

# Module 4: Assignment - 1

Azure 104 Certification Course



## 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

Launch VM for Ubuntu OS on west US Region

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. The 'Basics' tab is selected. The 'Subscription' is set to 'Free Trial' and the 'Resource group' is 'DemoRG'. The 'Virtual machine name' is 'Linux-VM', the 'Region' is '(US) West US', and 'Availability options' are set to 'No infrastructure redundancy required'. A message at the top states: 'This subscription may not be eligible to deploy VMs of certain sizes in certain regions.' Navigation buttons at the bottom include '< Previous', 'Next > Disks', and 'Review > create'.

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Disks' step. The 'Availability options' remain 'No infrastructure redundancy required'. The 'Security type' is 'Standard'. The 'Image' is 'Ubuntu Server 22.04 LTS - x64 Gen2 (free services eligible)'. The 'VM architecture' is set to 'x64' (selected) with 'Arm64' as an option. The 'Run with Azure Spot discount' checkbox is unchecked. A message states: 'You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription.' The 'Size' is 'Standard\_B1s - 1 vcpu, 1 GiB memory (£753.08/month) (free services eligible)'. The 'Enable Hibernation' checkbox is unchecked. Navigation buttons at the bottom include '< Previous', 'Next > Disks', and 'Review > create'.

## Review + Create

Enable Hibernation ⓘ

ℹ

Hibernate is not supported by the size that you have selected. Choose a size that is compatible with Hibernation to enable this feature. [Learn more](#)

Administrator account

Authentication type ⓘ

☐ SSH public key

☒ Password

Username \* ⓘ

salman ✓

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.

< Previous

Next : Disks >

Review + create

## Create

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Home > Virtual machines >

Create a virtual machine ...

✓ Validation passed

Basics

Disks

Networking

Management

Monitoring

Advanced

Tags

Review + create

Price

1 X Standard B1s

by Microsoft

[Terms of use](#) [Privacy policy](#)

Subscription credits apply ⓘ

1,0316 INR/hr

[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

Name

Salman S

Preferred e-mail address

shaiksalmanfarsi80@gmail.com

Preferred phone number

< Previous

Next >

Create

## Copy Public Ip

The screenshot shows the Microsoft Azure portal interface. On the left, the 'Virtual machines' section is active, displaying a list of VMs with 'Linux-VM' selected. The main pane shows the 'Overview' tab for 'Linux-VM'. The 'Essentials' section provides key details: Resource group (DemoRG), Status (Running), Location (West US), Subscription (Free Trial), and Subscription ID. The 'Networking' section shows the Public IP address as 13.64.190.218. The 'Properties' tab at the bottom lists various VM attributes like Computer name, Operating system, VM generation, and Agent status.

Property	Value
Resource group	DemoRG
Status	Running
Location	West US
Subscription	Free Trial
Subscription ID	9ec127a6-d815-4174-8dff-0e4aa2a94db
Operating system	Linux (ubuntu 22.04)
Size	Standard B1s (1 vcpu, 1 GiB memory)
Public IP address	13.64.190.218
Virtual network/subnet	Linux-VM-vnet/default
DNS name	Not configured
Health state	-
Time created	8/11/2024, 3:23 PM UTC

## Open Cmd

```
salman@Linux-VM: ~  
Microsoft Windows [Version 10.0.22631.3880]  
(c) Microsoft Corporation. All rights reserved.  
  
C:\Users\shaik>ssh salman@13.64.190.218  
The authenticity of host '13.64.190.218 (13.64.190.218)' can't be established.  
ED25519 key fingerprint is SHA256:0rr8dmPrmRYfnLbYQVXQNLrAf8Uo3uQcAYwOIcvy8KY.  
This key is not known by any other names  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added '13.64.190.218' (ED25519) to the list of known hosts.  
salman@13.64.190.218's password:  
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1025-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
System information as of Sun Aug 11 15:29:55 UTC 2024  
  
System load:  0.1          Processes:            103  
Usage of /:   5.1% of 28.89GB Users logged in:       0  
Memory usage: 31%         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
```

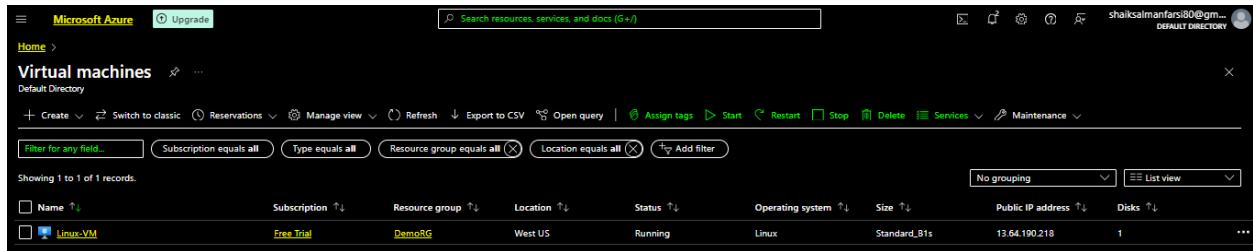
```
salman@Linux-VM: ~  
System information as of Sun Aug 11 15:29:55 UTC 2024  
  
System load: 0.1          Processes:            103  
Usage of /:  5.1% of 28.89GB Users logged in:      0  
Memory usage: 31%        IPv4 address for eth0: 10.0.0.4  
Swap usage:  0%  
  
Expanded Security Maintenance 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.  
  
salman@Linux-VM:~$
```

## Module 4: 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

## Launch Windows VM on west US Region



Microsoft Azure Upgrade

Search resources, services, and docs (G+/I)

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 Maintenance

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

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disks
Linux-VM	Free Trial	DemoRG	West US	Running	Linux	Standard_B1s	13.64.190.218	1

Home > Virtual machines >

## 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](#)

**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) Windows-VM\_group  
[Create new](#)

**Instance details**

Virtual machine name \* Windows-VM

Region \* (US) West US

Availability options No infrastructure redundancy required

< Previous Next : Disks > Review + create

Availability options No infrastructure redundancy required

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

Image \* Windows Server 2019 Datacenter - x64 Gen2 (free services eligible)  
[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 (₹996.01/month) (free services eligible)  
[See all sizes](#)

Enable Hibernation ☐  
**Hibernate is not supported by the size that you have selected. Choose a size that is**



< Previous Next : Disks > Review + create


## Create a virtual machine


Enable Hibernation 

 Hibernation is not supported by the size that you have selected. Choose a size that is compatible with Hibernation to enable this feature. [Learn more](#) 

