

Cloud Assignment

Assignments

- Create a virtual network with 2 subnets. Each subnet should have 16 ips only.

1. Open azure Portal And select virtual network and click on create.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with 'Microsoft Azure', 'Upgrade', a search bar, and various icons. Below the bar, under 'Azure services', there are icons for 'Create a resource', 'Virtual networks', 'All resources', 'Virtual machines', 'SQL databases', 'Quickstart Center', 'App Services', 'Storage accounts', and 'Azure Cosmos DB'. A large arrow points down to a 'More services' link. Under 'Resources', it shows 'Recent' and 'Favorite' tabs. The 'Recent' tab lists 'VM' (Virtual machine) and 'springDemo' (Resource group), both last viewed 4 hours ago. There's also a 'See all' link.

2. Provide resource group name if there already exists one or else create a new one by clicking on create new.

The screenshot shows the 'Create virtual network' wizard in the Azure portal. The 'Basics' step is selected. It includes a descriptive text about VNet, project details (Subscription: Free Trial, Resource group: springDemo), and instance details (Name: VN1, Region: East US). At the bottom, there are buttons for 'Review + create', '< Previous', 'Next : IP Addresses >', and 'Download a template for automation'.

3. Give other details.

Microsoft Azure Upgrade Search resources, services, and docs (G+/-) nishant.chaudhary02@n... NAGARRO

Home > Virtual networks >

Create virtual network

Basics IP Addresses Security 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 about virtual network](#)

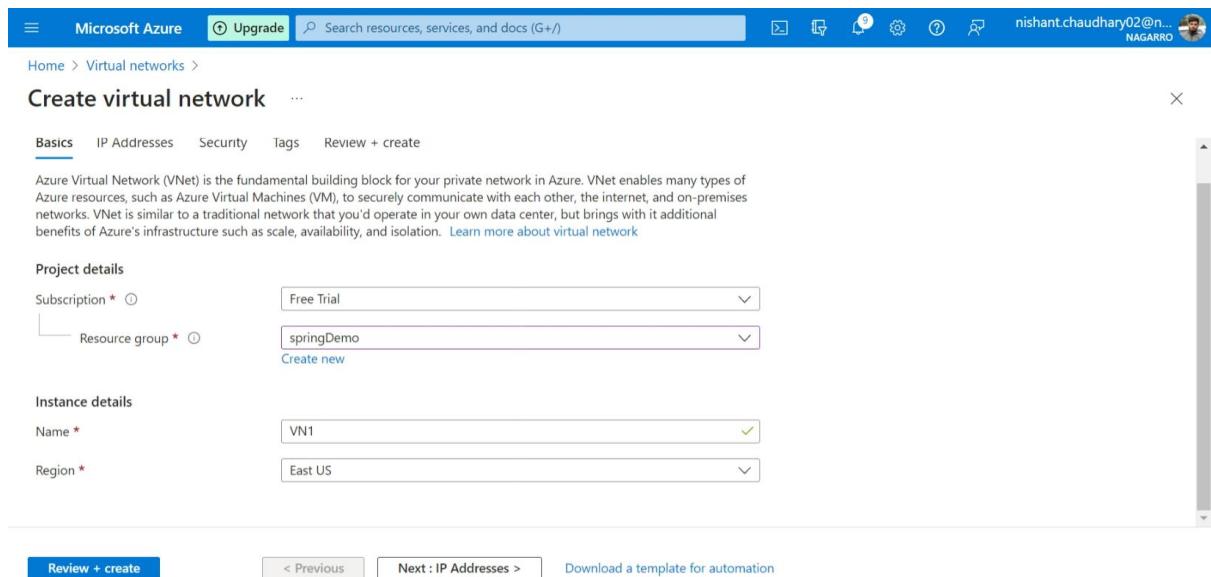
Project details

Subscription * Free Trial
Resource group * springDemo Create new

Instance details

Name * VN1
Region * East US

Review + create < Previous Next : IP Addresses > Download a template for automation



4.

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Home > Virtual networks >

Create virtual network

Validation passed

Basics IP Addresses Security Tags Review + create

Basics

Subscription	Free Trial
Resource group	springDemo
Name	VN1
Region	East US

IP addresses

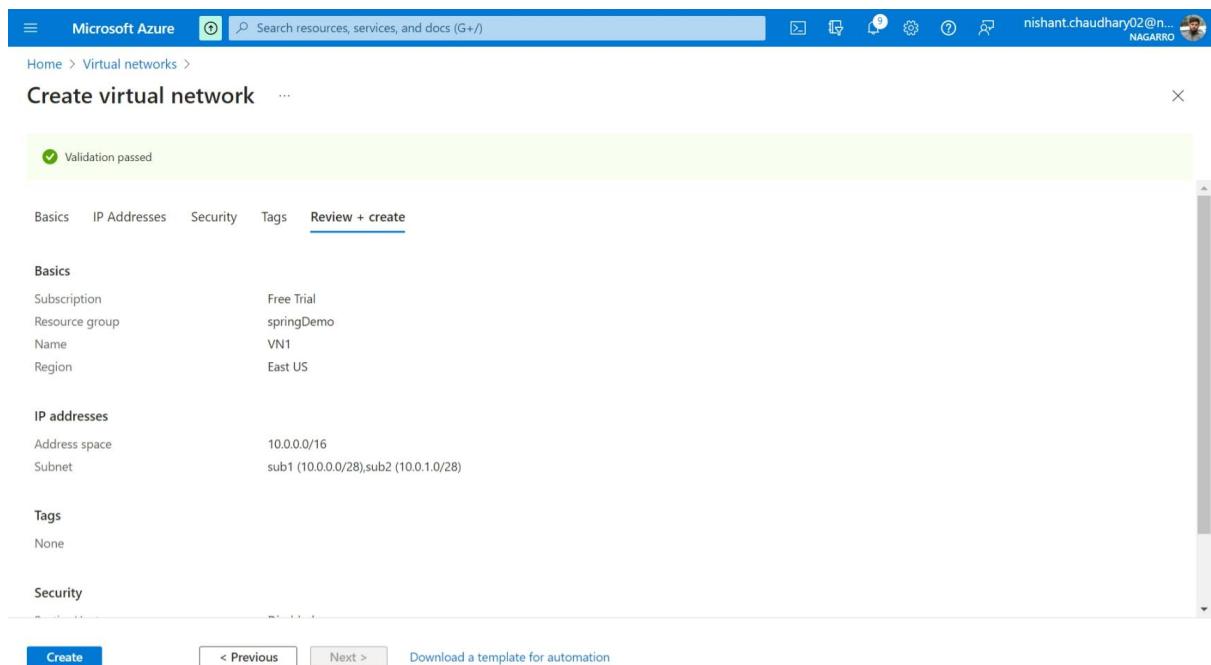
Address space	10.0.0.0/16
Subnet	sub1 (10.0.0.0/28), sub2 (10.0.1.0/28)

Tags

None

Security

Create < Previous Next > Download a template for automation



5.

The screenshot shows the Microsoft Azure Deployment Overview page for a deployment named "Microsoft.VirtualNetwork-20230515203216". The status is "Your deployment is complete". Deployment details include a name of "Microsoft.VirtualNetwork-20230515203216", a start time of 5/15/2023, 8:38:00 PM, and a correlation ID of 8d0276ba-f5b1-4046-9468-f09... The subscription is "Free Trial" and the resource group is "springDemo". There are links for "Deployment details" and "Next steps", and a "Go to resource" button. A "Give feedback" section with a "Tell us about your experience with deployment" link is also present. On the right side, there are promotional cards for "Cost management", "Microsoft Defender for Cloud", and "Free Microsoft tutorials".

6.

The screenshot shows the Microsoft Azure Virtual Network Subnets page for a virtual network named "VN1". The subnets listed are "sub1" and "sub2". Subnet "sub1" has an IPv4 range of 10.0.0.0/28 and 11 available IPs. Subnet "sub2" has an IPv4 range of 10.0.1.0/28 and 11 available IPs. The left sidebar shows navigation options like Overview, Activity log, Access control (IAM), Tags, and Subnets (which is selected).

Name	IPv4	IPv6	Available IPs	Delegated to	Security group	Route table
sub1	10.0.0.0/28	-	11	-	-	-
sub2	10.0.1.0/28	-	11	-	-	-

- Inside one of the subnets, create a VM and deploy an application code inside it and it should leverage the database on the cloud (any existing application created by you before)

1.

Microsoft Azure (1) Search resources, services, and docs (G+)

Azure services

Create a resource Virtual networks All resources Virtual machines SQL databases Quickstart Center App Services Storage accounts Azure Cosmos DB More services

Resources

Recent Favorite

Name	Type	Last Viewed
VN1	Virtual network	2 minutes ago
springDemo	Resource group	3 minutes ago
VM	Virtual machine	4 hours ago

See all

Navigate

Subscriptions Resource groups All resources Dashboard

Tools

2.

Microsoft Azure (1) Search resources, services, and docs (G+)

Home >

Virtual machines

Nagarro

+ Create v Switch to classic Reservations Manage view Refresh Export to CSV Open query Assign tags Start Restart Stop ...

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

Showing 0 to 0 of 0 records.

Name	Type	Subscription	Resource group	Location	Status	Operating system	Size
------	------	--------------	----------------	----------	--------	------------------	------

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

[Create](#)

Learn more about Windows virtual machines v
Learn more about Linux virtual machines v

[Give feedback](#)

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

Home > Virtual machines > Create a virtual machine

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 *  Free Trial

Resource group *  springDemo [Create new](#)

Instance details

Virtual machine name *  VM

Region *  (US) East US

Availability options  Availability zone

Availability zone *  Zones 1

 You can now select multiple zones. Selecting multiple zones will create one VM

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

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

Home > Virtual machines > Create a virtual machine

[See all sizes](#)

Administrator account

Authentication type  SSH public key Password

 Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Username *  azureuser

SSH public key source  Generate new key pair

Key pair name *  VM_key

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)

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

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

Home > Virtual machines >

Create a virtual machine

Networking

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

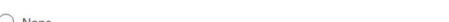
When creating a virtual machine, a network interface will be created for you.

