

# **LOAD BALANCER**

**Create an Internal & External Load balancer (Verify It's working).**

Azure Load Balancer sits at Layer 4 (TCP/UDP) and evenly distributes incoming network flows (ex: TCP:80) across a pool of backend targets (VM NICs or IPs). It supports both Public (internet-facing) and Internal (private VNet) frontends and can scale to millions of flows with low latency. It uses health probes to send traffic only to healthy instances.

## **Public vs. Internal**

- Public Load Balancer exposes a public IP; clients on the internet connect to it; traffic is distributed to private VMs. It can also provide outbound SNAT for those VMs.
- Internal Load Balancer exposes a private IP inside your virtual network (or reachable via VPN/ExpressRoute); used for *tier-to-tier* or *on-prem to Azure* private workloads.

## **Why Standard SKU?**

- Zone-redundant, secure by default (no open inbound unless NSG allows), supports TCP/UDP, rich diagnostics, outbound rules, HA Ports, HTTPS probes, and mixes with NAT Gateway. Basic is open by default, limited, and retiring Sept 30, 2025—don't start new projects with it.

## **Where Azure Load Balancer Fits Among Other Azure Load-Balancing Services**

Azure also offers Application Gateway (Layer 7 / WAF), Front Door (global HTTP(S) acceleration), Traffic Manager (DNS routing), and more. For this lab we focus on regional, Layer-4 load distribution to IaaS VMs using Azure Load Balancer.

**Goal:** By the end of this project you will have:

1. A working **Standard Public Load Balancer** distributing HTTP traffic across two web VMs.
  2. A working **Standard Internal Load Balancer** distributing HTTP traffic across two private app VMs.
  3. A simple way to **test/verify** that both load balancers work (sticky vs non-sticky behaviour, failover when one VM is stopped, probe status, etc.).
  4. Basic familiarity with the Azure Portal and (optionally) Azure CLI.
- 

## Understanding the Project

- External Load Balancer → Distributes traffic to backend VMs that are publicly accessible from the internet.
- Internal Load Balancer (ILB) → Distributes traffic inside a virtual network (no public internet access).

## Both will have:

- Backend Pool → Virtual Machines (VMs) behind the load balancer.
- Health Probe → Checks the health of VMs.
- Load Balancer Rule → Defines how traffic is distributed (e.g., port 80 for HTTP).

## Naming & Region Planning

Item	Suggested Name	Notes
Resource Group	rg-lb-demo	One RG keeps cleanup easy.
Virtual Network	vnet-lb-demo	10.0.0.0/16 CIDR (adjust if conflict).

Subnets	subnet-web 10.0.1.0/24 · subnet-app 10.0.2.0/24 · subnet-test 10.0.3.0/24	Clear separation.
NSG(s)	nsg-web, nsg-app, nsg-test	You can reuse one NSG to simplify, but keep ports controlled.
Public LB	plb-web	Standard, IPv4.
Public IP	pip-plb-web	Standard SKU required with Standard LB.
Backend Pool	plb-web-bepool	web-vm1/2 NICs.
Health Probe	plb-web-probe-http	TCP or HTTP 80.
LB Rule	plb-web-rule-http	Frontend 80 → Backend 80.
Internal LB	ilb-app	Standard, private.
Private Frontend IP	10.0.2.10	Static inside subnet-app.
Backend Pool	ilb-app-bepool	app-vm1/2 NICs.
Probe	ilb-app-probe-http	TCP or HTTP 80.
Rule	ilb-app-rule-http	Frontend 80 → Backend 80.

When creating a **Standard Public Load Balancer**, you must pair it with a **Standard Public IP**; SKUs must match. Similarly, Standard LBs support both public and internal types, availability zones, and secure-by-default behavior (traffic blocked unless allowed via NSG).

### Step 1: Create a Resource Group

1. Go to Azure Portal → [portal.azure.com](https://portal.azure.com).
2. Search Resource groups → Click Create.
3. Name: LoadBalancerRG

4. Region: Choose any (e.g., East US)

5. Click Review + Create → Create.

The screenshot shows the Microsoft Azure Resource groups page. At the top, there's a blue header bar with the Microsoft Azure logo, an 'Upgrade' button, and a search bar. Below the header, the URL 'Default Directory (tanishkadeepakkadam@gmail.onmicrosoft.com)' is visible. The main content area has a title 'Resource groups' with a '...' button. Below the title, there are several buttons: '+ Create', 'Manage view', 'Refresh', 'Export to CSV', 'Open query', and 'Assign tags'. A message box says 'You are viewing a new version of Browse experience. Click here to access the old experience.' There are also filter options: 'Subscription equals all', 'Location equals all', and 'Add filter'. The main body of the page is currently empty, showing a light gray background.

The screenshot shows the Microsoft Azure 'Create a resource group' page. At the top, there's a blue header bar with the Microsoft Azure logo, an 'Upgrade' button, and a search bar. Below the header, the URL 'Home > Resource groups >' is visible. The main content area has a title 'Create a resource group' with a '...' button. Below the title, there are three tabs: 'Basics' (which is selected), 'Tags', and 'Review + create'. A descriptive text block explains what a resource group is: 'A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization.' It includes a 'Learn more' link. The form fields for creating a new resource group are shown: 'Subscription \*' (set to 'Azure subscription 1'), 'Resource group name \*' (set to 'LoadBalancerRG'), and 'Region \*' (set to '(US) East US').

Home > Resource groups >

## Create a resource group

...

Basics

Tags

**Review + create**

[Automation Link](#)

### Basics

Subscription

Azure subscription 1

Resource group name

LoadBalancerRG

Region

East US

### Tags

None

Home >

## Resource groups

...

Default Directory (tanishkadeepakkad@gmail.onmicrosoft.com)

[+ Create](#) [Manage view](#) [⟳ Refresh](#) [⬇ Export to CSV](#) [🔗 Open query](#) | [∅ Assign tags](#)

ⓘ You are viewing a new version of Browse experience. Click here to access the old experience.

[Filter for any field...](#)

Subscription equals all

Location equals all

[X](#)

[+ Add filter](#)



Name ↑

Subscription

Location



 LoadBalancerRG

...

Azure subscription 1

East US

## Step 2: Create a Virtual Network (VNet) and Subnets

1. Search Virtual networks → Click Create.
2. Name: MyVNet
3. Region: Same as Resource Group (East US)
4. IP address: Default is fine (10.0.0.0/16)
5. Subnet:
  - Name: frontend-subnet (10.0.1.0/24)
  - Name: backend-subnet (10.0.2.0/24)
6. Review + Create → Create.

Home > Network foundation

### Network foundation | Virtual networks

Preview

Search  Create Manage view Refresh Export to CSV Open query Assign tags

Overview Filter for any field... Subscription equals all Resource group equals all Location equals all Add filter

Virtual network

Showing 0 to 0 of 0 records.

Name ↑	Resource group ↑↓
Virtual networks	
NAT gateways	
Public IP addresses	

## Create virtual network

...

Basics    Security    IP addresses    Tags    Review + create

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation.

[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 \*

Azure subscription 1

Resource group \*

LoadBalancerRG

[Create new](#)

### Instance details

Virtual network name \*

MyVNet

Region \* ⓘ

(US) East US

[Deploy to an Azure Extended Zone](#)

## Create virtual network

...

Basics Security IP addresses Tags Review + create

Configure your virtual network address space with the IPv4 and IPv6 addresses and subnets you need. [Learn more](#)

Define the address space of your virtual network with one or more IPv4 or IPv6 address ranges. Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet. [Learn more](#)

+ Add a subnet

10.0.0.0/16		Delete address space	
Subnets	IP address range	Size	NAT gateway
default	10.0.0.0 - 10.0.0.255	/24 (256 addresses)	-

Add IPv4 address space | ▾

# Add a subnet

X

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose i

Default

Name \* i

frontend-subnet

## IPv4

Include an IPv4 address space



IPv4 address range i

10.0.0.0/16



10.0.0.0 - 10.0.255.255

Starting address \* i

10.0.1.0

Size i

/24 (256 addresses)



Subnet address range i

10.0.1.0 - 10.0.1.255

## IPv6

Include an IPv6 address space



This virtual network has no IPv6 address ranges.

## Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)



## Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway i

None



[Create new](#)

**Add**

**Cancel**

 [Give feedback](#)

# Add a subnet

X

Select an address space and configure your subnet. You can customize a default subnet or select from subnet templates if you plan to add select services later. [Learn more](#)

Subnet purpose (i)

Default

Name \* (i)

backend-subnet

## IPv4

Include an IPv4 address space



IPv4 address range (i)

10.0.0.0/16



10.0.0.0 - 10.0.255.255

Starting address \* (i)

10.0.2.0

Size (i)

/24 (256 addresses)



Subnet address range (i)

10.0.2.0 - 10.0.2.255

## IPv6

Include an IPv6 address space



This virtual network has no IPv6 address ranges.

## Private subnet

Private subnets enhance security by not providing default outbound access. To enable outbound connectivity for virtual machines to access the internet, it is necessary to explicitly grant outbound access. A NAT gateway is the recommended way to provide outbound connectivity for virtual machines in the subnet. [Learn more](#)

Enable private subnet (no default outbound access)



## Security

Simplify internet access for virtual machines by using a network address translation gateway. Filter subnet traffic using a network security group. [Learn more](#)

NAT gateway (i)

None



[Create new](#)

**Add**

**Cancel**

 [Give feedback](#)

## Create virtual network

Basics Security IP addresses Tags Review + create

Configure your virtual network address space with the IPv4 and IPv6 addresses and subnets you need. [Learn more](#)

Define the address space of your virtual network with one or more IPv4 or IPv6 address ranges. Create subnets to segment the virtual network address space into smaller ranges for use by your applications. When you deploy resources into a subnet, Azure assigns the resource an IP address from the subnet. [Learn more](#)

+ Add a subnet

10.0.0.0/16

 Delete address space

10.0.0.0

/16

10.0.0.0 - 10.0.255.255

65,536 addresses

Subnets

IP address range

Size

NAT gateway

default

10.0.0.0 - 10.0.0.255

/24 (256 addresses)

-



frontend-subnet

10.0.1.0 - 10.0.1.255

/24 (256 addresses)

-



backend-subnet

10.0.2.0 - 10.0.2.255

/24 (256 addresses)

-



Add IPv4 address space 

## Create virtual network

...

Basics

Security

IP addresses

Tags

**Review + create**

[View automation template](#)

### Basics

Subscription	Azure subscription 1
Resource Group	LoadBalancerRG
Name	MyVNet
Region	East US

### Security

Azure Bastion	Disabled
Azure Firewall	Disabled
Azure DDoS Network Protection	Disabled

### IP addresses

Address space	10.0.0.0/16 (65,536 addresses)
Subnet	default (10.0.0.0/24) (256 addresses)
Subnet	frontend-subnet (10.0.1.0/24) (256 addresses)
Subnet	backend-subnet (10.0.2.0/24) (256 addresses)

### Tags

The screenshot shows the Azure Deployment Overview page for a deployment named "MyVNet-1752839213148".

