**AWS Hand On 2 {Given by Sarfaraz Sir}**

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**(ON CONSOLE)**

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**Q 01.**

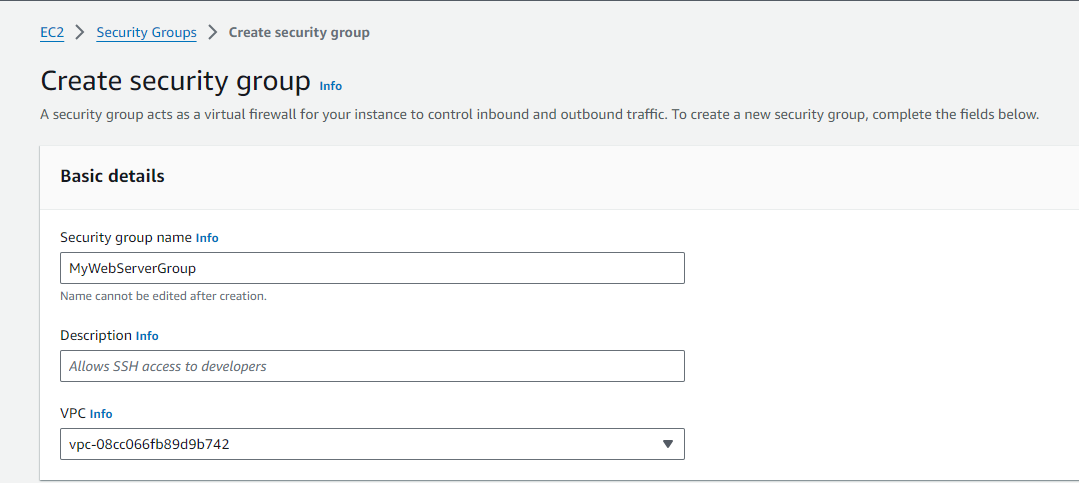
**1. Create Security Group:**

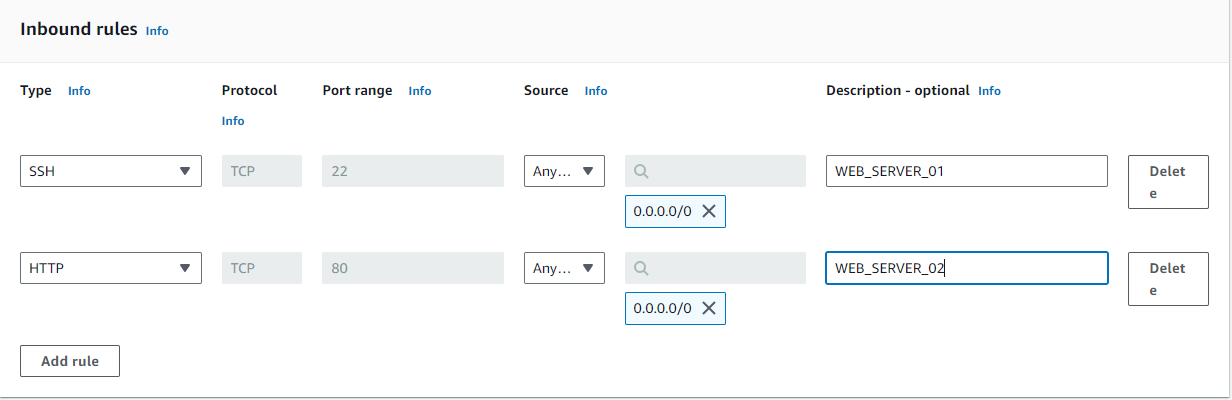
**- Create one security group for the web server.**

