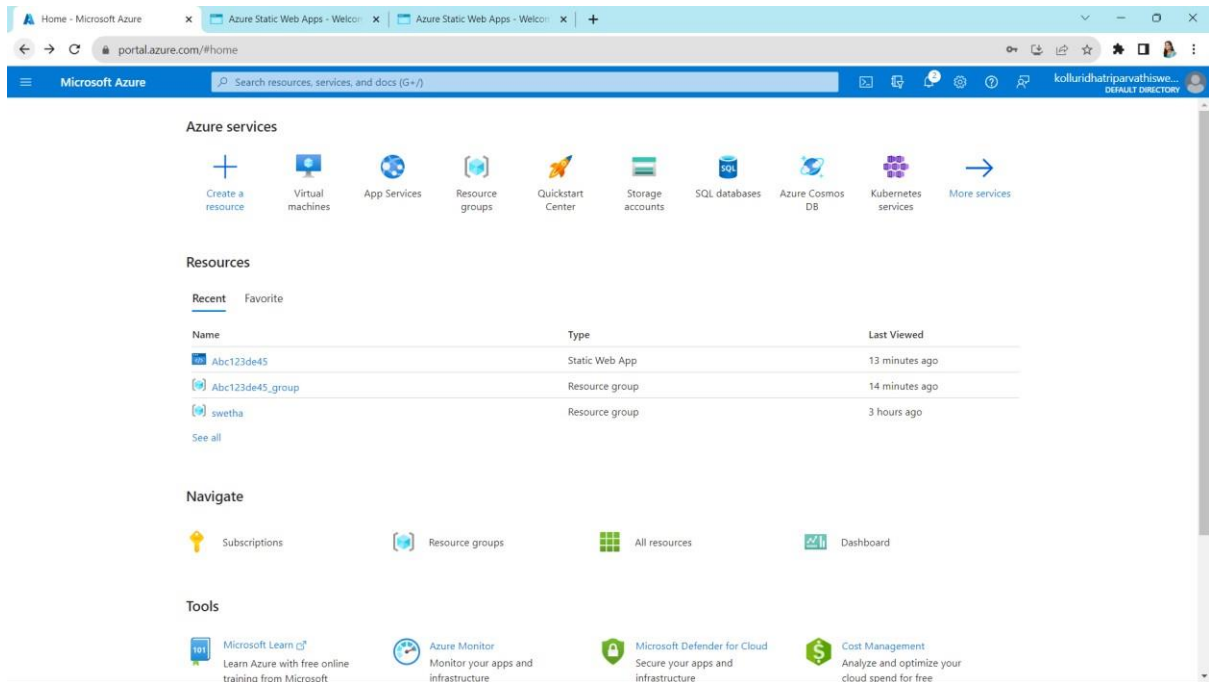


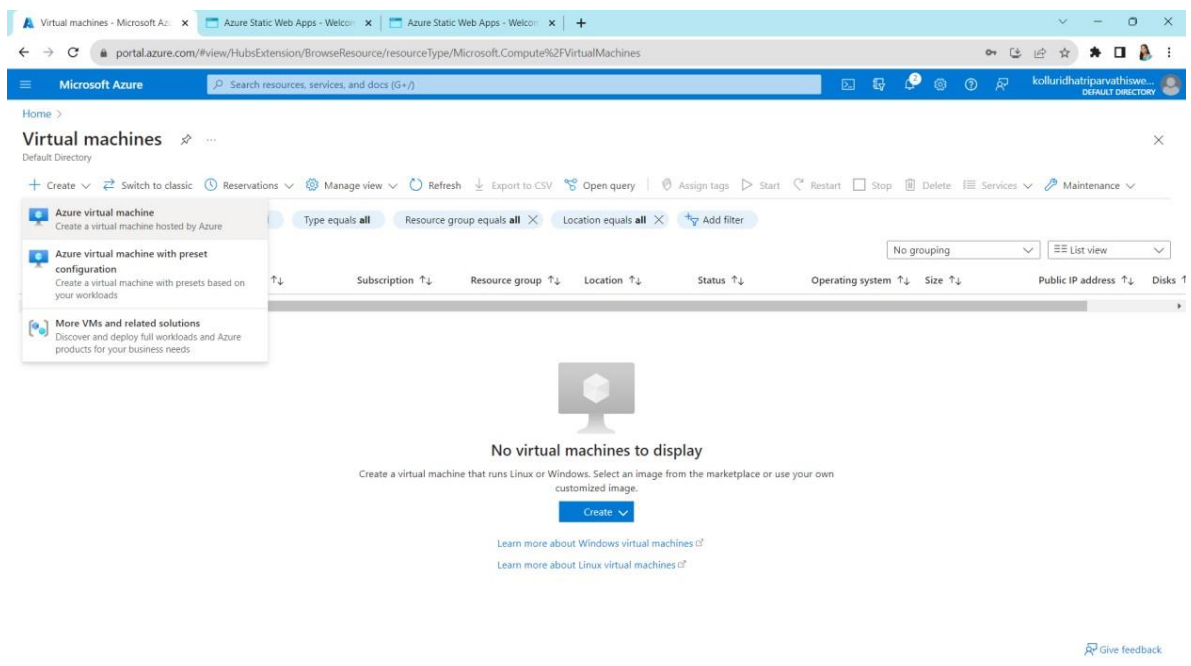
EXPERIMENT 13

Demonstrate Infrastructure as a Service (IaaS) by establishing the remote connection, launch the created VM image and run in your desktop. first we can sign in into Azure

Select virtual machine to create a virtual machine



Click on create



Fill up the given requirements

Create a virtual machine - Micro x +

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

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

Home > Virtual machines >

Create a virtual machine

Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

Project details

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 * swetha

Create new

Instance details

Virtual machine name * vm1

Region * (Asia Pacific) South India

Availability options No infrastructure redundancy required

Security type Trusted launch virtual machines

Configure security features

Image * Ubuntu Server 20.04 LTS - x64 Gen2

See all images | Configure VM generation

VM architecture

Arm64

v64

Review + create Previous Next: Disks >

go.microsoft.com/fwlink/?LinkId=2127231

Change the disc size and click on next

Create a virtual machine - Micro x +

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

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

Home > Virtual machines >

Create a virtual machine

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

VM disk encryption

Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host

Encryption at host is not registered for the selected subscription. [Learn more about enabling this feature](#)

OS disk

OS disk size 32 GiB (P4)

Some images are, by default, smaller than the selected OS disk size. [Click here to learn how to expand your disk partition size after you create your VM.](#)

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

Delete with VM

Key management Platform-managed key

Review + create Previous Next: Networking >

Give feedback

