

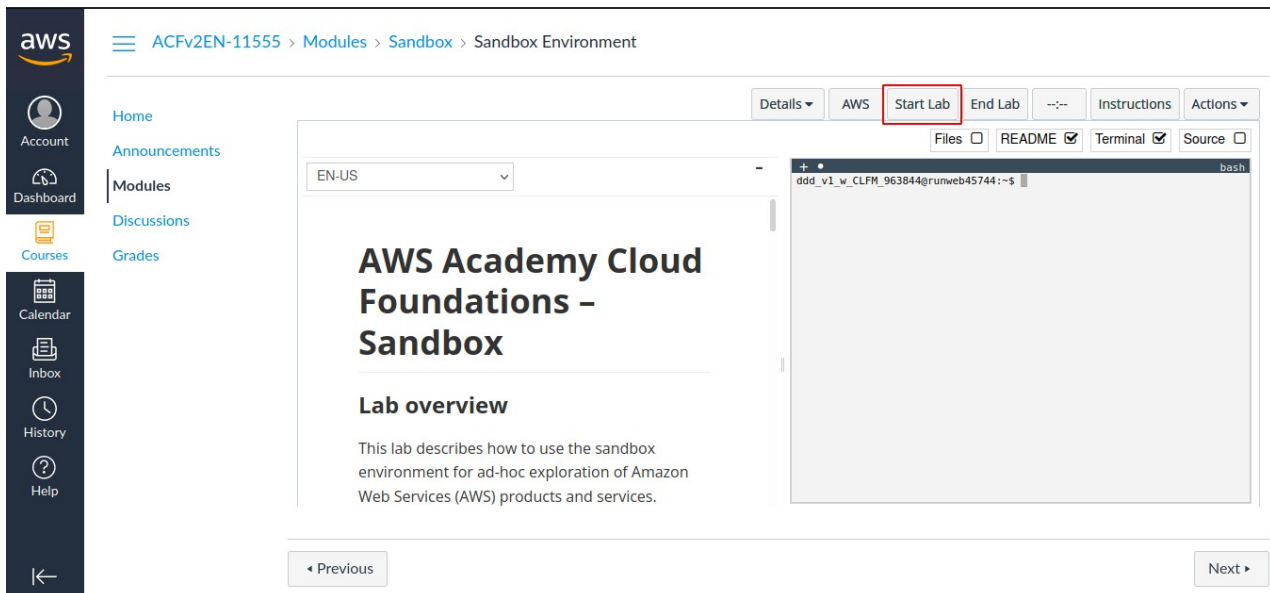
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## Cloud Computing

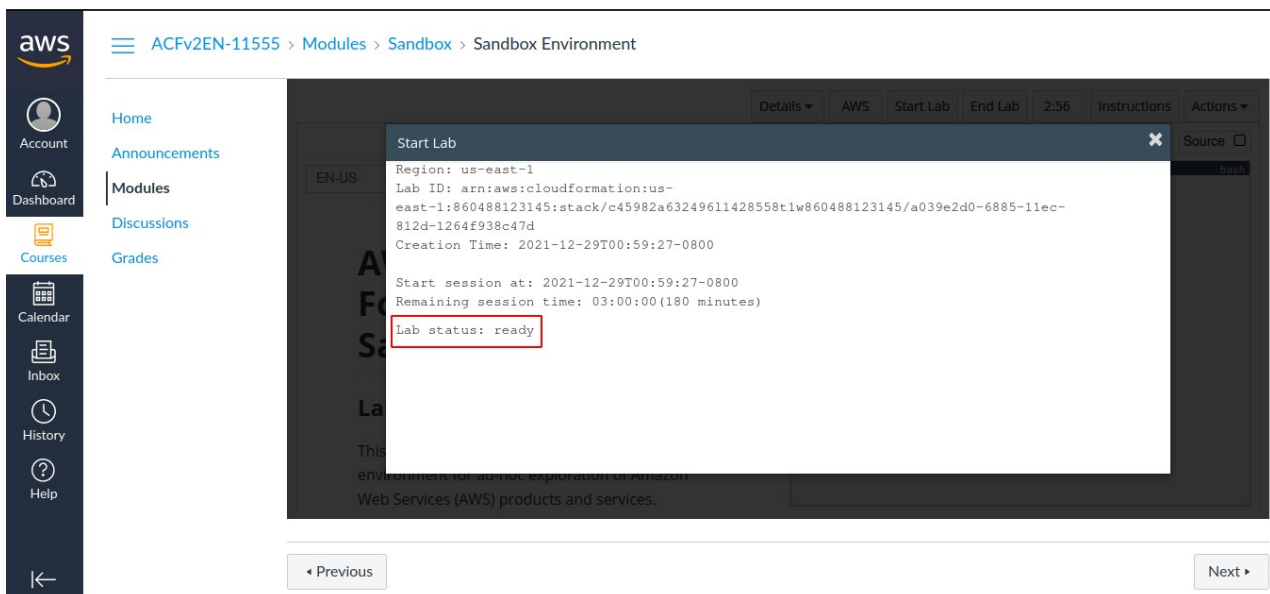
### Practical Assignment No. 3 - Working and Implementation of Infrastructure as a service