### Administrator account


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 \*  

 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 and then Create


## Create a virtual machine

 Validation passed

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


### Price


1 X Standard B1s  
by Microsoft  
[Terms of use](#) [Privacy policy](#)

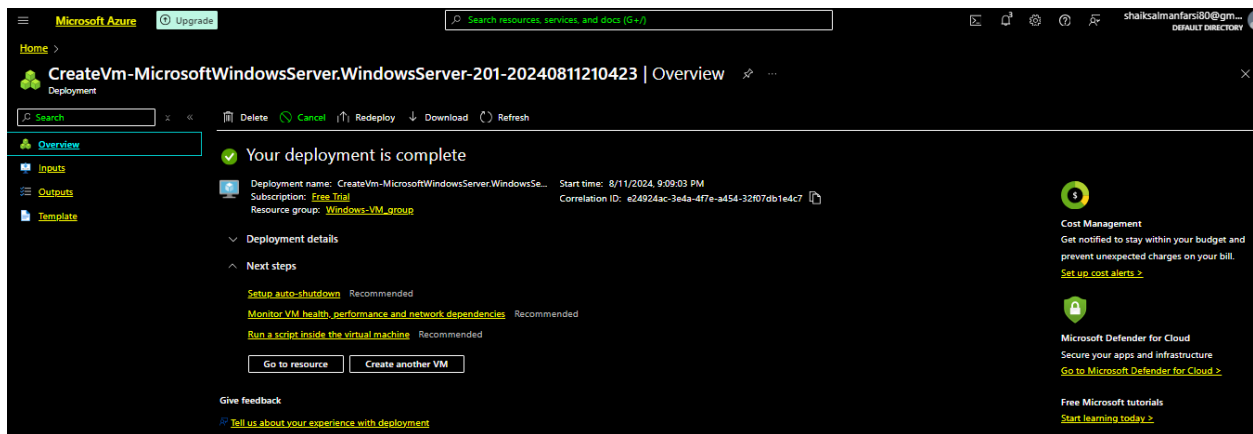
Subscription credits apply   
**1.3644 INR/hr**  
[Pricing for other VM sizes](#)

### TERMS

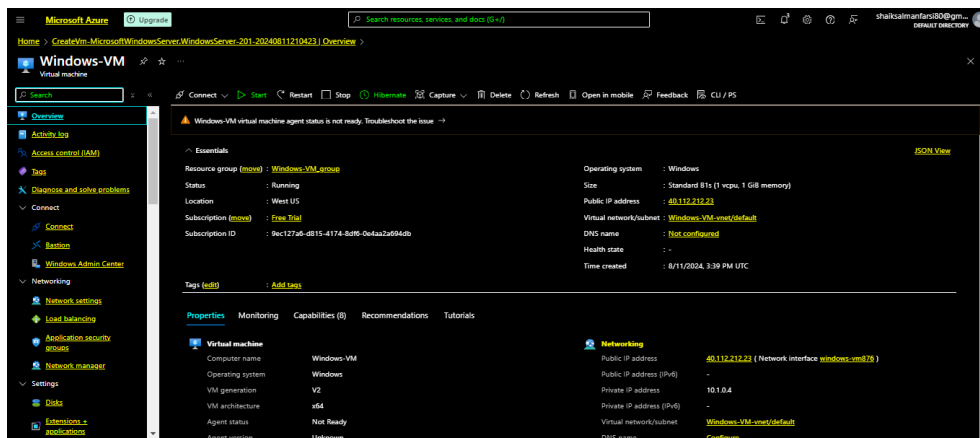
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

