

SOLUTION ARCHITECTURE LAB
(Course Code: 23UPCSC1E26)

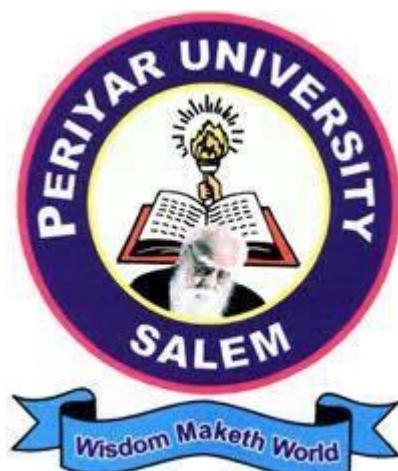
A programming laboratory record submitted to Periyar University, Salem
In partial fulfillment of the requirements for the degree of

MASTER OF COMPUTER APPLICATIONS

By

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DEPARTMENT OF COMPUTER SCIENCE
PERIYAR UNIVERSITY
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UNIVERSITY RANK 25, PERIYAR PALKALAI NAGAR,
SALEM – 636 011.
(OCTOBER -2024)

CERTIFICATE

This is to certify that the Programming Laboratory entitled
“SOLUTION ARCHITECTURE LAB (23UPCSC1E26)” is a bonafide record work
done by Mr. /Ms. _____

Register No: _____ as partial fulfillment of the
requirements for the degree of Master of Computer Applications, in the
Department of Computer Science, Periyar University, Salem, during the Academic
Year 2024-2025.

Staff In-charge

Head of the Department

Submitted for the practical examination held on.....

Internal Examiner

External Examiner

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Amazon Web Services (AWS)

INTRODUCTION

In 2006, Amazon Web Services (AWS) began offering IT infrastructure services to businesses as web services-now commonly known as cloud computing. One of the key benefits of cloud computing is the opportunity to replace upfront capital infrastructure expenses with low variable costs that scale with your business. With the cloud, businesses no longer need to plan for and procure servers and other IT infrastructure weeks or months in advance. Instead, they can instantly spin up hundreds or thousands of servers in minutes and deliver results faster.

Today, AWS provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of businesses in 190 countries around the world.

USAGES

Amazon Web Services (AWS) is the world's most comprehensive and broadly adopted cloud, offering over 200 fully featured services from data centers globally. Millions of customers-including the fastest-growing startups, largest enterprises, and leading government agencies-are using AWS to lower costs, become more agile, and innovate faster.

AMAZON VIRTUAL PRIVATE CLOUD

With **Amazon Virtual Private Cloud** (Amazon VPC), you can launch AWS resources in a logically isolated virtual network that you've defined. This virtual network closely resembles a traditional network that you'd operate in your own data center, with the benefits of using the scalable infrastructure of AWS.

The following diagram shows an example VPC. The VPC has one subnet in each of the Availability Zones in the Region, EC2 instances in each subnet, and an internet gateway to allow communication between the resources in your VPC and the internet.

Enable VPC internet access using internet gateways:

An internet gateway is a horizontally scaled, redundant, and highly available VPC component that allows communication between your VPC and the internet. It supports IPv4 and IPv6 traffic. It does not cause availability risks or bandwidth constraints on your network traffic.

An internet gateway enables resources in your public subnets (such as EC2 instances) to connect to the internet if the resource has a public IPv4 address or an IPv6 address. Similarly, resources on the internet can initiate a connection to resources in your subnet using the public IPv4 address or IPv6 address. For example, an internet gateway enables you to connect to an EC2 instance in AWS using your local computer.

AMAZON ELASTIC COMPUTE CLOUD (AMAZON EC2)

Amazon Elastic Compute Cloud (Amazon EC2) provides on-demand, scalable computing capacity in the Amazon Web Services (AWS) Cloud. Using Amazon EC2 reduces hardware costs so you can develop and deploy applications faster. You can use Amazon EC2 to launch as many or as few virtual servers as you need, configure security and networking, and manage storage. You can add capacity (scale up) to handle compute-heavy tasks, such as monthly or yearly processes, or spikes in website traffic. When usage decreases, you can reduce capacity (scale down) again.

EC2 instance:

An EC2 instance is a virtual server in the AWS Cloud. When you launch an EC2 instance, the instance type that you specify determines the hardware available to your instance. Each instance type offers a different balance of compute, memory, network, and storage resources.

In AWS (Amazon Web Services), PEM and PPK files are used for securely connecting to EC2 (Elastic Compute Cloud) instances via SSH.

SSH key:

An SSH key is a secure access method for authenticating and encrypting connections between your local machine and a remote server (like GitHub, GitLab, or any other service that supports SSH).

PEM (Privacy-Enhanced Mail) File:

- PEM is a file format that AWS provides when you create a key pair. It contains a private key used to authenticate your SSH connection. When launching an EC2 instance, AWS allows you to create or use an existing PEM file to connect securely.
- You need the PEM file to connect to your EC2 instance using SSH.

PPK (PuTTY Private Key) File:

- PPK is the private key file format used by PuTTY, a popular SSH client for Windows. Since PuTTY does not support the PEM format directly, you need to convert the PEM file to PPK if you're using PuTTY.

How To use PuTTY with Git Bash, follow these steps:

1. Install PuTTY: Download and install [PuTTY](#).
2. Generate SSH Key:
 - Open PuTTYgen, click "Generate" to create an SSH key.
 - Save the private key (*.ppk) and copy the public key.
3. Add Public Key to Git:
 - Go to your GitHub/GitLab/Bitbucket account settings.
 - Add the public key under SSH keys.

4. Configure Git Bash:

- Open Git Bash, navigate to your .ssh directory:

```
cd ~/.ssh
```

- Convert PuTTY's .ppk to OpenSSH format:

```
puttygen privatekey.ppk -O private-openssh -o id_rsa
```

- Set permissions:

```
chmod 600 id_rsa
```

ELASTIC LOAD BALANCING

Elastic Load Balancing automatically distributes your incoming traffic across multiple targets, such as EC2 instances, containers, and IP addresses, in one or more Availability Zones. It monitors the health of its registered targets, and routes traffic only to the healthy targets. Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Load balancer benefits:

- A load balancer distributes workloads across multiple compute resources, such as virtual servers. Using a load balancer increases the availability and fault tolerance of your applications.
- You can add and remove compute resources from your load balancer as your needs change, without disrupting the overall flow of requests to your applications.
- You can configure health checks, which monitor the health of the compute resources, so that the load balancer sends requests only to the healthy ones. You can also offload the work of encryption and decryption to your load balancer so that your compute resources can focus on their main work.

Features of Elastic Load Balancing

Elastic Load Balancing supports the following load balancers: Application Load Balancers, Network Load Balancers, Gateway Load Balancers, and Classic Load Balancers. You can select the type of load balancer that best suits your needs.

EBS SNAPSHOTS

You can back up the data on your Amazon EBS volumes by making point-in-time copies, known as *Amazon EBS snapshots*. A snapshot is an incremental backup, which means that we save only the blocks on the volume that have changed since the most recent snapshot. This minimizes the time required to create the snapshot and saves on storage costs by not duplicating data.

Create an Amazon EBS snapshot of an EBS volume:

To create a snapshot using the console

1. Open the Amazon EC2 console at <https://console.aws.amazon.com/ec2/>.

2. In the navigation pane, choose Snapshots, Create snapshot.
3. For Resource type, choose Volume.
4. For Volume ID, select the volume from which to create the snapshot. The Encryption field indicates the volume and resulting snapshot's encryption status. It can't be modified.
5. (*Optional*) For Description, enter a brief description for the snapshot.
6. (*Outpost customers only*) Specify the destination for the snapshot. The Snapshot destination field appears only if the selected volume is on an outpost.
 - To create the snapshot on the same outpost as the source volume, choose AWS Outpost.
 - To create the snapshot in the parent Region of the outpost, choose AWS Region.
7. (*Optional*) To assign custom tags to the snapshot, in the Tags section, choose Add tag, and then enter the key-value pair. You can add up to 50 tags.
8. Choose Create snapshot.

AMAZON CLOUDWATCH LOGS

You can use Amazon CloudWatch Logs to monitor, store, and access your log files from Amazon Elastic Compute Cloud (Amazon EC2) instances, AWS CloudTrail, Route 53, and other sources.

CloudWatch Logs supports two *log classes*. Log groups in the *CloudWatch Logs Standard log class* support all CloudWatch Logs features. Log groups in the *CloudWatch Logs Infrequent Access log class* incur lower ingestion charges and support a subset of the Standard class capabilities.

Features:

- Two log classes for flexibility
- Query your log data
- Detect and debug using Live Tail
- Monitor logs from Amazon EC2 instances
- Monitor AWS CloudTrail logged events
- Audit and mask sensitive data

AWS CLIENT VPN

AWS Client VPN is a managed client-based VPN service that enables you to securely access AWS resources and resources in your on-premises network.

Client VPN components:

- Client VPN endpoint
- VPN client application
- Client VPN endpoint configuration file

Establish an AWS Client VPN connection on Linux:

Establish a VPN connection using the using either the Network Manager GUI on an Ubuntu computer or the OpenVPN application.

To establish a VPN connection using OpenVPN - Network Manager

1. Install the network manager module using the following command.
`sudo apt-get install --reinstall network-manager network-manager-gnome network-manager-openvpn network-manager-openvpn-gnome`
2. Go to Settings, Network.
3. Choose the plus symbol (+) next to VPN, and then choose Import from file....
4. Navigate to the configuration file that you received from your VPN administrator and choose Open.
5. In the Add VPN window, choose Add.
6. Start the connection by enabling the toggle next to the VPN profile that you added.

To establish a VPN connection using OpenVPN

1. Install OpenVPN using the following command.
`sudo apt-get install openvpnS`
2. Start the connection by loading the configuration file that you received from your VPN administrator.
`sudo openvpn --config /path/to/config/file`

OPENNEBULA

INTRODUCTION

OpenNebula is a powerful, but easy-to-use, open source platform to build and manage Enterprise Clouds. OpenNebula provides unified management of IT infrastructure and applications, avoiding vendor lock-in and reducing complexity, resource consumption and operational costs.

USE OPENNEBULA

You can build an OpenNebula cloud on KVM, or VMware using our official packages for your favorite Linux distribution.

VMs

Virtual Machines (VMs) are a core component of cloud computing management. OpenNebula is an open-source platform that allows you to manage data center infrastructure, including virtual machines, storage, and networking.

INSTANCES

In OpenNebula, an instance refers to a running virtual machine (VM) that is created from a pre-defined template. When you instantiate a VM, you are launching a virtual machine based on the configuration specified in the template, which includes resources like CPU, memory, storage, and network settings. This instance represents an active, running version of a VM that can be managed (e.g., started, stopped, terminated) through OpenNebula's interfaces.

Steps for creating instances include:

1. Log in to Sunstone.
2. Create VM: Go to “Instances > VMs > Create VM”, select a template, and launch.
3. Manage VM: Start, stop, and monitor via the dashboard.
4. Networking: Assign a virtual network during creation.
5. Storage: Attach disks as needed.
6. Terminate VM when done.

STORAGE

OpenNebula features three different datastore types:

- The Image Datastore, stores the Image repository.
- The System Datastore holds disk for running virtual machines, usually cloned from the Image Datastore.
- The Files & Kernels Datastore to store plain files used in contextualization, or VM kernels used by some hypervisors.

By default, OpenNebula will create an image (default), system (system), and files datastore (files). These datastores are configured to use the SSH protocol to transfer images. You can list the datastores in your cloud with the `onedatastore list` command.

IMAGES

An OpenNebula Image represents a VM disk. Images can have multiple formats (e.g. filesystem or block device) and can store OS installations, data filesystems, images or kernels. In this guide you'll learn about different Image types, and how to manage and use them.

Types and Persistency

OpenNebula uses three different Image types to represent VM disks. A VM can use multiple Image types simultaneously:

- Operating System (OS): Main disk, the VM will start from this Image. Every VM must include an OS Image.
- CD-ROM ISO (CDROM): These Images are read-only data. Only one Image of this type can be used in a VM.
- Data Disk (DATABLOCK): A generic disk to store data. These Images can contain existing data, e.g. a database, or can be formatted as an empty.

VIRTUAL NETWORKS

Commonly a Host is connected to one or more networks that are available to the VMs through bridges. OpenNebula allows the creation of Virtual Networks by mapping them on top of the physical ones.

Virtual Network Definition

A Virtual Network definition consists of three different parts:

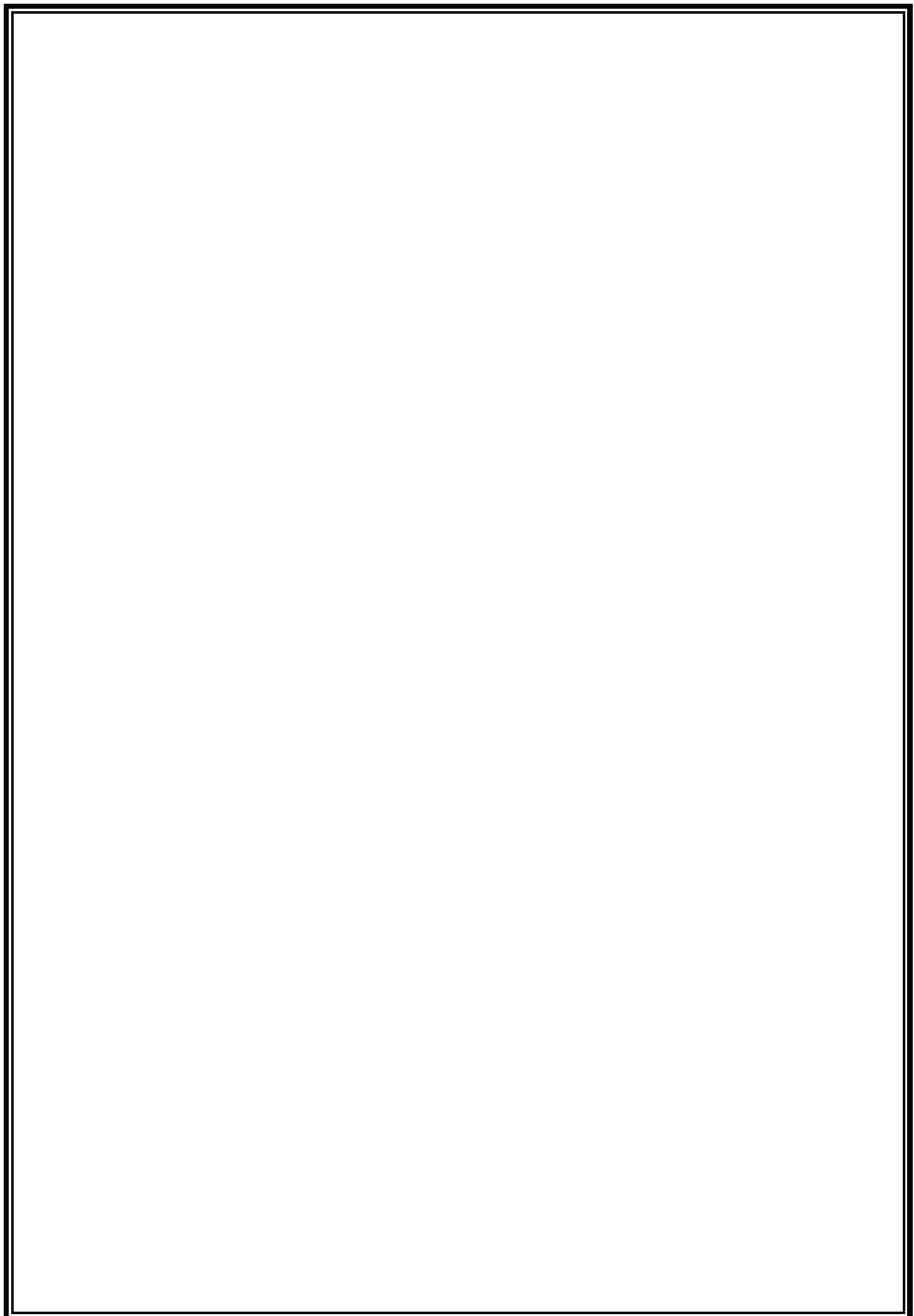
- The underlying physical network infrastructure that will support it, including the network driver.
- The logical address space available. Addresses associated to a Virtual Network can be IPv4, IPv6, dual stack IPv4-IPv6 or Ethernet.
- The guest configuration attributes to setup the Virtual Machine network, that may include for example network masks, DNS servers or gateways.

Using Virtual Networks

Once the Virtual Networks are setup, they can be made available to users based on access rights and ownership. The preferred way to do so is through Virtual Data Center abstraction. By default, all Virtual Networks are automatically available to the group users.

Virtual Network can be used by VMs in two different ways:

- Manual selection: NICs in the VMs are attached to a specific Virtual Network.
- Automatic selection: Virtual networks are scheduled like other resources needed by the VM (like hosts or datastores).



SOURCE CODE:

The screenshot shows the AWS VPC Console interface. On the left, a sidebar titled "Virtual private cloud" is expanded, showing options like "Your VPCs", "Subnets", "Route tables", and "Internet gateways". The main area is titled "Your VPCs (1)" and displays a table with one row. The table columns are: Name, VPC ID, State, IPv4 CIDR, IPv6 CIDR, and DHCP option set. The single entry is "ypc-07afb32d938979537" with state "Available", IPv4 CIDR "172.31.0.0/16", and DHCP option set "dopt-0a64". A message "Select a VPC above" is displayed below the table. At the bottom of the screen, a Windows taskbar shows the date and time as 10/7/2024 at 9:12:06 PM.

The screenshot shows the "Create VPC" wizard in the AWS VPC Console. The first step, "VPC settings", is selected. It includes fields for "Resources to create": "VPC only" (selected) and "VPC and more". A "Name tag - optional" field contains "my-vpc-01". The "IPv4 CIDR block" field is set to "10.0.0.0/24". Under "Tenancy", the "Default" option is chosen. The "Tags" section indicates "No tags associated with the resource" and provides a link to "Add tag". At the bottom, there are "Cancel" and "Create VPC" buttons. The Windows taskbar at the bottom shows the date and time as 10/7/2024 at 9:14:45 PM.

VpcDetails | VPC Console

SA REC.pdf

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#VpcDetails:VpcId=vpc-0b2caaa3f5ac2ebeb

Gmail YouTube Maps L laptops and netboo... skillup online - Goo... Software Testing (II... Ask a Question

AWS Services Search [Alt+S]

You successfully created vpc-0b2caaa3f5ac2ebeb

VPC dashboard

EC2 Global View Filter by VPC

Virtual private cloud Your VPCs Subnets Route tables Internet gateways Egress-only internet gateways Carrier gateways DHCP option sets Elastic IPs Managed prefix lists Endpoints Endpoint services NAT gateways Peering connections

VPC ID: vpc-0b2caaa3f5ac2ebeb State: Available DNS hostnames: Disabled DNS resolution: Enabled

Tenancy: Default DHCP option set: dopt-0a64a34d2d77c9171 Main route table: rtb-0f4d014b4dfde6d05

Default VPC No: IPv4 CIDR: 10.0.0.0/24 IPv6 pool: -

Network Address Usage metrics: Disabled Route 53 Resolver DNS Firewall rule groups: - Owner ID: 381492011252

Actions

Resource map CDRs Flow logs Tags Integrations

Resource map Info

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vpcs | VPC Console

SA REC.pdf

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#vpcs:

Gmail YouTube Maps L laptops and netboo... skillup online - Goo... Software Testing (II... Ask a Question

AWS Services Search [Alt+S]

VPC dashboard

Your VPCs (1/2) Info

Search

Name VPC ID State IPv4 CIDR IPv6 CIDR DHCP options

- vpc-07afb32d938979537 Available 172.31.0.0/16 - dopt-0a64a34d2d77c9171

Vigneshwaran K vpc-0b2caaa3f5ac2ebeb Available 10.0.0.0/24 - dopt-0a64a34d2d77c9171

Actions Create VPC

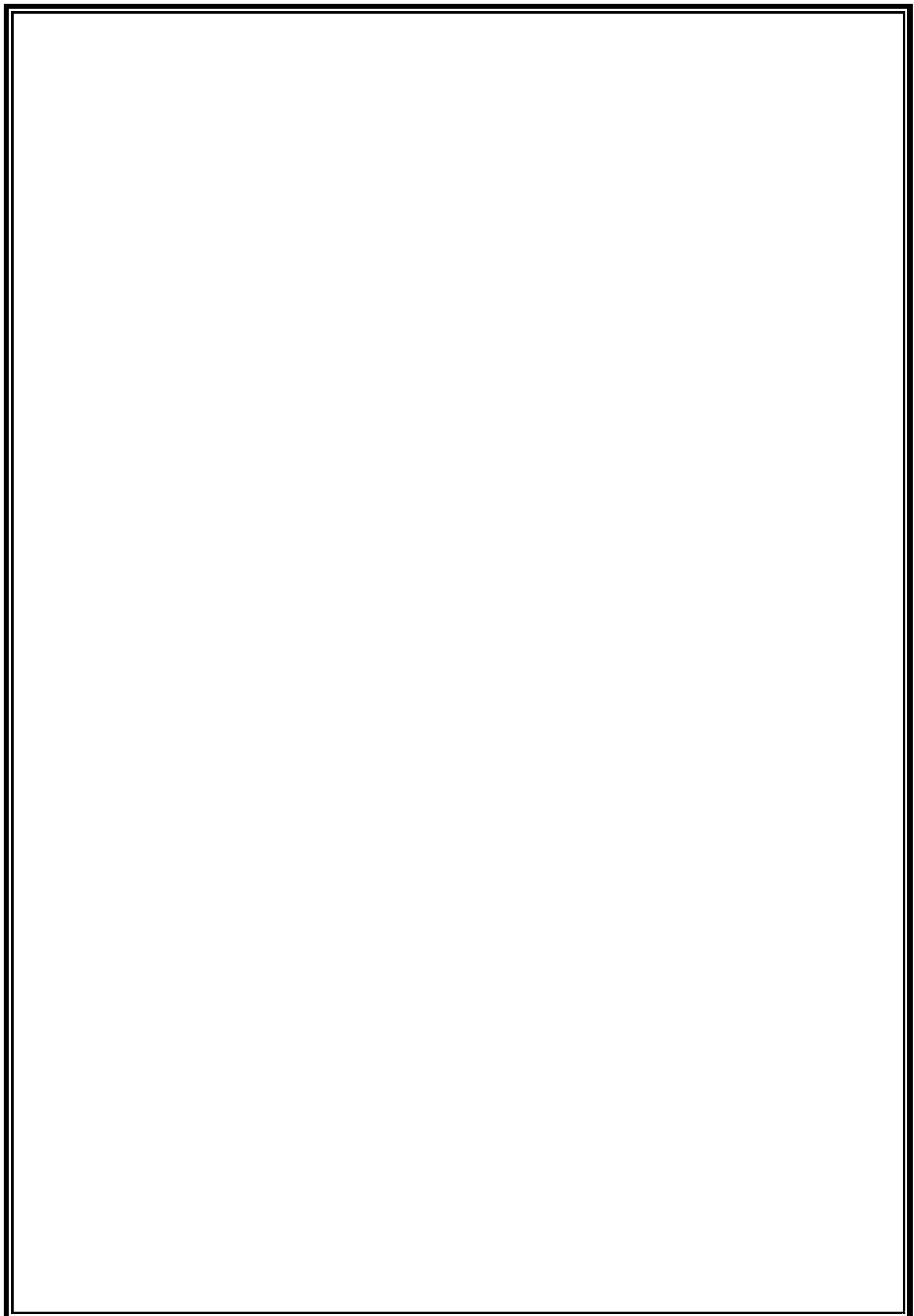
vpc-0b2caaa3f5ac2ebeb / Vigneshwaran K

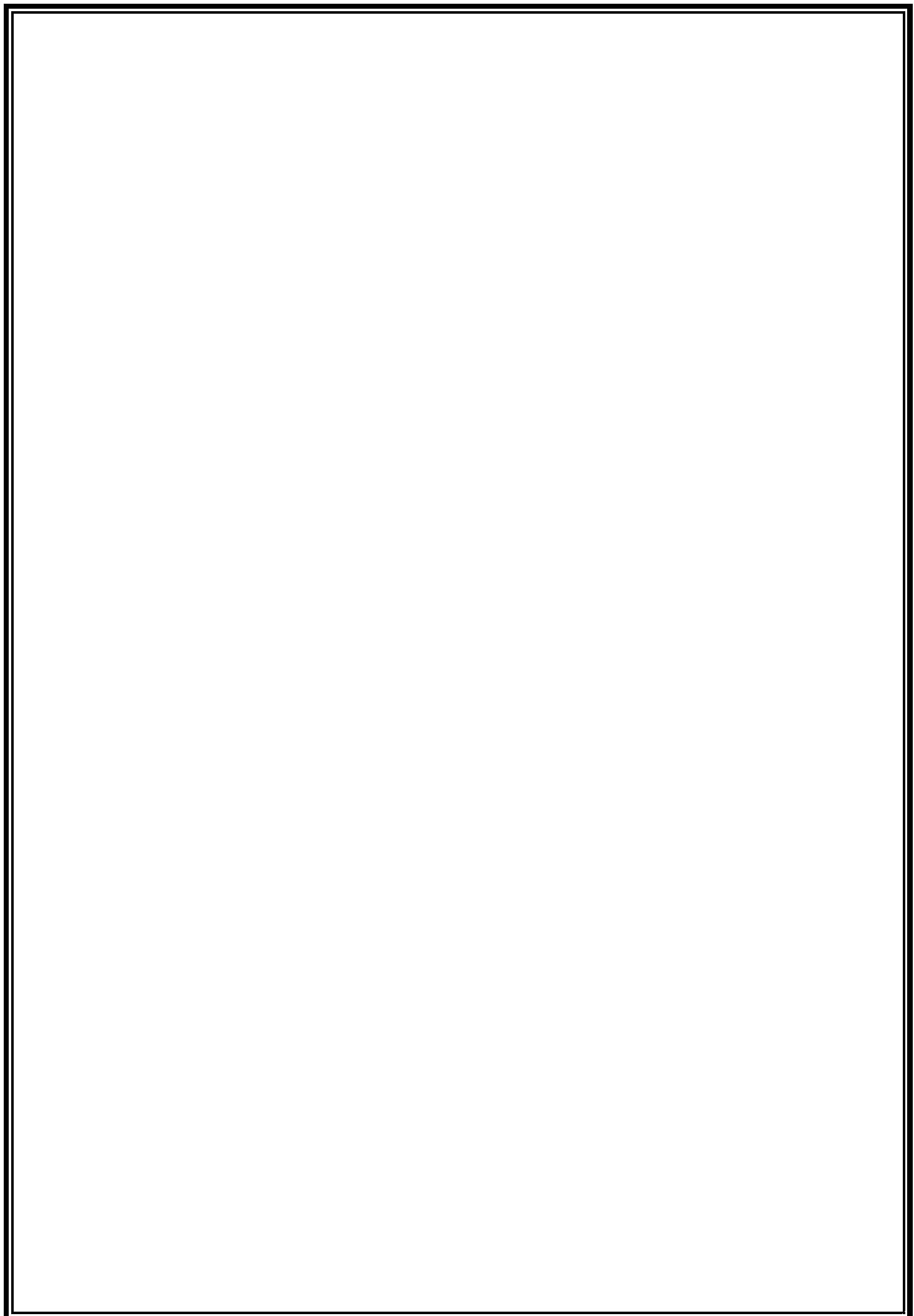
Details Resource map CDRs Flow logs Tags Integrations

VPC ID: vpc-0b2caaa3f5ac2ebeb State: Available DNS hostnames: Disabled DNS resolution: Enabled

Tenancy: Default DHCP option set: dopt-0a64a34d2d77c9171 Main route table: -

CloudShell Feedback 26°C Partly cloudy Search ENG IN 9:18:45 PM 10/7/2024 © 2024, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences





SOURCE CODE:

The screenshot shows the AWS VPC Subnets console. On the left, there's a sidebar with 'Virtual private cloud' navigation, including 'Subnets'. The main area is titled 'Subnets (6) Info' and displays a table of existing subnets. The columns include Name, Subnet ID, State, VPC, and IPv4 CIDR. All subnets listed are available and belong to the same VPC (vpc-07afb32d938979537). The IPv4 CIDRs range from 172.31.0.0/20 to 172.31.16.0/20.

Name	Subnet ID	State	VPC	IPv4 CIDR
-	subnet-0789693ee1302ca8e	Available	vpc-07afb32d938979537	172.31.0.0/20
-	subnet-0daed44b817401417	Available	vpc-07afb32d938979537	172.31.48.0/20
-	subnet-05ce2811babab16527	Available	vpc-07afb32d938979537	172.31.32.0/20
-	subnet-030cf37b64025449	Available	vpc-07afb32d938979537	172.31.80.0/20
-	subnet-0e02ab61833ef761b	Available	vpc-07afb32d938979537	172.31.64.0/20
-	subnet-05af446c73bfe61fc	Available	vpc-07afb32d938979537	172.31.16.0/20

The screenshot shows the 'Create subnet' wizard in the AWS VPC console. The first step, 'VPC', is selected. It shows the VPC ID 'vpc-0b2caaa3f5ac2ebef (Vigneshwaran K)' and the associated VPC CIDR '10.0.0.0/24'. The second step, 'Subnet settings', is shown below. It asks for a subnet name ('public_subnet') and an availability zone ('us-east-1a'). A note says the name can be up to 256 characters long. The right panel contains information about subnet CIDR blocks and links to 'Learn more' and 'Working with VPCs and subnets'.

Screenshot of the AWS VPC Console showing the 'CreateSubnet' wizard.

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 2

Subnet name
Create a tag with a key of 'Name' and a value that you specify.

The name can be up to 256 characters long.

Availability Zone [Info](#)
Choose the zone in which your subnet will reside, or let Amazon choose one for you.

IPv4 VPC CIDR block [Info](#)
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

IPv4 subnet CIDR block
 128 IPs
[Tags - optional](#)
[Remove](#)

Subnet 2 of 2

Tags - optional
[Remove](#)

CloudShell [Feedback](#)

CloudShell status: 25°C Partly cloudy

System tray icons: Search, File Explorer, Google Chrome, Microsoft Edge, Task View, Power, Volume, Network, Battery, Weather (25°C), Date (10/7/2024), Time (9:51:25 PM), Language (ENG IN).

Screenshot of the AWS VPC Console showing the 'CreateSubnet' wizard.

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 2 of 2

Subnet name
Create a tag with a key of 'Name' and a value that you specify.

The name can be up to 256 characters long.

Availability Zone [Info](#)
Choose the zone in which your subnet will reside, or let Amazon choose one for you.

IPv4 VPC CIDR block [Info](#)
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

IPv4 subnet CIDR block
 128 IPs
[Tags - optional](#)
[Remove](#)

[Add new subnet](#)

[Cancel](#) [Create subnet](#)

CloudShell [Feedback](#)

CloudShell status: 25°C Partly cloudy

System tray icons: Search, File Explorer, Google Chrome, Microsoft Edge, Task View, Power, Volume, Network, Battery, Weather (25°C), Date (10/7/2024), Time (9:51:56 PM), Language (ENG IN).

subnets | VPC Console Subnet CIDR blocks - Amazon New Tab

Gmail YouTube Maps laptops and netbo... skillup online - Goo... Software Testing (III...) Ask a Question

aws Services Search [Alt+S]

You have successfully created 2 subnets: subnet-0ef24684d3423559f, subnet-0cf3703124a76e857

Last updated 1 minute ago Actions Create subnet

VPC dashboard EC2 Global View Filter by VPC Virtual private cloud Your VPCs Subnets Route tables Internet gateways Egress-only internet gateways Carrier gateways DHCP option sets Elastic IPs Managed prefix lists Endpoints Endpoint services NAT gateways Peering connections Security Network ACLs Security groups CloudShell Feedback

Subnets (2) Info Subnet ID : subnet-0cf3703124a76e857 Clear filters

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
public_subnet	subnet-0ef24684d3423559f	Available	vpc-0b2caaa3f5ac2ebef Vigne...	10.0.0.0/25	-
private_subnet	subnet-0cf3703124a76e857	Available	vpc-0b2caaa3f5ac2ebef Vigne...	10.0.0.128/25	-

Select a subnet

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The screenshot shows the AWS VPC console interface. On the left, there's a sidebar with various VPC-related options like EC2 Global View, Subnets, Route tables, and Security. The main area displays a table of subnets with columns for Name, Subnet ID, State, VPC, IPv4 CIDR, and IPv6 CIDR. Two subnets are listed: 'public_subnet' and 'private_subnet', both in the 'Available' state. The IPv4 CIDR ranges are 10.0.0.0/25 and 10.0.0.128/25 respectively. A message at the top indicates that 2 subnets were successfully created. The bottom of the screen shows the AWS navigation bar and system status.

Edit subnet settings

Subnet Subnet ID: subnet-0ef24684d3423559f Name: public_subnet

Auto-assign IP settings Enable AWS to automatically assign a public IPv4 or IPv6 address to a new primary network interface for an instance in this subnet.

Enable auto-assign public IPv4 address

Enable auto-assign customer-owned IPv4 address

Resource-based name (RBN) settings Specify the hostname type for EC2 instances in this subnet and optional RBN DNS query settings.

Enable resource name DNS A record on launch

Enable resource name DNS AAAA record on launch

Hostname type: Resource name

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This screenshot shows the 'Edit subnet settings' page for the 'public_subnet'. It includes sections for 'Subnet' details, 'Auto-assign IP settings' (with 'Enable auto-assign public IPv4 address' checked), and 'Resource-based name (RBN) settings' (with 'Enable resource name DNS A record on launch' unchecked). The bottom of the screen shows the AWS navigation bar and system status.

The screenshot shows the AWS VPC dashboard with the 'Internet gateways' section selected. A table lists one internet gateway:

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-0ca5cc979c2dbfacc	Attached	vpc-07afb32d938979537	381492011252

The sidebar on the left shows other VPC-related options like EC2 Global View, Virtual private cloud, and Internet gateways.

The screenshot shows the 'Create internet gateway' wizard. The first step, 'Internet gateway settings', is completed with the name 'vigneshwaran NetGateWay'. The second step, 'Tags - optional', shows a single tag named 'Name' with the value 'vigneshwaran NetGateWay'. The final step, 'Review', is not shown.

Internet gateway settings

Name tag
Creates a tag with a key of 'Name' and a value that you specify.
vigneshwaran NetGateWay

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional
Q Name X	Q vigneshwaran NetGateWay X

Add new tag
You can add 49 more tags.

