

Assignment 1

Tasks To Be Performed:

1. Create a VM in the west US region
2. Select the Ubuntu image for creating the VM
3. Open the SSH port
4. Connect to the Linux VM using the terminal

Resource group and virtual machine should be in same region.

[Home](#) >

Resource groups

Default Directory

[+](#) Create [⚙️](#) Manage view [↺](#) Refresh [↓](#) Export to CSV [🔗](#) Open query | [🏷️](#) Assign tags

Filter for any field...



Subscription equals **all**

Location equals **all** [×](#)

[+🔍](#) Add filter

Showing 1 to 2 of 2 records.

No grouping

<input type="checkbox"/> Name ↑↓	Subscription ↑↓	Location ↑↓
<input type="checkbox"/>  cloud-shell-storage-centralindia	Free Trial	Central India
<input type="checkbox"/>  Virtual-machine ✓	Free Trial	West US





Search for virtual machine- create – Azure virtual machines.

[Home](#) >

Virtual machines

Default Directory

[+](#) Create [↔️](#) Switch to classic [🕒](#) Reservations [⚙️](#) Manage view [↺](#) Refresh [↓](#) Export to CSV [🔗](#) Open query | [🏷️](#) Assign tags [▶️](#) Start [↺](#) Restart [⏏️](#) Stop [🗑️](#) Delete [☰](#) Services [⋮](#)

-  **Azure virtual machine** ✓
Create a virtual machine hosted by Azure
-  **Azure virtual machine with preset configuration**
Create a virtual machine with presets based on your workloads
-  **Azure Arc virtual machine**
Create a new Azure Arc virtual machine in one of your non-Azure environments
-  **Azure VMware Solution virtual machine**
Create a VMware virtual machine hosted by Azure

Type equals **all**

Resource group equals **all** [×](#)

Location equals **all** [×](#)

[+🔍](#) Add filter

No grouping

List view

Subscription ↑↓ Resource group ↑↓ Location ↑↓ Status ↑↓ Operating system ↑↓ Size ↑↓ Public IP address ↑↓



No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

[Create](#) [▼](#)

Create a virtual machine ...

- Basics
- Disks
- Networking
- Management
- Monitoring
- Advanced
- Tags
- Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

i This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Free Trial

Resource group * ⓘ

new-vm

Create new

Instance details

Virtual machine name * ⓘ

Linux-vm

Region * ⓘ

(US) West US

Availability options ⓘ

No infrastructure redundancy required

Security type ⓘ

Trusted launch virtual machines

Configure security features

Image * ⓘ

Ubuntu Server 22.04 LTS - x64 Gen2 (free services eligible)

See all images | Configure VM generation

VM architecture ⓘ

Arm64

x64

Run with Azure Spot discount ⓘ

i You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription. [Learn more](#)

Size * ⓘ

Standard_B1s - 1 vcpu, 1 GiB memory (₹710.89/month) (free services eligible)

See all sizes

Enable Hibernation (preview) ⓘ

i To enable Hibernation, you must register your subscription. [Learn more](#)

Administrator account

Authentication type ⓘ

SSH public key

Password

Username * ⓘ

siddharth

Password * ⓘ

.....

Confirm password * ⓘ

.....

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ

None

Allow selected ports

Select inbound ports *

SSH (22)

i All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Review + create

< Previous

Next : Disks >

Create any username and password to connect your virtual machine.
As of now we are not doing any advance settings.
Review and create

Move inside the VM copy the IP address.
ssh -V
username@ip address of the machine.

The screenshot shows the Azure portal interface for a virtual machine named 'Linux-vm'. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, and Networking. The 'Connect' section is expanded, showing options for Connect, Bastion, and Network settings. The main area displays the 'Essentials' tab for the VM, showing details such as Resource group (new-vm), Status (Running), Location (West US), Subscription (Free Trial), Subscription ID (22007c0c-9a06-4ca6-9b3d-cbf0984ad5d9), Operating system (Linux (ubuntu 22.04)), Size (Standard B1s (1 vcpu, 1 GiB memory)), Public IP address (13.88.182.131), Virtual network/subnet (Linux-vm-vnet/default), DNS name (Not configured), and Health state (-). A checkmark is placed next to the Public IP address.

Open the command prompt in you windows and connect using these commands.

```
siddharth@Linux-vm: ~  
Microsoft Windows [Version 10.0.19044.1645]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\SHRUTI SHUKLA>ssh -V  
OpenSSH_for_Windows_8.1p1, LibreSSL 3.0.2  
  
C:\Users\SHRUTI SHUKLA>ssh siddharth@13.88.182.131  
The authenticity of host '13.88.182.131 (13.88.182.131)' can't be established.  
ECDSA key fingerprint is SHA256:CSAzIGpag9CjvRmmY/23jZsGnGdPUVc3dSM9KLwIKH0.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added '13.88.182.131' (ECDSA) to the list of known hosts.  
siddharth@13.88.182.131's password:  
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1018-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/advantage  
  
System information as of Tue Dec 26 15:39:40 UTC 2023  
  
System load:  0.16162109375      Processes:            105  
Usage of /:   5.1% of 28.89GB    Users logged in:      0  
Memory usage: 32%                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 list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
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.  
  
siddharth@Linux-vm:~$
```

There is two deletion method of VM – Always use the force delete.

Home >

Virtual machines

Default Directory

Create

Switch to classic

Reservations

Manage view

Refresh

Export to CSV

Open query

Assign

Filter for any field...

Subscription equals all

Type equals all

Resource group equals all

Location equals all

Showing 1 to 1 of 1 records.

Name	Type	Subscription	Resource group	Location	Status
Linux-vm	Virtual machine	Free Trial	new-vm	West US	Running

< PreviousPage 1 of 1Next >

Delete Resources

The selected resources along with their related resources and contents will be permanently deleted. If you are unsure of the selected resource dependencies, navigate to the individual resource page to perform the delete operation. More details of the resource dependencies are available in the manage experience.

Resources to be deleted (1)

Name	Resource type	
Linux-vm	Virtual machine	Remove

☐ Apply force delete for selected Virtual machines and Virtual machine scale sets

Enter "delete" to confirm deletion *

DeleteCancel

Delete Linux-vm

This action will permanently delete this virtual machine.

