

Lab Assignment-2

ECSE373L: Cloud Infrastructure and Services

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Lab Activities (AWS Academy Module 5 Lab 2):

- **Task 1:** Create your VPC
- **Task 2:** Create Additional Subnets
- **Task 3:** Create a VPC Security Group
- **Task 4:** Launch a Web Server Instance

Implementation Screenshots (Step-by-Step):

Task 1: Create your VPC

The screenshot shows the AWS VPC Management Console. The URL in the address bar is `console.aws.amazon.com/vpc/home?region=us-east-1#wizardSelector`. The browser title is "Lab 2 - Build your VPC and Launch a Web Server". The page is titled "Step 1: Select a VPC Configuration". On the left, there are four options: "VPC with a Single Public Subnet" (disabled), "VPC with Public and Private Subnets" (selected), "VPC with Public and Private Subnets and Hardware VPN Access" (disabled), and "VPC with a Private Subnet Only and Hardware VPN Access" (disabled). The selected option is described as creating an A/16 network with two /24 subnets, where public subnet instances use Elastic IPs to access the Internet and private subnet instances access it via Network Address Translation (NAT). An "Important" note says to follow a link if using a Local Zone. To the right, a diagram shows an "Amazon Virtual Private Cloud" containing a "Public Subnet" and a "Private Subnet", connected by a "NAT" gateway which is connected to the "Internet, S3, DynamoDB, SNS, SQS, etc.". A "Select" button is at the bottom right of the configuration panel.



Step 2: VPC with Public and Private Subnets

IPv4 CIDR block*: 10.0.0.0/16 (65531 IP addresses available)

IPv6 CIDR block: No IPv6 CIDR Block
 Amazon provided IPv6 CIDR block
 IPv6 CIDR block owned by me

VPC name: VPC E18CSE187

Public subnet's IPv4 CIDR*: 10.0.0.0/24 (251 IP addresses available)

Availability Zone*: us-east-1a

Public subnet name: Public Subnet 1

Private subnet's IPv4 CIDR*: 10.0.1.0/24 (251 IP addresses available)

Availability Zone*: us-east-1a

Private subnet name: Private Subnet 1

You can add more subnets after AWS creates the VPC.

Specify the details of your NAT gateway (NAT gateway rates apply).

Elastic IP Allocation ID*: eipalloc-0c133de178615d934

Service endpoints

Add Endpoint

Enable DNS hostnames*: Yes No

Hardware tenancy: Default

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New VPC Experience Learn more

VPC Successfully Created

Your VPC has been successfully created. You can launch instances into the subnets of your VPC. For more information, see [Launching an Instance into Your Subnet](#).

OK

VIRTUAL PRIVATE CLOUD

- Your VPCs
- Subnets
- Route Tables
- Internet Gateways
- Egress Only Internet Gateways
- Carrier Gateways
- DHCP Options Sets
- Elastic IPs
- Managed Prefix Lists
- Endpoints
- Endpoint Services
- NAT Gateways
- Peering Connections

