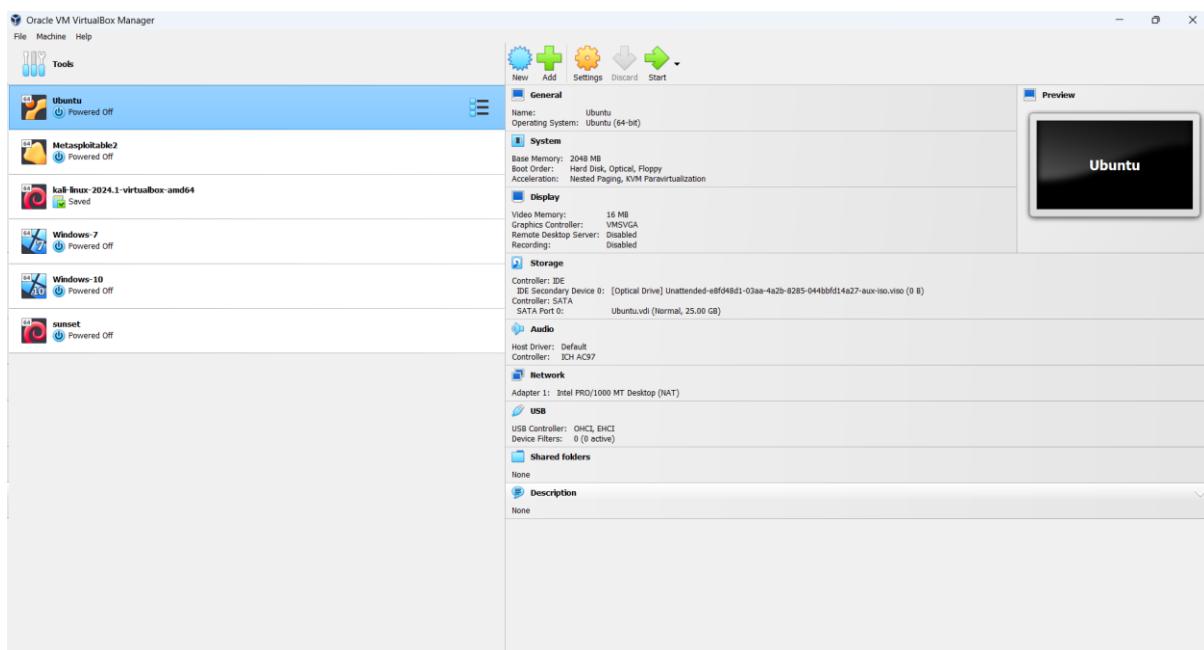
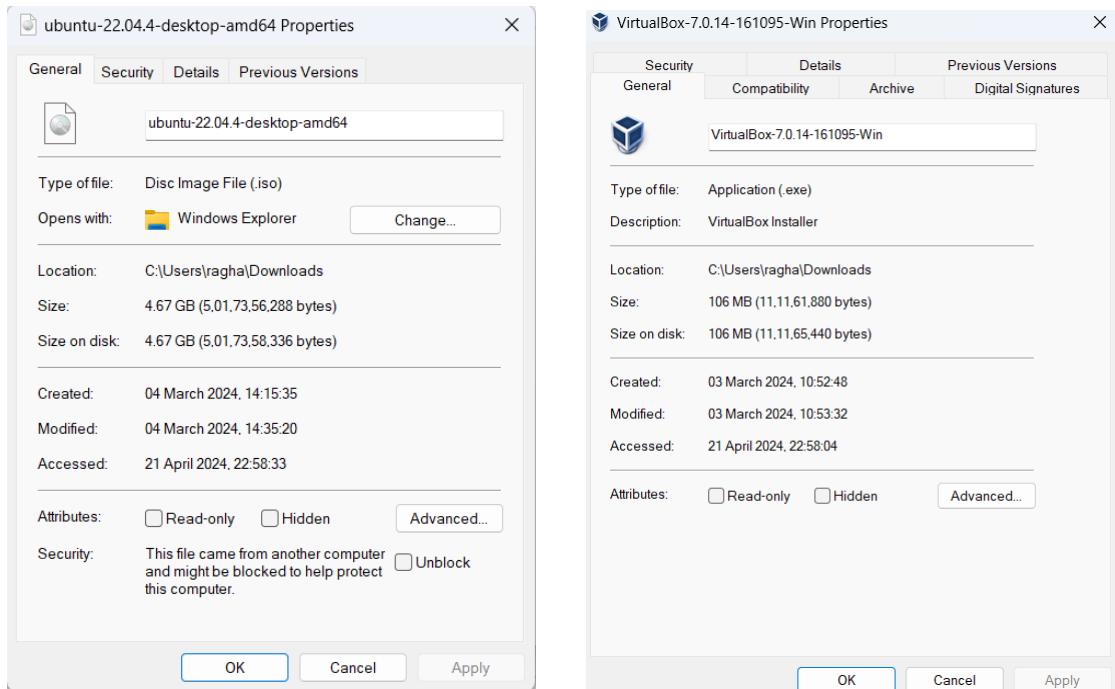
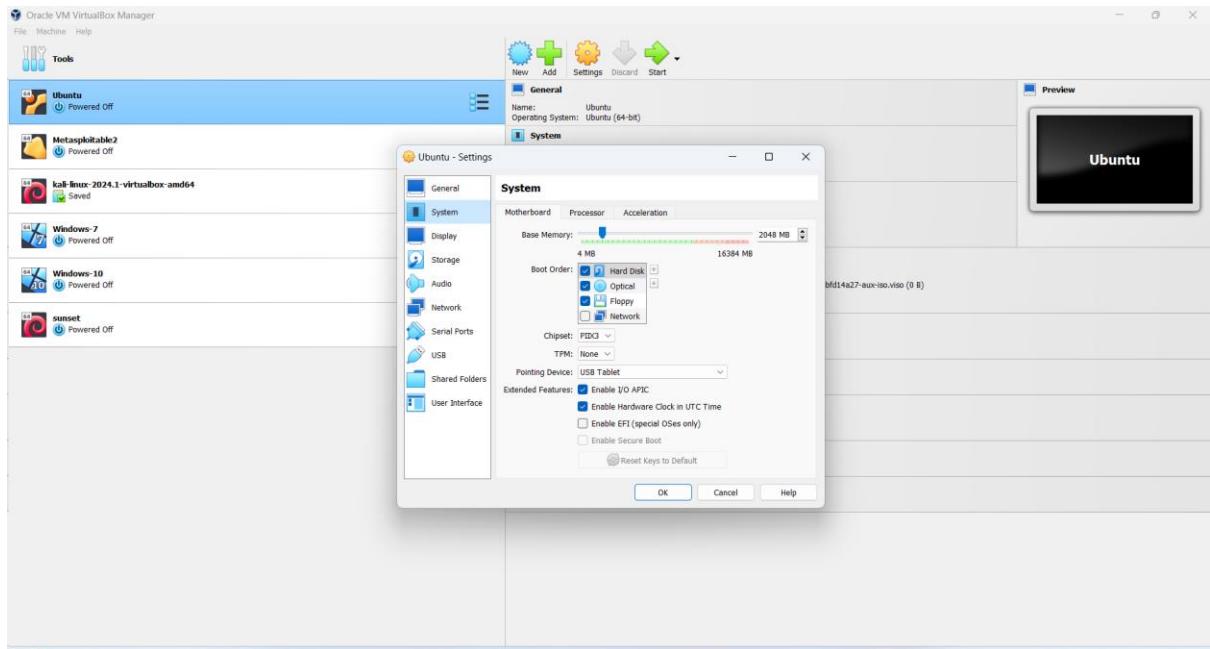


1. Install Virtual box and making Ubuntu in Virtual Machine.

Step-1: Download VirtualBox for Windows and install it on your computer.

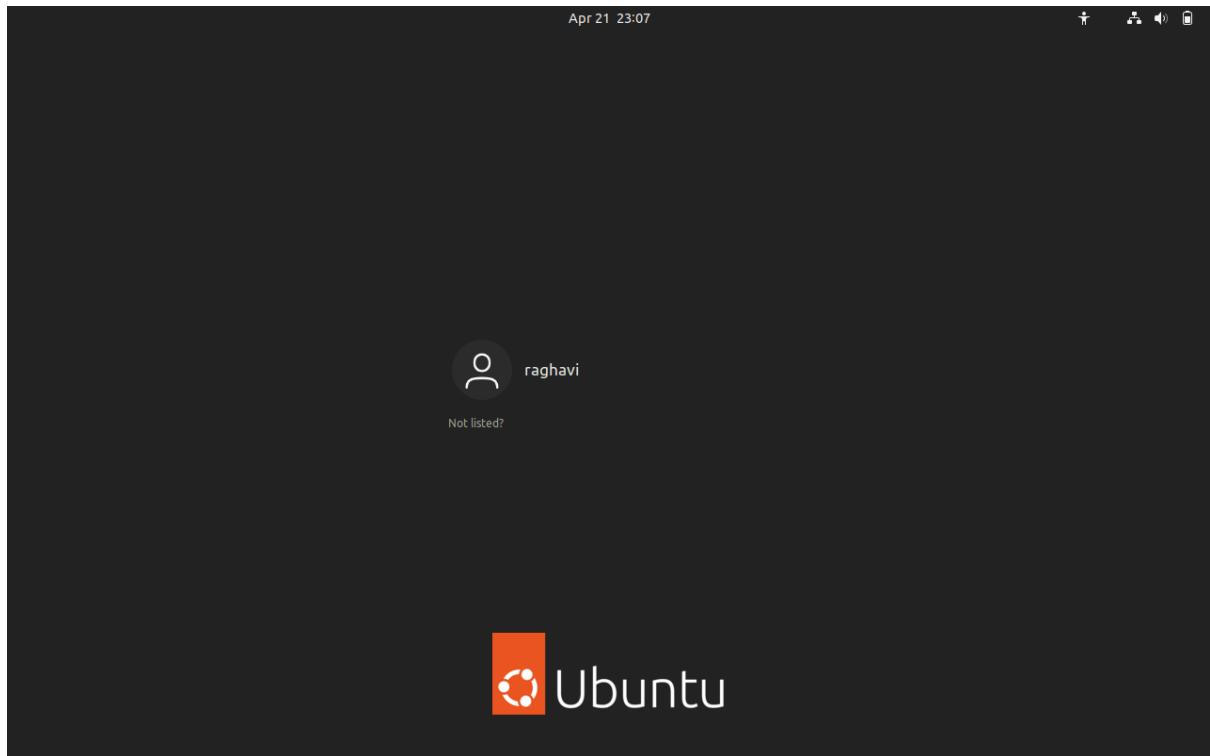
Step-2: Download the Ubuntu ISO file you want to install from the Ubuntu download page.



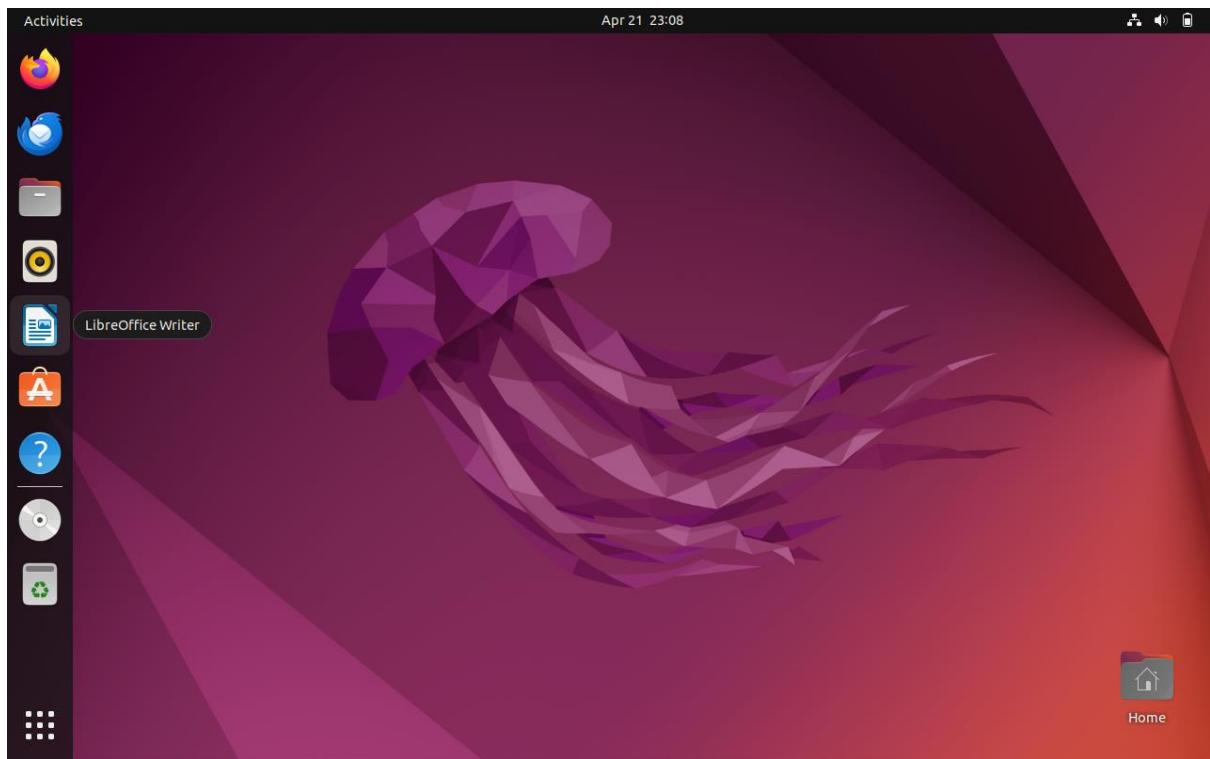


Step-3: Launch the ubuntu by selecting the path of ISO image in virtual box.

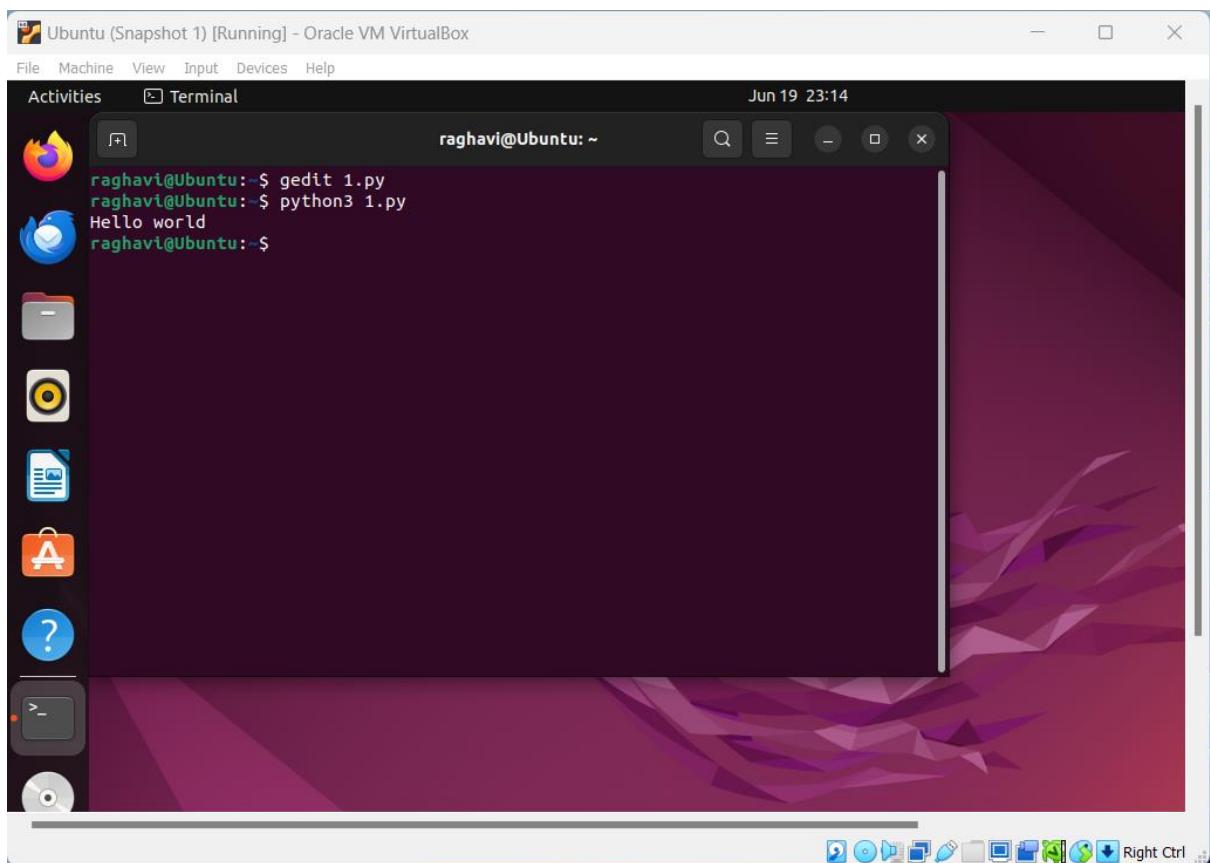
Step-4: Click next and so on and install.



Step-5: Login to the ubuntu by giving password given by you.