**Deployment Details:**

- Deployment name: MyVNet-1752839213148
- Subscription: Azure subscription 1
- Resource group: LoadBalancerRG
- Start time: 18/07/2025, 17:16:58
- Correlation ID: 376039e2-f461-4c82-ba44-8b35cf33633f

**Resource List:**

Resource	Type	Status	Operation details
MyVNet	Virtual network	OK	<a href="#">Operation details</a>

**Next Steps:**

- [Go to resource](#)

[Give feedback](#)

## Step 3: Create 2 Virtual Machines for Backend

1. Search Virtual Machines → Create.
2. VM1:
  - Name: VM1
  - Region: Same as VNet
  - Image: Windows Server 2019 (or Ubuntu)
  - Size: Standard\_B1s
  - Username & Password: Create your own
  - Networking → Attach to MyVNet → subnet backend-subnet
  - Public IP: Yes (for now, so we can RDP or SSH)

3. Repeat for VM2.

4. After both are deployed, install IIS (Windows) or Apache (Linux) on each VM.

- o For Windows:

- RDP into VM → Open PowerShell → Run:

```
powershell
```

CopyEdit

```
Install-WindowsFeature -name Web-Server -IncludeManagementTools
```

```
echo "Hello from VM1" > C:\inetpub\wwwroot\index.html
```

- Do similar for VM2 with "Hello from VM2".

---

Home > Compute infrastructure

 **Compute infrastructure | Virtual machines** ...

Microsoft

Search Virtual machines Get started

Overview Create Switch to classic Reservations Manage view Refresh Export to CSV Open query Assign tags Start

All resources

Infrastructure

Virtual machines

Virtual Machine Scale Set (VMSS)

Filter for any field... Subscription equals all Type equals all Resource Group equals all Location equals all Add filter

(i) You are viewing a new version of Browse experience. Click here to access the old experience.

## Create a 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

### 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 subscription 1 

Resource group \* 

LoadBalancerRG 

[Create new](#)

### Instance details

Virtual machine name \* 

VM1 

Region \* 

(US) East US 

Availability options 

Availability zone 

Zone options 

Self-selected zone

Choose up to 3 availability zones, one VM per zone

Azure-selected zone (Preview)

Let Azure assign the best zone for your needs

 Using an Azure-selected zone is not supported in region 'East US'.

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 2022 Datacenter: Azure Edition - x64 Gen2 (free services el) 

[See all images](#) | [Configure VM generation](#)

VM architecture 

Arm64

...

## Create a 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 needs

Run with Azure Spot discount



You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription.  
[Learn more](#)

Size \*

Standard\_B1s - 1 vcpu, 1 GiB memory (US\$10.22/month) (free services eligible)

[See all sizes](#)

Enable Hibernation



Hibernate is not supported by the size that you have selected. Choose a size that is compatible with Hibernate to enable this feature. [Learn more](#)

### Administrator account

Username \*

azureuser

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 \*

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.

## Create a virtual machine

 Help me create a low cost VM  Help me create a VM optimized for high availability  Help me choose the right VM

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\* 

MyVNet 

[Create new](#)

Subnet\* 

backend-subnet (10.0.2.0/24) 

[Manage subnet configuration](#)

Public IP 

(new) VM1-ip 

[Create new](#)

NIC network security group 

None

Basic

Advanced

Public inbound ports\* 

None

Allow selected ports

Select inbound ports\*

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.

Delete public IP and NIC when VM is deleted 



< Previous

Next : Management >

**Review + create**

## Create a virtual machine

Validation passed



Help me create a low cost VM

Help me create a VM optimized for high availability

### Basics

Subscription	Azure subscription 1
Resource group	LoadBalancerRG
Virtual machine name	VM1
Region	East US
Availability options	Availability zone
Zone options	Self-selected zone
Availability zone	1
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
Image	Windows Server 2022 Datacenter: Azure Edition - Gen2
VM architecture	x64
Size	Standard B1s (1 vcpu, 1 GiB memory)
Enable Hibernation	No
Username	azureuser
Public inbound ports	RDP
Already have a Windows license?	No
Azure Spot	No

### Disks

OS disk size	Image default
OS disk type	Premium SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled

< Previous

Next >

Create

## Create a virtual machine

 Validation passed



Help me create a low cost VM

Help me create a VM optimized for high availability

Help n

### Networking

Virtual network	MyVNet
Subnet	backend-subnet (10.0.2.0/24)
Public IP	(new) VM1-ip
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No
Delete public IP and NIC when VM is deleted	Disabled

### Management

Microsoft Defender for Cloud	Basic (free)
System assigned managed identity	Off
Login with Microsoft Entra ID	Off
Auto-shutdown	Off
Backup	Disabled
Enable periodic assessment	Off
Enable hotpatch	Off
Patch orchestration options	OS-orchestrated patching: patches will be installed by OS

### Monitoring

Alerts	Off
Boot diagnostics	On
Enable OS guest diagnostics	Off
Enable application health monitoring	Off

Home >



## CreateVm-MicrosoftWindowsServer.WindowsServer-202-20250718172228 | Overview

Deployment

X

«

Delete

Cancel

Redeploy

Download

Refresh

### Overview

Inputs

Outputs

Template

#### Deployment is in progress



Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe...

Start time: 18/07/2025, 17:32:07

Subscription: Azure subscription 1

Correlation ID: 04646c26-ac70-47ce-ad8a-05a6bdbcc1a8

Resource group: LoadBalancerRG



#### Deployment details

Resource	Type	Status
VM1-nsg	Microsoft.Network/networkSecurityGroups	Created
VM1-ip	Microsoft.Network/publicIpAddresses	Created

Give feedback

Tell us about your experience with deployment

Home >



## CreateVm-MicrosoftWindowsServer.WindowsServer-202-20250718172228 | Overview

Deployment

X

«

Delete

Cancel

Redeploy

Download

Refresh

### Overview

Inputs

Outputs

Template

#### Your deployment is complete



Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe...

Start time: 18/07/2025, 17:32:07

Subscription: Azure subscription 1

Correlation ID: 04646c26-ac70-47ce-ad8a-05a6bdbcc1a8



#### Deployment details

Resource	Type	Status
VM1	Microsoft.Compute/virtualMachines	OK
vm1231_z1	Microsoft.Network/networkInterfaces	Created
VM1-nsg	Microsoft.Network/networkSecurityGroups	OK
VM1-ip	Microsoft.Network/publicIpAddresses	OK

#### Next steps

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

View deployment history | View deployment logs | View deployment metrics

Home > VM1

# VM1 | Connect

Virtual machine

Search Refresh Troubleshoot More Options Feedback

Connecting using  
Public IP address | 40.76.112.63

Admin username : azureuser

Port (change) : 3389 Check access

Just-in-time policy : Unsupported by plan

Most common

Native RDP

Connect via native RDP without any additional software needed. Recommended for testing only.

Public IP address (40.76.112.63)

Select Download RDP file

More ways to connect (4)

- Overview
- Activity log
- Access control (IAM)
- Tags
- Diagnose and solve problems
- Resource visualizer
- Favorites
  - Application security groups
- Connect
  - Connect
  - Bastion
  - Windows Admin Center
- Networking
  - Network settings
  - Load balancing
  - Application security groups

# Native RDP



Connect from your local machine (Windows)

Switch local machine OS ▾

## 1 Configure prerequisites for Native RDP

Azure needs to configure some features in order to connect to the VM.

### Validating prerequisites before configuration

#### Port 3389 access

Validating access to port 3389 on the virtual machine. [Learn more](#)

Change the port for connecting to this virtual machine on the Connect page of the virtual machine.

#### Public IP address: 40.76.112.63

A public IP address is required to connect via this connection method.

Validating...

## 2 Open Remote Desktop Connection (on Windows)

Open Remote Desktop Connection. Or change your local machine operating system to view more instructions. [Learn more](#)

## 3 Download and open the RDP file

Download and open the RDP file to connect to the virtual machine.

Username

azureuser



[Download RDP file](#)

## Other Information

- Forgot password?

[Reset password](#)

[Close](#)

[Troubleshooting](#)

[Give feedback](#)

# VM1 | Connect

Virtual machine

Search Refresh Troubleshoot More Options Feedback

Connecting using  
Public IP address | 40.76.112.63

Admin username : azureuser

Port (change) : 3389 Check access ⓘ

Just-in-time policy : Unsupported by plan ⓘ

Most common

Local machine

Native RDP

Connect via native RDP without any additional software needed. Recommended for testing only.

Public IP address (40.76.112.63)