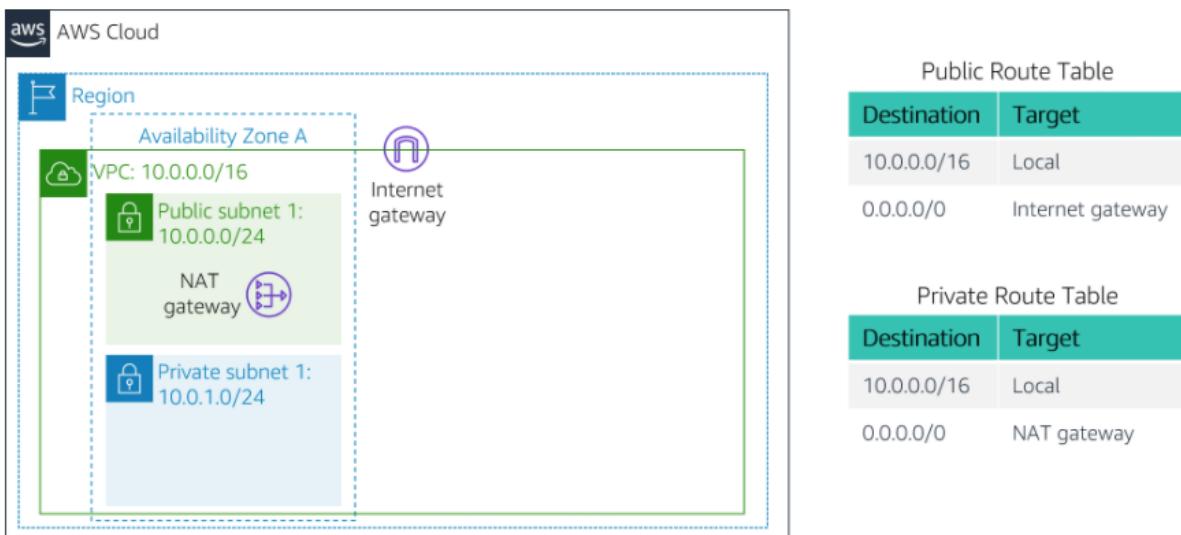
SECURITY

- Network ACLs
- Security Groups

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The screenshot shows the AWS VPC Management Console interface. On the left, a sidebar lists various VPC-related services like Subnets, Route Tables, Internet Gateways, and Security Groups. The main area displays a table titled "Your VPCs (1/2) Info" with two entries. The first entry is selected, showing detailed information: VPC ID (vpc-07c2d750bf7b5aeeb), State (Available), IPv4 CIDR (10.0.0.0/16), and IPv6 CIDR (None). Below the table, there are tabs for Details, CIDRs, Flow logs, and Tags.

The wizard has provisioned a VPC with a public subnet and a private subnet in the same Availability Zone, together with route tables for each subnet:



The Public Subnet has a CIDR of **10.0.0.0/24**, which means that it contains all IP addresses starting with **10.0.0.x**.

The Private Subnet has a CIDR of **10.0.1.0/24**, which means that it contains all IP addresses starting with **10.0.1.x**.

Task 2: Create Additional Subnets

The screenshot shows the AWS VPC Management Console with the Subnets page open. The left sidebar shows navigation options like VPC Dashboard, Your VPCs, Subnets, Route Tables, Internet Gateways, Egress Only Internet Gateways, Carrier Gateways, DHCP Options Sets, Elastic IPs, Managed Prefix Lists, Endpoints, Endpoint Services, NAT Gateways, and Peering Connections. The main content area displays a table of subnets:

Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
-	subnet-b4d20985	Available	vpc-a3d979de	172.31.48.0/20	-
-	subnet-78bd576	Available	vpc-a3d979de	172.31.64.0/20	-
-	subnet-7b0a9b24	Available	vpc-a3d979de	172.31.32.0/20	-
Private Subnet 1	subnet-0a7f41fe83b66c129	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.1.0/24	-
-	subnet-55f36174	Available	vpc-a5d979de	172.31.80.0/20	-
-	subnet-2e8bf1f48	Available	vpc-a3d979de	172.31.0.0/20	-
-	subnet-45705708	Available	vpc-a3d979de	172.31.16.0/20	-
Public Subnet 1	subnet-0603e7d291c3f4705	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.0.0/24	-

The screenshot shows the AWS VPC Management Console with the Create subnet page open. The top navigation bar includes links for VPC, Subnets, and Create subnet. The main form has two sections: "VPC" and "Subnet settings".

VPC section:

- VPC ID: A dropdown menu showing "vpc-07c2d750bf7b5aeeb (VPC E18CSE187)".
- Associated VPC CIDRs: A dropdown menu showing "IPv4 CIDRs" and "10.0.0.0/16".

Subnet settings section:

- Subnet name: A text input field containing "Public Subnet 2".
- A note below the input field states: "The name can be up to 256 characters long."

At the bottom of the page, there are standard AWS footer links for Feedback, English (US), Privacy Policy, Terms of Use, and a search bar.

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

aws Services Search for services, features, marketplace products, and docs [Alt+S]

voclabs/user1199245=TP6145@bennett.edu.in @ 5280-5451-2476 N. Virginia Support ⓘ

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

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 CIDR block **Info**

Tags - optional

Key	Value - optional
<input type="text" value="Name"/>	<input type="text" value="Public Subnet 2"/>

Add new tag
You can add 49 more tags.