Create an EC2 Linux Instance and Install a Apache Web Server and run hello World page.

Step 1: At the top right panel above the console, choose **Start Lab** to launch your lab.

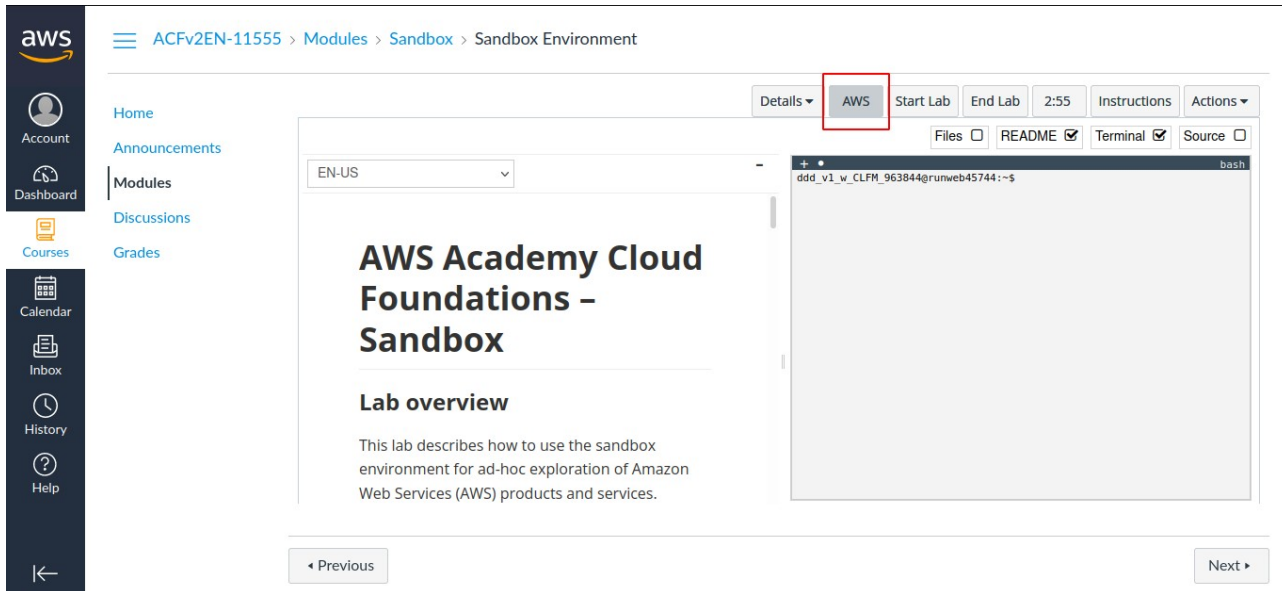


Step 2: Wait until you see the message "**Lab status: ready**", then choose the **X** to close the Start Lab panel.