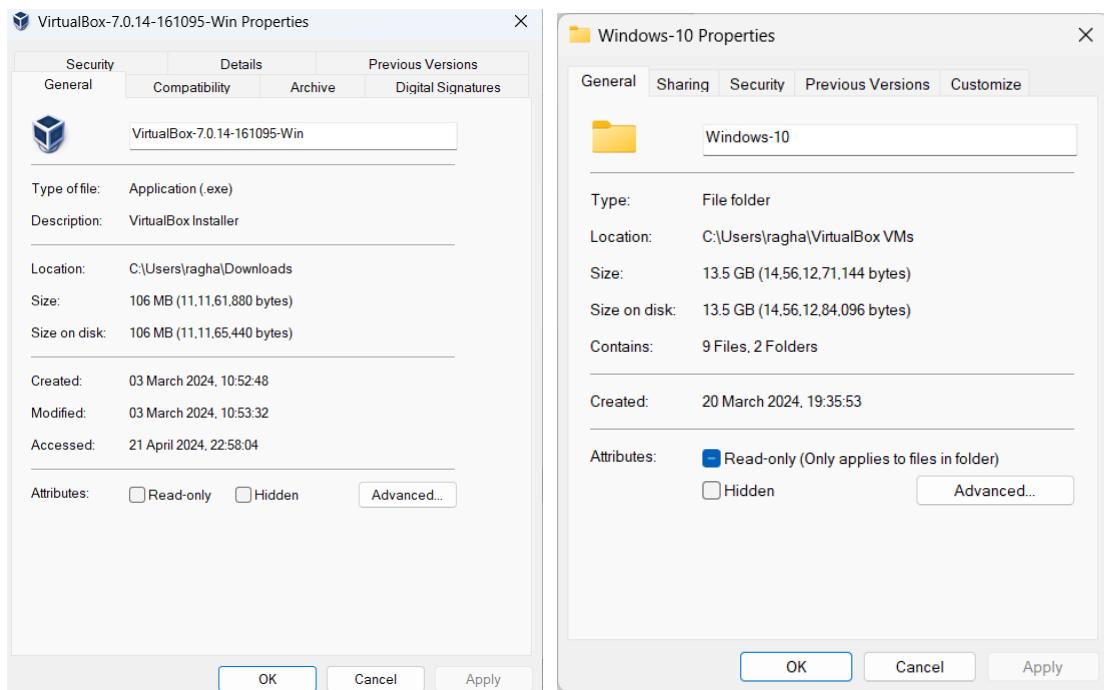
Step-6: Open terminal and execute python program



2. Install Virtual box and making Window Virtual Machine.

Similarly, Follow the same steps above to Build Windows Virtual Machine.

Step-1: Download VirtualBox for Windows and install it on your computer.

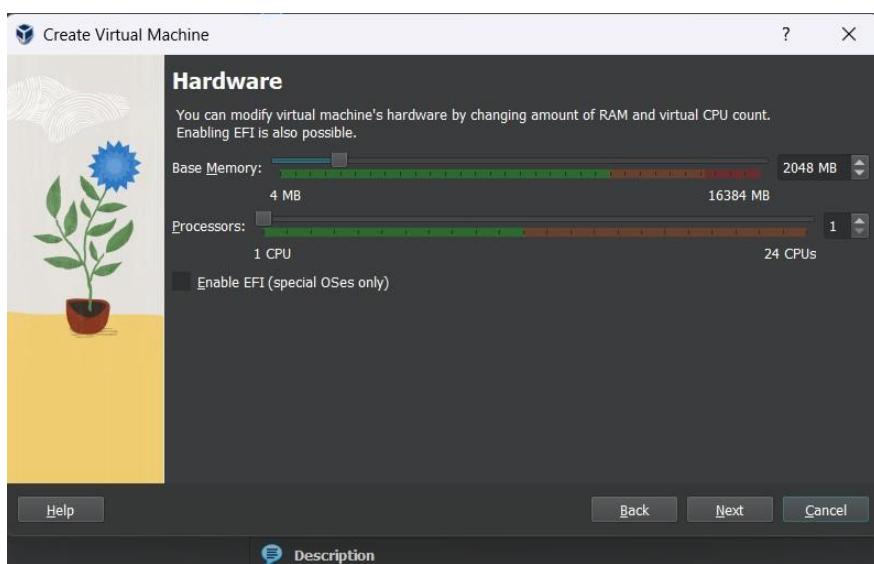


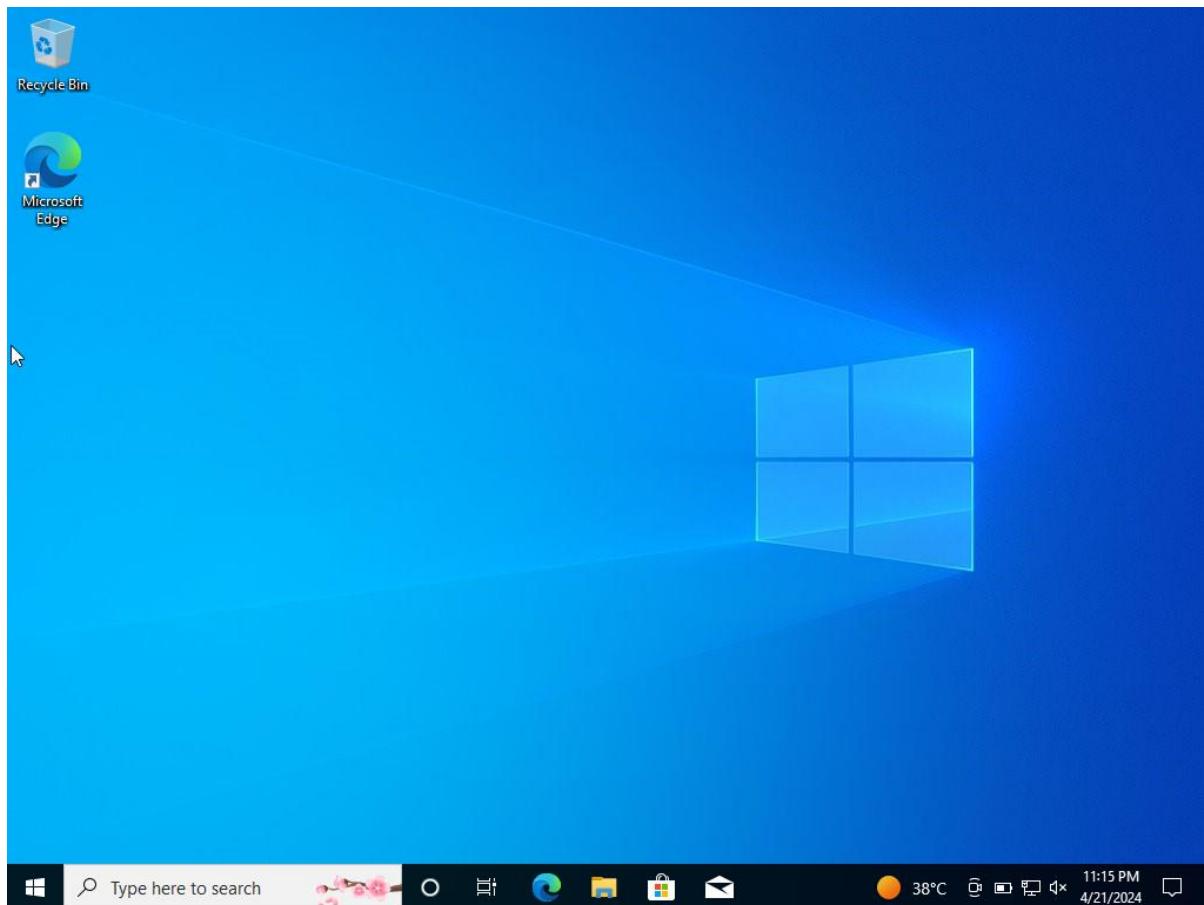
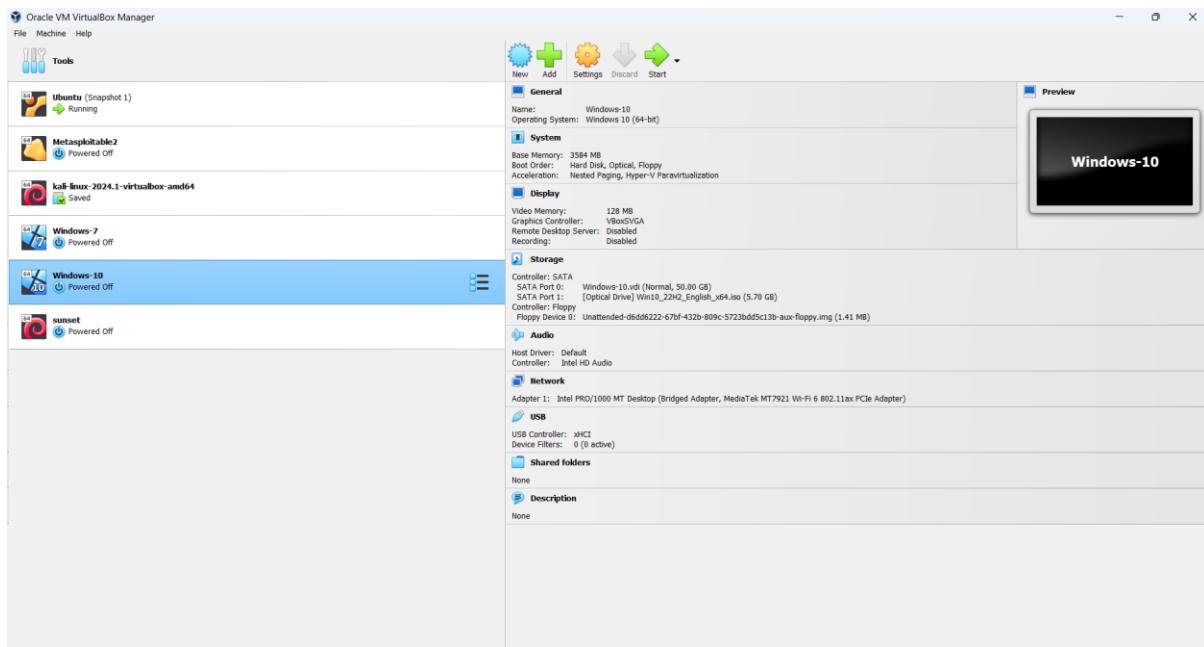
Step-2: Download the Windows-10 or 7 you want to install.

Step-3: Launch the windows by selecting the path of downloaded software in virtual box.

Step-4: Click next and so on and install.

Step-5: Login to the windows by giving password given by you.





3) Create an instance in Virtual Machine and launch windows server in Microsoft Azure

Step-1: Sign in to your Microsoft Azure account.

Step-2: Go To Virtual machine, and click on “Create” to create a window virtual machine.

Step-3: Fill the details in that window by creating a “Resource Group”, Zone: Asia, Image: window, Select the disk storage and so on. After that click on “Create + Review”, click on “Create”

Step-4: Copy the public IP Address of that created virtual machine.

Step-5: Go to the remote desktop connection.

Step-6: By using that copied IP Address open the window virtual machine through remote desktop connection.

The screenshot shows the Microsoft Azure portal interface for creating a new virtual machine. It consists of three main sections:

- Project details:** Shows the selected subscription as "Azure for Students" and the resource group as "(New) AZ2024".
- Instance details:** Shows the virtual machine name as "windows".
- Review + create:** Shows the validation status as "Validation passed" and the price as "10.6153 INR/hr". A note at the bottom states: "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."

CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240507115315 | Overview

Your deployment is complete

Deployment name: CreateVm-Micro... Start time: 7/5/2024, 11:...
Subscription: Azure for Students Correlation ID: 412a7927-...
Resource group: AZ2024

Deployment details
Next steps
Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

[Go to resource](#) [Create another VM](#)

Give feedback [Tell us about your experience with deployment](#)

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Notifications

More events in the activity log → Dismiss all ▾

Deployment succeeded Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240507115315' to resource group 'AZ2024' was successful.

[Go to resource](#) [Pin to dashboard](#) a few seconds ago

windows - Microsoft Azure

Overview

Activity log Status: Running Location: Central India (Zone 1)
Subscription: Azure for Students Subscription ID: 380a12c2-d226-4e09-9aa0-72861bbef1c9 Availability zone: 1 Tags: [Add tags](#)

Properties Monitoring Capabilities (8) Recommendations Tutorials

Virtual machine		Networking	
Computer name: windows	Operating system: Windows (Windows Server 2019 Datacenter)	Public IP address: 20.197.18.16 (Network interface windows271_z1)	Private IP address (IPv6): -
Operating system: Windows (Windows Server 2019 Datacenter)	Private IP address (IPv6): 10.0.0.4	Virtual network/subnet: windows-vnet/default	DNS name: Not configured
VM generation: V2	Virtual network/subnet: windows-vnet/default	Configure	
VM architecture: x64			
Agent status: Ready			
Agent version: 2.7.41491.1095			
Hibernation: Disabled			

[Size](#)

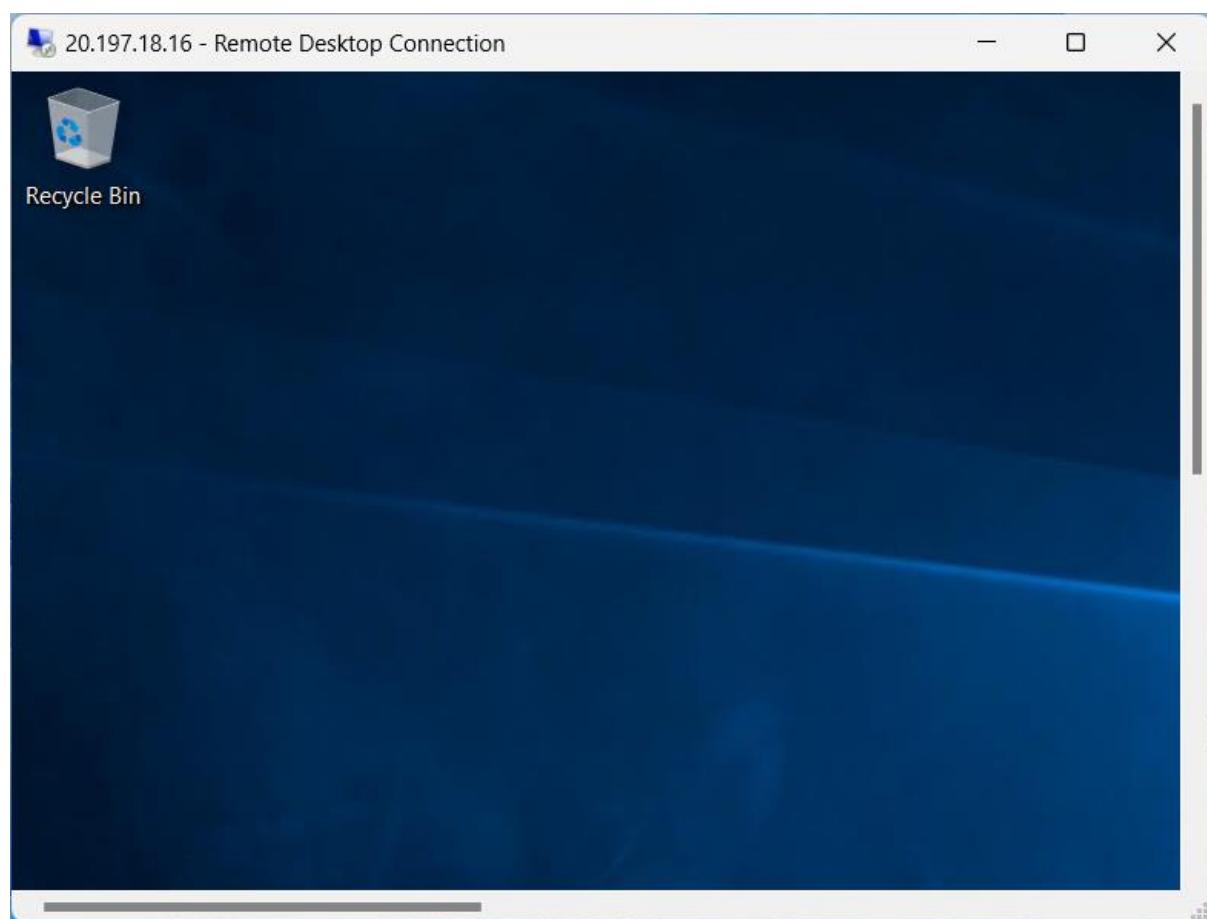
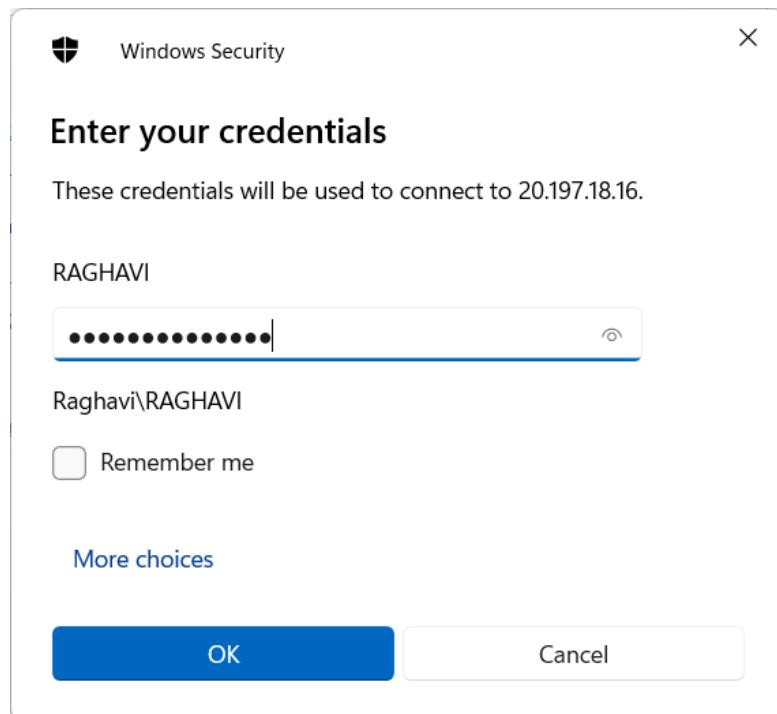
Remote Desktop Connection

Remote Desktop Connection

Computer: 20.197.18.16 User name: None specified

You will be asked for credentials when you connect.