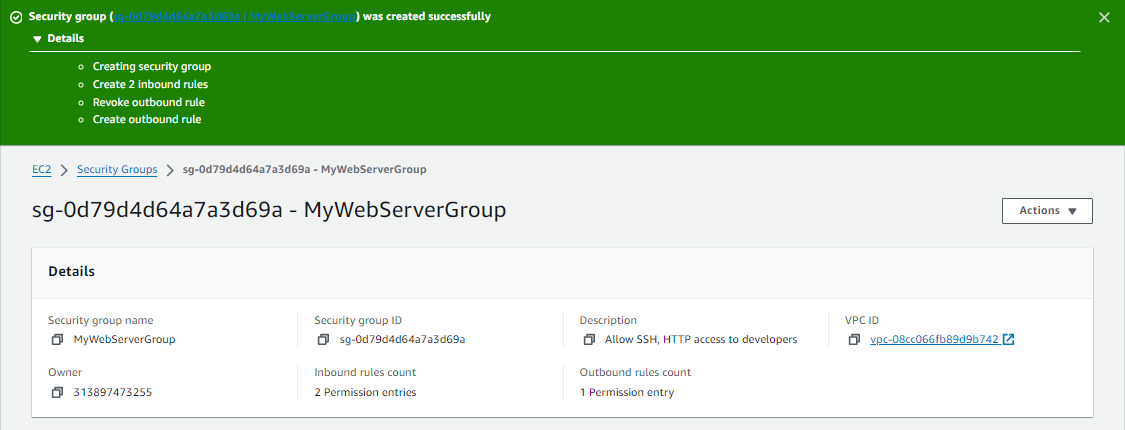
**- Configure inbound rules for the web server security group to allow HTTP traffic (port 80) and SSH traffic (port 22) from any source.**

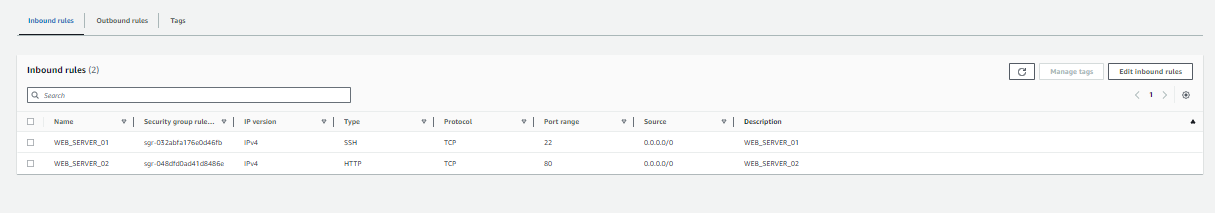
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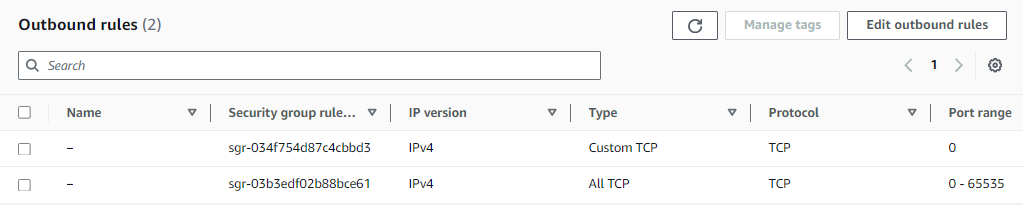
**SOLUTION}**

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**2. Launch EC2 Instance:**

**- Launch an EC2 instance for the web server using Amazon Linux 2 AMI.**

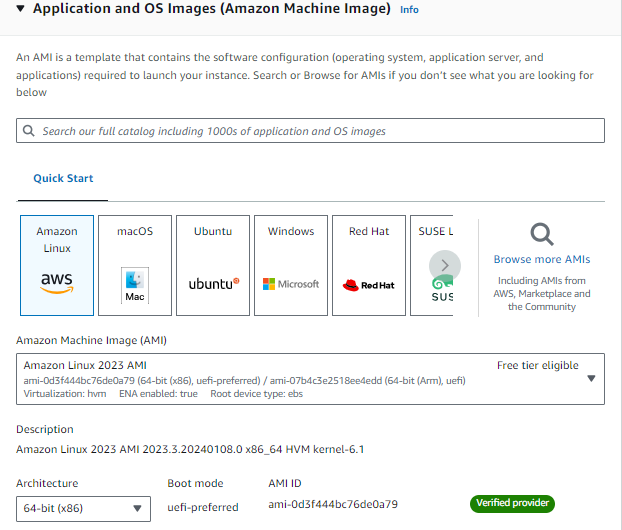
**- Associate the web server security group created earlier with this instance.**

