2 Plan

Practice Lab Goals

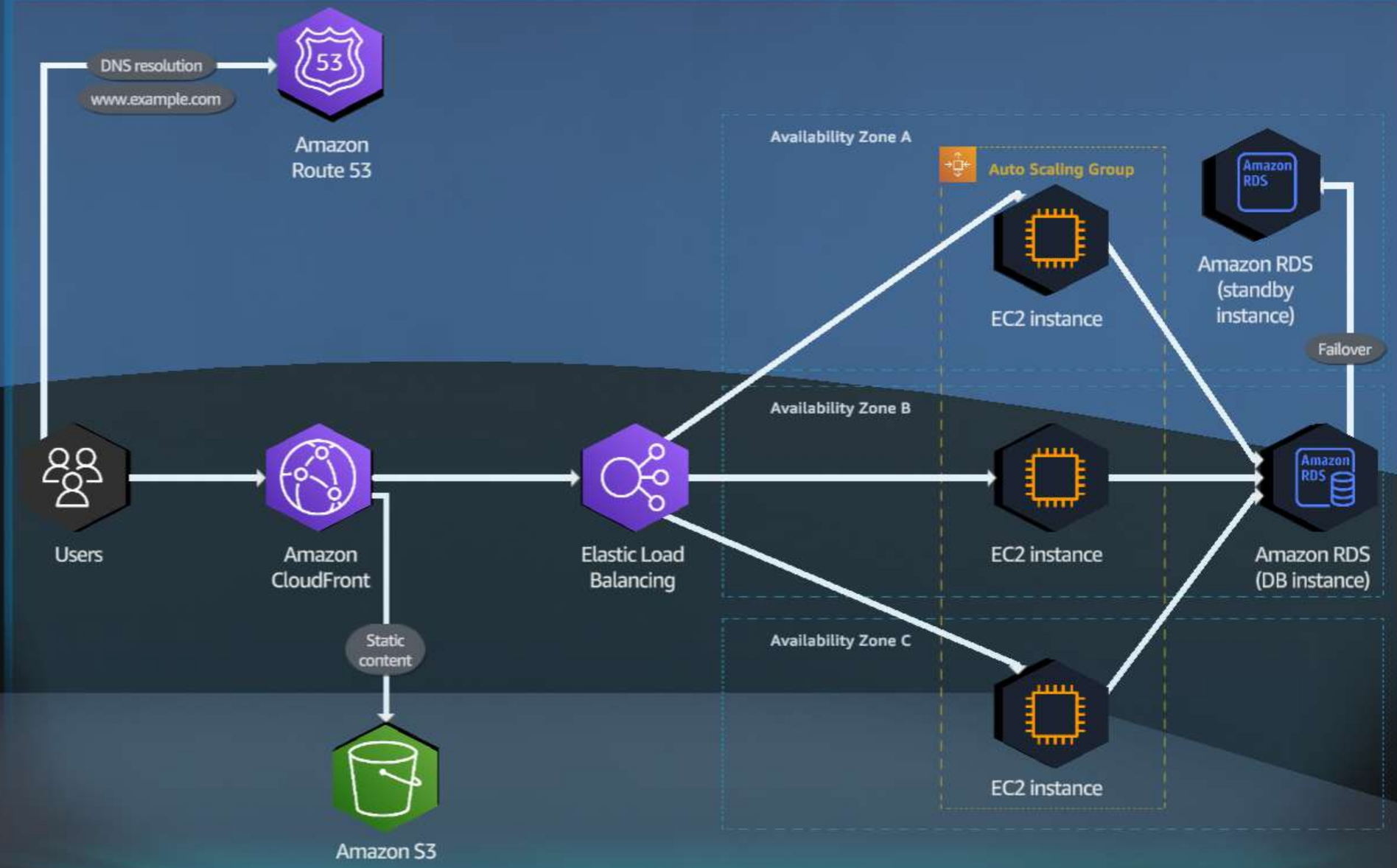
Step-by-step guided learning

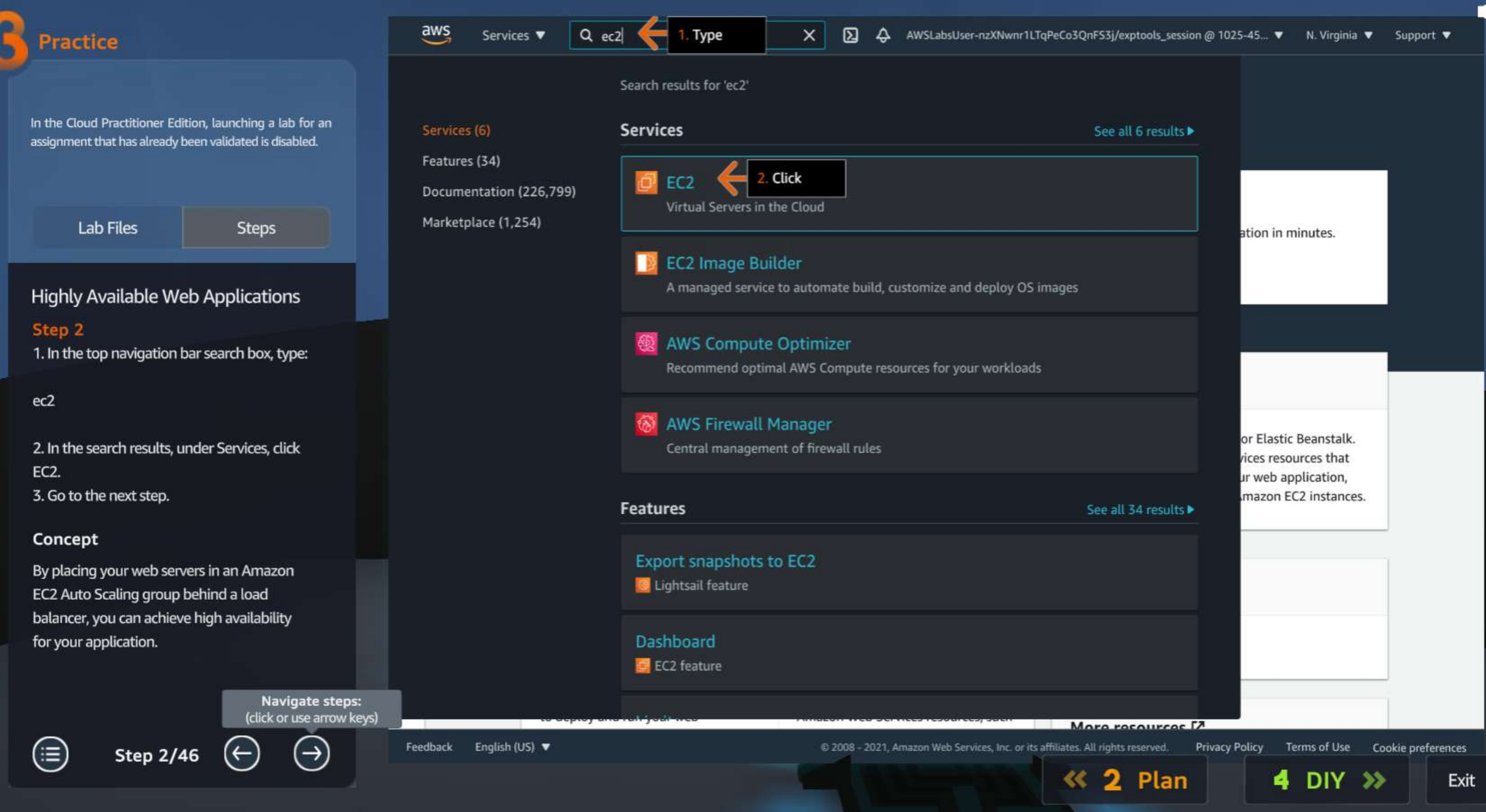
- Migrate an Auto Scaling group behind an Application Load Balancer in one Availability Zone.
- Set up load balancer health monitoring for an Amazon EC2 Auto Scaling group.
- Add a second Availability Zone to the Amazon EC2 Auto Scaling group.

DIY

Build on what you have learned.

- Configure an Auto Scaling group to include a new EC2 instance in a third Availability Zone.




3 Practice
In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.
Lab Files
Steps
Highly Available Web Applications
Step 2
1. In the top navigation bar search box, type:
ec2
2. In the search results, under Services, click EC2.
3. Go to the next step.
Concept
By placing your web servers in an Amazon EC2 Auto Scaling group behind a load balancer, you can achieve high availability for your application.
Navigate steps:
(click or use arrow keys)
Step 2/46
aws
Services
ec2
1. Type
AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45...
N. Virginia
Support
Search results for 'ec2'
Services (6)
Features (34)
Documentation (226,799)
Marketplace (1,254)
Services
See all 6 results
EC2
2. Click
Virtual Servers in the Cloud
EC2 Image Builder
A managed service to automate build, customize and deploy OS images
AWS Compute Optimizer
Recommend optimal AWS Compute resources for your workloads
AWS Firewall Manager
Central management of firewall rules
Features
See all 34 results
Export snapshots to EC2
Lightsail feature
Dashboard
EC2 feature
ation in minutes.
or Elastic Beanstalk.
vices resources that
ur web application,
mazon EC2 instances.
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4 DIY »
Exit

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 3

1. In the left navigation pane, click Auto Scaling Groups.
2. In the Auto Scaling groups section, choose the check box to select TravelAgencyWebServers.
3. On the Details tab, review the current capacity details.
4. Go to the next step.

Concept

Minimum and maximum capacity define the boundaries for the number of instances allowed in the Auto Scaling group. The desired capacity is the initial capacity of the Auto Scaling group and the capacity it attempts to maintain. The Aut

Navigate steps: (click or use arrow keys)

Step 3/46

aws | Services | Search [Option+S] | N. Virgin | AWSLabsUser-6GLhmyAPos6Eh4Koq9wm9X/exptools_session @ 193

New

- Images
  - AMIs
  - AMI Catalog
- Elastic Block Store
  - Volumes
  - Snapshots
  - Lifecycle Manager
- Network & Security
  - Security Groups
  - Elastic IPs
  - Placement Groups
  - Key Pairs
  - Network Interfaces
- Load Balancing
  - Load Balancers
  - Target Groups
- Auto Scaling
  - Auto Scaling Groups

1. Click

Auto Scaling groups (1/1) Info

Launch configurations | Launch templates | Actions

Create Auto Scaling group

Search your Auto Scaling groups

Name	Launch template/configuration	Instances
TravelAgencyWebServers	LabStack- -6GLhmyAPos6Eh4...	1

2. Choose

Auto Scaling group: TravelAgencyWebServers

Details | Activity | Automatic scaling | Instance management | Monitoring | Ins

Group details Edit

Auto Scaling group name TravelAgencyWebServers	**Desired** capacity 1	Desired capacity type Units (number of instances)	Amazon Resource Name (ARN) arn:aws:autoscaling:us-east-1:193827466412:autoScalingGroup:5754ed5c-6b39-42ed-ae98-873d27aeb172:autoScalingGroupName/TravelAgencyWebServers
Date created Thu Nov 16 2023 16:08:07 GMT-0800 (Pacific Standard Time)	**Minimum** capacity 1	Status -	
	Maximum capacity 1		

3. Review

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Lab Files | Steps

Highly Available Web Applications

Step 4

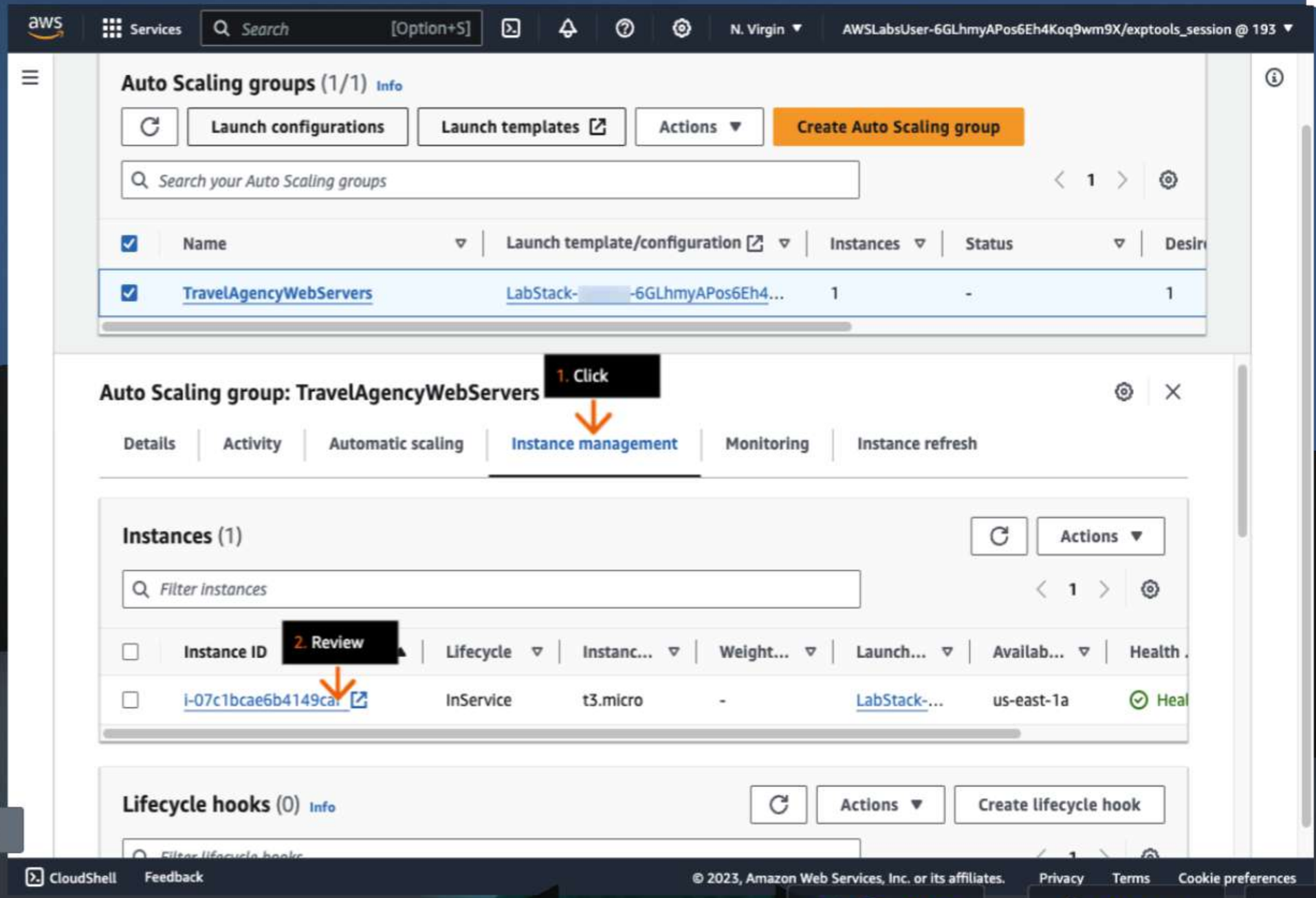
1. Click the Instance management tab.
2. Review to see that there is currently one instance in the Auto Scaling group.
3. Go to the next step.

Concept

An Auto Scaling group starts by launching enough instances to meet its desired capacity. It maintains this number of instances by performing periodic health checks on the instances in the group.

Navigate steps: (click or use arrow keys)

Step 4/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 5

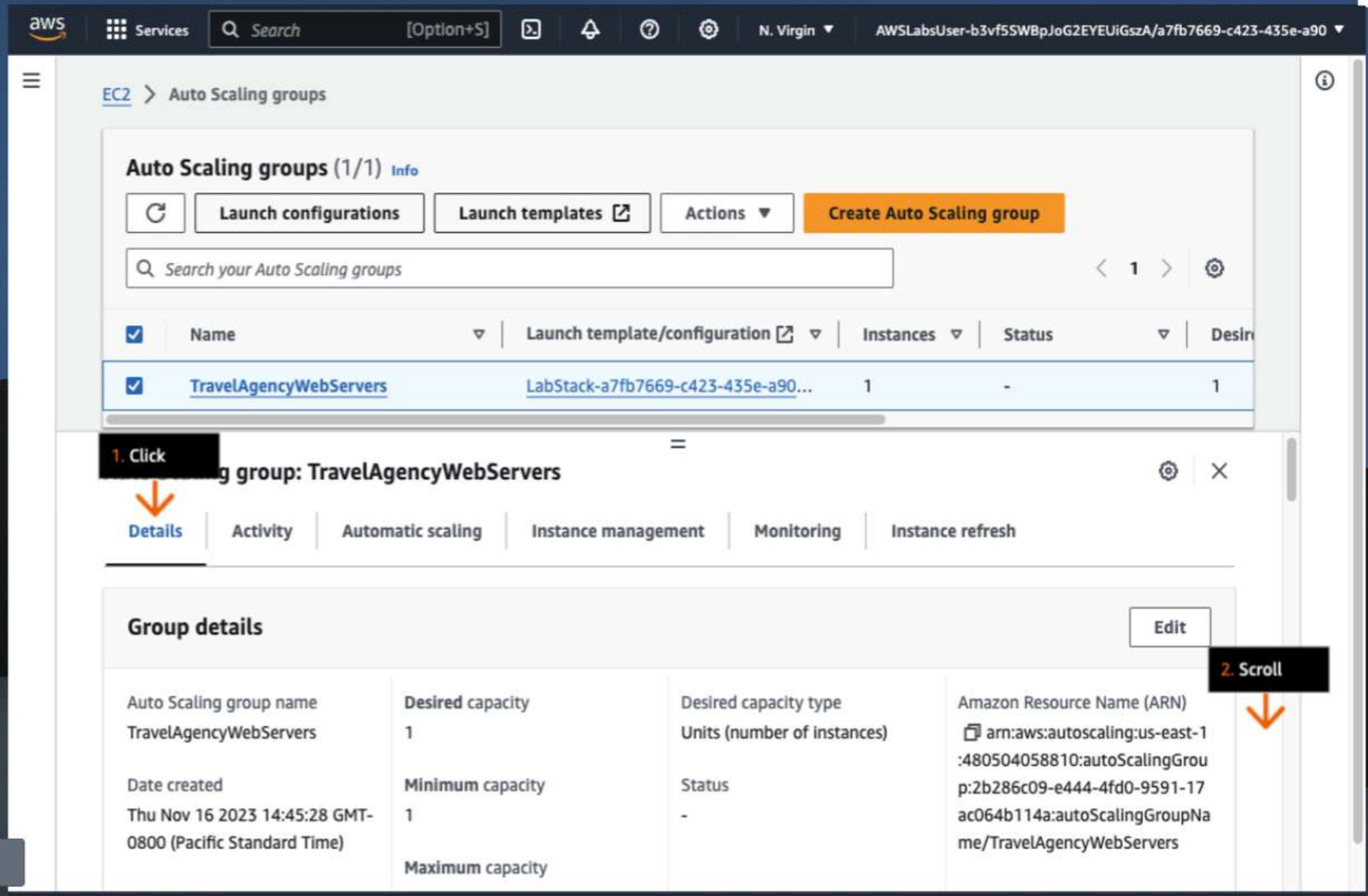
1. Click the Details tab.
2. Scroll down to Network.
3. Go to the next step.

