

Lab Assignment – 7&8

Program : B.Tech(Cse)

Specialization: AIML

Course Title : Cloud Computing

Semester : 3

Enrollment No: 2403a52002

Batch No : 01

Date : 26-8-2025

Step1: I started by logging into the AWS Management Console

The screenshot shows the AWS Academy Learner Lab interface. On the left is a dark sidebar with navigation links: Account, Dashboard, Courses, Calendar, Inbox, History (with 10 items), and Help. The main area has a header with the path: ALLv2EN-US-LTI13-129309 > Modules > AWS Academy Learner Lab > Launch AWS Academy Learner Lab. It shows a balance of \$0 of \$50 and a timer at 00:00. There are buttons for Start Lab, End Lab, AWS Details, Readme, and Reset. A dropdown menu shows 'EN-US'. The central part of the screen displays a large blue downward-pointing arrow with a red curved arrow on top, indicating the direction of the lab environment. To the right is a 'Learner Lab' sidebar with sections for Environment Overview, Environment Navigation, Access the AWS Management Console, Region restriction, Service usage and other restrictions, Using the terminal in the browser, Running AWS CLI commands, Using the AWS SDK for Python, Preserving your budget, Accessing EC2 Instances, SSH Access to EC2 Instances, SSH Access from Windows, and SSH Access from a Mac. It also notes that instructions last updated on 2025-06-24. At the bottom are 'Previous' and 'Next' buttons.

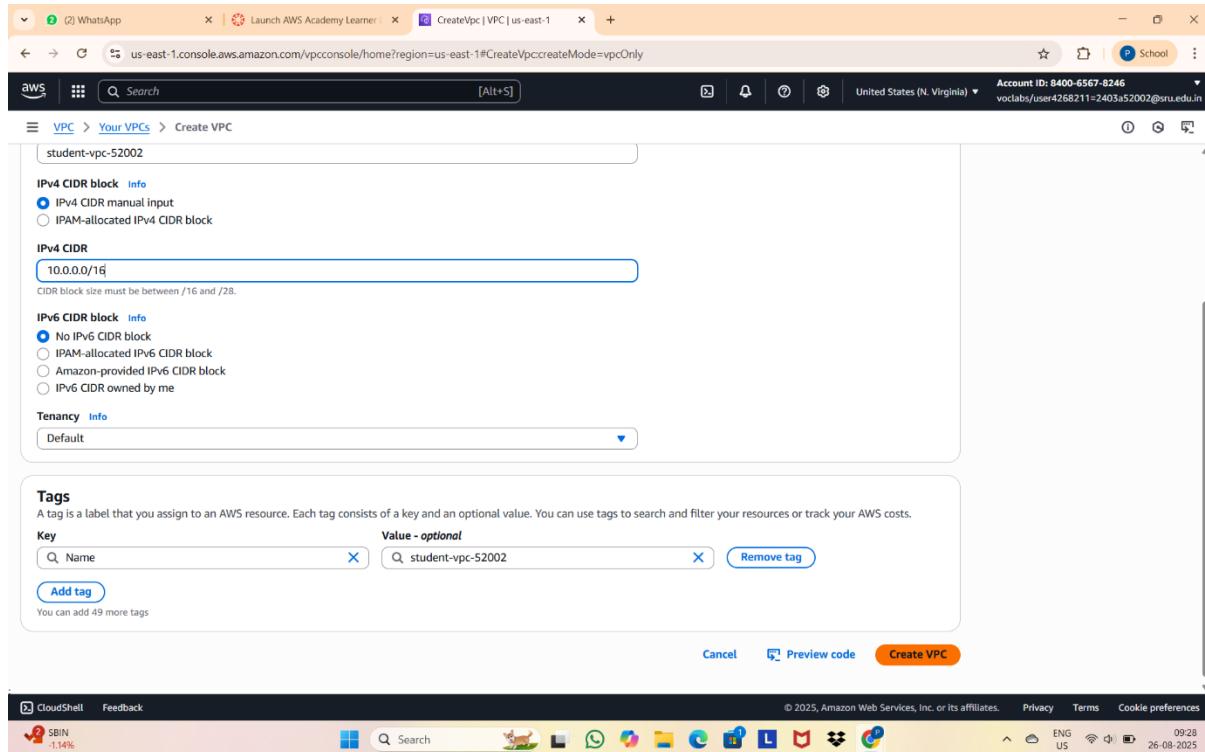
Step2:

The screenshot shows the AWS VPC dashboard. On the left, there's a sidebar with sections like 'Virtual private cloud' (Your VPCs, Subnets, Route tables, Internet gateways, Egress-only internet gateways, Carrier gateways, DHCP option sets, Elastic IPs, Managed prefix lists, NAT gateways, Peering connections, Route servers), 'Security' (Network ACLs, Security groups), and 'PrivateLink and Lattice' (Endpoints). The main area displays 'Resources by Region' for N. Virginia, including VPCs (1), Subnets (6), Route Tables (1), Internet Gateways (1), Egress-only Internet Gateways (0), and DHCP option sets (1). There are also sections for NAT Gateways (0), VPC Peering Connections (0), Network ACLs (1), Security Groups (6), Customer Gateways (0), and Virtual Private Gateways (0). A 'Create VPC' button is at the top. On the right, there are 'Service Health', 'Settings' (Block Public Access, Zones, Console Experiments), and 'Additional Information' (VPC Documentation, All VPC Resources, Forums, Report an Issue) sections. The bottom navigation bar includes CloudShell, Feedback, Finance headline (Oil prices rise as...), and various browser icons.