Click on next

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal. The 'Networking' tab is selected. The page includes the following sections:

- NIC network security group:** Radio buttons for 'None', 'Basic' (selected), and 'Advanced'.
- Public inbound ports:** Radio buttons for 'None' and 'Allow selected ports' (selected).
- Select inbound ports:** A dropdown menu showing 'SSH (22)'.
- Warning:** A yellow box states: 'This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.'
- Delete public IP and NIC when VM is deleted:** A checkbox that is unchecked.
- Enable accelerated networking:** A checkbox that is checked.
- Load balancing:** A section with the text 'You can place this virtual machine in the backend pool of an existing Azure load balancing solution. Learn more.' and radio buttons for 'None' (selected) and 'Azure load balancer'.

At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next: Management >'. A 'Give feedback' link is also present.

Click on next

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, with the 'Management' tab selected. The page includes the following sections:

- Navigation tabs:** 'Basics', 'Disks', 'Networking', 'Management' (selected), 'Monitoring', 'Advanced', 'Tags', and 'Review + create'.
- Configure management options for your VM.**
- Microsoft Defender for Cloud:** A section with the text 'Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. Learn more.' and a green checkmark indicating 'Your subscription is protected by Microsoft Defender for Cloud basic plan.'
- Identity:** A section with the text 'Enable system assigned managed identity' and an unchecked checkbox.
- Azure AD:** A section with the text 'Login with Azure AD' and an unchecked checkbox. Below it, a note states: 'RBAC role assignment of Virtual Machine Administrator Login or Virtual Machine User Login is required when using Azure AD login. Learn more.'
- Auto-shutdown:** A section with the text 'Enable auto-shutdown' and an unchecked checkbox.