Resource to be deleted	Resource type
Linux-vm	Virtual machine

☒ Apply force delete

This virtual machine can be safely force deleted because all of its associated resources are being deleted.

You can also choose to delete associated resources at the same time. Resources that aren't deleted will be orphaned. Associated resources that are in use by other resources are not shown here.

Associated resource type	Quantity	Delete with VM
> OS disk	1	<input checked="" type="checkbox"/>
> Network interfaces	1	<input checked="" type="checkbox"/>
> Public IP addresses	1	<input checked="" type="checkbox"/>

☒ I have read and understand that this virtual machine as well as any selected associated resources listed above will be deleted.

DeleteCancel

Feedback

Assignment 2

Tasks To Be Performed:

1. Create a Windows VM in west US region
2. Open the RDP port
3. Connect to it using Windows Remote Desktop

Create a virtual machine

- Basics
- Disks
- Networking
- Management
- Monitoring
- Advanced
- Tags
- Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Free Trial

Resource group * ⓘ

new-vm

Create new

Instance details

Virtual machine name * ⓘ

windows-vm

Region * ⓘ

(US) West US

Availability options ⓘ

No infrastructure redundancy required

Security type ⓘ

Trusted launch virtual machines

Configure security features

Image * ⓘ

Windows Server 2022 Datacenter: Azure Edition - x64 Gen2 (free services el

See all images | Configure VM generation

VM architecture ⓘ

Arm64

x64

Arm64 is not supported with the selected image.

Run with Azure Spot discount ⓘ

You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription. [Learn more](#)

Size * ⓘ

Standard_B1s - 1 vcpu, 1 GiB memory (₹940.21/month) (free services eligible)

See all sizes

Enable Hibernation (preview) ⓘ

To enable Hibernation, you must register your subscription. [Learn more](#)

Administrator account

Username * ⓘ

siddharth

Password * ⓘ

.....

Confirm password * ⓘ

.....

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ

None

Allow selected ports

Select inbound ports *

HTTP (80), RDP (3389)

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

- Review + create
- < Previous
- Next : Disks >

Choose this size of storage virtual machine.

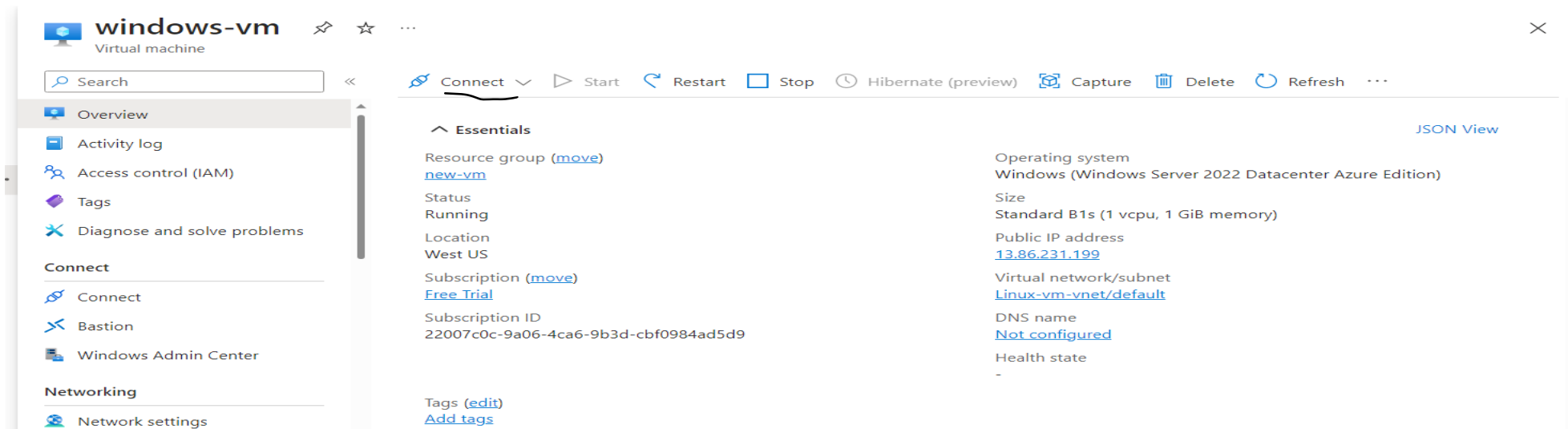
Standard_D2as_v4 - 2 vcpus, 8 GiB memory (₹10,778.07/month)