Virtual network *  VN1
[Create new](#)

Subnet *  sub1 (10.0.0.0/28)
[Manage subnet configuration](#)

Public IP  (new) VM-ip
[Create new](#)

NIC network security group 
 None
 Basic
 Advanced

Public inbound ports * 
 None
 Allow selected ports

[Review + create](#) [< Previous](#) [Next : Management >](#) [Give feedback](#)

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

Home > Virtual machines >

Create a virtual machine

Validation passed

Login with Azure AD 

Auto-shutdown Off

Enable hotpatch Off

Patch orchestration options Image Default

Monitoring

Alerts Off

Boot diagnostics On

Enable OS guest diagnostics Off

Advanced

Extensions None

VM applications None

Cloud init No

User data No

Disk controller type SCSI

Proximity placement group None

Capacity reservation group None

Generate new key pair

An SSH key pair contains both a public key and a private key. **Azure doesn't store the private key.** After the SSH key resource is created, you won't be able to download the private key again. [Learn more](#)

[Download private key and create resource](#) [Return to create a virtual machine](#)

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

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

nishant.chaudhary02@n... NAGARRO

Home > CreateVm-canonical.0001-com-ubuntu-server-focal-2-20230515204502 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

Overview Deployment details Next steps

Your deployment is complete

Deployment name: CreateVm-canonical.0001-com-ubuntu-... Start time: 5/15/2023, 8:49:20 PM
Subscription: Free Trial Correlation ID: 6073fa96-acd7-4acb-b8af-
Resource group: springDemo

Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

Go to resource Create another VM

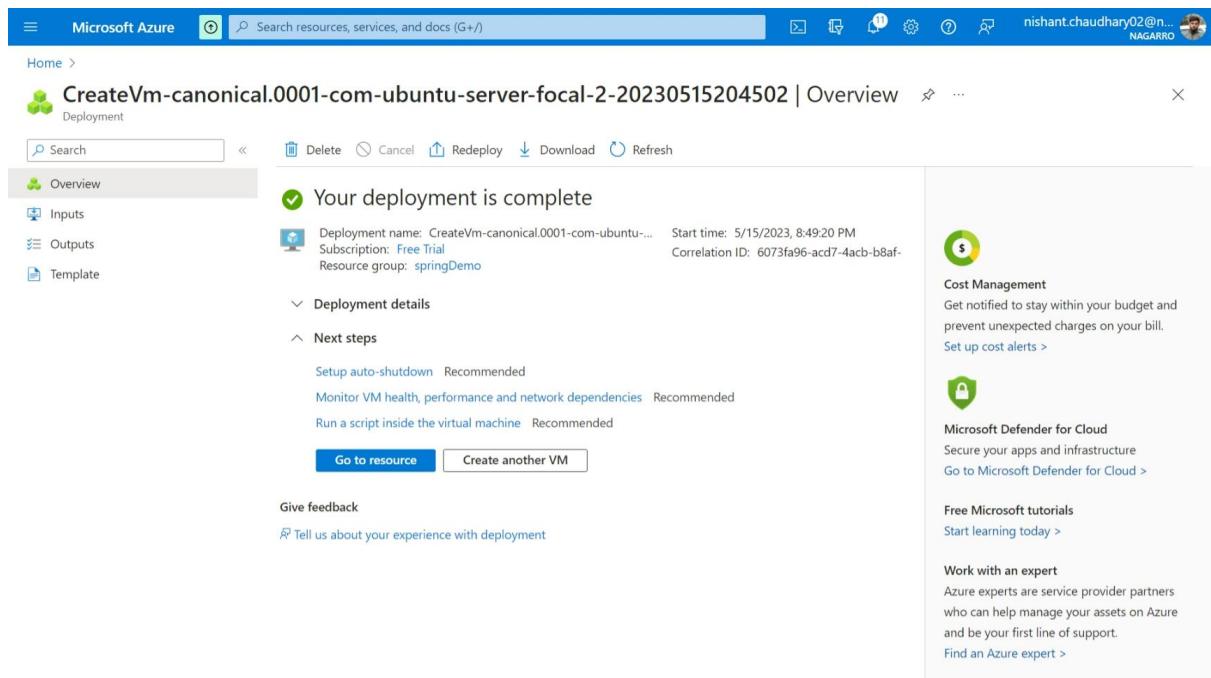
Give feedback Tell us about your experience with deployment

Cost Management Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

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

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Home > CreateVm-canonical.0001-com-ubuntu-server-focal-2-20230515204502 | Overview

VM Virtual machine

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

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

Settings Networking Connect Disks Size Microsoft Defender for Cloud Advisor recommendations Extensions + applications Availability + scaling Configuration Identity Properties

Essentials

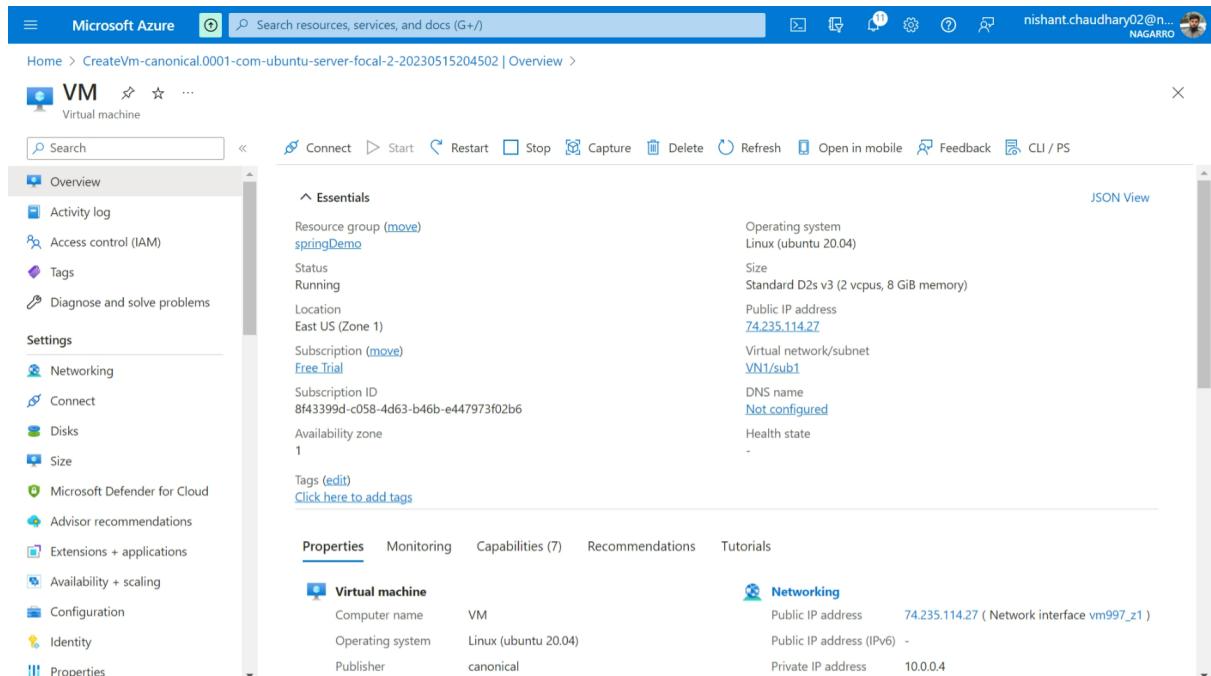
Resource group (move) [springDemo](#)
Status Running
Location East US (Zone 1)
Subscription (move) [Free Trial](#)
Subscription ID 8f43399d-c058-4d63-b46b-e447973f02b6
Availability zone 1
Tags (edit) Click here to add tags

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine Computer name VM Operating system Linux (ubuntu 20.04)
Publisher canonical

Networking Public IP address 74.235.114.27 (Network interface vm997_z1)
Public IP address (IPv6) -
Private IP address 10.0.0.4

JSON View



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

Azure services

- Create a resource
- Virtual machines
- Virtual networks
- All resources
- SQL databases
- Quickstart Center
- App Services
- Storage accounts
- Azure Cosmos DB
- More services

Resources

Recent Favorite

Name	Type	Last Viewed
 VM	Virtual machine	a few seconds ago
 springDemo	Resource group	8 minutes ago
 VN1	Virtual network	18 minutes ago

See all

Navigate

- Subscriptions
- Resource groups
- All resources
- Dashboard

Tools

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

Home > SQL databases > Create SQL Database >

Create SQL Database Server

Microsoft

subscription and resource group as your database.

Server name *

.database.windows.net

Location *

Authentication

Select your preferred authentication methods for accessing this server. Create a server admin login and password to access your server with SQL authentication, select only Azure AD authentication [Learn more](#) or using an existing Azure AD user, group, or application as Azure AD admin [Learn more](#), or select both SQL and Azure AD authentication.

Authentication method

- Use only Azure Active Directory (Azure AD) authentication
- Use both SQL and Azure AD authentication
- Use SQL authentication

Server admin login *

Password *

Confirm password *

 Password and confirm password must match.

OK

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Home > SQL databases > Create SQL Database ...

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](#)

Database details

Enter required settings for this database, including picking a logical server and configuring the compute and storage resources

Database name * ✓ Database name should not match special patterns
Server * ✓ The value has a length of at most 128.
✓ Database name should not contain reserved words
✓ No database with the same name exists in the server

Want to use SQL elastic pool? Yes No

Compute + storage *
10 DTUs, 250 GB storage [Configure database](#)

[Review + create](#) [Next : Networking >](#)

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Home > SQL databases > Create SQL Database ...

Configure network access and connectivity for your server. The configuration selected below will apply to the selected server 'springdemoserver' and all databases it manages. [Learn more](#)

Network connectivity

Choose an option for configuring connectivity to your server via public endpoint or private endpoint. Choosing no access creates with defaults and you can configure connection method after server creation. [Learn more](#)

Connectivity method * No access Public endpoint Private endpoint

Firewall rules

Setting 'Allow Azure services and resources to access this server' to Yes allows communications from all resources inside the Azure boundary, that may or may not be part of your subscription. [Learn more](#)

Setting 'Add current client IP address' to Yes will add an entry for your client IP address to the server firewall.

