

Step 1: create an AMI, give it a name and description

The screenshot displays two browser windows side-by-side. The left window is the 'ACFv2EN-55083' lab interface, showing steps for creating an AMI. The right window is the AWS Cloud Console's 'Instances' page for the 'us-east-1' region. On the Instances page, a single instance named 'Web Server 1' (with ID i-0f2a04a599042cd78) is selected. A context menu is open over this instance, with the 'Create image' option highlighted. Below the Instances page, a detailed view of the selected instance is shown, including its public and private IP addresses and monitoring status. The bottom of the screen shows a Windows taskbar with various pinned icons.

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Lab 6 - Scale & Load Balance your Architecture

choose refresh to update the status.
You will now create an AMI based upon this instance.

8. Select Web Server 1.

9. In the **Actions** menu, choose **Image and templates** > **Create image**, then configure:

- Image name:** webServerAMI
- Image description:** Lab AMI for Web Server

10. Choose **Create image**

A confirmation banner displays the **AMI ID** for your new AMI.

Instances (1/2) Info

Instance: i-0f2a04a599042cd78 (Web Server 1)

Create Image

Instance ID: i-0f2a04a599042cd78 (Web Server 1)

Image name: webServerAMI

Image description - optional: Lab AMI for Web Server

No reboot: Enable

Instance volumes:

Storage type	Device	Snapshot	Size	Volume type	IOPS	Through
EBS	/dev...	Create new snapshot fr...	8	EBS General Purpose S...	3000	

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Lab 6 - Scale & Load Balance your Architecture

Details AWS Start Lab End Lab 1:54 Instructions

Actions Files README Terminal Source EN-US

8. Select Web Server 1.

9. In the Actions menu, choose Image and templates > Create image, then configure:

- Image name: WebServerAMI
- Image description: Lab AMI for web Server

10. Choose **Create image**

A confirmation banner displays the AMI ID for your new AMI.

Instances (2) Info Connect Instance state Actions Launch instances

Bastion Host i-0615d6422f10ea25 Running 2/2 checks pass

Web Server 1 i-0f2a04a599042cd78 Running 2/2 checks pass

Select an instance

Step 2: Create a target group

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Lab 6 - Scale & Load Balance your Architecture

Details AWS Start Lab End Lab 1:52 Instructions

Actions Files README Terminal Source EN-US

○ Target group name, enter: LabGroup

○ Select Lab VPC from the VPC drop-down menu.

12. Choose **Next**. The Register targets screen appears.

Note: Targets are the individual instances that will respond to requests from the Load Balancer.

You do not have any web application instances

Step 1 Specify group details

Step 2 Register targets

Specify group details

Your load balancer routes requests to the targets in a target group and performs health checks on the targets.

Basic configuration

Settings in this section can't be changed after the target group is created.

Choose a target type

Instances

- Supports load balancing to instances within a specific VPC.
- Facilitates the use of Amazon EC2 Auto Scaling to manage and scale your EC2 capacity.

IP addresses

- Supports load balancing to VPC and on-premises resources.
- Facilitates routing to multiple IP addresses and network interfaces on the same instance.
- Flexibility with microservice based architectures, simplifying inter-application communication.
- Supports IPv6 targets, enabling end-to-end IPv6 communication, and IPv4-to-IPv6 NAT.

Lambda function

- Facilitates routing to a single Lambda function.
- Accessible to Application Load Balancers only.

Application Load Balancer

- Offers the flexibility for a Network Load Balancer to accept and route TCP requests within a

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Lab 6 - Scale & Load Balance your Architecture

Details AWS Start Lab End Lab 1:52 Instructions

Actions Files README Terminal Source EN-US

12. Choose **Next**. The **Register targets** screen appears.

Note: *Targets* are the individual instances that will respond to requests from the Load Balancer.

You do not have any web application instances

Step 1 Create target group | EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us... N. Virgi vodabs/user2753115-104219428@student.swin.edu.au @ 4

Services Search [Alt+S] N. Virgi vodabs/user2753115-104219428@student.swin.edu.au @ 4

Target group name: LabGroup

Protocol: HTTP Port: 80

IP address type: IPv4

VPC: Lab VPC: vpc-0d178a175c8028e8

Protocol version: HTTP1

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2.1: Since we don't have web applications yet we can just skip register the target

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Lab 6 - Scale & Load Balance your Architecture

Details AWS Start Lab End Lab 1:51 Instructions

Actions Files README Terminal Source EN-US

12. Choose **Next**. The **Register targets** screen appears.

Note: *Targets* are the individual instances that will respond to requests from the Load Balancer.