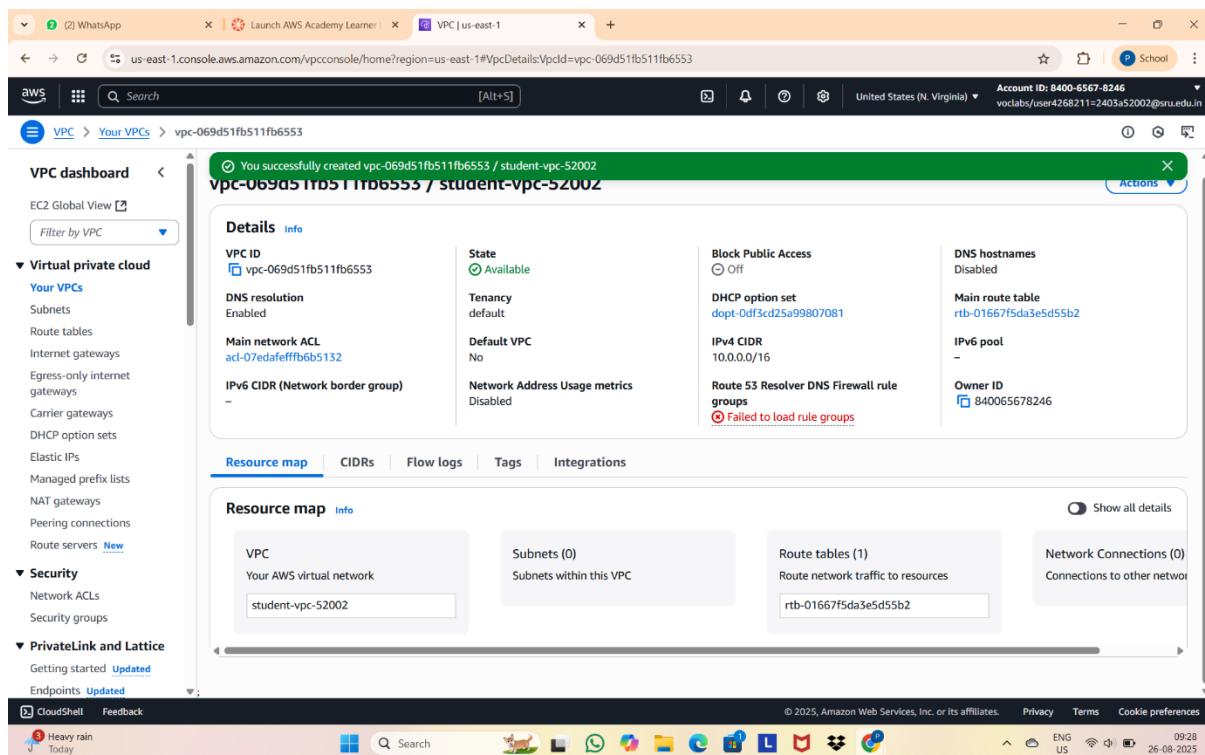
Step3:

The screenshot shows the 'Create VPC' wizard. Step 1 is 'VPC settings'. It has a 'Resources to create' section with 'VPC only' selected (radio button). Below it is a 'Name tag - optional' field containing 'student-vpc-52002'. Under 'IPv4 CIDR block', 'IPv4 CIDR manual input' is selected, and the CIDR block '10.0.0.0/16' is entered. The 'IPv6 CIDR block' section has 'No IPv6 CIDR block' selected. The 'Tenancy' section shows 'Default'. The bottom navigation bar includes CloudShell, Feedback, Finance headline (25°C Light rain), and various browser icons.

Step4:



Step5:



Step6:

The screenshot shows the AWS VPC Subnets page. On the left, there's a navigation sidebar with sections like VPC dashboard, Virtual private cloud, Security, and PrivateLink and Lattice. The main area displays a table of subnets with columns for Name, Subnet ID, State, VPC, Block Public..., and IPv4 CIDR. There are 6 subnets listed, all in the Available state. The last updated time is 11 minutes ago. A 'Create subnet' button is at the top right. The browser address bar shows 'us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#subnets'. The bottom status bar indicates 'CloudShell Feedback'.

Step7:

The screenshot shows the 'Create subnet' page. It has a 'VPC' section where you can select a VPC. A dropdown menu lists two VPCs: 'vpc-03e041ffd567397e9 172.31.0.0/16' and 'vpc-069d51fb511fb6553 (student-vpc-52002) 10.0.0.0/16'. Below the dropdown, a message says 'Select a VPC first to create new subnets.' At the bottom right are 'Cancel' and 'Create subnet' buttons. The browser address bar shows 'us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSubnet'. The bottom status bar indicates 'CloudShell Feedback'.

Step8:

The screenshot shows the 'Create subnet' step in the AWS VPC console. The 'Subnet settings' section is displayed, with the 'IPv4 CIDR' set to '10.0.0.0/16'. Under 'Tags - optional', a single tag 'Name' is added with the value 'student-public-sb-2002'. The browser's address bar shows the URL 'us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSubnet'. The top right corner shows the account ID '8400-6567-8246' and the region 'United States (N. Virginia)'. The bottom status bar includes icons for CloudShell, Feedback, and various system status indicators.

Step9:

The screenshot shows the 'Create subnet' step in the AWS VPC console. The 'Subnet settings' section is displayed, with the 'IPv4 CIDR' set to '10.0.0.0/16'. Under 'Tags - optional', a new tag 'Name' is added with the value 'student-public-sb-2002'. The browser's address bar shows the URL 'us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#CreateSubnet'. The top right corner shows the account ID '8400-6567-8246' and the region 'United States (N. Virginia)'. The bottom status bar includes icons for CloudShell, Feedback, and various system status indicators.

Step10:

The screenshot shows the AWS VPC Subnets page. A green success message at the top states: "You have successfully created 1 subnet: subnet-0e1fb8bcaba84f3c". Below this, a table lists the subnet details:

Name	Subnet ID	State	VPC	Block Public Access	IPv4 CIDR
student-public-sb-2002	subnet-0e1fb8bcaba84f3c	Available	vpc-069d51fb511fb6553 stud...	Off	10.0.0.0/24

Below the table, a section titled "Select a subnet" is visible.

Step11:

The screenshot shows the AWS VPC Subnets page. The previously created subnet is now selected, indicated by a checked checkbox next to its name in the list:

Name	Subnet ID	State	VPC	Block Public Access	IPv4 CIDR
<input checked="" type="checkbox"/> student-public-sb-52002	subnet-0e1fb8bcaba84f3c	Available	vpc-069d51fb511fb6553 stud...	Off	10.0.0.0/24

Below the table, a detailed view of the selected subnet is shown under the heading "subnet-0e1fb8bcaba84f3c / student-public-sb-52002". The "Details" tab is selected, displaying the following information:

Details	Subnet ID	Subnet ARN	State	Block Public Access
Subnet ID	subnet-0e1fb8bcaba84f3c	arn:aws:ec2:us-east-1:84006567824:subnet/subnet-0e1fb8bcaba84f3c	Available	Off
IPv4 CIDR	10.0.0.0/24	-	-	-
Availability Zone	use1-az1 (us-east-1a)	Available IPv4 addresses 251	IPv6 CIDR -	IPv6 CIDR association ID -
		Network border group vpc-069d51fb511fb6553 student-vnc-	VPC -	Route table -

Step12:

The screenshot shows the AWS VPC Internet Gateways page. On the left, there's a navigation sidebar with sections like VPC dashboard, Virtual private cloud, Security, and PrivateLink and Lattice. The main area displays a table titled "Internet gateways (1) Info". The table has columns for Name, Internet gateway ID, State, VPC ID, and Owner. One row is shown with the following details: Name is "-", Internet gateway ID is "igw-043070d94eb8900c5", State is "Attached", VPC ID is "vpc-03e041ffd567397e9", and Owner is "840065678246". Below the table, a message says "Select an internet gateway above". The top right of the page shows account information: Account ID: 8400-6567-8246, voclabs/user4268211=2403a52002@sru.edu.in, and the date 26-08-2025.

