

Course-End Project

Implementing High Availability for an Application

Steps to be followed:

1. Creating 2 VMs using ARM template in region 1
2. Create a subnet for the bastion host and create a bastion
3. Install IIS on contoso-vm0 and contoso-vm1
4. Connect 2 VMs using a bastion
5. Download the source code
6. Create Azure SQL using an ARM template
7. Import database using the import option in Azure SQL in the portal
8. Change the connection string and copy the connection details on the web.config file


Step 1: Creating 2 VMs using ARM template in region 1

- 1.1 Create 2 VMs in the first VNET in region 1 using the ARM template

[Home](#) > [Create a resource](#) >

Template deployment (deploy using custom templates) ...

Microsoft



Template deployment (deploy using custom templates) [Add to Favorites](#)

Microsoft

★ 4.0 (3 Azure ratings)





[Create](#)

[Overview](#) [Plans](#) [Usage Information + Support](#) [Reviews](#)

Applications running in Microsoft Azure usually rely on a combination of resources, like databases, servers, and web apps. Azure Resource Manager templates deploy and manage these resources as a group, using a JSON description of the resources and their deployment settings.

Edit your template with IntelliSense and deploy it to a new or existing resource group.

More products from Microsoft

 <h4>Device Update for IoT Hub</h4> <p>Microsoft</p> <p>Azure Service</p> <p>Securely and Reliably update your devices with Device Update for IoT Hub.</p>	 <h4>Front Door Standard/Premium</h4> <p>Microsoft</p> <p>Azure Service</p> <p>Azure Front Door Standard/Premium (Preview) is security led, modern cloud CDN that provides static and</p>	 <h4>Azure VMware Solution</h4> <p>Microsoft</p> <p>Azure Service</p> <p>Azure VMware Solution (AVS) combines the VMware Software Defined Data Center (SDDC) with</p>	 <h4>API App</h4> <p>Microsoft</p> <p>Azure Service</p> <p>scalable RESTful API with enterprise grade security, simple access control and auto SDK generation</p>
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1.2 Click on **build your template**

[Home](#) > [Create a resource](#) > [Template deployment \(deploy using custom templates\)](#) >

Custom deployment ...






Deploy from a custom template

Select a template Basics Review + create

Automate deploying resources with Azure Resource Manager templates in a single, coordinated operation. Create or select a template below to get started. [Learn more about template deployment](#) ⓘ

 [Build your own template in the editor](#)

Common templates

-  Create a Linux virtual machine
-  Create a Windows virtual machine
-  Create a web app
-  Create a SQL database
-  Azure landing zone

Start with a quickstart template or template spec

Template source ⓘ ☒ Quickstart template
☐ Template spec

Quickstart template (disclaimer) ⓘ



1.3 Provide all the details as shown below:


[Home](#) > [Create a resource](#) > [Template deployment \(deploy using custom templates\)](#) >


Custom deployment


Deploy from a custom template

Template

 Customized template 
3 resources


 Edit template


 Edit parameters


 Visualize


Project details

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

Subscription * 


MSDN Platforms 


Resource group * 


(New) contoso-rg1 

[Create new](#)


Instance details


Region * 


East US 


Vm Size * 


1x Standard D2s v3
2 vcpus, 8 GB memory
[Change size](#)


Vm Name 


contoso-vm 


Vm Count 


2 


 The template has specified this parameter as type 'int', but the default value is specified as type 'string'. This template may not deploy correctly.


Admin Username * 

Student 

Admin Password * 

..... 