Show Options Connect Help



Result: Above experiment is successfully executed and verified.

4) Create an instance in Virtual Machine and launch Linux server in Microsoft Azure

Step-1: Sign in to your Microsoft Azure account.

Step-2: Go To Virtual machine, and click on “Create” to create a window virtual machine.

Step-3: Fill the details in that ubuntu by creating a “Resource Group”, Zone: Asia, Image: ubuntu, select “SSH”, Select the disk storage and so on. After that click on “Create + Review”, click on “Create”.

Step-4: Copy the public IP Address of that created virtual machine.

Step-5: Go to the remote desktop connection.

Step-6: Go to putty gen and click on load the key generator that you have downloaded.

Step-7: In putty, put the Copied IP Adress into it, and then go to ssh->auth->credentials and the put the generated private key.

Step-8: A login page will be opened in that type your username and you will be into the ubuntu.

Step-9: After this delete its resource group and virtual machine.

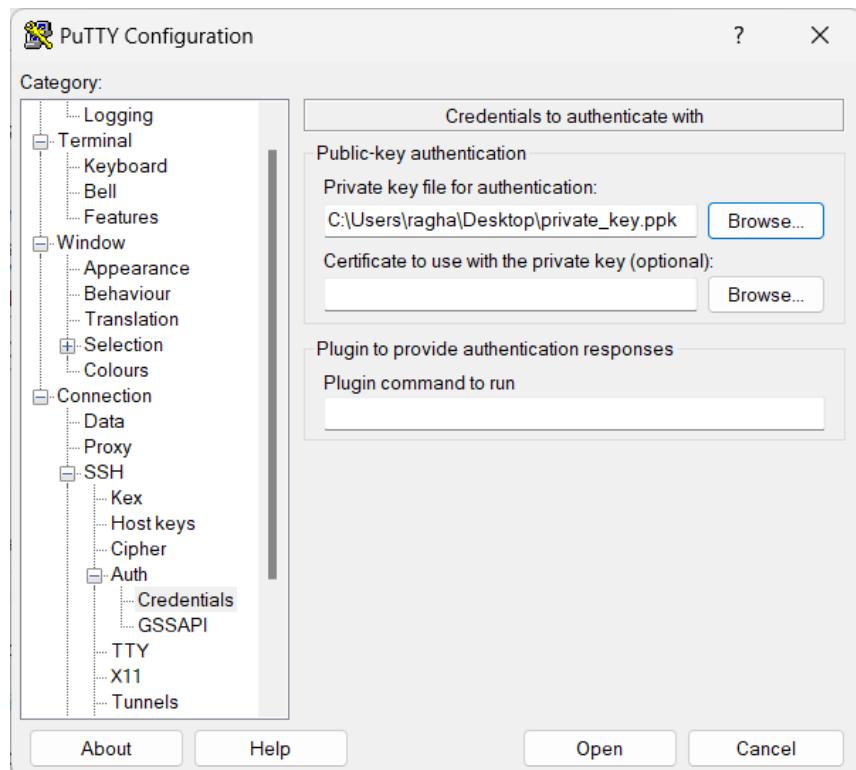
The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. The current step is 'Set instance details'. The configuration includes:

- Subscription:** Azure for Students
- Resource group:** AZ2024-RG (selected)
- Virtual machine name:** linux
- Region:** (Asia Pacific) Central India
- Availability options:** Availability zone
- Availability zone:** Zone 1
- Security type:** Trusted launch virtual machines
- Image:** Ubuntu Server 20.04 LTS - x64 Gen2
- VM architecture:** Arm64

At the bottom, there are navigation buttons: '< Previous', 'Next: Disks >', and a prominent blue 'Review + create' button.

The screenshot shows the Azure portal interface for creating a virtual machine. The top navigation bar includes 'Azure for College Students—C...', 'Create a virtual machine - Microsoft Virtual Machine - ARM', and the user's name 'nakkaraghaviz1csaiml@...'. Below the navigation is the Microsoft Azure logo and a search bar. The main content area is titled 'Create a virtual machine' with a 'Validation passed' message. The 'Review + create' tab is selected. A note at the top states: 'Cost given below is an estimate and not the final price. For all your pricing needs, please use the pricing calculator.' A modal window titled 'Generate new key pair' contains the following text: 'An SSH key pair contains both a public key and a private key. Azure doesn't store the private key. After the SSH key resource is created, you won't be able to download the private key again.' It includes two buttons: 'Download private key and create resource' (highlighted) and 'Return to create a virtual machine'. The 'Price' section shows '1 X Standard DS1 v2 by Microsoft' with a cost of '6.9884 INR/hr'. The 'TERMS' section contains legal agreement text. The 'Name' field is set to 'NAKKA RAGHAVI'. At the bottom are 'Previous', 'Next >', and 'Create' buttons, along with links to 'Download a template for automation' and 'Give feedback'.

The screenshot shows the PuTTY Key Generator application. The main window has tabs for File, Key, Conversions, and Help. The 'Key' tab is active, showing a 'Public key for pasting into OpenSSH authorized_keys file:' field containing an RSA key. A modal window is displayed, stating: 'Successfully imported foreign key (OpenSSH SSH-2 private key (old PEM format)). To use this key with PuTTY, you need to use the "Save private key" command to save it in PuTTY's own format.' The 'OK' button is visible in the modal. The main window also shows sections for 'Key fingerprint', 'Key comment', 'Key passphrase', 'Confirm passphrase', 'Actions' (with options for generating, loading, saving public and private keys), and 'Parameters' (with radio buttons for RSA, DSA, ECDSA, EdDSA, and SSH-1 (RSA), and a bit length input field set to 2048).



```

azureuser@ubuntu: ~
login as: azureuser
Authenticating with public key "imported-openssh-key"
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-1018-azure x86_64)

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

System information as of Sun Apr 21 13:11:06 UTC 2024

System load:  0.08349609375   Processes:          126
Usage of /:   5.1% of 28.89GB  Users logged in:    0
Memory usage: 4%                  IPv4 address for eth0: 10.0.0.5
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.

```

Result: Above experiment is successfully executed and verified.

5) Create an instance in virtual machine and launch linux and windows server through Azure portal and transfer files from local machine to guest machine.

Linux:

Step-1: Create a ubuntu virtual machine using SSH as previous and copy public IP address.

Step-2: Login into your ubuntu VM using PUTTY and type ls command as you can see nothing.

Step-3: Open WinSep, at right bottom you can see Advanced option ->SSH->Authentication->In that drag private key file and click on ok.

Step-4: At last Login into your account using public IP address and username in WinScp.

Step-6: Now, you can drag your files from your desktop to ubuntu VM in WinScp.

Step-7: Now again type ls command as you can see file inside ubuntu VM.

The screenshot shows the 'Create a virtual machine' wizard in the Azure portal. The current step is 'Configure VM settings'. The configuration includes:

- Subscription:** Azure for Students
- Resource group:** AZ2024
- Virtual machine name:** ubuntu2
- Region:** (Asia Pacific) Central India
- Availability options:** Availability zone
- Availability zone:** Zone 1
- Security type:** Trusted launch virtual machines
- Image:** Ubuntu Server 20.04 LTS - x64 Gen2
- VM architecture:** Arm64

The screenshot shows the 'Create a virtual machine' wizard in the Azure portal. The current step is 'Set authentication'. The configuration includes:

- Authentication type:** SSH public key
- Username:** azureuser
- SSH public key source:** Generate new key pair
- SSH Key Type:** RSA SSH Format (selected)
- Key pair name:** ubuntu_key

Validation passed

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

Price
1 X Standard DS1 v2
by Microsoft
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TERMS
By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the above; (b) authorize Microsoft to bill my current payment method for the fees associated with the 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 NAKKA RAGHAVI

< Previous Next > **Create**

Download a template for automation [Give feedback](#)

Deployment succeeded
Deployment 'CreateVm-canonical.0001-com-ubuntu-server-focal-2-20240619232807' to resource group AZ2024 was successful.

Deployment

Overview

Deployment name: CreateVm-canonical.0001-com-ubuntu-server-f... **Start time:** 19/6/2024, 11:30:25 pm
Subscription: Azure for Students **Correlation ID:** 75950a30-110a-43a4-8500-6c47bc5b6263

Deployment details
Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

Next steps
Go to resource **Create another VM**

Give feedback [Tell us about your experience with deployment](#)

PutTY Key Generator

File **Key** **Conversions** **Help**

Key

Public key for pasting into OpenSSH authorized_keys file:
ssh-rsa AAAAB3NzaC1yZEBAAAQABAAQcwDx8qjhcXn6Py1YdCLPZAdS9jLByPgfoh4eFMC4ie3T9bTlbFuWp3N
#FDH2z
+P8YIDbusF1pWpmZcdgEkWuBm8+kiuXrzqzabcTde72FJkoUZ51TE7pZh5lYu04xmq4zoBbm/vslhvDSvNXTJH
+w/WidwxmqzWInjlyDxks0/6Fw/VVVqjsJwLn/

Key fingerprint: ssh-rsa 2048 SHA256:US5sAnclG3uJ0f5qPV5zFxKjazgG82Rzr1YNgRcXoFg

Key comment: rsa-key-20240619

Key passphrase:

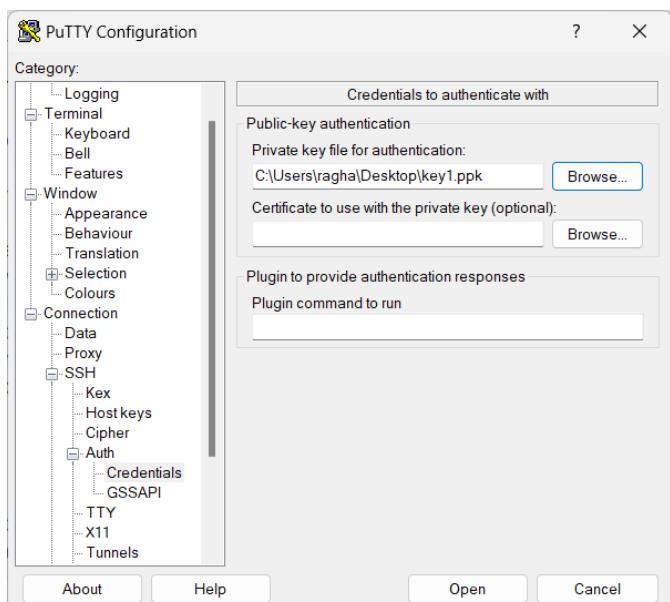
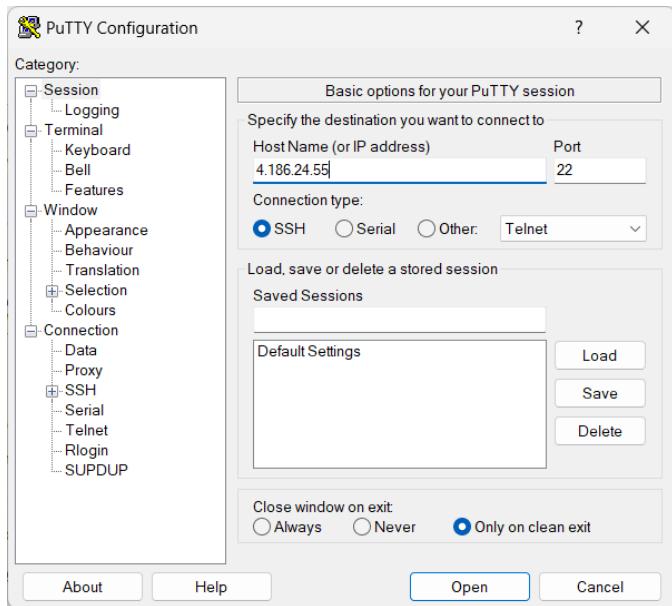
Confirm passphrase:

Actions

Generate a public/private key pair **Generate**
Load an existing private key file **Load**
Save the generated key **Save public key** **Save private key**

Parameters

Type of key to generate: RSA DSA ECDSA EdDSA SSH-1 (RSA)
Number of bits in a generated key: 2048



```
azureuser@Ubuntu: ~
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro

System information as of Wed Jun 19 18:09:10 UTC 2024

System load: 0.03      Processes: 117
Usage of /: 5.0% of 28.89GB  Users logged in: 0
Memory usage: 9%      IPv4 address for eth0: 10.0.0.5
Swap usage: 0%

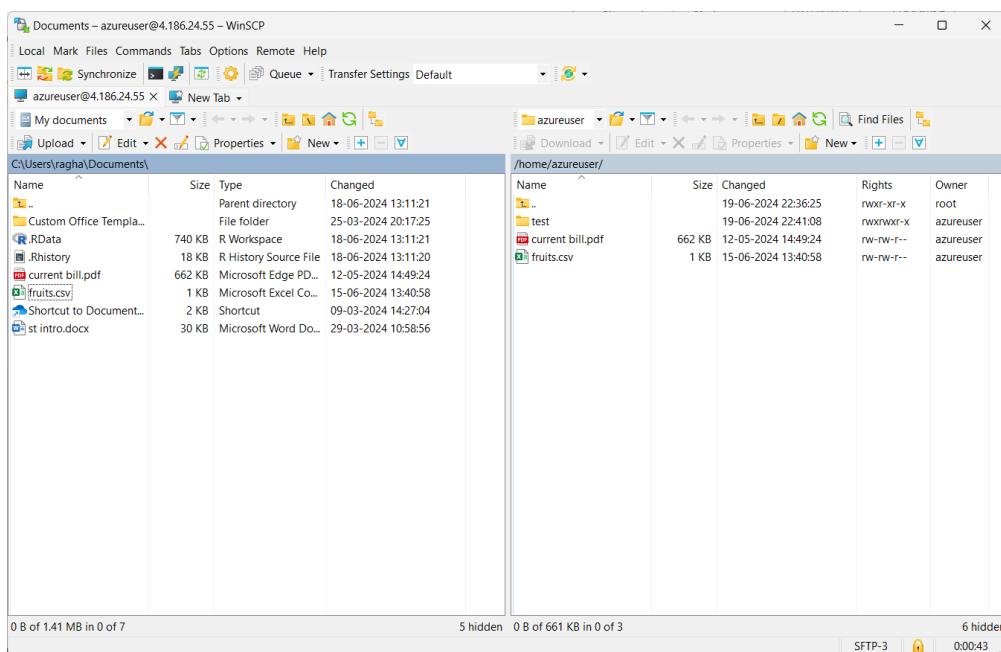
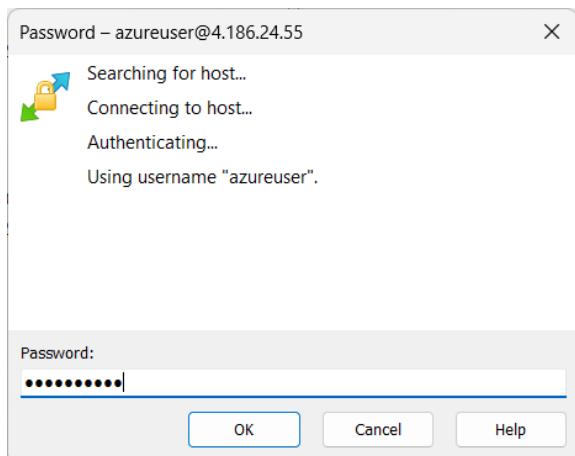
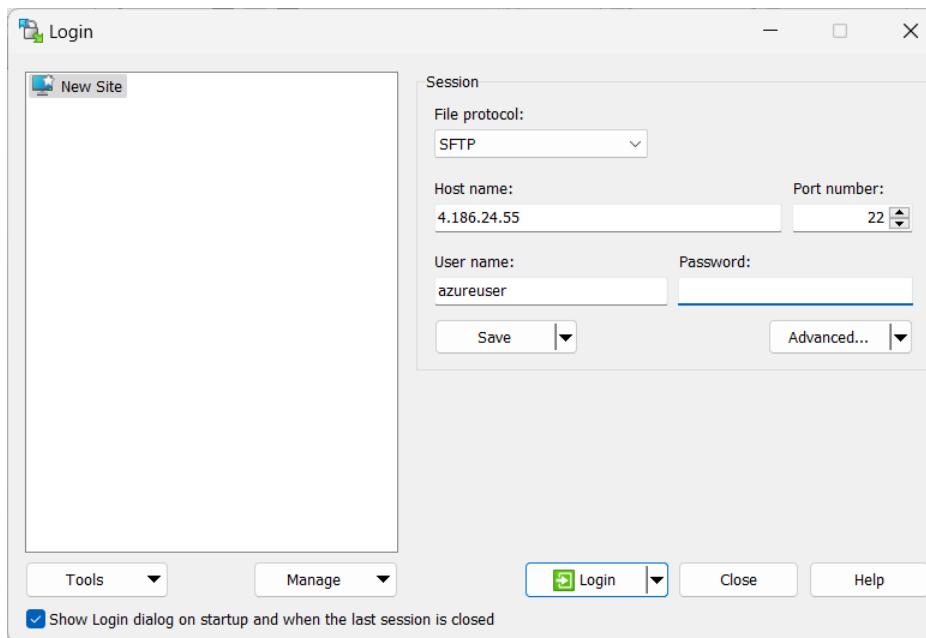
Expanded Security Maintenance for Applications is not enabled.

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

New release '22.04.3 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

Last login: Wed Jun 19 17:09:22 2024 from 103.96.16.217
azureuser@Ubuntu:~$
```



Result: Above experiment is successfully executed and verified.

