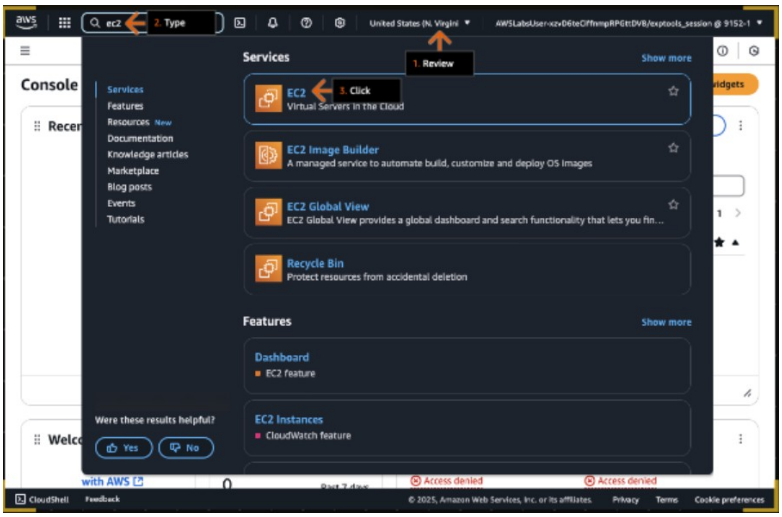
AMAZON EC2 INSTANCES: A PRACTICAL EXPLORATION

Objectives:

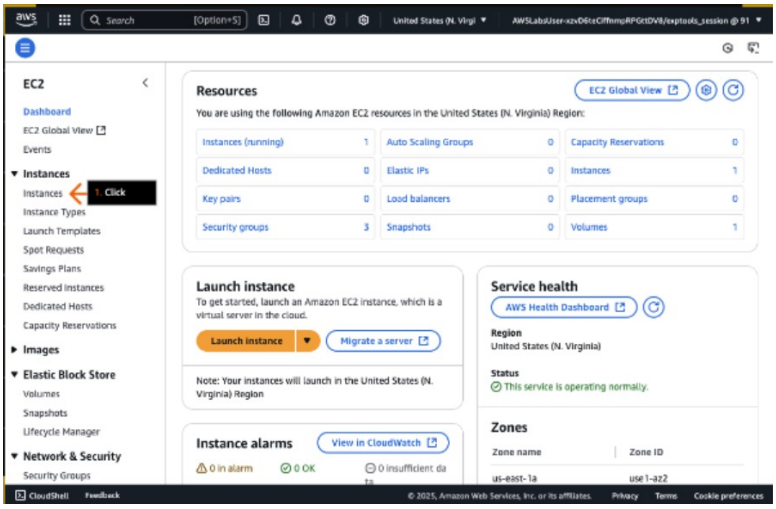
- Explore Amazon EC2 instance types.
- Filter EC2 instances based on their attributes.
- Connect to an EC2 instance by using EC2 Instance Connect.
- View EC2 instance metadata by using the instance public IP address.
- Start and stop an EC2 instance by using the Amazon EC2 console.
- Increase the size of an Amazon EC2 instance to provide better application performance.

Steps / Procedures / Instructions:

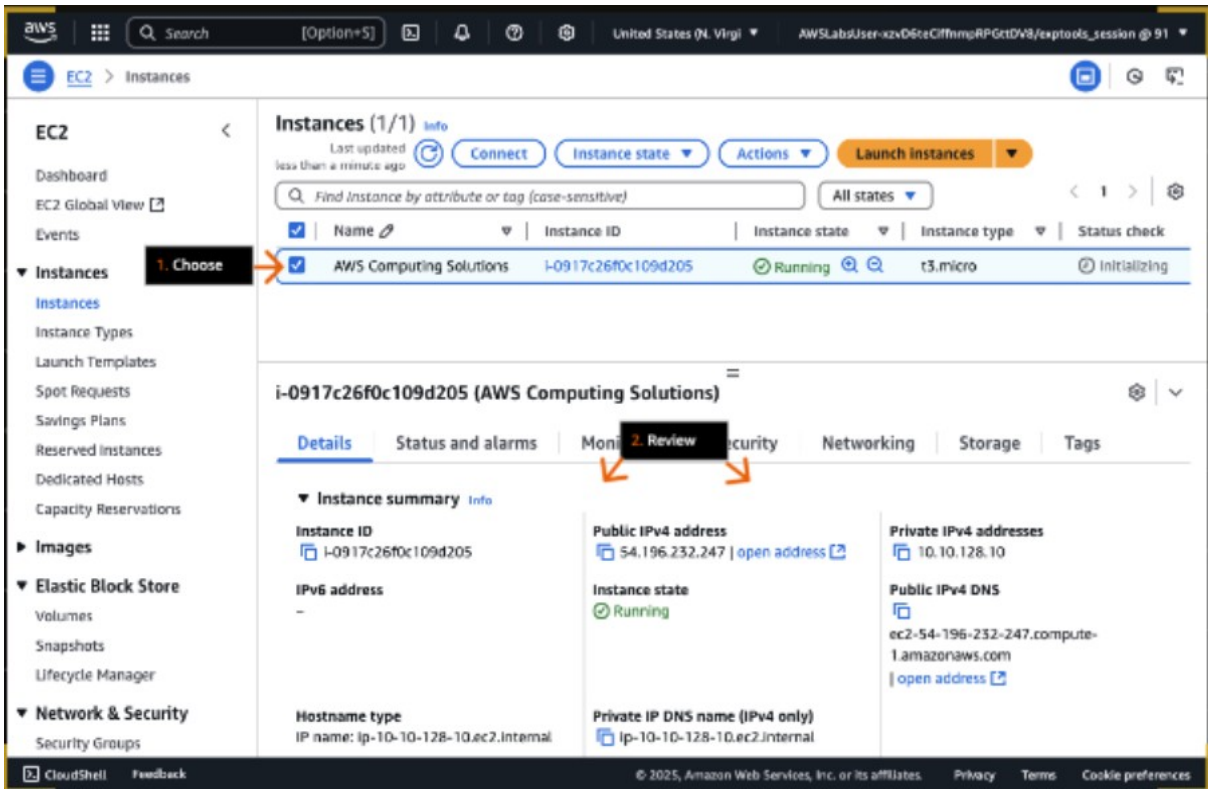
- On the top navigation bar, review the Region selector to confirm that the Region is set to United State (N. Virginia).
- In the Services search box, type:ec2
- In the search results, under Services, click EC2.



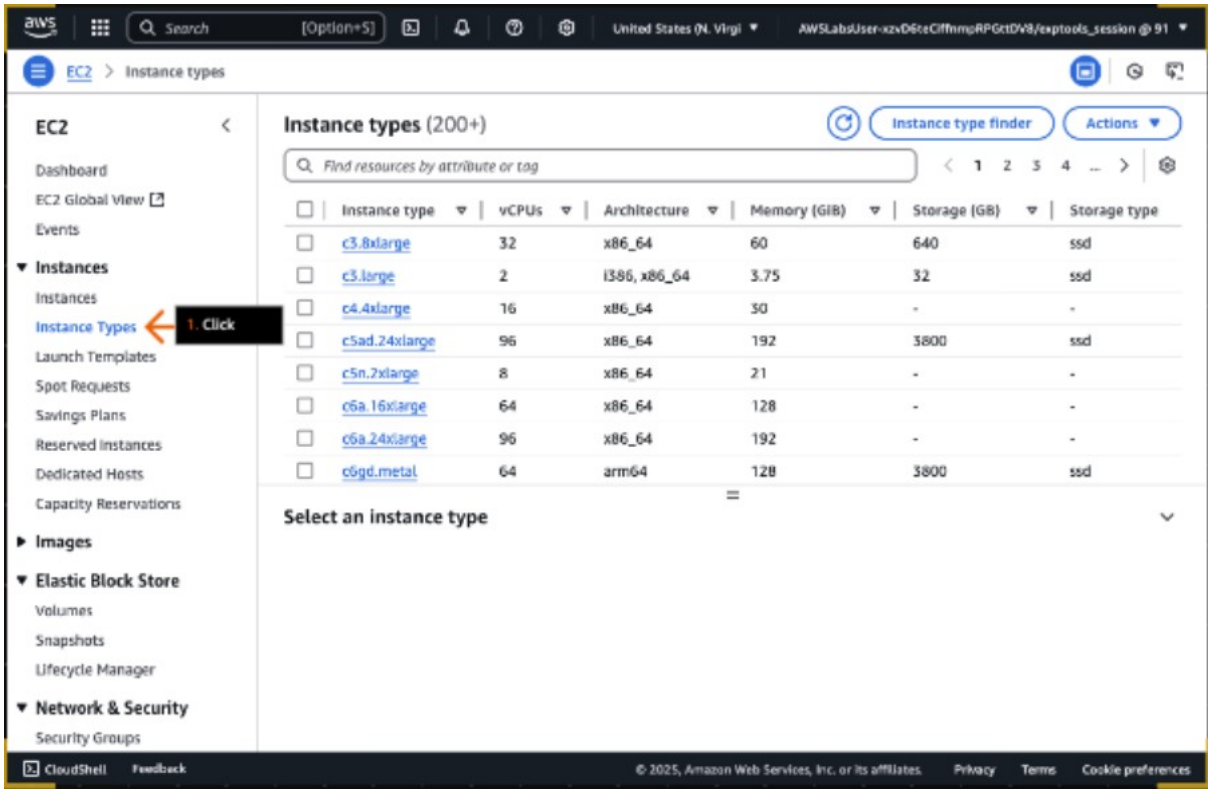
- In the left navigation pane, click Instances.