Virtual Network Name 

contoso-vnet1 

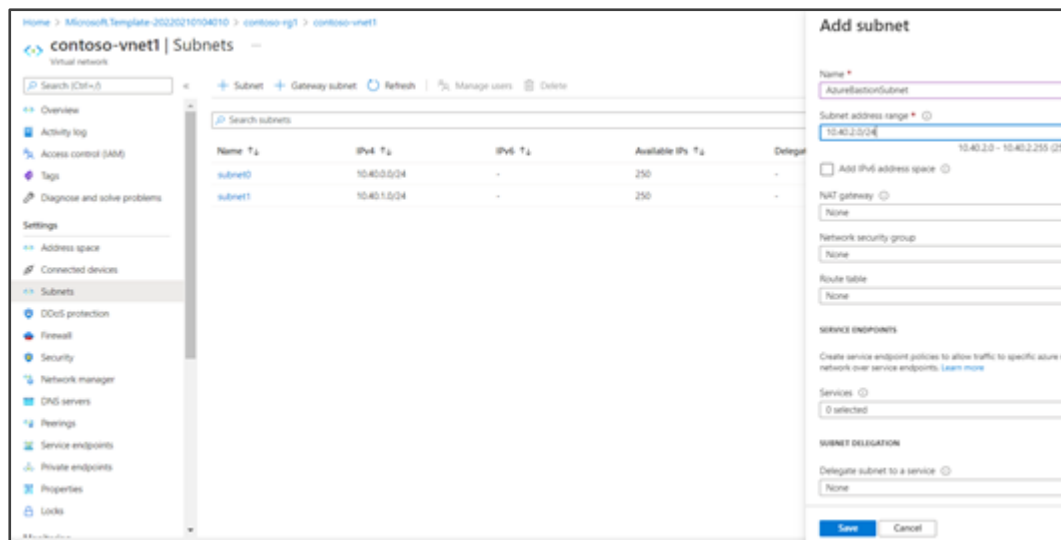
Review + create

< Previous

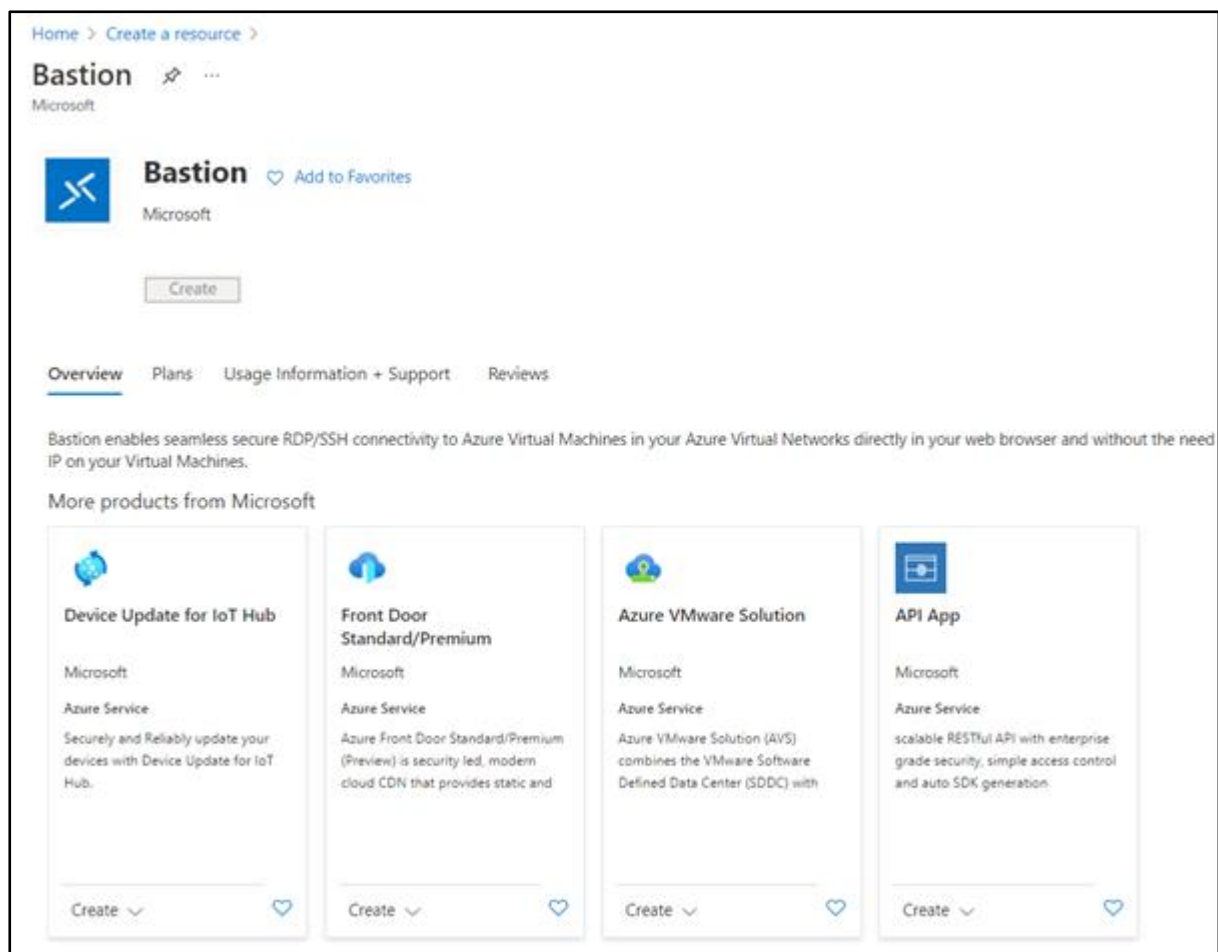
Next : Review + create >

Step 2: Create a subnet for the bastion host and create a bastion

2.1 Go to Contoso-vnet1 and create a subnet



2.2 Search for bastion and click on **Create**




2.3 Provide all the details and make sure the previously created VNET and subnets are selected


[Home](#) > [Bastions](#) >

Create a Bastion ...


Bastion allows web based RDP access to your vnet VM. [Learn more.](#)


Project details


Subscription * MSDN Platforms 


Resource group * contoso-rg1 
[Create new](#)

Instance details


Name * bastion1 


Region * East US 

Tier * ⓘ Standard 

Instance count * ⓘ 0  2


Configure virtual networks

Virtual network * ⓘ contoso-vnet1 
[Create new](#)

Subnet * AzureBastionSubnet (10.40.2.0/24) 
[Manage subnet configuration](#)

Public IP address

Public IP address * ⓘ ☒ Create new ☐ Use existing

Public IP address name * contoso-vnet1-ip 

Public IP address SKU Standard

Assignment ☐ Dynamic ☒ Static

[Review + create](#) [Previous](#) [Next : Tags >](#) [Download a template for automation](#)

2.4 Click **Review + create** and then **Create**

Home > Bastions >

Create a Bastion ...

i Validation passed

Basics Tags Advanced Review + create

Summary

Basics

Name	bastion1
Subscription	MSDN Platforms
Resource group	contoso-rg1
Region	East US
Virtual network	contoso-vnet1
Subnets	AzureBastionSubnet
Public IP address	contoso-vnet1-ip
Tier	Standard
Instance count	2
Native client support (Preview)	Disabled

Create

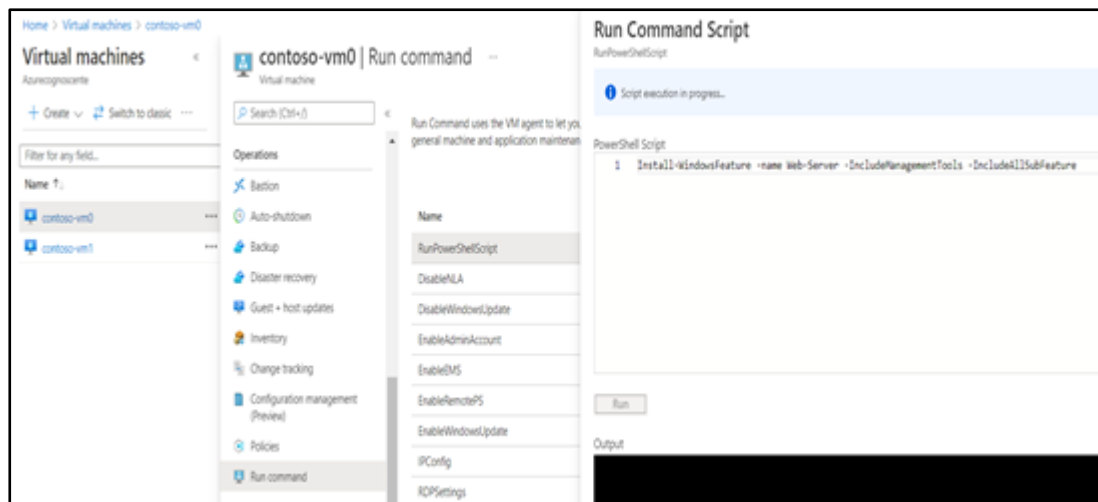
Previous

Next

[Download a template for automation](#)

