

```
>>Selecting linux image 2 and adding script in user data in advance option for installing
apache
```

```
>>logging in through ssh and checking for apache and file
```

```
>>searching the ip on web
```



## 2) Launch one ec2 using Ubuntu image and add script in user data to install Nginx.

>> Selecting ubuntu image and adding script in user data in advance option for installing nginx on launch

Metadata response hop limit [Info](#)

2

Allow tags in metadata [Info](#)

Select

User data - optional [Info](#)

Upload a file with your user data or enter it in the field.

[Choose file](#)

```
#!/bin/bash

#Updating and installing nginx
sudo apt update -y
sudo apt install -y nginx

#Enabling and starting the nginx service
sudo systemctl enable nginx
sudo systemctl start nginx
```

☐ User data has already been base64 encoded

**Summary**

Number of instances [Info](#)

1

Software Image (AMI)

Canonical, Ubuntu, 24.04, amd64...[read more](#)  
ami-001f2488b35ca8aad

Virtual server type (instance type)

t2.micro

Firewall (security group)

default

Storage (volumes)

1 volume(s) - 8 GiB

**Free tier:** In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 750 hours of public IPv4 address

Cancel [Launch instance](#) [Preview code](#)

>>checking on CLI for Nginx service

```
ubuntu@ip-172-31-14-186: ~
ubuntu@ip-172-31-14-186:~$ sudo find / -name nginx
/usr/share/doc/nginx
/usr/share/nginx
/usr/sbin/nginx
/var/lib/nginx
/var/log/nginx
/etc/logrotate.d/nginx
/etc/ufw/applications.d/nginx
/etc/init.d/nginx
/etc/nginx
/etc/default/nginx
ubuntu@ip-172-31-14-186:~$ sudo systemctl status nginx | grep active
Active: active (running) since Fri 2024-11-08 10:47:31 UTC; 54s ago
ubuntu@ip-172-31-14-186:~$ sudo systemctl status nginx | grep ena*
Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
```

### 3) Launch one windows server and install tomcat in windows.

Create instance with windows image

launch the instance by clicking connect and follow the instructions.

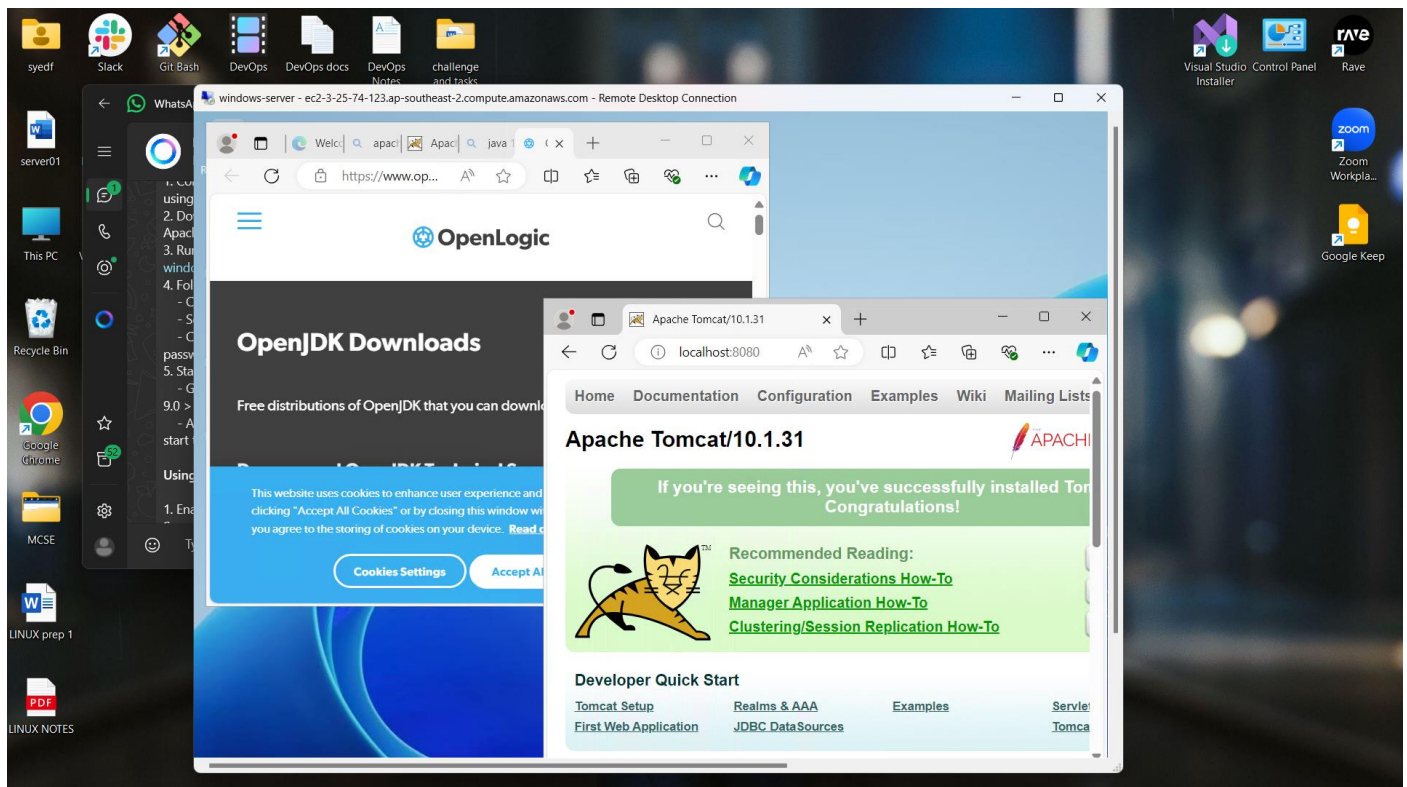
Go to browser and download java jdk from official page

