



AZURE VIRTUAL NETWORK INTEGRATION



STEP 1: CREATE VIRTUAL MACHINE

1. Log in to Azure Portal. Go to create resources.
2. Now create a virtual machine based on Windows.

Project details

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

Subscription *	<input type="text" value="Free Trial"/>
Resource group *	<input type="text" value="app-grp"/> Create new

Instance details

Virtual machine name *	<input type="text" value="dbadmin"/>
Region *	<input type="text" value="(Asia Pacific) Central India"/>
Availability options	<input type="text" value="No infrastructure redundancy required"/>
Security type	<input type="text" value="Standard"/>
Image *	<input type="text" value="Windows Server 2022 Datacenter - x64 Gen2 (free services eligible)"/> See all images Configure VM generation

This image is compatible with additional security features. [Click here to swap to the Trusted launch security type.](#)

VM architecture

Arm64

x64

Arm64 is not supported with the selected image.

Run with Azure Spot discount

Size * ⓘ Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹11,294.05/month) ⏺

[See all sizes](#)

Enable Hibernation (preview) ⓘ ⓘ To enable Hibernation, you must register your subscription. [Learn more](#) ⏺

Administrator account

Username * ⓘ demousr ✓

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 * RDP (3389) ⏺

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

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

- Once it is deployed, go to resources and download its RDP file to log in to the virtual machine.

✓ Your deployment is complete



Deployment name: CreateVm-MicrosoftWindowsServer.WindowsSe... Start time: 12/30/2023, 8:30:10 AM
 Subscription: [Free Trial](#) Correlation ID: b716e6c5-14f2-40b5-b77f-b0a3c0d8406a

✓ 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](#)



Connecting using
Public IP address | [52.140.125.99](#)



Admin username : demousr
Port ([change](#)) : 3389 [Check access](#) ⓘ
Just-in-time policy : Unsupported by plan ⓘ

Most common



[Local machine](#)

Native RDP

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

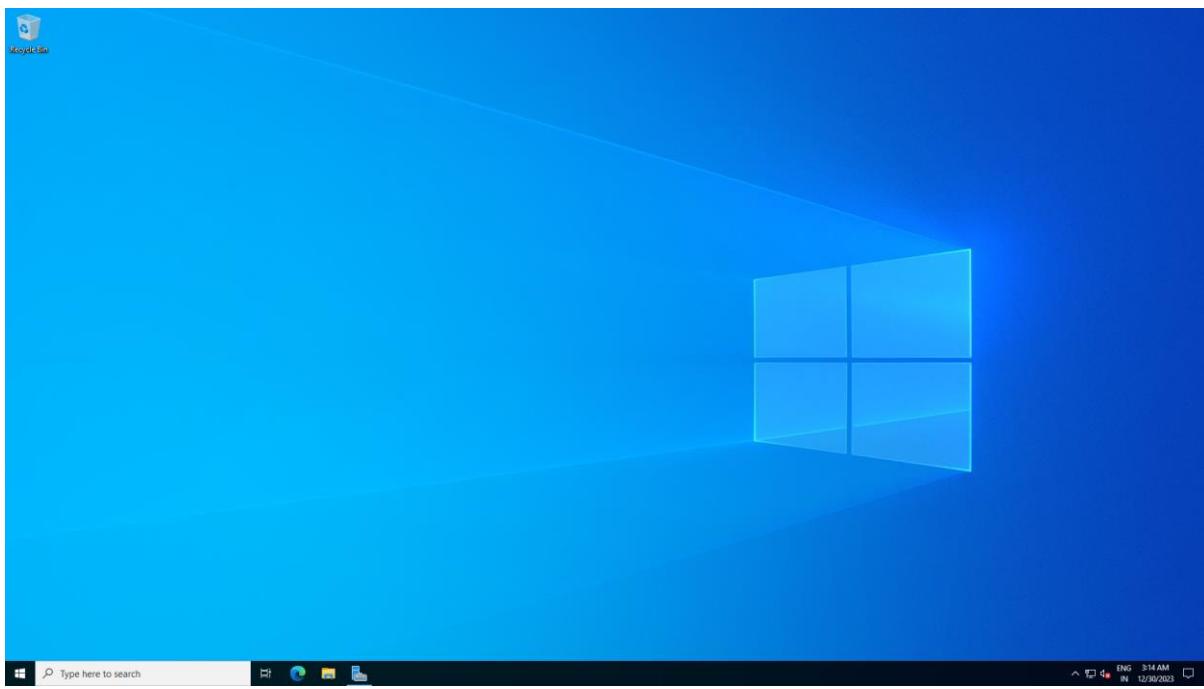
Public IP address (52.140.125.99)

[Select](#)

[Download RDP file](#)

[More ways to connect \(4\)](#)

4. When you are in the virtual machine go to server manager dashboard.



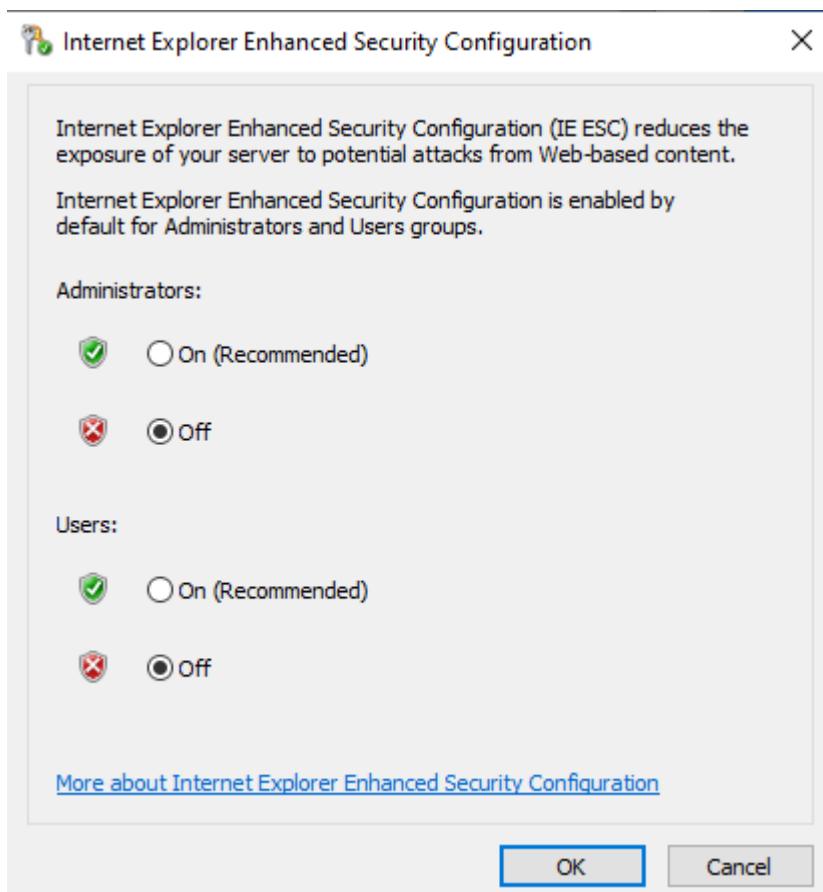
5. On the server manager dashboard, click on local server.