At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next: Monitoring >'. A 'Give feedback' link is also present.

Click on next

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Monitoring' tab. The breadcrumb navigation shows 'Home > Virtual machines >'. The tabs at the top are 'Basics', 'Disks', 'Networking', 'Management', 'Monitoring' (which is selected and highlighted with a red box), 'Advanced', 'Tags', and 'Review + create'. Below the tabs, the text says 'Configure monitoring options for your VM.' Under the 'Alerts' section, there is a checkbox for 'Enable recommended alert rules' which is currently unchecked. Under the 'Diagnostics' section, there are three options: 'Boot diagnostics' (with a help icon) and two radio buttons: 'Enable with managed storage account (recommended)' (which is selected), 'Enable with custom storage account', and 'Disable'. Below that is 'Enable OS guest diagnostics' with an unchecked checkbox. At the bottom, there are three buttons: 'Review + create' (in blue), '< Previous', and 'Next: Advanced >'. A 'Give feedback' link is in the bottom right corner.

Click on next

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Advanced' tab. The breadcrumb navigation shows 'Home > Virtual machines >'. The tabs at the top are 'Basics', 'Disks', 'Networking', 'Management', 'Monitoring', 'Advanced' (which is selected and highlighted with a red box), 'Tags', and 'Review + create'. Below the tabs, the text says 'Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.' Under the 'Extensions' section, there is a text 'Extensions provide post-deployment configuration and automation.' and a link 'Select an extension to install'. Under the 'VM applications' section, there is a text 'VM applications contain application files that are securely and reliably downloaded on your VM after deployment. In addition to the application files, an install and uninstall script are included in the application. You can easily add or remove applications on your VM after create. Learn more >' and a link 'Select a VM application to install'. Under the 'Custom data and cloud init' section, there is a text 'Pass a cloud-init script, configuration file, or other data into the virtual machine while it is being provisioned. The data will be saved on the VM in a known location. Learn more about custom data for VMs >' and a text input field labeled 'Custom data'. At the bottom, there are three buttons: 'Review + create' (in blue), '< Previous', and 'Next: Tags >'. A 'Give feedback' link is in the bottom right corner.

Give some names and values and click on next

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal. The 'Tags' tab is selected, displaying a table for adding tags. The table has three columns: 'Name', 'Value', and 'Resource'. There are three rows of input fields. The first row has 'cloud' in the Name column, '123' in the Value column, and 'All resources' in the Resource column. The second row has 'computing' in the Name column, '456' in the Value column, and '13 selected' in the Resource column. The third row has empty fields for Name and Value, and '13 selected' in the Resource column. Below the table, there are buttons for 'Review + create', '< Previous', and 'Next: Review + create >'. A 'Give feedback' link is also present at the bottom right.

Name	Value	Resource
cloud	123	All resources
computing	456	13 selected
		13 selected

It shows our summary

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, with the 'Basics' tab selected. A green banner at the top indicates 'Validation passed'. Below this, the configuration details are listed under the 'Basics' section. The details include Subscription (Azure for Students), Resource group (swetha), Virtual machine name (vm1), Region (South India), Availability options (No infrastructure redundancy required), Security type (Trusted launch virtual machines), Enable secure boot (Yes), Enable vTPM (Yes), Integrity monitoring (No), Image (Ubuntu Server 20.04 LTS - Gen2), VM architecture (x64), Size (Standard D2s v3 (2 vcpus, 8 GiB memory)), Authentication type (SSH public key), Username (azureuser), Key pair name (vm1_key), Public inbound ports (SSH), and Azure Spot (No). Below the 'Basics' section, the 'Disks' section shows 'OS disk size' as '32 GiB'. At the bottom, there are buttons for 'Create', '< Previous', 'Next >', and 'Download a template for automation'. A 'Give feedback' link is also present at the bottom right.

