b06d --key-name web\_key --instance-type t2.micro --security-group-ids sg-0552484e8ea0004d8 --associate-public-ip-address --tag-specifications 'ResourceType=instance,Tags=[{Key=Name,Value=Ec2\_Instance}]'**

**{**

**"Groups": [],**

**"Instances": [**

**{**

**"AmiLaunchIndex": 0,**

**"ImageId": "ami-0cd3c7f72edd5b06d",**

**"InstanceId": "i-093096fbc23874bdd",**

**"InstanceType": "t2.micro",**

**"KeyName": "web\_key",**

**"LaunchTime": "2024-01-16T08:25:44.000Z",**

**"Monitoring": {**

**"State": "disabled"**

**},**

**"Placement": {**

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

**"GroupName": "",**

**"Tenancy": "default"**

**},**

**"PrivateDnsName": "ip-172-31-46-82.us-east-2.compute.internal",**

**"PrivateIpAddress": "172.31.46.82",**

**"ProductCodes": [],**

**"PublicDnsName": "",**

**"State": {**

**"Code": 0,**

**"Name": "pending"**

**},**

**"StateTransitionReason": "",**

**"SubnetId": "subnet-0100b13063c85e521",**

**"VpcId": "vpc-06d69378b752303c5",**

**"Architecture": "x86\_64",**

**"BlockDeviceMappings": [],**

**"ClientToken": "ec4cc41b-71ef-49bc-988a-54b7737c8a4d",**

**"EbsOptimized": false,**

**"EnaSupport": true,**

**"Hypervisor": "xen",**

**"NetworkInterfaces": [**

**{**

**"Attachment": {**

**"AttachTime": "2024-01-16T08:25:44.000Z",**

**"AttachmentId": "eni-attach-0e9fe3b8c11927479",**

**"DeleteOnTermination": true,**

**"DeviceIndex": 0,**

**"Status": "attaching",**

**"NetworkCardIndex": 0**

**},**

**"Description": "",**

**"Groups": [**

**{**

**"GroupName": "webserver",**

**"GroupId": "sg-0552484e8ea0004d8"**

**}**

**],**

**"Ipv6Addresses": [],**

**"MacAddress": "0a:2c:7e:1a:2c:d7",**

**"NetworkInterfaceId": "eni-019c7cc227a381f3e",**

**"OwnerId": "891301382865",**

**"PrivateDnsName": "ip-172-31-46-82.us-east-2.compute.internal",**

**"PrivateIpAddress": "172.31.46.82",**

**"PrivateIpAddresses": [**

**{**

**"Primary": true,**

**"PrivateDnsName": "ip-172-31-46-82.us-east-2.compute.internal",**

**"PrivateIpAddress": "172.31.46.82"**

**}**

**],**

**"SourceDestCheck": true,**

**"Status": "in-use",**

**"SubnetId": "subnet-0100b13063c85e521",**

**"VpcId": "vpc-06d69378b752303c5",**

**"InterfaceType": "interface"**

**}**

**],**

**"RootDeviceName": "/dev/xvda",**

**"RootDeviceType": "ebs",**

**"SecurityGroups": [**

**{**

**"GroupName": "webserver",**

**"GroupId": "sg-0552484e8ea0004d8"**

**}**

**],**

**"SourceDestCheck": true,**

**"StateReason": {**

**"Code": "pending",**

**"Message": "pending"**

**},**

**"Tags": [**

**{**

**"Key": "Name",**

**"Value": "Ec2\_Instance"**

**}**

**],**

**"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**

**}**

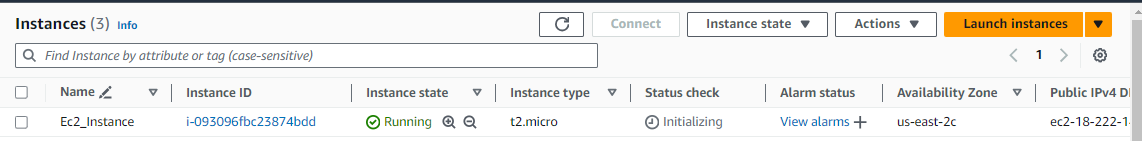
**}**

**],**

**"OwnerId": "891301382865",**

**"ReservationId": "r-01ef1102ff4d1820e"**

**}**



**3. SSH Access Using AWS CLI:**  
   - Use the AWS CLI to generate an SSH key pair for secure access to the web server instance.  
   - Configure the web server instance to accept SSH connections using the generated key pair.  
   - Use the AWS CLI to attempt to SSH into the web server instance to verify successful access.