See all sizes

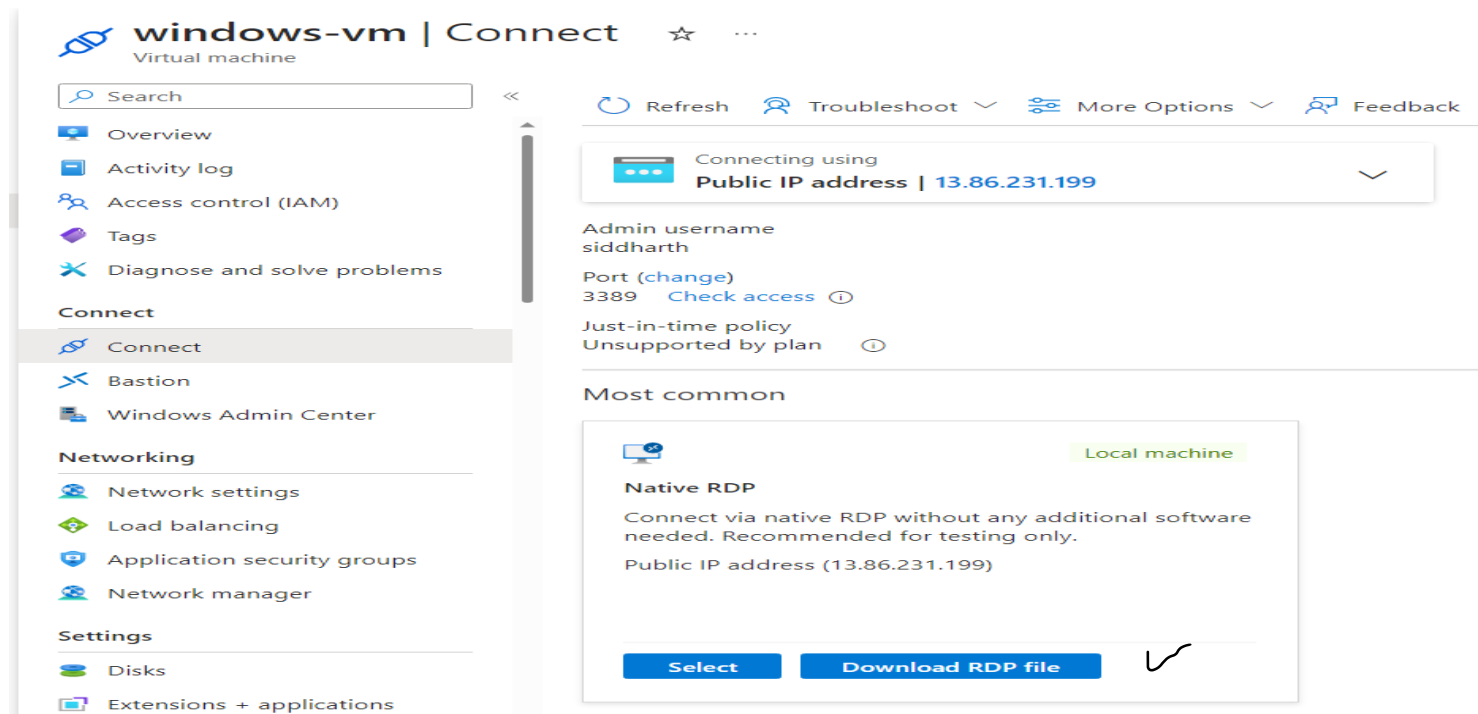


To enable Hibernation, you must register your subscription. [Learn more](#)

Move inside the VM – click on connect – Download RDP file and double click to connect with username and password.



The screenshot shows the 'Overview' page for a virtual machine named 'windows-vm' in the Azure portal. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Bastion, Windows Admin Center, Networking, and Network settings. The main content area is divided into two columns. The left column, titled 'Essentials', lists key information: Resource group (new-vm), Status (Running), Location (West US), Subscription (Free Trial), and Subscription ID (22007c0c-9a06-4ca6-9b3d-cbf0984ad5d9). The right column, titled 'JSON View', lists additional details: Operating system (Windows (Windows Server 2022 Datacenter Azure Edition)), Size (Standard B1s (1 vcpu, 1 GiB memory)), Public IP address (13.86.231.199), Virtual network/subnet (Linux-vm-vnet/default), DNS name (Not configured), and Health state (-). The top toolbar includes buttons for Connect, Start, Restart, Stop, Hibernate (preview), Capture, Delete, and Refresh.



The screenshot shows the 'Connect' page for the same virtual machine 'windows-vm'. The left sidebar is identical to the previous screenshot. The main content area is titled 'Connect' and includes a search bar and a toolbar with Refresh, Troubleshoot, More Options, and Feedback buttons. A prominent box at the top indicates 'Connecting using Public IP address | 13.86.231.199'. Below this, the 'Admin username' is listed as 'siddharth', and the 'Port' is '3389'. A 'Just-in-time policy' section indicates it is 'Unsupported by plan'. The 'Most common' section highlights 'Native RDP' as the recommended method for testing, noting it connects via native RDP without additional software. At the bottom, there are two buttons: 'Select' and 'Download RDP file', with a handwritten checkmark next to the latter.

Download the RDP file – double to click to connect – enter password and username – go to server manager.