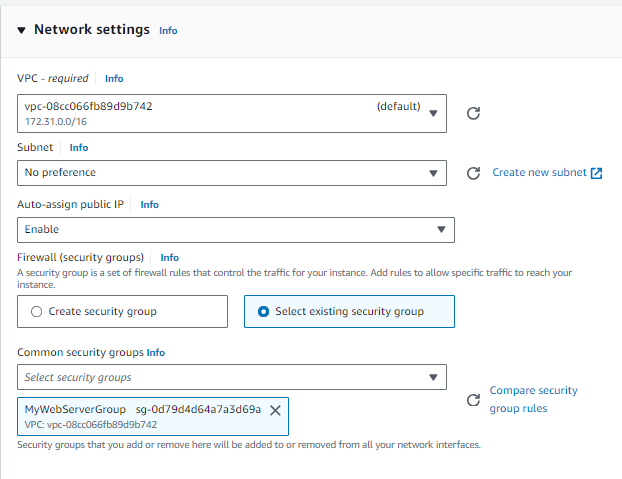
**- Use an appropriate instance type for a web server.**

**- Ensure the instance has a public IP address.**

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**SOLUTION}**

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**3. SSH Access:**

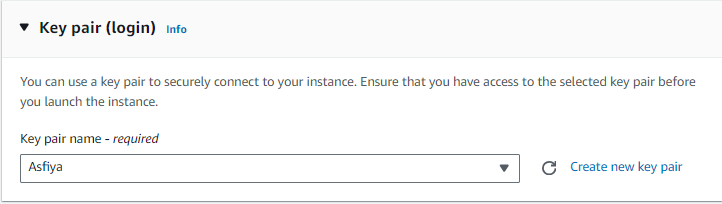
**- Generate an SSH key pair for secure access to the instances.**

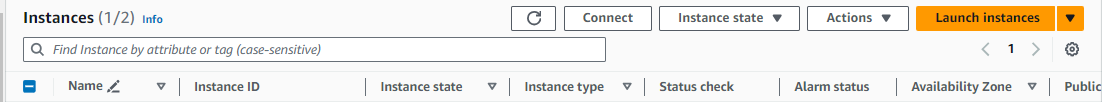
**- Configure the web server instance to accept SSH connections using the generated key pair.**

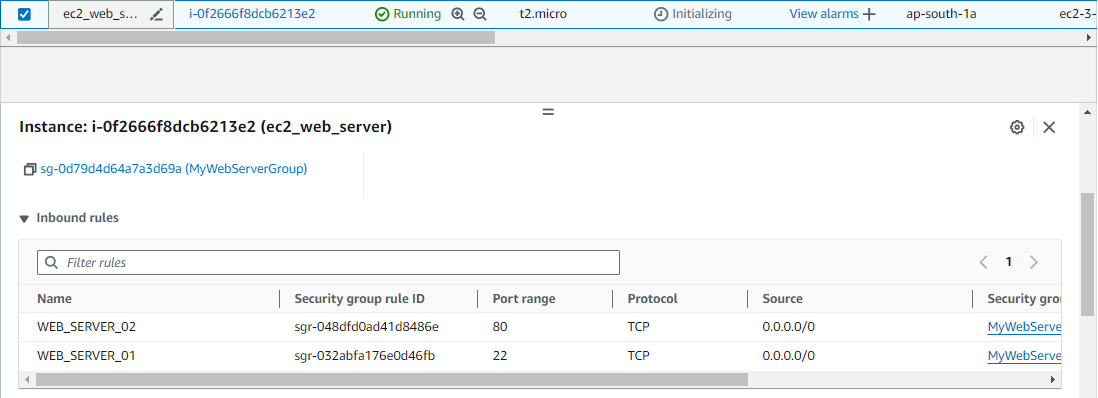
**- Attempt to SSH into the web server instance to verify successful access.**

