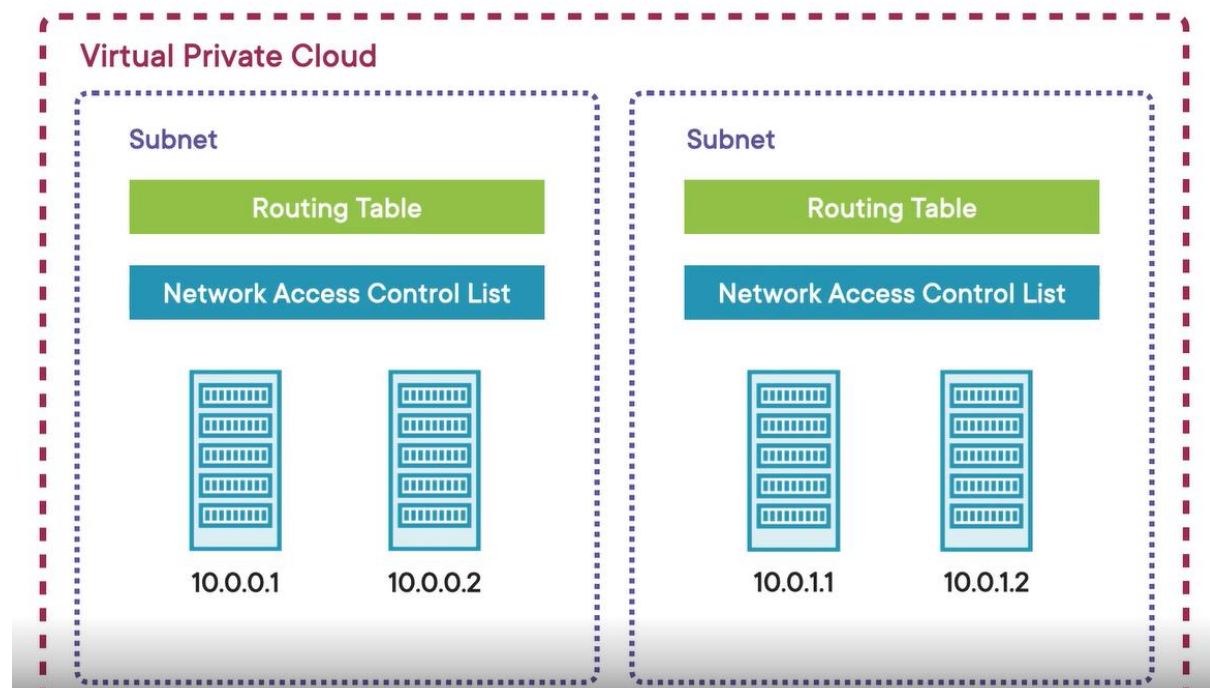


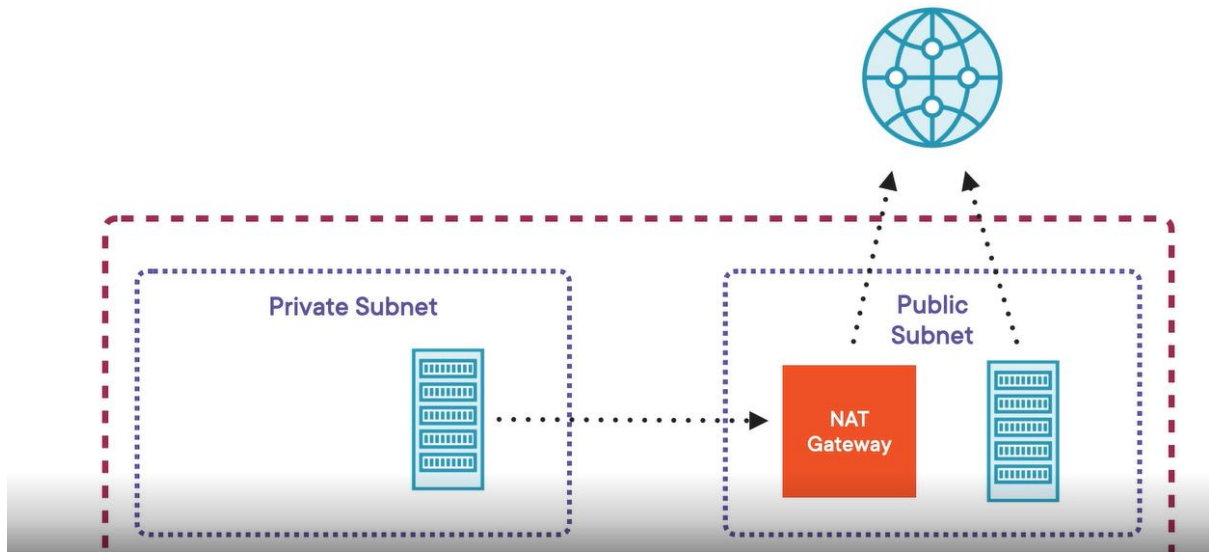
## Getting inside the virtual machine with EC2 and VPC:

- Services that utilize EC2:
  1. Elastic Block Store
  2. Relational Database Service
  3. Elastic Beanstalk
  4. Redshift
  5. Elastic MapReduce
  6. ElastiCache
- EC2 – virtual machine service that runs software of your choice

## Virtual Private Cloud



# Public and Private Subnet Configuration



Demo: Create VPC and subnets:

The screenshot shows the AWS Management Console 'Create VPC' page. The browser address bar shows 'us-east-2.console.aws.amazon.com/vpc/home?region=us-east-2#CreateVpc:createMode=vpcOnly'. The page title is 'Create VPC' with an 'Info' link. Below the title is a description: 'A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.' The 'VPC settings' section contains the following options:

- Resources to create:** 'VPC only' is selected (radio button), and 'VPC and more' is unselected.
- Name tag - optional:** A text input field contains 'pizza-vpc'.
- IPv4 CIDR block:** 'IPv4 CIDR manual input' is selected (radio button), and 'IPAM-allocated IPv4 CIDR block' is unselected.
- IPv4 CIDR:** A text input field contains '10.0.0.0/16'.

The footer of the console shows 'Feedback', 'Looking for language selection? Find it in the new Unified Settings', '© 2022, Amazon Internet Services Private Ltd. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

us-east-2.console.aws.amazon.com/vpc/home?region=us-east-2#VpcDetails:VpcId=vpc-02e4c114a1e31e847

