

EXPERIMENT 13

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

The screenshot shows the Microsoft Azure portal home page. The top navigation bar includes the Microsoft Azure logo, a search bar, and user information for 'keerthireddy4165.sse...'. Below the navigation bar, there are two main sections: 'Azure services' and 'Resources'. The 'Azure services' section features icons for various services like 'Create a resource', 'App Services', 'Virtual machines', 'Resource groups', 'Quickstart Center', 'Storage accounts', 'SQL databases', 'Azure Cosmos DB', 'Kubernetes services', and 'More services'. The 'Resources' section has a 'Recent' tab selected, showing a table of recently viewed resources.

Name	Type	Last Viewed
sreenureddy	Virtual machine	a few seconds ago
bharathi87_group	Resource group	11 minutes ago
bharathi87	Static Web App	15 minutes ago
keerthi	Resource group	30 minutes ago
sreenureddy685_z1	Network interface	48 minutes ago
KEERTHIREDDY	Resource group	51 minutes ago
tulasireddy	Static Web App	an hour ago
tulasireddy_group	Resource group	an hour ago

The screenshot shows the 'Virtual machines' page in the Microsoft Azure portal. The page title is 'Virtual machines' and it indicates the user is in the 'Default Directory (keerthireddy4165.sse...@microsoft.com)'. Below the title, there are several action buttons: '+ Create', 'Switch to classic', 'Reservations', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', 'Assign tags', 'Start', 'Restart', 'Stop', and 'Delete'. A filter bar is present with a search box and several filter buttons: 'Subscription equals all', 'Type equals all', 'Resource group equals all', and 'Location equals all'. The page shows 'Showing 1 to 2 of 2 records.' and a table of virtual machines.

Name	Type	Subscription	Resource group	Location	Status	Operating system	Size	Public IP
VM2	Virtual machine	Azure for Students	keerthi	East US	Running	Linux	Standard_D2s_v3	20.106.21
VM3	Virtual machine	Azure for Students	keerthi	Central India	Running	Linux	Standard_D2s_v3	20.197.48

EXPERIMENT 13

Create a virtual machine - Micro

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

Microsoft Azure

Search resources, services, and docs (G+)

keerthireddy4165.sse...
DEFAULT DIRECTORY (KEERTHIRE...

Home > Virtual machines >

Create a virtual machine

Instance details

Virtual machine name *

sony

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

x64

Run with Azure Spot discount

Size *

Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹7,739.57/month)
See all sizes

Review + create

< Previous

Next: Disks >

Give feedback

33°C
Haze

Search

ENG
US

2:26 PM
18/10/2023

Create a virtual machine - Micro

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

Microsoft Azure

Search resources, services, and docs (G+)

keerthireddy4165.sse...
DEFAULT DIRECTORY (KEERTHIRE...

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

OS disk type *

Delete with VM ☒

Review + create

< Previous

Next: Networking >

Give feedback

33°C
Haze

Search

ENG
US

2:26 PM
18/10/2023

Save password?

Username: keerthireddy32

Password:

Save

Never

You can use saved passwords on any device. They're saved to [Google Password Manager](#) for keerthireddy4165.sse@saveetha.com.

EXPERIMENT 13

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Networking' tab. The page title is 'Create a virtual machine' with a close button. The breadcrumb navigation is 'Home > Virtual machines >'. The tabs are 'Basics', 'Disks', 'Networking' (selected), 'Management', 'Monitoring', 'Advanced', 'Tags', and 'Review + create'. The description states: 'Define network connectivity for your virtual machine by configuring network interface card (NIC) settings. You can control ports, inbound and outbound connectivity with security group rules, or place behind an existing load balancing solution. [Learn more](#)'. The 'Network interface' section says: 'When creating a virtual machine, a network interface will be created for you.' The configuration options are: 'Virtual network *' set to '(new) sony-vnet' with a 'Create new' link; 'Subnet *' set to '(new) default (10.1.0.0/24)' with a 'Create new' link; 'Public IP' set to '(new) sony-ip' with a 'Create new' link; and 'NIC network security group' with radio buttons for 'None', 'Basic' (selected), and 'Advanced'. At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next: Management >', along with a 'Give feedback' link. The browser address bar shows 'portal.azure.com/#create/Microsoft.VirtualMachine-ARM'. The Windows taskbar at the bottom shows the date and time as 2:27 PM on 18/10/2023.

