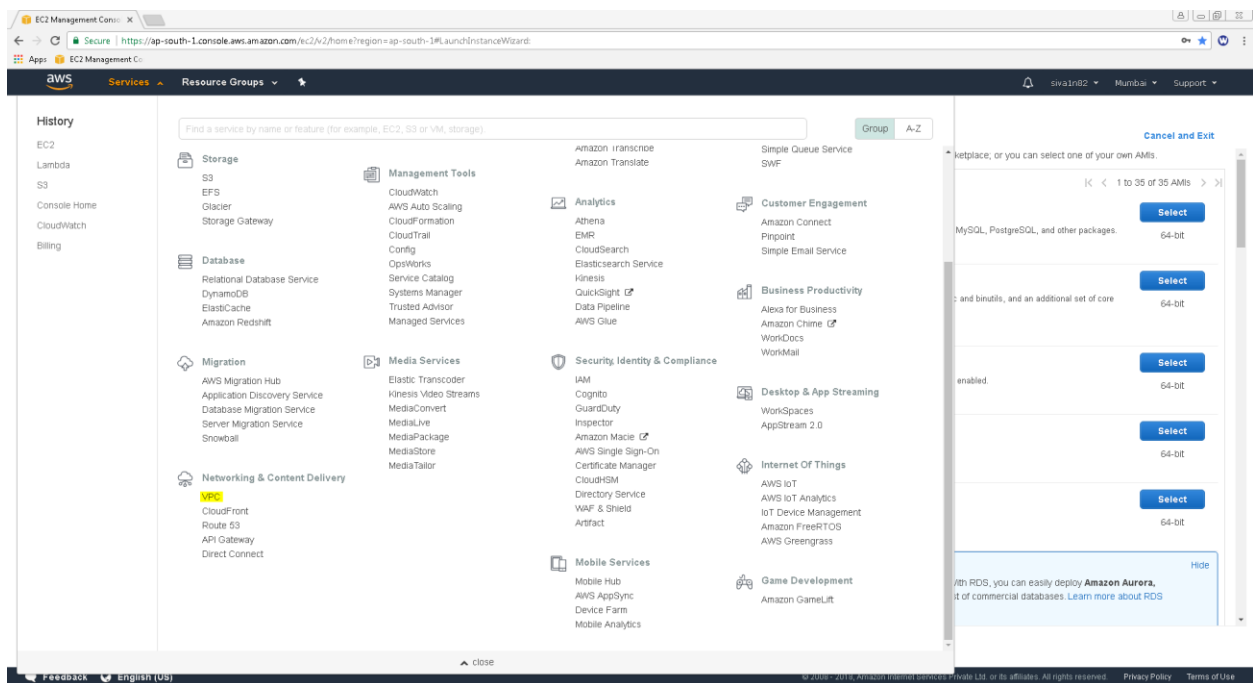


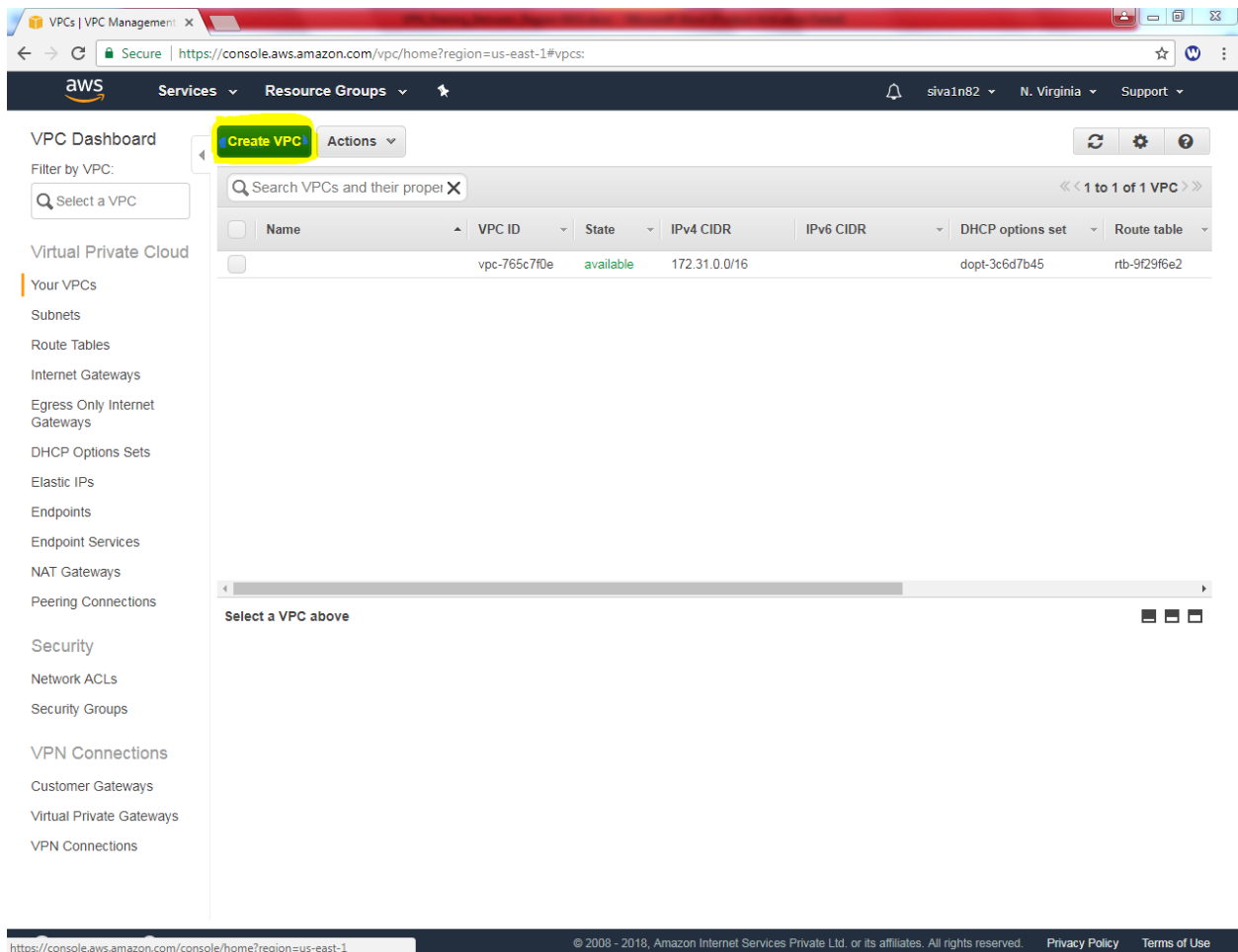
Lab 8

Configure VPC – for Associate

In AWS console, click “VPC”.



Click “Create VPC”.