Select Download RDP file

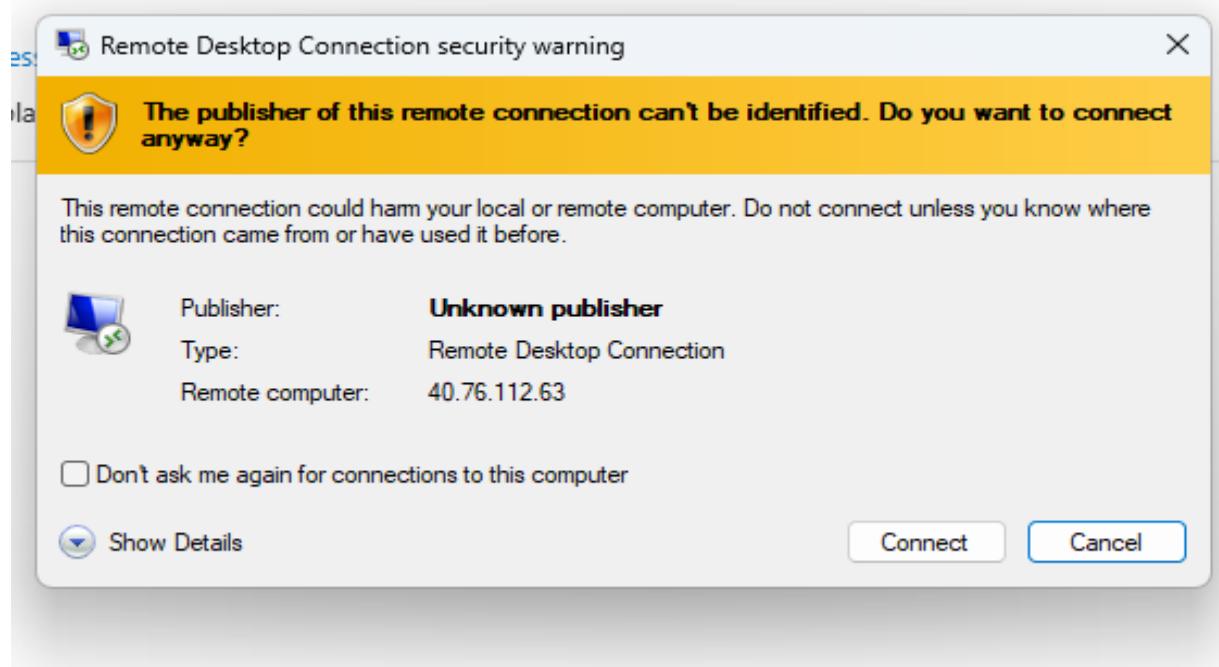
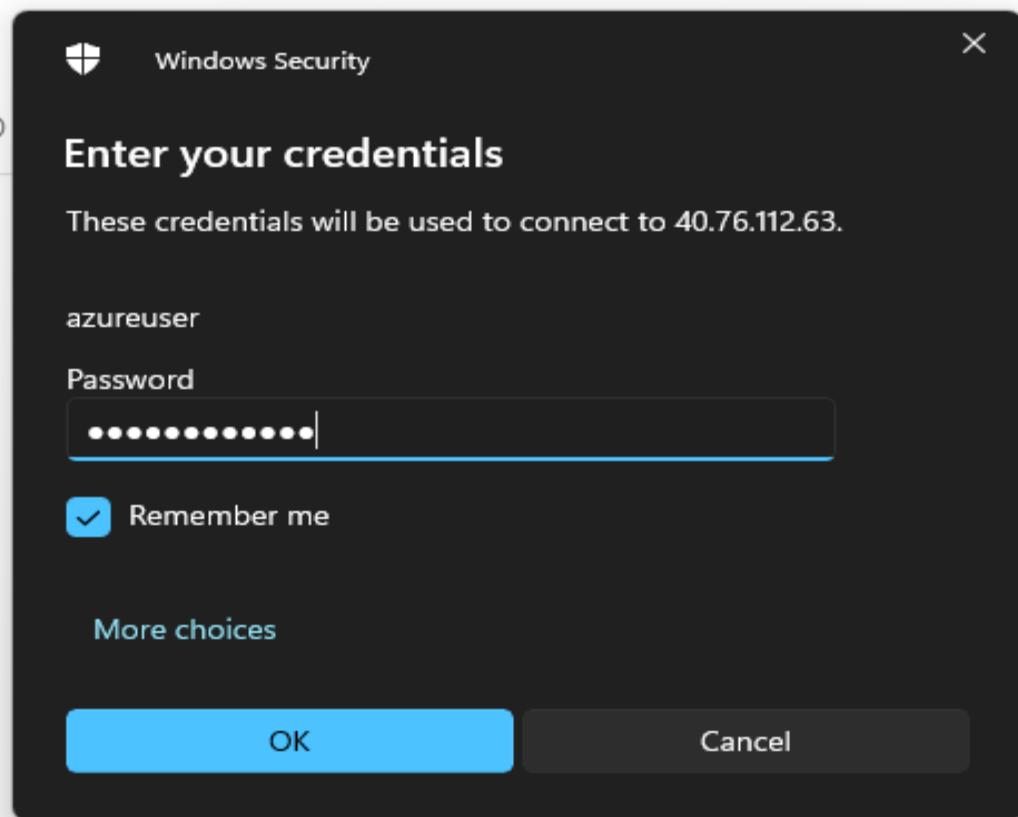
Application security groups

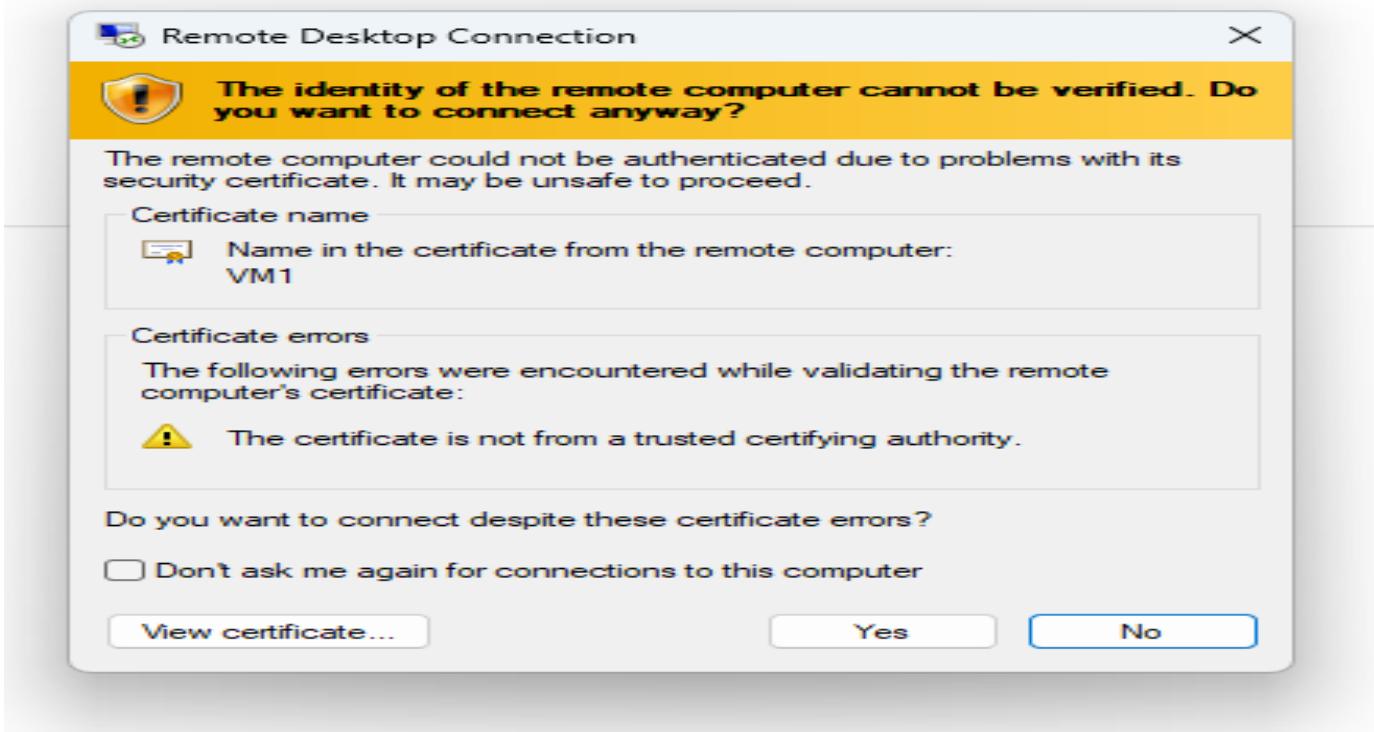
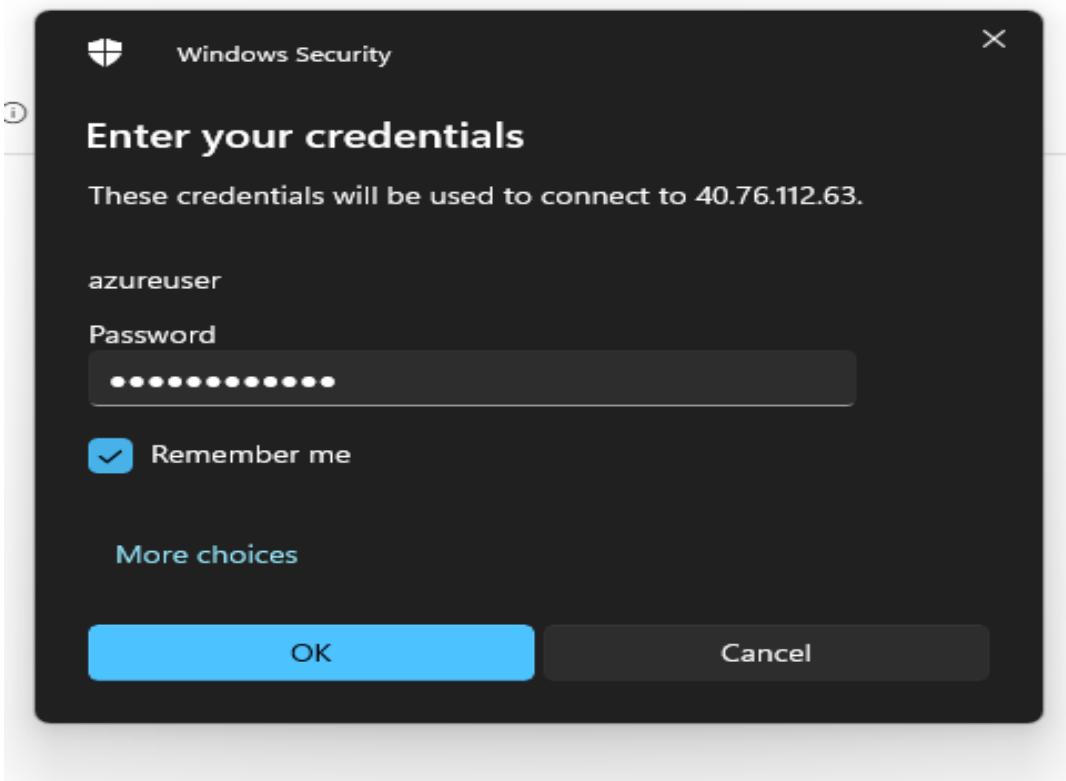
Connect Bastion Windows Admin Center