Concept

You must specify at least one Availability Zone when you create your Auto Scaling group. An Auto Scaling group can be configured across multiple Availability Zones for increased availability.

Navigate steps: (click or use arrow keys)

Step 5/46



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3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 6

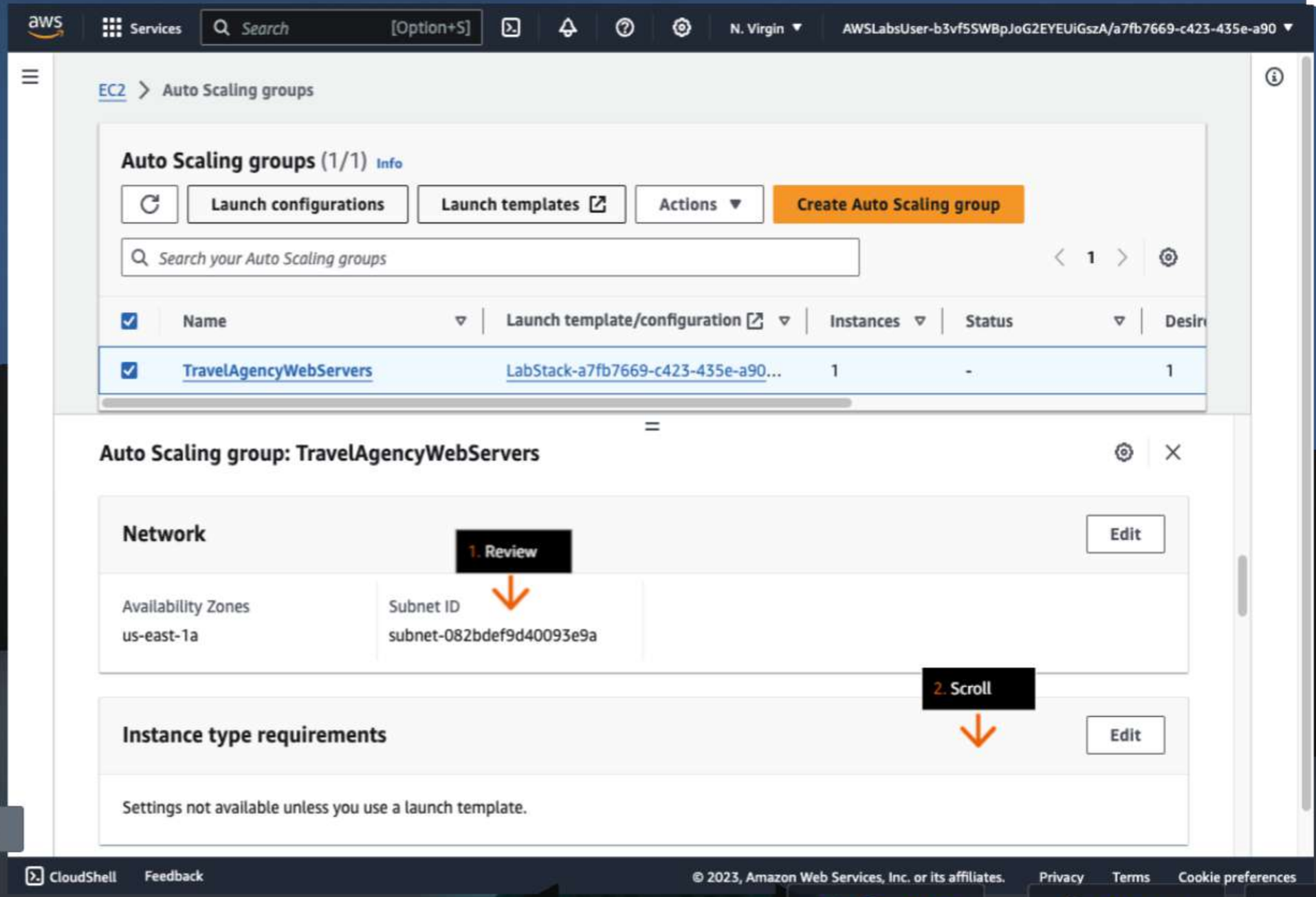
1. In the Network section, review to see that the Auto Scaling group is configured with a single subnet from one Availability Zone.
2. Scroll down to Load balancing.
3. Go to the next step.

Concept

You define which subnets, from one or more Availability Zones, are linked to the Auto Scaling group. This defines where your Amazon EC2 resources, linked to the Auto Scaling group, can reside.

Navigate steps: (click or use arrow keys)

Step 6/46



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Lab Files | Steps

Highly Available Web Applications

Step 7

1. Click Edit.
2. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 7/46

aws | Services | Search [Option+S] | N. Virgin | AWSLabsUser-b3vf5SWBpJoG2EYEUiGszA/a7fb7669-c423-435e-a90

EC2 > Auto Scaling groups

Auto Scaling groups (1/1) Info

Launch configurations | Launch templates | Actions | Create Auto Scaling group

Search your Auto Scaling groups

Name	Launch template/configuration	Instances	Status	Desir
TravelAgencyWebServers	LabStack-a7fb7669-c423-435e-a90...	1	-	1

Auto Scaling group: TravelAgencyWebServers

Load balancing — 1. Click → Edit

Load balancer target groups	Classic Load Balancers
-	-

VPC Lattice integration options — Edit

VPC Lattice target groups
-

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3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 8

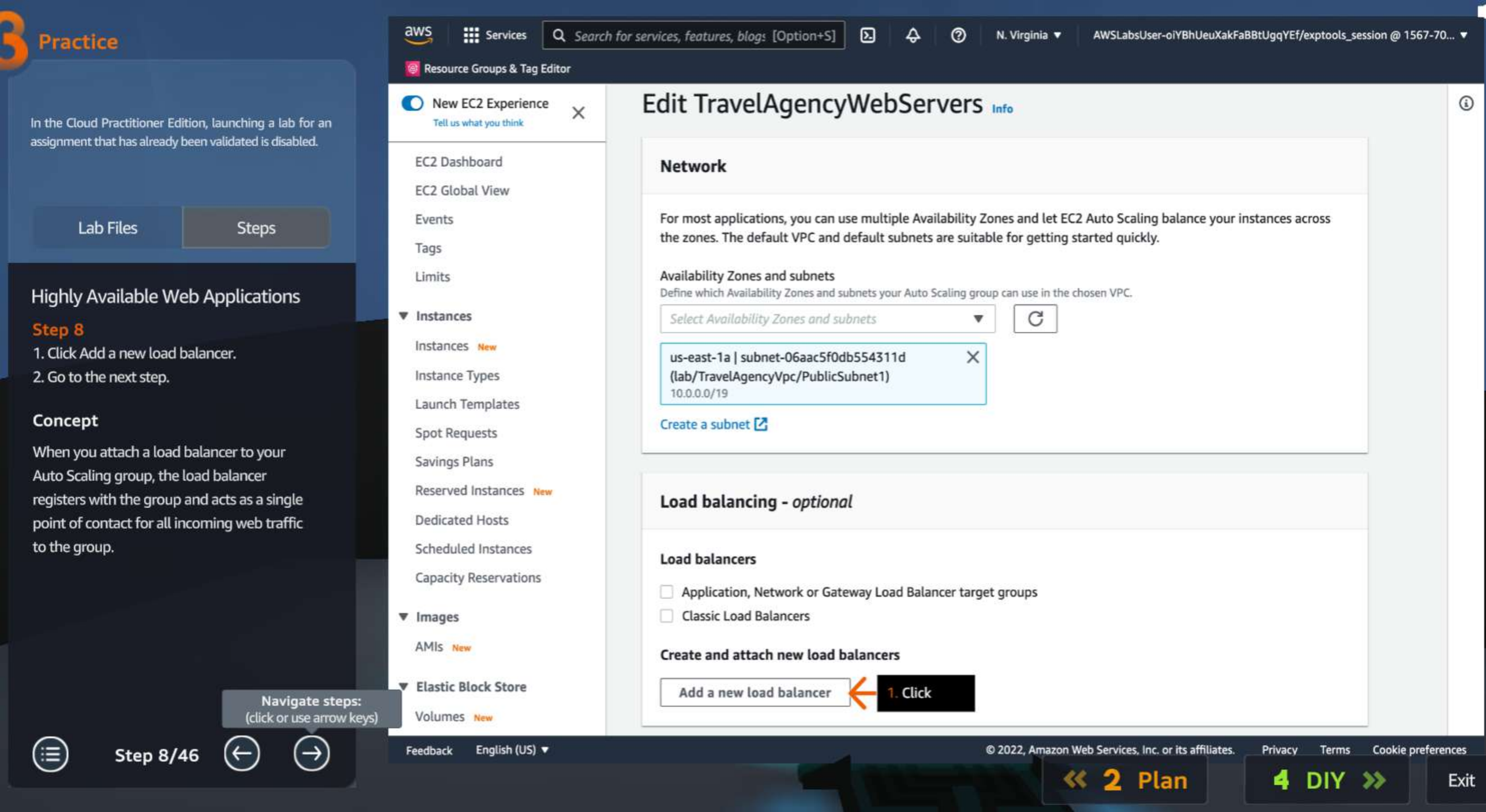
1. Click Add a new load balancer.
2. Go to the next step.

Concept

When you attach a load balancer to your Auto Scaling group, the load balancer registers with the group and acts as a single point of contact for all incoming web traffic to the group.

Navigate steps: (click or use arrow keys)

Step 8/46



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3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 9

1. For Load balancer type, choose Application Load Balancer.
2. For Load balancer scheme, choose Internet-facing.
3. Go to the next step.

Concept

Choose the Application Load Balancer to manage web-based applications that require HTTPS connectivity. The load balancer must be internet-facing if your web applications are for public access.

Navigate steps: (click or use arrow keys)

Step 9/46

aws | Services | Search for services, featur [Option+S] | AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45... | N. Virginia | Support

New EC2 Experience
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- EC2 Dashboard New
- Events New
- Tags
- Limits

INSTANCES
- Instances
- Instance Types
- Launch Templates
- Spot Requests
- Savings Plans
- Reserved Instances
- Dedicated Hosts New
- Scheduled Instances
- Capacity Reservations

IMAGES
- AMIs

ELASTIC BLOCK STORE
- Volumes
- Snapshots
- Lifecycle Manager

Edit TravelAgencyWebServers Info

Load balancing - *optional*

Load balancers

- [ ] Application, Network or Gateway Load Balancer target groups
- [ ] Classic Load Balancers

Create and attach new load balancers

▼ New load balancer: TravelAgencyWebServers-1 — Remove

Load balancer type

Choose from the load balancer types offered below. Type selection cannot be changed after the load balancer is created. If you need a different type of load balancer than those offered here, visit the Load Balancing console.

1. Choose →
- (•) Application Load Balancer — HTTP, HTTPS
- ( ) Network Load Balancer — TCP, UDP, TLS

Load balancer name

Name cannot be changed after the load balancer is created.

TravelAgencyWebServers-1

Load balancer scheme

Scheme cannot be changed after the load balancer is created.

- ( ) Internal
2. Choose →
- (•) Internet-facing

Network mapping

Your new load balancer will be created using the same VPC and Availability Zone selections as your Auto Scaling group. You can select different subnets and add subnets from additional Availability Zones.

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Lab Files | Steps

Highly Available Web Applications

Step 10

1. For Availability Zones and subnets, choose the three check boxes to select all three Availability Zones.
2. On each of the three dropdown menus, choose the available public subnet.
3. For Default routing (forward to), choose Create a target group.

- Keep the defaults.

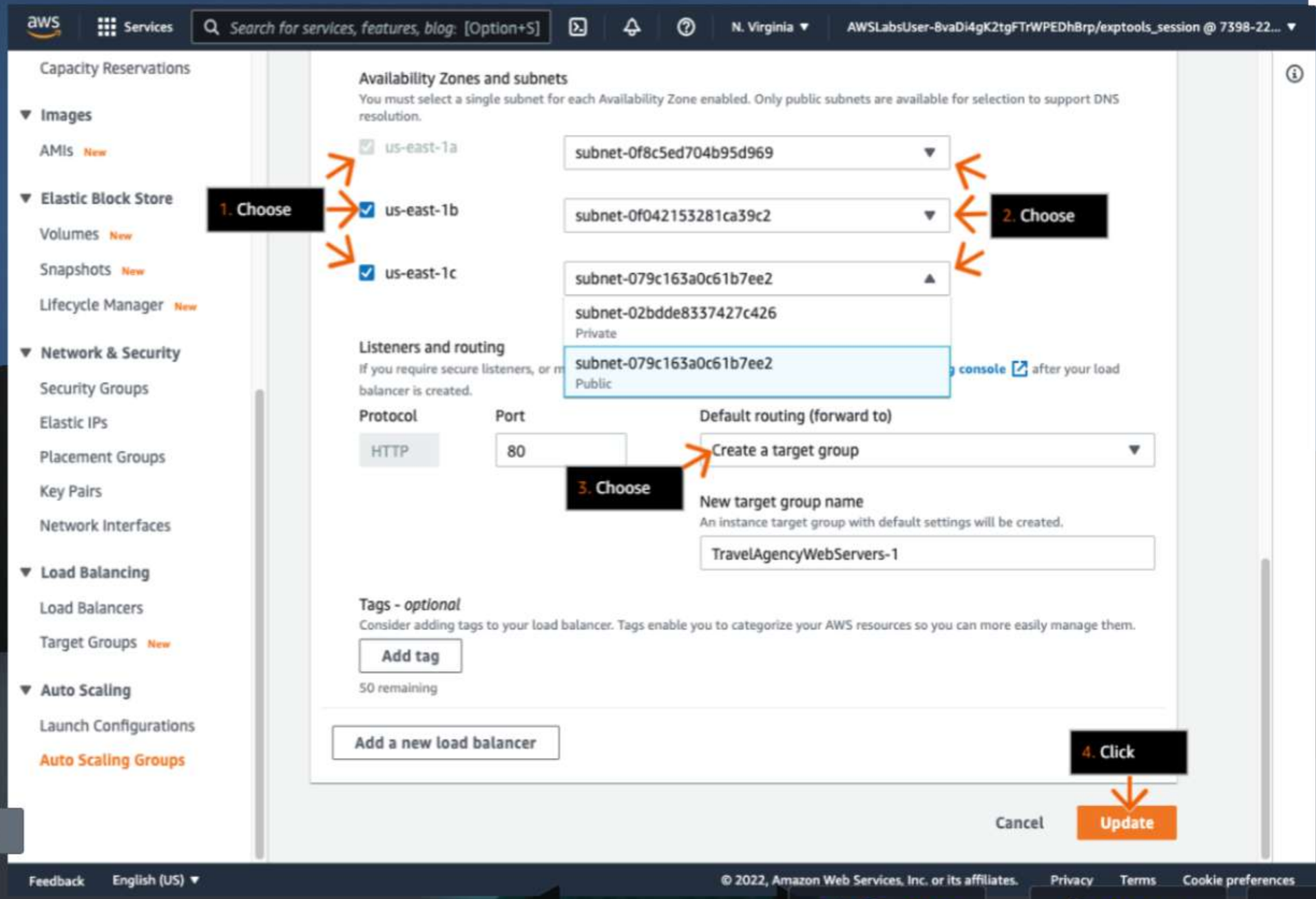
4. To create the Application Load Balancer, click Update.
5. Go to the next step.