The screenshot shows the AWS VPC Dashboard in the console. The 'Create VPC' button is highlighted with a yellow box. The dashboard displays a table with one VPC listed: vpc-765c7f0e, which is in the 'available' state. The table columns include Name, VPC ID, State, IPv4 CIDR, IPv6 CIDR, DHCP options set, and Route table. The left sidebar shows the navigation menu with various VPC-related services listed.

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options set	Route table
	vpc-765c7f0e	available	172.31.0.0/16		dopt-3c6d7b45	rtb-9f29f6e2

While create VPC, **Name tag** as “Sansbound_VPC” and **IPv4 CIDR Block** as 10.0.0.0/16

Create VPC ✕

A VPC is an isolated portion of the AWS cloud populated by AWS objects, such as Amazon EC2 instances. You must specify an IPv4 address range for your VPC. Specify the IPv4 address range as a Classless Inter-Domain Routing (CIDR) block; for example, 10.0.0.0/16. You cannot specify an IPv4 CIDR block larger than /16. You can optionally associate an Amazon-provided IPv6 CIDR block with the VPC.

Name tag ⓘ

IPv4 CIDR block* ⓘ

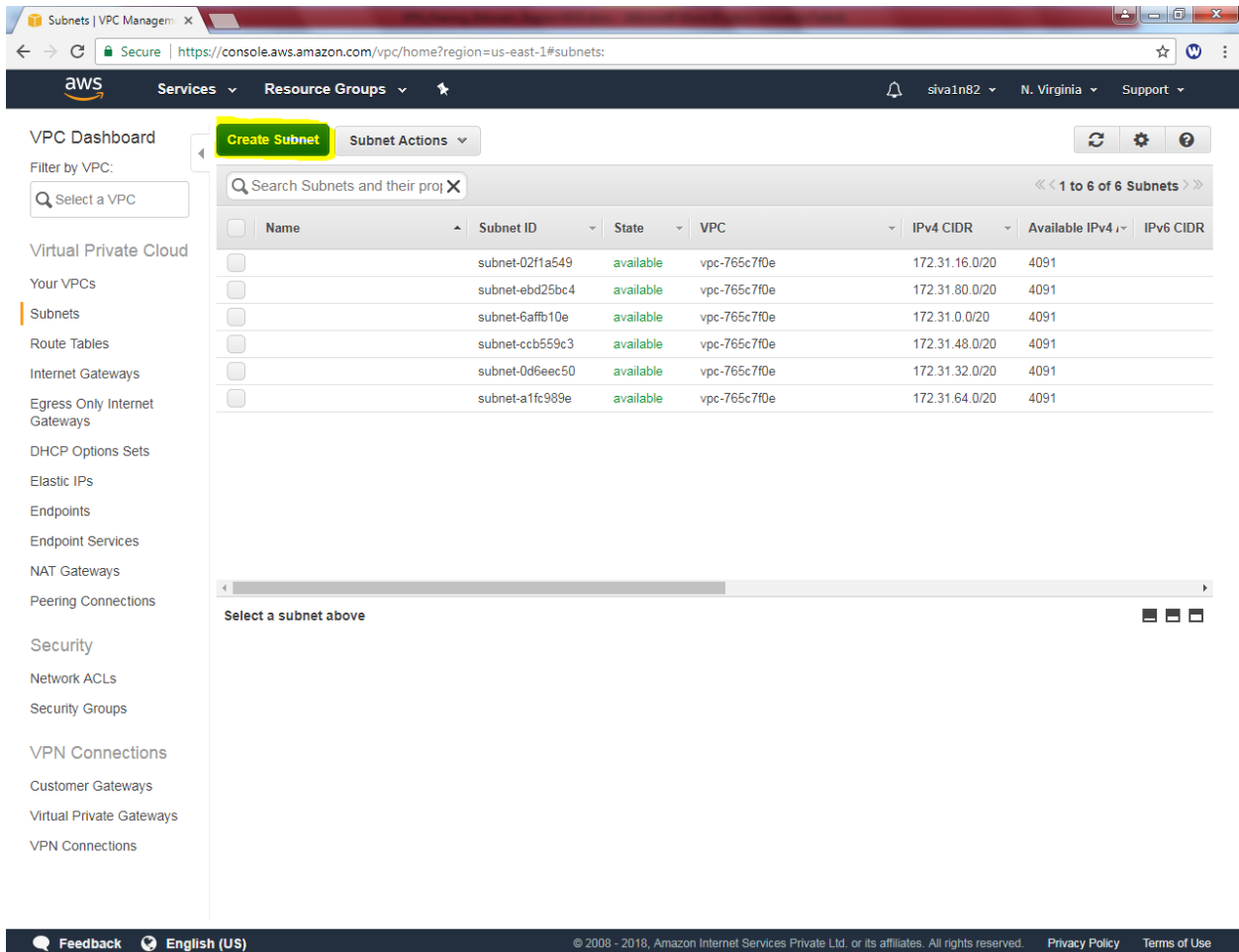
IPv6 CIDR block* ☒ No IPv6 CIDR Block ⓘ
☐ Amazon provided IPv6 CIDR block

Tenancy ⓘ

Cancel Yes, Create

Then click “Create”.

Then We need to create subnet for the VPC.



Subnets | VPC Management

Secure | <https://console.aws.amazon.com/vpc/home?region=us-east-1#subnets:>

aws Services Resource Groups

Subnets | VPC Management

Filter by VPC: Select a VPC

Virtual Private Cloud

Your VPCs

Subnets

Route Tables

Internet Gateways

Egress Only Internet Gateways

DHCP Options Sets

Elastic IPs

Endpoints

Endpoint Services

NAT Gateways

Peering Connections

Security

Network ACLs

Security Groups

VPN Connections

Customer Gateways

Virtual Private Gateways

VPN Connections

Create Subnet Subnet Actions

Search Subnets and their projects

<< 1 to 6 of 6 Subnets >>

	Name	Subnet ID	State	VPC	IPv4 CIDR	Available IPv4	IPv6 CIDR
<input type="checkbox"/>		subnet-02f1a549	available	vpc-765c7f0e	172.31.16.0/20	4091	
<input type="checkbox"/>		subnet-ebd25bc4	available	vpc-765c7f0e	172.31.80.0/20	4091	
<input type="checkbox"/>		subnet-6affb10e	available	vpc-765c7f0e	172.31.0.0/20	4091	
<input type="checkbox"/>		subnet-ccb559c3	available	vpc-765c7f0e	172.31.48.0/20	4091	
<input type="checkbox"/>		subnet-0d6eec50	available	vpc-765c7f0e	172.31.32.0/20	4091	
<input type="checkbox"/>		subnet-a1fc989e	available	vpc-765c7f0e	172.31.64.0/20	4091	

Select a subnet above

Feedback English (US)

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While creating subnet, **Name tag** as Sansbound_Public_subnet, **VPC** as “Sansbound VPC” **Availability zone** – 1B (Optional) and **IPv4 CIDR Block** as 10.0.2.0/24.