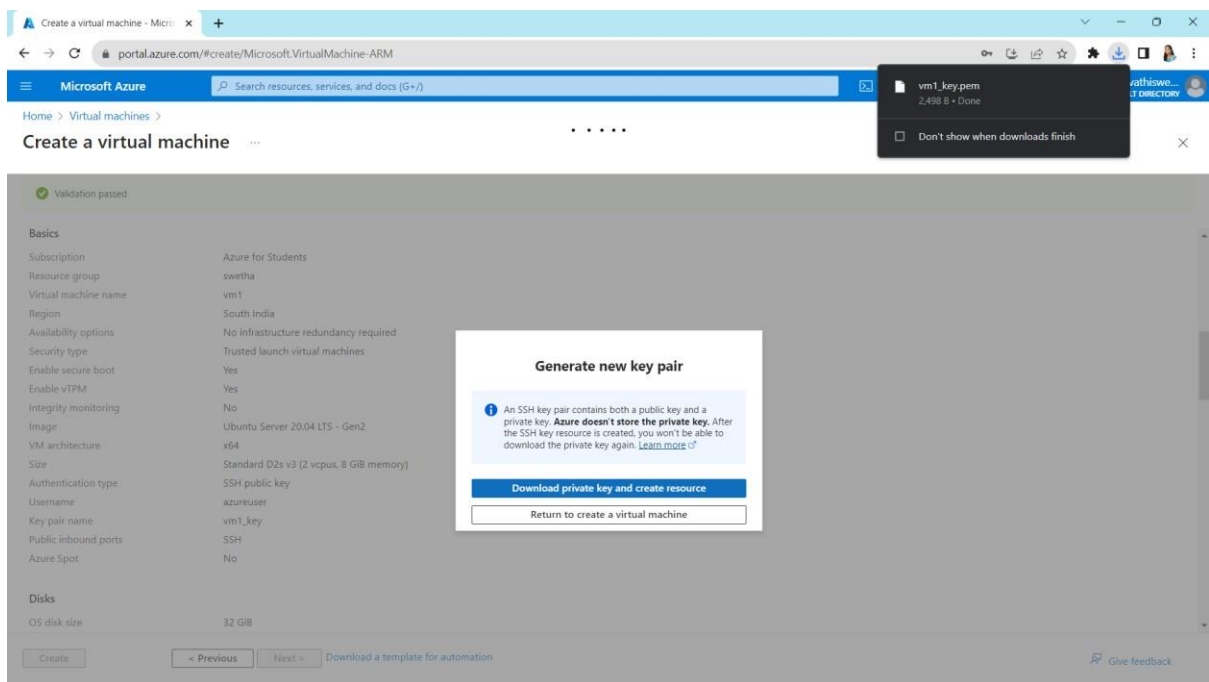
Basics

Subscription	Azure for Students
Resource group	swetha
Virtual machine name	vm1
Region	South India
Availability options	No infrastructure redundancy required
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
Image	Ubuntu Server 20.04 LTS - Gen2
VM architecture	x64
Size	Standard D2s v3 (2 vcpus, 8 GiB memory)
Authentication type	SSH public key
Username	azureuser
Key pair name	vm1_key
Public inbound ports	SSH
Azure Spot	No