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

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

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * (new) sony-vnet [Create new](#)

Subnet * (new) default (10.1.0.0/24) [Create new](#)

Public IP (new) sony-ip [Create new](#)

NIC network security group ☐ None ☒ Basic ☐ Advanced

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

https://go.microsoft.com/fwlink/?linkid=2033964&clcid=0x409

33°C Haze Search

ENG US 2:27 PM 18/10/2023

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Management' tab. The page title is 'Create a virtual machine' with a close button. The breadcrumb navigation is 'Home > Virtual machines >'. The tabs are 'Basics', 'Disks', 'Networking', 'Management' (selected), 'Monitoring', 'Advanced', 'Tags', and 'Review + create'. The description states: 'Configure management options for your VM.' The 'Microsoft Defender for Cloud' section says: 'Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)'. The configuration options are: 'Enable basic plan for free' with an unchecked checkbox and a note 'This will apply to every VM in the selected subscription'; 'Identity' section with 'Enable system assigned managed identity' and an unchecked checkbox; and 'Azure AD' section with 'Login with Azure AD' and an unchecked checkbox. A note at the bottom states: 'RBAC role assignment of Virtual Machine Administrator Login or Virtual Machine User Login is required when using Azure AD login. [Learn more](#)'. At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next: Monitoring >', along with a 'Give feedback' link. The browser address bar shows 'portal.azure.com/#create/Microsoft.VirtualMachine-ARM'. The Windows taskbar at the bottom shows the date and time as 2:27 PM on 18/10/2023.

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

Configure management options for your VM.

Microsoft Defender for Cloud

Microsoft Defender for Cloud provides unified security management and advanced threat protection across hybrid cloud workloads. [Learn more](#)

Enable basic plan for free ☐ This will apply to every VM in the selected subscription

Identity

Enable system assigned managed identity ☐

Azure AD

Login with Azure AD ☐

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

RBAC role assignment of Virtual Machine Administrator Login or Virtual Machine User Login is required when using Azure AD login. [Learn more](#)

33°C Haze Search

ENG US 2:27 PM 18/10/2023

EXPERIMENT 13

The image displays two screenshots of the Microsoft Azure portal's 'Create a virtual machine' wizard. The top screenshot shows the 'Monitoring' tab, where users can configure monitoring options. It includes sections for 'Alerts' (with an option to 'Enable recommended alert rules') and 'Diagnostics' (with options for 'Boot diagnostics' and 'Enable OS guest diagnostics'). The bottom screenshot shows the 'Advanced' tab, which allows for additional configuration. It includes sections for 'Extensions' (to add post-deployment configuration), 'VM applications' (to add application files and scripts), and 'Custom data and cloud init' (to pass cloud-init scripts or configuration files). Both screenshots show the 'Review + create' button at the bottom of the wizard steps.

Microsoft Azure portal interface showing the 'Create a virtual machine' wizard. The browser address bar shows `portal.azure.com/#create/Microsoft.VirtualMachine-ARM`.

The wizard is titled 'Create a virtual machine' and includes tabs for configuration steps: Basics, Disks, Networking, Management, **Monitoring**, Advanced, Tags, and Review + create.

Monitoring Tab:

- Configure monitoring options for your VM.
- Alerts:** Enable recommended alert rules ☐
- Diagnostics:**
 - Boot diagnostics ☐ Enable with managed storage account (recommended) ☒ Enable with custom storage account ☐ Disable
 - Enable OS guest diagnostics ☐

Navigation buttons: Review + create, < Previous, Next: Advanced >

Advanced Tab:

- Add additional configuration, agents, scripts or applications via virtual machine extensions or cloud-init.
- Extensions:** Extensions provide post-deployment configuration and automation. Select an extension to install.
- VM applications:** 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](#)
- Select a VM application to install
- Custom data and cloud init:** 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](#)

Navigation buttons: Review + create, < Previous, Next: Tags >

EXPERIMENT 13

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

Tags are name/value pairs that enable you to categorize resources and view consolidated billing by applying the same tag to multiple resources and resource groups. [Learn more about tags](#)

Note that if you create tags and then change resource settings on other tabs, your tags will be automatically updated.

Name	Value	Resource
machine	10	All resources
architecture	20	13 selected
	20	13 selected

Review + create < Previous Next: Review + create > Give feedback

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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**

✓ Validation passed

Cost given below is an estimate and not the final price. Please use [Pricing calculator](#) for all your pricing needs.

Price

1 X Standard D2s v3 by Microsoft
Terms of use | Privacy policy

Subscription credits apply
10.6022 INR/hr
[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may change my content, usage, and transactional...