Download tomcat from official page

Install it

Open cmd prompt and run command <net start tomcat\*>

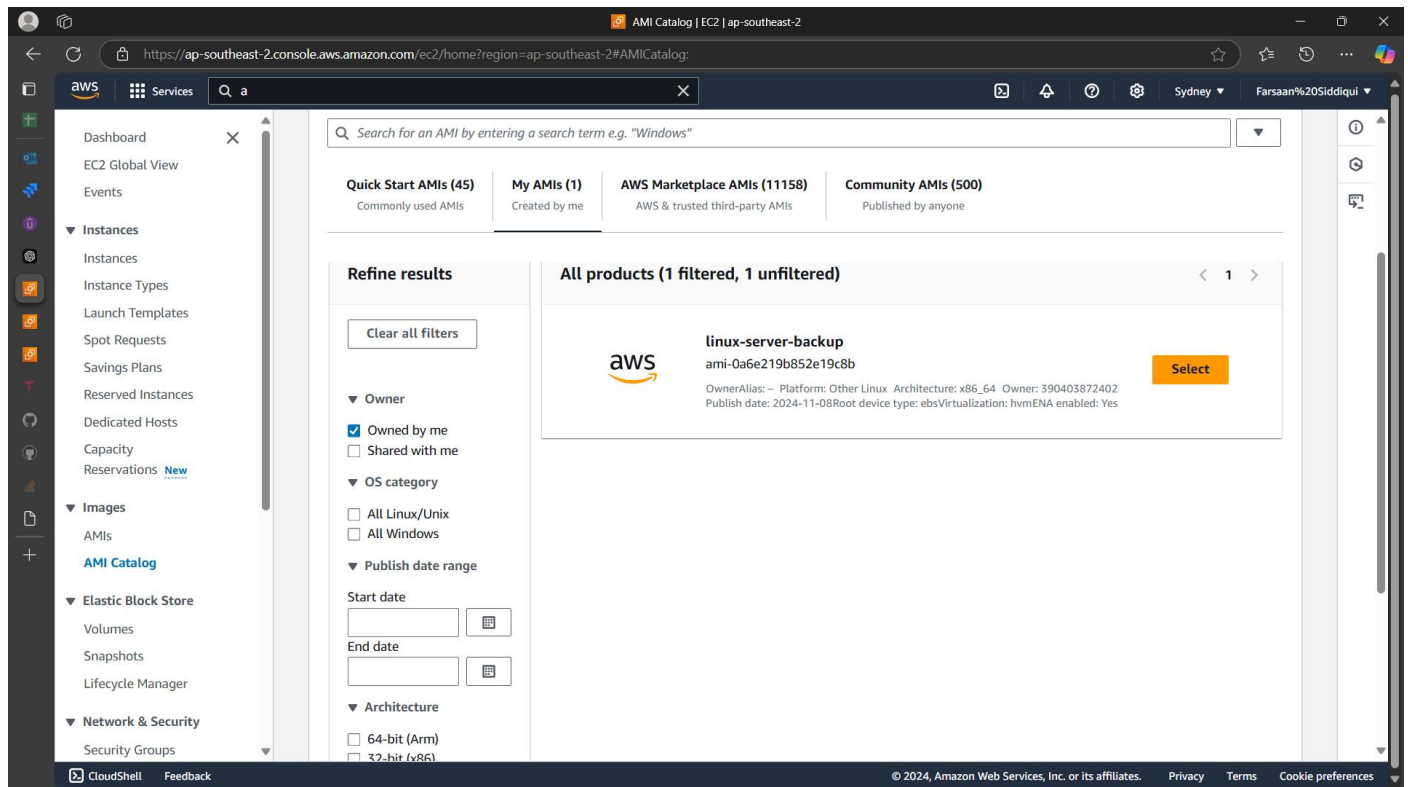
Go to browser on windows server search localhost:8080



