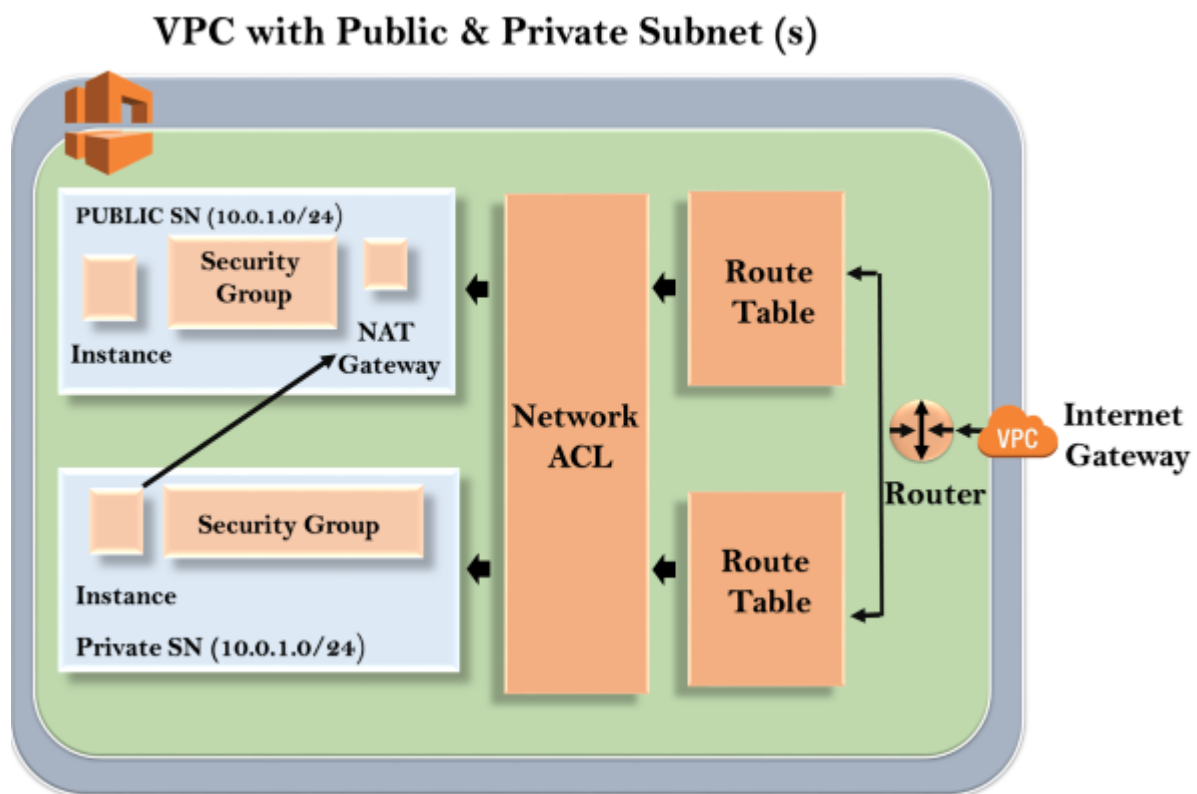


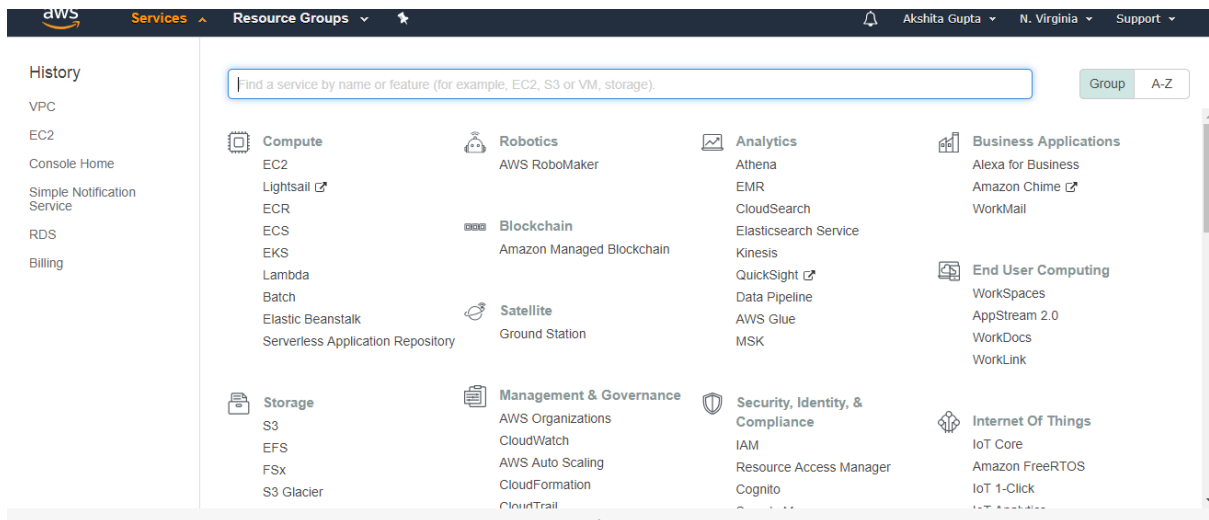
NAT Gateways

- NAT stands for **Network Address Translation**.
- If you want your EC2 instance in a private subnet can access the internet, this can be achieved only when it can communicate to the internet. However, we do not want to make a subnet public as we want to maintain the degree of control. To overcome the