

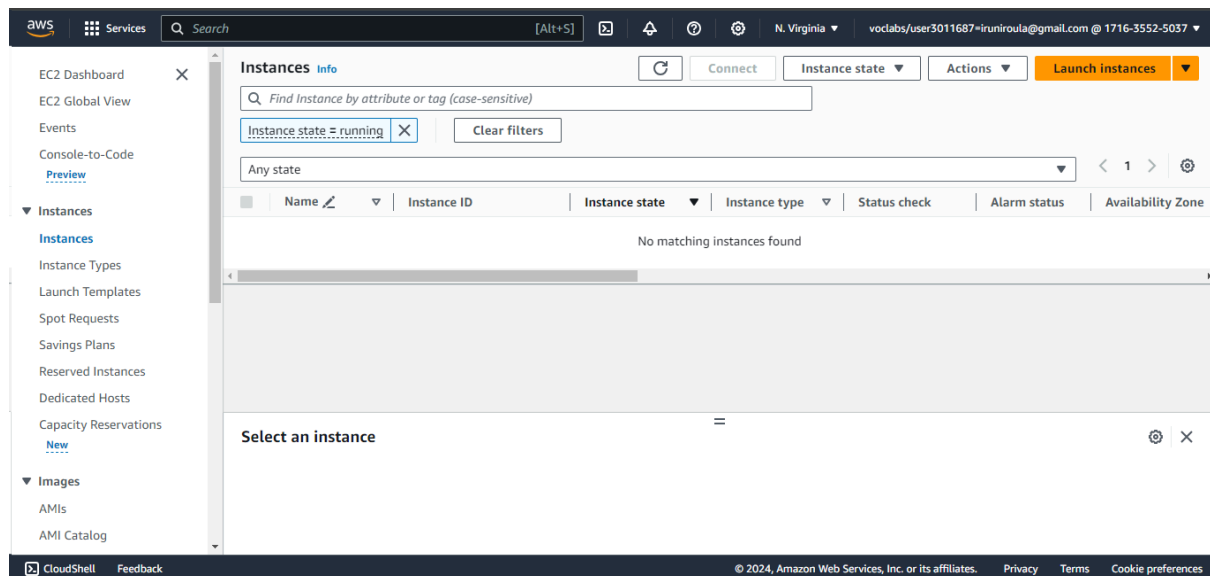
## EC2 Basics Lab

**Objective:** To understand the process of setting up and managing an Amazon EC2 instance.

**Approach:** Students will start by launching a new EC2 instance, selecting an appropriate instance type and configuring the instance details. They will then create and configure a new Security Group, and allocate an Elastic IP address to the instance. The lab will also include connecting to the instance via SSH.

**Goal:** By the end of this lab, students should be able to launch and manage an EC2 instance, and understand instance types, security groups, and IP addressing in AWS.

### Step 1: Launching an EC2 Instance



## Step 2: Naming the EC2 Instance (can be a name of our choice)

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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

New Instance [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

#### ▼ Summary

Number of instances [Info](#)

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.3.2...[read more](#)  
ami-0440d3b780d96b29d

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

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## Step 3: Selecting Required AMI

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#### ▼ 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

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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  
ami-0440d3b780d96b29d (64-bit (x86), uefi-preferred) / ami-0f93c02efd1974b8b (64-bit (Arm), uefi)  
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

#### ▼ Summary

Number of instances [Info](#)

1

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

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## Step 4: Selecting Instance Type (Here t2.micro is selected)

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

Description  
Amazon Linux 2023 AMI 2023.3.20240219.0 x86\_64 HVM kernel-6.1

Architecture: 64-bit (x86) Boot mode: uefi-preferred AMI ID: ami-0440d3b780d96b29d **Verified provider**

▼ **Instance type** Info | Get advice

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

▼ **Key pair (login)** Info

▼ **Summary**

Number of instances: 1

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

Cancel **Launch instance** Review commands

## Step 5: Creating new key pair (newkey)

Additional costs apply for AMIs with pre-installed software

▼ **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: newkey **Create new key pair**

▼ **Network settings** Info Edit

Network: vpc-0165c93cef9816695

Subnet: No preference (Default subnet in any availability zone)

Auto-assign public IP: Enable

▼ **Summary**

Number of instances: 1

Software Image (AMI): Amazon Linux 2023 AMI 2023.3.2...read more  
ami-0440d3b780d96b29d

Virtual server type (instance type): t2.micro

Firewall (security group): New security group

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

Cancel **Launch instance** Review commands

## Step 6: Creating a Security Group

**Network settings** [Info](#) [Edit](#)

**Network** [Info](#)  
vpc-0165c93cef9816695

**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

We'll create a new security group called 'launch-wizard-4' with the following rules:

- ☒ Allow SSH traffic from  
Helps you connect to your instance. Anywhere 0.0.0.0/0
- ☐ Allow HTTPS traffic from the internet  
To set up an endpoint, for example when creating a web server
- ☒ Allow HTTP traffic from the internet  
To set up an endpoint, for example when creating a web server

**Summary**

**Number of instances** [Info](#)  
1

**Software Image (AMI)**  
Amazon Linux 2023 AMI 2023.3.2...[read more](#)  
ami-0440d3b780d96b29d

**Virtual server type (instance type)**  
t2.micro

**Firewall (security group)**  
New security group

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

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

## Step 7: Launching the instance

**Configure storage** [Info](#) [Advanced](#)

1x 8 GiB gp3 Root volume (Not encrypted)

[Free tier eligible customers can get up to 30 GB 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](#)

**Summary**

**Number of instances** [Info](#)  
1

**Software Image (AMI)**  
Amazon Linux 2023 AMI 2023.3.2...[read more](#)  
ami-0440d3b780d96b29d

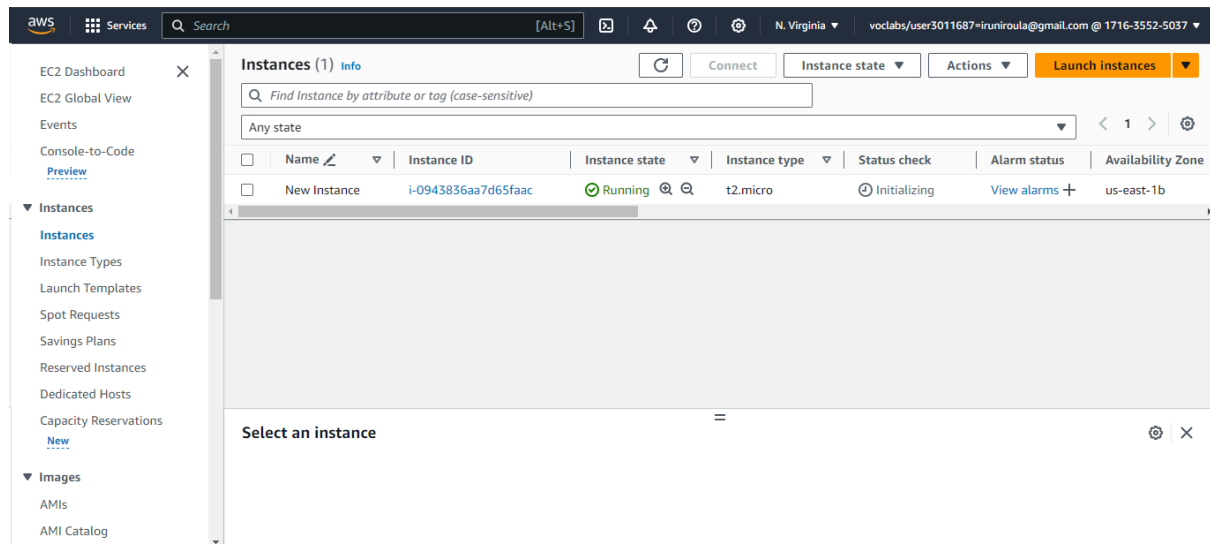
**Virtual server type (instance type)**  
t2.micro

**Firewall (security group)**  
New security group

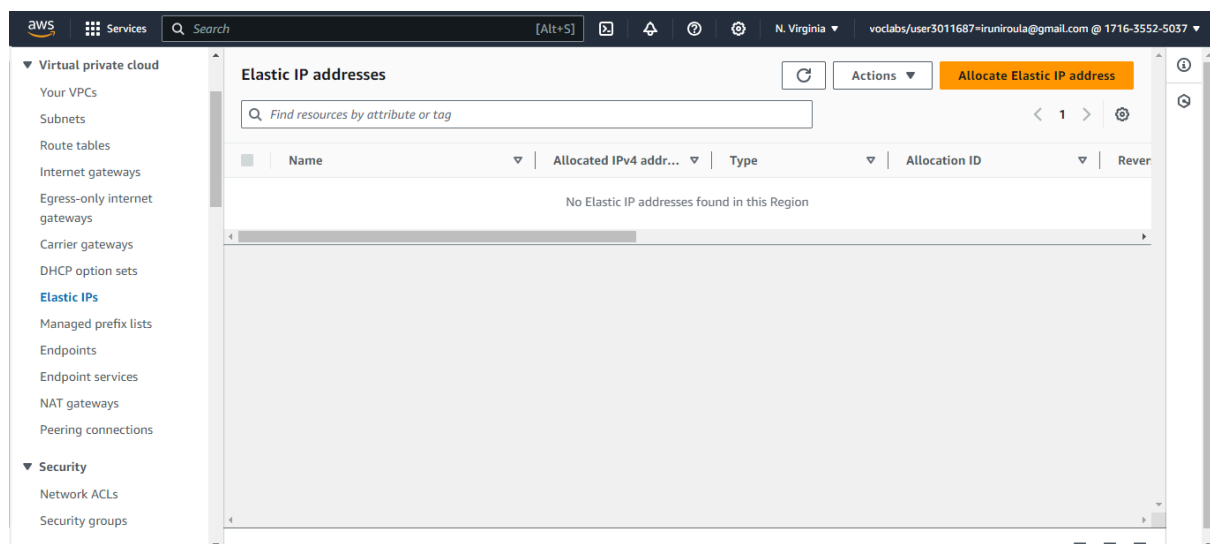
**Storage (volumes)**  
1 volume(s) - 8 GiB

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

## Step 8: Instance is now Running



## Step 9: Allocating Elastic IP to the instance



## Step 10: Setting everything to default and allocating

The screenshot shows the AWS console interface for allocating an Elastic IP address. The top navigation bar includes the AWS logo, 'Services' menu, a search bar, and user information for 'voclabs/user3011687~iruniroula@gmail.com' in the 'N. Virginia' region. The main content area is divided into sections: a note about customer-owned IP pools, a section for 'Global static IP addresses' with a 'Create accelerator' button, and a 'Tags - optional' section with an 'Add new tag' button. At the bottom right, there are 'Cancel' and 'Allocate' buttons.

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Customer-owned pool of IPv4 addresses created from your on-premises network for use with an Outpost. (option disabled because no customer owned pools found) [Learn more](#)

Global static IP addresses  
AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. [Learn more](#)

Create accelerator

**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 tag

Cancel Allocate

## Step 11: Associating Elastic IP to EC2 Instance

The screenshot shows the AWS console interface for associating an Elastic IP address with an EC2 instance. The top navigation bar is identical to the previous step. The main content area has a 'Resource type' section with 'Instance' selected. A yellow warning box contains information about reassociation. Below this, there is a text input for the instance ID (i-0943836aa7d65faac), a section for 'Private IP address' with a 'Choose a private IP address' button, and a 'Reassociation' section with a checkbox 'Allow this Elastic IP address to be reassociated'. At the bottom right, there are 'Cancel' and 'Associate' buttons.

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Resource type  
Choose the type of resource with which to associate the Elastic IP address.

☒ Instance  
☐ Network interface

**Warning**  
If you associate an Elastic IP address with an instance that already has an Elastic IP address associated, the previously associated Elastic IP address will be disassociated, but the address will still be allocated to your account. [Learn more](#)

If no private IP address is specified, the Elastic IP address will be associated with the primary private IP address.

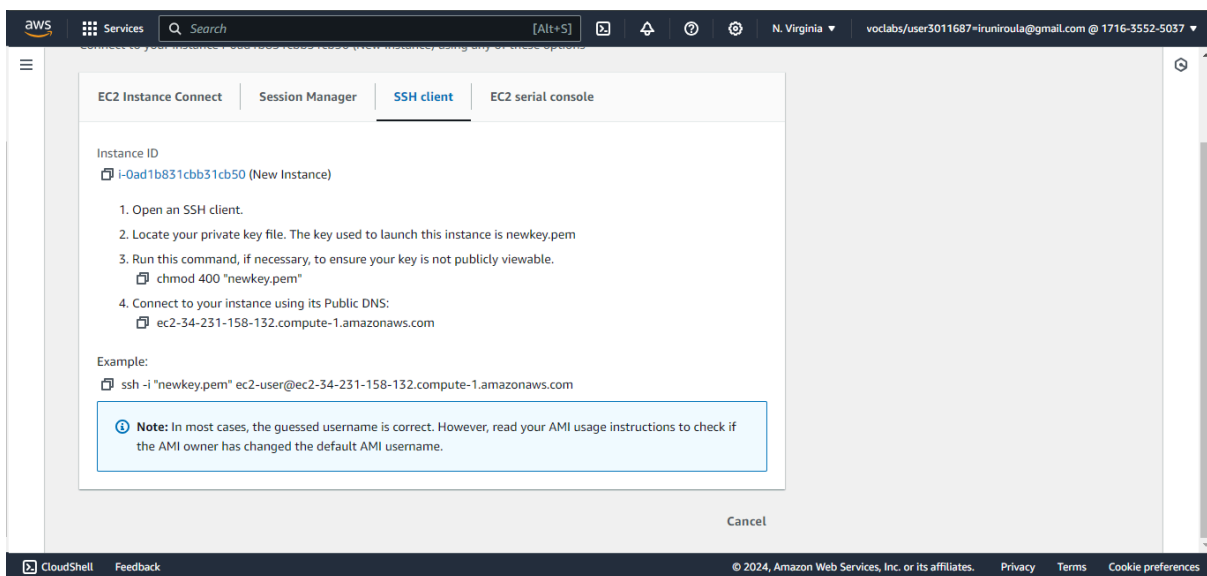
Instance  
i-0943836aa7d65faac

Private IP address  
The private IP address with which to associate the Elastic IP address.  
Choose a private IP address

Reassociation  
Specify whether the Elastic IP address can be reassociated with a different resource if it already associated with a resource.  
☐ Allow this Elastic IP address to be reassociated

Cancel Associate

## Step 12: Connecting Instance via SSH



```

C:\Users\HP>ec2-44-202-97-200.compute-1.amazonaws.com
'ec2-44-202-97-200.compute-1.amazonaws.com' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\HP>ssh -i "newkey.pem" ec2-user@ec2-34-231-158-132.compute-1.amazonaws.com
Warning: Identity file newkey.pem not accessible: No such file or directory.
The authenticity of host 'ec2-34-231-158-132.compute-1.amazonaws.com (34.231.158.132)' can't be established.
ECDSA key fingerprint is SHA256:mCrZgUfkGYlBatUXloAqHK4JJbktUiKB/8zxRmFjhec.
Are you sure you want to continue connecting (yes/no/[fingerprint])? no
Host key verification failed.

C:\Users\HP>cd Downloads

C:\Users\HP\Downloads>ssh -i "newkey.pem" ec2-user@ec2-34-231-158-132.compute-1.amazonaws.com
The authenticity of host 'ec2-34-231-158-132.compute-1.amazonaws.com (34.231.158.132)' can't be established.
ECDSA key fingerprint is SHA256:mCrZgUfkGYlBatUXloAqHK4JJbktUiKB/8zxRmFjhec.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-34-231-158-132.compute-1.amazonaws.com,34.231.158.132' (ECDSA) to the list of known host
s.

#
_#_      #####      Amazon Linux 2023
n_#_     #####
n_#_     \###|
n_#_     \#/      https://aws.amazon.com/linux/amazon-linux-2023
n_#_     V~'  .->
n_#_     .-+
n_#_     /-/-
n_#_     /m/

[ec2-user@ip-172-31-90-5 ~]$
  
```