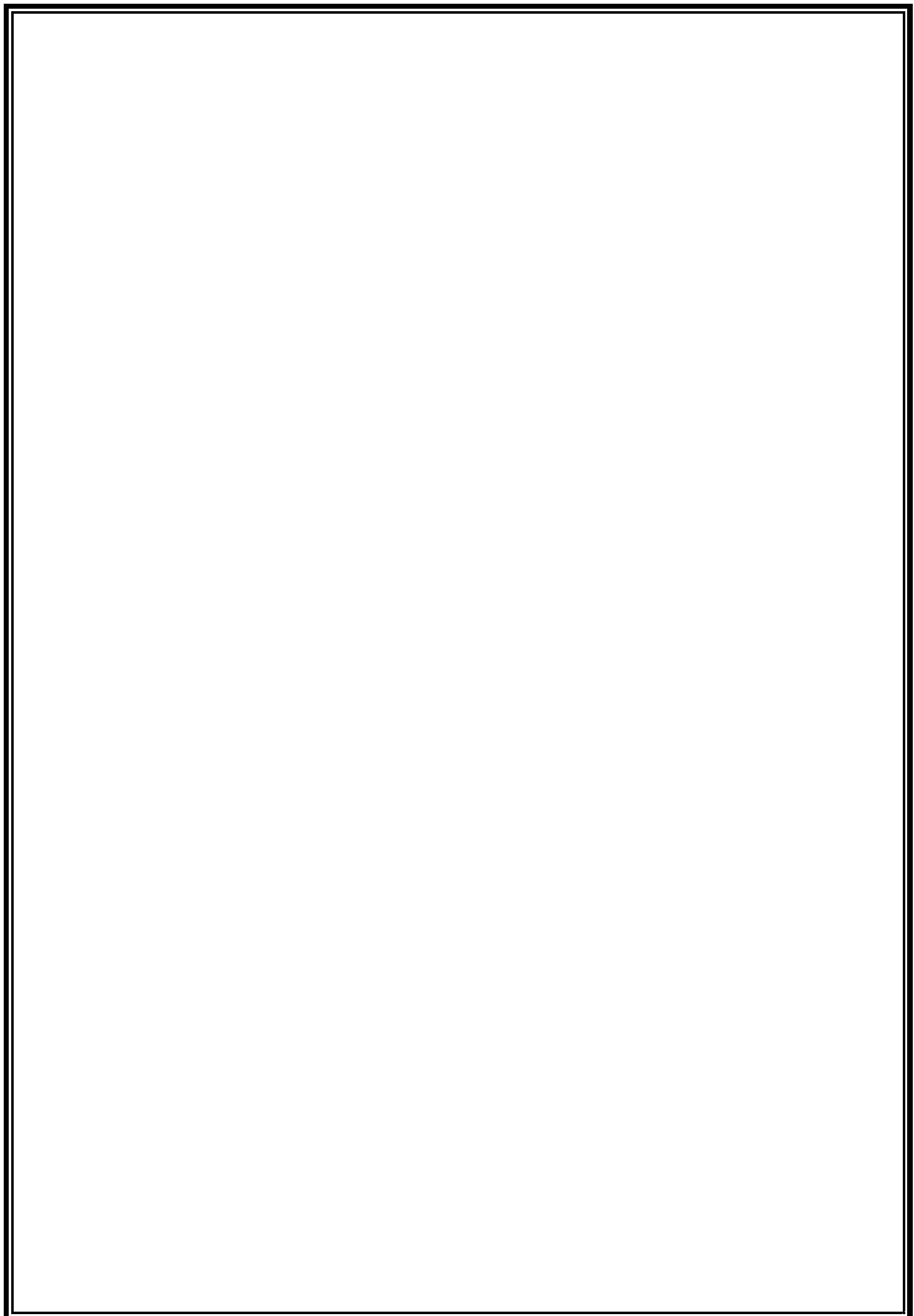
Cancel Create internet gateway

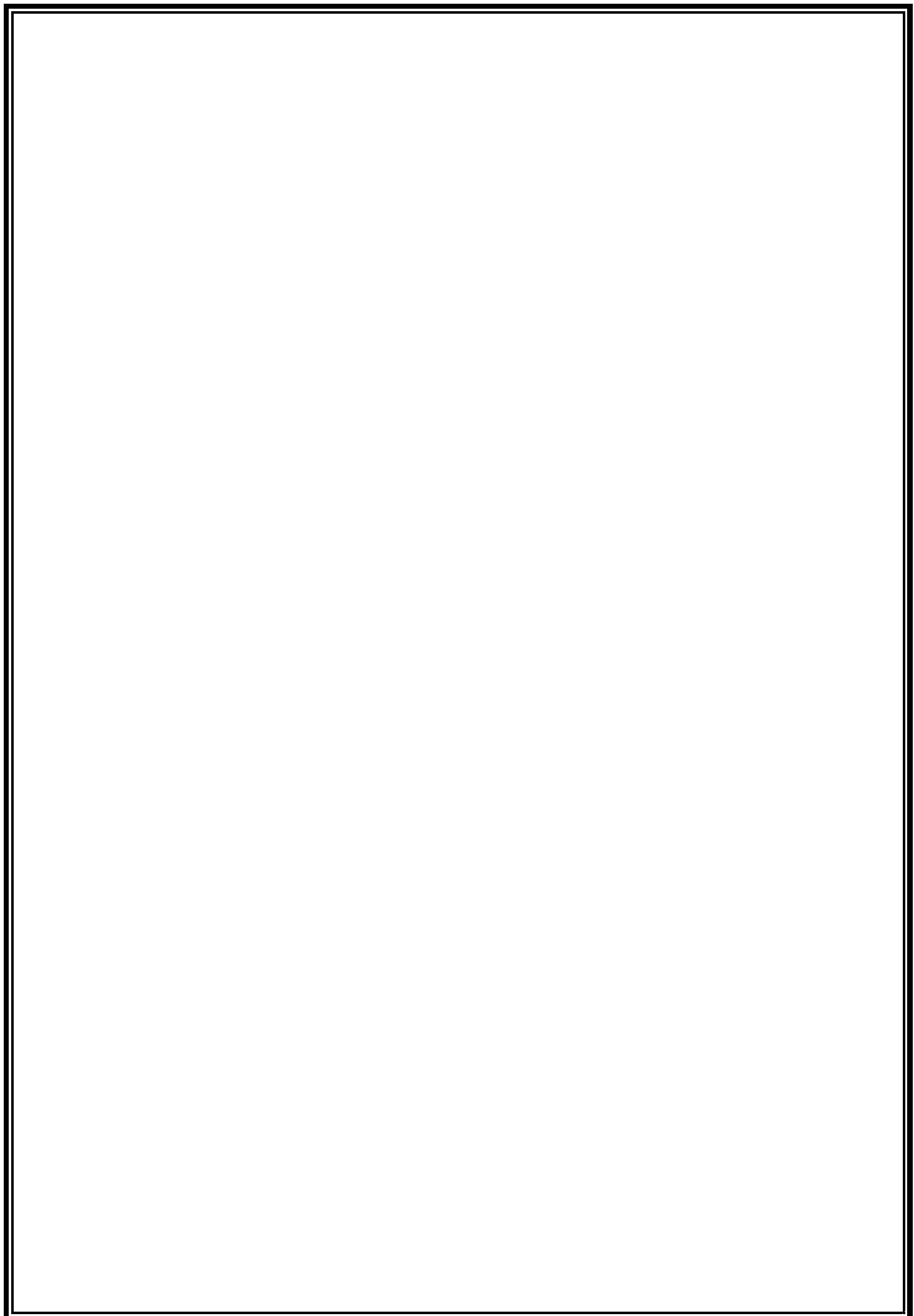
The screenshot shows the 'Attach to VPC' dialog box for an internet gateway. The URL in the browser is us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#AttachInternetGateway:internetGatewayId=igw-065f68345ac8d71a7. The dialog has a search bar with 'vpc-0b2caa3f5ac2ebef'. A large orange button at the bottom right says 'Attach internet gateway'.

The screenshot shows the 'Internet gateway igw-065f68345ac8d71a7 successfully attached to vpc-0b2caa3f5ac2ebef' details page. The URL is us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#InternetGateway:internetGatewayId=igw-065f68345ac8d71a7. The page displays the following information:

Internet gateway ID	State	VPC ID	Owner
igw-065f68345ac8d71a7	Attached	vpc-0b2caa3f5ac2ebef Vigneshwaran K	381492011252

The 'Tags' section shows a single tag: Name=vigneshwaran NetGateWay. The browser status bar indicates it's 10:01:12 PM on 10/7/2024.





SOURCE CODE:

The screenshot shows the 'Create route table' wizard in the AWS VPC console. In the 'Route table settings' section, a tag named 'Vigneshwaran RT' is added under 'Name - optional'. In the 'Tags' section, a tag 'Name' is added with the value 'Vigneshwaran RT'. The 'Create route table' button is visible at the bottom.

The screenshot shows the 'RouteTableDetails' page for route table 'rtb-07abed4b336e15e7c'. The 'Details' section shows the route table ID, main status (No), owner ID (381492011252), and no explicit subnet or edge associations. The 'Routes' section displays one route entry: destination 10.0.0.0/24, target local, status Active, and propagation status No. The 'Actions' dropdown menu is open.

Screenshot of the AWS VPC console showing the 'Edit subnet associations' page for route table ID rtb-07abed4b336e15e7c.

Available subnets (2/2)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
public_subnet	subnet-0ef24684d3423559f	10.0.0.0/25	-	Main (rtb-0f4d014b4dfde6d05)
private_subnet	subnet-0cf3703124a76e857	10.0.0.128/25	-	Main (rtb-0f4d014b4dfde6d05)

Selected subnets

subnet-0ef24684d3423559f / public_subnet subnet-0cf3703124a76e857 / private_subnet

Save associations

Screenshot of the AWS VPC console showing the 'RouteTableDetails' page for route table ID rtb-07abed4b336e15e7c.

You have successfully updated subnet associations for rtb-07abed4b336e15e7c / Vigneshwaran RT.

Details

Route table ID rtb-07abed4b336e15e7c	Main No	Explicit subnet associations 2 subnets	Edge associations -
VPC vpc-0b2caaa3f5ac2eb Vigneshwaran K	Owner ID 381492011252		

Routes (1)

Destination	Target	Status	Propagated
10.0.0.0/24	local	Active	No

CreateSecurityGroup | VPC Console Subnet CIDR blocks - Amazon New Tab

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSecurityGroup:

Gmail YouTube Maps laptops and netboo... skillup online - Goo... Software Testing (III...) Ask a Question

aws Services Search [Alt+S]

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name [Info](#)
Vigneshwaran SG
Name cannot be edited after creation.

Description [Info](#)
vigneshwaran SG

VPC Info
vpc-0b2caaa3f5ac2eb (Vigneshwaran K)

Inbound rules [Info](#)

This security group has no inbound rules.

Add rule

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SecurityGroup | VPC Console Subnet CIDR blocks - Amazon New Tab

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#SecurityGroup:groupId=sg-06e7dcfef113ae20b

Gmail YouTube Maps laptops and netboo... skillup online - Goo... Software Testing (III...) Ask a Question

aws Services Search [Alt+S]

VPC dashboard [X](#)

Security group (sg-06e7dcfef113ae20b | Vigneshwaran SG) was created successfully [Details](#)

VPC > Security Groups > sg-06e7dcfef113ae20b - Vigneshwaran SG Actions

sg-06e7dcfef113ae20b - Vigneshwaran SG

Details

Security group name Vigneshwaran SG	Security group ID sg-06e7dcfef113ae20b	Description vigneshwaran SG	VPC ID vpc-0b2caaa3f5ac2eb
Owner 381492011252	Inbound rules count 0 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules Outbound rules Tags

Inbound rules

Search Manage tags Edit inbound rules

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vpcs | VPC Console Subnet CIDR blocks - Amazon New Tab

us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#vpcs:

Gmail YouTube Maps laptops and netboo... skillup online - Goo... Software Testing (III...) Ask a Question

VPC dashboard Services Search [Alt+S]

You have successfully updated subnet associations for rtb-07abed4b336e15e7c / Vigneshwaran RT.

Your VPCs (1/2) Info

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP option set	Main
-	vpc-07afb32d958979537	Available	172.31.0.0/16	-	dopt-0a64a34d2d77c9...	rtb-0f4d014b4dfde6d05
<input checked="" type="checkbox"/> Vigneshwaran K	vpc-0b2caaa3f5ac2ebcb	Available	10.0.0.0/24	-	dopt-0a64a34d2d77c9...	rtb-0f4d014b4dfde6d05

Details Resource map CIDs Flow logs Tags Integrations

Resource map Info

VPC Show details Your AWS virtual network Vigneshwaran K

Subnets (2) Subnets within this VPC us-east-1a

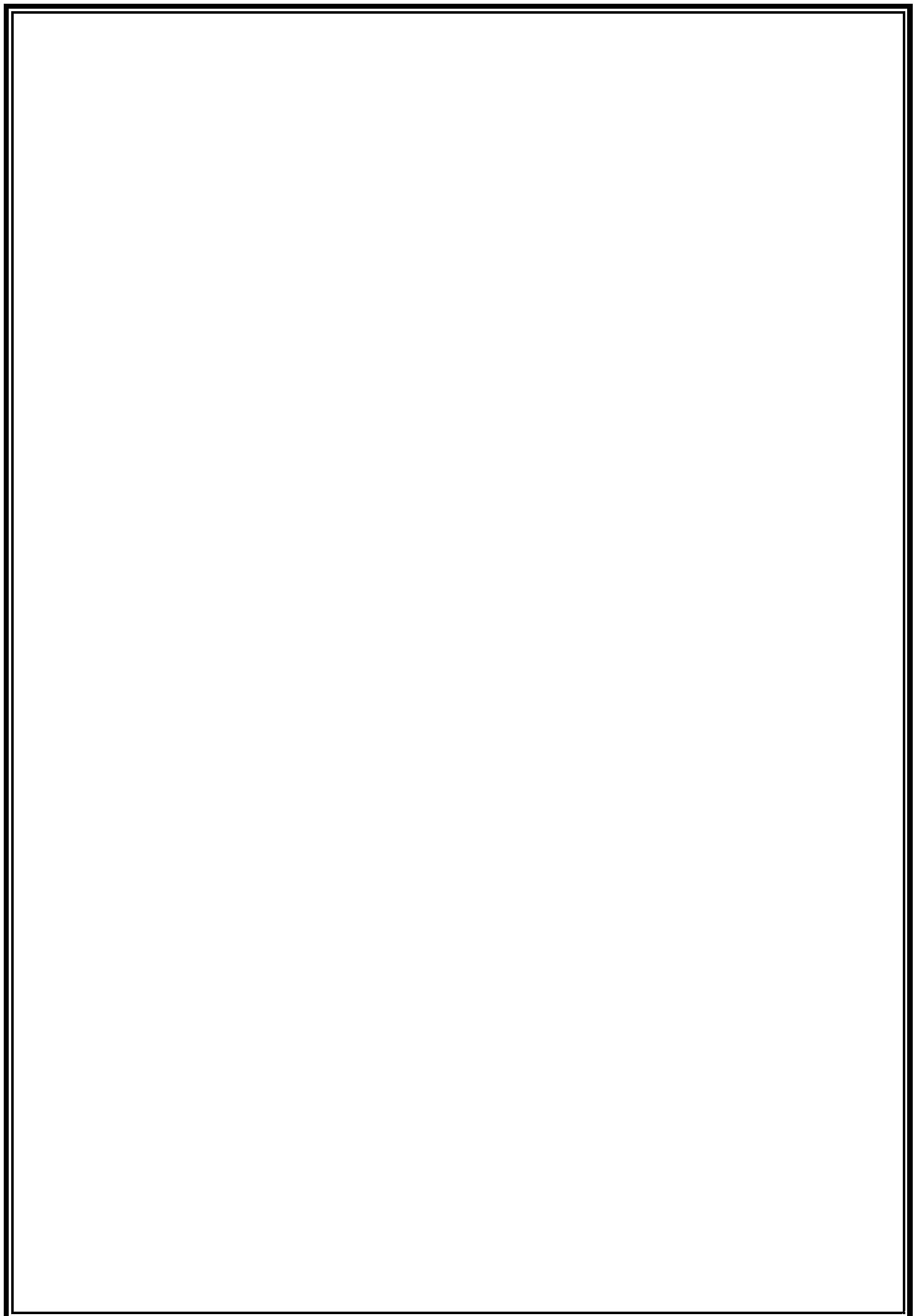
- public_subnet
- private_subnet

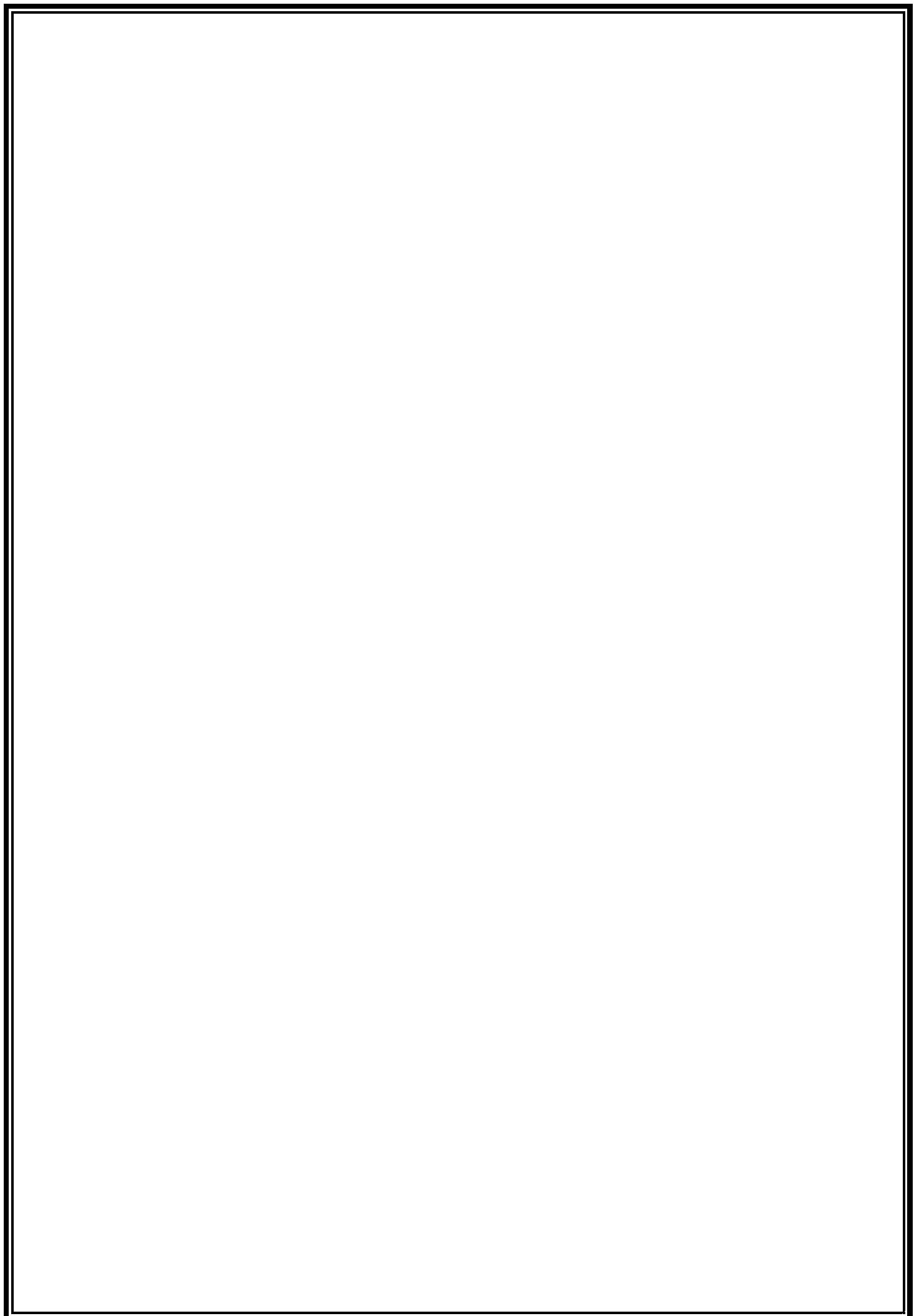
Route tables (2) Route network traffic to resources Vigneshwaran RT

- rtb-0f4d014b4dfde6d05

Network connections (1) Connections to other networks vigneshwaran NetGateWay

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SOURCE CODE:

The screenshot shows the AWS CloudWatch Metrics interface with a search bar at the top. Below it, there's a table with columns for Metric Name, Namespace, and Unit. The table includes rows for 'AWS Lambda Metrics' and 'AWS Lambda Metrics (Approximate)'. At the bottom, there are tabs for 'Metrics' and 'Logs'.

Launch an instance

Summary

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 24.04, amd6... [read more](#)

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GB of bandwidth to the internet.

Launch instance

The screenshot shows the AWS CloudWatch Metrics interface with a search bar at the top. Below it, there's a table with columns for Metric Name, Namespace, and Unit. The table includes rows for 'AWS Lambda Metrics' and 'AWS Lambda Metrics (Approximate)'. At the bottom, there are tabs for 'Metrics' and 'Logs'.

Application and OS Images (Amazon Machine Image)

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.

Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Li... [Browse more AMIs](#)

Amazon Machine Image (AMI)

Ubuntu Server 24.04 LTS (HVM), SSD Volume Type
ami-0866a3c8686eaeba (64-bit (x86)) / ami-0125498274077f45 (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Ubuntu Server 24.04 LTS (HVM).EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).

Architecture: 64-bit (x86) **AMI ID**: ami-0866a3c8686eaeba **Username**: ubuntu **Verified provider**

Summary

Number of instances: 1

Software Image (AMI): Canonical, Ubuntu, 24.04, amd6... [read more](#)

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

Storage (volumes): 1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address usage per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GB of bandwidth to the internet.

Launch instance

The screenshot shows the AWS EC2 Launch Instances wizard. On the left, the 'Instance type' section is set to t2.micro, which is currently eligible for the free tier. It lists various On-Demand and Reserved instance pricing options. Below it, the 'Key pair (login)' section shows 'Vignesh_I_Key' selected. The 'Network settings' section includes a 'Network' dropdown set to vpc-07afb52d938979537, a 'Subnet' dropdown set to 'No preference (Default subnet in any availability zone)', and an 'Auto-assign public IP' checkbox checked. On the right, the 'Summary' section shows 'Number of instances' set to 1. It also specifies the 'Software Image (AMI)' as Canonical, Ubuntu, 24.04, amd64, and the 'Virtual server type (instance type)' as t2.micro. A tooltip for the 'Free tier' indicates it covers 750 hours of t2.micro usage per month. At the bottom right is a large orange 'Launch instance' button.

This screenshot shows the continuation of the EC2 Launch Instances wizard. In the 'Network settings' section, the 'Network' is set to vpc-07afb52d938979537 and the 'Subnet' is set to 'No preference (Default subnet in any availability zone)'. The 'Auto-assign public IP' is checked. The 'Additional charges apply when outside of free tier allowance' section is visible. In the 'Security groups' section, there is a 'Create security group' button highlighted in blue. The 'Select existing security group' button is also present. A tooltip for 'Create security group' explains that it will create a new security group named 'launch-wizard-2' with specific rules. The 'Summary' section on the right remains the same, showing 1 instance and the specified AMI and instance type. The 'Launch instance' button is again at the bottom right.

The screenshot shows the AWS CloudShell interface with a browser window open to the EC2 instance launch page. The browser tabs include "Launch an instance | EC2 | us-east-1" and "Subnet CIDR blocks - Amazon". The main content area displays the "Launch an instance" wizard. The "Summary" step shows 1 instance being launched. The "Software Image (AMI)" is set to Canonical, Ubuntu, 24.04, amd64. The "Virtual server type (instance type)" is t2.micro. The "Firewall (security group)" is set to "New security group". Under "Storage (volumes)", it shows 1 volume(s) - 8 GB. A tooltip for "Free tier" indicates it includes 750 hours of t2.micro usage per month, 750 hours of public IPv4 address usage per month, 30 GB of EBS storage, 2 million I/Os, 1 GB of snapshots, and 100 GB of bandwidth to the internet. The "Launch instance" button is prominently displayed at the bottom right.

The screenshot shows the AWS CloudShell interface with a browser window open to the EC2 instance launch progress page. The browser tabs include "Launch an instance | EC2 | us-east-1" and "Subnet CIDR blocks - Amazon". The main content area displays the "Launch an instance" progress bar, which is currently at 75% completion. The progress bar header says "Launching instance" and "Launch initiation". Below the progress bar, there is a "Details" section with the following text:

Please wait while we launch your instance.
Do not close your browser while this is loading.

A status message at the bottom of the progress bar says "75%". The CloudShell toolbar at the bottom includes icons for CloudShell, Feedback, Search, and various system status indicators like weather and network.

The screenshot shows the AWS EC2 'Launch an instance' success page. At the top, there's a green success message: 'Successfully initiated launch of instance (i-0e562e05712869ce1)'. Below this, there's a 'Next Steps' section with several options:

- Create billing and free tier usage alerts
- Connect to your instance
- Connect an RDS database
- Create EBS snapshot policy
- Manage detailed monitoring
- Create Load Balancer
- Create AWS budget
- Manage CloudWatch alarms

At the bottom, there's a navigation bar with links like 'CloudShell', 'Feedback', and the AWS logo. The status bar shows the date and time as 10/7/2024 at 10:30:39 PM.

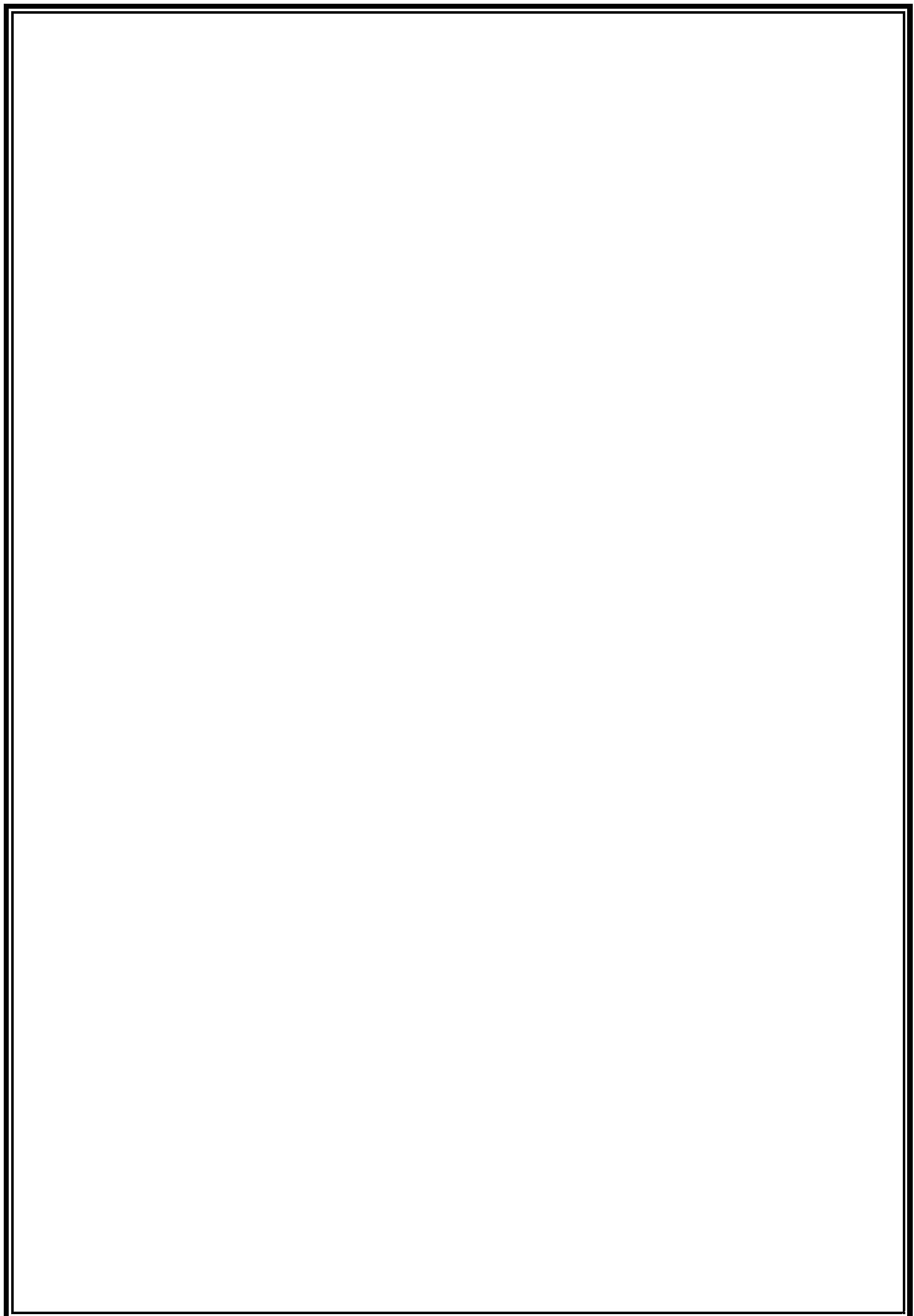
The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links such as 'EC2 Dashboard', 'EC2 Global View', 'Events', 'Console-to-Code', 'Instances', 'Images', 'Elastic Block Store', and 'CloudShell'. The main area displays a table of instances:

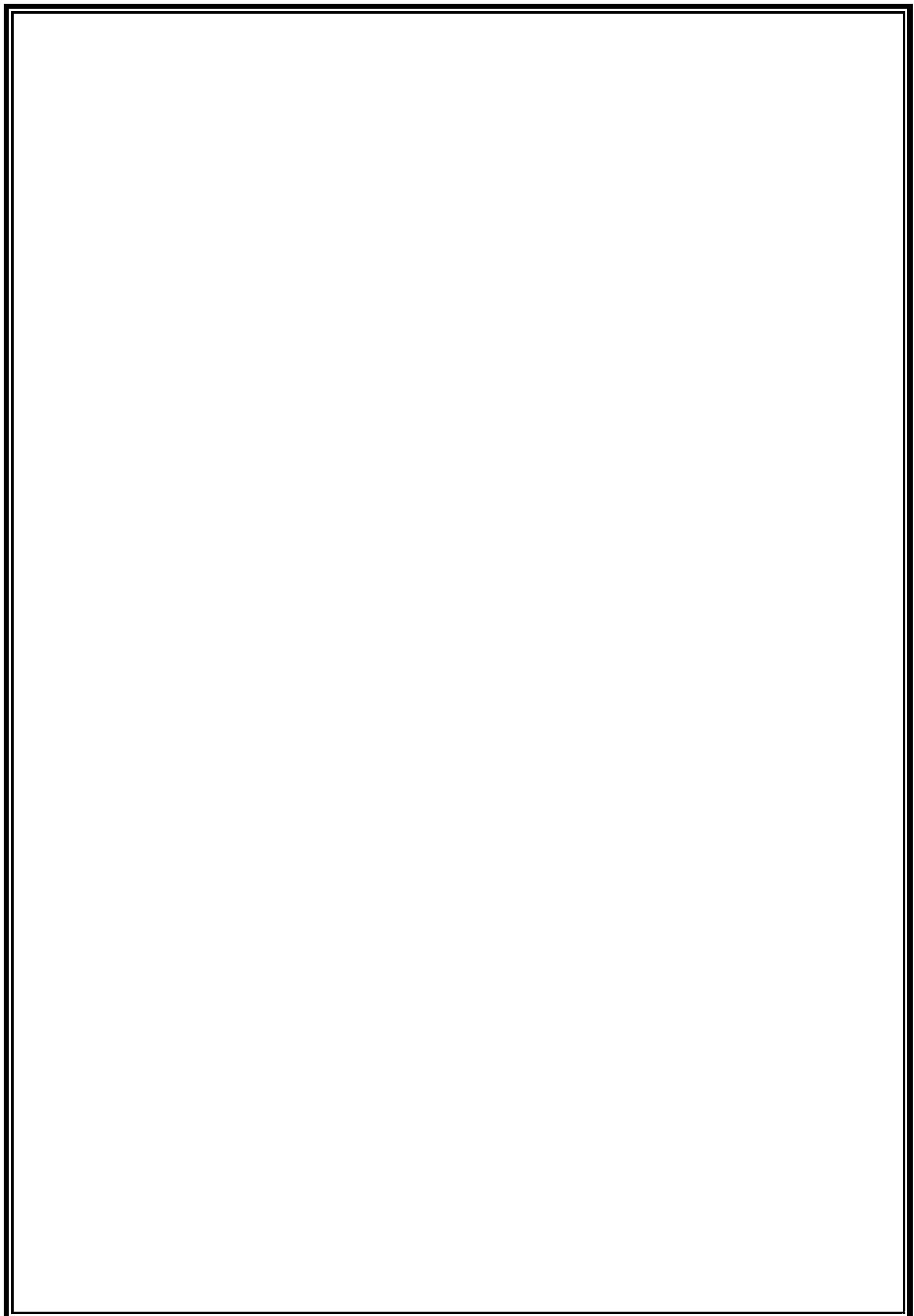
Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 address
Vigneshwaran ...	i-0e562e05712869ce1	Running	t2.micro	Initializing	View alarms	us-east-1d	ec2-3-85-183-36.compute-1.amazonaws.com	3.85.1

Below the table, there's a detailed view for the instance i-0e562e05712869ce1, titled 'Vigneshwaran EC2 Web Server'. It shows the following details:

- Details:** Instance ID (i-0e562e05712869ce1), Public IPv4 address (3.85.183.36), Instance state (Running), Instance type (t2.micro), VPC ID (vpc-07afb32d938979537).
- Instance summary:** Shows the same information as the table row.
- Networking:** Private IP DNS name (ip-172-31-40-180.ec2.internal), Elastic IP addresses (172.31.40.180).
- Security:** Public IPv4 DNS (ec2-3-85-183-36.compute-1.amazonaws.com), AWS Compute Optimizer finding (Opt-in to AWS Compute Optimizer for recommendations).

At the bottom, there's a navigation bar with links like 'CloudShell', 'Feedback', and the AWS logo. The status bar shows the date and time as 10/7/2024 at 10:32:35 PM.

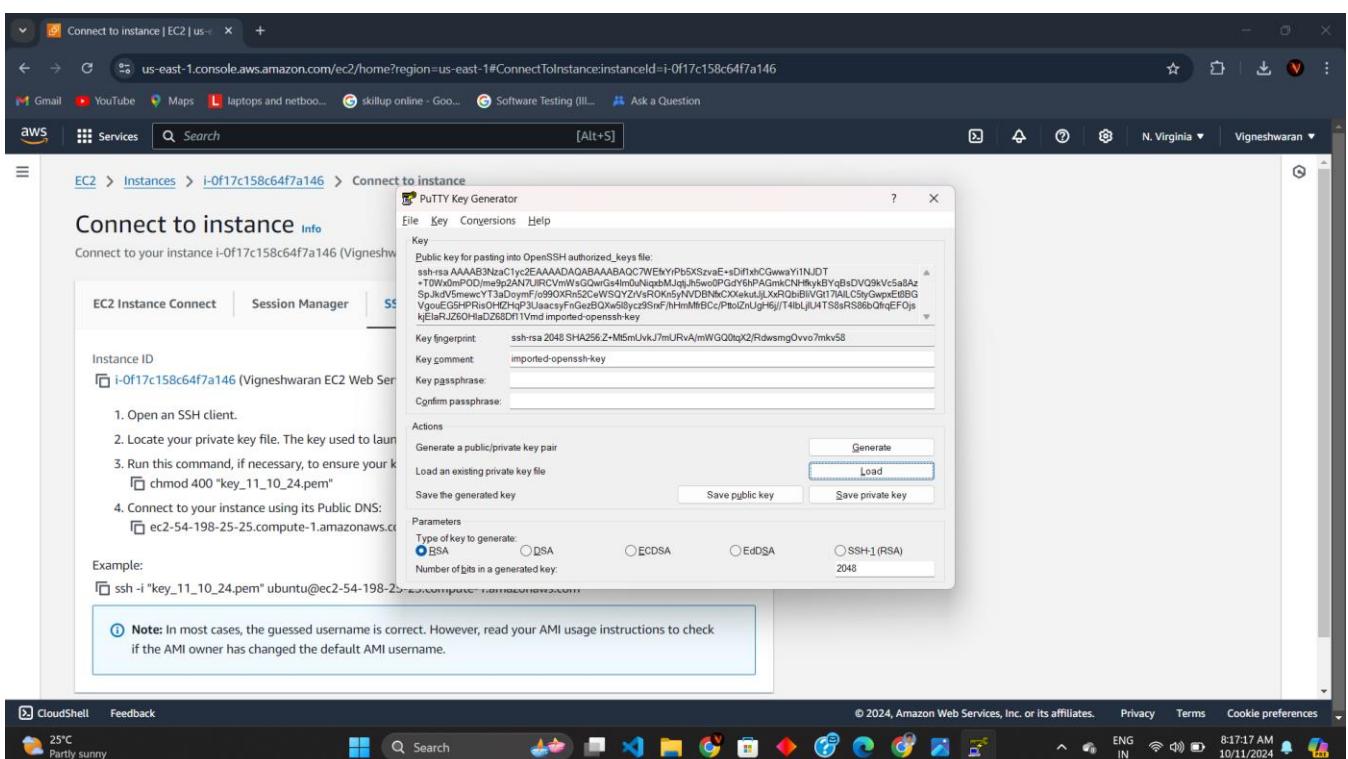
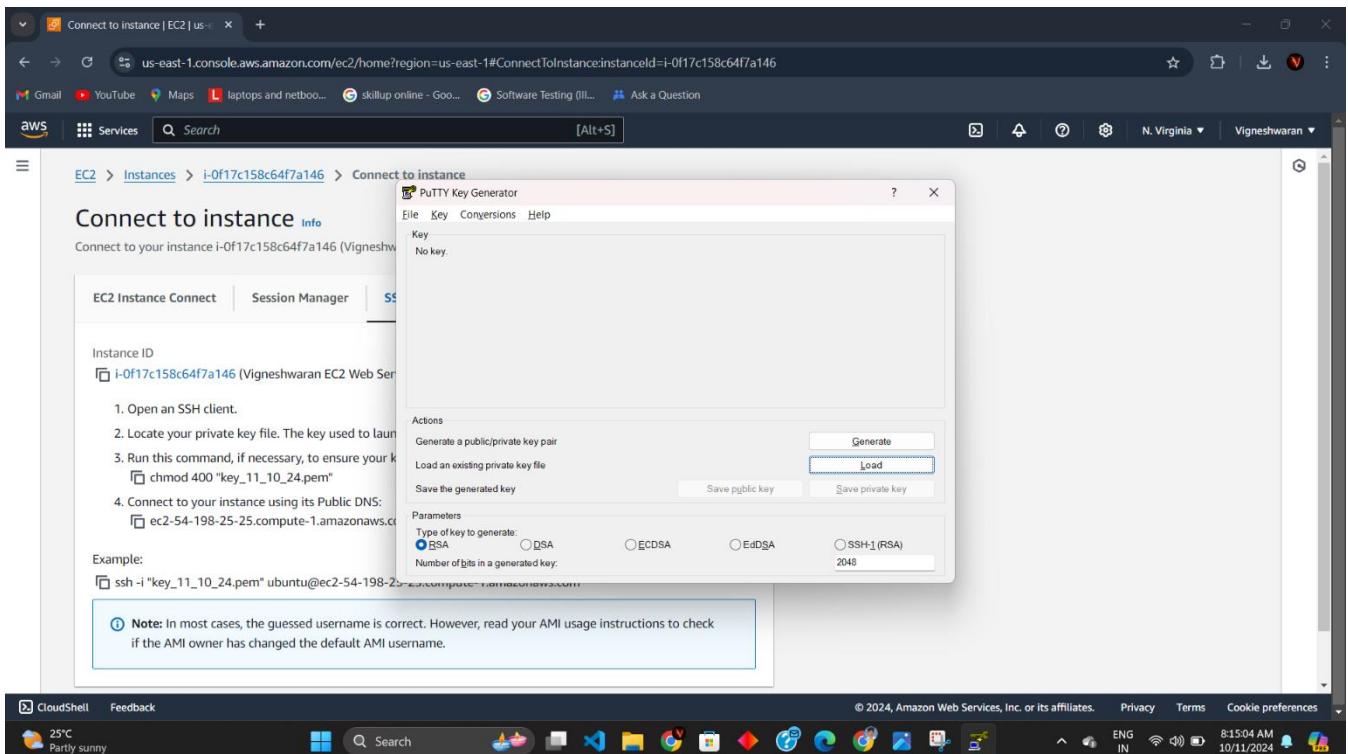