Allow Azure services and resources to access this server * No Yes

Add current client IP address * No Yes

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

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Home > Microsoft.SQLDatabase.newDatabaseNewServer_0b9bccba17c6437b890b1 | Overview

Deployment

Search Delete Cancel Redeploy Download Refresh

Overview Deployment Inputs Outputs Template

Your deployment is complete

Deployment name : Microsoft.SQLDatabase.newDa... Start time : 5/15/2023, 9:02:15 PM
Subscription : Free Trial Correlation ID : a356993e-03cc-4fe0-88ea-2fb9...
Resource group : springDemo

Deployment details Next steps Go to resource

Give feedback Tell us about your experience with deployment

Cost management Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

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Home > Microsoft.SQLDatabase.newDatabaseNewServer_0b9bccba17c6437b890b1 | Overview

Ecom (springdemoserver/Ecom) SQL database

Search Copy Restore Export Set server firewall Delete Connect with... Feedback

Overview Activity log Tags Diagnose and solve problems Getting started Query editor (preview)

Settings Compute + storage Connection strings Properties Locks

Data management Replicas Sync to other databases

Integrations Azure Synapse Link

Essentials Resource group (move) : springDemo Status : Online Location : East US Subscription (move) : Free Trial Subscription ID : 8f43399d-c058-4d63-b46b-e447973f02b6 Server name : springdemoserver.database.windows.net Elastic pool : No elastic pool Connection strings : Show database connection strings Pricing tier : Standard S0: 10 DTUs Earliest restore point : No restore point available JSON View

Tags (edit) : Click here to add tags

Getting started Monitoring Properties Features Notifications (0) Integrations Tutorials

Start working with your database

Connect to your database and start working with data with a few simple steps. Learn more

Configure access Configure network access to your SQL server. Learn more

Connect to application Use connection strings to connect to your SQL database from your applications and favorite tools.

Start developing Work in your database by using tools to add, modify and query data. Compare tools

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

Home > Microsoft.SQLDatabase.newDatabaseNewServer_0b9bccba17c6437b890b1 | Overview > Ecom (springdemoserver/Ecom)

Ecom (springdemoserver/Ecom) | Connection strings

SQL database

Search

ADO.NET JDBC ODBC PHP Go

JDBC (SQL authentication)

```
jdbc:sqlserver://springdemoserver.database.windows.net:1433;database=Ecom;user=springadmin@springdemoserver;password=(your_password_here);encrypt=true;trustServerCertificate=false;hostNameInCertificate=*.database.windows.net;loginTimeout=30;
```

Download JDBC driver for SQL server

Overview Activity log Tags Diagnose and solve problems Getting started Query editor (preview)

Settings Compute + storage Connection strings Properties Locks

Data management Replicas Sync to other databases

Integrations Azure Synapse Link

e-commerce/src/main/resources/application.properties - Eclipse IDE

File Edit Navigate Search Project Run Window Help

Package Explorer e-commerce [nishant-choudhary master]

```
1 Server.PORT=8092
2 jwt.secret=authentication
3
4 #data source properties
5 spring.datasource.url=jdbc:sqlserver://springdemoserver.database.windows.net:1433;d
6 spring.datasource.username=springadmin
7 spring.datasource.password=Admin@123
8
9 spring.jpa.hibernate.ddl-auto=update
10 spring.jpa.hibernate.dialect=org.hibernate.dialect.SQLServer2012Dialect
11 spring.jpa.show-sql=true
12
13
14
15 app.client.url=http://localhost:4200/login
16|
```

Outline There is no active editor that provides an outline.

Problems Javadoc Declaration Console No consoles to display at this time.

Writable Insert 16 : 1 : 525

34°C Haze

Search

12 7 ENG US 2120 15-05-2023

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

Home > Microsoft.SQLDatabase.newDatabaseNewServer_0b9bccba17c6437b890b1 | Overview > Ecom (springdemoserver/Ecom)

Ecom (springdemoserver/Ecom) | Connection strings

SQL database

Search Overview Activity log Tags Diagnose and solve problems Getting started Query editor (preview)

Settings Compute + storage Connection strings Properties Locks

Data management Replicas Sync to other databases

Integrations Azure Synapse Link

ADO.NET JDBC ODBC PHP Go

JDBC (SQL authentication)

```
jdbc:sqlserver://springdemoserver.database.windows.net:1433;database=Ecom;user=spingadmin@springdemoserver;password=[your_password_here];encrypt=true;trustServerCertificate=false;hostNameInCertificate=*.database.windows.net;loginTimeout=30;
```

Download JDBC driver for SQL server

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

Home > Microsoft.SQLDatabase.newDatabaseNewServer_0b9bccba17c6437b890b1 | Overview > Ecom (springdemoserver/Ecom)

Ecom (springdemoserver/Ecom) | Query editor (preview)

SQL database

Search Login New Query Open query Feedback Getting started

Overview Activity log Tags Diagnose and solve problems Getting started Query editor (preview)

Settings Compute + storage Connection strings Properties Locks

Data management Replicas Sync to other databases

Integrations Azure Synapse Link

Ecom (springadmin)

Showing limited object explorer here. For full capability please click here to open Azure Data Studio.

Tables

- dbo.categories
- dbo.orders
- dbo.products
- dbo.users

Views

Stored Procedures

Query 1

Run Cancel query Save query Export data as Show only Editor

Results Messages

Search to filter items...

Ready

The screenshot shows the Microsoft Azure portal interface. The user is on the 'Virtual machines' page under the 'Nagarro (nagarro.com)' subscription. The search bar at the top contains 'Search resources, services, and docs (G+)'. The main content area displays a list of virtual machines with the following details:

Type	Subscription	Resource group	Location	Status	Operating system	Size
Azure virtual machine	Free Trial	SPRINGDEMO	East US	Running	Linux	Standard_D2s

Below the table, there are three cards:

- Azure virtual machine**: Create a virtual machine hosted by Azure.
- Azure virtual machine with preset configuration**: Create a virtual machine with presets based on your workloads.
- More VMs and related solutions**: Discover and deploy full workloads and Azure products for your business needs.

At the bottom, there are navigation buttons: < Previous, Page 1 of 1, Next >, and a Give feedback link. The taskbar at the bottom shows various pinned icons and the date/time: 18-05-2023, 21:34.

The screenshot shows the 'Create a virtual machine' wizard on the Microsoft Azure portal. The user is on the first step, 'Create a virtual machine'.

Basic options (warning message): Changing Basic options may reset selections you have made. Review all options prior to creating the virtual machine.

Subscription: Free Trial

Resource group: springDemo (with 'Create new' option)

Instance details

- Virtual machine name**: vm1
- Region**: (US) East US
- Availability options**: Availability zone
- Availability zone**: Zones 1 (with note: You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more)

At the bottom, there are buttons for 'Review + create' and 'Next : Disks >'. The taskbar at the bottom shows various pinned icons and the date/time: 18-05-2023, 21:35.

springEcom - Microsoft Azure Create a virtual machine - Microsoft Virtual Machine ARM Nishant-001/spring-Demo

Microsoft Azure Search resources, services, and docs (G+) nishant.chaudhary02@n... NAGARRO (NAGARRO.COM)

Home > Virtual machines > Create a virtual machine

Network interface

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

Virtual network *

Subnet *

Public IP

NIC network security group Basic None

Public inbound ports * None Allow selected ports

32°C Haze ENG US 21:35 18-05-2023

springEcom - Microsoft Azure Create a virtual machine - Microsoft Virtual Machine ARM Nishant-001/spring-Demo

Microsoft Azure Search resources, services, and docs (G+) nishant.chaudhary02@n... NAGARRO (NAGARRO.COM)

Home > Virtual machines > Create a virtual machine

Validation passed

Basics Disks Networking Management Monitoring Advanced Tags

Price

1 X Standard B1s by Microsoft Subscription credits apply

TERMS

Download a template for automation

32°C Haze ENG US 21:36 18-05-2023

Create a virtual machine

Validation passed

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Cost given below is an estimate and not the final price. Please use caution.

Price

1 X Standard B1s by Microsoft

Subscription credits applied

0.8168 INR/hr Pricing for other VM sizes

TERMS

Download private key and create resource

Return to create a virtual machine

Give feedback

32°C Haze

ENG US 21:36 18-05-2023

CreateVm-canonical.0001-com-ubuntu-server-focal-2-20230518213428 | Overview

Your deployment is complete

Deployment name: CreateVm-canonical.0001-com-u... Start time: 5/18/2023, 9:36:54 PM
Subscription: Free Trial Correlation ID: fa94131a-921e-4bf6-5

Deployment details

Next steps

Setup auto-shutdown Recommended
Monitor VM health, performance and network dependencies Recommended
Run a script inside the virtual machine Recommended

Go to resource Create another VM

Give feedback Tell us about your experience with deployment

Cost Management
Get notified to stay within your budget and prevent unexpected charges on your bill.
Set up cost alerts >

Microsoft Defender for Cloud
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Work with an expert

32°C Haze

ENG US 21:41 18-05-2023

The screenshot shows the Microsoft Azure portal interface. The main title bar reads "springEcom - Microsoft Azure" and "vm1 - Microsoft Azure". The address bar shows the URL "https://portal.azure.com/#@nagarro.com/resource/subscriptions/8f43399d-c058-4d63-b46b-e447973f02b6/resourcegroups...". The top navigation bar includes "Microsoft Azure", a search bar, and user information "nishant.chaudhary02@n... NAGARRO (NAGARRO.COM)". Below the header, the page title is "Home > CreateVm-canonical.0001-com-ubuntu-server-focal-2-20230518213428 | Overview >". The main content area displays the "vm1" virtual machine details under the "Networking" tab. Key information shown includes:

- Resource group: springDemo
- Status: Running
- Location: East US (Zone 1)
- Subscription: Free Trial
- Public IP address: 52.146.91.198
- Virtual network/subnet: VN1/sub1
- DNS name: Not configured
- Operating system: Linux (ubuntu 20.04)
- Size: Standard B1s (1 vcpu, 1 GiB memory)

The left sidebar lists various settings like Networking, Connect, Disks, Size, Microsoft Defender for Cloud, Advisor recommendations, Extensions + applications, Availability + scaling, and Configuration.