Windows:

1. Login to Azure and create azure virtual machine.
2. Fill the details in that window by creating a “Resource Group”, Zone: Asia, Image: window. click on “Create + Review”, click on “Create”
3. Copy public IP address and paste it in Remote Desktop Connection.
4. Click on connect.
5. Copy files from our local Windows and paste it in guest machine.

Create a virtual machine

Subscription * Resource group *

Virtual machine name * Region * Availability options Availability zone *

Security type Image *

< Previous Next : Disks > Review + create Give feedback

Create a virtual machine

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.

< Previous Next : Disks > Review + create Give feedback

Windows - Microsoft Azure

portal.azure.com/#@vardhaman.org/resource/subscriptions/380a12c2-d226-4e09-9aa0-72861bbef1c9/resourcegroups/AZ2024/providers/Microsoft.Compute/virtualmachines/windows

Microsoft Azure

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240619143252 | Overview

Virtual machine

Overview

Essentials

- Resource group: AZ2024
- Status: Running
- Location: Central India (Zone 1)
- Subscription: Azure for Students
- Subscription ID: 380a12c2-d226-4e09-9aa0-72861bbef1c9
- Availability zone: 1
- Tags: Add tags

Properties

Virtual machine	Networking
Computer name: windows	Public IP address: 20.193.133.114 (Network interface windows984_z1)
Operating system: Windows	Public IP address (IPv6): -
VM generation: V2	Private IP address: 10.0.0.4
VM architecture: x64	Private IP address (IPv6): -
Agent status: Not Ready	Virtual network/subnet: windows-vnet/default

CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240619143252 | Overview

Deployment

Overview

Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 19/6/2024, 2:35:28 pm

Subscription: Azure for Students Correlation ID: 078c24e4-3480-45e2-b1d5-7b507a87a8ec

Resource group: AZ2024

Deployment details

Setup auto-shutdown: Recommended

Monitor VM health, performance and network dependencies: Recommended

Run a script inside the virtual machine: Recommended

Next steps

Go to resource **Create another VM**

Give feedback

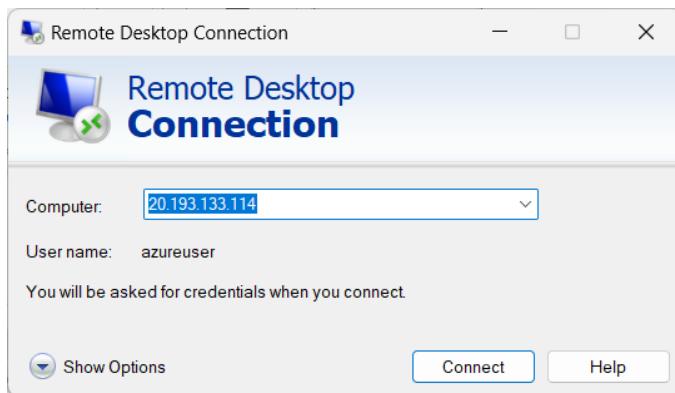
Tell us about your experience with deployment

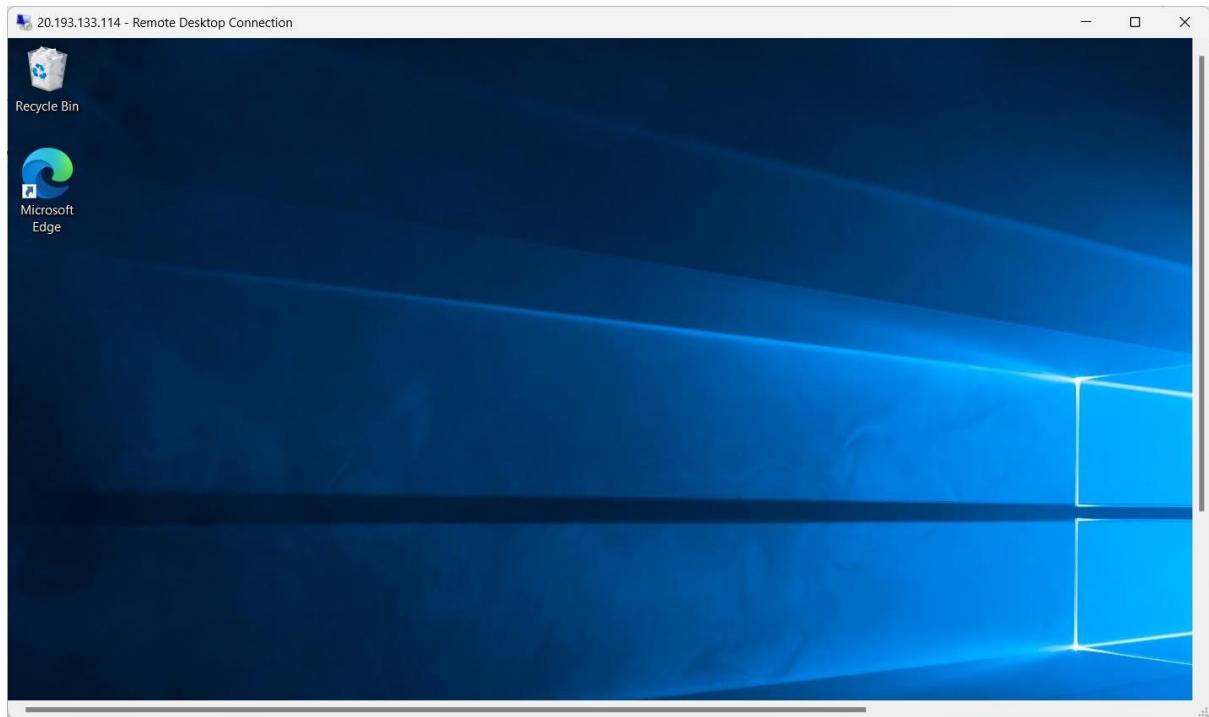
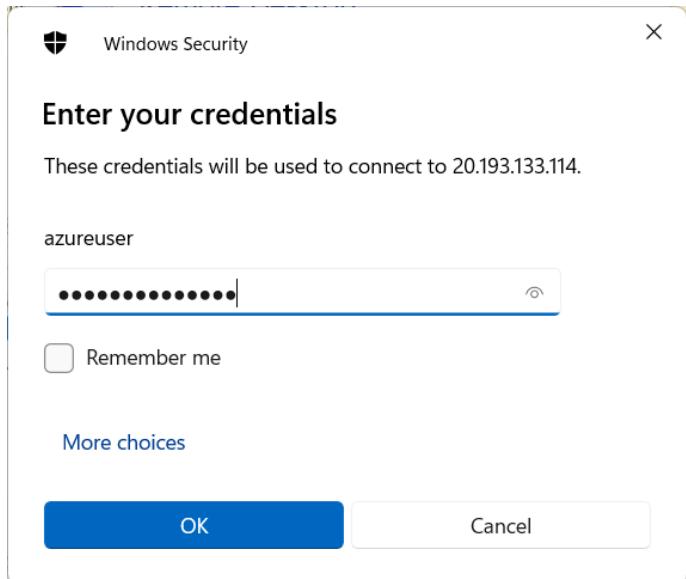
Cost Management
Get notified to stay within your budget and prevent unexpected charges on your bill.
Set up cost alerts >

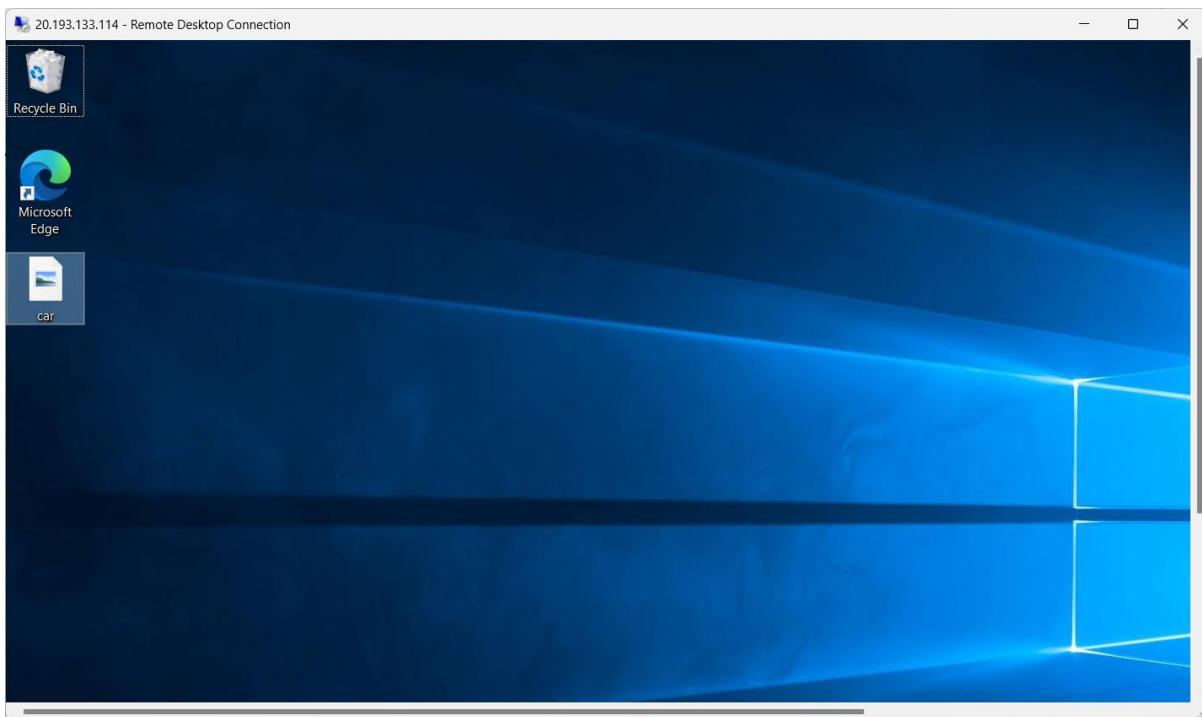
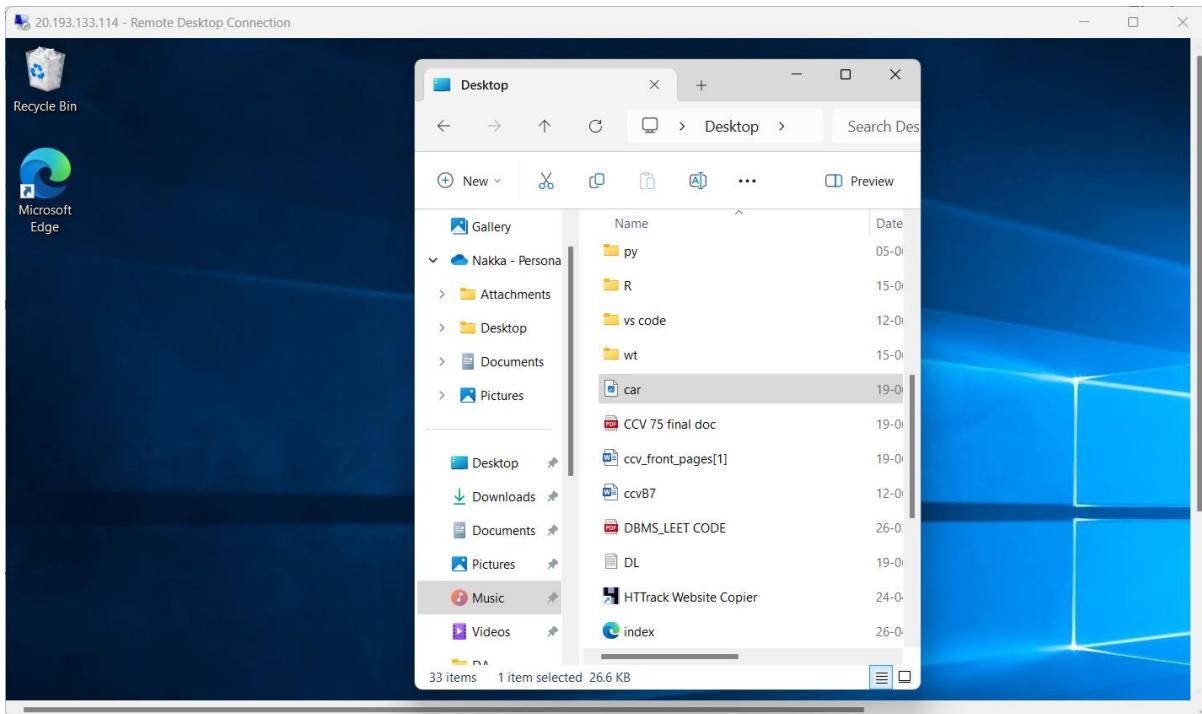
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Result: Above experiment is successfully executed and verified.

6) Setup and configure linux as webserver in azure portal i.e., nginx

1. Login to Azure account and Create a VM for ubuntu
2. Click on Download private key.
3. Create a ubuntu virtual machine using SSH as previous experiment and copy public IP address.
4. Login into your Ubuntu VM using your username and type the following commands.

```
$sudo su
```

```
$sudo apt-get update
```

After typing the two commands, now install web server using the below command

```
$sudo apt-get install nginx
```

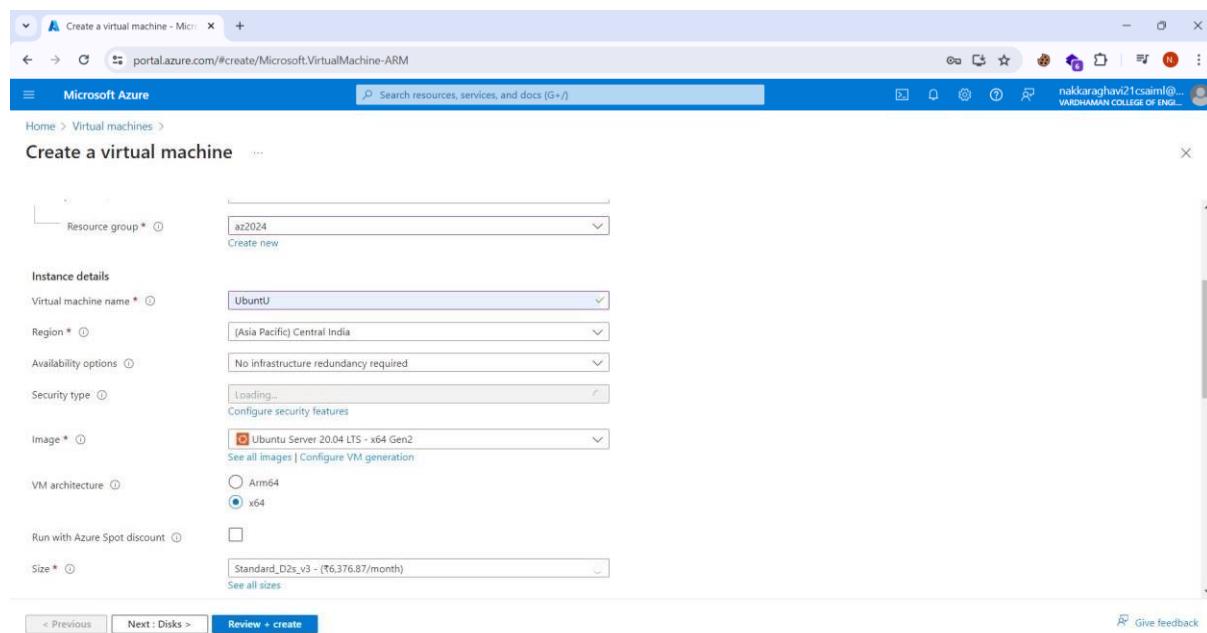
After installing in VM, paste the public IP address in desktop browser and you can see.