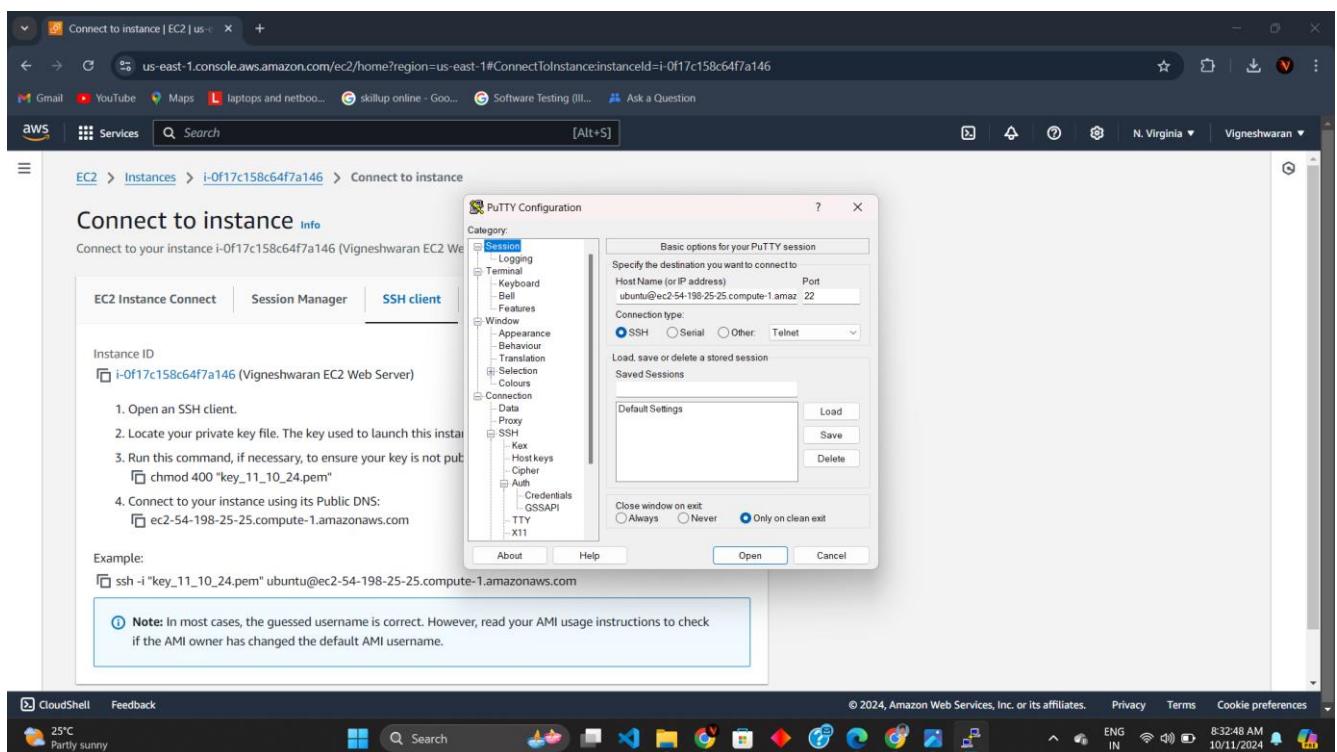
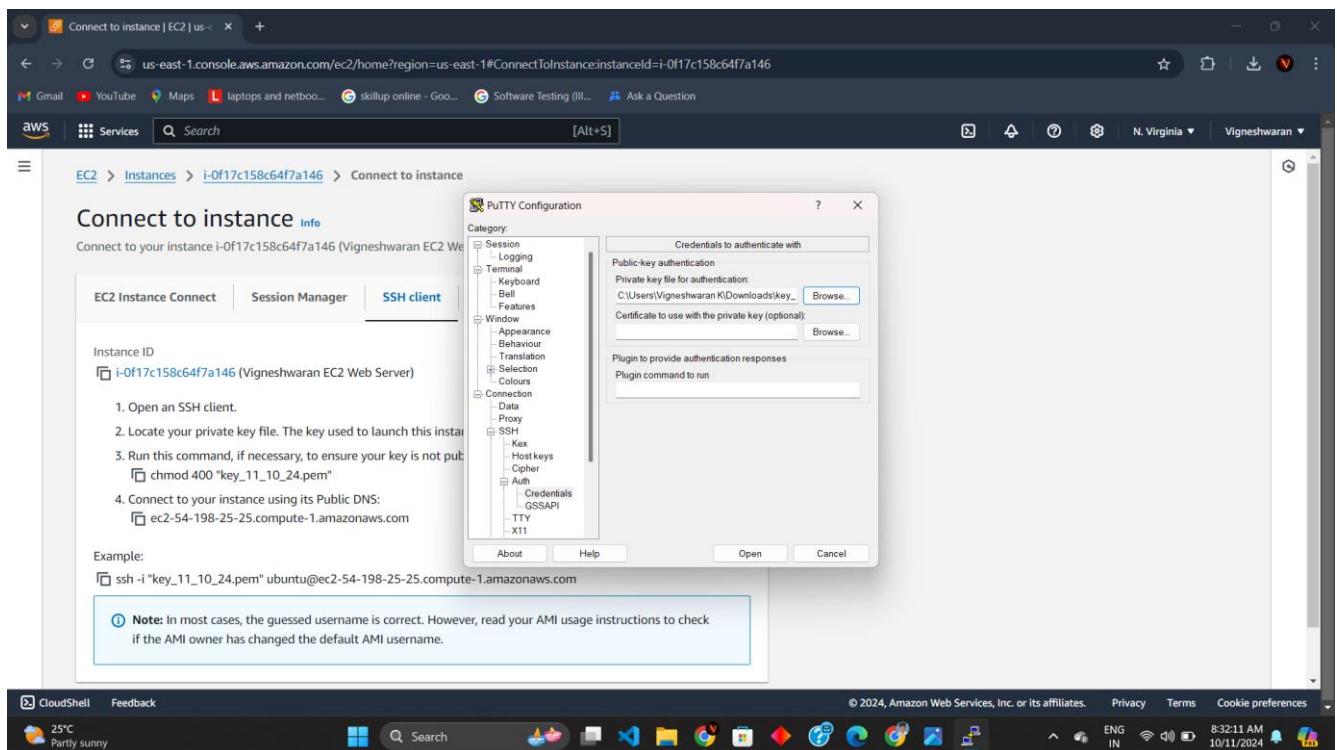


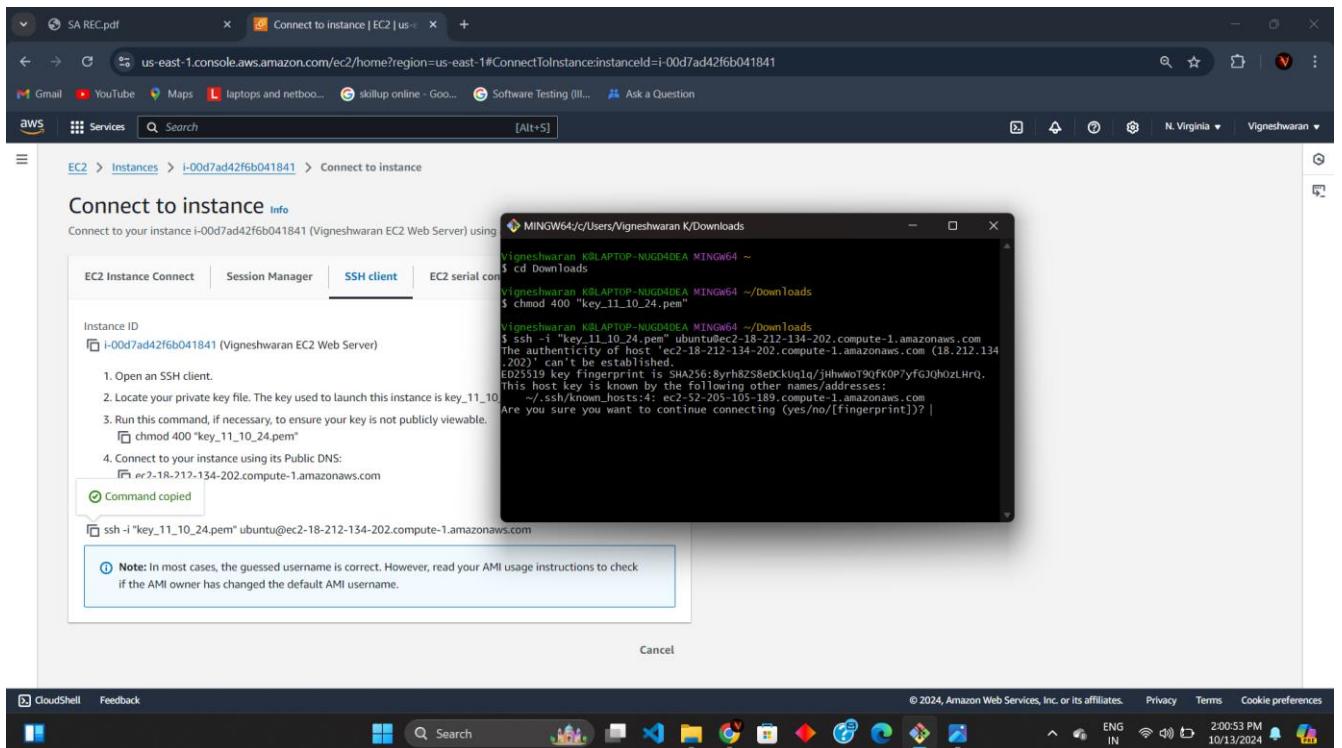
SOURCE CODE:

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like EC2 Dashboard, EC2 Global View, Events, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), and Network & Security (Security Groups). The main content area displays a table titled "Instances (1/1) Info" with one row. The row details an instance named "Vigneshwaran ...", ID "i-0f17c158c64f7a146", which is "Running" and "t2.micro". It also shows its Public IPv4 DNS as "ec2-54-198-25-25.compute-1.amazonaws.com" and its Public IPv4 address as "54.198.25.25". Below the table, a detailed view for "i-0f17c158c64f7a146 (Vigneshwaran EC2 Web Server)" is shown, with tabs for Details, Status and alarms, Monitoring, Security, Networking, Storage, and Tags. The "Details" tab is selected, displaying information such as Instance ID, IP name, Hostname type, Answer private resource DNS name, Auto-assigned IP address, and VPC ID.

The screenshot shows the "Connect to instance" dialog for the EC2 instance "i-0f17c158c64f7a146". The top navigation bar includes links for EC2, Instances, i-0f17c158c64f7a146, and Connect to instance. The main content area has tabs for EC2 Instance Connect, Session Manager, SSH client (which is selected), and EC2 serial console. Under the SSH client tab, the "Instance ID" is listed as "i-0f17c158c64f7a146 (Vigneshwaran EC2 Web Server)". Below this, a numbered list provides instructions: 1. Open an SSH client, 2. Locate your private key file (key_11_10_24.pem), 3. Run the command "chmod 400 key_11_10_24.pem", and 4. Connect to your instance using its Public DNS: "ec2-54-198-25-25.compute-1.amazonaws.com". A note at the bottom states: "Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username." At the bottom right of the dialog is a "Cancel" button.







```
ubuntu@ip-172-31-35-187:~
```

```
Vigneshwaran KBLAPTOP-MUGD4DEA MINGW64 ~
```

```
$ cd Downloads
```

```
Vigneshwaran KBLAPTOP-MUGD4DEA MINGW64 ~/Downloads
```

```
$ chmod 400 "key_11_10_24.pem"
```

```
Vigneshwaran KBLAPTOP-MUGD4DEA MINGW64 ~/Downloads
```

```
$ ssh -i "key_11_10_24.pem" ubuntu@ec2-18-212-134-202.compute-1.amazonaws.com
```

The authenticity of host 'ec2-18-212-134-202.compute-1.amazonaws.com (18.212.134.202)' can't be established.

ED25519 key fingerprint is SHA256:8yrh8zZ8eDckUq1q/jHhw0t9ufKOP/yfGJQh0zLHrQ.

This host key is known by the following other names/addresses:

-> /ssh/known_hosts:4: ec2-52-205-105-189.compute-1.amazonaws.com

Are you sure you want to continue connecting (yes/no/[Fingerprint])? yes

Warning: Permanently added 'ec2-18-212-134-202.compute-1.amazonaws.com' (ED25519) to the list of known hosts.

```
welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)
```

```
* Documentation: https://help.ubuntu.com
```

```
* Management: https://landscape.canonical.com
```

```
* Support: https://ubuntu.com/pro
```

```
System information as of sun oct 13 08:31:21 UTC 2024
```

```
System load: 0.11 Processes: 108
```

```
Usage of /: 23.2% of 6.71GB Users logged in: 0
```

```
Memory usage: 20% IPv4 address for enx0: 172.31.35.187
```

```
Swap usage: 0%
```

```
Expanded Security Maintenance for Applications is not enabled.
```

```
0 updates can be applied immediately.
```

```
Enable ESM Apps to receive additional future security updates.
```

```
See https://ubuntu.com/esm or run: sudo pro status
```

```
The list of available updates is more than a week old.
```

```
To check for new updates run: sudo apt update
```

```
Last login: Fri Oct 11 03:25:52 2024 from 157.49.241.223
```

```
To run a command as administrator (user "root"), use "sudo <command>".
```

```
See "man sudo_root" for details.
```

```
ubuntu@ip-172-31-35-187:~$ echo "Hello Vigneshwaran K"
```

```
Hello Vigneshwaran K
```

```
ubuntu@ip-172-31-35-187:~$
```

```
Vigneshwaran KBLAPTOP-MUGD4DEA MINGW64 ~/Downloads
```

```
$ cd Downloads
```

```
Vigneshwaran KBLAPTOP-MUGD4DEA MINGW64 ~/Downloads
```

```
$ chmod 400 "key_11_10_24.pem"
```

```
Vigneshwaran KBLAPTOP-MUGD4DEA MINGW64 ~/Downloads
```

```
$ ssh -i "key_11_10_24.pem" ubuntu@ec2-18-212-134-202.compute-1.amazonaws.com
```

The authenticity of host 'ec2-18-212-134-202.compute-1.amazonaws.com (18.212.134.202)' can't be established.

ED25519 key fingerprint is SHA256:8yrh8zZ8eDckUq1q/jHhw0t9ufKOP/yfGJQh0zLHrQ.

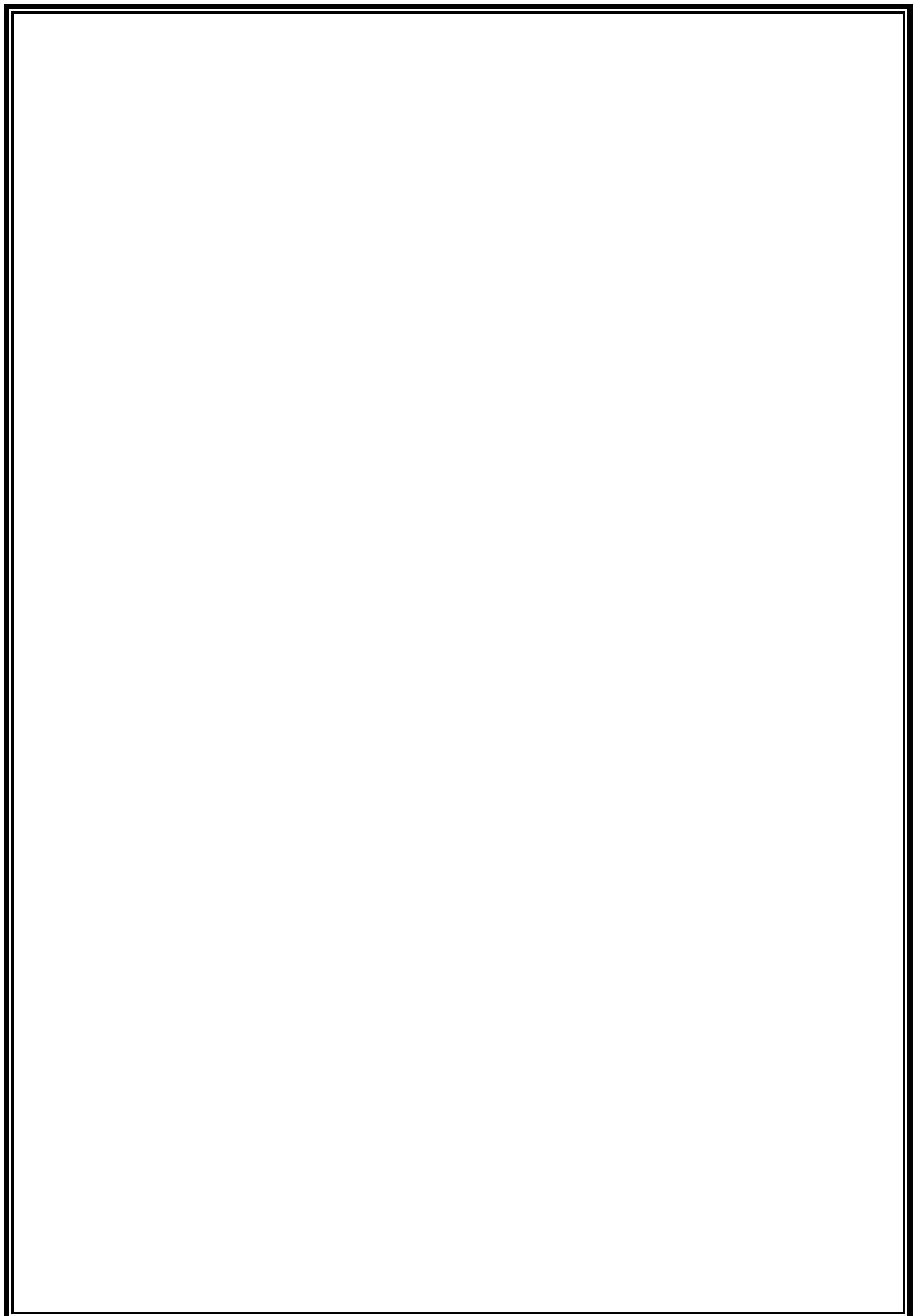
This host key is known by the following other names/addresses:

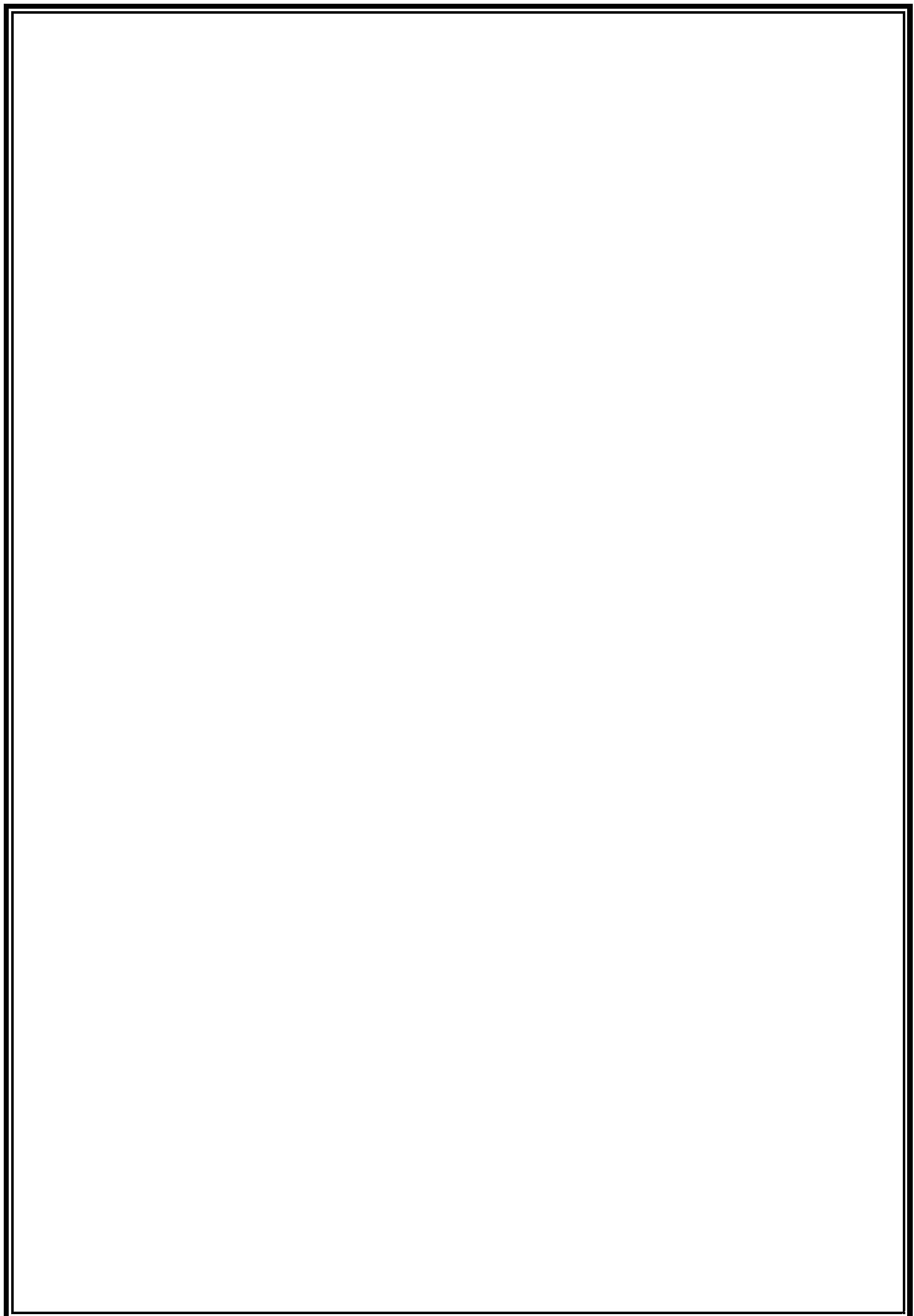
-> /ssh/known_hosts:4: ec2-52-205-105-189.compute-1.amazonaws.com

Are you sure you want to continue connecting (yes/no/[Fingerprint])? ?

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CloudShell Feedback ENG IN 2:03:35 PM 10/13/2024





SOURCE CODE:

The screenshot shows the AWS EC2 Instances page. The left sidebar includes links for EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups), CloudShell, and Feedback. The main content area displays a table of instances. One instance, "Server SSH" (i-0707133bcc3b5703), is selected and shown in detail below the table. The instance is running, has a Public IPv4 address of 54.166.154.22, and a Private IP address of 172.31.38.59. It is in the us-east-1d availability zone. Another instance, "Vigneshwaran ..." (i-00d7ad42f6b041841), is listed as stopped. The bottom of the screen shows a Windows taskbar with various icons.

The screenshot shows the AWS EC2 Volumes page. The left sidebar includes links for EC2 Dashboard, EC2 Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images, Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups), CloudShell, and Feedback. The main content area displays a table of volumes. Two volumes are listed: "Vigneshwaran K" (vol-078ff21526719a63f) and "Server SHH" (vol-0fa238fcf72a137). Both are gp3 type, 8 GiB in size, with 3000 IOPS and 125 throughput. They were created on Oct 11, 2024, at 08:54:50 GMT+5:30 (India Standard Time) from snapshot snap-021176b... in the us-east-1d availability zone. The "Vigneshwaran K" volume is attached to the "Server SHH" instance. The bottom of the screen shows a Windows taskbar with various icons.

Screenshot of the AWS Management Console showing the EC2 Volumes page. A context menu is open over a selected volume named 'Vigneshwaran K'.

Actions dropdown menu options:

- Create volume
- Modify volume
- Create snapshot
- Create snapshot lifecycle policy
- Delete volume
- Attach volume
- Detach volume
- Force detach volume
- Manage auto-enabled I/O
- Manage tags
- Fault injection

Volume Details:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone
Vigneshwaran K	vol-078ff21526719a63f	gp3	8 GiB	3000	125	snap-021176b...	2024/10/11 08:54 GMT+5:30	us-east-1d
Server SHH	vol-0fa238fcf5c72a137	gp3	8 GiB	3000	125	snap-021176b...	2024/10/13 14:17 GMT+5:30	us-east-1d

Screenshot of the AWS Management Console showing the EC2 Volumes page. A context menu is open over a selected volume named 'Vigneshwaran K'.

Actions dropdown menu options:

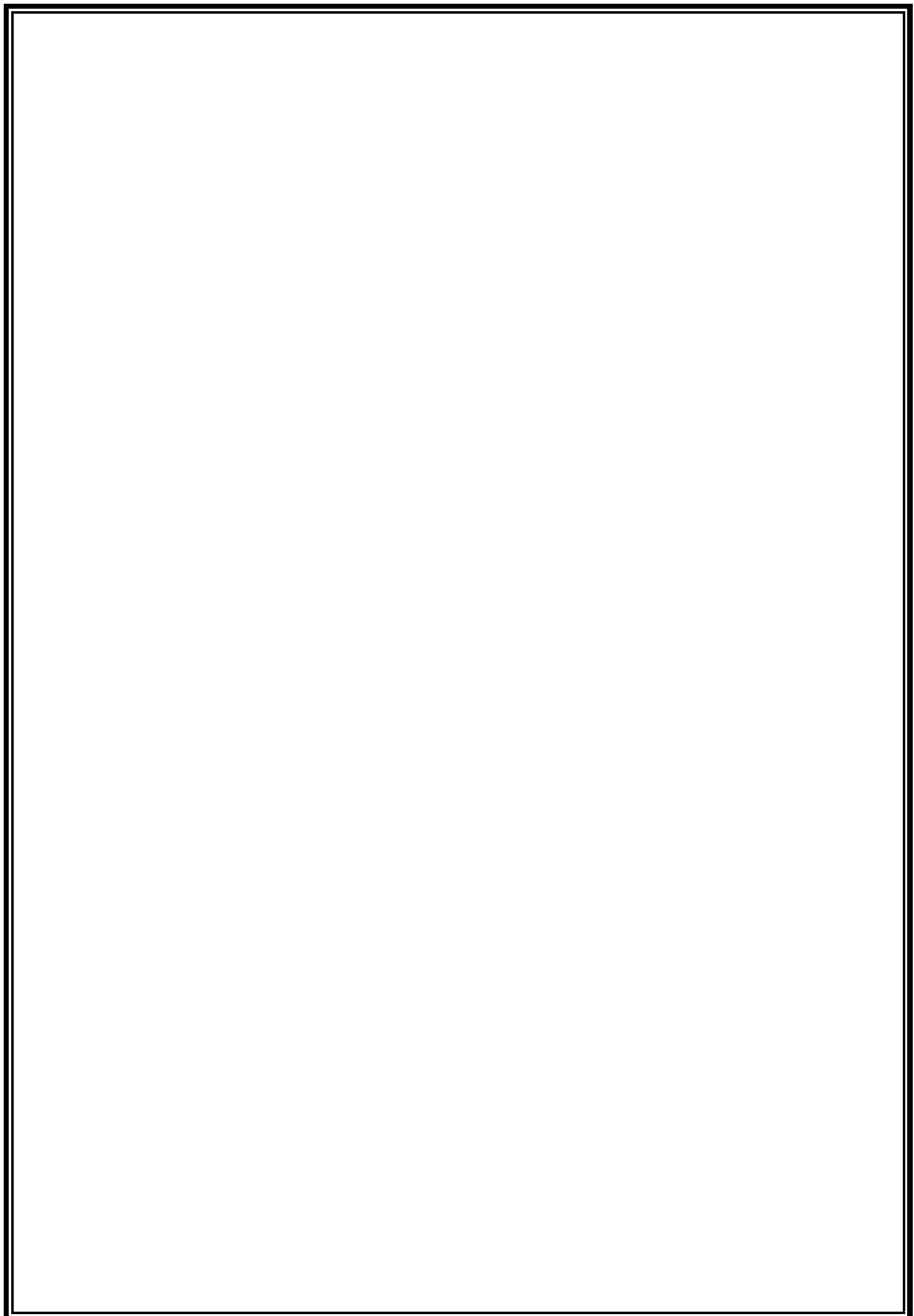
- Create volume
- Modify volume
- Create snapshot
- Create snapshot lifecycle policy
- Delete volume
- Attach volume
- Detach volume
- Force detach volume
- Manage auto-enabled I/O
- Manage tags
- Fault injection

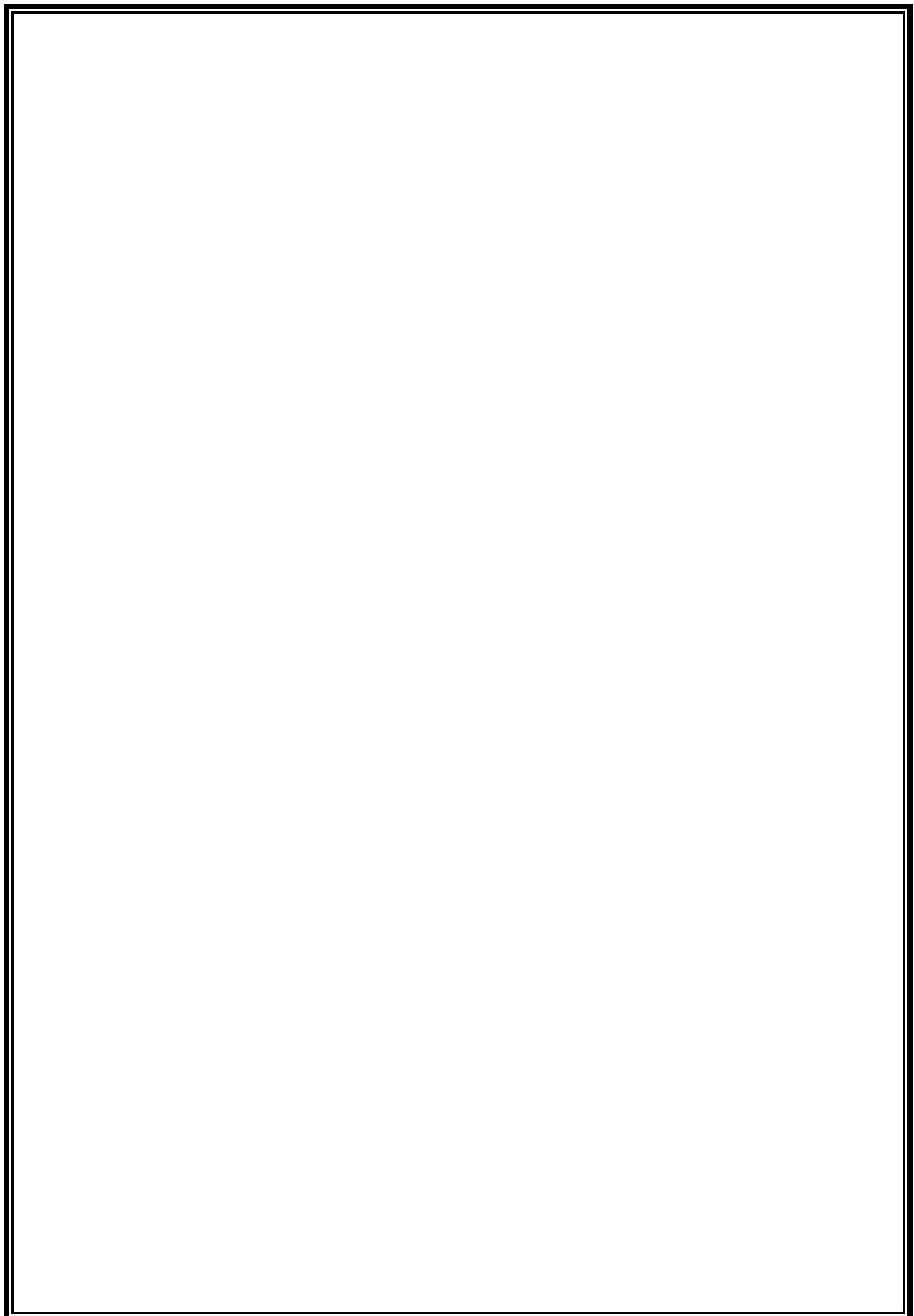
Volume Details:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone
Vigneshwaran K	vol-078ff21526719a63f	gp3	8 GiB	3000	125	snap-021176b...	2024/10/11 08:54 GMT+5:30	us-east-1d
Server SHH	vol-0fa238fcf5c72a137	gp3	8 GiB	3000	125	snap-021176b...	2024/10/13 14:17 GMT+5:30	us-east-1d

The screenshot shows the AWS CloudShell interface. At the top, there are tabs for 'Attach volume | EC2 | us-east-1' and 'SA REC.pdf'. Below the tabs, the URL is 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#AttachVolume:volumeld=vol-078ff21526719a63f'. The main content area displays the 'Attach volume' wizard. Step 1, 'Basic details', is shown. It includes fields for 'Volume ID' (vol-078ff21526719a63f), 'Availability Zone' (us-east-1d), 'Instance' (i-00d7ad42f6b041841), and 'Device name' (/dev/sda1). A note states: 'Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.' There are 'Cancel' and 'Attach volume' buttons at the bottom.

The screenshot shows the Windows taskbar. On the left is a terminal window titled 'MINGW64/c/Users/Vigneshwaran K/Downloads'. The terminal output shows the user connecting to an AWS instance via SSH. The user types 'ssh ec2-54-166-154-22.compute-1.amazonaws.com' and receives a warning about host key fingerprint mismatch. The user responds with 'yes' and is added to the list of known hosts. The terminal then displays system information, including the date and time (Sun Oct 13 09:18:59 UTC 2024), system load (0.08), and memory usage (20%). It also shows expanded security maintenance information and a note about ESM updates. The user then runs a command to echo 'Hi, vigneshwaran' and exits the session. The terminal ends with a prompt '\$ |'. The taskbar also shows the Start button, a search bar, and various pinned icons for Microsoft Edge, File Explorer, and other applications. The system tray indicates the date (10/13/2024), time (2:49:43 PM), and battery level.





SOURCE CODE:

The screenshot shows the AWS EC2 Management Console with the URL us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateSecurityGroup. The page is titled "Create security group".

Basic details

- Security group name: `web-access` (Info)
- Description: `Allow SSH & HTTP` (Info)
- VPC: `vpc-0fd7ea29a03f617b2` (Info)

Inbound rules (Info)

Type	Protocol	Port range	Source	Description - optional
SSH	TCP	22	Anywhere	Allow SSH
HTTP	TCP	80	Anywhere	Allow HTTP

CloudShell **Feedback** **Language** © 2023, Amazon Web Services India Private Limited or its affiliates. Privacy Terms Cookie preferences

The screenshot shows the AWS EC2 Management Console with the same URL and title as the previous screenshot.

Inbound rules (Info)

Type	Protocol	Port range	Source	Description - optional
SSH	TCP	22	Anywhere	Allow SSH
HTTP	TCP	80	Anywhere	Allow HTTP
HTTPS	TCP	443	Anywhere	Allow HTTPS

Add rule

Outbound rules (Info)

Type	Protocol	Port range	Destination	Description - optional
All traffic	All	All	Custom	

Add rule

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Tutorial: Create a Classic Load Balancer

EC2 Management Console

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateSecurityGroup:

AWS Services Search [Alt+S]

HTTPS TCP 443 Anywhere... Allow HTTPS Delete

0.0.0.0/0 X

Add rule

Outbound rules Info

Type Info Protocol Info Port range Info Destination Info Description - optional Info

All traffic All Custom 0.0.0.0/0 X

Add rule

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add up to 50 more tags

Cancel Create security group

CloudShell Feedback Language

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Tutorial: Create a Classic Load Balancer

EC2 Management Console

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#SecurityGroup:groupId=sg-04edbd9879de1abd1

New EC2 Experience Tell us what you think

EC2 Dashboard EC2 Global View Events Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Scheduled Instances Capacity Reservations Images AMIs AMI Catalog Elastic Block Store Volumes Snapshots Lifecycle Manager Network & Security CloudShell Feedback Language

35°C Partly sunny

EC2 > Security Groups > sg-04edbd9879de1abd1 - web-access

sg-04edbd9879de1abd1 - web-access Actions

Details

Security group name	Security group ID	Description	VPC ID
web-access	sg-04edbd9879de1abd1	Allow SSH & HTTP	vpc-0fd7ea29a03f617b2
Owner	Inbound rules count	Outbound rules count	
691407528662	3 Permission entries	1 Permission entry	

Inbound rules Outbound rules Tags

You can now check network connectivity with Reachability Analyzer Run Reachability Analyzer

Inbound rules (3)

Name	Security group rule...	IP version	Type	Protocol	Port range	Source
Allow SSH & HTTP	sg-04edbd9879de1abd1	IPv4	tcp	TCP	22, 80	0.0.0.0/0
Allow HTTPS	sg-04edbd9879de1abd1	IPv4	tcp	TCP	443	0.0.0.0/0
0.0.0.0/0	sg-04edbd9879de1abd1	IPv4	tcp	TCP	0-65535	0.0.0.0/0

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EC2 Management Console

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

Name and tags [Info](#)

Name: Machine-1 [Add additional tags](#)

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

Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Linux

Browse more AMIs Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI [Free tier eligible](#)
ami-0f34c5ae932e6f0e4 (64-bit (x86)) / ami-096d41dc1edd4bd2f (64-bit (Arm))
Virtualization: hvm ENA enabled: true Root device type: ebs

Description: Amazon Linux 2023 AMI 2023.1.20230725.0 x86_64 HVM kernel-6.1

Summary

Number of instances [Info](#)
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.1.2... [read more](#)
ami-0f34c5ae932e6f0e4

Virtual server type (instance type)
t2.micro

Firewall (security group)
web-access

Storage (volumes)
1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#) [Review commands](#)

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EC2 Management Console

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

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**: recovery [Create new key pair](#)

Network settings [Info](#)

Network [Info](#): vpc-016f735de63ac414a
Subnet [Info](#): No preference (Default subnet in any availability zone)
Auto-assign public IP [Info](#): Enable
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.
 Create security group Select existing security group
Common security groups [Info](#): Select security groups web-access sg-0e0dc76acbe4b6190 X
VPC: vpc-016f735de63ac414a
Security groups that you add or remove here will be added to or removed from all your network interfaces.