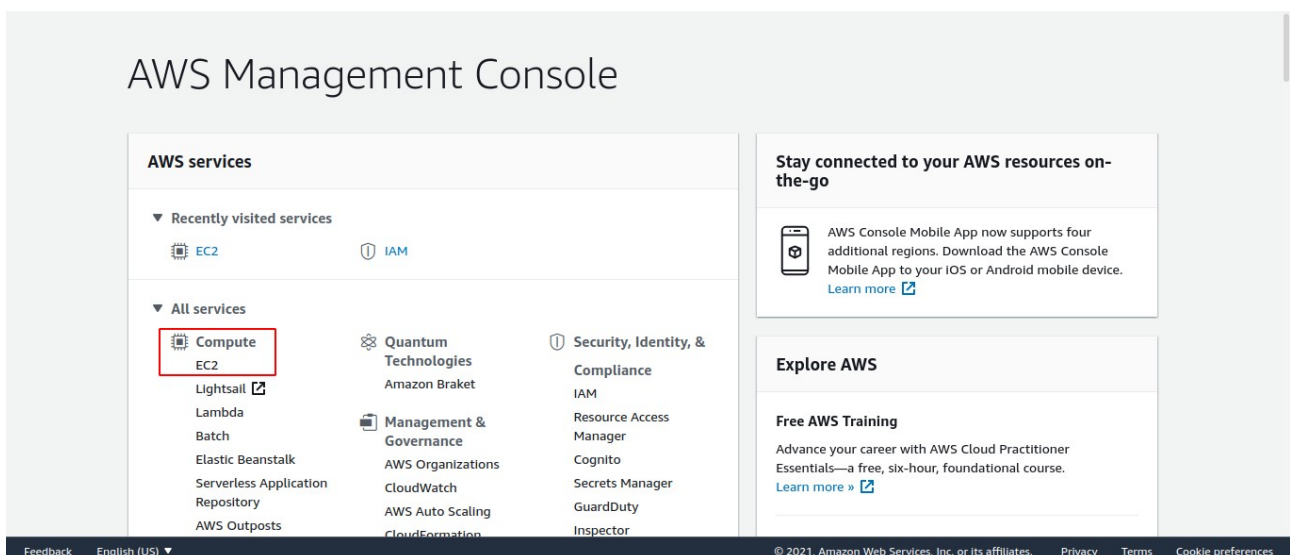


Step 3: Now choose AWS

This will open the AWS Management Console in a new browser tab. The system will automatically log you in.



Step 4: In the **AWS Management Console** on the **Services** menu, choose **EC2**.



Step 5: Choose **Launch instance** , then select Launch Instance.

The screenshot shows the AWS Management Console 'Instances' page. The left sidebar contains navigation links for EC2 Dashboard, EC2 Global View, Events, Tags, Limits, and a dropdown for 'Instances' which includes 'Instances New', Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances New, Dedicated Hosts, Scheduled Instances, and Capacity Reservations. The main content area shows a table with one instance named 'Bastion Host' with ID 'i-0d963b349603ce447', state 'Running', type 't2.micro', and status '2/2 checks passed'. Above the table, there are buttons for 'Connect', 'Instance state', 'Actions', and 'Launch Instances' (highlighted with a red box). Below the table, a 'Select an instance' dialog is open.

Step 6: Choose an Amazon Machine Image (AMI), select **Amazon Linux 2 AMI (HVM)**

The screenshot shows the 'Choose an Amazon Machine Image (AMI)' wizard. The top navigation bar includes steps: 1. Choose AMI (active), 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review. The main heading is 'Step 1: Choose an Amazon Machine Image (AMI)'. Below it, a search bar and a 'Quick Start' section are visible. The 'Quick Start' section lists 'My AMIs', 'AWS Marketplace', and 'Community AMIs'. Under 'Community AMIs', two 'Amazon Linux 2 AMI (HVM)' options are shown. The first option, 'Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type', is highlighted with a red box and has its 'Select' button clicked. The second option is 'Amazon Linux 2 AMI (HVM) - Kernel 4.14, SSD Volume Type'.

## Step 7: Choose an Instance Type, select t2.micro

1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

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.

Filter by: All instance familiesCurrent generationShow/Hide Columns

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

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes

CancelPreviousReview and LaunchNext: Configure Instance Details

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## Choose Next: Configure Instance Details

### Step 8: Configure Instance Details

At the bottom of this tab, in the **user data** field, enter the commands to install httpd webserver and create a file called 'index.html' and echo "Welcome to page".

This script will execute using root privileges once the instance is created

```
yum update -y
yum install httpd -y
cd /var/www/html
echo "welcome to page" > index.html
service httpd start
chkconfig httpd on
```

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1. Choose AMI2. Choose Instance Type3. Configure Instance4. Add Storage5. Add Tags6. Configure Security Group7. Review

Step 3: Configure Instance Details

Additional charges may apply

File systemsAdd file systemCreate new file system

Advanced Details

EnclaveEnable

Metadata accessibleEnabled

Metadata versionV1 and V2 (token optional)

Metadata token response hop limit1

User dataAs textAs fileInput is already base64 encoded

yum update -y
yum install httpd -y
cd /var/www/html
echo "welcome to page" > index.html
service httpd start
chkconfig httpd on

