Module 2 Assignment 1

You have been asked to:

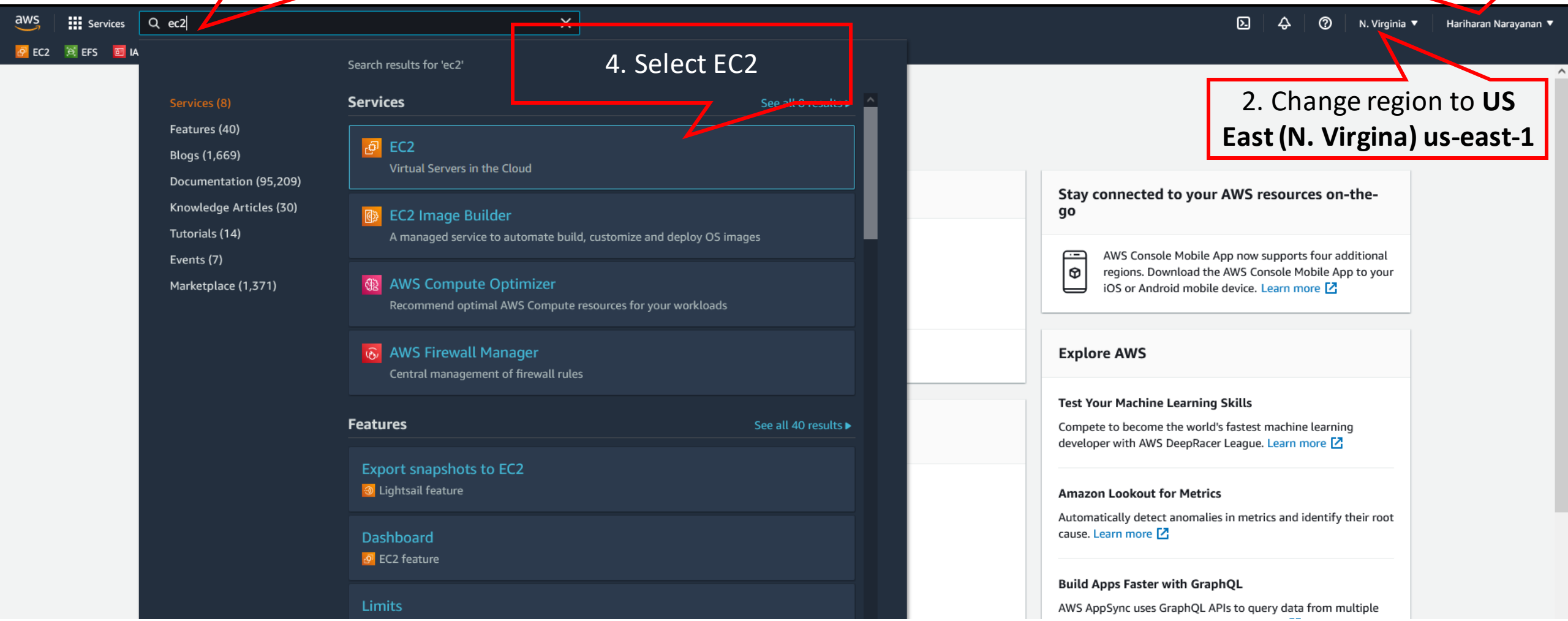
1. Create an Instance in us-east-1 (N. Virginia) region with anUbuntu OS and install Nginx for making them web servers
2. 2. Change the default website with a hello world pag