problem, we need to create either NAT Gateways or NAT Instances.
- In real time, NAT Gateways are highly used than NAT instances as NAT instances are an individual EC2 instances, and NAT Gateways are highly available across multiple availability zones, and they are not on a single EC2 instance.

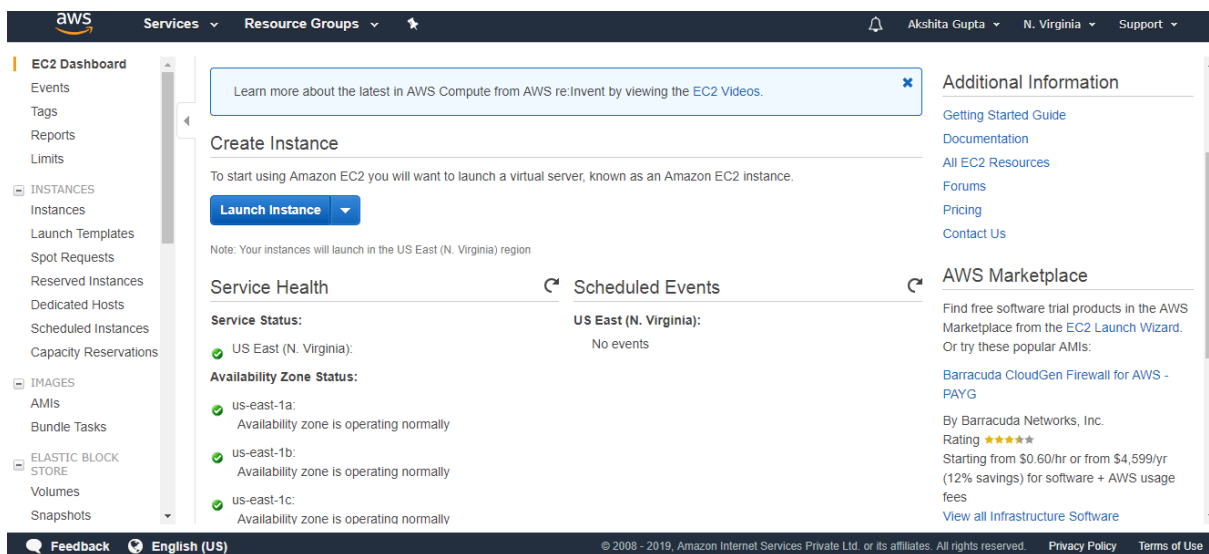


Let's first start with NAT instance and how to create them.