Create Subnet

Use the CIDR format to specify your subnet's IP address block (e.g., 10.0.0.0/24). Note that block sizes must be between a /16 netmask and /28 netmask. Also, note that a subnet can be the same size as your VPC. An IPv6 CIDR block must be a /64 CIDR block.

Name tag

VPC

VPC CIDRs

CIDR	Status	Status Reason
10.0.0.0/16	associated	

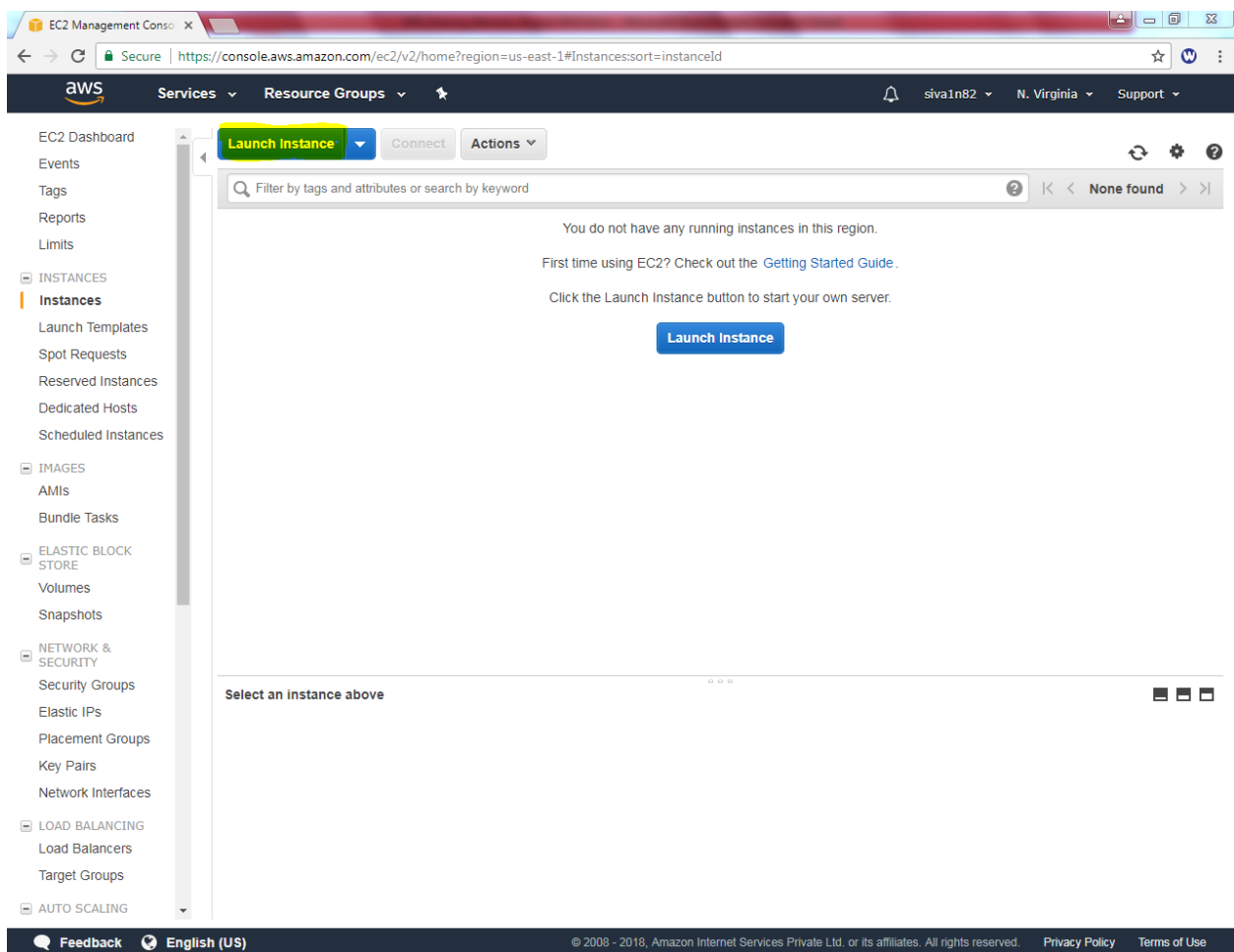
Availability Zone

IPv4 CIDR block

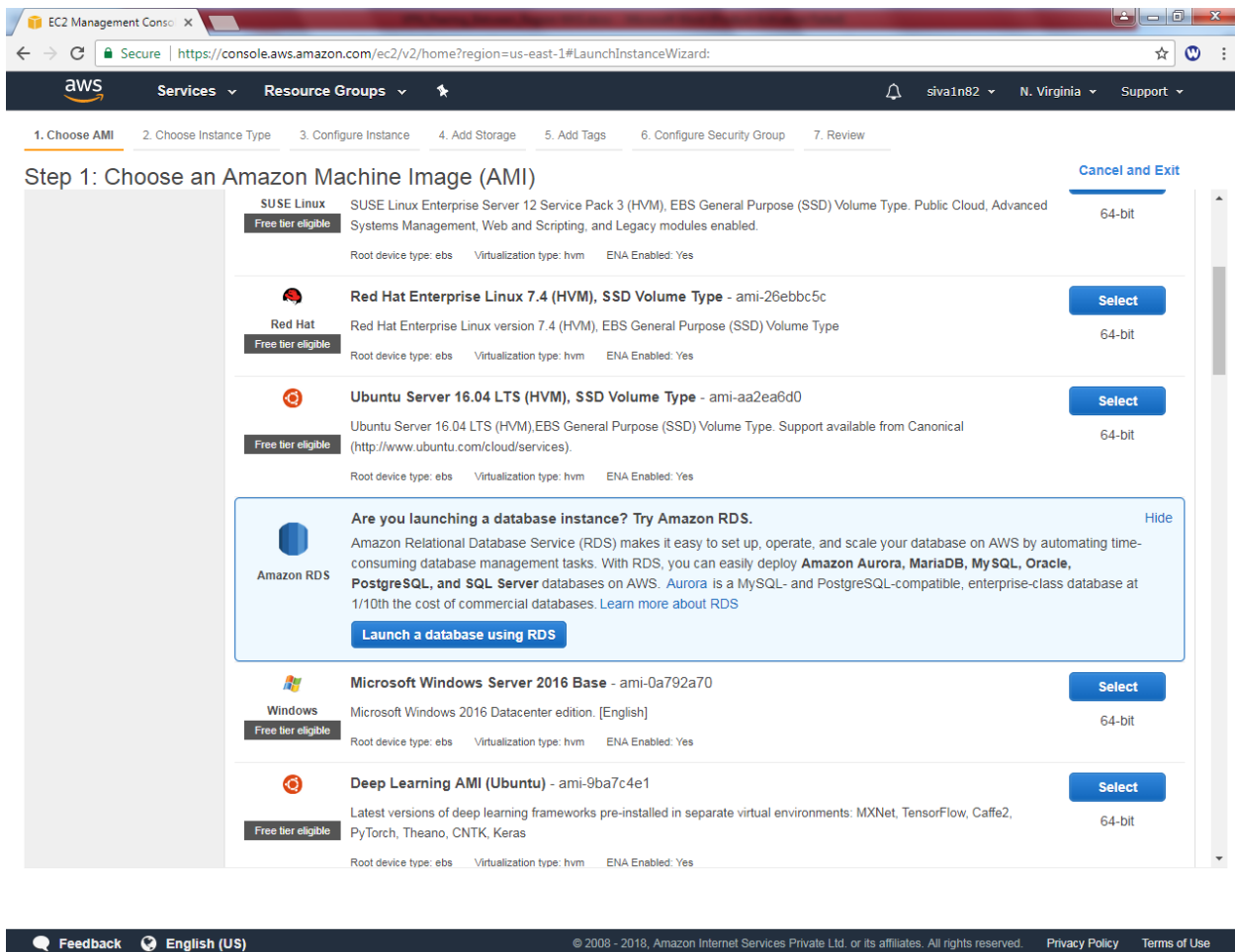
[Cancel](#) [Yes, Create](#)