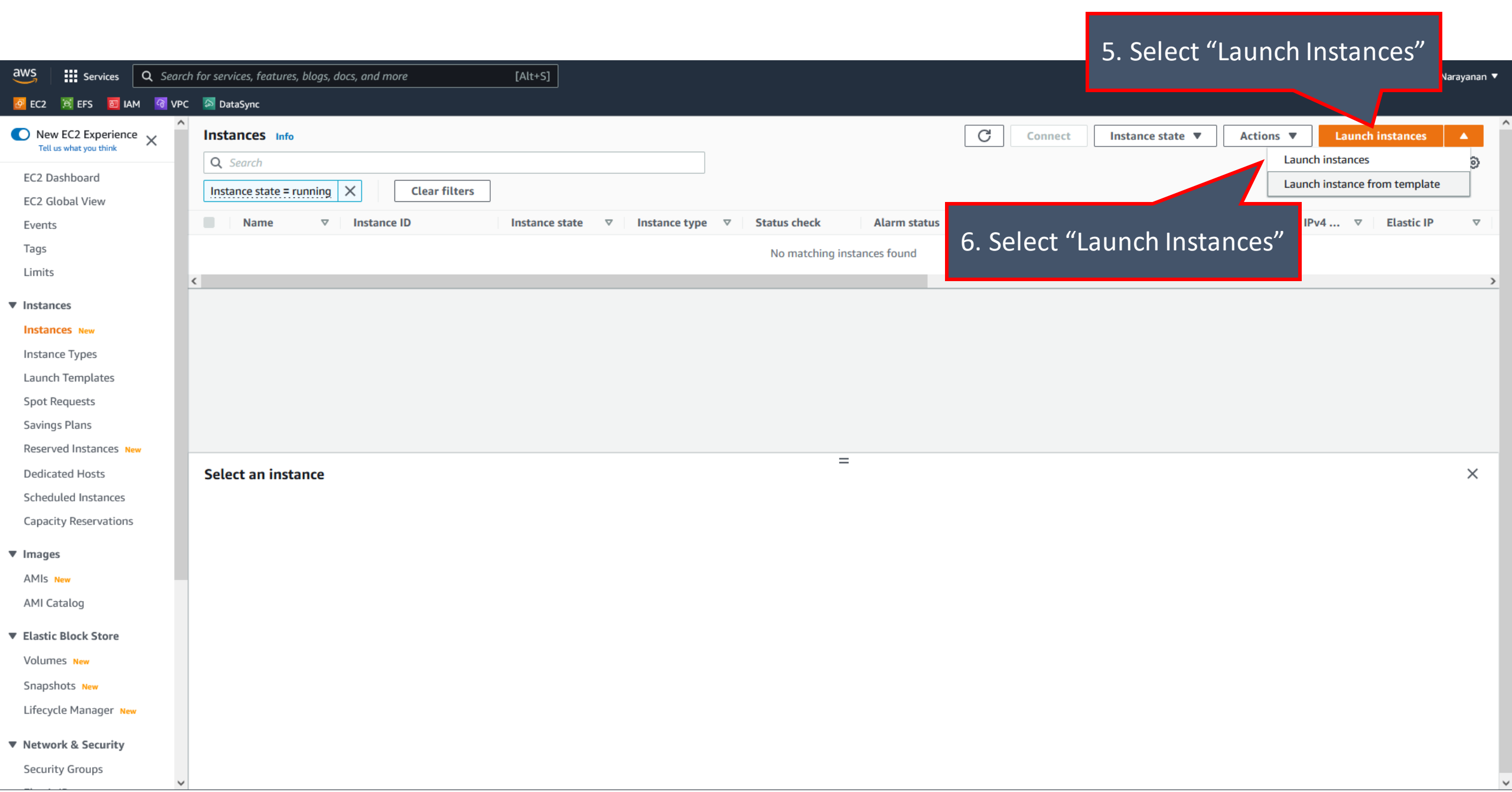
1. Login into https://aws/amazon.com

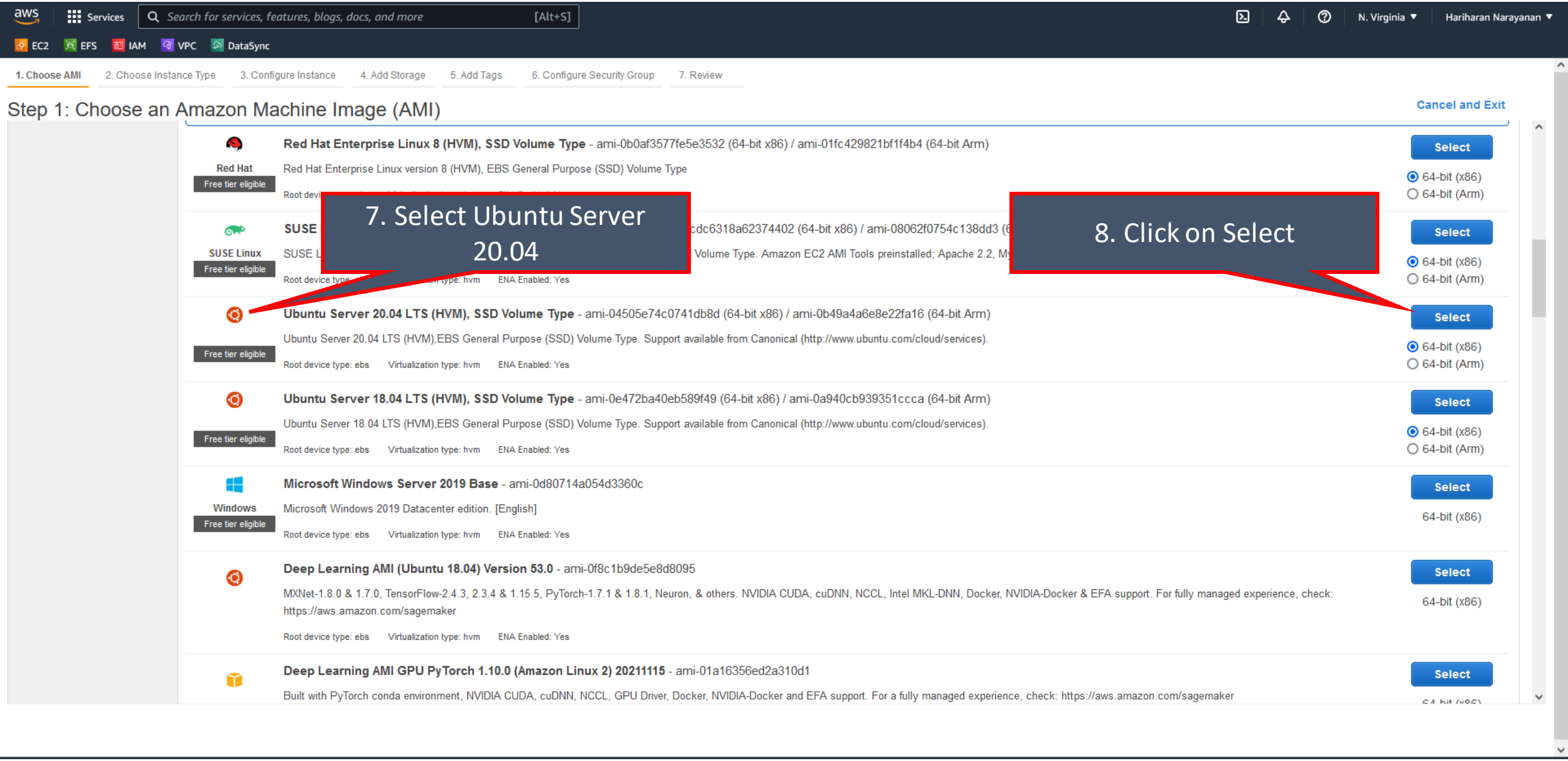
2. Change region to **US East (N. Virgina) us-east-1**