Server Manager

← → ▾

Server Manager ▸ Dashboard

⌵ ⌵ | 🚩 Manage Tools View Help

Dashboard

Local Server

All Servers

File and Storage Services ▸

WELCOME TO SERVER MANAGER

QUICK START

WHAT'S NEW

LEARN MORE

1

Configure this local server

2

Add roles and features

3

Add other servers to manage

4

Create a server group

5

Connect this server to cloud services

Hide

ROLES AND SERVER GROUPS

Roles: 1 | Server groups: 1 | Servers total: 1

File and Storage Services1

⬆ Manageability

Events

Performance

BPA results

Local Server1

⬆ Manageability

Events

Services

Performance

BPA results

All Servers1

⬆ Manageability

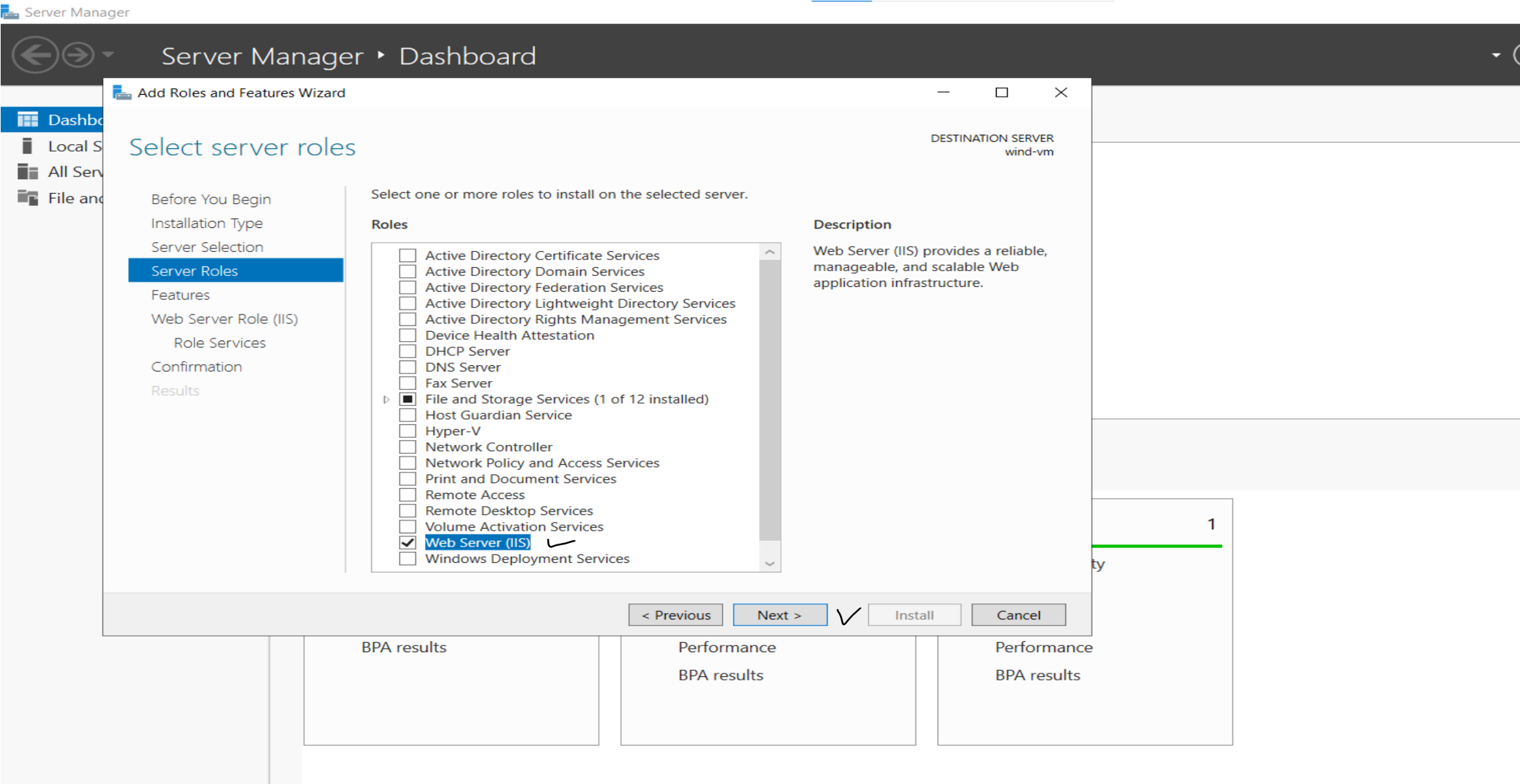
Events

Services

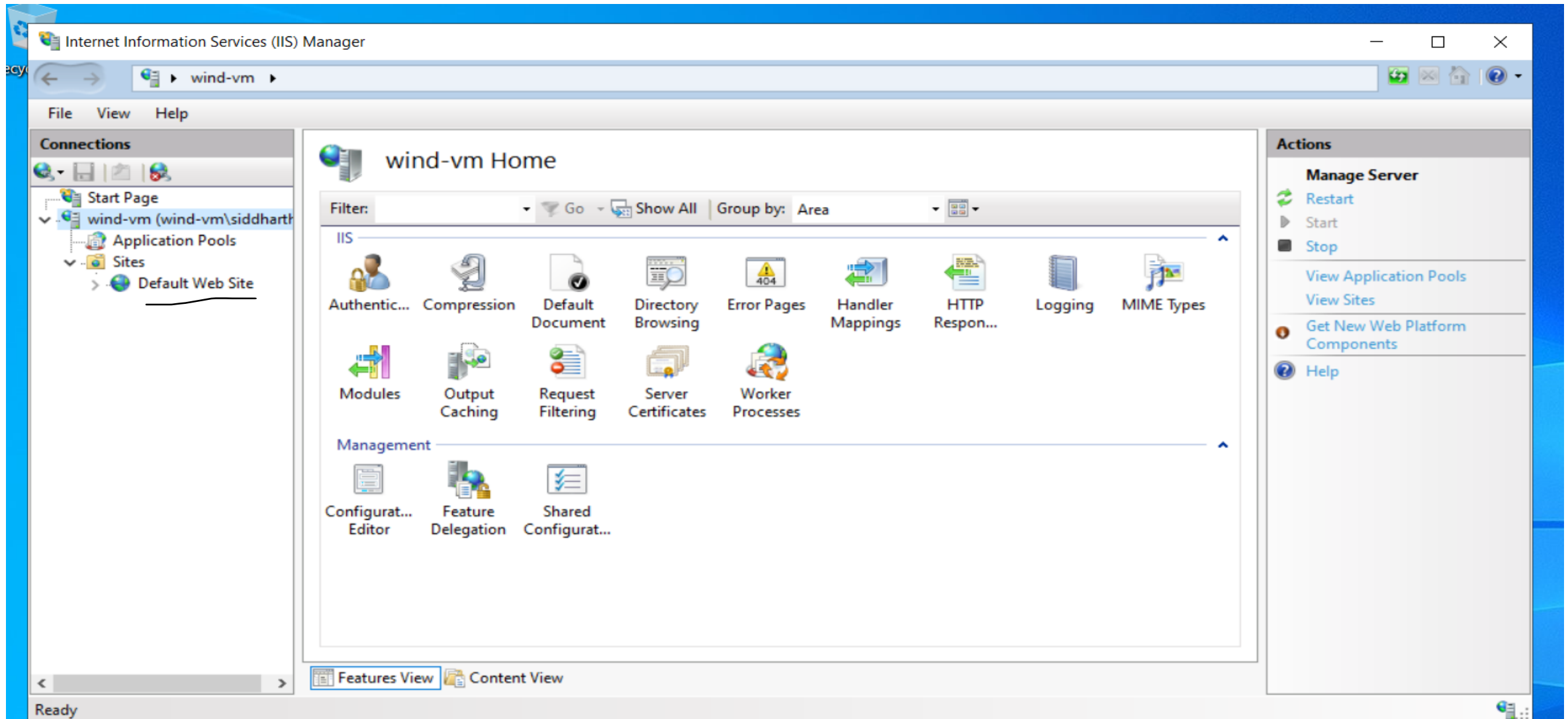
Performance

BPA results

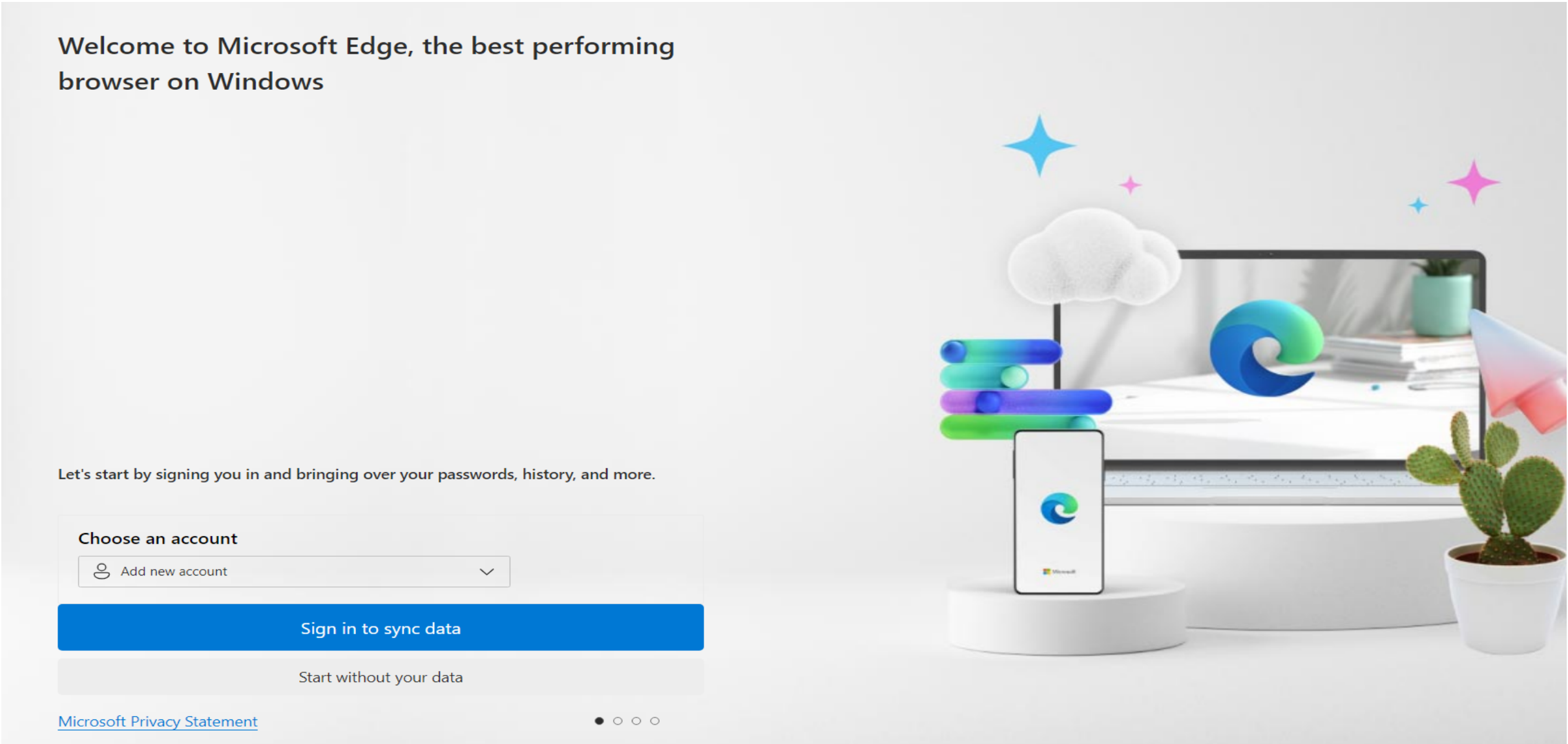
Add roles and features- next next next – choose iis service - install



Search for IIS service manager – in default website .



Click on the default website – go to explore – two files there both were the website interface. OR open the HTTP port 80 edit the first file in notepad save and restart the website – copy the ip address and browse .



Assignment 3

Tasks To Be Performed:

1. Create a VM scale set with Ubuntu as OS
2. Give min VM's as 1 and maximum as 5
3. For scale-out CPU % is 75 and increase by 1 VM
4. For scale-in CPU % is 25 increase by 1 VM

Create a resource group – using RG create VM with no infrastructure redundancy require – open port 80 for hosting the website in ubuntu OS – Install the nginx web server – stop the VM and create the image – Using the image we have to create the VM Scaling sets.
Search for the VMSS and click on create.

[Home](#) >

Virtual machine scale sets ...

Default Directory

[+ Create](#) [≡ Edit columns](#) [↻ Refresh](#) [🗨 Feedback](#) | [🏷 Assign tags](#) [▶ Start](#) [↺ Restart](#) [□ Stop](#) [🗑 Delete](#)