Summary

Number of instances [Info](#)
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.1.2... [read more](#)
ami-0f34c5ae932e6f0e4

Virtual server type (instance type)
t2.micro

Firewall (security group)
web-access

Storage (volumes)
1 volume(s) - 8 GiB

[Cancel](#) [Launch instance](#) [Review commands](#)

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```

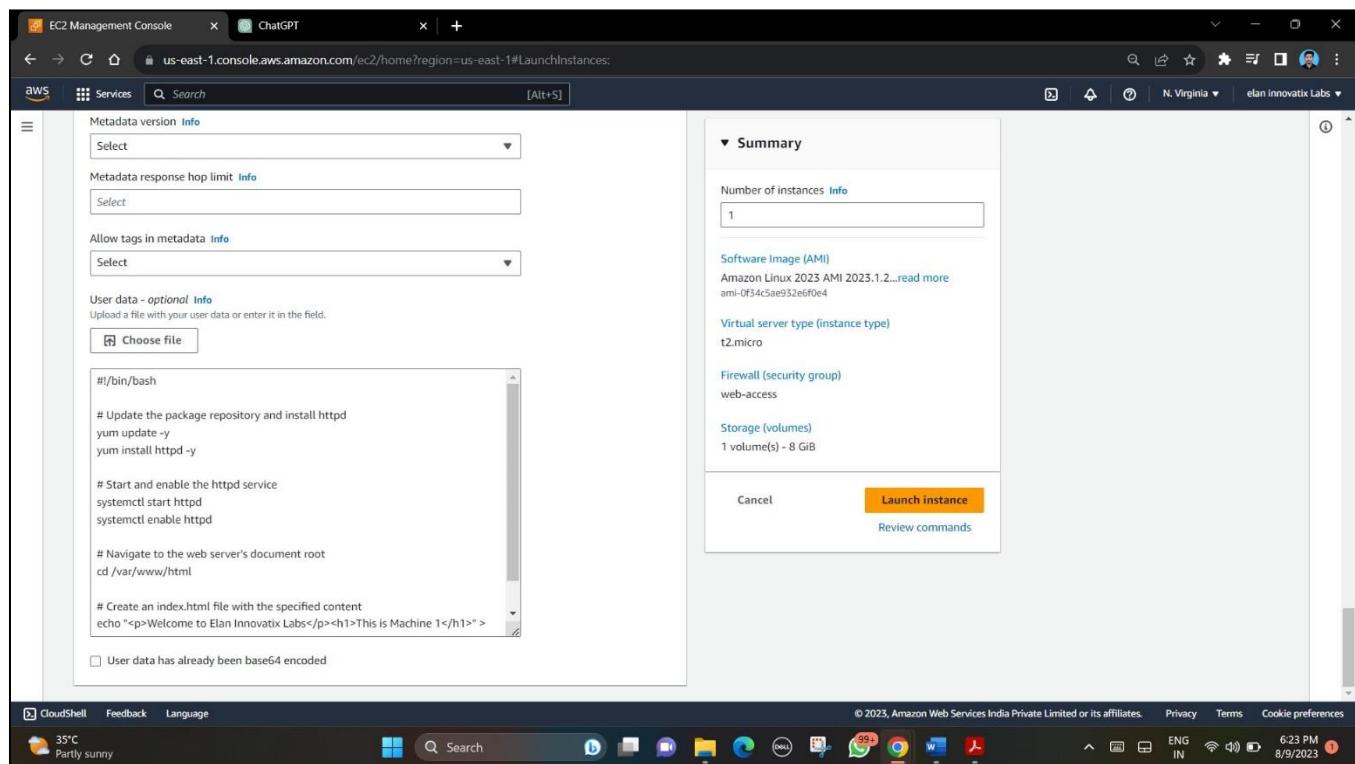
#!/bin/bash
# Update the package repository and install httpd
yum update -y
yum install httpd -y