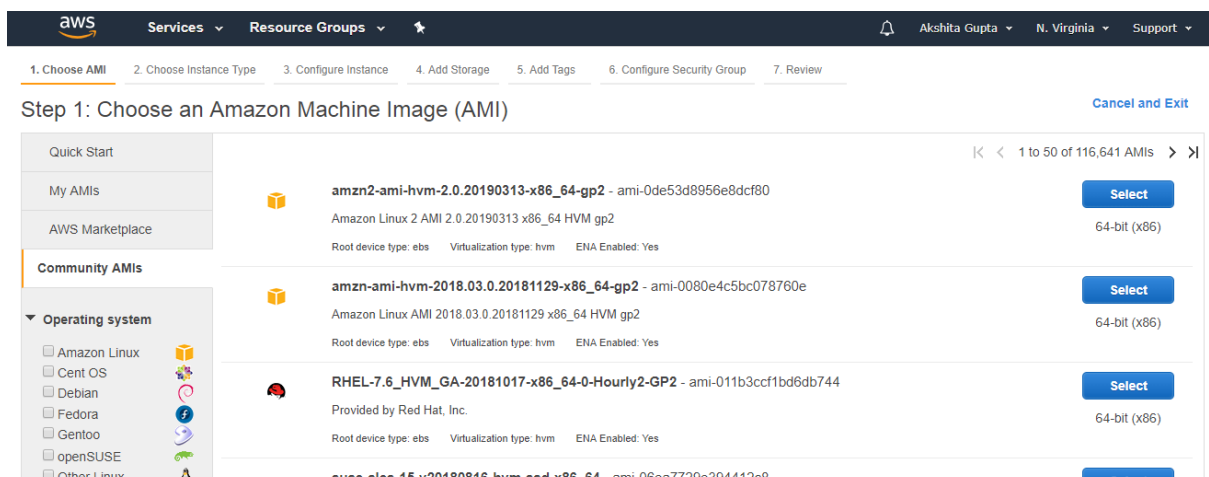
- Sign in to the AWS Management Console.
- Click on the EC2 service.



- Launch an instance.



- Move to the community AMI appearing on the left side of the console.



- Type the nat in a search box, and then it will show all the NAT instances. Select the first NAT instance.

Step 1: Choose an Amazon Machine Image (AMI) Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start (0)

My AMIs (0)

AWS Marketplace (23)

Community AMIs (477)

Operating system

☐ Amazon Linux
 ☐ CentOS

amzn-ami-vpc-nat-hvm-2018.03.0.20181116-x86_64-ebs - ami-00a9d4a05375b2763
 Amazon Linux AMI 2018.03.0.20181116 x86_64 VPC HVM ebs
 Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

amzn-ami-vpc-nat-hvm-2017.09.1.20180108-x86_64-ebs - ami-01623d7b
 Amazon Linux AMI 2017.09.1.20180108 x86_64 VPC NAT HVM EBS
 Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

amzn-ami-vpc-nat-hvm-2018.03.0.20180811-x86_64-ebs - ami-0422d936d535c63b1

- Choose an Instance type and then click on the **Next**.

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 (GB)	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

Cancel
Previous
Review and Launch
Next: Configure Instance Details

- Now, configure the instance details. Leave all the details as default except that keep the VPC as custom VPC, i.e., **VPCNAME** which we already created in a previous topic and choose the public subnet.

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-025c8a752cda411d3 | javatpoint VPC

Create new VPC

Subnet

subnet-00dededd60553d4e6 | 10.0.2.0-us-east | us-east-1

Create new subnet

Auto-assign Public IP

Use subnet setting (Enable)

Placement group

☐ Add instance to placement group

Capacity Reservation

Open

Create new Capacity Reservation

IAM role

None

Create new IAM role

Cancel
Previous
Review and Launch
Next: Add Storage

- Add tags.

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 (127 characters maximum)	Value (255 characters maximum)	Instances ⓘ	Volumes ⓘ
Name	NAT_instance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Configure Security Group](#)

[Feedback](#) [English \(US\)](#) © 2008 - 2019, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved. [Privacy Policy](#) [Terms of Use](#)

- Click the **Review and Launch button**. On clicking on the Review and Launch button, a dialog box appears.

Boot from General Purpose (SSD) ✕

General Purpose (SSD) volumes provide the ability to burst to 3000 IOPS per volume, independent of volume size, to meet the performance needs of most applications and also deliver a consistent baseline of 3 IOPS/GiB.

- ☐ Make General Purpose (SSD) the default boot volume for all instance launches from the console going forward (recommended).
- ☒ Make General Purpose (SSD) the boot volume for this instance.
- ☐ Continue with Magnetic as the boot volume for this instance.

Free tier eligible customers can get up to 30GB of General Purpose (SSD) storage.