A screenshot of the Server Manager dashboard. The title bar says "dbadmin (1) - 52.140.125.99:3389 - Remote Desktop Connection". The main area is titled "WELCOME TO SERVER MANAGER" and has a "QUICK START" section with "WHAT'S NEW" and "LEARN MORE" buttons. To the right, a numbered list of steps is shown: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, 4. Create a server group, 5. Connect this server to cloud services. A "Hide" link is at the bottom right. The left sidebar has a "Dashboard" tab selected, followed by "Local Server", "All Servers", and "File and Storage Services".

6. Then look in the right of the screen you will see this option named as IE Enhanced Security Configuration.
7. Click on it then turn it off.

8. Turning it off will allow you to download a file from the internet from your virtual machine.

Microsoft Defender Antivirus	Real-Time Protection: On
Feedback & Diagnostics	Settings
IE Enhanced Security Configuration	On
Time zone	(UTC) Coordinated Universal Time
Product ID	00454-60000-00001-AA031 (activated)



9. Now in the virtual machine, open internet browser and download MySQL community server.

The screenshot shows a Microsoft Edge browser window titled "dbadmin (1) - 52.140.125.99:3389 - Remote Desktop Connection". The address bar shows the URL "https://dev.mysql.com/downloads/windows/installer/8.0.html". The main content is titled "MySQL Community Downloads" under "MySQL Installer". A note states: "MySQL 8.0 is the final series with MySQL Installer. As of MySQL 8.1, use a MySQL product's MSI or Zip archive for installation. MySQL Server 8.1 and higher also bundle MySQL Configurator, a tool that helps configure MySQL Server." Below this, there are dropdown menus for "Select Version" (set to "8.0.35") and "Select Operating System" (set to "Microsoft Windows"). Two download links are listed:

File Type	Version	Size	Action
Windows (x86, 32-bit), MSI Installer	8.0.35	2.1M	Download
(mysql-installer-web-community-8.0.35.0.msi)			MD5: 214df2ccdf83eb5edc6ca7c115792406 Signature
Windows (x86, 32-bit), MSI Installer	8.0.35	288.6M	Download
(mysql-installer-community-8.0.35.0.msi)			MD5: 2cfda448a2971b6b5323775ef9e8d012 Signature

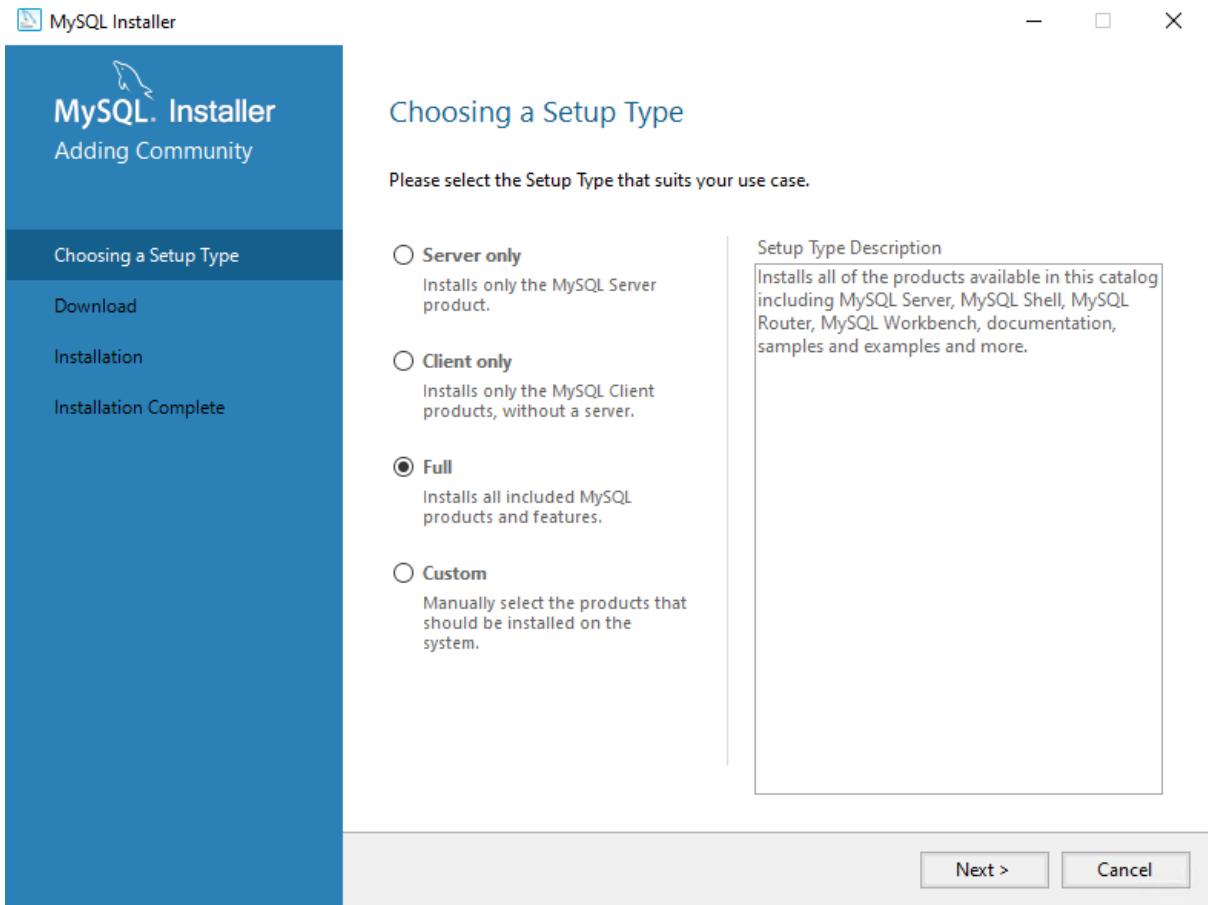
A note at the bottom suggests using MD5 checksums and GnuPG signatures for integrity verification.