You do not have any web application instances yet, so you can skip this step.

13. Review the settings and choose **Create target group**

Step 2 Create target group | EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us... N. Virgi vodabs/user2753115-104219428@student.swin.edu.au @ 4

EC2 > Target groups > Create target group

Step 1 Specify group details

Step 2 Register targets

Available instances (2)

Instance ID	Name	State
i-0615d6422f10eae25	Bastion Host	Running
i-0f2a04a599042cd78	Web Server 1	Running

Selected

Ports for the selected instances: Ports for routing traffic to the selected instances. 80, 1-65535 (separate multiple ports with commas).

Include as pending below

Review targets

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The screenshot shows two browser windows side-by-side. The left window is titled 'ACFv2EN-55083' and 'Lab 6 - Scale & Load Balance your Architecture'. It contains instructions for creating a target group, specifically step 15 which says 'At the top of the screen, choose **Create load balancer**'. The right window is titled 'Target groups | EC2 | us-east-1' and shows the AWS EC2 Target groups console. A success message at the top says 'Successfully created target group: LabGroup'. The main table lists one target group: 'LabGroup' with ARN 'arn:aws:elasticloadbalancing:us-east-1:123456789012:targetgroup/LabGroup/80'. The status is 'HTTP'.

Step 3: Create Application Load Balancer

The screenshot shows two browser windows side-by-side. The left window is titled 'ACFv2EN-55083' and 'Lab 6 - Scale & Load Balance your Architecture'. It contains steps for creating an application load balancer, including '19. In the Security groups section:' which instructs to choose 'Web Security Group' from the dropdown menu, and '20. For the Listener HTTP:80 row, set the Default action to forward to LabGroup'. The right window is titled 'Create application load balancer' and shows the AWS EC2 Create Application Load Balancer wizard. The 'Basic configuration' step is visible, where the 'Load balancer name' is set to 'LabELB'. Other settings include 'Scheme: Internet-facing' (selected), 'IP address type: IPv4' (selected), and 'Default actions' which map the 'HTTP:80' listener to the 'LabGroup' target group.

19. In the **Security groups** section:

- Choose the Security groups drop down menu and select **Web Security Group**
- Below the drop down menu, choose the X next to the default security group to remove it.

The **Web Security Group** security group should now be the only one that appears.

20. For the Listener HTTP:80 row, set the Default action to forward to **LabGroup**.

19. In the **Security groups** section:

- Choose the Security groups drop down menu and select **Web Security Group**
- Below the drop down menu, choose the X next to the default security group to remove it.

The **Web Security Group** security group should now be the only one that appears.

20. For the Listener HTTP:80 row, set the Default action to forward to **LabGroup**.

The screenshot shows two windows side-by-side. On the left is the 'Lab 6 - Scale' interface from awsacademy.instructure.com, showing step 19 of a lab. Step 19 instructs the user to choose the 'Web Security Group' from the security group dropdown menu. Below this, step 20 says to set the default action for the 'HTTP:80' listener to forward to 'LabGroup'. At the bottom of the lab interface, there are 'Previous' and 'Next' buttons. On the right is the AWS Management Console showing the successful creation of a load balancer named 'LabELB'. The console also displays a 'Create Application Load Balancer' page with a 'View load balancer' button.

This screenshot shows the same two windows as the previous one. The lab interface now shows step 20 completed, indicating that the 'Web Security Group' is the only one appearing. Step 21 is visible, which is to scroll to the bottom and choose 'Create load balancer'. The AWS Management Console window shows the 'Load balancers' list, where a single entry for 'LabELB' is listed under the 'Name' column. The status of the load balancer is 'Provisioning'.

Step 4: Create A launch template for your EC2

The screenshot shows a split-screen view. On the left, a browser tab for 'Lab 6 - Scale' displays a step-by-step guide with the following steps:

- Scroll down to the **Advanced details** area and expand it.
- Scroll down to the **Detailed CloudWatch monitoring** setting. Select **Enable**. Note: This will allow Auto Scaling to react quickly to changing utilization.
- Choose **Create launch template**. Next, you will create an Auto Scaling group that uses this launch template.

