

Connecting to Azure SQL Database

In this tutorial I'm going to show how to:

- Connect to SQL Server Database through Query Editor on Azure Portal
- Configure Firewall Rules
- Run SQL queries on Query Editor
- Connect to SQL Database through SQL Server Management Studio
- Add Virtual Network to SQL Server Firewall Rules
- Set Azure Active Directory Admin

Important:

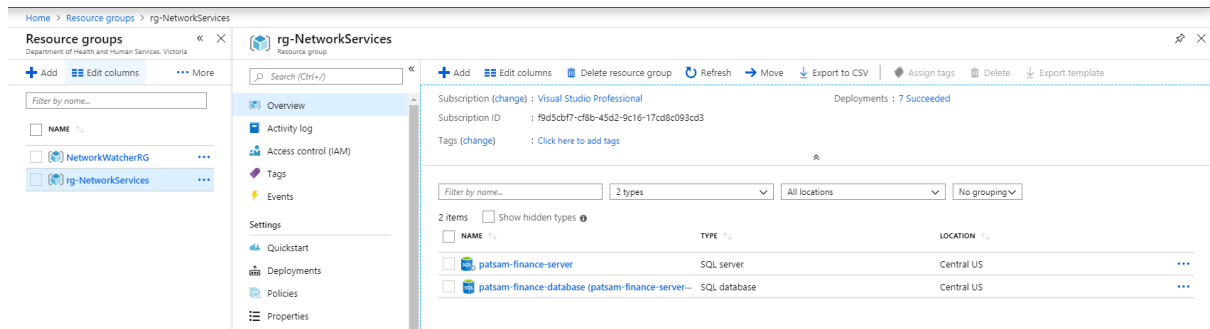
This tutorial is Part 3, of a series of tutorials. And this one is dependent on Part 1.

- *Part 1: Create an Azure SQL Database*
- *Part 2: Connecting to Azure SQL Database*
- *Part 3: Enabling Geo Replication on Azure SQL Server Database*

Step 01: Connect to SQL Server Database through Query Editor on Azure Portal

Under Resource Group “rg-NetworkServices” we have a SQL Server and a SQL Database.

(We will be using resources we created on our previous tutorial)

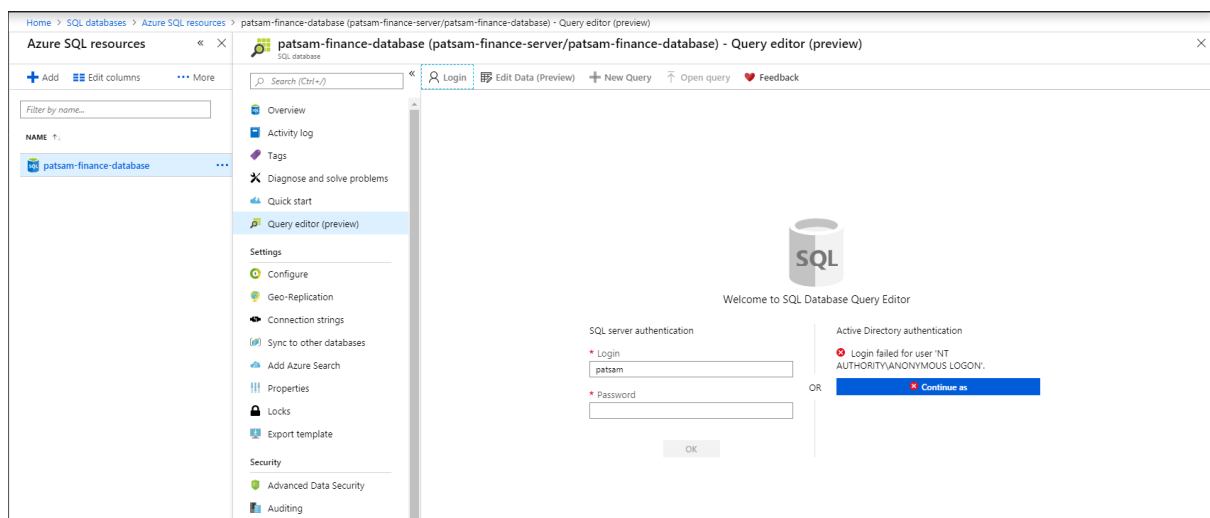


Click on the SQL Server Database we created: patsam-finance-database

Click on Query Editor tab.