Then click “Yes, create”.

Now we need to create an instance (windows 2016) in North Virginia.



Select “Microsoft Windows Server 2016 Base”



The screenshot shows the AWS Management Console interface for the 'Launch Instance Wizard'. The browser address bar shows the URL: <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>. The console header includes the AWS logo, navigation tabs (Services, Resource Groups), and user information (siva1n82, N. Virginia, Support).

The wizard progress bar shows seven steps: 1. Choose AMI (active), 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group, and 7. Review.

Step 1: Choose an Amazon Machine Image (AMI)

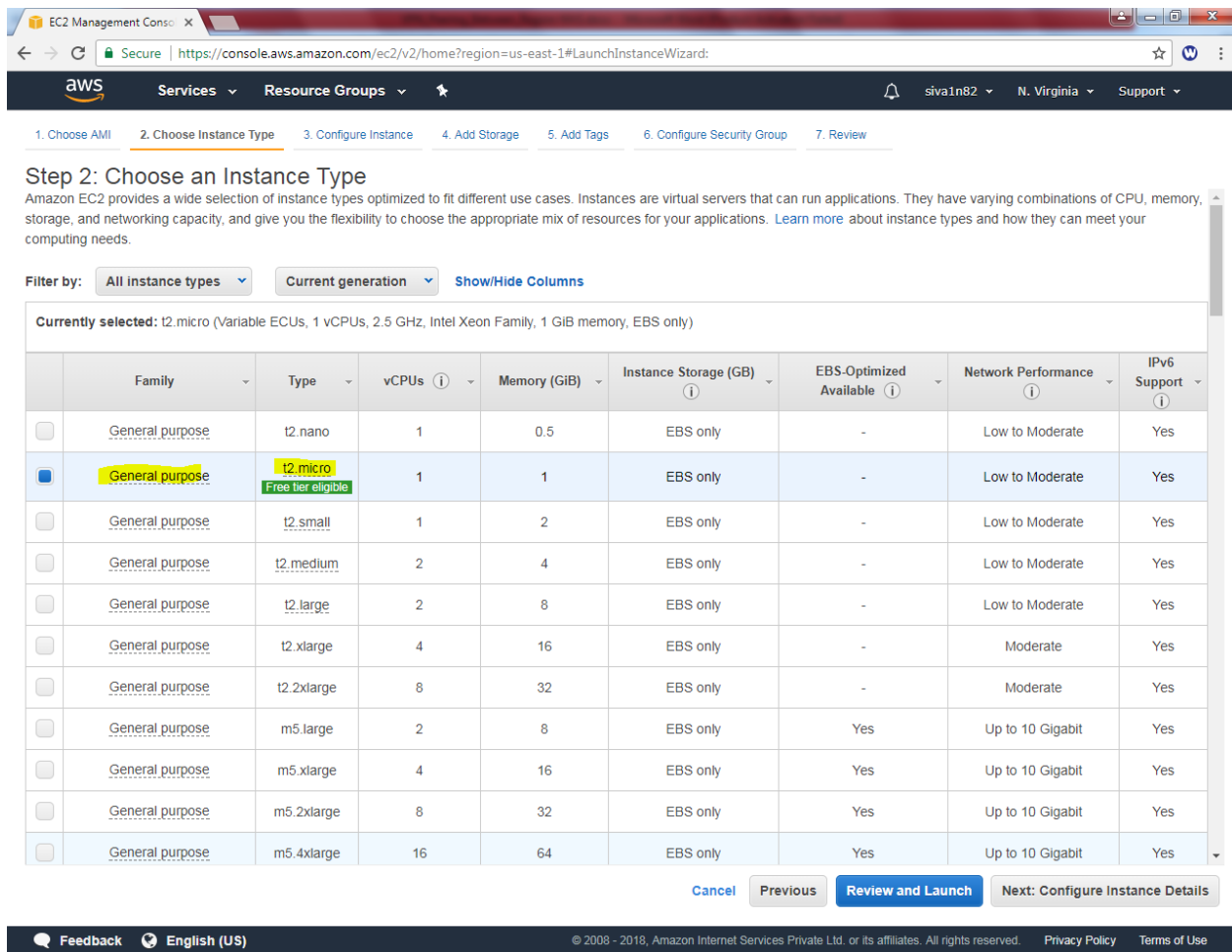
The AMI selection list includes:

- SUSE Linux** (Free tier eligible): SUSE Linux Enterprise Server 12 Service Pack 3 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit.
- Red Hat Enterprise Linux 7.4 (HVM), SSD Volume Type** - ami-26ebbc5c (Free tier eligible): Red Hat Enterprise Linux version 7.4 (HVM), EBS General Purpose (SSD) Volume Type. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit.
- Ubuntu Server 16.04 LTS (HVM), SSD Volume Type** - ami-aa2ea6d0 (Free tier eligible): Ubuntu Server 16.04 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. 64-bit.
- Microsoft Windows Server 2016 Base** - ami-0a792a70 (Free tier eligible): Microsoft Windows 2016 Datacenter edition. [English]. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit.
- Deep Learning AMI (Ubuntu)** - ami-9ba7c4e1 (Free tier eligible): Latest versions of deep learning frameworks pre-installed in separate virtual environments: MXNet, TensorFlow, Caffe2, PyTorch, Theano, CNTK, Keras. Root device type: ebs, Virtualization type: hvm, ENA Enabled: Yes. 64-bit.