CancelPreviousReview and LaunchNext: Add Storage

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## Choose Next: Add Storage

## Step 9: Select default Storage

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Services

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1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

### 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-046c8ef36dde8e523	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

Add New Volume

Free tier eligible customers can get up to 30 GiB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

Shared file systems

Cancel

Previous

Review and Launch

Next: Add Tags

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## Choose Next: Add Tags

## Step 10: Choose Add Tag then configure (key: value):

1. Choose AMI

2. Choose Instance Type

3. Configure Instance

4. Add Storage

5. Add Tags

6. Configure Security Group

7. Review

### 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	Value	Instances	Volumes	Network Interfaces
Name	LinuxServer	<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

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## Choose Next: Configure Security Group

Step 11: Select a **security group**, either an existing one or create a new group.

The screenshot shows the 'Step 6: Configure Security Group' page in the AWS Management Console. The breadcrumb trail at the top indicates the current step is '6. Configure Security Group'. The page title is 'Step 6: Configure Security Group'. Below the title, there is a paragraph explaining security groups. The 'Assign a security group' section has two radio buttons: 'Create a new security group' (unselected) and 'Select an existing security group' (selected and highlighted with a red box). Below this is a table of existing security groups. The first row is selected and highlighted with a red box. The table has columns: Security Group ID, Name, Description, and Actions. Below the table, there is a section for 'Inbound rules for sg-0ae701a1b203b92c9'. It shows a single rule with Type 'All traffic', Protocol 'All', Port Range 'All', and Source 'sg-0ae701a1b203b92c9 (default)'. At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Review and Launch' (highlighted with a red box).

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### 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-0ae701a1b203b92c9	default	default VPC security group	<a href="#">Copy to new</a>

Inbound rules for sg-0ae701a1b203b92c9 (Selected security groups: sg-0ae701a1b203b92c9)

Type	Protocol	Port Range	Source	Description
All traffic	All	All	sg-0ae701a1b203b92c9 (default)	

[Cancel](#) [Previous](#) [Review and Launch](#)

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Choose **Review and Launch**

Step 12: Choose Launch

The screenshot shows the 'Step 7: Review Instance Launch' page in the AWS Management Console. The breadcrumb trail at the top indicates the current step is '7. Review'. The page title is 'Step 7: Review Instance Launch'. Below the title, there is a paragraph explaining the review process. The 'AMI Details' section shows 'Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type - ami-0ed9277fb7eb570c9' with a 'Free tier eligible' badge. The 'Instance Type' section shows a table with columns: Instance Type, ECUs, vCPUs, Memory (GiB), Instance Storage (GB), EBS-Optimized Available, and Network Performance. The 'Security Groups' section shows a table with columns: Security Group ID, Name, and Description. At the bottom right, there are three buttons: 'Cancel', 'Previous', and 'Launch' (highlighted with a red box).

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

### 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 [Edit AMI](#)

**Amazon Linux 2 AMI (HVM) - Kernel 5.10, SSD Volume Type - ami-0ed9277fb7eb570c9**

**Free tier eligible** Amazon Linux 2 comes with five years support. It provides Linux kernel 5.10 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.29.1, and the latest software packages through extras. This AMI is the successor of the Amazon Linux AMI that is n...

Root Device Type: ebs Virtualization type: hvm

Instance Type [Edit instance type](#)

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

Security Groups [Edit security groups](#)