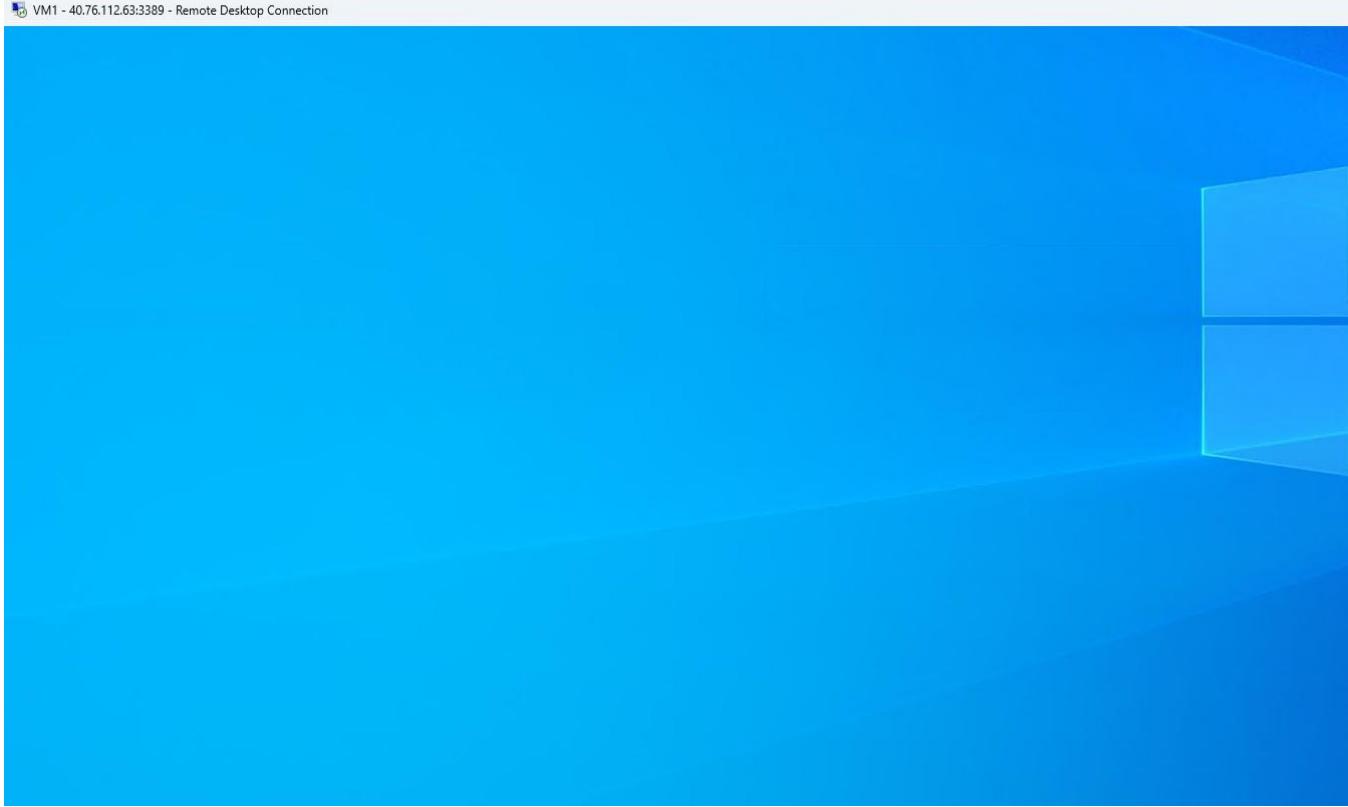
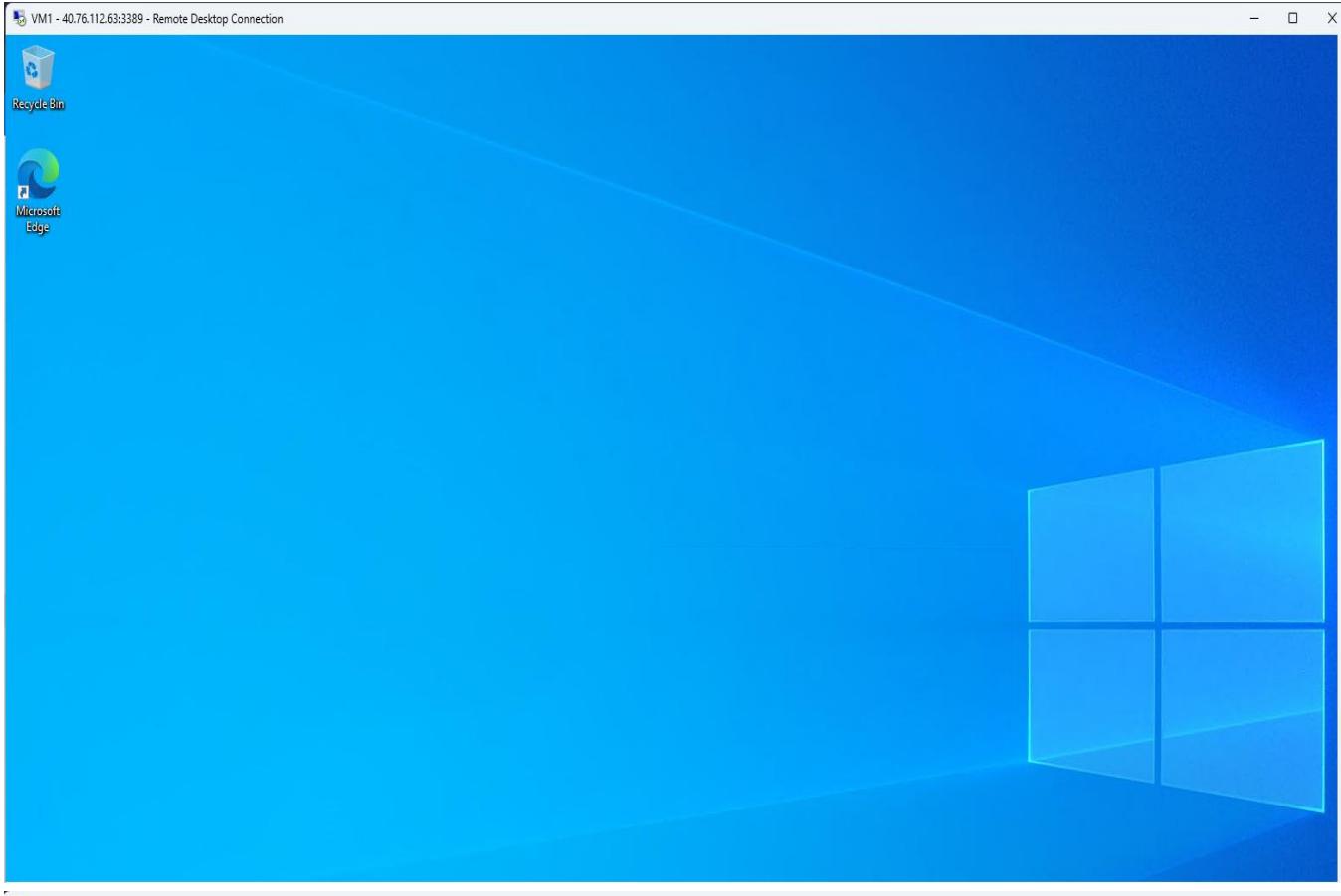
Networking

Network settings Load balancing Application security groups

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Favorites Application security groups Connect Bastion Windows Admin Center Networking Network settings Load balancing Application security groups







- o For Linux:

**bash**

**CopyEdit**

**sudo apt update**

**sudo apt install apache2 -y**

**echo "Hello from VM1" | sudo tee /var/www/html/index.html**

[Home](#) > [Compute infrastructure](#) | [Virtual machines](#) >

## Create a 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](#)

**Project details**

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

Subscription *	<input type="text" value="Azure subscription 1"/>
Resource group *	<input type="text" value="LoadBalancerRG"/> <a href="#">Create new</a>

**Instance details**

Virtual machine name \*  ✓

Region \*  ✓

Availability options  ✓

Zone options  Self-selected zone  
Choose up to 3 availability zones, one VM per zone  
 Azure-selected zone (Preview)  
Let Azure assign the best zone for your needs  
i Using an Azure-selected zone is not supported in region 'East US'.

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

Security type  ✓  
[Configure security features](#)

Image \*  ✓  
[See all images](#) | [Configure VM generation](#)

VM architecture  Arm64

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

## Create a 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 needs

 You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription. [Learn more](#)

Size \* ⓘ

Standard\_B1s - 1 vcpu, 1 GiB memory (US\$7.59/month) (free services eligible) 

[See all sizes](#)

Enable Hibernation ⓘ



 Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

### Administrator account

Authentication type ⓘ

SSH public key

Password

Username \* ⓘ

azureuser



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 \*

SSH (22)



 **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.

< Previous

Next : Disks >

**Review + create**

## Create a 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

### Network interface

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

Virtual network \* ⓘ

MyVNet

[Create new](#)

Subnet \* ⓘ

backend-subnet (10.0.2.0/24)

[Manage subnet configuration](#)

Public IP ⓘ

(new) VM2-ip

[Create new](#)

NIC network security group ⓘ

None

Basic

Advanced

Public inbound ports \* ⓘ

None

Allow selected ports

Select inbound ports \*

SSH (22)

**⚠ 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 ⓘ

Enable accelerated networking ⓘ

The selected VM size does not support accelerated networking.

### Load balancing

You can place this virtual machine in the backend pool of an existing Azure load balancing solution. [Learn more](#)

[< Previous](#)

[Next : Management >](#)

[Review + create](#)

## Create a virtual machine

Validation passed



Help me create a low cost VM

Help me create a VM optimized for high availability

Help

### Basics

Subscription	Azure subscription 1
Resource group	LoadBalancerRG
Virtual machine name	VM2
Region	East US
Availability options	Availability zone
Zone options	Self-selected zone
Availability zone	1
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
Image	Ubuntu Server 24.04 LTS - Gen2
VM architecture	x64
Size	Standard B1s (1 vcpu, 1 GiB memory)
Enable Hibernation	No
Authentication type	Password
Username	azureuser
Public inbound ports	SSH
Azure Spot	No

### Disk

OS disk size	Image default
OS disk type	Premium SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled
Enhanced OS disk	No

< Previous

Next >

Create

## Create a virtual machine

Validation passed



Help me create a low cost VM

Help me create a VM optimized for high availability

### Networking

Virtual network	MyVNet
Subnet	backend-subnet (10.0.2.0/24)
Public IP	(new) VM2-ip
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No
Delete public IP and NIC when VM is deleted	Disabled

### Management

Microsoft Defender for Cloud	None
System assigned managed identity	Off
Login with Microsoft Entra ID	Off
Auto-shutdown	Off
Enable periodic assessment	Off
Enable hotpatch	Off
Patch orchestration options	Image Default

### Monitoring

Alerts	Off
Boot diagnostics	On
Enable OS guest diagnostics	Off
Enable application health monitoring	Off

### Advanced

Home >

## CreateVm-canonical.ubuntu-24\_04-lts-server-20250718175924 | Overview

Deployment

Search X < Delete Cancel Redeploy Download Refresh

Overview Inputs Outputs Template

Your deployment is complete

Deployment name: CreateVm-canonical.ubuntu-24\_04-lts-server-2... Start time: 18/07/2025, 18:02:23  
Subscription: Azure subscription 1 Correlation ID: 139aacdb-8854-4487-8aef-8569531f30dc

Resource group: LoadBalancerRG

Deployment details

Resource	Type	Status
VM2	Microsoft.Compute/virtualMachines	OK
vm2332_z1	Microsoft.Network/networkInterfaces	Created
VM2-nsg	Microsoft.Network/networkSecurityGroups	OK
VM2-ip	Microsoft.Network/publicIpAddresses	OK

Next steps

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

Home >

## VM2

Virtual machine

Search X < Help me copy this VM in any region

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Favorites Application security groups Connect Networking Network settings Load balancing Application security groups Network manager Settings

Essentials

Resource group (move) : LoadBalancerRG Status : Running Location : East US (Zone 1) Subscription (move) : Azure subscription 1 Subscription ID : d69b934d-dda2-44e2-8b9d-d19aa122435b Availability zone : 1

Tags (edit) : Add tags

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name	VM2
Operating system	Linux (ubuntu 24.04)
VM generation	V2

Home > VM2

# VM2 | Connect

Virtual machine

Search

Refresh Troubleshoot More Options Feedback

Connecting using  
Public IP address | 135.222.41.223

Admin username : azureuser

Port (change) : 22 Check access

Just-in-time policy : Unsupported by plan

Recommended Most common

SSH using Azure CLI

Quickly connect in browser. Supports Microsoft Entra ID authentication. Private key not required.