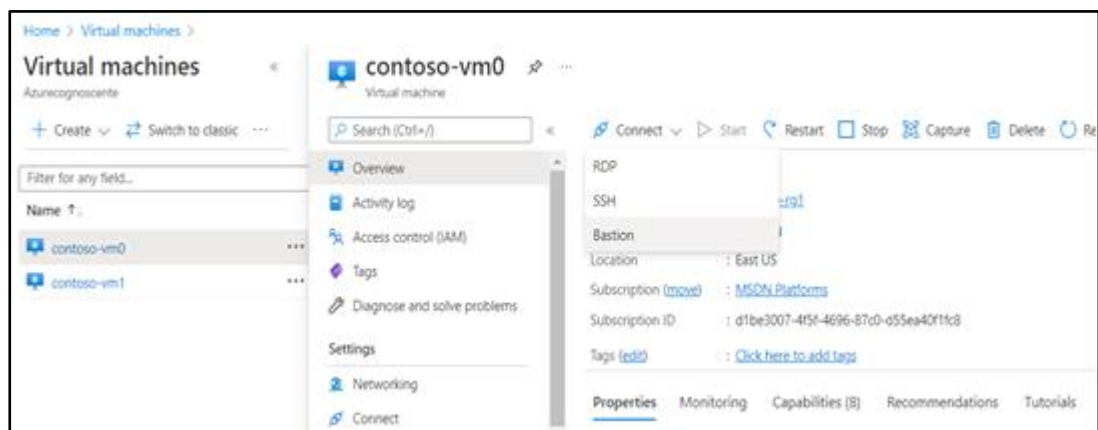
Step 3: Install IIS on contoso-vm0 and contoso-vm1

3.1 Go to the run command of each VM on the Azure portal and run the below commands:
Run *Install-WindowsFeature -name Web-Server -IncludeManagementTools -IncludeAllSubFeature*



Step 4: Connect 2 VMs using a bastion

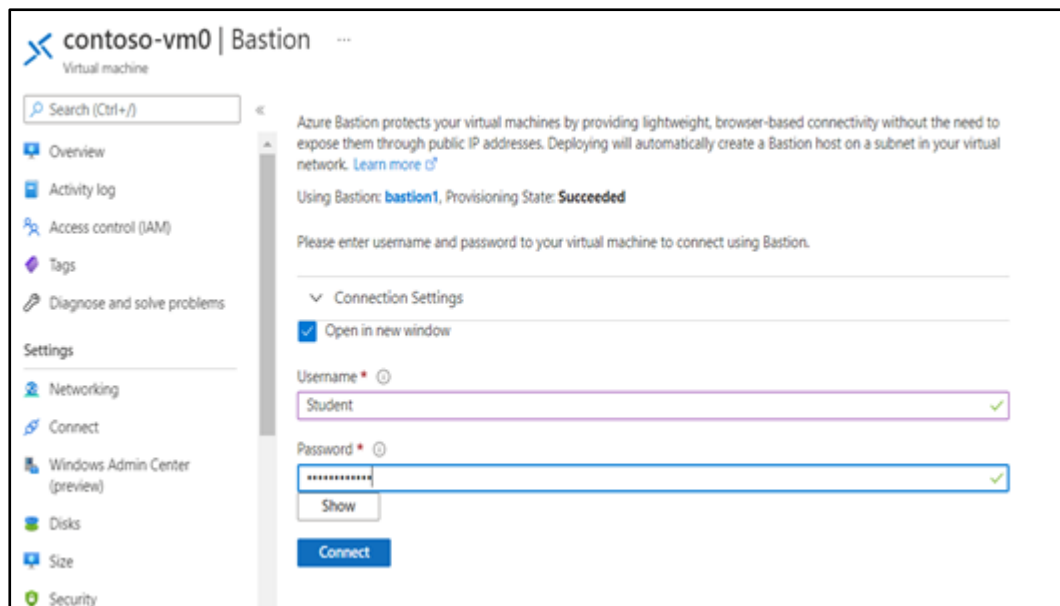
4.1 On contoso-vm0, select **Connect** using **Bastion** as below:



4.2 Enter the username and password given below and select **Connect**

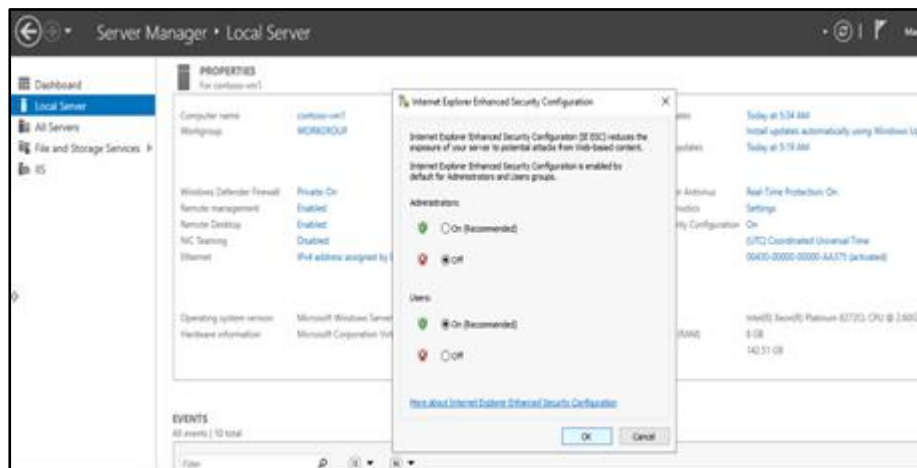
Username: Student

Password: Pa55w.rd1234

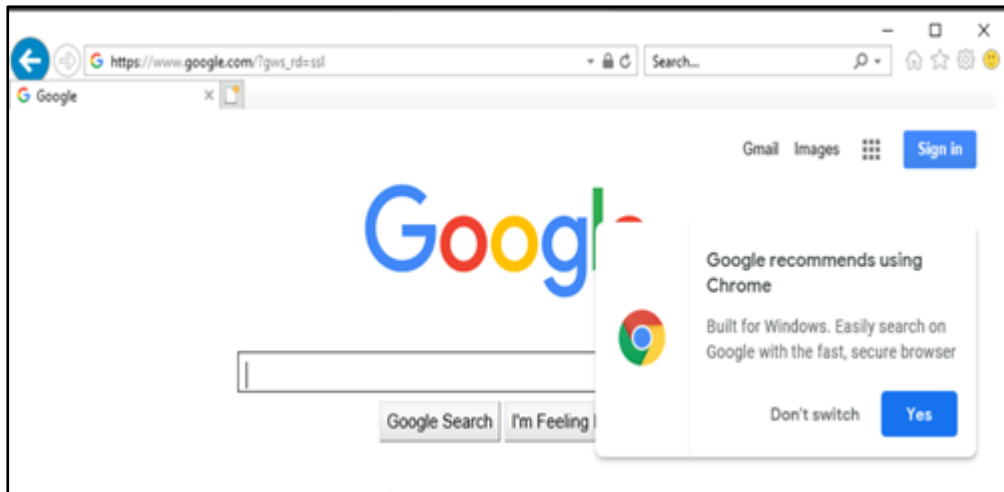


Step 5: Download the source code

5.1 You need to turn off IE enhanced security settings

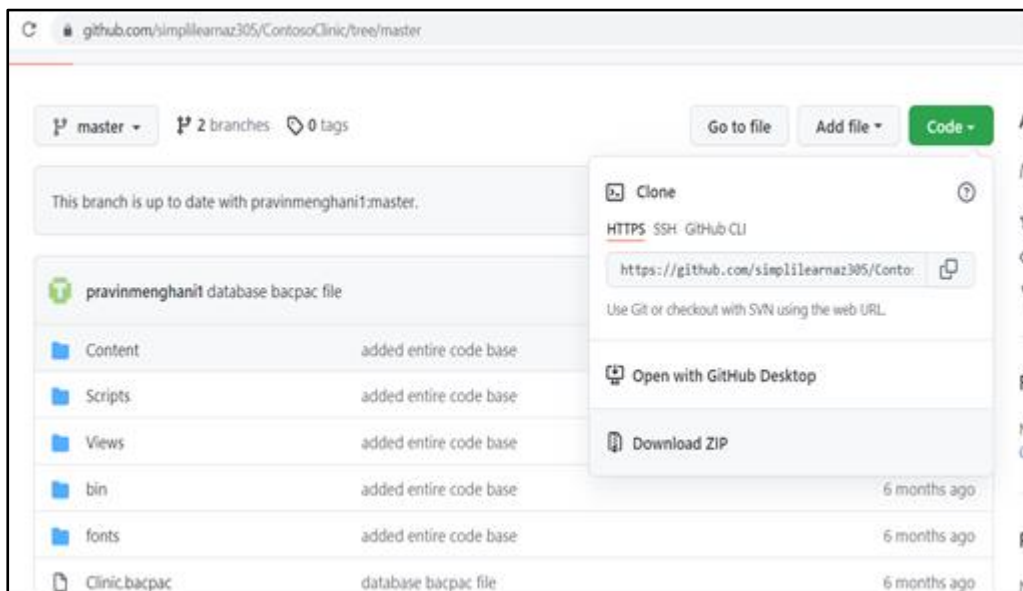


5.2 Now download the chrome browser



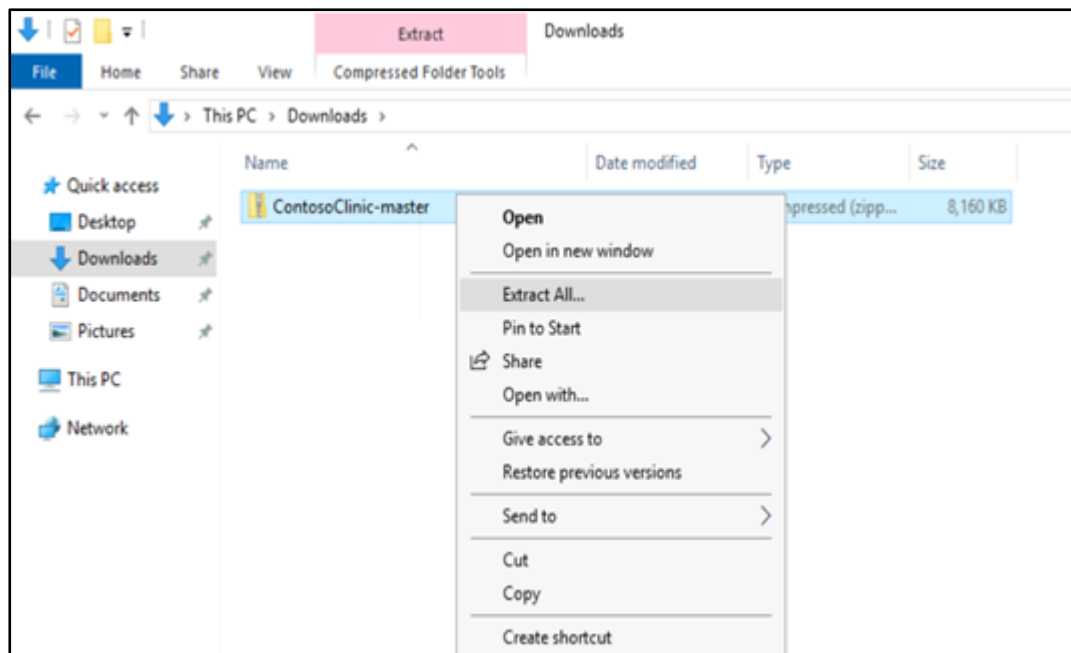
5.3 Now, in the chrome browser, go to the below URL and download the source code

