



ACF Lab 2: Build a VPC and launch a Web Server

COS 20019- Cloud Computing Architecture

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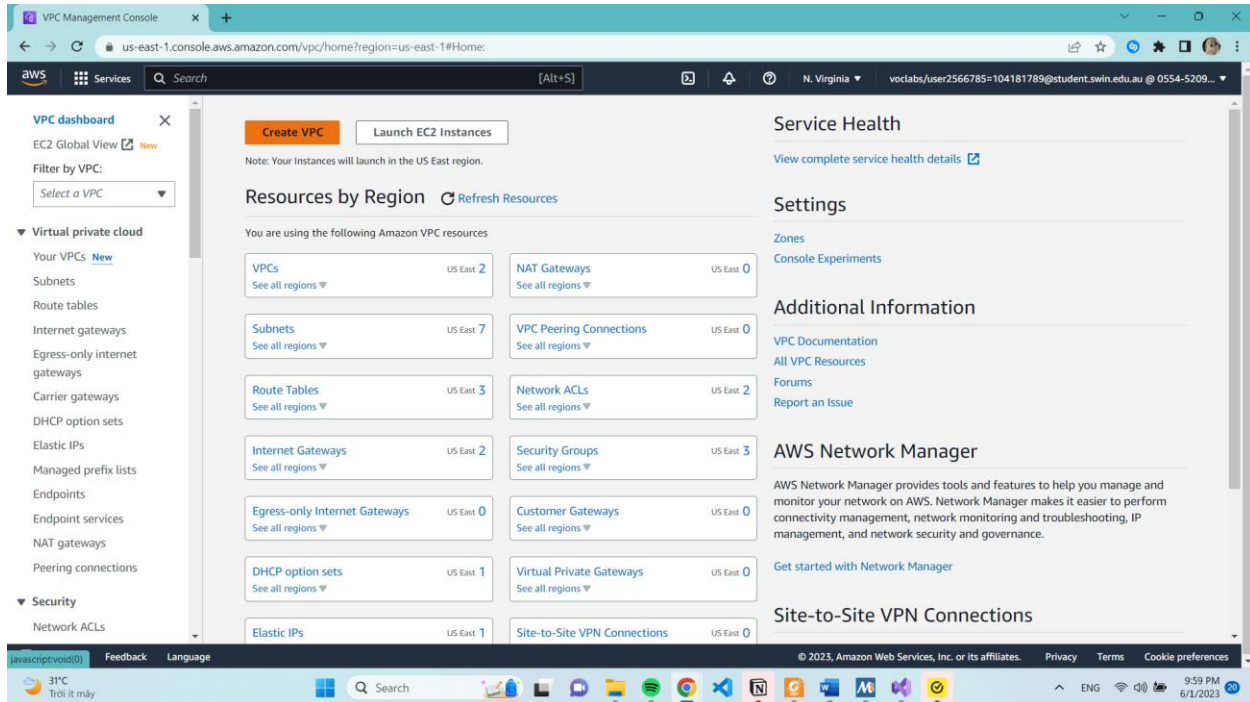
1/6/2023

So this is all my step to finish ACF Lab 2, belong with detailed explanation.