Step13:

The screenshot shows the "Create internet gateway" wizard. The first step, "Internet gateway settings", is displayed. It asks for a "Name tag" which is "student-igw-52002". Below that, there's a section for "Tags - optional" where a single tag "Name" with value "student-igw-52002" is added. At the bottom right of the wizard, there are "Cancel" and "Create internet gateway" buttons. The top right of the page shows account information: Account ID: 8400-6567-8246, voclabs/user4268211=2403a52002@sru.edu.in, and the date 26-08-2025.

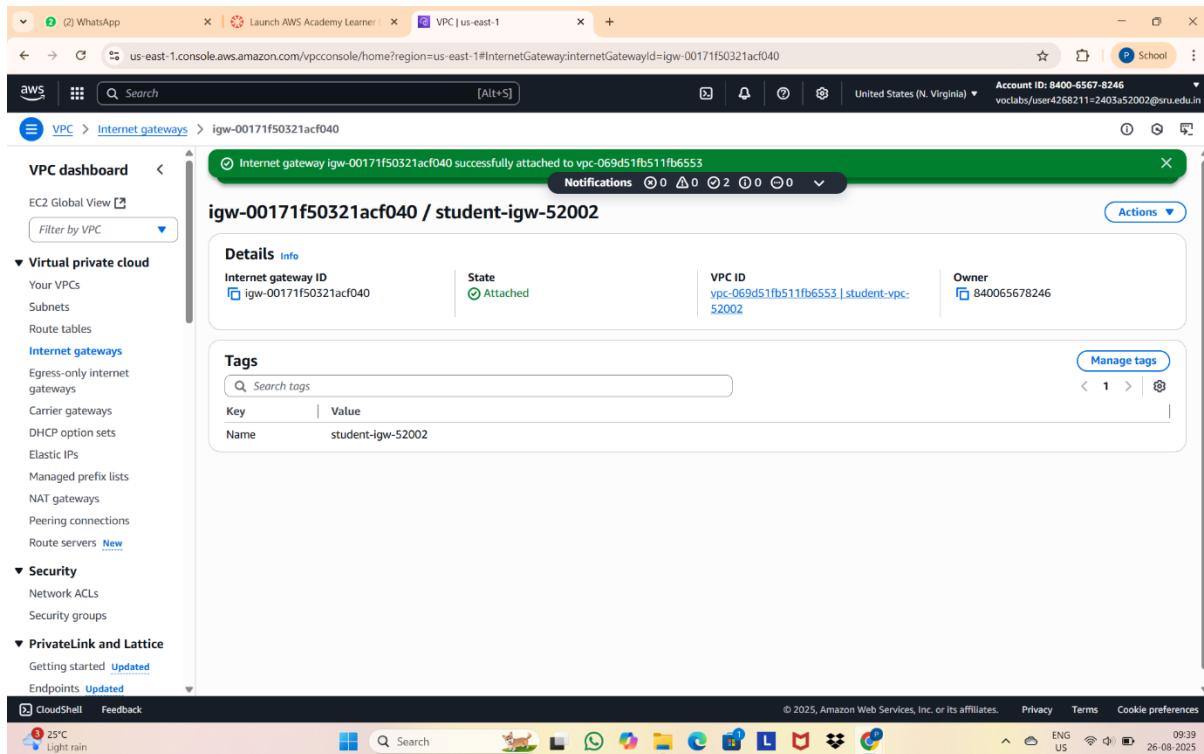
Step14:

The screenshot shows the AWS VPC console interface. In the top navigation bar, the URL is `us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#InternetGateway:internetGatewayId=igw-00171f50321acf040`. The top right corner displays the account ID `8400-6567-8246` and the region `United States (N. Virginia)`. A green banner at the top right says, "The following internet gateway was created: igw-00171f50321acf040 - student-igw-52002. You can now attach to a VPC to enable the VPC to communicate with the internet." Below this, there is a button labeled "Attach to a VPC". On the left sidebar, under the "Virtual private cloud" section, the "Internet gateways" option is selected. The main content area shows the details for the newly created Internet Gateway `igw-00171f50321acf040 / student-igw-52002`. It lists the Internet gateway ID, state (Detached), VPC ID (empty), and owner (840065678246). The "Tags" section shows a single tag named "Name" with the value "student-igw-52002". At the bottom of the page, there is a "CloudShell" button and a "Feedback" link.

Step15:

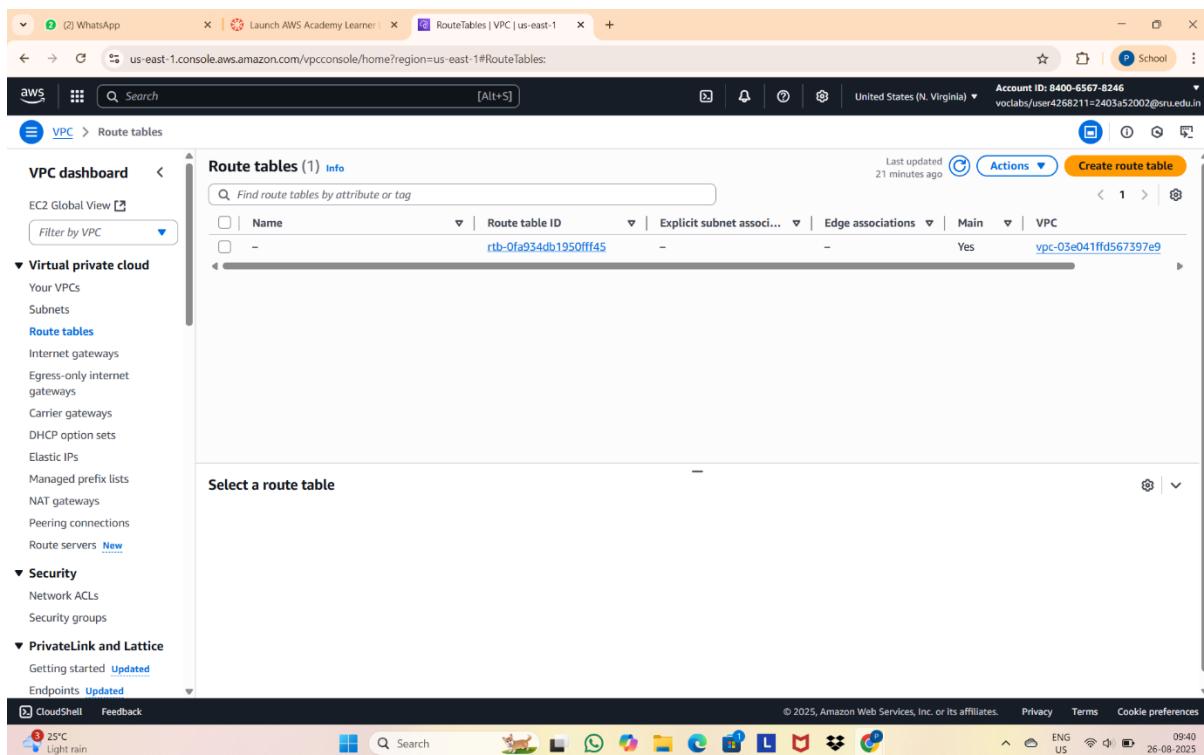
The screenshot shows the "Attach to VPC" dialog box. The title is "Attach to VPC (igw-00171f50321acf040) info". The dialog has a "VPC" section where it says, "Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below." Below this is a "Available VPCs" section with the heading "Attach the Internet gateway to this VPC." A search bar contains the placeholder "Select a VPC". A dropdown menu shows one result: "vpc-069d51fb511fb6553 - student-vpc-52002". At the bottom right of the dialog are "Cancel" and "Attach internet gateway" buttons. The background shows the same AWS VPC console interface as Step 14, with the "Attach to a VPC" button visible in the top right. The bottom of the screen shows the Windows taskbar with various pinned icons like File Explorer, Edge, and File Manager.

