

Lab Deploy Azure Load Balancer

Lab Objective: Deploy a high-availability web application using two Windows Virtual Machines behind a Standard Azure Public Load Balancer, demonstrating load balancing, backend pool configuration, and health monitoring.

Step 1 – Create a Resource Group

Home > Azure subscription 1 | Resource groups >

Create a resource group

Basics Tags **Review + create**

Automation Link

Basics

Subscription	Azure subscription 1
Resource group name	Lab2-LB-RG
Region	Canada Central

Tags

None

Previous Next **Create**

Created a dedicated resource group: Lab2-LB-RG in Canada Central to organize all lab resources.

Step 2 – Create a Virtual Network

Build a network that both VMs and the load balancer will use:

Home > Network foundation | Virtual networks >

Create virtual network

Basics Security IP addresses Tags Review + create

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 *	Lab2-LB-RG

[Create new](#)

Instance details

Virtual network name *	Lab2-VNet
Region * ⓘ	(Canada) Canada Central

[Deploy to an Azure Extended Zone](#)

Previous Next **Review + create**

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Edit subnet:

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Home > Network foundation | Virtual networks >

Create virtual network

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

☐ Allocate using IP address pools. [Learn more](#)

+ Add a subnet

Subnets	IP address range	Size	NAT gateway
default	10.0.0.0 - 10.0.255.255	/24 (256 addresses)	-

+ Add IPv4 address space

10.0.0.0/16

10.0.0.0 - 10.0.255.255

65,536 addresses

Subnet purpose: Default

Name: web-subnet

IPv4

Include an IPv4 address space: ☒

IPv4 address range: 10.0.0.0/16

Starting address: 10.0.0.0

Size: /24 (256 addresses)

Subnet address range: 10.0.0.0 - 10.0.0.255

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

Save Cancel Give feedback

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Home > Network foundation | Virtual networks >

Create virtual network

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

Deploying...

Resource Group: Lab2-LB-RG

Name: Lab2-VNet

Region: Canada Central

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: web-subnet (10.0.0.0/24) (256 addresses)

Tags

Previous Next Create Download a template for automation

Submitting deployment... Submitting the deployment template for resource group 'Lab2-LB-RG'.

Created a virtual network: Lab2-VNet with a single subnet web-subnet (10.0.0.0/24) to host the VMs and Load Balancer.

Step 3 – Create VMs

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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 my workload

Subscription: Azure subscription 1

Resource group: Lab2-LB-RG

Instance details

Virtual machine name: WebVM1

Region: (Canada) Canada Central

Availability options: No infrastructure redundancy required

Security type: Trusted launch virtual machines

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

VM architecture: x64

Next: Disks > Review + create

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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 my workload

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

Size * [See all sizes](#)

Enable Hibernation ☐

Administrator account

Username *

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 *

< Previous Next: Disks > Review + create Give feedback

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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 my workload

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 * [Create new](#)

Subnet * [Manage subnet configuration](#)

Public IP [Create new](#)

NIC network security group ☐ None ☒ Basic ☐ Advanced

Public inbound ports * ☐ None ☒ Allow selected ports

Select inbound ports *

< Previous Next: Management > Review + create Give feedback

Next, create VM 2, which will be almost identical — this ensures the Load Balancer can distribute traffic evenly.

Summary: Deployed WebVM1 and WebVM2 (Windows Server 2022 Datacenter) in the web-subnet; Configured inbound rules to allow RDP (3389) and HTTP (80); Will use Azure Bastion for secure RDP connections without assigning public IPs.

Step 4 – Create the Public Load Balancer

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Home > Load balancing and content delivery | Load balancers >

Create load balancer

Network Address Translation (NAT) to route traffic between public and private IP addresses. [Learn more.](#)

Project details

Subscription * Azure subscription 1

Resource group * Lab2-LB-RG [Create new](#)

Instance details

Name * Lab2-PublicLB

Region * Canada Central

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 > [Download a template for automation](#) [Give feedback](#)

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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

+ Add a frontend IP configuration

Name ↑↓ IP address ↑↓

Add a frontend IP to get started

[Review + create](#) < Previous Next: Backend pools > [Download a template for automation](#) [Give feedback](#)

Add frontend IP configuration

Lab2-PublicLB

Name * LB-Frontend

IP version ☒ IPv4
☐ IPv6

IP type ☒ IP address
☐ IP prefix

Public IP address * (new) LB-PublicIP [Create new](#)

Gateway Load balancer ☐ None

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

Step 5 — Add VMs to Backend Pool

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Home > CreateLoadBalancerBladeV2-20251020195236 | Overview > Lab2-PublicLB | Backend pools >

Add backend pool

Lab2-PublicLB

Name * WebVMs-Pool

Virtual network ☐ Lab2-VNet (Lab2-LB-RG)

The dropdown only shows virtual networks in the same subscription and location as the load balancer. If you don't see the one you're looking for, it's either in another subscription or location or you don't have access to it.