5. To remove following information and keep new information in that page type the following command and refresh the browser page.

```
$cd /var/www/html
```

```
$rm index.nginx-debian.html
```

```
$echo "Welcome to CSM">index.html
```



The screenshot shows the 'Create a virtual machine' wizard on the Microsoft Azure portal. The current step is 'Create a virtual machine'. The configuration includes:

- Authentication type:** SSH public key (selected)
- Username:** azureuser
- SSH public key source:** Generate new key pair (selected)
- SSH Key Type:** RSA SSH Format (selected)
- Key pair name:** Ubuntu_U_key
- Inbound port rules:** None (selected)
- Public inbound ports:** Allow selected ports

At the bottom, there are buttons for < Previous, Next: Disks >, Review + create, and Give feedback.

Generate new key pair

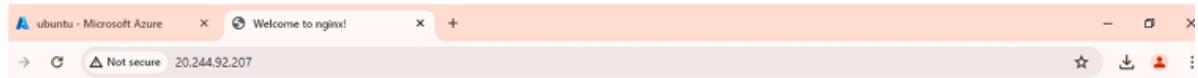
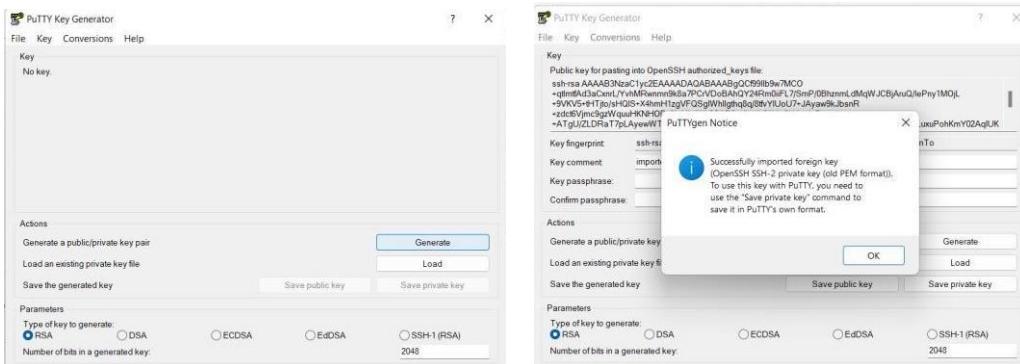
An SSH key pair contains both a public key and a private key. **Azure doesn't store the private key.** After the SSH key resource is created, you won't be able to download the private key again. [Learn more](#)

[Download private key and create resource](#)

[Return to create a virtual machine](#)

The screenshot shows the 'Overview' page for the virtual machine 'UbuntuU' in the 'CreateVm-canonical.0001-com-ubuntu-server-focal-2-20240613151035' resource group. The machine is running in Central India (Zone 1) and has a standard D2s v3 (2 vcpus, 8 GB memory) configuration. It has a public IP address of 74.225.255.230 and a private IP address of 10.1.0.4. The networking details include a virtual network subnet of UbuntuU-vnet/default and a DNS name of Not configured. The machine was created on 6/13/2024 at 9:44 AM UTC.

Essentials	Properties	Networking
Resource group: az224 Status: Running Location: Central India (Zone 1) Subscription: Azure for Students Subscription ID: 74f6aa57-82cd-4319-8b36-eda6216fba25 Availability zone: 1	Operating system: Linux (ubuntu 20.04) Size: Standard D2s v3 (2 vcpus, 8 GB memory) Public IP address: 74.225.255.230 Virtual network/subnet: UbuntuU-vnet/default DNS name: Not configured Health state: - Time created: 6/13/2024, 9:44 AM UTC	Public IP address: 74.225.255.230 (Network interface ubuntu21_z1) Public IP address (IPv6): - Private IP address: 10.1.0.4 Private IP address (IPv6): - Virtual network/subnet: UbuntuU-vnet/default DNS name: Configure



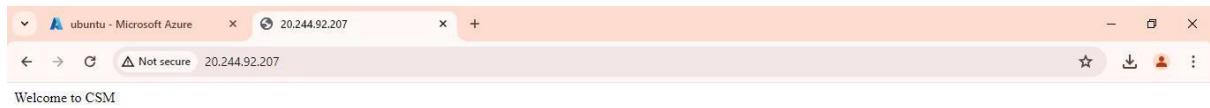
Welcome to nginx!

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.

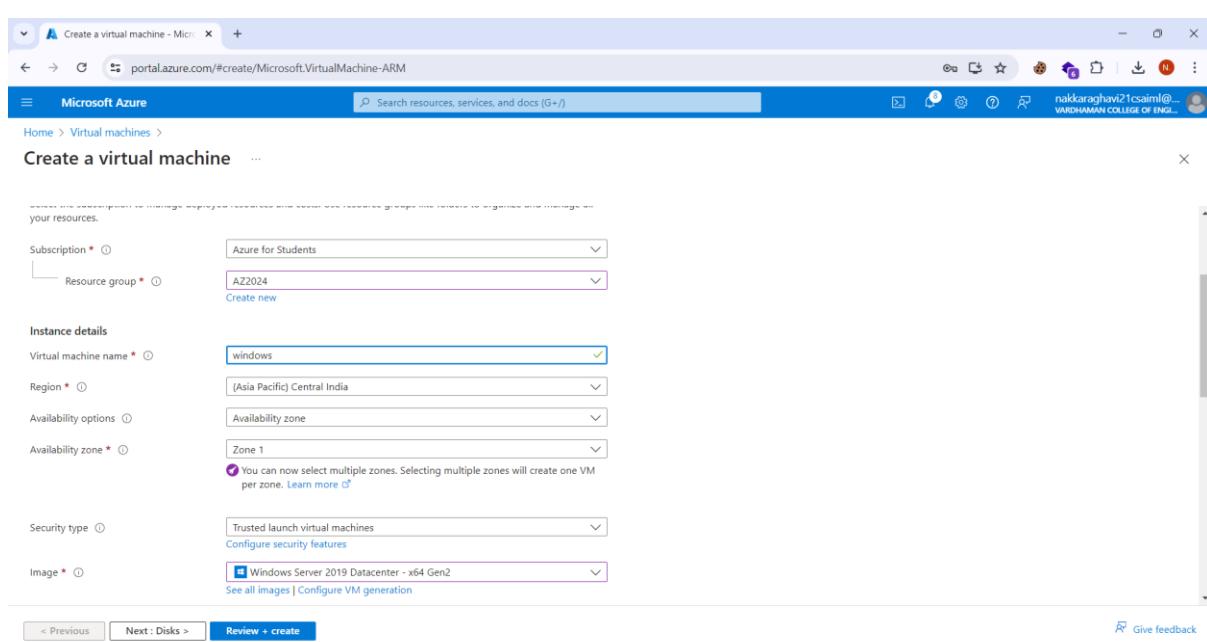
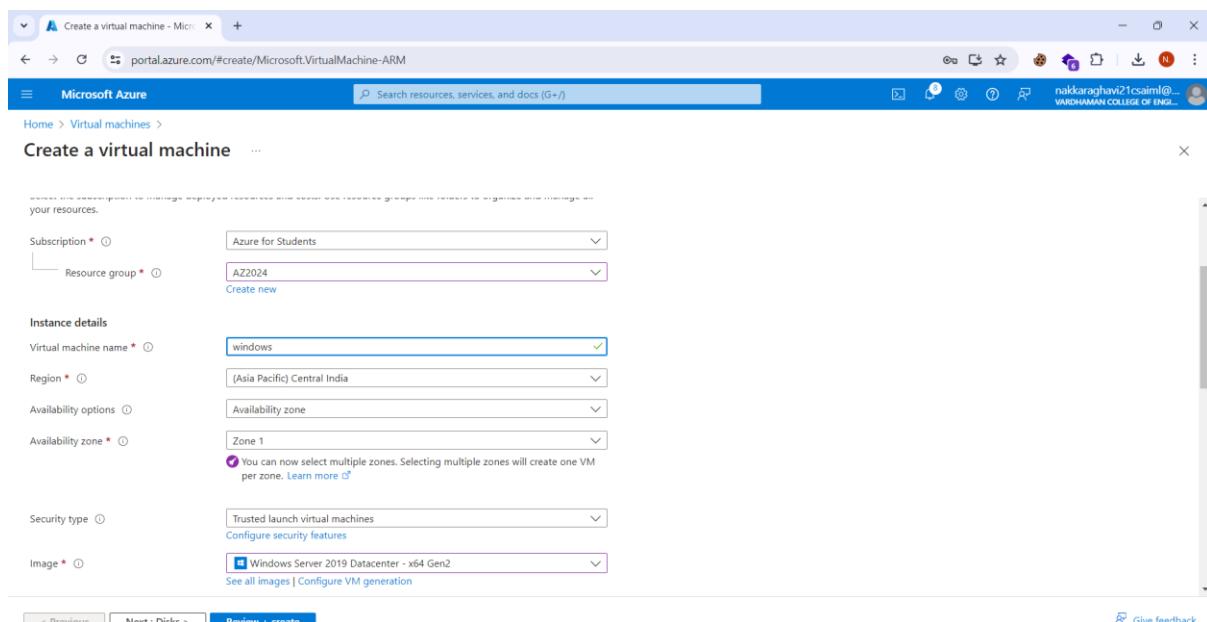
```
root@ubuntu:/var/www/html
Setting up libnginx-mod-mail (1.18.0-0ubuntu1.4) ...
Setting up fontconfig-config (2.13.1-2ubuntu3) ...
Setting up libnginx-mod-stream (1.18.0-0ubuntu1.4) ...
Setting up libtiff5:amd64 (4.1.0+git191117-2ubuntu0.20.04.12) ...
Setting up libfontconfig1:amd64 (2.13.1-2ubuntu3) ...
Setting up libgd3:amd64 (2.2.5-5.2ubuntu2.1) ...
Setting up libnginx-mod-http-image-filter (1.18.0-0ubuntu1.4) ...
Setting up nginx-core (1.18.0-0ubuntu1.4) ...
Setting up nginx (1.18.0-0ubuntu1.4) ...
Processing triggers for ufw (0.36-6ubuntu1.1) ...
Processing triggers for systemd (245.4-4ubuntu3.23) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.14) ...
root@ubuntu:/home/azureuser# cd /var/www/html
root@ubuntu:/var/www/html# rm index.nginx-debian.html
root@ubuntu:/var/www/html# echo "<h1>Welcome to CSM</h1>
<h1>Welcome to CSM</h1>" > index.html
root@ubuntu:/var/www/html# rm index.nginx-debian.html
rm: cannot remove 'index.nginx-debian.html': No such file or directory
root@ubuntu:/var/www/html# echo "<h1>Welcome to CSM</h1>" > index.html
<h1>Welcome to CSM</h1>" > index.html
root@ubuntu:/var/www/html# echo "<h1>Welcome to CSM</h1>" > index.html
root@ubuntu:/var/www/html# echo "Welcome to CSM" > index.html
root@ubuntu:/var/www/html#
```



Result: Above experiment is successfully executed and verified.

7) Setup and configure azure webserver for windows IIS- Internet Information Services.

1. Login to Azure and create a Virtual machine.
2. Copy public IP address and paste it in Remote Desktop Connection.
3. After launching windows 7, server manager opens automatically.
4. Server Manager -> Dashboard -> Add Roles and Features -> install IIS.
5. Select a sever -> Select web server (IIS) -> next -> next -> next -> Install.
6. After completion of installation, refresh the VM in azure.
7. Copy public IP address and paste it in browser, we can get IIS.



The screenshot shows the Microsoft Azure portal with a deployment summary for 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240619143252'. The status is 'Deployment succeeded'. Key details include:

- Deployment name:** CreateVm-MicrosoftWindowsServer.WindowsSe...
- Subscription:** Azure for Students
- Resource group:** AZ2024
- Start time:** 19/6/2024, 2:35:28 pm
- Correlation ID:** 078c24e4-3480-45e2-b1d5-7b507a87acec

Deployment details:

- Setup auto-shutdown: Recommended
- Monitor VM health, performance and network dependencies: Recommended
- Run a script inside the virtual machine: Recommended

Next steps:

- Give feedback
- Tell us about your experience with deployment

Right-hand sidebar:

- Deployment succeeded:** Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240619143252' to resource group 'AZ2024' was successful.
- Cost Management:** Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >
- Microsoft Defender for Cloud:** Secure your apps and infrastructure. Go to Microsoft Defender for Cloud >
- Free Microsoft tutorials:** Start learning today >
- Work with an expert:** Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

The screenshot shows the Microsoft Azure portal with the details of a created Windows VM named 'windows'. Key information includes:

- Resource group:** AZ2024
- Status:** Running
- Location:** Central India (Zone 1)
- Subscription:** Azure for Students
- Subscription ID:** 380a12c2-d226-4e09-9aa0-72861bbef1c9
- Availability zone:** 1
- Tags:** Add tags

Properties:

Virtual machine	Operating system	Size
Computer name: windows Operating system: Windows VM generation: V2 VM architecture: x64 Agent status: Not Ready	Windows	Standard E (Copied, 3.5 GB memory)

Networking:

Public IP address	Private IP address (IPv6)	Virtual network/subnet
20.193.133.114	-	windows-vnet/default
10.0.0.4	-	windows-vnet/default

The screenshot shows the 'Remote Desktop Connection' application window. The connection details are:

- Computer:** 20.193.133.114
- User name:** azureuser

A message at the bottom states: 'You will be asked for credentials when you connect.'

Buttons at the bottom include: Show Options, Connect, and Help.

The image shows two windows side-by-side. The left window is a standard Windows desktop environment with a blue background, featuring icons for 'Recycle Bin' and 'Microsoft Edge'. The right window is the 'Server Manager' application.

Server Manager Dashboard:

- WELCOME TO SERVER MANAGER:** A large orange box with the text 'Configure this local server' and five numbered steps:
 - 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
- ROLES AND SERVER GROUPS:** A section showing the status of different server groups:
 - File and Storage Services:** 1 role assigned (Manageability, Events, Performance)
 - Local Server:** 1 role assigned (Manageability, Events, Services)
 - All Servers:** 1 role assigned (Manageability, Events, Services)

The screenshot shows the Windows Server Manager Dashboard. A modal window titled "Add Roles and Features Wizard" is open, specifically the "Select server roles" step. The left pane lists steps: Before You Begin, Installation Type, Server Selection, Server Roles, Features, Confirmation, and Results. "Server Roles" is selected. The right pane shows "Web Server (IIS)" selected under "Features" with a sub-item "Management Tools". A checkbox "Include management tools (if applicable)" is checked. Below the wizard, a progress bar indicates "1" step completed. The title bar of the wizard window says "DESTINATION SERVER windows".

WELCOME TO SERVER MANAGER

Select server roles

Add Roles and Features Wizard

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Add features that are required for Web Server (IIS)?

The following tools are required to manage this feature, but do not have to be installed on the same server.

Web Server (IIS)
Management Tools
[Tools] IIS Management Console

Include management tools (if applicable)

Add Features Cancel

DESTINATION SERVER windows

Confirm installation selections

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Web Server Role (IIS)
Role Services
Confirmation
Results

To install the following roles, role services, or features on selected server, click Install.