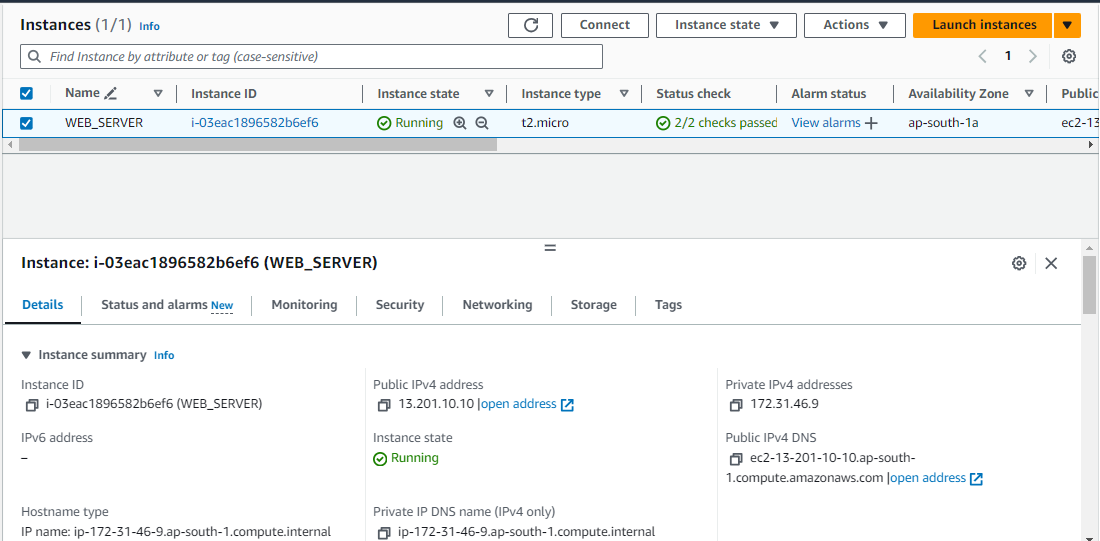
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**SOLUTION}**

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root@DESKTOP-8OOG2HF:~# cd /mnt/c/Users/DELL/Downloads/

root@DESKTOP-8OOG2HF:Downloads# ll

-rw-rw-rw- 1 asfiya asfiya 1678 Nov 24 12:11 Asfiya.pem

root@DESKTOP-8OOG2HF:Downloads# chmod 400 Asfiya.pem

root@DESKTOP-8OOG2HF:Downloads# ll

-r--r--r-- 1 asfiya asfiya 1678 Nov 24 12:11 Asfiya.pem

root@DESKTOP-8OOG2HF:Downloads# ssh -i "Asfiya.pem" ec2-user@ec2-13-201-10-10.ap-south-1.compute.amazonaws.com

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

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Last login: Mon Jan 15 07:32:13 2024 from 137.59.68.246

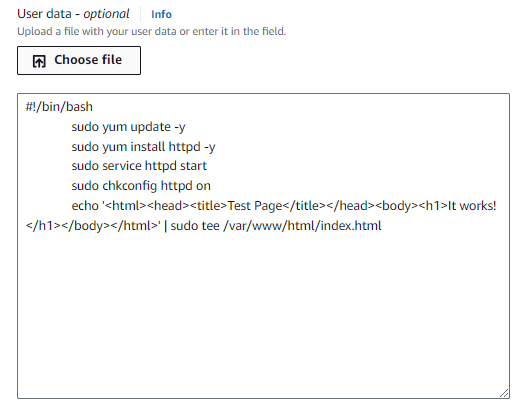
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**4. Web Application Setup:**

**- 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.**



[ec2-user@ip-172-31-32-174 ~]$ sudo su

[root@ip-172-31-32-174 ec2-user]# cd /var/www/html/

[root@ip-172-31-32-174 html]# ll

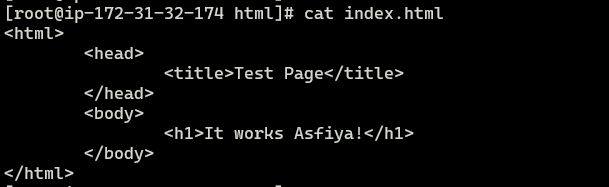
total 4

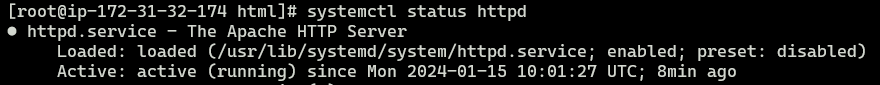
-rw-r--r--. 1 root root 82 Jan 15 10:01 index.html