Step16:



The screenshot shows the AWS VPC console with the URL us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#InternetGateway:internetGatewayId=igw-00171f50321acf040. The page displays a success message: "Internet gateway igw-00171f50321acf040 successfully attached to vpc-069d51fb511fb6553". The left sidebar shows the navigation menu for VPC, including "Virtual private cloud", "Internet gateways", and "Route tables". The main content area shows the details of the attached Internet gateway, including its ID (igw-00171f50321acf040), state (Attached), VPC ID (vpc-069d51fb511fb6553), and owner (840065678246). A "Tags" section lists a single tag named "Name" with the value "student-igw-52002". The bottom of the screen shows the Windows taskbar with various pinned icons.

Step17:



The screenshot shows the AWS VPC console with the URL us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#RouteTables. The page displays a table titled "Route tables (1) Info" with one entry: "rtb-0fa934db1950ff45". The left sidebar shows the navigation menu for VPC, including "Virtual private cloud", "Route tables", and "Route servers". The main content area shows the details of the route table, including its ID, name, and association with the VPC (vpc-03e041ffd567397e9). Below the table, there is a section titled "Select a route table" with a dropdown menu. The bottom of the screen shows the Windows taskbar with various pinned icons.

Step18:

The screenshot shows the 'Create route table' wizard in the AWS VPC console. In the 'Route table settings' section, the name 'student-rt-public-52002' is entered. Under 'VPC', the selected VPC is 'student-vpc-52002'. In the 'Tags' section, a single tag 'Name' is added with the value 'student-rt-public-52002'. The 'Create route table' button is visible at the bottom right.

Step19:

The screenshot shows the 'Create route table' wizard in the AWS VPC console. In the 'Route table settings' section, the name 'rt-01' is entered. Under 'VPC', the selected VPC is 'student-vpc-52002'. In the 'Tags' section, a single tag 'Name' is added with the value 'rt-01'. The 'Create route table' button is visible at the bottom right.

Step20:

The screenshot shows the AWS VPC Route Table details page. The route table ID is rtb-0daeae6dbbd7e8a691, and it was created successfully. The main target is local, and the owner ID is vpc-069d51fb511fb6553 | student-vpc-52002. There are no explicit subnet associations or edge associations. Under the Routes tab, there is one route entry: Destination 10.0.0.0/16, Target local, Status Active, Propagated No, and Route Origin CreateRouteTable.

Step21:

The screenshot shows the AWS VPC Edit routes page for the route table rtb-0daeae6dbbd7e8a691. The page displays two routes. The first route has a destination of 10.0.0.0/16, a target of local, and a status of Active. The second route has a destination of 0.0.0.0/0, a target of Internet Gateway, and a status of Active. The route origin for both is CreateRouteTable. There is a Remove button next to the second route. At the bottom, there are buttons for Add route, Cancel, Preview, and Save changes.

Step22:

The screenshot shows the AWS VPC console with the URL us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#RouteTableDetails:RouteTableId=rtb-0daeae6dbbd7e8a691. The page displays a success message: "Updated routes for rtb-0daeae6dbbd7e8a691 / rt-01 successfully". The main content area shows the details for route table **rtb-0daeae6dbbd7e8a691 / rt-01**. The "Routes" tab is selected, showing two routes:

Destination	Target	Status	Propagated	Route Origin
0.0.0.0/0	igw-00171f50321acf040	Active	No	Create Route
10.0.0.0/16	local	Active	No	Create Route Table

Step23:

The screenshot shows the AWS VPC console with the URL us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#SecurityGroups. The page displays a list of security groups under the heading "Security Groups (7) Info". The table includes columns for Name, Security group ID, Security group name, and VPC ID. The "Actions" button is highlighted.

Name	Security group ID	Security group name	VPC ID
-	sg-03b76e4c7cc9dca47	launch-wizard-3	vpc-03e041ffd567397e9
-	sg-0626eb5371c0a284d9	launch-wizard-2	vpc-03e041ffd567397e9
-	sg-0ddca6bb5099f1670	default	vpc-03e041ffd567397e9
-	sg-0aa0a47d39dbccb3c	default	vpc-069d51fb511fb6553
-	sg-0e0cb960c843d1ac8	launch-wizard-1	vpc-03e041ffd567397e9
-	sg-030432d36bb54bb8b2	launch-wizard-4	vpc-03e041ffd567397e9
-	sg-049ca8020b9946252	launch-wizard-5	vpc-03e041ffd567397e9

Step24:

The screenshot shows the 'Create security group' wizard in the AWS VPC console. The 'Basic details' section is filled out with the following information:

- Security group name**: student-sg-web-52002
- Description**: Allows SSH HTTP to Devs
- VPC**: vpc-069d51fb511fb6553 (student-vpc-52002)

The 'Inbound rules' section shows a single rule: "All traffic" (TCP port 22) from "Any IP". The 'Outbound rules' section shows a single rule: "All traffic" (All protocols) to "0.0.0.0/0". A warning message at the bottom of the page says: "⚠️ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only."

Step25:

The screenshot shows the 'Create security group' wizard in the AWS VPC console. The 'Inbound rules' section now includes two rules:

- SSH (TCP port 22) from "Any IP" (0.0.0.0/0)
- HTTP (TCP port 80) from "Any IP" (0.0.0.0/0)

The 'Outbound rules' section remains the same as in Step 24. A warning message at the bottom of the page says: "⚠️ Rules with destination of 0.0.0.0/0 or ::/0 allow your instances to send traffic to any IPv4 or IPv6 address. We recommend setting security group rules to be more restrictive and to only allow traffic to specific known IP addresses."