Restart the destination server automatically if required

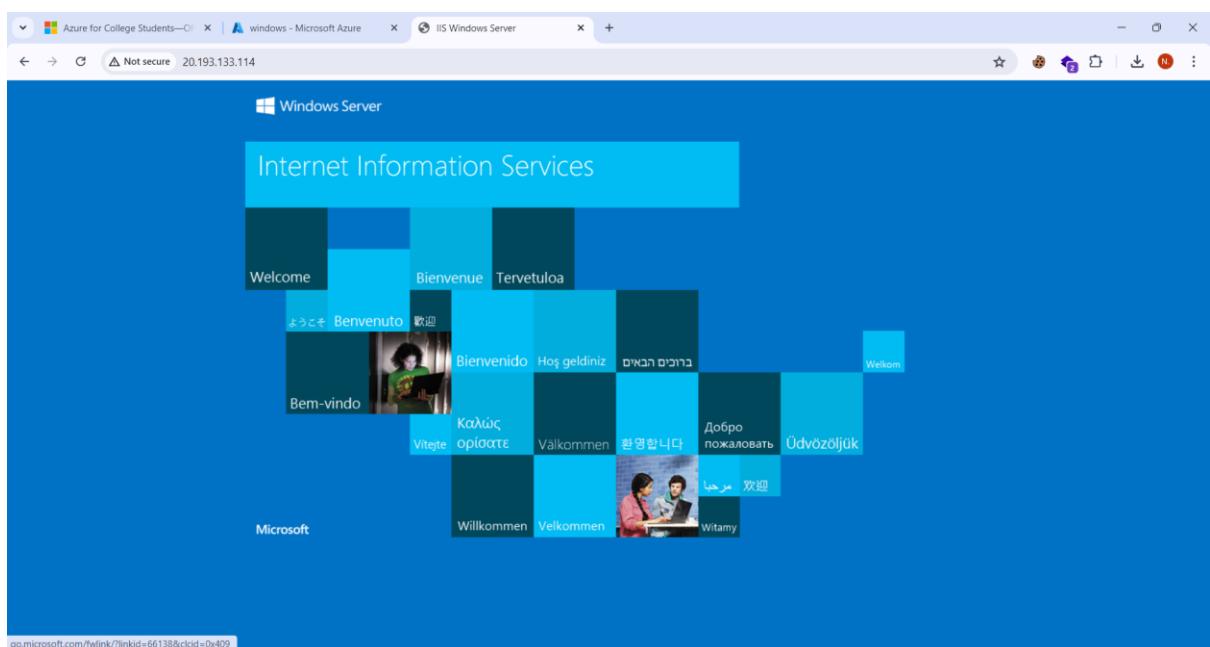
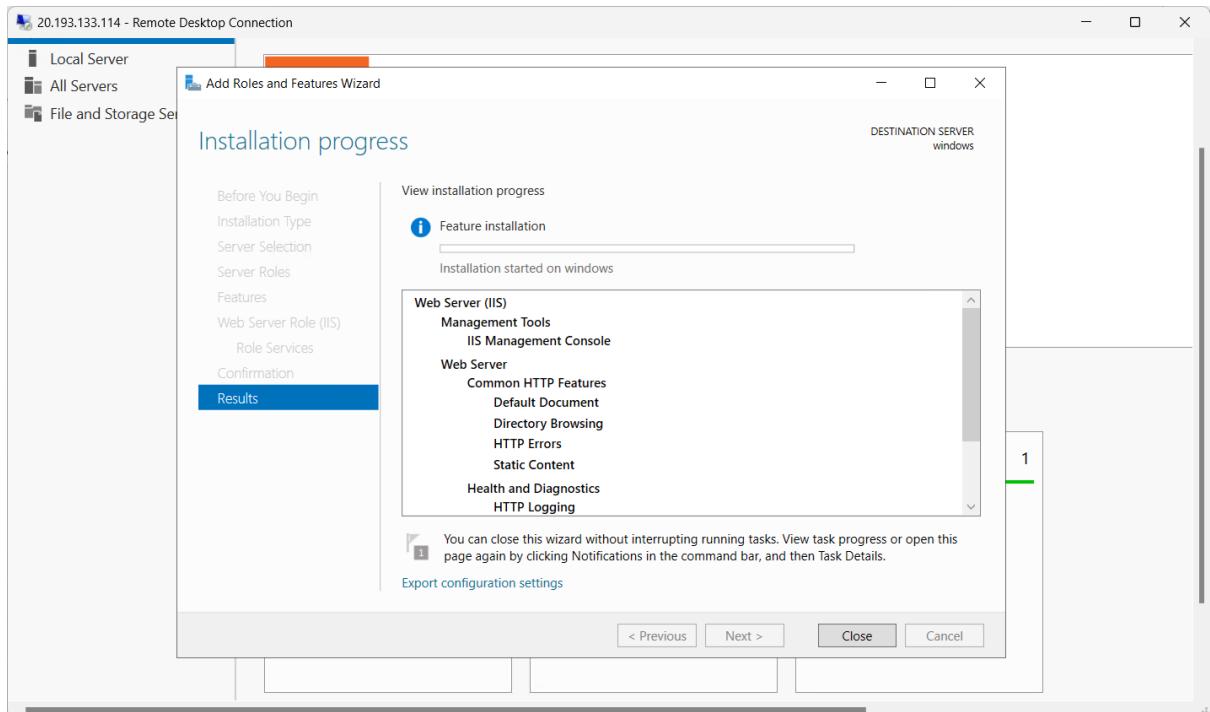
Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

Default Document
Directory Browsing
HTTP Errors
Static Content
Health and Diagnostics
HTTP Logging
Performance
Static Content Compression
Security
Request Filtering

Export configuration settings
Specify an alternate source path

< Previous Next > Install Cancel

DESTINATION SERVER windows



Result: Above experiment is successfully executed and verified.

8) Implement locks in Microsoft Azure

Steps:

Step-1: Sign in to your Microsoft Azure account.

Step-2: Go To Virtual machine, and click on “Create” to create a virtual machine.

Step-3: Stop the VM service to lock it.

Step-4: Search for the LOCK on left hand side in the path of Virtual machine.

Step-5: Give the name to lock by selecting “Read only/delete” as lock type. Click on create.

Step-6: Go to home and start the Virtual machine, try to delete it, but fails.

The screenshot shows the Microsoft Azure portal interface. The user is viewing a virtual machine named "windows". In the left sidebar, the "Locks" option under the "Settings" category is highlighted. The main content area shows the VM's configuration details, including its resource group (AZ2024), status (Running), location (Central India (Zone 1)), and various network and security settings. The "Properties" tab is selected. On the right, the "Networking" tab is open, showing the VM's public IP address (20.197.18.16) and private IP address (10.0.0.4). A lock icon is visible in the top navigation bar.

The screenshot shows the Microsoft Azure portal interface again, this time with a modal dialog box titled "Add lock" overlaid. The "Locks" option in the left sidebar is still selected. The dialog box contains fields for "Lock name" (set to "lock") and "Lock type" (set to "Delete"). There is also a "Notes" field and two buttons at the bottom: "OK" and "Cancel". The "OK" button is currently highlighted.

Delete windows

This action will permanently delete this virtual machine.

Resource to be deleted	Resource type
windows	Virtual machine

Apply force delete

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 type="checkbox"/>
Public IP addresses	1	<input type="checkbox"/>

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

Delete **Cancel** **Feedback**

windows - Microsoft Azure

Notifications

Failed to delete virtual machine 'windows'

An error occurred while deleting virtual machine 'windows' and/or selected resource(s) associated with it. Error: 'The scope '/subscriptions/380a12c2-d226-4e09-9aa0-72861bbef1c9/resourceGroups/AZ2024/providers/Microsoft.Compute/vi... cannot perform delete operation because following scope(s) are locked: '/subscriptions/380a12c2-d226-4e09-9aa0-72861bbef1c9/resourceGroups/AZ2024/providers/Microsoft.Compute/vi... Please remove the lock and try again.'

Deployment succeeded

Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-20240507115315' to resource group 'AZ2024' was successful.

Go to resource **Pin to dashboard** 7 minutes ago

More events in the activity log → **Dismiss all**

Windows - Microsoft Azure

Notifications

Deployment succeeded

Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-20240507115315' to resource group 'AZ2024' was successful.

Go to resource **Pin to dashboard** 7 minutes ago

More events in the activity log → **Dismiss all**

Home > Virtual machines >

windows Virtual machine

Overview

Essentials

- Resource group ([move](#)) AZ2024
- Status Running
- Location Central India (Zone 1)
- Subscription ([move](#)) Azure for Students
- Subscription ID 380a12c2-d226-4e09-9aa0-72861bbef1c9
- Availability zone 1
- Tags ([edit](#)) [Add tags](#)

Properties **Monitoring** **Capabilities (8)** **Recommendations** **Tutorials**

Virtual machine

- Computer name windows
- Operating system Windows (Windows Server 2019 Datacenter)

9) Perform Scaling up and scaling down in azure portal

Steps:

Step-1: Select a virtual machine created

Step-2: Check the size

Step-3: Stop the service of virtual machine

Step-4: Select size from left panel

Step-5: Upgrade the size from 3.5 GiB to 8 GiB

Step-6: Start the virtual machine and refresh it

Step-7: Check whether the size has increased or not. This is scaling up

Step-8: Scaling down is not possible in azure due to data loss issues

The screenshot shows the Microsoft Azure portal interface for managing virtual machines. The top navigation bar includes links for Home, Virtual machines, and a search bar. The main content area displays a table of virtual machines. One row is selected, showing details for a 'windows' VM. The VM is listed under the 'Virtual machines' section. The table columns include Name, Type, Subscription, Resource group, Location, Status, Operating system, Size, Public IP address, and Disks. The selected VM has a status of 'Running', is running on 'Windows', and is using 'Standard_DS1_v2' size with 1 vCPU and 3.5 GiB RAM. It has a public IP address of 20.197.18.16.

The screenshot shows the detailed view of the 'windows' virtual machine. The left sidebar contains navigation links for Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, and Size. The main pane shows the VM's configuration. Under the 'Size' tab, it is shown that the VM is using 'Standard DS1 v2' size with 1 vCPU and 3.5 GiB RAM. Below this, the 'Source image details' section provides information about the VM's source image, including publisher (MicrosoftWindowsServer), offer (WindowsServer), and plan (2019-datacenter-gensecond).

Microsoft Azure

Home > Virtual machines > windows

windows | Size

Virtual machine

If the virtual machine is currently running, changing its size will cause it to be restarted. Stopping the virtual machine may reveal additional sizes. →

Search by VM size... vCPUs : All RAM (GiB) : All Display cost : Monthly Add filter

Showing 416 VM sizes. | Subscription: Azure for Students | Region: Central India | Current size: Standard_DS1_v2 | Learn more about VM sizes Group by series

VM Size ↑	Type ↑	vCPUs ↑	RAM (GiB) ↑↓	Data disks ↑↓	Max IOPS ↑↓	Local storage (GiB)
DS1_v2	General purpose	1	3.5	4	3200	7 (SCSI)
D2s_v3	General purpose	2	8	4	3200	16 (SCSI)
D2as_v4	General purpose	2	8	4	3200	16 (SCSI)
DS2_v2	General purpose	2	7	8	6400	14 (SCSI)
D4s_v3	General purpose	4	16	8	6400	32 (SCSI)
DS3_v2	General purpose	4	14	16	12800	28 (SCSI)
D-Series v4						The 4th generation D family sizes for your general purpose needs
E-Series v4						The 4th generation E family sizes for your high memory needs
F-Series v2						Up to 2X performance boost for vector processing workloads

Learn more about VM sizes

VM Size ↑ Type ↑ vCPUs ↑ RAM (GiB) ↑↓ Data disks ↑↓ Max IOPS ↑↓ Local storage (GiB)

Most used by Azure users

The most used sizes by users in Azure

DS1_v2 General purpose 1 3.5 4 3200 7 (SCSI)

D2s_v3 General purpose 2 8 4 3200 16 (SCSI)

D2as_v4 General purpose 2 8 4 3200 16 (SCSI)

DS2_v2 General purpose 2 7 8 6400 14 (SCSI)

D4s_v3 General purpose 4 16 8 6400 32 (SCSI)

DS3_v2 General purpose 4 14 16 12800 28 (SCSI)

D-Series v4 The 4th generation D family sizes for your general purpose needs

E-Series v4 The 4th generation E family sizes for your high memory needs

F-Series v2 Up to 2X performance boost for vector processing workloads

Group by series

Search

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Networking

Settings

Availability + scale

- Size**
- Availability + scaling

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

Resize

Microsoft Azure

Home > Virtual machines > windows

Virtual machines

Vardhaman College of Engineering (vardhaman.org)

+ Create Switch to classic

Filter for any field...

Name ↑

windows

Virtual machine

If the virtual machine is currently running, changing its size will cause it to be restarted. Stopping the virtual machine may reveal additional sizes. →

Search by VM size... vCPUs : All RAM (GiB) : All Display cost : Monthly Add filter

Showing 416 VM sizes. | Subscription: Azure for Students | Region: Central India | Current size: Standard_D2s_v3 | Learn more about VM sizes Group by series

VM Size ↑	Type ↑	vCPUs ↑	RAM (GiB) ↑↓	Data disks ↑↓	Max IOPS ↑↓
DS1_v2	General purpose	1	3.5	4	3200
D2s_v3	General purpose	2	8	4	3200
D2as_v4	General purpose	2	8	4	3200
DS2_v2	General purpose	2	7	8	6400
D4s_v3	General purpose	4	16	8	6400
DS3_v2	General purpose	4	14	16	12800
D-Series v4					The 4th generation D family sizes for your general purpose needs

Prices presented are estimates in INR that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#)

Give feedback

Page 1 of 1

If the virtual machine is currently running, changing its size will cause it to be restarted. Stopping the virtual machine may reveal additional sizes.

Showing 416 VM sizes. Subscription: Azure for Students Region: Central India

VM Size ↑	Type ↑	vCPUs ↑	RAM (GiB) ↑	Data disks ↑
D2s_v3	General purpose	2	8	4
D1_v2	General purpose	1	3.5	4
D2as_v4	General purpose	2	8	4
D2_v2	General purpose	2	7	8
D4s_v3	General purpose	4	16	8
D5s_v2	General purpose	4	14	16

Prices presented are estimates in INR that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#)

[Give feedback](#)

Resource group ([move](#)) AZ2024

Status Running

Location Central India (Zone 1)

Subscription ([move](#)) Azure for Students

Subscription ID 380a12c2-d226-4e09-9aa0-72861bbef1c9

Availability zone 1

Tags ([edit](#)) [Add tags](#)

Properties Monitoring Capabilities (8) Recommendations Tutorials

Virtual machine

Computer name windows

Operating system Windows (Windows Server 2019 Datacenter)

Result: Above experiment is successfully executed and verified.

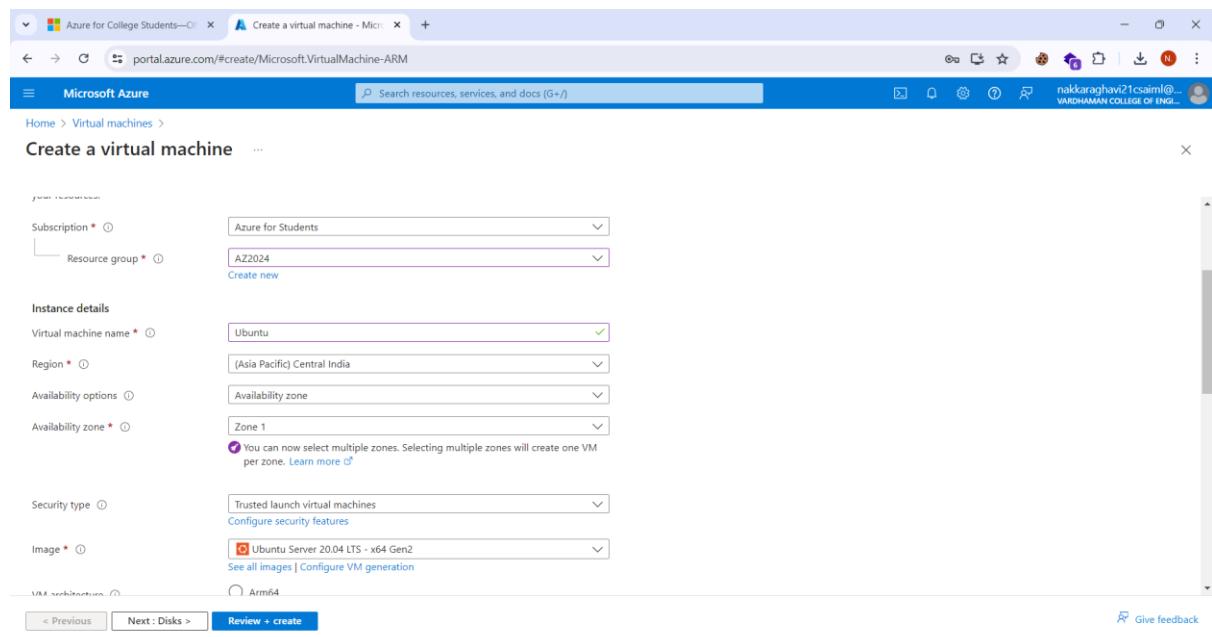
10) Perform attach and detach data disks to linux server in azure data center.

Steps:

- 1)Create a Virtual name with VM name as "Ubuntu" with username &password.
- 2)click on "Next: Disks>"
- 3)Click on "Create & attach a new disk".
- 4)Select Storage type -----Premium SSD(LRS), Custom disk size (GB)5, click on OK.
- 5)Click on "Review+ create" & click on create.
- 6)Click on "Go to resource group".
- 7)Copy public IP Address.
- 8)Open "PUTTY" & paste the IP address and click on "open".
- 9>Login into it with username and password.
- 10)Type the below commands

```
$ df -hT
$ lsblk
$ sudo filoe -s/dev/sdc
$ sudo mkfs -t ext4 /dev/sdc
$ mkdir test
$ sudo mount /dev/sdc/ test
$ cd test
```

- 11)Open the VM and move to disks.
- 12)Click on detach and click on apply.



Create a virtual machine

Administrator account

Authentication type: 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 *: 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.

< Previous Next : Disks > Review + create Give feedback

Create a virtual machine

OS disk

OS disk size:

OS disk type *:

Delete with VM:

Key management:

Enable Ultra Disk compatibility:
Ultra disk is not supported for the selected VM size Standard_DS1_v2 in Central India.

Data disks for Ubuntu

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM
					<input type="checkbox"/>

Create and attach a new disk Attach an existing disk

< Previous Next : Networking > Review + create Give feedback

<https://portal.azure.com/#>

Browse available disk sizes and their features.