 You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

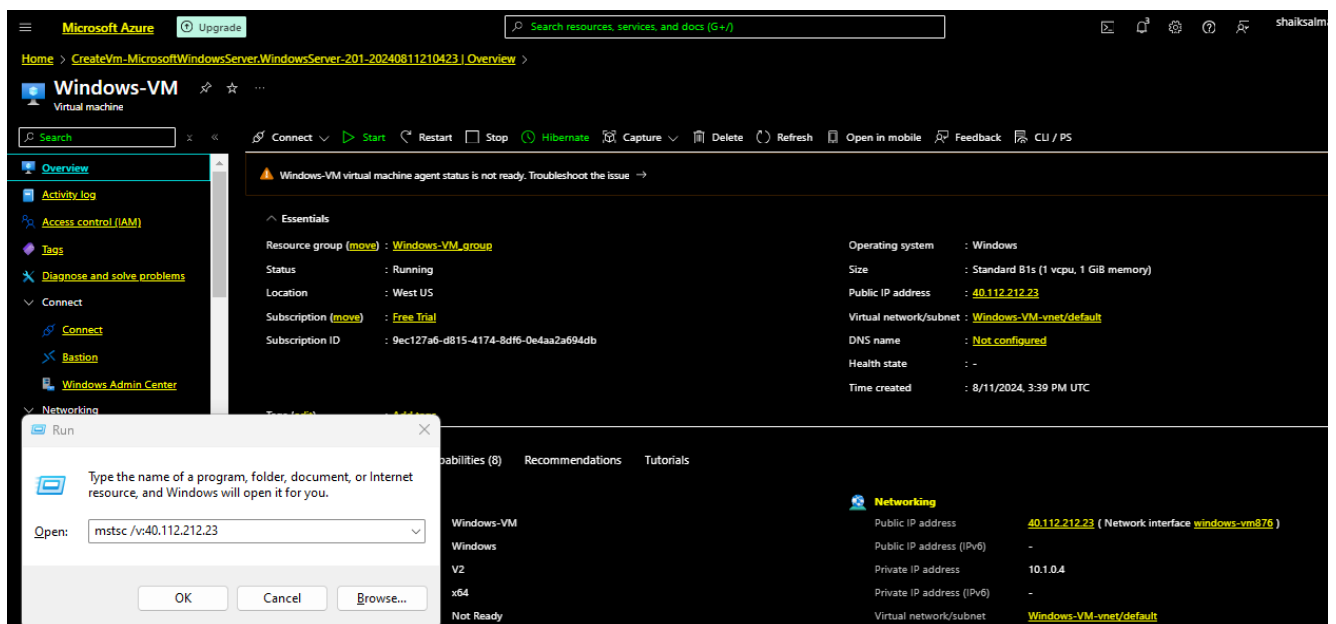
 Previous **Next >** Create



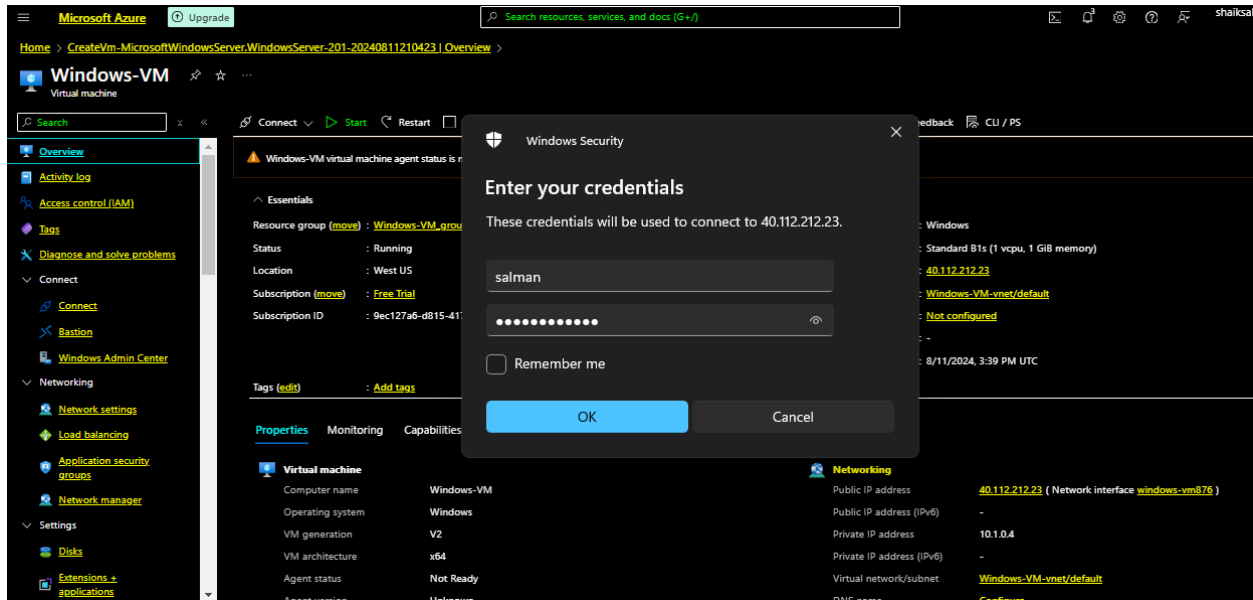
## Copy Public Ip



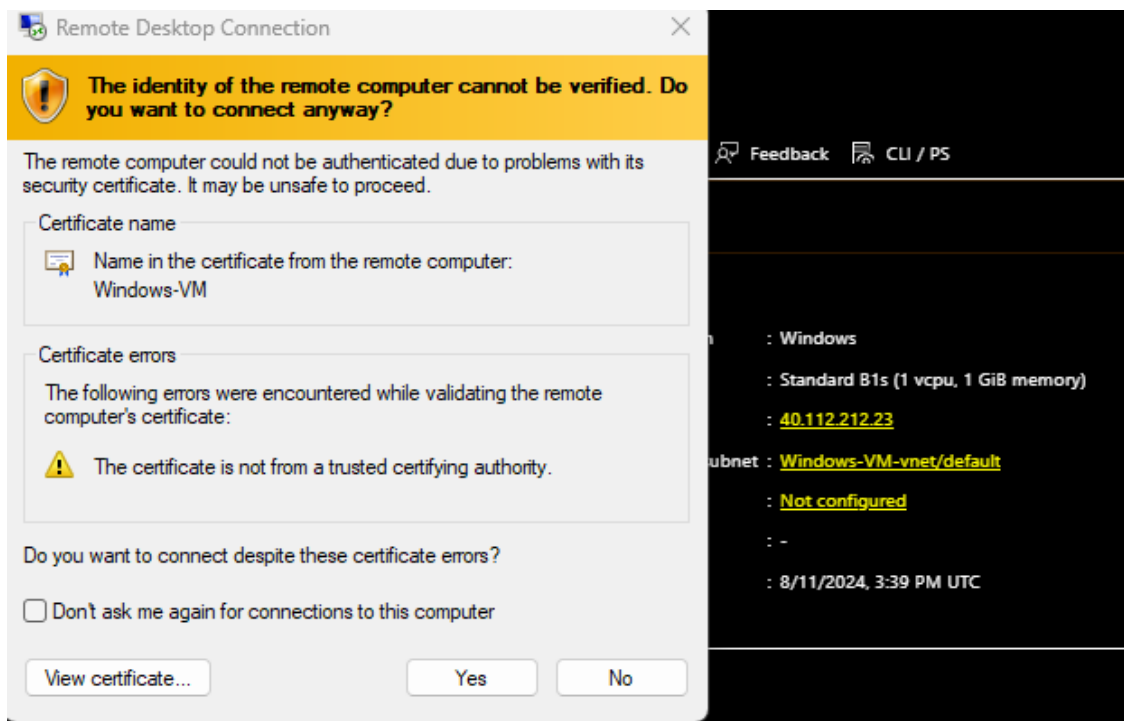
## Click Window + R and mstsc /v:public ip