There are 2 ways to connect to this Database:

- SQL Server Authentication
- Active Directory Authentication



First, we are going to login using SQL Server Authentication.

Login details:

- Username/Password (this will be the Administration Account details we provided when creating the SQL Server instance)

Create SQL Database Server

Microsoft

[Basics](#) [Networking](#) [Additional settings](#) [Tags](#) [Review + create](#)

SQL database server is a logical container for managing databases and elastic pools. Complete the Basic tab, then go to Review + Create to provision with smart defaults, or visit each tab to customize. [Learn more](#)

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="Visual Studio Professional"/>
* Resource group ⓘ	<input type="text" value="rg-NetworkServices"/>

[Create new](#)

Server details

Enter required settings for this server, including providing a name and location.

* Server name	<input type="text" value="patsam-finance-server"/>	✓
		.database.windows.net
* Location	<input type="text" value="(US) Central US"/>	▼

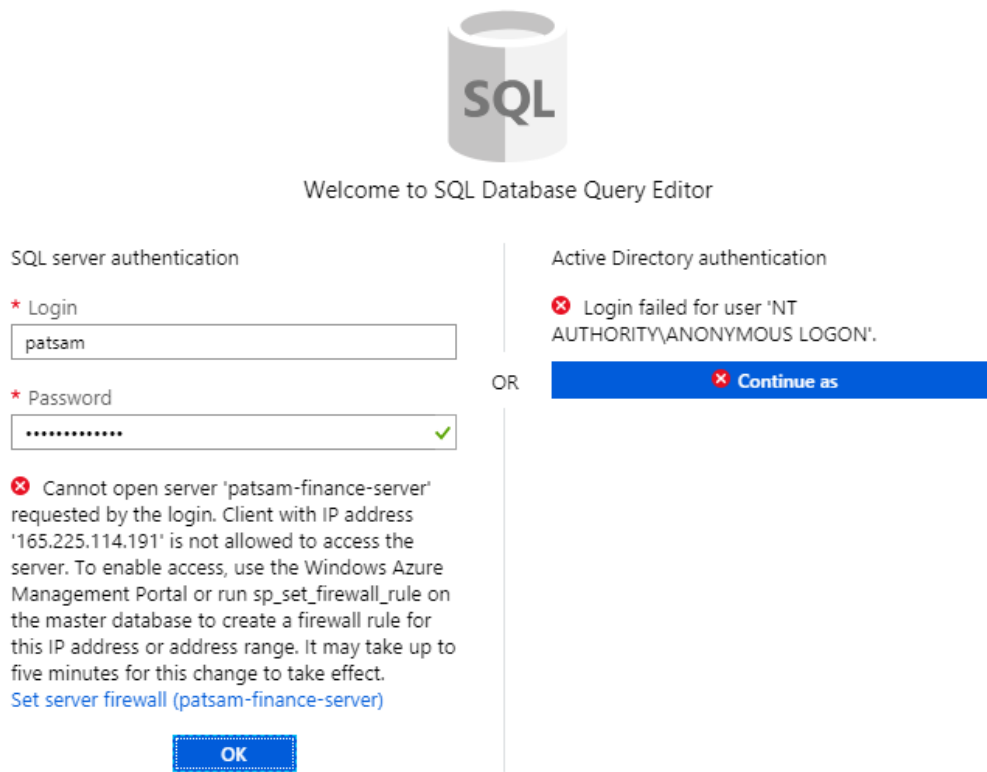
Administrator account

* Server admin login	<input type="text" value="patsam"/>	✓
* Password	<input type="password" value="....."/>	✓
* Confirm password	<input type="password" value="....."/>	✓

[Review + create](#)

[Next : Networking >](#)

Enter the Username/Password and click OK.



The image shows the 'Welcome to SQL Database Query Editor' dialog box. It has two tabs: 'SQL server authentication' and 'Active Directory authentication'. The 'SQL server authentication' tab is active, showing fields for 'Login' (containing 'patsam') and 'Password' (masked with dots and a green checkmark). Below these fields is an error message: 'Cannot open server 'patsam-finance-server' requested by the login. Client with IP address '165.225.114.191' is not allowed to access the server. To enable access, use the Windows Azure Management Portal or run sp_set_firewall_rule on the master database to create a firewall rule for this IP address or address range. It may take up to five minutes for this change to take effect. Set server firewall (patsam-finance-server)'. At the bottom of this tab is an 'OK' button. The 'Active Directory authentication' tab is inactive, showing an error message: 'Login failed for user 'NT AUTHORITY\ANONYMOUS LOGON''. Below this message is a blue button labeled 'Continue as'.