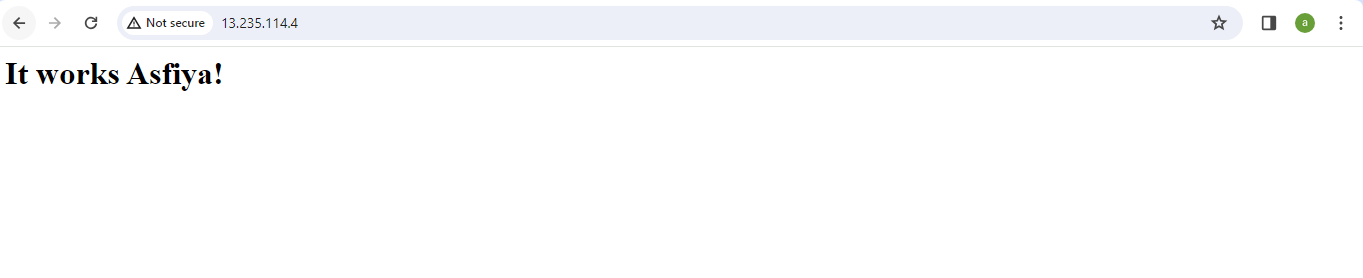
[root@ip-172-31-32-174 html]# cat index.html

<html><head><title>Test Page</title></head><body><h1>It works!</h1></body></html>

[root@ip-172-31-32-174 html]# vim index.html

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**5. Documentation:**

**- Provide clear documentation outlining the steps you took to complete each task.**

**- Include relevant screenshots or command outputs to demonstrate the successful implementation of security groups, instance launches, and SSH access.**

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**(ON CLI)**

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**Q 02.**

**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.**

**SOLUTION}**

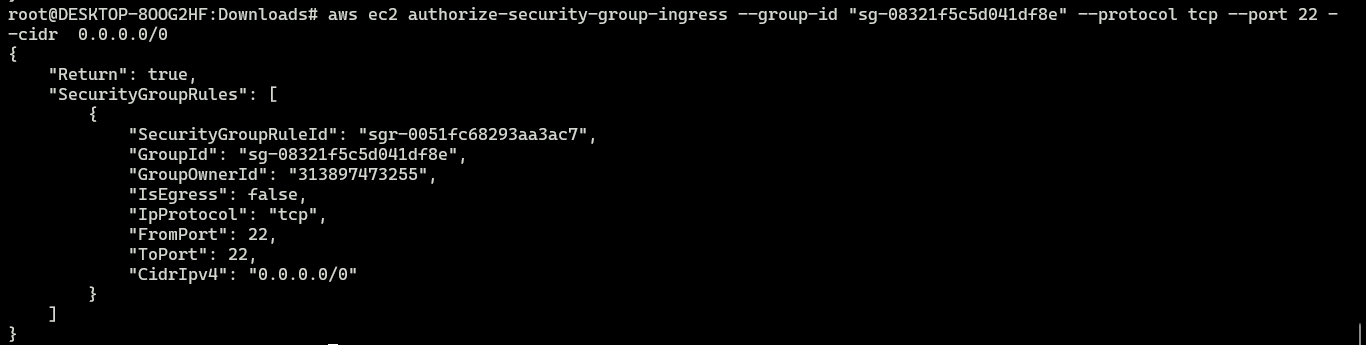
root@DESKTOP-8OOG2HF:Downloads# aws ec2 create-security-group sss --description "Security Group for Web Server"

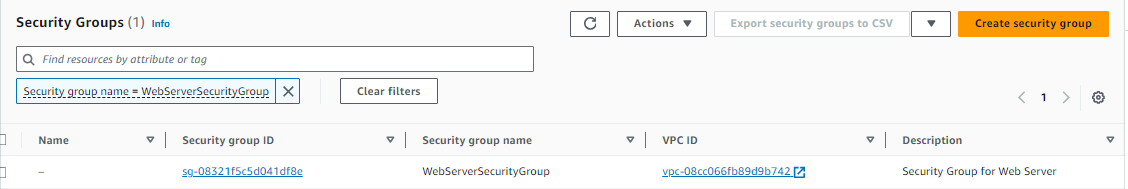
{

"GroupId": "sg-08321f5c5d041df8e"

}







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**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.**

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**SOLUTION}**

root@DESKTOP-8OOG2HF:Downloads# aws ec2 create-key-pair --key-name web\_key --query 'KeyMaterial' --output text > web\_key.pem

root@DESKTOP-8OOG2HF:Downloads# ll

-rwxrwxrwx 1 asfiya asfiya 1675 Jan 15 18:37 web\_key.pem\*

**---------------------------------------------------------------------------------------------------------** root@DESKTOP-8OOG2HF:Downloads# aws ec2 run-instances --image-id ami-0d3f444bc76de0a79 --key-name web\_key --instance-type t2.micro --security-group-ids sg-08321f5c5d041df8e --associate-public-ip-address --tag-specifications 'ResourceType=instance,Tags=[{Key=Name,Value=Ec2\_Instance}]'