## Type VM Credentials to connect RDP

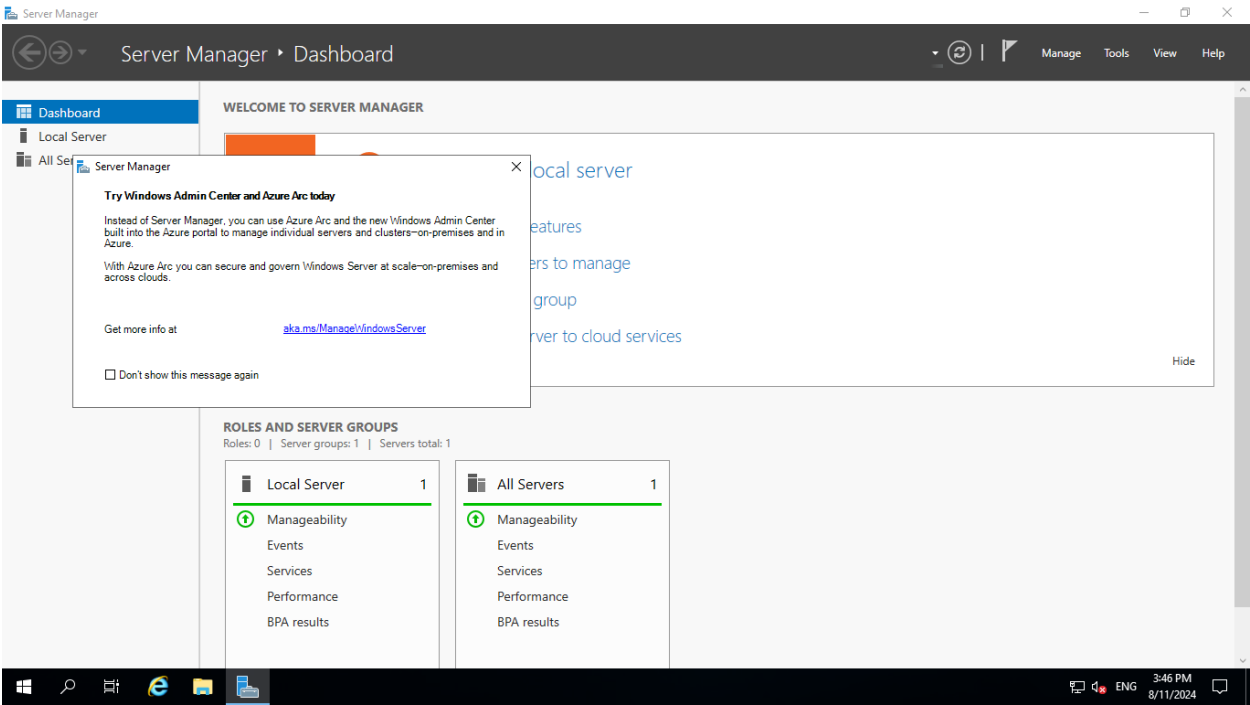
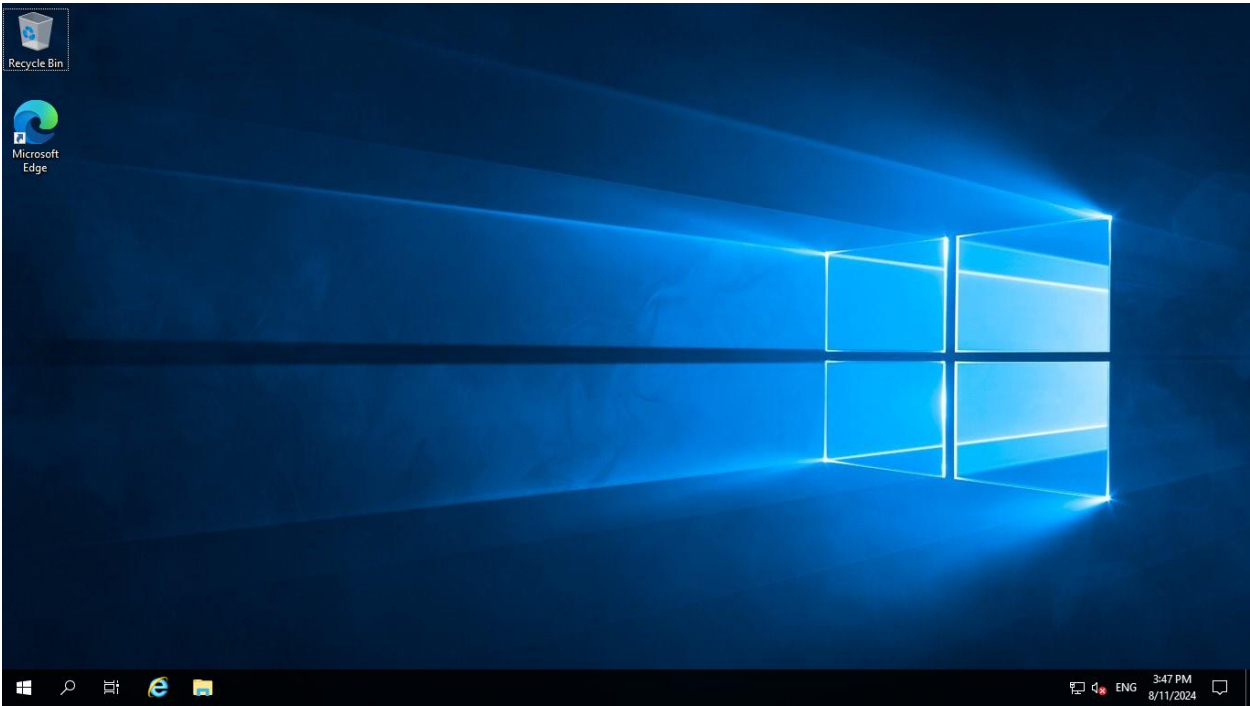


Yes





Connected



# Module 4: Assignment - 3

Azure 104 Certification Course



## 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

Search Virtual Machine Scale sets and Create

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

## Create a virtual machine scale set

[Basics](#) [Spot](#) [Disks](#) [Networking](#) [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 \*

Resource group \*   
[Create new](#)

### Scale set details

Virtual machine scale set name \*

Region \*

Availability zone ⓘ

### 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

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

## Click Configuration

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Virtual machine scale sets >

### Create a virtual machine scale set

**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 <sup>?</sup>

- ☒ **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 <sup>?</sup>

Trusted launch virtual machines <sup>?</sup>  
[Configure security features](#)

**Scaling**

Scaling mode <sup>?</sup>

- ☐ Manually update the capacity: Maintain a fixed amount of instances.
- ☒ **Autoscaling:** Scaling based on a CPU metric, on any schedule.
- ☐ No scaling profile: manual attach virtual machines after deployment

Scaling configuration <sup>\*</sup>

**Scaling configuration**

- Scaling condition count: 1
- Predictive autoscaling: Disabled
- Diagnostics logs: Disabled
- Scale-in policy: Default
- Force delete: Disabled

[Configure](#)

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

## Need to Set Up Assignment Task Here

Microsoft Azure Upgrade Search resources, services, and docs (G+)

Home > Virtual machine scale sets > Create a virtual machine scale set >

### Scaling configuration

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](#)

**Scaling conditions**

+ Add a scaling condition Delete

Condition	Mode	Instance Count <sup>?</sup>	CPU Threshold <sup>?</sup>	Schedule
Default condition	Autoscale	(2, 20, 2)	(80%, 20%)	No

**Predictive autoscaling**

Enable forecast for predictive autoscaling <sup>?</sup> ☐

**Diagnostics logs**

Collect diagnostic logs from Autoscale <sup>?</sup> ☐

[Save](#) [Cancel](#)

#### Add a scaling condition

Condition name <sup>\*</sup>

Default condition

Scale mode

- ☐ Manually update the capacity: Scaling based on a CPU metric, on any schedule
- ☒ **Autoscaling:** Scaling based on a CPU metric, on any schedule

Initial instance count <sup>?</sup>

1

Instance limit

Minimum <sup>?</sup>

1

The minimum count of instances this condition will scale down to is 1.

