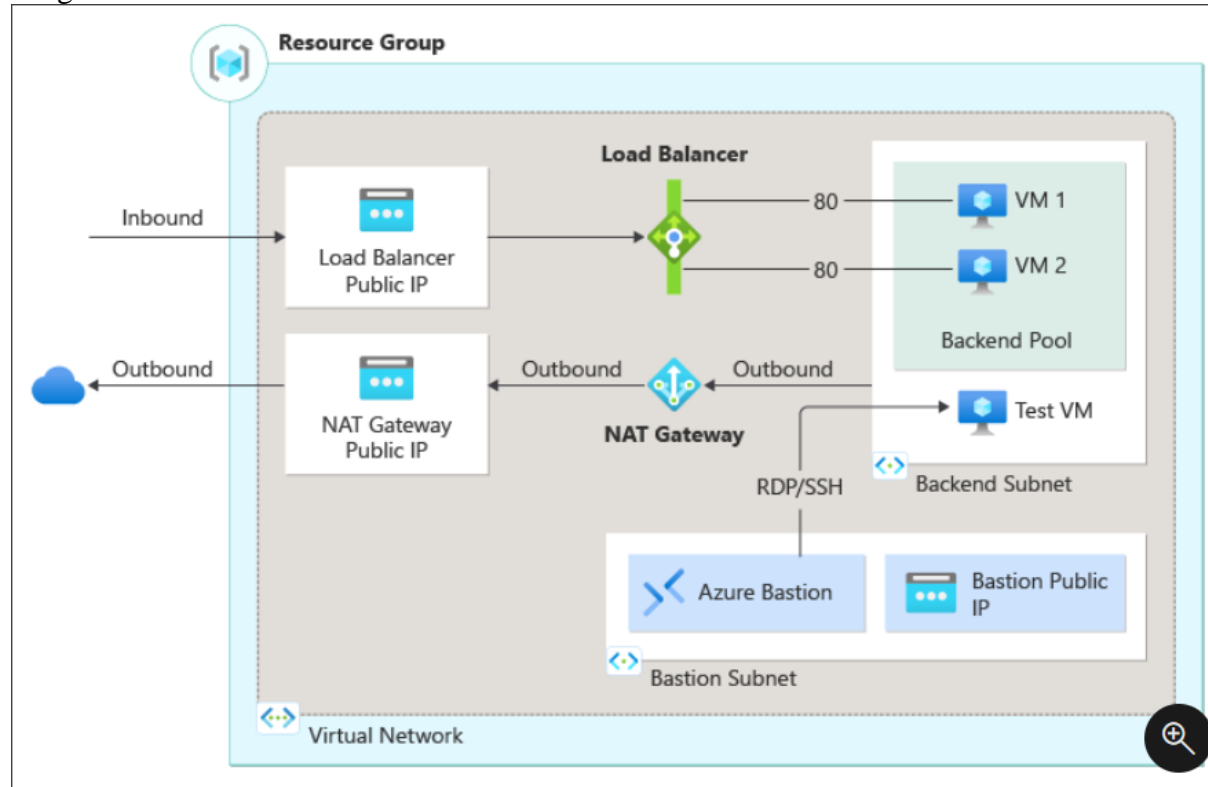


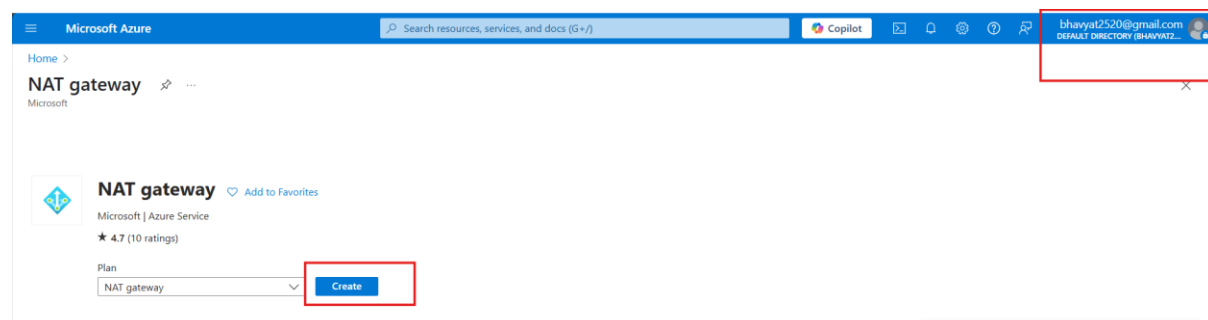
# Create a public load balancer to load balance VMs using the Azure portal