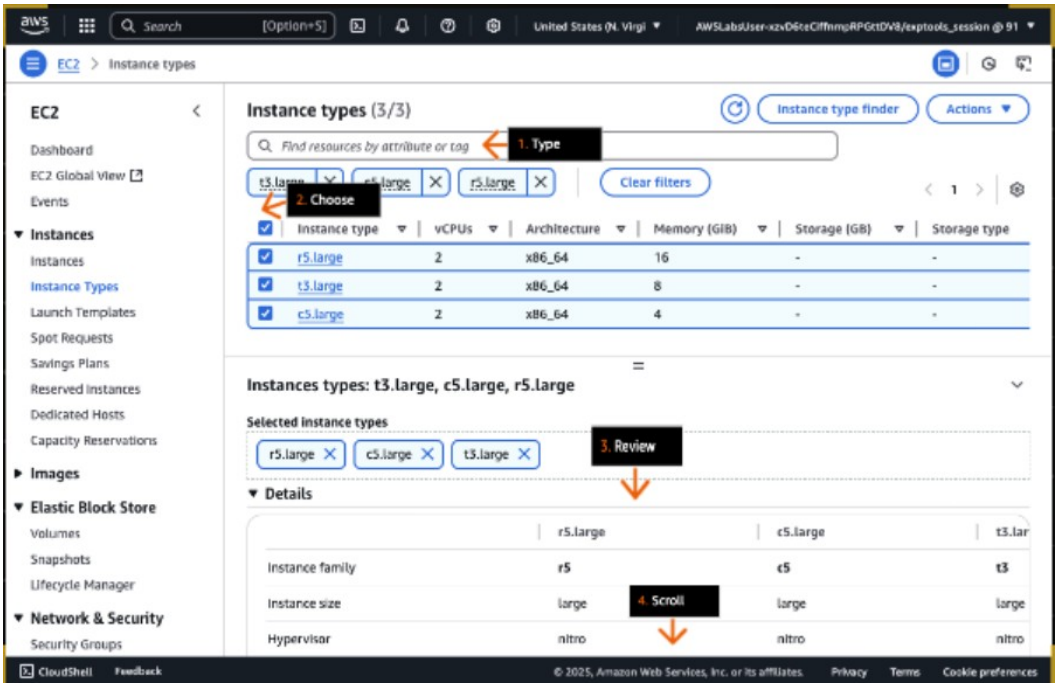
- In the Instances section, choose the check box to select the AWS Computing Solutions instance.
- On the Details tab, review the instance details.



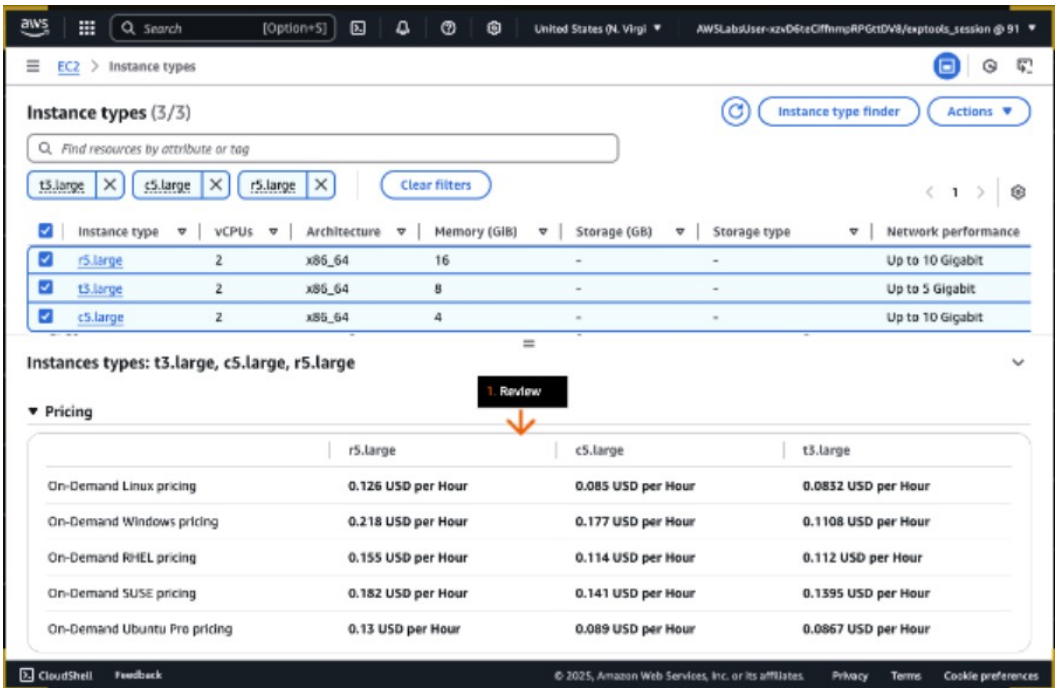
- In the left navigation pane, click Instance Types.



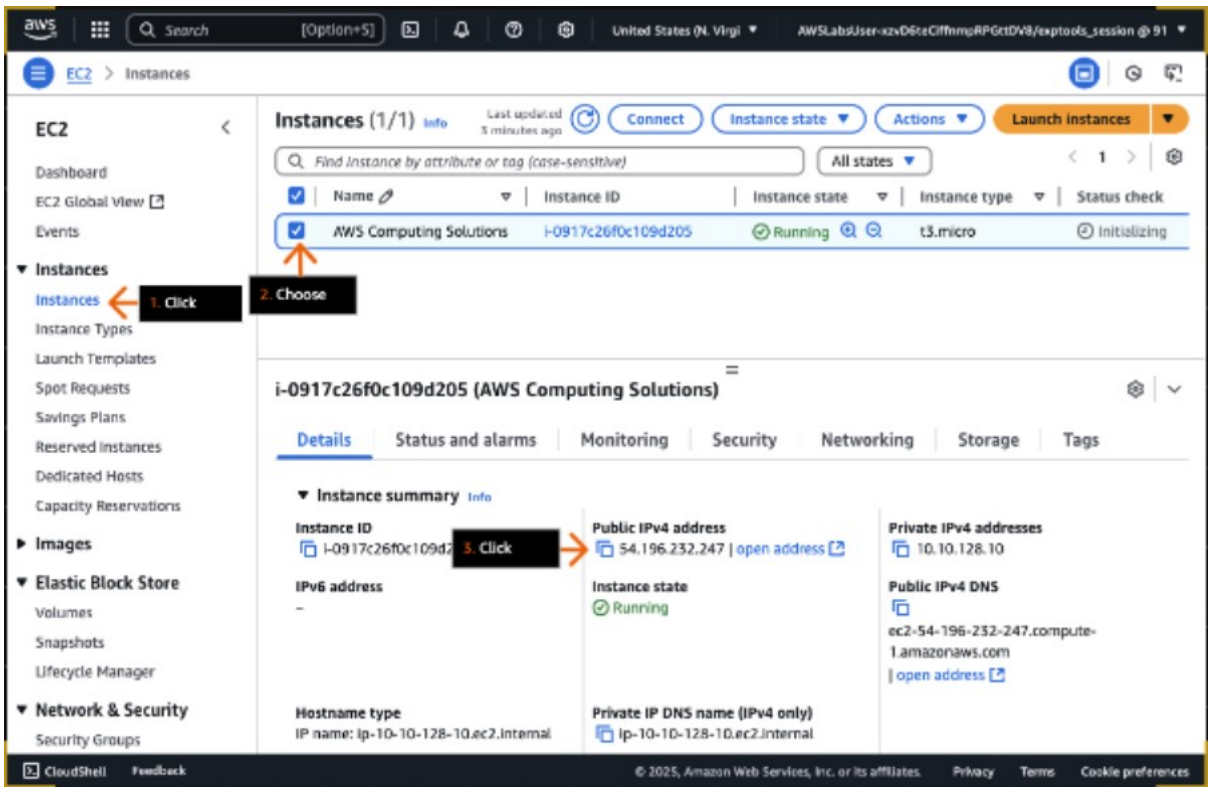
- In the Instance types search box, type the following and press Enter after each:
    - t3.large
    - c5.large
    - r5.large
- Choose the top check box to select all three of the filtered instance types.
- Below that, review the instance type details.
- Scroll down to review Compute, Networking, and Storage details (not shown).



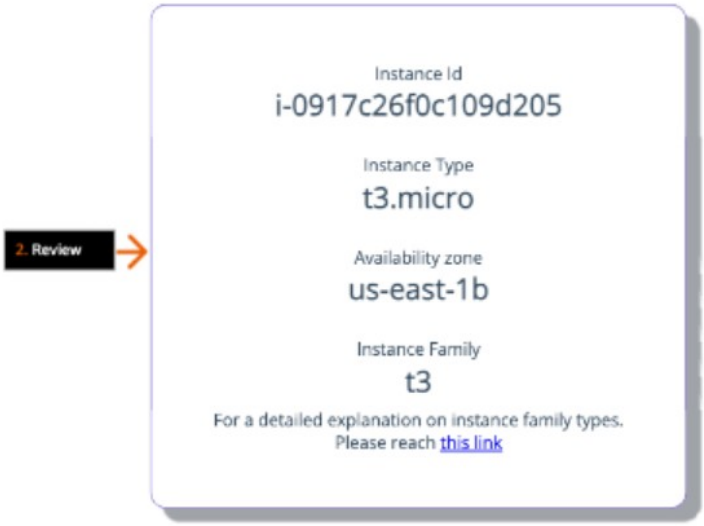
- Scroll down and review Pricing details.
    - Prices vary based on vCPUs, memory, network performance, and other resources. Prices also vary based on operating systems and their license fees.