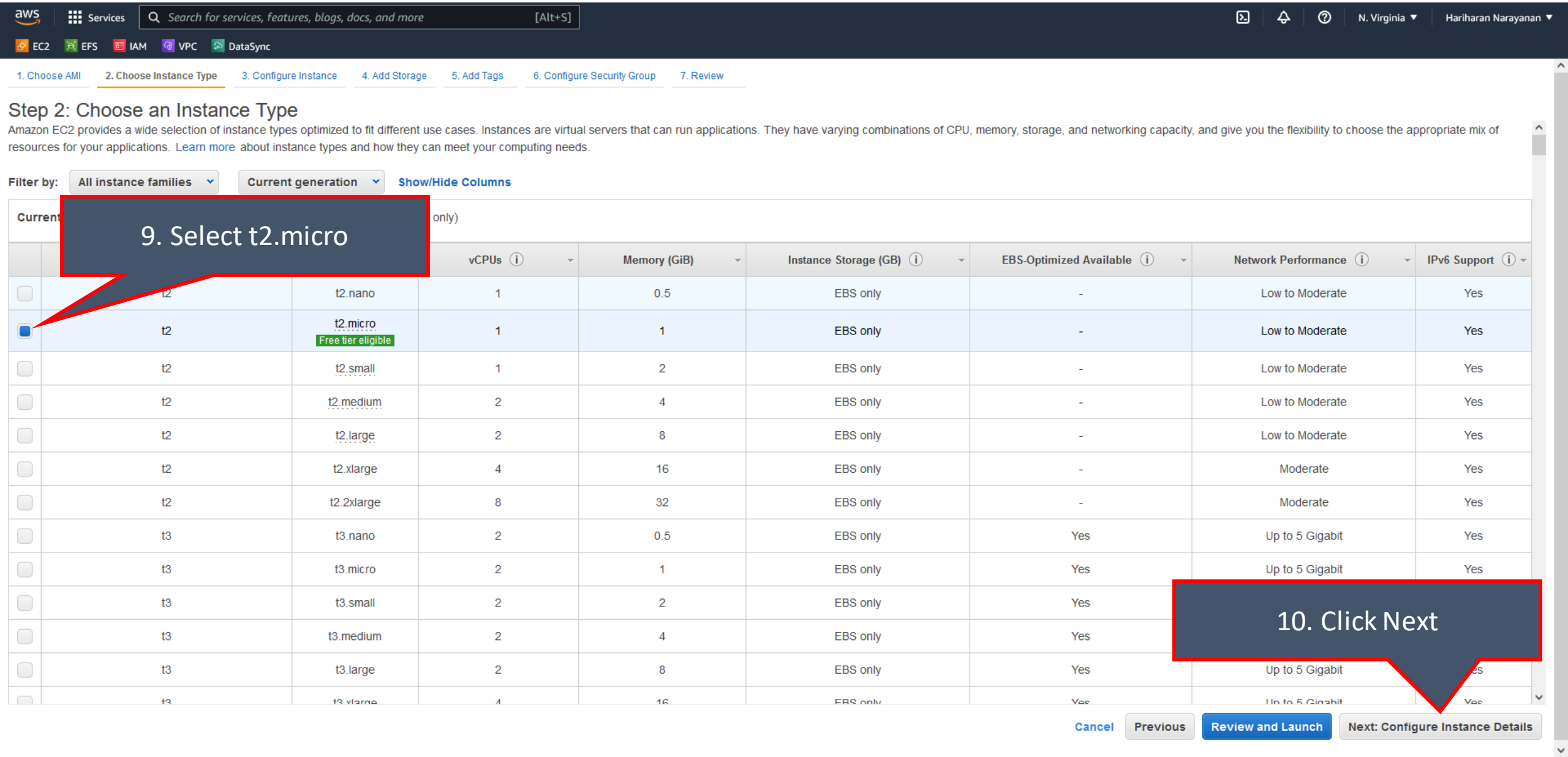
3. Type “EC2” in search bar

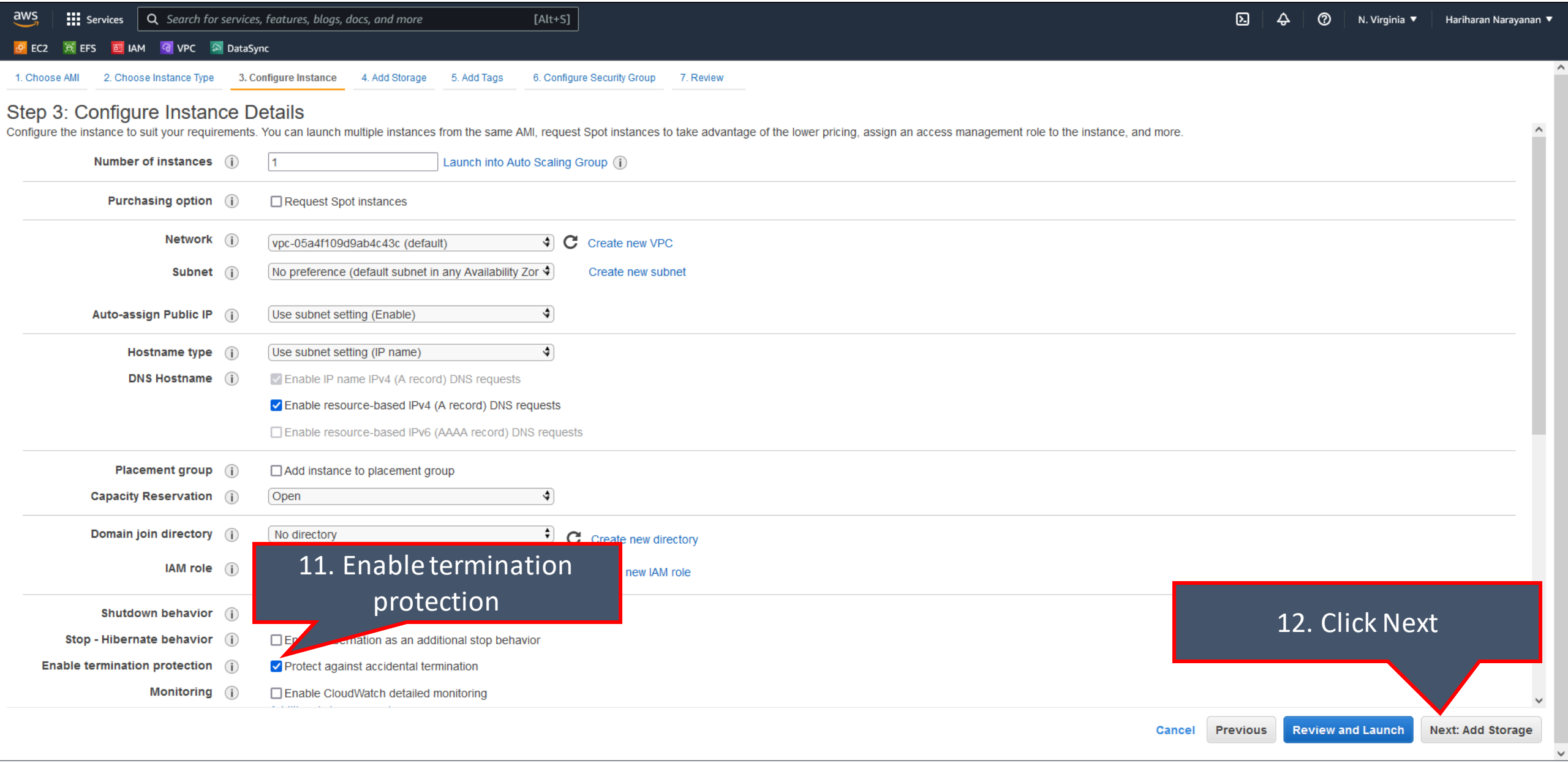
4. Select EC2




5. Select “Launch Instances”
aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
Narayanan
EC2
EFS
IAM
VPC
DataSync
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs New
AMI Catalog
Elastic Block Store
Volumes New
Snapshots New
Lifecycle Manager New
Network & Security
Security Groups
Instances Info
Search
Instance state = running
Clear filters
Connect
Instance state
Actions
Launch instances
Launch instances
Launch instance from template
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
IPv4 ...
Elastic IP
No matching instances found
6. Select “Launch Instances”
Select an instance


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 1: Choose an Amazon Machine Image (AMI)
Cancel and Exit
Red Hat Enterprise Linux 8 (HVM), SSD Volume Type - ami-0b0af3577fe5e3532 (64-bit x86) / ami-01fc429821bf1f4b4 (64-bit Arm)
Red Hat
Free tier eligible
Red Hat Enterprise Linux version 8 (HVM), EBS General Purpose (SSD) Volume Type
Select
64-bit (x86)
64-bit (Arm)
SUSE
SUSE Linux
Free tier eligible
Volume Type. Amazon EC2 AMI Tools preinstalled; Apache 2.2, M
ENA Enabled: Yes
Select
64-bit (x86)
64-bit (Arm)
7. Select Ubuntu Server 20.04
8. Click on Select
Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-04505e74c0741db8d (64-bit x86) / ami-0b49a4a6e8e22fa16 (64-bit Arm)
Free tier eligible
Ubuntu Server 20.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Root device type: ebs
Virtualization type: hvm
ENA Enabled: Yes
Select
64-bit (x86)
64-bit (Arm)
Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-0e472ba40eb589f49 (64-bit x86) / ami-0a940cb939351ccca (64-bit Arm)
Free tier eligible
Ubuntu Server 18.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Root device type: ebs
Virtualization type: hvm
ENA Enabled: Yes
Select
64-bit (x86)
64-bit (Arm)
Microsoft Windows Server 2019 Base - ami-0d80714a054d3360c
Windows
Free tier eligible
Microsoft Windows 2019 Datacenter edition. [English]
Root device type: ebs
Virtualization type: hvm
ENA Enabled: Yes
Select
64-bit (x86)
Deep Learning AMI (Ubuntu 18.04) Version 53.0 - ami-0f8c1b9de5e8d8095
MXNet-1.8.0 & 1.7.0, TensorFlow-2.4.3, 2.3.4 & 1.15.5, PyTorch-1.7.1 & 1.8.1, Neuron, & others. NVIDIA CUDA, cuDNN, NCCL, Intel MKL-DNN, Docker, NVIDIA-Docker & EFA support. For fully managed experience, check: https://aws.amazon.com/sagemaker
Root device type: ebs
Virtualization type: hvm
ENA Enabled: Yes
Select
64-bit (x86)
Deep Learning AMI GPU PyTorch 1.10.0 (Amazon Linux 2) 20211115 - ami-01a16356ed2a310d1
Built with PyTorch conda environment, NVIDIA CUDA, cuDNN, NCCL, GPU Driver, Docker, NVIDIA-Docker and EFA support. For a fully managed experience, check: https://aws.amazon.com/sagemaker
Select


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 2: Choose an Instance Type
Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. Learn more about instance types and how they can meet your computing needs.
Filter by:
All instance families
Current generation
Show/Hide Columns
Current
only)
9. Select t2.micro
vCPUs
Memory (GiB)
Instance Storage (GB)
EBS-Optimized Available
Network Performance
IPv6 Support
t2 t2.nano 1 0.5 EBS only - Low to Moderate Yes
t2 t2.micro Free tier eligible 1 1 EBS only - Low to Moderate Yes
t2 t2.small 1 2 EBS only - Low to Moderate Yes
t2 t2.medium 2 4 EBS only - Low to Moderate Yes
t2 t2.large 2 8 EBS only - Low to Moderate Yes
t2 t2.xlarge 4 16 EBS only - Moderate Yes
t2 t2.2xlarge 8 32 EBS only - Moderate Yes
t3 t3.nano 2 0.5 EBS only Yes Up to 5 Gigabit Yes
t3 t3.micro 2 1 EBS only Yes Up to 5 Gigabit Yes
t3 t3.small 2 2 EBS only Yes
t3 t3.medium 2 4 EBS only Yes
t3 t3.large 2 8 EBS only Yes Up to 5 Gigabit
10. Click Next
Cancel
Previous
Review and Launch
Next: Configure Instance Details


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 3: Configure Instance Details
Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage of the lower pricing, assign an access management role to the instance, and more.
Number of instances
1
Launch into Auto Scaling Group
Purchasing option
Request Spot instances
Network
vpc-05a4f109d9ab4c43c (default)
Create new VPC
Subnet
No preference (default subnet in any Availability Zor
Create new subnet
Auto-assign Public IP
Use subnet setting (Enable)
Hostname type
Use subnet setting (IP name)
DNS Hostname
Enable IP name IPv4 (A record) DNS requests
Enable resource-based IPv4 (A record) DNS requests
Enable resource-based IPv6 (AAAA record) DNS requests
Placement group
Add instance to placement group
Capacity Reservation
Open
Domain join directory
No directory
Create new directory
IAM role
new IAM role
Shutdown behavior
Stop - Hibernate behavior
Enable termination protection
Protect against accidental termination
Monitoring
Enable CloudWatch detailed monitoring
11. Enable termination protection
12. Click Next
Cancel
Previous
Review and Launch
Next: Add Storage

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. Learn more about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/sda1	snap-0f7a6eae6d90437c4	8	General Purpose SSD (gp2)	100 / 3000	N/A	☑	Not Encrypted