Subscriptions: Free Trial

Filter by name...

All resource groups ▾

All locations ▾

All tags ▾


No grouping ▾

0 items

Name ↑↓	Status	Instances	Azure Spot eviction policy	Resource group ↑↓	Location ↑↓	Subscription ↑↓
---------	--------	-----------	----------------------------	-------------------	-------------	-----------------



No virtual machine scale sets to display

Create a virtual machine scale set to deploy and manage a load balanced set of identical Windows or Linux virtual machines.
Use autoscale to automatically scale virtual machine resources in and out. [Learn more](#) 

Create virtual machine scale set

Create a virtual machine scale set ...

- Basics
- Spot
- Disks
- Networking
- Scaling
- Management
- Health
- Advanced
- Tags
- Review + create

Azure virtual machine scale sets let you create and manage a group of load balanced VMs. The number of VM instances can automatically increase or decrease in response to demand or a defined schedule. Scale sets provide high availability to your applications, and allow you to centrally manage, configure, and update a large number of VMs.

[Learn more about virtual machine scale sets](#)

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription *

Free Trial

Resource group *

2-01-24

Create new

Scale set details

Virtual machine scale set name *

AutoScaleSet

Region *

(US) East US

Availability zone ⓘ

Zones 1, 2, 3

Autoscaling can help you respond to an outage by scaling out new instances in another zone. Turn on Autoscaling in the [Scaling tab](#).

Orchestration

A scale set has a "scale set model" that defines the attributes of virtual machine instances (size, number of data disks, etc). As the number of instances in the scale set changes, new instances are added based on the scale set model.