SQL Database Query Editor

SQL server authentication

* Login
patsam

* Password
..... ✓

✗ Cannot open server 'patsam-finance-server' requested by the login. Client with IP address '165.225.114.191' is not allowed to access the server. To enable access, use the Windows Azure Management Portal or run `sp_set_firewall_rule` on the master database to create a firewall rule for this IP address or address range. It may take up to five minutes for this change to take effect.
[Set server firewall \(patsam-finance-server\)](#)

OK

Active Directory authentication

✗ Login failed for user 'NT AUTHORITY\ANONYMOUS LOGON'.

Continue as

It will give bellow error:

Cannot open server 'patsam-finance-server' requested by the login. Client with IP address '165.225.114.191' is not allowed to access the server. To enable access, use the Windows Azure Management Portal or run `sp_set_firewall_rule` on the master database to create a firewall rule for this IP address or address range. It may take up to five minutes for this change to take effect.

[Set server firewall \(patsam-finance-server\)](#)

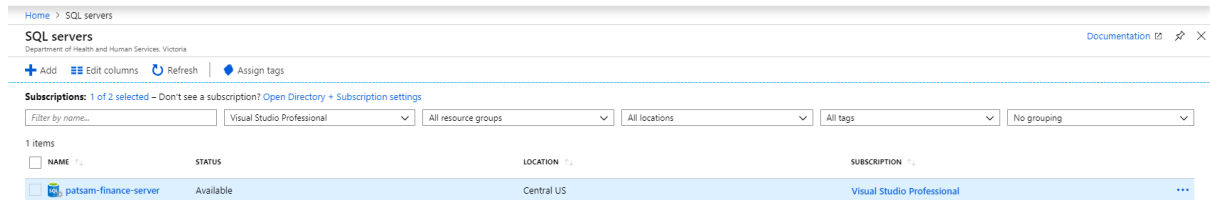
This is because by default Azure won't allow to access this Database to any external party. To overcome this issue, we need to add a new Firewall rule to allow accessing this Database.

Step 02: Configure Firewall Rules

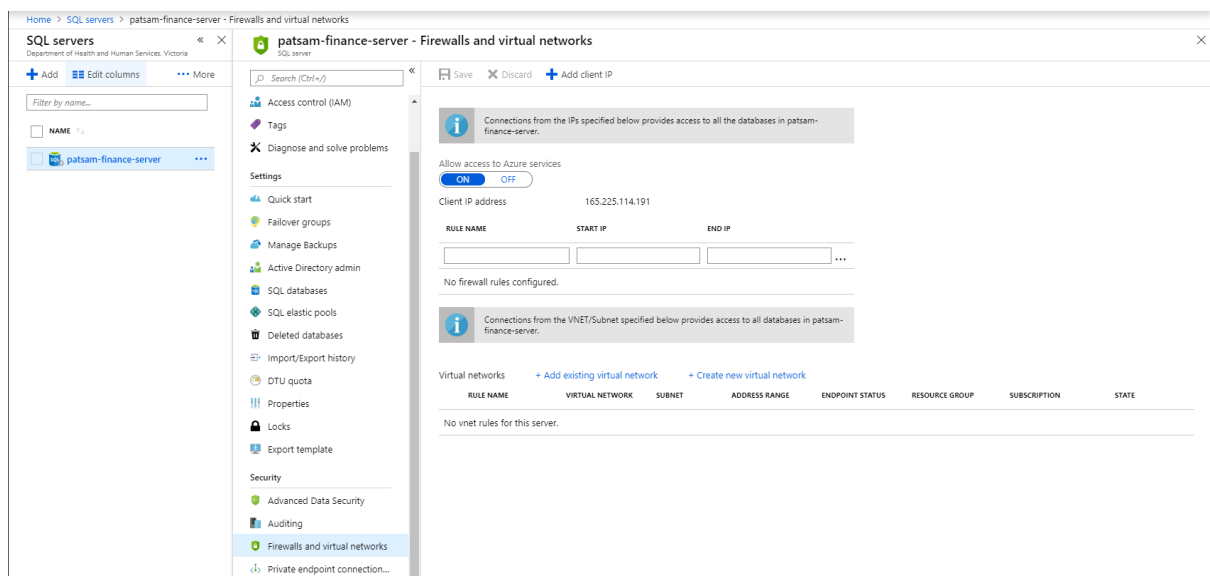
In the above error, specifically it says:

Client with IP address '165.225.114.191' is not allowed to access the server.