# Start and enable the httpd service
systemctl start httpd
systemctl enable httpd

# Navigate to the web server's document root
cd /var/www/html

# Create an index.html file with the specified content
echo "<p>Welcome to Elan Innovatix Labs</p><h1>This is Machine 1</h1>" > index.html

```



EC2 Management Console > ChatGPT

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances:

AWS Services Search [Alt+S]

EC2 Instances Launch an instance

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name: Machine 2 Add additional tags

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

Recent AMIs Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat SUSE Linux

Browse more AMIs Including AMIs from AWS, Marketplace and

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Summary

Number of instances Info 1

Software Image (AMI) Amazon Linux 2023 AMI 2023.1.2...read more ami-0f34c5ae932e6f0e4

Virtual server type (instance type) t2.micro

Firewall (security group) web-access

Storage (volumes) 1 volume(s) - 8 GiB

Cancel Launch instance Review commands

Instances | EC2 Management Con +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:v=3;\$case=tags:true%5C,client:false;\$regex=tags:false%5C,client:false

New EC2 Experience Tell us what you think

EC2 Dashboard EC2 Global View Events

Instances Instances Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Scheduled Instances Capacity Reservations

Images AMIs AMI Catalog

Elastic Block Store Volumes Snapshots Lifecycle Manager

Network & Security

CloudShell Feedback Language 35°C Partly sunny

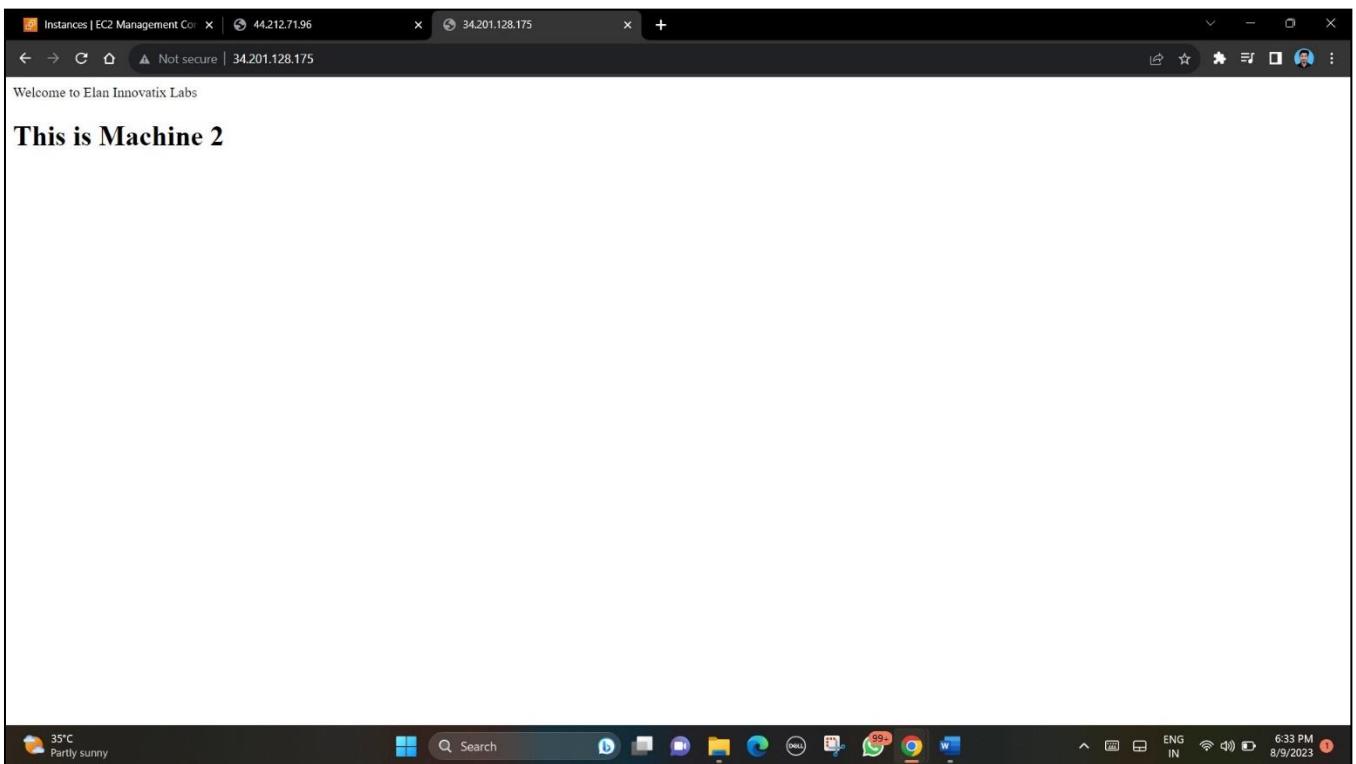
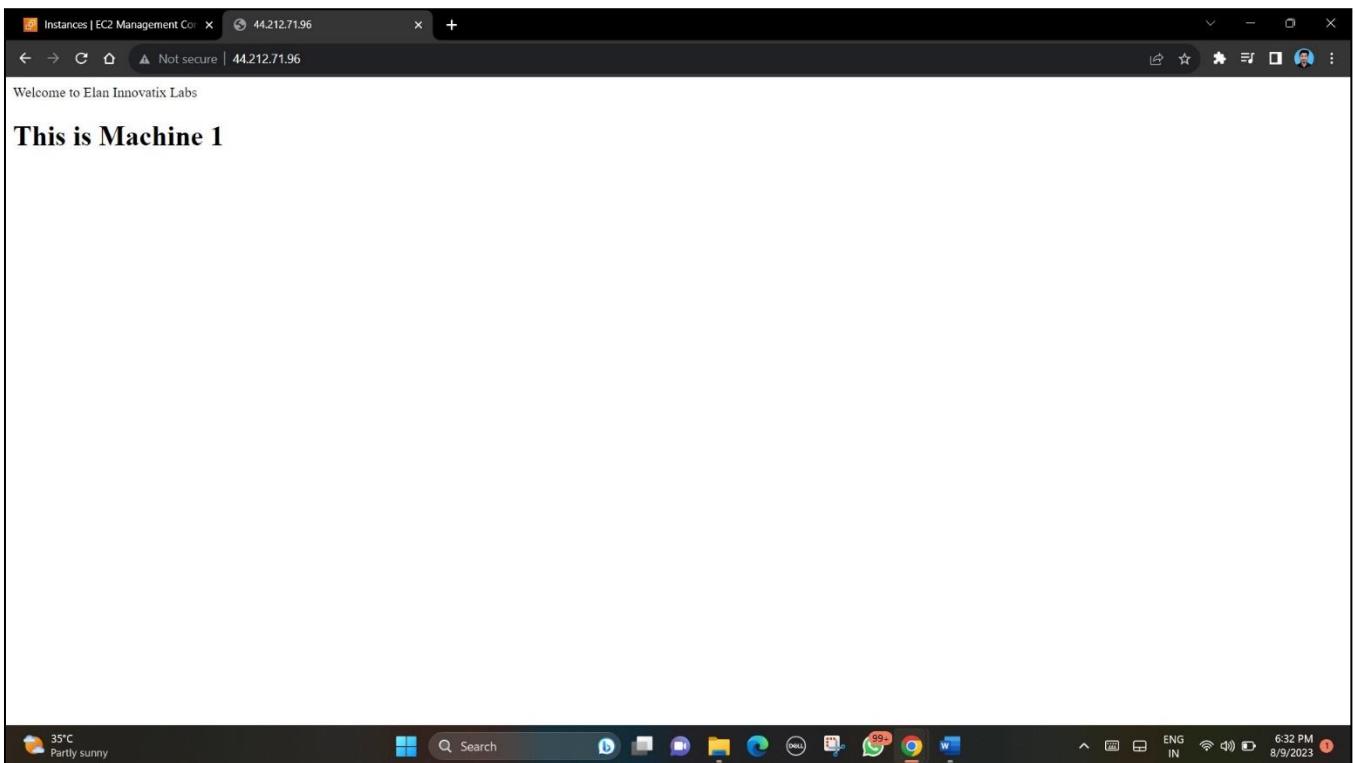
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Instances (4) Info

Find instance by attribute or tag (case-sensitive)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
server-with-key	i-0ded582baa5eaa4a6	Stopped	t2.micro	-	No alarms	+ us-east-1d	-	-
Recovery-server	i-0b755e12e5a28d5d	Stopped	t2.micro	-	No alarms	+ us-east-1d	-	-
Machine 2	i-00c66b95aa1e0252f	Running	t2.micro	Initializing	No alarms	+ us-east-1d	ec2-34-201-128-175.co...	34.201.128.
Machine-1	i-05732859e1e59ac1d	Running	t2.micro	2/2 checks passed	No alarms	+ us-east-1d	ec2-44-212-71-96.com...	44.212.71.9

Select an instance



Target groups | EC2 Management

44.212.71.96 | 34.201.128.175

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#TargetGroups:

AWS Services Search [Alt+S]

EC2 > Target groups

Target groups Info

Search or filter target groups

Name ARN Port Protocol Target type Load balancer VPC ID

No target groups

You don't have any target groups in us-east-1

Create target group

0 target groups selected

Select a target group above.

CloudShell Feedback Language

35°C Partly sunny

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ENG IN 6:34 PM 8/9/2023

This screenshot shows the AWS EC2 Target Groups management interface. The left sidebar includes options like Reserved Instances, Dedicated Hosts, Scheduled Instances, Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), Load Balancing (Load Balancers, Target Groups), and Auto Scaling (Auto Scaling Groups). The 'Target Groups' section is currently selected. The main content area displays a table header for 'Target groups' with columns for Name, ARN, Port, Protocol, Target type, Load balancer, and VPC ID. A message indicates 'No target groups' and 'You don't have any target groups in us-east-1'. A prominent orange 'Create target group' button is at the bottom. The bottom navigation bar shows CloudShell, Feedback, and Language, along with system status (35°C, Partly sunny) and connectivity information (ENG IN, 6:34 PM, 8/9/2023).

Create target group | EC2 Management

44.212.71.96 | 34.201.128.175

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup:

AWS Services Search [Alt+S]

Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a specific VPC.
- Facilitates using static IP addresses and PrivateLink with an Application Load Balancer.

Target group name

TG-1

A maximum of 32 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

Protocol Port

HTTP : 80

VPC

Select the VPC with the instances that you want to include in the target group.

vpc-016f735de63ac414a
IPv4: 172.31.0.0/16

Protocol version

HTTP1

Send requests to targets using HTTP/1.1. Supported when the request protocol is HTTP/1.1 or HTTP/2.

HTTP2

Send requests to targets using HTTP/2. Supported when the request protocol is HTTP/2 or gRPC, but gRPC-specific features are not available.

gRPC

Send requests to targets using gRPC. Supported when the request protocol is gRPC.

Health checks

CloudShell Feedback Language

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ENG IN 6:36 PM 8/9/2023

This screenshot shows the 'Create target group' wizard for an Application Load Balancer. It starts with a brief description of what an ALB offers. The 'Target group name' is set to 'TG-1'. Under 'Protocol', 'HTTP' is selected with port '80'. In the 'VPC' section, a single VPC entry is shown: 'vpc-016f735de63ac414a' with 'IPv4: 172.31.0.0/16'. The 'Protocol version' section includes options for 'HTTP1', 'HTTP2', and 'gRPC', with 'HTTP1' currently selected. The bottom section, 'Health checks', is partially visible. The bottom navigation bar is identical to the previous screenshot, showing CloudShell, Feedback, Language, and system status.

Create target group | EC2 Manager

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup:

Services Search [Alt+S]

Timeout
The amount of time, in seconds, during which no response means a failed health check.
5 seconds
2-120

Interval
The approximate amount of time between health checks of an individual target.
30 seconds
5-300

Success codes
The HTTP codes to use when checking for a successful response from a target. You can specify multiple values (for example, "200,202") or a range of values (for example, "200-299").
200

Attributes
Certain default attributes will be applied to your target group. You can view and edit them after creating the target group.

Tags - optional
Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.

Cancel Next

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This screenshot shows the first step of the 'Create target group' wizard. It's titled 'Set Health Check Configuration'. The 'Timeout' field is set to 5 seconds, and the 'Interval' field is set to 30 seconds. Under 'Success codes', only '200' is selected. Below this, there are sections for 'Attributes' and 'Tags - optional'. The 'Attributes' section contains a note: 'Certain default attributes will be applied to your target group. You can view and edit them after creating the target group.' The 'Tags - optional' section contains a note: 'Consider adding tags to your target group. Tags enable you to categorize your AWS resources so you can more easily manage them.' At the bottom are 'Cancel' and 'Next' buttons. The browser status bar at the bottom shows the URL 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup:' and the IP address '34.201.128.175'.

Create target group | EC2 Manager

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup:

Services Search [Alt+S]

i-05732859e1e59ac1d Machine-1 Running web-access us-east-1d subnet-085045e0e0b8dfb50

0 selected

Ports for the selected instances
Ports for routing traffic to the selected instances.
80
1-65535 (separate multiple ports with commas)

Include as pending below

2 selections are now pending below. Include more or register targets when ready.

Review targets

Targets (2)

All Filter resources by property or value

Remove	Health status	Instance ID	Name	Port	State	Security groups	Zone	Subnet ID
X	Pending	i-05732859e1e59ac1d	Machine-1	80	Running	web-access	us-east-1d	subnet-085045e0e0b8dfb50
X	Pending	i-00c66b95aa1e0252f	Machine 2	80	Running	web-access	us-east-1d	subnet-085045e0e0b8dfb50

2 pending

Cancel Previous Create target group

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This screenshot shows the second step of the 'Create target group' wizard, titled 'Review targets'. It lists two targets: 'Machine-1' and 'Machine 2', both of which are currently in a 'Pending' state. Both targets have port 80 and are in the 'Running' state. They belong to the 'web-access' security group and are located in the 'us-east-1d' zone with subnet 'subnet-085045e0e0b8dfb50'. At the bottom, there are 'Cancel', 'Previous', and 'Create target group' buttons. The 'Create target group' button is highlighted with a yellow background. The browser status bar at the bottom shows the URL 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateTargetGroup:' and the IP address '44.212.71.96'.

Load balancers | EC2 Management

44.212.71.96 | 34.201.128.175

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LoadBalancers:

AWS Services Search [Alt+S]

EC2 > Load balancers

Load balancers

Elastic Load Balancing scales your load balancer capacity automatically in response to changes in incoming traffic.

Filter by property or value

Name DNS name State VPC ID Availability Zones Type Date created

No load balancers

You don't have any load balancers in us-east-1

Create load balancer

0 load balancers selected

Select a load balancer above.

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ENG IN 6:39 PM 8/9/2023

Compare and select load balancer | EC2 Management

44.212.71.96 | 34.201.128.175

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#SelectCreateELBWizard:

AWS Services Search [Alt+S]

Application Load Balancer Info

Choose an Application Load Balancer when you need a flexible feature set for your applications with HTTP and HTTPS traffic. Operating at the request level, Application Load Balancers provide advanced routing and visibility features targeted at application architectures, including microservices and containers.

Create

Network Load Balancer Info

Choose a Network Load Balancer when you need ultra-high performance, TLS offloading at scale, centralized certificate deployment, support for UDP, and static IP addresses for your applications. Operating at the connection level, Network Load Balancers are capable of handling millions of requests per second securely while maintaining ultra-low latencies.

Create

Gateway Load Balancer Info

Choose a Gateway Load Balancer when you need to deploy and manage a fleet of third-party virtual appliances that support GENEVE. These appliances enable you to improve security, compliance, and policy controls.

Create

Classic Load Balancer - previous generation

Close

CloudShell Feedback Language

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ENG IN 6:39 PM 8/9/2023

Create application load balancer x 44.212.71.96 x 34.201.128.175 x +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

AWS Services Search [Alt+S]

N. Virginia elan innovatix Labs

EC2 > Load balancers > Create Application Load Balancer

Create Application Load Balancer Info

The Application Load Balancer distributes incoming HTTP and HTTPS traffic across multiple targets such as Amazon EC2 instances, microservices, and containers, based on request attributes. When the load balancer receives a connection request, it evaluates the listener rules in priority order to determine which rule to apply, and if applicable, it selects a target from the target group for the rule action.

▶ How Elastic Load Balancing works

Basic configuration

Load balancer name
Name must be unique within your AWS account and can't be changed after the load balancer is created.
 A maximum of 52 alphanumeric characters including hyphens are allowed, but the name must not begin or end with a hyphen.

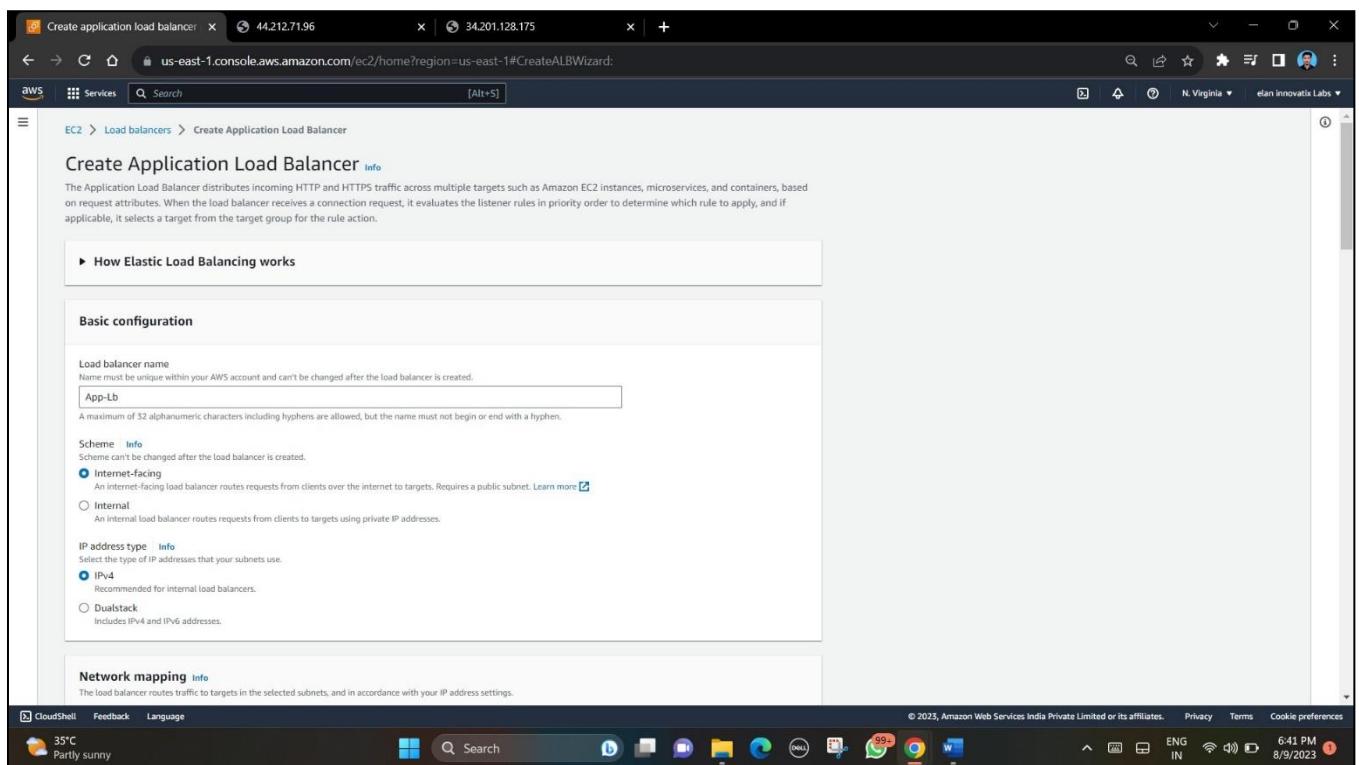
Scheme Info
Scheme can't be changed after the load balancer is created.
 Internet-facing An internet-facing load balancer routes requests from clients over the internet to targets. Requires a public subnet. Learn more [?]
 Internal An internal load balancer routes requests from clients to targets using private IP addresses.

IP address type Info
Select the type of IP addresses that your subnets use.
 IPv4 Recommended for internal load balancers.
 Dualstack Includes IPv4 and IPv6 addresses.

Network mapping Info
The load balancer routes traffic to targets in the selected subnets, and in accordance with your IP address settings.

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Create application load balancer x 44.212.71.96 x 34.201.128.175 x +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

AWS Services Search [Alt+S]

N. Virginia elan innovatix Labs

Mappings Info
Select at least two Availability Zones and one subnet per zone. The load balancer routes traffic to targets in these Availability Zones only. Availability Zones that are not supported by the load balancer or the VPC are not available for selection.

us-east-1a (use1-az4)
Subnet
IPv4 address Assigned by AWS

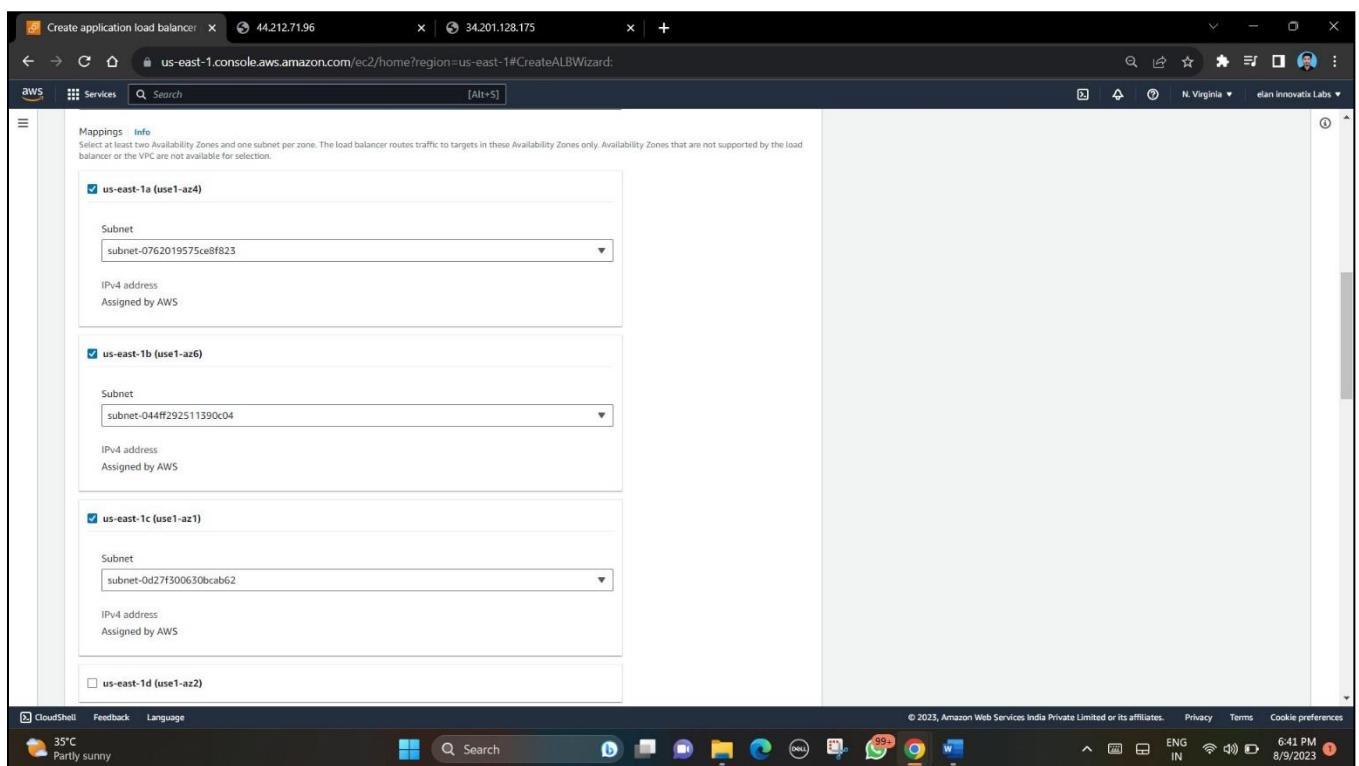
us-east-1b (use1-az6)
Subnet
IPv4 address Assigned by AWS

us-east-1c (use1-az1)
Subnet
IPv4 address Assigned by AWS

us-east-1d (use1-az2)

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Create application load balancer | 44.212.71.96 | 34.201.128.175 | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

Services Search [Alt+S]

Security groups Info

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.

Security groups

Select up to 5 security groups

web-access sg-0e0dc76acbe4b6190 VPC: vpc-016f735de63ac414a

Listeners and routing Info

A listener is a process that checks for connection requests using the port and protocol you configure. The rules that you define for a listener determine how the load balancer routes requests to its registered targets.

▼ Listener HTTP:80

Protocol Port Default action Info

HTTP : 80 Forward to TG-1 Target type: Instance, IPv4

1-65535 Create target group

Listener tags - optional

Consider adding tags to your listener. Tags enable you to categorize your AWS resources so you can more easily manage them.

Add listener tag

You can add up to 50 more tags.

Add listener

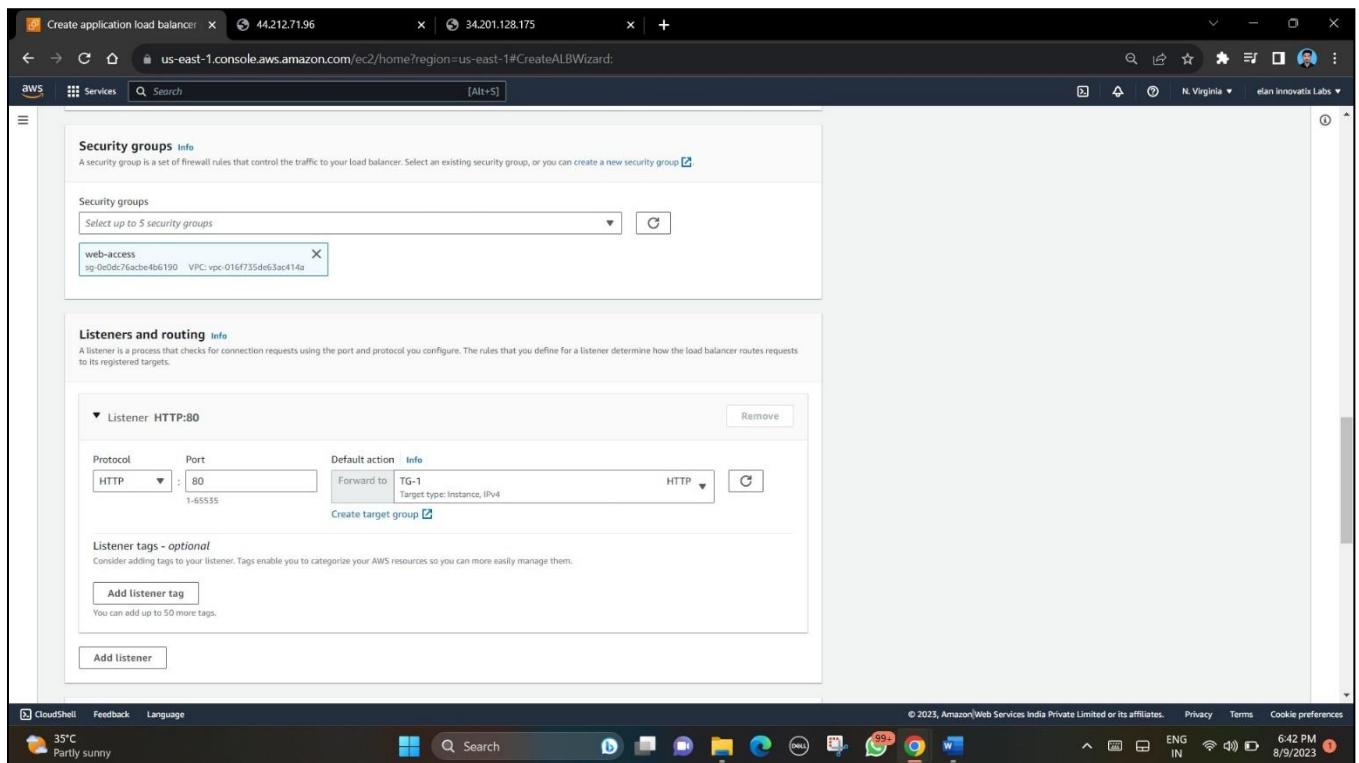
CloudShell Feedback Language

35°C Partly sunny

Search

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ENG IN 6:42 PM 8/9/2023



Create application load balancer | 44.212.71.96 | 34.201.128.175 | +

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#CreateALBWizard:

Services Search [Alt+S]

Create an accelerator to get static IP addresses and improve the performance and availability of your applications. Additional charges apply

► Load balancer tags - optional

Consider adding tags to your load balancer. Tags enable you to categorize your AWS resources so you can more easily manage them. The 'Key' is required, but 'Value' is optional. For example, you can have Key = production-webserver, Key = webserver, and Value = production.

Summary

Review and confirm your configurations. Estimate cost

Basic configuration Edit

App-Lb

- Internet-facing
- IPv4

Security groups Edit

VPC vpc-016f735de63ac414a

- web-access sg-0e0dc76acbe4b6190

Network mapping Edit

- us-east-1a subnet-0762019575ce0fb23
- us-east-1b subnet-044f292511390c04
- us-east-1c subnet-0d27f300630bcab62

Listeners and routing Edit

- HTTP:80 defaults to TG-1

Add-on services Edit

None

Tags Edit

None

Attributes

Certain default attributes will be applied to your load balancer. You can view and edit them after creating the load balancer.

Cancel **Create load balancer**

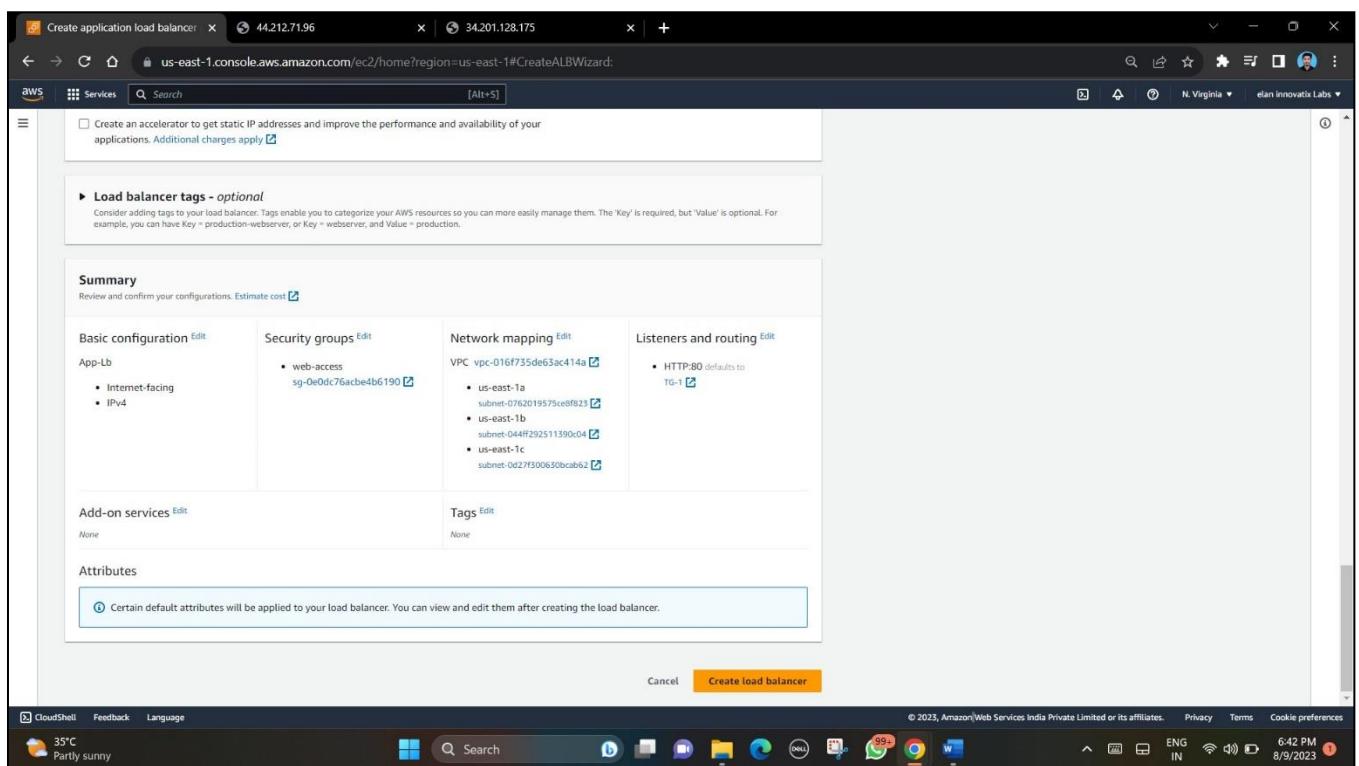
CloudShell Feedback Language

35°C Partly sunny

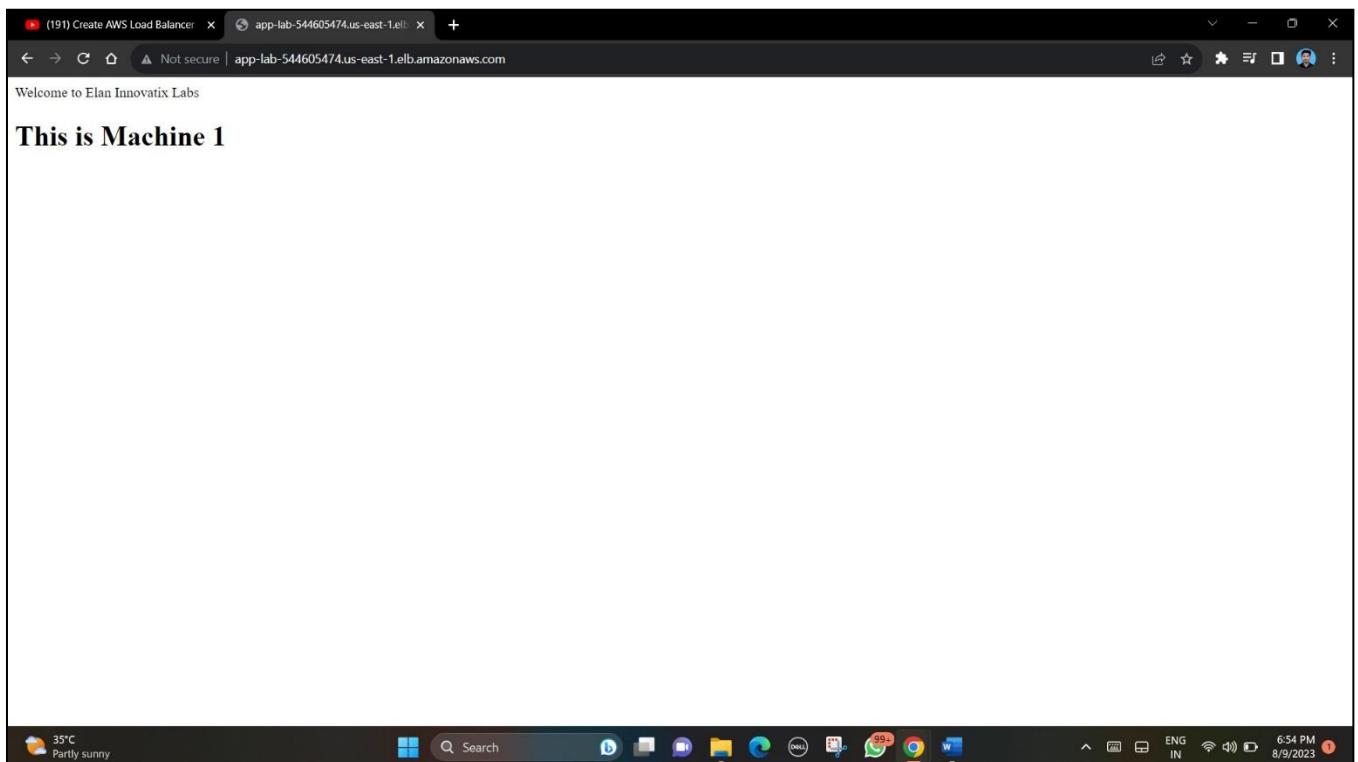
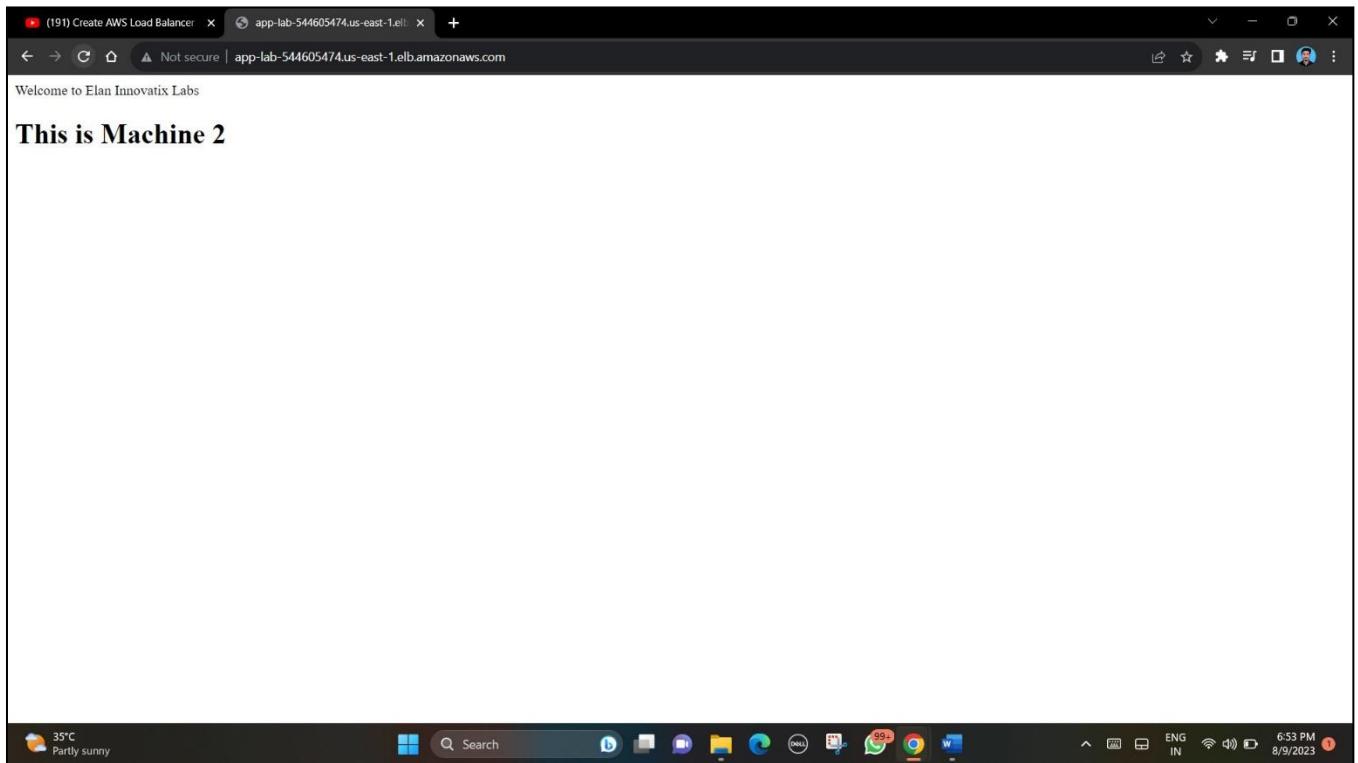
Search

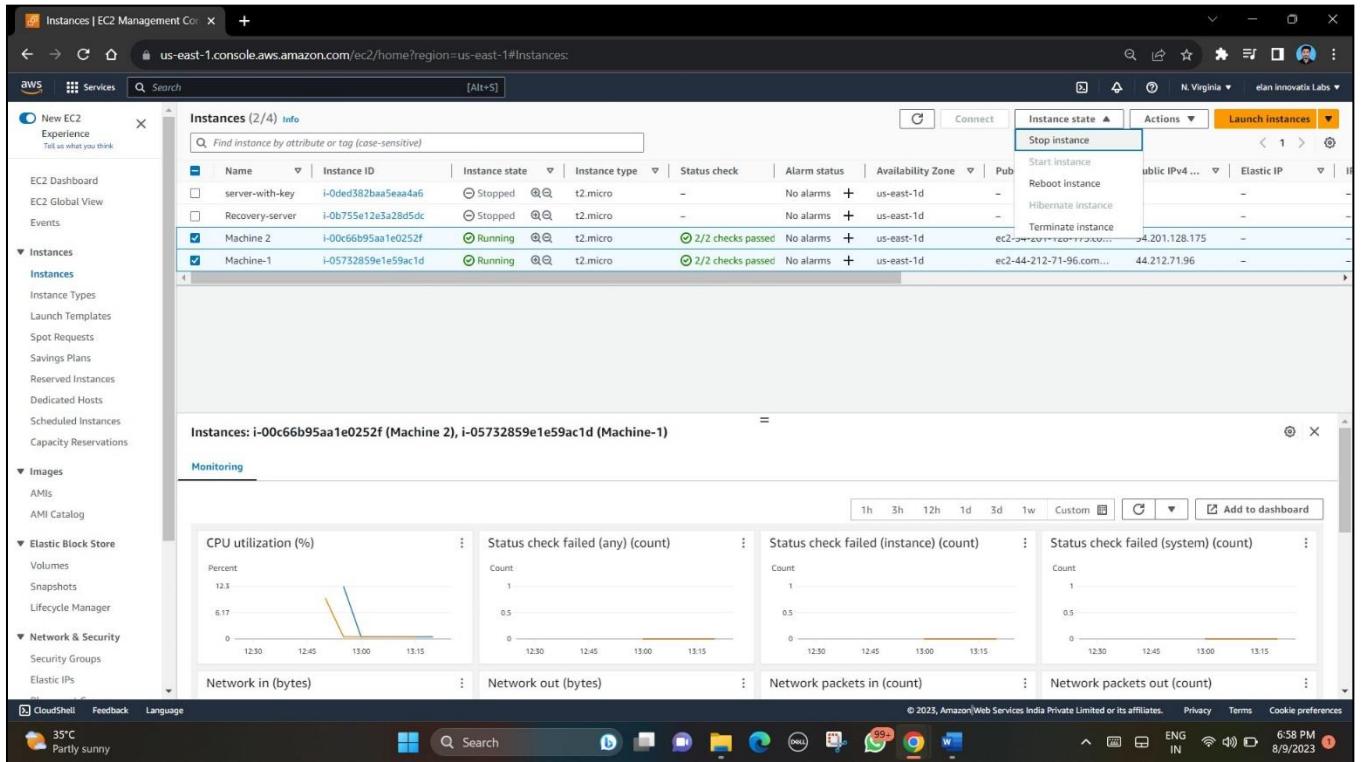
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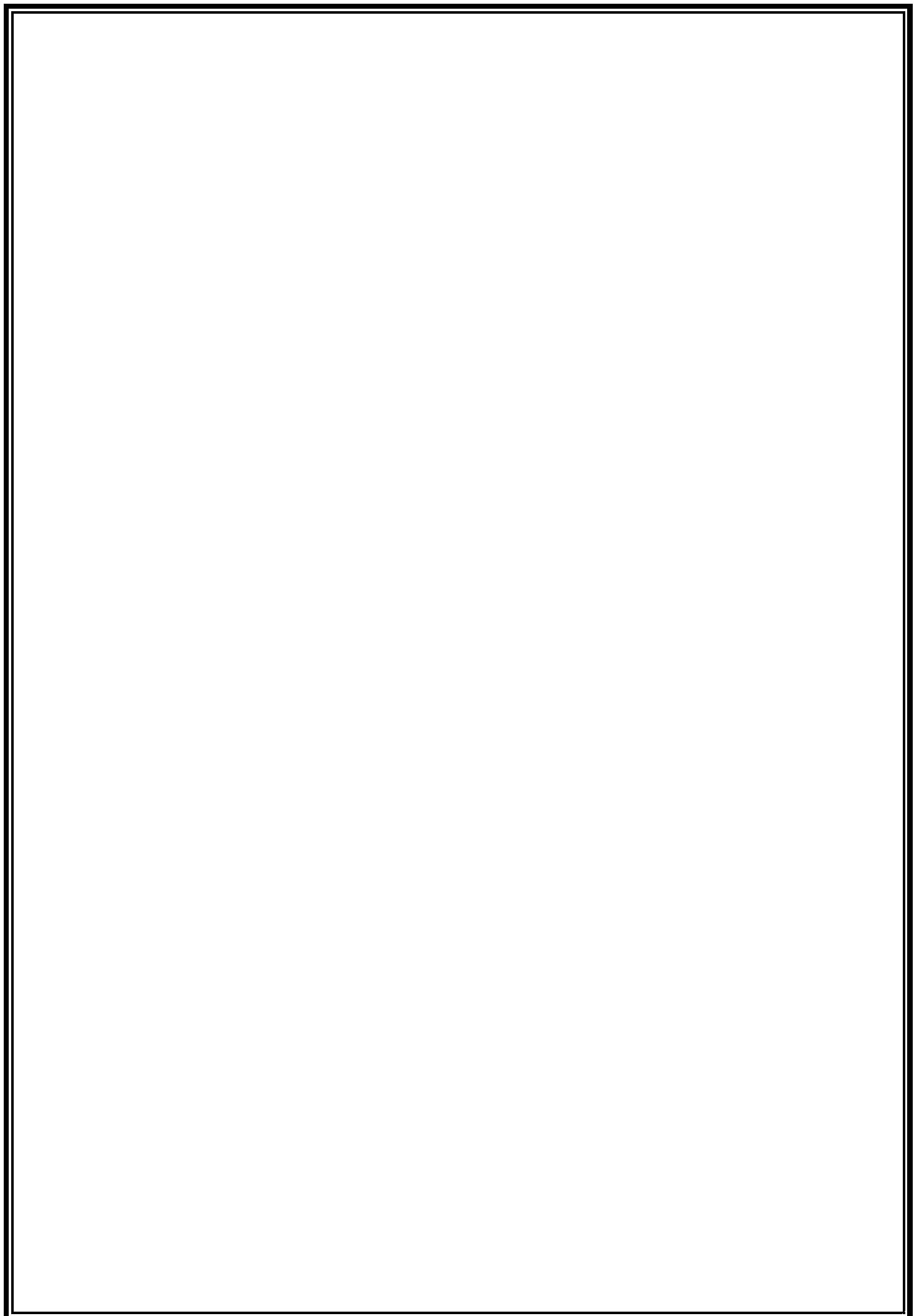
ENG IN 6:42 PM 8/9/2023

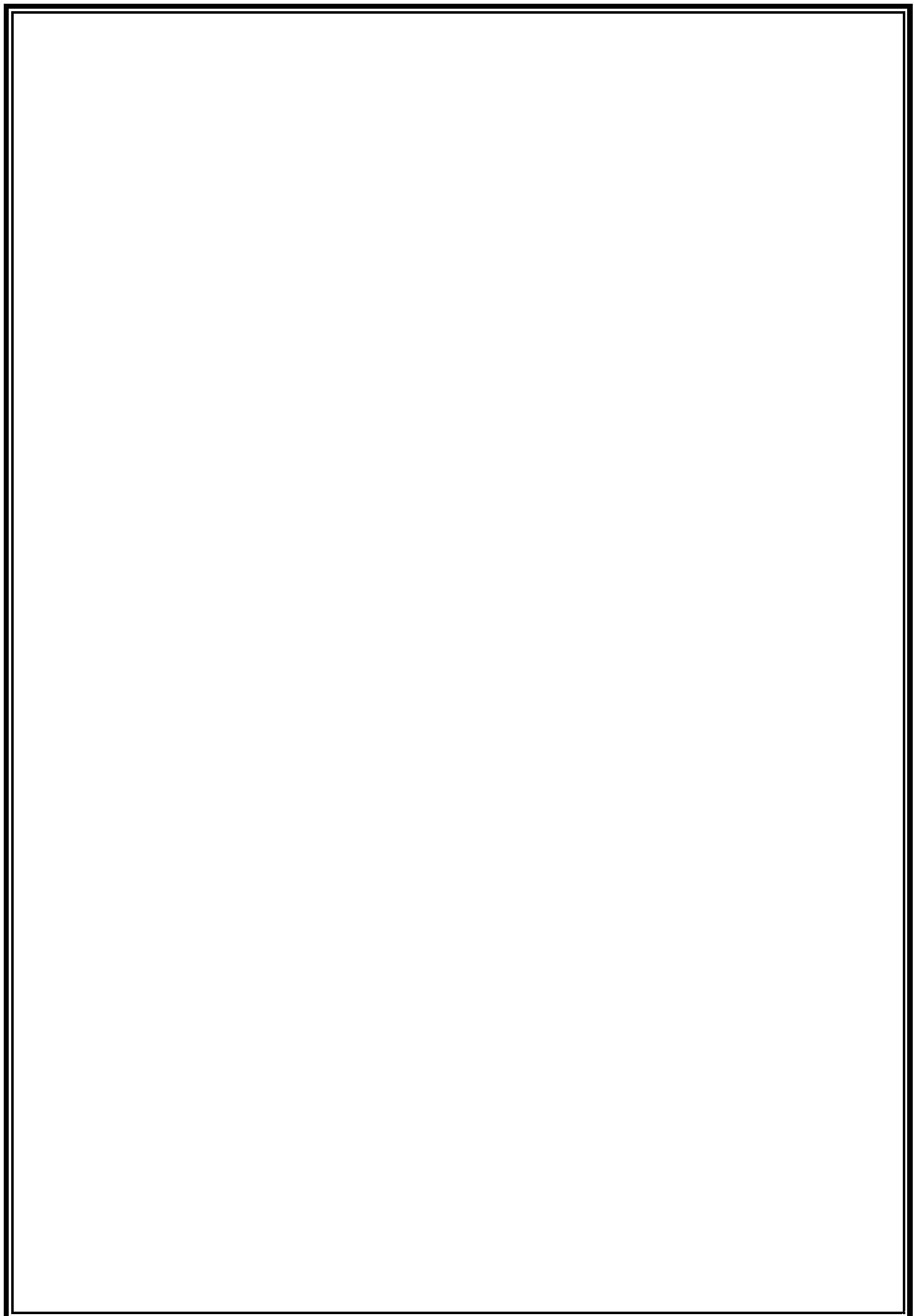


➤ *App-Lb-532196843.us-east-1.elb.amazonaws.com*









SOURCE CODE:

The screenshot shows the AWS EC2 Instances page. On the left, there's a sidebar with navigation links like EC2 Dashboard, EC2 Global View, Events, Instances, Images, and more. The main area displays two instances: 'server-with-key' (Stopped) and 'Recovery-server' (Running). The 'Storage' tab is selected for the Recovery-server instance, showing one EBS volume attached to /dev/xvda.

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID
vol-0b92dc03df02c14f	/dev/xvda	8	Attached	2023/08/02 06:45 GMT+5:30	No	-

The screenshot shows the AWS CloudWatch search results for 'cloud wat'. The search bar at the top has 'cloud wat' typed into it. Below the search bar, there are sections for 'Services' and 'Features'. The 'Services' section lists CloudWatch, Athena, Amazon EventBridge, and VPC. The 'Features' section lists CloudWatch Synthetics. On the right side of the screen, there's a sidebar with navigation links like EC2 Dashboard, EC2 Global View, Events, Instances, Images, and more. The main area also shows a table of instances and volumes, similar to the first screenshot.

The screenshot shows the AWS CloudWatch home page. On the left, there's a sidebar with various navigation links like Alarms, Logs, Metrics, X-Ray traces, Events, Application monitoring, and Insights. The main content area is titled "Get started with CloudWatch" and "Get started with Application Insights". It features several call-to-action boxes: "Create alarms" (with a cloud icon), "Create a default dashboard" (with a cloud icon), "View logs" (with a cloud icon), and "View events" (with a cloud icon). Below these are sections for "Cross service dashboard" and "CloudWatch Logs". The bottom status bar shows the URL as <https://us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#rules>, the date as 08/11/2023, and the time as 13:39.

The screenshot shows the "Rule detail" step of creating a new rule. The left sidebar lists steps: Step 2 (Define schedule), Step 3 (Select target(s)), Step 4 (optional: Configure tags), and Step 5 (Review and create). The main form has fields for "Name" (AutoSnap) and "Description - optional" (this snap short of volume). Under "Event bus", it says "Info" and "default". There are two radio button options for "Rule type": "Rule with an event pattern" (disabled) and "Schedule" (selected). A note about EventBridge Scheduler is present. At the bottom are "Continue to create rule" and "Continue in EventBridge Scheduler" buttons. The right sidebar contains a "Rules" section with a brief description and a "Learn More" link. The bottom status bar shows the URL as <https://us-east-1.console.aws.amazon.com/events/home?region=us-east-1#rules/create>, the date as 08/11/2023, and the time as 13:44.

Screenshot of the AWS EventBridge Rule creation process, Step 2: Define schedule.

Define schedule

Schedule pattern

Choose the schedule type that best meets your needs.

A fine-grained schedule that runs at a specific time, such as 8:00 a.m. PST on the first Monday of every month.

A schedule that runs at a regular rate, such as every 10 minutes.

Rate expression Info
Enter a value and the unit of time to run the schedule.

rate(1 Minutes)

Value: 1
Unit, e.g. mins, hours...

Cancel Previous Next

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Perambur Barra... Closed road 13:46 08/11/2023

Screenshot of the AWS EventBridge Rule creation process, Step 4: Select target(s).

Select target(s)

Target 1

Target types
Select an EventBridge event bus, EventBridge API destination (SaaS partner), or another AWS service as a target.

EventBridge event bus

EventBridge API destination

AWS service

Select a target Info
Select target(s) to invoke when an event matches your event pattern or when schedule is triggered (limit of 5 targets per rule)

EBS Create Snapshot

Volume ID
vol-0b92dc03df02e14f

Execution role
EventBridge needs permission to send events to the event bus of the above AWS account. By continuing, you are allowing us to do so.
EventBridge and AWS Identity and Access Management

Create a new role for this specific resource

Use existing role

Amazon_EventBridge_Invoke_Action_On_EBS_Volume_472797243

Additional settings

Add another target Cancel Skip to Review and create Previous Next

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30°C Mostly cloudy 13:48 08/11/2023

us-east-1.console.aws.amazon.com/events/home?region=us-east-1#/rules/create

Gmail Maps YouTube News Translate

aws Services Search [Alt+S]

Amazon EventBridge > Rules > Create rule

Step 1 Define rule detail

Step 2 Define schedule

Step 3 Select target(s)

Step 4 - optional Configure tags

Step 5 Review and create

Configure tags - optional Info

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add 50 more tags.

Cancel Previous Next

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30°C Mostly cloudy 13:48 08/11/2023

Details	Target Name	Type	Arn	Input	Role
▼	create-snapshot	EBS Create Snapshot	arn:aws:events:us-east-1:691407528662:target/create-snapshot	Constant	Amazon_EventBridge_Invoke_Action_On_EBS_Volume_472797243

Input to target: Constant View

Additional parameters: --

Dead-letter queue (DLQ): -

Rate expression

A rate expression starts when the rule is created and runs the rule on a defined interval. For example, rate(1 minute) runs the rule every minute and rate(1 hour) runs the rule every hour.

Learn More Rate expressions

us-east-1.console.aws.amazon.com/events/home?region=us-east-1#/rules/create

Gmail Maps YouTube News Translate

aws Services Search [Alt+S]

Amazon EventBridge > Rules > Create rule

Targets

Details	Target Name	Type	Arn	Input	Role
▼	create-snapshot	EBS Create Snapshot	arn:aws:events:us-east-1:691407528662:target/create-snapshot	Constant	Amazon_EventBridge_Invoke_Action_On_EBS_Volume_472797243

Input to target: Constant View

Additional parameters: --

Dead-letter queue (DLQ): -

Step 4: Configure tag(s)

Tags (0)

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value
No tags associated with this resource.	

Cancel Previous Create rule

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AUS - AFG AUS win 13:49 08/11/2023

Details	Target Name	Type	Arn	Input	Role