An advertisement for Amazon RDS is displayed, stating: "Are you launching a database instance? Try Amazon RDS. Amazon Relational Database Service (RDS) makes it easy to set up, operate, and scale your database on AWS by automating time-consuming database management tasks. With RDS, you can easily deploy **Amazon Aurora**, **MariaDB**, **MySQL**, **Oracle**, **PostgreSQL**, and **SQL Server** databases on AWS. **Aurora** is a MySQL- and PostgreSQL-compatible, enterprise-class database at 1/10th the cost of commercial databases. [Learn more about RDS](#)". A button "Launch a database using RDS" is present.

At the bottom of the console, there is a footer with "Feedback", "English (US)", and copyright information: "© 2008 - 2018, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. Privacy Policy Terms of Use".

Select “t2.micro”.



EC2 Management Console

Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

Services | Resource Groups

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 types** | Current generation | [Show/Hide Columns](#)

Currently selected: t2.micro (Variable ECUs, 1 vCPUs, 2.5 GHz, Intel Xeon Family, 1 GiB memory, EBS only)

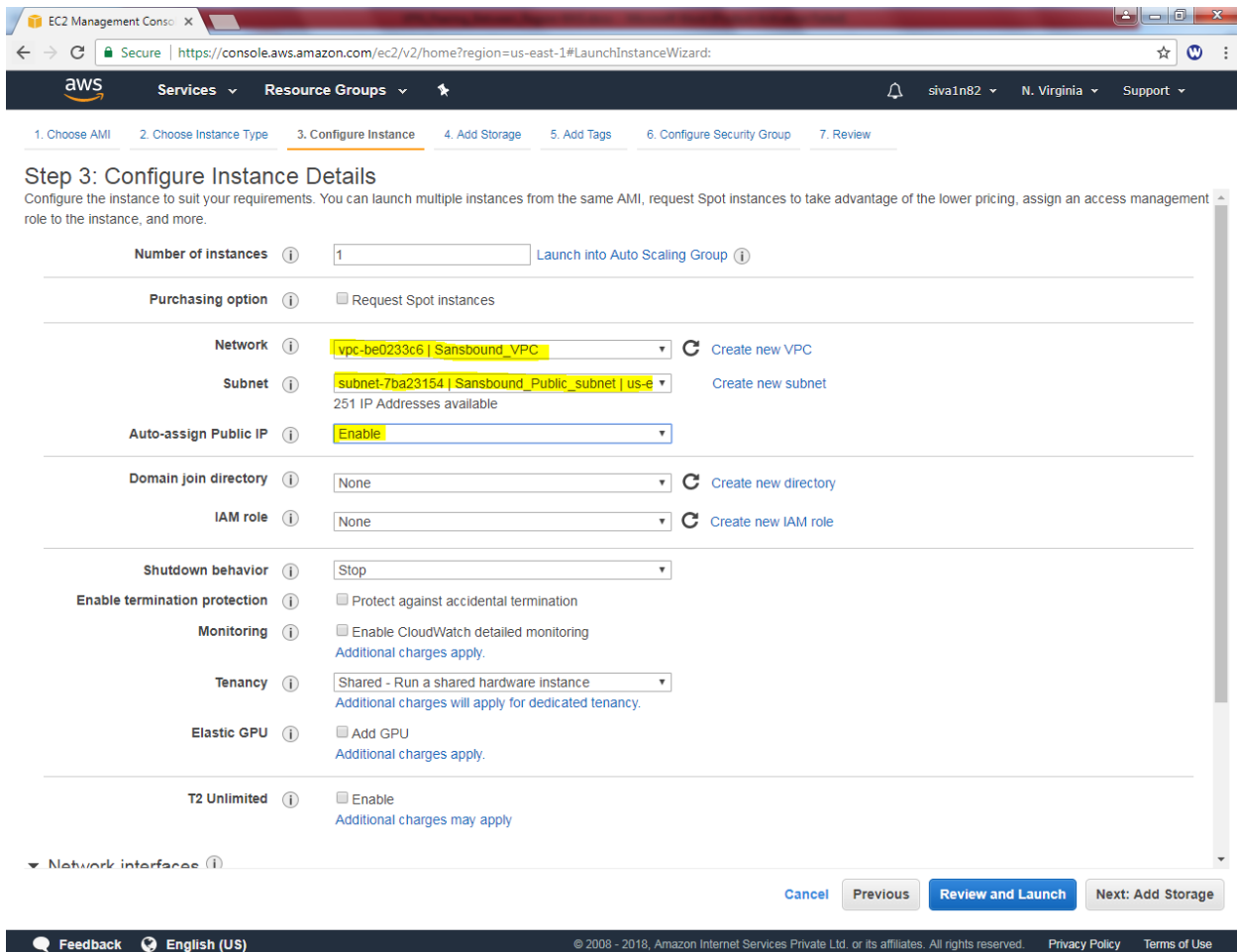
	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GiB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	General purpose	t2.micro <small>Free tier eligible</small>	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	General purpose	t2.xlarge	4	16	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	t2.2xlarge	8	32	EBS only	-	Moderate	Yes
<input type="checkbox"/>	General purpose	m5.large	2	8	EBS only	Yes	Up to 10 Gigabit	Yes
<input type="checkbox"/>	General purpose	m5.xlarge	4	16	EBS only	Yes	Up to 10 Gigabit	Yes
<input type="checkbox"/>	General purpose	m5.2xlarge	8	32	EBS only	Yes	Up to 10 Gigabit	Yes
<input type="checkbox"/>	General purpose	m5.4xlarge	16	64	EBS only	Yes	Up to 10 Gigabit	Yes

[Cancel](#)
[Previous](#)
[Review and Launch](#)
[Next: Configure Instance Details](#)

Feedback | English (US)

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Select “Sansbound VPC”, subnet: Sansbound_Public_Subnet and Auto assign “Enable”.