**{**

**"Groups": [],**

**"Instances": [**

**{**

**"AmiLaunchIndex": 0,**

**"ImageId": "ami-0d3f444bc76de0a79",**

**"InstanceId": "i-0ac398e0a20a04707",**

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

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

**"LaunchTime": "2024-01-15T16:24:28.000Z",**

**"Monitoring": {**

**"State": "disabled"**

**},**

**"Placement": {**

**"AvailabilityZone": "ap-south-1a",**

**"GroupName": "",**

**"Tenancy": "default"**

**},**

**"PrivateDnsName": "ip-172-31-33-32.ap-south-1.compute.internal",**

**"PrivateIpAddress": "172.31.33.32",**

**"ProductCodes": [],**

**"PublicDnsName": "",**

**"State": {**

**"Code": 0,**

**"Name": "pending"**

**},**

**"StateTransitionReason": "",**

**"SubnetId": "subnet-07fa90d35a2e2f0d5",**

**"VpcId": "vpc-08cc066fb89d9b742",**

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

**"BlockDeviceMappings": [],**

**"ClientToken": "2eee9e2e-042a-405e-93b6-c207f4005c4c",**

**"EbsOptimized": false,**

**"EnaSupport": true,**

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

**"NetworkInterfaces": [**

**{**

**"Attachment": {**

**"AttachTime": "2024-01-15T16:24:28.000Z",**

**"AttachmentId": "eni-attach-07fbb65d09a6c5a9d",**

**"DeleteOnTermination": true,**

**"DeviceIndex": 0,**

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

**"NetworkCardIndex": 0**

**},**

**"Description": "",**

**"Groups": [**

**{**

**"GroupName": "WebServerSecurityGroup",**

**"GroupId": "sg-08321f5c5d041df8e"**

**}**

**],**

**"Ipv6Addresses": [],**

**"MacAddress": "02:e7:5a:48:40:39",**

**"NetworkInterfaceId": "eni-09ec43f7dab6479e7",**

**"OwnerId": "313897473255",**

**"PrivateDnsName": "ip-172-31-33-32.ap-south-1.compute.internal",**

**"PrivateIpAddress": "172.31.33.32",**

**"PrivateIpAddresses": [**

**{**

**"Primary": true,**

**"PrivateDnsName": "ip-172-31-33-32.ap-south-1.compute.internal",**

**"PrivateIpAddress": "172.31.33.32"**

**}**

**],**

**"SourceDestCheck": true,**

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

**"SubnetId": "subnet-07fa90d35a2e2f0d5",**

**"VpcId": "vpc-08cc066fb89d9b742",**

**"InterfaceType": "interface"**

**}**

**],**

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

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

**"SecurityGroups": [**

**{**

**"GroupName": "WebServerSecurityGroup",**

**"GroupId": "sg-08321f5c5d041df8e"**

**}**

**],**

**"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**

**}**

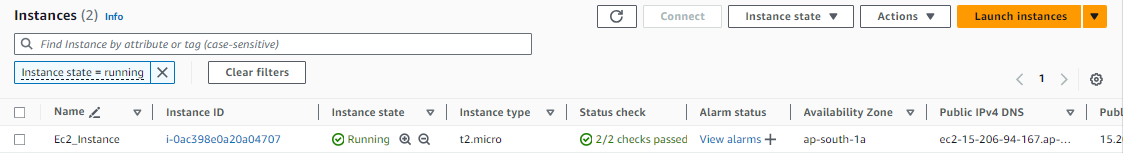
**}**

**],**

**"OwnerId": "313897473255",**

**"ReservationId": "r-0fe2cdc8d12c79787"**

**}**



**==================================================================================**

**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.**

**==================================================================================**

**SOLUTION}**

root@DESKTOP-8OOG2HF:Downloads# aws ec2 describe-instances --instance-ids i-0ac398e0a20a04707 --query 'Reservations[0].Instances[0].PublicIpAddress' --output text

15.206.94.167

root@DESKTOP-8OOG2HF:Downloads# chmod 400 web\_key.pem

root@DESKTOP-8OOG2HF:Downloads# ssh -i web\_key.pem ec2-user@15.206.94.167

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

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[ec2-user@ip-172-31-33-32 ~]$