Public IP address (135.222.41.223)

Select

Native SSH

No additional software needed. Private key required for connection. Best for those with existing SSH tools.

Public IP address (135.222.41.223)

Select

More ways to connect (3)

# SSH using Azure CLI

X

Connect from the Azure portal

 Connect from your local machine

## 1 Configure prerequisites for SSH using Azure CLI

Azure needs to configure some features in order to connect to the VM.

### Validating prerequisites before configuration

#### System assigned managed identity

Azure will configure a system-assigned managed identity in order to enable the Microsoft Entra ID login extension. [Learn more](#)

#### Microsoft Entra ID SSH Login Extension

The Microsoft Entra ID based SSH Login extension will securely connect to the VM using Microsoft Entra ID 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 login to the virtual machine via CloudShell. [Learn more](#)

#### Port 22 access

Validating access to port 22 on the virtual machine. [Learn more](#)

 Change the port for connecting to this virtual machine on the Connect page of the virtual machine.

#### Public IP address: 135.222.41.223

A public IP address is required to connect via this connection method.

Validating...

Home > VM2

VM2 | Connect

Virtual machine

Search

Refresh Troubleshoot More Options Feedback

Connecting using  
Public IP address | 135.222.41.223

Admin username : azureuser  
Port (change) : 22 Check access  
Just-in-time policy : Unsupported by plan

Recommended Most common

Local machine Azure portal

SSH using Azure CLI  
Quickly connect in browser. Supports Microsoft Entra ID authentication. Private key not required.  
Public IP address (135.222.41.223)

Local machine

Native SSH  
No additional software needed. Private key required for connection. Best for those with existing SSH tools.  
Public IP address (135.222.41.223)

Select Select ...

Add or remove favorites by pressing Ctrl+Shift+F

Close Troubleshooting Give feedback

The screenshot shows the Azure portal interface for a virtual machine named VM2. On the left, there's a navigation sidebar with various options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Resource visualizer, Favorites, Application security groups, Connect (which is selected), Bastion, Networking, Network settings, and In all balaurin. Below the sidebar, there's a message about adding or removing favorites. The main content area shows a summary of the connection: Public IP address 135.222.41.223, Admin username azureuser, and Port 22. It also lists a Just-in-time policy as unsupported by plan. Below this, two connection methods are listed: 'SSH using Azure CLI' (selected) and 'Native SSH'. Both methods mention private key requirements. At the bottom, there are 'Select' buttons for each method and a '...' button. A large modal window titled 'Welcome to Azure Cloud Shell' is open in the foreground, showing a toolbar with 'Bash' and 'PowerShell' buttons. The background behind the modal is dimmed.

## SSH using Azure CLI

Connect from the Azure portal

Connect from your local machine

### 1 Configure prerequisites for SSH using Azure CLI

Azure needs to configure some features in order to connect to the VM.

#### ✓ Prerequisites configured

##### ✓ System assigned managed identity

Azure will configure a system-assigned managed identity in order to enable the Microsoft Entra ID login extension. [Learn more](#)

##### ✓ Microsoft Entra ID SSH Login Extension

The Microsoft Entra ID based SSH Login extension will securely connect to the VM using Microsoft Entra ID 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 login to the virtual machine via CloudShell. [Learn more](#)

##### ✓ Port 22 access

Port 22 is accessible on this virtual machine for all configured IPs. [Learn more](#)

Change the port for connecting to this virtual machine on the Connect page of the virtual machine.

##### ✓ Public IP address: 135.222.41.223

A public IP address is required to connect via this connection method.

Close

Troubleshooting

Give feedback

## Getting started

Select a subscription to get started. You can optionally mount a storage account to persist files between sessions. [Learn more](#)

No storage account required

Mount storage account

Subscription \*

Azure subscription 1

Use an existing private virtual network [Learn more](#)

Apply

Previous

## Getting started

Select a subscription to get started. You can optionally mount a storage account to persist files between sessions. [Learn more](#)

No storage account required (i)

Mount storage account (i)

Subscription \*

Azure subscription 1



Use an existing private virtual network [Learn more](#)

**Apply**

[Previous](#)



## Select virtual network configuration



Subscription \*

Azure subscription 1



Virtual network \*

MyVNet



Resource group \*

LoadBalancerRG



Network profile \*

Provide existing network profile



Relay namespace \*

Provide existing relay namespace



[Select](#)

[Previous](#)

Add or remove favorites by pressing **Ctrl+Shift+F**

Select |  |  | Select | ... |  |

Switch to PowerShell  Restart  Manage files  New session  Editor  Web preview  Settings  Help

Requesting a Cloud Shell. **Succeeded.**  
Connecting terminal...

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.

\$ ssh azureuser@52.184.12.34

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.

\$ ssh azureuser@52.184.12.34

ssh azureuser@<your\_VM1\_Public\_IP>

```
(VMS$).
webapp : Manage web apps.
tanishka [ ~ ]$ 52.184.12.34
bash: 52.184.12.34: command not found
tanishka [ ~ ]$ ssh azureuser@52.184.12.34

# 1. Update the package list
sudo apt update

# 2. Install Apache2 web server
sudo apt install apache2 -y

# 3. Replace the default homepage
echo "Hello from VM1" | sudo tee /var/www/html/index.html
```

```
sudo: If sudo is running in a container, you may need to adjust the container configuration to disable the flag.
tanishka [ ~ ]$ 
tanishka [ ~ ]$ # 3. Replace the default homepage
tanishka [ ~ ]$ echo "Hello from VM1" | sudo tee /var/www/html/index.html
sudo: The "no new privileges" flag is set, which prevents sudo from running as root.
sudo: If sudo is running in a container, you may need to adjust the container configuration to disable the flag.
tanishka [ ~ ]$ 
tanishka [ ~ ]$ http://52.184.12.34
bash: http://52.184.12.34: No such file or directory
tanishka [ ~ ]$ 
```

```
tanishka [ ~ ]$ 
tanishka [ ~ ]$ 
tanishka [ ~ ]$ 
tanishka [ ~ ]$ http://52.184.12.34
bash: http://52.184.12.34: No such file or directory
tanishka [ ~ ]$ sudo apt update
sudo apt install apache2 -y
echo "Hello from VM2" | sudo tee /var/www/html/index.html
sudo: The "no new privileges" flag is set, which prevents sudo from running as root.
sudo: If sudo is running in a container, you may need to adjust the container configuration to disable the flag.
sudo: The "no new privileges" flag is set, which prevents sudo from running as root.
sudo: If sudo is running in a container, you may need to adjust the container configuration to disable the flag.
sudo: The "no new privileges" flag is set, which prevents sudo from running as root.
sudo: If sudo is running in a container, you may need to adjust the container configuration to disable the flag.
tanishka [ ~ ]$ 
```

## Step 4: Create an External Load Balancer

1. Search Load Balancers → Create.
2. Name: External-LB
3. Region: Same as VNet
4. Type: Public
5. SKU: Standard (Recommended)
6. Frontend IP Configuration: Create new → Public IP → Name External-LB-IP
7. Backend Pool: Leave empty for now.
8. Health Probe: Skip for now.
9. Load Balancing Rule: Skip for now.
10. Create.

---

Home > Load balancing and content delivery

 **Load balancing and content delivery | Load balancers** ⚡ ...

Preview

Search Filter for any field... Create Manage view Refresh Export to CSV Open query

Overview Subscription equals all Resource group equals all Loc...

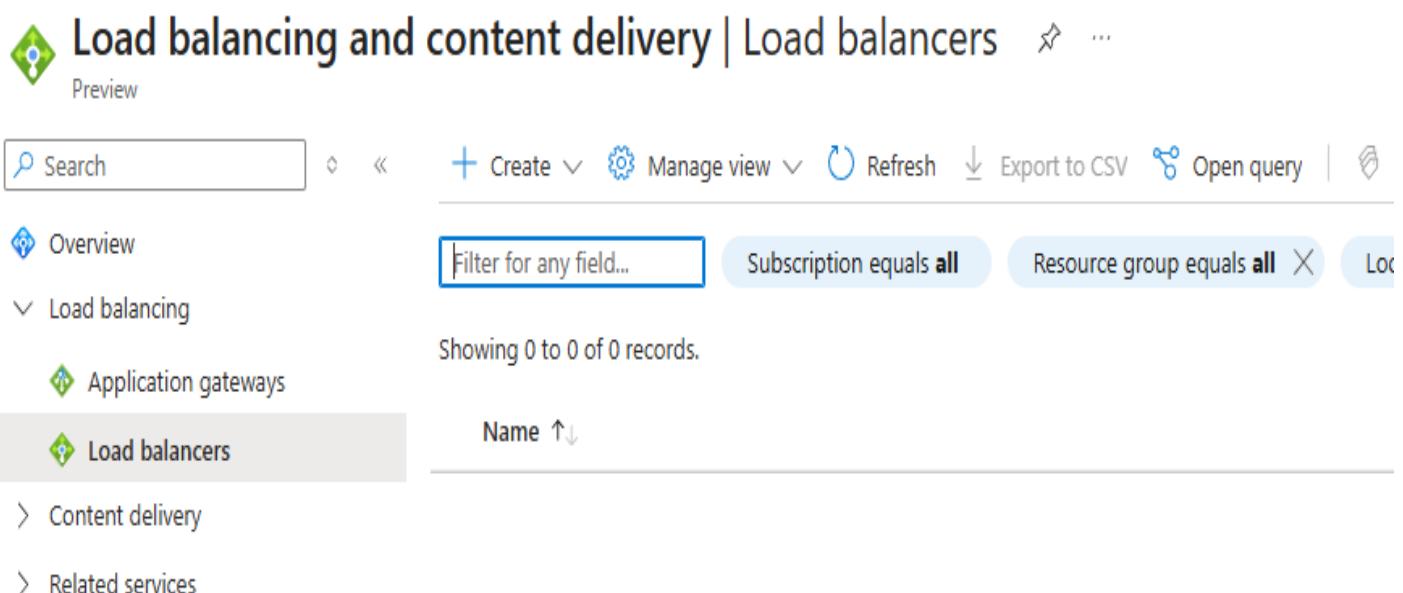
Load balancing Showing 0 to 0 of 0 records.

Application gateways

**Load balancers** Name ↑

> Content delivery

> Related services



## Create load balancer

...