Remove

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

aws Services Search for services, features, marketplace products, and docs [Alt+S]

voclabs/user1199245=TP6145@bennett.edu.in @ 5280-5451-2476 N. Virginia Support ⓘ

You have successfully created 1 subnet: subnet-060a2adce98c907f7

VIRTUAL PRIVATE CLOUD

Your VPCs

Subnets **Route Tables** **Internet Gateways** **Egress Only Internet Gateways** **Carrier Gateways** **DHCP Options Sets** **Elastic IPs** **Managed Prefix Lists** **Endpoints** **Endpoint Services** **NAT Gateways** **Peering Connections**

SECURITY

Network ACLs Security Groups

Subnets (9) Info

Filter subnets

	Name	Status	VPC	CIDR Block
<input type="checkbox"/>	subnet-b4d20985	Available	vpc-a3d979de	172.31.48.0/20
<input type="checkbox"/>	subnet-78bdf376	Available	vpc-a3d979de	172.31.64.0/20
<input type="checkbox"/>	subnet-7b0a9b24	Available	vpc-a3d979de	172.31.32.0/20
<input type="checkbox"/>	Private Subnet 1	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.10.0/24
<input type="checkbox"/>	subnet-0a7f41fe83b66c129	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.10.0/24
<input type="checkbox"/>	subnet-55f36174	Available	vpc-a3d979de	172.31.80.0/20
<input type="checkbox"/>	subnet-2e8b1f48	Available	vpc-a3d979de	172.31.0.0/20
<input type="checkbox"/>	subnet-45705708	Available	vpc-a3d979de	172.31.16.0/20
<input type="checkbox"/>	Public Subnet 2	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.2.0/24
<input type="checkbox"/>	Public Subnet 1	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.0.0/24

Select a subnet

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

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VPC > Subnets > Create subnet

Create subnet Info

VPC

VPC ID
Create subnets in this VPC.
vpc-07c2d750bf7b5aeeb (VPC E18CSE187)

Associated VPC CIDRs
IPv4 CIDRs
10.0.0.0/16

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
Private Subnet 2
The name can be up to 256 characters long.

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

VPC Services Search for services, features, marketplace products, and docs [Alt+S] voclabs/user1199245=TP6145@bennett.edu.in @ 5280-5451-2476 N. Virginia Support

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
Private Subnet 2
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.
US East (N. Virginia) / us-east-1b

IPv4 CIDR block Info
Q 10.0.3.0/24 X

Tags - optional
Key Value - optional
Q Name Q Private Subnet 2 X Remove
Add new tag You can add 49 more tags.
Remove

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Lab 2 - Build your VPC and Launch a VPC Management Console

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

New VPC Experience Learn more

VPC Dashboard Filter by VPC: Select a VPC

Subnets

- Route Tables
- Internet Gateways
- Egress Only Internet Gateways
- Carrier Gateways
- DHCP Options Sets
- Elastic IPs
- Managed Prefix Lists
- Endpoints
- Endpoint Services
- NAT Gateways
- Peering Connections

SECURITY Network ACLs Security Groups

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You have successfully created 1 subnet: subnet-0388ac9e7885ee8f8

Subnets (10) Actions Create subnet

	Name	Status	Owner	CIDR Block	Actions
1	subnet-78bdf376	Available	vpc-a3d979de	172.31.64.0/20	
2	subnet-7ba9b24	Available	vpc-a3d979de	172.31.32.0/20	
3	Private Subnet 1	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.1.0/24	
4	subnet-55f36174	Available	vpc-a3d979de	172.31.80.0/20	
5	subnet-2e8b1f48	Available	vpc-a3d979de	172.31.0.0/20	
6	subnet-45705708	Available	vpc-07c2d750bf7b5aeeb	172.31.16.0/20	
7	Public Subnet 2	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.2.0/24	
8	Private Subnet 2	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.3.0/24	
9	Public Subnet 1	Available	vpc-07c2d750bf7b5aeeb VP...	10.0.0.0/24	
10	subnet-0603e7d291c3f4705	Available	vpc-07c2d750bf7b5aeeb	10.0.0.0/24	

Select a subnet

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Lab 2 - Build your VPC and Launch a VPC Management Console

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

New VPC Experience Learn more

VPC Dashboard Filter by VPC: Select a VPC

Route Tables

- Internet Gateways
- Egress Only Internet Gateways
- Carrier Gateways
- DHCP Options Sets
- Elastic IPs
- Managed Prefix Lists
- Endpoints
- Endpoint Services
- NAT Gateways
- Peering Connections

SECURITY Network ACLs Security Groups

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Create route table Actions

Name	Route Table ID	Explicit subnet association	Edge associations	Main	VPC ID	Owner
rtb-09ad5d02c7fec0b37	subnet-0603e7d291c3f4705	-	-	No	vpc-07c2d750bf7b5aeeb ...	528054512476
rtb-0d29e6e4894dc004c	-	-	-	Yes	vpc-07c2d750bf7b5aeeb ...	528054512476
rtb-89527df7	-	-	-	Yes	vpc-a3d979de	528054512476

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The screenshot shows the AWS VPC Management console with the 'Route Tables' page open. The left sidebar is collapsed, and the main area displays a table of route tables. The first route table, named 'rtb-0d29e6e4894dc004c', is selected. A modal window titled 'Route Table: rtb-0d29e6e4894dc004c' is displayed, showing its summary: Main Yes, VPC vpc-07c2d750bf7b5aeab | VPC E18CSE187.

