

## **Placement Empowerment Program**

### *Cloud Computing and DevOps Centre*

Secure Access with a Bastion Host : Set up a bastion host in a public subnet to securely access instances in a private subnet.

**NAME - MAHASHREE U**

**DEPT - ADS**

**Task: Secure Private Network with Bastion Host for Secure VM Access**

**Description:**

In this task, we will **set up a secure private network** in Azure by:

1. **Creating a Virtual Network (VNet)** with subnets.
2. **Configuring a Bastion Host** in a **Public Subnet** for secure access.
3. **Deploying VMs in Private Subnets** and using Azure Bastion for access.

Using **Azure Bastion**, you can securely connect to VMs **without exposing them to the internet**, eliminating the need for public IP addresses or SSH/RDP ports.

## Step-by-Step Implementation

### Step 1: Create a Virtual Network (VNet)

1. Go to **Azure Portal** → **Virtual Networks** → Click **Create**.
2. Configure:
  - **Name:** SecureVNet
  - **Region:** Select the appropriate region.
  - **IP Address Space:** 10.0.0.0/16
3. Click **Next: IP Addresses**.

### Step 2: Create Subnets

We will create **two subnets**:

1. **Public Subnet (for Bastion Host)**
  - Name: BastionSubnet
  - Address Range: 10.0.0.0/27 (Must be named AzureBastionSubnet)
2. **Private Subnet (for VMs)**
  - Name: PrivateSubnet
  - Address Range: 10.0.1.0/24
3. Click **Review + Create** → **Create**.

### Step 3: Deploy Azure Bastion

1. Go to **Azure Portal** → **Bastions** → Click **Create**.
2. Configure:
  - **Name:** MyBastionHost
  - **Region:** Same as VNet.
  - **Virtual Network:** Select SecureVNet.
  - **Subnet:** Select AzureBastionSubnet.
  - **Public IP:** Create a new Public IP (used only by Bastion, not VMs).
3. Click **Review + Create** → **Create**.

### Step 4: Deploy VMs in Private Subnet

1. Go to **Virtual Machines** → **Create VM**.
2. Configure:
  - **Name:** PrivateVM
  - **Region:** Same as VNet.
  - **Image:** Select OS (Windows/Linux).
  - **Size:** Choose appropriate size.
  - **Networking:**
    - **VNet:** Select SecureVNet.
    - **Subnet:** Select PrivateSubnet.

- **Public IP: None** (to keep it private).

3. Click **Review + Create** → **Create**.
4. Repeat the process for additional private VMs.

## Step 5: Access the Private VM via Bastion

1. Go to **Virtual Machines** → Select Private VM.
2. Click **Connect** → Select **Bastion**.
3. Enter VM credentials → Click **Connect**.
4. You are now securely connected to the VM without exposing it to the internet.

## ✓ Private Network Secured with Azure Bastion

Microsoft Azure

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.

Help me create a low cost VM | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

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

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

**Project details**

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

Subscription \*

Resource group \*  [Create new](#)

**Instance details**

Virtual machine name \*

Region \*

Availability options

< Previous | Next : Disks > | **Review + create**

**Estimated monthly costs**

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

|   |                  |
|---|------------------|
| Basics                                  | ₹850.25          |
| Virtual machine                         | ₹850.25          |
| Image<br>Windows Server 2019 Datacenter | ₹218.64          |
| Size<br>Standard_B1s                    | ₹631.61          |
| <b>Estimated monthly cost</b>           | <b>₹2,309.32</b> |

Give feedback

Microsoft Azure

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20250101174455 | Overview > windows-vm | Bastion >

### Create a Bastion

**Configure virtual networks**

Virtual network \*  [Create new](#)

Subnet \*  [Manage subnet configuration](#)

**Configure IP Address**

IP Address ☒ Public IP address ☐ Private IP address

**Public IP address**

Public IP address \* ☒ Create new ☐ Use existing

Public IP address name \*

Public IP address SKU

Assignment ☐ Dynamic ☒ Static

Availability zone

**Review + create** | Previous | Next : Advanced > | [Download a template for automation](#)

Microsoft Azure

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

Copilot

mahaiva20@gmail.com

DEFAULT DIRECTORY

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20250101174455 | Overview >

windows-vm

Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

Advisor (1 of 1): Enable Trusted Launch foundational excellence, and modern security for Existing Generation 2 VM(s) →

Help me copy this VM in any region

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

Essentials

Resource group (move) : bastion-rg

Status : Running

Location : East US

Subscription (move) : Azure subscription 1

Subscription ID : 5b213333-277d-408c-9511-e60e8ba11a8b

Tags (edit) : Add tags

Operating system : Windows (Windows Server 2019 Datacenter)

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

Public IP address :

Virtual network/subnet : windows-vm-vnet/default

DNS name :

Health state : -

Time created : 01/01/2025, 12:02 UTC

JSON View

Properties

Monitoring

Capabilities (8)

Recommendations (1)

Tutorials

Virtual machine

Computer name : windows-vm

Operating system : Windows (Windows Server 2019 Datacenter)

VM generation : V2

Networking

Public IP address : -

Public IP address (IPv6) : -

Private IP address : 10.0.0.4

Microsoft Azure

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

Copilot

mahaiva20@gmail.com

DEFAULT DIRECTORY

Home > CreateVm-MicrosoftWindowsServer.WindowsServer-201-20250101174455 | Overview > windows-vm | Bastion >

Create a Bastion

Basics 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](#)

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

Name

Value

Resource

Environment : Development 4 selected

: 4 selected

Review + create

Previous

Next : Review + create >

[Download a template for automation](#)

Microsoft Azure

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

Copilot

mahaiva20@gmail.com

DEFAULT DIRECTORY

Home > Microsoft.BastionHost-20250101180413 | Overview >

windowsBastion

Bastion

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Settings

Monitoring

Automation

Help

Delete Refresh

Essentials

Resource group (move) : bastion-rg

Location : East US

Subscription (move) : Azure subscription 1

Subscription ID : 5b213333-277d-408c-9511-e60e8ba11a8b

Tags (edit) : Environment : Development

Virtual network/subnet : windows-vm-vnet/AzureBastionSubnet

Public DNS name : bst-68ba2f82-5102-4c2a-9f45-8579cb0f97ce.bastion.azure.com

Public IP address : windows-vm-vnet-ip

Tier : Standard

Provisioning state : Succeeded

Availability zone : None

JSON View

Sessions

Tutorials

| SessionId   | StartTime (UTC) | TargetSubscriptionId | ResourceType | TargetHostName | TargetResourceGrou... | UserName | TargetIPAddress | Protocol |
|-------------|-----------------|----------------------|--------------|----------------|-----------------------|----------|-----------------|----------|
| No results. |                 |                      |              |                |                       |          |                 |          |

Microsoft Azure

Search resources, services, and docs (G+)

Copilot

mahaiva20@gmail.com  
DEFAULT DIRECTORY

Home > windows-vm

windows-vm | Bastion

Virtual machine

Search

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Connect

Bastion

Windows Admin Center

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Please enter username and password to your virtual machine to connect using bastion.

Connection Settings

Protocol \*  
☒ RDP ☐ SSH

Port  
3389

Keyboard Language  
English (US)

Authentication Type  
VM Password

Username  
Mahahsree

VM Password  
\*\*\*\*\*

Show

☒ Open in new browser tab

Connect

Tell us what you think of the Bastion experience

