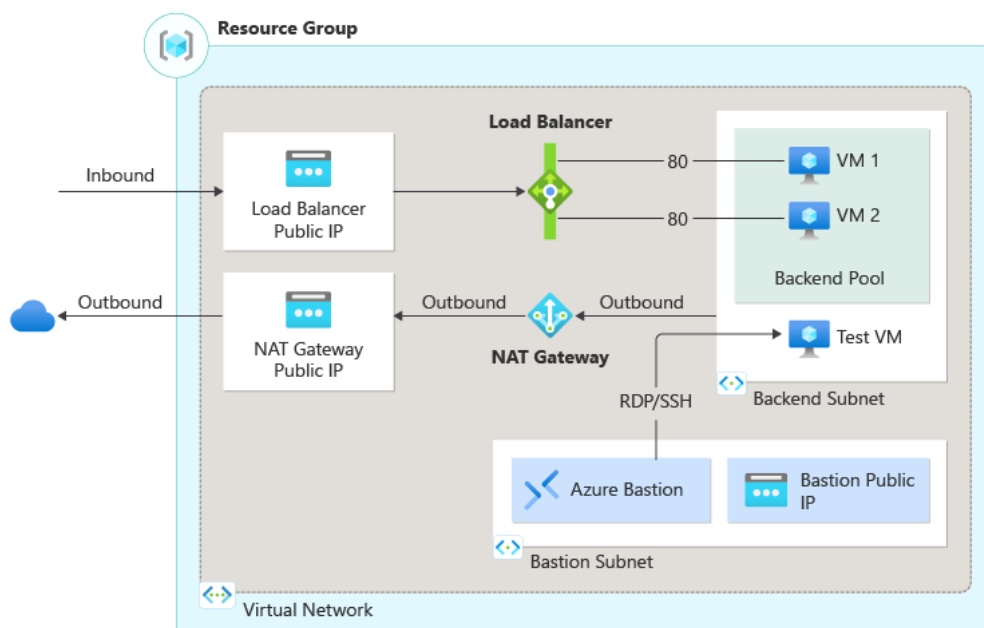


# Azure VM creation with Bastion, Load Balancer and app-Gateway creation Step

## Prerequisite to create Bastion

1. Need One Resource Group
2. Need One Virtual Network
3. Need Two subnet in same Virtual Network
  - a. One Subnet is for two VM with name "BackendSubnet1" and "BackendSubnet2"
  - b. One Subnet is for one AzureBastionSubnet with name "AzureBastionSubnet"
4. Need to create 2 VNIC for 2 Virtual machine with name "BackendVMNIC1" and "BackendVMNIC2"
5. Need to Create 2 VM with name "BackendVM1" and "BackendVM2"
6. Need to create one Public IP for Bastion.
7. Need to create on more public IP for LoadBalancer
8. Write terraform code for these specification



**Step1 :** Create Infrastructure in Azure cloud for Bastion with two vm and bastion.

**Step2 :** Login in azure portal and login in both BackendVM1 and BackendVM2 VM through Bastion and run below command from portal:

- a. Sudo apt update

- b. Sudo apt install nginx
- c. Cd /var/www/html
- d. Vi index.html (Write VM1 in index.html and VM2 in index.html)

**Step3:** Go to each VM → Networking → add inbound rule for port 80 (used for http)

**Step4:** Create Load Balancer

- a. Need to create Public Load balancer which will use to balance load over internet

Home > Load balancing | Load Balancer >

Create load balancer ...

load balancers use 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 \* Free Trial

Resource group \* pardeeprg1  
[Create new](#)

**Instance details**

Name \* lb-pradeep

Region \* Canada Central

SKU \* ⓘ ☒ Standard (Recommended)  
☐ Gateway  
☐ Basic (Retiring soon)

Type \* ⓘ ☒ Public  
☐ Internal

Tier \* ☒ Regional  
☐ Global

Review + create

< Previous

Next : Frontend IP configuration >

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

Home >

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

pardeep-lb

Name \* frontend-pb

IP version ☒ IPv4  
☐ IPv6

Virtual network \* pardeepvnet1 (pardeeprg1)

Subnet \* pardeepsubnet1 (10.0.0.0/19)

Assignment ☒ Dynamic  
☐ Static

Availability zone \* ⓘ Zone-redundant

Save

Cancel

[Give feedback](#)

me > Load balancing | Load balancer >

reate load balancer ...

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

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

Review + create

< Previous

Next : Backend pools >

Download a template for automation #Give feedback

Add frontend IP configuration

lb-pardeep

Name \*

pb-frontend

IP version

IPv4

IPv6

IP type

IP address

IP prefix

Public IP address \*

Select public IP address

Add a public IP address

Name \*

pb-loadbalance

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

Home > Create load balancer >

Add backend pool ...