Name	Route Table ID	Explicit subnet association	Edge associations	Main	VPC ID	Owner
rtb-0d29e6e4894dc004c	rtb-0d29e6e4894dc004c	-	-	Yes	vpc-07c2d750bf7b5aeab ...	528054512476
rtb-09ad5d02c7fec0b37	rtb-09ad5d02c7fec0b37	subnet-0603e7d291c3f4705	-	No	vpc-07c2d750bf7b5aeab ...	528054512476
rtb-89527df7	rtb-89527df7	-	-	Yes	vpc-a3d979de	528054512476

This screenshot shows the same AWS VPC Management console interface, but the 'Edit routes' button in the 'Routes' tab of the modal is highlighted, indicating the user is about to edit the routes for this specific table.

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No
0.0.0.0/0	nat-0b7d69f8530e5c6fb	active	No

Note that **Destination 0.0.0.0/0** is set to **Target nat-xxxxxxxx**. This means that traffic destined for the internet (0.0.0.0/0) will be sent to the NAT Gateway. The NAT Gateway will then forward the traffic to the internet.

Route Tables > Edit subnet associations

Edit subnet associations

Route table rtb-0d29e6e4894dc004c (Private Route Table)

Associated subnets: subnet-0a7f41fe83b66c129, subnet-0388ac9e7885ee8fb

Subnet ID	IPv4 CIDR	IPv6 CIDR	Current Route Table
subnet-0a7f41fe83b66c129 Private Subnet	10.0.1.0/24	-	Main
subnet-060a2adce68c907f7 Public Subnet	10.0.2.0/24	-	Main
subnet-0388ac9e7885ee8fb Private Subnet	10.0.3.0/24	-	Main
subnet-0603e7d291c3f4705 Public Subnet	10.0.0.0/24	-	rtb-09ad5d02c7fec0b37

* Required

Cancel Save

Type here to search

Route Tables | VPC Management

Create route table Actions

Name	Route Table ID	Explicit subnet association	Edge associations	Main	VPC ID	Owner
Private Rou...	rtb-0d29e6e4894dc004c	2 subnets	-	Yes	vpc-07c2d750bf7b5aeeb ...	528054512476
	rtb-09ad5d02c7fec0b37	subnet-0603e7d291c3f4705	-	No	vpc-07c2d750bf7b5aeeb ...	528054512476
	rtb-89527df7	-	-	Yes	vpc-a3d979de	528054512476

Route Table: rtb-0d29e6e4894dc004c

Summary Routes Subnet Associations Edge Associations Route Propagation Tags

Edit subnet associations

Subnet ID	IPv4 CIDR	IPv6 CIDR
subnet-0a7f41fe83b66c129	10.0.1.0/24	-
subnet-0388ac9e7885ee8fb	10.0.3.0/24	-

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

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The screenshot shows the AWS VPC Management console with the 'Route Tables' page open. The left sidebar shows navigation options like 'VPC Dashboard', 'Route Tables', and 'Subnets'. The main area lists three route tables:

Name	Route Table ID	Explicit subnet association	Main	VPC ID	Owner
Private Rou...	rtb-0d29e6e4894dc004c	2 subnets	-	vpc-07c2d750bf7b5aeab ...	528054512476
rtb-09ad5d02c7fec0b37	rtb-09ad5d02c7fec0b37	subnet-0603e7d291c3f4705	-	vpc-07c2d750bf7b5aeab ...	528054512476
rtb-89527df7		-	-	vpc-a3d979de	528054512476

The selected route table (rtb-09ad5d02c7fec0b37) is shown in more detail below:

Route Table ID	Explicitly Associated with	Main	No	VPC
rtb-09ad5d02c7fec0b37	subnet-0603e7d291c3f4705	Owner	528054512476	vpc-07c2d750bf7b5aeab VPC E18CSE187