Add New Volume

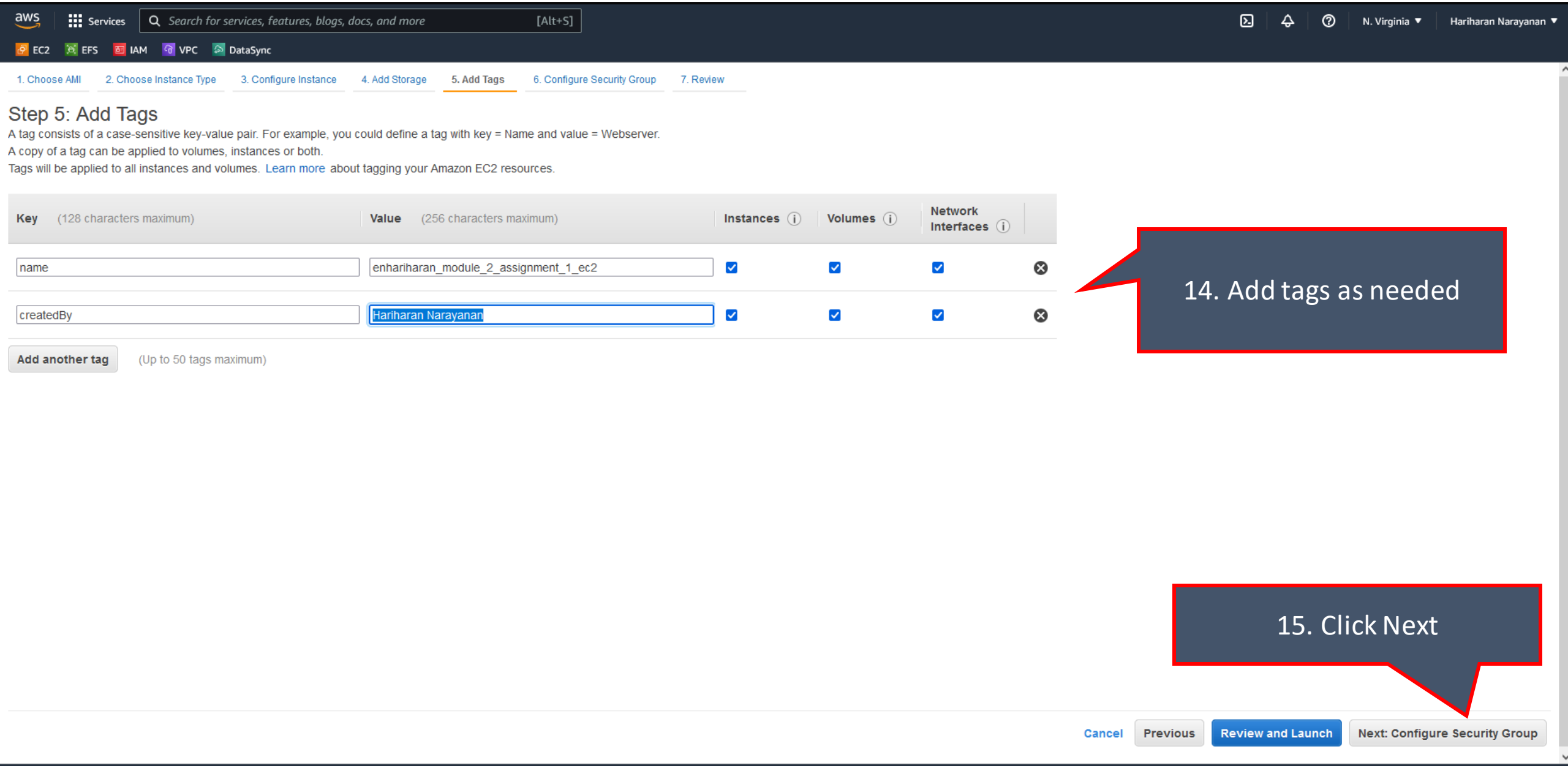
Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. Learn more about free usage tier eligibility and usage restrictions.