Maximum <sup>?</sup>

5

The maximum count of instances this condition will scale up to is 5.

Scale out

CPU threshold greater than <sup>\*</sup> <sup>?</sup>

75

Every time the average CPU usage is greater than 75%.

[Save](#)

Microsoft Azure

Upgrade

Search resources, services, and docs (G+/)

Home > Virtual machine scale sets > Create a virtual machine scale set >

Scaling configuration

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.](#)

### Scaling conditions

+ Add a scaling condition

Delete

Condition	Mode	Instance Count	CPU Threshold	Schedule
Default condition	Autoscale	(2, 20, 2)	(80%, 20%)	No

### Predictive autoscaling

Enable forecast for predictive autoscaling

### Diagnostic logs

Collect diagnostic logs from Autoscale

Save

Cancel

Add a scaling condition

75

Every time the average CPU usage is greater than 75%.

Increase instance count by

1

The condition will increase the instance count by 1 instances

Scale in

CPU threshold less than

25

Every time the average CPU usage is less than 25%.

Decrease instance count by

1

The condition will decrease the instance count by 1 instances

Query duration

Minutes

10

Schedule

This is the auto created default condition. This condition cannot be disabled. Since this condition is the only condition, it cannot be disabled. To turn off autoscale, you can disable autoscale to turn off autoscale. Since this condition is the only condition, it cannot be disabled. To turn off autoscale, you can disable autoscale to turn off autoscale.

Save

Microsoft Azure

Upgrade

Search resources, services, and docs (G+/)

Home > Virtual machine scale sets > Create a virtual machine scale set >

Scaling configuration

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.](#)

### Scaling conditions

+ Add a scaling condition

Delete

Condition	Mode	Instance Count	CPU Threshold	Schedule
Default condition	Autoscale	(1, 5, 1)	(75%, 25%)	No

### Predictive autoscaling

Enable forecast for predictive autoscaling

### Diagnostic logs

Collect diagnostic logs from Autoscale

Save

Cancel

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

## Create a virtual machine scale set

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 ⓘ ☐

Size \* ⓘ Standard\_B1s - 1 vcpu, 1 GiB memory (₹680.20/month) (free services eligible) ▼  
[See all sizes](#)

Enable Hibernation ⓘ ☐  
ℹ Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

Administrator account

Authentication type ⓘ ☒ Password  
☐ SSH public key

Username \* ⓘ salman ✓

Password \* ⓘ ..... ✓

Confirm password \* ⓘ ..... ✓

[< Previous](#)

[Next : Spot >](#)

[Review + create](#)

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

## Create a virtual machine scale set

✓ Validation passed

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

### Basics

Subscription	Free Trial
Resource group	DemoRG
Virtual machine scale set name	salmanfirstscalest
Region	Central India
Orchestration mode	Flexible
Availability zone	None
Image	Ubuntu Server 22.04 LTS - Gen2
Size	Standard B1s (1 vcpu, 1 GiB memory)
Scaling mode	Autoscaling
Scaling condition count	1
Predictive autoscaling	Disabled
Diagnostic logs	Disabled
Scale-in policy	Default
Force delete	Disabled
Security type	Trusted launch virtual machines
Enable secure boot	Yes

[< Previous](#)

[Next >](#)

[Create](#)

## Assignment Task Completed

The screenshot displays the Azure portal interface for a Virtual Machine Scale Set named 'salmanfirstscalest'. The left sidebar shows the navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, and Networking. The main content area is divided into two sections: 'Essentials' and 'Properties'.

**Essentials:**

- Resource group: DemoRG
- Status: 1 out of 1 succeeded
- Location: Central India
- Subscription: Free Trial
- Subscription ID: 9ec127a6-d815-4174-8d66-0e4aa2a694db
- Tags: Add tags

**Properties:**

- Virtual machine profile:**
  - Operating system: Linux
  - Capacity reservation group: -
  - Hibernation: Disabled
- Azure Spot:** Disabled
- Availability + scaling:** Availability zone: -
- Networking:**
  - Public IP address: -
  - Public IP address (IPv6): -
  - Virtual network/subnet: DemoRG-vnet/default
- Size:**
  - Size: Standard\_B1s
  - vCPUs: 1
  - RAM: 1 GiB

The top of the page shows the Microsoft Azure logo, an 'Upgrade' button, a search bar, and the user's profile 'shaiksalmanfarsi80@gmail.com'.

# Module 4: Assignment - 4

Azure 104 Certification Course



### Tasks To Be Performed:

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

In Assignment I installed ubuntu virtual machine and I am using the same VM now

The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with navigation options like 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Connect', 'Bastion', 'Networking', 'Load balancing', 'Application security', 'Network manager', 'Settings', 'Disks', 'Extensions & applications', and 'Operating system'. The main area displays the 'Linux-VM' virtual machine details. It includes a table of 'Essentials' with fields like Resource group, Status, Location, Subscription, and Subscription ID. Below this, there's a 'Properties' section with a table listing attributes such as Computer name, Operating system, VM generation, VM architecture, Agent status, Agent version, and Hibernation. A 'Networking' section on the right shows the Public IP address and other network-related details.

```
salman@Linux-VM: ~  
salman@Linux-VM:~$ sudo apt update  
Hit:1 http://azure.archive.ubuntu.com/ubuntu jammy InRelease  
Get:2 http://azure.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]  
Hit:3 http://azure.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Get:4 http://azure.archive.ubuntu.com/ubuntu jammy-security InRelease [129 kB]  
Fetched 257 kB in 1s (344 kB/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
13 packages can be upgraded. Run 'apt list --upgradable' to see them.  
salman@Linux-VM:~$
```

```
salman@Linux-VM: ~  
salman@Linux-VM:~$ sudo apt install apache2  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.3-0 mailcap mime-support  
  ssl-cert  
Suggested packages:  
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom www-browser bzip2-doc  
The following NEW packages will be installed:  
  apache2 apache2-bin apache2-data apache2-utils bzip2 libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap liblua5.3-0 mailcap  
  mime-support ssl-cert  
0 upgraded, 13 newly installed, 0 to remove and 13 not upgraded.  
Need to get 2141 kB of archives.  
After this operation, 8524 kB of additional disk space will be used.  
Do you want to continue? [Y/n] y  
Get:1 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapr1 amd64 1.7.0-8ubuntu0.22.04.1 [108 kB]  
Get:2 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1 amd64 1.6.1-5ubuntu4.22.04.2 [92.8 kB]  
Get:3 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1-dbd-sqlite3 amd64 1.6.1-5ubuntu4.22.04.2 [11.3 kB]  
Get:4 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libaprutil1-ldap amd64 1.6.1-5ubuntu4.22.04.2 [9170 B]  
Get:5 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 liblua5.3-0 amd64 5.3.6-1build1 [140 kB]  
Get:6 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2-bin amd64 2.4.52-1ubuntu4.12 [1348 kB]  
Get:7 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2-data all 2.4.52-1ubuntu4.12 [165 kB]  
Get:8 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2-utils amd64 2.4.52-1ubuntu4.12 [89.1 kB]  
Get:9 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 mailcap all 3.70+nmu1ubuntu1 [23.8 kB]  
Get:10 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 mime-support all 3.66 [3696 B]  
Get:11 http://azure.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apache2 amd64 2.4.52-1ubuntu4.12 [97.9 kB]  
Get:12 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 bzip2 amd64 1.0.8-5build1 [34.8 kB]  
Get:13 http://azure.archive.ubuntu.com/ubuntu jammy/main amd64 ssl-cert all 1.1.2 [17.4 kB]  
Fetched 2141 kB in 5s (417 kB/s)  
Preconfiguring packages ...  
Selecting previously unselected package libapr1:amd64.  
(Reading database ... 62092 files and directories currently installed.)  
Preparing to unpack .../00-libapr1.1.7.0-8ubuntu0.22.04.1_amd64.deb ...  
Unpacking libapr1:amd64 (1.7.0-8ubuntu0.22.04.1) ...
```