▼	create-snapshot	EBS Create Snapshot	arn:aws:events:us-east-1:691407528662:target/create-snapshot	Constant	Amazon_EventBridge_Invoke_Action_On_EBS_Volume_472797243

Input to target: Constant View

Additional parameters: --

Dead-letter queue (DLQ): -

Rate expression

A rate expression starts when the rule is created and runs the rule on a defined interval. For example, rate(1 minute) runs the rule every minute and rate(1 hour) runs the rule every hour.

Learn More Rate expressions

us-east-1.console.aws.amazon.com/events/home?region=us-east-1#rules

Gmail Maps YouTube News Translate

Amazon EventBridge Services Search [Alt+5]

Rule AutoSnap was created successfully

Amazon EventBridge > Rules

Developer resources: Learn, Sandbox, Quick starts

Buses: Event buses, Rules, Global endpoints, Archives, Replays

Pipes: Pipes

Scheduler: Schedules, Schedule groups

Integration: Partner event sources, API destinations

CloudShell Feedback

Event bus: Select or enter event bus name: default

Rules (1)

Name	Status	Type	ARN
AutoSnap	Enabled	Scheduled Standard	arn:aws:events:us-east-1:691407528662:rule/AutoSnap

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AUS - AFG AUS win 13:49 08/11/2023

The screenshot shows the AWS Lambda console with a success message: "Rule AutoSnap was created successfully". The Lambda function details are visible, including the function name, runtime, memory, timeout, and triggers. The triggers section shows a scheduled rule named "AutoSnap" from the AWS Events service.

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Snapshots:

Gmail Maps YouTube News Translate

aws Services Search

CloudWatch Snapshots (2) Info

Owned by me Search

Actions Create snapshot

Snapshot ID	Volume size	Description	Storage tier	Snapshot status	Started	Progress	Encrypt
snap-0a8920a005ddcea1a	8 GiB	-	Standard	Completed	2023/11/08 13:49 GMT+5...	Available (100%)	Not enc
snap-099227041dc649bbc	8 GiB	-	Standard	Pending	2023/11/08 13:50 GMT+5...	Unavailable (58%)	Not enc

Select a snapshot above.

EC2 Dashboard EC2 Global View Events Instances Images Elastic Block Store Network & Security

CloudShell Feedback

30°C Mostly cloudy 13:51 08/11/2023

The screenshot shows the AWS CloudWatch Snapshots page. It displays two snapshots: one completed (snap-0a8920a005ddcea1a) and one pending (snap-099227041dc649bbc). The completed snapshot is available at 100% progress. The pending snapshot is unavailable at 58% progress. The left sidebar shows navigation links for EC2 Dashboard, EC2 Global View, Events, Instances, Images, Elastic Block Store, and Network & Security.

Screenshot of the AWS CloudWatch Snapshots page in a browser.

The URL is us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Snapshots.

The sidebar shows the following navigation:

- EC2 Dashboard
- EC2 Global View
- Events
- Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- Images
 - AMIs
 - AMI Catalog
- Elastic Block Store
 - Volumes
 - Snapshots
 - Lifecycle Manager
- Network & Security

The main content area displays a table titled "Snapshots (3) Info".

Volume size	Description	Storage tier	Snapshot status	Started	Progress	Encryption	KMS key ID	KMS
8 GiB	-	Standard	Pending	2023/11/08 13:51 GMT+5:...	Unavailable (31%)	Not encrypted	-	-
8 GiB	-	Standard	Completed	2023/11/08 13:49 GMT+5:...	Available (100%)	Not encrypted	-	-
8 GiB	-	Standard	Pending	2023/11/08 13:50 GMT+5:...	Unavailable (99%)	Not encrypted	-	-

A message at the bottom says "Select a snapshot above."

At the bottom of the page, there is a footer with weather information (30°C, Mostly cloudy), a taskbar with various icons, and system status (13:51, 08/11/2023).

Screenshot of the AWS EC2 Instances page in a browser.

The URL is [us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#instances:v=3;\\$case=tags:true%5C,client:false;\\$regex=tags:false%5C,client:false](https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#instances:v=3;$case=tags:true%5C,client:false;$regex=tags:false%5C,client:false).

The sidebar shows the following navigation:

- EC2 Dashboard
- EC2 Global View
- Events
- Instances
 - Instances
 - Instance Types
 - Launch Templates
 - Spot Requests
 - Savings Plans
 - Reserved Instances
 - Dedicated Hosts
 - Capacity Reservations
- Images
 - AMIs
 - AMI Catalog

The main content area displays a table titled "Instances (1/2) Info".

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
server-with-key	i-0ded382baa5eaa4a6	Stopped	t2.micro	-	No alarms	us-east-1d
Recovery-server	i-0b755e12e3a28d5dc	Pending	t2.micro	-	No alarms	us-east-1d

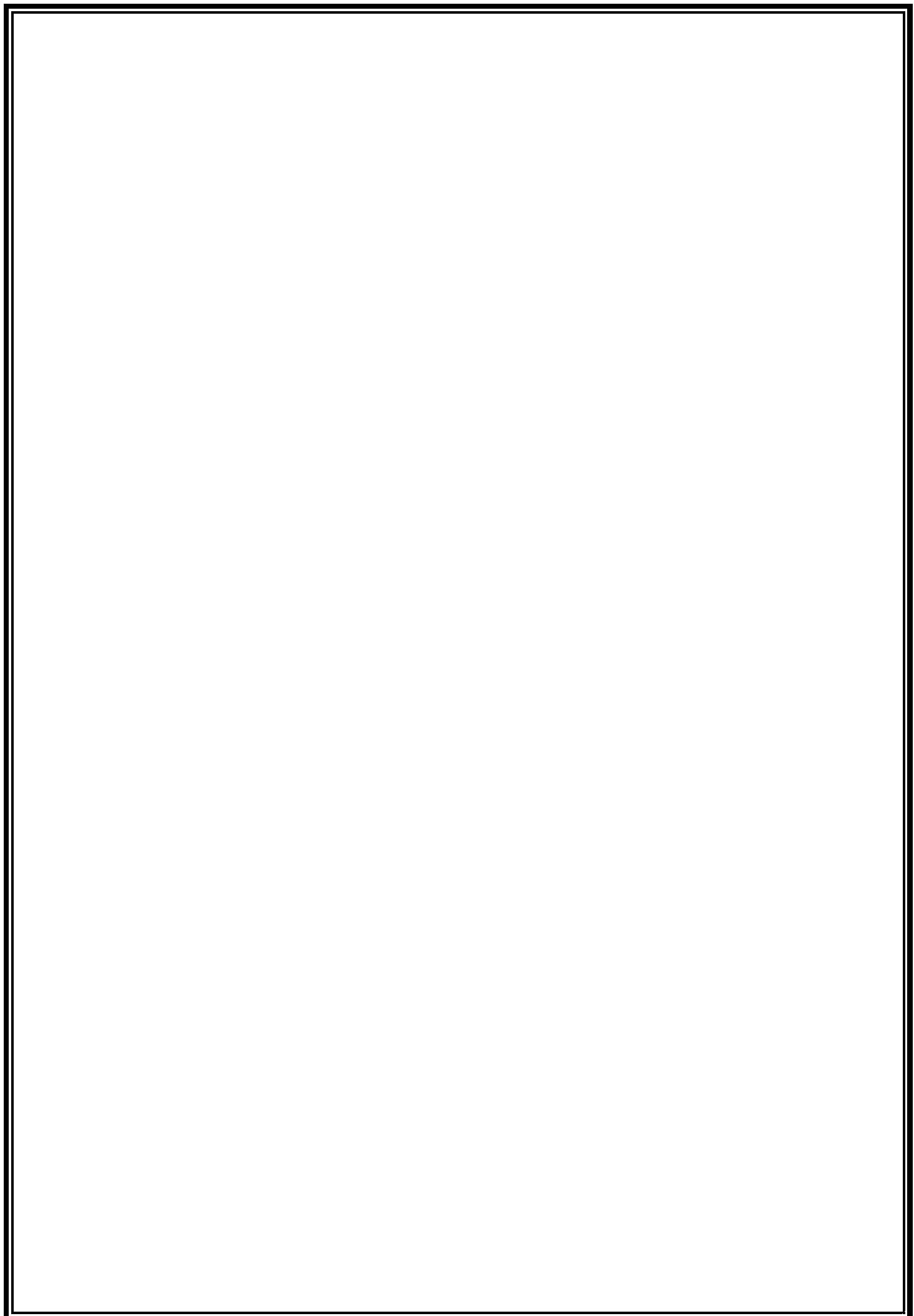
The details for the instance "Recovery-server" are shown in a modal window.

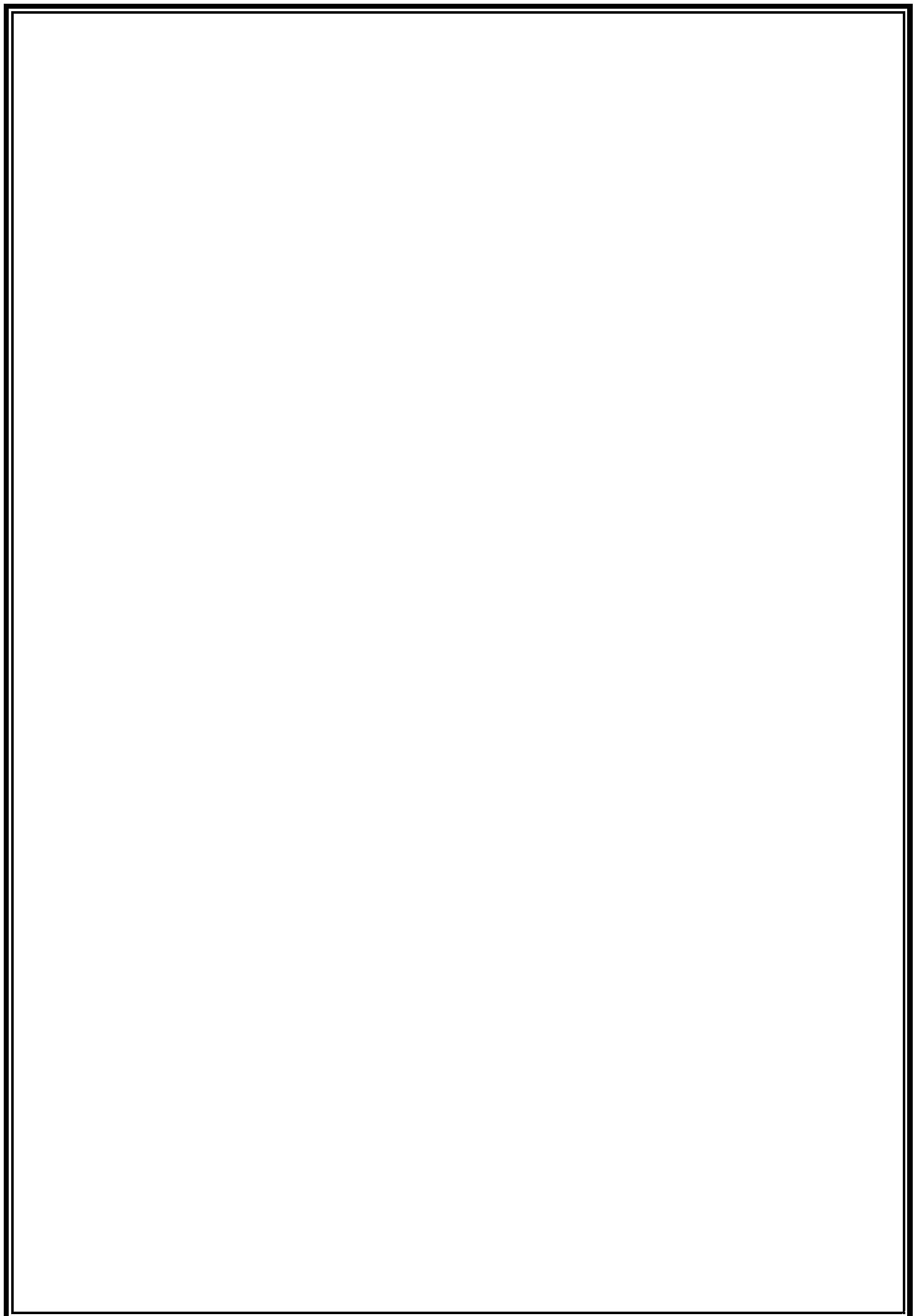
Details tab (selected):

Instance ID: i-0b755e12e3a28d5dc (Recovery-server)	Public IPv4 address: -	Private IPv4 addresses: 172.31.91.26
IPv6 address: -	Instance state: Pending	Public IPv4 DNS: -

Other tabs include Security, Networking, Storage, Status checks, Monitoring, and Tags.

At the bottom of the page, there is a footer with weather information (28°C, Mostly cloudy), a taskbar with various icons, and system status (13:35, 08/11/2023).





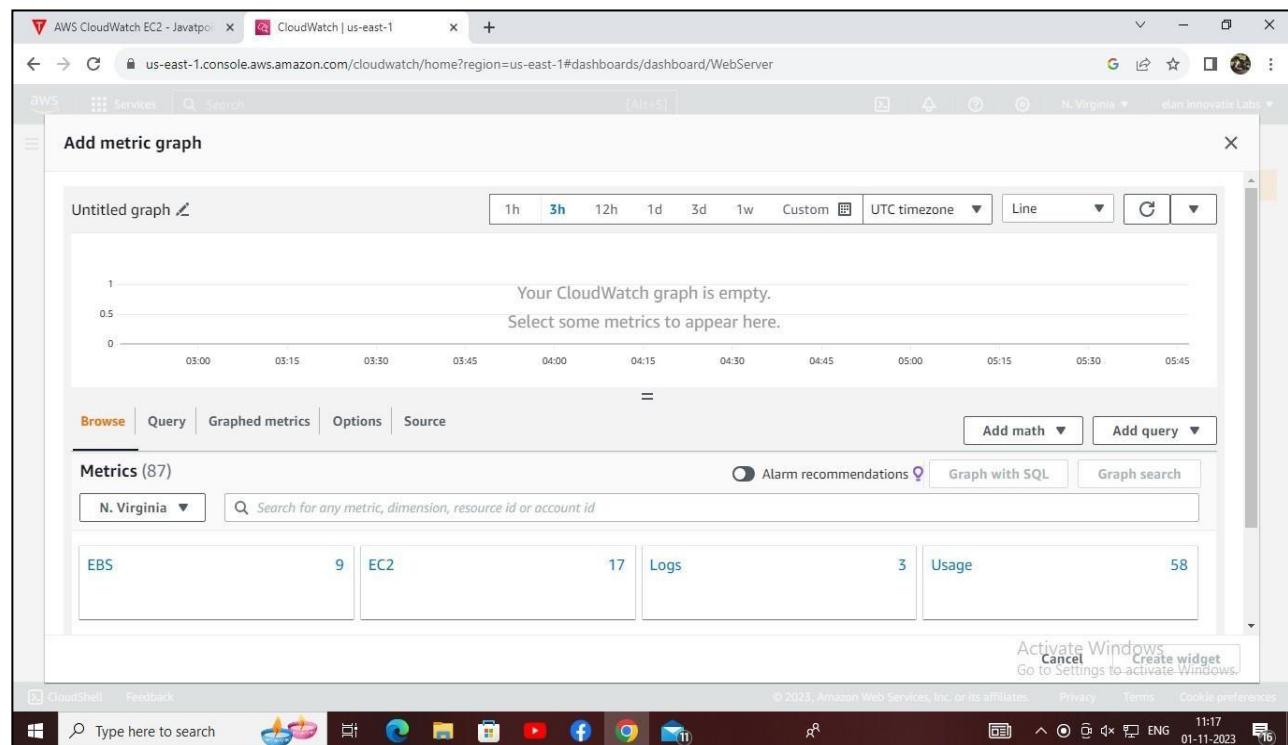
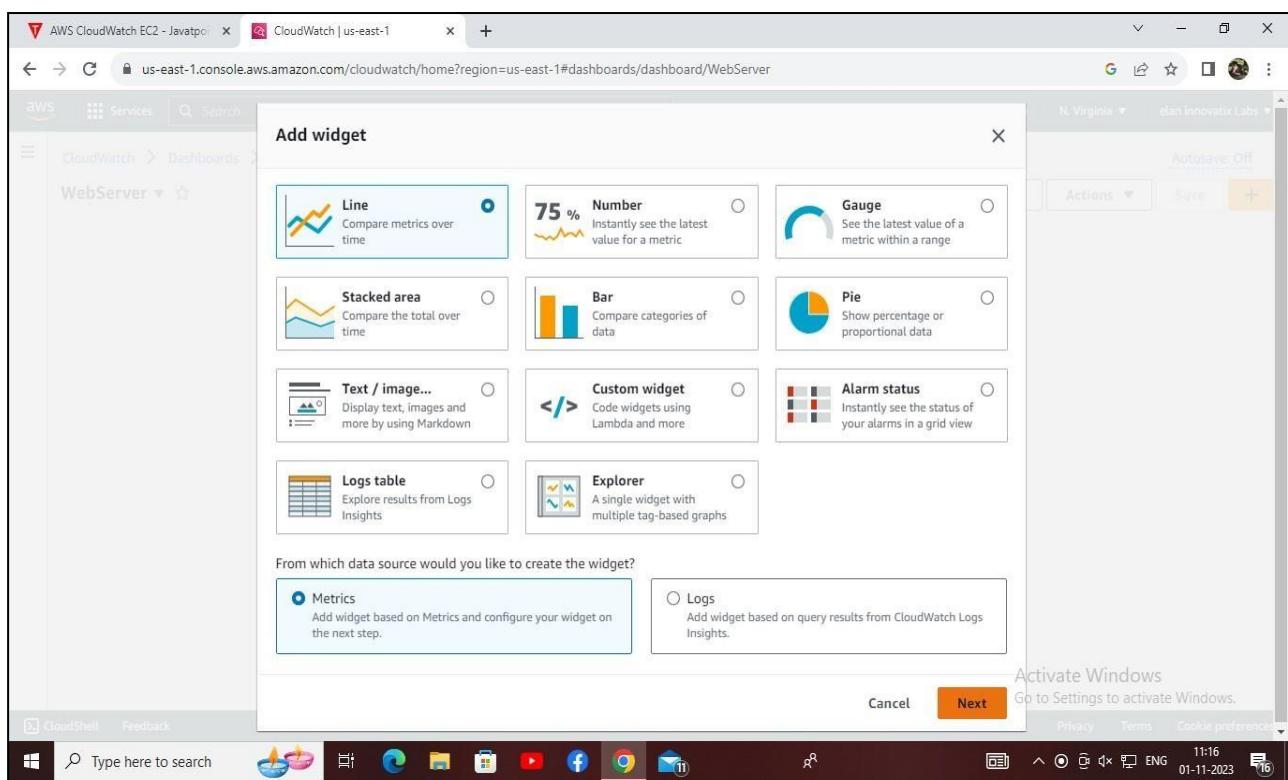
SOURCE CODE:

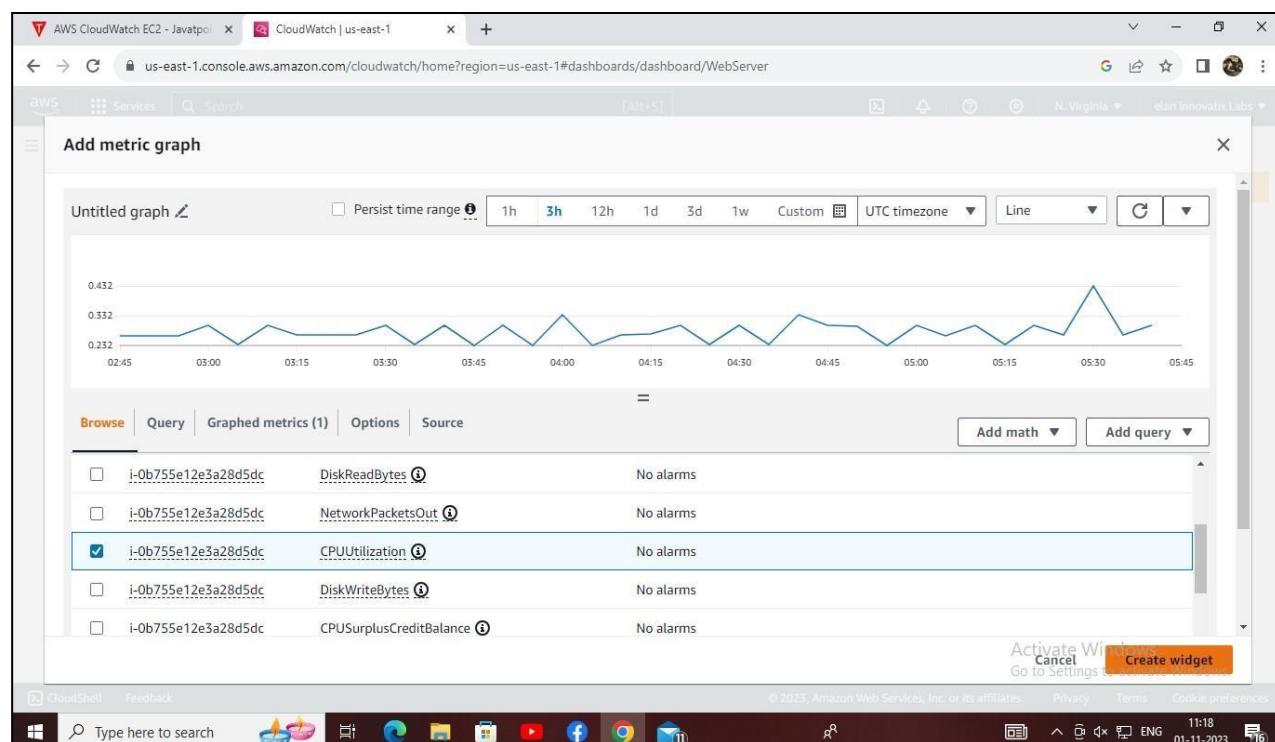
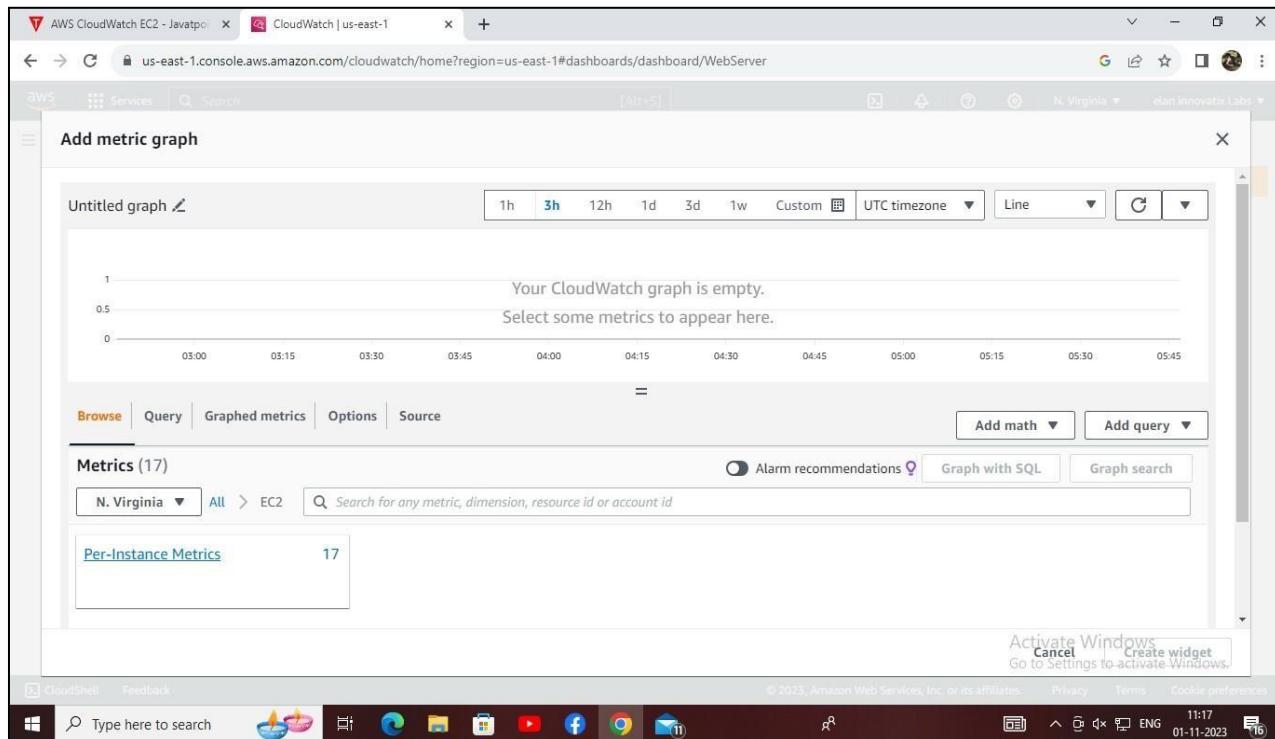
The screenshot shows the AWS CloudWatch EC2 Instances page. The left sidebar navigation includes: EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes). The main content area displays the 'Instances (1/1) Info' section. A search bar at the top allows filtering by attribute or tag. The table lists one instance: 'Recovery-server' (i-0b755e12e3a28d5dc). The instance is shown as 'Running' (t2.micro, 2/2 checks passed, No alarms, us-east-1d). Below the table, the 'Instance: i-0b755e12e3a28d5dc (Recovery-server)' details are expanded, showing the Public IPv4 address (3.82.232.69), Private IPv4 addresses (172.31.91.26), and Public IPv4 DNS (ec2-3-82-232-69.compute-1.amazonaws.com). The status bar at the bottom indicates the date (01-11-2023) and time (11:14).

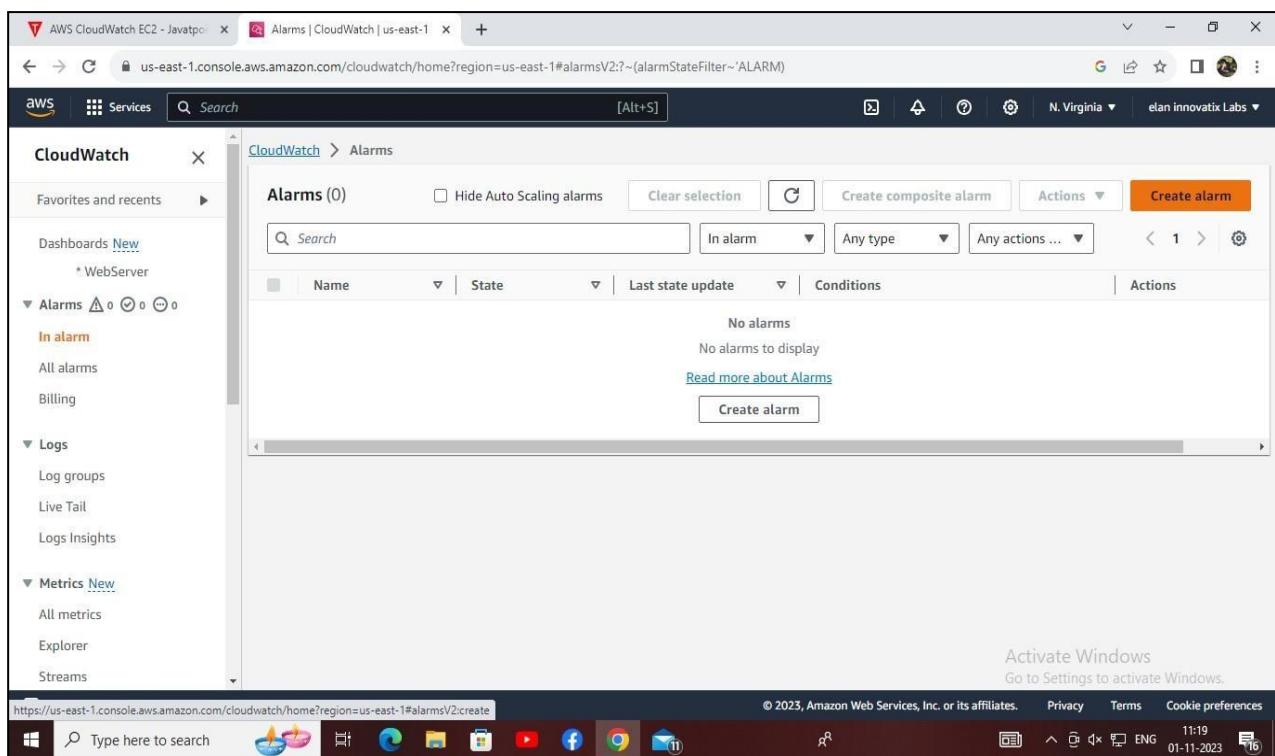
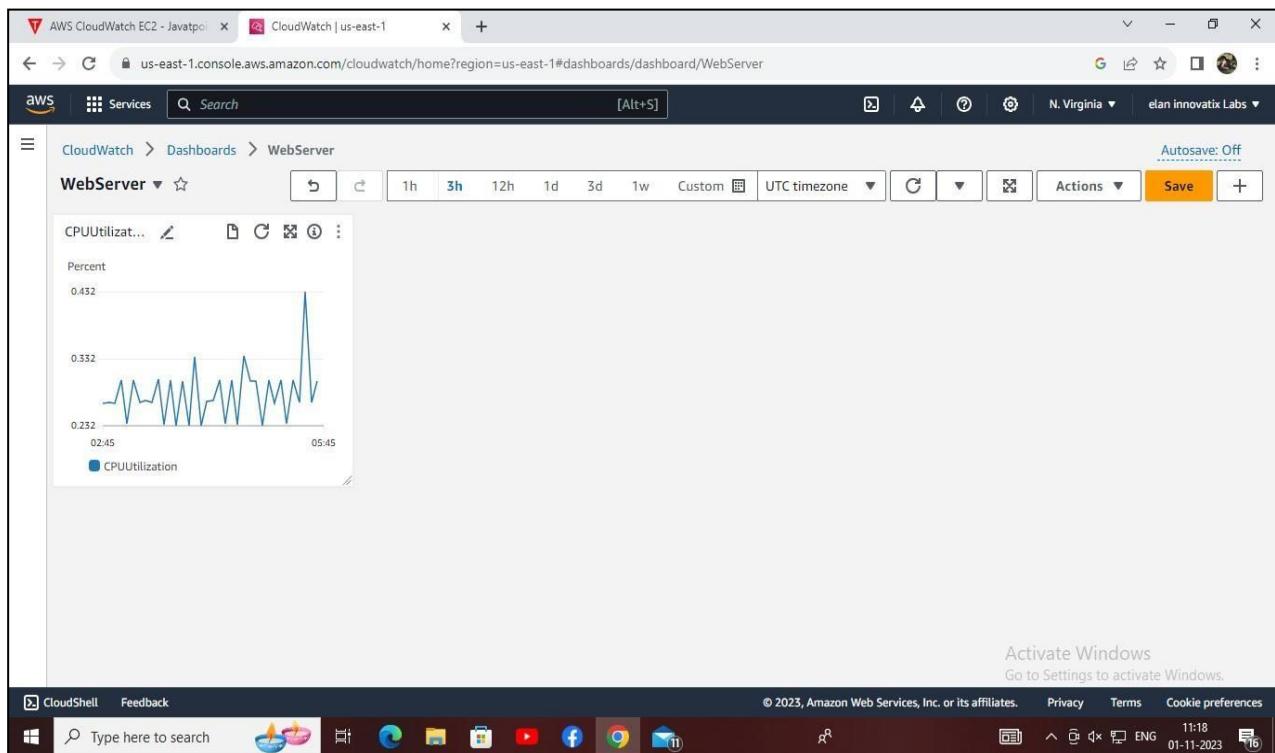
The screenshot shows the AWS CloudWatch search results for 'CloudWatch'. The left sidebar navigation is identical to the previous screenshot. The search results page displays a list of services and features. Under 'Services', 'CloudWatch' is highlighted, described as a monitor for resources and applications, with links to Logs, Metrics, Alarms, Dashboards, and ServiceLens. Other listed services include Amazon EventBridge (serverless event-driven application service) and Athena (serverless interactive analytics service). Under 'Features', there are 15 results, with a link to 'See all 15 results'. The status bar at the bottom indicates the date (01-11-2023) and time (11:15).

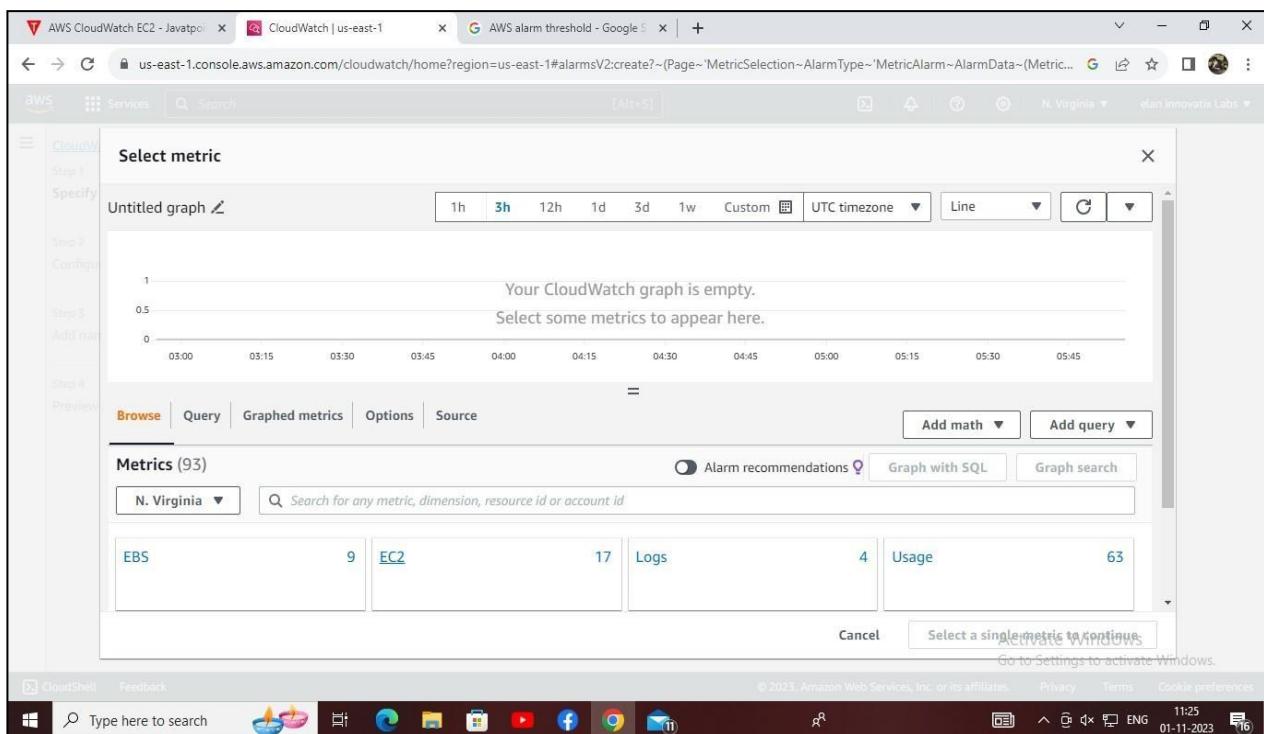
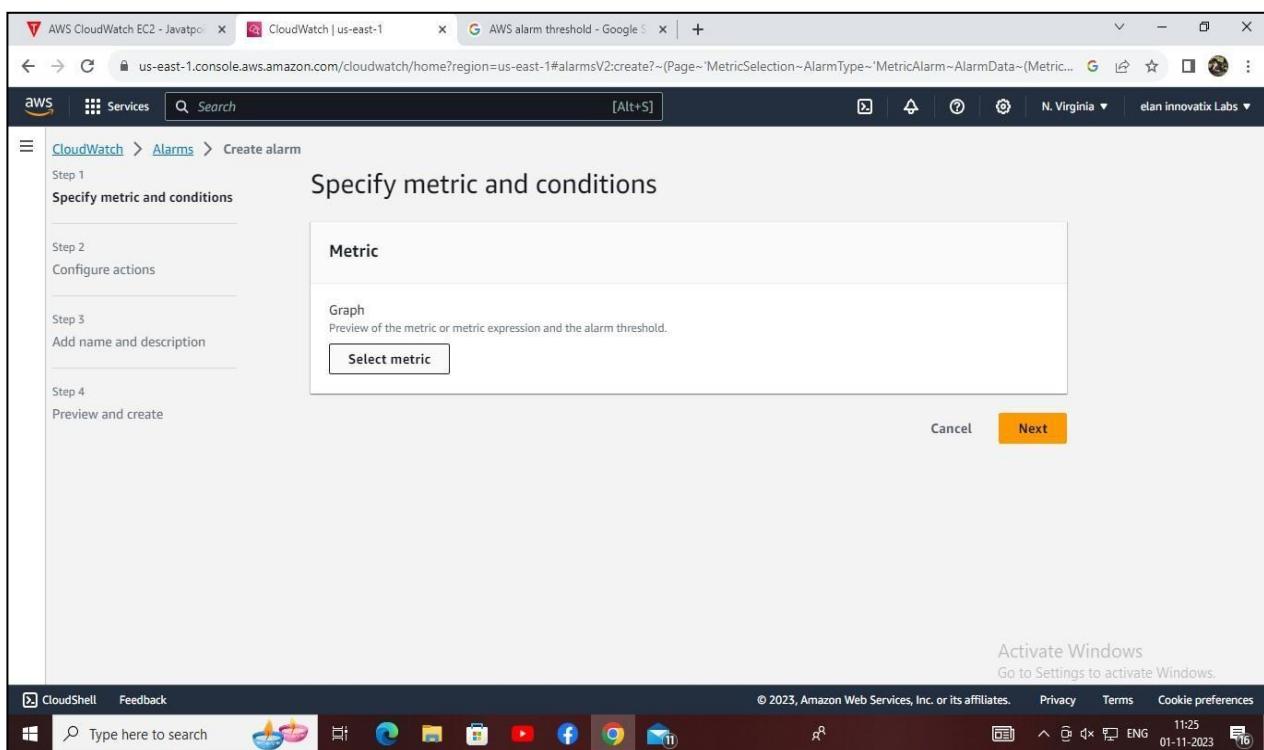
The screenshot shows the AWS CloudWatch Dashboards interface. On the left, a sidebar lists navigation options: Favorites and recents, Dashboards (New), Alarms, Logs, Metrics, and CloudShell. The main content area is titled "Custom dashboards" and displays a message: "No dashboards. You have not created any dashboards." It includes a "Create dashboard" button and a "Read more about Dashboards" link. At the bottom right, there's a Windows activation notice: "Activate Windows Go to Settings to activate Windows." The browser address bar shows "us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#dashboards/".

This screenshot shows the same AWS CloudWatch Dashboards interface as the first one, but with a modal dialog open in the center. The dialog is titled "Create new dashboard" and has a "Dashboard name" input field containing "WebServer". Below the input field is a note: "Valid characters in dashboard names include \"0-9A-Za-z-_\"." At the bottom of the dialog are "Cancel" and "Create dashboard" buttons. The background of the main dashboard page is visible, showing the "Custom dashboards" section with its header and a small "Create dashboard" button.









AWS CloudWatch EC2 - Javatpoint | CloudWatch | us-east-1 | AWS alarm threshold - Google | +

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create?~(Page~MetricSelection~AlarmType~MetricAlarm~AlarmData~(Metric...)

aws Services Search [Alt+S] DASH

CloudWatch Step 1 Specify Step 2 Configure Step 3 Add metric Step 4 Preview

Select metric

Your CloudWatch graph is empty.
Select some metrics to appear here.

Browse Query Graphed metrics Options Source Add math Add query

Metrics (17) N. Virginia All EC2 Search for any metric, dimension, resource id or account id

Per-Instance Metrics 17

Cancel Select a single metric to continue. Go to Settings to activate Windows.

CloudShell Feedback © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences 11:25 01-11-2023

This screenshot shows the 'Select metric' dialog box from the AWS CloudWatch Metrics interface. The graph area at the top is empty, displaying the message 'Your CloudWatch graph is empty. Select some metrics to appear here.' Below the graph are tabs for 'Browse', 'Query', 'Graphed metrics', 'Options', and 'Source'. Under the 'Graphed metrics' tab, there is a list titled 'Metrics (17)' showing 'Per-Instance Metrics' with a count of 17. A search bar is present above the list. At the bottom right of the dialog, there are 'Cancel' and 'Select metric' buttons, along with a note about activating Windows.

AWS CloudWatch EC2 - Javatpoint | CloudWatch | us-east-1 | AWS alarm threshold - Google | +

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create?~(Page~MetricSelection~AlarmType~MetricAlarm~AlarmData~(Metric...)

aws Services Search [Alt+S] DASH

CloudWatch Step 1 Specify Step 2 Configure Step 3 Add metric Step 4 Preview

Select metric

0.332
0.232

03:00 03:15 03:30 03:45 04:00 04:15 04:30 04:45 05:00 05:15 05:30 05:45

Browse Query Graphed metrics (1) Options Source Add math Add query

Metrics (17) N. Virginia All EC2 > Per-Instance Metrics Search for any metric, dimension, resource id or account id

Instance name 17/17 InstanceId Metric name Alarms

Recovery-server	i-0b755e12e3a28d5dc	MetadataNoToken	No alarms
<input checked="" type="checkbox"/> Recovery-server	i-0b755e12e3a28d5dc	CPUUtilization	No alarms
<input type="checkbox"/> Recovery-server	i-0b755e12e3a28d5dc	CPUCreditUsage	No alarms

Cancel Select metric Go to Settings to activate Windows.

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This screenshot shows the 'Select metric' dialog box after selecting the 'CPUUtilization' metric for the first instance. The graph area now displays a line chart for 'CPUUtilization' over time. Below the graph, the 'Graphed metrics' tab is selected, showing a list of metrics for the selected instance. The list includes 'MetadataNoToken' (No alarms), 'CPUUtilization' (No alarms, currently selected with a checked checkbox), and 'CPUCreditUsage' (No alarms). The checkbox for 'CPUUtilization' is checked. The dialog also includes 'Cancel' and 'Select metric' buttons at the bottom right.

AWS CloudWatch EC2 - JavaTools

CloudWatch | us-east-1

AWS alarm threshold - Google

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create?~(Page~'MetricSelection~AlarmType~'MetricAlarm~AlarmData~'(Name...)

aws Services Search [Alt+S] N. Virginia elan innovatix Labs

Specify metric and conditions

Step 1 Specify metric and conditions

Step 2 Configure actions

Step 3 Add name and description

Step 4 Preview and create

Metric

Graph

This alarm will trigger when the blue line goes above the red line for 1 datapoints within 5 minutes.

Percent

0.432

0.332

0.232

03:30 04:30 05:30

CPUUtilization

Namespace AWS/EC2

Metric name CPUUtilization

InstanceID i-0b755e12e3a28d5dc

Instance name Recovery-server

Statistic Average

Activate Windows Go to Settings to activate Windows.

CloudShell Feedback Type here to search 11:26 01-11-2023

AWS CloudWatch EC2 - JavaTools

CloudWatch | us-east-1

(5) How can I create CloudWatc

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:edit/Pro9?~(Page~'MetricSelection~AlarmType~'MetricAlarm~AlarmData~'(Name...)

aws Services Search [Alt+S] N. Virginia elan innovatix Labs

Conditions

Threshold type

Static Use a value as a threshold

Anomaly detection Use a band as a threshold

Whenever CPUUtilization is...

Define the alarm condition.

Greater > threshold

Greater/Equal >= threshold

Lower/Equal <= threshold

Lower < threshold

than...

Define the threshold value.

4

Must be a number

▶ Additional configuration

Cancel Skip to Preview and create Next Windows Go to Settings to activate Windows.

CloudShell Feedback Type here to search 11:42 01-11-2023

AWS CloudWatch EC2 - Java application monitoring

CloudWatch | us-east-1

Default_CloudWatch_Alarms_Topic

AWS alarm threshold - Google Sheets

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:create?~(Page~Actions~AlarmType~MetricAlarm~AlarmData~Namespace~'...

Services Search [Alt+S]

N. Virginia elan innovatix Labs

Configure actions

Step 1 Specify metric and conditions

Step 2 Configure actions

Step 3 Add name and description

Step 4 Preview and create

Notification

Alarm state trigger Define the alarm state that will trigger this action.

In alarm The metric or expression is outside of the defined threshold.

OK The metric or expression is within the defined threshold.

Insufficient data The alarm has just started or not enough data is available.

Remove

Send a notification to the following SNS topic Define the SNS (Simple Notification Service) topic that will receive the notification.

Select an existing SNS topic

Create new topic

Use topic ARN to notify other accounts

Send a notification to... Default_CloudWatch_Alarms_Topic

Only email lists for this account are available.

Email (endpoints) elanchezhian2712.m@gmail.com - View in SNS Console

Activate Windows Go to Settings to activate Windows.

CloudShell Feedback

Type here to search

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11:29 01-11-2023

The screenshot shows the 'Configure actions' step of creating a new alarm. Under 'Notification', the 'In alarm' trigger is selected. A notification is sent to the 'Default_CloudWatch_Alarms_Topic'. The topic is listed under 'Email (endpoints)' as 'elanchezhian2712.m@gmail.com - View in SNS Console'.

AWS CloudWatch EC2 - Java application monitoring

Alarms | CloudWatch | us-east-1

(5) How can I create CloudWatch Alarms?

us-east-1.console.aws.amazon.com/cloudwatch/home?region=us-east-1#alarmsV2:

Services Search [Alt+S]

N. Virginia elan innovatix Labs

CloudWatch

CloudWatch Alarms

Alarms (1)

Hide Auto Scaling alarms Clear selection Create composite alarm Actions Create alarm

Name	State	Last state update	Conditions	Actions
Pro9	In alarm	2023-11-01 06:11:49	CPUUtilization < 4 for 1 datapoints within 1 minute	Actions enabled

Activate Windows Go to Settings to activate Windows.

CloudShell Feedback

Type here to search

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11:42 01-11-2023

The screenshot shows the CloudWatch Alarms page with one alarm named 'Pro9' listed. The alarm is in an 'In alarm' state, triggered by the condition 'CPUUtilization < 4 for 1 datapoints within 1 minute'. The 'Actions' column shows 'Actions enabled'.

AWS CloudWatch EC2 - Javatpoint | Instances | EC2 | us-east-1 | (5) How can I create CloudWatch | +

Instances (2) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
server-with-key	i-0ded382baa5eaa4a6	Stopped	t2.micro	-	No alarms	us-east-1d
Recovery-server	i-0b755e12e3a28d5dc	Stopped	t2.micro	-	No alarms	us-east-1d

Select an instance

Activate Windows
Go to Settings to activate Windows.

CloudShell Feedback

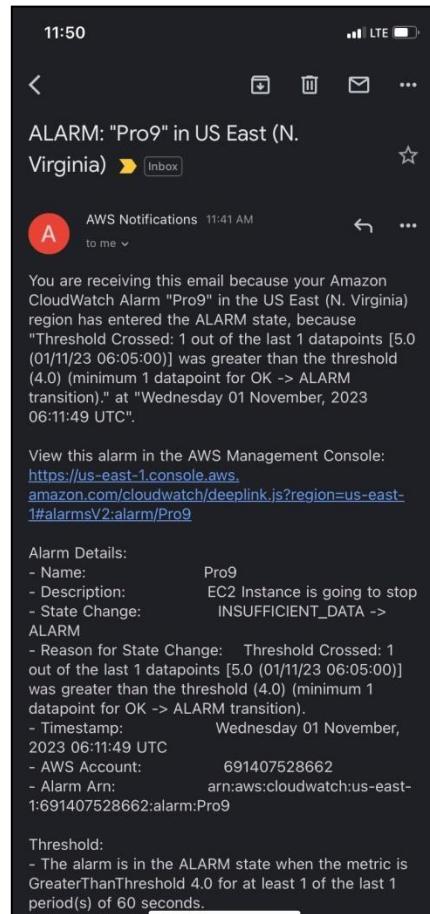
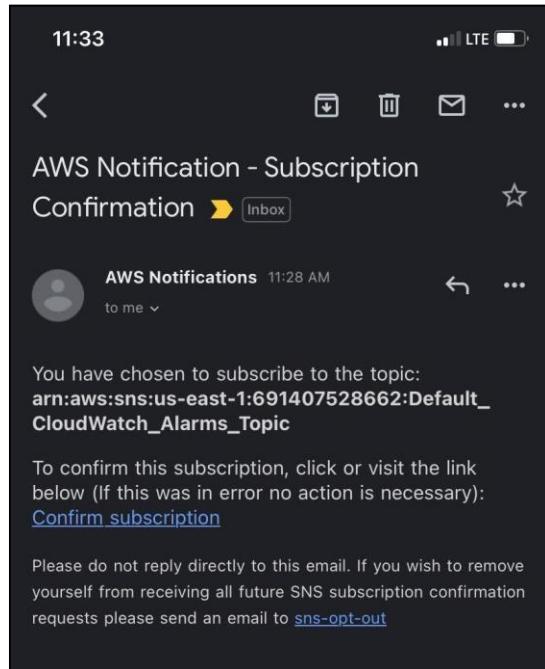
Type here to search

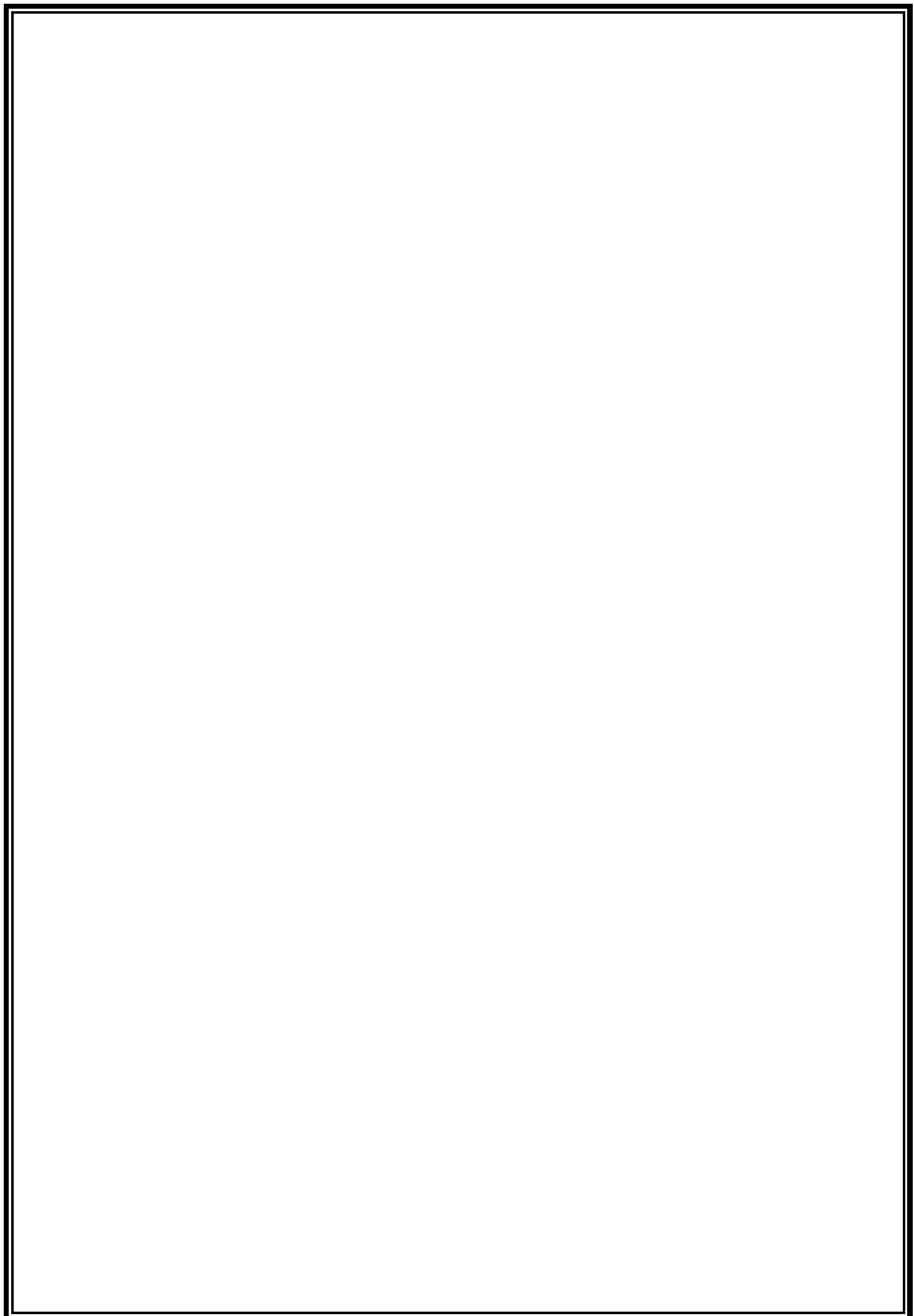
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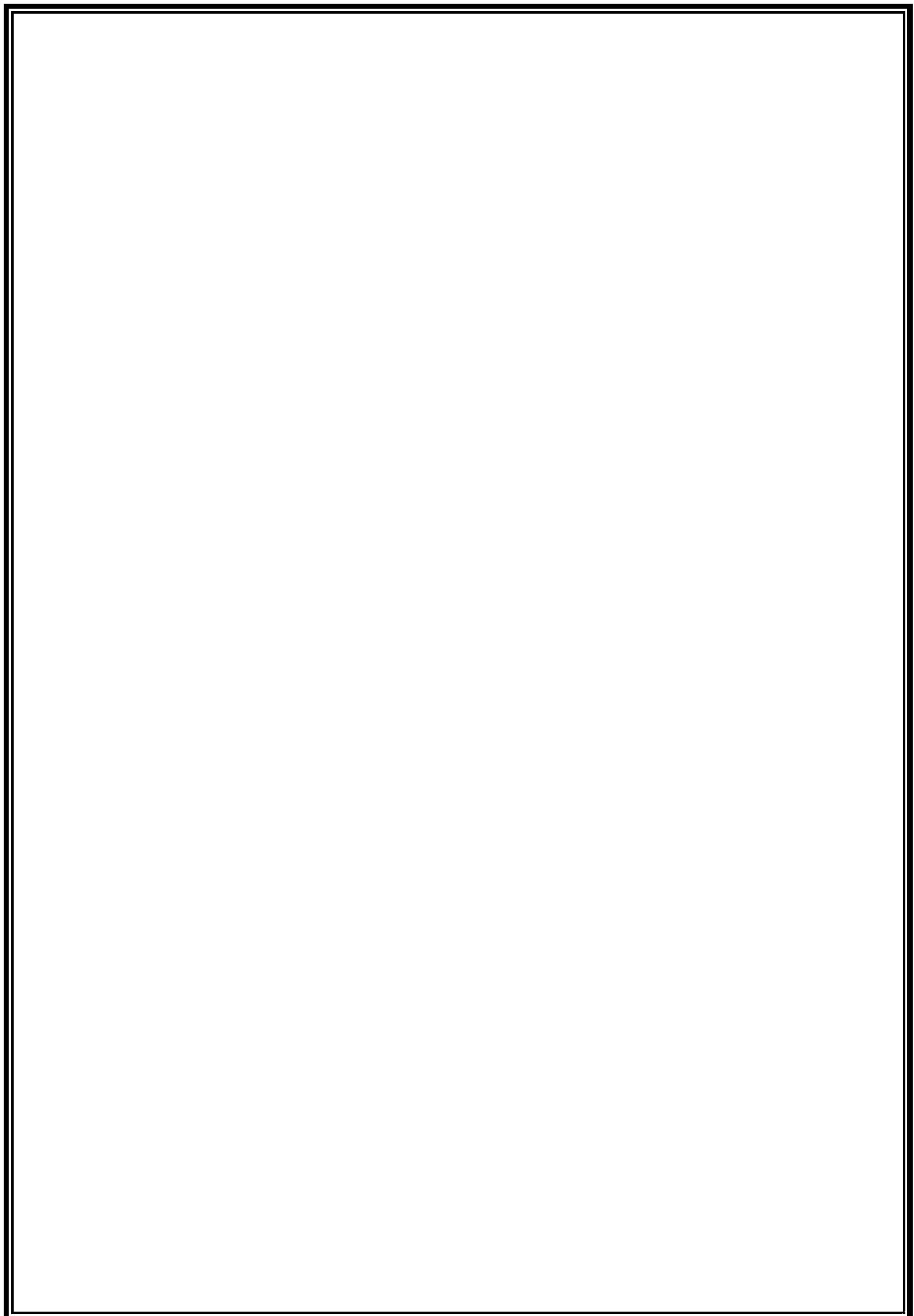
11:44 01-11-2023

The screenshot shows the AWS CloudWatch EC2 Instances page. The left sidebar navigation includes EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, and Images (AMIs, AMI Catalog). The main content area displays two stopped t2.micro instances: 'server-with-key' (ID: i-0ded382baa5eaa4a6) and 'Recovery-server' (ID: i-0b755e12e3a28d5dc). A modal window titled 'Select an instance' is open at the bottom. The bottom navigation bar includes CloudShell, Feedback, a search bar, and system status indicators for date, time, and language.

Alarm:







SOURCE CODE:

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with links like EC2 Global View, Events, Instances, Images, and others. On the right, a large dropdown menu lists various AWS regions with their corresponding codes. The dropdown is currently open, showing regions such as US East (N. Virginia) (us-east-1), US East (Ohio) (us-east-2), US West (N. California) (us-west-1), US West (Oregon) (us-west-2), Asia Pacific (Mumbai) (ap-south-1), Asia Pacific (Osaka) (ap-northeast-3), Asia Pacific (Seoul) (ap-northeast-2), Asia Pacific (Singapore) (ap-southeast-1), Asia Pacific (Sydney) (ap-southeast-2), Asia Pacific (Tokyo) (ap-northeast-1), Canada (Central) (ca-central-1), and Europe (Frankfurt) (eu-central-1). The region 'ap-southeast-1' is highlighted.

The screenshot shows the AWS EC2 Instances page for the 'ap-southeast-1' region. The sidebar on the left is identical to the previous screenshot. The main area displays a table header for 'Instances Info' with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, and Availability Zone. Below the table, a message states 'No instances' and 'You do not have any instances in this region'. A 'Launch instances' button is visible. A modal window titled 'Select an instance' is open at the bottom of the screen. The status bar at the bottom indicates the region as 'Singapore'.

The screenshot shows the AWS Marketplace search results for 'openvpn'. The search bar at the top contains 'openvpn'. Below the search bar, there are four tabs: 'Quickstart AMIs (0)', 'My AMIs (0)', 'AWS Marketplace AMIs (64)', and 'Community AMIs (31)'. The 'AWS Marketplace AMIs (64)' tab is selected. On the left, there is a sidebar with categories like Infrastructure Software (64), IoT (22), DevOps (12), Industries (2), Business Applications (1), and a Publisher section listing Askforcloud LLC (10), OpenVPN Inc. (8), Tidal Media Inc (7), ADEO Imaging (7), TrueStack (4), Cohesive Networks (4), Voleattech GmbH (2), VyOS Inc (2), Decyphertech (2), and TurnKey GNU Linux (2). The main content area displays two items: 'OpenVPN Access Server' by OpenVPN Inc. (Ver 2.11.3) with 48 AWS reviews and 'OpenVPN Access Server (10 Connected Devices)' by OpenVPN Inc. (Ver 2.11.3) with 4 AWS reviews. Both items have a 'Select' button. The footer includes links for CloudShell, Feedback, Top events, Event brief, and various AWS services.

The screenshot shows the product page for 'OpenVPN Access Server' in the AWS Marketplace. The title is 'OpenVPN Access Server' by OpenVPN Inc. It has a rating of 4.5 stars from 48 reviews. There are two options: 'Bring Your Own License' and 'Free Tier'. The 'Overview' tab is selected. The page describes the product as a self-hosted enterprise-grade business software VPN solution. It lists the typical total price as '\$0.023/Hr' (total pricing per instance for services hosted on t2.small in us-east-1) and provides a link to 'See additional pricing information.'. It also lists the latest version (2.11.3), delivery methods (Amazon Machine Image), operating systems (Ubuntu 22.04.1 LTS, Ubuntu 18 LTS), and categories (Security, Network Infrastructure, Device Connectivity). At the bottom right is a 'Continue' button. The footer is identical to the previous screenshot.

Application and OS Images (Amazon Machine Image)

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.

AMI from catalog Quick Start

Amazon Machine Image (AMI)

OpenVPN Access Server QA Image-fe8020db-5343-4c43-9e65-5ed4a825c931 ami-07a19a0c938df5f577

Catalog Published Architecture Virtualization Root device type ENA Enabled

AWS	2023-03-	x86_64	hvm	ebs	Yes
Marketplace	08T14:21:35.000				
AMIs	0Z				

Verified provider

Browse more AMIs
Including AMIs from AWS, Marketplace and the Community

Summary

Number of instances **Info**
1

New security group

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOPS, 1 GB of bandwidth

Cancel **Launch instance** Review commands

Instance type

t2.micro Family: t2 1 vCPU 1 GiB Memory Current generation: true Free tier eligible

All generations

Compare instance types

The AMI vendor recommends using a t2.small instance (or larger) for the best experience with this product.

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**

Proceed without a key pair (Not recommended) Default value Create new key pair

Network settings Info

Network **Info** vpc-0a2ca30f5c4f4413d

Summary

Number of instances **Info**
1

New security group

Storage (volumes)
1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOPS, 1 GB of bandwidth

Cancel **Launch instance** Review commands

The screenshot shows the AWS EC2 Instances page. The left sidebar is collapsed. The main area displays a table with one row:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
OpenVPN	i-021da3a8267308c5e	Running	t2.micro	Initializing	No alarms	ap-southeast-1a

Below the table, a modal window titled "Select an instance" is open. The URL in the browser bar is ap-southeast-1.console.aws.amazon.com/ec2/home?region=ap-southeast-1#Instances.

The screenshot shows the "Connect to instance" dialog box. The "EC2 Instance Connect" tab is selected. The instance ID is listed as i-021da3a8267308c5e (OpenVPN). The "Connection Type" section shows two options: "Connect using EC2 Instance Connect" (selected) and "Connect using EC2 Instance Connect Endpoint". The "Public IP address" field contains 18.143.183.29. The "User name" field contains root. A note at the bottom states: "Note: In most cases, the default user name, root, is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name." The "Connect" button is visible at the bottom right.

