



Placement Empowerment Program

Cloud Computing and DevOps Centre

Set Up a Virtual Machine in the Cloud Create a free-tier AWS, Azure, or GCP account. Launch a virtual machine and SSH into it.

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Introduction:

Setting up a Virtual Machine (VM) in the cloud allows users to run applications and services remotely. In this task, we will create a free-tier Virtual Machine on Microsoft Azure, which provides cloud computing resources for beginners and

professionals. The process involves setting up an Azure account, launching a VM with the desired configuration, and connecting to it using SSH. We will choose the password-based authentication method to access the VM securely. Once connected, we can execute commands and deploy applications remotely. This setup helps in learning cloud computing, server management, and remote access. By completing this task, users gain hands-on experience with cloud based virtual machines.

Overview:

Here's an overview of the task :

1. **Azure Account Setup** – Create a free-tier Azure account to access cloud resources.
2. **Virtual Machine Creation** – Launch a VM by selecting OS, size, and authentication type.
3. **Authentication Method** – Choose password-based login for easy SSH access.
4. **Retrieve Public IP** – Obtain the VM's public IP address from the Azure portal.
5. **SSH Connection** – Use the terminal to connect to the VM using the provided credentials.
6. **Remote Access & Usage** – Successfully log in to the VM and perform basic operations.

Objectives:

The objective of this task is to understand the fundamentals of cloud computing by setting up a virtual machine on Microsoft Azure. It aims to guide users in creating and configuring a free-tier VM, selecting appropriate settings, and enabling secure remote access using SSH with a password-based authentication method. By successfully connecting to the VM, users will learn how to manage and operate a cloud-based server. This hands-on experience helps in developing essential skills in cloud infrastructure, networking, and remote server

management, which are crucial for working with cloud platforms and modern computing environments.

Step-by-Step Overview

Step 1:

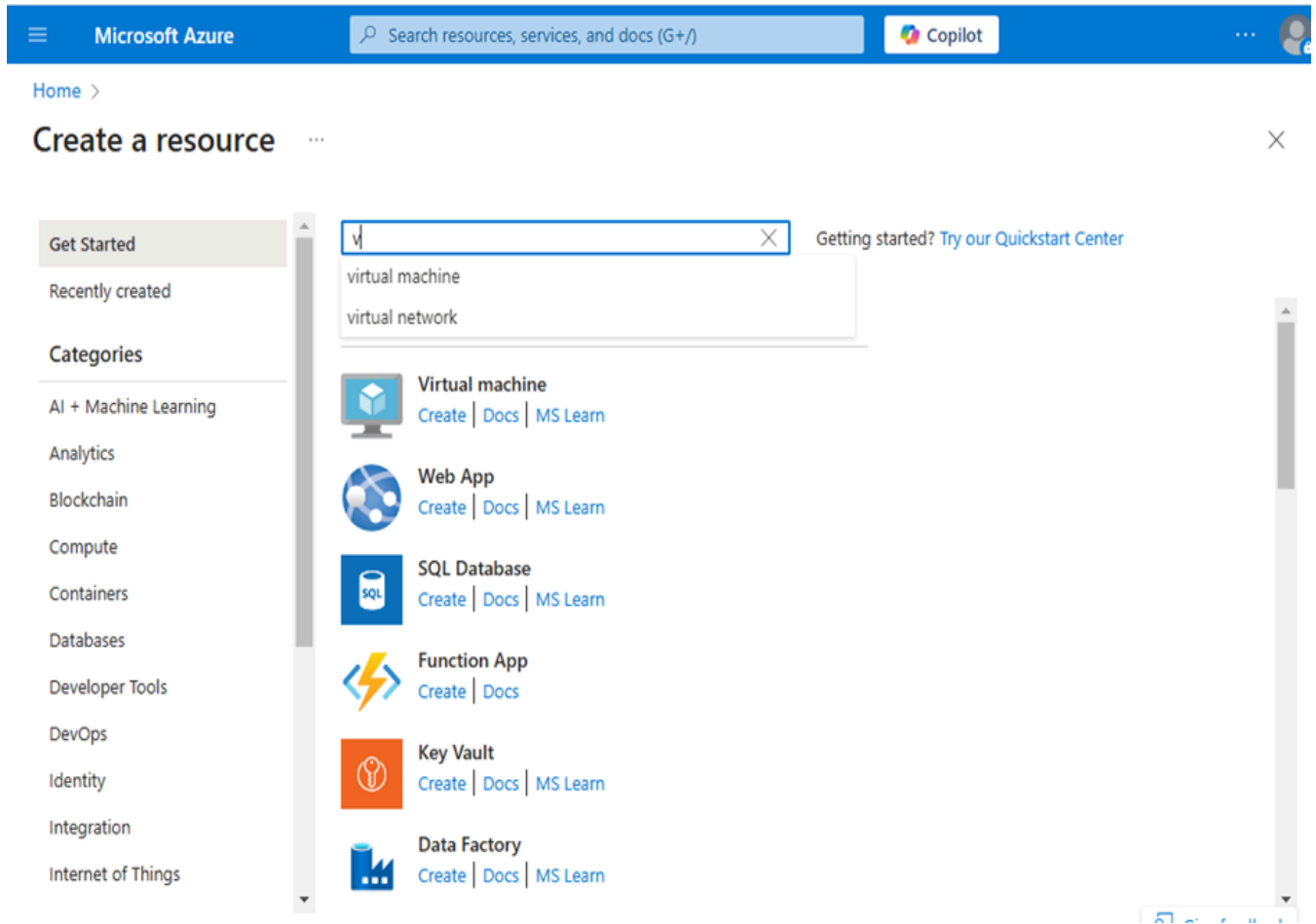
Create a Virtual Machine on Azure

1. **Log in to the Azure portal:**
Visit [Azure Portal](#) and log in with your Azure account credentials.

Create a Virtual Machine:

In the left pane, click on "Create a resource".

Under "Compute", click on "Virtual Machine".



Step 2

Configure your VM

Subscription: Choose your free-tier subscription.

Resource Group: Create a new resource group or select an existing one.

Virtual Machine Name: Choose a unique name for your VM.

Region: Choose a region that's eligible for the free tier (e.g., East US, West US).

Image: Choose an image like Ubuntu (or any free-tier eligible OS).

Size: Select a free-tier VM size, such as B1s.

Authentication Type: Choose **SSH public key** for Linux VMs.

Username: Choose a username for the VM (this will be used to log in via SSH).


SSH Public Key: Either use an existing SSH public key or generate a new one (instructions for generating one are in Step 3).


Microsoft Azure


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[Home](#) > [Create a resource](#) >

Create a virtual machine ...

 Help me create a low cost VM

 Help me create a VM optimized for high availability

 Help me ch

Project details

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

Subscription * ⓘ

Pay-As-You-Go (4173158e-75bf-44a6-b72b-9506c5c8d54c) ▼

Resource group * ⓘ

azresource ▼

[Create new](#)

Instance details

Virtual machine name * ⓘ

virtual01 ✓

Region * ⓘ

(Asia Pacific) Central India ▼

Availability options ⓘ

Availability zone ▼

Zone options ⓘ

☒ Self-selected zone

< Previous

Next : Disks >


Review + create


Microsoft Azure


Search resources, services, and docs (G+)

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Create a virtual machine ...


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 Help me


☒ Allow selected ports


Select inbound ports * HTTP (80), HTTPS (443), SSH (22), RDP (3389) 

 **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.

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Step 3

Access your VM via SSH

1. Get the VM's Public IP:

After your VM is created, go to Virtual Machines in the Azure portal.
Select your newly created VM, and note the Public IP Address under the Overview section.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a blue header with the Microsoft Azure logo, a search bar, and a Copilot button. Below the header, the breadcrumb navigation shows 'Home > CreateVm-MicrosoftWindowsServer.WindowsServer-202-20250206043331 | Overview >'. The main content area is titled 'virtual01' with a subtitle 'Virtual machine'. A search bar is present. On the left, there's a sidebar with navigation options: Overview (selected), Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, and Automation. The main content area has a warning banner: 'virtual01 virtual machine agent status is not ready. Troubleshoot the issue ->'. Below this is a button 'Help me copy this VM in any region'. A row of action buttons includes Connect, Start, Restart, Stop, Hibernate, Capture, Delete, and Refresh. The 'Essentials' section displays key VM details in two columns. A 'JSON View' link is on the right.

Essentials	
Resource group (move)	Operating system
azresource	Windows
Status	Size
Running	Standard D2s v3 (2 vcpus, 8 GiB memory)
Location	Public IP address
Central India (Zone 1)	20.193.132.119
Subscription (move)	Virtual network/subnet
Pay-As-You-Go	vm01-vnet/default
Subscription ID	DNS name
4173158e-75bf-44a6-b72b-9506c5c8d54c	Not configured
Availability zone	Health state
1	-
	Time created
	2/5/2025, 11:05 PM UTC

SSH into your VM:

Open a terminal (or command prompt on Windows using Git Bash).

Use the following SSH command: `ssh -i`

`~/ssh/my_azure_key username@<VM_PUBLIC_IP>`

Replace **username** with the one you selected while setting up the VM and **<VM_PUBLIC_IP>** with the actual IP address of the VM.

Step 4:

Accept the SSH fingerprint

The first time you connect, you might be asked to accept the SSH fingerprint. Type yes and hit Enter.

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

System information as of Mon Feb  3 17:55:17 UTC 2025

System load:  0.26          Processes:            110
Usage of /:   5.4% of 28.02GB Users logged in:      0
Memory usage: 70%          IPv4 address for eth0: 10.1.0.4
Swap usage:   0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
```

Outcomes

1. Successfully created a free-tier Azure Virtual Machine.
2. Configured VM settings, including OS, size, and authentication method
3. Retrieved the public IP address of the VM.
4. Connected to the VM using SSH with a password.
5. Verified remote access and executed basic commands inside the V