Diagram:



## Create NAT gateway

1. Sign in to the [Azure portal](#).
2. In the search box at the top of the portal, enter **NAT gateway**. Select **NAT gateways** in the search results.
3. Select **+ Create**.
4. In the **Basics** tab of **Create network address translation (NAT) gateway** enter or select the following information:



Setting	Value
Project details	
Subscription	Select your subscription.
Resource group	Select <b>Create new</b> . Enter <b>load-balancer-rg</b> in Name. Select <b>OK</b> .
Instance details	
NAT gateway name	Enter <b>lb-nat-gateway</b> .
Region	Select <b>East US</b> .
Availability zone	Select <b>No zone</b> .
Idle timeout (minutes)	Enter <b>15</b> .

[Home](#) > [NAT gateway](#) >

## Create network address translation (NAT) gateway ...

- Basics
- Outbound IP
- Subnet
- Tags
- Review + create

Azure NAT gateway can be used to translate outbound flows from a virtual network to the public internet.  
[Learn more about NAT gateways.](#)

### Project details

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

Subscription \*

Azure for Students

Resource group \*

Create new

### Instance details

NAT gateway name \*

Region \*

East US

Availability zone ⓘ

No Zone

TCP idle timeout (minutes) \* ⓘ

4

4-120

- Review + create
- < Previous
- Next : Outbound IP >
- [Download a template for automation](#)

Fill up following details

your resources.

Subscription \*

Resource group \*

[Create new](#)

#### Instance details

NAT gateway name \*

Region \*

Availability zone ⓘ

TCP idle timeout (minutes) \* ⓘ

4-120

1. Select the **Outbound IP** tab or select the **Next: Outbound IP** button at the bottom of the page.
2. Select **Create a new public IP address** under **Public IP addresses**.
3. Enter **nat-gw-public-ip** in **Name** in **Add a public IP address**.
4. Select **OK**.
5. Select the blue **Review + create** button at the bottom of the page, or select the **Review + create** tab.
6. Select **Create**.

## Create network address translation (NAT) gateway ...

Basics Outbound IP Subnet Tags Review + create

Configure which public IP addresses and public IP prefixes to use. Each outbound IP address provides 64,000 SNAT ports for the NAT gateway resource to use. You can add up to 16 outbound IP addresses.

Note: While you do not have to complete this step to create a NAT gateway, the NAT gateway will not be functional and any subnet with this NAT gateway will not have outbound connectivity until you have added at least one public IP address or public IP prefix. You can also add and reconfigure which IP addresses are included after creating the NAT gateway.

Public IP addresses

[Create a new public IP address](#)

Public IP Prefixes

[Create a new public IP prefix](#)

Public IP addresses

0 selected

[Create a new public IP address](#)

Public IP Prefixes

Add a public IP address

Name \* nat-gw-public-ip

SKU ☒ Standard ☐ Basic

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

OK

Cancel

[Review & create](#)

[< Previous](#)

[Next > Subnets](#)

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[Home](#) / [NAT gateway](#) /

# Create network address translation (NAT) gateway

✓ Validation passed

## Basics

Subscription	Azure for Students
Resource group	(new) demo_celebal
Name	lb-nat-gateway
Region	East US
Availability zone	-
TCP idle timeout (minutes)	15