#### 4) Take snapshot of the instance created in Task 1.

->First stop the instance

go to Actions > Image and template > Create Image > Give image name > Create Image



#### 5) Assign password less authentication for ec2 created on Task 2.

>create a key-gen in local server

>cat the key and copy it

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ ssh-keygen -t rsa
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/syedf/.ssh/id_rsa):
/c/Users/syedf/.ssh/id_rsa already exists.
Overwrite (y/n)? y
Enter passphrase for "/c/Users/syedf/.ssh/id_rsa" (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c/Users/syedf/.ssh/id_rsa
Your public key has been saved in /c/Users/syedf/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:NXcVVU1NEVJPzBAeJq2f1qtJQNP7Ga8Pn9RG2pdouG syedf@LAPTOP-AM5KM6HG
The key's randomart image is:
+---[RSA 3072]-----+
|      .o*oOo      |
|      .+oo=       |
|      =o.o.o       |
|      o+.o.+       |
|      S..o.o+=     |
|      ..BO=        |
|      ..+==*       |
|      Eo.o.o=       |
|      .o+..oo      |
+---[SHA256]-----+

syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ cat /c/Users/syedf/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCAxuiFjhVvAGUGl2t/vsBJeEp0ff6mu8sSG5fg
xpu2xvKcyoRubbXSpUff20Aqcb0IZooGjIJ7T0t1i21FEHRbHypS1fMhQ6gFkaIUuQohJI65GJwBHDw0
jjw0us2GR3Fr6RaHJ4y7sC13DNUjh6GqKSz/OGZpIaKr+qvn6Dfm0tX/YmEyAHEPCy0KJfnwFsXGPbP4
gsBBtYL6IQKEKj9Fr3VL3N1fdL7xnBwsN1x1VhVsZz0r+i55UGgBUV/Jrp5d89wTfbP0gU2cBDRnoWwH
ofD6fLfk0VDBYdbP8w83ZgFYyE2ZtS9HBPfALEKGIgu0Gpffz6xTuCPQz/b6t0094E0xDaR6CSpodQE7
YBTwEz/xAGroyHj4/kCCIIndkgeCxb0wsmvhXGTou+QjF3aysW88ItHwMDQJIEwTh1oFzGfH1lGEv
paHrGqR29j3kvI1J3JexYRBBu0SPhtc9Lm5jVraC00E0+Ta5EFnSooc/7Rw61wQR1zp0J0c= syedf@L
APTOP-AM5KM6HG
```

>login to ubuntu server

>got to .ssh directory

>edit the file authorized keys

>add the copied key in that file and save the file then restart the ssh service