<https://github.com/simplilearnaz305/ContosoClinic/tree/master>

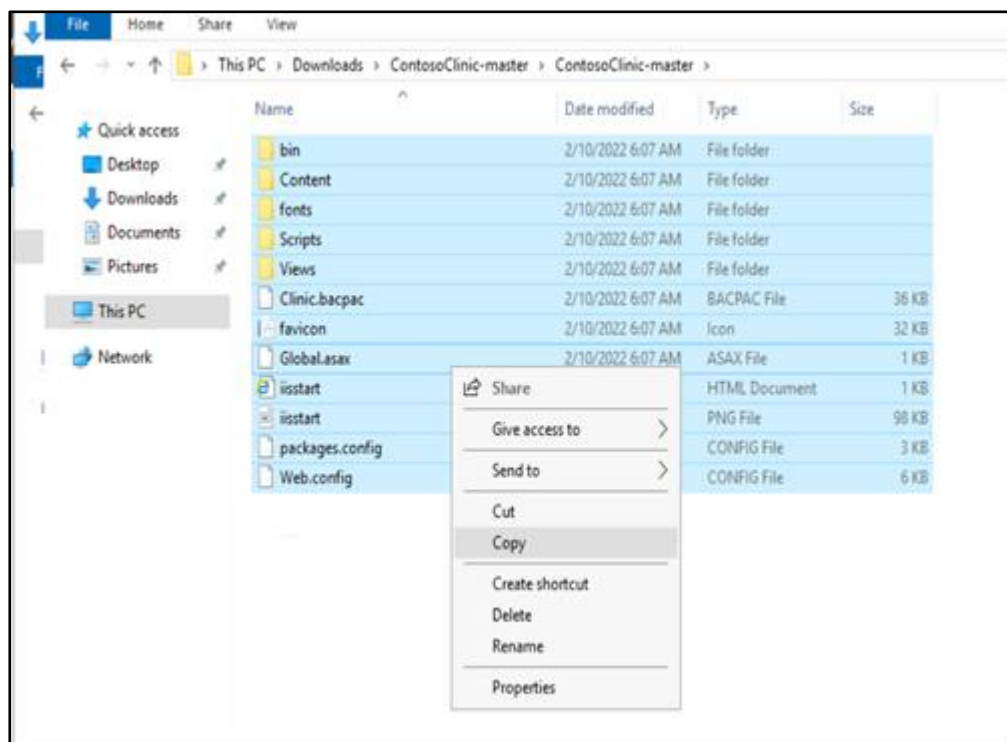


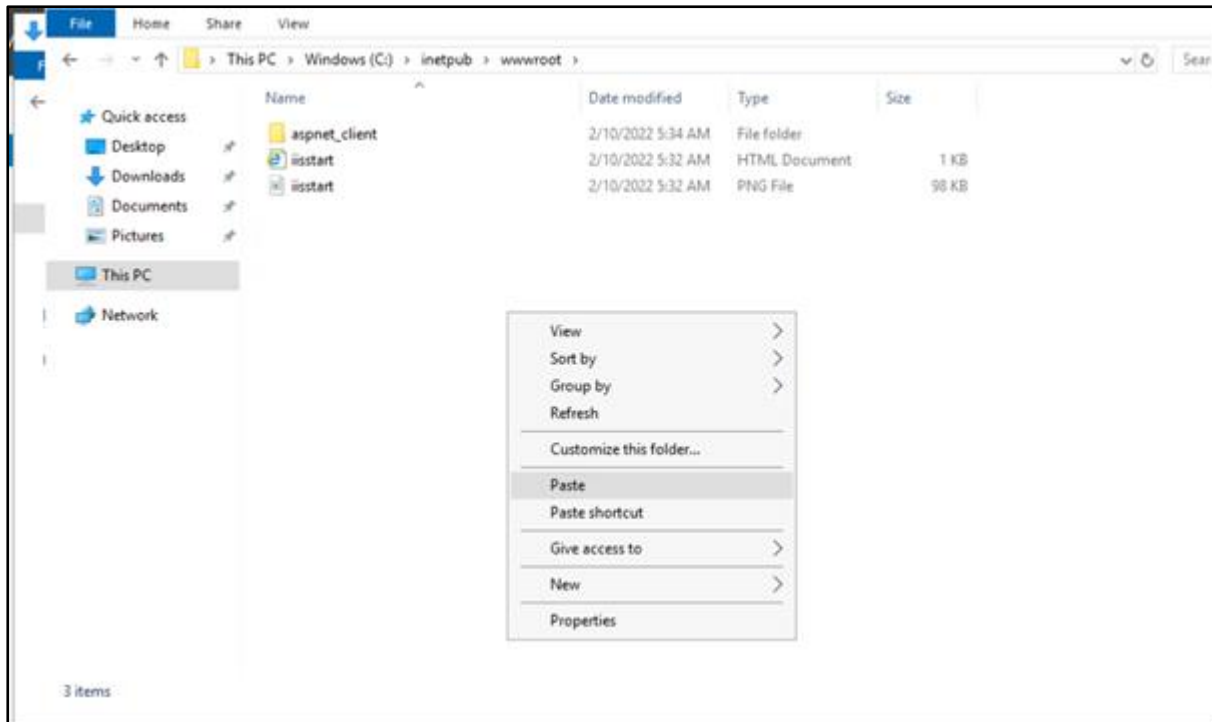
5.4 Repeat the steps for both VMs (contoso-vm0 and contoso-vm1)