The screenshot shows the AWS VPC Management console with the 'Route Tables' page open. The left sidebar shows navigation options like 'VPC Dashboard', 'Route Tables', and 'Subnets'. The main area lists three route tables:

Name	Route Table ID	Explicit subnet association	Main	VPC ID	Owner
Private Rou...	rtb-0d29e6e4894dc004c	2 subnets	-	vpc-07c2d750bf7b5aeab ...	528054512476
Public Rout...	rtb-09ad5d02c7fec0b37	subnet-0603e7d291c3f4705	-	vpc-07c2d750bf7b5aeab ...	528054512476
rtb-89527df7		-	-	vpc-a3d979de	528054512476

The selected route table (rtb-09ad5d02c7fec0b37) is shown in more detail below:

Summary tab is selected.

Routes tab is selected, showing the following table:

Destination	Target	Status	Propagated
10.0.0.0/16	local	active	No
0.0.0.0/0	igw-0f04c88364069f35	active	No

Note that **Destination 0.0.0.0/0** is set to **Target igw-xxxxxxxx**, which is the Internet Gateway. This means that internet-bound traffic will be sent straight to the internet via the Internet Gateway.

Route Tables > Edit subnet associations

Edit subnet associations

Route table rtb-09ad5d02c7fec0b37 (Public Route Table)

Associated subnets: subnet-060a2adce98c907f7, subnet-0603e7d291c3f4705

Subnet ID	IPv4 CIDR	IPv6 CIDR	Current Route Table
subnet-0a741fe83b66c129	10.0.1.0/24	-	rtb-0d29e6e4894dc004c
subnet-060a2adce98c907f7	10.0.2.0/24	-	Main
subnet-0388a9e97885eebf8	10.0.3.0/24	-	rtb-0d29e6e4894dc004c
subnet-0603e7d291c3f4705	10.0.0.0/24	-	rtb-09ad5d02c7fec0b37

* Required

Cancel Save

Type here to search

Route Tables | VPC Management

Create route table Actions

Name	Route Table ID	Explicit subnet association	Edge associations	Main	VPC ID	Owner
Private Rou...	rtb-0d29e6e4894dc004c	2 subnets	-	Yes	vpc-07c2d750bf7b5aeeb ...	528054512476
Public Rout...	rtb-09ad5d02c7fec0b37	2 subnets	-	No	vpc-07c2d750bf7b5aeeb ...	528054512476
	rtb-89527df7	-	-	Yes	vpc-a3d979de	528054512476

Route Table: rtb-09ad5d02c7fec0b37

Summary Routes Subnet Associations Edge Associations Route Propagation Tags

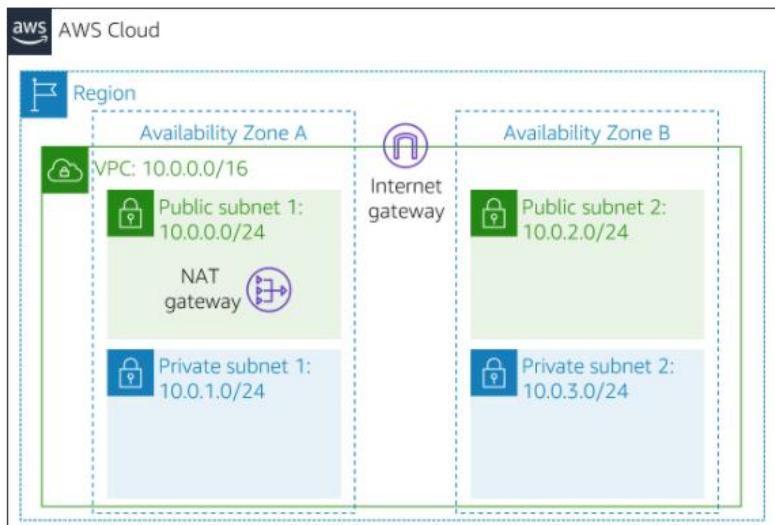
Edit subnet associations

Subnet ID	IPv4 CIDR	IPv6 CIDR
subnet-060a2adce98c907f7	10.0.2.0/24	-
subnet-0603e7d291c3f4705	10.0.0.0/24	-

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

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The VPC now has public and private subnets configured in two Availability Zones:



Public Route Table

Destination	Target
10.0.0.0/16	Local
0.0.0.0/0	Internet gateway

Private Route Table

Destination	Target
10.0.0.0/16	Local
0.0.0.0/0	NAT gateway

Task 3: Create a VPC Security Group

Name	Security group ID	Security group name	VPC ID	Description	Owner
sg-080cd157cc62f62ef	default	vpc-07c2d750bf7b5aeeb	default VPC security gr...	528054512476	
sg-bc0ab4b7	default	vpc-a3d979de	default VPC security gr...	528054512476	

VPC > Security Groups > Create security group

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

Web Security Group

Name cannot be edited after creation.