Concept

A load balancer takes requests

Navigate steps: (click or use arrow keys)

Step 10/46



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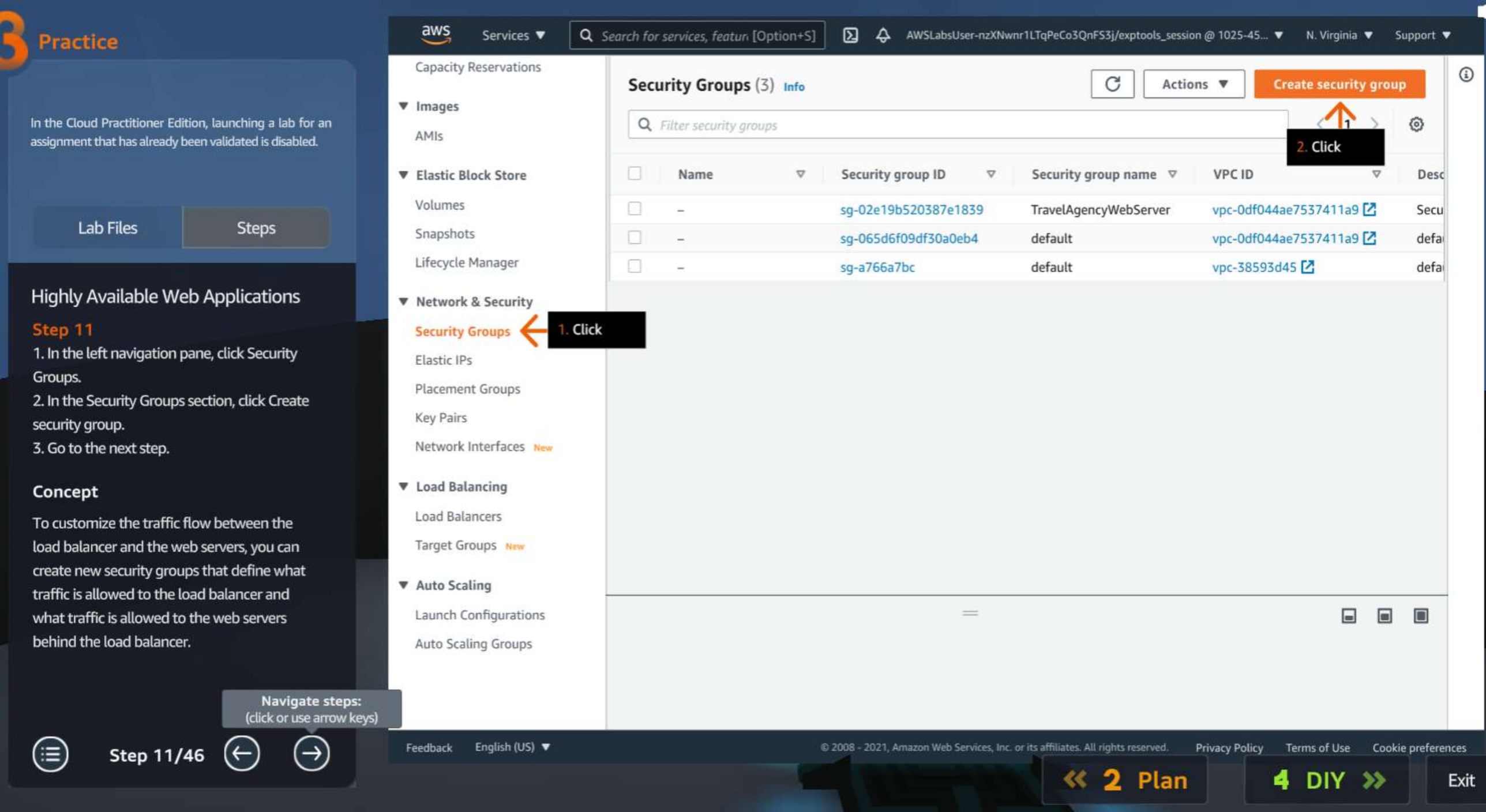
3 Practice
In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.
Lab Files
Steps
Highly Available Web Applications
Step 11
1. In the left navigation pane, click Security Groups.
2. In the Security Groups section, click Create security group.
3. Go to the next step.
Concept
To customize the traffic flow between the load balancer and the web servers, you can create new security groups that define what traffic is allowed to the load balancer and what traffic is allowed to the web servers behind the load balancer.
Navigate steps:
(click or use arrow keys)
Step 11/46
aws
Services
Search for services, featur [Option+S]
AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45...
N. Virginia
Support
Capacity Reservations
Images
AMIs
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
1. Click
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces New
Load Balancing
Load Balancers
Target Groups New
Auto Scaling
Launch Configurations
Auto Scaling Groups
Security Groups (3) Info
Actions
Create security group
Filter security groups
2. Click
Name
Security group ID
Security group name
VPC ID
– sg-02e19b520387e1839 TravelAgencyWebServer vpc-0df044ae7537411a9
– sg-065d6f09df30a0eb4 default vpc-0df044ae7537411a9
– sg-a766a7bc default vpc-38593d45
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English (US)
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3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 12

1 . In the Basic details section, for Security group name, type:

TravelAgencyLoadBalancer

2. For Description, type a description that you like, such as Allow access to the travel agency load balancer from the internet.

3. For VPC, choose the VPC name that ends with lab/TravelAgencyVpc.

- To remove the existing VPC entry, you might need to click the X.

4. In the Inbound rules section,

Navigate steps: (click or use arrow keys)

Step 12/46

Create security group Info

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name Info

TravelAgencyLoadBalancer ← 1. Type

Name cannot be edited after creation.

Description Info

Allow access to the Travel Agency Load Balancer from the Internet ← 2. Type

VPC Info

vpc-0df044ae7537411a9 (lab/TravelAgencyVpc) ← 3. Choose

Inbound rules Info

This security group has no inbound rules.

Add rule ← 4. Click

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 13

1. In the Inbound rules section, for Type, choose HTTP.
2. To allow all inbound traffic, for Source, in the Custom search box, choose 0.0.0.0/0.
3. Go to the next step.

Concept

For a public-facing load balancer, you specify 0.0.0.0/0 as a source to accept traffic from any address. By specifying a security group as an outbound destination, you can restrict traffic to be sent only to instances associated with the specified security group.

Navigate steps: (click or use arrow keys)

Step 13/46

vpc-08d37abb0f8ce1428 (lab/TravelAgencyVpc)

Inbound rules Info

Inbound rule 1 Delete

1. Choose

Type Info: HTTP

Protocol Info: TCP

Port range Info: 80

Source type Info: Custom

Source Info: CIDR blocks

- 0.0.0.0/0 ← 2. Choose
- 0.0.0.0/8
- 0.0.0.0/16
- 0.0.0.0/24
- 0.0.0.0/32
- ::/0
- ::/16

Description - optional Info

Add rule

Outbound rules Info

Outbound rule 1 Delete

Type Info: HTTP

Protocol: TCP

Port range: 80

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Lab Files | Steps

Highly Available Web Applications

Step 14

1. In the Outbound rules section, for Type, choose HTTP.
2. For Destination, choose the TravelAgencyWebServer security group.
3. Remove the 0.0.0.0/0 destination (not shown).
4. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 14/46

Add rule

⚠ Rules with source of 0.0.0.0/0 or ::/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

Outbound rules Info

Outbound rule 1 Delete

1. Choose

Type Info: HTTP

Protocol Info: TCP

Port range Info: 80

Destination type Info: Custom

Destination Info: sg-02a0828ad04ef0249

Description - optional Info

CIDR blocks

Security Groups

TravelAgencyWebServer | sg-02a0828ad04ef0249 ← 2. Choose

Prefix lists

Add rule

Tags - *optional*

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

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Lab Files | Steps

Highly Available Web Applications

Step 15

1. Scroll down to the bottom of the page.
2. Click Create security group.
3. Go to the next step.

Concept

Security groups are not active unless they are assigned to a resource.

Navigate steps: (click or use arrow keys)

Step 15/46

Outbound rule 1 Delete

Type Info	Protocol Info	Port range Info
HTTP	TCP	80

Destination type Info	Destination Info	Description - optional Info
Custom	sg-02a0828ad04ef0249	

sg-02a0828ad04ef0249

Add rule

1. Scroll

Tags - *optional*

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

Add new tag

You can add up to 50 more tags

2. Click

Cancel | Create security group

3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 16

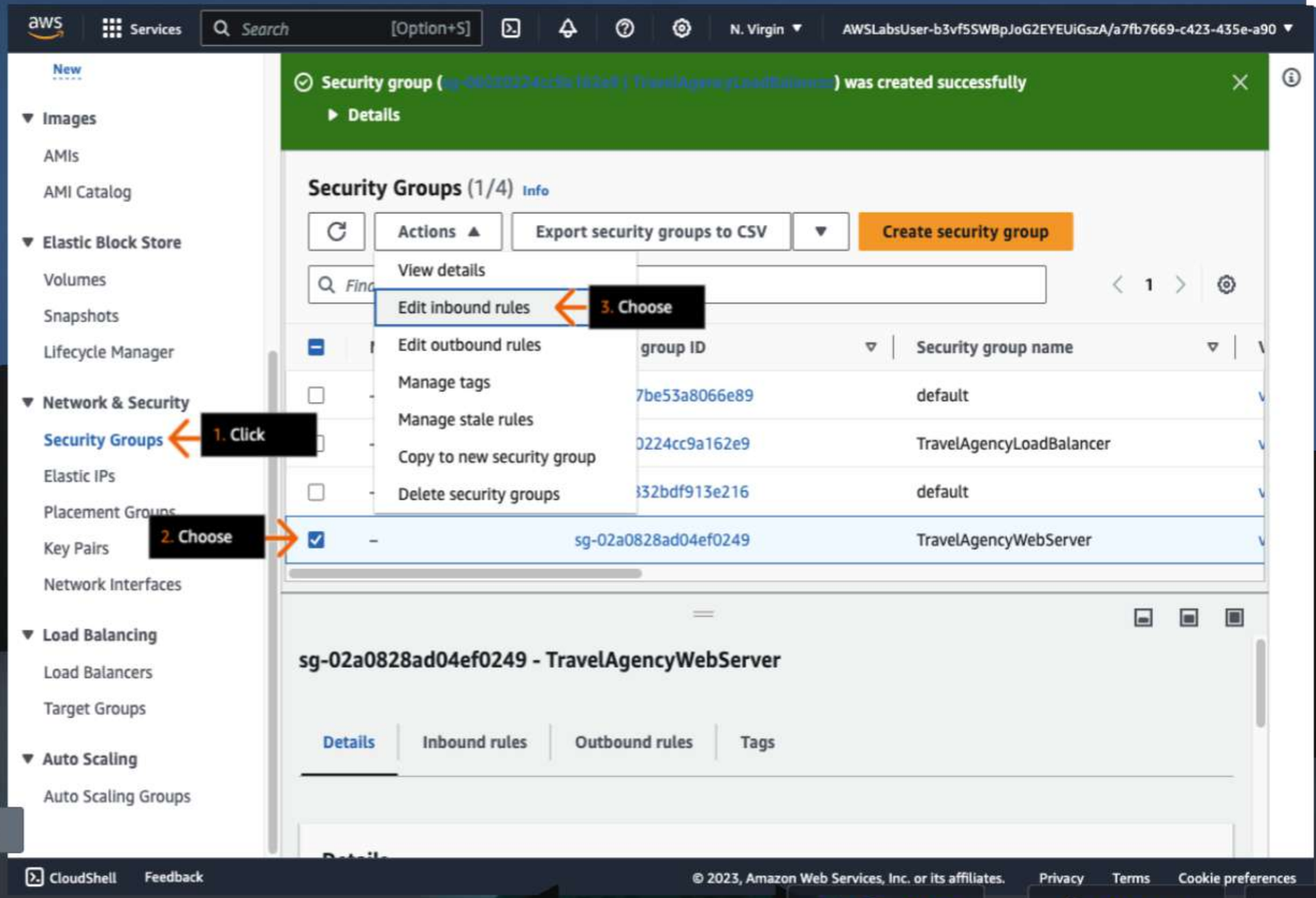
1. In the left navigation pane, click Security Groups.
2. In the Security Groups section, choose the check box to select the TravelAgencyWebServer security group.
3. On the Actions dropdown menu, choose Edit inbound rules.
4. Go to the next step.

Concept

To increase security, you can edit the security group (used by EC2 instances behind the Application Load Balancer) to allow only inbound traffic from the load balancer.

Navigate steps: (click or use arrow keys)

Step 16/46



« 2 Plan | 4 DIY » | Exit

3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 17

1. In the Inbound rules section, to remove the existing rule, click Delete.

- You must delete the existing rule to modify the rule type.

2. To add a new rule, click Add rule.
3. Go to the next step.

Concept

By removing the 0.0.0.0/0 source and replacing it with a security group, you can control which resources are allowed to send traffic to instances without having to input address ranges. Only traffic from the instances associated with the s

Navigate steps: (click or use arrow keys)

Step 17/46

aws | Services | Search for services, features, bl [Option+S] | N. Virginia | AWSLabsUser-6YDwXgVGgM2NttqYwnu1D2/exptools_session @ 7772-09...

Resource Groups & Tag Editor

EC2 > Security Groups > sg-02b7b2eccbf36faac - TravelAgencyWebServer > Edit inbound rules

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
sgr-0b09166e81a7bc880	HTTP	TCP	80	Custom 0.0.0.0/0	Allow HTTP inbound	Delete

1. Click

Add rule | 2. Click

Cancel | Preview changes | Save rules

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3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 18

1. For Type, choose HTTP.
2. For Source, choose the TravelAgencyLoadBalancer security group.
3. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 18/46

aws | Services | Search for services, features, bl [Option+S] | N. Virginia | AWSLabsUser-6YDwXgVGgM2NttqYwnu1D2/exptools_session @ 7772-09...

Resource Groups & Tag Editor

EC2 > Security Groups > sg-02b7b2eccbf36faac - TravelAgencyWebServer > Edit inbound rules

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
-	HTTP	TCP	80	Custom		Delete

1. Choose

Security Groups

- TravelAgencyWebServe... | sg-02b7b2eccbf36faac
- TravelAgencyLoadBala... | sg-0301f732c40978481
- default | sg-0b634c294842d6cda

2. Choose

Add rule

Preview changes | Save rules

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Lab Files | Steps

Highly Available Web Applications

Step 19

1. Click Save rules.
2. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 19/46

Edit inbound rules Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules Info

Security group rule ID	Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info	
-	HTTP	TCP	80	Custom sg-0301f732c40978481		Delete

Add rule

Cancel | Preview changes | Save rules

1. Click

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 20

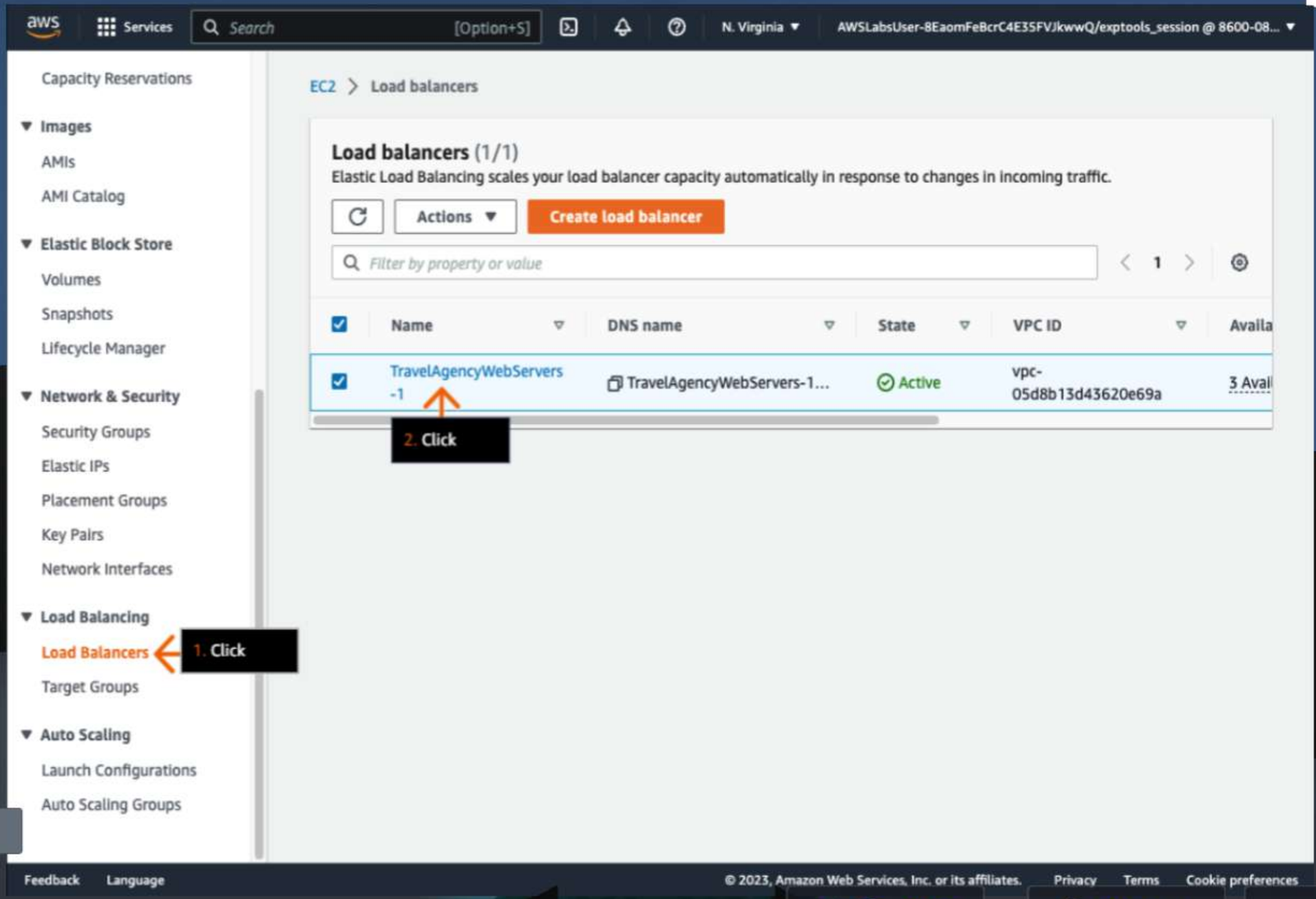
1. In the left navigation pane, click Load Balancers.
2. In the Load balancers section, click TravelAgencyWebServers-1.
3. Go to the next step.

Concept

Custom security groups are active only after you assign them to an instance. You can assign multiple security groups to an instance.

Navigate steps: (click or use arrow keys)

Step 20/46



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3 Practice

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Lab Files | Steps

Highly Available Web Applications

Step 21

1. Scroll down to the Security tab.
2. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 21/46

aws | Services | Search [Option+S] | N. Virginia | AWSLabsUser-8EaomFeBcrC4E35FVJkwwQ/exptools_session @ 8600-08...

- Capacity Reservations
- **Images**
  - AMIs
  - AMI Catalog
- **Elastic Block Store**
  - Volumes
  - Snapshots
  - Lifecycle Manager
- **Network & Security**
  - Security Groups
  - Elastic IPs
  - Placement Groups
  - Key Pairs
  - Network Interfaces
- **Load Balancing**
  - Load Balancers
  - Target Groups
- **Auto Scaling**
  - Launch Configurations
  - Auto Scaling Groups

TravelAgencyWebServers-1

Actions

Details

arn:aws:elasticloadbalancing:us-east-1:860008896607:loadbalancer/app/TravelAgencyWebServers-1/3a2f22e4f2c820ec

Load balancer type	DNS name	Status	VPC
Application	TravelAgencyWebServers-1-342823481.us-east-1.elb.amazonaws.com (A Record)	Active	vpc-05d8b13d43620e69a

IP address type	Scheme	Availability Zones	Hosted zone
IPv4	Internet-facing	subnet-06c9214086a2a0e7a us-east-1a (use1-az6) subnet-0e626c8d16c5de6d0 us-east-1c (use1-az2) subnet-0dab53c66c5295f8b us-east-1b (use1-az1)	Z35SXDOTRQ7X7K

Date created: February 7, 2023, 10:01 (UTC-05:00)

1. Scroll

Listeners | Network mapping | Security | Monitoring | Integrations | Attributes | Tags

Feedback | Language

« 2 Plan | 4 DIY » | Exit

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 22

1. On the Security tab, click Edit.
2. Go to the next step.

Concept

The security groups that you associate with your load balancer determine your rules for controlling where traffic can come from and where it can be sent.