EC2 Management Console

Secure | https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:

Services Resource Groups

1. Choose AMI 2. Choose Instance Type 3. Configure Instance Details 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-be0233c6 | Sansbound_VPC** [Create new VPC](#)

Subnet **subnet-7ba23154 | Sansbound_Public_subnet | us-e** [Create new subnet](#)
251 IP Addresses available

Auto-assign Public IP **Enable**

Domain join directory **None** [Create new directory](#)

IAM role **None** [Create new IAM role](#)

Shutdown behavior **Stop**

Enable termination protection ☐ Protect against accidental termination

Monitoring ☐ Enable CloudWatch detailed monitoring
[Additional charges apply.](#)

Tenancy **Shared - Run a shared hardware instance**
[Additional charges will apply for dedicated tenancy.](#)

Elastic GPU ☐ Add GPU
[Additional charges apply.](#)

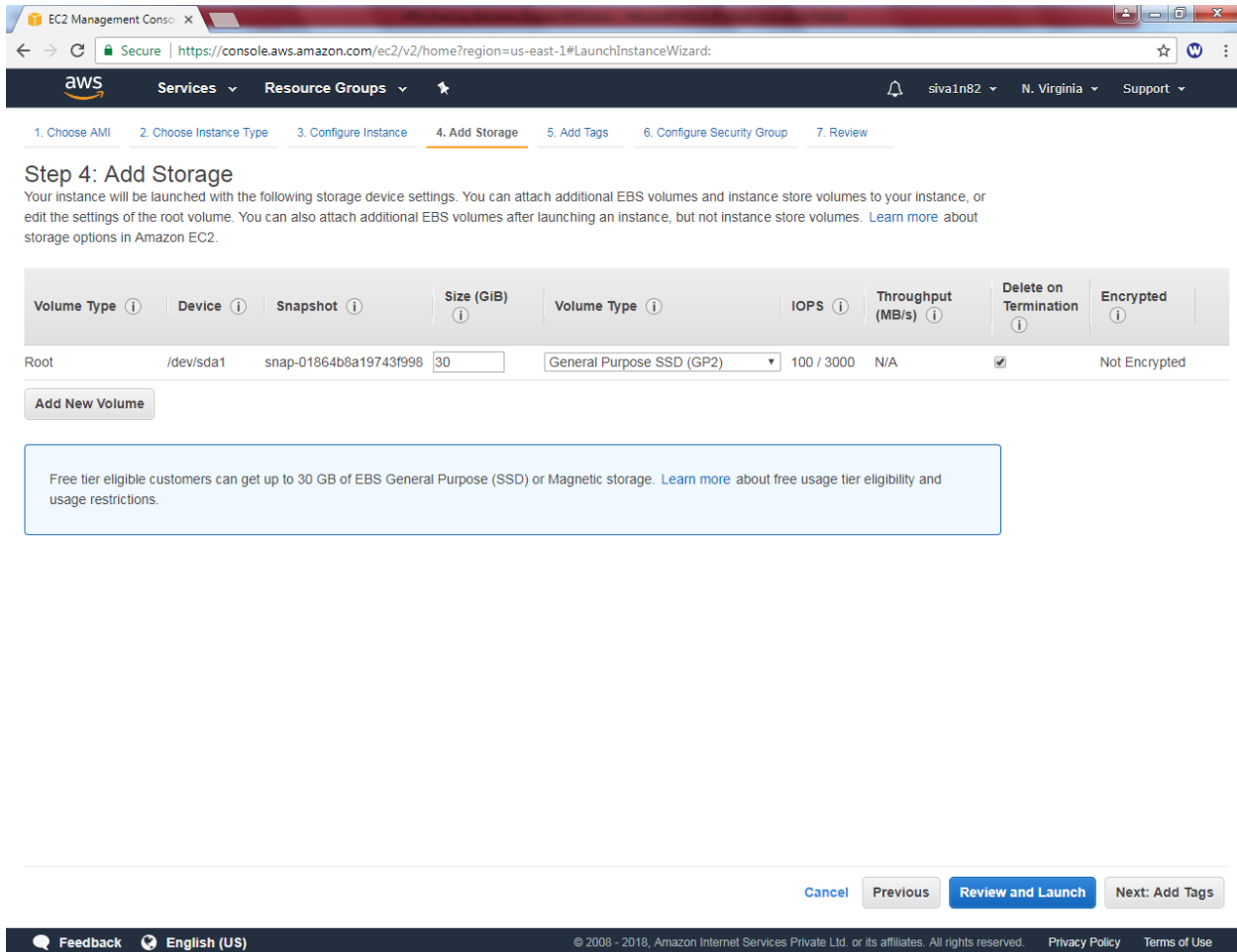
T2 Unlimited ☐ Enable
[Additional charges may apply](#)

Network interfaces

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

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Leave default settings and click “Next”.



The screenshot shows the AWS Management Console interface for the "Step 4: Add Storage" configuration step. The breadcrumb trail at the top indicates the sequence: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage (current step), 5. Add Tags, 6. Configure Security Group, and 7. Review. The main heading "Step 4: Add Storage" is followed by explanatory text about EBS volumes and instance store volumes. Below this is a table with columns for Volume Type, Device, Snapshot, Size (GiB), Volume Type, IOPS, Throughput (MB/s), Delete on Termination, and Encrypted. A single row is visible for the "Root" volume, showing it is a "General Purpose SSD (GP2)" with a size of 30 GiB, 100 IOPS, and N/A throughput. Below the table is an "Add New Volume" button. A light blue informational box states that free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. At the bottom of the console, there are navigation buttons: "Cancel", "Previous", "Review and Launch" (highlighted in blue), and "Next: Add Tags". The footer includes a "Feedback" link, "English (US)" language selection, and copyright information for 2008-2018.

EC2 Management Console

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>

Services Resource Groups

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

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 ⓘ	Encrypted ⓘ
Root	/dev/sda1	snap-01864b8a19743f998	30	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