```
root@ip-172-31-14-186:/home/ubuntu/.ssh# vi authorized_keys
root@ip-172-31-14-186:/home/ubuntu/.ssh# chmod 660 authorized_keys
root@ip-172-31-14-186:/home/ubuntu/.ssh# ls -ltr
total 4
-rw-rw---- 1 ubuntu ubuntu 966 Nov  9 08:57 authorized_keys
root@ip-172-31-14-186:/home/ubuntu/.ssh# chmod 600 authorized_keys
root@ip-172-31-14-186:/home/ubuntu/.ssh# ls -ltr
total 4
-rw----- 1 ubuntu ubuntu 966 Nov  9 08:57 authorized_keys
root@ip-172-31-14-186:/home/ubuntu/.ssh# systemctl restart ssh
root@ip-172-31-14-186:/home/ubuntu/.ssh# service ssh restart
```

>Login with ssh username@hostname

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ ssh ubuntu@54.79.193.58
The authenticity of host '54.79.193.58 (54.79.193.58)' can't be established.
ED25519 key fingerprint is SHA256:VaVqInTfH6f9kJ3iEGxIb18AiT5SOIvHZQEjAByp20s.
This host key is known by the following other names/addresses:
  ~/.ssh/known_hosts:1: 3.107.85.95
  ~/.ssh/known_hosts:5: ec2-54-79-193-58.ap-southeast-2.compute.amazonaws.com
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.79.193.58' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Sat Nov  9 08:59:18 UTC 2024

System load:  0.0               Processes:    113
Usage of /:   27.0% of 6.71GB   Users logged in: 1
Memory usage: 24%              IPv4 address for enx0: 172.31.14.186
Swap usage:   0%

 * Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

  https://ubuntu.com/aws/pro

Expanded Security Maintenance for Applications is not enabled.

42 updates can be applied immediately.
22 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Sat Nov  9 08:54:34 2024 from 106.222.232.61
```

## 6) Launch any ec2 using spot purchasing option.

The screenshot shows the AWS Management Console for the 'ap-southeast-2' region. The left sidebar contains navigation links for Dashboard, EC2 Global View, Events, Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity, and Reservations. The main content area is titled 'Spot Requests (1/1)' and includes a search bar, a table of requests, and a detailed view for a specific request.

Request ID	Request type	Instance ...	State	Capac...	Status	Persistence	Created
sir-8t4pygk...	instance	t2.micro	active	i-02e64...	fulfilled	one-time	3 minutes ago

The detailed view for request 'sir-8t4pygk' shows the following information:

- Request ID: sir-8t4pygk
- Max price: \$0.010
- Request type: instance
- Persistence: one-time
- Created: 11/08/2024, 5:52 pm
- Status: fulfilled
- EBS-optimized: no
- Monitoring: no
- Instance Id: i-02e64820ae8dd4880
- Tenancy: default
- Interruption behavior
- Subnet: subnet-0ed93370396118f4
- Product description: Linux/UNIX
- Availability Zone: ap-southeast-2b
- Launch group: -
- Request valid from: -
- Request valid until: -

## 7) Enable Termination policy on ec2 created in Task 2.

select\_instance > Actions > Instance\_settings > Change\_termination\_protection > Enable

The screenshot shows a dialog box titled 'Change termination (deletion) protection'. The dialog contains the following text:

To prevent your instance from being accidentally deleted, you can enable termination protection for the instance. [Learn more](#)

Instance ID  
i-0371e3e9877c8f8aa (ubuntu-server)

Termination protection  
☒ Enable

At the bottom of the dialog are 'Cancel' and 'Save' buttons.