The screenshot shows the Microsoft Azure portal interface with the title bar "springEcom - Microsoft Azure" and "Add inbound security rule - Microsoft Azure". The address bar shows the URL "https://portal.azure.com/#@nagarro.com/resource/subscriptions/8f43399d-c058-4d63-b46b-e447973f02b6/resourcegroups...". The top navigation bar includes "Microsoft Azure", a search bar, and user information "nishant.chaudhary02@n... NAGARRO (NAGARRO.COM)". Below the header, the page title is "Home > CreateVm-canonical.0001-com-ubuntu-server-focal-2-20230518213428 | Overview > vm1 | Networking". The main content area displays the "Add inbound security rule" dialog for the "vm1-nsg" network security group. The dialog fields are:

- Source: Any
- Source port ranges: *
- Destination: Any
- Service: Custom
- Destination port ranges: 8080
- Protocol: Any (selected)

The left sidebar lists various settings like Networking, Connect, Disks, Size, Microsoft Defender for Cloud, Advisor recommendations, Extensions + applications, Availability + scaling, and Configuration.

The screenshot shows the Microsoft Azure portal interface. The left sidebar is for the virtual machine 'vm1'. The main content area displays the 'Networking' settings, specifically the 'Inbound port rules' section. A modal dialog titled 'Add inbound security rule' is open, allowing the creation of a new security rule. The 'Source' dropdown is set to 'Any'. The 'Destination' dropdown is also set to 'Any'. The 'Service' dropdown is set to 'Custom' and contains the value '8092'. The 'Protocol' dropdown is set to 'Any'. The 'Priority' dropdown is set to 300, and the 'Name' dropdown is set to 'SSH'. Below the table, there is a 'Need help?' section with a link to 'Understand Azure load balancing'. At the bottom of the dialog are 'Add' and 'Cancel' buttons.

The screenshot shows the Microsoft Azure portal interface. The left sidebar is for the virtual machine 'vm1'. The main content area displays the 'Connect' blade, which provides instructions for connecting via SSH. It includes a warning about enabling just-in-time access and a 'Suggested method for connecting' section. This section lists three prerequisites: 'Checking network security group for inbound access from your client's IP address', 'The VM's network interface has a Public IP address', and 'The VM is running'. Below this, numbered steps are provided: 1. Open the client of your choice, for example WSL on Windows, Terminal on Mac or Shell on Linux. 2. Ensure you have read-only access to the private key. Chmod is only supported on Linux subsystems (e.g. WSL on Windows or Terminal on Mac). Step 2 includes a command: `chmod 400 <keyname>.pem`. 3. Provide a path to your SSH private key file. Step 3 includes a 'Private key path' input field containing the value `~/ssh/<keyname>.pem`. At the bottom, there is a note about running the command `ssh -i <keyname>.pem user@<IP>`. The status bar at the bottom right shows the date and time as 18-05-2023 21:44.

The screenshot shows the Microsoft Azure portal interface. The top navigation bar has tabs for 'springEcom - Microsoft Azure', 'vm1 - Microsoft Azure', and 'Nishant-001/spring-Demo'. The main content area is titled 'vm1 | Connect' under 'Virtual machine'. A search bar at the top says 'Search resources, services, and docs (G+/-)'. On the left, a sidebar lists options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (Networking, Connect, Disks, Size, Microsoft Defender for Cloud, Advisor recommendations, Extensions + applications), and a 'Copied' message. The 'Connect' option is currently selected. In the center, there's a warning about enabling just-in-time access, followed by steps: 2. Ensure you have read-only access to the private key (chmod 400 <keyname>.pem), 3. Provide a path to your SSH private key file (Private key path: ~/ssh/<keyname>.pem), and 4. Run the example command below to connect to your VM (ssh -i <private key path> azureuser@52.146.91.198). Below these steps are sections for 'Can't connect?' (Test network security groups, Run a comprehensive SSH connectivity test) and 'Provide feedback' (Tell us about your SSH experience). The bottom status bar shows the date (18-05-2023), time (21:44), and system information (ENG US).

The screenshot shows a Windows desktop environment. In the foreground, a File Explorer window is open, showing the 'Downloads' folder. It contains a single file named 'vm1_key.pem' with a size of 3 KB. The file was modified on 18-05-2023 at 21:36. The background shows a PowerShell window titled 'Windows PowerShell'. The command entered is 'ssh -i Vm1_key.pem azureuser@52.146.91.198'. The status bar at the bottom indicates the date (18-05-2023), time (21:46), and system information (ENG US).

A screenshot of a Windows desktop environment. At the top is a taskbar with various icons for applications like File Explorer, Edge, and File History. In the center is a terminal window titled "azureuser@vm1: ~". The user has run the command "pwd", which outputs the path "/home/azureuser". The desktop background is black, and the overall interface is dark-themed.

```
azureuser@vm1:~$ pwd
/home/azureuser
azureuser@vm1:~$ |
```

A screenshot of a Windows desktop environment. The terminal window shows the user cloning a GitHub repository: "git clone https://github.com/Nishant-001/WebDev.git". The output indicates the cloning process is complete. Below the terminal, a message bar displays "Cloud Assignment.docx" and the user's name "Nishant Chaudhary". The desktop background is black, and the overall interface is dark-themed.

```
azureuser@vm1:~$ git clone https://github.com/Nishant-001/WebDev.git
Cloning into 'WebDev'...
remote: Enumerating objects: 77, done.
remote: Counting objects: 100% (77/77), done.
remote: Compressing objects: 100% (68/68), done.
remote: Total 77 (delta 10), reused 2 (delta 0), pack-reused 0
Unpacking objects: 100% (77/77), 40.72 MiB | 12.53 MiB/s, done.
azureuser@vm1:~$ sudo apt-get update
```

```
azureuser@vm1: ~      + -
```

Adding debian:GlobalSign_Root_CA.pem
Adding debian:AC_RAIZ_FNMT-RCM.pem
done.
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for ca-certificates (20211016ubuntu0.20.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up openjdk-11-jre-headless:amd64 (11.0.19+7~us1~Ubuntu1~20.04.1) ...
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/java to provide /usr/bin/java (java) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jjs to provide /usr/bin/jjs (jjs) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/keytool to provide /usr/bin/keytool (keytool) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/rmid to provide /usr/bin/rmid (rmid) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/rmiregistry to provide /usr/bin/rmiregistry (rmiregistry) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/pack200 to provide /usr/bin/pack200 (pack200) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/unpack200 to provide /usr/bin/unpack200 (unpack200) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/lib/jexec to provide /usr/bin/jexec (jexec) in auto mode
azureuser@vm1:~\$ java -version
openjdk version "11.0.19" 2023-04-18
OpenJDK Runtime Environment (build 11.0.19+7-post-Ubuntu-0ubuntu120.04.1)
OpenJDK 64-Bit Server VM (build 11.0.19+7-post-Ubuntu-0ubuntu120.04.1, mixed mode, sharing)
azureuser@vm1:~\$ |

Page 19 of 19 100%



```
azureuser@vm1: ~/WebDev      + -
```

Adding debian:GlobalSign_Root_CA.pem
Adding debian:AC_RAIZ_FNMT-RCM.pem
done.
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for ca-certificates (20211016ubuntu0.20.04.1) ...
Updating certificates in /etc/ssl/certs...
0 added, 0 removed; done.
Running hooks in /etc/ca-certificates/update.d...

done.
done.
Setting up openjdk-11-jre-headless:amd64 (11.0.19+7~us1~Ubuntu1~20.04.1) ...
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/java to provide /usr/bin/java (java) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/jjs to provide /usr/bin/jjs (jjs) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/keytool to provide /usr/bin/keytool (keytool) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/rmid to provide /usr/bin/rmid (rmid) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/rmiregistry to provide /usr/bin/rmiregistry (rmiregistry) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/pack200 to provide /usr/bin/pack200 (pack200) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/bin/unpack200 to provide /usr/bin/unpack200 (unpack200) in auto mode
update-alternatives: using /usr/lib/jvm/java-11-openjdk-amd64/lib/jexec to provide /usr/bin/jexec (jexec) in auto mode
azureuser@vm1:~\$ java -version
openjdk version "11.0.19" 2023-04-18
OpenJDK Runtime Environment (build 11.0.19+7-post-Ubuntu-0ubuntu120.04.1)
OpenJDK 64-Bit Server VM (build 11.0.19+7-post-Ubuntu-0ubuntu120.04.1, mixed mode, sharing)
azureuser@vm1:~\$ ls
WebDev
azureuser@vm1:~\$ cd WebDev/
azureuser@vm1:~/WebDev\$ ls
e-commerce-0.0.1-SNAPSHOT.jar pom.xml src
azureuser@vm1:~/WebDev\$ java -jar e-commerce-0.0.1-SNAPSHOT.jar |



```
azuser@vm1: ~/WebDev x + v
  at com.microsoft.sqlserver.jdbc.SQLServerStatement.executeStatement(SQLServerStatement.java:242) ~[mssql-jdbc-10.2.1.jre8.jar
!/:na]
  at com.microsoft.sqlserver.jdbc.SQLServerStatement.execute(SQLServerStatement.java:775) ~[mssql-jdbc-10.2.1.jre8.jar!/:na]
  at com.zaxxer.hikari.pool.ProxyStatement.execute(ProxyStatement.java:94) ~[HikariCP-4.0.3.jar!/:na]
  at com.zaxxer.hikari.pool.HikariProxyStatement.execute(HikariProxyStatement.java) ~[HikariCP-4.0.3.jar!/:na]
  at org.hibernate.tool.schema.internal.exec.GenerationTargetToDatabase.accept(GenerationTargetToDatabase.java:54) ~[hibernate-
core-5.6.9.Final.jar!/5.6.9.Final]
... 122 common frames omitted

2023-05-18 16:37:18.651 INFO 3811 --- [           main] o.h.e.t.j.p.i.JtaPlatformInitiator      : HHH000490: Using JtaPlatform impl
mentation: [org.hibernate.engine.transaction.jta.platform.internal.NoJtaPlatform]
2023-05-18 16:37:18.669 INFO 3811 --- [           main] j.LocalContainerEntityManagerFactoryBean : Initialized JPA EntityManagerFact
ory for persistence unit 'default'
2023-05-18 16:37:20.300 WARN 3811 --- [           main] JpaBaseConfiguration$JpaWebConfiguration : spring.jpa.open-in-view is enable
d by default. Therefore, database queries may be performed during view rendering. Explicitly configure spring.jpa.open-in-view to dis
able this warning
2023-05-18 16:37:20.975 INFO 3811 --- [           main] o.s.s.web.DefaultSecurityFilterChain      : Will secure any request with [org
.springframework.security.web.session.DisableEncodeUrlFilter@6690b9fa, org.springframework.security.web.context.async.WebAsyn
cManagerIntegrationFilter@6c8dbf56, org.springframework.security.web.context.SecurityContextPersistenceFilter@73a8e994, org.springfra
mework.security.web.header.HeaderWriterFilter@2f382a5e, org.springframework.security.web.authentication.logout.LogoutFilter@75b6dd5b,
com.ecommerce.filters.JwtRequestFilter@503df2d0, org.springframework.security.web.savedrequest.RequestCacheAwareFilter@5b5ac798, org
.springframework.security.web.servletapi.SecurityContextHolderAwareRequestFilter@83495d, org.springframework.security.web.authentica
tion.AuthenticationFilter@493b0lef, org.springframework.security.web.session.SessionManagementFilter@784223e9, org.springfra
mework.security.web.access.ExceptionTranslationFilter@lacb74ad, org.springframework.security.web.access.intercept.FilterSecurityInter
ceptor@6ebc9573]
2023-05-18 16:37:21.878 INFO 3811 --- [           main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8092 (
http) with context path ''
2023-05-18 16:37:21.901 INFO 3811 --- [           main] com.ecommerce.ECommerceApplication       : Started ECommerceApplication in 1
3.601 seconds (JVM running for 14.816)
Hibernate: select user0_.id as id1_3_, user0_.email as email2_3_, user0_.img as img3_3_, user0_.name as name4_3_, user0_.password as
password5_3_, user0_.role as role6_3_ from users user0_ where user0_.role=?

|
```