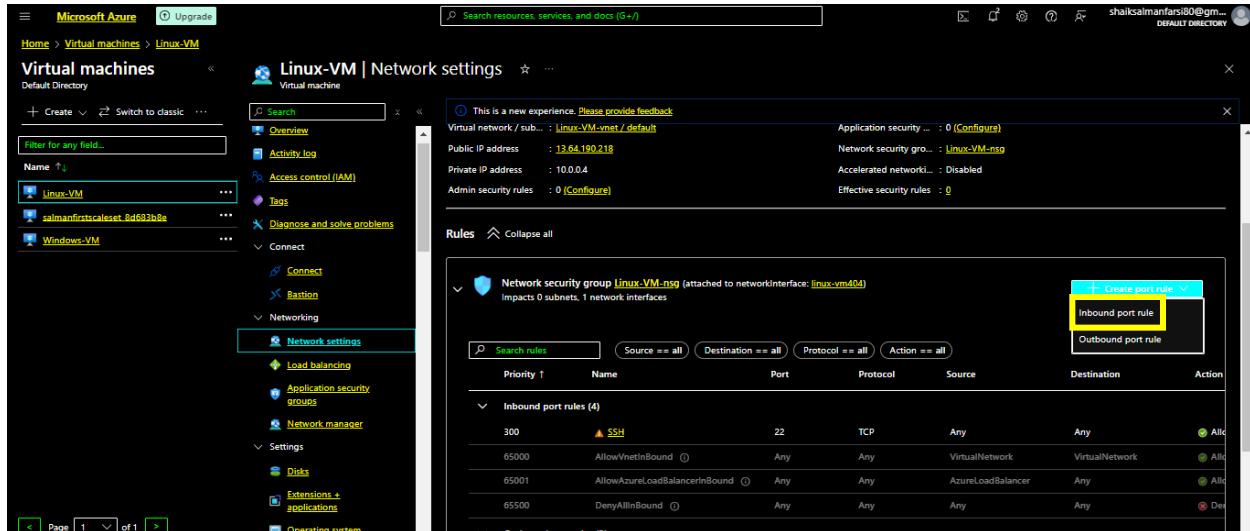
```
No containers need to be restarted.
```

```
No user sessions are running outdated binaries.
```

```
No VM guests are running outdated hypervisor (qemu) binaries on this host.
```

```
salman@Linux-VM:~$
```

I am using Assignment 1 VM so on that time we are not enable to http port so here need to modify



Virtual network / sub... : Linux-VM-vnet / default

Public IP address : 13.64.190.218

Private IP address : 10.0.0.4

Admin security rules : 0 (Configure)

Application security ... : 0 (Configure)

Network security gro... : Linux-VM-nsg

Accelerated networki... : Disabled

Effective security rules : 0

Rules

Network security group Linux-VM-nsg (attached to networkinterface: linux-vm404)

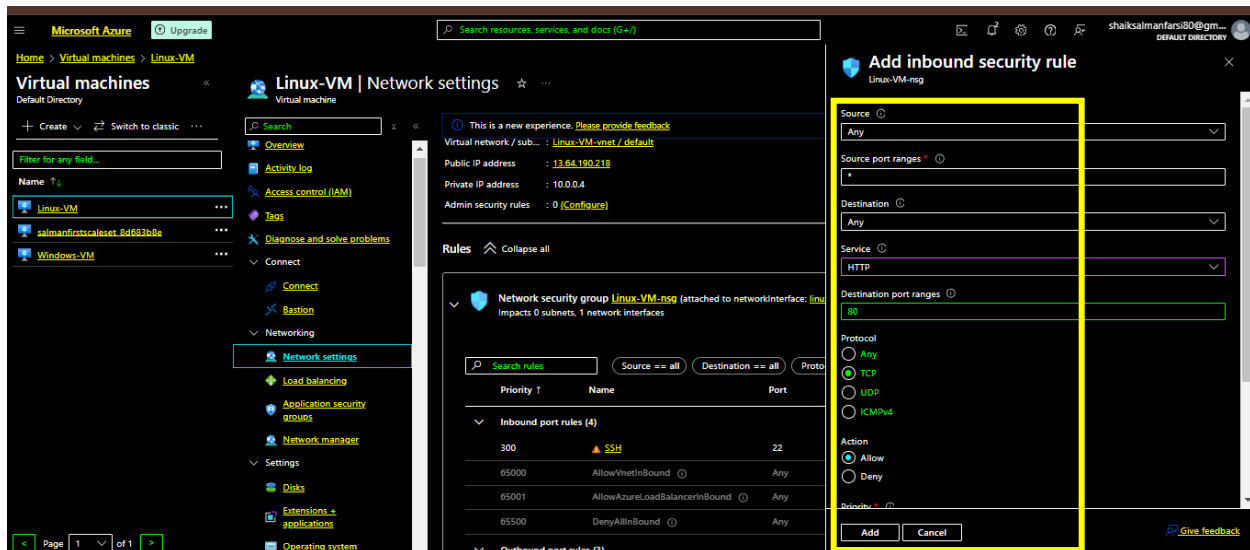
Impacts 0 subnets, 1 network interfaces

Create port rule

Inbound port rule

Outbound port rule

Priority	Name	Port	Protocol	Source	Destination	Action
300	SSH	22	TCP	Any	Any	Allow
65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	Allow
65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	Allow
65500	DenyAllInBound	Any	Any	Any	Any	Deny