10. Once it is downloaded, then install it in your virtual machine.

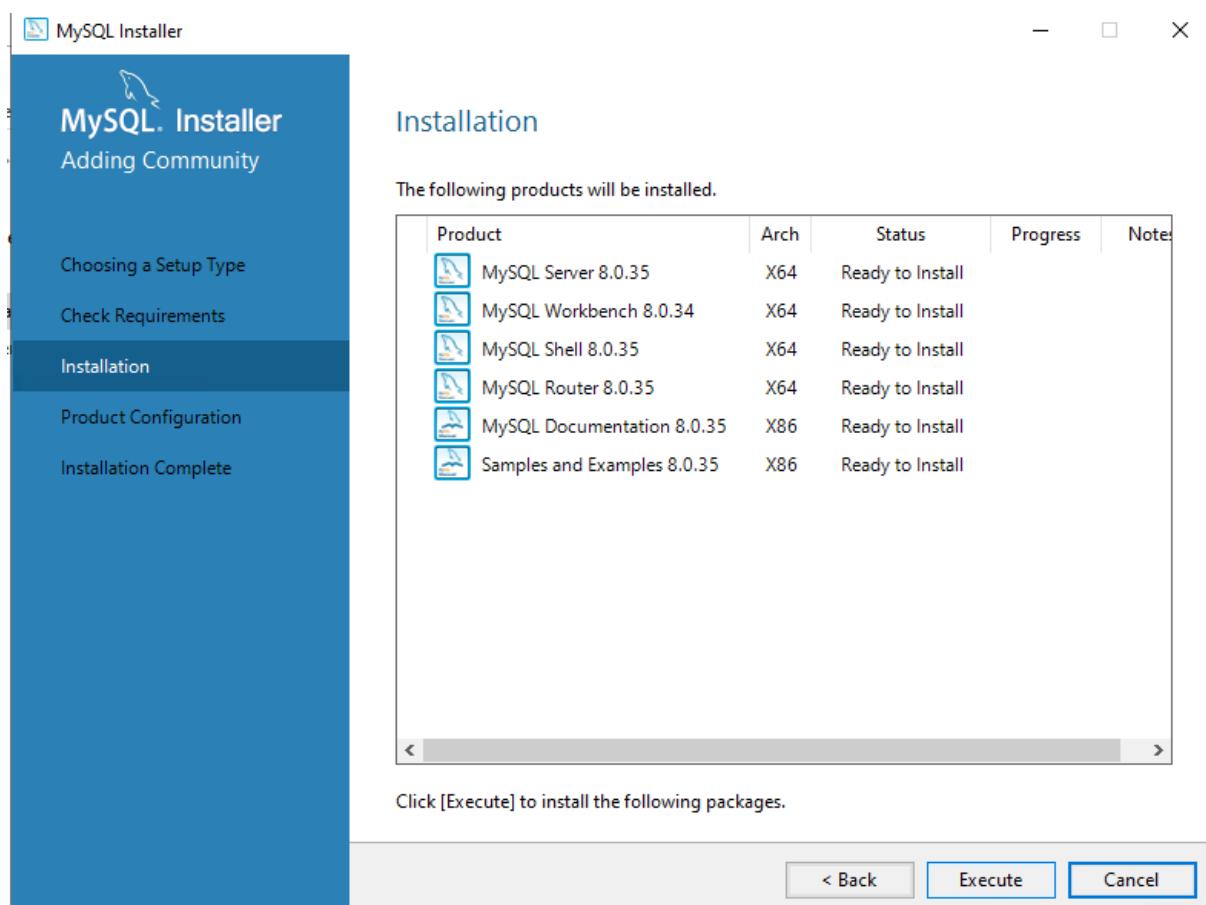
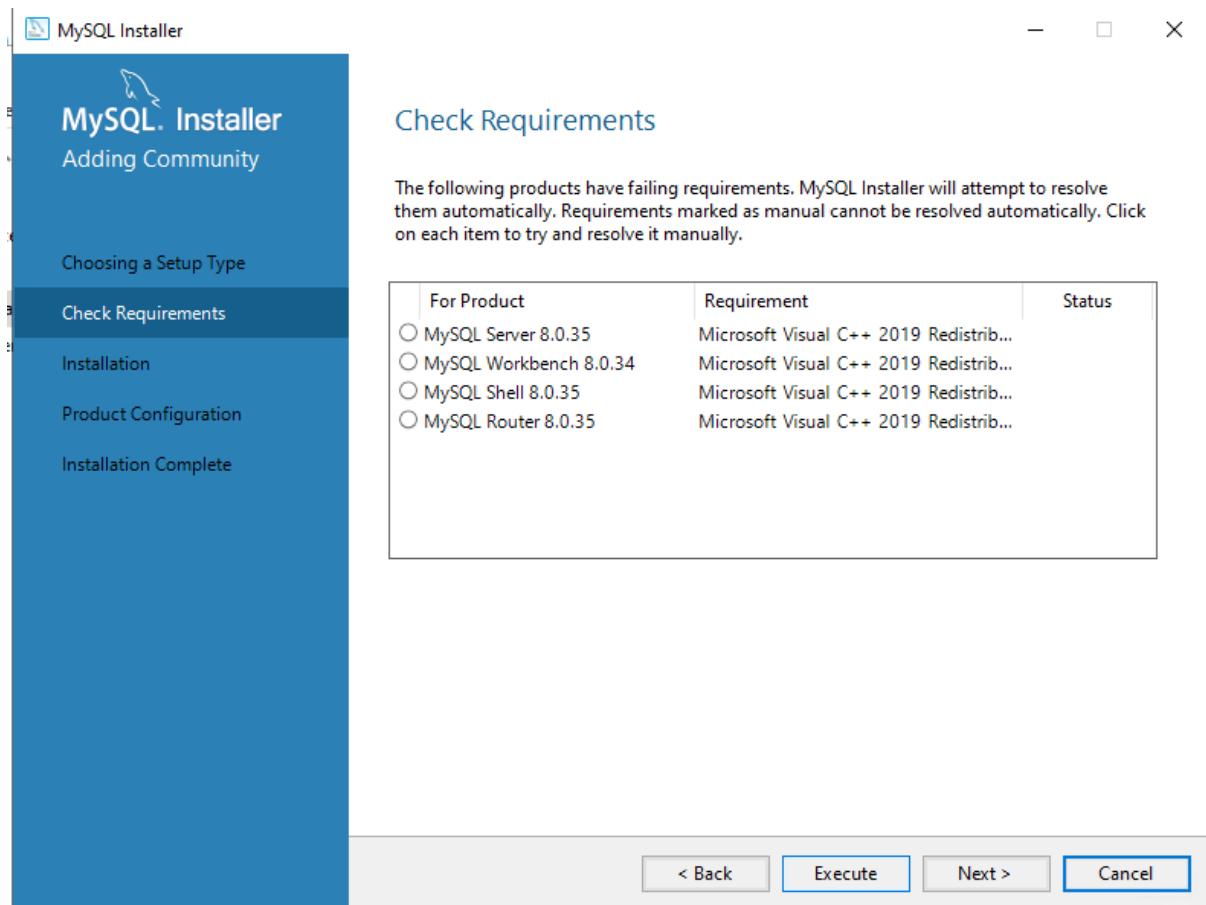
The screenshot shows a Windows File Explorer window with the title bar "Downloads". The left sidebar shows "Quick access", "Desktop", "Downloads" (which is selected and highlighted in blue), "Documents", and "Pictures". The main pane shows a list of files in the "Downloads" folder. One file is listed:

Name	Date modified	Type	Size
mysql-installer-community-8.0.35.0	12/30/2023 3:18 AM	Windows Installer ...	295,564 KB

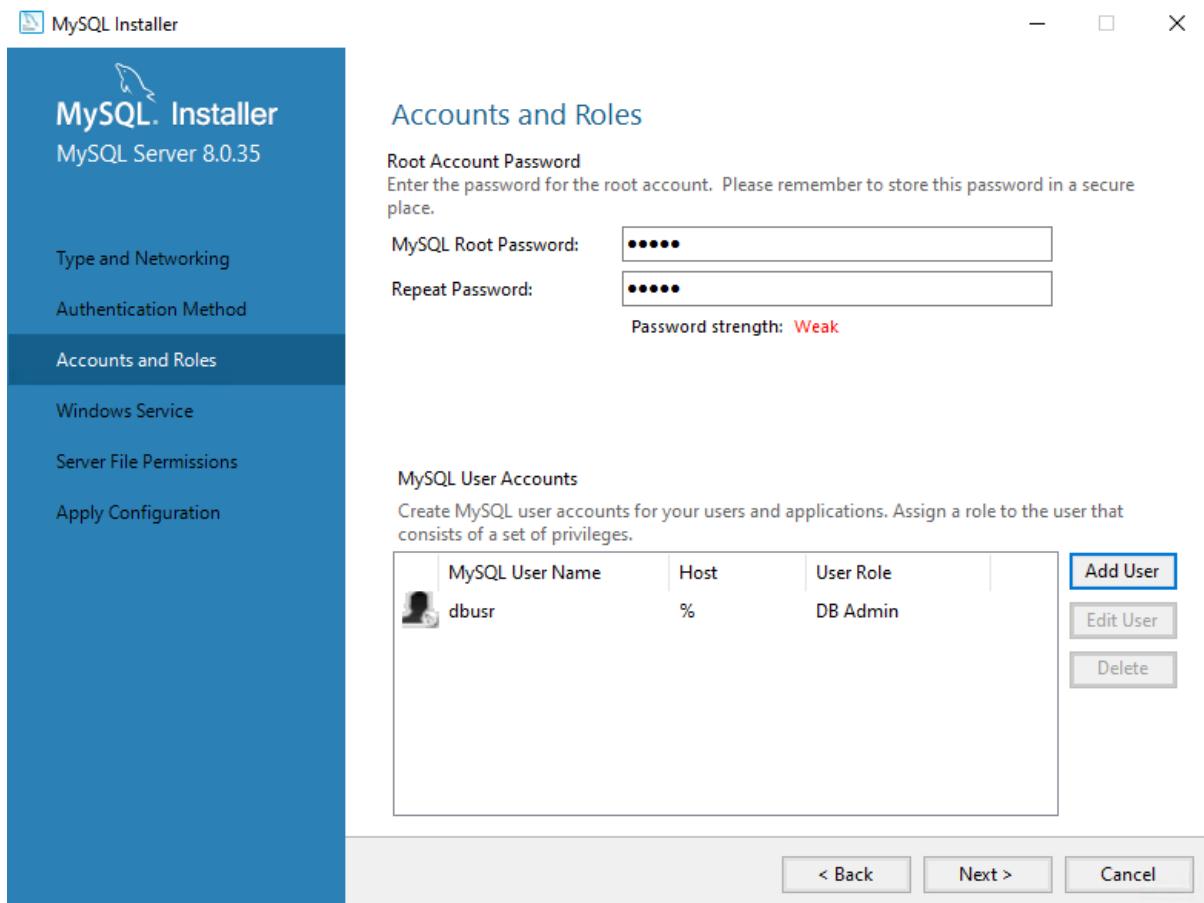
11. While choosing a setup type, select it to full, because it will download everything that you need. Mainly you will need Workbench.