On the right, a browser tab for 'Create launch template | EC2' shows the AWS console interface. The 'Launch template name and description' section contains:

- Launch template name - required: LabConfig
- Template version description: A prod webserver for MyApp
- Auto Scaling guidance: Info (checkbox checked)
- Provide guidance to help me set up a template that I can use with EC2 Auto Scaling (checkbox checked)

The 'Launch template contents' section is collapsed. The 'Application and OS Images (Amazon Machine Image) - required' section is expanded, showing a search bar and a list of AMIs. One entry is selected: 'webServerAMI' (ami-021fec174d7786eff). The 'Description' section below it states: 'Lab AMI for Web Server'. The 'Architecture' is listed as 'x86_64' and the 'AMI ID' is 'ami-021fec174d7786eff'. The 'Instance type' section is also visible.

The screenshot shows a split-screen view. The left window remains the same as the previous screenshot, displaying the lab guide with the same three steps for creating a launch template.

The right window shows the 'Create launch template' wizard on the AWS console. The 'Application and OS Images (Amazon Machine Image) - required' section is expanded, showing the selected AMI 'webServerAMI' (ami-021fec174d7786eff). The 'Description' section below it states: 'Lab AMI for Web Server'. The 'Architecture' is listed as 'x86_64' and the 'AMI ID' is 'ami-021fec174d7786eff'. The 'Instance type' section is also visible at the bottom of the expanded section.

Details AWS Start Lab End Lab 1:40 Instructions

EN-US

- Scroll down to the **Advanced details** area and expand it.
- Scroll down to the **Detailed CloudWatch monitoring** setting. Select **Enable**
Note: This will allow Auto Scaling to react quickly to changing utilization.
- Choose **Create launch template**

Next, you will create an Auto Scaling group that uses this launch template.

◀ Previous Next ▶

Create launch template | EC2 | us-east-1.console.aws.amazon.com/ec2/home?region=us... Services Search [Alt+S] N. Virgi vodlabs/user2753115-104219428@student.swin.edu.au @ 4

Instance type Info Advanced

Instance type
t2.micro
Family: t2 1 vCPU 1 GiB Memory Current generation: true Free tier eligible
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand RHEL base pricing: 0.0116 USD per Hour
On-Demand Linux base pricing: 0.0116 USD per Hour

All generations Compare instance types

Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name
rockey

Network settings Info

Subnet info
Don't include in launch template

Firewall (security groups) Info

Select existing security group Create security group

Security groups info
Select security group
Web Security Group sg-0x2d145a5e4573b4e

Advanced network configuration

Storage (volumes) Info

EBS Volumes Hide details

Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp3))
AMI Volumes are not included in the template unless modified

Add new volume

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Details AWS Start Lab End Lab 1:40 Instructions

EN-US

- Scroll down to the **Advanced details** area and expand it.
- Scroll down to the **Detailed CloudWatch monitoring** setting. Select **Enable**
Note: This will allow Auto Scaling to react quickly to changing utilization.
- Choose **Create launch template**

Next, you will create an Auto Scaling group that uses this launch template.

◀ Previous Next ▶

Create launch template | EC2 | us-east-1.console.aws.amazon.com/ec2/home?region=us... Services Search [Alt+S] N. Virgi vodlabs/user2753115-104219428@student.swin.edu.au @ 4

Network settings Info

Subnet info
Don't include in launch template

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Select existing security group Create security group

Security groups info
Select security group
Web Security Group sg-0x2d145a5e4573b4e

Advanced network configuration

Storage (volumes) Info

EBS Volumes Hide details

Volume 1 (AMI Root) (8 GiB, EBS, General purpose SSD (gp3))
AMI Volumes are not included in the template unless modified

Add new volume

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The screenshot shows two windows side-by-side. On the left is a browser window titled 'Lab 6 - Scale' from 'awsacademy.instructure.com'. It displays a list of steps for creating a launch template, including instructions to scroll down to the 'Advanced details' area, enable CloudWatch monitoring, and choose 'Create launch template'. On the right is the AWS Management Console 'Create launch template' wizard. The 'Detailed CloudWatch monitoring' section is open, showing the 'Enable' option selected. A note at the bottom states: 'Amazon Elastic Inference is no longer available to new customers. For new and existing customers, we recommend using an alternative, such as AWS Inferentia, which offers better performance at a lower cost.' The status bar at the bottom of the screen shows the date and time as 10/21/2023 and 11:28 AM.

This screenshot shows the same two windows as the previous one. The left window now includes step 25, which instructs the user to choose the 'LabConfig' launch template in the success dialog. The right window shows the success message: 'Successfully created LabConfig(lt-0b8e93c4729cf76).'. Below this, there are sections for 'Actions log', 'Next steps', 'Launch an instance', 'Launch instance from this template', 'Create an Auto Scaling group from your template', 'Create Auto Scaling group', 'Create Spot Fleet', and 'Create Spot Fleet'. The status bar at the bottom of the screen shows the date and time as 10/21/2023 and 11:28 AM.