Storage type: Premium SSD (locally-redundant storage)

Size	Performance tier	Provisioned IOPS	Provisioned throughput	Max Shares	Max burst IOPS	Max burst throughput
4 GiB	P1	120	25	3	3500	170
8 GiB	P2	120	25	3	3500	170
16 GiB	P3	120	25	3	3500	170
32 GiB	P4	120	25	3	3500	170
64 GiB	P6	240	50	3	3500	170
128 GiB	P10	500	100	3	3500	170
256 GiB	P15	1100	125	3	3500	170
512 GiB	P20	2300	150	3	3500	170
1024 GiB	P30	5000	200	5	-	-
2048 GiB	P40	7500	250	5	-	-
4096 GiB	P50	7500	250	5	-	-
8192 GiB	P60	16000	500	10	-	-

OK Give feedback

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name *: Ubuntu_DataDisk_0

Source type *: None (empty disk)

Size *: 5 GiB (Premium SSD LRS) Change size

Key management: Platform-managed key

Enable shared disk: No

Delete disk with VM: Yes

OK Give feedback

Deployment name: CreateVm-canonical.0001-com-ubuntu-server-focal-2-20240619223135 | Overview

Your deployment is complete

Deployment name: CreateVm-canonical.0001-com-ubuntu-server-focal-2-20240619223135 | Start time: 19/6/2024, 10:36:02 pm | Correlation ID: 5d32f33e-31ea-43d3-8c25-5d181b7754aa

Deployment details:

- Setup auto-shutdown: Recommended
- Monitor VM health, performance and network dependencies: Recommended
- Run a script inside the virtual machine: Recommended

Next steps:

- Go to resource
- Create another VM

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Work with an expert: Azure experts are service provider partners who can help manage your assets on Azure and be your first line of support. Find an Azure expert >

Screenshot of Microsoft Azure portal showing the overview of an Ubuntu virtual machine. The VM details include:

- Resource group:** AZ2024
- Status:** Running
- Location:** Central India (Zone 1)
- Subscription:** Azure for Students
- Subscription ID:** 380a12c2-d226-4e09-9aa0-72861bbef1c9
- Availability zone:** 1
- Tags:** Add tags
- Operating system:** Linux (ubuntu 20.04)
- Size:** Standard DS1 v2 (1 vcpu, 3.5 GB memory)
- Public IP address:** 4.186.24.55
- Virtual network/subnet:** windows-vnet/default
- DNS name:** Not configured
- Health state:** -
- Time created:** 19/6/2024, 5:06 pm UTC

Properties tab selected. Virtual machine properties:

Computer name	Ubuntu
Operating system	Linux (ubuntu 20.04)
VM generation	V2
VM architecture	x64
Agent status	Ready
Agent version	2.11.14

Networking section:

Public IP address	4.186.24.55 (Network interface ubuntu335_z1)
Public IP address (IPv6)	-
Private IP address	10.0.0.5
Private IP address (IPv6)	-
Virtual network/subnet	windows-vnet/default
DNS name	Configure

Putty Key Generator window:

```
ssh-rsa AAAAB3NzaC1yc2EAAQABAAQDeskwQITGY649pJ1LMTRDMZjDxBBpJn0/3zn8DOUYTkU
+JbH+pTbbZsL6j8kkkNKChhWMB7t1Pvsls0A0ngqxCI0VN9GJ1N+6tNs3RPjZlxKgyrac8jHFp
+g73e+2rJm1N4jB29PnVFQNzkLmItf6xOMbYEvrlEtlyTqpPwbyle4hTF5e3y8EcZGBVYnK749IPdrdL
RzO6grtn2hz
qeDunyD7T7XbhfVUbj0G0RpZOTGwPq7UVx2hrJRJ6bQvsGyCFmpo50ltnid/RgX5fIPYzJIC7896KTsJHlcFcm7J0mqx
3xum5gBd2MzJZWrR rsa-key-20240619
```

Key fingerprint: ssh-rsa 2048 SHA256:WmvmtOzK385olwTKzrl7cfui9QpFRaKVlQ/WhkTzAVI

Key comment: rsa-key-20240619

Key passphrase:

Confirm passphrase:

Actions:

- Generate a public/private key pair
- Load an existing private key file
- Save the generated key

Parameters:

- Type of key to generate:
 - RSA
 - DSA
 - ECDSA
 - EdDSA
- Number of bits in a generated key: 2048

PuTTY Configuration window:

Category: Terminal, SSH, Auth

Credentials to authenticate with:

- Public-key authentication
- Private key file for authentication: C:\Users\ragha\Desktop\private_key.ppk
- Browse...
- Certificate to use with the private key (optional):
- Browse...
- Plugin to provide authentication responses
- Plugin command to run

```

azureuser@Ubuntu: ~
login as: azureuser
Server refused our key
azureuser@4.186.24.55's password:
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)

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

System information as of Wed Jun 19 17:09:20 UTC 2024

 System load: 0.14           Processes:          122
 Usage of /:   5.1% of 28.89GB  Users logged in:      0
 Memory usage: 9%            IPv4 address for eth0: 10.0.0.5
 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.

```

```

azureuser@Ubuntu: ~/test
loop0    7:0    0   64M  1 loop  /snap/core20/2318
loop1    7:1    0  91.9M  1 loop  /snap/lxd/24061
loop2    7:2    0  38.8M  1 loop  /snap/snapd/21759
sda     8:0    0   30G  0 disk
└─sda1   8:1    0  29.9G 0 part /
└─sda14  8:14   0    4M  0 part
└─sda15  8:15   0  106M 0 part /boot/efi
sdb     8:16   0    7G  0 disk
└─sdb1   8:17   0    7G  0 part /mnt
sdc     8:32   0    5G  0 disk
sr0    11:0    1  628K 0 rom
azureuser@Ubuntu:~$ sudo file-s /dev/sdc
sudo: file-s: command not found
azureuser@Ubuntu:~$ sudo mkfs -t ext4 /dev/sdc
mke2fs 1.45.5 (07-Jan-2020)
Discarding device blocks: done
Creating filesystem with 1310720 4k blocks and 327680 inodes
Filesystem UUID: 2982e016-6209-45f2-bb8c-b5bed729e9fc
Superblock backups stored on blocks:
            32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

azureuser@Ubuntu:~$ mkdir test
azureuser@Ubuntu:~$ sudo mount /dev/sdc/ test
mount: /home/azureuser/test: special device /dev/sdc/ does not exist (a path prefix is not
a directory).
azureuser@Ubuntu:~$ cd test
azureuser@Ubuntu:~/test$ 
```

The screenshot shows the Azure portal interface for managing a virtual machine. The left sidebar menu is open, showing options like Diagnose and solve problems, Settings (which is selected), and various monitoring and diagnostic tools. Under the 'Disk' section in the settings, there are two tables: 'OS disk' and 'Data disks'. The 'OS disk' table lists one entry: 'Ubuntu_disk1_ef0aa0fe96e4c18ba869b' (Premium SSD LRS, 30 GB, Read/write). The 'Data disks' table lists one entry: 'Ubuntu_DataDisk_0' (Premium SSD LRS, 5 GB, Read-only). At the bottom of the page are 'Apply' and 'Discard changes' buttons.

This screenshot shows the same Azure portal interface after the data disk 'Ubuntu_DataDisk_0' has been detached. The 'Data disks' table now shows 'No data disks attached'. The rest of the interface remains the same, with the 'OS disk' table still showing the attached disk.

Result: Above experiment is successfully executed and verified.

11) Perform attach and detach data disk to windows server in Azure

Steps:

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

Subscription * Azure for Students

Resource group * AZ2024 [Create new](#)

Instance details

Virtual machine name * windows2

Region * (Asia Pacific) Central India

Availability options Availability zone

Availability zone * Zone 1

You can now select multiple zones. Selecting multiple zones will create one VM per zone. [Learn more](#)

Security type Trusted launch virtual machines
Configure security features

Image * Windows Server 2019 Datacenter - x64 Gen2 [See all Images](#) | [Configure VM generation](#)

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

OS disk

OS disk size Image default (127 GB)

OS disk type * Premium SSD (locally-redundant storage)

Delete with VM

Key management Platform-managed key

Enable Ultra Disk compatibility Ultra disk is not supported for the selected VM size Standard_DS1_v2 in Central India.

Data disks for windows2
You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM

[Create and attach a new disk](#) [Attach an existing disk](#)

[< Previous](#) [Next : Networking >](#) [Review + create](#) [Give feedback](#)

Select a disk size

Browse available disk sizes and their features.

Storage type: Premium SSD (locally-redundant storage)

Size	Performance tier	Provisioned IOPS	Provisioned throughput	Max Shares	Max burst IOPS	Max burst throughput
4 GiB	P1	120	25	3	3500	170
8 GiB	P2	120	25	3	3500	170
16 GiB	P3	120	25	3	3500	170
32 GiB	P4	120	25	3	3500	170
64 GiB	P6	240	50	3	3500	170
128 GiB	P10	500	100	3	3500	170
256 GiB	P15	1100	125	3	3500	170
512 GiB	P20	2300	150	3	3500	170
1024 GiB	P30	5000	200	5	-	-
2048 GiB	P40	7500	250	5	-	-
4096 GiB	P50	7500	250	5	-	-
8192 GiB	P60	16000	500	10	-	-

Create a new disk

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name: windows2_DataDisk_0

Source type: None (empty disk)

Size: 10 GiB (Premium SSD LRS) [Change size](#)

Key management: Platform-managed key

Enable shared disk: No

Delete disk with VM: Yes

OS disk

- OS disk size: Image default (127 GiB)
- OS disk type: Premium SSD (locally-redundant storage)
- Delete with VM:
- Key management: Platform-managed key
- Enable Ultra Disk compatibility: Ultra disk is not supported for the selected VM size Standard_DS1_v2 in Central India.

Data disks for windows2

You can add and configure additional data disks for your virtual machine or attach existing disks. This VM also comes with a temporary disk.

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM
0	windows2_DataDisk_0	10	Premium SSD LRS	Read-only	<input checked="" type="checkbox"/>

Create and attach a new disk Attach an existing disk

< Previous Next : Networking > Review + create Give feedback

Deployment

Overview

Your deployment is complete

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 19/6/2024, 10:49:28 pm
Subscription: Azure for Students Correlation ID: 0b50cc08-be12-493b-986b-3c8a5d5f4df3

Deployment details

Next steps

Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

Go to resource Create another VM Give feedback Tell us about your experience with deployment

Deployment succeeded
Deployment 'CreateVm-MicrosoftWindowsServer.WindowsServer-201-20240619224752' to resource group 'AZ2024' was successful.

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Screenshot 1: Azure portal - windows2 | Disks

The screenshot shows the Azure portal interface for managing disks of a virtual machine named 'windows2'. In the 'OS disk' section, there is one entry for 'windows2_disk1_0c5c9a451dd64b9fa0' with a size of 127 GiB, max IOPS of 500, and max throughput of 100 MBps. The encryption type is SSE with PMK, and host caching is set to 'Read/write'. In the 'Data disks' section, there are two entries: 'windows2_DataDisk_0' (size 10 GiB, max IOPS 120, max throughput 25 MBps, encryption SSE with PMK, host caching Read-only) and a new entry for 'Data disk name' (size 4 GiB, max IOPS 120, max throughput 25 MBps, encryption Platform-managed, host caching Read-only). A warning message at the top states: 'The configuration of this virtual machine and its attached disk(s) does not allow for the disk(s) to utilize their full throughput performance. The current virtual machine size supports 48 MBps. The total for disk(s) attached to virtual machine 'windows2' is 150 MBps. You can change the virtual machine size to support additional disk(s) throughput.' Buttons at the bottom are 'Apply' and 'Discard changes'.

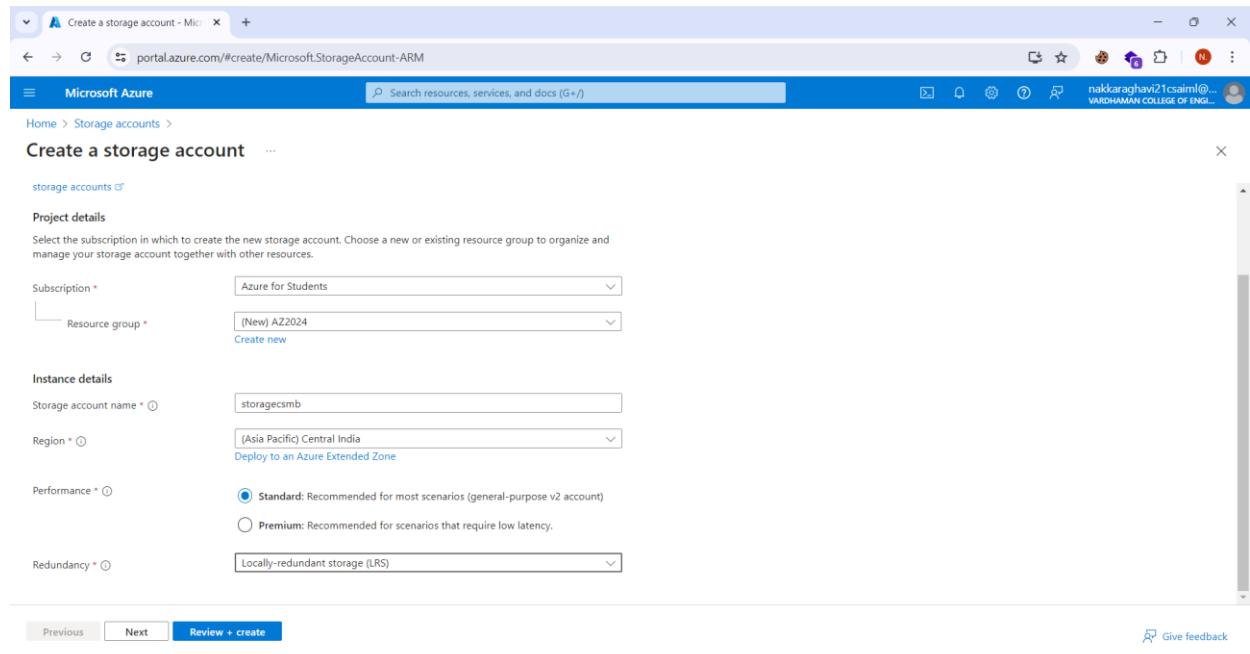
Screenshot 2: Azure portal - windows2 | Disks

This screenshot shows the same Azure portal interface for 'windows2' but with a different configuration. The 'OS disk' section remains the same. In the 'Data disks' section, the entry for 'Data disk name' has been removed, resulting in 'No data disks attached'. The warning message at the top is still present. Buttons at the bottom are 'Apply' and 'Discard changes'.

12) Create azure storage account, container and upload / delete objects

Steps:

- 1.Login to Azure account and create a storage account.
- 2.Giving a resource name, storage account name and changing region to (Asia Pacific) South India and change redundancy to LRS (Local redundant storage).
- 3.Click Review + Create
- 4.Now go to “Advanced” option and choose “Allow enabling anonymous access on individual containers”.
- 5.Click on Review + Create
- 6.After completion of deployment, click on “Go to resources “.
- 7.Click on container and “+ container” and give a name to create and set anonymous access level to “Blob”.
- 8.Open named container and click on upload and upload a file.
- 9.Open the file and copy the URL and paste it in browser.
- 10.Do this step 7 by changing access level to “Private”.
- 11.Click on delete to delete a file along with Blobs.



Create a storage account - Microsoft Azure

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

Microsoft Azure

Search resources, services, and docs (G+)

nakkaraghavi21csaiml@... VARDHAMAN COLLEGE OF ENGL...

Home > Storage accounts >

Create a storage account

Basics Advanced Networking Data protection Encryption Tags Review + create

Security

Configure security settings that impact your storage account.

- Require secure transfer for REST API operations
- Allow enabling anonymous access on individual containers
- Enable storage account key access
- Default to Microsoft Entra authorization in the Azure portal
- Minimum TLS version Version 1.2
- Permitted scope for copy operations (preview) From any storage account

Hierarchical Namespace

Hierarchical namespace, complemented by Data Lake Storage Gen2 endpoint, enables file and directory semantics, accelerates big data analytics workloads, and enables access control lists (ACLs). [Learn more](#)

Enable hierarchical namespace

Previous Next Review + create Give feedback

Create a storage account - Microsoft Azure

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

Microsoft Azure

Search resources, services, and docs (G+)

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Home > Storage accounts >

Create a storage account

Basics Advanced Networking Data protection Encryption Tags Review + create

[View automation template](#)

Basics

Subscription	Azure for Students
Resource group	AZ2024
Location	Central India
Storage account name	storagecsmb
Performance	Standard
Replication	Locally-redundant storage (LRS)

Advanced

Enable hierarchical namespace	Disabled
Enable SFTP	Disabled
Enable network file system v3	Disabled
Allow cross-tenant replication	Disabled
Access tier	Hot
Enable large file shares	Enabled

Previous Next Create Give feedback

storagecsmb_1718784602598 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

Your deployment is complete

Deployment name: storagecsmb_1718784602598
Subscription: Azure for Students
Resource group: AZ2024

Start time: 19/6/2024, 1:40:18 pm
Correlation ID: f1fa4405-dd5a-47f1-97f8-77da252ddaa0

Deployment details

Next steps

Go to resource Give feedback Tell us about your experience with deployment

Deployment succeeded

Deployment 'storagecsmb_1718784602598' to resource group 'AZ2024' was successful.

Go to resource Pin to dashboard

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New container - Microsoft Azure

portal.azure.com/#/vardhaman.org/resource/subscriptions/380a1c2-d226-4e09-9aa0-72861bbef1c9/resourcegroups/AZ2024/providers/Microsoft.Storage/storageAccounts/storagecsmb

storagecsmb | Containers

storagecsmb | Containers

Storage account

Overview Activity log Tags Diagnose and solve problems Access Control (IAM) Data migration Events Storage browser Storage Mover Data storage Containers File shares Queues Tables Security + networking Data management Settings

Containers

Name Last modified Anonymous.

\$logs 19/6/2024, 1:44:13 pm Private

New container

Name * container

Anonymous access level Blob (anonymous read access for blobs only)

Blobs within the container can be read by anonymous request, but container data is not available. Anonymous clients cannot enumerate the blobs within the container.