Task 1: Create Your VPC

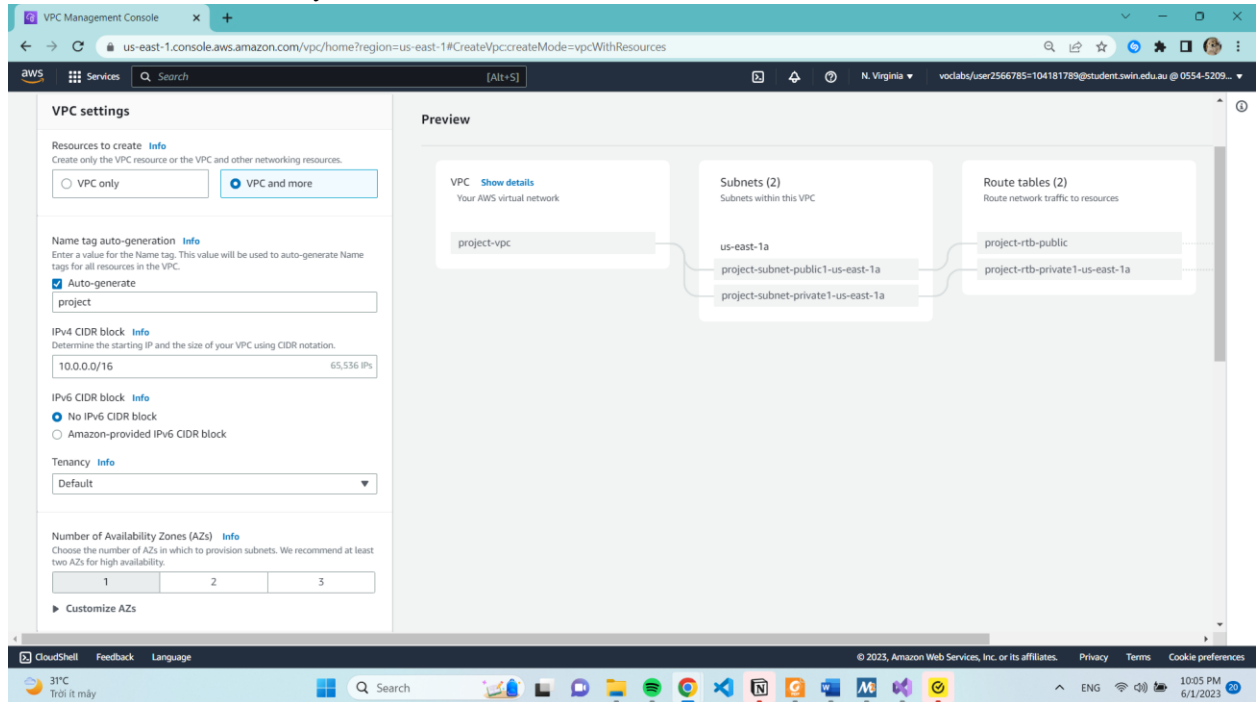
6. Begin creating a VPC

- In the top right of the screen, verify that N. Virginia (us-east-1) is the region.
- Choose the VPC dashboard link which is also towards the top left of the console.
- Next, choose Create VPC.