Create < Previous Next > Download a template for automation Give feedback

33°C Haze Search 2:27 PM 18/10/2023

EXPERIMENT 13

Microsoft Azure portal showing the "Create a virtual machine" wizard. The wizard is at the "Generate new key pair" step. The user has selected "1 X Standard D2s v3" and the price is "10.6022 INR/hr". The user's name is "gajjala reddy" and their email is "keerthireddy4165.sse@saveetha.com". A modal dialog box is open, asking to "Generate new key pair" and offering to "Download private key and create resource" or "Return to create a virtual machine".

Validation passed

Price

1 X Standard D2s v3
by Microsoft
Terms of use | Privacy policy

Subscription credits apply ①
10.6022 INR/hr
Pricing for other VM sizes

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with this offering; (b) authorize Microsoft to bill my current payment method for the fees associated with this offering at the billing frequency as my Azure subscription; and (c) agree that Microsoft may share information with the provider(s) of the offering(s) for support, billing and other purposes. See the Azure Marketplace Terms for additional information and provide rights for third-party offerings.

Name: gajjala reddy

Preferred e-mail address: keerthireddy4165.sse@saveetha.com

Preferred phone number:

Create < Previous Next > Download a template for automation Give feedback

33°C Haze

Search

ENG US 2:28 PM 18/10/2023

CreateVm-canonical.0001-com-ubuntu-server-focal-2-20231018142559 | Overview

Deployment

Search << Delete Cancel Redeploy Download Refresh

Overview Inputs Outputs Template

Deployment is in progress

Deployment name: CreateVm-canonical.0001-com-ubuntu-server-focal-2-20231018142559 Start time: 10/18/2023, 2:28:27 PM
Subscription: Azure for Students Correlation ID: d2eef545-ca1f-44d9-85f7-b6603ae
Resource group: KEERTHIREDDY

Deployment details

Resource	Type	Status	Operation details
sony-vnet	Microsoft.Network/virtualNetworks	Created	Operation details
sony-nsg	Microsoft.Network/networkSecurityGroups	Created	Operation details
sony-ip	Microsoft.Network/publicIPAddresses	Created	Operation details

Give feedback
Tell us about your experience with deployment

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 >

33°C Haze

Search

ENG US 2:28 PM 18/10/2023

EXPERIMENT 13

The image displays two screenshots of the Microsoft Azure portal interface.

Top Screenshot: Deployment Overview

- Page Title:** CreateVm-canonical.0001-com-ubuntu-server-focal-2-20231018142559 | Overview
- Deployment Status:** Your deployment is complete (indicated by a green checkmark).
- Deployment Details:**
 - Deployment name: CreateVm-canonical.0001-com-ubuntu-server-f...
 - Subscription: Azure for Students
 - Resource group: KEERTHIREDDY
 - Start time: 10/18/2023, 2:28:27 PM
 - Correlation ID: d2eef545-ca1f-44d9-85f7-b660
- Next steps:**
 - Setup auto-shutdown (Recommended)
 - Monitor VM health, performance and network dependencies (Recommended)
 - Run a script inside the virtual machine (Recommended)
- Buttons:** Go to resource, Create another VM
- Feedback:** Tell us about your experience with deployment
- Side Panel (Cost Management):**
 - 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.

Bottom Screenshot: Virtual Machine Connect Page

- Page Title:** sony | Connect
- Virtual machine:** sony
- Connect Options:**
 - Connecting using: Public IP address | 20.235.48.10
 - Admin username: azureuser
 - Port (change): 22 (Check access)
 - Just-in-time policy: Unsupported by plan
- Recommended Connection Methods:**
 - SSH using Azure CLI:** Quickly connect in browser. Supports Azure AD authentication. Private key not required. Public IP address (20.235.48.10). [Select]
 - Native SSH:** No additional software needed. Private key required for connection. Best for those with existing SSH tools. Public IP address (20.235.48.10). [Select]

The screenshot shows the Microsoft Azure portal interface. At the top, the browser address bar displays the URL: `portal.azure.com/#@keerthireddydg4165ssesaveeth.onmicrosoft.com/resource/subscriptions/e7dc773a-8e2d-42f6-9d4c-f23c9d3530ea/resourceegro...`. The page title is "SSH using Azure CLI". The main content area is divided into two columns. The left column, titled "Recommended", shows the "SSH using Azure CLI" option selected, with a "Select" button. The right column, titled "Most common", shows the "Native SSH" option. Below these columns, there is a section for "Configure prerequisites" with a list of steps: "Configuring prerequisites", "System assigned managed identity", "Azure AD SSH Login Extension", "Virtual machine user or administrator login", "Port 22 access", and "Public IP address: 20.235.48.10". A "Close" button is located at the bottom right of the page.

PAGE 1