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**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.**

**==================================================================================**

**SOLUTION}**

root@DESKTOP-8OOG2HF:Downloads# vim userdata.sh

root@DESKTOP-8OOG2HF:Downloads# cat userdata.sh

**#!/bin/bash**

**sudo yum update -y**

**sudo yum install httpd -y**

**sudo service httpd start**

**sudo chkconfig httpd on**

**echo '<html><head><title>Test Page</title></head><body><h1>It works!</h1></body></html>' | sudo tee /var/www/html/index.html**

root@DESKTOP-8OOG2HF:Downloads# aws ec2 run-instances --image-id ami-0d3f444bc76de0a79 --key-name web\_key --instance-type t2.micro --security-group-ids sg-08321f5c5d041df8e --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-0d3f444bc76de0a79",**

**"InstanceId": "i-0f90d9f7256da69eb",**

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

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

**"LaunchTime": "2024-01-16T06:14:31.000Z",**

**"Monitoring": {**

**"State": "disabled"**

**},**

**"Placement": {**

**"AvailabilityZone": "ap-south-1a",**

**"GroupName": "",**

**"Tenancy": "default"**

**},**

**"PrivateDnsName": "ip-172-31-42-139.ap-south-1.compute.internal",**

**"PrivateIpAddress": "172.31.42.139",**

**"ProductCodes": [],**

**"PublicDnsName": "",**

**"State": {**

**"Code": 0,**

**"Name": "pending"**

**},**

**"StateTransitionReason": "",**

**"SubnetId": "subnet-07fa90d35a2e2f0d5",**

**"VpcId": "vpc-08cc066fb89d9b742",**

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

**"BlockDeviceMappings": [],**

**"ClientToken": "60661078-1c52-4fa9-98ce-0426e48fd5da",**

**"EbsOptimized": false,**

**"EnaSupport": true,**

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