Step 5: Create Auto Scaling group in the LabConfig script

The screenshot shows two windows side-by-side. The left window is a browser tab titled 'Lab 6 - Scale' from 'awsacademy.instructure.com'. It displays step-by-step instructions for creating an Auto Scaling group:

25. In the Success dialog, choose the **LabConfig** launch template.
26. From the **Actions** menu, choose *Create Auto Scaling group*.
27. Configure the details in Step 1 (Choose launch template or configuration):
 - Auto Scaling group name: **Lab Auto**

The right window is a browser tab titled 'EC2 | us-east-1' from 'us-east-1.console.aws.amazon.com'. It shows the 'Launch templates' page for a launch template named 'LabConfig (lt-0b8e9c9c4729cf76)'. The 'Actions' dropdown menu is open, and the option 'Create Auto Scaling group' is highlighted with a blue border. The 'Details' tab is selected, showing the following information:

Version	Description	Date created	Created by
1 (Default)	-	2023-10-21T04:28:23.000Z	arn:aws:sts::446881193437:assumed-role/vocabs/user2753113-104219428@student.swin.edu.au

At the bottom of the screen, the taskbar shows various application icons, and the system tray indicates the date and time as 10/21/2023 at 11:29 AM.

Create Auto Scaling group | EC2

us-east-1.console.aws.amazon.com/ec2/home?region=us... N. Virgi... vclabs/user2753113=104219428@student.swin.edu.au @ 4

EC2 > Auto Scaling groups > Create Auto Scaling group

Step 1
Choose launch template or configuration

Step 2
Choose instance launch options

Step 3 - optional
Configure advanced options

Step 4 - optional
Configure group size and scaling policies

Step 5 - optional
Add notifications

Step 6 - optional
Add tags

Step 7
Review

Choose instance launch options Info

Choose the VPC network environment that your instances are launched into, and customize the instance types and purchase options.

Instance type requirements Info

You can keep the same instance attributes or instance type from your launch template, or you can choose to override the launch template by specifying different instance attributes or manually adding instance types.

Override launch template

Launch template	Version
LabConfig <small>Link</small>	Default
lt-0b8e9c9c4729cf76	
Description	Instance type
-	t2.micro

Network Info

For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC

Choose the VPC that defines the virtual network for your Auto Scaling group.

vpc-0d178aa7f3c8028e8 (Lab VPC) ▼ ⟳

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11:31 AM 10/21/2023 1

The screenshot shows the AWS EC2 Auto Scaling group creation wizard at step 2. The left sidebar lists steps 1 through 7. Step 2 is currently active, titled "Choose instance launch options". The main content area shows "Instance type requirements" where it's noted that the "LabConfig" launch template is being used, resulting in a "t2.micro" instance type. Below this, the "Network" section indicates the "vpc-0d178aa7f3c8028e8 (Lab VPC)" is selected. At the bottom, there's a "Review" section which is currently empty. The browser address bar shows the URL for the AWS EC2 console, and the status bar at the bottom right shows the date and time as 10/21/2023 at 11:31 AM.

28. Configure the details in Step 2 (Choose instance launch options):

- **VPC:** choose *Lab VPC*
- **Availability Zones and subnets:** Choose *Private Subnet 1* and then choose *Private Subnet 2*.
- Choose **Next**

▪ **Existing load balancer target groups:** select *LabGroup*.

- In the **Additional settings** pane:
 - Select **Enable group metrics collection within CloudWatch**
This will capture metrics at 1-minute intervals, which allows Auto Scaling to react quickly to changing usage patterns.
- Choose **Next**

The screenshot shows a dual-browser setup. On the left, a browser window displays a lab interface from awsacademy.instructure.com, specifically for 'Lab 6 - Scale'. It includes tabs for 'Details', 'AWS', 'Start Lab', 'End Lab', and 'Instructions'. The main content area shows a list of steps:

- Existing load balancer target groups: select **LabGroup**.
- In the Additional settings pane:
 - Select Enable group metrics collection within CloudWatchThis will capture metrics at 1-minute intervals, which allows Auto Scaling to react quickly to changing usage patterns.
- Choose **Next**

At the bottom of this window are 'Previous' and 'Next' buttons. On the right, another browser window shows the 'Create Auto Scaling group | EC2' wizard. The 'Target groups' step is visible, with options for 'Choose from your load balancer target groups' (selected) and 'Choose from Classic Load Balancers'. A dropdown menu shows 'Select target groups' with 'LabGroup | HTTP Application Load Balancer: LabELB' selected. Below this, sections for 'VPC Lattice integration options' and 'Health checks' are shown, along with 'Additional settings' at the bottom.