[Learn more about the scale set model](#)

Orchestration mode * ⓘ

☐ Flexible: achieve high availability at scale with identical or multiple virtual machine types

☒ Uniform: optimized for large scale stateless workloads with identical instances

Security type ⓘ

Standard

Instance details

Image * ⓘ

ubuntucustomimage/Ubuntu-server/latest - x64 Gen2

[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ

☐ Arm64

☒ x64

Arm64 is not supported with the selected image.


Run with Azure Spot discount ⓘ



☐

Size * ⓘ


Standard_B1s - 1 vcpu, 1 GiB memory (₹596.23/month) (free services eligible)


[See all sizes](#)


Enable Hibernation (preview)  ☐


 To enable Hibernation, you must register your subscription. [Learn more](#) 

Administrator account

Authentication type  ☒ Password ☐ SSH public key

Username 

Password 

Confirm password 

[Review + create](#) [< Previous](#) [Next : Spot >](#)


Under Network edit Network interface- Disable the load balancer.


[Home](#) > [Virtual machine scale sets](#) > [Create a virtual machine scale set](#) >


Edit network interface ...


Network interface

Name *

Virtual network 

Subnet * 

NIC network security group  ☐ None ☒ Basic ☐ Advanced

Public inbound ports *  ☐ None ☒ Allow selected ports ✓


Select inbound ports *

Also allow the SSH port.


[Home](#) > [Virtual machine scale sets](#) >



Create a virtual machine scale set ...

[Basics](#) [Spot](#) [Disks](#) [Networking](#) [Scaling](#) [Management](#) [Health](#) [Advanced](#) [Tags](#) [Review + create](#)

Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more about VMSS networking](#) 

Virtual network configuration

Azure Virtual Network (VNet) enables many types of Azure resources to securely communicate with each other, the internet, and on-premises networks. [Learn more about VNets](#) 

Virtual network *  
[Create virtual network](#)


Network interface


A network interface enables an Azure virtual machine to communicate with internet, Azure, and on-premises resources. A VM can have one or more network interfaces.

[+ Create new nic](#) [Delete](#)


<input type="checkbox"/>	NAME	CREATE PUBLI...	SUBNET	NETWORK SECU...	ACCELERATED N...
<input type="checkbox"/>	2-01-24-vnet-nic01	No	default (10.1.0.0/20)	Basic	Off



 All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

Public IP address 

[Disabled](#) [Enabled](#) ✓

Accelerated networking 

[Disabled](#) [Enabled](#)

[OK](#) [Cancel](#)

Network interface

A network interface enables an Azure virtual machine to communicate with internet, Azure, and on-premises resources. A VM can have one or more network interfaces.

[+ Create new nic](#) [Delete](#)

<input type="checkbox"/>	NAME	CREATE PUBLI...	SUBNET	NETWORK SECU...	ACCELERATED N...	
<input type="checkbox"/>	2-01-24-vnet-nic01	Yes	default (10.1.0.0/20)	Basic	Off	✎

Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

Load balancing options ⓘ

- ☒ None ✓
- ☐ Azure load balancer
Supports all TCP/UDP network traffic, port-forwarding, and outbound flows.
- ☐ Application gateway
Web traffic load balancer for HTTP/HTTPS with URL-based routing, SSL termination, session persistence, and web application firewall.

[Review + create](#)

[< Previous](#)

[Next : Scaling >](#)

[Home](#) > [Virtual machine scale sets](#) >

Create a virtual machine scale set

[Basics](#) [Spot](#) [Disks](#) [Networking](#) [Scaling](#) [Management](#) [Health](#) [Advanced](#) [Tags](#) [Review + create](#)

An Azure virtual machine scale set can automatically increase or decrease the number of VM instances that run your application. This automated and elastic behavior reduces the management overhead to monitor and optimize the performance of your application. [Learn more about VMSS scaling](#)

Initial instance count * ⓘ

✓

Scaling

Scaling policy ⓘ

- ☐ Manual
- ☒ Custom

Minimum number of instances * ⓘ

Maximum number of instances * ⓘ

✓

Scale out

CPU threshold (%) * ⓘ

✓

Duration in minutes * ⓘ

✓

Number of instances to increase by * ⓘ

✓

Scale in

CPU threshold (%) * ⓘ

✓

Number of instances to decrease by * ⓘ

✓

Predictive autoscaling

Enable predictive autoscaling forecast ⓘ ☐

Diagnostic logs

Collect diagnostic logs from Autoscale ⓘ ☐

Scale-In policy

Configure the order in which virtual machines are selected for deletion during a scale-in operation. [Learn more about scale-in policies.](#)

Scale-in policy

▼

Apply force delete to scale-in operations ⓘ ☐

Average duration in minute of CPU utilization. Review and create.

[Review + create](#) ✓

[< Previous](#)

[Next : Management >](#)

We cannot find the instances running inside the virtual machines – we had to go inside the VMSS –instances.

Home > Virtual machine scale sets > AutoScaleSet

Virtual machine scale...

Default Directory

+ Create Edit columns ...

Filter by name...

Name ↑↓

- AutoScaleSet

AutoScaleSet | Instances

Virtual machine scale set

Search

Start Restart Stop Hibernate (preview) Reimage Delete Upgrade Refresh Protection Policy

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning sta...	Health state
<input type="checkbox"/> AutoScaleSet_0		Running		Succeeded	

Give feedback

Go inside the instance copy the IP address and check it is hosting our website or not.

Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Even if we try to delete the instance , it doesn't delete because the minimum count will be one.