Advanced

Create Give feedback

Upload blob - Microsoft Azure

image.png (3072x1280)

portal.azure.com/#view/Microsoft_Azure_Storage/ContainerMenuBlade/-/overview/storageAccountid/%2Fsubscriptions%2F380a1c2-d226-4e09-9aa0-72861bbef1c9%2Fresourcegroups%2F

storagecsmb | Containers

container

Container

Overview Diagnose and solve problems Access Control (IAM) Settings

Authentication method: Access key (Switch to Microsoft Entra user account)

Location: container

Search blobs by prefix (case-sensitive)

Add filter

Name Modified Access tier

image.png 19/6/2024, 1:45:28 pm Hot (Inferred)

Upload Change access level Refresh Delete Change tier Acquire lease

Advanced

Overwrite if files already exist

Upload Give feedback

logo.png - Microsoft Azure

image.png (3072x1280)

portal.azure.com/#view/Microsoft_Azure_Storage/BlobPropertiesBladeV2/storageAccountid/%2Fsubscriptions%2F380a1c2-d226-4e09-9aa0-72861bbef1c9%2Fresourcegroups%2F

storagecsmb | Containers > container

logo.png

Container

Overview Versions Snapshots Edit Generate SAS

Authentication method: Access key (Switch to Microsoft Entra user account)

Location: container

Show deleted blobs

Add filter

Name

image.png logo.png

Save Discard Download Refresh Delete Change tier Acquire lease Break lease Give feedback

Properties

URL https://storagecsmb.blob.core.windows.net/logo.png

LAST MODIFIED 19/6/2024, 1:47:05 pm

CREATION TIME 19/6/2024, 1:47:05 pm

VERSION ID -

TYPE Block blob

SIZE 104.45 kB

ACCESS TIER Hot (Inferred)

ACCESS TIER LAST MODIFIED N/A

ARCHIVE STATUS -

REHYDRATE PRIORITY -

SERVER ENCRYPTED true

ETAG 0x8DC9038346452A2

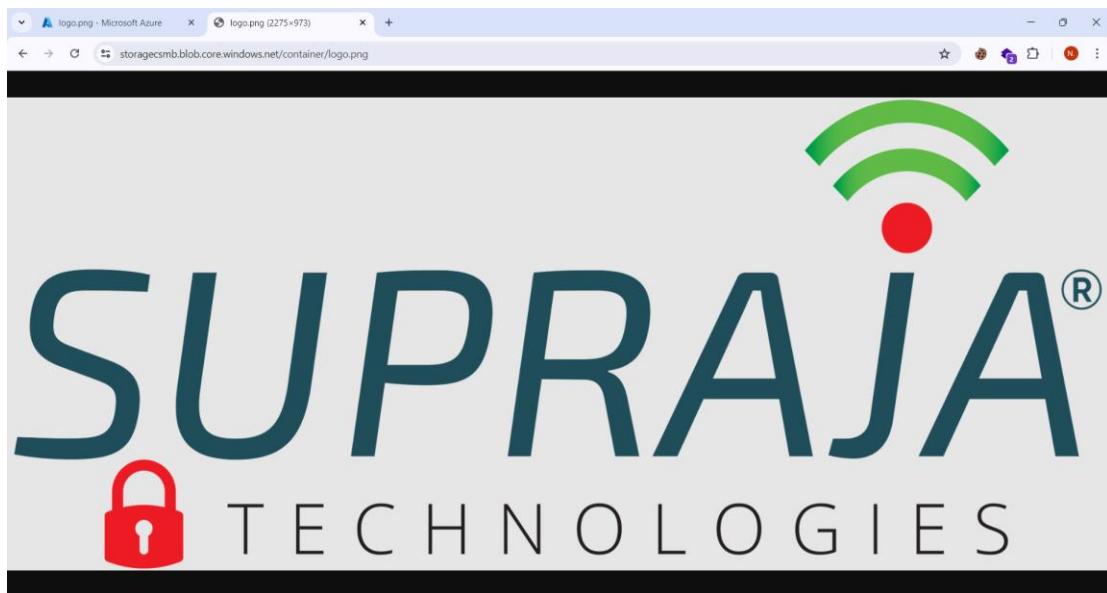
VERSION-LEVEL IMMUTABILITY POLICY Disabled

CACHE-CONTROL

CONTENT-TYPE image/png

CONTENT-MD5 Djs/6AA1zABnxly/E3kfjQ==

CONTENT-ENCODING



Screenshot of the Microsoft Azure Storage Container Overview page for 'storagecsm_1718784797304'. The page shows two blobs: 'image.png' and 'logo.png'. Both are listed as 'Hot (Inferred)' blobs.

	Blob type	Size	Lease state
<input type="checkbox"/> image.png	Block blob	5.46 MiB	Available
<input type="checkbox"/> logo.png	Block blob	104.45 KiB	Available

Screenshot of a Microsoft Edge browser window showing the error message for 'image.png'. The message indicates that the specified resource does not exist.

```

<Error>
<Code>ResourceNotFound</Code>
<Message>The specified resource does not exist. RequestId:10a64985-301e-0054-4721-c2f443000000 Time:2024-06-19T08:18:35.941015Z</Message>
</Error>

```

The screenshots illustrate the steps to delete a blob in Microsoft Azure Storage:

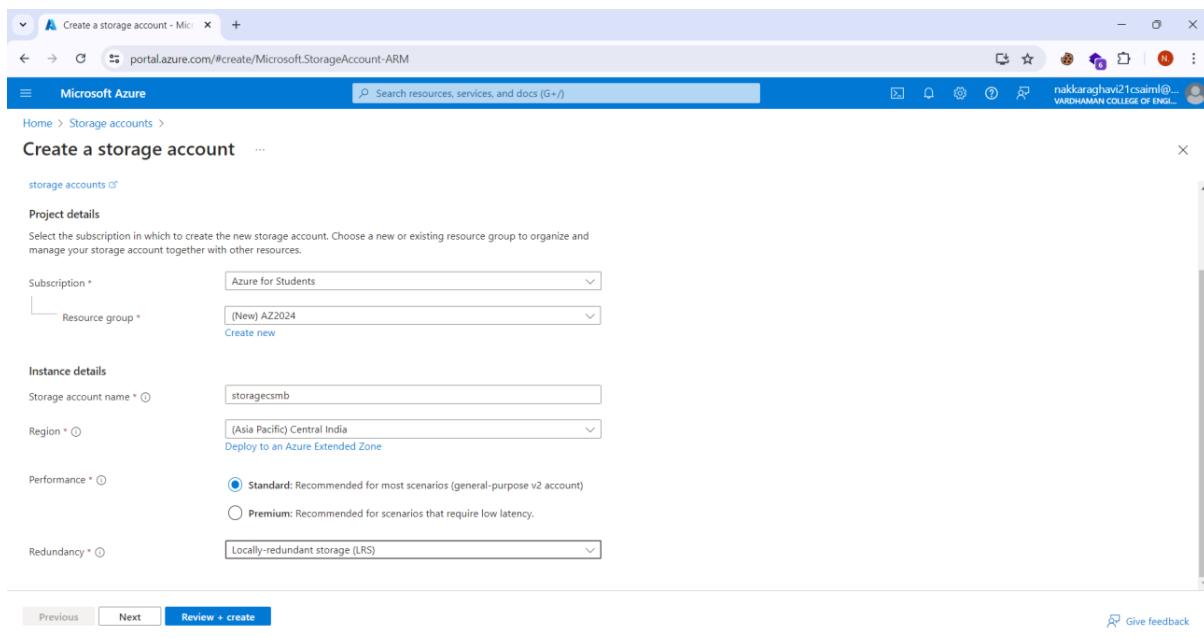
- Screenshot 1: Blob Properties - Delete Blob Confirmation**
Shows the confirmation dialog for deleting the blob "logo.png". The checkbox "Also delete blob snapshots" is checked. The dialog displays detailed blob properties: TYPE: Block blob; SIZE: 104.45 KB; ACCESS TIER: Hot (Inferred); ARCHIVE STATUS: -; REHYDRATE PRIORITY: -; SERVER ENCRYPTED: true; ETAG: 0x8DC9038346452A2; VERSION-LEVEL IMMUTABILITY POLICY: Disabled; CACHE-CONTROL: [empty]; CONTENT-TYPE: image/png; CONTENT-MD5: Djs/6AA1zABmxly/E3kfjQ==; CONTENT-ENCODING: [empty]. Buttons: OK and Cancel.
- Screenshot 2: Blob Properties - Blob Deleted**
Shows the blob properties page after deletion. The blob is listed as "Blob (deleted)". The properties are identical to the previous screen, except for the status: STATUS: Deleted; DELETION ID: [redacted]; DELETED TIME: 19/6/2024, 1:49:58 pm; REMAINING RETENTION DAYS: 6. A "Undelete" button is present at the bottom.
- Screenshot 3: Delete Container(s) Confirmation**
Shows the "Delete container(s)" confirmation dialog. It lists the container "container" selected for deletion. The dialog states: "Containers which are in a leased state are locked for deletion and will be skipped. This action will move the following container(s) and its contents to a soft deleted state. The container(s) will remain recoverable for the retention period of 7 days." A link "Learn more" is provided. Buttons: Delete and Cancel.

Result: Above experiment is successfully executed and verified.

13) Implement Static Web Host in Azure Portal

Steps:

- 1) Open azure portal and click on Storage Accounts
- 2) Create a Storage Account with name storagecsmb
- 3) Click on review + create
- 4) Once Deployment is completed, go to recourse
- 5) Go to storagecsmb storage account and click on “static website”
- 6) Enable the static website and name document with “index.html” and error as 404 and save
- 7) Copy link generated and save
- 8) Go to containers and click on web
- 9) Add a file as blob named “index.html”
- 10) Open new tab in the browser and paste the copied link
- 11) We can see the web hosted in the browser



The screenshot shows the Microsoft Azure portal with a deployment overview page. The deployment name is "storagecsmb_1718784602598". Deployment details include a start time of 19/6/2024, 1:40:18 pm, and a correlation ID of Tf3a405-dd5a-47f1-97f8-77da252dda09. A success message states "Deployment 'storagecsmb_1718784602598' to resource group 'AZ2024' was successful." Below the main content, there are promotional cards for Cost Management, Microsoft Defender for Cloud, Free Microsoft tutorials, and Work with an expert.

The screenshot shows the "Static website" settings for the storagecsmb storage account. The "Enabled" button is selected. A note at the top states: "Enabling static websites on the blob service allows you to host static content. Webpages may include static content and client-side scripts. Server-side scripting is not supported. As data is replicated asynchronously from primary to secondary regions, files at the secondary endpoint may not be immediately available or in sync with files at the primary endpoint." There is also a link to "Learn more".

The screenshot shows the "Static website" settings for the storagecsmb storage account. The "Enabled" button is selected. A note at the top states: "Enabling static websites on the blob service allows you to host static content. Webpages may include static content and client-side scripts. Server-side scripting is not supported. As data is replicated asynchronously from primary to secondary regions, files at the secondary endpoint may not be immediately available or in sync with files at the primary endpoint." There is also a link to "Learn more". A callout box highlights the "Azure Front Door" feature with the text: "Improve the page load time of your static website by using the caching features of Azure Front Door (Additional costs apply)." Below the note, there are fields for "Index document name" (set to "index.html") and "Error document path" (set to "404").

storagecsmb | Static website

Storage account

storagecsmb

Overview Data management Static website Settings Endpoints

Static website

Disabled Enabled

An Azure Storage container has been created to host your static website.

Primary endpoint: https://storagecsmb.z29.web.core.windows.net/

Index document name: index.html

Error document path: 404

storagecsmb | Containers

Storage account

storagecsmb

Overview Activity log Tags Diagnose and solve problems Access Control (IAM) Data migration Events Storage browser Storage Mover Data storage Containers File shares Queues Tables Security + networking Data management Settings

Containers

Name	Last modified	Anonymous access level	Lease state
\$Logs	19/6/2024, 1:44:13 pm	Private	Available
\$web	19/6/2024, 10:59:23 pm	Private	Available

Upload blob

Container: \$web

Authentication method: Access key (Switch to Microsoft Entra user account)

Location: \$web

Search blobs by prefix (case-sensitive):

Add filter

Upload Change access level Refresh Delete Change tier Acquire lease

1 file(s) selected: index.html

Drag and drop files here or Browse for files

Overwrite if files already exist

Advanced

Upload Give feedback

The screenshot shows the Microsoft Azure Storage Explorer interface. The top navigation bar includes tabs for 'Azure for College Students—C...', '\$web - Microsoft Azure', and 'portal.azure.com/#view/Microsoft_Azure_Storage/ContainerMenuBlade/~/overview/storageAccountId/%2Fsubscriptions%2F380a12c2-d226-4e09-9aa0-72861bbe1c9%2F...'. The main content area is titled '\$web' under 'Container'. It displays an 'Overview' section with a table showing one blob named 'index.html'. The table columns are Name, Modified, Access tier, Archive status, Blob type, Size, and Lease state. The blob details are: Name: index.html, Modified: 19/6/2024, 11:00:18 ..., Access tier: Hot (Inferred), Archive status: Not yet archived, Blob type: Block blob, Size: 1.78 KiB, Lease state: Available.

The screenshot shows a browser window with the URL 'storagecsmb.z29.web.core.windows.net'. The page title is 'Language Translator'. It features a text input field labeled 'Enter text to translate' containing 'Hindi'. Below it is a dropdown menu set to 'Hindi' and a 'Translate' button. The output text is displayed below: '{% if translated_text %} {{ translated_text }} {% endif %}'.

Result: Above experiment is successfully executed and verified.

14) Implement Object Replication in storage explorer

Steps:

Step-1: Create a storage account-1 with name storagecsmb with LRS redundancy

Step-2: Create a container in storage account-1 with name container-1

Step-3: Create a storage account-2 with name storagecsmb2 with LRS redundancy

Step-4: Create a container in storage account-2 with name container-2

Step-5: Open storage account1, Open object replication: Destination file: account2 and

Source: conatiner1, Destination container: 2

Step-6: Upload file in container1 for example index.html

Step-7: Check in the container 2 for document uploaded in container 1

Step-8: Refresh for better results

The screenshot shows the 'Create a storage account' wizard in the Microsoft Azure portal. The 'Project details' section is filled out with a subscription of 'Azure for Students' and a resource group of '(New) AZ2024'. In the 'Instance details' section, the storage account name is 'storagecsmb', the region is '(Asia Pacific) Central India', and the performance level is set to 'Standard'. The redundancy type is 'Locally-redundant storage (LRS)'. At the bottom of the form, there are 'Previous', 'Next', and 'Review + create' buttons.

storagecsmb_1718784602598 | Overview

Your deployment is complete

Deployment name: storagecsmb_1718784602598
Subscription: Azure for Students
Resource group: AZ2024

Start time: 19/6/2024, 1:40:18 pm
Correlation ID: 1faa4405-dd5a-47f1-97f8-77da252da09

Deployment details

Next steps

[Go to resource](#)

[Give feedback](#)
[Tell us about your experience with deployment](#)

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Storage accounts

storagecsmb

Containers

Name	Last modified
Logs	19/6/2024, 1:44:13 pm
\$web	19/6/2024, 10:59:23 pm

New container

Name: container1

Anonymous access level: Blob (anonymous read access for blobs only)

Advanced

Create a storage account

Project details

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription: Azure for Students
Resource group: AZ2024

Instance details

Storage account name: storagecsmb2
Region: (Asia Pacific) Central India
Performance: Standard: Recommended for most scenarios (general-purpose v2 account)
Redundancy: Locally-redundant storage (LRS)

[Previous](#) [Next](#) [Review + create](#) [Give feedback](#)

storagecsm2_1718821046218 | Overview

Your deployment is complete

Deployment name: storagecsm2_1718821046218
Subscription: Azure for Students
Resource group: AZ2024

Start time: 19/6/2024, 11:47:34 pm
Correlation ID: f4c4699e-7a51-4f8b-bd15-92c5dc8949df

Deployment details

Next steps

[Go to resource](#)

[Give feedback](#)
[Tell us about your experience with deployment](#)

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Storage accounts

storagecsm2

Containers

Name: logs

New container

Name: container2

Anonymous access level: Blob (anonymous read access for blobs only)

Advanced

[Create](#) [Give feedback](#)

Create replication rules

When you create object replication rules, blob change feed and blob versioning are automatically enabled for the source and destination storage accounts. Enabling these features may increase costs. →

Destination details

To begin replicating objects, specify the source storage account and the destination storage account.
[Learn more about copying objects in object replication](#)

Destination subscription: Azure for Students
Destination storage account: storagecsm2
[Don't see your account?](#)

Container pair details

A container pair consists of a container in the source account and a container in the destination account. Objects in the source container are copied over to the destination container according to the replication rule. You can optionally filter which objects are copied by specifying a prefix match and by copying objects created only after a specified date and time.

Source container	Destination container	Filters	Copy over
container1	container2	0 (add)	Only new objects (change)

To configure more than 10 container pairs (up to 1000), see [Configure object replication using a JSON file](#)

[Create](#) [Cancel](#)

<https://portal.azure.com/#>

Result: Above experiment is successfully executed and verified.

GITHUB REPOSITORY :

https://github.com/RaghaviNakka/Azure_CCV