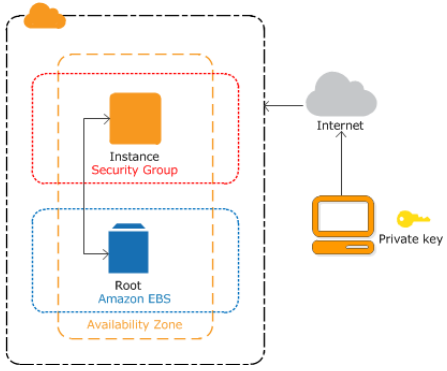
Try it out objective

Use this hands-on to get started with EC2. You'll learn how to launch, connect to, and use a Linux instance. An instance is a virtual server/machine (VM) in the AWS Cloud running a specific operating system and can be used to host applications and databases.

The goal

The following are the goals of this hands-on:

1. Understand the process of launching an instance
2. Install a simple http webserver
3. Access the site from a browser
4. Connect to the instance via SSH (optional for non technical learners)
5. Terminate an instance



Please note if a field (short for text field/text area/checkbox/radio/dropdown/list or any other UI element) is not specified in the following steps, it means the default value of the field set by AWS needs to be used. No change is needed for those fields as part of this hands-on.

A. Hands-On: Launch an instance

1. Open the EC2 management console at https://console.aws.amazon.com/ec2/ (you will be required to sign in)
2. Change the region to **N Virginia** (if it is not already selected). The region dropdown is located at the top right of the EC2 management console.
3. From the EC2 management console, click on **Launch Instance** (ignore the template option).
4. Enter the following value in the "Name" field.

```
httpserver1
```

5. The **Application and OS Images (Amazon Machine Image)** section displays a list of basic configurations, called Amazon Machine Images (AMIs), that serve as templates for your instance.Select the HVM version of **Amazon Linux 2**. This should be the very first option in the list of AMIs displayed on this screen. Select the architecture **64 bit x86**
6. In the **Instance Type** section, select the t2.micro instance type, which is selected by default. The t2.micro instance type is eligible for the free tier. Scroll down to the **Key pair(login)** section
7. In the **Key pair(login)** section, select **Create new key pair** and enter the following value in the text field for **Key pair name**. No other field change is needed.

```
pgpcc-key1
```

   Click on **Create key pair** button

8. In the Network Settings section, click on **Edit** and make the following changes -
   a) In the **Network** dropdown, ensure the default vpc is selected
   b) Change the **Subnet** to us-east-1a in the dropdown
   c) Ensure **Auto-assign public IP** is Enabled

d) In the **Firewall (security groups),** select “Create security group” radio button

e) Enter the **Security group name** as given below

```
tio-sg
```

f) Paste the value of the Description field from below (remove any existing value from this field)

```
Opens security groups for ssh and http
```

g) A rule for SSH is already added, change the **Source** dropdown to **Anywhere**

h) Click on the **Add Security Group Rule** button to add the second rule for this security group

i) Click the **Type** dropdown of this row (not the earlier SSH row) and select **HTTP**, change the **Source** dropdown to **Anywhere**

9. Scroll down to the **Configure storage** section

10. No changes are needed on the **Configure Storage** section. Scroll down to the **Advanced** section and expand it using the arrow to the left of the “Advanced Details” text

11. Scroll all the way down to the **user data** text field.

a) In the **user data** field paste the following script (installs the http server and creates a home page) -

Important note - please copy the complete script properly. A typical mistake is to not select the first and the last few characters. It is also possible the spaces in the script can be replaced with special characters which may lead to errors. It is best the script be copied to a pure text editor (Notepad++, GEdit etc) and then copy from the editor to the user data field.

```
#!/bin/bash
yum update -y
yum install httpd -y
service httpd start
chkconfig httpd on
IP_ADDR=$(curl http://169.254.169.254/latest/meta-data/public-ipv4)
echo "Manual instance with IP $IP_ADDR" > /var/www/html/index.html
```

12. On the right side of the page,in the **Summary** section, ensure that the field **Number of instances** is set to 1 and click on **Launch Instance**

13. In the **Launch Status** confirmation page click on the **View all Instances** button on the right side bottom of the page

14. Click on the **Checkbox** to the left of the **httpserver1** displayed in the **Instances** table

15. The **bottom of the screen** shows the instance attributes and the **Details tab** is visible by default (do not change it)

16. Locate the display item "**Public IPv4 address**" and copy the **public IP address** (do not click on the open address link, it defaults to https and the page will not work). Save this public IP address (does **not** start with 172.31.x.x) in a text editor or write it down on a piece of paper if you wish to do the SSH exercise.

17. Open a **new browser tab**, paste the **public IP address** and hit enter. The **http page will be visible**.

B. Hands-on: SSH to an instance

This hands-on is optional for learners who are not from technical background. Proceed to the next hands-on "C" if you intend to skip it.

Important note - please copy each command properly. A typical mistake is to not select the first and the last few characters leading to errors. All commands are case sensitive and observe the spaces carefully between the command and the respective arguments. It is best to copy/paste these commands.

1. Open a **terminal window** (steps to install and verify a terminal window is in Olympus) on your laptop/desktop

2. Change the directory to the location where the PEM (or CER or TXT) file was downloaded in the previous exercise

3. Copy and Paste to execute (by hitting enter) the following command in the terminal window -

```
chmod 400 pgpcc-key1*
```

4. Copy and Paste the following command in the terminal window. **Delete** the bold text in the command below and type the **public ip** instead (refer to the text editor or piece of paper) of the instance. Execute the command by **hitting enter** -

```
ssh -i pgpcc-key1* ec2-user@PUBLICIP
```

5. Apart from other display, there will be a prompt which may look like this “Are you sure you want to continue connecting (yes/no/[fingerprint])?”. Type in **yes** and **hit enter**

6. Try out the following **linux commands** (copy paste the commands individually and hit enter after each)

```
ls -al

mkdir test

ls -al

cd /opt

exit
```

7. Close the terminal window

8. An alternative to SSH is via the “EC2 Instance Connect” option. To use it go back to the browser tab **EC2 management console**.

9. Click on **Instances** in the left navigation

10. Click on the **Checkbox** to the left of the **httpserver1** displayed in the **Instances** table (no action is necessary if the checkbox is already selected)
11. Click on the **Connect** button towards the top right side of the screen
12. In the new page which shows a few tabs, the default tab will be **EC2 Instance Connect**
13. Click on the **Connect** button and a new browser tab (popup may need to be enabled) will show the terminal window
14. Try out the **linux commands** from the earlier steps (note - creating the directory will fail because it already exists)

C. Hands-On: Terminating/deleting an instance

This exercise is mandatory for all learners.

1. Go back to the browser tab EC2 management console
2. Click on **Instances** in the left navigation
3. Click on the **Checkbox** to the left of the **httpserver1** displayed in the **Instances** table (no action is necessary if the checkbox is already selected)
4. Click on the **Instance state** dropdown towards the top right side of the screen
5. Select **Terminate instance** option
6. Click on the **Terminate** button on the confirmation popup window
7. The instance will show in **Shutting down** status and a few moments later will show as **Terminated**
8. **Terminated instances** do not attract any costs and will be **auto removed** from the instance listing in about **2 hours** (or less)