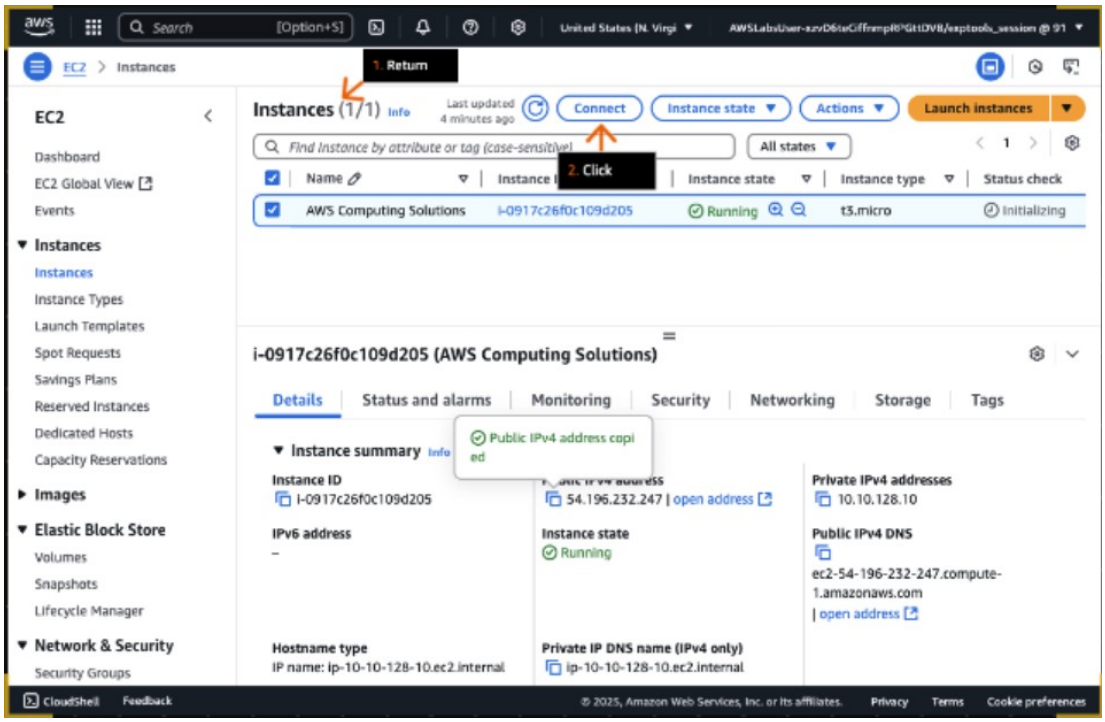
- In the left navigation bar, click Instances.
- In the Instances section, choose the check box to select the AWS Computing Solutions instance.
- On the Details tab, under Public IPv4 address, click the copy icon to copy the provided address.
    - Do not click the "open address" link.



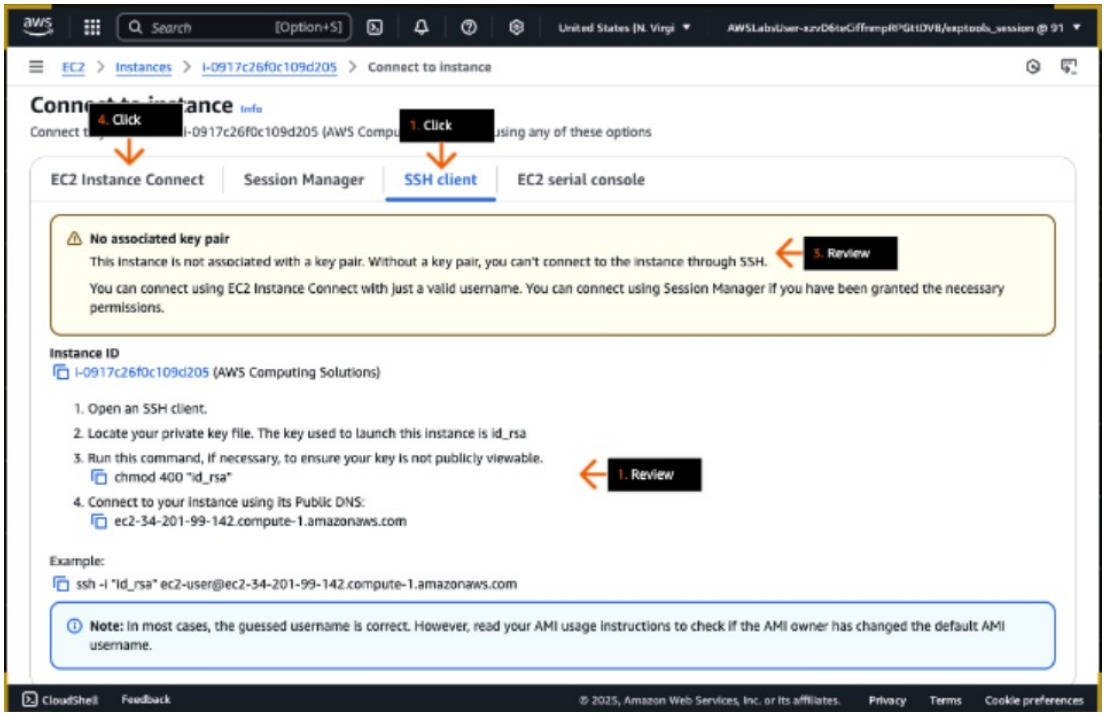
- In a new browser tab (or window) address bar, paste the IP address that you just copied and press Enter (not shown).
    - Make sure to use http://, not https://.
- Review the instance details.



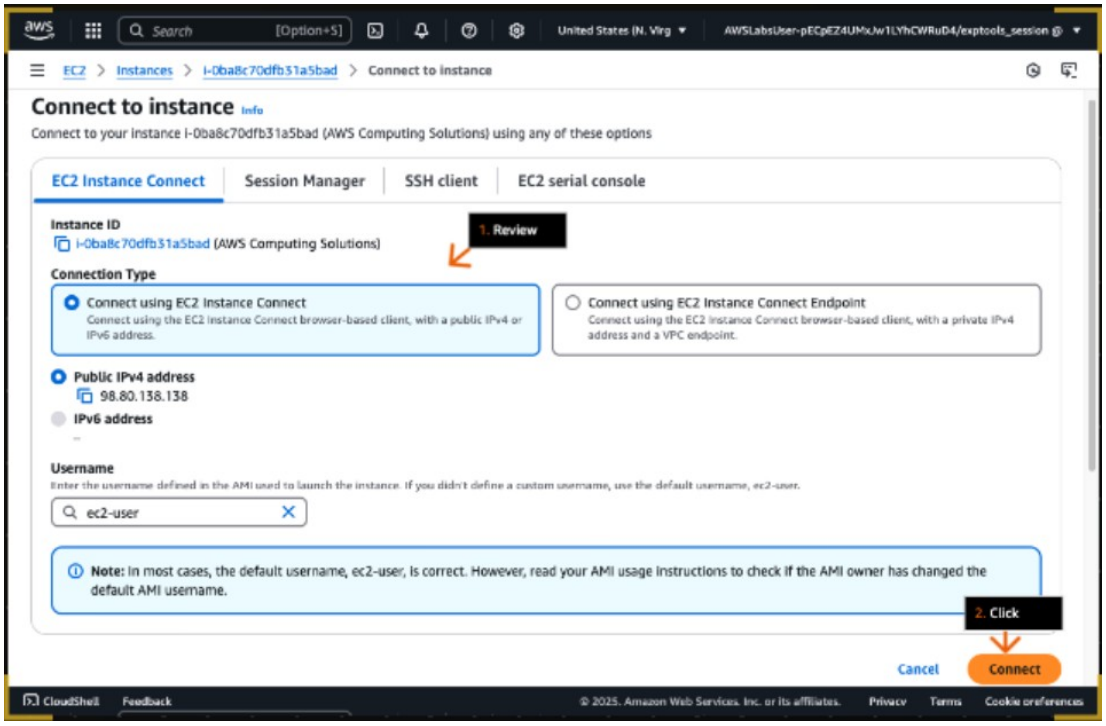
- Return to the Amazon EC2 console browser tab.
- In the Instances section, click Connect.



- Click on the SSH client tab.
- Review the requirements to connect through SSH.
- In the warning alert, review the key pair message.
  - Because no SSH key pair was created for this instance, connecting through SSH is not possible.
- Click the EC2 Instance Connect tab.



- Review the connection settings.
- Click Connect.
    - EC2 Instance Connect, containing the command-line shell, opens in a new browser tab (or window).