Name \*

backend-pb

Virtual network ⓘ

pardeepvnet1

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

Save

Cancel

#Give feedback

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 : canadacentral

Virtual network : pardeepvnet1

⌵ Add filter

Show resources that are not available for selection

	Resourc...	Resourc...	Type	IP confi...	IP Addr...	Availabi...	Tags
⌵	Virtual machine (3)						
<input type="checkbox"/>	pardeep...	pardeep...	Virtual ...	pardeepi...	10.0.64.4	-	{}
<input checked="" type="checkbox"/>	pardeep...	pardeep...	Virtual ...	pardeepi...	10.0.0.4	-	{}
<input checked="" type="checkbox"/>	Vm3	pardeep...	Virtual ...	ipconfig1	10.0.0.5	-	-

Add

Cancel

## Add backend pool ...

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	IP configuration	IP Address	Availability set	
PARDEEPM1	PARDEEPRG1	Virtual machine	pardeepipconf	10.0.0.4	-	
VM3	PARDEEPRG1	Virtual machine	ipconfig1	10.0.0.5	-	

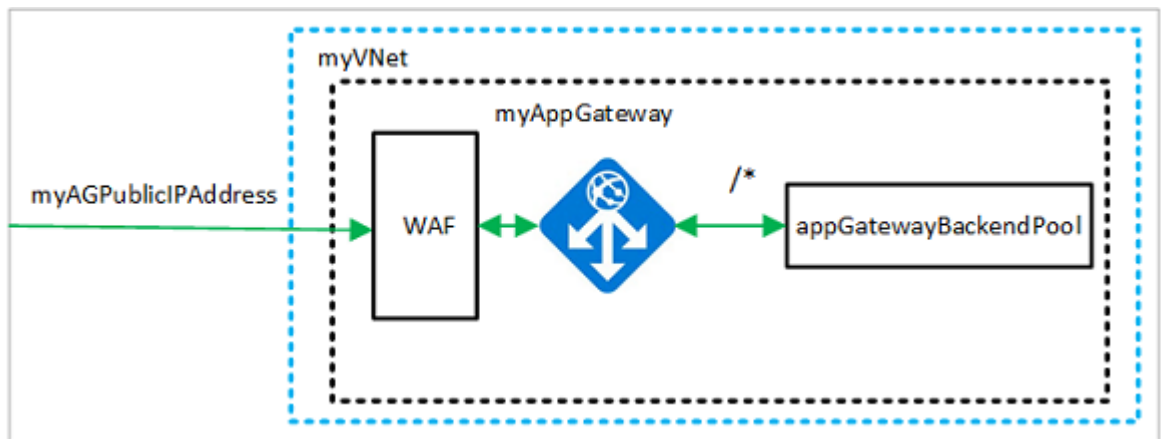
[Save](#) [Cancel](#) [Give feedback](#)

- b. Need to use load balancer public IP with port 80 and use in browser now we can show how load will distributed in both VM.**

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

### Prerequisite to create AppGateway

1. Need One Resource Group
2. Need One Virtual Network
3. Need Three subnet in same Virtual Network
  - a. One Subnet is for two VM with name "BackendSubnet1" and "BackendSubnet2"
  - b. One Subnet is for one AzureBastionSubnet with name "AzureBastionSubnet"
  - c. One Subnet is for App Gateway
4. Need to create 2 VNIC for 2 Virtual machine with name "BackendVMNIC1" and "BackendVMNIC2"
5. Need to Create 2 VM with name "BackendVM1" and "BackendVM2"
6. Need to create one Public IP for Bastion.
7. Need to create on more public IP for App Gateway
8. Write terraform code for these specification



Step 1 to Step 3 is same as above

**Step4 : Now Create App Gateway**

Microsoft Azure
Upgrade
Search resources,

Home > Load balancing | Application Gateway >

## Create application gateway

Subscription \* ⓘ
Resource group \* ⓘ

Free Trial
pardeeprg1
Create new

**Instance details**

Application gateway name \*
Region \*
Tier ⓘ
Enable autoscaling
Minimum instance count \* ⓘ
Maximum instance count
Availability zone \* ⓘ
IP address type ⓘ
HTTP2 ⓘ

appgatewaypradeep
Canada Central
Standard V2
Yes
No
0
10
Zones 1, 2, 3
IPv4 only
Dual stack (IPv4 & IPv6)
Disabled
Enabled

**Configure virtual network**

Virtual network \* ⓘ
Subnet \* ⓘ

pardeepvnet1
Create new
pardeepsubnet4 (10.0.96.0/19)
Manage subnet configuration

Previous
Next : Frontends >

## Create application gateway ...

✓ Basics **2 Frontends** ③ Backends ④ Configuration ⑤ Tags ⑥ Review + create

Traffic enters the application gateway via its frontend IP address(es). An application gateway can use a public IP address, private IP address, or one of each type. ↗

Frontend IP address type ① ☒ Public ☐ Private ☐ Both

Public IPv4 address \*

(New) appip ▼  
[Add new](#)

Microsoft Azure Upgrade Search resources, services, and docs (G+/I) Copilot SatishRanjan@tomarris... DEFAULT DIRECTORY (TOMARRIS...)