Navigate steps: (click or use arrow keys)

Step 22/46

Capacity Reservations
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
Load Balancers
Target Groups
Auto Scaling
Launch Configurations
Auto Scaling Groups

amazonaws.com
(A Record)

IP address type	Scheme	Availability Zones	Hosted zone
IPv4	Internet-facing	subnet-06c9214086a2a0e7a us-east-1a (use1-az6) subnet-0e626c8d16c5de6d0 us-east-1c (use1-az2) subnet-0dab53c66c5295f8b us-east-1b (use1-az1)	Z35SXDOTRQ7X7K

Date created
February 7, 2023, 10:01 (UTC-05:00)

Listeners | Network mapping | Security | Monitoring | Integrations | Attributes | Tags | 1. Click

Security groups (1)
A security group is a set of firewall rules that control the traffic to your load balancer.

Edit

Security Group ID	Name	Description
sg-0c10502783c94bda0	TravelAgency...	Security Group used by the Travel Agency Web Servers

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

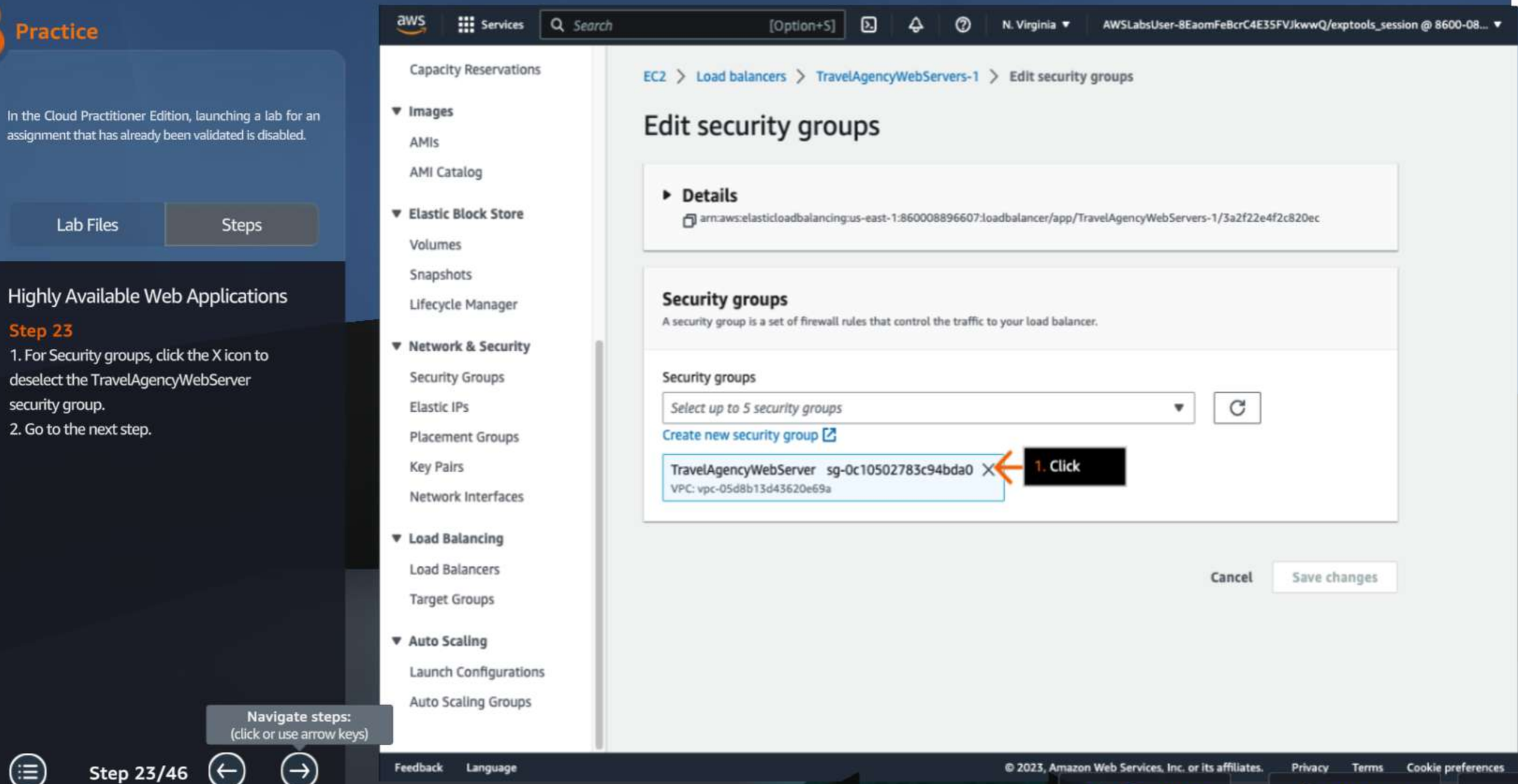
Highly Available Web Applications

Step 23

1. For Security groups, click the X icon to deselect the TravelAgencyWebServer security group.
2. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 23/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 24

1. Choose TravelAgencyLoadBalancer.
2. Click Save changes.
3. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 24/46

aws | Services | Search [Option+S] | N. Virgin | AWSLabsUser-b3vf5SWBpJoG2EYEUiGszA/a7fb7669-c423-435e-a90

EC2 > Load balancers > TravelAgencyWebServers-1 > Edit security groups

Edit security groups

▸ **Load balancer details:** TravelAgencyWebServers-1

Security groups

A security group is a set of firewall rules that control the traffic to your load balancer. Select an existing security group, or you can create a new security group.

Security groups

Select up to 5 security groups

default
sg-003b7be53a8066e89 VPC: vpc-08d37abb0f8ce1428

TravelAgencyWebServer
sg-02a0828ad04ef0249 VPC: vpc-08d37abb0f8ce1428

TravelAgencyLoadBalancer
sg-06020224cc9a162e9 VPC: vpc-08d37abb0f8ce1428

1. Choose

2. Click

Cancel | Save changes

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« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 25

1. In the success alert, review the message.
2. For the Application Load Balancer, under DNS name, click the copy icon to copy the provided name.
3. Go to the next step.

Concept

To test access to your application through the load balancer, you can copy the DNS name into a browser tab (or window).

Navigate steps: (click or use arrow keys)

Step 25/46

aws | Services | Search [Option+S] | N. Virgin | AWSLabsUser-b3vf5SWBpJoG2EYEUiGszA/a7fb7669-c423-435e-a90

Successfully modified security groups. 1. Review

EC2 > Load balancers > TravelAgencyWebServers-1

TravelAgencyWebServers-1

Actions

Details

Load balancer type	Status	VPC	IP address type
Application	Active	vpc-08d37abb0f8ce1428	IPv4
Scheme	**Hosted zone**	**Availability Zones**	**Date created**
Internet-facing	Z35SXDOTRQ7X7K	subnet-082bdef9d40093e9a us-east-1a (use1-az2) subnet-0a18779dac063a1e7 us-east-1b (use1-az4) subnet-092dcc5ba15485091 us-east-1c (use1-az6)	November 16, 2023, 15:03 (UTC-08:00)

Load balancer ARN

arn:aws:elasticloadbalancing:us-east-1:480504058810:app/TravelAgencyWebServers-1/dac7f8e4b3d607b7

2. Click

DNS name Info

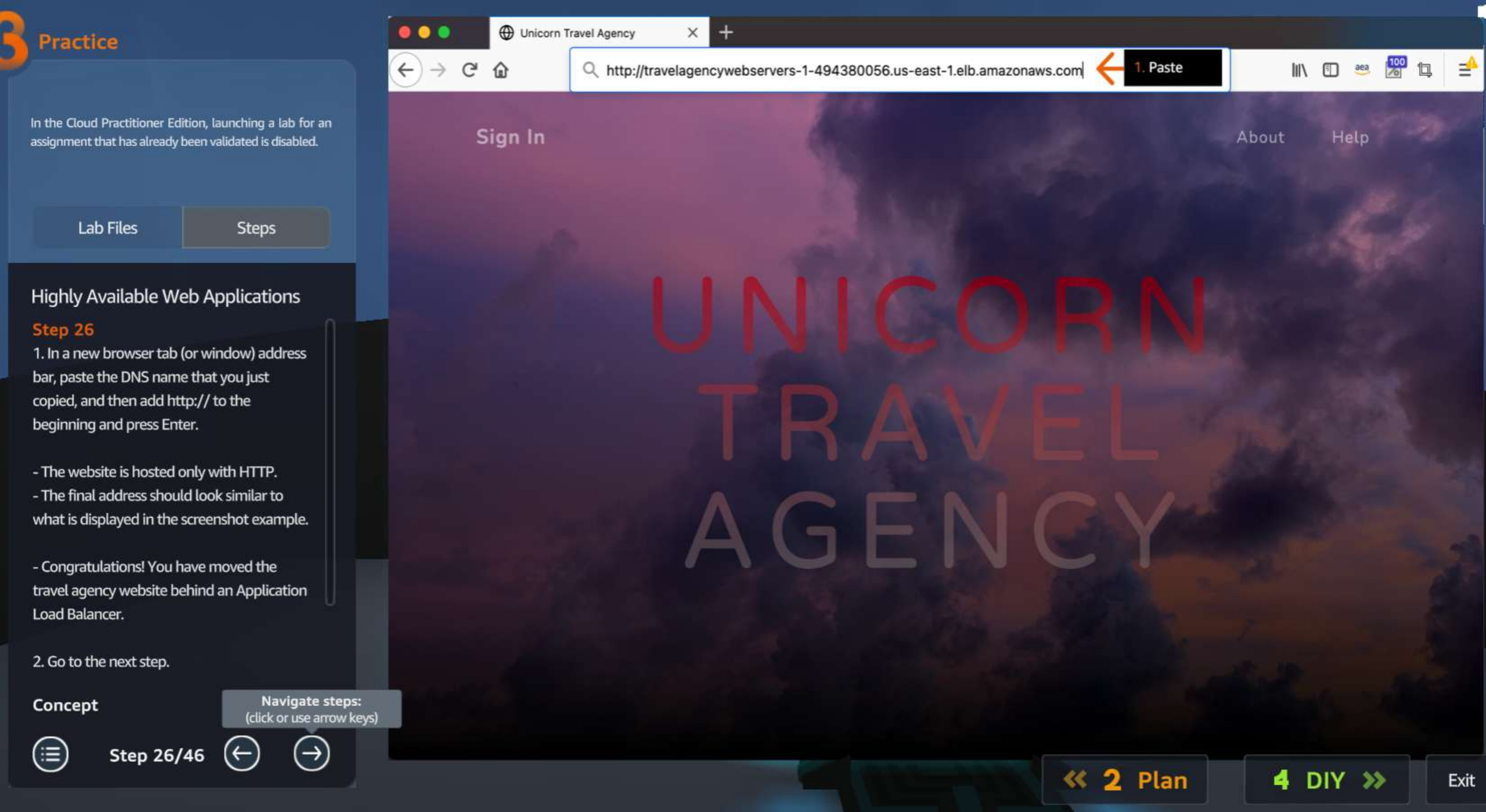
TravelAgencyWebServers-1-1068593208.us-east-1.elb.amazonaws.com (A Record)

Listeners and rules | Network mapping | Security | Monitoring | Integrations | Attributes | Tags

CloudShell | Feedback

 Privacy | Terms | Cookie preferences

« 2 Plan | 4 DIY » | Exit


3 Practice
In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.
Lab Files
Steps
Highly Available Web Applications
Step 26
1. In a new browser tab (or window) address bar, paste the DNS name that you just copied, and then add http:// to the beginning and press Enter.
- The website is hosted only with HTTP.
- The final address should look similar to what is displayed in the screenshot example.
- Congratulations! You have moved the travel agency website behind an Application Load Balancer.
2. Go to the next step.
Concept
Navigate steps:
(click or use arrow keys)
Step 26/46
Unicorn Travel Agency
http://travelagencywebservers-1-494380056.us-east-1.elb.amazonaws.com
1. Paste
Sign In
About
Help
UNICORN TRAVEL AGENCY
« 2 Plan
4 DIY »
Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 27

1. In the same browser tab, at the end of the address that you just edited, type:

/health

and press Enter.

2. Review the short message that loads, stating that the instance is healthy.

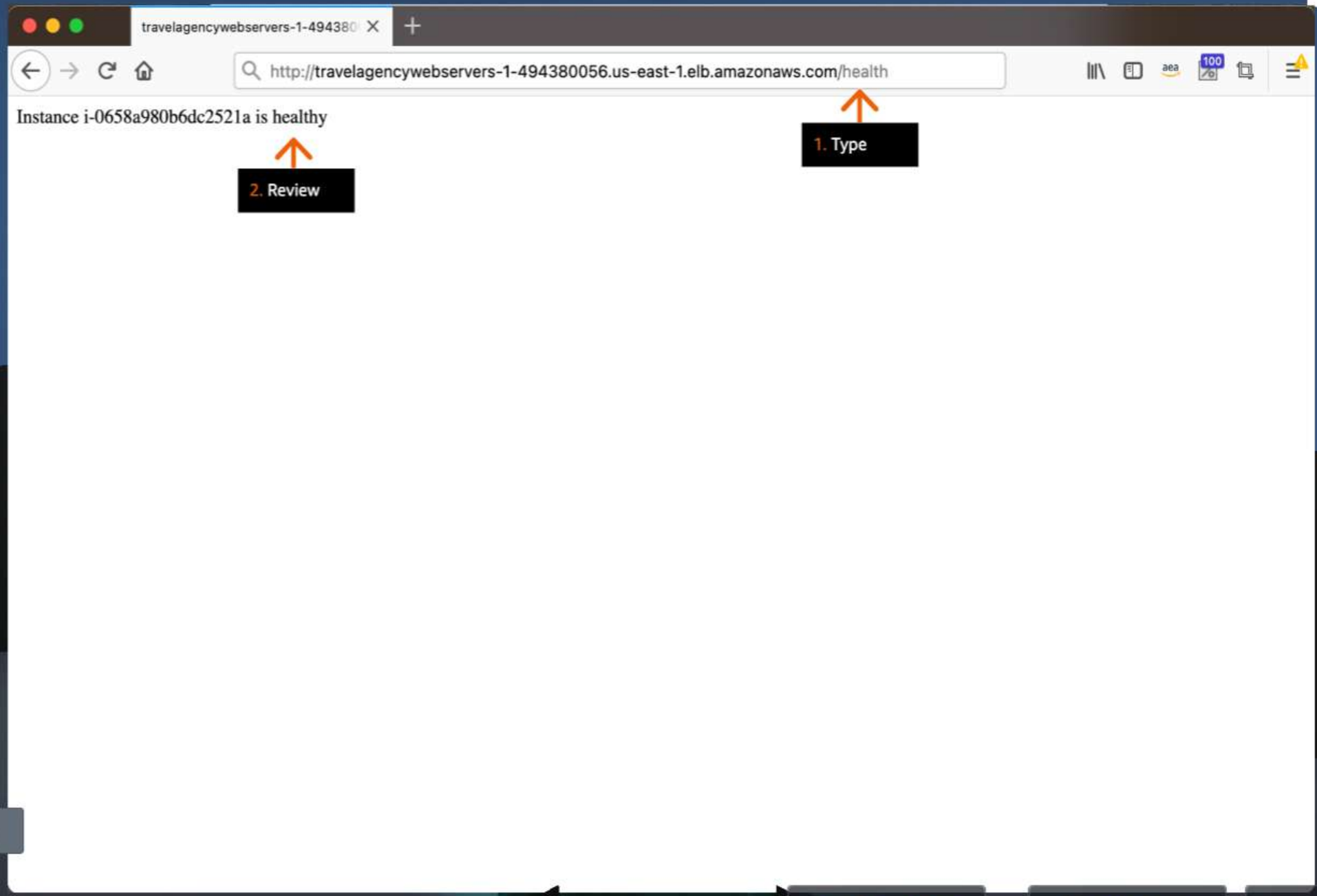
- Keep this browser tab open for additional health checks later.