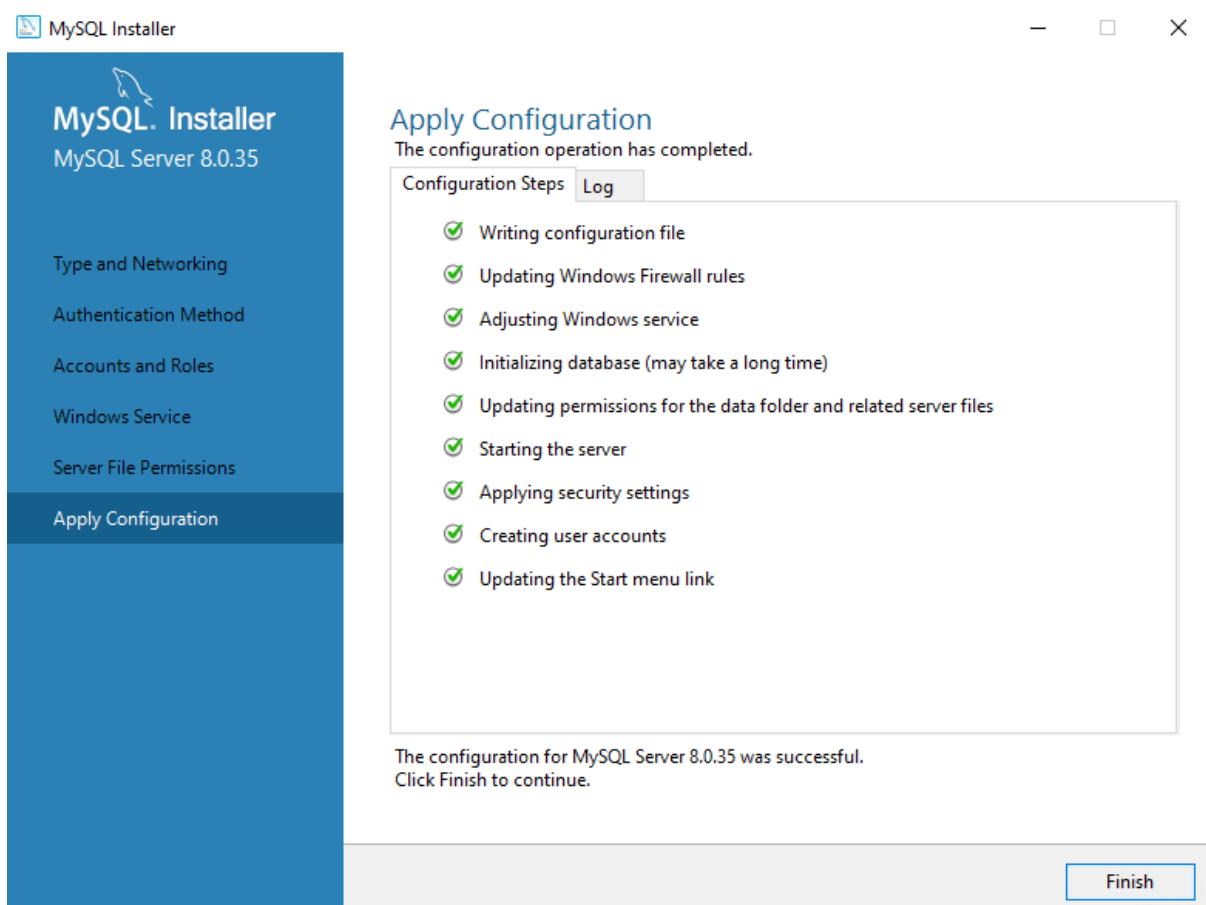
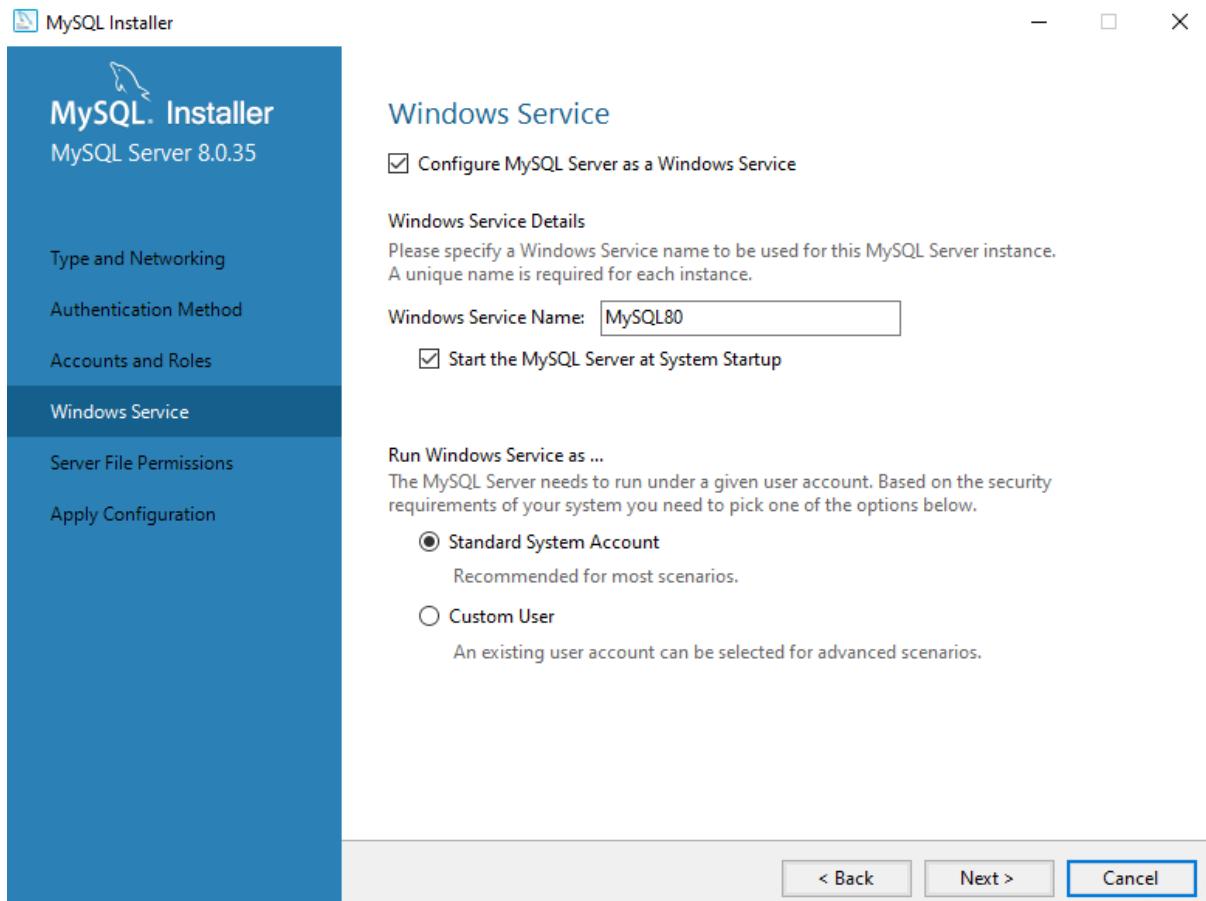


12. As you can see, in the check requirements section you have click on Execute first, then move ahead.



13. Now in the accounts and roles, give it a password, then in the MySQL user account click on add user and create a new user.
14. Then complete all the steps ahead and then open your workbench.





15. On the workbench, you have to create a table, and the commands to create a table are mentioned below.

The following commands can be executed in MySQL Workbench for the creation of the database, table and adding of data

a) Create the database

```
create database appdb;
```

b) Change to the context to the database

```
use appdb;
```

c) Create a table

```
CREATE TABLE Course
```

```
(CourseID int, CourseName varchar(1000), Rating numeric(2,1));
```