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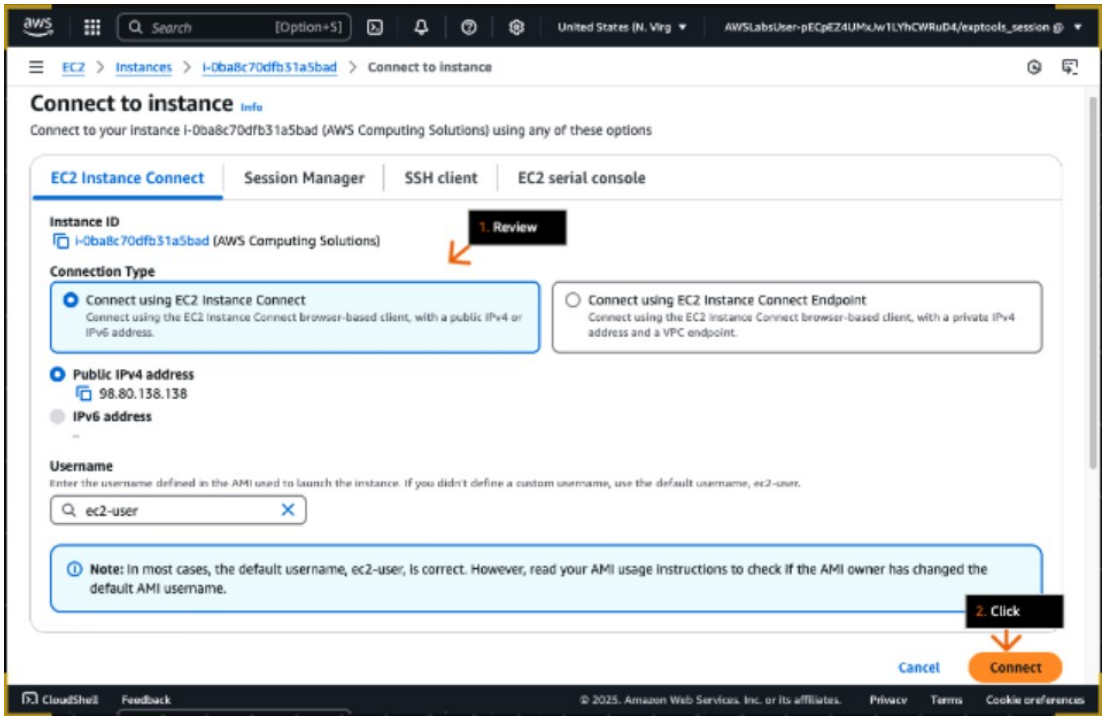
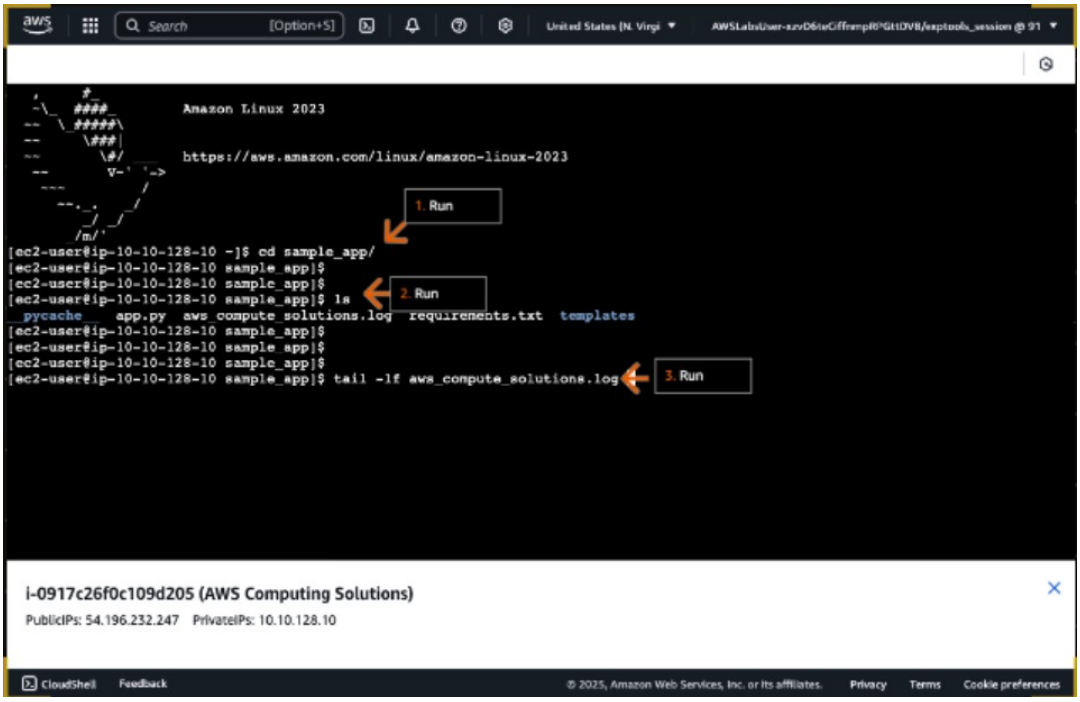
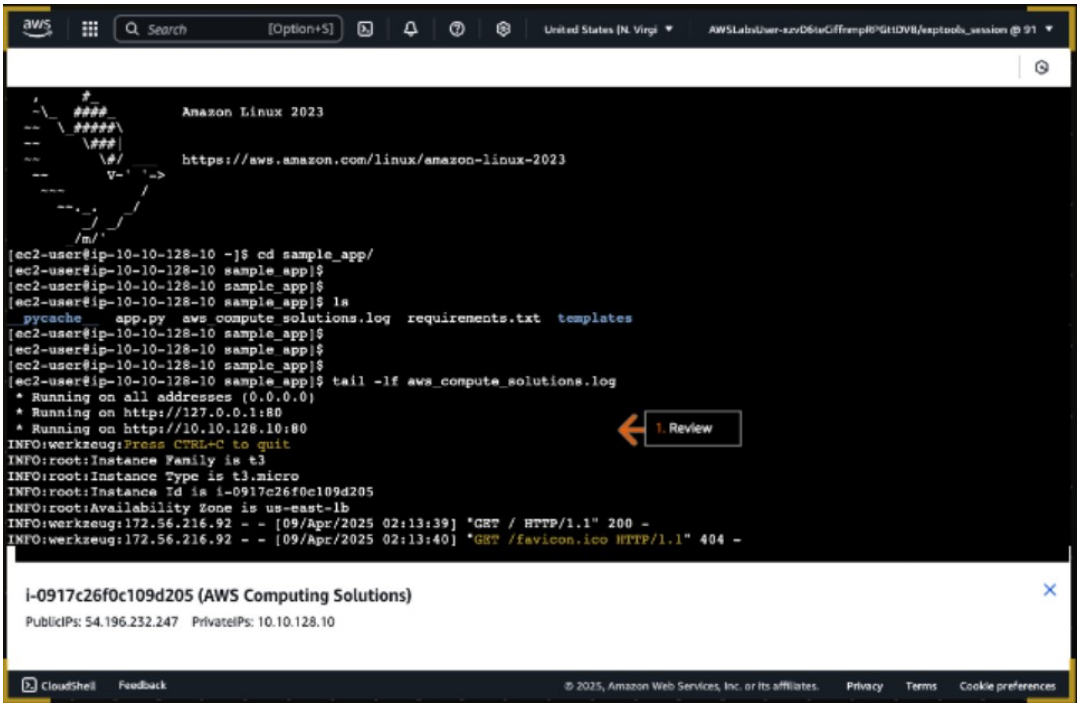


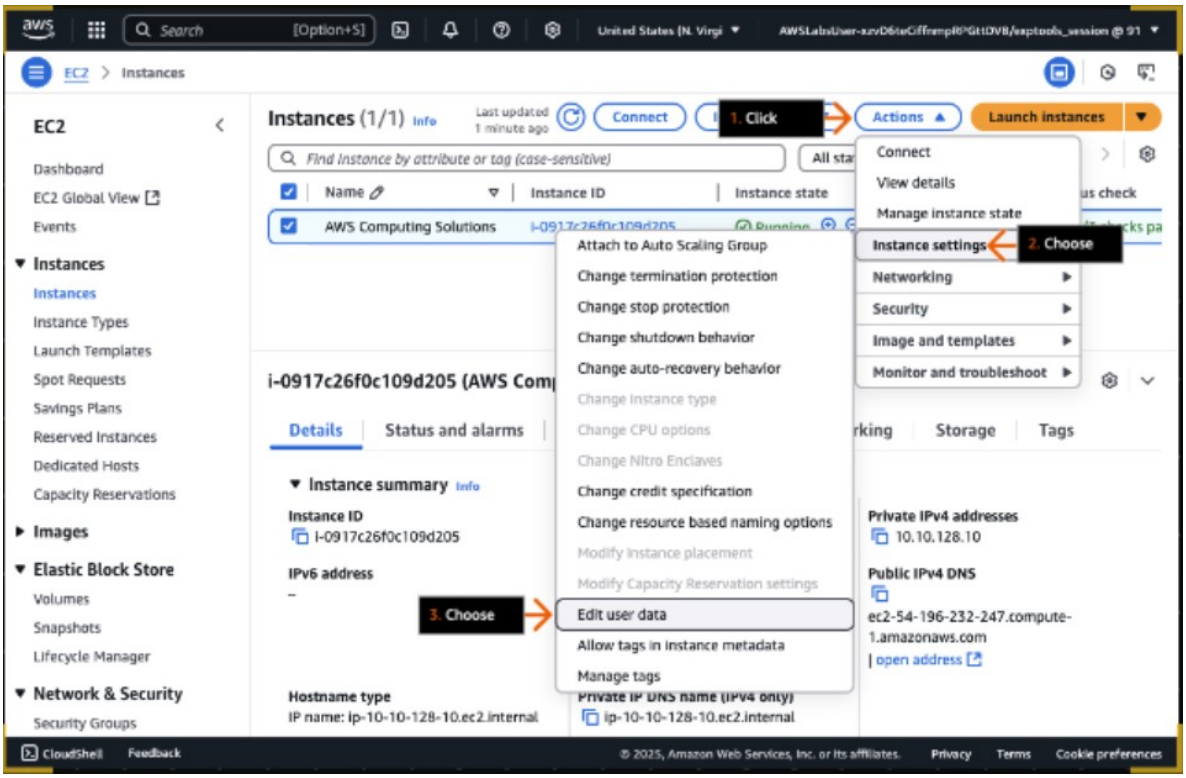
- To change to the application directory, run:
  `cd sample_app`
  - A sample application resides on this instance.
- To view the files in the sample_app directory, run:
  `ls`
- To check the instance log, run:
  `tail -lf aws_compute_solutions.log`