**root@DESKTOP-PDOJQQA:~# aws ec2 describe-instances --instance-ids i-093096fbc23874bdd --query 'Reservations[0].Instances[0].PublicIpAddress' --output text**

**18.222.148.99**

**root@DESKTOP-PDOJQQA:~# chmod 400 web\_key.pem**

**root@DESKTOP-PDOJQQA:~# ssh -i web\_key.pem** [ec2-user@18.222.148.99](mailto:ec2-user@18.222.148.99)

**Warning: Permanently added '18.222.148.99' (ED25519) to the list of known hosts.**

**, #\_**

**~\\_ ####\_ Amazon Linux 2023**

**~~ \\_#####\**

**~~ \###|**

**~~ \#/ \_\_\_ https://aws.amazon.com/linux/amazon-linux-2023**

**~~ V~' '->**

**~~~ /**

**~~.\_. \_/**

**\_/ \_/**

**\_/m/'**

**Last login: Tue Jan 16 08:28:45 2024 from 3.16.146.4**

**4. Web Application Setup Using AWS CLI:**  
   - Use the AWS CLI to install a web server (e.g., Apache or Nginx) on the web server instance.  
   - Create a simple HTML page using the AWS CLI to confirm the web server is working.  
   - Use the AWS CLI to test accessing the web server's public IP address in a web browser.

**root@DESKTOP-PDOJQQA:~# aws ec2 run-instances --image-id ami-0cd3c7f72edd5b06d --key-name web\_key --instance-type t2.micro --security-group-ids sg-0552484e8ea0004d8 --associate-public-ip-address --tag-specifications 'ResourceType=instance,Tags=[{Key=Name,Value=Ec2\_Instance}]' --user-data file://userdata.sh**

**{**

**"Groups": [],**

**"Instances": [**

**{**

**"AmiLaunchIndex": 0,**

**"ImageId": "ami-0cd3c7f72edd5b06d",**

**"InstanceId": "i-0b848145bf0f6f052",**

**"InstanceType": "t2.micro",**

**"KeyName": "web\_key",**

**"LaunchTime": "2024-01-16T09:17:20.000Z",**

**"Monitoring": {**

**"State": "disabled"**

**},**

**"Placement": {**

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

**"GroupName": "",**

**"Tenancy": "default"**

**},**

**"PrivateDnsName": "ip-172-31-33-34.us-east-2.compute.internal",**

**"PrivateIpAddress": "172.31.33.34",**

**"ProductCodes": [],**

**"PublicDnsName": "",**

**"State": {**

**"Code": 0,**

**"Name": "pending"**

**},**

**"StateTransitionReason": "",**

**"SubnetId": "subnet-0100b13063c85e521",**

**"VpcId": "vpc-06d69378b752303c5",**

**"Architecture": "x86\_64",**

**"BlockDeviceMappings": [],**

**"ClientToken": "5bce5b2f-c346-499a-828b-0b26cfd72e99",**

**"EbsOptimized": false,**

**"EnaSupport": true,**

**"Hypervisor": "xen",**

**"NetworkInterfaces": [**

**{**

**"Attachment": {**

**"AttachTime": "2024-01-16T09:17:20.000Z",**

**"AttachmentId": "eni-attach-08b733f0e7d480ab0",**

**"DeleteOnTermination": true,**

**"DeviceIndex": 0,**

**"Status": "attaching",**

**"NetworkCardIndex": 0**

**},**

**"Description": "",**

**"Groups": [**

**{**

**"GroupName": "webserver",**

**"GroupId": "sg-0552484e8ea0004d8"**

**}**

**],**

**"Ipv6Addresses": [],**

**"MacAddress": "0a:fc:fc:9b:24:35",**

**"NetworkInterfaceId": "eni-059140425685428f3",**

**"OwnerId": "891301382865",**

**"PrivateDnsName": "ip-172-31-33-34.us-east-2.compute.internal",**

**"PrivateIpAddress": "172.31.33.34",**

**"PrivateIpAddresses": [**

**{**

**"Primary": true,**

**"PrivateDnsName": "ip-172-31-33-34.us-east-2.compute.internal",**

**"PrivateIpAddress": "172.31.33.34"**

**}**

**],**

**"SourceDestCheck": true,**

**"Status": "in-use",**

**"SubnetId": "subnet-0100b13063c85e521",**

**"VpcId": "vpc-06d69378b752303c5",**

**"InterfaceType": "interface"**

**}**

**],**

**"RootDeviceName": "/dev/xvda",**

**"RootDeviceType": "ebs",**

**"SecurityGroups": [**

**{**

**"GroupName": "webserver",**

**"GroupId": "sg-0552484e8ea0004d8"**

**}**

**],**

**"SourceDestCheck": true,**

**"StateReason": {**

**"Code": "pending",**

**"Message": "pending"**

**},**

**"Tags": [**

**{**

**"Key": "Name",**

**"Value": "Ec2\_Instance"**

**}**

**],**

**"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-0129f65a152c9fdce"**

**}**

**5. Documentation:**  
   - Provide clear documentation in a text file outlining the AWS CLI commands used for each task along with their outputs.  
   - Include any relevant information such as IP addresses, instance IDs, etc.