## 8) Launch one ec2 using Aws CLI.

Download AWSCLIV2 from browser > setup the application > open gitbash CLI > check version > configure > add requirements > Done

**Configure AWS CLI:** Once installed, configure the AWS CLI with your credentials by running:

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~  
$ aws configure  
AWS Access Key ID [*****U3FF]: AKIAVZPCK2JDQV2U3FF  
AWS Secret Access Key [*****QiIM]: ss4vCPuDV3Nu6uxDS2dT5VD+SU30Hs9WUWOLQiIM  
Default region name [us-east-1]: us-east-1  
Default output format [json]:
```

### Follow this to get your access key and secret key

Log in to the AWS Management Console > Navigate to the IAM (Identity and Access Management service > Select Users from the left-hand menu > Click on the user for whom you want to find the access keys > Go to the Security credentials tab. > Scroll down to the Access keys section

### Run command

```
~$ aws ec2 run-instances --image-id <ami-0abcdef1234567890> --count <1> --instance-type <t2.micro>  
--key-name <your_key> --security-group-ids <sg-0123456789abcdef0> --subnet-id <subnet-6e7f829e>
```

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~  
$ aws ec2 run-instances --image-id ami-0a6e219b852e19c8b --count 1 --instance-type t2.micro  
--key-name server01 --security-group-ids sg-0b41273241233800c --subnet-id subnet-09a3ba9  
aa9aec7ec9
```

The screenshot displays the AWS Management Console interface for an EC2 instance. The left-hand navigation pane shows various AWS services, with 'Instances' selected under the 'EC2' category. The main content area shows the 'Instance summary for i-05c0517115d59b503'. The instance is in a 'Running' state. Key details include:

- Instance ID:** i-05c0517115d59b503
- Public IPv4 address:** 3.25.237.187
- Private IPv4 addresses:** 172.31.28.61
- Instance state:** Running
- Public IPv4 DNS:** ec2-3-25-237-187.ap-southeast-2.compute.amazonaws.com
- Private IP DNS name (IPv4 only):** ip-172-31-28-61.ap-southeast-2.compute.internal
- Instance type:** t2.micro
- VPC ID:** vpc-0960b1b3709dc266d
- Subnet ID:** subnet-09a3ba9aa9aec7ec9
- Instance ARN:** arn:aws:ec2:ap-southeast-2:390403872402:instance/i-05c0517115d59b503

The console also shows a warning for 'EC2 recommends setting IMDSv2 to required' and provides a link to 'Learn more'.

## 9) Launch one azure VM using ubuntu image.

The screenshot displays the Microsoft Azure portal interface for a virtual machine named 'azure-ubuntu'. The left sidebar shows the navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, Automation, and Help. The main content area is divided into two sections: 'Essentials' and 'Properties'. The 'Essentials' section provides a quick overview of the VM's configuration, including its resource group, status, location, subscription, and availability zone. The 'Properties' section lists detailed information about the VM, such as its computer name, operating system, VM generation, architecture, hibernation status, host group, and host. The 'Networking' section shows the public IP address, private IP address, and the virtual network/subnet configuration.

Property	Value
Resource group	azure-ubuntu_group
Status	Creating
Location	Central India (Zone 1)
Subscription	Free Trial
Subscription ID	f9fbc280-d977-44c8-9145-ee5927e5f80
Availability zone	1
Tags	Add tags
Operating system	Linux
Size	Standard B1s (1 vcpu, 1 GiB memory)
Public IP address	20.40.53.193
Virtual network/subnet	azure-ubuntu-vnet/default
DNS name	Not configured
Health state	-
Time created	11/8/2024, 2:03 PM UTC
Computer name	azure-ubuntu
Operating system	Linux
VM generation	V2
VM architecture	x64
Hibernation	Disabled
Host group	-
Host	-
Public IP address	20.40.53.193 ( Network interface azure-ubuntu115_z1 )
Public IP address (IPv6)	-
Private IP address	10.0.0.4
Private IP address (IPv6)	-
Virtual network/subnet	azure-ubuntu-vnet/default
DNS name	Configure

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/.ssh
$ ssh superman@20.40.53.193
The authenticity of host '20.40.53.193 (20.40.53.193)' can't be established.
ED25519 key fingerprint is SHA256:pdpEqLNQHZDTQeZD9trby4JE5WC1k2LqcCEDjs5qvCM.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '20.40.53.193' (ED25519) to the list of known hosts.
superman@20.40.53.193's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1017-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Fri Nov  8 14:09:29 UTC 2024