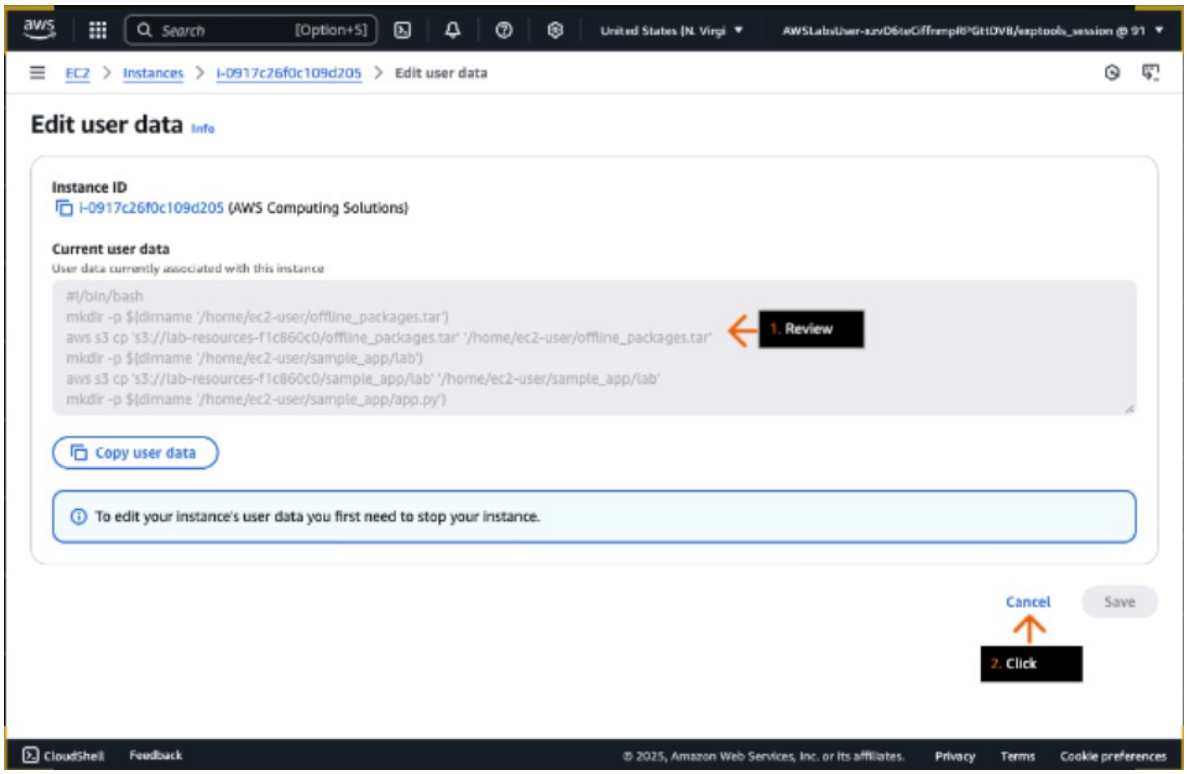
- Review the log details.
  - To quit, press Ctrl+C on your keyboard.
- Close this browser tab to return to the Instances page on the Amazon EC2 console.



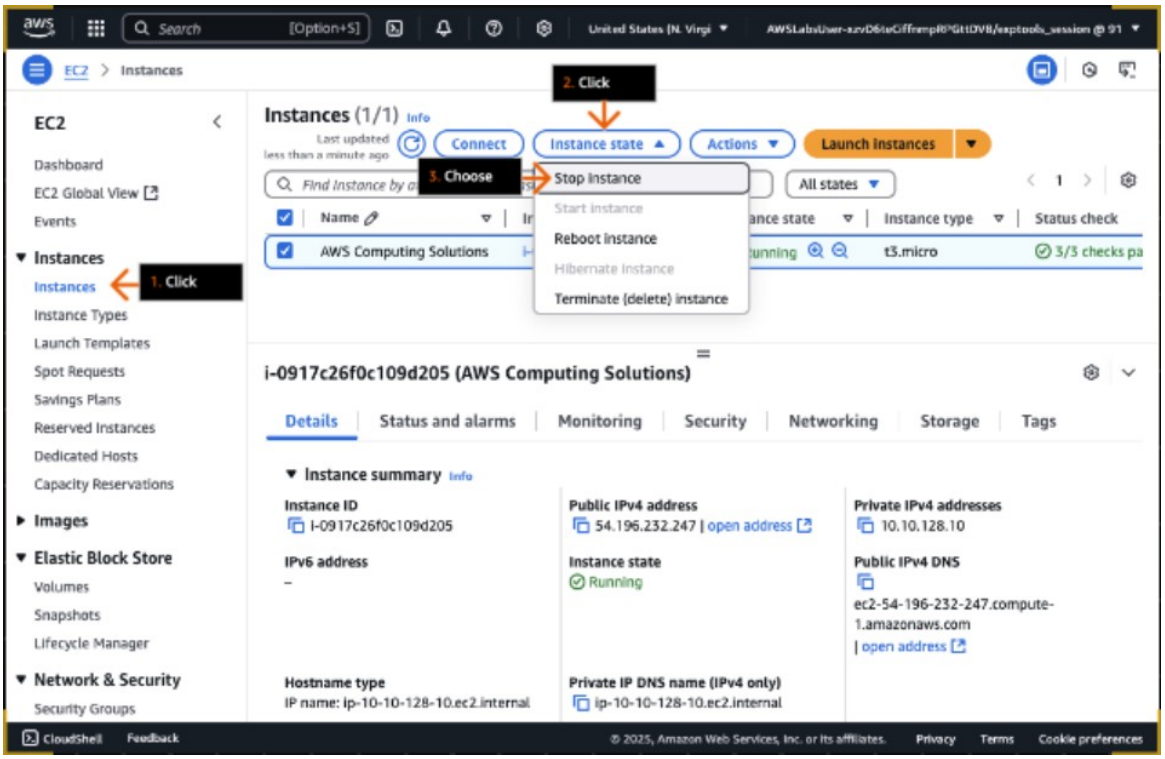
- Click Actions to expand the dropdown list.
- Choose Instance settings.
- Choose Edit user data.



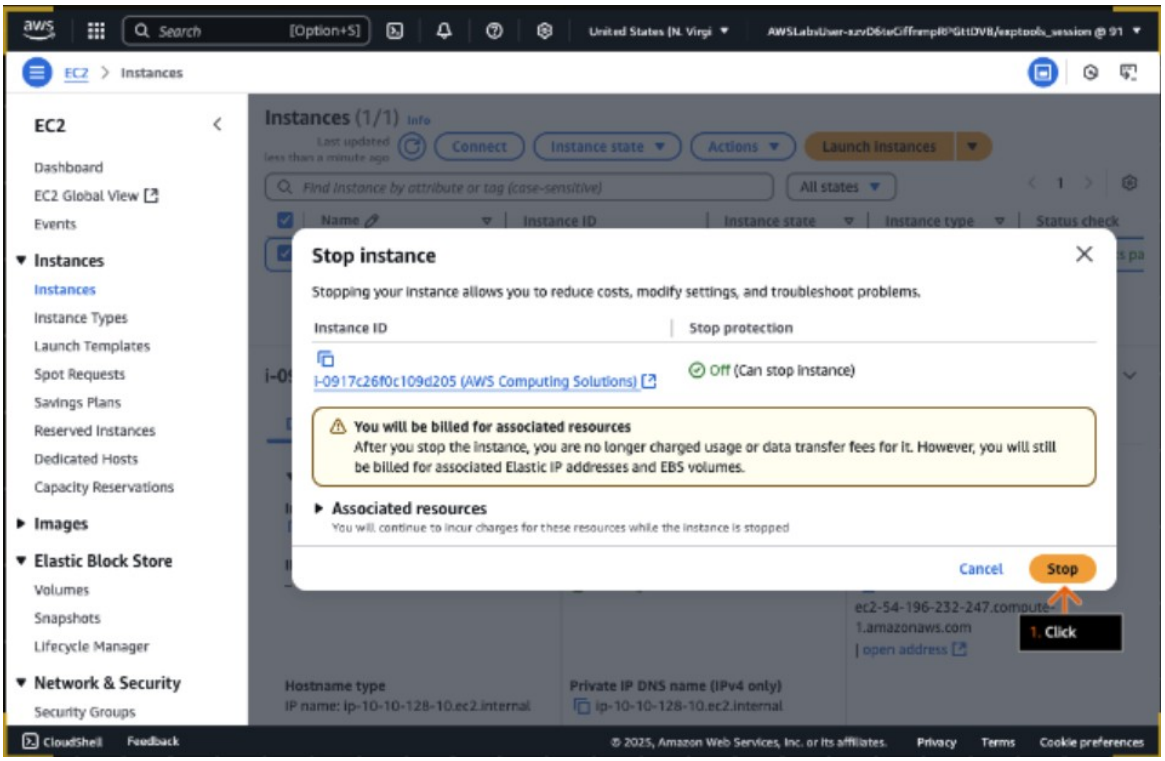
- Under Current user data, review the commands.
- Click Cancel.



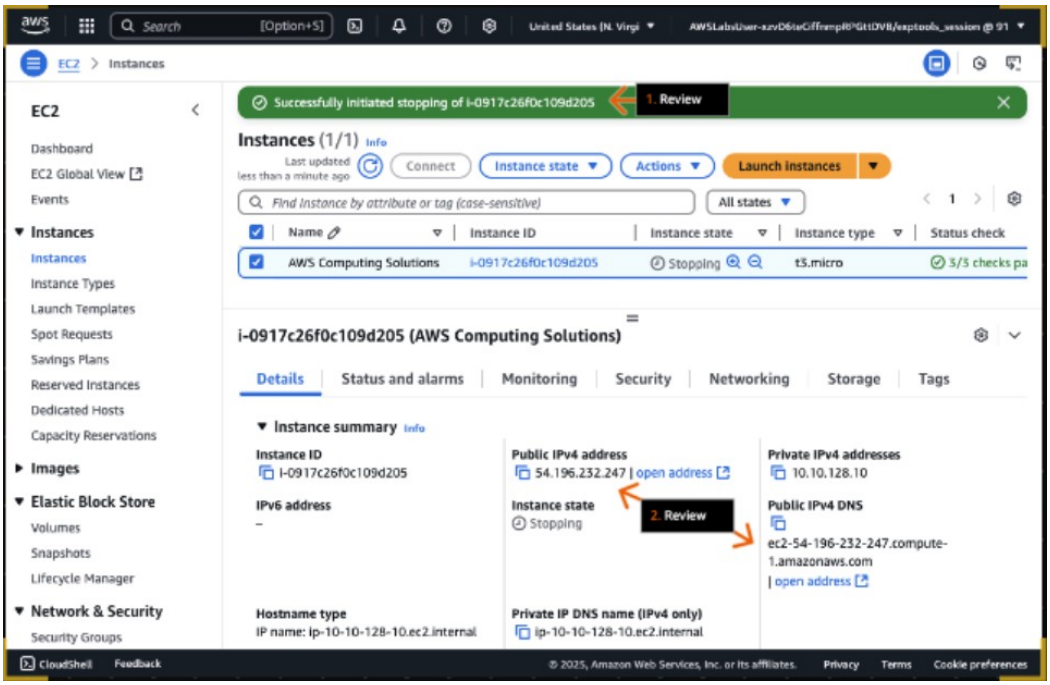
- In the left navigation pane, click Instances.
- In the Instances section, click Instance state to expand the dropdown list.
- Choose Stop instance.
    - If the Stop instance option is not available, make sure the AWS Computing Solutions instance is selected.