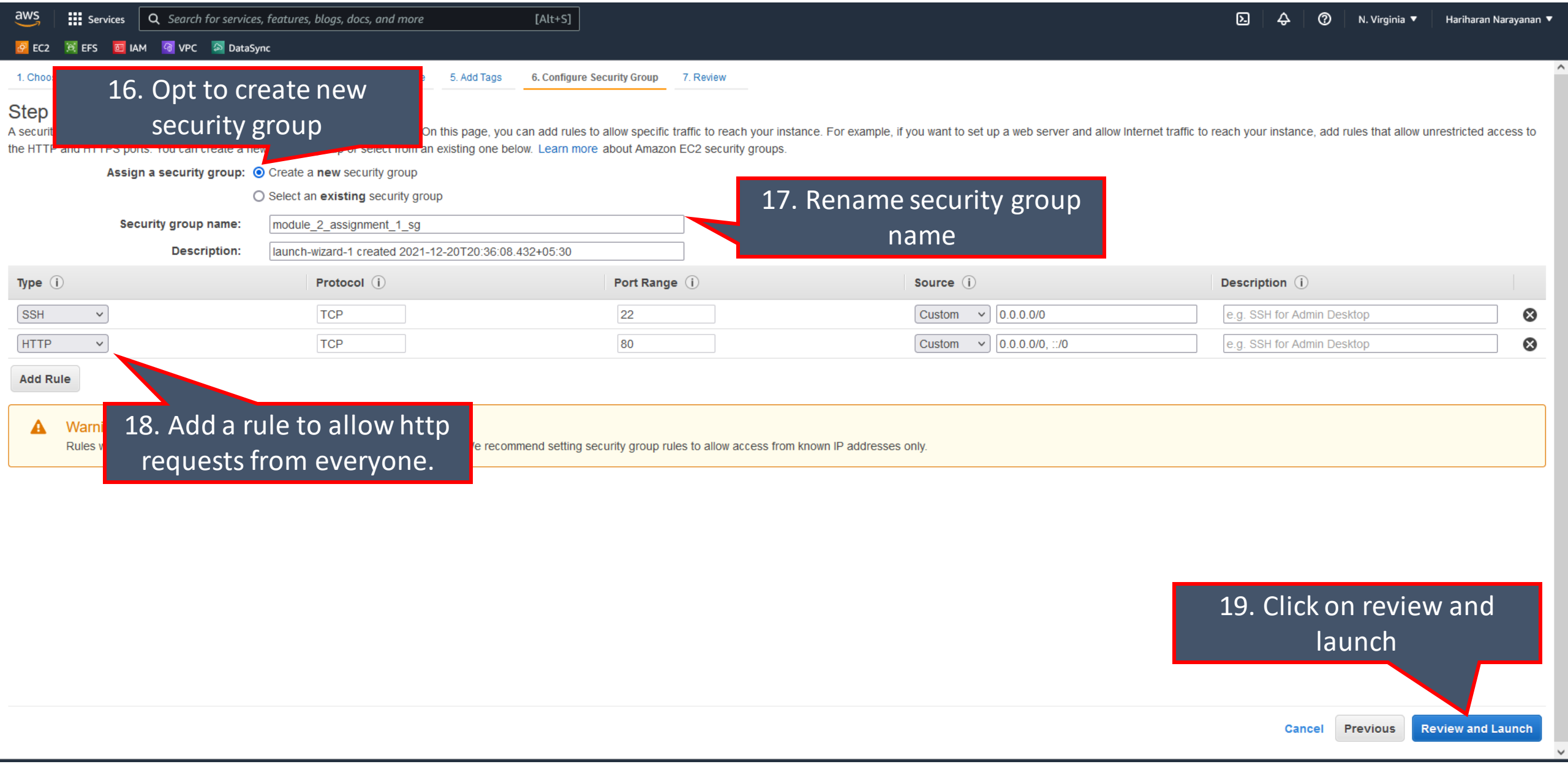
Shared file systems

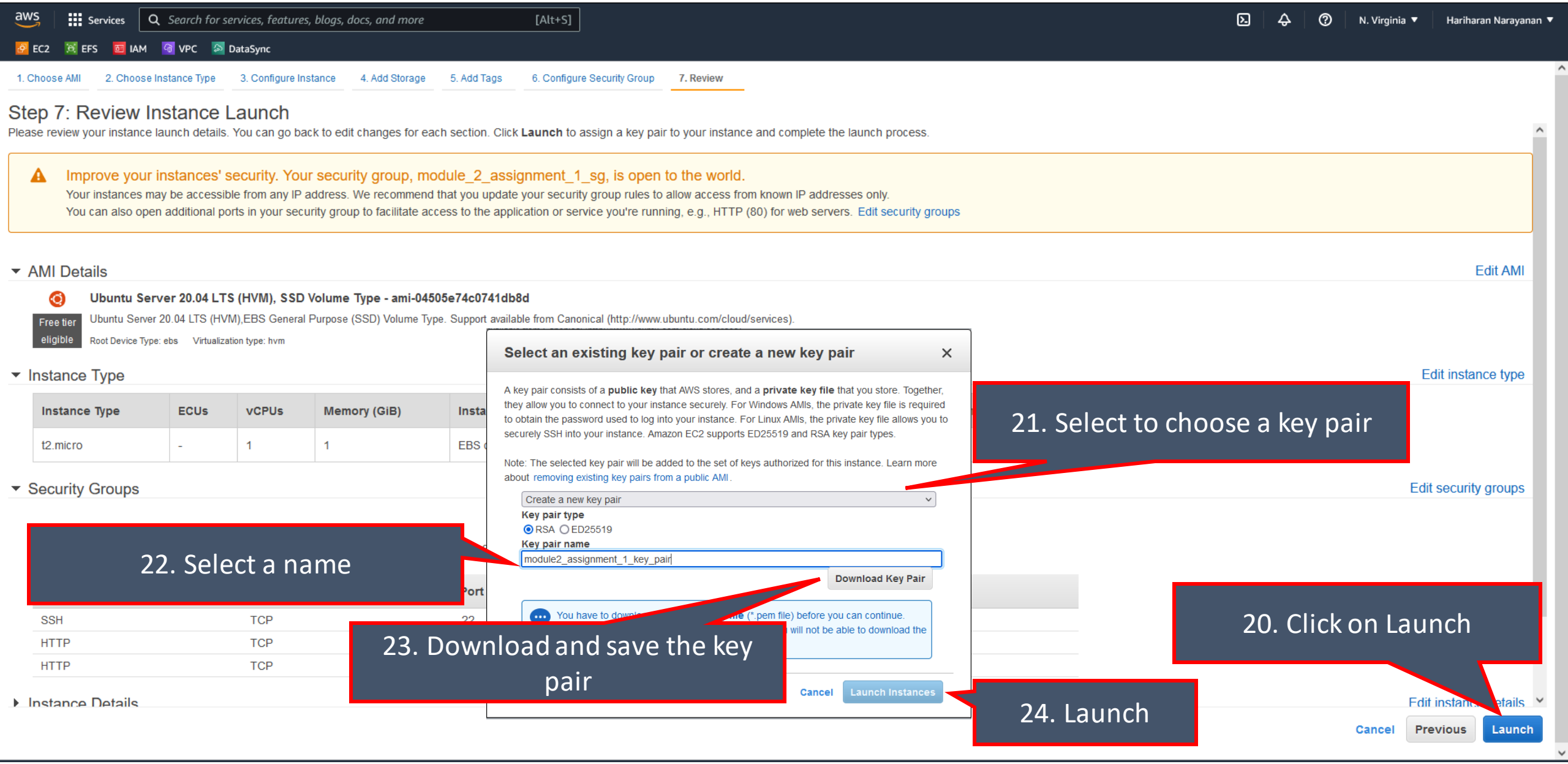
You currently don't have any file systems on this instance. Select "Add file system" button below to add a file system.

Add file system

13. Keep storage options unchanged and Click Next


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 5: Add Tags
A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.
A copy of a tag can be applied to volumes, instances or both.
Tags will be applied to all instances and volumes. Learn more about tagging your Amazon EC2 resources.
Key (128 characters maximum)
Value (256 characters maximum)
Instances
Volumes
Network Interfaces
name
enhariharan_module_2_assignment_1_ec2
createdBy
Hariharan Narayanan
Add another tag
(Up to 50 tags maximum)
14. Add tags as needed
15. Click Next
Cancel
Previous
Review and Launch
Next: Configure Security Group


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
1. Choo
5. Add Tags
6. Configure Security Group
7. Review
16. Opt to create new security group
Step
On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new
an existing one below. Learn more about Amazon EC2 security groups.
Assign a security group:
Create a new security group
Select an existing security group
Security group name:
module_2_assignment_1_sg
17. Rename security group name
Description:
launch-wizard-1 created 2021-12-20T20:36:08.432+05:30
Type
Protocol
Port Range
Source
Description
SSH
TCP
22
Custom
0.0.0.0/0
e.g. SSH for Admin Desktop
HTTP
TCP
80
Custom
0.0.0.0/0, ::/0
e.g. SSH for Admin Desktop
Add Rule
18. Add a rule to allow http requests from everyone.
Warni
Rules w
e recommend setting security group rules to allow access from known IP addresses only.
19. Click on review and launch
Cancel
Previous
Review and Launch


Services
Search for services, features, blogs, docs, and more [Alt+S]
N. Virginia
Hariharan Narayanan
EC2 EFS IAM VPC DataSync
1. Choose AMI
2. Choose Instance Type
3. Configure Instance
4. Add Storage
5. Add Tags
6. Configure Security Group
7. Review
Step 7: Review Instance Launch
Please review your instance launch details. You can go back to edit changes for each section. Click Launch to assign a key pair to your instance and complete the launch process.
Improve your instances' security. Your security group, module_2_assignment_1_sg, is open to the world.
Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only.
You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. Edit security groups
AMI Details
Edit AMI
Ubuntu Server 20.04 LTS (HVM), SSD Volume Type - ami-04505e74c0741db8d
Free tier eligible
Ubuntu Server 20.04 LTS (HVM),EBS General Purpose (SSD) Volume Type. Support available from Canonical (http://www.ubuntu.com/cloud/services).
Root Device Type: ebs Virtualization type: hvm
Instance Type
Edit instance type
Instance Type ECUs vCPUs Memory (GiB)
t2.micro - 1 1
Security Groups
Edit security groups
SSH TCP
HTTP TCP
HTTP TCP
Instance Details
Edit instance details
Cancel Previous Launch
Select an existing key pair or create a new key pair
A key pair consists of a public key that AWS stores, and a private key file that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance. Amazon EC2 supports ED25519 and RSA key pair types.
Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about removing existing key pairs from a public AMI.
Create a new key pair
Key pair type
RSA ED25519
Key pair name
module2_assignment_1_key_pair
Download Key Pair
You have to download the private key file (*.pem file) before you can continue. Store it in a secure and accessible location. You will not be able to download the file again after it's created.
Cancel Launch Instances
21. Select to choose a key pair
22. Select a name
23. Download and save the key pair
20. Click on Launch
24. Launch

Launch Status

Your instances are now launching
The following instance launches have been initiated: i-0f20c1cfac505b670 View launch log

Get notified of estimated charges
Create billing alerts to get an email notification when estimated charges on your AWS bill exceed an amount you define (for example, if you exceed the free usage tier).

How to connect to your instances

Your instances are launching, and it may take a few minutes until they are in the **running** state, when they will be ready for you to use. Usage hours on your new instances will start immediately and continue to accrue until you stop or terminate your instances.

Click **View Instances** to monitor your instances' status. Once your instances are in the **running** state, you can **connect** to them from the Instances screen. Find out how to connect to your instances.