Home > Load balancing | Application Gateway >

### Create application gateway ...

✓ Basics ✓ Frontends **② Backends** ④ Configuration ⑤ Tags ⑥ Review + create

A backend pool is a collection of resources to which your application gateway can send traffic. A backend pool can contain virtual machines, virtual machine scale sets, app services, IP addresses, or fully qualified domain names (FQDN). ↗

[Add a backend pool](#)

Backend pool	Targets
appbackend	> 2 targets

[Add](#) [Cancel](#)

#### Add a backend pool.

A backend pool is a collection of resources to which your application gateway can send traffic. A backend pool can contain virtual machines, virtual machines scale sets, IP addresses, domain names, or an App Service.

Name \* appback ✓

Add backend pool without targets ☐ Yes ☒ No

Backend targets

1 item

Target type	Target
Virtual machine	<input type="text" value="The value must not be empty."/>
IP address or FQDN	pardeepvm1 (pardeeprg1) pardeepnic1 (10.0.0.4) Vm3 (pardeeprg1) vm350_x1 (10.0.0.5) pardeepbackndvm2 (pardeeprg1) pardeepnic2 (10.0.64.4)

[Add](#) [Cancel](#)

Microsoft Azure Upgrade Search resources, services, and docs (G+/I) Copilot SatishRanjan@tomarris... DEFAULT DIRECTORY (TOMARRIS...)

Home > Load balancing | Application Gateway >

### Create application gateway ...

✓ Basics ✓ Frontends ✓ Backends **④ Configuration** ⑤ Tags ⑥ Review + create

Create routing rules that link your frontend(s) and backend(s). You can also add more backend pools, add a second frontend IP configuration if you have one.

**Frontends**

+ Add a frontend IP

Public: (new) appip

**Routing rules**

+ Add a routing rule

#### Add a routing rule

listener and at least one backend target.

Rule name \* apprule ✓

Priority \* 1 ✓

\* Listener \* Backend targets

A listener "listens" on a specified port and IP address for traffic that uses a specified protocol. If the listener criteria are met, the application gateway will apply this routing rule. ↗

Listener name \* nginx.satishranjan.online ✓

Frontend IP \* Public IPv4 ✓

Protocol HTTP HTTPS

Port \* 80 ✓

Listener type Basic Multi site

**Custom error pages**

Show customized error pages for different response codes generated by Application Gateway. This section lets you configure Listener-specific error pages. [Learn more](#) ↗

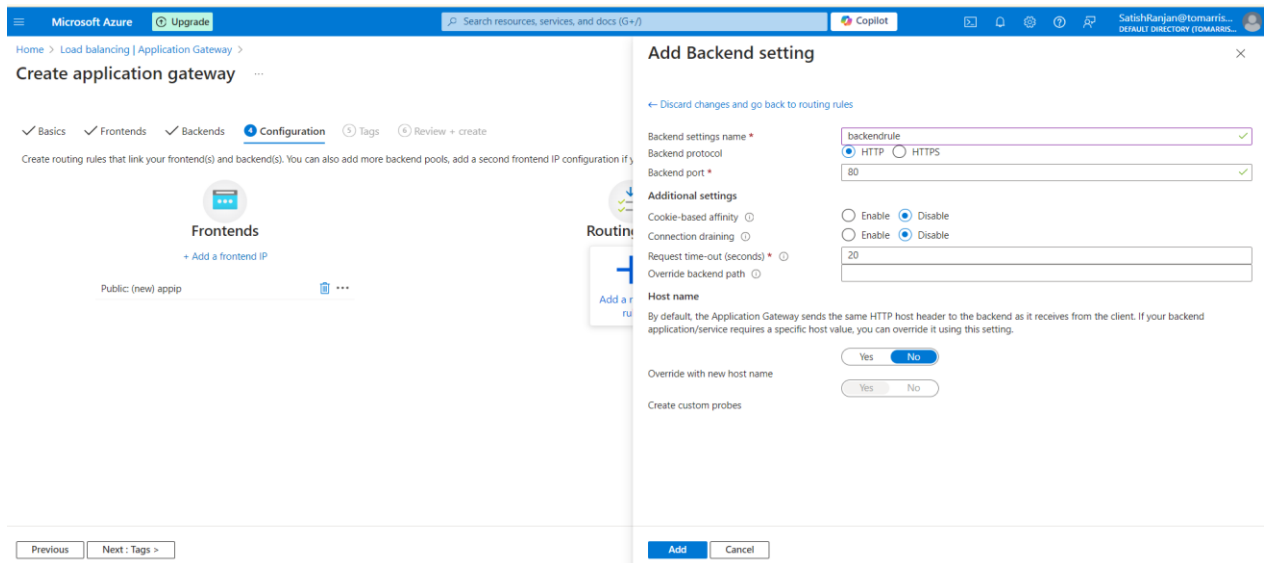
Please verify that the url(s) being added here is reachable from your application gateway using the [connection troubleshoot](#) tool to prevent any deployment error.

Bad Gateway - 502 Enter Html file URL

Forbidden - 403 Enter Html file URL

[Show more status codes](#)

[Add](#) [Cancel](#)



### Step5 : Update DNS Related Entry in Go daddy Site.

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### Step6 : Wait some time, then check in browser :

<https://nginx.satishonline.com>

Document Link : <https://learn.microsoft.com/en-us/azure/web-application-firewall/ag/application-gateway-web-application-firewall-portal>