3. Go to the next step.

Concept

Navigate steps:
(click or use arrow keys)

Step 27/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 28

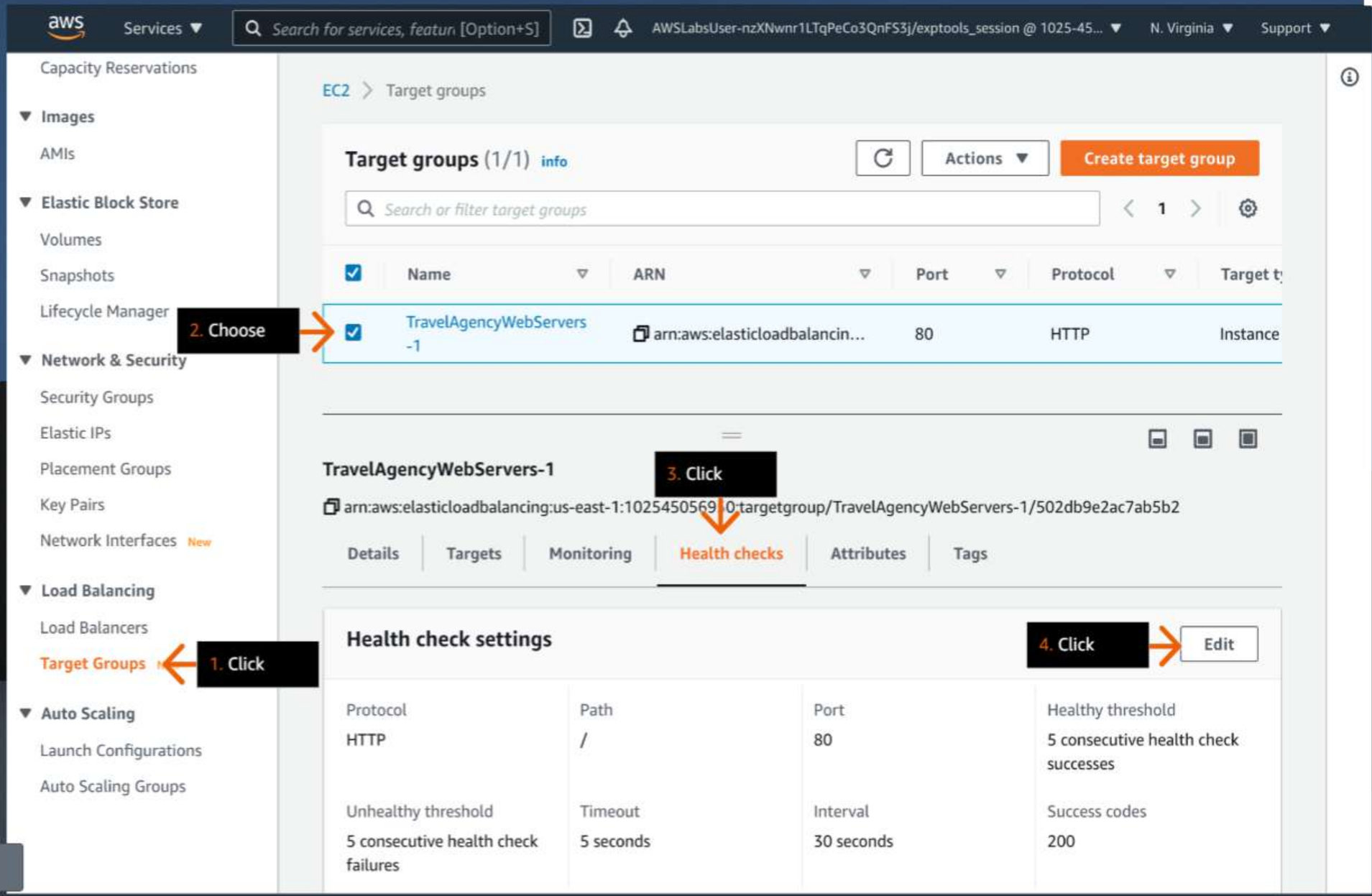
1. In the previous browser tab, in the left navigation pane, click Target Groups.
2. In the Target groups section, choose the check box to select TravelAgencyWebServers-1.
3. Click the Health checks tab.
4. In the Health check settings section, click Edit.
5. Go to the next step.

Concept

You can modify load balancer health check settings to match your performance requirements.

Navigate steps: (click or use arrow keys)

Step 28/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 29

1. For Health check path, type:

/health

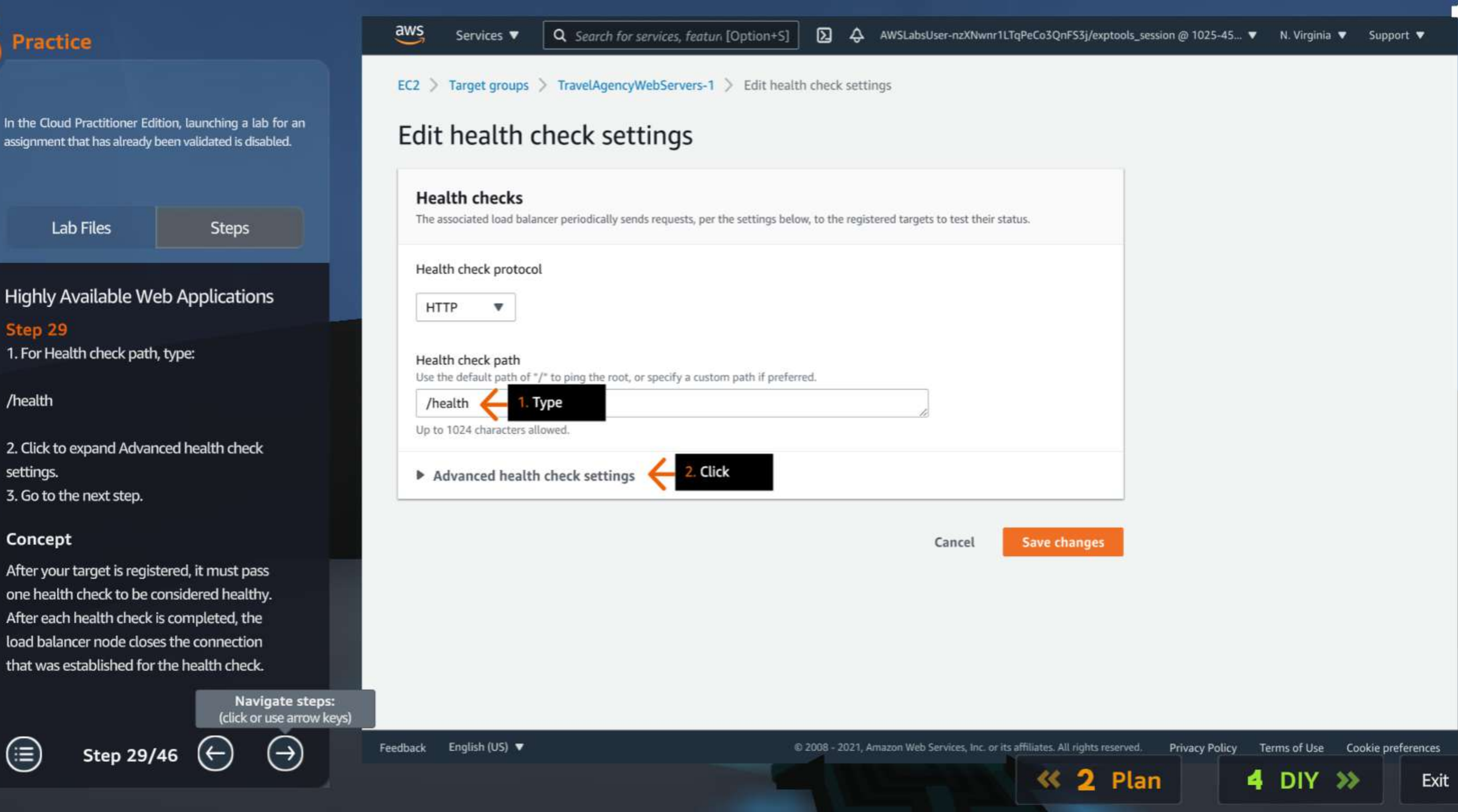
2. Click to expand Advanced health check settings.
3. Go to the next step.

Concept

After your target is registered, it must pass one health check to be considered healthy. After each health check is completed, the load balancer node closes the connection that was established for the health check.

Navigate steps: (click or use arrow keys)

Step 29/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 30

1. For Unhealthy threshold, type:

2

2. For Timeout, type:

2

3. For Interval, type:

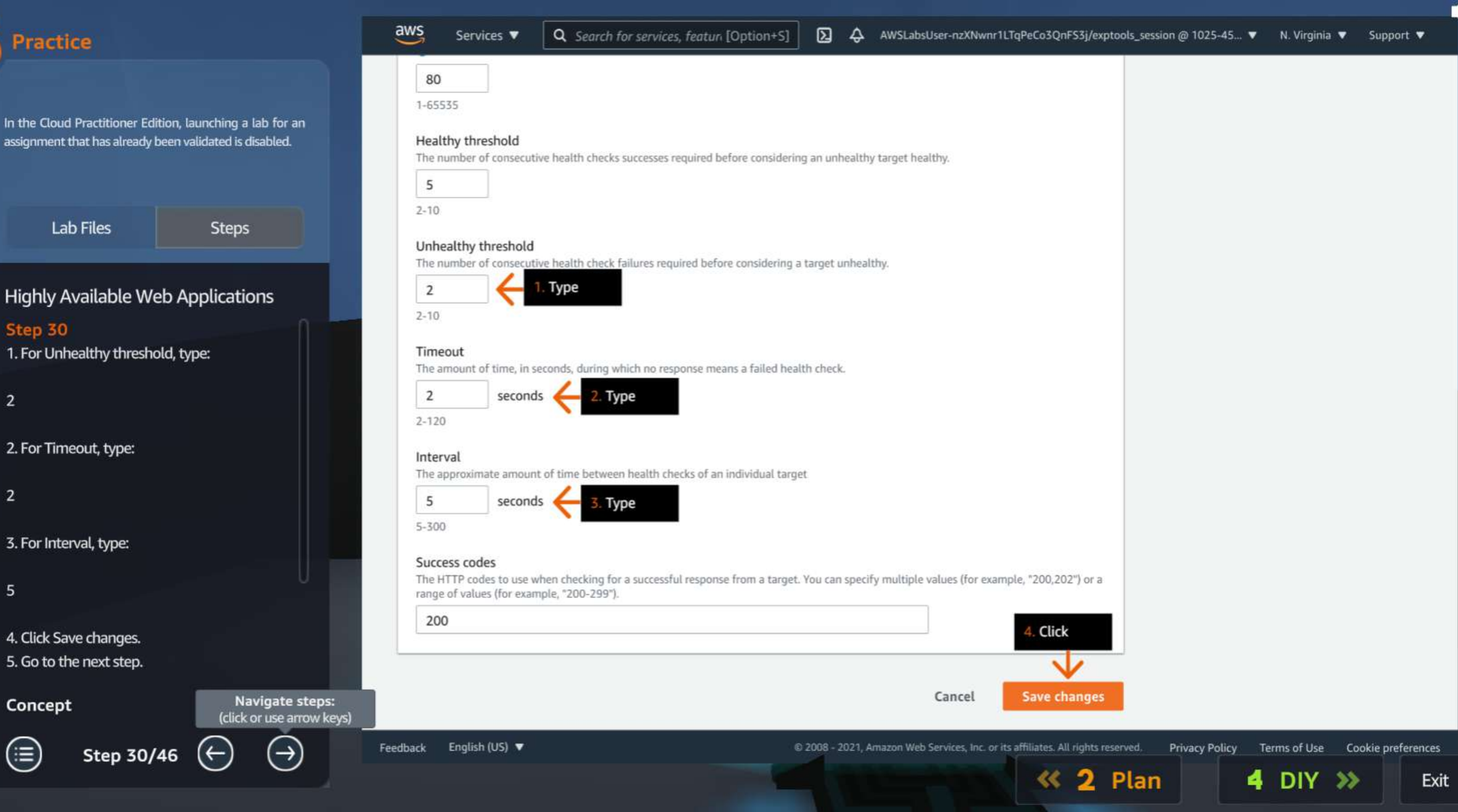
5

4. Click Save changes.
5. Go to the next step.

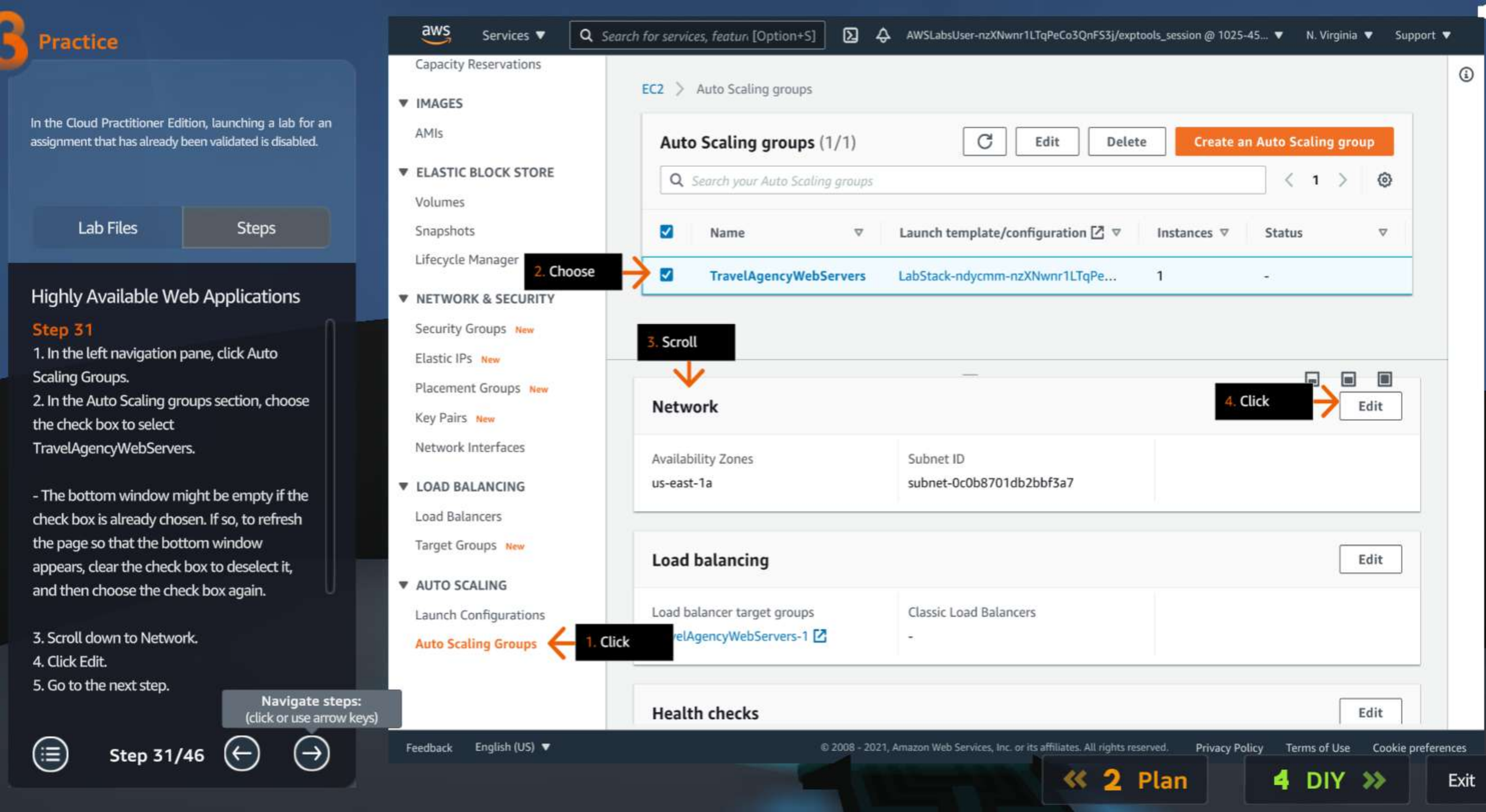
Concept

Navigate steps: (click or use arrow keys)

Step 30/46



« 2 Plan | 4 DIY » | Exit


3 Practice
In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.
Lab Files
Steps
Highly Available Web Applications
Step 31
1. In the left navigation pane, click Auto Scaling Groups.
2. In the Auto Scaling groups section, choose the check box to select TravelAgencyWebServers.
- The bottom window might be empty if the check box is already chosen. If so, to refresh the page so that the bottom window appears, clear the check box to deselect it, and then choose the check box again.
3. Scroll down to Network.
4. Click Edit.
5. Go to the next step.
Navigate steps: (click or use arrow keys)
Step 31/46
aws
Services
Search for services, featur [Option+S]
AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45...
N. Virginia
Support
Capacity Reservations
IMAGES
AMIs
ELASTIC BLOCK STORE
Volumes
Snapshots
Lifecycle Manager
NETWORK & SECURITY
Security Groups New
Elastic IPs New
Placement Groups New
Key Pairs New
Network Interfaces
LOAD BALANCING
Load Balancers
Target Groups New
AUTO SCALING
Launch Configurations
Auto Scaling Groups
1. Click
2. Choose
EC2 > Auto Scaling groups
Auto Scaling groups (1/1)
Edit
Delete
Create an Auto Scaling group
Search your Auto Scaling groups
1
Name
Launch template/configuration
Instances
Status
TravelAgencyWebServers
LabStack-ndycmm-nzXNwnr1LTqPe...
1
-
3. Scroll
Network
4. Click
Edit
Availability Zones
us-east-1a
Subnet ID
subnet-0c0b8701db2bbf3a7
Load balancing
Edit
Load balancer target groups
elAgencyWebServers-1
Classic Load Balancers
-
Health checks
Edit
Feedback
English (US)
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« 2 Plan
4 DIY »
Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 32

1. For Subnets, choose the lab/TravelAgencyVpc/PrivateSubnet1 subnet.

- This should be the only subnet selected.

2. For any other subnet that might be selected, click to deselect it.
3. Click Update.
4. Go to the next step.

Concept

If you add or remove a subnet, you are defining where the Auto Scaling group resources can reside.

Navigate steps: (click or use arrow keys)

Step 32/46

aws | Services | Search for services, featur [Option+S] | AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45... | N. Virginia | Support

- Capacity Reservations
- IMAGES
  - AMIs
- ELASTIC BLOCK STORE
  - Volumes
  - Snapshots
  - Lifecycle Manager
- NETWORK & SECURITY
  - Security Groups New
  - Elastic IPs New
  - Placement Groups New
  - Key Pairs New
  - Network Interfaces
- LOAD BALANCING
  - Load Balancers
  - Target Groups New
- AUTO SCALING
  - Launch Configurations
  - Auto Scaling Groups

EC2 > Auto Scaling groups > TravelAgencyWebServers

Edit TravelAgencyWebServers Info

Network

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.