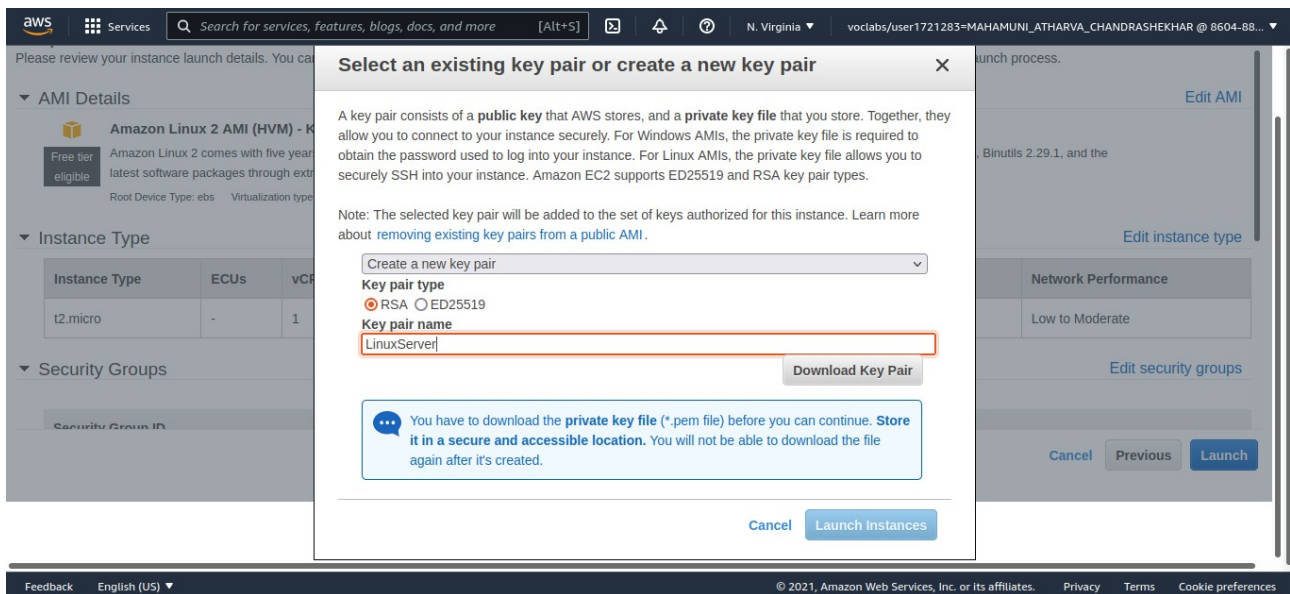
Security Group ID	Name	Description
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[Cancel](#) [Previous](#) [Launch](#)

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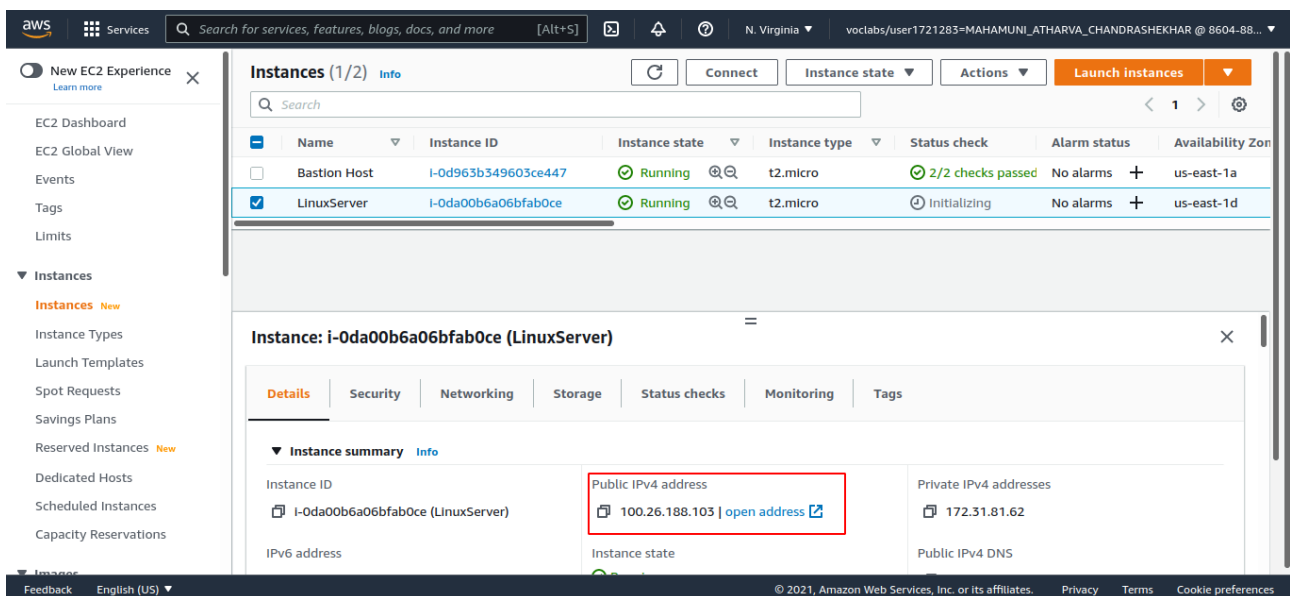


Step 13: A box will appear then select **Create a new key pair**.



Give it a name and select **Download Key Pair**  
Select **Launch Instances**.

Step 14: Review launch status and choose **view instances**, select your instance and click on open address.



You should see your webpage running on your webserver.