Description Info

Enable HTTP Access

VPC Info

vpc-07c2d750bf7b5aeeb (VPC E18CSE187)

Inbound rules Info

This security group has no inbound rules.

Description Info

Enable HTTP Access

VPC Info

vpc-07c2d750bf7b5aeeb (VPC E18CSE187)

Inbound rules Info

Type Info

Protocol Info

Port range Info

Source Info

Description - optional Info

HTTP

TCP

80

Anywh...

0.0.0.0/0

Permit web requests

Delete

::/0

Add rule

Outbound rules Info

Type Info

Protocol Info

Port range Info

Destination Info

Description - optional Info

Security group (sg-0b419342608f6d7ff | Web Security Group) was created successfully

sg-0b419342608f6d7ff - Web Security Group

Details

Security group name Web Security Group	Security group ID sg-0b419342608f6d7ff	Description Enable HTTP Access	VPC ID vpc-07c2d750bf7b5aeeb
Owner 528054512476	Inbound rules count 2 Permission entries	Outbound rules count 1 Permission entry	

Inbound rules **Outbound rules** **Tags**

Inbound rules

Type	Protocol	Port range	Source	Description - optional
HTTP	TCP	80	0.0.0.0/0	Permit web requests.

Task 4: Launch a Web Server Instance

Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

- My AMIs
- Amazon Linux** Free tier eligible
- AWS Marketplace
- Community AMIs
- Free tier only (i)

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-047a51fa27710816e (64-bit x86) / ami-03c5cc3d1425c6d34 (64-bit Arm)

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is approaching end of life on December 31, 2020 and has been removed from this wizard.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit (x86)
 64-bit (Arm)

macOS Catalina 10.15.7 - ami-0f981206a71da3cbc

The macOS Catalina AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the AMI.

Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

64-bit (Mac)

macOS Mojave 10.14.6 - ami-0859d6c12cf03dd72

The macOS Mojave AMI is an EBS-backed, AWS-supported image. This AMI includes the AWS Command Line Interface, Command Line Tools for Xcode, Amazon SSM Agent, and Homebrew. The AWS Homebrew Tap includes the latest versions of multiple AWS packages included in the AMI.

Select

64-bit (Mac)

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Family	Type	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance	IPv6 Support
t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
t2	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes
t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes
t2	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
t3	t3.nano	2	0.5	EBS only	Yes	Up to 5 Gigabit	Yes

Filter by: All instance families **Current generation** **Show/Hide Columns**

Currently selected: t2.micro (- ECUs, 1 vCPUs, 2.5 GHz, ~ 1 GiB memory, EBS only)

Cancel **Previous** **Review and Launch** **Next: Configure Instance Details**

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Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot Instances to take advantage of the lower pricing, assign an access management role to the instance, and more.

Number of instances <input type="text" value="1"/>	Launch into Auto Scaling Group <input type="checkbox"/>
Purchasing option <input type="checkbox"/> Request Spot Instances	
Network <input type="text" value="vpc-07c2d750bf7b5aaeb VPC E18CSE187"/>	Create new VPC <input type="button" value="Create new VPC"/>
Subnet <input type="text" value="subnet-060a2adce98c907f7 Public Subnet.2 us-east-1"/>	Create new subnet <input type="button" value="Create new subnet"/> 251 IP Addresses available
Auto-assign Public IP <input type="checkbox"/> Enable	
Placement group <input type="checkbox"/> Add instance to placement group	
Capacity Reservation <input type="checkbox"/> Open	
Domain join directory <input type="text" value="No directory"/>	Create new directory <input type="button" value="Create new directory"/>
IAM role <input type="text" value="None"/>	Create new IAM role <input type="button" value="Create new IAM role"/>
CPU options <input type="checkbox"/> Specify CPU options	
Shutdown behavior <input type="checkbox"/> Stop	

Cancel **Previous** **Review and Launch** **Next: Add Storage**

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Step 3: Configure Instance Details