5.5 Extract the code and copy it to c:\inetpub\wwwroot\



5.6 Copy the code to c:\inetpub\wwwroot\

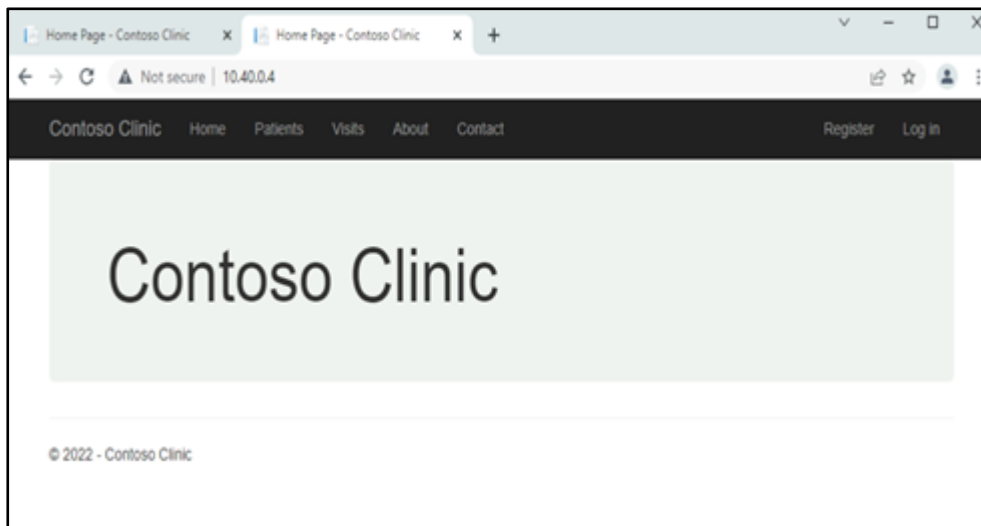




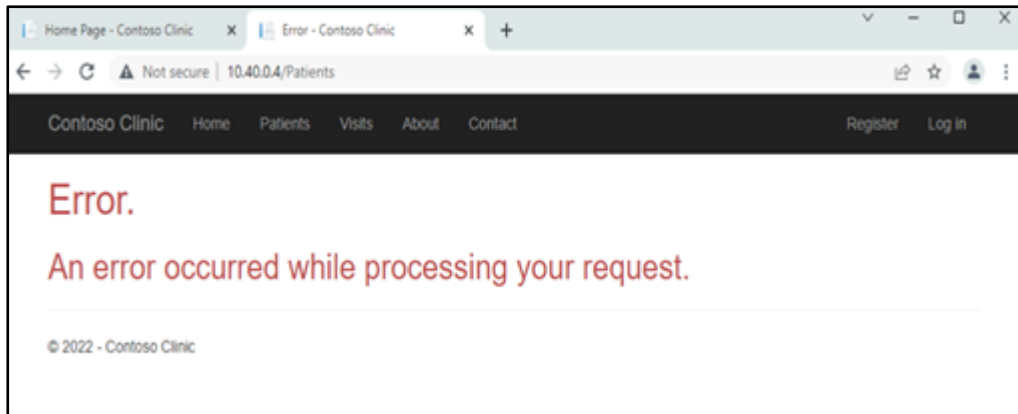
5.7 Now, try accessing the website in the browser within VM using the below URLs:

<http://10.40.0.4>

<http://10.40.1.4>



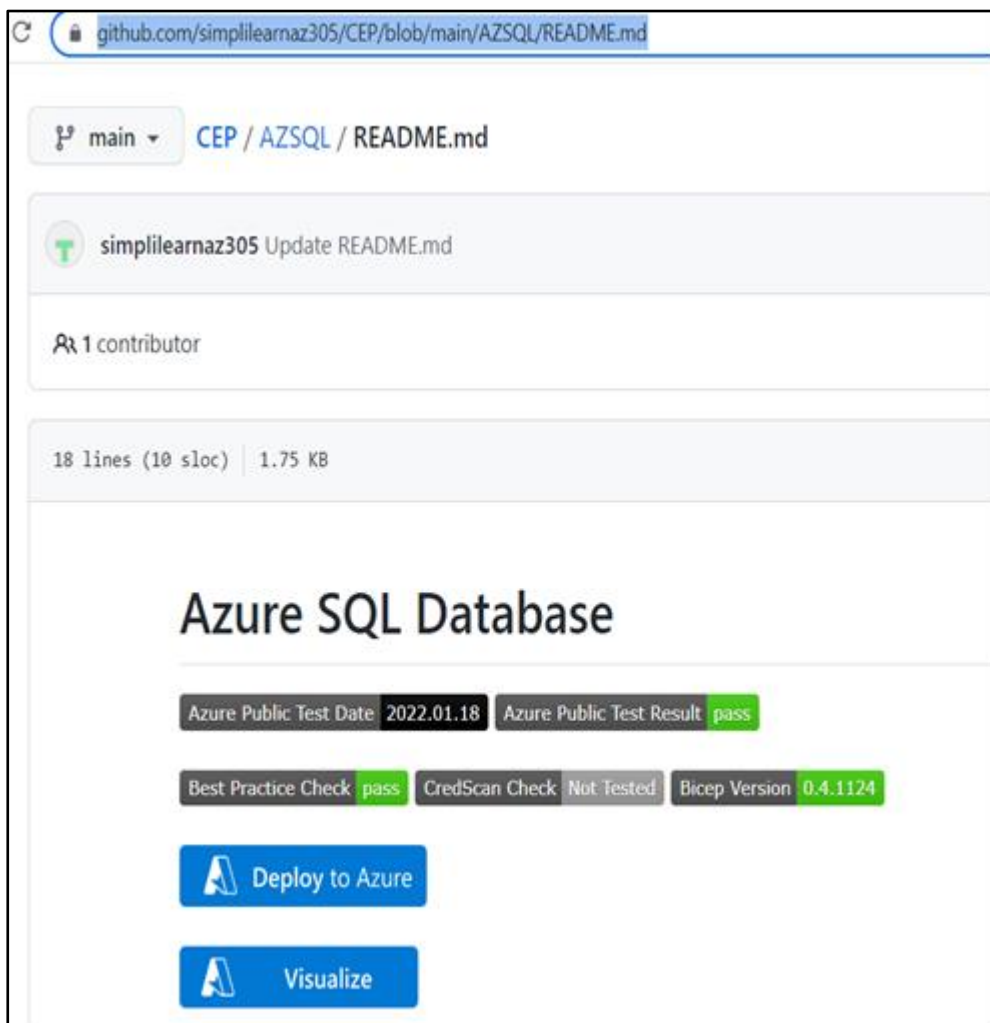
It should show as an error if you browse the patient's page. This is because we don't have any databases present there.