Subnets

Select subnets

vpc-0df044ae7537411a9 (lab/TravelAgencyVpc)

- us-east-1a | subnet-0c0b8701db2bbf3a7 (lab/TravelAgencyVpc/PublicSubnet1) 10.0.0.0/19
- us-east-1a | subnet-0f0567f7ddab9120e (lab/TravelAgencyVpc/PrivateSubnet1) 10.0.96.0/19
- us-east-1b | subnet-067bbfe6b12b8db0f (lab/TravelAgencyVpc/PrivateSubnet2) 10.0.128.0/19
- us-east-1b | subnet-016d94c2f22cdde06 (lab/TravelAgencyVpc/PublicSubnet2) 10.0.32.0/19

2. Deselect

1. Choose

Cancel | Update

3. Click

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« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 33

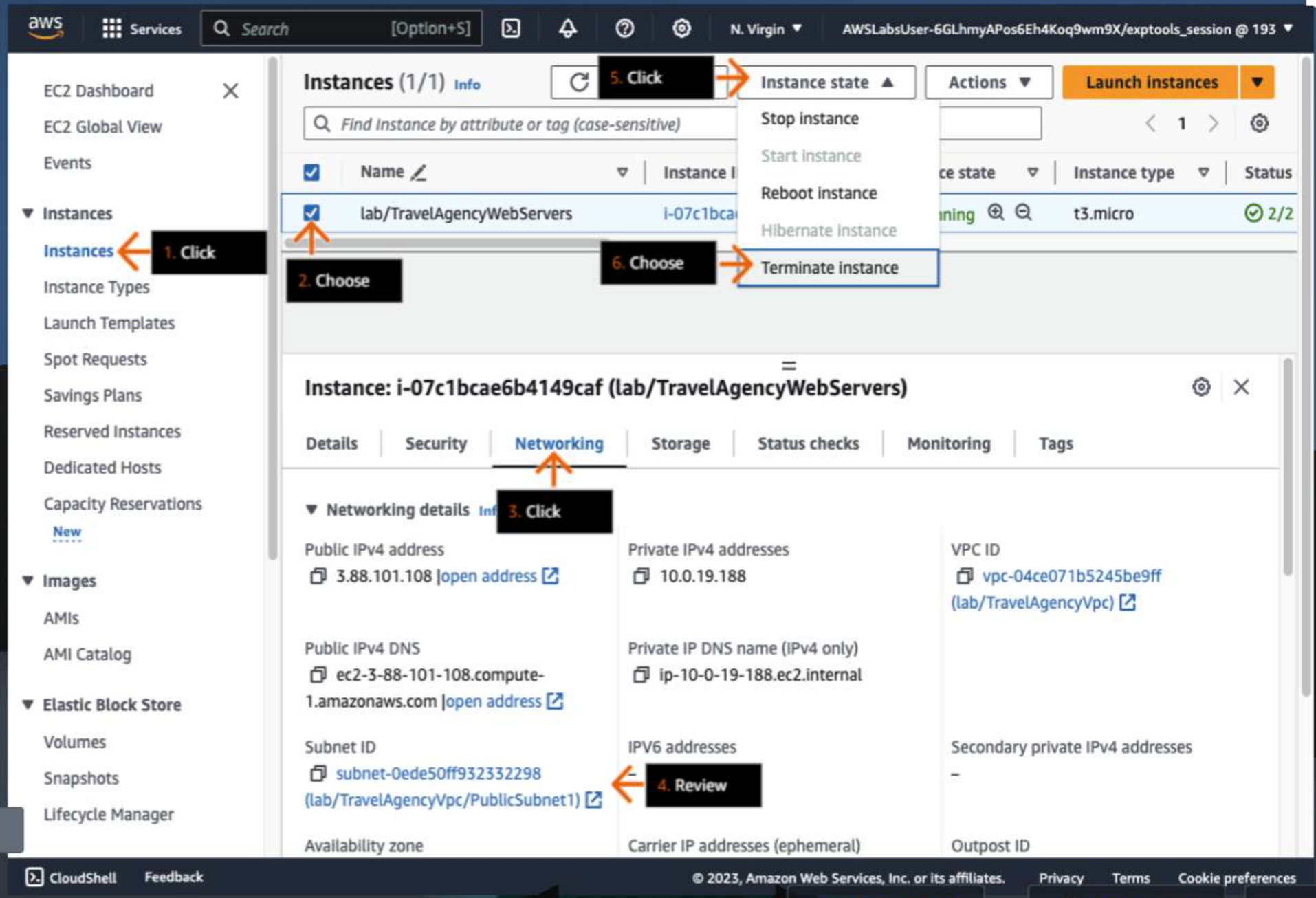
1. In the left navigation pane, click Instances.
2. In the Instances section, choose the check box to select lab/TravelAgencyWebServers.
3. Click the Networking tab.
4. Under Subnet ID, review to see that the old instance is in the subnet, lab/TravelAgencyVpc/PublicSubnet1.
5. At the top of the page, click Instance state to expand the dropdown menu.
6. Choose Terminate instance.
7. In the pop-up box (not shown), click Terminate.
8. Go to the next step.

Concept

Changing the subnet will not a

Navigate steps: (click or use arrow keys)

Step 33/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

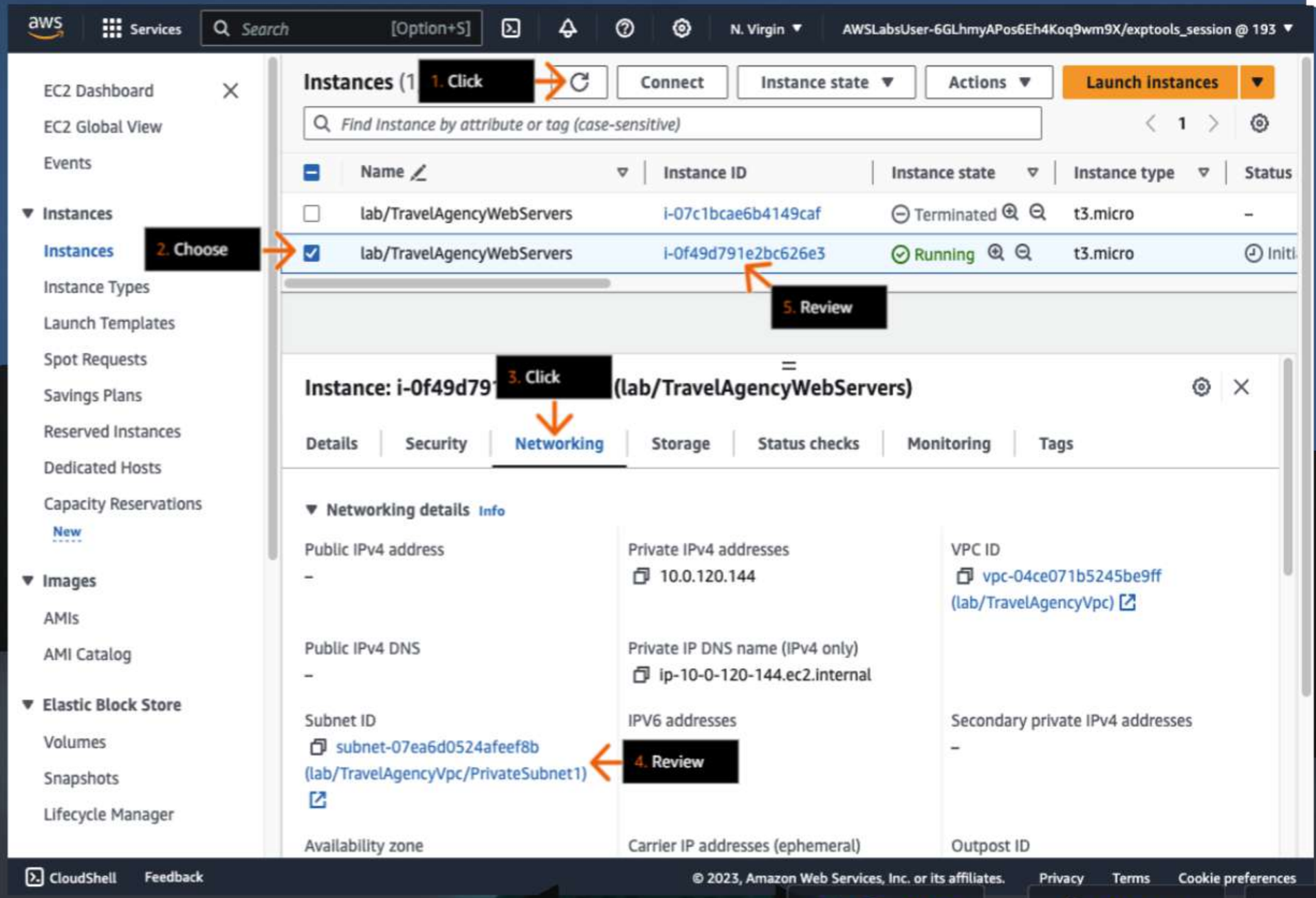
Step 34

1. After a few minutes, in the Instances section, click the refresh icon.

- The Instances list should show that a new instance was created.

2. Choose the check box to select the new instance.
3. Click the Networking tab.
4. Under Subnet ID, review to see that the new instance is in the subnet, lab/TravelAgencyVpc/PrivateSubnet1.
5. Under Instance ID, review the new instance's unique ID.
6. Go to the next step.

Step 34/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 35

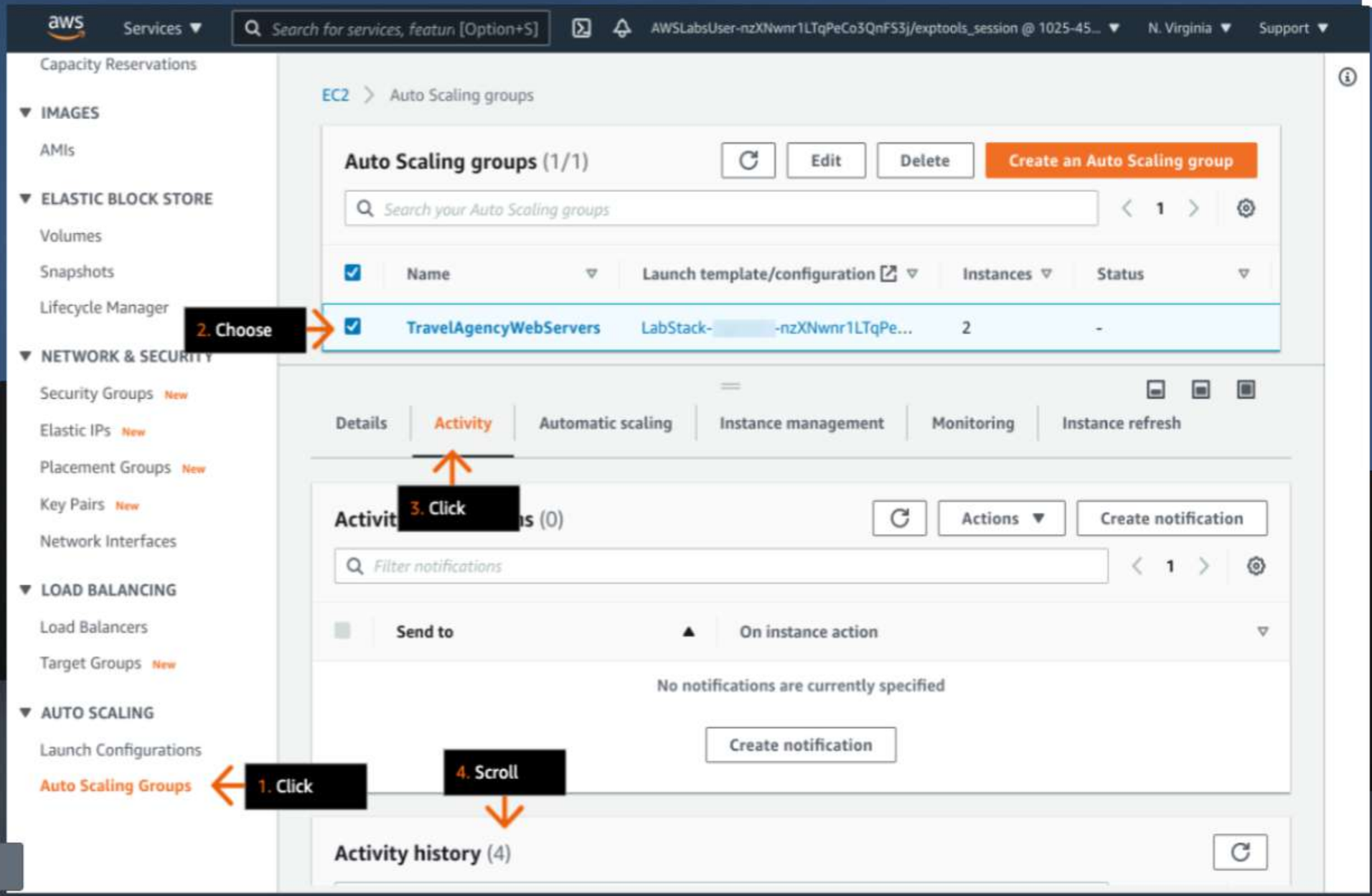
1. In the left navigation pane, click Auto Scaling Groups.
2. In the Auto Scaling groups section, choose the check box to select TravelAgencyWebServers.

- The bottom window might be empty if the check box is already chosen. If so, to refresh the page so that the bottom window appears, clear the check box to deselect it, and then choose the check box again.

3. Click on the Activity tab.
4. Scroll down to Activity history.
5. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 35/46



« 2 Plan | 4 DIY » | Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 36

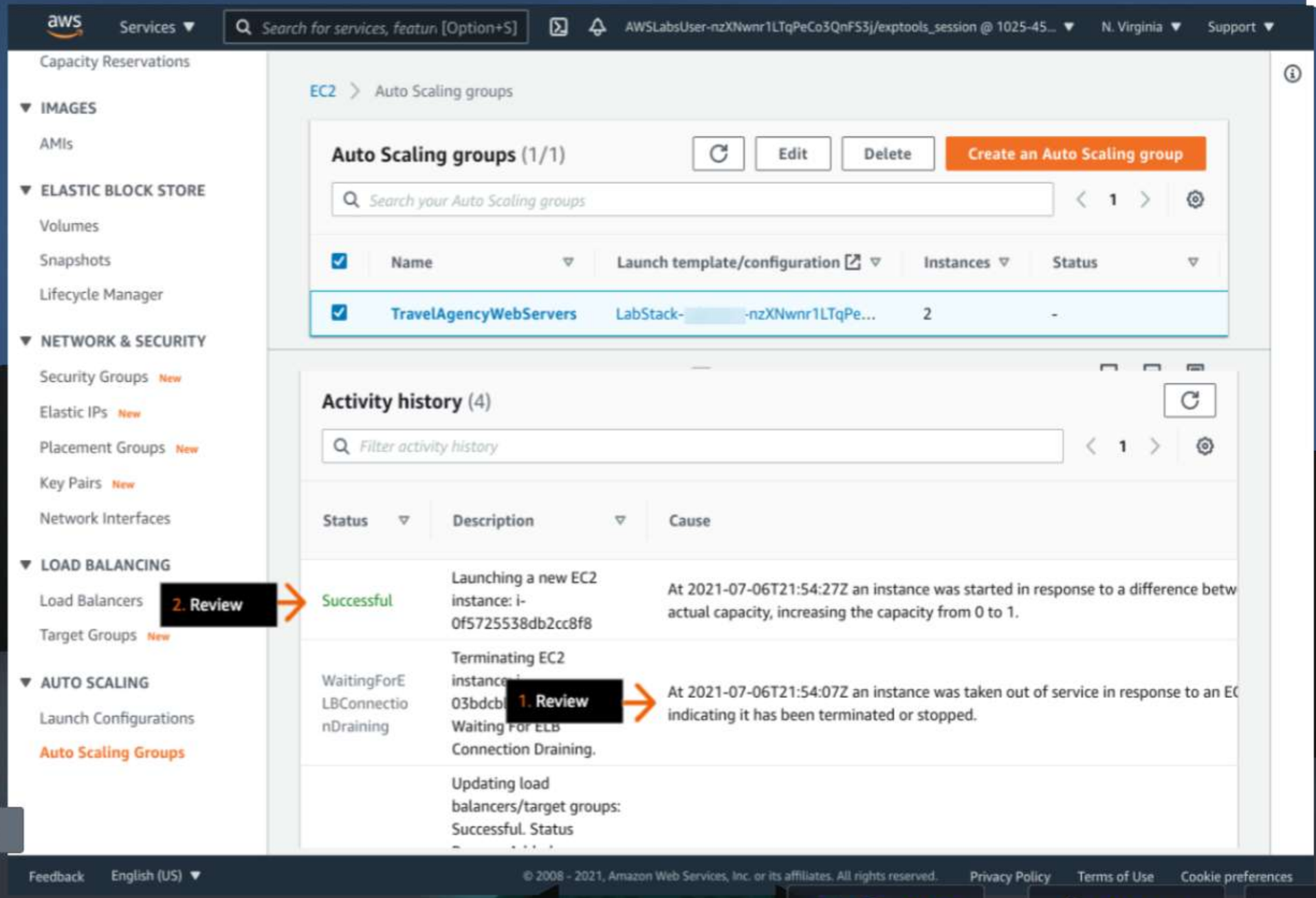
1. In the Activity history section, review to see that the old instance was terminated.
2. Review to see that the Auto Scaling group responded by creating a new instance.
3. Go to the next step.

Concept

Each item in Activity history lists an Auto Scaling action and the cause of the action.

Navigate steps: (click or use arrow keys)

Step 36/46



3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 37

1. In the other browser tab, to refresh the health check page, click the refresh icon.
2. Review the message.

- In the message, Instance i-XXXXXX is healthy, the Instance ID value should be the value of the new instance.