## Outbound IP

Public IP address	(New) nat-gw-public-ip
Public IP prefix	None

## Subnets

None

## Tags

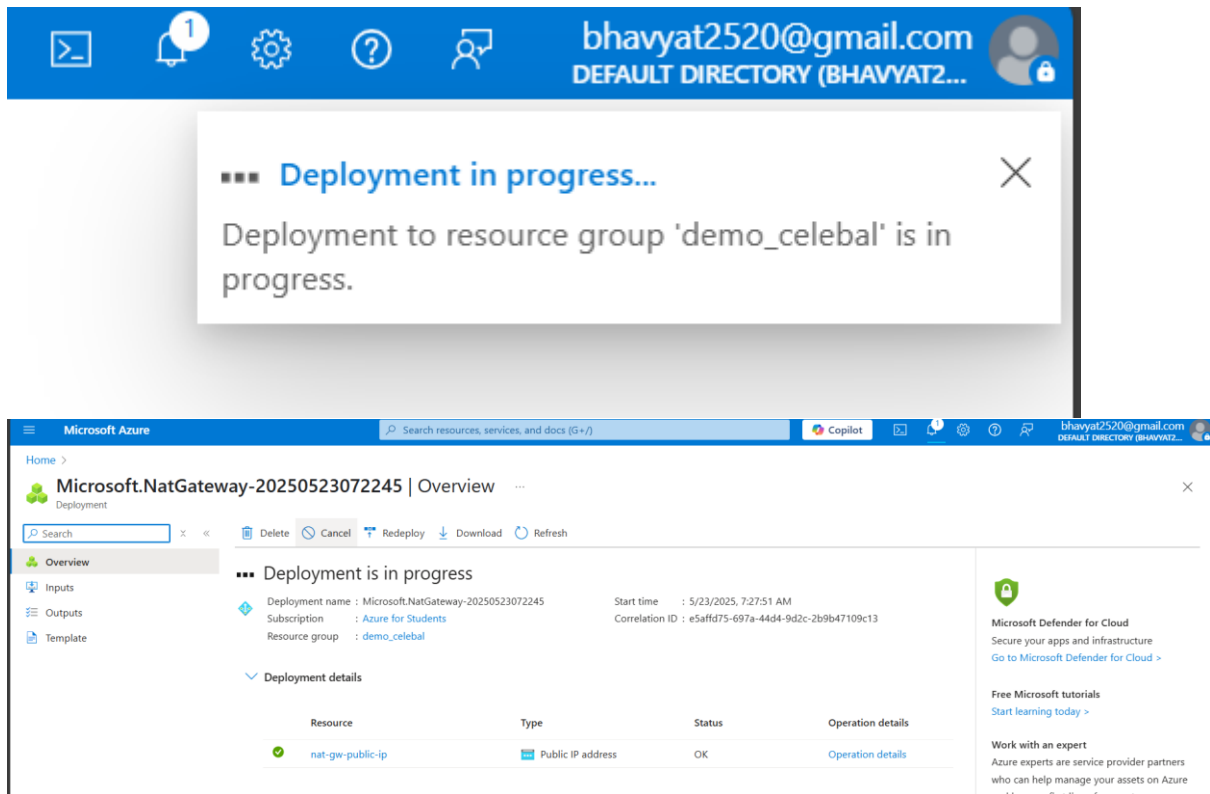
None

Create

< Previous

Next >

[Download a template for automation](#)



## Create a virtual network and bastion host

1. In the portal, search for and select **Virtual networks**.
2. On the **Virtual networks** page, select **+ Create**.
3. On the **Basics** tab of **Create virtual network**, enter or select the following information:

Setting	Value
<b>Project details</b>	
Subscription	Select your subscription.
Resource group	Select <b>load-balancer-rg</b> from the dropdown or <b>Create new</b> if it doesn't exist. Enter <b>load-balancer-rg</b> in Name. Select <b>OK</b> .
<b>Instance details</b>	
Name	Enter <b>lb-vnet</b> .
Region	Select <b>(US) East US</b> .