LinuxSS | Instances

Virtual machine scale set

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Start

Restart

Stop

Hibernate (preview)

Reimage

Delete

Upgrade

Refresh

Protection Policy

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning sta...	Health state
<input type="checkbox"/> LinuxSS_0		Deleting		Deleting	

LinuxSS | Instances

Virtual machine scale set

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Start

Restart

Stop

Hibernate (preview)

Reimage

Delete

Upgrade

Refresh

Protection Policy

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning sta...	Health state
<input type="checkbox"/> LinuxSS_1		Running		Succeeded	

Now we are going to increase the load to increase and decrease the no of instances. Give command `sudo apt install stress`.

```
Last login: Wed Jan  3 16:14:59 2024 from 152.58.154.177
siddharth@Autoscaling-test:~$ sudo apt install stress
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  stress
0 upgraded, 1 newly installed, 0 to remove and 13 not upgraded.
Need to get 18.4 kB of archives.
After this operation, 55.3 kB of additional disk space will be used.
Get:1 http://azure.archive.ubuntu.com/ubuntu focal/universe amd64 stress amd64 1.0.4-6 [18.4 kB]
Fetched 18.4 kB in 0s (632 kB/s)
Selecting previously unselected package stress.
(Reading database ... 59157 files and directories currently installed.)
Preparing to unpack .../stress_1.0.4-6_amd64.deb ...
Unpacking stress (1.0.4-6) ...
Setting up stress (1.0.4-6) ...
Processing triggers for install-info (6.7.0.dfsg.2-5) ...
Processing triggers for man-db (2.9.1-1) ...
siddharth@Autoscaling-test:~$ sudo stress --cpu 8 --timeout 300
stress: info: [1437] dispatching hogs: 8 cpu, 0 io, 0 vm, 0 hdd
stress: info: [1437] successful run completed in 300s
siddharth@Autoscaling-test:~$
```

LinuxSS | Instances

Virtual machine scale set

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Instances

Networking

Settings

Start

Restart

Stop

Hibernate (preview)

Reimage

Delete

Upgrade

Refresh

Protection Policy

Search virtual machine instances

Instance	Computer name	Status	Protection policy	Provisioning sta...	Health state
<input type="checkbox"/> LinuxSS_2 ✓		Running		Succeeded	
<input type="checkbox"/> LinuxSS_3 ✓		Running		Succeeded	

Assignment 4

Tasks To Be Performed:

1. Create a Linux VM with Ubuntu OS
2. Install Apache2 software
3. Create image out of VM

Create a resource group and VM with Linux OS allow port 80 open to host a website.

Project details

Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription * ⓘ

Resource group * ⓘ [Create new](#)

Instance details

Virtual machine name * ⓘ

Region * ⓘ

Availability options ⓘ

Security type ⓘ [Configure security features](#)

Image * ⓘ ✓ [See all images](#) | [Configure VM generation](#)

VM architecture ⓘ ☐ Arm64 ☒ x64

Administrator account

Authentication type ⓘ ☐ SSH public key ☒ Password

Username * ⓘ ✓

Password * ⓘ ✓

Confirm password * ⓘ ✓

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * ⓘ ☐ None ☒ Allow selected ports

Select inbound ports *

i All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

[Review + create](#)

[< Previous](#)

[Next : Disks >](#)

Connect to VM using such commands in command prompt.

```
ssh -V
```

```
ssh username@ip address
```

```
Yes
```

```
Password
```

```
sudo apt-get update -y
```

```
sudo apt-get install apache2 -y
```

```
Cd /var/www/html
```

```
Ls
```

```
sudo rm index.html
```

```
sudo nano index.html edit the file – copy the ip address and browse.
```

```
sudo systemctl restart apache2
```

```
sudo systemctl status apache2
```

Welcome to my webpage!

I am going to create a image of this website .

Before going to create a image of VM we need to stop the VM. Go inside the VM click on capture.

Linuximage

Virtual machine

Search

ConnectStartRestartStopHibernate (preview)CaptureDeleteRefresh

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Connect

Bastion

Networking

Network settings

Load balancing

Essentials

Resource group (move)

image

Status

Running

Location

East US

Subscription (move)

Free Trial

Subscription ID

22007c0c-9a06-4ca6-9b3d-cbf0984ad5d9

Tags (edit)

Add tags

Operating system

Linux (ubuntu 22.04)

Size

Standard B1s (1 vcpu, 1 GiB memory)

Public IP address

172.173.240.28

Virtual network/subnet

linuxbasevm-vnet/default

DNS name

Not configured

Health state

-

JSON View

Create an image

Gallery details

Target Azure compute gallery * ⓘ

No valid galleries in resource group

Create new

Operating system state ⓘ

Target VM image definition ⓘ

Target Azure compute gallery * ⓘ

UbuntuLinux

OK

Cancel

Home > Virtual machines > Linuximage >

Create an image

Basics Tags Review + create

Create an image from this virtual machine that can be used to deploy additional virtual machines and virtual machine scale sets. With a shared image, you can easily replicate the image to Azure regions around the world and manage versions of the image. Certain information from the virtual machine will be carried forward to the image including OS type, VM generation, plan, and publishing details. [Learn more](#)

Project details

Subscription

Free Trial

Resource group *

image

Instance details

Region

(US) East US

Share image to Azure compute gallery ⓘ

☒ Yes, share it to a gallery as a VM image version.

☐ No, capture only a managed image.

Managed image is not available because it is not currently supported with Trusted launch virtual machines.

Automatically delete this virtual machine after creating the image ⓘ

☒

Create a VM image definition

VM image definition name * ⓘ

UbuntuServerLTS

OS type ⓘ

☒ Linux

☐ Windows

VM generation ⓘ

☐ Gen 1

☒ Gen 2

Security type ⓘ

Trusted launch

VM architecture ⓘ

☒ x64

☐ Arm64

Higher storage performance with NVMe (preview) ⓘ

☐

Hibernation supported (preview) ⓘ

☐

Accelerated networking ⓘ

☐

Publisher * ⓘ

canonical

Offer * ⓘ

0001-com-ubuntu-server-jammy

SKU * ⓘ

22_04-lts-gen2

Ok

Cancel

Give feedback

Create an image ...

Gallery details

Target Azure compute gallery * ⓘ (new) UbuntuLinux ▼

[Create new](#)

- Operating system state ⓘ
- ☒ Generalized: VMs created from this image require hostname, admin user, and other VM related setup to be completed on first boot
 - ☐ Specialized: VMs created from this image are completely configured and do not require parameters such as hostname and admin user/password

Using specialized we don't have enter new password.

⚠ Capturing a virtual machine image will make the virtual machine unusable. This action cannot be undone.