### Basics

Frontend IP configuration

Backend pools

Inbound rules

Outbound rules

Tags

Review + create

Azure load balancer is a layer 4 load balancer that distributes incoming traffic among healthy virtual machine instances. Load balancers uses a hash-based distribution algorithm. By default, it uses a 5-tuple (source IP, source port, destination IP, destination port, protocol type) hash to map traffic to available servers. Load balancers can either be internet-facing where it is accessible via public IP addresses, or internal where it is only accessible from a virtual network. Azure load balancers also support Network Address Translation (NAT) to route traffic between public and private IP addresses. [Learn more.](#) ↗

### Project details

Subscription \*

Azure subscription 1

Resource group \*

LoadBalancerRG

[Create new](#)

### Instance details

Name \*

External-LB

Region \*

East US

SKU \* ⓘ

Standard (Distribute traffic to backend resources)

Gateway (Direct traffic to network virtual appliances)

Type \* ⓘ

Public

Internal

Tier \*

Regional

Global

## Create load balancer

...

Basics

Frontend IP configuration

Backend pools

Inbound rules

Outbound rules

Tags

Review + create

A frontend IP configuration is an IP address used for inbound and/or outbound communication as defined within load balancing, inbound NAT, and outbound rules.

Add a frontend IP configuration

Name ↑↓

IP address ↑↓

Add a frontend IP to get started

## Add a public IP address

Name \*

External-LB-PublicIP

SKU

Standard

Tier

Regional

Static IPs are assigned at the time the resource is created and released when the resource is deleted. Dynamic IPs are assigned when associating the IP to a resource and is released when you stop, restart, or delete a resource. Dynamic is only available for Basic SKU.

Assignment

Dynamic

Static

Availability zone \*

Zone-redundant

▼

Routing preference ⓘ

Microsoft network

Internet

**Save**

**Cancel**

# Add frontend IP configuration

X

External-LB

Name \*

External-LB-IP

IP version

IPv4

IPv6

IP type

IP address

IP prefix

Public IP address \*

(new) External-LB-PublicIP

[Create new](#)

Gateway Load balancer ⓘ

None

[Home](#) > [Load balancing and content delivery](#) | [Load balancers](#) >

[Create load balancer](#)

[Basics](#) [Frontend IP configuration](#) [Backend pools](#) [Inbound rules](#) [Outbound rules](#) [Tags](#) [Review + create](#)

A frontend IP configuration is an IP address used for inbound and/or outbound communication as defined within load balancing, inbound NAT, and outbound rules.

[+ Add a frontend IP configuration](#)

Name ↑↓

External-LB-IP

IP address ↑↓

(new) External-LB-PublicIP (To be created)

## Create load balancer

...

Validation passed

Basics    Frontend IP configuration    Backend pools    Inbound rules

### Basics

Subscription	Azure subscription 1
Resource group	LoadBalancerRG
Name	External-LB
Region	East US
SKU	Standard
Tier	Regional
Type	Public

### Frontend IP configuration

Frontend IP configuration name	External-LB-IP
Frontend IP configuration IP address	To be created

### Backend pools

None

### Inbound rules

None

### Outbound rules

None

### Tags

None

Home >

## CreateLoadBalancerBladeV2-20250718190418 | Overview

Deployment

Search X « Delete Cancel Redeploy Download Refresh

Overview

Inputs

Outputs

Template

✓ Your deployment is complete

Deployment name : CreateLoadBalancerBladeV2-20250718190418  
Subscription : Azure subscription 1  
Resource group : LoadBalancerRG

Start time : 18/07/2025, 19:16:51

Correlation ID : 78a9a365-e911-4ac5-b149-ce50dee83141

Deployment details

Resource	Type	Status
External-LB	Load balancer	Created
External-LB-PublicIP	Public IP address	OK

### Step 5: Configure Backend Pool for External LB

1. Open External-LB → Backend pools → Add:
  - Name: BackendPool1
  - Virtual network: MyVNet
  - Add VM1 and VM2 (use their NICs).
2. Save.

Home >

## External-LB ☆ ...

Load balancer

Search Move Delete Refresh Give feedback

### Overview

#### Essentials

Activity log Resource group ([move](#)) : [LoadBalancerRG](#)

Backend pool : [None](#)

Access control (IAM) Location : East US

Load balancing rule : [None](#)

Tags Subscription ([move](#)) : [Azure subscription 1](#)

Health probe : [None](#)

Diagnose and solve problems Subscription ID : d69b934d-dda2-44e2-8b9d-d19aa122435b

Inbound NAT rules : [None](#)

Resource visualizer SKU : Standard

Outbound rules : [None](#)

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

See more

Monitoring

Automation

Configure high availability and scalability for your application

Home > External-LB

## External-LB | Backend pools ☆ ...

Load balancer

Search Move Add Refresh

### Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Frontend IP configuration

The backend pool is a critical component of the load balancer. The backend pool defines the group of servers that will serve traffic for a given load-balancing rule. [Learn more.](#) ↗

Add filter

	Backend pool	Resource Name	IP address
--	--------------	---------------	------------

Frontend IP configuration

## Add backend pool

...

External-LB

Name \*

BackendPool1

Virtual network ⓘ

MyVNet (LoadBalancerRG)

Backend Pool Configuration

NIC

IP address

### IP configurations

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

+ Add | X Remove

Resource Name	Resource group	Type

## Add IP configurations to backend pool

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

Filter by name... Location : eastus Virtual network : MyVNet Add filter

Show resources that are not available for selection

Resource Name	Resource Group	Type	IP configuration	IP Address	Availability	Tags
VM1	LoadBalancerRG	Virtual Machine	ipconfig1	10.0.2.4	-	-
VM2	LoadBalancerRG	Virtual Machine	ipconfig1	10.0.2.5	-	-

## Add backend pool

External-LB

Name \*

BackendPool1

Virtual network ⓘ

MyVNet (LoadBalancerRG)

Backend Pool Configuration

 NIC IP address

### IP configurations

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

+ Add | Remove

Resource Name	Resource group	Type	IP configuration	IP Address
VM1	LoadBalancerRG	Virtual machine	ipconfig1	10.0.2.4
VM2	LoadBalancerRG	Virtual machine	ipconfig1	10.0.2.5

## External-LB | Backend pools ⭐ ⓘ

Load balancer

 Search

⟳

+ Add

⟳

Refresh

↳ Overview

↳ Activity log

↳ Access control (IAM)

↳ Tags

↳ Diagnose and solve problems

↳ Resource visualizer

↳ Settings

Frontend IP configuration

Backend pool

Resource Name

IP address

Network interface

Availability zone

Rules count

Resource Status

Admin state

Backend pool

BackendPool1 (2) 🗑

Health probes

BackendPool1

VM1

10.0.2.4

vm1231\_z1

1

0

Running

None

Load balancing rules

BackendPool1

VM2

10.0.2.5

vm2332\_z1

1

0

Running

None

Inbound NAT rules

Deployment succeeded

Deployment

'RegionalLoadBalancerBackendPoolCreateOrUpdate-20250718191957-96' to resource group 'LoadBalancerRG' for successful.

## Step 6: Add Health Probe

1. In External-LB → Health probes → Add:

- Name: http-probe
- Protocol: HTTP
- Port: 80
- Path: /
- Interval: 5s
- Unhealthy threshold: 2

2. Save.

Home > External-LB

 **External-LB | Health probes** ⭐ ⋮  
Load balancer

Search Type to start filtering ... Add Refresh Give feedback

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Settings Frontend IP configuration Backend pools Health probes

To check the health status of your instances, navigate to the Load Balancing Rules page

Name	Protocol	Port
No results.		

## Add health probe

External-LB

- ⓘ Health probes are used to check the status of a backend pool instance. If the health probe fails to get a response from a backend instance then no new connections will be sent to that backend instance until the health probe succeeds again.

Name *	<input type="text" value="http-probe"/>
Protocol *	<input type="text" value="HTTP"/> <span style="float: right;">▼</span>
Port * ⓘ	<input type="text" value="80"/>
Path * ⓘ	<input type="text" value="/"/>
Interval (seconds) * ⓘ	<input type="text" value="5"/>
Used by *	Not used

## External-LB | Health probes

Load balancer

⌂ ⌂

+ Add ⟳ Refresh ⚐ Give feedback

diamond Overview

document Activity log

person Access control (IAM)

tag Tags

cross Diagnose and solve problems

globe Resource visualizer

⌄ Settings

grid Frontend IP configuration

server Backend pools

magnifying glass Type to start filtering ...

ⓘ To check the health status of your instances, navigate to the Load Balancing Rules page

Name	Protocol	Port	Path
http-probe	Http	80	/

## Step 7: Add Load Balancer Rule

1. In External-LB → Load balancing rules → Add:

- Name: http-rule
- Frontend IP: External-LB-IP
- Backend pool: BackendPool1
- Protocol: TCP
- Port: 80
- Backend Port: 80
- Health Probe: http-probe

2. Save.

Home > External-LB

External-LB | Load balancing rules ⭐ ...

Load balancer

Search  Add Refresh Delete

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Settings Frontend IP configuration Backend pool

A load balancer rule is used to define how incoming traffic is distributed to all the instances within the backend pool. A load-balancing rule maps a given frontend IP configuration and port to multiple backend IP addresses and ports. An example would be a rule created on port 80 to load balance web traffic. [Learn more.](#)

Filter by name...

Name ↑	Protocol ↑	Backend pool ↑
No results.		

## Add load balancing rule

External-LB

A load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. Only backend instances that the health probe considers healthy receive new traffic. [Learn more.](#) ↗

Name *	<input type="text" value="http-rule"/>
IP version *	<input checked="" type="radio"/> IPv4 <input type="radio"/> IPv6
Frontend IP address * ⓘ	<input type="text" value="External-LB-IP (172.212.48.129)"/>
Backend pool * ⓘ	<input type="text" value="BackendPool1"/>
Protocol	<input checked="" type="radio"/> TCP <input type="radio"/> UDP
Port *	<input type="text" value="80"/>
Backend port *	<input type="text" value="80"/>
Health probe * ⓘ	<input type="text" value="http-probe (HTTP:80)"/> <a href="#">Create new</a>
Session persistence	<input type="text" value="None"/> <small> ⓘ Session persistence specifies that traffic from a client should be handled by the same virtual machine in the backend pool for the duration of a session. <a href="#">Learn more.</a> ↗</small>
Idle timeout (minutes) * ⓘ	<input type="text" value="4"/>

[Save](#)

[Cancel](#)

Home > External-LB

**External-LB | Load balancing rules** ☆ ...

Load balancer

Search « » + Add ⟳ Refresh >Delete

Overview

Activity log A load balancer rule is used to define how incoming traffic is distributed to all the instances within the backend pool. A load-balancing rule maps a given frontend IP configuration and port to multiple backend IP addresses and ports. An example would be a rule created on port 80 to load balance web traffic. [Learn more.](#)

Access control (IAM)

Tags  Filter by name...