The screenshot shows a dual-browser setup, similar to the one above. The left window is the same lab interface from awsacademy.instructure.com. The right window is the 'Create Auto Scaling group | EC2' wizard, specifically the 'Additional settings' step. The 'Monitoring' section is expanded, showing the 'Enable group metrics collection within CloudWatch' checkbox is selected. Other settings like 'Default instance warmup' and 'Health check grace period' are also visible. At the bottom of the wizard, there are 'Cancel', 'Skip to review', 'Previous', and 'Next' buttons. The status bar at the bottom of the screen shows the date and time as 10/21/2023 and 11:33 AM.

The screenshot shows two windows side-by-side. On the left is a web browser window titled 'Lab 6 - Scale' from 'awsacademy.instructure.com'. It displays a step-by-step guide for creating an Auto Scaling group. Step 31 instructs to 'Configure the details in Step 5 (Add notifications - optional)'. Step 32 instructs to 'Configure the details in Step 6 (Add tags - optional)'. Step 32 has a 'Next' button highlighted. On the right is the 'Create Auto Scaling group' wizard in the AWS Management Console. It's on Step 3: 'Configure group size and scaling policies'. Under 'Group size - optional', the 'Desired capacity' is set to 2, 'Minimum capacity' is set to 2, and 'Maximum capacity' is set to 6. Under 'Scaling policies - optional', the 'Target tracking scaling policy' is selected, and a scaling policy named 'LabScalingPolicy' is configured with an average CPU utilization target of 50% over 300 seconds.

This screenshot shows the continuation of the lab guide and the AWS wizard. The lab guide on the left remains the same, with steps 31 and 32 and their respective 'Next' buttons highlighted. The AWS wizard on the right has moved to Step 4: 'Configure group size and scaling policies'. The 'Scaling policies - optional' section is now visible, showing the configuration for the 'Target tracking scaling policy'.

The screenshot shows a split-screen view. On the left is a browser window titled "Lab 6 - Scale" containing a lab guide for creating an Auto Scaling group. On the right is the "Create Auto Scaling group" wizard in the AWS Management Console.

Lab Guide (Left):

- Step 31: Configure the details in Step 5 (Add notifications - optional):
Auto Scaling can send a notification when a scaling event takes place. You will use the default settings.
 - Choose **Next**.
- Step 32: Configure the details in Step 6 (Add tags - optional):
Tags applied to the Auto Scaling group will be automatically propagated to the instances that are launched.
 - Choose **Add tag** and Configure the following:
 - Key:** Name
 - Value:** Lab Instance
 - Choose **Next**.

AWS Wizard (Right):

Step 5 - optional: Add notifications

Step 6 - optional: Add tags

Step 7: Review

The screenshot shows a split-screen view. On the left is a browser window titled "Lab 6 - Scale" containing a lab guide for creating an Auto Scaling group. On the right is the "Create Auto Scaling group" wizard in the AWS Management Console.

Lab Guide (Left):

- Step 33: Configure the details in Step 6 (Review):

AWS Wizard (Right):

Step 6 - optional: Add tags

Tags (1):

Key	Value - optional
Name	Lab Instance

Tag new instances

Add tag

49 remaining

Cancel Previous **Next**

The screenshot shows two windows side-by-side. On the left is the 'Lab 6 - Scale' interface from AWS Academy, which includes tabs for 'Details', 'AWS', 'Start Lab', 'End Lab', '1:30', and 'Instructions'. It displays a list of actions, one of which is highlighted: 'Choose **Next**'. Below this is a note: '33. Configure the details in Step 6 (Review):' followed by two bullet points: 'Review the details of your Auto Scaling group' and 'Choose **Create Auto Scaling group**'. A note below states: 'Your Auto Scaling group will initially show an instance count of zero, but new instances will be launched to reach the **Desired** count of 2 instances.' At the bottom are 'Previous' and 'Next' buttons.

On the right is the 'Create Auto Scaling group | EC2' wizard. The first step, 'Step 1: Choose launch template or configuration', is shown. It lists 'Group details' with the name 'Lab Auto Scaling Group' and 'Launch template' set to 'LabConfig'. The second step, 'Step 2: Choose instance launch options', is shown. It includes sections for 'Network' (VPC: vpc-0d178aa7f3c8028e8) and 'Instance type requirements' (Availability Zone: us-east-1a, Subnet: subnet-023a3ae1c934429be; us-east-1b, Subnet: subnet-0cf5d4d6467af6216).