Step 6: Create an Azure SQL using an ARM template

6.1 Go to the below link and click **Deploy to Azure** to deploy the Azure SQL

<https://github.com/simplilearnaz305/CEP/blob/main/AZSQL/README.md>



6.2 Select the resource group name and leave all values default and click on **Create**

Home >

Create a SQL Server and Database

Azure quickstart template

sql-database 2 resources

Edit template Edit parameters Visualize

Project details

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

Subscription * ⓘ MSDN Platforms

Resource group * ⓘ contoso-rg1
[Create new](#)

Instance details

Region * ⓘ (US) East US ✓

Server Name ⓘ [uniqueString('sql', resourceGroup().id)]

Sql DB Name ⓘ SampleDB ✓

Location ⓘ [resourceGroup().location]

Administrator Login * ⓘ Student ✓

Administrator Login Password * ⓘ ✓

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

Step 7: Create a storage account using the ARM template and upload the clinic.bacpac file in the container

7.1 Use the below template to provision a storage account and a container

<https://github.com/simplilearnaz305/CEP/blob/main/Storage/README.md>

7.2 Give any uniquely available name and container name

[Home](#) >


Create Storage Account and Blob Container ...

Azure quickstart template

Basics

Review + create

Template

 storage-blob-container 2 resources

Edit template

Edit parameters

Visualize

Project details

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

Subscription *

MSDN Platforms

Resource group *

contoso-rg1

Create new

Instance details

Region *

(US) East US

Storage Account Name *

eastusstg648

Container Name

ctr1

Location

[resourceGroup().location]

7.3 Select **Review + create** and then click on **Create**

Home >

Create Storage Account and Blob Container

Azure quickstart template

Validation Passed

deployment involves 3rd party offerings, Microsoft may share my contact information and other details of such deployment with the publisher of that offering.

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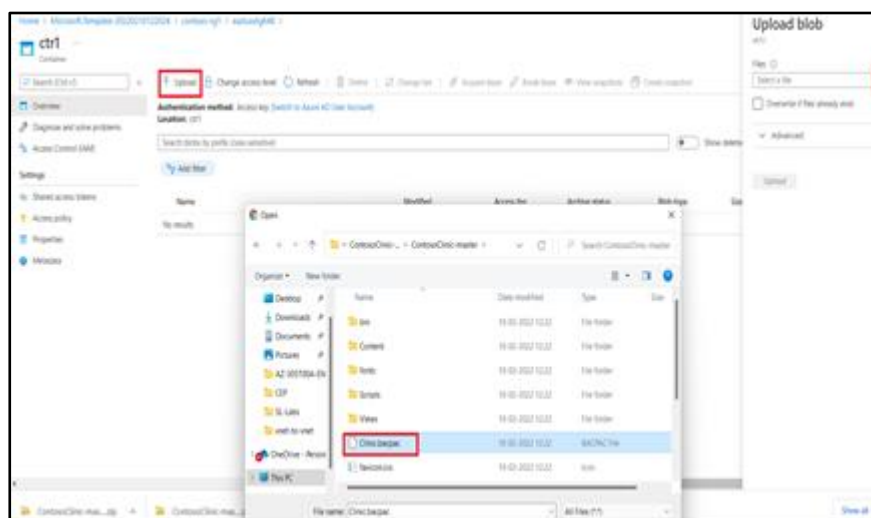
If any Microsoft products are included in a Marketplace offering (e.g. Windows Server or SQL Server), such products are licensed by Microsoft and not by any third party.

Basics

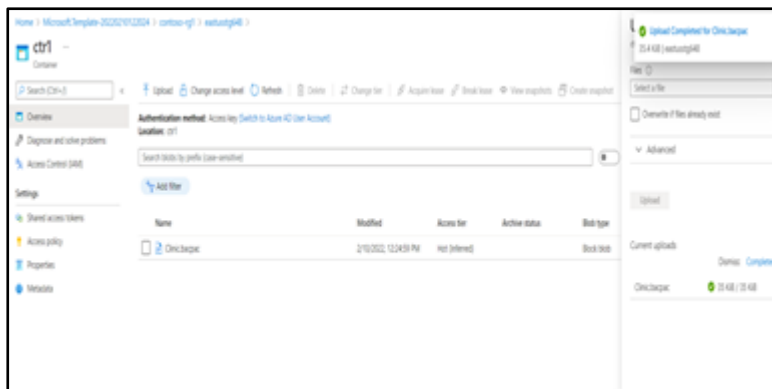
Subscription	MSDN Platforms
Resource group	contoso-rg1
Region	East US
Storage Account Name	eastusstg648
Container Name	ctr1
Location	[resourceGroup().location]

[Create](#) [< Previous](#) [Next](#)

7.4 Upload clinic.bacpac file in container ctr1



Your file will be uploaded now.