Here are some helpful resources to get you started

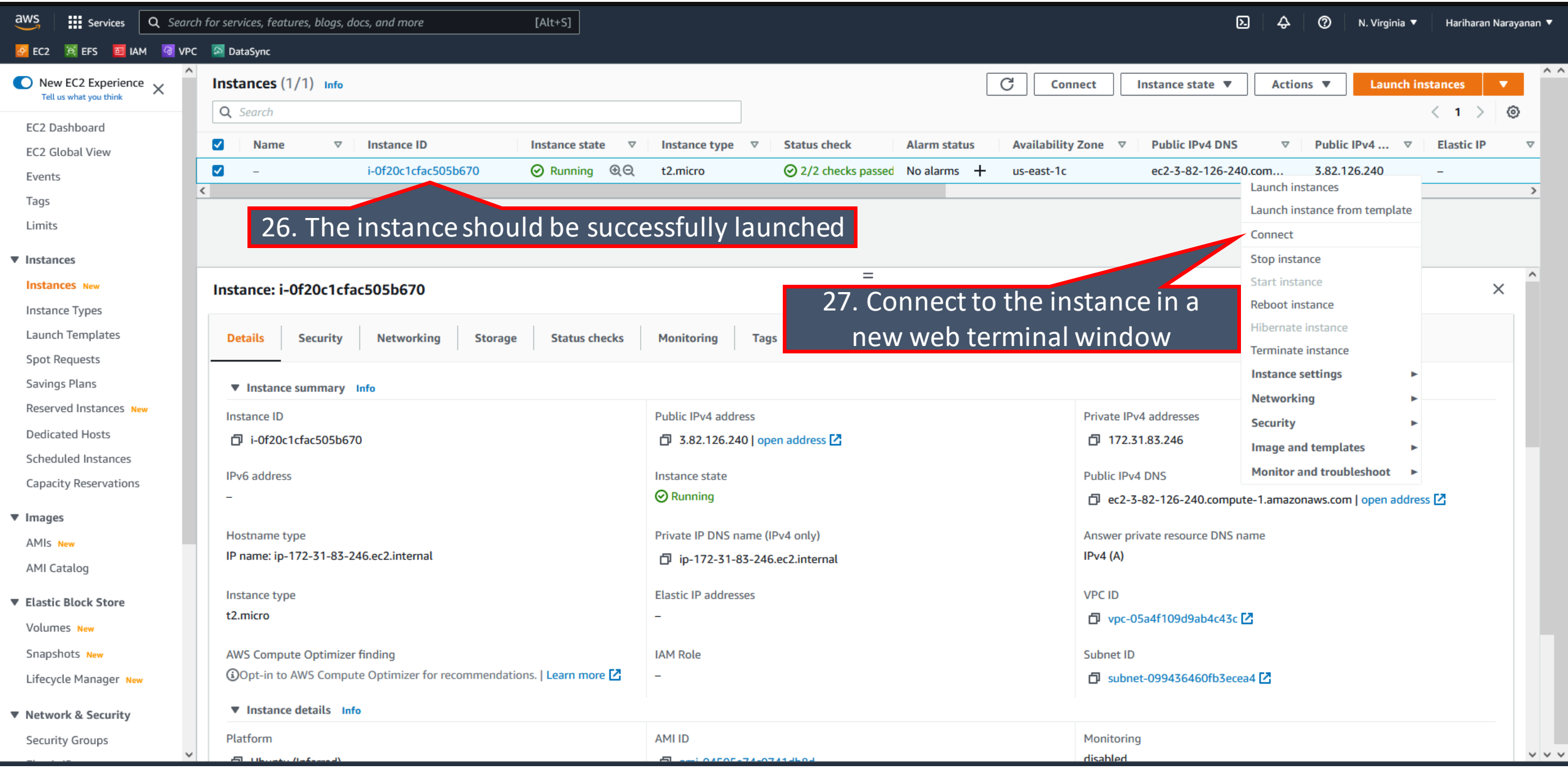
- How to connect to your Linux instance
- Learn about AWS Free Usage Tier
- Amazon EC2: User Guide
- Amazon EC2: Discussion Forum

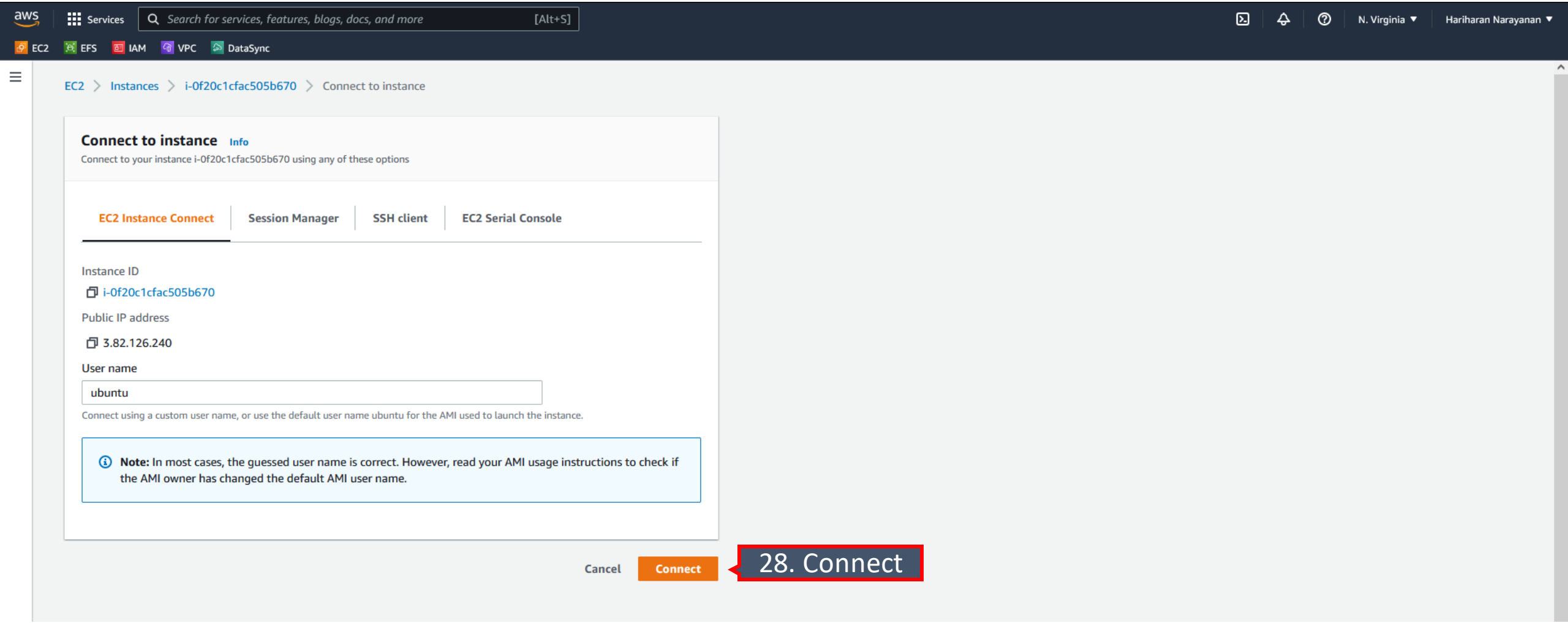
While your instances are launching you can also

- Create status check alarms to be notified when these instances fail status checks. (Additional charges may apply)
- Create and attach additional EBS volumes (Additional charges may apply)
- Manage security groups