System load:  0.25           Processes:            109
Usage of /:   5.4% of 28.02GB Users logged in:      0
Memory usage: 29%           IPv4 address for eth0: 10.0.0.4
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

superman@azure-ubuntu:~$ |
```



## 10) Launch one azure VM using Azure CLI.

az group create --name AResourceGroup --location eastus

az network vnet create --resource-group AResourceGroup --name MyVnet --subnet-name MySubnet

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az group create --name AResourceGroup --location centralindia
{
  "id": "/subscriptions/f9fbc280-d977-44c8-9145-eef5927e5f80/resourceGroups/AResourceGroup",
  "location": "centralindia",
  "managedBy": null,
  "name": "AResourceGroup",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}

syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az network vnet create --resource-group AResourceGroup --name MyVnet --subnet-name MySubnet
{
  "newVNet": {
    "addressSpace": {
      "addressPrefixes": [
        "10.0.0.0/16"
      ]
    },
    "enableDdosProtection": false,
    "etag": "W/\"2cdba09e-e4a1-40b9-acbe-ec52cac84f91\"",
    "id": "/subscriptions/f9fbc280-d977-44c8-9145-eef5927e5f80/resourceGroups/AResourceGroup/providers/Microsoft.Network/virtualNetworks/MyVnet",
    "location": "centralindia",
    "name": "MyVnet",
    "provisioningState": "Succeeded",
    "resourceGroup": "AResourceGroup",
    "resourceGuid": "e3cb1631-fac7-42a3-9e7f-5ac15e26f64b",
    "subnets": [

```

az network public-ip create --resource-group AResourceGroup --name MyPublicIP

az network nsg create --resource-group AResourceGroup --name MyNetworkSecurityGroup

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az network public-ip create --resource-group AResourceGroup --name MyPublicIP
[Coming breaking change] In the coming release, the default behavior will be changed as follows when sku is Standard and zone is not provided: For zonal regions, you will get a zone-redundant IP indicated by zones:["1","2","3"]; For non-zonal regions, you will get a non zone-redundant IP indicated by zones:null.
{
  "publicIp": {
    "ddosSettings": {
      "protectionMode": "VirtualNetworkInherited"
    },
    "etag": "W/\"ebf9b788-5569-4e97-a5b8-ed009acda567\"",
    "id": "/subscriptions/f9fbc280-d977-44c8-9145-eef5927e5f80/resourceGroups/AResourceGroup/providers/Microsoft.Network/publicIPAddresses/MyPublicIP",
    "idleTimeoutInMinutes": 4,
    "ipAddress": "4.247.152.30",
    "ipTags": [],
    "location": "centralindia",
    "name": "MyPublicIP",
    "provisioningState": "Succeeded",
    "publicIPAddressVersion": "IPv4",
    "publicIPAllocationMethod": "Static",
    "resourceGroup": "AResourceGroup",
    "resourceGuid": "74180cba-862e-4113-89a7-8bfa16b46ea6",
    "sku": {
      "name": "Standard",
      "tier": "Regional"
    },
    "type": "Microsoft.Network/publicIPAddresses"
  }
}

syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az network nsg create --resource-group AResourceGroup --name MyNetworkSecurityGroup
{
  "NewNSG": {
    "defaultSecurityRules": [
      {
        "access": "Allow",
        "description": "Allow inbound traffic from all VMs in VNET",
        "destinationAddressPrefix": "VirtualNetwork",
        "destinationAddressPrefixes": [],
        "destinationPortRange": "*",
        "destinationPortRanges": [],
        "direction": "Inbound",
        "etag": "W/\"0fd1f509-17c2-4046-9ae6-39f7714057f9\"",
        "id": "/subscriptions/f9fbc280-d977-44c8-9145-eef5927e5f80/resourceGroup

```

```
az network nsg rule create --resource-group AResourceGroup --nsg-name
MyNetworkSecurityGroup --name MyNetworkSecurityGroupRuleSSH --protocol tcp --
priority 1000 --destination-port-range 22 --access allow
```