To add a Firewall rule, click on the SQL Server: patsam-finance-server



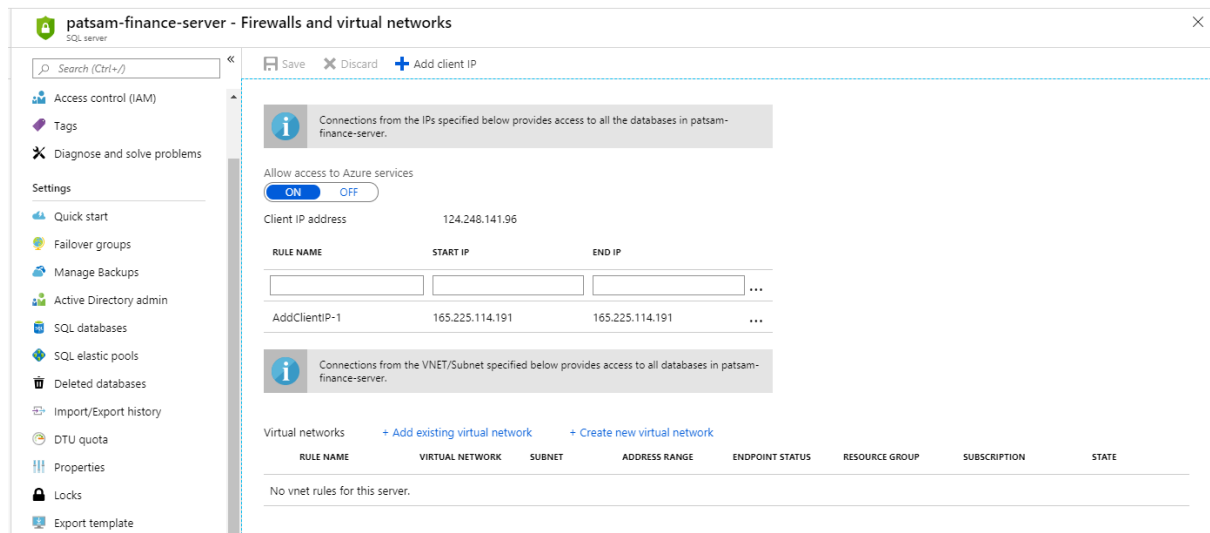
Go to Firewalls and Virtual Networks tab.



Add the IP Address which we need to give access to the Firewall Rules.

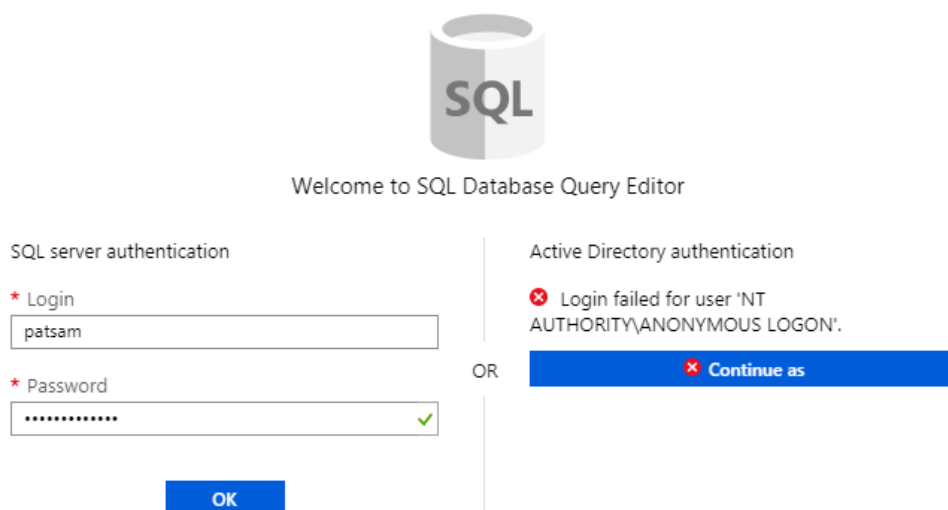
- Rule Name: AddClientIP-1
- Start IP: 165.225.114.191
- End IP: 165.225.114.191

Click Save button.