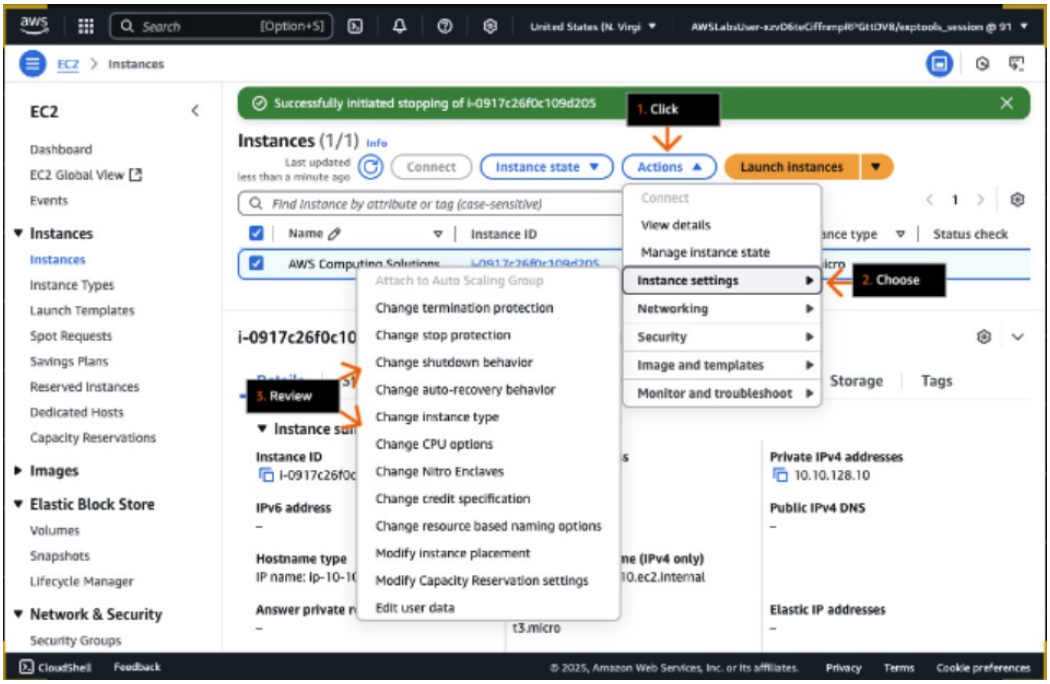
- In the pop-up box, click Stop.



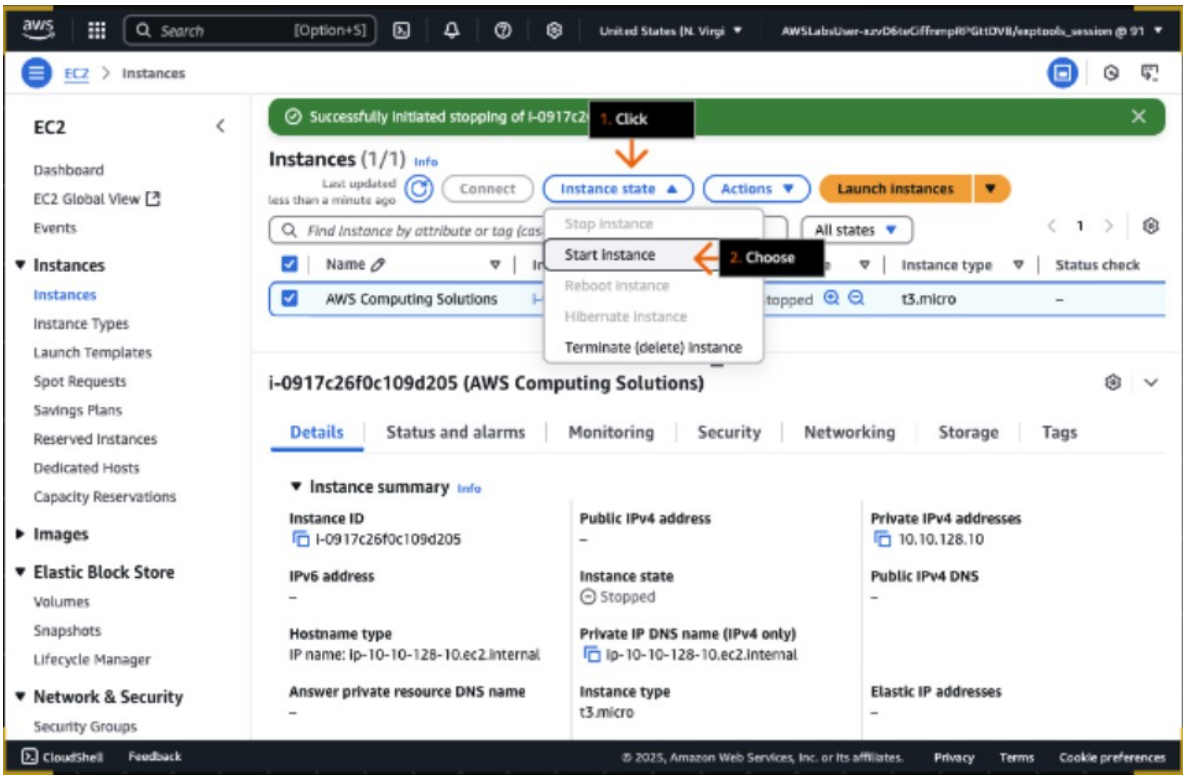
- In the success alert, review the message.
- After the instance state changes to Stopped, on the Details tab, review the Public IPv4 address and Public IPv4 DNS.
    - Both should be empty. You might need to wait 1–2 minutes and click the Instances section refresh icon.



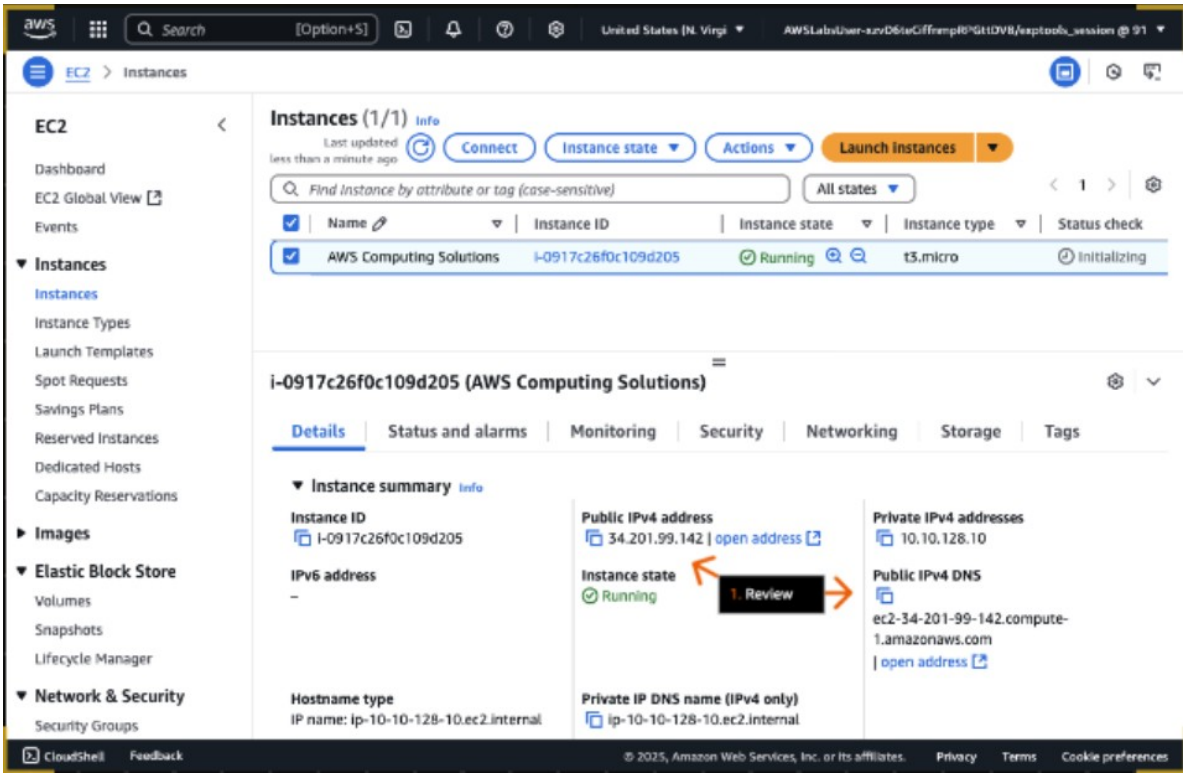
- Click Actions to expand the dropdown list.
- Choose Instance settings.
- Review the available options.
    - You can change your instance with different options, such as type, termination protection, and shutdown behavior.



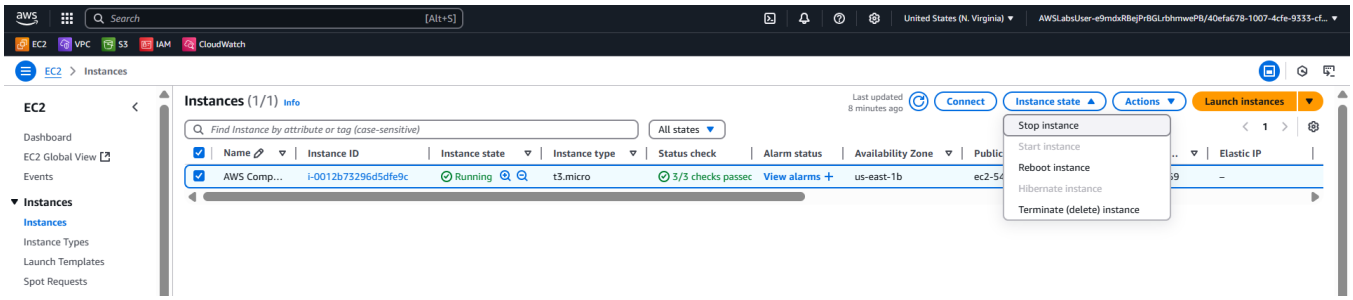
- Click Instance state to expand the dropdown list.
- Choose Start instance.