Target VM image definition * ⓘ (new) UbuntuServerLTS ▼

[Create new](#)

Version details

Version number * ⓘ 0.0.1 ✓

Exclude from latest ⓘ ☐

End of life date ⓘ 02/29/2024 ✓

Shallow replication ⓘ ☐

Replication

A VM image version can be replicated to different regions depending on what makes sense for your organization. One example is to always replicate the latest image in multiple regions while all older versions are only available in 1 region. This can help save on storage costs for VM image versions.

Default storage sku ⓘ Zone-redundant ▼

Default replica count * ⓘ 1

Target regions	Replica count	Storage sku
(US) East US ▼	1	Zone-redundant ▼
▼	1	Zone-redundant ▼

[Review + create](#) < Previous Next : Tags >

Now we are going to create VM using this image.
Create new VM – see images- shared images.

Availability options ⓘ No infrastructure redundancy required ▼

Security type ⓘ Trusted launch virtual machines ▼
[Configure security features](#)

Image * ⓘ Ubuntu Server 22.04 LTS - x64 Gen2 (free services eligible) ▼
[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ
☐ Arm64
☒ x64

Assignment 5

Tasks To Be Performed:

1. Deploy a VM from the previously created image
2. Open port 80 in NSG
3. Start the Apache2 service in the VM
4. Verify if you are able to access the website

Now we are going to create VM using this image.
Create new VM – see images- shared images.

Availability options ⓘ

Security type ⓘ

Image * ⓘ

VM architecture ⓘ

No infrastructure redundancy required ▼

Trusted launch virtual machines ▼

[Configure security features](#)

Ubuntu Server 22.04 LTS - x64 Gen2 (free services eligible) ▼

[See all images](#) | [Configure VM generation](#)

☐ Arm64

☒ x64

Do all the same settings as also open 80 port .

Other Items

My Images

Shared Images

Community Images

Direct Shared Images (PREVIEW)

Marketplace

All

Recently created

Private products

Categories

Marketplace

Search the Marketplace

Azure services only

Pricing : All

Operating System : All

Image Type : All

Security Type : All

Showing 1 to 20 of 8024 results with 1 selected filters. [Clear filters](#)

Windows Server

Microsoft

Virtual Machine

Windows Server Virtual Machine Images

Windows 11

Microsoft

Virtual Machine

Windows 11

Microsoft Windows 10

Microsoft

Virtual Machine

Microsoft Windows 10 Desktop Virtual Machine Images

Other Items | Shared Images

Search in Shared Images

Publisher : All

Azure Compute Gallery : All

Image Name	Subscription	Publisher	Gallery name
UbuntuServerLTS	Free Trial	canonical	UbuntuLinux

Region * ⓘ

Availability options ⓘ

Security type ⓘ

Image * ⓘ

VM architecture ⓘ

(US) East US

No infrastructure redundancy required

Trusted launch virtual machines

[Configure security features](#)

UbuntuLinux/UbuntuServerLTS/latest - x64 Gen2

[See all images](#) | [Configure VM generation](#)

Arm64

x64

Arm64 is not supported with the selected image.

License – other- Enter new username and password because we choose Generalized.

Create

Switch to classic

Reservations

Manage view

Refresh

Export to CSV

Open query

Assign tags

Start

Restart

Stop

Delete

Services

Filter for any field...

Subscription equals all

Type equals all

Resource group equals all


Location equals all

Add filter

Showing 1 to 1 of 1 records.

No grouping

List view

<input type="checkbox"/> Name	Type	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address
<input type="checkbox"/>  Linuxserverimage	Virtual machine	Free Trial	image	East US	Running	Linux	Standard_B1s	20.25.47.183

```
Welcome to Ubuntu 22.04.3 LTS (GNU/Linux 6.2.0-1018-azure x86_64)

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

System information as of Fri Dec 29 09:57:01 UTC 2023

System load:  0.00439453125      Processes:           103
Usage of /:   5.8% of 28.89GB    Users logged in:     0
Memory usage: 32%               IPv4 address for eth0: 10.0.0.6
Swap usage:   0%

* Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
  just raised the bar for easy, resilient and secure K8s cluster deployment.

  https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is not enabled.

33 updates can be applied immediately.
25 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: Fri Dec 29 08:44:30 2023 from 152.58.154.119
siddharth@Linuxserverimage:~$
```

```
siddharth@Linuxserverimage:~$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Fri 2023-12-29 09:51:38 UTC; 14min ago
     Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 722 (apache2)
    Tasks: 55 (limit: 995)
   Memory: 11.8M
      CPU: 120ms
   CGroup: /system.slice/apache2.service
           └─722 /usr/sbin/apache2 -k start
             └─723 /usr/sbin/apache2 -k start
               └─724 /usr/sbin/apache2 -k start

Dec 29 09:51:36 Linuxserverimage systemd[1]: Starting The Apache HTTP Server...
Dec 29 09:51:38 Linuxserverimage systemd[1]: Started The Apache HTTP Server.
siddharth@Linuxserverimage:~$
```

Welcome to my webpage!

I am going to create a image of this website .

We can also edit inbound rule under Network settings.

Home > Virtual machines > Linuxserverimage

Virtual machines

Default Directory

+ Create ▾ ↗ Switch to classic ...

Filter for any field...

Name ↑↓

Linuxserverimage

Linuxserverimage | Network settings

Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Connect

Bastion

Networking

Network settings

Load balancing

Application security groups

Network manager

Settings

Disks

Extensions + applications

Configuration

This is a new experience. [Please provide feedback](#)

Rules Collapse all

Network security group Linuxserverimage720

Impacts 0 subnets, 1 network interfaces

Search rules

Source ==

Priority ↑	Name
Inbound port rules (5)	
300	SSH
320	HTTP
65000	AllowVnetInBound
65001	AllowAzureLoadB
65500	DenyAllInBound
Outbound port rules (3)	

Add inbound security rule

Linuxserverimage-nsg

Source ⓘ

Any

Source port ranges * ⓘ

*

Destination ⓘ

Any

Service ⓘ

HTTP

Destination port ranges ⓘ

80

Protocol

☐ Any

☒ TCP

☐ UDP

☐ ICMP

Action

☒ Allow

☐ Deny

Priority * ⓘ

Add

Cancel

Give feedback

< Page 1 of 1 >