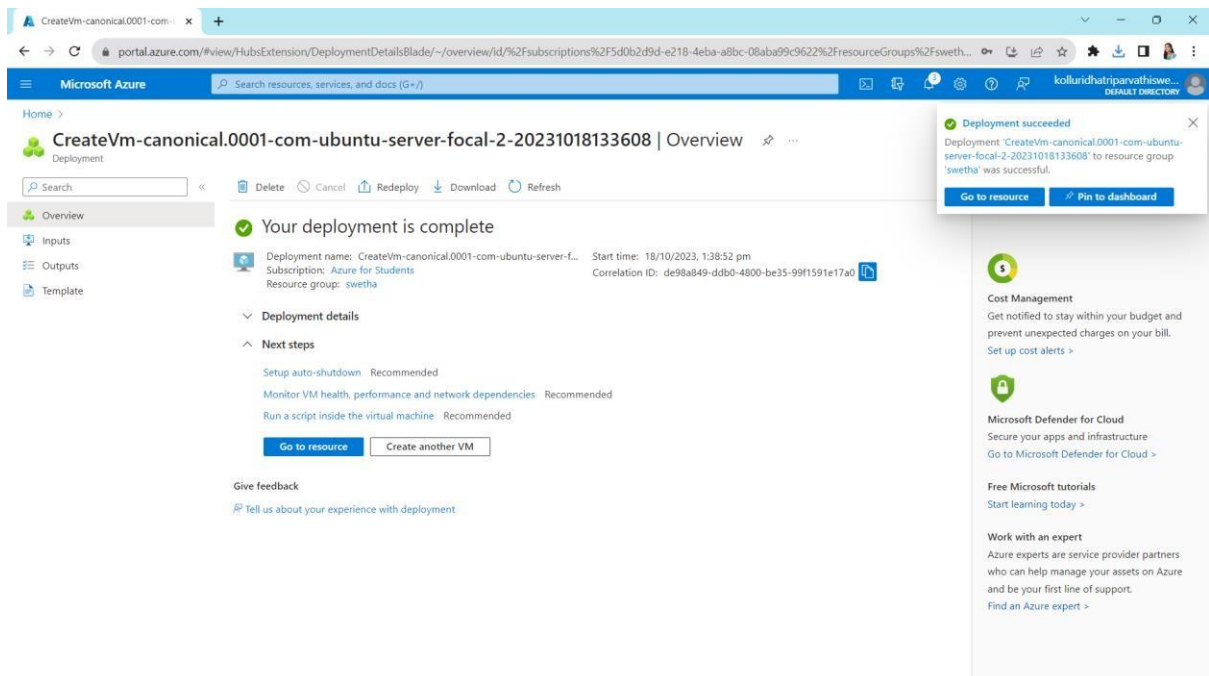
Disks

OS disk size	32 GiB
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Click on create and it asks to download click on download



Our required virtual machine is created



The screenshot displays the Microsoft Azure portal interface for a virtual machine named 'vm1'. The top navigation bar shows the user is logged in as 'kollundhatripavathiswetha'. The main content area is divided into three tabs: 'Overview', 'Properties', and 'Networking'. The 'Overview' tab is currently selected, showing the VM's location (South India), subscription (Azure for Students), and tags (cloud: 123, computing: 456). The 'Properties' tab shows the VM's configuration, including the operating system (Ubuntu 20.04), image publisher (canonical), and size (Standard D2s v3). The 'Networking' tab shows the public IP address (20.219.112.172) and the network interface (vm1858).

Overview

Resource group (move): swetha

Status: Running

Location: South India

Subscription (move): Azure for Students

Subscription ID: 5d0b2d9d-e218-4eba-a8bc-08aba99c9622

Tags (edit): cloud: 123, computing: 456

Operating system: Linux (ubuntu 20.04)

Size: Standard D2s v3 (2 vcpus, 8 GiB memory)

Public IP address: 20.219.112.172

Virtual network/subnet: vm-vnet/default

DNS name: Not configured

Health state: -

Properties

Virtual machine

Computer name: vm1

Operating system: Linux (ubuntu 20.04)