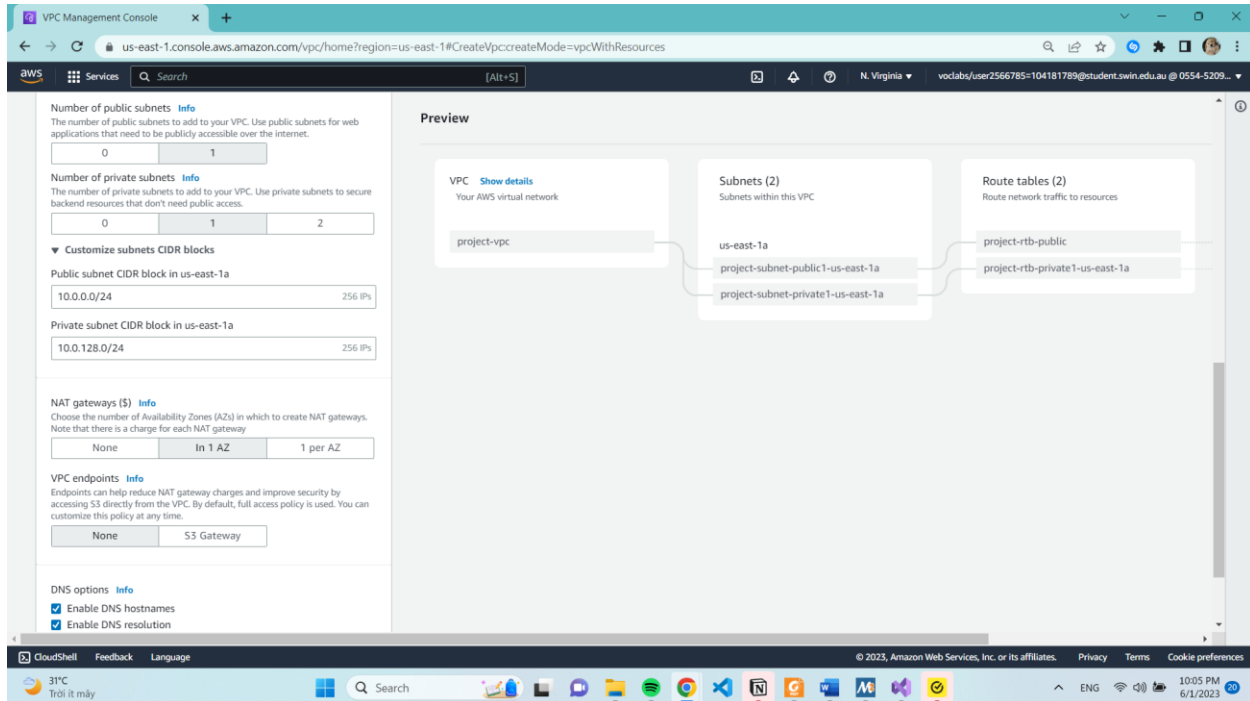


7. Configure the VPC details in the VPC settings panel on the left:

- Choose VPC and more.
- Under Name tag auto-generation, keep Auto-generate selected, however change the value from project to lab.
- Keep the IPv4 CIDR block set to 10.0.0.0/16
- For Number of Availability Zones, choose 1.

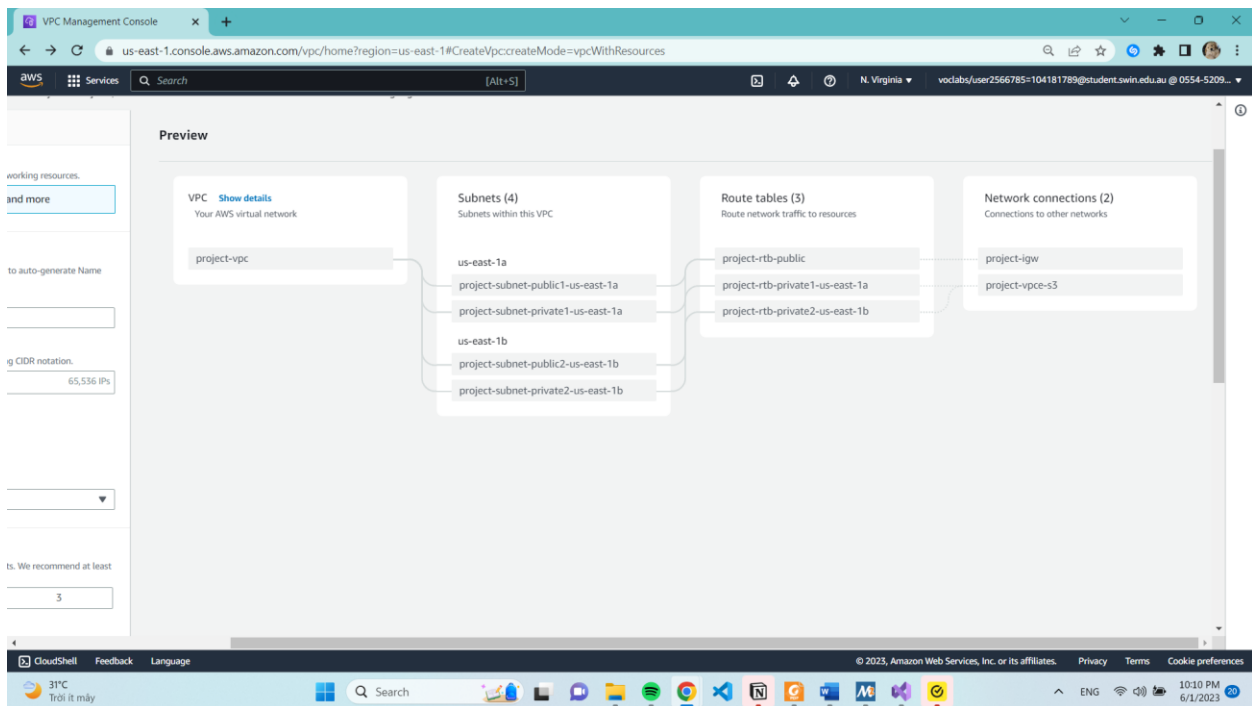


- For Number of public subnets, keep the 1 setting.
- For Number of private subnets, keep the 1 setting.
- Expand the Customize subnets CIDR blocks section
- Change Public subnet CIDR block in us-east-1a to 10.0.0.0/24
- Change Private subnet CIDR block in us-east-1a to 10.0.1.0/24
- Set NAT gateways to In 1 AZ.
- Set VPC endpoints to None.
- Keep both DNS hostnames and DNS resolution enabled.