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	IP configuration	IP Address	Availability set
WebVM1	Lab2-LB-RG	Virtual machine	ipconfig1	10.0.0.4	-
WebVM2	Lab2-LB-RG	Virtual machine	ipconfig1	10.0.0.5	-

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

Step 6 — Create Load Balancing Rule

Add 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. Only backend instances that the health probe considers healthy receive new traffic. Learn more.

Name *

IP version * ☒ IPv4 ☐ IPv6

Frontend IP address *

Backend pool *

Protocol ☒ TCP ☐ UDP

Port *

Backend port *

Health probe *

Session persistence

Idle timeout (minutes) *

Enable TCP Reset ☐

Enable Floating IP ☐

Outbound source network address ☒ (Recommended) Use outbound rules to provide backend pool members access

Create a Health Probe HTTP-Probe and click Save.

Step 7 — Test the Load Balancer

Install IIS on WebVM1, using Azure Bastion to connect:

```

Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\azureuser> Install-WindowsFeature -Name Web-Server -IncludeManagementTools

Success Restart Needed Exit Code      Feature Result
-----
True      No              Success      {Common HTTP Features, Default Document, D...

PS C:\Users\azureuser>
  
```

Add a custom page for testing Load Balancer:

```

Administrator: Windows PowerShell
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

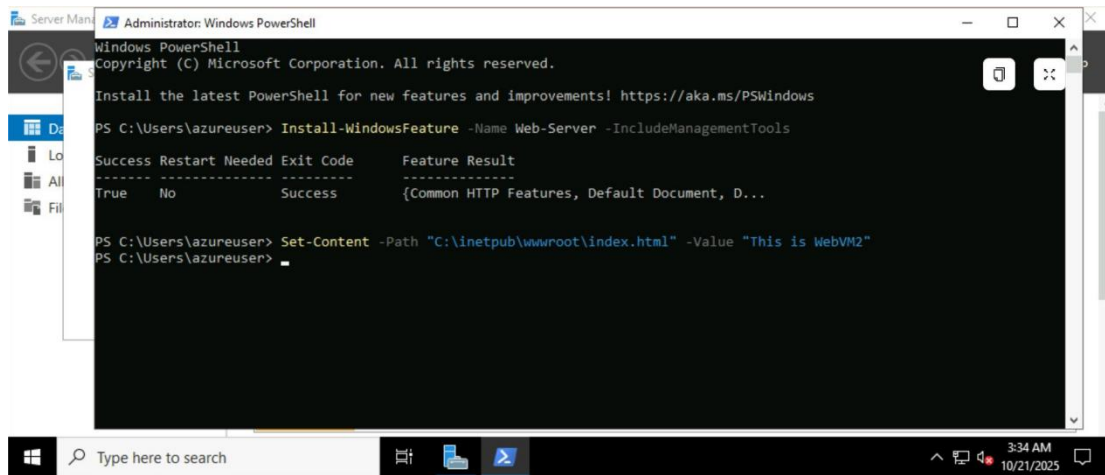
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\azureuser> Install-WindowsFeature -Name Web-Server -IncludeManagementTools

Success Restart Needed Exit Code      Feature Result
-----
True      No              Success      {Common HTTP Features, Default Document, D...

PS C:\Users\azureuser> Set-Content -Path "C:\inetpub\wwwroot\index.html" -Value "This is WebVM1"
PS C:\Users\azureuser>
  
```

Now WebVM1 has IIS installed and is serving a page. Repeat the process for WebVM2:

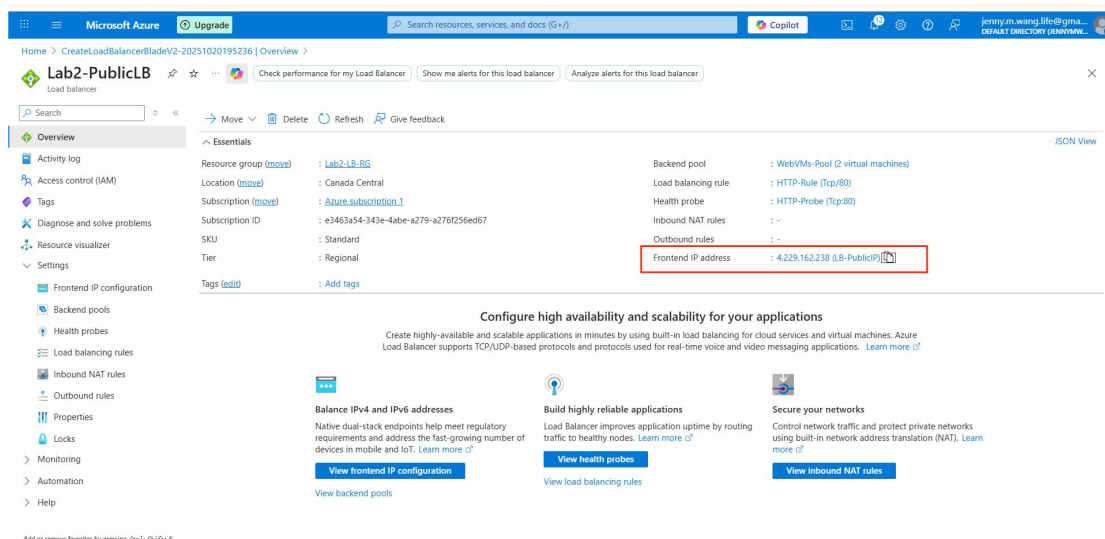


Summary: Created custom index pages on each VM to verify load balancing:

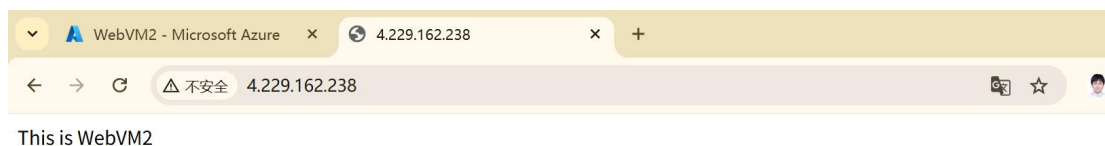
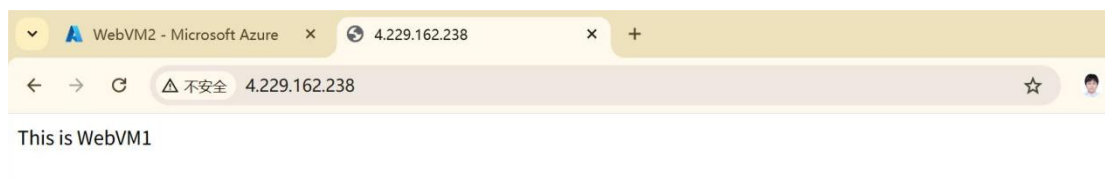
WebVM1 → "This is WebVM1"

WebVM2 → "This is WebVM2"

To confirm the Load Balancer's working, copy the frontend IP address:



Open a browser → paste the public IP and refresh several times:



So, the Load Balancer is forwarding HTTP traffic; The Backend Pool is working; IIS on both VMs is serving content.

My Load Balancer is distributing traffic between two IIS VMs.

Deleting the Resource Group:

Lab2-LB-RG - Microsoft Azure

portal.azure.com/#@jennymwanglifegmail.onmicrosoft.com/resource/subscriptio...

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

Home > Azure subscription 1 | Resource groups

Azure subscription 1 | Resource groups

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

Resource groups

Resources Cost Management Billing Settings Help

Lab2-LB-RG Resource group

Overview Activity log Access control (IAM) Tags Resource visualizer Events Settings Cost Management Monitoring Automation Help

Help me generate Terraform for this resource group configuration.

Deleting resource group Lab2-LB-RG
Deleting resource group Lab2-LB-RG

Essentials JSON View

Resources Recommendations

Filter for any field... Type equals all Location equals all Add filter

Name	Type	Location
Lab2-PublicLB	Load balancer	Canada Central
Lab2-VNet	Virtual network	Canada Central
Lab2-VNet-bastion	Bastion	Canada Central
LB-PublicIP	Public IP address	Canada Central
WebVM1	Virtual machine	Canada Central
WebVM1-nsg	Network security group	Canada Central
webvm1413	Network interface	Canada Central
WebVM1_OsDisk_1_347f36cfe17430488b203661	Disk	Canada Central
WebVM2	Virtual machine	Canada Central
WebVM2-nsg	Network security group	Canada Central

Showing 1 - 10 of 12. Display count: auto

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