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New VPC Experience Tell us what you think

VPC dashboard  
EC2 Global View New  
Filter by VPC:  
Select a VPC

Virtual private cloud

Your VPCs

Subnets  
Route tables  
Internet gateways  
Egress-only internet gateways  
DHCP Option Sets  
Elastic IPs  
Managed prefix lists  
Endpoints

You successfully created vpc-02e4c114a1e31e847 / pizza-vpc

VPC > Your VPCs > vpc-02e4c114a1e31e847

vpc-02e4c114a1e31e847 / pizza-vpc Actions

Details Info

VPC ID vpc-02e4c114a1e31e847	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP options set dopt-030c95376e7ee8ff5	Main route table rtb-0773b783bd158244f	Main network ACL acl-0b418fe6b863483de
Default VPC No	IPv4 CIDR 10.0.0.0/16	IPv6 pool -	IPv6 CIDR -
Route 53 Resolver DNS Firewall rule groups	Owner ID 095372635374		

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## Elastic Block Store:

- Independent storage volumes used with EC2 instances

## Creating EC2 instance:

us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#LaunchInstances:

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EC2 > Instances > Launch an instance

Launch an instance Info

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags Info

Name  
pizza-og Add additional tags

Application and OS Images (Amazon Machine Image) Info

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search our full catalog including 1000s of application and OS images