8. Confirm the settings I have configured.

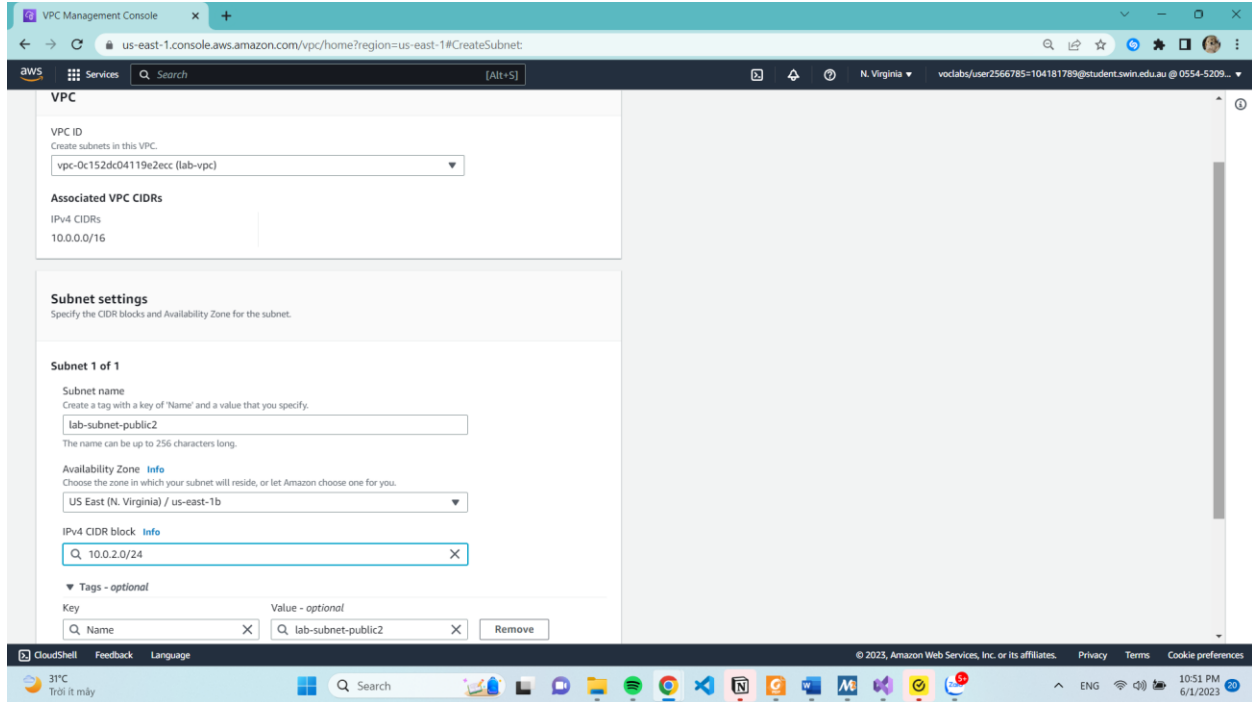
- **VPC:** lab-vpc
- **Subnets:**
 - us-east-1a
- **Public subnet name:** lab-subnet-public1-us-east-1a
- **Private subnet name:** lab-subnet-private1-us-east-1a
- **Route table**
 - lab-rtb-public
 - lab-rtb-private1-us-east-1a
- **Network connections**
 - lab-igw
 - lab-nat-public1-us-east-1a



12. Choose **Create subnet** then configure:

- **VPC ID:** lab-vpc (select from the menu).
- **Subnet name:** lab-subnet-public2
- **Availability Zone:** Select the second Availability Zone (for example, us-east-1b)
- **IPv4 CIDR block:** 10.0.2.0/24

The subnet will have all IP addresses starting with **10.0.2.x**.