Diagnose and solve problems

Resource visualizer

Settings

Frontend IP configuration

Name	Protocol	Backend pool	Health probe	Health status
http-rule	TCP/80	BackendPool1	http-probe	<a href="#">View details</a>

Successfully saved load balancer

## Test External LB

1. Go to External-LB-IP → Copy public IP.
2. Paste in browser → Refresh → You should see "Hello from VM1" and "Hello from VM2" alternately.  
External LB is working.

## Step 8: Create Internal Load Balancer

1. Create Load Balancer → Name: Internal-LB
2. Type: Internal
3. Frontend IP: Assign to backend-subnet (Private IP)
4. SKU: Standard
5. Create.

## Load balancing and content delivery | Load balancers

Preview

Search	Create	Manage view	Refresh	Export to CSV	Open query	Assign tags
Overview	<input type="text" value="filter for any field..."/> <span>Subscription equals all</span> <span>Resource group equals all</span> <span>Location equals all</span> <span>Add filter</span>					
Load balancing	Showing 1 to 1 of 1 records.					
Application gateways		Name ↑↓	SKU ↑↓	Resource group ↑↓	Location ↑↓	
Load balancers		<input type="checkbox"/> External-LB	Standard	LoadBalancerRG	East US	
Content delivery						
Related services						

## Create load balancer

Basics    Frontend IP configuration    Backend pools    Inbound rules    Outbound rules    Tags    Review + create

Azure load balancer is a layer 4 load balancer that distributes incoming traffic among healthy virtual machine instances. Load balancers uses a hash-based distribution algorithm. By default, it uses a 5-tuple (source IP, source port, destination IP, destination port, protocol type) hash to map traffic to available servers. Load balancers can either be internet-facing where it is accessible via public IP addresses, or internal where it is only accessible from a virtual network. Azure load balancers also support Network Address Translation (NAT) to route traffic between public and private IP addresses. [Learn more.](#)

### Project details

Subscription *	Azure subscription 1
Resource group *	LoadBalancerRG
	<a href="#">Create new</a>

### Instance details

Name *	Internal-LB
Region *	East US
SKU *	<input checked="" type="radio"/> Standard (Distribute traffic to backend resources) <input type="radio"/> Gateway (Direct traffic to network virtual appliances)
Type *	<input type="radio"/> Public <input checked="" type="radio"/> Internal
Tier *	<input checked="" type="radio"/> Regional <input type="radio"/> Global

## Create load balancer

...

Basics

Frontend IP configuration

Backend pools

Inbound rules

Outbound rules

Tags

Review + create

A frontend IP configuration is an IP address used for inbound and/or outbound communication as defined within load balancing, inbound NAT, and outbound rules.

Add a frontend IP configuration

Name ↑↓

IP address ↑↓

Virtual network ↑↓

Add a frontend IP to get started

## Add frontend IP configuration

X

Internal-LB

Name \*

Internal-LB-IP

IP version

IPv4

IPv6

Virtual network \*

MyVNet

Subnet \*

backend-subnet (10.0.2.0/24)

▼

Assignment

Dynamic

Static

IP address \*

10.0.2.254

Availability zone \* ⓘ

Zone-redundant

▼

## Create load balancer

...

Basics   **Frontend IP configuration**   Backend pools   Inbound rules   Outbound rules   Tags   Review + create

A frontend IP configuration is an IP address used for inbound and/or outbound communication as defined within load balancing, inbound NAT, and outbound rules.

+ Add a frontend IP configuration

Name ↑↓	IP address ↑↓	Virtual network ↑↓	Subnet ↑↓
Internal-LB-IP	10.0.2.254	MyVNet	backend-subnet

## Create load balancer

...

 Validation passed

Basics    Frontend IP configuration    Backend pools    Inbound rules

### Basics

Subscription	Azure subscription 1
Resource group	LoadBalancerRG
Name	Internal-LB
Region	East US
SKU	Standard
Tier	Regional
Type	Internal

### Frontend IP configuration

Frontend IP configuration name	Internal-LB-IP
Frontend IP configuration IP address	10.0.2.254

### Backend pools

None

### Inbound rules

None

### Outbound rules

None

### Tags

None

Home >

## CreateLoadBalancerBladeV2-20250718194101 | Overview

Deployment

Search X « Delete Cancel Redeploy Download Refresh

Overview Your deployment is complete

Deployment name : CreateLoadBalancerBladeV2-20250718194101  
Subscription : Azure subscription 1  
Resource group : LoadBalancerRG

Memory usage: 56.2 MB

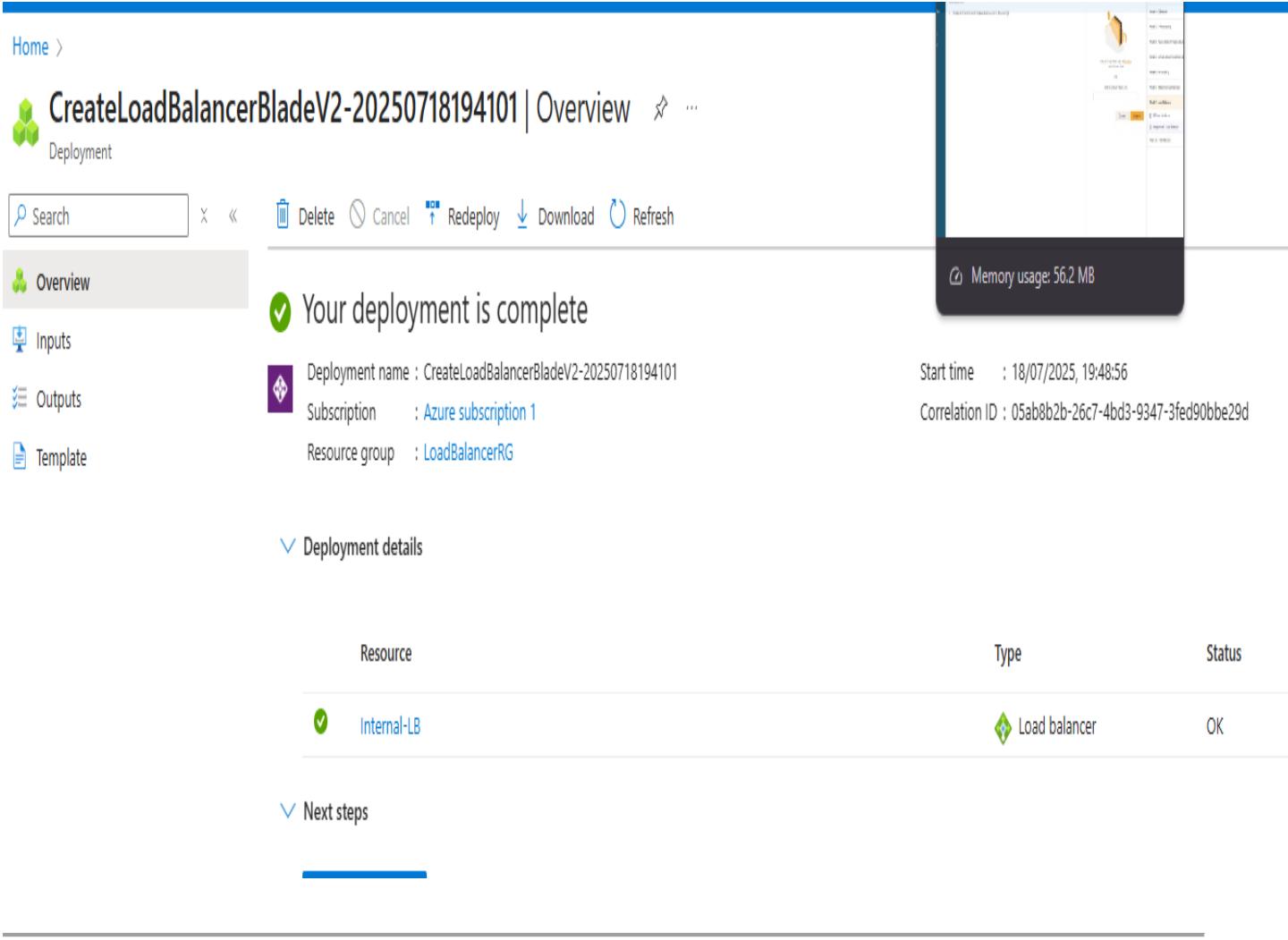
Start time : 18/07/2025, 19:48:56  
Correlation ID : 05ab8b2b-26c7-4bd3-9347-3fed90bbe29d

Deployment details

Resource	Type	Status
Internal-LB	Load balancer	OK

Next steps

---



### Step 9: Configure Internal LB

- Add Backend Pool → Same VMs (VM1, VM2)
- Add Health Probe (HTTP on port 80)
- Add Load Balancer Rule:
  - Name: internal-http
  - Frontend IP: Internal IP (e.g., 10.0.2.5)
  - Backend Pool: Same as above
  - Protocol: TCP
  - Port: 80

Home >

# Internal-LB

Load balancer

Search Move Delete Refresh Give feedback

Overview Essentials

Activity log Resource group (move) : [LoadBalancerRG](#) Backend pool : [None](#)

Access control (IAM) Location : East US Load balancing rule : [None](#)

Tags Subscription (move) : [Azure subscription 1](#) Health probe : [None](#)

Diagnose and solve problems Subscription ID : d69b934d-dda2-44e2-8b9d-d19aa122435b Inbound NAT rules : [None](#)

Resource visualizer SKU : Standard Tier : Regional

Frontend IP configuration Tags (edit) : [Add tags](#)

See more

Configure high availability and scalability for your application

Create highly available and scalable applications in minutes by using built-in load balancing for cloud services

Home > Internal-LB

## Internal-LB | Backend pools

Load balancer

Search Add Refresh

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Settings

The backend pool is a critical component of the load balancer. The backend pool defines the group of resources that will serve traffic for a given load-balancing rule. [Learn more](#)

Frontend IP configuration Backend pools Health probes

Backend pool	Resource Name	IP address	Network interface	Availability zone
--------------	---------------	------------	-------------------	-------------------

## Add backend pool

Internal-LB

Name \*

Virtual network

Backend Pool Configuration  NIC

IP address

### IP configurations

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

+ Add | X Remove

Resource Name	Resource group	Type

## Add IP configurations to backend pool

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

Location : eastus Virtual network : MyVNet Add filter

Show resources that are not available for selection

Resource Name	Resource group	Type	IP configurati...	IP Address	Availability set	Tags
<b>Virtual machine (2)</b>						
<input checked="" type="checkbox"/> VM1	LoadBalancerRG	Virtual machine	ipconfig1	10.0.2.4	-	-
<input checked="" type="checkbox"/> VM2	LoadBalancerRG	Virtual machine	ipconfig1	10.0.2.5	-	-

Home > Internal-LB | Backend pools >

## Add backend pool

Internal-LB

Name \*

Virtual network ⓘ MyVNet

Backend Pool Configuration  NIC  IP address

### IP configurations

IP configurations associated to virtual machines and virtual machine scale sets must be in same location as the load balancer and be in the same virtual network.