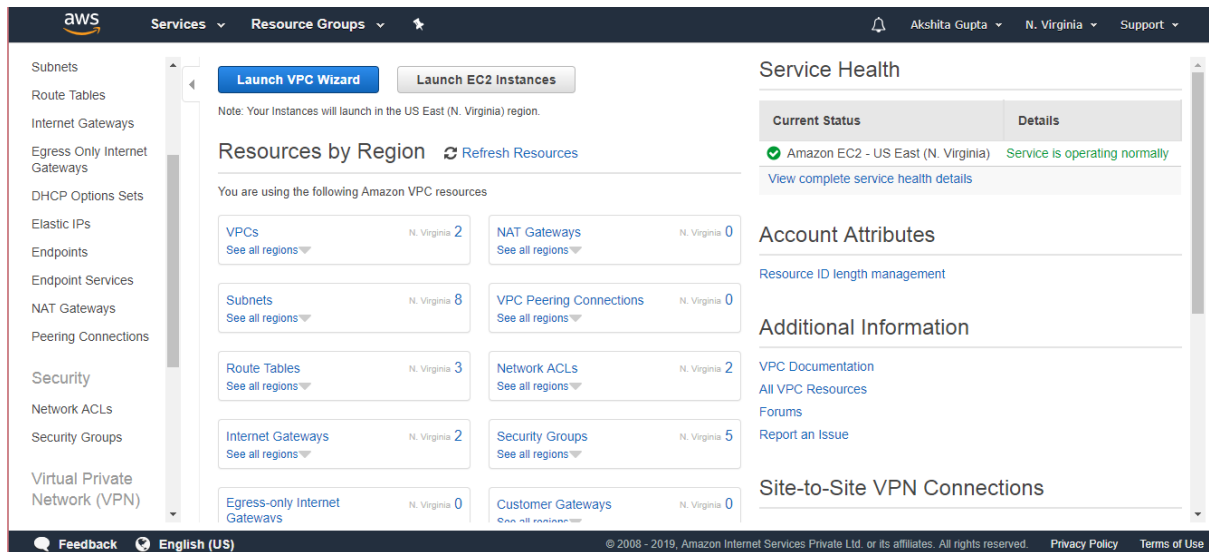
☐ Don't show again [Next](#)

- Click on the Launch button to create an instance.

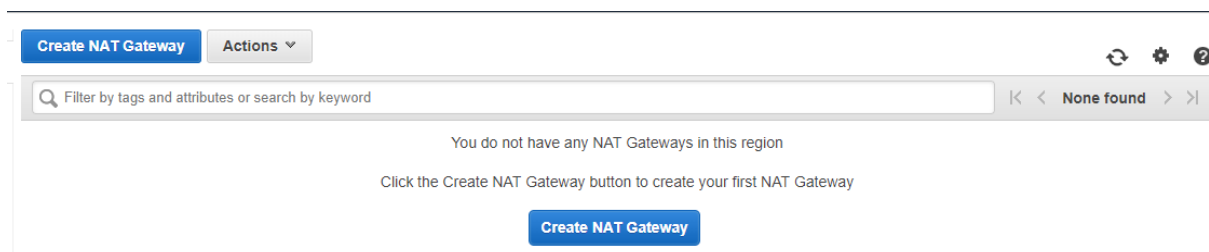
In this way, a NAT instance is created. NAT Gateway is preferable over NAT instance as NAT Gateway does not require security group and it is highly available across multiple availability zones.

How to create NAT Gateway

- Click on the NAT Gateway appearing on the left side of the console.





- Click on the **Create NAT Gateway** button




- Fill the details to create a NAT Gateway.

Create NAT Gateway

Create a NAT gateway and assign it an Elastic IP address. [Learn more.](#)

Subnet*  

Elastic IP Allocation ID*   [Create New EIP](#)

New EIP (18.204.103.85) creation successful.

* Required [Cancel](#) [Create a NAT Gateway](#)

Important points related to NAT instance:

- When creating a NAT instance, you need to disable source/destination check on the instance.
- NAT instances must be available in a public subnet.
- There must be some route from private subnet to NAT instance, in order to work for this.
- The amount of traffic that NAT instances can support depends upon the instance size.

- You can create high availability using Autoscaling groups, multiple subnets in different AZ's.
- NAT instance is configured with the security group.

Important points related to NAT Gateways:

- It is redundant inside the availability zone.
- It is preferred by an enterprise.
- It starts at 5Gbps and scales up to 45 Gbps.
- It is not configured with the security groups.
- In NAT Gateways, there is no need to disable the source/destination checks.