This screenshot shows the continuation of the configuration process. The left window remains the same, displaying the 'Create Auto Scaling group' wizard. The second step, 'Step 2: Choose instance launch options', is now fully visible. It shows the network settings and instance type requirements. The third step, 'Step 3: Configure advanced options', is partially visible at the bottom.

The screenshot shows two windows side-by-side. On the left is a browser window titled 'Lab 6 - Scale' from 'awsacademy.instructure.com'. It displays a step-by-step guide for creating an Auto Scaling group. Step 33, 'Configure the details in Step 6 (Review)', includes instructions to review the Auto Scaling group details and choose 'Create Auto Scaling group'. A note states that the group will initially show an instance count of zero but will reach a desired count of 2 instances. On the right is the 'Create Auto Scaling group | EC2' wizard in the AWS CloudFormation console. It is on 'Step 3: Configure advanced options'. Under 'Load balancing', it shows a 'Load balancer 1' named 'LabELB' of type 'Application/HTTP' targeting 'LabGroup'. Other sections like 'VPC Lattice integration options', 'Health checks', and 'Additional settings' are also visible.

This screenshot is similar to the one above, showing the same lab guide and the 'Create Auto Scaling group | EC2' wizard. However, the wizard has progressed to 'Step 4: Configure group size and scaling policies'. In the 'Group size' section, the 'Desired capacity' is set to 2 and the 'Minimum capacity' is set to 2. In the 'Scaling policy' section, a 'Target tracking scaling' policy is configured with a target CPU utilization of 60% and a warm-up period of 300 seconds. The 'Instances need' field indicates 300 seconds to warm up before including in metric. The 'Scale in' option is enabled.

The screenshot shows two windows side-by-side. On the left is the 'Lab 6 - Scale' interface from awsacademy.instructure.com. It displays a step-by-step guide for creating an Auto Scaling group. Step 33, 'Configure the details in Step 6 (Review)', includes instructions to review the details of the Auto Scaling group and choose 'Create Auto Scaling group'. A note states that the group will initially show an instance count of zero but will launch new instances to reach a desired count of 2 instances. Navigation buttons for 'Previous' and 'Next' are visible at the bottom. On the right is the 'Create Auto Scaling group | EC2' wizard in the AWS Cloud console. It shows the configuration steps: Step 5: Add notifications (with 'Notifications' section), Step 6: Add tags (with 'Tags (1)' table), and a summary step. The 'Create Auto Scaling group' button is highlighted in both windows.

This screenshot shows the same setup as the previous one, but the AWS Cloud console window now displays the successful creation of the 'Lab Auto Scaling Group'. The message '1 Scaling policy created successfully. Group metrics collection is enabled.' is shown. The 'Auto Scaling groups (1) Info' table lists the group's name, launch template, version, and status. The 'Lab Auto Scaling Group' row shows 'LabConfig | Version Default' and '0 Instances'. The 'Status' column indicates 'Updating capacity...'. The AWS Academy interface on the left remains the same, showing the 'Create Auto Scaling group' step.

The screenshot shows two windows side-by-side. On the left is a browser window for 'Lab 6 - Scale' at awsacademy.instructure.com/courses/104219428. It displays a task titled 'Task 4: Verify that Load' with instructions about creating an Auto Scaling group. On the right is the AWS Management Console showing the 'Auto Scaling groups' page under the EC2 service. It lists one scaling group named 'Lab Auto Scaling Group' with a status of '2 instances'. The status bar at the bottom indicates it's 11:38 AM on 10/21/2023.

The screenshot shows two windows side-by-side. On the left is a browser window for 'Lab 6 - Scale' at awsacademy.instructure.com/courses/104219428. It displays a task titled '44. In the left navigation pane, choose Instances.' with instructions about verifying load balancing. On the right is the AWS Management Console showing the 'Instances' page under the EC2 service. It lists four instances: 'Bastion Host', 'Web Server 1', and two 'Lab Instance' entries. A message at the top says 'Currently creating AMI ami-021fec174d7786ff from instance i-0f2a04a599042cd78. Check that the AMI status is "Available" before deleting the instance or carrying out other actions related to this AMI.' The status bar at the bottom indicates it's 11:39 AM on 10/21/2023.

The screenshot shows two windows side-by-side. On the left is a browser window titled 'Lab 6 - Scale' with the URL 'awsacademy.instructure.com/c...'. It displays lab instructions for step 49, which says to choose 'Load Balancers' from the left navigation pane. On the right is the AWS Management Console under the EC2 service, specifically the 'Target groups' section. It shows one target group named 'LabGroup' with two registered targets: 'Lab Instance' (ID i-0efff69...) and 'Lab Instance' (ID i-008deed...). Both instances are marked as healthy.