25. Click on view instances

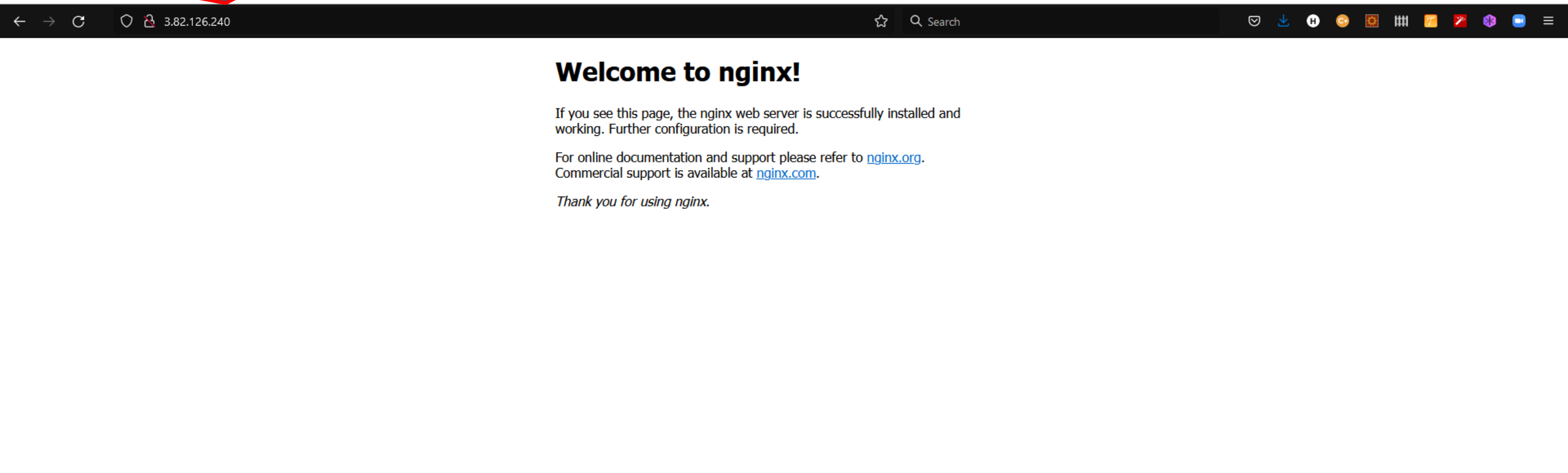
View Instances


Services
Search for services, features, blogs, docs, and more [Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs New
AMI Catalog
Elastic Block Store
Volumes New
Snapshots New
Lifecycle Manager New
Network & Security
Security Groups
Instances (1/1) Info
Search
Connect
Instance state
Actions
Launch instances
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Zone
Public IPv4 DNS
Public IPv4 ...
Elastic IP
i-0f20c1cfac505b670
Running
t2.micro
2/2 checks passed
No alarms
us-east-1c
ec2-3-82-126-240.com...
3.82.126.240
26. The instance should be successfully launched
Launch instances
Launch instance from template
Connect
Stop instance
Start instance
Reboot instance
Hibernate instance
Terminate instance
Instance settings
Networking
Security
Image and templates
Monitor and troubleshoot
27. Connect to the instance in a new web terminal window
Instance: i-0f20c1cfac505b670
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-0f20c1cfac505b670
Public IPv4 address
3.82.126.240 | open address
Private IPv4 addresses
172.31.83.246
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-3-82-126-240.compute-1.amazonaws.com | open address
Hostname type
IP name: ip-172-31-83-246.ec2.internal
Private IP DNS name (IPv4 only)
ip-172-31-83-246.ec2.internal
Answer private resource DNS name
IPv4 (A)
Instance type
t2.micro
Elastic IP addresses
–
VPC ID
vpc-05a4f109d9ab4c43c
AWS Compute Optimizer finding
Opt-in to AWS Compute Optimizer for recommendations. | Learn more
IAM Role
–
Subnet ID
subnet-099436460fb3ecea4
Instance details Info
Platform
AMI ID
Monitoring
disabled


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
EC2 > Instances > i-0f20c1cfac505b670 > Connect to instance
Connect to instance Info
Connect to your instance i-0f20c1cfac505b670 using any of these options
EC2 Instance Connect
Session Manager
SSH client
EC2 Serial Console
Instance ID
i-0f20c1cfac505b670
Public IP address
3.82.126.240
User name
ubuntu
Connect using a custom user name, or use the default user name ubuntu for the AMI used to launch the instance.
Note: In most cases, the guessed user name is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI user name.
Cancel
Connect
28. Connect

29. Install nginx

30. Open the public IP address in a browser to verify that nginx is correctly installed



https://console.aws.amazon.com/ec2/v2/connect/ubuntu/i-0f20c1cfac505b670

Search

```
server {
        listen 81;
        listen [::]:81;

        server_name ec1_assignment_1.hariharan.com;

        root /var/www/ec2_assignment_1;
        index index.tml;

        location / {
                try_files $uri $uri/ = 404;
        }
}
```

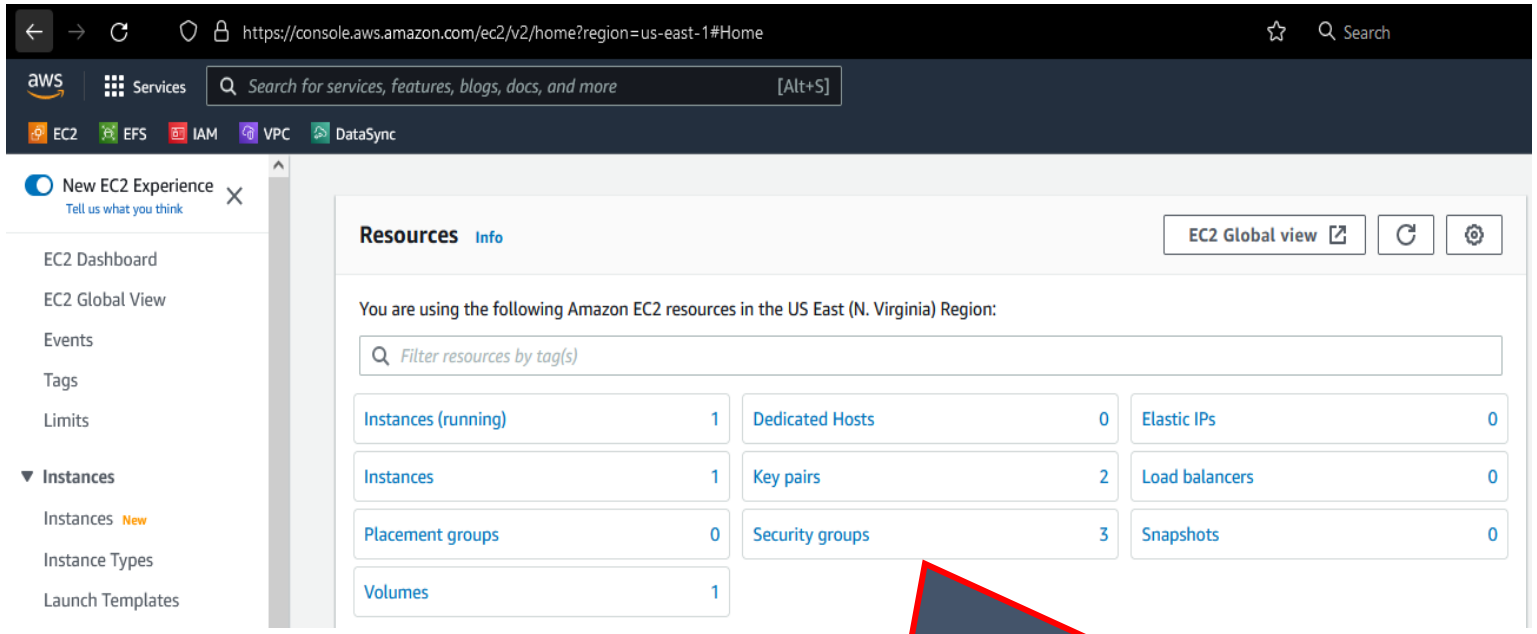
31. Create an nginx site and save it in /etc/nginx/sites-enabled/module2_assignment_1_site

```
<!doctype html>
< html>
        <head>
                <title>EC2 Assignment</title>
        </head>
        <body>
                <h1>Submission for EC2 Assignment 1</h1>
                <p>This is the submission for EC2 Assignment 1</p>
        </body>
</html>
~
```