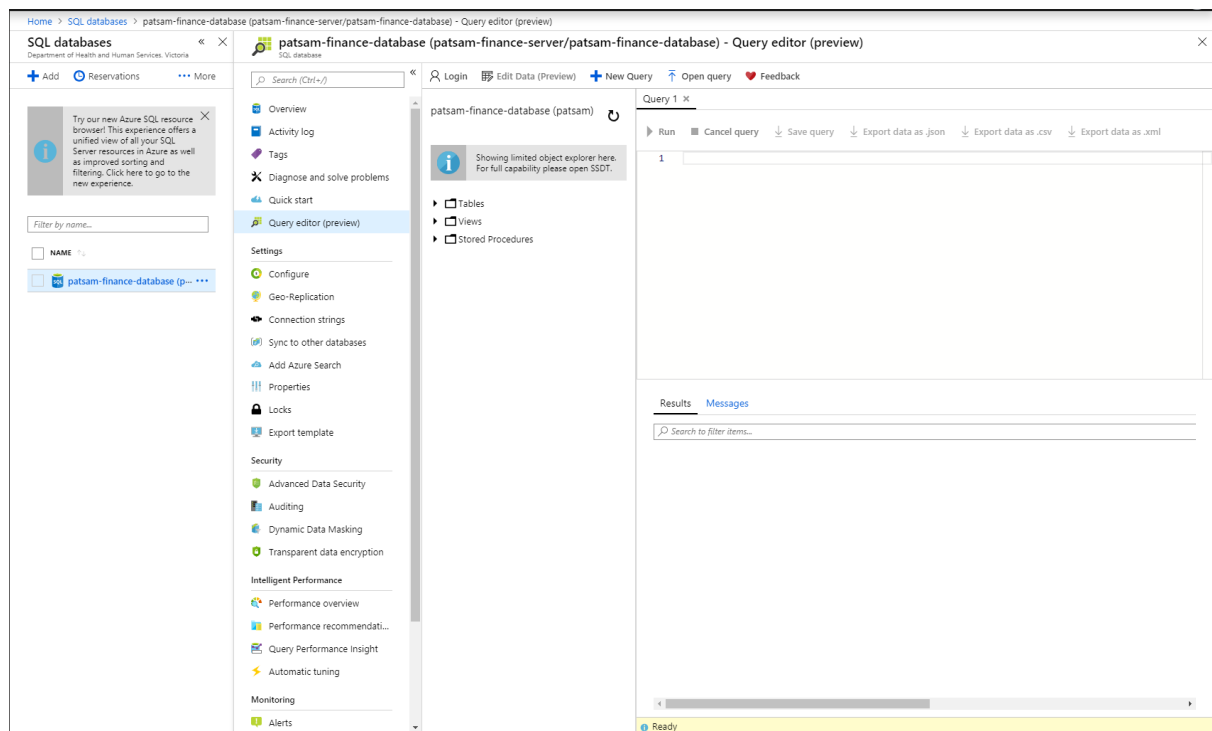


Now go back to SQL Database and try to connect database through SQL Query Editor.

Enter Username/Password and click OK.