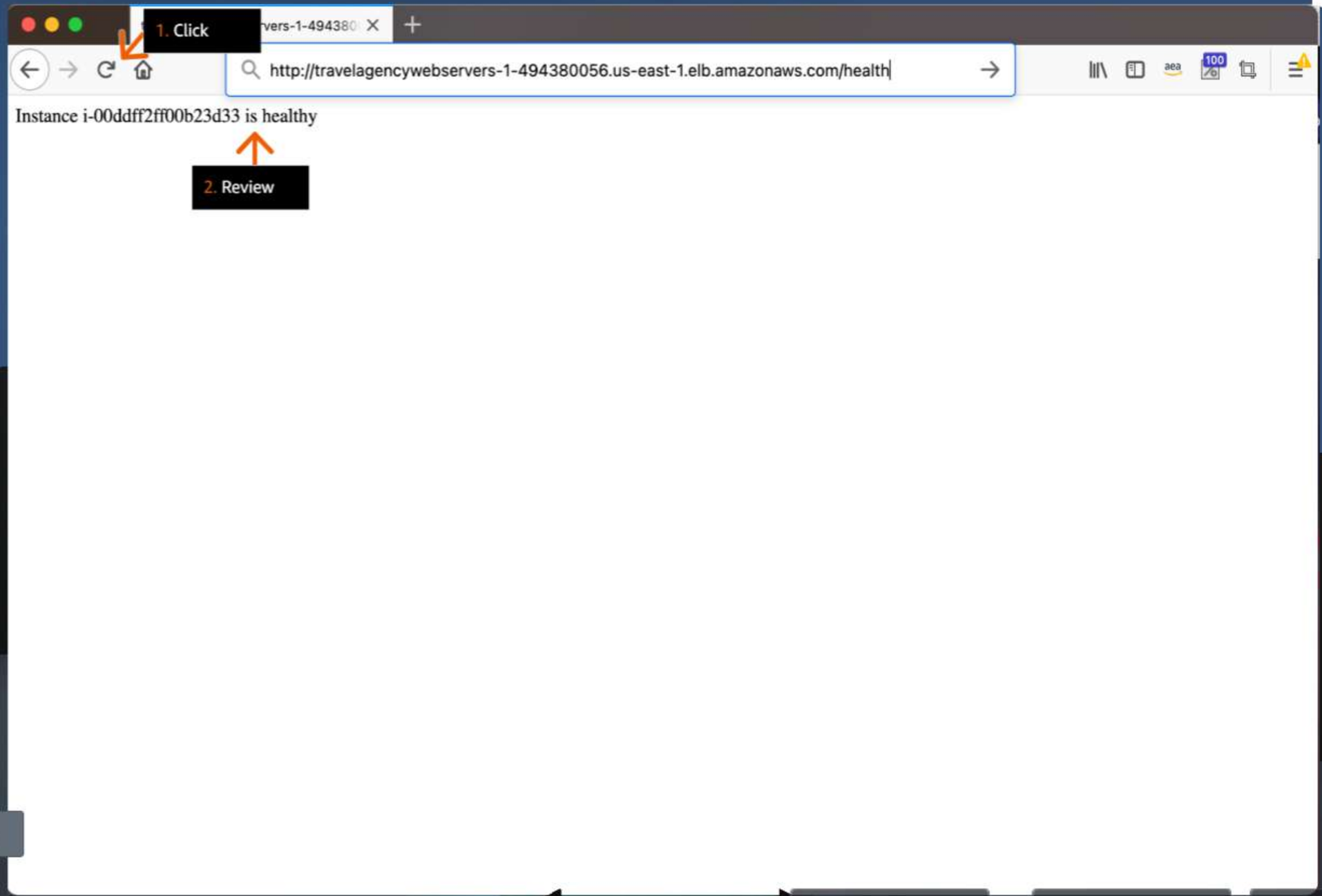
3. Go to the next step.

Concept

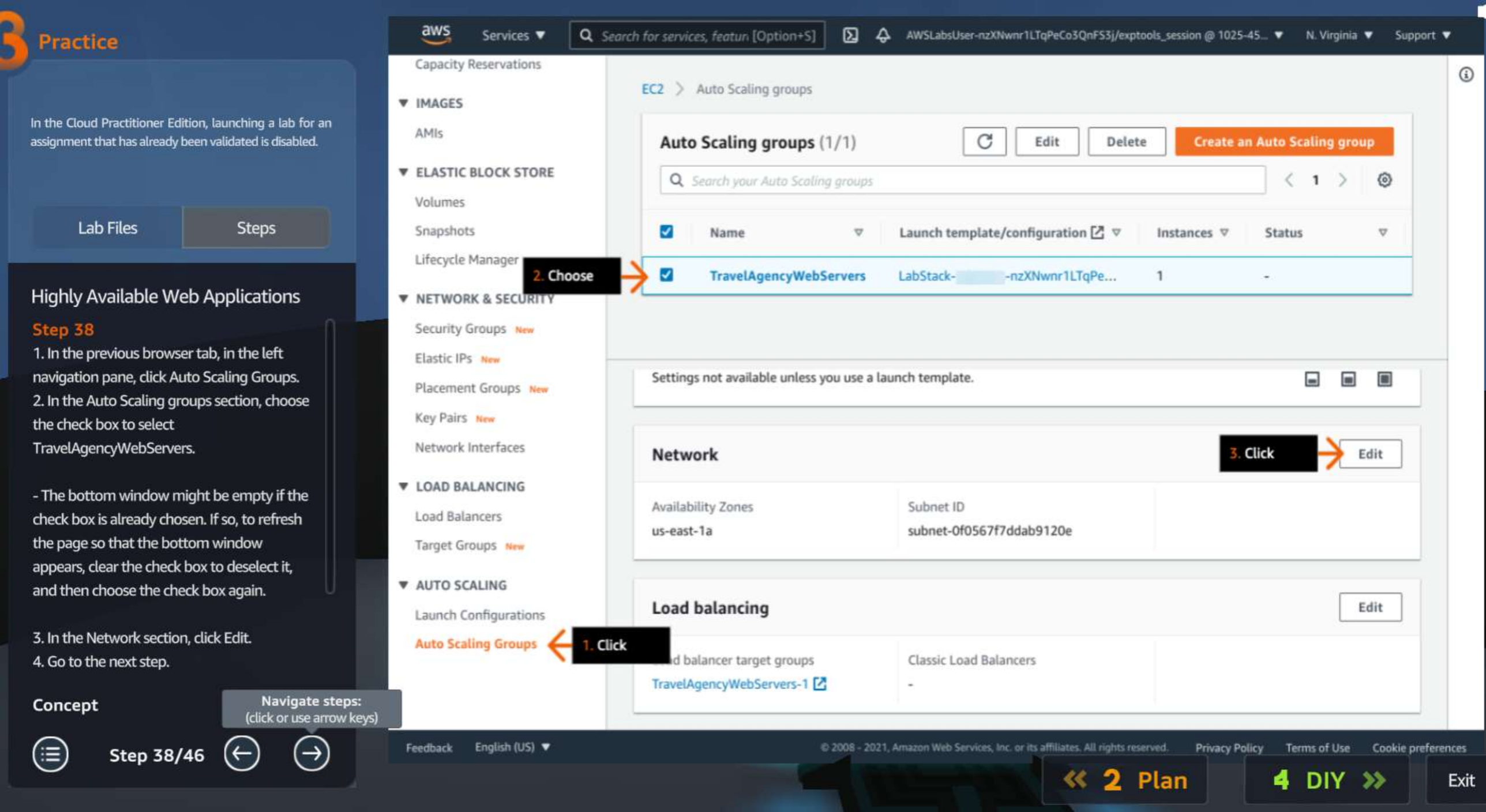
Be sure to get verification, by the load balancer, that your new instances are running and considered healthy.

Navigate steps:
(click or use arrow keys)

Step 37/46



« 2 Plan | 4 DIY » | Exit


3 Practice
In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.
Lab Files
Steps
Highly Available Web Applications
Step 38
1. In the previous browser tab, in the left navigation pane, click Auto Scaling Groups.
2. In the Auto Scaling groups section, choose the check box to select TravelAgencyWebServers.
- The bottom window might be empty if the check box is already chosen. If so, to refresh the page so that the bottom window appears, clear the check box to deselect it, and then choose the check box again.
3. In the Network section, click Edit.
4. Go to the next step.
Concept
Navigate steps: (click or use arrow keys)
Step 38/46
aws
Services
Search for services, featur [Option+S]
AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45...
N. Virginia
Support
Capacity Reservations
IMAGES
AMIs
ELASTIC BLOCK STORE
Volumes
Snapshots
Lifecycle Manager
NETWORK & SECURITY
Security Groups New
Elastic IPs New
Placement Groups New
Key Pairs New
Network Interfaces
LOAD BALANCING
Load Balancers
Target Groups New
AUTO SCALING
Launch Configurations
Auto Scaling Groups
1. Click
EC2 > Auto Scaling groups
Auto Scaling groups (1/1)
Edit
Delete
Create an Auto Scaling group
Search your Auto Scaling groups
1
Name
Launch template/configuration
Instances
Status
2. Choose
TravelAgencyWebServers
LabStack-[redacted]-nzXNwnr1LTqPe...
1
-
Settings not available unless you use a launch template.
Network
3. Click
Edit
Availability Zones
us-east-1a
Subnet ID
subnet-0f0567f7ddab9120e
Load balancing
Edit
d balancer target groups
TravelAgencyWebServers-1
Classic Load Balancers
-
Feedback
English (US)
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Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 39

1. For Subnets, choose the subnet, lab/TravelAgencyVpc/PrivateSubnet2.

- Both lab/TravelAgencyVpc/PrivateSubnet1 and lab/TravelAgencyVpc/PrivateSubnet2 should now be selected.

2. Click Update.
3. Go to the next step.

Concept

When one Availability Zone becomes unhealthy or unavailable, Amazon EC2 Auto Scaling launches a new instance in an unaffected Availability Zone. Auto scaling attempts to launch new instan

Navigate steps: (click or use arrow keys)

Step 39/46

aws Services Search for services, featur [Option+S] AWSLabsUser-nzXNwnr1LTqPeCo3QnFS3j/exptools_session @ 1025-45... N. Virginia Support

- Capacity Reservations
- IMAGES
  - AMIs
- ELASTIC BLOCK STORE
  - Volumes
  - Snapshots
  - Lifecycle Manager
- NETWORK & SECURITY
  - Security Groups New
  - Elastic IPs New
  - Placement Groups New
  - Key Pairs New
  - Network Interfaces
- LOAD BALANCING
  - Load Balancers
  - Target Groups New
- AUTO SCALING
  - Launch Configurations
  - Auto Scaling Groups

EC2 > Auto Scaling groups > TravelAgencyWebServers

Edit TravelAgencyWebServers Info

Network

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.

Subnets

Select subnets

vpc-0df044ae7537411a9 (lab/TravelAgencyVpc)

- us-east-1a | subnet-0c0b8701db2bbf3a7 (lab/TravelAgencyVpc/PublicSubnet1) 10.0.0.0/19
- us-east-1a | subnet-0f0567f7ddab9120e (lab/TravelAgencyVpc/PrivateSubnet1) 10.0.96.0/19
- us-east-1b | subnet-067bbfe6b12b8db0f (lab/TravelAgencyVpc/PrivateSubnet2) 10.0.128.0/19
- us-east-1b | subnet-016d94c2f22cdde06 (lab/TravelAgencyVpc/PublicSubnet2) 10.0.32.0/19

1. Choose

Cancel Update

2. Click

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« 2 Plan 4 DIY » Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 40

1. In the left navigation pane, click Auto Scaling Groups.
2. In the Auto Scaling groups section, choose the check box to select TravelAgencyWebServers.

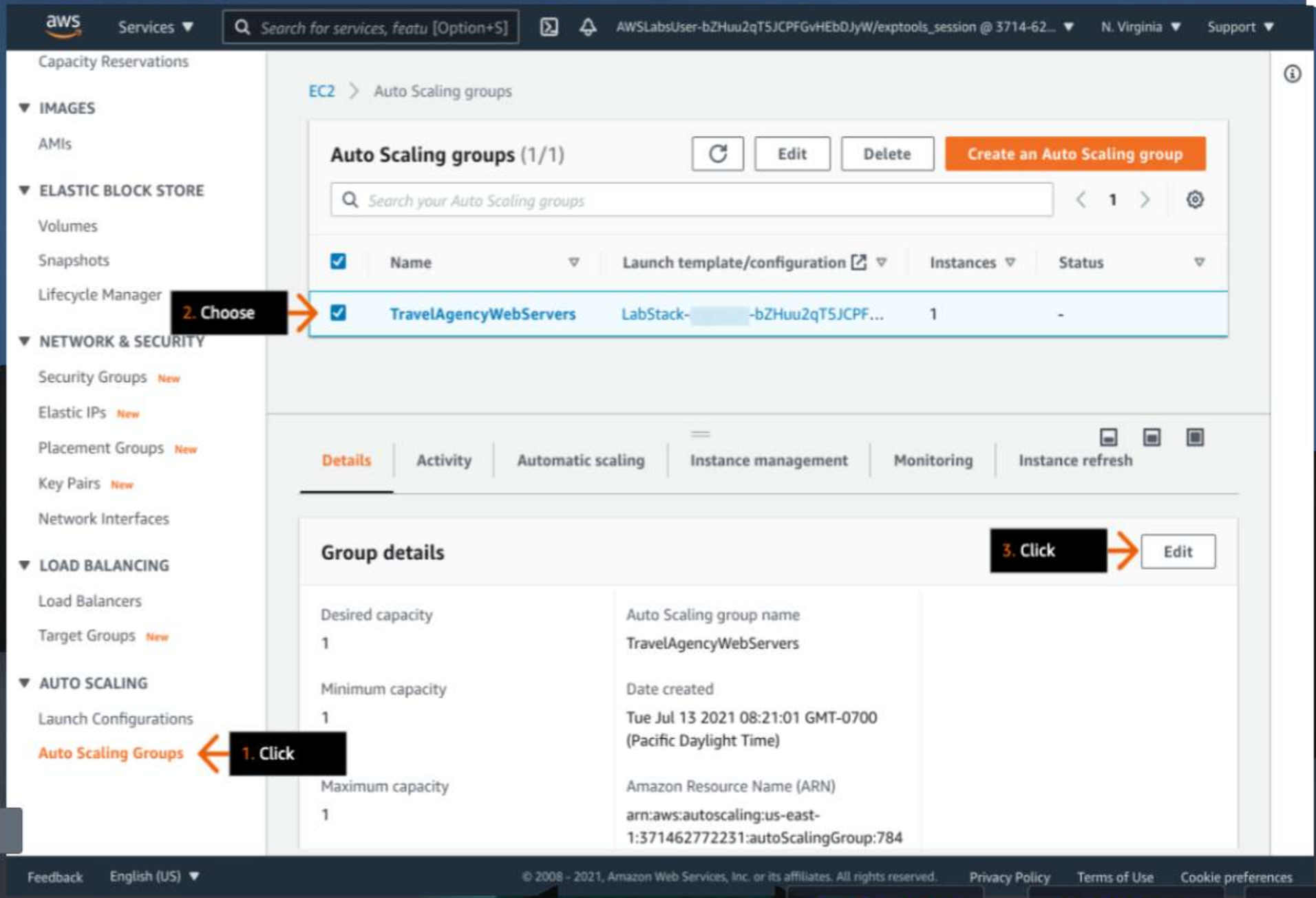
- The bottom window might be empty if the check box is already chosen. If so, to refresh the page so that the bottom window appears, clear the check box to deselect it, and then choose the check box again.

3. On the Details tab, click Edit.
4. Go to the next step.

Concept

Navigate steps: (click or use arrow keys)

Step 40/46



3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 41

1. In the pop-up box, for Desired capacity, type:

2

2. For Max desired capacity, type:

2

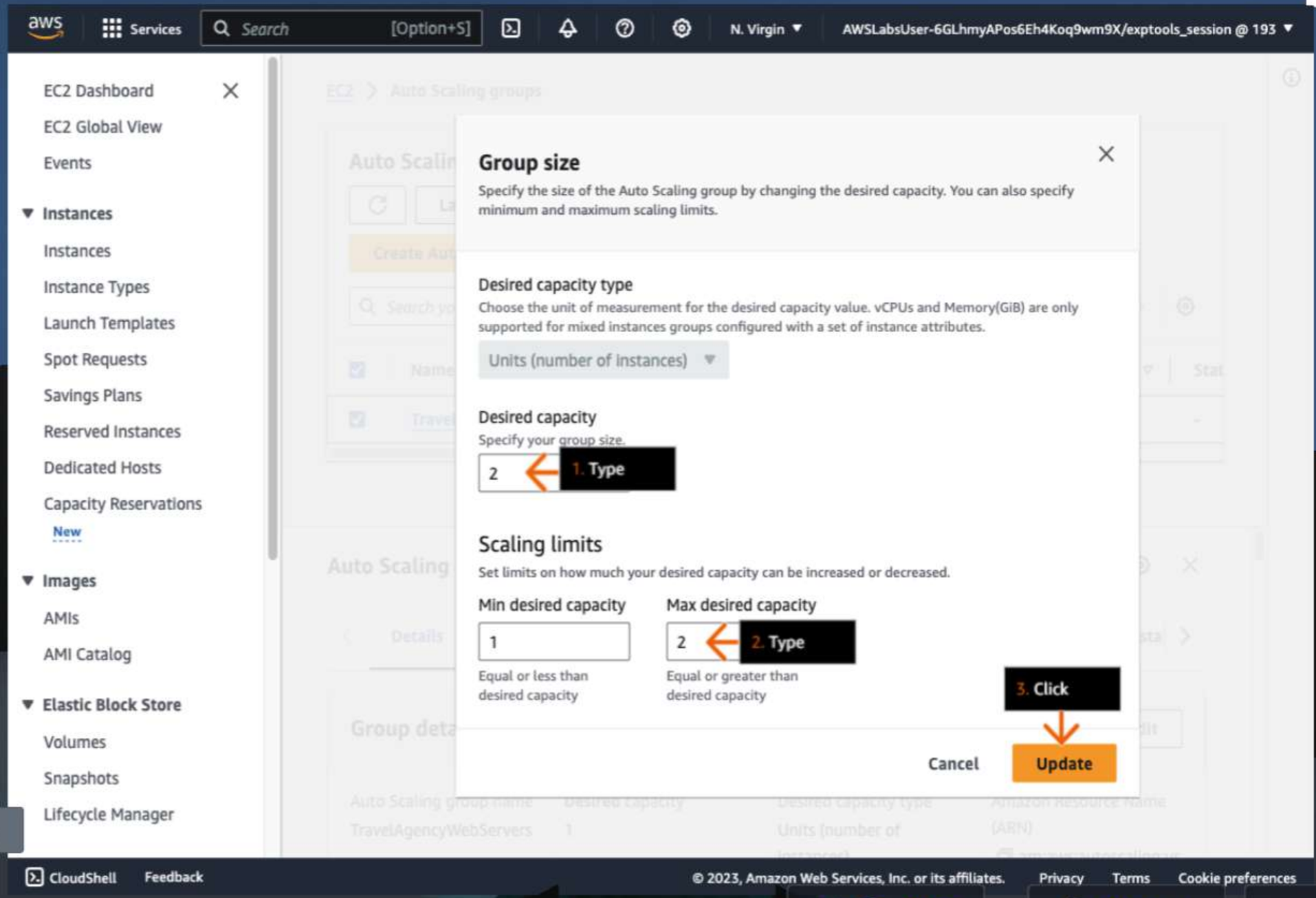
3. Click Update.
4. Go to the next step.