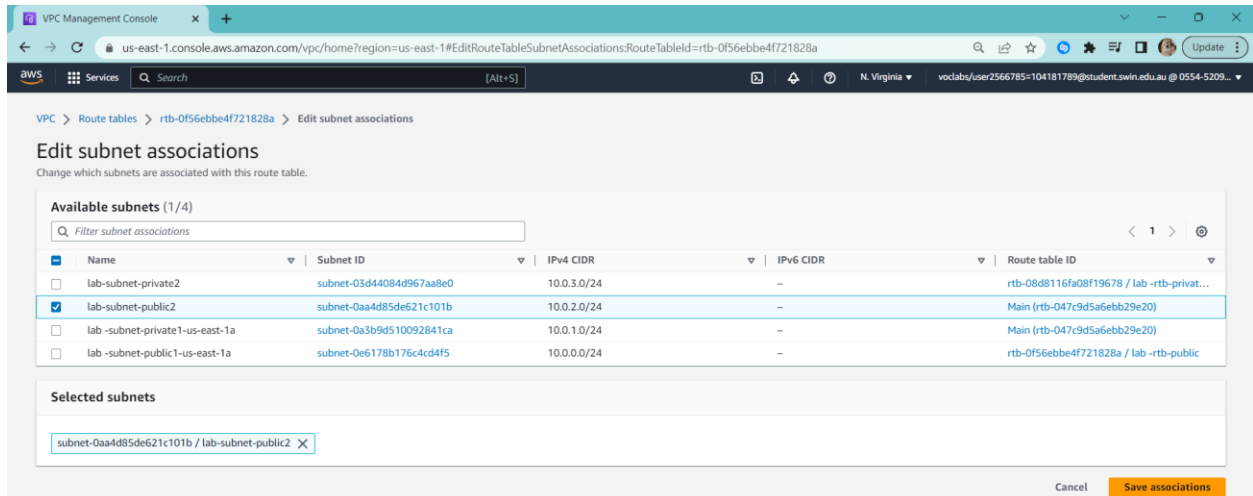


To Create another subnet, Choose Create subnet then configure:

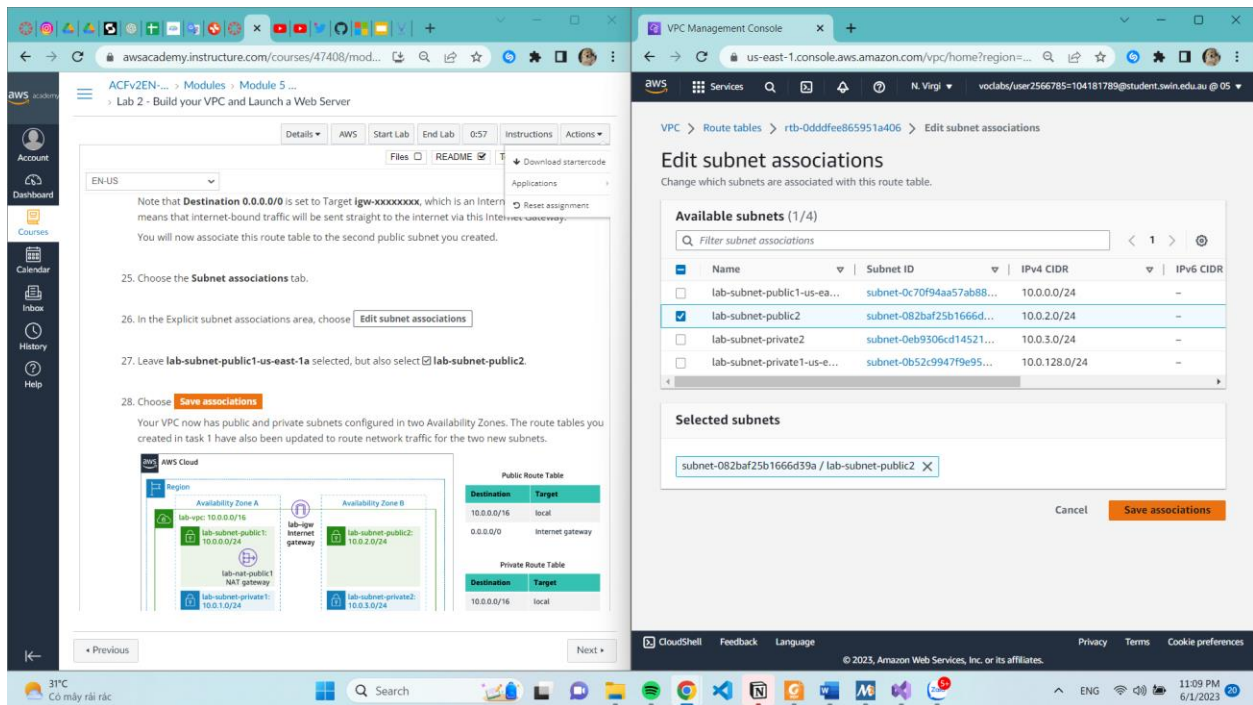
- **VPC ID:** lab-vpc
- **Subnet name:** lab-subnet-private2
- **Availability Zone:** Select the second Availability Zone (for example, us-east-1b)
- **IPv4 CIDR block:** 10.0.3.0/24