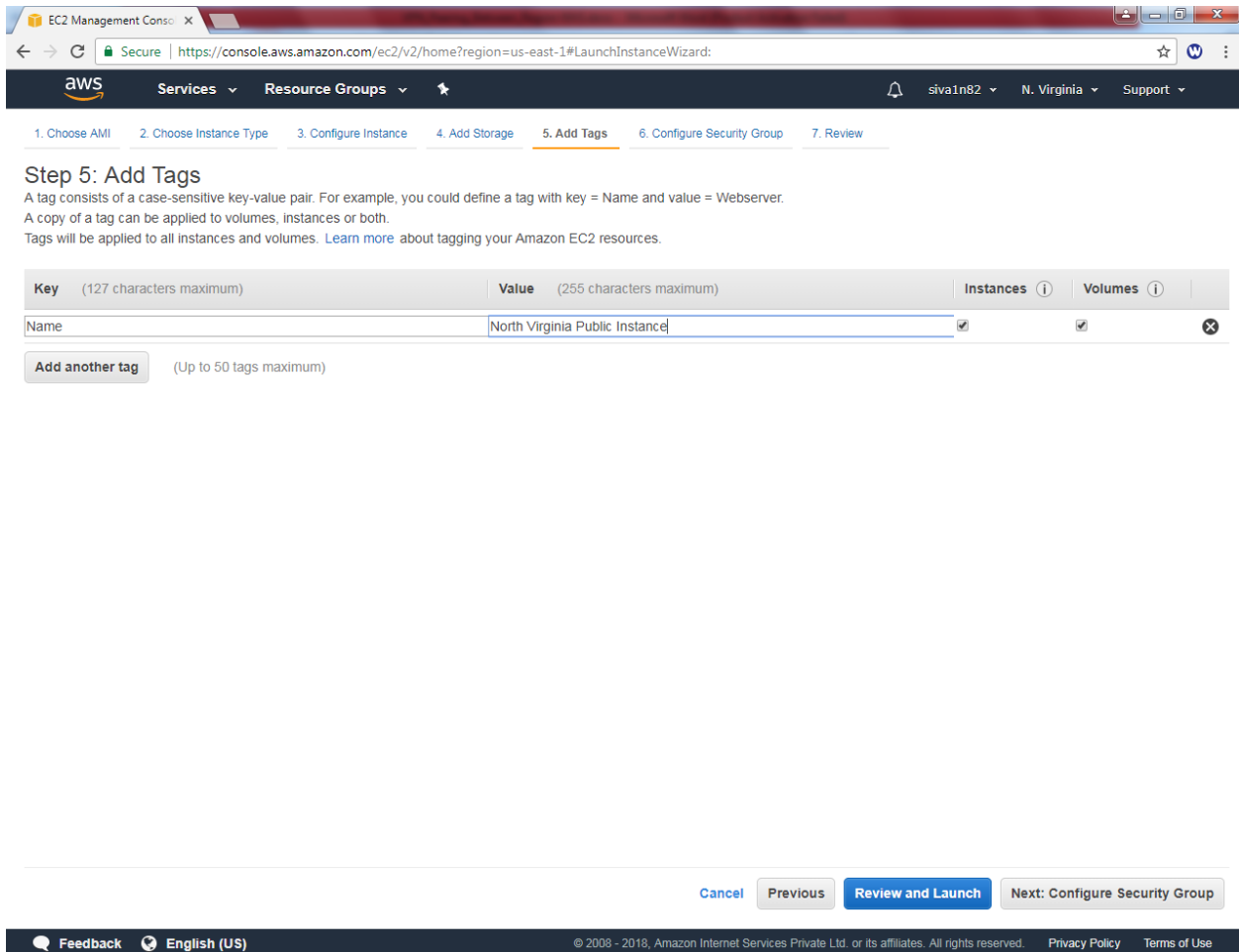
[Add New Volume](#)

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.

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Tags](#)

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In Key as name, Value as North Virginia Public Internet



The screenshot shows the AWS Management Console interface for the EC2 Launch Wizard. The breadcrumb trail indicates the current step is '5. Add Tags'. The main heading is 'Step 5: Add Tags', followed by explanatory text: '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.'

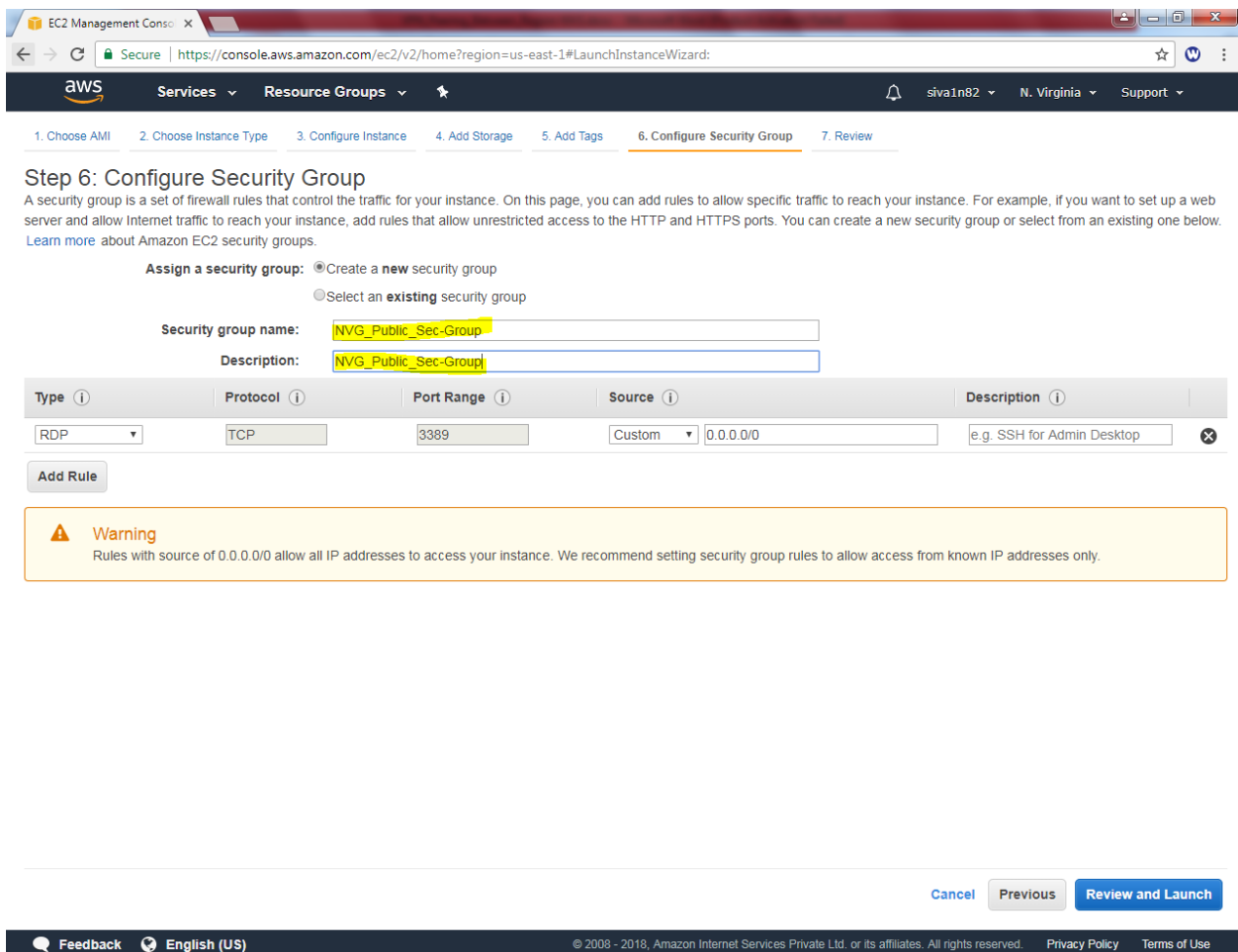
Key (127 characters maximum)	Value (255 characters maximum)	Instances	Volumes
Name	North Virginia Public Instance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

[Add another tag](#) (Up to 50 tags maximum)

Navigation buttons at the bottom: [Cancel](#), [Previous](#), [Review and Launch](#), and [Next: Configure Security Group](#).