d) Insert records into the table

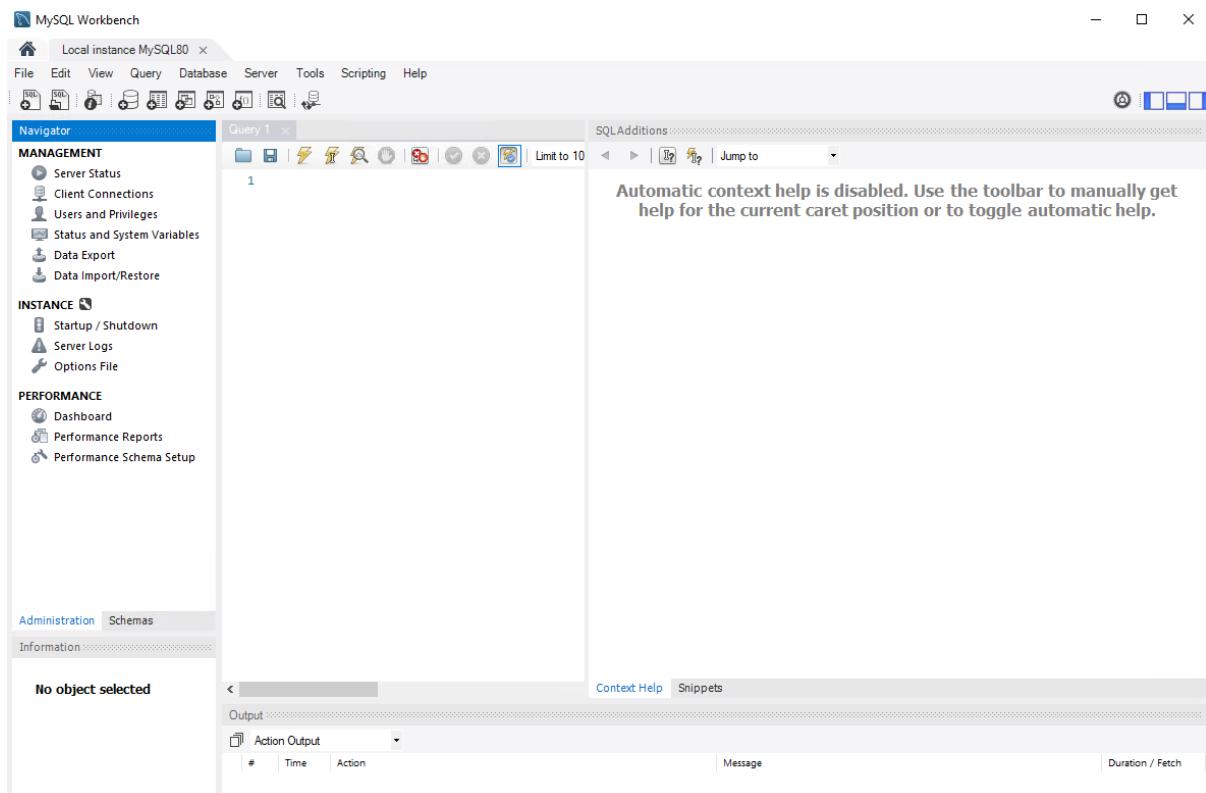
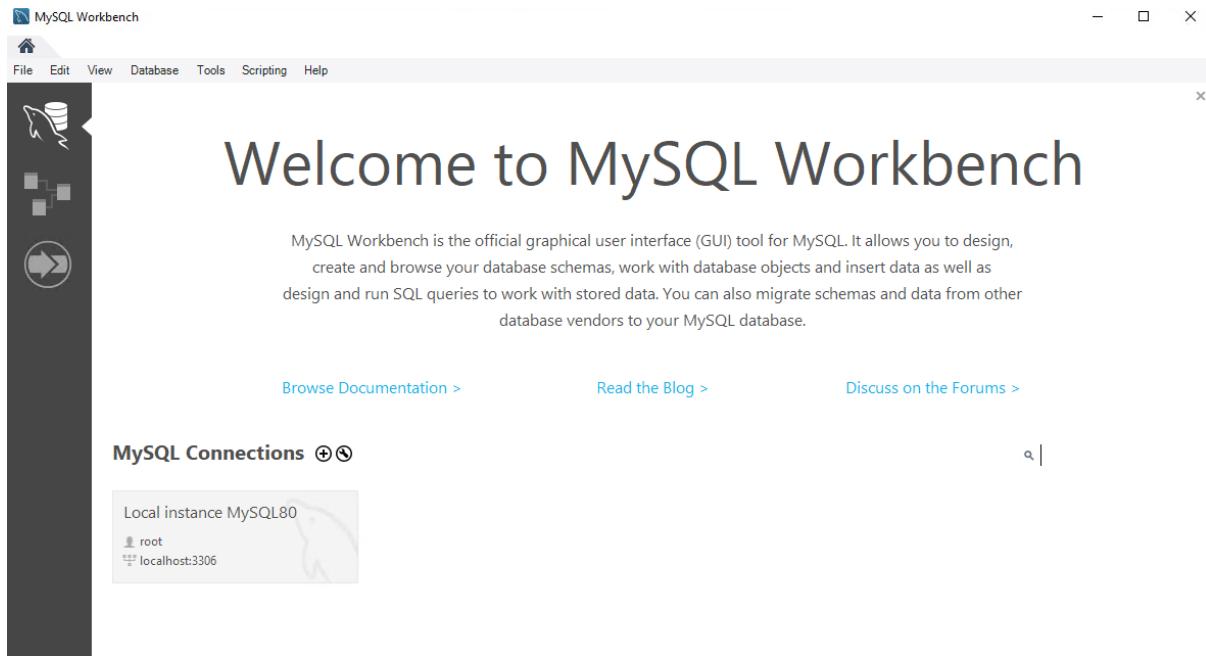
```
INSERT INTO Course(CourseID,CourseName,Rating) VALUES(1,'AZ-204 Developing Azure solutions',4.5);
```

```
INSERT INTO Course(CourseID,CourseName,Rating) VALUES(2,'AZ-303 Architecting Azure solutions',4.6);
```

```
INSERT INTO Course(CourseID,CourseName,Rating) VALUES(3,'DP-203 Azure Data Engineer',4.7);
```

g) See the data in the table

```
SELECT * FROM Course;
```



Query 1 × SQLAdditions ···

1 • create database appdb;

2

3

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Context Help Snippets

Output ···

Action Output

#	Time	Action	Message	Duration / Fetch
1	03:28:26	create database appdb	1 row(s) affected	0.031 sec

Query 1 × SQLAdditions ···

1 • use appdb;

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Context Help Snippets

Output ···

Action Output

#	Time	Action	Message	Duration / Fetch
1	03:28:26	create database appdb	1 row(s) affected	0.031 sec
2	03:28:52	use appdb	0 row(s) affected	0.000 sec

Query 1

```
CREATE TABLE Course
(CourseID int, CourseName varchar(1000), Rating numeric(2,1));
```

SQLAdditions :::::

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Context Help Snippets

Output

Action Output	#	Time	Action	Message	Duration / Fetch
	1	03:30:49	CREATE TABLE Course (CourseID int, CourseName varchar(1000), Rating ...)	0 row(s) affected	0.062 sec

Query 1

```
INSERT INTO Course(CourseID,CourseName,Rating) VALUES(1,'AZ-204 Developing Azure solutions',4.5);
INSERT INTO Course(CourseID,CourseName,Rating) VALUES(2,'AZ-303 Architecting Azure solutions',4.5);
INSERT INTO Course(CourseID,CourseName,Rating) VALUES(3,'DP-203 Azure Data Engineer',4.7);
```

SQLAdditions :::::

Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help.

Context Help Snippets

Output

Action Output	#	Time	Action	Message	Duration / Fetch
	1	03:30:49	CREATE TABLE Course (CourseID int, CourseName varchar(1000), Rating ...)	0 row(s) affected	0.062 sec
	2	03:31:18	INSERT INTO Course(CourseID,CourseName,Rating) VALUES(1,'AZ-204 D...)	1 row(s) affected	0.000 sec
	3	03:31:18	INSERT INTO Course(CourseID,CourseName,Rating) VALUES(2,'AZ-303 Ar...)	1 row(s) affected	0.016 sec
	4	03:31:18	INSERT INTO Course(CourseID,CourseName,Rating) VALUES(3,'DP-203 A...)	1 row(s) affected	0.000 sec

The screenshot shows a database query interface titled "Query 1". At the top, there is a toolbar with various icons. Below the toolbar, the query text is displayed:

```
1 •  SELECT * FROM Course;
```

The result grid shows the following data:

	CourseID	CourseName	Rating
▶	1	AZ-204 Developing Azure solutions	4.5
	2	AZ-303 Architecting Azure solutions	4.6
	3	DP-203 Azure Data Engineer	4.7