Step26:

The screenshot shows the 'Create security group' page in the AWS VPC console. The 'Outbound rules' section is active, showing a single rule allowing all traffic to all destinations. A note at the bottom of this section advises against using 0.0.0.0/0 or ::/0 as destination addresses. The 'Tags - optional' section is present but empty. The 'Create security group' button is visible at the bottom right.

Step27:

The screenshot shows the 'sg-011f898c914ec6832 - student-sg-web-52002' security group details page. It displays the security group's ID, owner, and various configuration parameters. The 'Inbound rules' tab is selected, showing two rules: one for port 80 (HTTP) and another for port 22 (SSH). The 'Actions' button is located at the top right of the main content area.

Step28:

The screenshot shows the AWS VPC console with a search bar at the top containing 'ec2'. The main area displays a 'Services' section with three items: 'EC2' (Virtual Servers in the Cloud), 'EC2 Image Builder' (A managed service to automate build, customize and deploy OS images), and 'EC2 Global View' (EC2 Global View provides a global dashboard and search functionality that lets you fi...). Below this is a 'Features' section with 'EC2 Instances' (Managed by CloudWatch feature) and 'EC2 Resource Health' (Managed by CloudWatch feature). A 'Dashboard' button is also present. On the left, a sidebar lists various VPC-related services like VPC dashboard, Virtual private clouds, Security groups, and Network ACLs. At the bottom, there are 'Were these results helpful?' buttons ('Yes' or 'No') and a feedback link.

Step29:

The screenshot shows the AWS EC2 console with a search bar at the top containing 'Search'. A blue banner at the top states: 'You can change your default landing page for EC2.' with buttons for 'Permanently dismiss' and 'Change landing page'. The main area is divided into several sections: 'Resources' (listing Instances (running) 1, Auto Scaling Groups 0, Capacity Reservations 0, Dedicated Hosts 0, Elastic IPs 0, Instances 1, Key pairs 1, Load balancers 0, Placement groups 0, Security groups 8, Snapshots 1, and Volumes 2), 'Account attributes' (Default VPC vpc-03e041ffd567397e9, Settings, Data protection and security, Allowed AMIs, Zones, EC2 Serial Console, Default credit specification, EC2 console preferences), 'Launch instance' (button to 'Launch instance'), 'Service health' (Region United States (N. Virginia), Status This service is operating normally, with a link to 'AWS Health Dashboard'), and 'Explore AWS' (10 Things You Can Do Today to Reduce AWS Costs, Explore how to effectively manage your AWS costs without compromising on performance or capacity, with a 'Learn more' link). On the left, a sidebar lists Instances, Images, and Elastic Block Store. At the bottom, there are 'CloudShell' and 'Feedback' links, along with a system tray showing weather (26°C Rain showers) and system icons.

Step30:

The screenshot shows the AWS Cloud Console with the EC2 Instances page open. On the left, a navigation sidebar lists 'EC2' under 'Dashboard', and 'Instances', 'Images', and 'Elastic Block Store' sections. The main area displays a table titled 'Instances (1) Info' with one row. The instance details are: Name: mywindows52..., Instance ID: i-0e35d2f00ac541586, State: Running, Type: t3.medium, Status check: 3/3 checks passed, and Availability Zone: us-east-1d. Below the table, a section titled 'Select an instance' is visible. The browser's address bar shows the URL: 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances'. The top right corner shows the account ID: '8400-6567-8246' and the region: 'United States (N. Virginia)'.

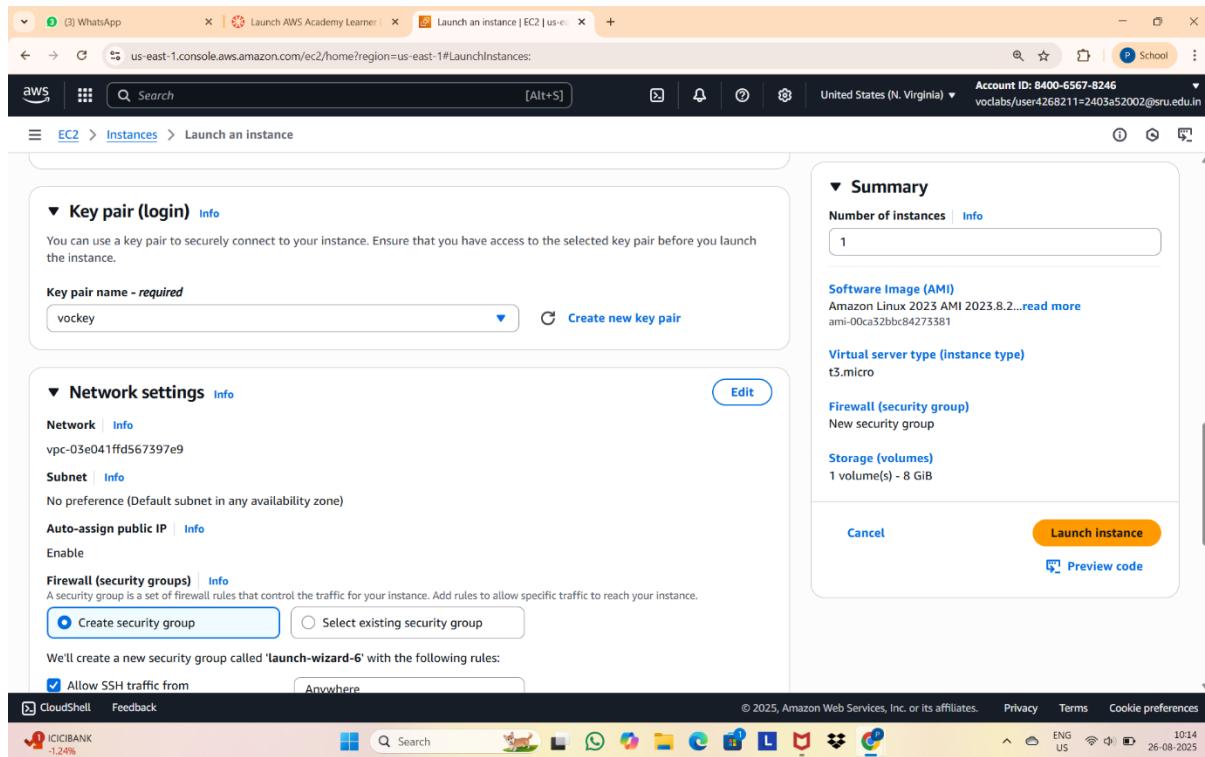
Step31:

The screenshot shows the 'Launch an instance' wizard in the AWS Cloud Console. The 'Summary' step is active, displaying the configuration for launching one instance. Key details include:

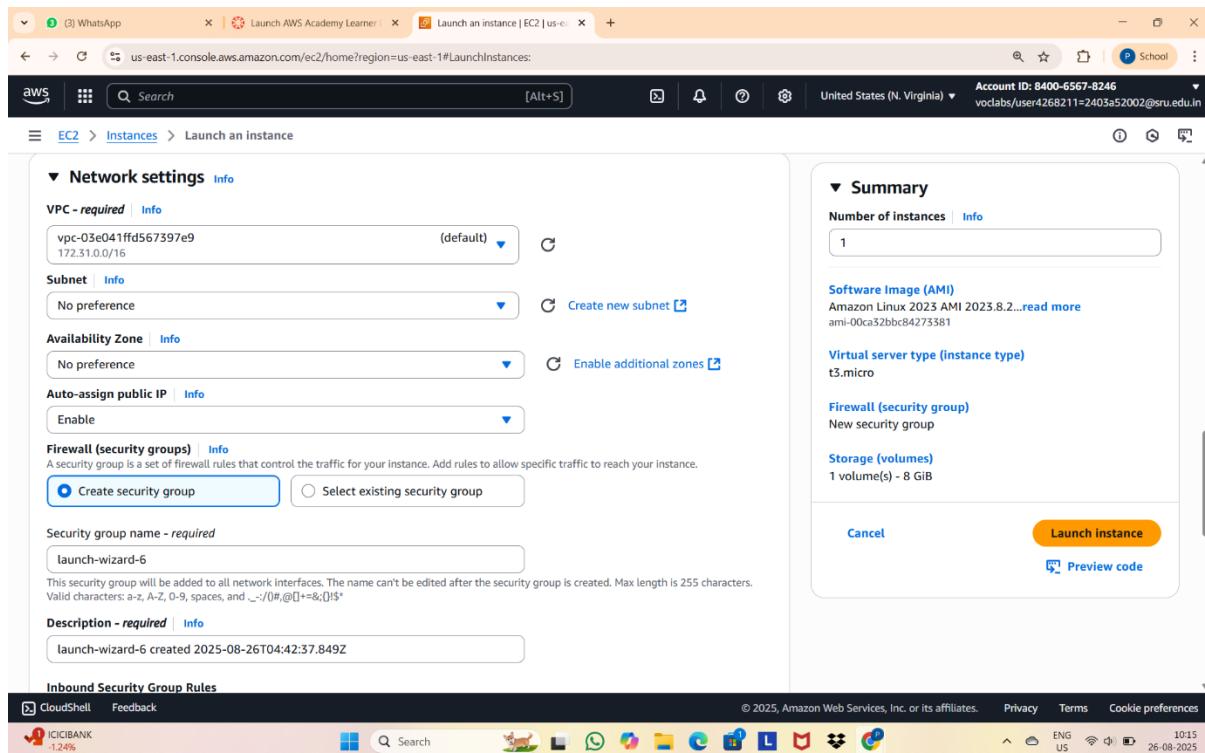
- Software Image (AMI):** Amazon Linux 2023.8.2... (read more)
- Virtual server type (instance type):** t3.micro
- Storage (volumes):** 1 volume(s) - 8 GiB

The 'Launch instance' button is prominently displayed at the bottom right of the summary section. The browser's address bar shows the URL: 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances'. The top right corner shows the account ID: '8400-6567-8246' and the region: 'United States (N. Virginia)'.

Step32:



Step33:



Step34:

The screenshot shows the AWS EC2 'Launch an instance' wizard. In the 'Network settings' section, a VPC is selected (vpc-03e041ffd567397e9), a subnet (subnet-0fc4dc448d60aae4) is chosen, and a security group (launch-wizard-6) is assigned. The summary panel indicates 1 instance will be created using the Amazon Linux 2023 AMI and a t3.micro instance type.

Step35:

The screenshot shows the AWS EC2 'Launch an instance' wizard. The 'Select existing security group' option is selected, and the launch-wizard-1 group is chosen. The summary panel indicates 1 instance will be created using the Amazon Linux 2023 AMI and a t3.micro instance type.

Step36:

The screenshot shows the AWS CloudWatch interface. At the top, there are three tabs: WhatsApp, Launch AWS Academy Learner, and Launch an instance | EC2 | us-east-1. The current tab is 'Launch an instance | EC2 | us-east-1'. The URL is 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#LaunchInstances'. The top right corner shows 'Account ID: 8400-6567-8246' and 'voclabs/user4268211=2403a52002@sru.edu.in'. Below the tabs, the navigation bar shows 'EC2 > Instances > Launch an instance'. A green success message box at the top left says 'Success' and 'Successfully initiated launch of instance (i-029556c27892699a6)'. Below this, there's a 'Launch log' section. Under 'Next Steps', there are several options with blue buttons: 'Create billing usage alerts', 'Connect to your instance', 'Connect an RDS database', 'Create EBS snapshot policy', 'Manage detailed monitoring', 'Create Load Balancer', 'Create AWS budget', and 'Manage CloudWatch alarms'. The bottom of the screen shows the Windows taskbar with various pinned icons like File Explorer, Edge, and File Explorer.

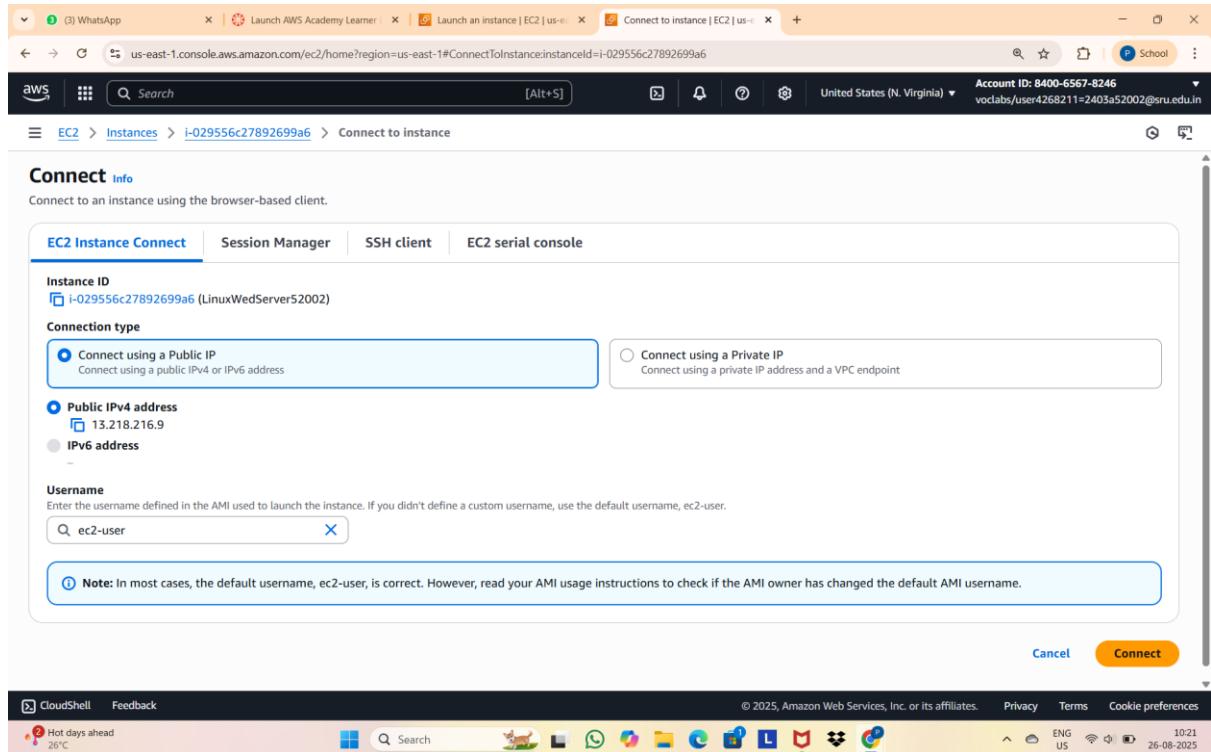
Step37:

The screenshot shows the AWS CloudWatch interface. The top navigation bar has tabs for WhatsApp, Launch AWS Academy Learner, Launch an instance | EC2 | us-east-1, and Instance details | EC2 | us-east-1. The URL is 'us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#InstanceDetailsinstanceId=i-029556c27892699a6'. The top right corner shows 'Account ID: 8400-6567-8246' and 'voclabs/user4268211=2403a52002@sru.edu.in'. Below the tabs, the navigation bar shows 'EC2 > Instances > i-029556c27892699a6'. The main content area is titled 'Instance summary for i-029556c27892699a6 (LinuxWedServer52002)' with an 'Info' link. It displays various instance details in a grid format. Key information includes:

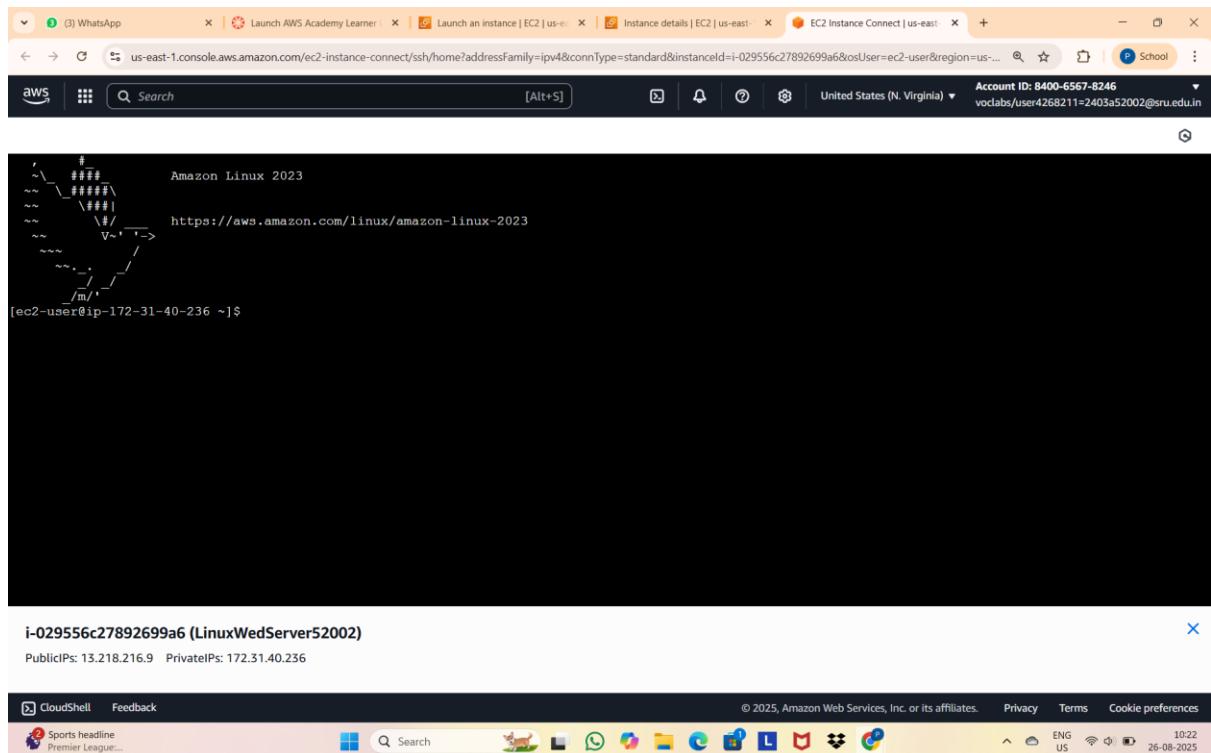
Public IPv4 address	Private IPv4 addresses
13.218.216.9 open address	172.31.40.236
Instance state	Public DNS
Running	ec2-13-218-216-9.compute-1.amazonaws.com open address
Hostname type	Private IP DNS name (IPv4 only)
IP name: ip-172-31-40-236.ec2.internal	ip-172-31-40-236.ec2.internal
Answer private resource DNS name	Instance type
-	t3.micro
Auto-assigned IP address	VPC ID
13.218.216.9 [Public IP]	vpc-03e041ffd567397e9
IAM Role	Subnet ID
-	subnet-096c87be403c41381
IMDSv2	Instance ARN
Required	arn:aws:ec2:us-east-1:840065678246:instance/i-029556c27892699a6

The bottom of the screen shows the Windows taskbar with various pinned icons like File Explorer, Edge, and File Explorer.

Step38:



Step39:



Step40:

The screenshot shows a web browser window with the AWS CloudShell interface. The terminal window displays the command `sudo yum install httpd` being run on an Amazon Linux instance. The output shows the installation of the `httpd` package and its dependencies, including `apr`, `apr-util`, `generic-logos-httdp`, `httpd-core`, `httpd-filesystem`, `httpd-tools`, `libbrotli`, and `mailcap`. The transaction summary indicates 12 packages installed, totaling 2.3 M download size and 6.9 M installed size. The user is prompted with "Is this ok [y/N]".

```
Complete!
[ec2-user@ip-172-31-40-236 ~]$ sudo yum install httpd
Last metadata expiration check: 0:00:35 ago on Tue Aug 26 04:58:23 2025.
Dependencies resolved.
=====
Package          Architecture Version      Repository  Size
=====
Installing:
httpd           x86_64      2.4.64-1.amzn2023.0.1      amazonlinux   47 k
Installing dependencies:
apr              x86_64      1.7.5-1.amzn2023.0.4      amazonlinux  129 k
apr-util         x86_64      1.6.3-1.amzn2023.0.1      amazonlinux  98 k
generic-logos-httdp noarch      18.0.0-12.amzn2023.0.3    amazonlinux  19 k
httpd-core       x86_64      2.4.64-1.amzn2023.0.1      amazonlinux  1.4 M
httpd-filesystem noarch      2.4.64-1.amzn2023.0.1      amazonlinux  13 k
httpd-tools      x86_64      2.4.64-1.amzn2023.0.1      amazonlinux  81 k
libbrotli        x86_64      1.0.9-4.amzn2023.0.2      amazonlinux  315 k
mailcap          noarch      2.1.49-3.amzn2023.0.3      amazonlinux  33 k
Installing weak dependencies:
apr-util-openssl x86_64      1.6.3-1.amzn2023.0.1      amazonlinux  17 k
mod_http2        x86_64      2.0.27-1.amzn2023.0.3      amazonlinux  166 k
mod_lua          x86_64      2.4.64-1.amzn2023.0.1      amazonlinux  60 k
=====
Transaction Summary
=====
Install 12 Packages

Total download size: 2.3 M
Installed size: 6.9 M
Is this ok [y/N]:
```