```
Instance details | EC2 | ap-south... EC2 Instance Connect | ap-south... OpenVPN SSO Access Server Portal
← → C 🔒 ap-southeast-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-021da3a8267308c5e&osUser=root&region=ap-south...
Gmail Maps YouTube News Translate
aws Services Search [Alt+S]
software maintenance costs and terms are subject to change after your initial purchase without notice. In case of price decreases or special promotions, OpenVPN Inc. will not retrospectively apply credits or price adjustments toward any licenses that have already been issued. Furthermore, no discounts will be given for license maintenance renewals unless this is specified in your contract with OpenVPN Inc.

Please enter 'yes' to indicate your agreement [no]: yes

Once you provide a few initial configuration settings, OpenVPN Access Server can be configured by accessing its Admin Web UI using your Web browser.

Will this be the primary Access Server node? (enter 'no' to configure as a backup or standby node)
> Press ENTER for default [yes]: 

Please specify the network interface and IP address to be used by the Admin Web UI:
(1) all interfaces: 0.0.0.0
(2) eth0: 172.31.36.207
Please enter the option number from the list above (1- 2).
> Press Enter for default [1]: i-021da3a8267308c5e (OpenVPN)

PublicIPs: 18.143.183.29 PrivateIPs: 172.31.36.207

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Top events Event brief 12:22 02/11/2023 6
```

```
Instance details | EC2 | ap-south... EC2 Instance Connect | ap-south... OpenVPN SSO Access Server Portal
← → C 🔒 ap-southeast-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-021da3a8267308c5e&osUser=root&region=ap-south...
Gmail Maps YouTube News Translate
aws Services Search [Alt+S]
To initially login to the Admin Web UI, you must use a username and password that successfully authenticates you with the host UNIX system (you can later modify the settings so that RADIUS or LDAP is used for authentication instead).

You can login to the Admin Web UI as "openvpn" or specify a different user account to use for this purpose.

Do you wish to login to the Admin UI as "openvpn"?
> Press ENTER for default [yes]:
Type a password for the 'openvpn' account (if left blank, a random password will be generated):
Error: New Password must be at least 8 characters.
Type a password for the 'openvpn' account (if left blank, a random password will be generated):
Confirm the password for the 'openvpn' account:

> Please specify your Activation key (or leave blank to specify later):

Initializing OpenVPN...
Removing Cluster Admin user login...
userdel "admin_c"

i-021da3a8267308c5e (OpenVPN)

PublicIPs: 18.143.183.29 PrivateIPs: 172.31.36.207

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Top events Event brief 12:23 02/11/2023 6
```

```
Instance details | EC2 | ap-southeast-1 | EC2 Instance Connect | ap-southeast-1 | OpenVPN SSO | Access Server Portal
ap-southeast-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-021da3a8267308c5e&osUser=root&region=ap-southeast-1
Gmail Maps YouTube News Translate
aws Services Search [Alt+S]
Created symlink /etc/systemd/system/multi-user.target.wants/openvpnas.service → /lib/systemd/system/openvpnas.service.
Starting openvpnas...
NOTE: Your system clock must be correct for OpenVPN Access Server to perform correctly. Please ensure that your time and date are correct on this system.

Initial Configuration Complete!

You can now continue configuring OpenVPN Access Server by directing your Web browser to this URL:

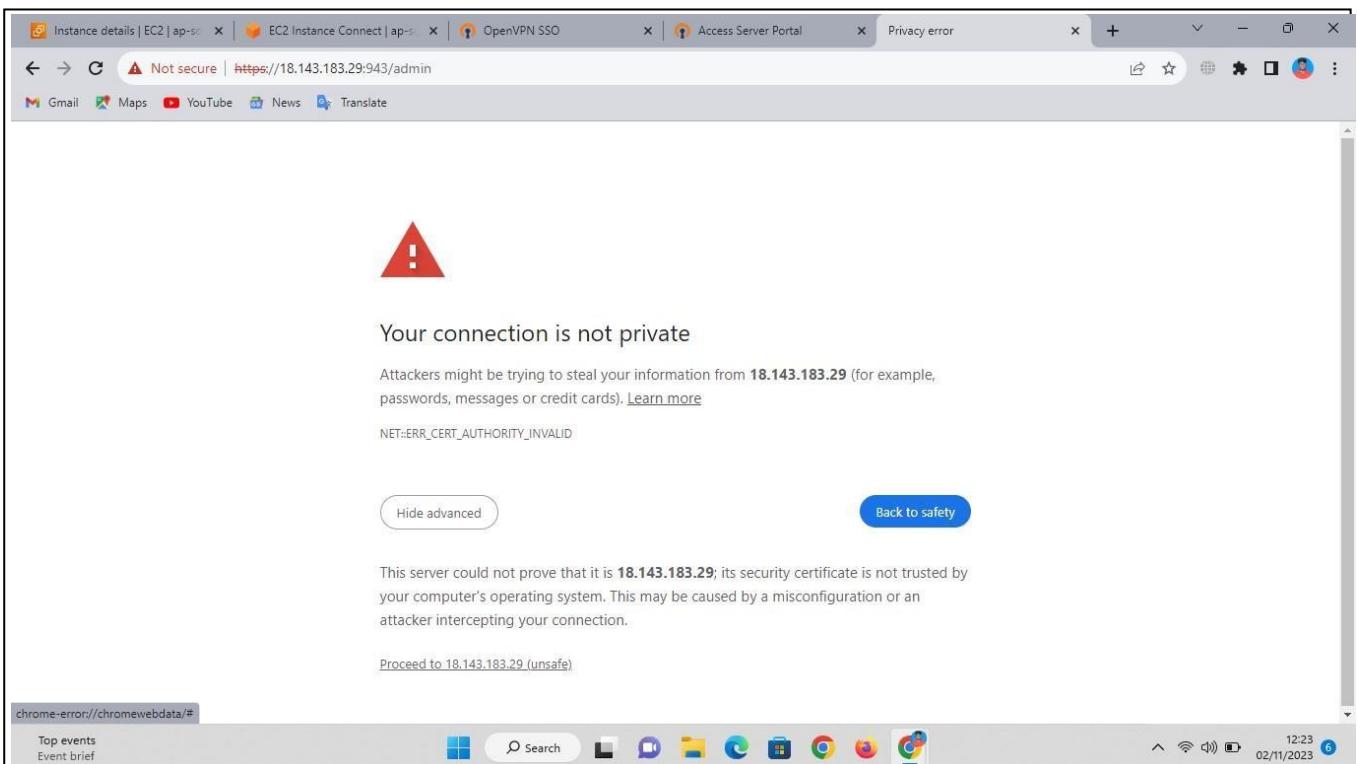
https://18.143.183.29:943/admin

During normal operation, OpenVPN AS can be accessed via these URLs:
Admin UI: https://18.143.183.29:943/admin
Client UI: https://18.143.183.29:943/
To login please use the "openvpn" account with the password you specified during the setup.

See the Release Notes for this release at:
https://openvpn.net/vpn-server-resources/release-notes/

root@ip-172-31-36-207:~# i-021da3a8267308c5e (OpenVPN)
PublicIPs: 18.143.183.29 PrivateIPs: 172.31.36.207

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Top events Event brief 12:23 02/11/2023 6
```



The screenshot shows a web browser window with the URL <https://18.143.183.29:943/admin/>. The page title is "OpenVPN Login". The main content is the "Admin Login" form. It features two input fields: one for the username "openvpn" and one for the password, which is obscured by dots. Below the password field is a blue "Sign In" button. At the bottom of the page, there is a dark footer bar with the text "POWERED BY OPENVPN © 2009-2022 OpenVPN Inc. All Rights Reserved". The browser's address bar shows "Not secure". The taskbar at the bottom includes icons for File Explorer, Edge, and other system tools.

The screenshot shows a web browser window with the URL <https://18.143.183.29:943/admin/activation>. The page title is "Activation Manager". On the left, there is a sidebar with navigation links: STATUS, CONFIGURATION (with Activation, Cluster, TLS Settings, Network Settings, VPN Settings, Advanced VPN, Web Server, CWS Settings, Failover, CA Management), and USER MANAGEMENT. The "VPN Settings" link is highlighted with an orange box. The main content area has a "Get Activation Key" button. Below it is a text input field labeled "Enter Activation Key here" and a "Activate" button. A message box states "2 VPN connections allowed". At the bottom, there is an "Offline Activation" section. The browser's address bar shows "Not secure". The taskbar at the bottom includes icons for File Explorer, Edge, and other system tools.

Instance details | EC2 | ap-south-1 | EC2 Instance Connect | ap-south-1 | AS: ip-172.31.36.207 | https://18.143.183.29:943/admin/vpn_settings

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VPN Settings

VPN IP Network

Specify the addresses and netmasks for the virtual networks created for VPN clients

Dynamic IP Address Network

When a user does not have a specific VPN IP address configured on the [User Permissions](#) page, the user's VPN client is assigned an address from this network.

Network Address: 172.27.224.0 / # of Netmask bits: 20

Static IP Address Network (Optional)

Any static VPN IP addresses specified for particular users on the [User Permissions](#) page must be within this network

Network Address: / # of Netmask bits: / CIDR netmask bits:

Group Default IP Address Network (Optional)

When a group does not have a specific Dynamic IP Address pool setting, the dynamic IP address pool for the group will be allocated from this list of subnets.

172.27.240.0/20

STATUS ▾
CONFIGURATION ▾
Activation
Cluster
TLS Settings
Network Settings
VPN Settings
Advanced VPN
Web Server
CWS Settings
Failover
CA Management

USER MANAGEMENT ▾
AUTENTICATION ▾
Top events Event brief

12:26 02/11/2023

Instance details | EC2 | ap-south-1 | EC2 Instance Connect | ap-south-1 | AS: ip-172.31.36.207 | https://18.143.183.29:943/admin/vpn_settings

Gmail Maps YouTube News Translate

USER MANAGEMENT ▾
When a group does not have a specific Dynamic IP Address pool setting, the dynamic IP address pool for the group will be allocated from this list of subnets.
172.27.240.0/20

AUTHENTICATION ▾

TOOLS ▾

DOCUMENTATION

SUPPORT

Logout

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Should VPN clients have access to private subnets (non-public networks on the server side)? Yes, using NAT Yes, using Routing

Specify the private subnets to which all clients should be given access (one per line): 172.31.0.0/16

Should client Internet traffic be routed through the VPN? Yes

Should clients be allowed to access network services on the VPN gateway IP address? Yes

DNS Settings

Pushing DNS servers to clients is optional, unless clients' Internet traffic is to be routed through the VPN

Do not alter clients' DNS server settings Yes

Top events Event brief

12:26 02/11/2023

Instance details | EC2 | ap-south1 | EC2 Instance Connect | ap-south1 | AS: ip-172-31-36-207

Not secure | https://18.143.183.29:943/admin/vpn_settings

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DNS Settings

Pushing DNS servers to clients is optional, unless clients' Internet traffic is to be routed through the VPN

Do not alter clients' DNS server settings No

Have clients use the same DNS servers as the Access Server host No

Have clients use specific DNS servers Yes

Primary DNS Server: 8.8.8 To use a DNS server running on the Access Server host, use '127.0.0.1'

Secondary DNS Server: 8.8.4.4

DNS resolution zones (optional)

For split tunnels that only route private traffic (not internet traffic), specify a comma-separated list of internal domains that clients will resolve through the AS-pushed DNS server(s). Note that some clients (such as Windows) may only respect the first domain given.

DNS zones:

Top events Event brief 12:28 02/11/2023 6

This screenshot shows the 'DNS Settings' section of the OpenVPN Access Server configuration. It includes three options: 'Do not alter clients' DNS server settings' (No selected), 'Have clients use the same DNS servers as the Access Server host' (No selected), and 'Have clients use specific DNS servers' (Yes selected). Below these are fields for 'Primary DNS Server' (8.8.8) and 'Secondary DNS Server' (8.8.4.4), with a note about using the Access Server host's DNS. A 'DNS resolution zones (optional)' section is also present.

Instance details | EC2 | ap-south1 | EC2 Instance Connect | ap-south1 | AS: ip-172-31-36-207

Not secure | https://18.143.183.29:943/admin/vpn_settings

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OPENVPN Access Server v2.11.3

STATUS

CONFIGURATION

- Activation
- Cluster
- TLS Settings
- Network Settings
- VPN Settings**
- Advanced VPN
- Web Server
- CWS Settings
- Failover
- CA Management

USER MANAGEMENT

AUTHENTICATION

Top events Event brief 12:28 02/11/2023 6

Settings Changed
The active profile 'Default' has been modified and saved.
Press the button below to propagate the changes to the running server.

Update Running Server

VPN Settings

VPN IP Network

Specify the addresses and netmasks for the virtual networks created for VPN clients

Dynamic IP Address Network

When a user does not have a specific VPN IP address configured on the User Permissions page, the user's VPN client is assigned an address from this network.

Network Address: 172.27.224.0 # of Netmask bits: 20

Static IP Address Network (Optional)

Any static VPN IP addresses specified for particular users on the User Permissions page must be within this network.

This screenshot shows the 'VPN Settings' page of the OpenVPN Access Server. On the left is a sidebar with navigation links like Activation, Cluster, TLS Settings, Network Settings, VPN Settings (which is currently selected), Advanced VPN, Web Server, CWS Settings, Failover, CA Management, and User Management. The main area displays a success message: 'Settings Changed' and 'The active profile 'Default' has been modified and saved.' It also includes sections for 'Dynamic IP Address Network' (with a network address of 172.27.224.0 and 20 netmask bits) and 'Static IP Address Network (Optional)'. A note at the bottom states that static IP addresses must be within the specified network.

This screenshot shows a web browser window with the following details:

- Address Bar:** openvpn.net/client/client-connect-vpn-for-windows/
- Page Title:** OpenVPN Connect - Client Software
- Header:** NEW 8 Haunting Cybersecurity Facts for Halloween, Search, Support, Log In
- Navigation:** OPENVPN*, Products, Solutions, Pricing, Resources, Partners, Community, Request a Demo, Get Started
- Main Content:**

OpenVPN Connect for Windows

This is the official OpenVPN Connect client software for Windows workstation platforms developed and maintained by OpenVPN Inc. This is the recommended client program for the OpenVPN Access Server to enable VPN for Windows. The latest version of OpenVPN for Windows is available on our website.

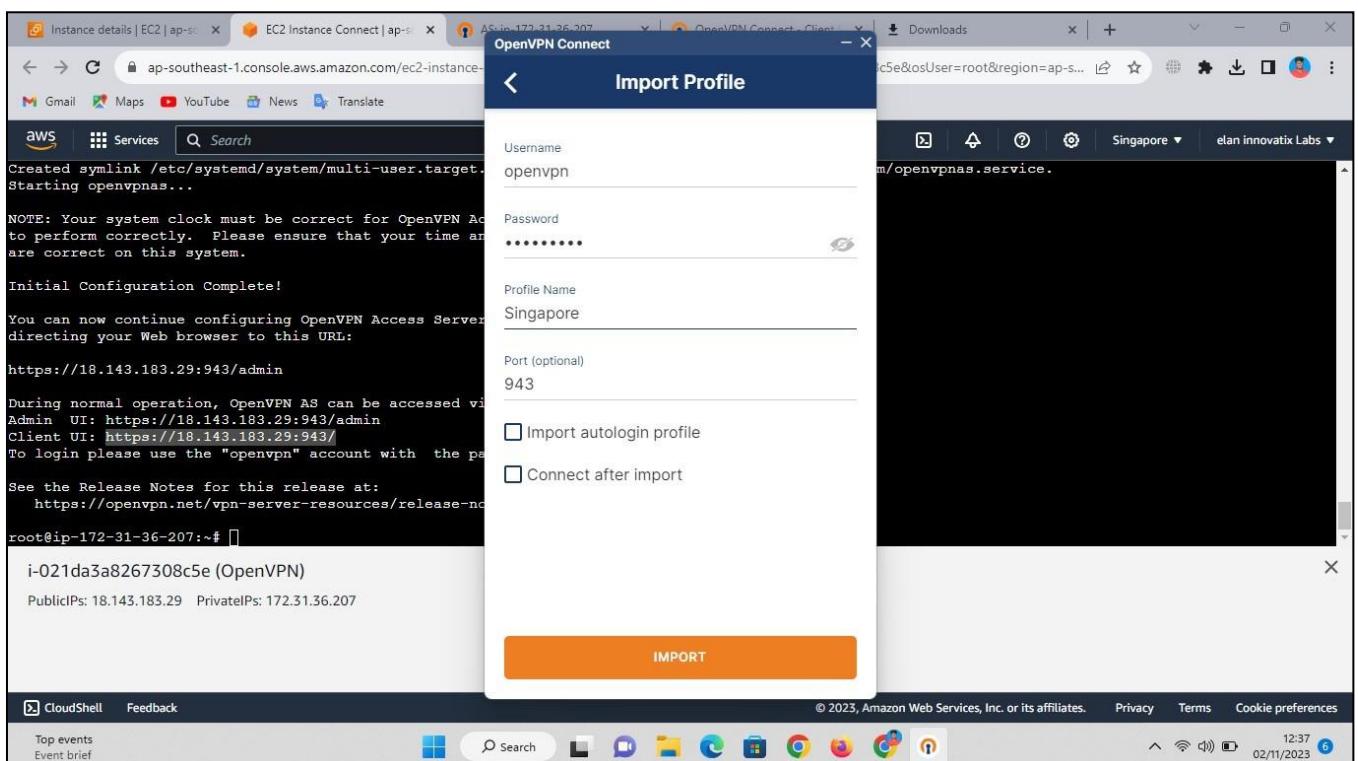
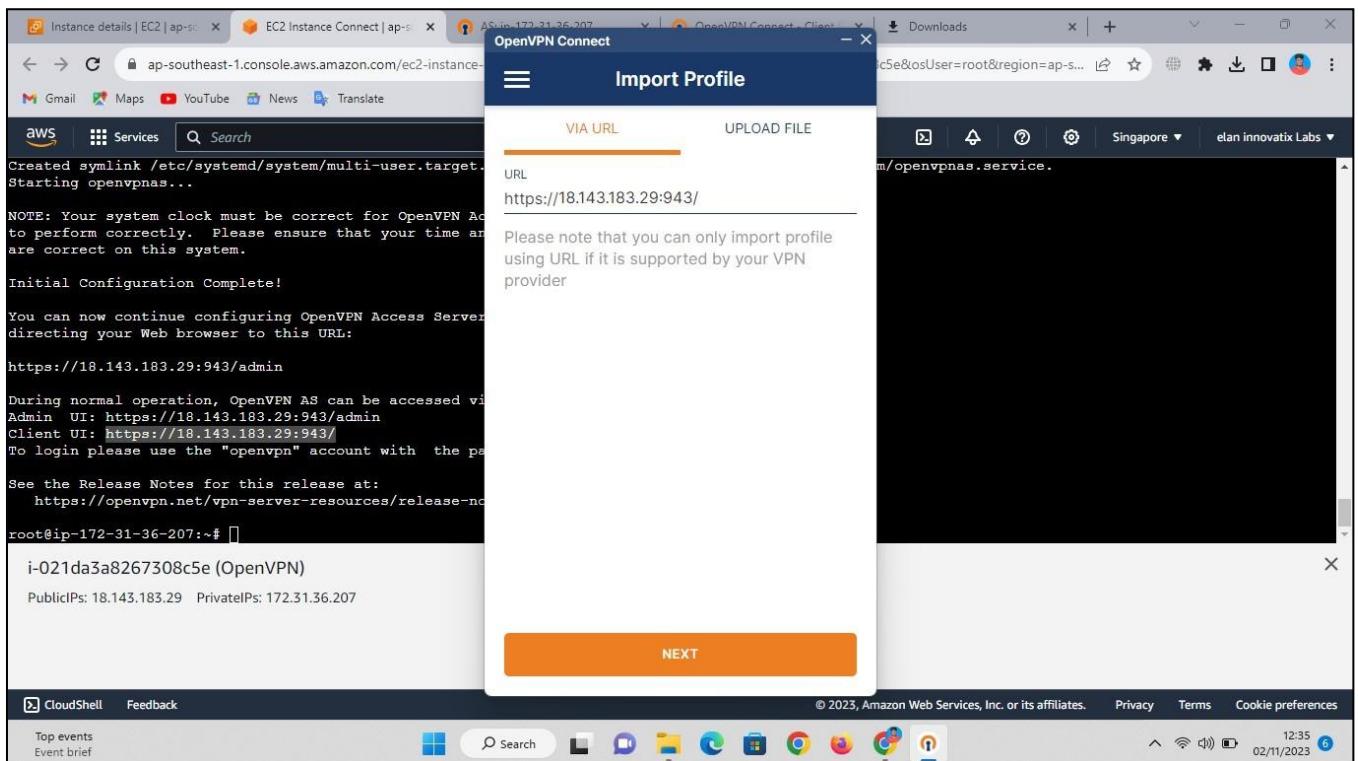
If you have an OpenVPN Access Server, it is recommended to <https://openvpn.net/downloads/openvpn-connect-v3-windows.msi>

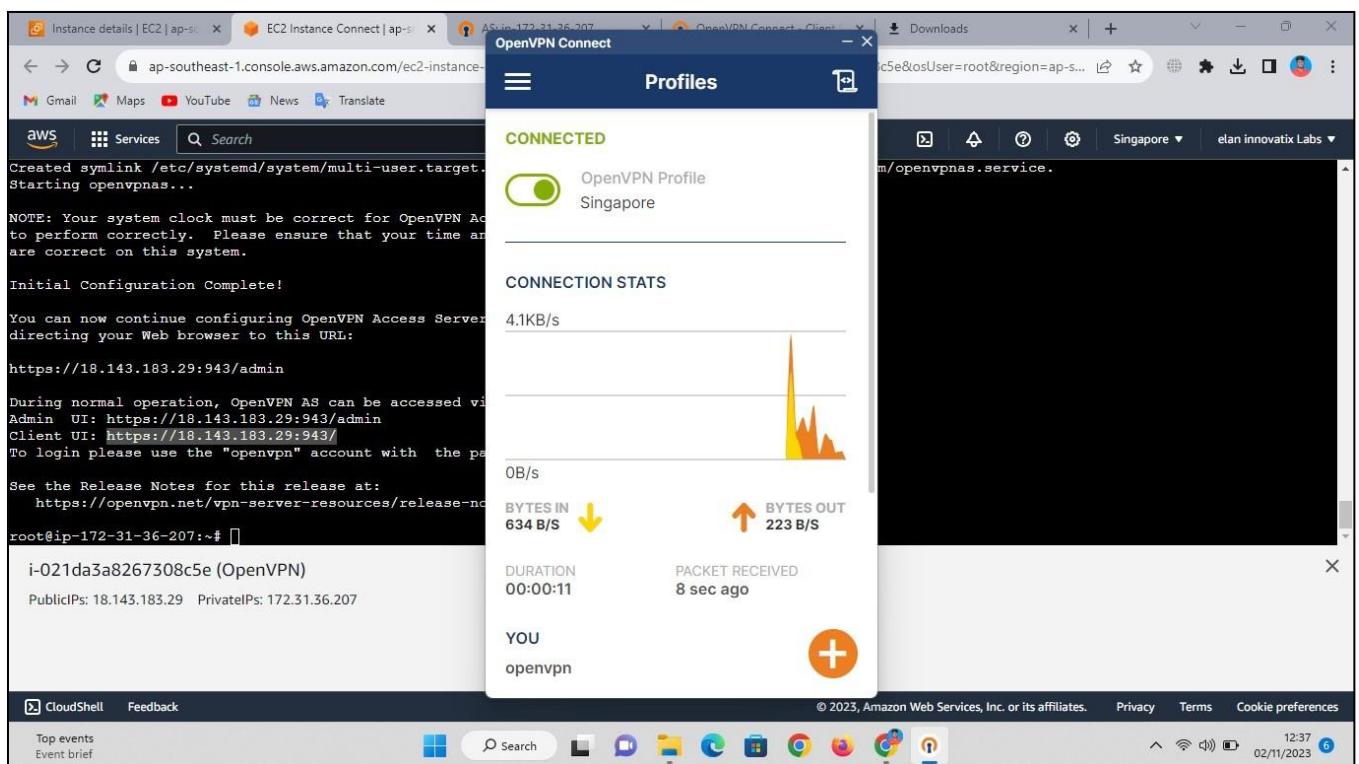
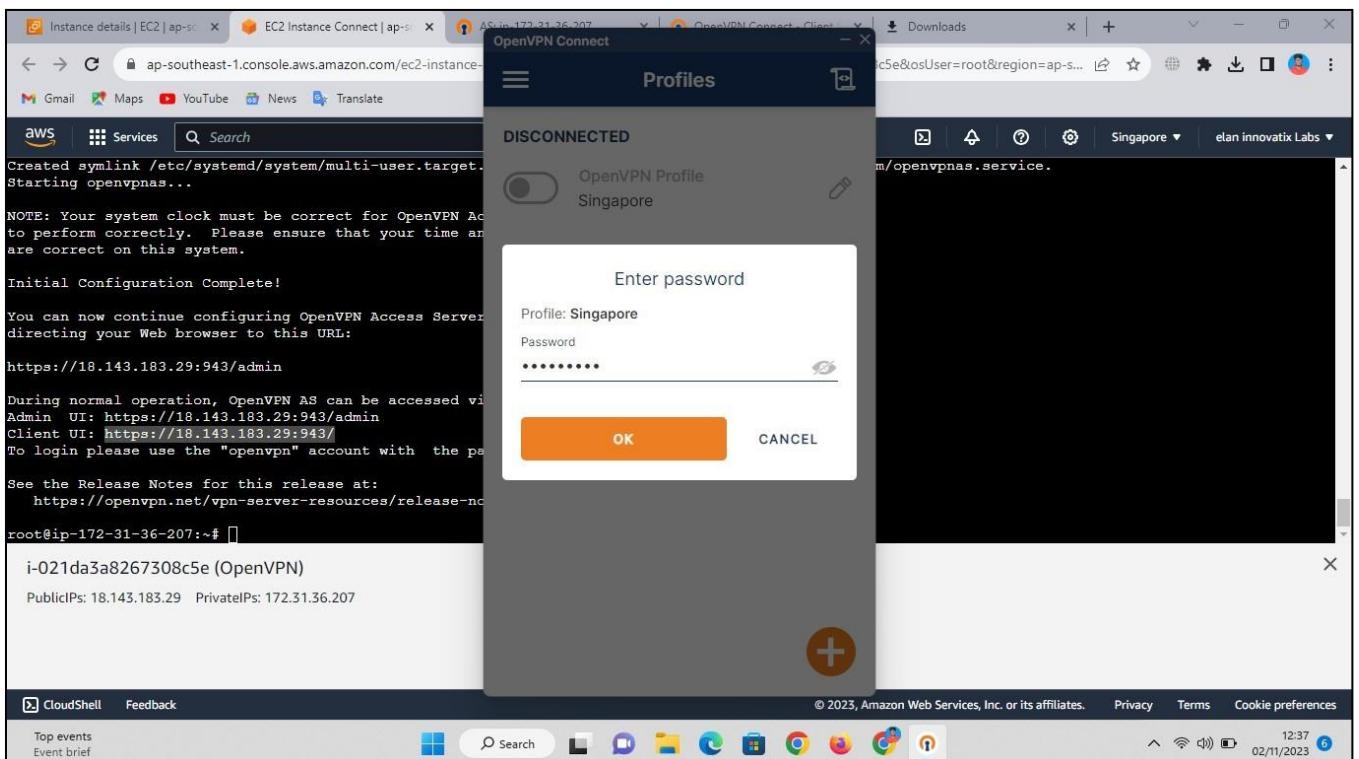
Download Buttons: Download OpenVPN Connect v3, Download OpenVPN Connect v3 for 32 bits

sha256 signature: 81c97d2a482fBe0062f3e58d22daedfc0d973332f5e62d2511419a42cd9aa9d4
For Windows 7, 8, 10, and 11.
A 32 bits version is also available:
sha256 signature: 7f80d6ef9818ba854c6b379381d51d1b8b4735ecdad4b27f661b4e52f169855d
- Bottom Bar:** Top events, Event brief, Windows taskbar icons (Search, File Explorer, Edge, Task View, etc.), Date/Time (12:29, 02/11/2023), and a notification icon (6).

This screenshot shows a terminal window with the following details:

- Address Bar:** Instance details | EC2 | ap-southeast-1 | EC2 Instance Connect | ap-southeast-1 | AS: ip-172-31-36-207 | OpenVPN Connect - Client | Downloads
- Content:** Created symlink /etc/systemd/system/multi-user.target.wants/openvpnas.service → /lib/systemd/system/openvpnas.service.
Starting openvpnas...
NOTE: Your system clock must be correct for OpenVPN Access Server to perform correctly. Please ensure that your time and date are correct on this system.
Initial Configuration Complete!
You can now continue configuring OpenVPN Access Server by directing your Web browser to this URL:
<https://18.143.183.29:943/admin>
During normal operation, OpenVPN AS can be accessed via these URLs:
Admin UI: <https://18.143.183.29:943/admin>
Client UI: <https://18.143.183.29:943/>
To login please use the "openvpn" account with the password you specified during the setup.
See the Release Notes for this release at:
<https://openvpn.net/vpn-server-resources/release-notes/>
- Bottom:** CloudShell, Feedback, © 2023, Amazon Web Services, Inc. or its affiliates., Privacy, Terms, Cookie preferences, Top events, Event brief, Windows taskbar icons, Date/Time (12:35, 02/11/2023), and a notification icon (6).





The screenshot shows a web browser window with the URL whatismyipaddress.com/ip/18.143.183.29. The page displays the following information about the IP address:

IP Details For: 18.143.183.29

Decimal:	311408413
Hostname:	ec2-18-143-183-29.ap-southeast-1.compute.amazonaws.com
ASN:	16509
ISP:	Amazon Data Services
Singapore	
Services:	Datacenter
Assignment:	Likely Static IP
Country:	Singapore
State/Region:	Singapore
City:	Singapore
Latitude:	1.2900 (1° 17' 23.95" N)
Longitude:	103.8503 (103° 51' 1.01" E)

A map of Southeast Asia is shown with a red dot indicating the location of the IP address. A button labeled "CLICK TO CHECK BLACKLIST STATUS" is present.

Below the main content, a note states: "Latitude and Longitude are often near the center of population. These values are not precise enough to be used to identify a specific address or location for legal purposes."

The browser interface includes a search bar, navigation buttons, and a toolbar at the bottom. The status bar at the bottom right shows the date and time as 02/11/2023 12:45.

The screenshot shows the AWS Management Console for the EC2 service. The left sidebar shows the navigation menu with "Instances" selected. The main pane displays a table of instances, with one row selected for an OpenVPN instance named "OpenVPN". A modal dialog box titled "Stop instance?" is open over the instance details. The dialog contains the following text:

Instance IDs
i-021da3a8267308c5e (OpenVPN)

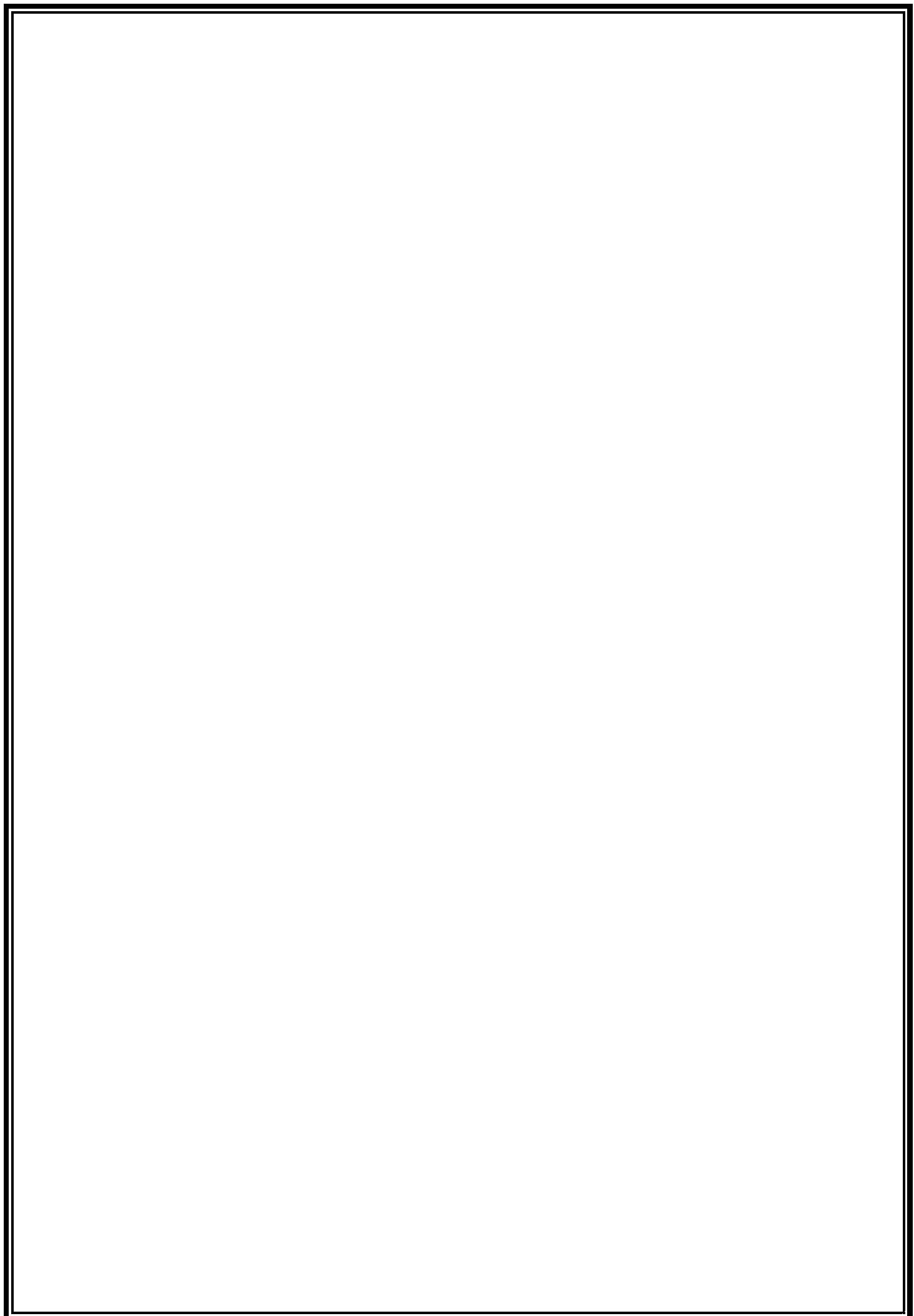
To confirm that you want to stop the instance, choose the Stop button below.

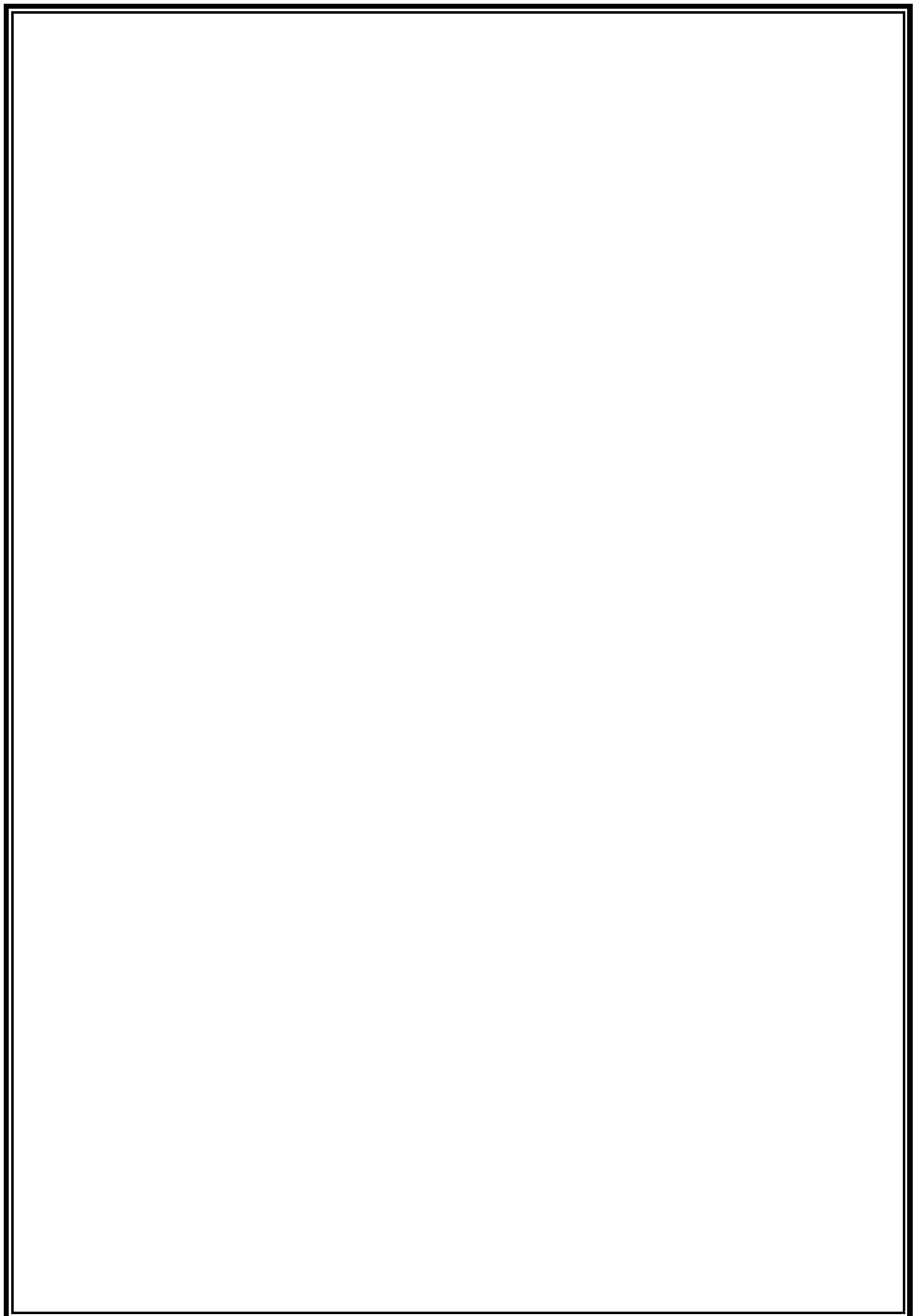
Cancel Stop

Below the modal, the instance details are shown:

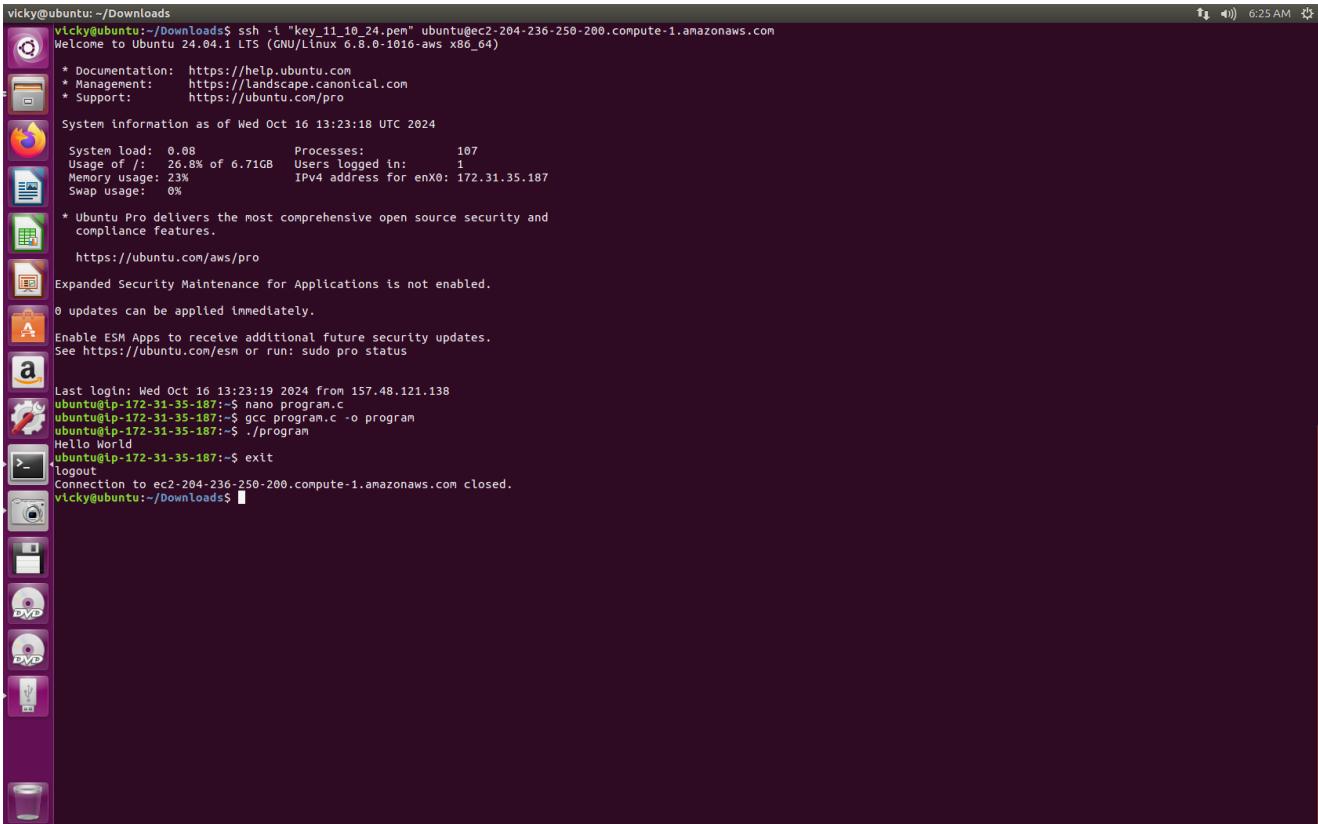
Instance ID	i-021da3a8267308c5e (OpenVPN)	Public IPv4 address	18.143.183.29 [open address]	Private IPv4 addresses	172.31.36.207
IPv6 address	-	Instance state	Running	Public IPv4 DNS	ec2-18-143-183-29.ap-southeast-1.compute.amazonaws.com

The status bar at the bottom indicates the date and time as 02/11/2023 12:46.





SOURCE CODE:



vicky@ubuntu: ~/Downloads