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ami-02d1e544b84bf7502 (64-bit (x86)) / ami-03e57de53260544c (64-bit (Arm))  
Virtualization: hvm ENA enabled: true Root device type: ebs

Description  
Amazon Linux 2 Kernel 5.10 AMI 2.0.20220606.1 x86\_64 HVM gp2

Architecture  
64-bit (x86)

AMI ID  
ami-02d1e544b84bf7502

▼ Instance type Info

Instance type  
t2.micro  
Family: t2 1 vCPU 1 GiB Memory  
On-Demand Linux pricing: 0.0116 USD per Hour  
On-Demand Windows pricing: 0.0162 USD per Hour  
Free tier eligible  
Compare instance types

▼ Key pair (login) Info

Feedback

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▼ Network settings

VPC - required Info  
vpc-02e4c114a1e31e847 (pizza-vpc)  
10.0.0.0/16

Subnet Info  
subnet-09464acd8935c4c15  
VPC: vpc-02e4c114a1e31e847 Owner: 095372635374 Availability Zone: us-east-2a  
IP addresses available: 251  
pizza-subnet  
Create new subnet

Auto-assign public IP Info  
Disable

Firewall (security groups) Info  
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.  
☒ Create security group ☐ Select existing security group

Security group name - required  
pizza-ec2-sg  
This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and \_-./()#,@[]+=&:|!\$\*

Feedback

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Inbound security groups rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0) Remove

Type Info ssh Protocol Info TCP Port range Info 22

Source type Info Anywhere Source Info 0.0.0.0/0 Description - optional Info e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 3000, 0.0.0.0/0) Remove

Type Info Custom TCP Protocol Info TCP Port range Info 3000

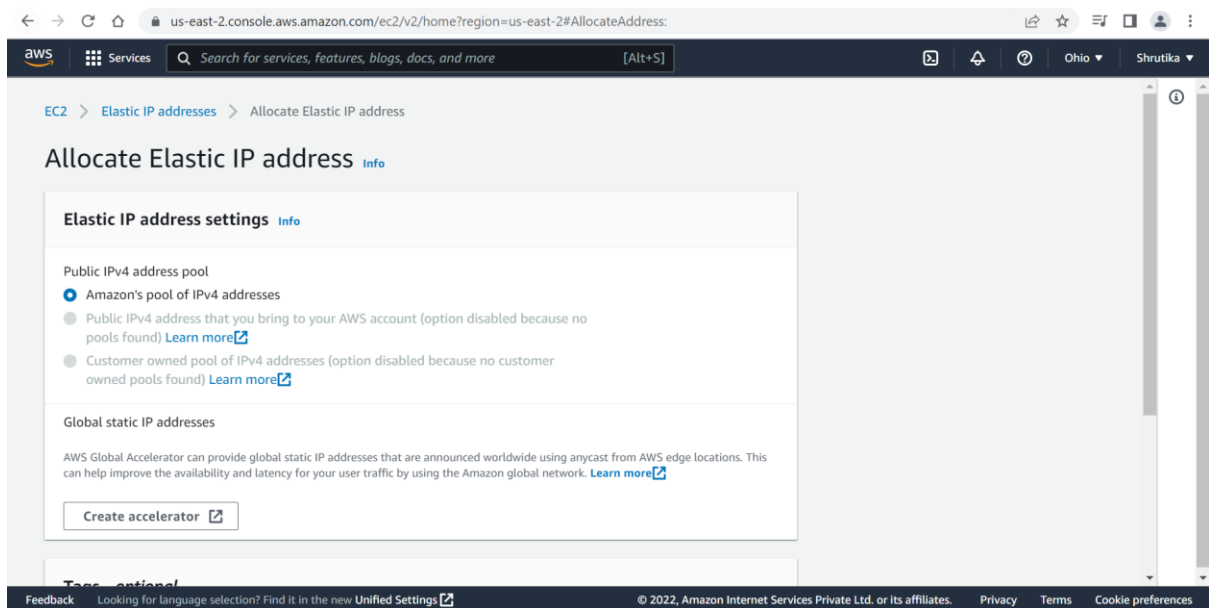
Source type Info Anywhere Source Info 0.0.0.0/0 Description - optional Info e.g. SSH for admin desktop