# 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 for Students

Resource group \*

demo\_celebal

[Create new](#)

## Instance details

Virtual network name \*

lb-vnet

Region \* ⓘ

(US) East US

[Deploy to an Azure Extended Zone](#)

[Home](#) > [Virtual networks](#) >

# Create virtual network ...

- Basics
- Security
- IP addresses
- Tags
- Review + create

## Azure Bastion

Azure Bastion is a paid service that provides secure RDP/SSH connectivity to your virtual machines over TLS. When you connect via Azure Bastion, your virtual machines do not need a public IP address. [Learn more.](#)

Enable Azure Bastion ⓘ

☒

Azure Bastion host name

lb-bastion

Azure Bastion public IP address \*

(New) lb-bastion-ip

[Create a public IP address](#)

## Azure Firewall

Azure Firewall is a managed cloud-based network security service that protects your Azure Virtual Network resources. [Learn more.](#)

Enable Azure Firewall ⓘ

☐

- Previous
- Next
- Review + create

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## Edit subnet

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

Name \*

### IPv4

Include an IPv4 address space ☒

IPv4 address range   
10.0.0.0 - 10.0.255.255

Starting address \*

Size

Subnet address range

### 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

[Save](#) [Cancel](#) [Give feedback](#)

## Edit subnet

### 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   
[Create new](#)

Network security group   
[Create new](#)

Route table

### Service Endpoints

Create service endpoint policies to allow traffic to specific azure resources from your virtual network over service endpoints. [Learn more](#)

[Save](#) [Cancel](#) [Give feedback](#)

Microsoft Azure

Home > Virtual networks >

## Create virtual network

Basics Security IP addresses Tags **Review + create**

[View automation template](#)

**Basics**

Subscription	Azure for Students
Resource Group	demo_celebal
Name	lb-vnet
Region	East US

**Security**

Azure Bastion	Enabled
- Name	(New) lb-bastion
- Public IP Address	(New) lb-bastion-ip
Azure Firewall	Disabled
Azure DDoS Network Protection	Disabled

**IP addresses**

Previous Next **Create**

Microsoft Azure

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Home >

## lb-vnet-1747965989422 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

**Overview**

**Your deployment is complete**

Deployment name : lb-vnet-1747965989422  
Subscription : Azure for Students  
Resource group : demo\_celebal

Start time : 5/23/2025, 7:36:39 AM  
Correlation ID : cea868a4-5fb1-466c-a9fb-6425f2249438

> Deployment details

Next steps

**Go to resource**

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## Create load balancer

During the creation of the load balancer, you configure:

- Frontend IP address
- Backend pool
- Inbound load-balancing rules
- Health probe

1. In the search box at the top of the portal, enter **Load balancer**. Select **Load balancers** in the search results.
2. In the **Load balancer** page, select **+ Create**.
3. In the **Basics** tab of the **Create load balancer** page, enter or select the following information:



4. Select **Next: Frontend IP configuration** at the bottom of the page.
5. In **Frontend IP configuration**, select + **Add a frontend IP configuration**.
6. Enter **lb-frontend** in **Name**.
7. Select **IPv4** for the **IP version**.
8. Select **IP address** for the **IP type**.
9. Select **Create new** in **Public IP address**.
10. In **Add a public IP address**, enter **lb-frontend-ip** for **Name**.
11. Select **Zone-redundant** in **Availability zone**.
12. Leave the default of **Microsoft Network** for **Routing preference**.
13. Select **Save**.
14. Select **Save**.
15. Select **Next: Backend pools** at the bottom of the page.
16. In the **Backend pools** tab, select + **Add a backend pool**.
17. Enter **lb-backend-pool** for **Name** in **Add backend pool**.
18. Select **lb-vnet** in **Virtual network**.
19. Select **IP Address** for **Backend Pool Configuration**.
20. Select **Save**.
21. Select **Next: Inbound rules** at the bottom of the page.
22. Under **Load balancing rule** in the **Inbound rules** tab, select + **Add a load balancing rule**.
23. In **Add load balancing rule**, enter or select the following information:

Expand table

Setting	Value
<b>Project details</b>	
Subscription	Select your subscription
Resource group	Select <b>load-balancer-rg</b>
<b>Instance details</b>	
Name	Enter <b>load-balancer</b>
Region	Select <b>East US</b>
SKU	Leave the default <b>Standard</b>
Type	Select <b>Public</b>
Tier	Leave the default <b>Regional</b>