```
vicky@ubuntu:~/Downloads$ ssh -i "key_11_10_24.pem" ubuntu@ec2-204-236-250-200.compute-1.amazonaws.com
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

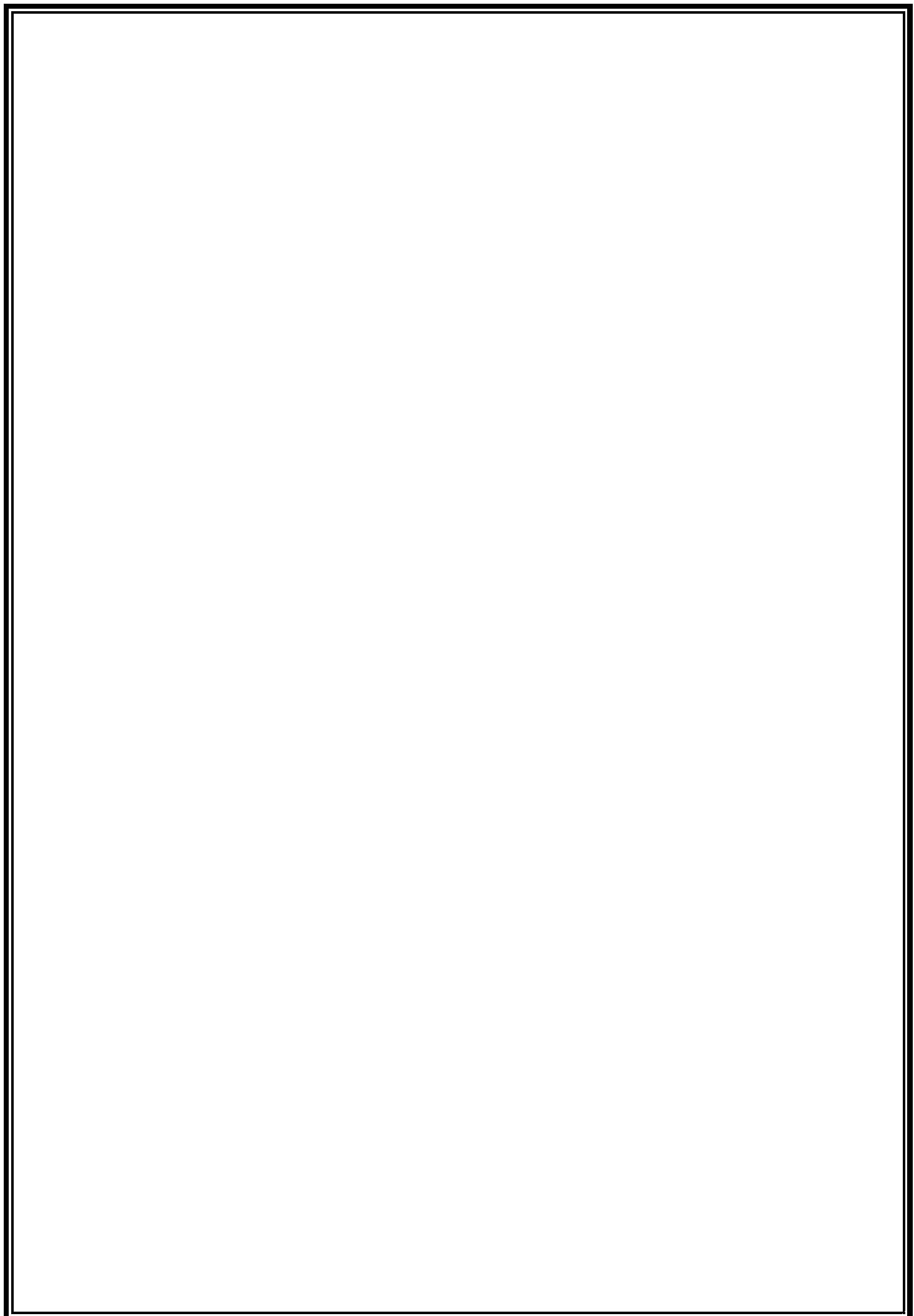
System information as of Wed Oct 16 13:23:18 UTC 2024

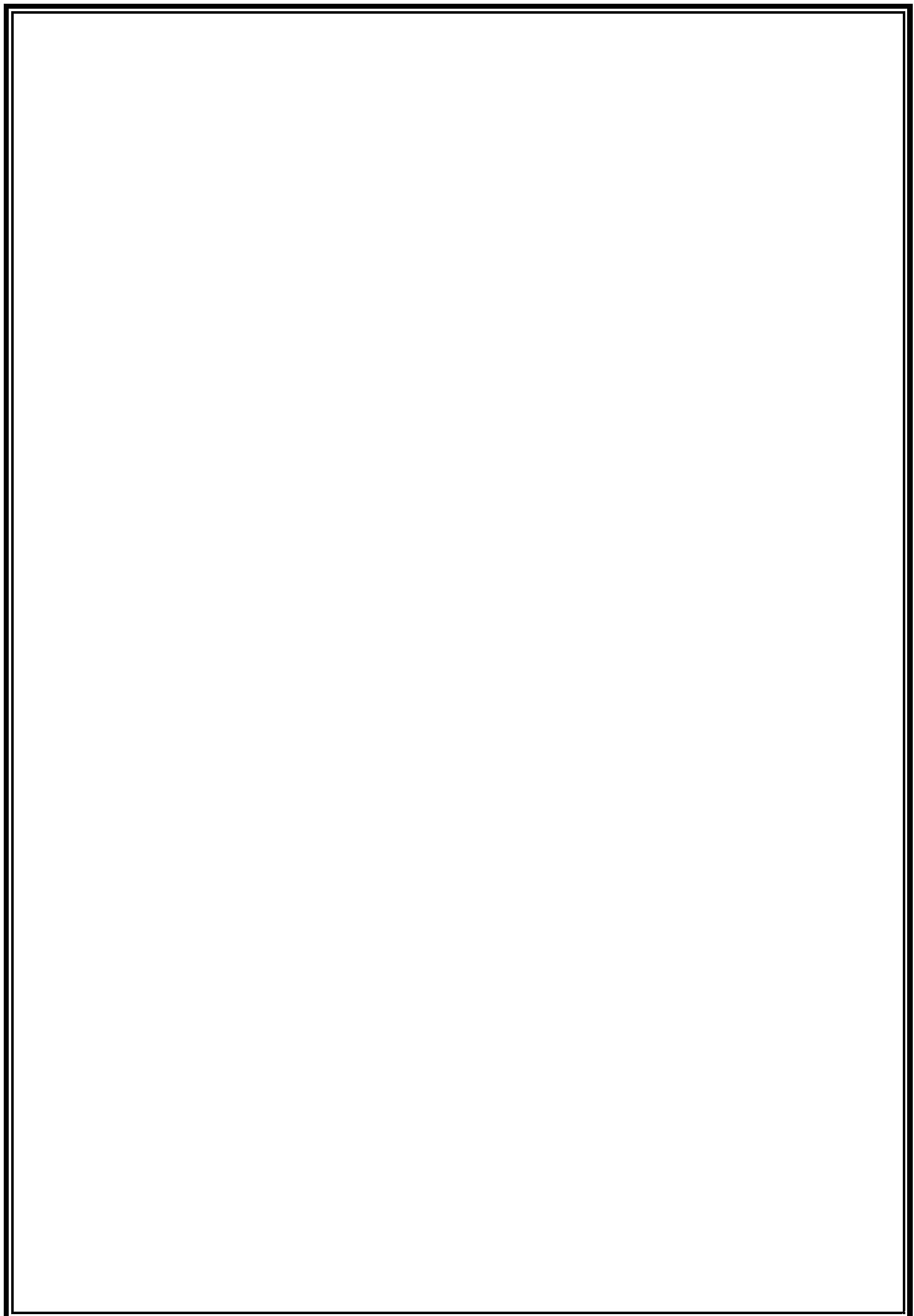
System load: 0.08      Processes:          107
Usage of /: 26.8% of 6.71GB   Users logged in: 1
Memory usage: 23%          IPv4 address for enX0: 172.31.35.187
Swap usage: 0%
* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.
  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.

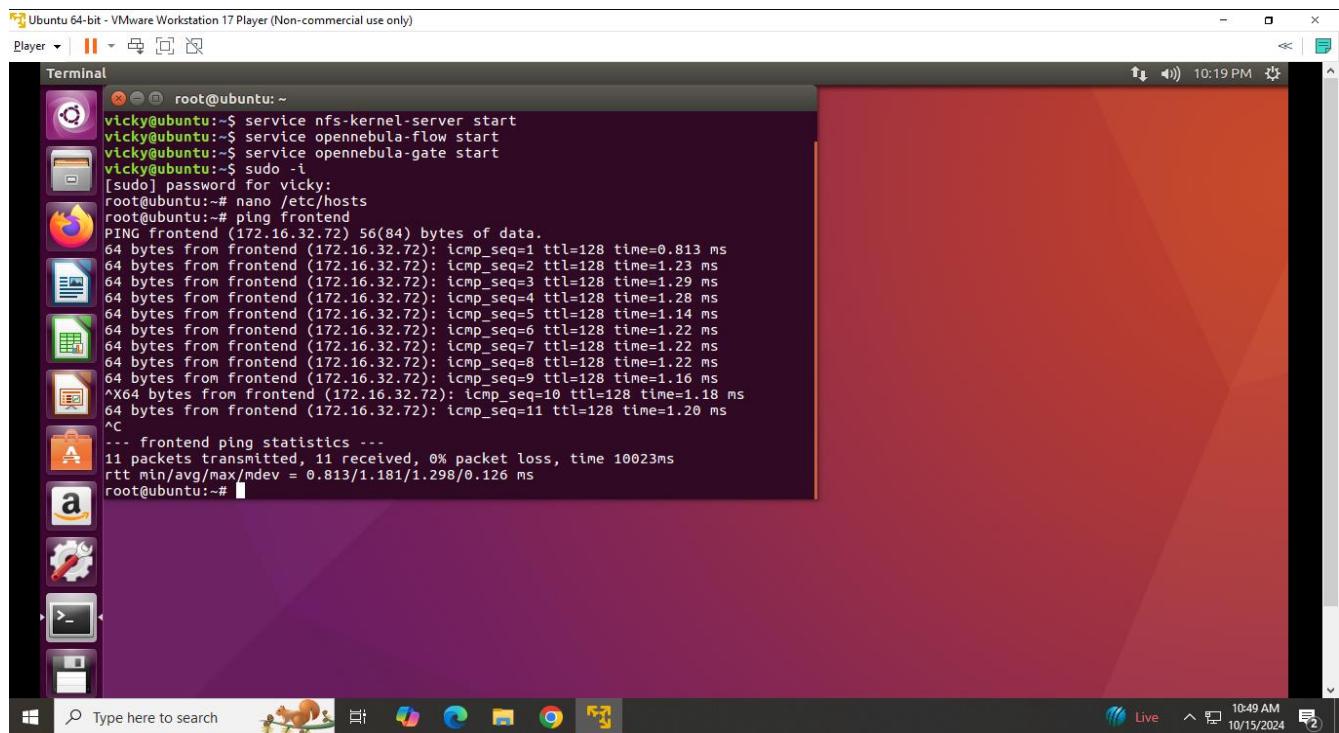
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Wed Oct 16 13:23:19 2024 from 157.48.121.138
ubuntu@ip-172-31-35-187:~$ nano program.c
ubuntu@ip-172-31-35-187:~$ gcc program.c -o program
ubuntu@ip-172-31-35-187:~$ ./program
Hello World
ubuntu@ip-172-31-35-187:~$ exit
logout
Connection to ec2-204-236-250-200.compute-1.amazonaws.com closed.
vicky@ubuntu:~/Downloads$
```

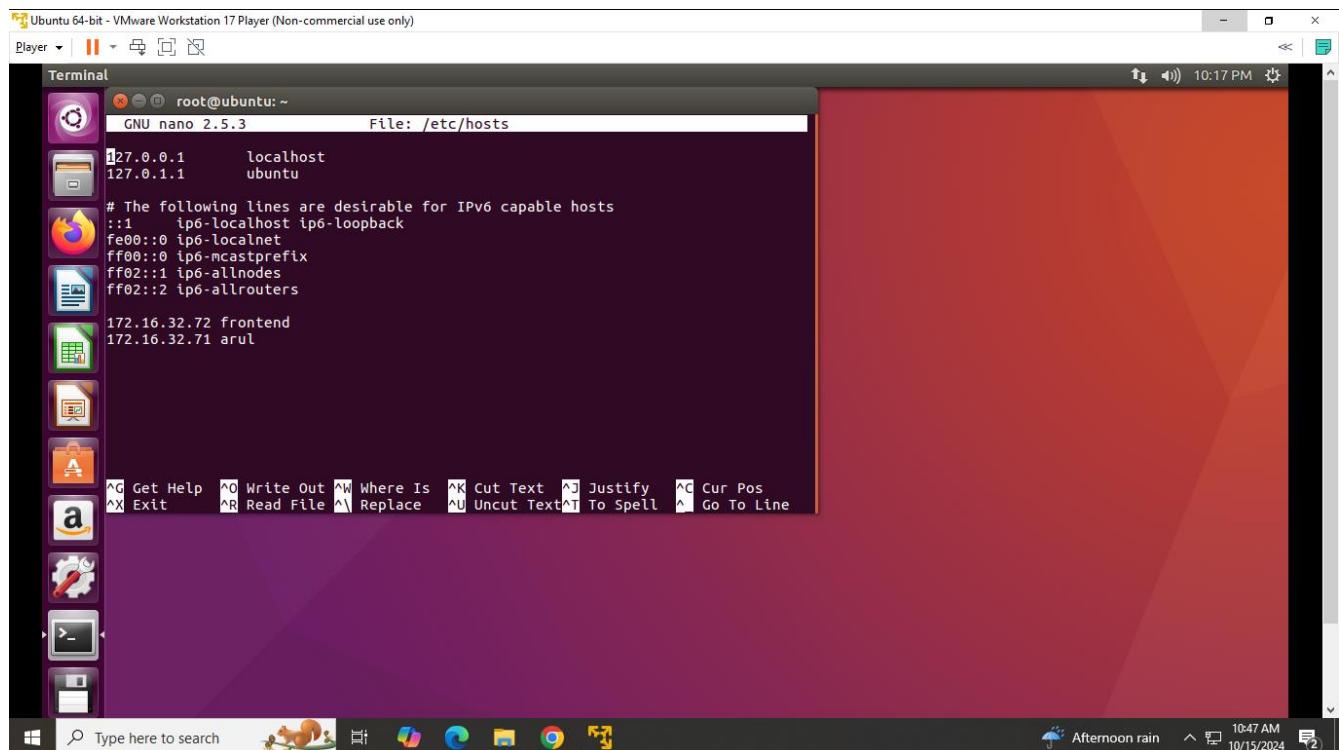




SOURCE CODE:



```
vicky@ubuntu:~$ service nfs-kernel-server start
vicky@ubuntu:~$ service opennebula-flow start
vicky@ubuntu:~$ service opennebula-gate start
[vudo] password for vicky:
root@ubuntu:~# nano /etc/hosts
root@ubuntu:~# ping frontend
PING frontend (172.16.32.72) 56(84) bytes of data.
64 bytes from frontend (172.16.32.72): icmp_seq=1 ttl=128 time=0.813 ms
64 bytes from frontend (172.16.32.72): icmp_seq=2 ttl=128 time=1.23 ms
64 bytes from frontend (172.16.32.72): icmp_seq=3 ttl=128 time=1.29 ms
64 bytes from frontend (172.16.32.72): icmp_seq=4 ttl=128 time=1.28 ms
64 bytes from frontend (172.16.32.72): icmp_seq=5 ttl=128 time=1.14 ms
64 bytes from frontend (172.16.32.72): icmp_seq=6 ttl=128 time=1.22 ms
64 bytes from frontend (172.16.32.72): icmp_seq=7 ttl=128 time=1.22 ms
64 bytes from frontend (172.16.32.72): icmp_seq=8 ttl=128 time=1.22 ms
64 bytes from frontend (172.16.32.72): icmp_seq=9 ttl=128 time=1.16 ms
^X64 bytes from frontend (172.16.32.72): icmp_seq=10 ttl=128 time=1.18 ms
64 bytes from frontend (172.16.32.72): icmp_seq=11 ttl=128 time=1.20 ms
^C
--- frontend ping statistics ---
11 packets transmitted, 11 received, 0% packet loss, time 10023ms
rtt min/avg/max/mdev = 0.813/1.181/1.298/0.126 ms
root@ubuntu:~#
```



```
root@ubuntu:~$ nano /etc/hosts
GNU nano 2.5.3          File: /etc/hosts

127.0.0.1      localhost
127.0.1.1      ubuntu

# The following lines are desirable for IPv6 capable hosts
::1      ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters

172.16.32.72 frontend
172.16.32.71 arul
```

```
Ubuntu 64-bit - VMware Workstation 17 Player (Non-commercial use only)
Player | ||| < > X
Terminal root@ubuntu: ~
root@ubuntu:~# ping arul
PING arul (172.16.32.71) 56(84) bytes of data.
64 bytes from arul (172.16.32.71): icmp_seq=1 ttl=128 time=0.897 ms
64 bytes from arul (172.16.32.71): icmp_seq=2 ttl=128 time=1.31 ms
64 bytes from arul (172.16.32.71): icmp_seq=3 ttl=128 time=1.11 ms
64 bytes from arul (172.16.32.71): icmp_seq=4 ttl=128 time=1.05 ms
64 bytes from arul (172.16.32.71): icmp_seq=5 ttl=128 time=1.30 ms
64 bytes from arul (172.16.32.71): icmp_seq=6 ttl=128 time=1.28 ms
64 bytes from arul (172.16.32.71): icmp_seq=7 ttl=128 time=1.30 ms
64 bytes from arul (172.16.32.71): icmp_seq=8 ttl=128 time=1.37 ms
64 bytes from arul (172.16.32.71): icmp_seq=9 ttl=128 time=1.26 ms
64 bytes from arul (172.16.32.71): icmp_seq=10 ttl=128 time=1.26 ms
64 bytes from arul (172.16.32.71): icmp_seq=11 ttl=128 time=1.30 ms
64 bytes from arul (172.16.32.71): icmp_seq=12 ttl=128 time=1.46 ms
64 bytes from arul (172.16.32.71): icmp_seq=13 ttl=128 time=1.36 ms
64 bytes from arul (172.16.32.71): icmp_seq=14 ttl=128 time=1.18 ms
64 bytes from arul (172.16.32.71): icmp_seq=15 ttl=128 time=1.32 ms
64 bytes from arul (172.16.32.71): icmp_seq=16 ttl=128 time=0.941 ms
64 bytes from arul (172.16.32.71): icmp_seq=17 ttl=128 time=1.32 ms
64 bytes from arul (172.16.32.71): icmp_seq=18 ttl=128 time=1.43 ms
64 bytes from arul (172.16.32.71): icmp_seq=19 ttl=128 time=1.19 ms
64 bytes from arul (172.16.32.71): icmp_seq=20 ttl=128 time=1.16 ms
64 bytes from arul (172.16.32.71): icmp_seq=21 ttl=128 time=1.12 ms
64 bytes from arul (172.16.32.71): icmp_seq=22 ttl=128 time=1.21 ms
Windows Type here to search Live 10:51 AM 10/15/2024
```

```
Ubuntu 64-bit - VMware Workstation 17 Player (Non-commercial use only)
Player | ||| < > X
Terminal root@ubuntu: ~
root@ubuntu:~# ping arul
64 bytes from arul (172.16.32.71): icmp_seq=104 ttl=128 time=1.14 ms
64 bytes from arul (172.16.32.71): icmp_seq=105 ttl=128 time=1.23 ms
64 bytes from arul (172.16.32.71): icmp_seq=106 ttl=128 time=0.866 ms
64 bytes from arul (172.16.32.71): icmp_seq=107 ttl=128 time=1.12 ms
64 bytes from arul (172.16.32.71): icmp_seq=108 ttl=128 time=0.925 ms
64 bytes from arul (172.16.32.71): icmp_seq=109 ttl=128 time=1.11 ms
64 bytes from arul (172.16.32.71): icmp_seq=110 ttl=128 time=1.22 ms
64 bytes from arul (172.16.32.71): icmp_seq=111 ttl=128 time=1.22 ms
64 bytes from arul (172.16.32.71): icmp_seq=112 ttl=128 time=1.40 ms
64 bytes from arul (172.16.32.71): icmp_seq=113 ttl=128 time=1.21 ms
64 bytes from arul (172.16.32.71): icmp_seq=114 ttl=128 time=1.24 ms
64 bytes from arul (172.16.32.71): icmp_seq=115 ttl=128 time=1.03 ms
64 bytes from arul (172.16.32.71): icmp_seq=116 ttl=128 time=1.24 ms
64 bytes from arul (172.16.32.71): icmp_seq=117 ttl=128 time=1.21 ms
64 bytes from arul (172.16.32.71): icmp_seq=118 ttl=128 time=1.05 ms
64 bytes from arul (172.16.32.71): icmp_seq=119 ttl=128 time=1.15 ms
64 bytes from arul (172.16.32.71): icmp_seq=120 ttl=128 time=1.45 ms
64 bytes from arul (172.16.32.71): icmp_seq=121 ttl=128 time=0.838 ms
64 bytes from arul (172.16.32.71): icmp_seq=122 ttl=128 time=1.26 ms
^C
--- arul ping statistics ---
122 packets transmitted, 122 received, 0% packet loss, time 121286ms
rtt min/avg/max/mdev = 0.838/1.408/19.125/1.659 ms
root@ubuntu:~#
```