Network interfaces

Device	Network Interface	Subnet	Primary IP	Secondary IP addresses	IPv6 IPs
eth0	New network interface	subnet-060a2adc	Auto-assign	Add IP	Add IP

Advanced Details

User data (As text)

```
#!/bin/bash
# Install Apache Web Server and PHP
yum install -y httpd mysql php
# Download Lab files
wget https://aws-tc-largeobjects.s3.amazonaws.com/AWS-TC-Academy/ACF/ac-lab3-vpc/lab-app.zip
```

Buttons: Cancel, Previous, Review and Launch, Next: Add Storage



Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and Instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. Learn more about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/xvda	snap-0a03896cf2695e901	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

Buttons: Cancel, Previous, Review and Launch, Next: Add Tags



The screenshot shows the AWS Lambda console with the 'Launch instance wizard' open. Step 5, 'Add Tags', is selected. A single tag is being added with the key 'Name' and value 'Web Server E18CSE187'. Other tabs like 'Instances', 'Volumes', and 'Network Interfaces' are visible.

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key	(128 characters maximum)	Value	(256 characters maximum)	Instances	Volumes	Network Interfaces
Name		Web Server E18CSE187		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Add another tag (Up to 50 tags maximum)

Cancel Previous Review and Launch Next: Configure Security Group

The screenshot shows a Windows taskbar with several pinned icons: Microsoft Teams, File Explorer, Edge browser, and others. The Edge browser is currently active, displaying the AWS Lambda console.

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: Create a new security group
 Select an existing security group

Security Group ID	Name	Description	Actions
sg-080cd157cc62f62ef	default	default VPC security group	Copy to new
sg-0b419342608f6d7ff	Web Security Group	Enable HTTP Access	Copy to new

Inbound rules for sg-0b419342608f6d7ff (Selected security groups: sg-0b419342608f6d7ff)

Type	Protocol	Port Range	Source	Description
HTTP	TCP	80	0.0.0.0/0	Permit web request...
HTTP	TCP	80	::/0	Permit web request...

Cancel Previous Review and Launch

The screenshot shows a Windows taskbar with several pinned icons: Microsoft Teams, File Explorer, Edge browser, and others. The Edge browser is currently active, displaying the AWS Lambda console.

Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

AMI Details

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-047a51a27710816

Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is a...

Root Device Type: ebs Virtualization type: hvm

Instance Type

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance
t2.micro	-	1	1	EBS only	-	Low to Moderate

Security Groups

Security Group ID	Name	Description
sg-0b419342608f6d7ff	Web Security Group	Enable HTTP Access

All selected security groups inbound rules

Launch

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Step 7: Review Instance Launch

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Security Groups

Security Group ID	Name	Description
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All selected security groups inbound rules

Select an existing key pair or create a new key pair

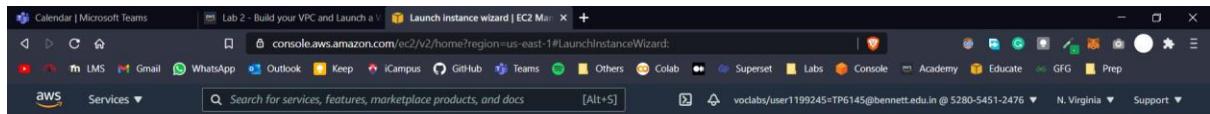
A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Choose an existing key pair
Select a key pair
vokey

I acknowledge that I have access to the selected private key file (vokey.pem), and that without this file, I won't be able to log into my instance.

Launch Instances



Launch Status

Your instances are now launching
The following instance launches have been initiated: i-0ac362f4688f09b31 [View launch log](#)

Get notified of estimated charges
Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click [View Instances](#) to monitor your instances' status. Once your instances are in the **running** state, you can [connect](#) to them from the Instances screen. [Find out](#) how to connect to your instances.

Here are some helpful resources to get you started

- How to connect to your Linux instance
- Amazon EC2: User Guide
- Learn about AWS Free Usage Tier
- Amazon EC2: Discussion Forum

While your instances are launching you can also

- Create status check alarms to be notified when these instances fail status checks. (Additional charges may apply)
- Create and attach additional EBS volumes (Additional charges may apply)

A screenshot of the AWS Lambda console showing the Instances management screen. The title bar says "Lab 2 - Build your VPC and Launch a Lambda function | Lambda | Instances | EC2 Management Consoles". The search bar at the top right contains the URL "console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:1". Below the search bar is a navigation bar with various AWS services like LMS, Gmail, WhatsApp, Outlook, Keep, iCampus, GitHub, Teams, Others, Colab, Superset, Labs, Console, Academy, Educate, GFG, Prep, and Support. A user profile is visible on the right.