The subnet will have all IP addresses starting with **10.0.3.x**.

20-21. Edit subnet associations. -> Leave **lab-subnet-private1-us-east-1a** selected, but also select **lab-subnet-private2**.



27.



Task 3: Create a VPC Security Group

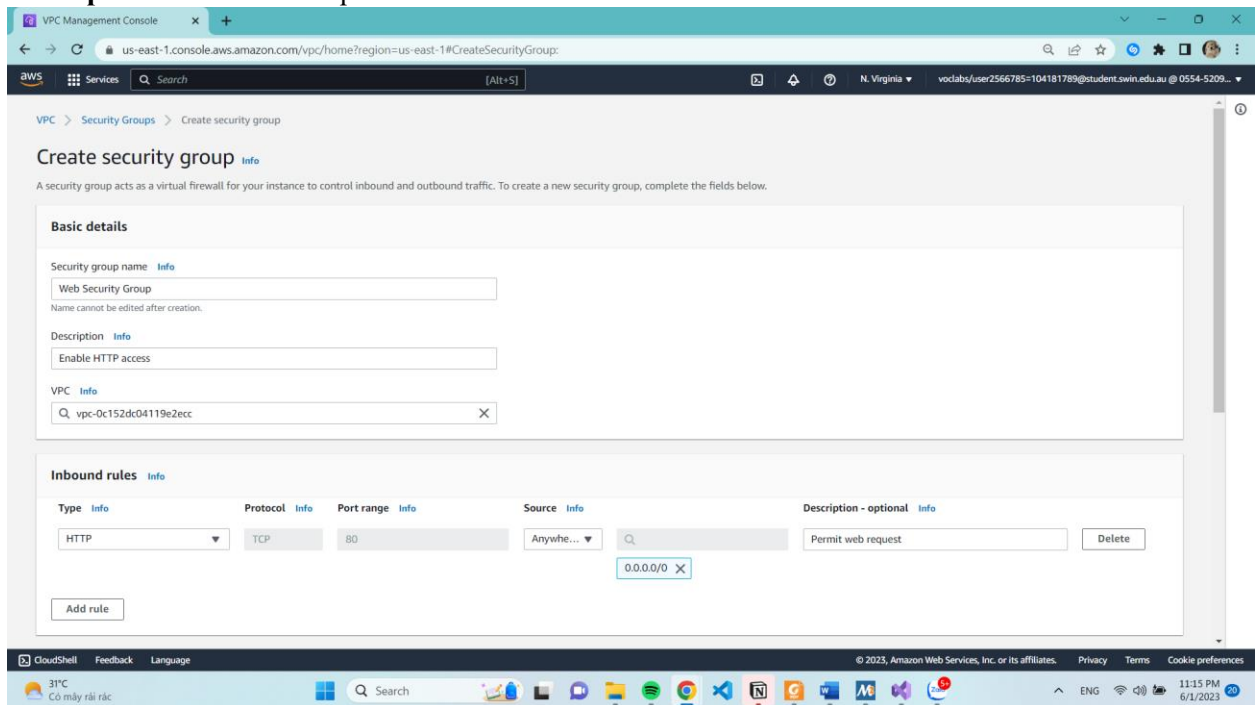
30.