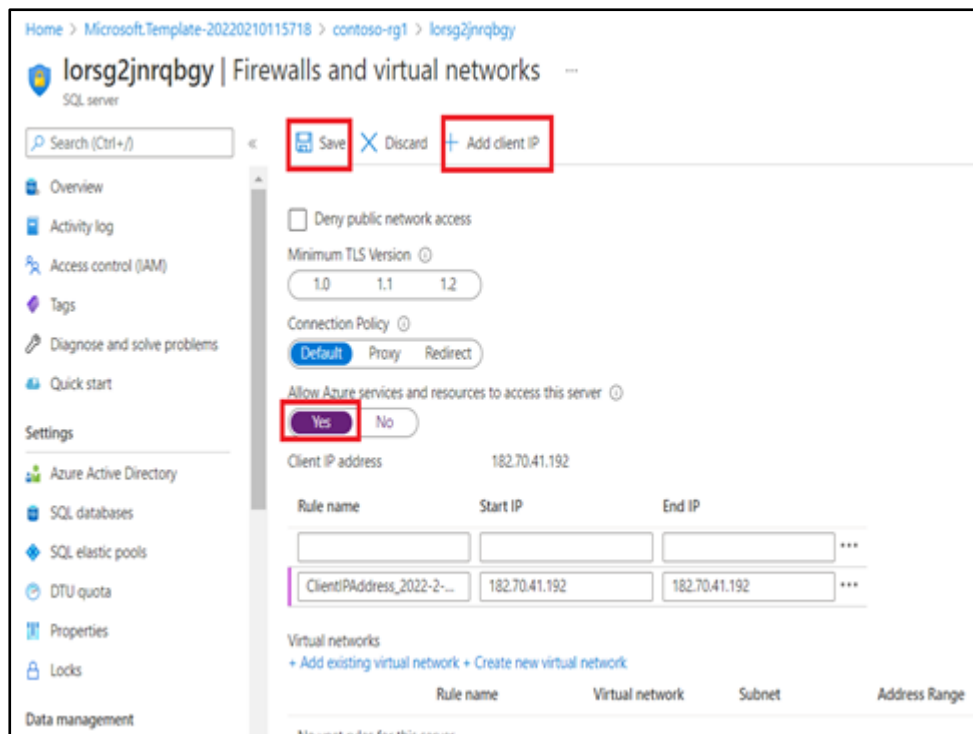


Step 8: Import database using the import option in Azure SQL in the portal

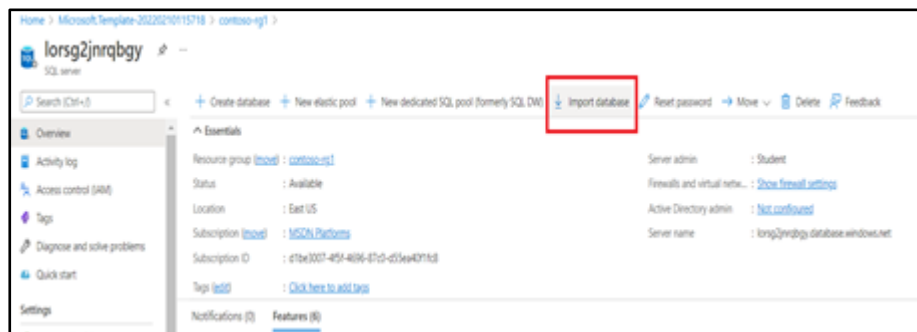
8.1 Before you can import the database, make sure the firewall settings of Azure SQL allow you to import. For that, click on show firewall settings of Azure SQL



8.2 Select settings as below and click on **Save**



8.3 Click on Import database





8.4 Select storage account and container, and select the clinic.bacpac file

Home > lorgzjnrqbgj > Import database > Storage accounts > Containers >

ctr1 ...


Container


 Upload  Refresh

Authentication method: Access key ([Switch to Azure AD User Account](#))

Location: ctr1

Search blobs by prefix (case-sensitive)

 Add filter

Name	Modified
 Clinic.bacpac	2/10/2022, 12:24:59 PM

Select

8.5 Leave all the things in default and click **ok**

Home > lorsg2jnrqbgg >



Import database ...

lorsg2jnrqbgg

Subscription *

MSDN Platforms

Storage (Premium not supported) *

Clinic.bacpac

eastusstg648/ctr1

[Select backup](#)

Pricing tier * ⓘ

General Purpose

Gen5, 2 vCores, 32 GB storage, zone
redundant disabled

[Configure database](#)

Database name

Clinic

Collation * ⓘ

SQL_Latin1_General_CP1_CI_AS

Authentication type

SQL Server

Server admin login *

Student

*Password

.....

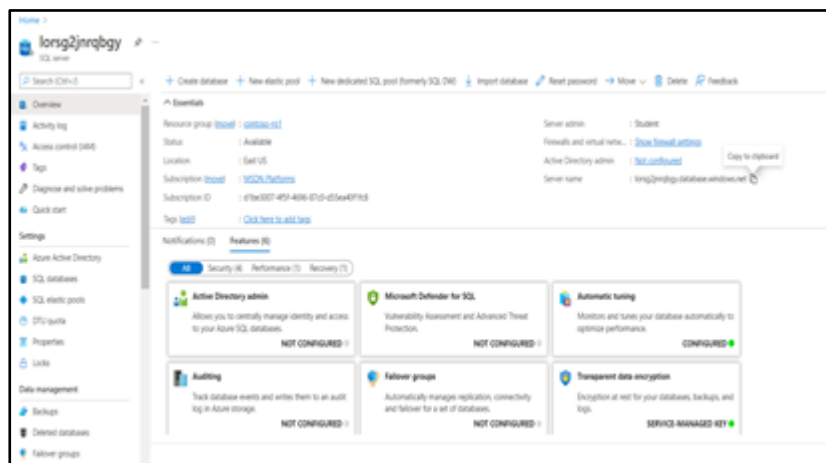
OK

You will see the database import now.



Step 9: Change the connection string and copy the connection details in the web.config file

9.1 Copy the server's name from the Azure SQL overview page as below:



9.2 Now within each VM, go to the below path and change the connection string

C:\inetpub\wwwroot\web.config

Contoso Clinic									
Home Patients Visits About Contact Register Log in									
Index									
Create New									
SSN	FirstName	LastName	MiddleName	StreetAddress	City	ZipCode	State	BirthDate	
795-73-9838	Catherine	Abel	R.	57251 Serene Blvd	Van Nuys	91411	CA	9/10/1996 12:00:00 AM	Edit Details Delete
990-00-6818	Kim	Abercrombie		Tanger Factory	Branch	55056	MN	6/5/1967 12:00:00 AM	Edit Details Delete
009-37-3952	Frances	Adams	B.	6900 Sisk Road	Modeslo	95354	CA	12/26/2005 12:00:00 AM	Edit Details Delete
708-44-3627	Jay	Adams		Blue Ridge Mall	Kansas City	64106	MS	12/28/2011 12:00:00 AM	Edit Details Delete
447-	Robert	Ahlering	F.	6500 East Grant	Turkott	85701	AZ	12/1/1963	Edit