New EC2 Experience [Learn more](#)

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Instances (1/1) [Info](#)

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
-	i-0ac362f4688f09b31	Running	t2.micro	2/2 checks ...	No alarms	us-east-1b	ec2-3-239-63-1c

Instance: i-0ac362f4688f09b31

Details		Security	Networking	Storage	Status Checks	Monitoring	Tags
Instance summary Info							
Instance ID	i-0ac362f4688f09b31	Public IPv4 address	3.239.63.107 open address	Private IPv4 addresses	10.0.2.114		
Instance state	Running	Public IPv4 DNS	ec2-3-239-63-107.compute-1.amazonaws.com open address	Private IPv4 DNS	ip-10-0-2-114.ec2.internal		
Instance type	t2.micro	Elastic IP addresses	-	VPC ID	vpc-07c2d750bf7b5aebe (VPC E18CSE187)		

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The screenshot shows a web browser window with multiple tabs open. The active tab displays the AWS EC2 Management Console. It shows a table of meta-data for the instance, including InstanceId (i-0ac362f4688f09b31) and Availability Zone (us-east-1b). Below the table, a message indicates Current CPU Load: 1%.

Meta-Data	Value
InstanceId	i-0ac362f4688f09b31
Availability Zone	us-east-1b

Current CPU Load: 1%

This screenshot shows a Windows desktop environment with two overlapping browser windows. The left window is the AWS EC2 Management Console showing the Instances page with one instance listed (Web Server E18CSE187, Instance ID i-0ac362f4688f09b31, Running, t2.micro). The right window is a separate browser session showing the AWS EC2 instance details for the same instance, displaying the same meta-data and current CPU load information as the first screenshot.

Instances (1/1) | Info | Connect | Instance state | Actions | Launch instances

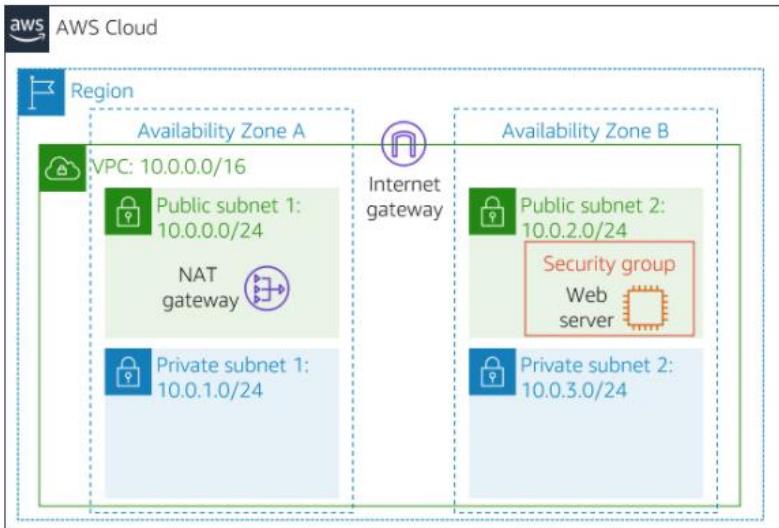
Instance: i-0ac362f4688f09b31 (Web Server E18CSE187)

Details	Security	Networking	Storage	Status Checks	Monitoring	Tags
Instance summary	Info					
Instance ID i-0ac362f4688f09b31 (Web Server E18CSE187)	Public IPv4 address 3.239.63.107 [open address]	Private IPv4 addresses 10.0.2.114				
Instance state Running	Public IPv4 DNS ec2-3-239-63-107.compute-1.amazonaws.com [open address]	Private IPv4 DNS ip-10-0-2-114.ec2.internal				
Instance type t2.micro	Elastic IP addresses -	VPC ID vpc-07c2d750bf7b5ae6b (VPC E18CSE187)				
AWS Compute Optimizer finding User: ec2-3-239-63-107.compute-1.amazonaws.com	IAM Role -	Subnet ID subnet-060a2adce98c907f7 (Public)				

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The complete architecture deployed is:



Public Route Table

Destination	Target
10.0.0.0/16	Local
0.0.0.0/0	Internet gateway

Private Route Table

Destination	Target
10.0.0.0/16	Local
0.0.0.0/0	NAT gateway