+ Add | Remove

Resource Name	Resource group	Type	IP configuration	IP Address	Availability set
VM1	LoadBalancerRG	Virtual machine	ipconfig1	10.0.2.4	-
VM2	LoadBalancerRG	Virtual machine	ipconfig1	10.0.2.5	-

Home > Internal-LB

## Internal-LB | Backend pools

Load balancer

Search Add Refresh

Overview Activity log Access control (IAM) Tags Diagnose and solve problems Resource visualizer Settings

The backend pool is a critical component of the load balancer. The backend pool defines the group of resources that will serve traffic for a given load-balancing rule. [Learn more.](#)

Backend pool Resource Name IP address Network interface Availability zone Rules count Resource Status

Backend pool	Resource Name	IP address	Network interface	Availability zone	Rules count	Resource Status	
ILB-BackendPool (2)	ILB-BackendPool	VM2	10.0.2.5	vm2332_z1	1	0	Running
ILB-BackendPool	VM1	10.0.2.4	vm1231_z1	1	0	Running	

## Internal-LB | Health probes

Load balancer

Search « »

+ Add ⟳ Refresh ↗ Give feedback

⚡ Overview

📅 Activity log

🔗 Access control (IAM)

🏷️ Tags

✖ Diagnose and solve problems

📊 Resource visualizer

⌄ Settings

🌐 Frontend IP configuration

Backend pools

Type to start filtering ...

ⓘ To check the health status of your instances, navigate to the Load Balancing Rules page

	Name	Protocol	Port	Path	...
No results.					

Home > Internal-LB | Health probes >

## Add health probe

...

Internal-LB

ⓘ Health probes are used to check the status of a backend pool instance. If the health probe fails to get a response from a backend instance then no new connections will be sent to that backend instance until the health probe succeeds again.

Name \*

ilb-http-probe

Protocol \*

HTTP

Port \*  ⓘ

80

Path \*  ⓘ

/

Interval (seconds) \*  ⓘ

5

Used by \*  ⓘ

Not used

Home > Internal-LB

## Internal-LB | Health probes ☆ ...

Search «

+ Add ⟳ Refresh ↗ Give feedback

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

▼ Settings

Frontend IP configuration

Backend pools

Health probes ☆

Type to start filtering ...

ⓘ To check the health status of your instances, navigate to the Load Balancing Rules page

	Name	Protocol	Port	Path
	ilb-http-probe	Http	80	/

Home > Internal-LB

## Internal-LB | Load balancing rules ☆ ...

Search «

+ Add ⟳ Refresh >Delete

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

▼ Settings

Frontend IP configuration

Backend pools ...

A load balancer rule is used to define how incoming traffic is distributed to all the instances within the backend pool. A load-balancing rule maps a given frontend IP configuration and port to multiple backend IP addresses and ports. An example would be a rule created on port 80 to load balance web traffic. [Learn more.](#)  ⓘ

Filter by name...

☐ Name ↑↓ Protocol ↑↓ Backend pool ↑↓

No results.

## Add load balancing rule

Internal-LB

A load balancing rule distributes incoming traffic that is sent to a selected IP address and port combination across a group of backend pool instances. Only backend instances that the health probe considers healthy receive new traffic. [Learn more.](#) ↗

Name \*

internal-http

IP version \*

IPv4

IPv6

Frontend IP address \* ⓘ

Internal-LB-IP (10.0.2.254)

Backend pool \* ⓘ

ILB-BackendPool

High availability ports ⓘ

Protocol

TCP

UDP

Port \*

80

Backend port \* ⓘ

80

Health probe \* ⓘ

ilb-http-probe (HTTP:80)

[Create new](#)

Session persistence

None

ⓘ Session persistence specifies that traffic from a client should be handled by the same virtual machine in the backend pool for the duration of a session. [Learn more.](#) ↗

[Save](#)

[Cancel](#)

## Add load balancing rule

Internal-LB

IP version \*

IPv4

IPv6

Frontend IP address \* ⓘ

Internal-LB-IP (10.0.2.254)

Backend pool \* ⓘ

ILB-BackendPool

High availability ports ⓘ

Protocol

TCP

UDP

Port \*

80

Backend port \* ⓘ

80

Health probe \* ⓘ

ilb-http-probe (HTTP:80)

[Create new](#)

Session persistence

None



Session persistence specifies that traffic from a client should be handled by the same virtual machine in the backend pool for the duration of a session. [Learn more.](#) ⓘ

Idle timeout (minutes) \* ⓘ

4

Enable TCP Reset

Enable Floating IP ⓘ

[Save](#)

[Cancel](#)

**Internal-LB | Load balancing rules** ☆ ...

Load balancer

Search « » + Add ⟳ Refresh >Delete

Overview

Activity log A load balancer rule is used to define how incoming traffic is distributed to all the instances within the backend pool. A load-balancing rule maps a given frontend IP configuration and port to multiple backend IP addresses and ports. An example would be a rule created on port 80 to load balance web traffic. [Learn more](#).

Access control (IAM)

Tags

Diagnose and solve problems

Resource visualizer

Settings

Frontend IP configuration

Backend pools

<input type="checkbox"/> Name ↑	Protocol ↑	Backend pool ↑	Health probe ↑
<input checked="" type="checkbox"/> internal-http	TCP/80	ILB-BackendPool	ilb-http-probe

## Step 10: Test Internal LB

- Create a third VM in the same VNet (frontend-subnet).
- From that VM, open browser or run:

**bash**

**CopyEdit**

**curl http://<Internal-LB-IP>**

- You should see the alternating responses.

## Create a 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

### 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 ⓘ

Zone options ⓘ

Self-selected zone  
Choose up to 3 availability zones, one VM per zone

Azure-selected zone (Preview)  
Let Azure assign the best zone for your needs

Using an Azure-selected zone is not supported in region 'East US'.

Availability zone \* ⓘ

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

Security type ⓘ    
[Configure security features](#)

Image \* ⓘ    
[See all images](#) | [Configure VM generation](#)

VM architecture ⓘ  Arm64

---

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

## Create a 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 

 You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription.  
[Learn more](#)

Size \* 

Standard\_B1s - 1 vcpu, 1 GiB memory (US\$7.59/month) (free services eligible) 

[See all sizes](#)

Enable Hibernation 



 Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

### Administrator account

Authentication type 

SSH public key

Password

Username \* 

azureuser 

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 \* 

SSH (22) 

 **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.

< Previous

Next : Disks >

**Review + create**

## Create a 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

 You are in the free trial period. Costs associated with this VM can be covered by any remaining credits on your subscription. [Learn more](#)

Size \* ⓘ

Standard\_B1s - 1 vcpu, 1 GiB memory (US\$7.59/month) (free services eligible) ▾

[See all sizes](#)

Enable Hibernation ⓘ



 Hibernation does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

### Administrator account

Authentication type ⓘ

SSH public key

Password

Username \* ⓘ

azureuser

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 \*

SSH (22)

 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.

## Create public IP address

X

Name \*

frontend-ip ✓

SKU ⓘ

Basic  Standard



Availability zones are only supported on Standard SKU public IP addresses.

Assignment ⓘ

Static

Routing preference ⓘ

Microsoft network  Internet

Availability zone ⓘ

Zone-redundant  Zone 1

## Create a 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

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 \* 

MyVNet 

[Create new](#)

Subnet \* 

frontend-subnet (10.0.1.0/24) 

[Manage subnet configuration](#)

Public IP 

(new) frontend-ip 

[Create new](#)

 1 public IP address is needed for this configuration, but 0 (of 3) remain in your subscription 'Azure subscription 1'. To meet your quota, you can choose an existing public IP address or remove the new public IP address to get below the limit.

NIC network security group 

None

Basic

Advanced

Public inbound ports \* 

None

Allow selected ports

Select inbound ports \*

SSH (22) 

 **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.

## Create a virtual machine

Validation passed



Help me create a low cost VM

Help me create a VM optimized for high availability

### Basics

Subscription	Azure subscription 1
Resource group	LoadBalancerRG
Virtual machine name	ClientVM
Region	East US
Availability options	Availability zone
Zone options	Self-selected zone
Availability zone	1
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
Image	Ubuntu Server 24.04 LTS - Gen2
VM architecture	x64
Size	Standard B1s (1 vcpu, 1 GiB memory)
Enable Hibernation	No
Authentication type	Password
Username	azureuser
Public inbound ports	SSH
Azure Spot	No

### Disks

OS disk size	Image default
OS disk type	Premium SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled
Enhanced OS disk	No

## Create a virtual machine

 Validation passed



Help me create a low cost VM

Help me create a VM optimized for high availability

### Networking

Virtual network	MyVNet
Subnet	frontend-subnet (10.0.1.0/24)
Public IP	None
Accelerated networking	Off
Place this virtual machine behind an existing load balancing solution?	No
Delete NIC when VM is deleted	Disabled

### Management

Microsoft Defender for Cloud	Basic (free)
System assigned managed identity	Off
Login with Microsoft Entra ID	Off
Auto-shutdown	Off
Backup	Disabled
Enable periodic assessment	Off
Enable hotpatch	Off
Patch orchestration options	Image Default

### Monitoring

Alerts	Off
Boot diagnostics	On
Enable OS guest diagnostics	Off
Enable application health monitoring	Off

Home >

CreateVm-canonical.ubuntu-24\_04-lts-server-20250718200828 | Overview

Deployment

Search X < Delete Cancel Redeploy Download Refresh

Overview Inputs Outputs Template

Your deployment is complete

Deployment name: CreateVm-canonical.ubuntu-24\_04-lts-server-2... Start time: 18/07/2025, 20:12:48  
Subscription: Azure subscription 1 Correlation ID: f9abebc6-2fb9-40da-9806-5fa01eee65b3

Deployment details

Resource	Type	Status
ClientVM	Microsoft.Compute/virtualMachines	OK
clientvm753_z1	Microsoft.Network/networkInterfaces	Created
ClientVMnsg686	Microsoft.Network/networkSecurityGroups	OK

Next steps

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

## Verification

- External LB works from Internet → Access via Public IP
- Internal LB works only inside the VNet → Test from another internal VM

## Final Verification

What to Test	How to Test	Expected Result
External LB	Use public IP in browser	Alternates: Hello from VM1/VM2
Internal LB	curl http://10.0.2.5 from ClientVM	Alternates: Hello from VM1/VM2
Private only?	Try Internal LB IP from your own PC	✗ Won't work (it's private)