Home > Load balancing | Load Balancer >

Create load balancer

Azure load balancers use a round-robin 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 for Students

Resource group \*

demo\_celebal

Create new

Instance details

Name \*

load-balancer

Region \*

East US

SKU \*

Standard (Distribute traffic to backend resources)

Gateway (Direct traffic to network virtual appliances)

Type \*

Public

Internal

Tier \*

Regional

Global

Review + create

< Previous

Next : Frontend IP configuration >

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Add frontend IP configuration

load-balancer

Name \*

lb-frontend

IP version

IPv4

IPv6

IP type

IP address

IP prefix

Public IP address \*

(new) lb-frontend-ip

Create new

Gateway Load balancer ⓘ

None

Save

Cancel

[Give feedback](#)

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Home

 > 

Load balancing | Load Balancer

 > 

Create load balancer

 >

Add backend pool

Name \*

lb-backend-pool

Virtual network ⓘ

lb-vnet (demo\_celebal)

Backend Pool Configuration

NIC

IP address

⚠

 When a backend pool is configured by IP address, the backend instances are not secure by default and still use default outbound access parameter. [Learn more](#)

IP addresses

You can only add resources IP address in the Virtual Network. The configuration is associated with the IP address and will apply to any resource which has this IP address assigned.

Backend Address Name	IP address	Resource Name
6fe7f8de-af41-4d04-ad54-cc20cf...		

Save

Cancel

[Give feedback](#)

## Add load balancing rule

load-balancer

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 \*

lb-HTTP-rule

IP version \*

☒ IPv4

☐ IPv6

Frontend IP address \* ⓘ

lb-frontend (To be created) ▼

Backend pool \* ⓘ

lb-backend-pool ▼

Protocol

☒ TCP

☐ UDP

Port \*

80

Backend port \* ⓘ

80

Health probe \* ⓘ

No existing probes ▼

Save

Cancel

 Give feedback

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

Home > Load balancing | Load Balancer >

### Create load balancer

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

**Load balancing rule**

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. The load balancing rule uses a health probe to determine which backend instances are eligible to receive traffic.

+ Add a load balancing rule

Name ↑↓	Frontend IP configuration ↑↓	Backend pool ↑↓	Health probe ↑↓	Frontend Port ↑↓	Backend port ↑↓
lb-HTTP-rule	lb-frontend	lb-backend-pool	lb-health-probe	80	80

Home > Load balancing | Load Balancer >

## Create load balancer

✓ Validation passed

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

### Basics

Subscription	Azure for Students
Resource group	demo_celebal
Name	load-balancer
Region	East US
SKU	Standard
Tier	Regional
Type	Public

### Frontend IP configuration

Frontend IP configuration name	lb-frontend
Frontend IP configuration IP address	To be created

### Backend pools

Backend pool name	lb-backend-pool
-------------------	-----------------

**Create** < Previous Next > [Download a template for automation](#) [Give feedback](#)

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Home > Microsoft.LoadBalancer-20250523074803 | Overview

Deployment

Search x << Delete Cancel Redeploy Download Refresh

Overview Inputs Outputs Template

✓ Your deployment is complete

Deployment name : Microsoft.LoadBalancer-20250523074803 Start time : 5/23/2025, 7:56:41 AM  
 Subscription : Azure for Students Correlation ID : b0ec9dd7-cff9-4b6a-b237-9bfc3305c5e8  
 Resource group : demo\_celebal

> Deployment details  
 ✓ Next steps  
[Go to resource](#)

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## Create virtual machines

- In the search box at the top of the portal, enter **Virtual machine**. Select **Virtual machines** in the search results.
- In **Virtual machines**, select **+ Create > Azure virtual machine**.
- In **Create a virtual machine**, enter or select the following values in the **Basics** tab:
  - 
  - Select the **Networking** tab, or select **Next: Disks**, then **Next: Networking**.