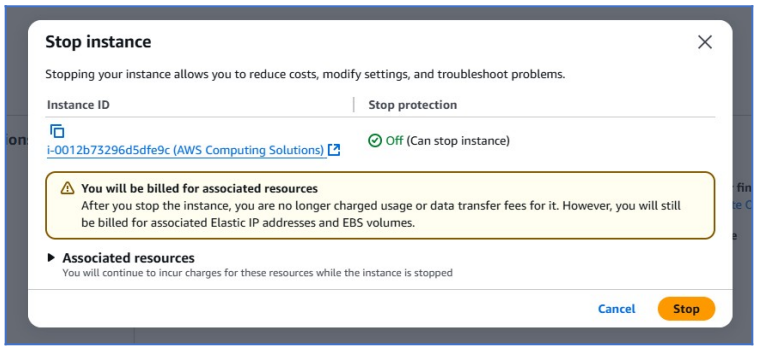
- After the instance state changes to Running, on the Details tab, review the instance details.
    - Note that the public IPv4 address and DNS are now populated.



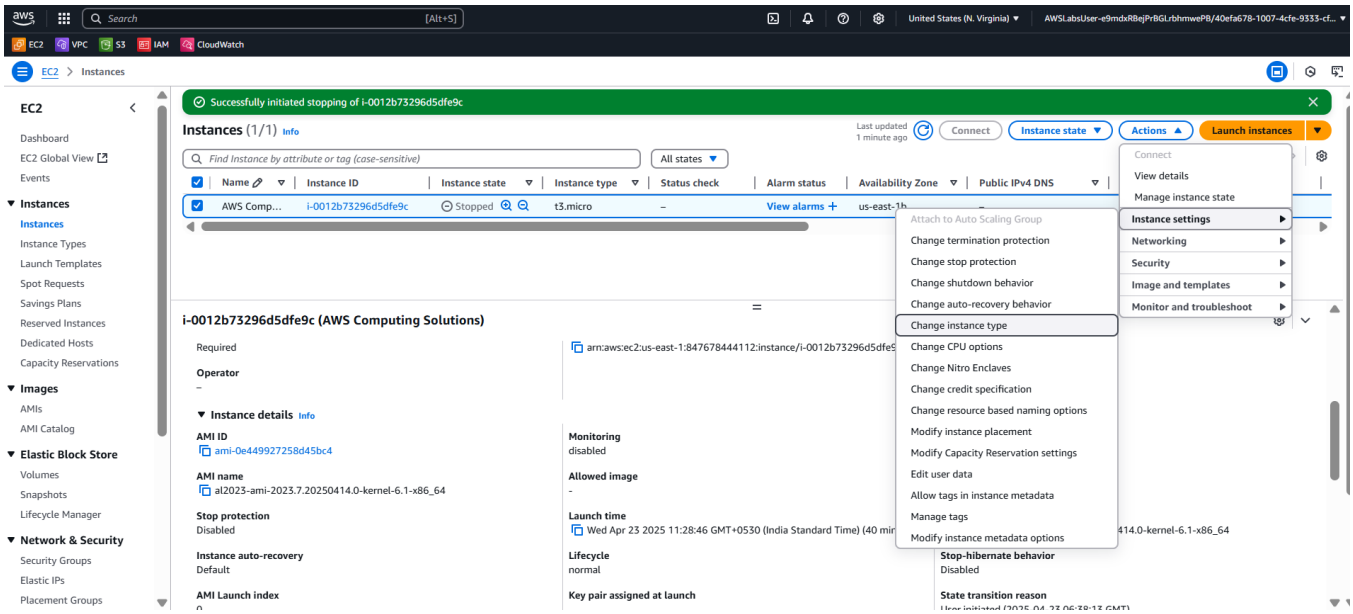
- In the left navigation pane, click Instances.
- In the Instances section, click Instance state to expand the dropdown list.
- Choose Stop instance.
    - If the Stop instance option is not available, make sure the AWS Computing Solutions instance is selected.

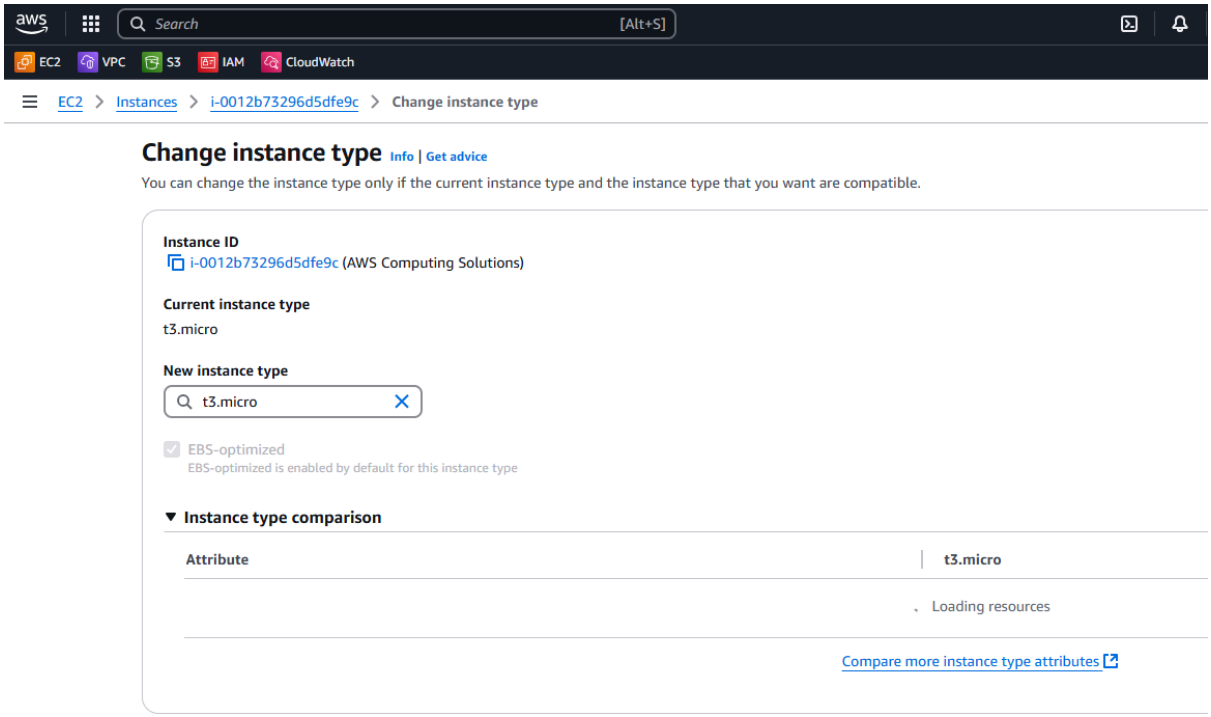


- In the pop-up box, click Stop.

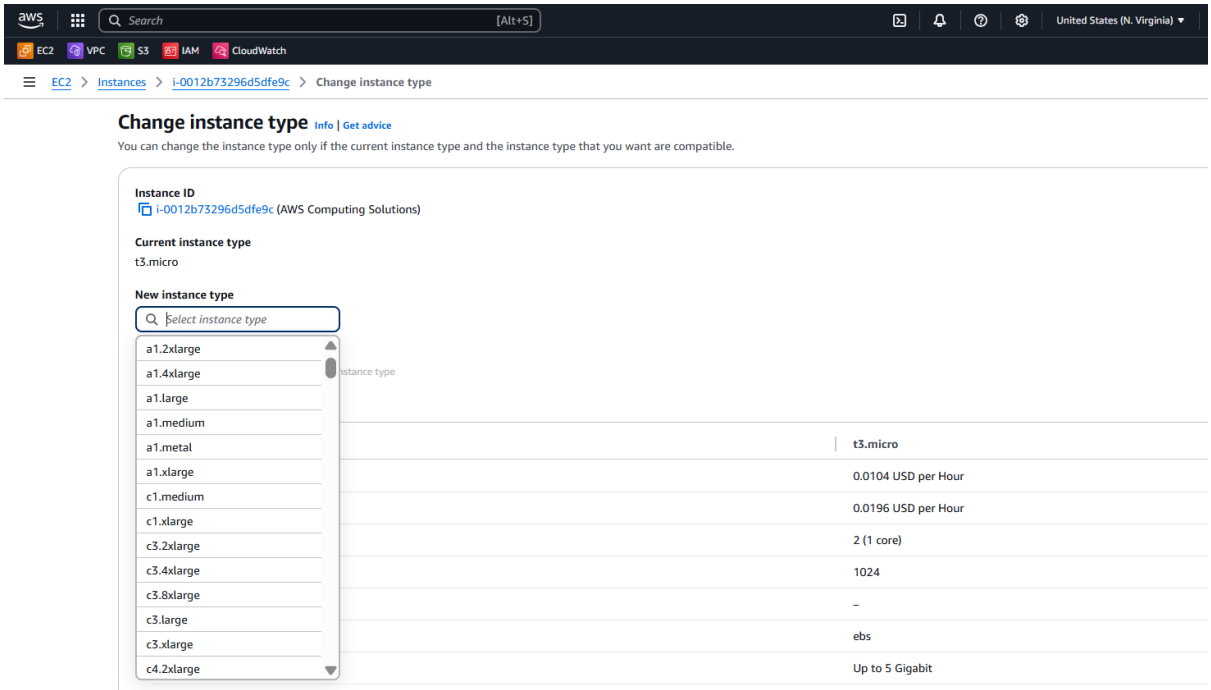


- Now Click Actions to expand the dropdown list.
- Choose Instance settings.
- Select change instance type