Choose **Create security group** and then configure:

- **Security group name:** Web Security Group
- **Description:** Enable HTTP access
- **VPC:** choose the X to remove the currently selected VPC, then from the drop down list choose lab-vpc

31. Add Inbound rule

- **Type:** HTTP
- **Source:** Anywhere-IPv4
- **Description:** Permit web requests



Task 4: Launch a Web Server Instance

35-42. Configuring Web Server Instance

The screenshot displays the AWS Management Console's 'Launch an instance' wizard. The interface is divided into several sections for configuring the instance:

- Name and tags:** The instance name is set to 'Web Server 1'.
- Application and OS Images (Amazon Machine Image):** The 'Amazon Linux 2023 AMI' is selected from the 'Quick Start' tab.
- Instance type:** The 't2.micro' instance type is selected, which is eligible for the free tier.
- Key pair (login):** The 'vockey' key pair is selected for logging into the instance.
- Network settings:** The 'vpc-0c152dc04119e2ecc' VPC and 'lab-subnet-public2' subnet are selected.
- Summary:** This section provides a overview of the configuration, including the number of instances (1), the selected AMI, instance type, security group, and storage. A 'Launch instance' button is prominently displayed.

A notification banner at the bottom of the console indicates the free tier benefits: '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 usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million I/Os, 1 GiB of snapshots, and 100 GiB of bandwidth to the internet.'

The screenshot displays the AWS Management Console's 'Launch an instance' page. The interface is split into two columns. The left column contains configuration options: 'Firewall (security groups)' with a dropdown for 'Web Security Group', 'Configure storage' with a dropdown for 'gp3' and a button for 'Add new volume', and 'Advanced details' with a text area for 'User data - optional'. The right column shows a 'Summary' of the configuration: 'Number of instances' set to 1, 'Software Image (AMI)' as 'Amazon Linux 2023 AMI 2023.0.2', 'Virtual server type (instance type)' as 't2.micro', 'Firewall (security group)' as 'Web Security Group', and 'Storage (volumes)' as '1 volume(s) - 8 GiB'. A 'Launch instance' button is prominently displayed at the bottom right of the summary section. The top of the page shows the AWS logo and navigation tabs. The bottom of the page features a Windows taskbar with various application icons and a system clock showing 11:21 PM on 6/1/2023.

The screenshot shows the AWS Management Console interface. The left sidebar contains navigation links for various AWS services. The main content area displays the 'Instances' page, which lists two EC2 instances. The 'Web Server 1' instance is selected, and its details are shown in the 'Instance summary' tab. A tooltip indicates that the 'Public IPv4 address' has been copied.

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
Web Server 1	i-09b2bb2a63f644280	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-44-211-60-173.co...	44.211.60.173
Bastion Host	i-0d0f0795ec19de4c	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-3-81-66-196.comp...	3.81.66.196

Instance: i-09b2bb2a63f644280 (Web Server 1)

Details | Security | Networking | Storage | Status checks | Monitoring | Tags

Instance summary info

Instance ID: i-09b2bb2a63f644280 (Web Server 1)

IPv6 address: -

Hostname type: IP name: ip-10-0-2-24.ec2.internal

Answer private resource DNS name: -

Instance state: Running

Private IP DNS name (IPv4 only): ip-10-0-2-24.ec2.internal

Instance type: t2.micro

Public IPv4 address copied: 44.211.60.173 | open address

Private IPv4 addresses: 10.0.2.24

Public IPv4 DNS: ec2-44-211-60-173.compute-1.amazonaws.com | open address

Elastic IP addresses: -

47. Copy the **Public IPv4 DNS** value then Open a new web browser tab, paste the Public DNS value and press Enter.

The screenshot shows a web browser window displaying the AWS metadata page. The page contains a table with meta-data for the instance, including the Instance ID and Availability Zone. The current CPU load is shown as 1%.

Meta-Data	Value
InstanceId	i-0d8d4c7a75bc53e49
Availability Zone	us-east-1b

Current CPU Load: 1%