Setting	Value
<b>Network interface</b>	
Virtual network	Select <b>lb-vnet</b>
Subnet	Select <b>backend-subnet</b>
Public IP	Select <b>None</b> .
NIC network security group	Select <b>Advanced</b>
Configure network security group	Skip this setting until the rest of the settings are completed. Complete after <b>Select a backend pool</b> .
Delete NIC when VM is deleted	Leave the default of <b>unselected</b> .
Accelerated networking	Leave the default of <b>selected</b> .
<b>Load balancing</b>	
<b>Load balancing options</b>	
Load-balancing options	Select <b>Azure load balancer</b>
Select a load balancer	Select <b>load-balancer</b>
Select a backend pool	Select <b>lb-backend-pool</b>
Configure network security group	Select <b>Create new</b> . In the <b>Create network security group</b> , enter <b>lb-NSG</b> in <b>Name</b> . Under <b>Inbound rules</b> , select <b>+Add an inbound rule</b> . In <b>Service</b> , select <b>HTTP</b> . Under <b>Priority</b> , enter <b>100</b> . In <b>Name</b> , enter <b>lb-NSG-Rule</b> Select <b>Add</b> Select <b>OK</b>

6. In the Networking tab, select or enter the following information:

Expand table


- 1.
2. Select **Review + create**.
3. Review the settings, and then select **Create**.
4. Follow the steps 1 through 7 to create another VM with the following values and all the other settings the same as **lb-VM1**:

Expand table

Setting	VM 2
Name	lb-VM2
Availability zone	Zone 2
Network security group	Select the existing lb-NSG

[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 for r](#)

**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](#)

 This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

#### Project details

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

Subscription \* ⓘ

Azure for Students

Resource group \* ⓘ

demo\_celebal

[Create new](#)

#### Instance details

Virtual machine name \* ⓘ

lb-VM1

Region \* ⓘ

(US) East US

[< Previous](#)

[Next : Disks >](#)

[Review + create](#)

#### Administrator account

Username \* ⓘ

bhavya

Password \*

bhavya@123456

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.

...