The screenshot shows a database query interface titled "Query 1". At the top, there is a toolbar with various icons. Below the toolbar, the query text is displayed:

```
1 •  SELECT * FROM Course;
```

The result grid shows the following data:

	CourseID	CourseName	Rating
▶	1	AZ-204 Developing Azure solutions	4.5
	2	AZ-303 Architecting Azure solutions	4.6
	3	DP-203 Azure Data Engineer	4.7

On the right side of the interface, there is a vertical sidebar with the following options:

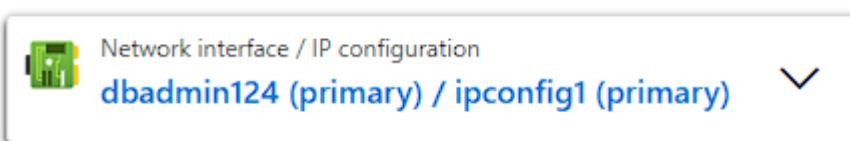
- Result Grid (selected)
- Form Editor
- Field Types
- Query Stats

16. Once you have executed the commands and created your table on the workbench.
17. Now you have to come back to the portal, and go to your virtual machine overview page.
18. There go to network settings under the networking section.

Networking

- Network settings
- Load balancing
- Application security groups
- Network manager

19. Now you will see a network interface for the VM, click on it.



20. On the new page you will see this ipconfig, now you have to open it.

Private and public IP addresses can be assigned to a virtual machine's network interface controller. You can add as many private and public IPv4 addresses as necessary to a network interface, within the limits listed in the Azure limits article. [Learn more](#)

Add	Make primary	Delete		
Name	IP Version	Type	Private IP Address	Public IP Address
<input type="checkbox"/> ipconfig1	IPv4	Primary	10.0.0.4 (Dynamic)	52.140.125.99 (dbadmin-ip)

21. Here you have to disassociate your Public IP address.

Edit IP configuration

dbadmin124

i A primary IP configuration already exists. Any additional IP configurations will be secondary. The virtual network this network interface is attached to only supports IPv4. [Learn more](#)

Name	<input type="text" value="ipconfig1"/>
IP version	<input checked="" type="radio"/> IPv4 <input type="radio"/> IPv6
Type	<input checked="" type="radio"/> Primary <input type="radio"/> Secondary
Private IP address settings	
Allocation	<input checked="" type="radio"/> Dynamic <input type="radio"/> Static
Public IP address settings	
Associate public IP address	<input type="checkbox"/>

😊 STEP 2: CREATE WEB APP

1. Once you have completed the above steps.
2. Now you have to create a web app with same resource group.

App Service Web Apps lets you quickly build, deploy, and scale enterprise-grade web, mobile, and API apps running on any platform. Meet rigorous performance, scalability, security and compliance requirements while using a fully managed platform to perform infrastructure maintenance. [Learn more](#)

Project Details

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

Subscription *	<input type="text" value="Free Trial"/>
Resource Group *	<input type="text" value="app-grp"/> Create new

Instance Details

Name *	<input type="text" value="dbwebapp123321"/> .azurewebsites.net
Publish *	<input checked="" type="radio"/> Code <input type="radio"/> Docker Container <input type="radio"/> Static Web App
Runtime stack *	<input type="text" value=".NET 6 (LTS)"/>
Operating System *	<input type="radio"/> Linux <input checked="" type="radio"/> Windows
Region *	<input type="text" value="Central India"/>

i Not finding your App Service Plan? Try a different region or select your App Service Environment.

Pricing plans

App Service plan pricing tier determines the location, features, cost and compute resources associated with your app. [Learn more](#)

Windows Plan (Central India) *	<input type="text" value="(New) ASP-appgrp-9a34"/> Create new
Pricing plan	<input type="text" value="Standard S1 (100 total ACU, 1.75 GB memory, 1 vCPU)"/>

Zone redundancy

An App Service plan can be deployed as a zone redundant service in the regions that support it. This is a deployment time only decision. You can't make an App Service plan zone redundant after it has been deployed [Learn more](#)

- Zone redundancy
- Enabled:** Your App Service plan and the apps in it will be zone redundant. The minimum App Service plan instance count will be three.
 - Disabled:** Your App Service Plan and the apps in it will not be zone redundant. The minimum App Service plan instance count will be one.

[Review + create](#)

[< Previous](#)

[Next : Database >](#)

3. Once your app is deployed go to resources.

✓ Your deployment is complete

Deployment name: Microsoft.Web-WebApp-Portal-aeb9c0f3-85ff Start time: 1/3/2024, 12:28:51 PM
Subscription: Free Trial Correlation ID: ea503208-0fe2-4afb-b092-e1f389e6d66e

Deployment details

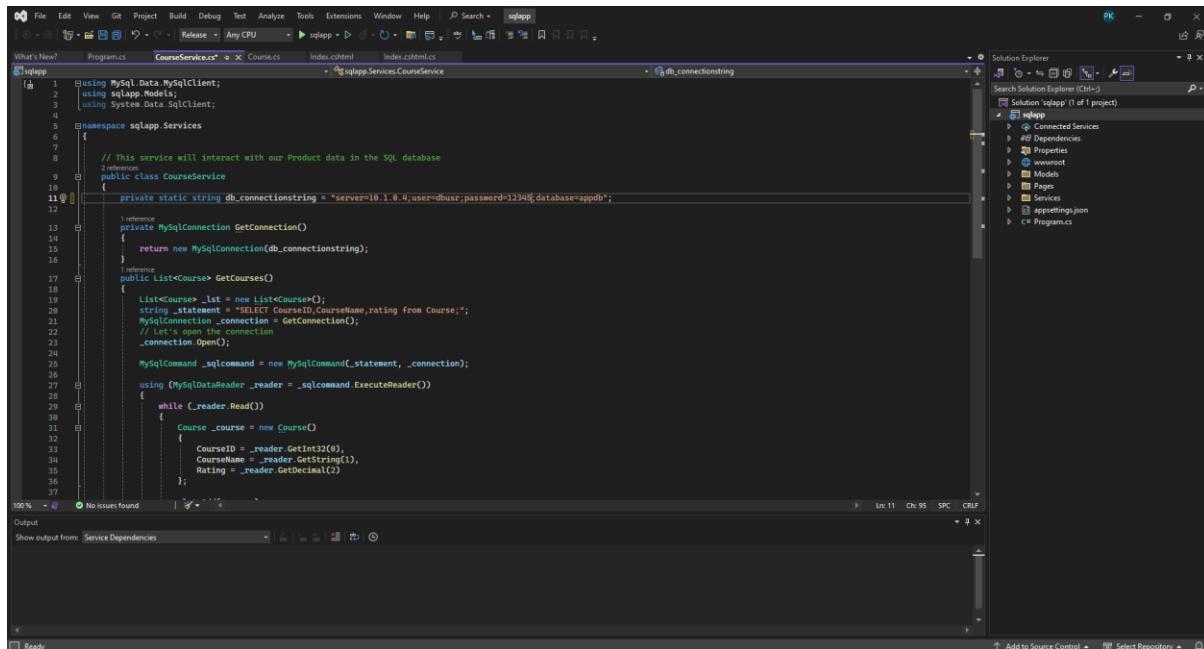
Next steps

Manage deployments for your app. Recommended
Protect your app with authentication. Recommended