Concept

By changing desired capacity manually, you can test your Auto Scaling group behavior. Increasing the desired capacity

Navigate steps: (click or use arrow keys)

Step 41/46



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3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 42

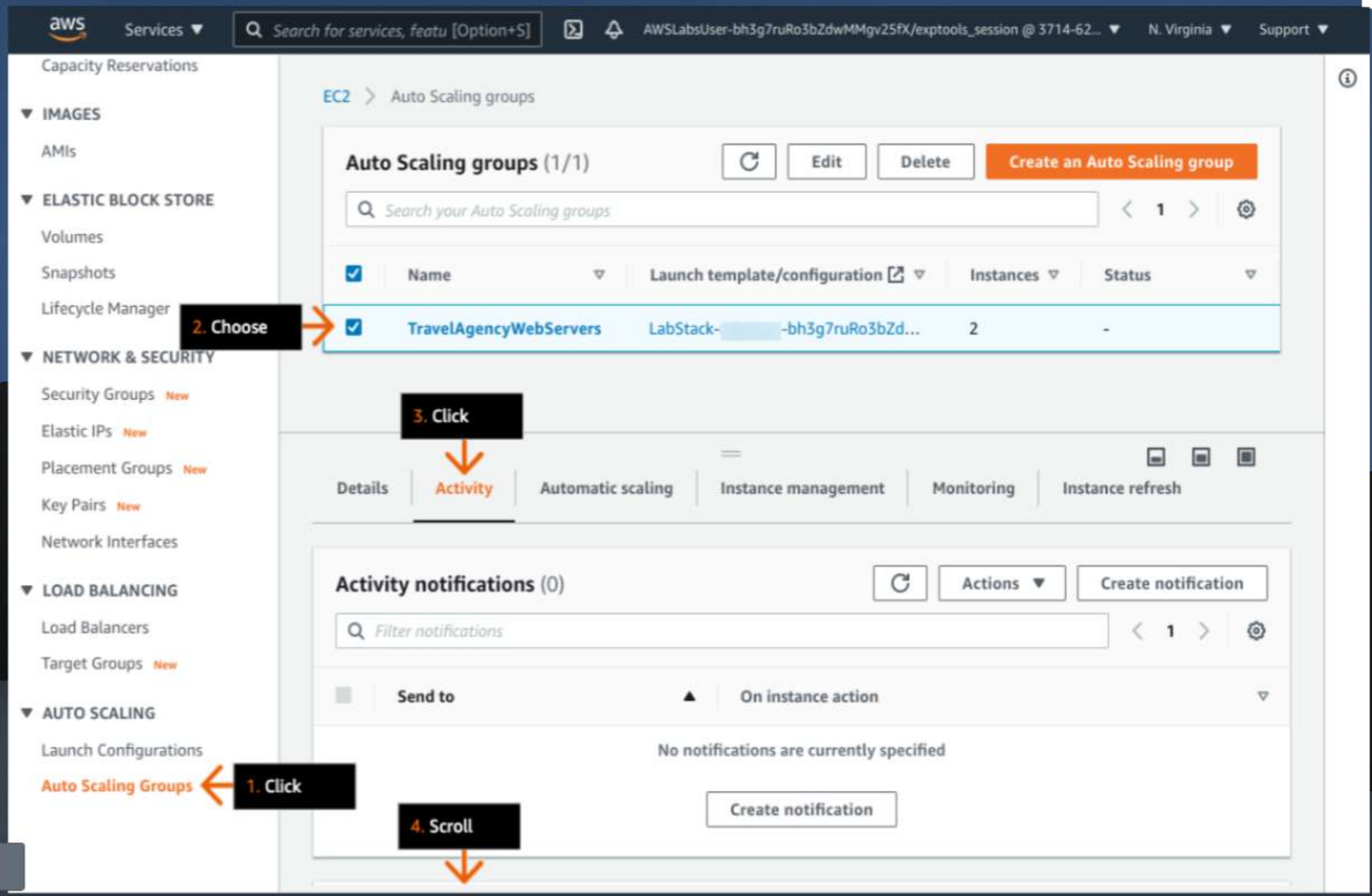
1. In the left navigation pane, click Auto Scaling Groups.
2. In the Auto Scaling groups section, choose the check box to select TravelAgencyWebServers.

- The bottom window might be empty if the check box is already chosen. If so, to refresh the page so that the bottom window appears, clear the check box to deselect it, and then choose the check box again.

3. Click the Activity tab.
4. Scroll down to Activity history.
5. Go to the next step.

Navigate steps: (click or use arrow keys)

Step 42/46



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3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 43

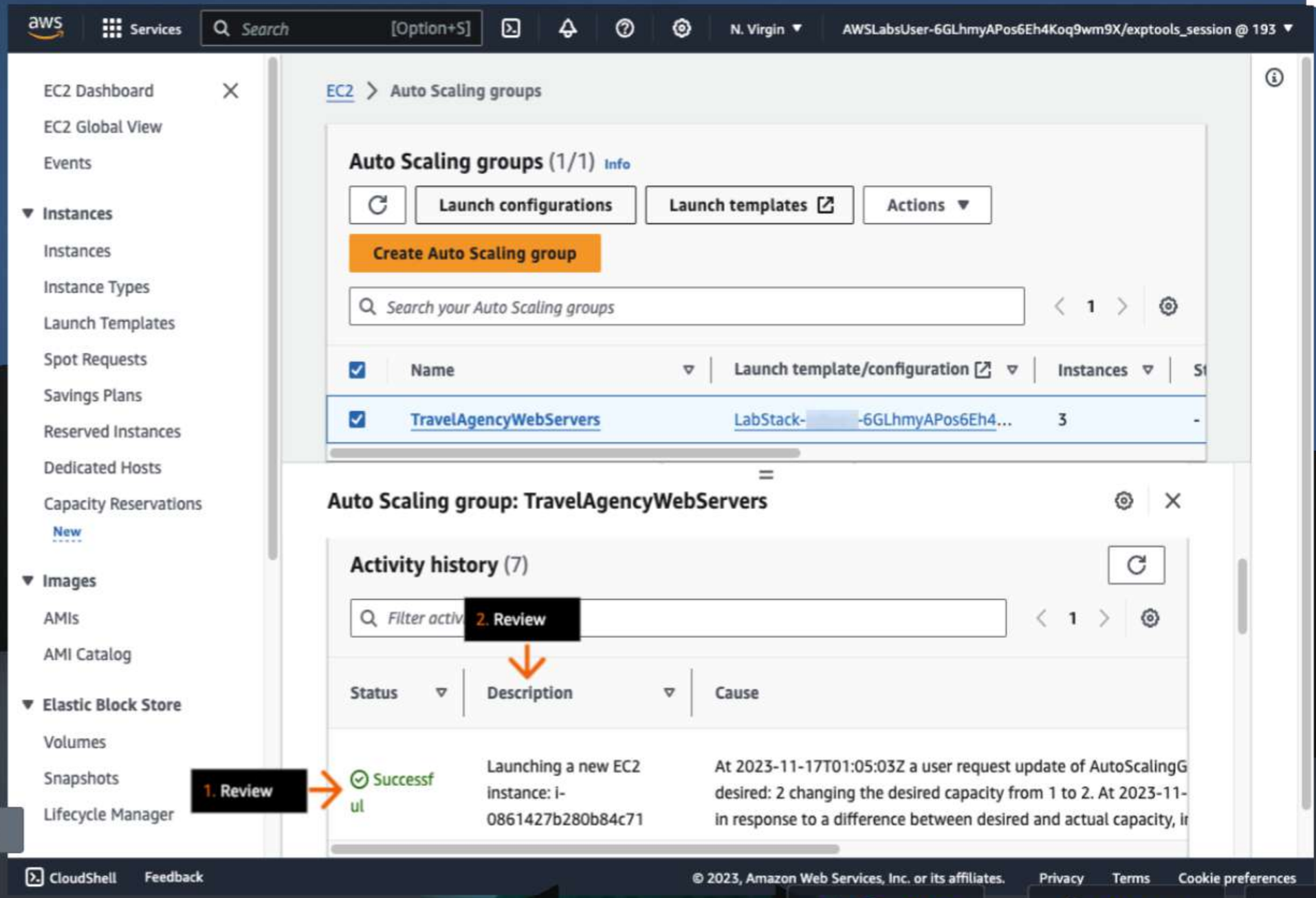
1. In the Activity history section, review to see that a new instance is launching.
2. Under Description, review the new instance ID.
3. Go to the next step.

Concept

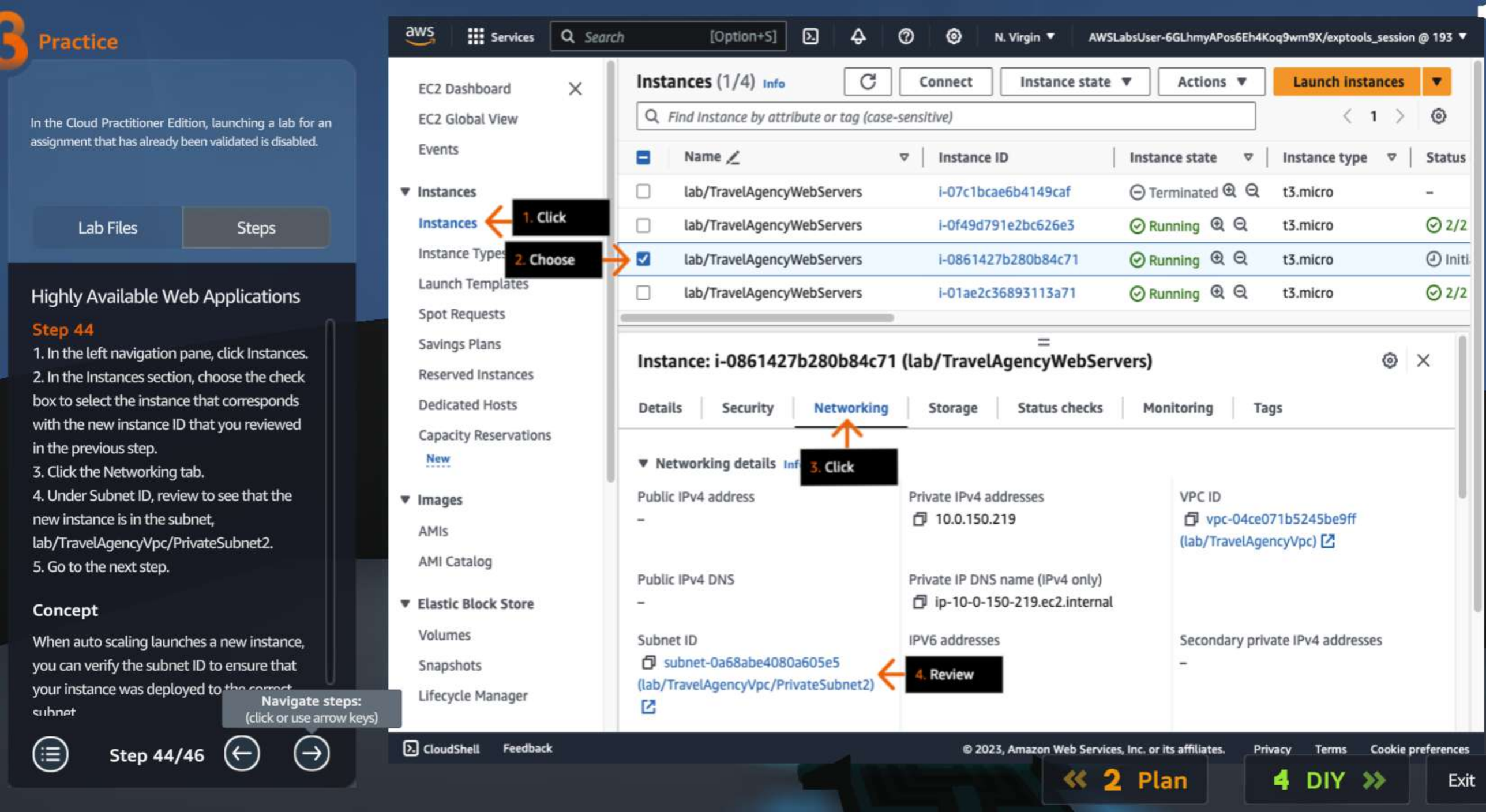
The load balancer can use connection draining to complete in-flight requests made to instances that are deregistering, or unhealthy, before stopping traffic flow from the load balancer.

Navigate steps: (click or use arrow keys)

Step 43/46



« 2 Plan | 4 DIY » | Exit


Practice
In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.
Lab Files
Steps
Highly Available Web Applications
Step 44
1. In the left navigation pane, click Instances.
2. In the Instances section, choose the check box to select the instance that corresponds with the new instance ID that you reviewed in the previous step.
3. Click the Networking tab.
4. Under Subnet ID, review to see that the new instance is in the subnet, lab/TravelAgencyVpc/PrivateSubnet2.
5. Go to the next step.
Concept
When auto scaling launches a new instance, you can verify the subnet ID to ensure that your instance was deployed to the correct subnet
Navigate steps: (click or use arrow keys)
Step 44/46
aws
Services
Search
[Option+S]
N. Virgin
AWSLabsUser-6GLhmyAPos6Eh4Koq9wm9X/exptools_session @ 193
EC2 Dashboard
EC2 Global View
Events
Instances
Instances
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances
Dedicated Hosts
Capacity Reservations
New
Images
AMIs
AMI Catalog
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager
1. Click
2. Choose
Instances (1/4) Info
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
Name
Instance ID
Instance state
Instance type
Status
lab/TravelAgencyWebServers
i-07c1bcae6b4149caf
Terminated
t3.micro
lab/TravelAgencyWebServers
i-0f49d791e2bc626e3
Running
t3.micro
2/2
lab/TravelAgencyWebServers
i-0861427b280b84c71
Running
t3.micro
lab/TravelAgencyWebServers
i-01ae2c36893113a71
Running
t3.micro
2/2
Instance: i-0861427b280b84c71 (lab/TravelAgencyWebServers)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
3. Click
Networking details
Public IPv4 address
-
Private IPv4 addresses
10.0.150.219
VPC ID
vpc-04ce071b5245be9ff (lab/TravelAgencyVpc)
Public IPv4 DNS
-
Private IP DNS name (IPv4 only)
ip-10-0-150-219.ec2.internal
Subnet ID
subnet-0a68abe4080a605e5 (lab/TravelAgencyVpc/PrivateSubnet2)
4. Review
IPV6 addresses
Secondary private IPv4 addresses
-
CloudShell
Feedback
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Exit

3 Practice

In the Cloud Practitioner Edition, launching a lab for an assignment that has already been validated is disabled.

Lab Files | Steps

Highly Available Web Applications

Step 45

1. In the other browser tab, to refresh the health check page, click the refresh icon.
2. Review the message.

- The page should load with the message, Instance i-XXXX is healthy. The Instance ID value should be the value of the new instance.

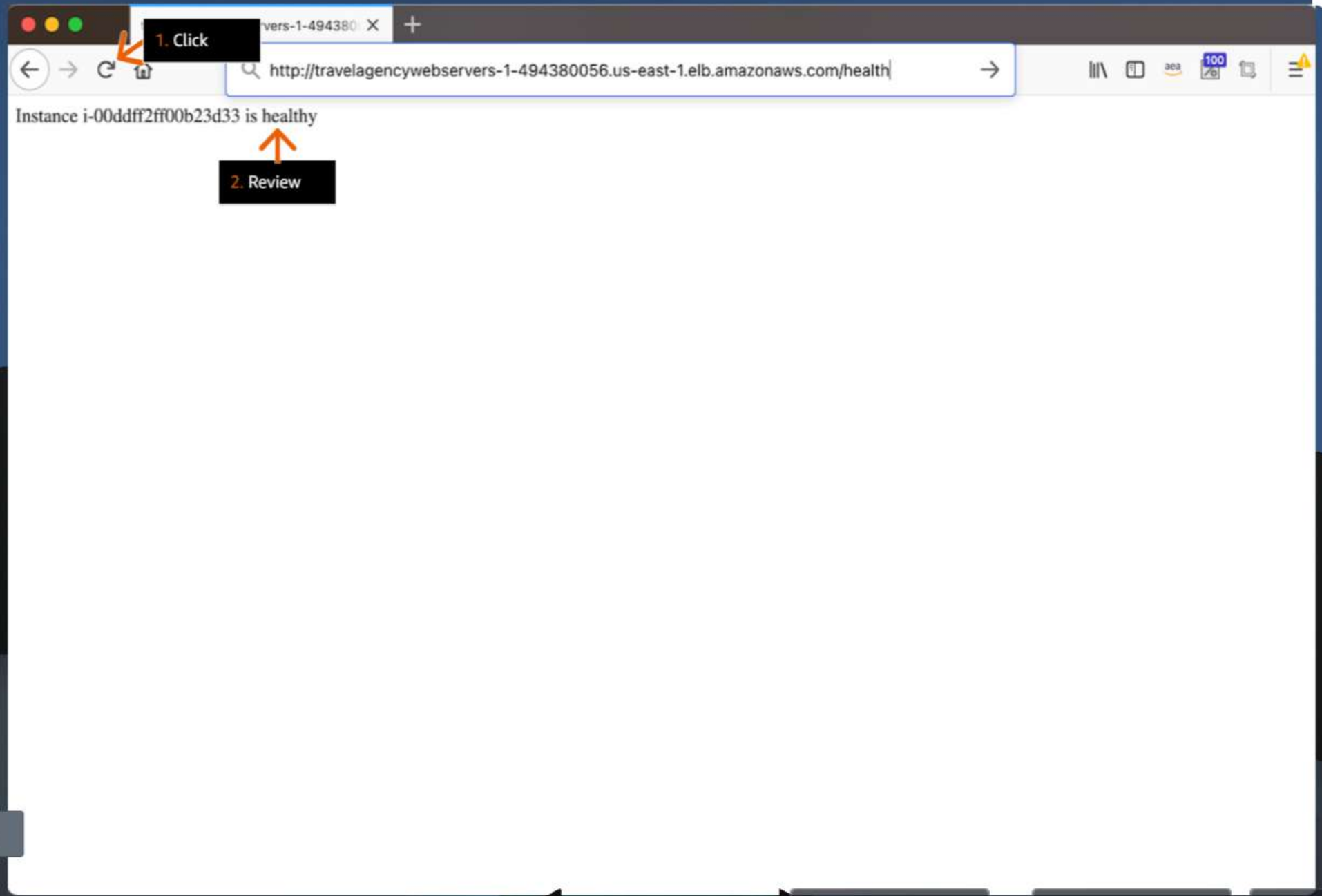
- Congratulations! You successfully migrated the travel agency website to a highly available architecture.

3. Go to the next step.

Concept

Navigate steps: (click or use arrow keys)

Step 45/46



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