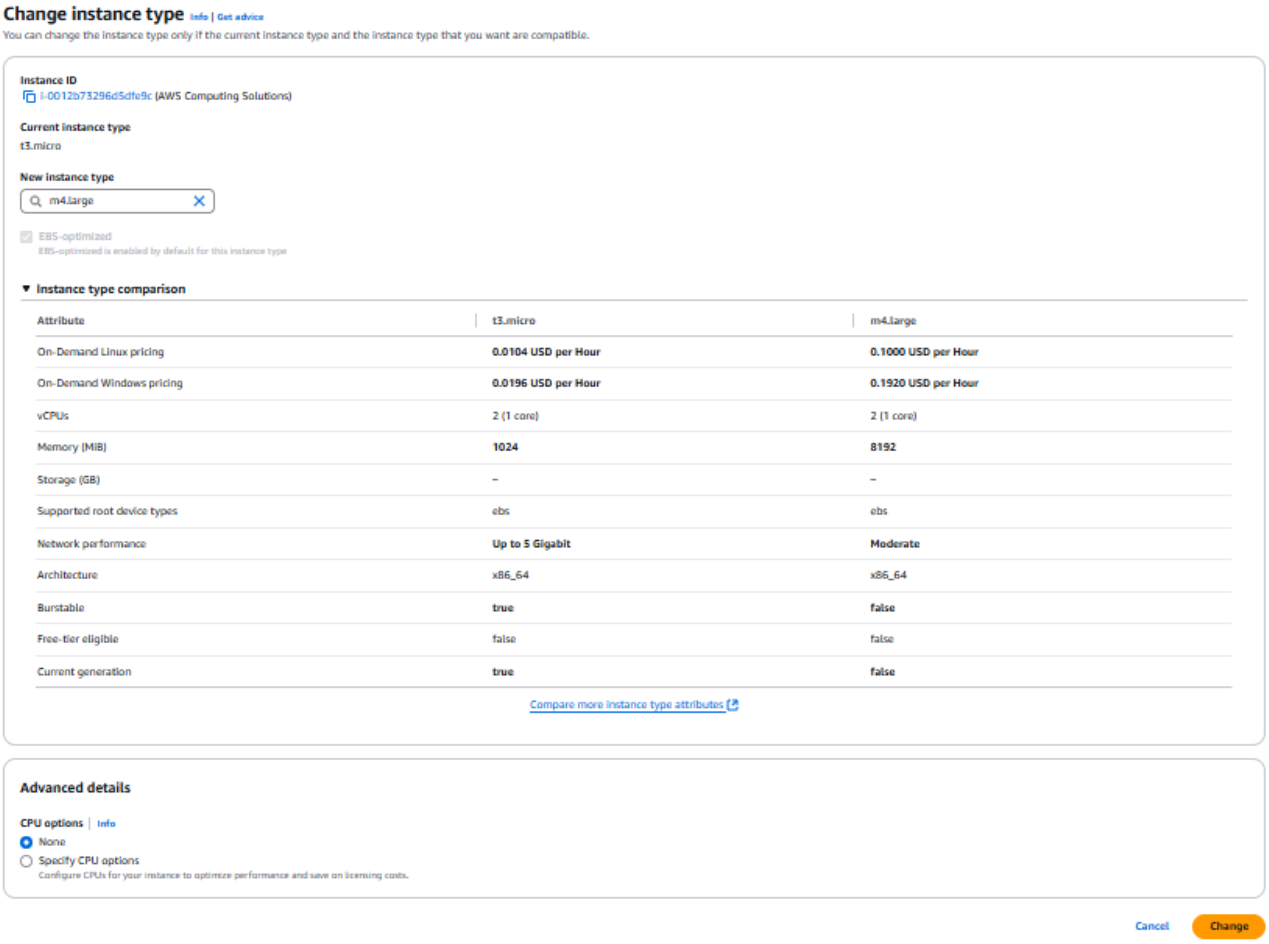




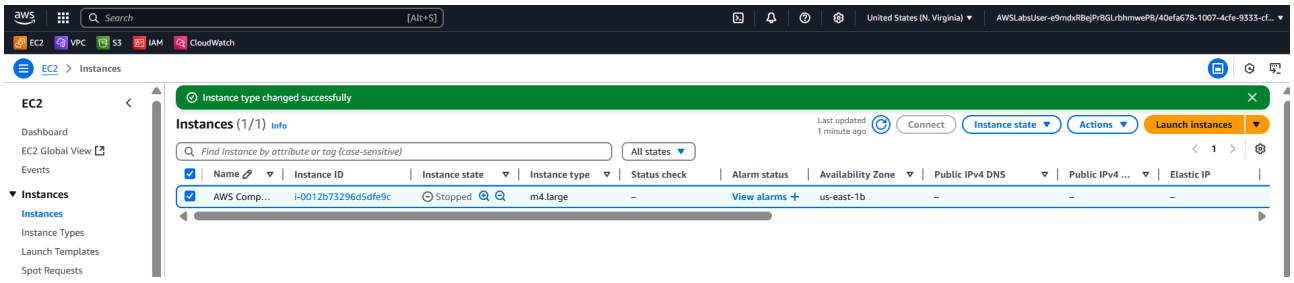
- Deselect **t3.micro**



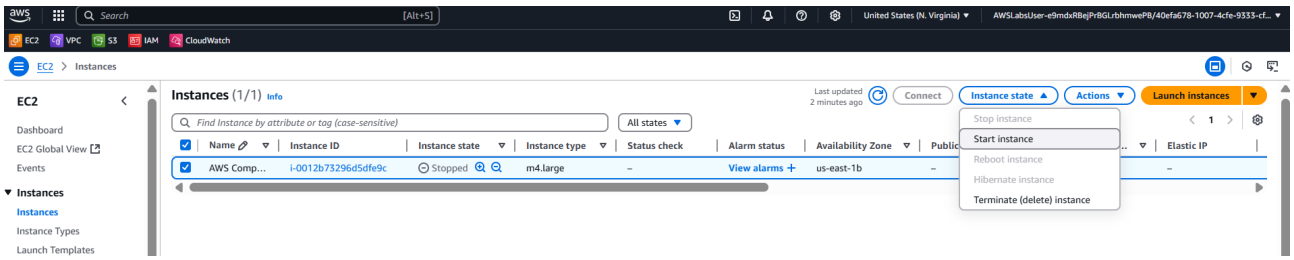
- Enter `m4.large` into the search or type field.
- Choose `m4.large` from the displayed options.
- Confirm the change by clicking the **Change** button at the bottom of the configuration section.



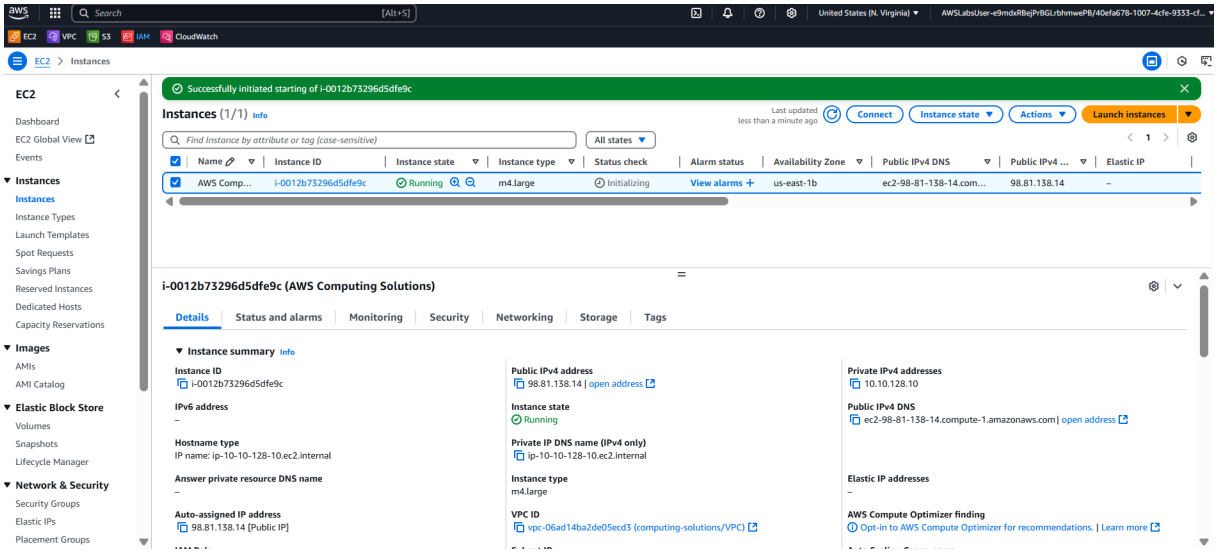
- A success message, such as "Instance type changed successfully," will be displayed



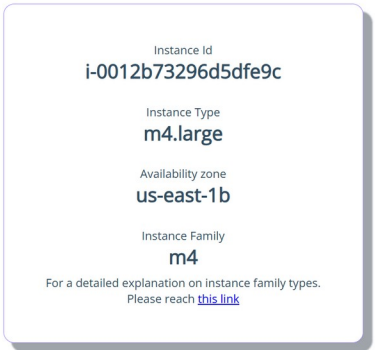
- In the list of your EC2 instances, select the instance you want to start by checking the box next to its name.
- Locate and click the **Instance state** button (or dropdown menu).
- From the available options under **Instance state**, choose **Start instance**.



- You will see a message indicating that the instance has been successfully initiated, typically displaying the instance ID.
- Allow a few minutes for the instance to start up.
- Monitor the instance state in the EC2 console; it will transition from `pending` to `running`.
- Verify that the instance is in the `running` state and displays the updated instance type as `m4.large`.



- From the EC2 console, copy the **Public IPv4 address** of your running instance.
- Open a new tab in your web browser.
- Paste the copied Public IPv4 address into the browser's address bar and press Enter.
- The web page hosted on your EC2 instance will load. Examine the content displayed on the webpage to see the instance details.
- Verify that the instance information presented on the webpage confirms the type has been successfully changed to `m4.large`.



Conclusion:

You have successfully achieved all the listed objectives, gaining practical experience in exploring, managing, and resizing Amazon EC2 instances.