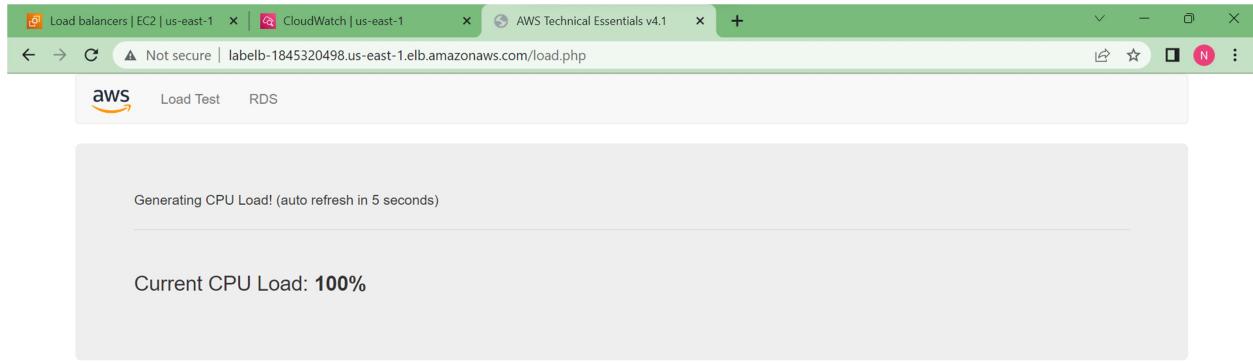
The screenshot shows two windows side-by-side. On the left is a browser window titled 'Lab 6 - Scale' with the URL 'awsacademy.instructure.com/c...'. It displays lab instructions for step 52, which says to open a new web browser tab, paste the DNS name copied earlier, and press Enter. On the right is the AWS Management Console under the EC2 service, specifically the 'Load balancers' section. It shows one load balancer named 'LabELB' with its ARN and state information. Below it is a detailed view of the 'Load balancer: LabELB' configuration, showing the DNS name 'LabELB-1845320498.us-east-1.elb.amazonaws.com' and its associated subnets and AZs. A tooltip indicates that the DNS name has been copied.

The screenshot shows two browser windows side-by-side. The left window is a lab interface from awsacademy.instructure.com, titled 'Lab 6 - Scale'. It displays a terminal session with the command 'curl http://169.254.169.254/latest/meta-data/instance-id', which returns the value 'i-008deed9fdad5b54b'. Below this, it says 'Availability Zone' is 'us-east-1a'. At the bottom, there are 'Previous' and 'Next' navigation buttons. The right window is a browser showing the AWS CloudWatch Metrics dashboard for an EC2 instance. It displays a table with 'Meta-Data' and 'Value' columns, showing 'InstanceId' as 'i-008deed9fdad5b54b' and 'Availability Zone' as 'us-east-1a'. Below the table, a message says 'Current CPU Load: 0%'.

This screenshot shows the same two browser windows as the previous one. The left window now displays steps 53 and 54. Step 53 instructs to search for 'CloudWatch' in the services search bar. Step 54 instructs to choose 'All alarms' from the left navigation pane. The right window shows the AWS CloudWatch Metrics dashboard for an EC2 instance. It features a sidebar with options like Dashboards, Alarms, Logs, Metrics, X-Ray traces, Events, Application monitoring, and Insights. The main area has sections for 'Get started with CloudWatch' (with a note about no alarms or metrics), 'Create a default dashboard', and 'Get started with Application Insights'.

The screenshot shows two windows side-by-side. On the left is a browser tab for 'Lab 6 - Scale' on awsacademy.instructure.com. It displays step 53, which instructs the user to search for 'CloudWatch' in the services menu. Step 54 instructs the user to choose 'All alarms' from the CloudWatch navigation pane. The right window is a screenshot of the AWS CloudWatch console, specifically the 'Alarms' section. It lists two alarms: 'TargetTracking-Lab Auto Scaling Group-AlarmHigh-' and 'TargetTracking-Lab Auto Scaling Group-AlarmLow-'. Both alarms are currently in the 'OK' state.