springEcom - Microsoft Azure x vm1 - Microsoft Azure x Nishant-001/WebDev x +

Microsoft Azure Upgrade Search resources, services, and docs (G/+) nishant.chaudhary02@n... NAGARO (NAGARO.COM)

Home > Virtual machines >

vm1 Virtual machine

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

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

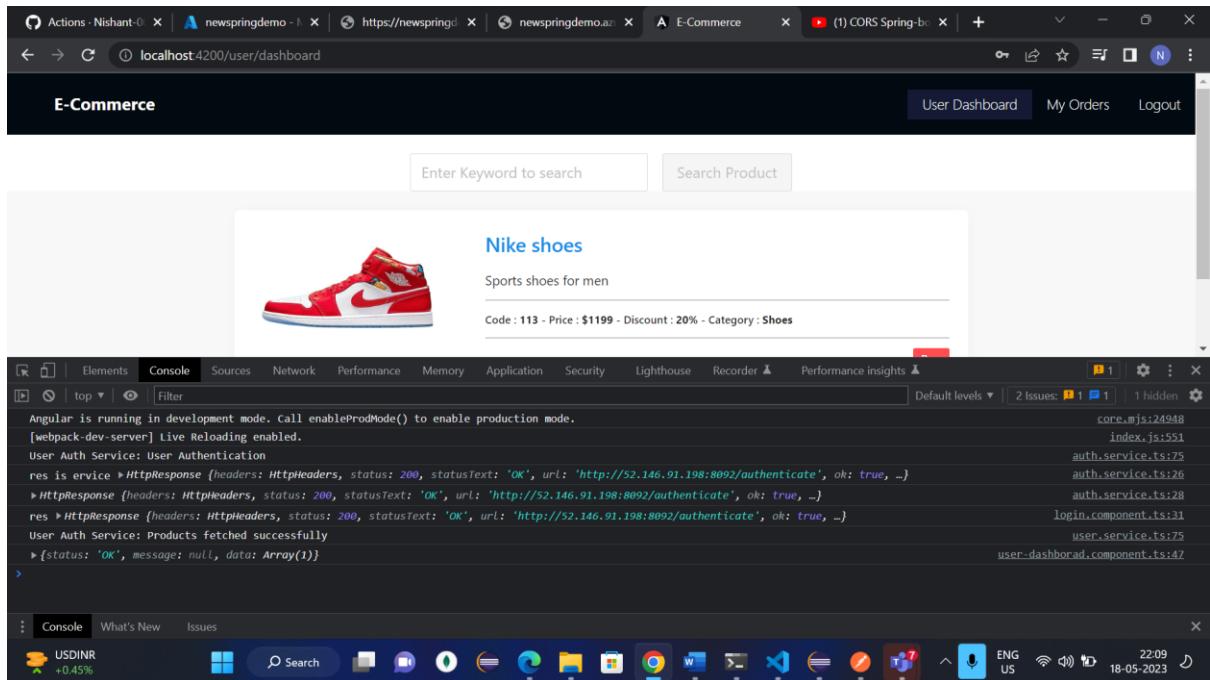
Essentials

Resource group (move) [springDemo](#)
Status Running
Location East (Zone 1)
Subscription (move) [Free Trial](#)
Subscription ID 8f43399d-c058-4d63-b46b-e447973f02b6
Availability zone 1
Tags (edit) [Click here to add tags](#)

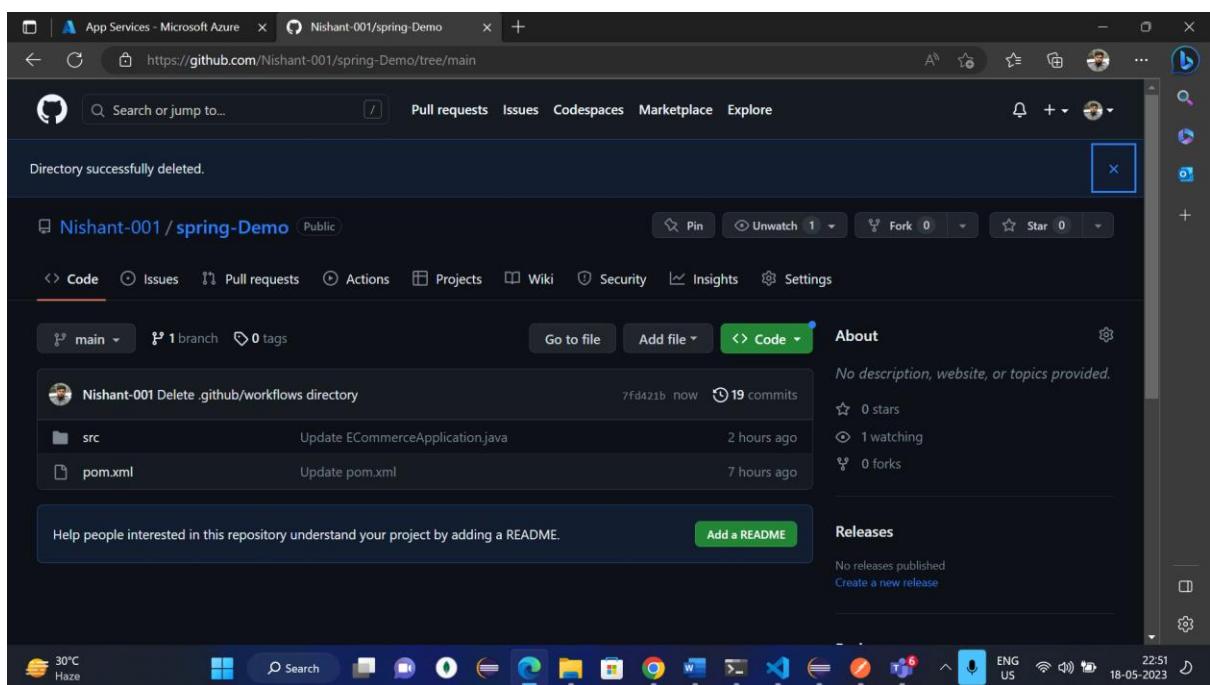
Operating system Linux (ubuntu 20.04)
Size Standard Copy to clipboard iB memory
Public IP address [52.146.91.198](#)
Virtual network/subnet [VN1/sub1](#)
DNS name [Not configured](#)
Health state

Properties Monitoring Capabilities (7) Recommendations Tutorials

USDINR +0.45% ENG US 22:08 18-05-2023



- Deploy the same application to Azure App Service. It should also leverage the database on the cloud.



App Services - Microsoft Azure | Nishant-001/spring-Demo | +

https://portal.azure.com/#view/HubsExtension/BrowseResource/resourceType/Microsoft.Web%2Fsites

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

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Home > App Services Nagarro (nagarro.com)

+ Create Manage view Refresh Export to CSV Open query Assign tags Start Restart Stop Delete

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

Showing 0 to 0 of 0 records.