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Step41:

The screenshot shows a web browser window with the AWS CloudShell interface. The terminal window displays the command `sudo yum install httpd` being run again on the same Amazon Linux instance. The output shows the same package installations and transaction details as in Step 40. The user is again prompted with "Is this ok [y/N]".

```
Install 12 Packages

Total download size: 2.3 M
Installed size: 6.9 M
Is this ok [y/N]: y
Downloading Packages:
(1/12): apr-1.7.5-1.amzn2023.0.4.x86_64.rpm            3.9 MB/s | 129 kB  00:00
(2/12): apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64.rpm 475 kB/s | 17 kB  00:00
(3/12): apr-util-1.6.3-1.amzn2023.0.1.x86_64.rpm        2.2 MB/s | 98 kB  00:00
(4/12): generic-logos-httdp-18.0.0-12.amzn2023.0.3.noarch.rpm 850 kB/s | 19 kB  00:00
(5/12): httpd-2.4.64-1.amzn2023.0.1.x86_64.rpm        2.0 MB/s | 47 kB  00:00
(6/12): httpd-core-2.4.64-1.amzn2023.0.1.x86_64.rpm     39 MB/s | 1.4 MB  00:00
(7/12): httpd-filesystem-2.4.64-1.amzn2023.0.1.noarch.rpm 497 kB/s | 13 kB  00:00
(8/12): httpd-tools-2.4.64-1.amzn2023.0.1.x86_64.rpm    3.0 MB/s | 81 kB  00:00
(9/12): libbrotli-1.0.9-4.amzn2023.0.2.x86_64.rpm      10 MB/s | 315 kB  00:00
(10/12): mailcap-2.1.49-3.amzn2023.0.3.noarch.rpm      1.2 MB/s | 33 kB  00:00
(11/12): mod_http2-2.0.27-1.amzn2023.0.3.x86_64.rpm    5.1 MB/s | 166 kB  00:00
(12/12): mod_lua-2.4.64-1.amzn2023.0.1.x86_64.rpm     2.9 MB/s | 60 kB  00:00
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing : 1/1
Installing  : apr-1.7.5-1.amzn2023.0.4.x86_64 1/12
Installing  : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 2/12
Installing  : apr-util-1.6.3-1.amzn2023.0.1.x86_64 3/12
Installing  : mailcap-2.1.49-3.amzn2023.0.3.noarch 4/12
```

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Step42:

```
Running transaction
Preparing : 1/1
Installing : apr-1.7.5-1.amzn2023.0.4.x86_64 1/12
Installing : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 2/12
Installing : apr-util-1.6.3-1.amzn2023.0.1.x86_64 3/12
Installing : mailcap-2.1.49-3.amzn2023.0.3.noarch 4/12
Installing : httpd-tools-2.4.64-1.amzn2023.0.1.x86_64 5/12
Installing : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 6/12
Running scriptlet: httpd-filesystem-2.4.64-1.amzn2023.0.1.noarch 7/12
Installing : httpd-filesystem-2.4.64-1.amzn2023.0.1.noarch 7/12
Installing : httpd-core-2.4.64-1.amzn2023.0.1.x86_64 8/12
Installing : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 9/12
Installing : mod_lua-2.4.64-1.amzn2023.0.1.x86_64 10/12
Installing : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 11/12
Installing : httpd-2.4.64-1.amzn2023.0.1.x86_64 12/12
Running scriptlet: httpd-2.4.64-1.amzn2023.0.1.x86_64 12/12
Verifying : apr-1.7.5-1.amzn2023.0.4.x86_64 1/12
Verifying : apr-util-1.6.3-1.amzn2023.0.1.x86_64 2/12
Verifying : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 3/12
Verifying : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 4/12
Verifying : httpd-2.4.64-1.amzn2023.0.1.x86_64 5/12
Verifying : httpd-core-2.4.64-1.amzn2023.0.1.x86_64 6/12
Verifying : httpd-filesystem-2.4.64-1.amzn2023.0.1.noarch 7/12
Verifying : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 8/12
Verifying : mailcap-2.1.49-3.amzn2023.0.3.noarch 10/12
Verifying : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 11/12
Verifying : mod_lua-2.4.64-1.amzn2023.0.1.x86_64 12/12
Installed:
i-029556c27892699a6 (LinuxWedServer52002)
Public IPs: 13.218.216.9 Private IPs: 172.31.40.236
```

Step43:

```
Complete!
[ec2-user@ip-172-31-40-236 ~]$ sudo systemctl start httpd
sudo: systemctl: command not found
[ec2-user@ip-172-31-40-236 ~]$ sudo systemctl start httpd
[ec2-user@ip-172-31-40-236 ~]$ sudo systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[ec2-user@ip-172-31-40-236 ~]
[ec2-user@ip-172-31-40-236 ~]$ sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; preset: disabled)
     Active: active (running) since Tue 2025-08-26 05:07:35 UTC; 2min 46s ago
       Docs: manhttpd.service(8)
 Main PID: 26235 (httpd)
   Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes served/sec: 0 B/sec"
      Tasks: 177 (limit: 1057)
     Memory: 13.4M
        CPU: 19lms
       CGroup: /system.slice/httpd.service
           ├─26235 /usr/sbin/httpd -DFOREGROUND
           ├─26236 /usr/sbin/httpd -DFOREGROUND
           ├─26237 /usr/sbin/httpd -DFOREGROUND
           ├─26238 /usr/sbin/httpd -DFOREGROUND
           └─26239 /usr/sbin/httpd -DFOREGROUND

Aug 26 05:07:35 ip-172-31-40-236.ec2.internal systemd[1]: Starting httpd.service - The Apache HTTP Server...
Aug 26 05:07:35 ip-172-31-40-236.ec2.internal systemd[1]: Started httpd.service - The Apache HTTP Server.
Aug 26 05:07:35 ip-172-31-40-236.ec2.internal httpd[26235]: Server configured, listening on: port 80
[ec2-user@ip-172-31-40-236 ~]$ 
```

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Step44:

