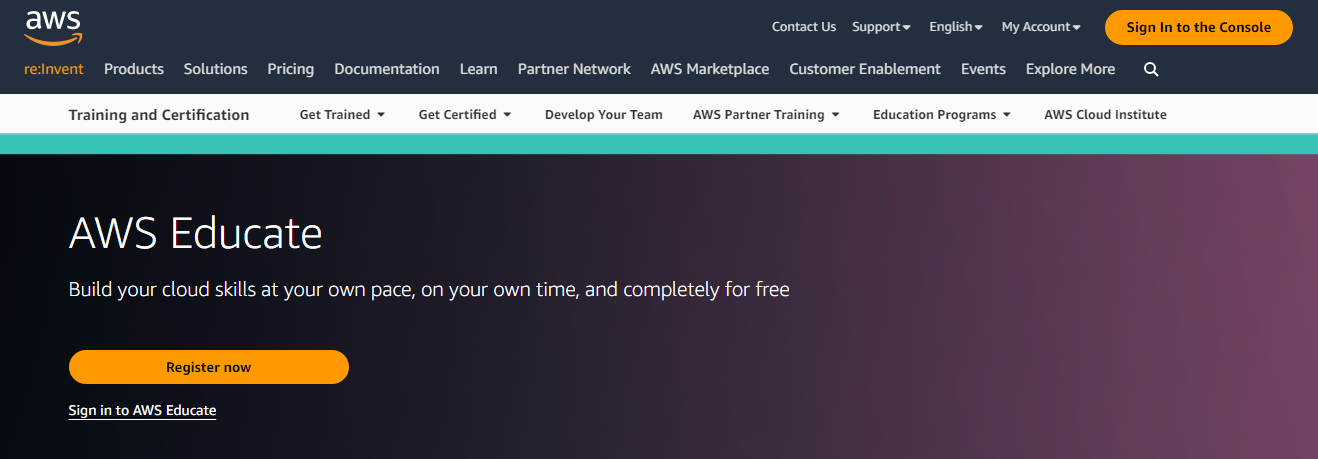
**Cloud Computing Lab Assignment : 01**

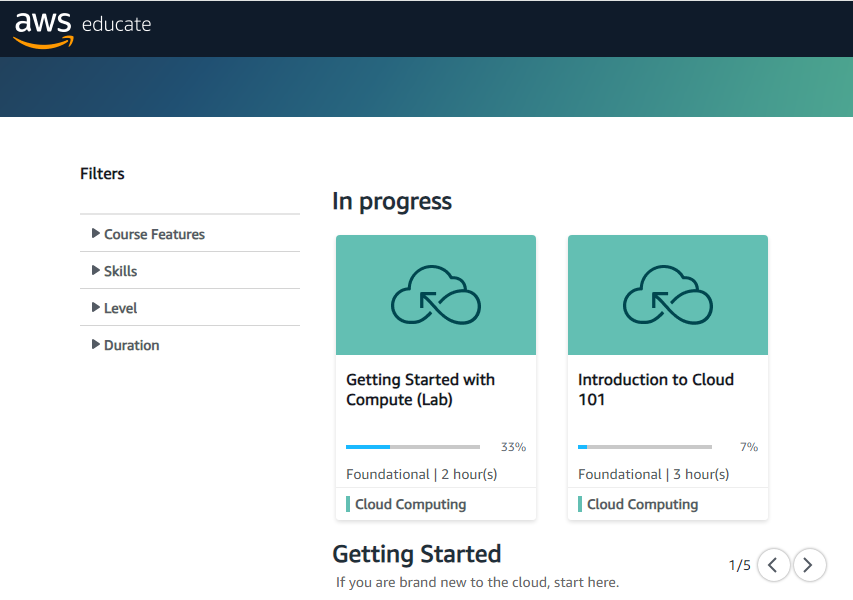
**Practical Title:** Case study on Amazon EC2 and learn about Amazon EC2 web services.

Let us see in detail how to launch an on-demand EC2 instance in AWS Cloud. Login and access to AWS services

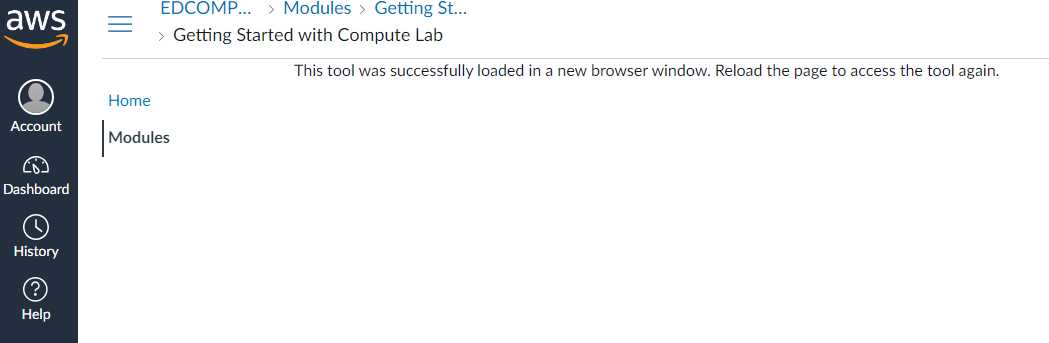
[**https://awseducate.instructure.com/courses/907/modules/items/15905**](https://awseducate.instructure.com/courses/907/modules/items/15905) **or Google it awseducate.com**

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1. **Sign in to aws educate account**
2. **Login to aws educate account**
3. **Then click on getting started with compute lab**

****

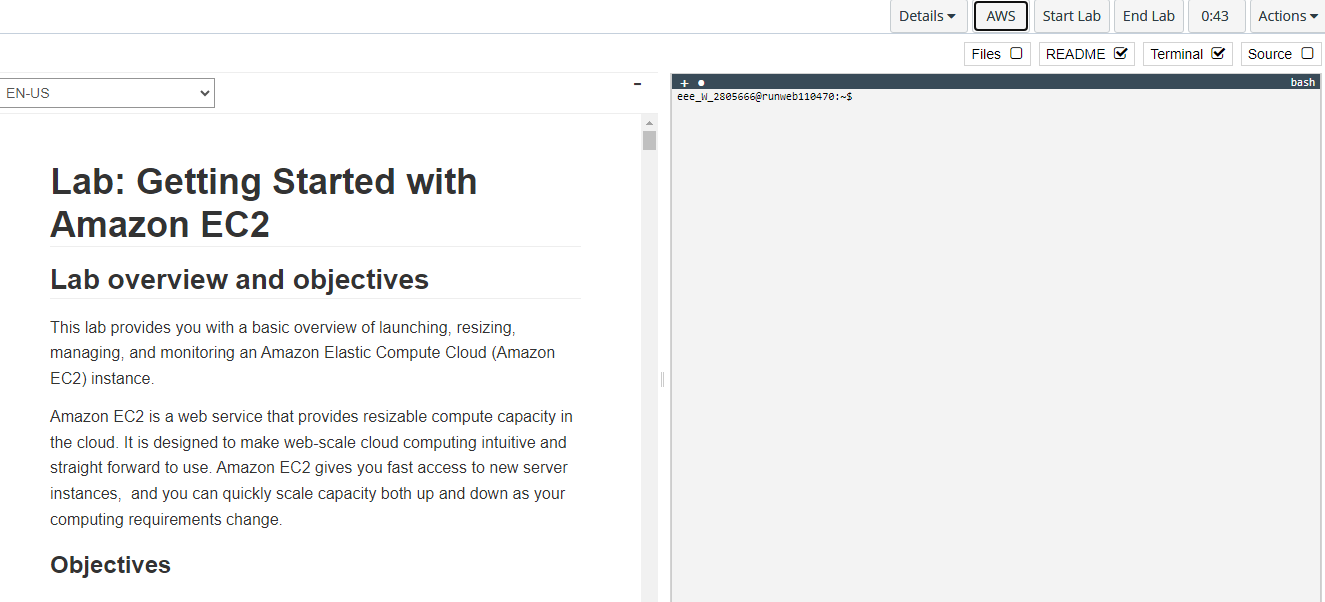
1. **Click on module**

****

**5. Click on next**

**6. Click on open in new window**

**7. This page will appear on screen**

****

**8. Then click on Start Lab**

**9. Then click on aws**

**10. Follow the steps given below**

**Lab: Getting Started with Amazon EC2**

**Lab overview and objectives**

This lab provides you with a basic overview of launching, resizing, managing, and monitoring an Amazon Elastic Compute Cloud (Amazon EC2) instance.

Amazon EC2 is a web service that provides resizable compute capacity in the cloud. It is designed to make web-scale cloud computing intuitive and straight forward to use. Amazon EC2 gives you fast access to new server instances, and you can quickly scale capacity both up and down as your computing requirements change.

**Objectives**

After completing this lab, you will know how to do the following:

* Launch an EC2 instance with termination protection turned on.
* Monitor your EC2 instance.
* Modify the security group that your web server is using to allow HTTP access.
* Connect to your EC2 instance using the AWS Systems Manager Fleet Manager.

**AWS service restrictions**

In this lab environment, access to AWS services and service actions might be restricted to only the ones that you need to complete the lab instructions. You might encounter errors if you attempt to access other services or perform actions beyond the ones that this lab describes.

**Accessing the AWS Management Console**

1. At the top of these instructions, choose Start Lab to launch your lab.

A **Start Lab** panel opens, and it displays the lab status.

1. Wait until you see the message *Lab status: ready*, and then close the **Start Lab** panel by choosing the **X**.
2. At the top of these instructions, choose AWS. This opens the AWS Management Console in a new browser tab. The system will automatically log you in.
3. Arrange the AWS Management Console tab so that it displays alongside these instructions. Ideally, you should be able to see both browser tabs at the same time so that you can follow the lab steps.

**Task 1: Launching your EC2 instance**

In this task, you launch an EC2 instance with termination protection. Termination protection prevents you from accidentally terminating an EC2 instance. You also deploy your instance with a user data script to deploy a simple web server.

In the AWS Management Console on the **Services** menu, enter **EC2**. From the search results, choose **EC2**. In the left navigation pane, choose **EC2 Dashboard** to ensure that you are on the dashboard page. In the **Launch instance** section, choose the **Launch instance** button.

**Step 1: Name your EC2 instance**

Using tags, you can categorize your AWS resources in different ways (for example, by purpose, owner, or environment). This categorization is useful when you have many resources of the same type. You can quickly identify a specific resource based on the tags that you have assigned to it. Each tag consists of a key and a value, both of which you define.

When you name your instance, AWS creates a key-value pair. The key for this pair is **Name**, and the value is the name that you enter for your EC2 instance.

In the **Name and tags** pane, in the **Name** text box, enter Web-Server Choose the **Add additional tags** link. From the **Resource types** dropdown list, select **Instances** and **Volumes**.

**Step 2: Choose an AMI**

An Amazon Machine Image (AMI) provides the information required to launch an instance, which is a virtual server in the cloud. An AMI includes the following:

* A template for the root volume for the instance (for example, an operating system or an application server with applications)
* Launch permissions that control which AWS accounts can use the AMI to launch instances
* A block device mapping that specifies the volumes to attach to the instance when it is launched

The **Quick Start** list contains the most commonly used AMIs. You can also create your own AMI or select an AMI from the AWS Marketplace, an online store where you can sell or buy software that runs on AWS.

* Locate the **Application and OS Images (Amazon Machine Image)** section. It is just below the **Name and tags** section.
* In the search box, enter Windows Server 2019 Base and press Enter.
* Next to **Microsoft Windows Server 2019 Base**, choose **Select**.

**Step 3: Choose an instance type**

Amazon EC2 provides a wide selection of instance types that are optimized to fit different use cases. Instance types comprise varying combinations of CPU, memory, storage, and networking capacity and give you the flexibility to choose the appropriate mix of resources for your applications. Each instance type includes one or more instance sizes so that you can scale your resources to the requirements of your target workload. In this step, you choose a **t2.micro** instance. This instance type has 1 virtual CPU and 1 GiB of memory. In the **Instance type** section, keep the default instance type, **t2.micro**.

**Step 4: Configure a key pair**

Amazon EC2 uses public key cryptography to encrypt and decrypt login information. To log in to your instance, you must create a key pair, specify the name of the key pair when you launch the instance, and provide the private key when you connect to the instance.

In this lab, you do not connect to your instance using an SSH key, so you do not need to configure a key pair. In the **Key pair (login)** section, from the **Key pair name - *required*** dropdown list, choose **Proceed without a key pair (not recommended)**.

**Step 5: Configure the network settings**

You use this pane to configure networking settings.

The virtual private cloud (VPC) indicates which VPC you want to launch the instance into. You can have multiple VPCs, including different ones for development, testing, and production.

* In the **Network settings** section, choose **Edit**.
* From the **VPC - *required*** dropdown list, choose **Lab VPC**.
* The Lab VPC was created using an AWS CloudFormation template during the setup process of your lab. This VPC includes two public subnets in two different Availability Zones.
* For **Security group name - *required***, choose choose**Select existing security group**.
* From **Common security groups**, select Web Server security group.

A security group acts as a virtual firewall that controls the traffic for one or more instances. When you launch an instance, you associate one or more security groups with the instance. You add rules to each security group that allow traffic to or from its associated instances. You can modify the rules for a security group at any time; the new rules are automatically applied to all instances that are associated with the security group.

**Step 6: Add storage**

Amazon EC2 stores data on a network-attached virtual disk called Amazon Elastic Block Store (Amazon EBS).You launch the EC2 instance using a default 30 GiB disk volume. This is your root volume (also known as a boot volume).In the **Configure storage** section, keep the default storage configuration.

**Step 7: Configure advanced details**

Expand the **Advanced details** section.

For **IAM instance profile**, choose the role that has **LabInstanceProfile** in the name.

 When you no longer require an EC2 instance, you can terminate it, which means that the instance stops, and Amazon EC2 releases the instance's resources. You cannot restart a terminated instance. If you want to prevent your users from accidentally terminating the instance, you can turn on (enable) termination protection for the instance, which prevents users from terminating instances. From the **Termination protection** dropdown list, choose **Enable**.

 When you launch an instance in Amazon EC2, you have the option of passing user data to the instance. These commands can be used to perform common automated configuration tasks and even run scripts after the instance starts.

**Copy the following commands, and paste them into the User data text box.**

<powershell>

# Installing web server

Install-WindowsFeature-name Web-Server -IncludeManagementTools

# Getting website code

wget https://aws-tc-largeobjects.s3.us-west-2.amazonaws.com/CUR-TF-100-EDCOMP-1-DEV/lab-01-ec2/code.zip -outfile"C:\Users\Administrator\Downloads\code.zip"

# Unzipping website code

Add-Type -AssemblyNameSystem.IO.Compression.FileSystem

function Unzip

{

  param([string]$zipfile, [string]$outpath)

  [System.IO.Compression.ZipFile]::ExtractToDirectory($zipfile, $outpath)

}

Unzip "C:\Users\Administrator\Downloads\code.zip""C:\inetpub\"

# Setting Administrator password

$Secure\_String\_Pwd=ConvertTo-SecureString"P@ssW0rD!"-AsPlainText-Force

$UserAccount= Get-LocalUser-Name"Administrator"

$UserAccount | Set-LocalUser-Password$Secure\_String\_Pwd

</powershell>

The script does the following:

* + Installs a Microsoft Internet Information Services (IIS) web server
  + Creates a simple web site
  + Sets the password for the Administrator user

**Step 8: Launch an EC2 instance**

Now that you have configured your EC2 instance settings, it is time to launch your instance.

In the **Summary** section, choose **Launch instance**.A message indicates that you have successfully initiated the launch of your instance. Choose **View all instances**

The instance appears in a **Pending** state, which means that it is being launched. It then changes to **Running**, which indicates that the instance has started booting. There will be a short time before you can access the instance. The instance receives a public Domain Name System (DNS) name that you can use to contact the instance from the Internet.

Next to your **Web-Server**, select the check box. The **Details** tab displays detailed information about your instance. To view more information in the **Details** tab, drag the window divider upward. Review the information displayed in the **Details, Security** and **Networking** tabs. Wait for your instance to display the following:

**Note:** Refresh if needed.

* + **Instance State:**Running
  + **Status Checks:**2/2 checks passed

**Task 2: Monitor your instance**

Monitoring is an important part of maintaining the reliability, availability, and performance of your EC2 instances and your AWS solutions.

Choose the **Status checks** tab.

With instance status monitoring, you can quickly determine whether Amazon EC2 has detected any problems that might prevent your instances from running applications. Amazon EC2 performs automated checks on every running EC2 instance to identify hardware and software issues.

Notice that both the **System reachability** and **Instance reachability** checks have passed.

 Choose the **Monitoring** tab.This tab displays Amazon CloudWatch metrics for your instance. Currently, there are not many metrics to display because the instance was recently launched.You can choose a graph to see an expanded view.

Amazon EC2 sends metrics to Amazon CloudWatch for your EC2 instances. Basic (5 minute) monitoring is turned on by default and is free. You can turn on detailed (1 minute) monitoring. With detailed monitoring, you will be charged per metric that you send to CloudWatch.

At the top of the page, choose the **Actions** dropdown menu. Select **Monitor and troubleshootGet system log**.

The system log displays the console output of the instance, which is a valuable tool for problem diagnosis. It is especially useful for troubleshooting service configuration issues that could cause an instance to terminate or become unreachable. If you do not see a system log, wait a few minutes and then try again. Scroll through the log and review the messages in the output.

To return to the Amazon EC2 dashboard, choose **Cancel**.

With your **Web-Server** selected, choose the **Actions** dropdown menu, and select **Monitor and troubleshootGet instance screenshot**.

This option shows you what your EC2 instance console would look like if a screen were attached to it. Because this is a Windows instance, the screenshot shows a locked log-in screen.