Feedback

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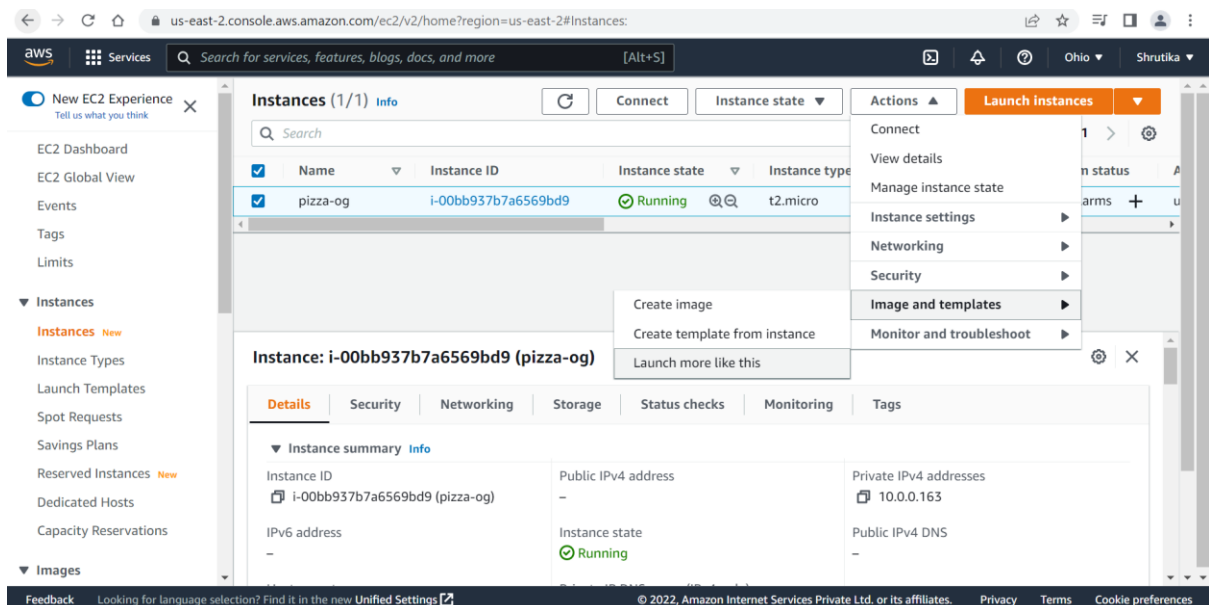
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Elastic IP: Public IP addresses that are created, destroyed and assigned independently.



- Auto scaling group expands or shrinks a pool of instances based on pre-defined rules.
- Load balancer – routing appliance that maintains a consistent DNS entry and balances requests to multiple instances.

Create AMI:



us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#CreateImage:instanceId=i-00bb937b7a6569bd9

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EC2 > Instances > i-00bb937b7a6569bd9 > Create image

### Create image [Info](#)

An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID  
i-00bb937b7a6569bd9 (pizza-og)

Image name

Maximum 127 characters. Can't be modified after creation.

Image description - optional

Maximum 255 characters

No reboot  
☐ Enable

Instance volumes

Volume type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on	Enc
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us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#Instances:

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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  
Capacity Reservations

▼ Images

Successfully created ami-0148c4a4c382f30cb from instance i-00bb937b7a6569bd9.

### Instances (1) [Info](#)

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>	pizza-og	i-00bb937b7a6569bd9	Running	t2.micro	2/2 checks passed	No alarms

Select an instance

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