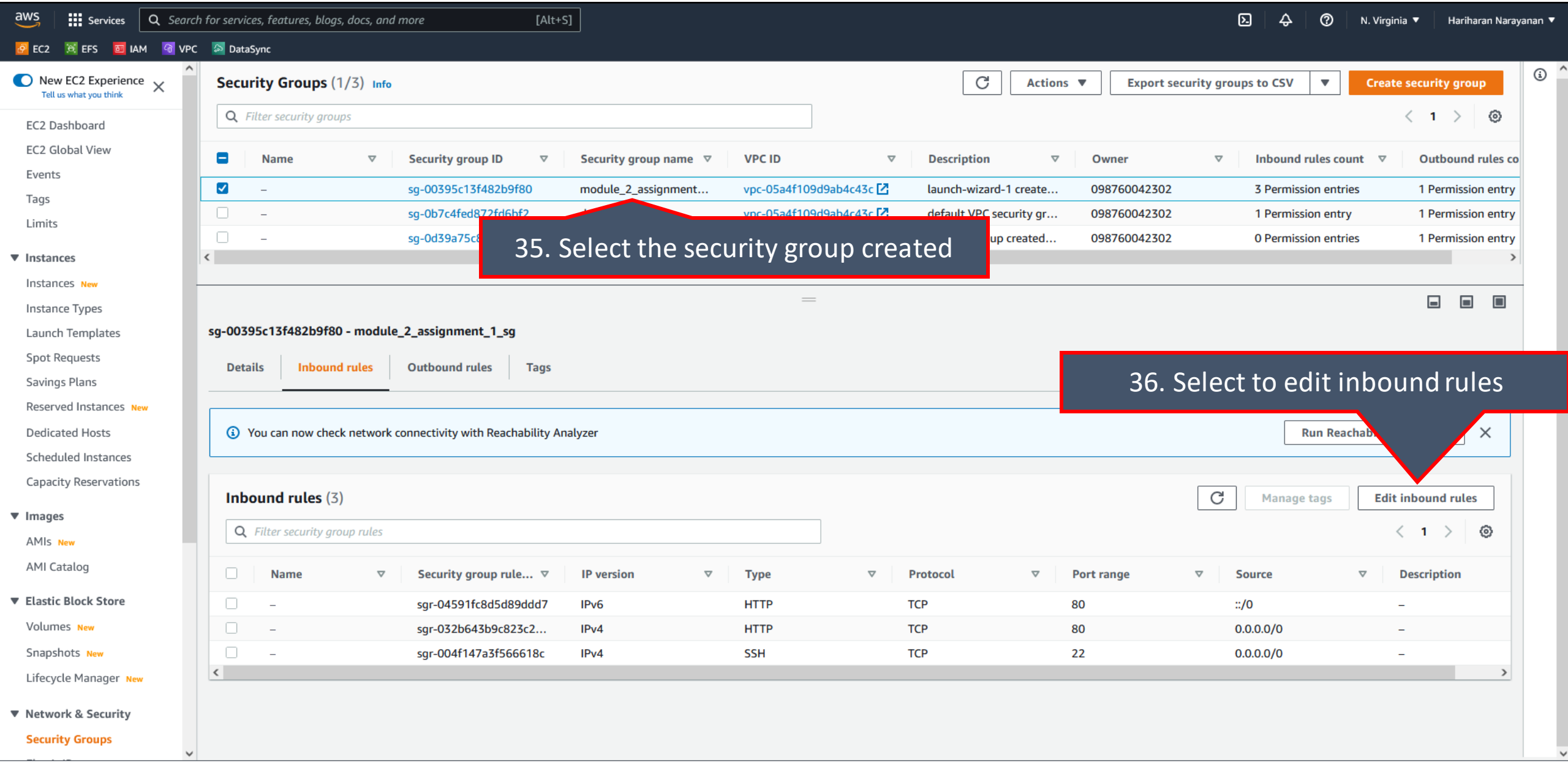
32. Create the HTML file /var/www/ec2_assignment_1/index.html

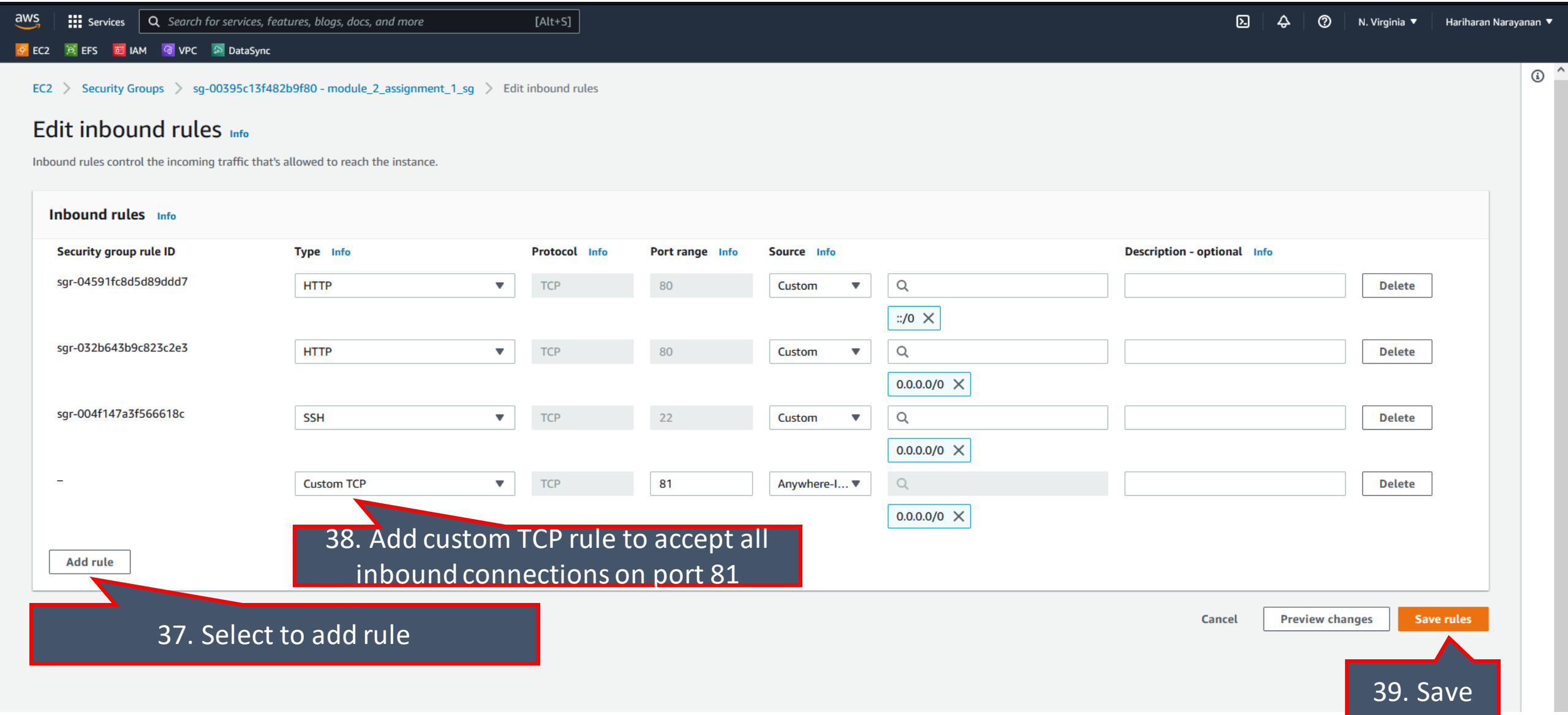
```
ubuntu@ip-172-31-83-246:~$ sudo nginx -s reload
ubuntu@ip-172-31-83-246:~$
```

33. Restart nginx to load the new configuration



34. Click on security groups


Services
Search for services, features, blogs, docs, and more [Alt+S]
N. Virginia
Hariharan Narayanan
EC2 EFS IAM VPC DataSync
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs New
AMI Catalog
Elastic Block Store
Volumes New
Snapshots New
Lifecycle Manager New
Network & Security
Security Groups
Security Groups (1/3) Info
Actions
Export security groups to CSV
Create security group
Filter security groups
Name
Security group ID
Security group name
VPC ID
Description
Owner
Inbound rules count
Outbound rules co
sg-00395c13f482b9f80
module_2_assignment...
launch-wizard-1 create...
098760042302
3 Permission entries
1 Permission entry
default VPC security gr...
1 Permission entry
1 Permission entry
sg-0d39a75c8
up created...
0 Permission entries
35. Select the security group created
sg-00395c13f482b9f80 - module_2_assignment_1_sg
Details
Inbound rules
Outbound rules
Tags
36. Select to edit inbound rules
You can now check network connectivity with Reachability Analyzer
Run Reachab
Inbound rules (3)
Manage tags
Edit inbound rules
Filter security group rules
Name
Security group rule...
IP version
Type
Protocol
Port range
Source
Description
sgr-04591fc8d5d89ddd7
IPv6
HTTP
TCP
80
::/0
sgr-032b643b9c823c2...
IPv4
HTTP
TCP
80
0.0.0.0/0
sgr-004f147a3f566618c
IPv4
SSH
TCP
22
0.0.0.0/0


aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
N. Virginia
Hariharan Narayanan
EC2
EFS
IAM
VPC
DataSync
EC2 > Security Groups > sg-00395c13f482b9f80 - module_2_assignment_1_sg > 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-04591fc8d5d89ddd7
HTTP
TCP
80
Custom
::/0
Delete
sgr-032b643b9c823c2e3
HTTP
TCP
80
Custom
0.0.0.0/0
Delete
sgr-004f147a3f566618c
SSH
TCP
22
Custom
0.0.0.0/0
Delete
–
Custom TCP
TCP
81
Anywhere-I...
0.0.0.0/0
Delete
Add rule
38. Add custom TCP rule to accept all inbound connections on port 81
37. Select to add rule
Cancel
Preview changes
Save rules
39. Save

40. Open the IP address with port 81 in a web browser (using http:// only). The new website must open successfully

Submission for EC2 Assignment 1

This is the submission for EC2 Assignment 1