**"NetworkInterfaces": [**

**{**

**"Attachment": {**

**"AttachTime": "2024-01-16T06:14:31.000Z",**

**"AttachmentId": "eni-attach-0e739b0ac011f90a8",**

**"DeleteOnTermination": true,**

**"DeviceIndex": 0,**

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

**"NetworkCardIndex": 0**

**},**

**"Description": "",**

**"Groups": [**

**{**

**"GroupName": "WebServerSecurityGroup",**

**"GroupId": "sg-08321f5c5d041df8e"**

**}**

**],**

**"Ipv6Addresses": [],**

**"MacAddress": "02:b1:dd:2d:50:cb",**

**"NetworkInterfaceId": "eni-0e425e5222cbf916b",**

**"OwnerId": "313897473255",**

**"PrivateDnsName": "ip-172-31-42-139.ap-south-1.compute.internal",**

**"PrivateIpAddress": "172.31.42.139",**

**"PrivateIpAddresses": [**

**{**

**"Primary": true,**

**"PrivateDnsName": "ip-172-31-42-139.ap-south-1.compute.internal",**

**"PrivateIpAddress": "172.31.42.139"**

**}**

**],**

**"SourceDestCheck": true,**

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

**"SubnetId": "subnet-07fa90d35a2e2f0d5",**

**"VpcId": "vpc-08cc066fb89d9b742",**

**"InterfaceType": "interface"**

**}**

**],**

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

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

**"SecurityGroups": [**

**{**

**"GroupName": "WebServerSecurityGroup",**

**"GroupId": "sg-08321f5c5d041df8e"**

**}**

**],**

**"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**

**}**

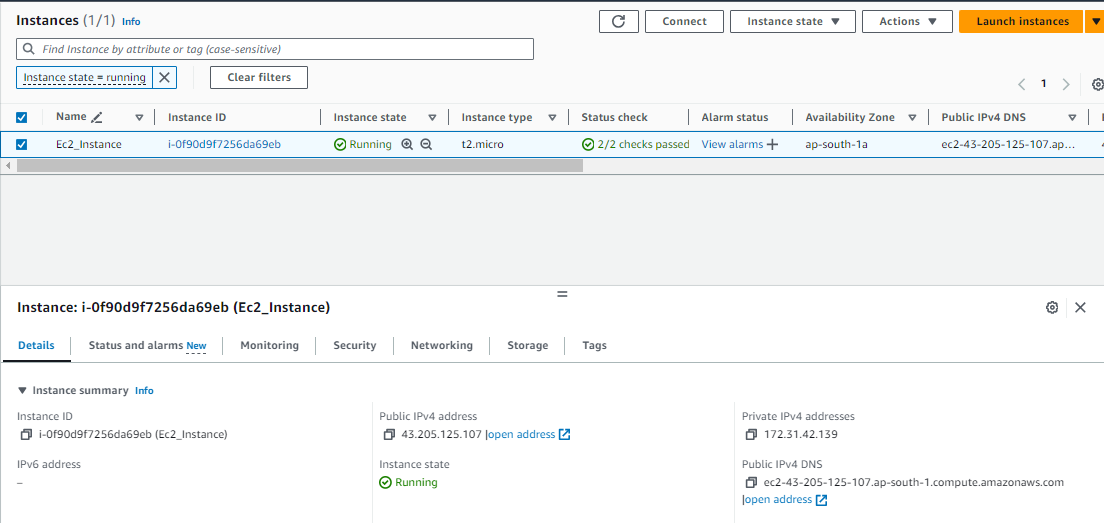
**}**

**],**

**"OwnerId": "313897473255",**

**"ReservationId": "r-0aaf0c429203fba62"**

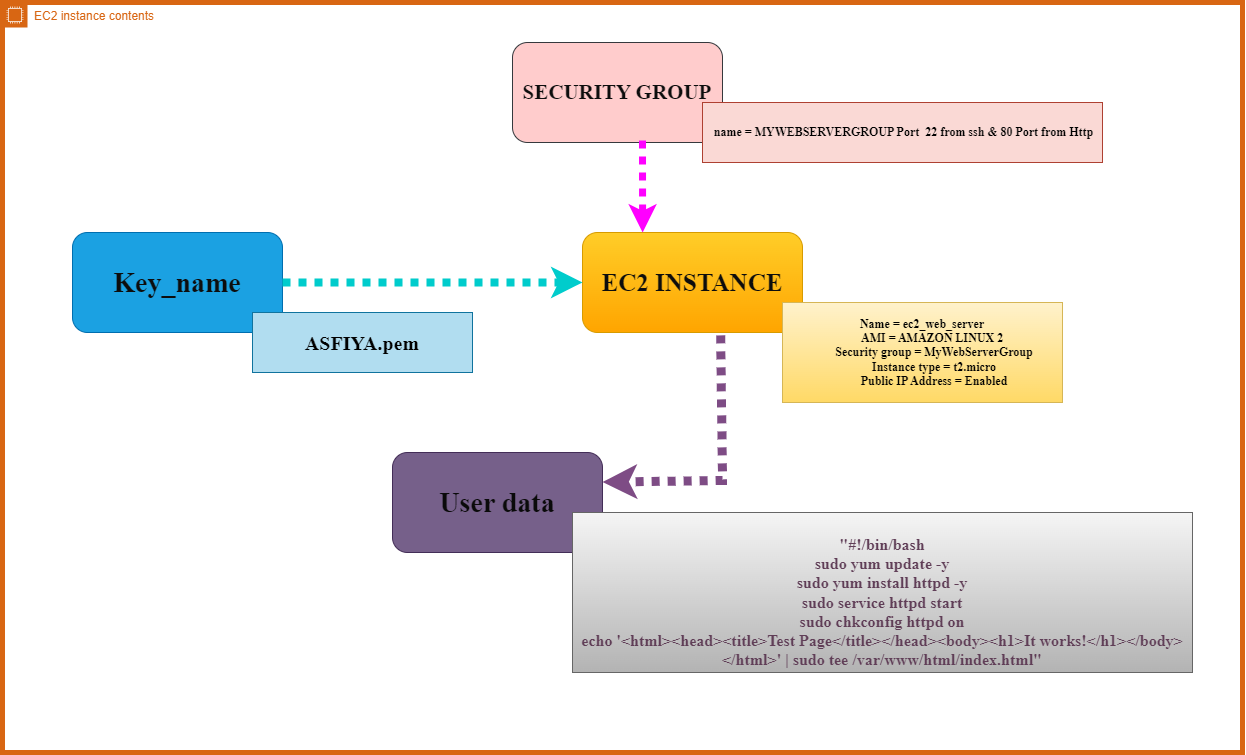
**}**



**================================================================================== 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.**

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