This screenshot shows the same two windows. The left window now displays step 56, which instructs the user to return to the browser tab with the web application. The right window shows the 'Metrics Insights' section for the 'TargetTracking-Lab Auto Scaling Group-AlarmHigh-' alarm. A graph titled 'CPUUtilization' shows data points over time. A tooltip indicates a value of 13.7011494253 at 2023-10-21 04:39 UTC. The legend at the bottom of the graph indicates four states: 'In alarm' (red), 'OK' (green), 'Insufficient data' (grey), and 'Disabled actions' (blue).



The screenshot shows a Windows desktop with a taskbar at the bottom. Two browser windows are open. The left window is titled 'Lab 6 - Scale' and contains instructions for a lab exercise, mentioning 'AlarmHigh' and steps for scaling. The right window is the AWS CloudWatch Metrics console, showing a graph for 'CPUUtilization' over time. The graph indicates a sharp increase in CPU utilization starting around 02:30, crossing the 60% threshold and triggering an alarm. The status bar at the bottom of the screen shows the date and time as 10/21/2023 and 11:44 AM.

The screenshot shows two windows side-by-side. The left window is a web browser displaying a lab guide for 'Lab 6 - Scale'. It includes sections for 'Actions' (Details, AWS, Start Lab, End Lab, Instructions), 'EN-US' language, and a text area with instructions. The right window is the AWS CloudWatch Alarms console. It shows a list of alarms under the 'CloudWatch' service. There are two alarms listed:

Name	State	Last state update	Conditions
TargetTracking-Lab Auto Scaling Group-AlarmLow-7d048276-760b-4827-b259-8312ebe390b	OK	2023-10-21 04:45:56	CPUUtilization < 54 for 15 datapoints
TargetTracking-Lab Auto Scaling Group-AlarmHigh-745b0cek-1901-4ce1-97da-48f9e2266f4	OK	2023-10-21 04:40:38	CPUUtilization > 60 for 3 datapoints

The status bar at the bottom indicates the date and time as 10/21/2023 and 11:46 AM.

This screenshot is nearly identical to the one above, showing the same lab guide and CloudWatch Alarms console. The difference is in the CloudWatch Alarms list, where the second alarm ('TargetTracking-Lab Auto Scaling Group-AlarmHigh') now has a red warning icon and is labeled 'In alarm'. The status bar at the bottom indicates the date and time as 10/21/2023 and 11:48 AM.

Task 6: Terminate Web Server 1

In this task, you will terminate *Web Server 1*. This instance was used to create the AMI used by your Auto Scaling group, but it is no longer needed.

62. Select **Web Server 1** (and ensure it is the only instance selected).

63. In the **Instance state** menu, choose **Instance State > Terminate Instance**.

64. Choose **Terminate**.

Step 6: Terminate Web Server Instance

instance was used to create the AMI used by your Auto Scaling group, but it is no longer needed.

62. Select **Web Server 1** (and ensure it is the only instance selected).

63. In the **Instance state** menu, choose **Instance State > Terminate Instance**.

64. Choose **Terminate**.

The screenshot shows a split-screen view of a web browser. On the left, the 'Lab 6 - Scale' tab displays a lab interface with instructions for terminating an instance. On the right, the 'Instances | EC2' tab shows the AWS EC2 console with a list of running instances. One instance, 'Web Server 1', is selected and has a status message indicating it is 'Successfully terminated i-0f2a04a599042cd78'. The instance details page is open for this terminated instance.

Details ▾ AWS Start Lab End Lab 1:17 Instructions

Actions ▾

EN-US

only instance selected).

63. In the **Instance state** menu, choose **Instance State > Terminate Instance**.

64. Choose **Terminate**

Lab Complete

Congratulations! You have completed the lab.

◀ Previous Next ▶

Instances | EC2 Alarms | Cloud AWS Technical

Successfully terminated i-0f2a04a599042cd78 Notifications

Instances (1/6) Info

Name Instance ID Instance state Actions Launch instances

Name	Instance ID	Instance state	Actions	Launch instances
Lab Instance	i-0eff69366c9982cb	Running	Stop	2/2 checks pass
Lab Instance	i-0d1c6dc1d18ad36e3	Running	Stop	1 Initializing
Bastion Host	i-0615d6422f10ea25	Running	Stop	2/2 checks pass
Lab Instance	i-0bb58ff8276aa384d8	Running	Stop	1 Initializing
Web Server 1	i-0f2a04a599042cd78	Shutting-down	Stop	2/2 checks pass
Lab Instance	i-08deed9fad5b54b	Running	Stop	2/2 checks pass

Instance: i-0f2a04a599042cd78 (Web Server 1)

Details Security Networking Storage Status checks Monitoring Tags

Instance ID Public IP/IPv4 address Private IP/IPv6 address

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