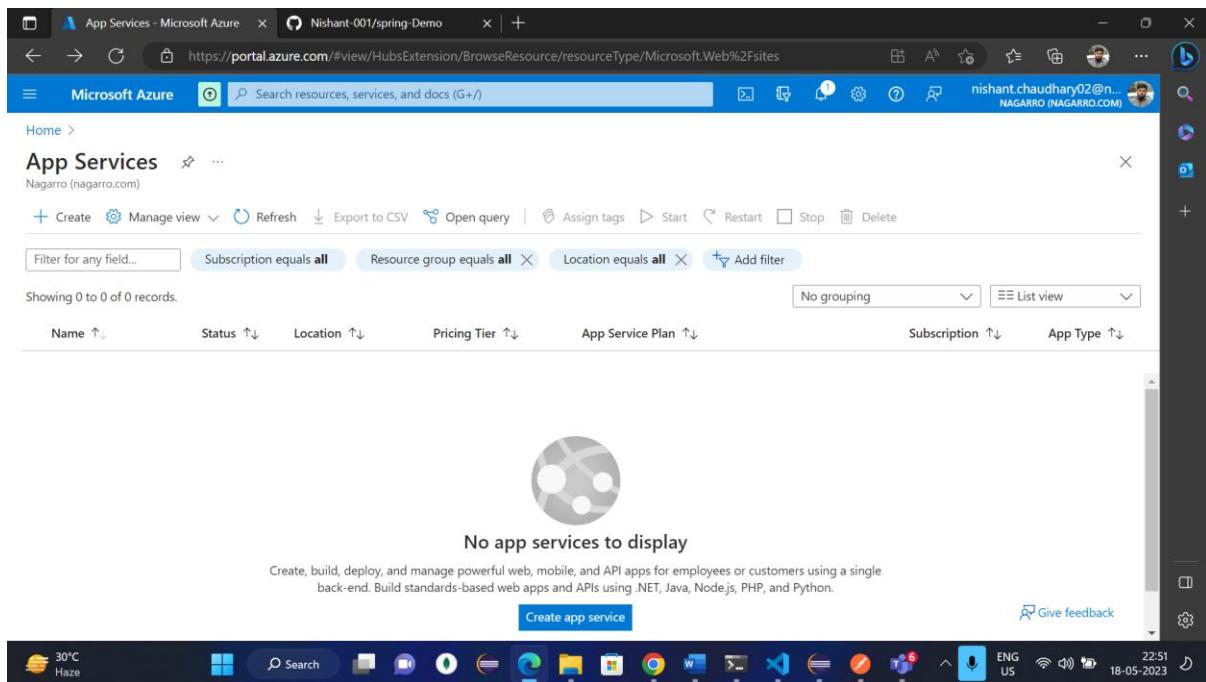
Name ↑ Status ↑ Location ↑↓ Pricing Tier ↑↓ App Service Plan ↑↓ Subscription ↑↓ App Type ↑↓

No app services to display

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Create app service Give feedback

30°C Haze Search ⌂ 18-05-2023 22:51 ENG US



Create Web App - Microsoft Azure | Nishant-001/spring-Demo | +

https://portal.azure.com/#create/Microsoft.WebSite

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

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Home > App Services > Create Web App

all your resources.

Subscription * Free Trial

Resource Group * springDemo Create new

Instance Details

Need a database? Try the new Web + Database experience. ⓘ

Name * springcom.azurewebsites.net

Publish * Code Docker Container Static Web App

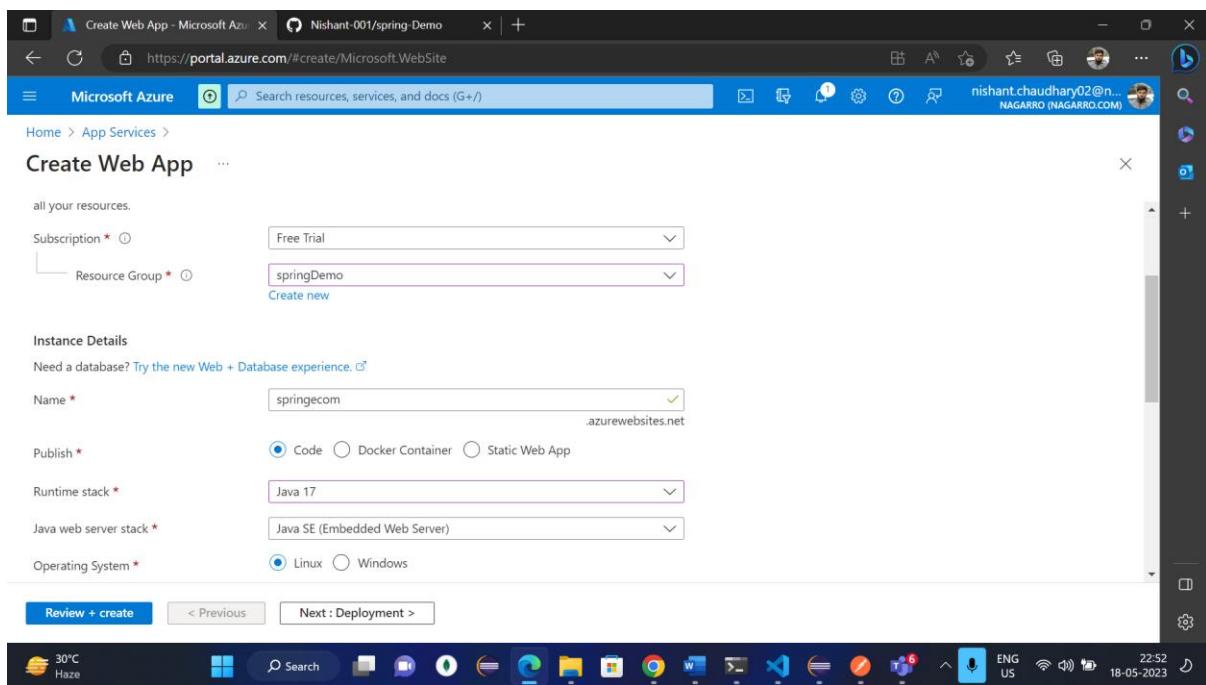
Runtime stack * Java 17

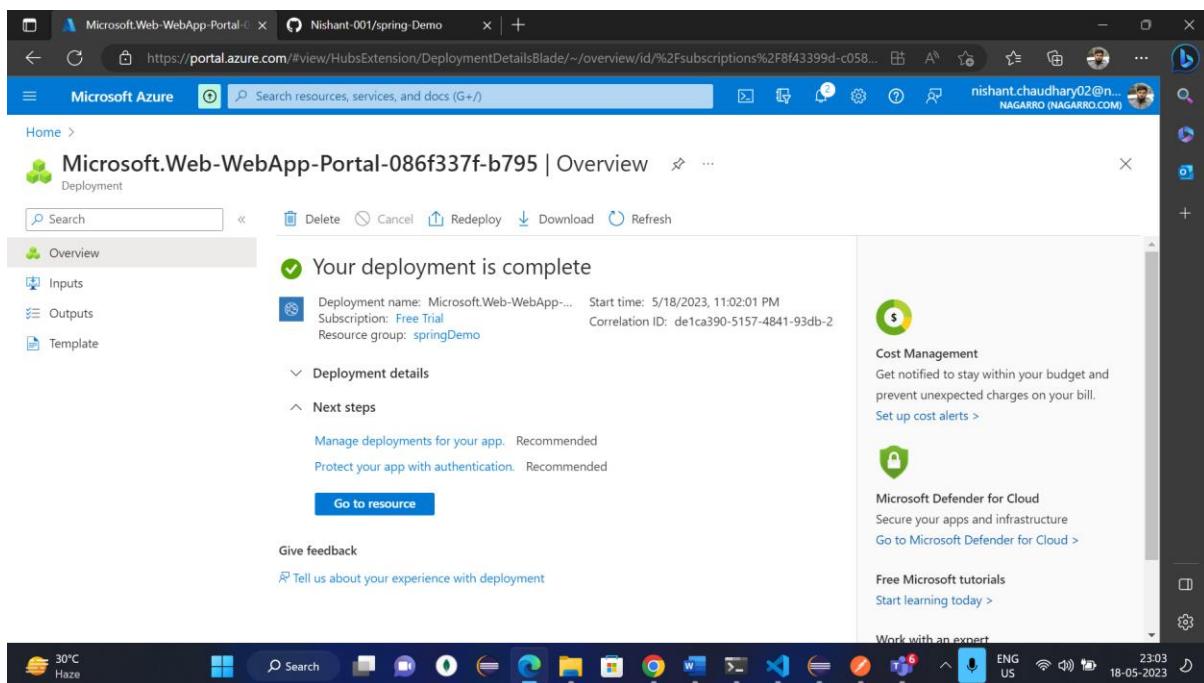
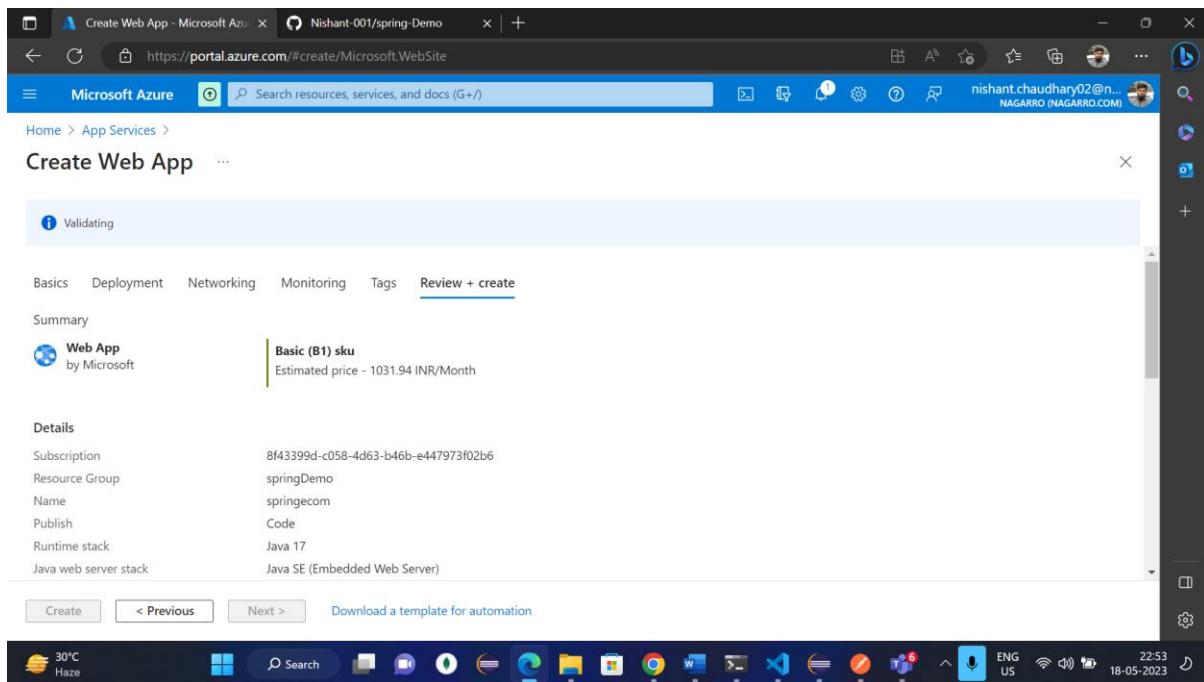
Java web server stack * Java SE (Embedded Web Server)