[Go to resource](#)

⚠ ONE MORE THIS THERE IS FILE THAT IS NEEDED TO COMPLETE THIS. YOU CAN DOWNLOAD THAT FILE FROM GITHUB. THE NAME OF THE FILE IS **sqlapp**

4. So, after the web app is deployed download the file and open that file in Visual studio.



5. So, now what you need to do is, you have to publish this .net project on the web app
6. For that you need to change something in the project. The command shown below is where you need to change, type in your server IP, then what is your user name of the SQL database, then your password the database.
7. The database name is same, appdb.

```
private static string db_connectionstring = "server=10.1.0.4;user=dbusr;password=12345;database=appdb";
```

8. Now to publish your project on the web app. On the right side of the screen in solution explorer, you will see your app name, right click on it, then you will see a publish option, click on it.
9. A new window will open, here you need to select Azure as your target.

Publish

Where are you publishing today?

Target



Azure

Host your application to the Microsoft cloud



Docker Container Registry

Publish your application to any supported Container Registry that works with Docker images



Folder

Publish your application to a local folder or file share



FTP/FTPS Server

Publish your application to an FTP/FTPS server



Web Server (IIS)

Publish your application to IIS using Web Deploy or Web Deploy Package



Import Profile

Import your publish settings to deploy your app

Back

Next

Finish

Cancel

10. Then select Azure app service (Windows)

11. Click on next then select your resources group.

Publish

Which Azure service would you like to use to host your application?

Target

Specific target



Azure Container Apps (Linux)

Run scalable containerized applications and microservices on a serverless platform in Azure



Azure App Service (Windows)

Publish your application code to a managed infrastructure that is easy to scale



Azure App Service (Linux)

Publish your application code to a managed infrastructure that is easy to scale



Azure App Service Container

Publish your application as a Docker image to Azure Container Registry and run it on Azure App Service



Azure Container Registry

Publish your application as a Docker image to Azure Container Registry



Azure Virtual Machine

Manage your own infrastructure

Back

Next

Finish

Cancel

12. Once you have selected your web app you will this option to publish that .net application onto your web app.
13. Click on publish.
14. Now copy your domain name from the web app and paste it in the new tab.
15. You will get this error because you don't have Public IP address and you cannot connect to a private IP address.

webappdb124 - Web Deploy.pubxml ▾
Azure App Service (Windows)

Error.
An error occurred while processing your request.
Request ID: eb-3bd7cb3d367ab45cd84d344f345849-eef65e87beb27a5d7-00

Development Mode
Swapping to the **Development** environment displays detailed information about the error that occurred.
The **Development environment shouldn't be enabled for deployed applications**. It can result in displaying sensitive information from exceptions to end users. For local debugging, enable the **Development** environment by setting the **ASPNETCORE_ENVIRONMENT** environment variable to **Development** and restarting the app.

16. So, now you have to virtual network integration in order to see your application in work.
17. For that in the web app under the setting panel, you will see a networking option in place, if you will scroll down a little.

Networking

Refresh Troubleshoot Send us your feedback

Check your network configuration. Select any of the features listed below to change your network setup. [Learn more](#)

Inbound traffic configuration	Outbound traffic configuration
Public network access Enabled with no access restrictions	Virtual network integration Not configured
App assigned address Not configured	Hybrid connections Not configured
Private endpoints 0 private endpoints	Outbound addresses 20.67.216.2, 20.67.216.166, 20.67.216.2... Show More
Inbound addresses 20.107.224.13	Integration subnet configuration
Optional inbound services	NAT gateway N/A
Azure Front Door View details	Network security group N/A
	User defined route N/A

18. In the networking, you will see an option, virtual network integration, under outbound traffic configuration.
19. Click on it. Once you are in the virtual network integration click on add virtual network integration.



No virtual network integration configured

[Add virtual network integration](#)

[Learn more ↗](#)

20. Now here you have to add your virtual network, which is your basically the vnet.
21. Then you have to choose a subnet. But the thing is you have to create a subnet.
22. To create a subnet, go to your resource group, there you will see your virtual network in place. This virtual was created when you created your web app.
23. Now open this virtual network.
24. Then under the setting panel you will see an option for subnets.
25. Open it and create your subnet.

dbadmin-vnet Virtual network North Europe ...

Settings

- Address space
- Connected devices
- Subnets

26. Now give it a name of your choice and then select a subnet address. But leave it to default.

Name

websubnet



Subnet address range * ⓘ

10.1.1.0/24

10.1.1.0 - 10.1.1.255 (251 + 5 Azure reserved addresses)

27. Now leave everything to default, but in the service endpoints, select it to Microsoft web.
28. Now create your subnet.

SERVICE ENDPOINTS

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

Services ⓘ

Microsoft.Web

29. After creating your subnet select it here in the virtual network integration.

Subscription

Free Trial

Virtual Network

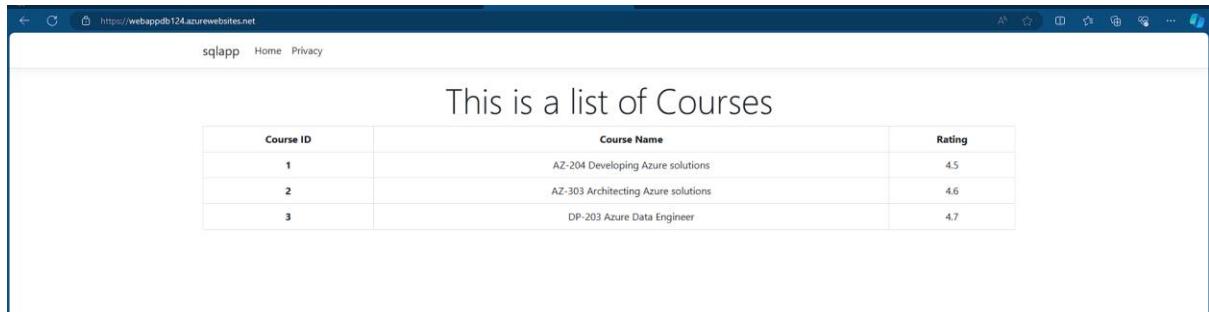
dbadmin-vnet

Subnet

websubnet (10.1.1.0 - 10.1.1.255)

30. After the virtual network is created, then go back to your web app, copy your domain name and paste it in the new tab.

31. Then you will see you .net application running.



AFTER THE LAB IS COMPLETE DELETE ALL YOUR RESOURCES.