```
az network nic create --resource-group AResourceGroup --name MyNic --vnet-name
MyVnet --subnet MySubnet --network-security-group MyNetworkSecurityGroup --public-ip-
address MyPublicIP
```

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az network nsg rule create --resource-group AResourceGroup --nsg-name MyNetwor
kSecurityGroup --name MyNetworkSecurityGroupRuleSSH --protocol tcp --priority 10
00 --destination-port-range 22 --access allow
{
  "access": "Allow",
  "destinationAddressPrefix": "*",
  "destinationAddressPrefixes": [],
  "destinationPortRange": "22",
  "destinationPortRanges": [],
  "direction": "Inbound",
  "etag": "W/\"d7d6a448-d546-42a8-92e7-fa6c694e86e3\"",
  "id": "/subscriptions/f9fbc280-d977-44c8-9145-eef5927e5f80/resourceGroups/ARes
ourceGroup/providers/Microsoft.Network/networkSecurityGroups/MyNetworkSecurityGr
oup/securityRules/MyNetworkSecurityGroupRuleSSH",
  "name": "MyNetworkSecurityGroupRuleSSH",
  "priority": 1000,
  "protocol": "Tcp",
  "provisioningState": "Succeeded",
  "resourceGroup": "AResourceGroup",
  "sourceAddressPrefix": "*",
  "sourceAddressPrefixes": [],
  "sourcePortRange": "*",
  "sourcePortRanges": [],
  "type": "Microsoft.Network/networkSecurityGroups/securityRules"
}

syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az network nic create --resource-group AResourceGroup --name MyNic --vnet-name
MyVnet --subnet MySubnet --network-security-group MyNetworkSecurityGroup --publ
ic-ip-address MyPublicIP
{
  "NewNIC": {
    "auxiliaryMode": "None",
    "auxiliarySku": "None",
    "disableTcpStateTracking": false,
    "dnsSettings": {
      "appliedDnsServers": [],
      "dnsServers": [],
      "internalDomainNameSuffix": "gelmxy4h5krufht51lav2jxwjd.rx.internal.clouda
```

```
az vm create --resource-group MyResourceGroup --name MyVM --nics MyNic --image
UbuntuLTS --admin-username azureuser --generate-ssh-keys
```

```
syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az vm create --resource-group AResourceGroup --name NewVM --nics MyNic --image
Ubuntu2204 --admin-username cliuser --generate-ssh-keys
admin user name cannot contain upper case character A-Z, special characters \"/[
]:|<>+;,?*@#()! or start with $ or -

syedf@LAPTOP-AM5KM6HG MINGW64 ~/OneDrive/Desktop
$ az vm create --resource-group AResourceGroup --name NewVM --nics MyNic --image
Ubuntu2404 --admin-username cliuser --generate-ssh-keys
{
  "fqdns": "",
  "id": "/subscriptions/f9fbc280-d977-44c8-9145-eef5927e5f80/resourceGroups/AResourceGroup/providers/Microsoft.Compute/virtualMachines/NewVM",
  "location": "centralindia",
  "macAddress": "60-45-BD-A5-AB-6E",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "4.247.152.30",
  "resourceGroup": "AResourceGroup",
  "zones": ""
}
```

# Checking the sever on azure website

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Copilot

syedfs97@outlook.com

DEFAULT DIRECTORY

Home > Virtual machines >

Virtual machines

Default Directory

+ Create Switch to classic

Filter for any field...

Name ↑

NewVM

AResourceGroup

Resource group

Search

+ Create Manage view Delete resource group Refresh Export to CSV Open query Assign tags

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Cost Management

Monitoring

Automation

Help

Essentials

Subscription (move)

Free Trial

Subscription ID

f9fbc280-d977-44c8-9145-eef5927e5f80

Tags (edit)

Add tags

Deployments

1 Succeeded

Location

Central India

JSON View

Resources

Recommendations

Filter for any field...

Type equals all

Location equals all

Add filter

Showing 1 to 6 of 6 records.

Show hidden types

No grouping

List view

Name ↑	Type ↑	Location ↑
MyNetworkSecurityGroup	Network security group	Central India
MyNic	Network interface	Central India
MyPublicIP	Public IP address	Central India
MyVnet	Virtual network	Central India

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Give feedback