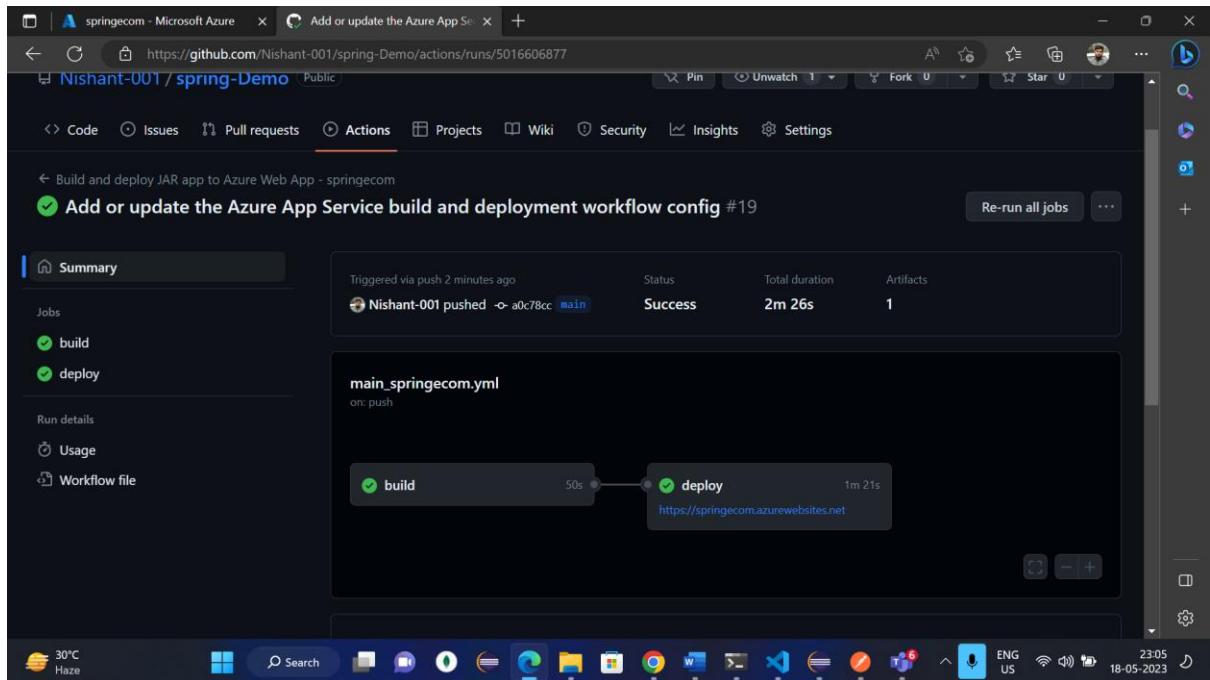
Operating System * Linux Windows

Review + create < Previous Next : Deployment >

30°C Haze Search ⌂ 18-05-2023 22:52 ENG US

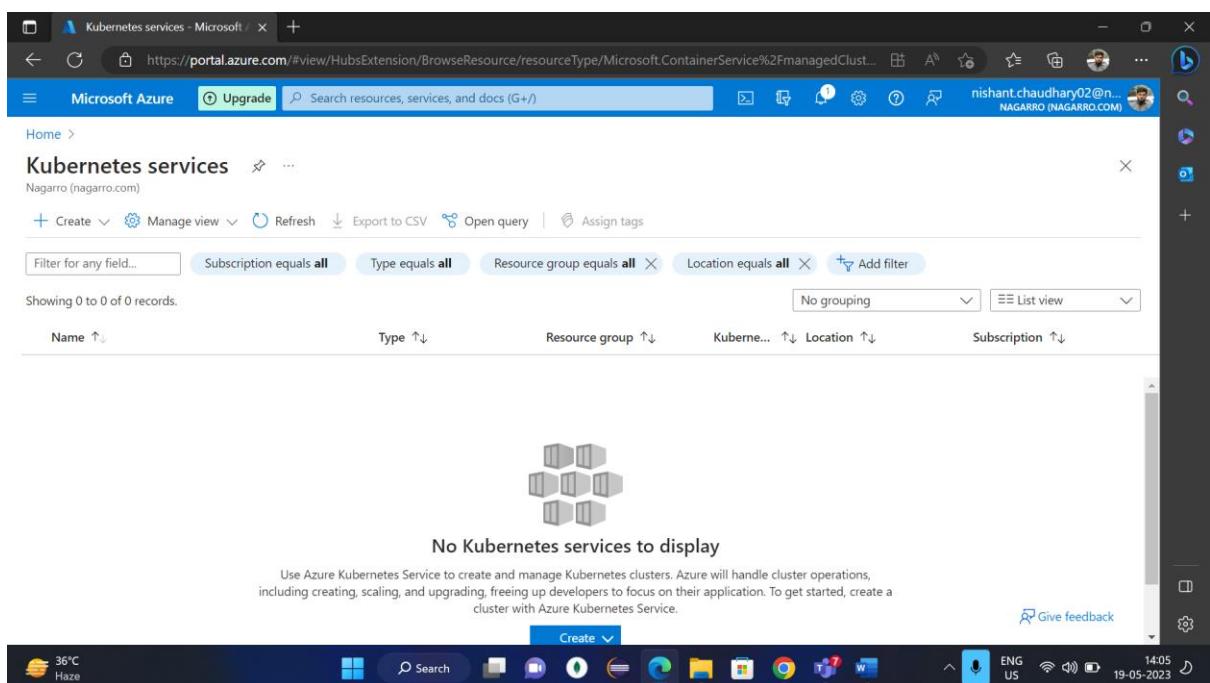






- Create the AKS cluster (2 nodes, smallest size VM) and deploy any two services on it.

Services should be accessible from the internet.



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

Home > Kubernetes services >

Create Kubernetes cluster

High availability is recommended for standard configuration.

AKS pricing tier: Standard

Kubernetes version: 1.25.6 (default)

Automatic upgrade: Enabled with patch (recommended)

Primary node pool

The number and size of nodes in the primary node pool in your cluster. For production workloads, at least 3 nodes are recommended for resiliency. For development or test workloads, only one node is required. If you would like to add additional node pools or to see additional configuration options for this node pool, go to the 'Node pools' tab above. You will be able to add additional node pools after creating your cluster. [Learn more about node pools in Azure Kubernetes Service](#)

Node size: Standard DS2 v2

Standard DS2_v2 is recommended for standard configuration.

Change size

Scale method: Manual

Autoscale

Autoscaling is recommended for standard configuration.

Node count: 2

Review + create < Previous Next : Node pools > Give feedback

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

Home > Kubernetes services >

Create Kubernetes cluster

Validation passed

Basics Node pools Access Networking Integrations Advanced Tags Review + create

Basics

Subscription	Free Trial
Resource group	springDemo
Region	Switzerland North
Kubernetes cluster name	Kubedemo
Kubernetes version	1.25.6
Automatic upgrade	Patch

Node pools

Node pools: 1

Create < Previous Next > Download a template for automation Give feedback

A screenshot of the Microsoft Azure portal showing the Kubedemo Kubernetes service overview. The service is named 'Kubedemo' and is a 'Kubernetes service'. It is part of the 'springDemo' resource group. The status is 'Succeeded (Running)' with a Kubernetes version of '1.25.6'. The API server address is 'kubedemo-dns-ov4izcj.hcp.switzerlandnorth.azurek8s.io'. A PowerShell terminal window is open, displaying the following command:

```
PS /home/nishant> az aks get-credentials --resource-group springDemo --name Kubedemo
```

A screenshot of the Microsoft Azure portal showing the Kubedemo Kubernetes service overview. The service is named 'Kubedemo' and is a 'Kubernetes service'. It is part of the 'springDemo' resource group. The status is 'Succeeded (Running)' with a Kubernetes version of '1.25.6'. The API server address is 'kubedemo-dns-ov4izcj.hcp.switzerlandnorth.azurek8s.io'. A PowerShell terminal window is open, displaying the following command:

```
PS /home/nishant> az aks get-credentials --resource-group springDemo --name Kubedemo
```

The output shows the context being merged:

```
Merged "Kubedemo" as current context in /home/nishant/.kube/config
```

Then, the user runs:

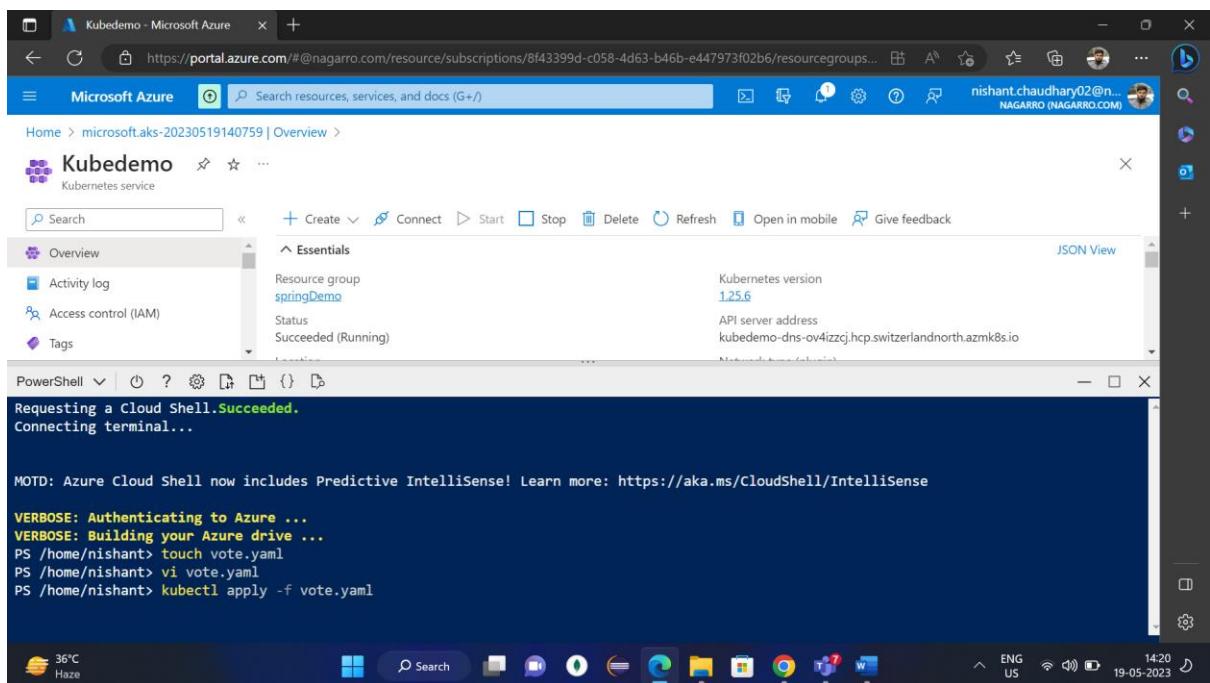
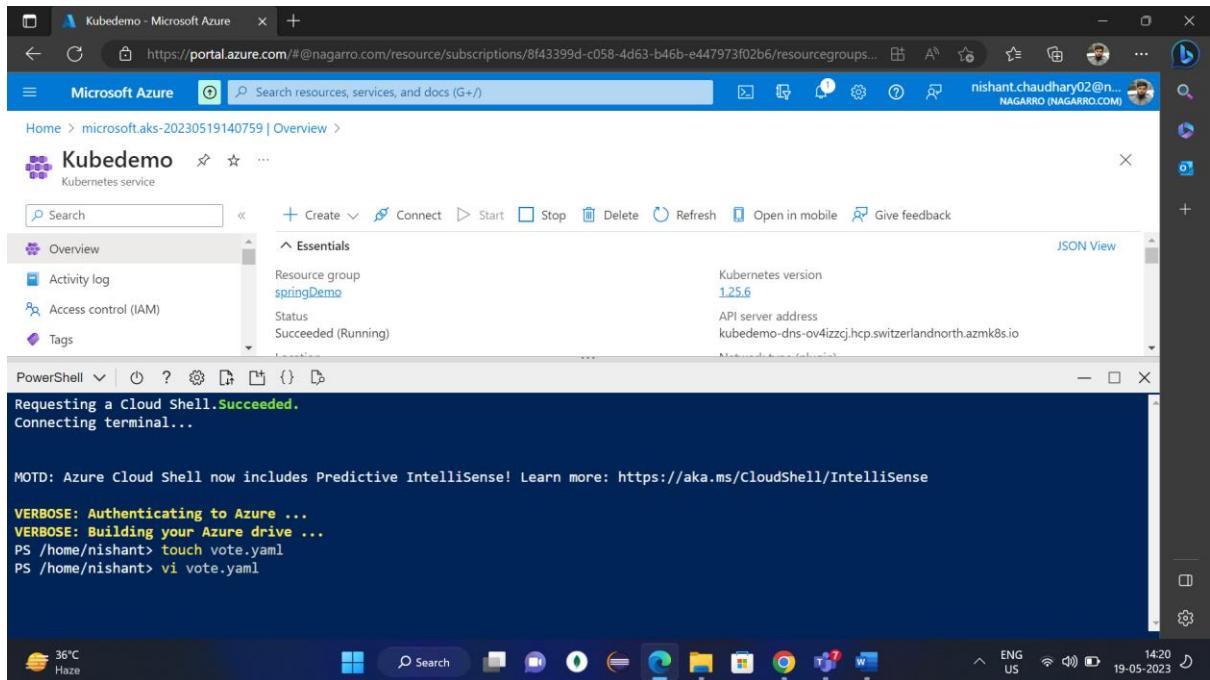
```
PS /home/nishant> kubectl get svc
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
kubernetes	ClusterIP	10.0.0.1	<none>	443/TCP	4m48s

```
PS /home/nishant> kubectl get nodes
```

NAME	STATUS	ROLES	AGE	VERSION
aks-agentpool-16092528-vmss000000	Ready	agent	4m35s	v1.25.6
aks-agentpool-16092528-vmss000001	Ready	agent	4m29s	v1.25.6

```
PS /home/nishant>
```



Kubedemo - Microsoft Azure

Microsoft Azure

Search resources, services, and docs (G+)

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Home > microsoft.aks-20230519140759 | Overview >

Kubedemo Kubernetes service

Overview Activity log Access control (IAM) Tags

+ Create Connect Start Stop Delete Refresh Open in mobile Give feedback JSON View

Essentials

Resource group: **springDemo**

Status: Succeeded (Running)

Kubernetes version: **1.25.6**

API server address: **kubedemo-dns-ov4izzcj.hcp.switzerlandnorth.azurek8s.io**

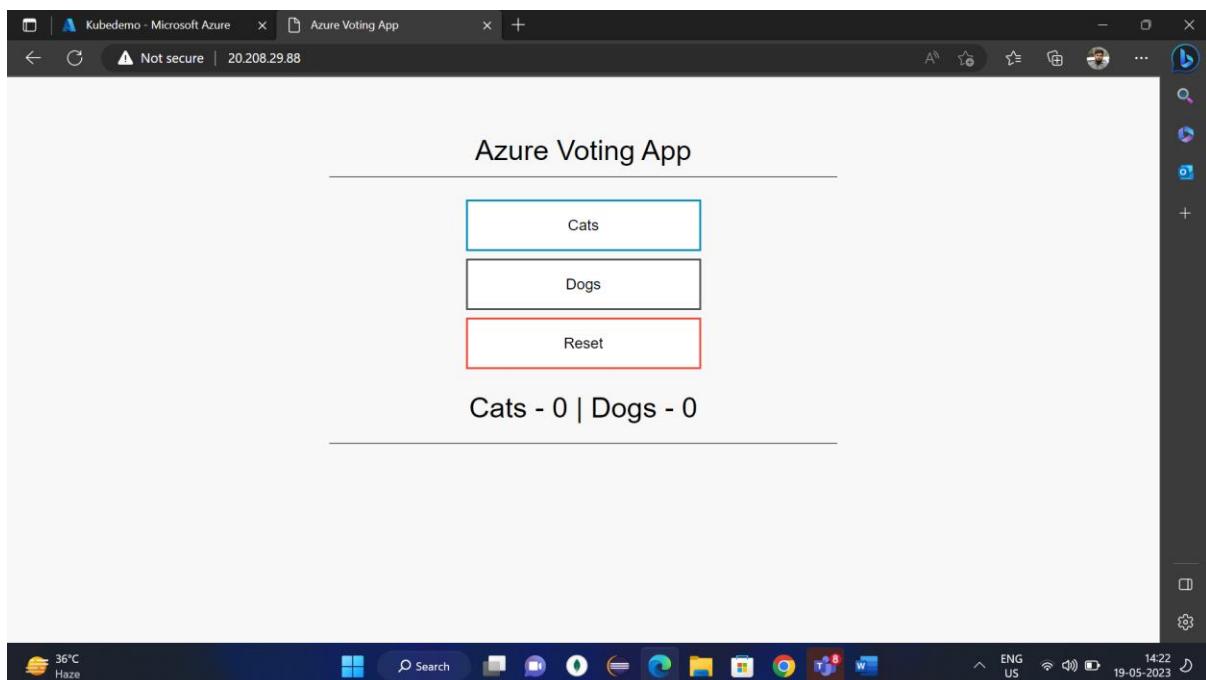
PowerShell

```

PS /home/nishant> touch vote.yaml
PS /home/nishant> vi vote.yaml
PS /home/nishant> kubectl apply -f vote.yaml
deployment.apps/azure-vote-back created
service/azure-vote-back created
deployment.apps/azure-vote-front created
service/azure-vote-front created
PS /home/nishant> kubectl get svc
NAME         TYPE      CLUSTER-IP   EXTERNAL-IP   PORT(S)    AGE
azur...       ClusterIP  10.0.38.144 <none>        6379/TCP   42s
azur...       LoadBalancer 10.0.27.164  20.208.29.88  80:31598/TCP 41s
kubernetes   ClusterIP  10.0.0.1    <none>        443/TCP    9m30s
PS /home/nishant>
  
```

36°C Haze

14:21 19-05-2023



- Create an Azure function that should trigger as soon as you upload a file in the blob storage.

Function should be able to print the name of the file uploaded in the function.

Step 1 – Open portal.azure.com, go to home page and search for **Storage Accounts**. Click on **Create Storage Account** button.

Step 2 – Fill the basic details like resource group, storage account name and region. Leave all the settings as default and click on **Review** and after reviewing the details, click on **Create**. Deployment will initiate and, in some time, it will be completed.

Step 3 – Search for Function App and click on **Create Function App**. Fill the basic details like resource group, function app name, region, runtime stack, etc. Leave all the settings as default and click on **Review + Create**. Review the details and click on **Create**. Deployment will initiate and, in some time, it will be completed.

Step 4 – Click on **Go to Resource** button and from the left menu bar, select **Functions**. Click on **Create** and a form will appear. From template, select *Azure Blob Storage trigger*, scroll down and fill the details like function name, path of the storage and storage account connection and click on **Create** button.

Step 5 – From left menu, go to *Storage Accounts*, click on three dots next to storage account and select *Container* from the list and form will appear. Click on **+Container** button to create a new blob storage. Give the container name same as the path in the trigger. Click on **Create** to create the blob storage.

Step 6 – In blob storage, click **Upload** button and an **Upload Blob** form will appear. Browse the file and select a file from your computer and click on **Upload**. File will get uploaded.

Step 7 – Go to your trigger function that you have created and from the left menu bar, select monitor. You will be able to see the trigger logs.