

## **1. Amazon EC2 Basics Lab:**

### **Objective:**

The objective of this lab is to guide users the process of setting up and managing an Amazon Ec2 instance. Users will learn how to launch an EC2 instance, select an appropriate instance type, configure instance details, create and configure a new Security Group, allocate an Elastic IP address to the instance, and connect to the instance via SSH.

### **Steps involved:**

#### **I. Launch new EC2 instance:**

- a. Navigate to EC2 Dashboard
- b. Click on “Launch Instance”
- c. Choose an Amazon Machine Image(AMI): For this lab I used default Amazon Linux 2
- d. Select Instance type
  - We select the instance type based on our requirements. For this lab, I selected the “t2.micro” instance type.
- e. Configure Instance Details
  - Specify the number of instances , network settings, and storage
  - Add storage : choose the size and type of the storage for your instance, then click “Next” to proceed.
- f. Add Tags (Optional)
  - Generally tags are used so that it helps in easy identification.
- g. Configure Security Group
  - Create a new security group or use an existing one. Ensure port 22 (SSH) is open for inbound traffic. Click “Review and Launch”

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

Launch an instance

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**

Name: Web Server

**Application and OS Images (Amazon Machine Image)**

Search our full catalog including 1000s of application and OS images

**Summary**

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.3.2...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

Launch instance

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

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

ami-0e731c8a588258d0d (64-bit (x86), uefi-preferred) / ami-0bbebc09f0a12d4d9 (64-bit (Arm), uefi)

Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Amazon Linux 2023 AMI 2023.3.20240205.2 x86\_64 HVM kernel-6.1

Architecture: 64-bit (x86) Boot mode: uefi-preferred AMI ID: ami-0e731c8a588258d0d

Verified provider

**Instance type**

t2.micro

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

Free tier eligible

All generations

Compare instance types

**Summary**

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Launch instance

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

aws Services Search [Alt+S] N. Virginia voclabs/user3012171=ivishalthapa21@gmail.com @ 9923-8279-5758

### Instance type

Instance type

t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true

On-Demand Windows base pricing: 0.0162 USD per Hour

On-Demand SUSE base pricing: 0.0116 USD per Hour

On-Demand RHEL base pricing: 0.0716 USD per Hour

On-Demand Linux base pricing: 0.0116 USD per Hour

Additional costs apply for AMIs with pre-installed software

All generations Compare instance types

### Key pair (login)

Proceed without a key pair (Not recommended) Default value

vockey Type: rsa

vockey

Create new key pair

### Network settings

Edit

Network

### Summary

Number of instances 1

Software Image (AMI) Amazon Linux 2023 AMI 2023.3.2...read more ami-0e731c8a588258dd

Virtual server type (instance type) t2.micro

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Cancel Launch instance Review commands

CloudShell Feedback

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Search

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

aws Services Search [Alt+S] N. Virginia voclabs/user3012171=ivishalthapa21@gmail.com @ 9923-8279-5758

### Configure storage

Advanced

1x 8 GiB gp3 Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GiB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems Edit

Advanced details

### Summary

Number of instances 1

Software Image (AMI) Amazon Linux 2023 AMI 2023.3.2...read more ami-0e731c8a588258dd

Virtual server type (instance type) t2.micro

Firewall (security group) New security group

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

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Cancel Launch instance Review commands

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

aws

Services

Search

[Alt+S]

N. Virginia

voclabs/user3012171=ivishalthapa21@gmail.com @ 9923-8279-5758

☰

☐ Enable resource-based IPv4 (A record) DNS requests

☐ Enable resource-based IPv6 (AAAA record) DNS requests

Instance auto-recovery [Info](#)

Select

Shutdown behavior [Info](#)

Stop

Stop - Hibernate behavior [Info](#)

Select

Termination protection [Info](#)

Enable

Select

Enable

Disable

Detailed CloudWatch monitoring [Info](#)

Select

Elastic GPU [Info](#)

Select

Elastic inference [Info](#)

▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.3.2...[read more](#)

ami-0e731c8a588258d0d

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

Cancel

Launch instance

[Review commands](#)

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The top screenshot displays the AWS 'Launch Instance' wizard. On the left, the 'Metadata' section is expanded, showing 'Metadata version' set to 'V2 only (token required)', 'Metadata response hop limit' set to '2', and 'Allow tags in metadata' set to 'Select'. A yellow warning box states: 'For V2 requests, you must include a session token in all instance metadata requests. Applications or agents that use V1 for instance metadata access will break.' The 'User data - optional' section is also expanded, showing a script to install and start an HTTP server. On the right, the 'Summary' section shows 'Number of instances' as 1, 'Software Image (AMI)' as 'Amazon Linux 2023 AMI 2023.3.2', 'Virtual server type (instance type)' as 't2.micro', 'Firewall (security group)' as 'New security group', and 'Storage (volumes)' as '1 volume(s) - 8 GiB'. A blue box at the bottom right of the summary indicates a 'Free tier' benefit. The 'Launch instance' button is visible at the bottom right.

The bottom screenshot shows the AWS 'Instances' dashboard. The left sidebar lists navigation options like 'EC2 Dashboard', 'Events', 'Instances', 'Images', and 'Elastic Block Store'. The main content area shows a table of instances:

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	Bastion Host	i-0fa49ff4d50680d47	Terminated	t2.micro	-	View alarms +	us-east-1a	-
<input type="checkbox"/>	Web Server	i-0550912a529be8181	Running	t2.micro	-	View alarms +	us-east-1a	ec2-18-212-67-6
<input type="checkbox"/>	Bastion Host	i-055584d1648a48e56	Running	t2.micro	2/2 checks passed	View alarms +	us-east-1a	ec2-3-84-218-21

Below the table, there is a 'Select an instance' dialog box.

## II. Create and Configure a New Security Group:

- Navigate to EC2 Dashboard
- Click on "Security Groups" from the sidebar
- Click on "Create Security Group"
- Give your security group a name and description

e. Configure inbound and outbound rules according to your requirements. Ensure port 22 (SSH) is open for inbound traffic.

The screenshot displays the AWS Management Console interface. The top navigation bar shows the user is logged in as 'voclabs/user3012171=ivishalthapa21@gmail.com' in the 'us-east-1' region. The left sidebar contains navigation links for various AWS services, including EC2 Dashboard, Instances, Images, and Elastic Block Store.

The main content area is titled 'Security Groups (1/5) Info'. It shows a list of security groups. The 'Web Server security group' (sg-0cbc325ba9639b21f) is selected. Below the list, the 'Inbound rules' tab is active, showing a table of rules. The table has columns for Name, Security group rule ID, IP version, Type, Protocol, and Port range. A rule is shown with Type 'HTTP', Protocol 'TCP', and Port range '80'. The Source is set to 'Anywhere - IPv4' (0.0.0.0/0).

Below the table, there is a section for 'Edit inbound rules'. It includes a dropdown for 'Type' (set to HTTP), a dropdown for 'Protocol' (set to TCP), and a text input for 'Port range' (set to 80). The 'Source' dropdown is open, showing options: 'Custom' (0.0.0.0/0), 'Anywhere - IPv4' (selected), 'Anywhere - IPv6', and 'My IP'. A warning message states: '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.'

At the bottom, there are buttons for 'Cancel', 'Preview changes', and 'Save rules'.

### **III. Allocate an Elastic IP Address:**

- a. Navigate to **Elastic IPs** in the EC2 dashboard
- b. Click on “Allocate new address” button
- c. Choose allocation method (Amazon’s pool of IPV4 addresses) and confirm

### **IV. Associate Elastic IP Address with EC2 Instance:**

- a. In the Elastic IPs dashboard, select the newly allocated Elastic IP address
- b. Click on “Actions” and then “Associate Address”.
- c. Choose the instance that you launched earlier and confirm the association.