[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 fo

Enable Hibernation ⓘ

☐

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

## Administrator account

Username \* ⓘ

bhavya

✓

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

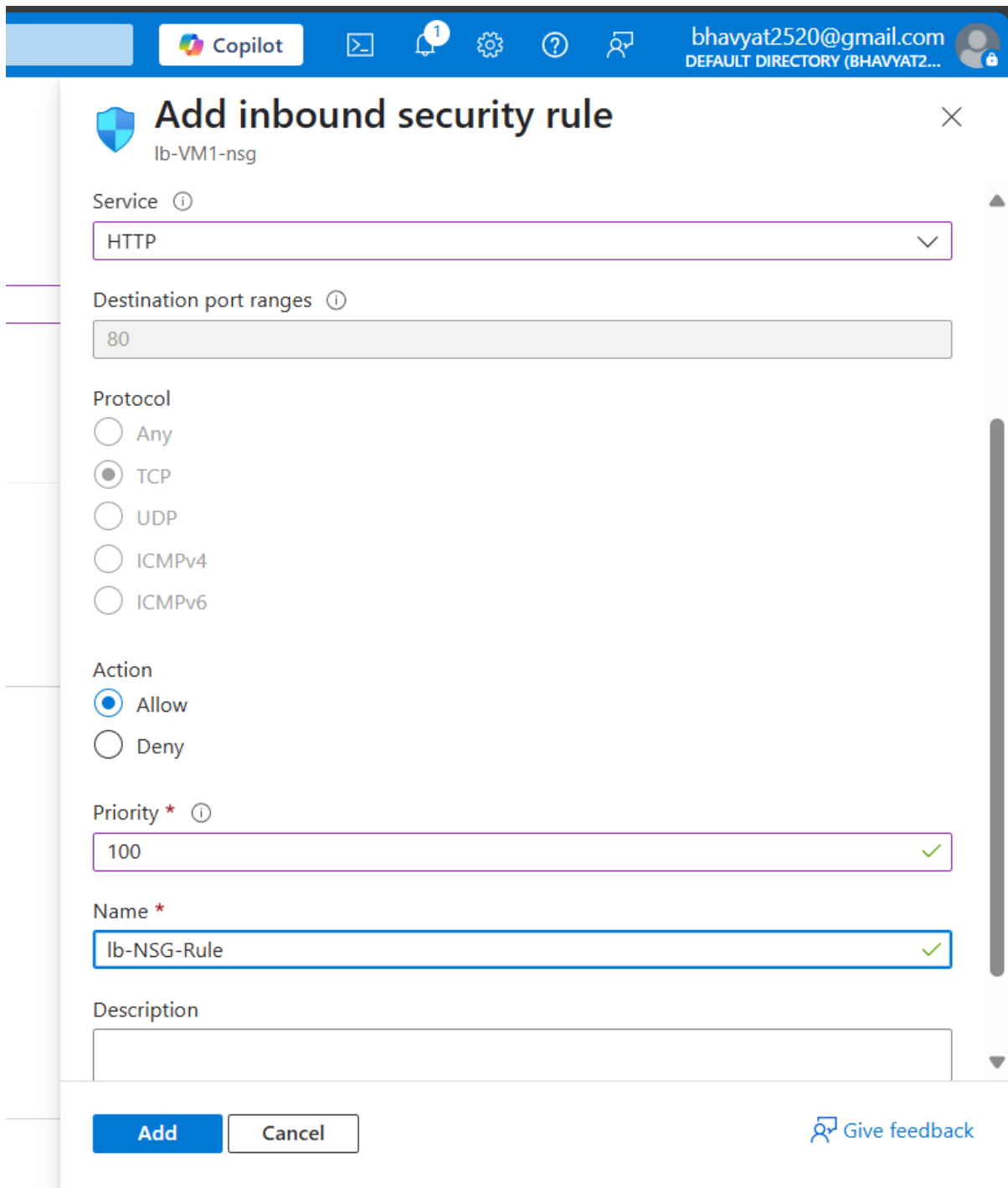
Select one or more ports

▼

**i** All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

- < Previous
- Next : Disks >
- Review + create





The screenshot shows the 'Add inbound security rule' dialog in the Azure portal. The dialog is for the network security group 'lb-VM1-nsg'. The 'Service' is set to 'HTTP'. The 'Destination port ranges' is '80'. The 'Protocol' is 'TCP'. The 'Action' is 'Allow'. The 'Priority' is '100'. The 'Name' is 'lb-NSG-Rule'. The 'Description' field is empty. The 'Add' button is highlighted in blue.

**Add inbound security rule** ✕

lb-VM1-nsg

Service ⓘ

HTTP ▼

Destination port ranges ⓘ

80

Protocol

☐ Any

☒ TCP

☐ UDP

☐ ICMPv4

☐ ICMPv6

Action

☒ Allow

☐ Deny

Priority \* ⓘ

100 ✓

Name \*

lb-NSG-Rule ✓

Description

**Add** Cancel [Give feedback](#)

## Install IIS

1. In the search box at the top of the portal, enter **Virtual machine**. Select **Virtual machines** in the search results.
2. Select **lb-VM1**.
3. On the **Overview** page, select **Connect**, then **Bastion**.
4. Enter the username and password entered during VM creation.
5. Select **Connect**.

6. On the server desktop, navigate to **Start > Windows PowerShell > Windows PowerShell**.

7. In the PowerShell Window, run the following commands to:

- Install the IIS server.
- Remove the default iisstart.htm file.
- Add a new iisstart.htm file that displays the name of the VM:

Script:

```
# Install IIS server role
```

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

```
# Remove default htm file
```

```
Remove-Item C:\inetpub\wwwroot\iisstart.htm
```

```
# Add a new htm file that displays server name
```

```
Add-Content -Path "C:\inetpub\wwwroot\iisstart.htm" -Value $("Hello World  
from " + $env:computername)
```

## Test the load balancer

1. In the search box at the top of the page, enter **Public IP**. Select **Public IP addresses** in the search results.
2. In **Public IP addresses**, select **frontend-ip**.
3. Copy the item in **IP address**. Paste the public IP into the address bar of your browser. The custom VM page of the IIS Web server is displayed in the browser.

---

Hello World from myVM1

**Reference:** <https://learn.microsoft.com/en-us/azure/load-balancer/quickstart-load-balancer-standard-public-portal>