Image publisher: canonical

Image offer: 0001-com-ubuntu-server-focal

Image plan: 20_04-its-gen2

VM generation: V2

VM architecture: x64

Agent status: Ready

Agent version: 2.9.1.1

Networking

Public IP address: 20.219.112.172 { Network interface vm1858 }

Public IP address (IPv6): -

Private IP address: 10.0.0.6

Private IP address (IPv6): -

Virtual network/subnet: vm-vnet/default

DNS name: Configure

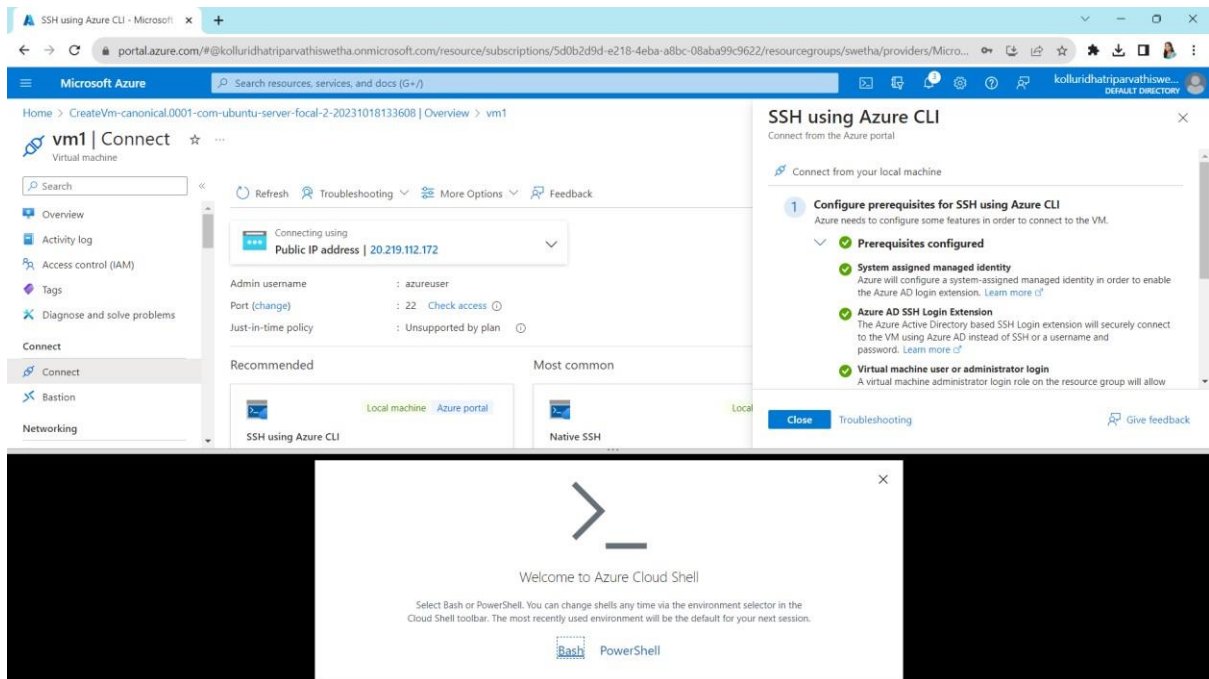
Size

Size: Standard D2s v3

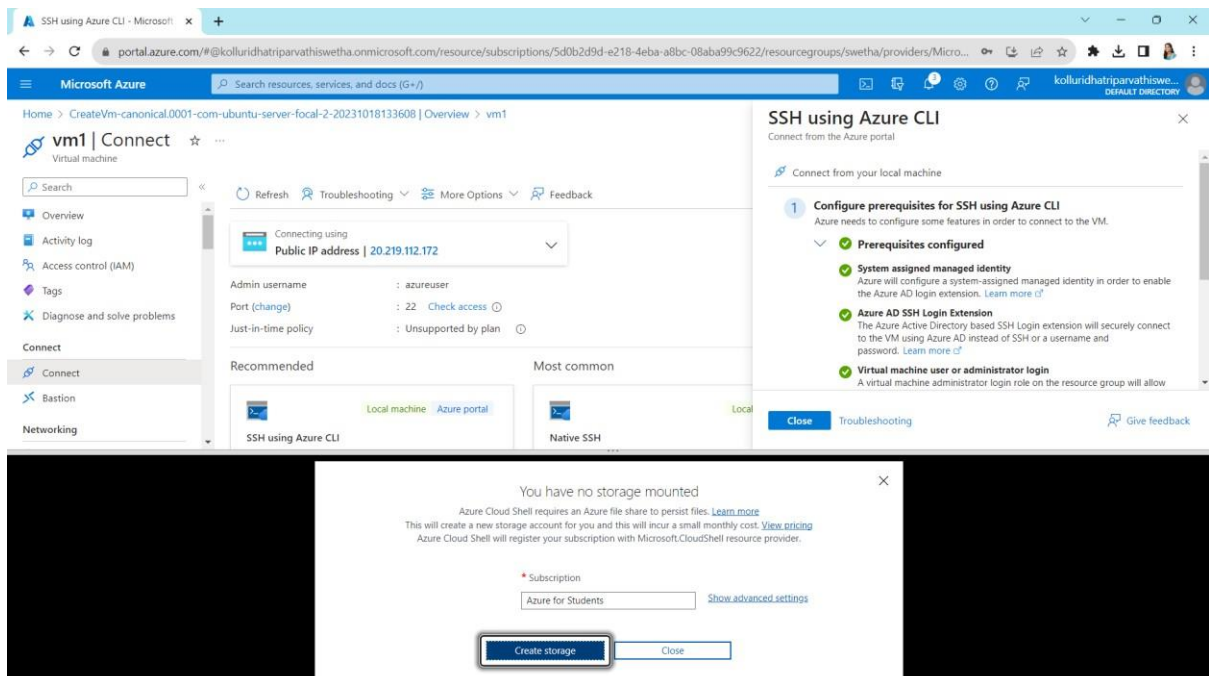
The screenshot shows the Azure portal interface for connecting to a virtual machine named 'vm1'. The main content area is titled 'vm1 | Connect' and shows the 'Public IP address' as 20.219.112.172. Under the 'Recommended' section, the 'SSH using Azure CLI' option is selected, with a 'Select' button. Under the 'Most common' section, the 'Native SSH' option is also shown with a 'Select' button. The right sidebar displays the 'SSH using Azure CLI' configuration steps, including 'Configure prerequisites for SSH using Azure CLI' and 'Configuring prerequisites'.

100

Click on bash which is on bottom



Click on create storage



Finally established the remote connection

The screenshot displays the Microsoft Azure portal interface. The main page shows the 'vm1 | Connect' section for a virtual machine named 'vm1'. The 'SSH using Azure CLI' panel is open, indicating that the prerequisites for connecting to the VM are configured. The prerequisites listed are:

- System assigned managed identity**: Azure will configure a system-assigned managed identity in order to enable the Azure AD login extension. [Learn more](#)
- Azure AD SSH Login Extension**: The Azure Active Directory based SSH Login extension will securely connect to the VM using Azure AD instead of SSH or a username and password. [Learn more](#)
- Virtual machine user or administrator login**: A virtual machine administrator login role on the resource group will allow

Below the prerequisites, the 'Connect from your local machine' section is visible. The 'SSH using Azure CLI' option is selected. The terminal window at the bottom shows the following output:

```
Bash
Requesting a Cloud Shell.Succeeded.
Connecting terminal...

Welcome to Azure Cloud Shell

Type "az" to use Azure CLI
Type "help" to learn about Cloud Shell

az ssh vm --resource-group swetha --vm-name vm1 --subscription 5d0b2d9d-e218-4eba-a8bc-08aba99c9622
Storage fileshare subscription 5d0b2d9d-e218-4eba-a8bc-08aba99c9622 is not registered to Microsoft.CloudShell Namespace. Please follow these instructions "https://aka.ms/RegisterCloudShell" to register. In future, unregistered subscriptions will have restricted access to CloudShell service.

swetha [ ~ ]$ az ssh vm --resource-group swetha --vm-name vm1 --subscription 5d0b2d9d-e218-4eba-a8bc-08aba99c9622
OpenSSH 8.9p1, OpenSSL 1.1.1k FIPS 25 Mar 2021
```