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Create a security group as “NVG_Public_Sec-Group”.



The screenshot shows the AWS Management Console interface for the 'Configure Security Group' step. The breadcrumb trail at the top indicates the steps: 1. Choose AMI, 2. Choose Instance Type, 3. Configure Instance, 4. Add Storage, 5. Add Tags, 6. Configure Security Group (current step), and 7. Review. The page title is 'Step 6: Configure Security Group'. Below the title, a paragraph explains that a security group is a set of firewall rules. The 'Assign a security group' section has two radio buttons: 'Create a new security group' (selected) and 'Select an existing security group'. Below this, the 'Security group name' and 'Description' fields are both filled with 'NVG_Public_Sec-Group'. A table below shows a single rule configuration: Type 'RDP', Protocol 'TCP', Port Range '3389', Source 'Custom' with IP '0.0.0.0/0', and Description 'e.g. SSH for Admin Desktop'. An 'Add Rule' button is at the bottom left of the table. A yellow warning box at the bottom states: 'Warning: Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.' At the bottom right, there are 'Cancel', 'Previous', and 'Review and Launch' buttons. The footer includes 'Feedback', 'English (US)', and copyright information for Amazon Internet Services Private Ltd.

EC2 Management Console X

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:>

aws Services Resource Groups

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. 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 security group or select from 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: NVG_Public_Sec-Group

Description: NVG_Public_Sec-Group

Type	Protocol	Port Range	Source	Description
RDP	TCP	3389	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

Add Rule

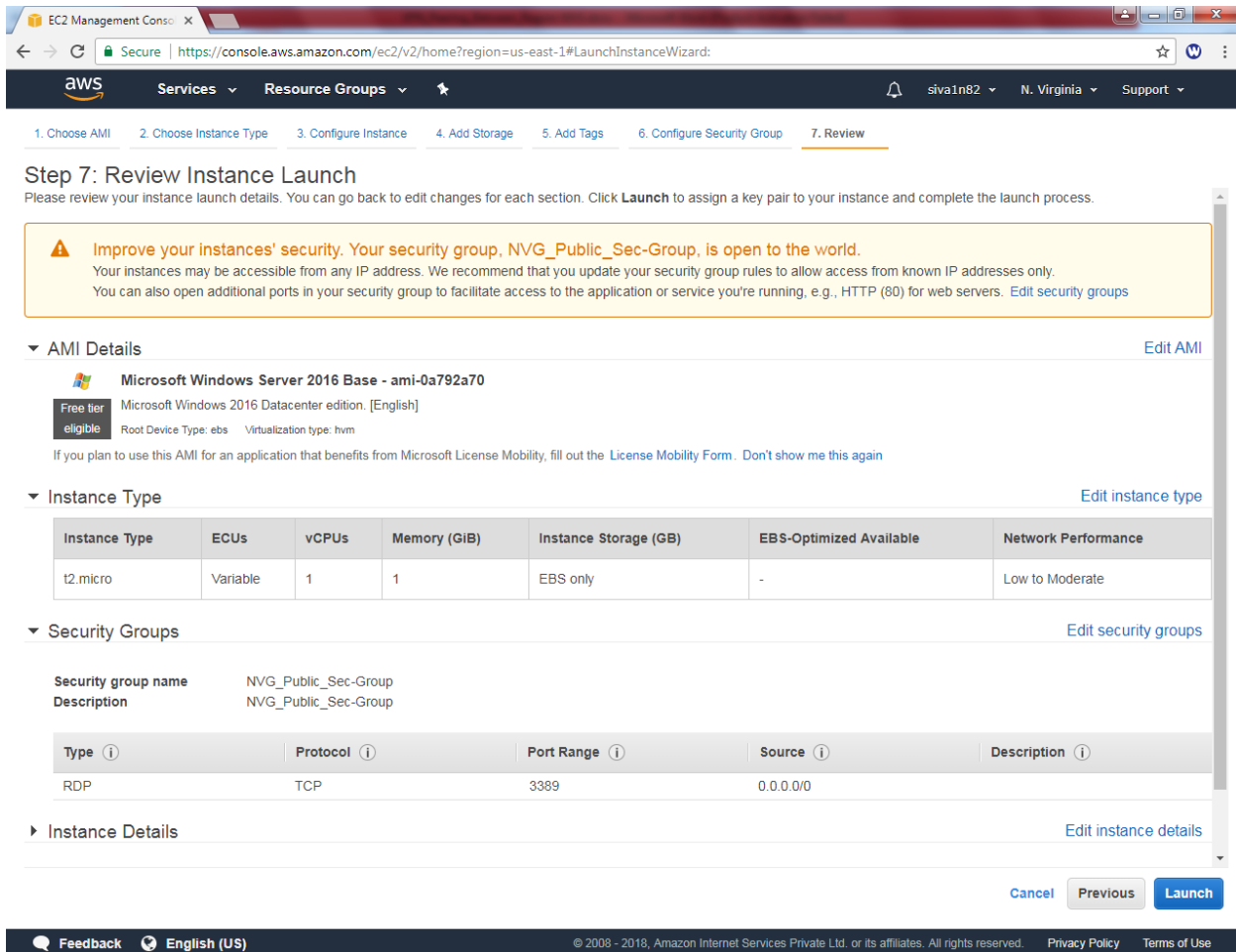
Warning

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

Cancel Previous **Review and Launch**

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Leave the settings default.



EC2 Management Console

Secure | <https://console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard>

aws Services Resource Groups

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, NVG_Public_Sec-Group, 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](#)

 **Microsoft Windows Server 2016 Base - ami-0a792a70**

Free tier eligible Microsoft Windows 2016 Datacenter edition. [English]
Root Device Type: ebs Virtualization type: hvm

If you plan to use this AMI for an application that benefits from Microsoft License Mobility, fill out the [License Mobility Form](#). [Don't show me this again](#)

▼ Instance Type [Edit instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

▼ Security Groups [Edit security groups](#)

Security group name NVG_Public_Sec-Group
Description NVG_Public_Sec-Group

Type ⓘ	Protocol ⓘ	Port Range ⓘ	Source ⓘ	Description ⓘ
RDP	TCP	3389	0.0.0.0/0	

► Instance Details [Edit instance details](#)

[Cancel](#) [Previous](#) [Launch](#)

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Click “Choose an existing key pair” / create an new key pair as per your requirement.

Click **Launch instance**.

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.

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](#).

Choose an existing key pair ▼

Select a key pair

siva_nvg ▼

☒ I acknowledge that I have access to the selected private key file (siva_nvg.pem), and that without this file, I won't be able to log into my instance.

Cancel

Launch Instances