Add inbound security rule

Linux-VM-nsg

Source : Any

Source port ranges : \*

Destination : Any

Service : HTTP

Destination port ranges : 80

Protocol : TCP

Action : Allow

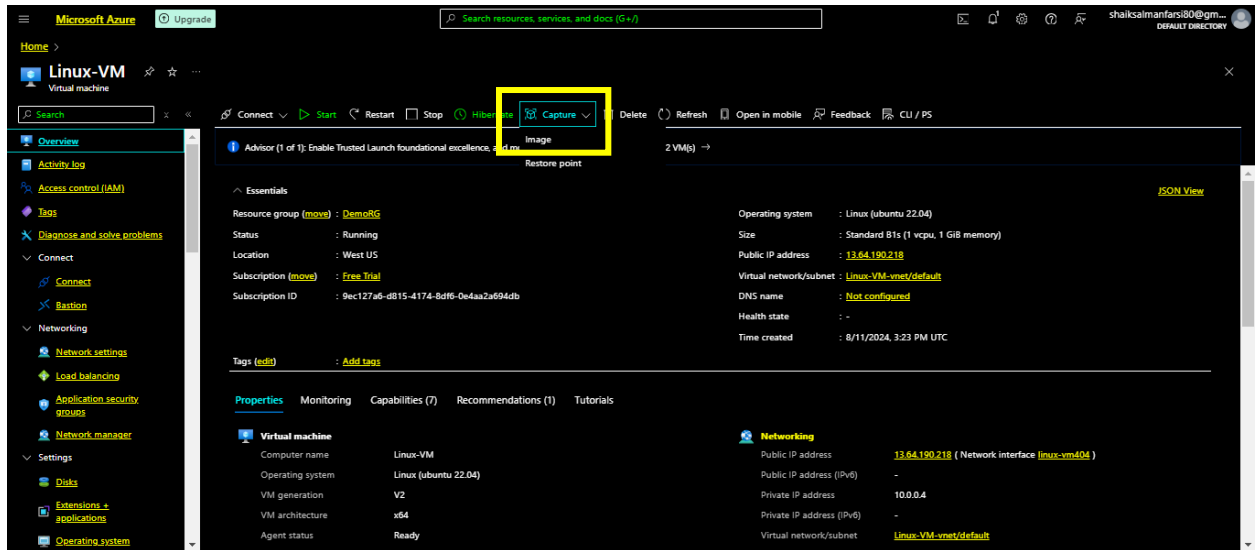
Priority : 300

Add Cancel





Now Creating Image



[Home](#) > [Linux-VM](#) >

## Create an image ...

[Basics](#)TagsReview + 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 \*

DemoRG

### Instance details

Region

(US) West US

Share image to Azure compute gallery

☒ Yes, share it to a gallery as a VM image version.  
☐ No, capture only a managed image.

Automatically delete this virtual machine after creating the image

☐

### Gallery details

Target Azure compute gallery \*

No valid galleries in resource group

Create new

Review + create

< Previous

Next: Tags >

Microsoft AzureUpgrade

Search resources, services, and docs (G+7)

shahksalmanfars80@gmail...  
DEFAULT DIRECTORY

[Home](#) > [Linux-VM](#) >

## Create an image ...

Gallery details

Target Azure compute gallery \*

(new) firstimage

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

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

Target VM image definition \*

Create a VM image definition

Create new

### Version details

Version number \*

Example: 0.0.1, 15.35.0

Exclude from latest

☐

End of life date

MM/DD/YYYY

Lock deleting Replicated Locations

☒

Changelog configuration

☐

Review + create

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Next: Tags >

### Create a VM image definition

VM image definition name \*

firstnewimage

OS type

☒ Linux  
☐ Windows

VM generation

☐ Gen 1  
☒ Gen 2

Security type

Standard

VM architecture

☒ x64  
☐ Arm64

Higher storage performance with NVMe

☐

Hibernation supported

☐

Accelerated networking

☐

Publisher \*

canonical

Offer \*

0001-com-ubuntu-server-jammy

SKU \*

22\_04-lts-gen2

Publishing options (Optional)

OkCancel

Give feedback

[Home](#) > [Linux-VM](#) >

## Create an image ...

Version details

Version number \* ⓘ

0.0.1 ✓

Exclude from latest ⓘ

☐

End of life date ⓘ

MM/DD/YYYY

Lock deleting Replicated Locations ⓘ

☒

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 ⓘ

Standard HDD LRS ▼

Default replica count \* ⓘ

1

Target regions	Replica count	Storage sku
(US) West US ▼	1	Standard HDD LRS ▼
(US) East US ▼	1	Zone-redundant ▼

Review + create

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[Home](#) > [Linux-VM](#) >

## Create an image ...

✓ Validation passed

Basics

Tags

Review + create

Basics

Subscription	Free Trial
Resource group	DemoRG
Region	West US
Share image to Azure compute gallery	Yes
Automatically delete this virtual machine after creating the image	No
Azure compute gallery	(new) firstimage
Operating system state	Generalized
Target VM image definition	(new) firstnewimage
Version number	0.0.1
Source virtual machine	Linux-VM
Exclude from latest	No
End of life date	None
Lock deleting Replicated Locations	Yes
Shallow replication	No

Create

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Next >

[Download a template for automation](#)

Now the Assignment Task is completed

Home > Microsoft.Compute-CaptureVM-20240811223100 | Overview >

**0.0.1 (firstimage/firstnewimage/0.0.1)**

VM image version

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Update replication

Configuration

Properties

Locks

Automation

CLI / PS

Tasks (preview)

Export template

Help

Support + Troubleshooting

Essentials

Resource group (move) : DemoRG

Status : Succeeded

Location : West US

Subscription (move) : Free Trial

Subscription ID : 9ec127a6-d815-4174-8df6-0e4a2a694db

Tags (edit) : Add tags

Azure compute gallery : firstimage

VM image definition : firstnewimage

Replication status : Completed

Replication mode : Full

Confidential OS disk encr... : -

Encryption type : Platform-managed key

End of life date : -

Exclude from latest : No

Lock deleting Replicated ... : Yes

Storage account type : Standard HDD LRS

## Module 4: Assignment - 5

Azure 104 Certification Course



### 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 Deploying VM using with Previously created Image

Microsoft Azure Upgrade

Search resources, services, and docs (G+/I)

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

Maintenance

Filter for any field

Subscription equals all

Type equals all

Resource group equals all

Location equals all

Add filter

Showing 1 to 3 of 3 records

No grouping

List view

Name	Subscription	Resource group	Location	Status	Operating system	Size	Public IP address	Disks
Linux-VM	Free Trial	DemoRG	West US	Stopped (deallocated)	Linux	Standard_B1s	13.64.190.218	1
salmanfintstcaleset_8d93b8e	Free Trial	DemoRG	Central India	Running	Linux	Standard_B1s	52.140.101.76	1
Windows-VM	Free Trial	Windows-VM-group	West US	Running	Windows	Standard_B1s	40.112.212.23	1

portal.azure.com/#create/Microsoft.VirtualMachine-ARM

## Create a virtual machine

your resources.

Subscription: Free Trial

Resource group: DemoRG

Instance details

Virtual machine name: ImageVM

Region: (US) West US

Availability options: No infrastructure redundancy required

Security type: Trusted launch virtual machines

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

VM architecture: x64

Run with Azure Spot discount: ☐

< Previous Next: Disks > Review + create

## Select an image

Other Items | Shared Images

Search in Shared Images

Publisher: All Azure Compute Gallery: All

Image Name	Subscription	Publisher	Gallery name
firstnewimage	Free Trial	canonical	firstimage

[Home](#) > [Virtual machines](#) >

## Create a virtual machine

### Resource group

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 \* ⓘ DemoRG ✓

[Create new](#)

### Instance details

Virtual machine name \* ⓘ ImageVM ✓

Region \* ⓘ (US) West US ✓

Availability options ⓘ No infrastructure redundancy required ✓

Security type ⓘ Standard ✓

Image \* ⓘ firstimage/firstnewimage/latest - x64 Gen2 ✓

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

VM architecture ⓘ

☐ Arm64

☒ x64

Arm64 is not supported with the selected image.

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

**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 (₹753.08/month) (free services eligible) ✓

[See all sizes](#)

Enable Hibernation ⓘ ☐

**i** Hibernate is not supported by the image and size that you have selected. Choose an image and size that is compatible with Hibernate to enable this feature. [Learn more](#)

### Administrator account

Authentication type ⓘ

☐ SSH public key

☒ Password

Username \* ⓘ salman ✓

Password \* \*\*\*\*\* ✓

Confirm password \* \*\*\*\*\* ✓

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

Username \* ⓘ

salman

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), SSH (22)

ⓘ

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

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Next : Disks >

Review + create

Microsoft Azure

Upgrade

Search resources, services, and docs (G+)

Home > Virtual machines >

Create a virtual machine

✓ Validation passed

Basics

Disks

Networking

Management

Monitoring

Advanced

Tags

Review + create

⚠ You have set SSH port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

firstimage/firstnewimage/latest

Standard B1s

Image

1 vcpu, 1 GiB memory

Basics

Subscription

Free Trial

Resource group

DemoRG

Virtual machine name

ImageVM

Region

West US

Availability options

No infrastructure redundancy required

Zone options

Self-selected zone

Security type

Standard

Image

firstimage/firstnewimage/latest - Gen2

VM architecture

x64

Size

Standard B1s (1 vcpu, 1 GiB memory)

< Previous

Next >

Create

Microsoft Azure Upgrade Search resources, services, and docs (G+/I)

Home > CreateVM-firstnewimage-202408112301201 Overview >

### ImageVM

Virtual machine

Search

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CU / PS

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
  - Operating system

Essentials

Resource group (move) : DemoRG

Status : Running

Location : West US

Subscription (move) : Free Trial

Subscription ID : 9ec127a6-d815-4174-8df0-0e4aa2a694db

Operating system : Linux (ubuntu 22.04)

Size : Standard B1s (1 vcpu, 1 GiB memory)

Public IP address : 13.91.180.99

Virtual network/subnet : Linux-VM-vnet/default

DNS name : Not configured

Health state : -

Time created : 8/11/2024, 5:34 PM UTC

Tags (edit) : Add tags

JSON View

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name	ImageVM
Operating system	Linux (ubuntu 22.04)
VM generation	V2
VM architecture	x64
Agent status	Ready
Agent version	2.11.1.4
Hibernation	Disabled

Networking

Public IP address	13.91.180.99 ( Network interface imagevm985 )
Public IP address (IPv6)	-
Private IP address	10.0.0.5
Private IP address (IPv6)	-
Virtual network/subnet	Linux-VM-vnet/default
DNS name	Configure

```
salman@ImageVM: ~
(c) Microsoft Corporation. All rights reserved.
C:\Users\shaik>ssh salman@13.91.180.99
The authenticity of host '13.91.180.99 (13.91.180.99)' can't be established.
ED25519 key fingerprint is SHA256:JX+S6quKF6tDdTGmr38Fw2311HcTqK7/EgRAS7gZgGQ.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.91.180.99' (ED25519) to the list of known hosts.
salman@13.91.180.99's password:
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1025-azure x86_64)

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

System information as of Sun Aug 11 17:36:41 UTC 2024

System load:  0.45           Processes:    108
Usage of /:   5.9% of 28.89GB Users logged in: 0
Memory usage: 30%           IPv4 address for eth0: 10.0.0.5
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

13 updates can be applied immediately.
10 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: Sun Aug 11 15:29:58 2024 from 49.37.146.198
salman@ImageVM:~$
```



```
salman@ImageVM: ~  
salman@ImageVM:~$ 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 Sun 2024-08-11 17:35:33 UTC; 2min 18s ago  
     Docs: https://httpd.apache.org/docs/2.4/  
  Main PID: 753 (apache2)  
    Tasks: 55 (limit: 1053)  
   Memory: 11.4M  
      CPU: 61ms  
   CGroup: /system.slice/apache2.service  
           └─753 /usr/sbin/apache2 -k start  
             └─754 /usr/sbin/apache2 -k start  
               └─755 /usr/sbin/apache2 -k start  
  
Aug 11 17:35:30 ImageVM systemd[1]: Starting The Apache HTTP Server...  
Aug 11 17:35:33 ImageVM systemd[1]: Started The Apache HTTP Server.  
salman@ImageVM:~$
```