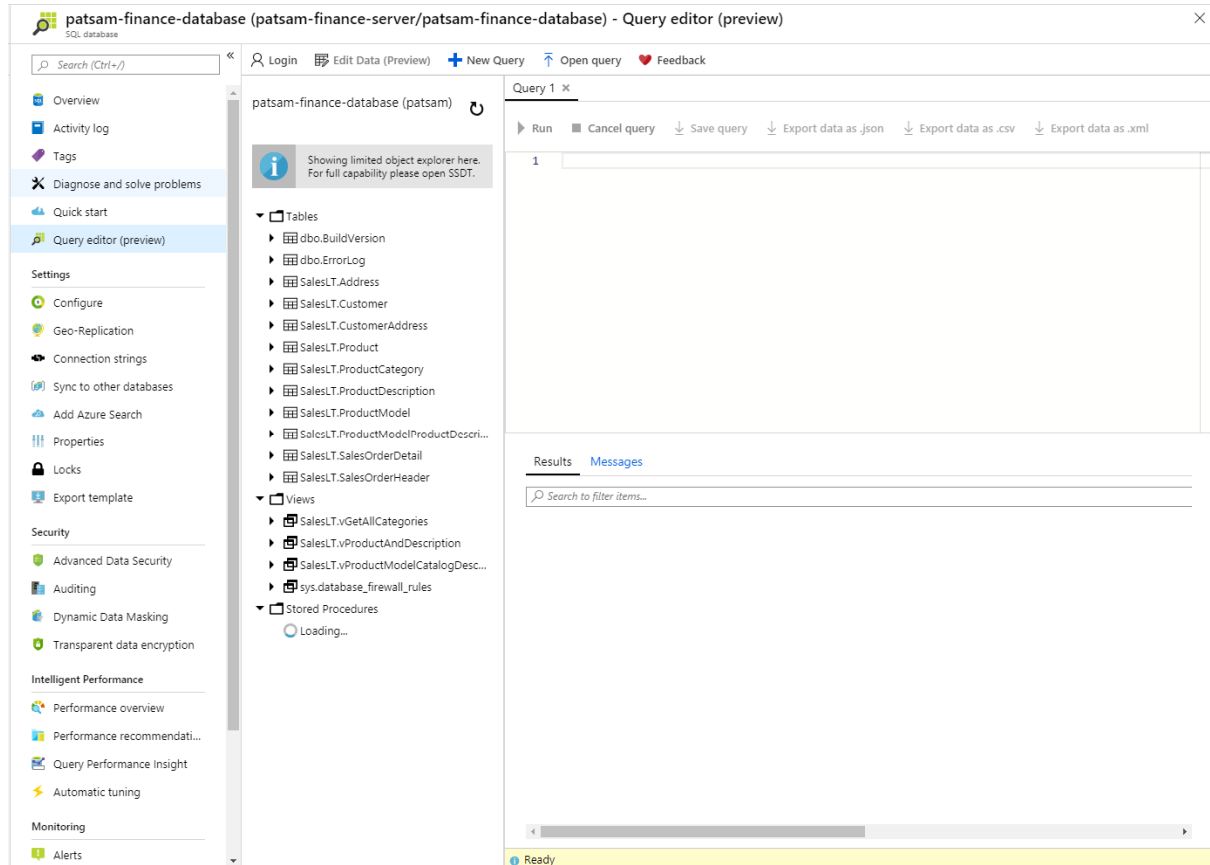
This time we can connect to SQL Query Editor successfully.



Step 03: Run SQL queries on SQL Query Editor

So now we are connected to SQL Query Editor, we can view the Tables, Views and Stored Procedures.

Mind you when creating SQL Database, we created sample “AdventureWorksLT” Database.



Now we can run queries on SQL Query Editor.

Run below SQL query. We can see the results.

*Select * From SalesLT.Customer*

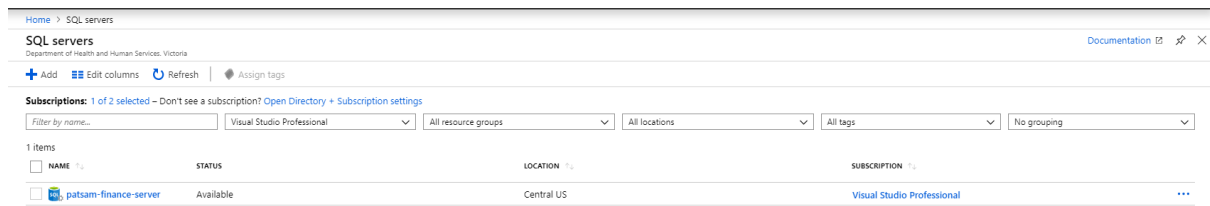
The screenshot displays the Azure Data Studio interface with the 'Query editor (preview)' tab active. The query editor shows the SQL query: `Select * From SalesLT.Customer`. The query has been executed successfully, as indicated by the status bar at the bottom: 'Query succeeded | 2s'.

The 'Results' pane shows the following data:

CUSTOMERID	NAMESTYLE	TITLE	FIRSTNAME
1	False	Mr.	Orlando
2	False	Mr.	Keith
3	False	Ms.	Donna
4	False	Ms.	Janet
5	False	Mr.	Lucy
6	False	Ms.	Rosmarie
7	False	Mr.	Dominic
10	False	Ms.	Kathleen
11	False	Ms.	Katherine

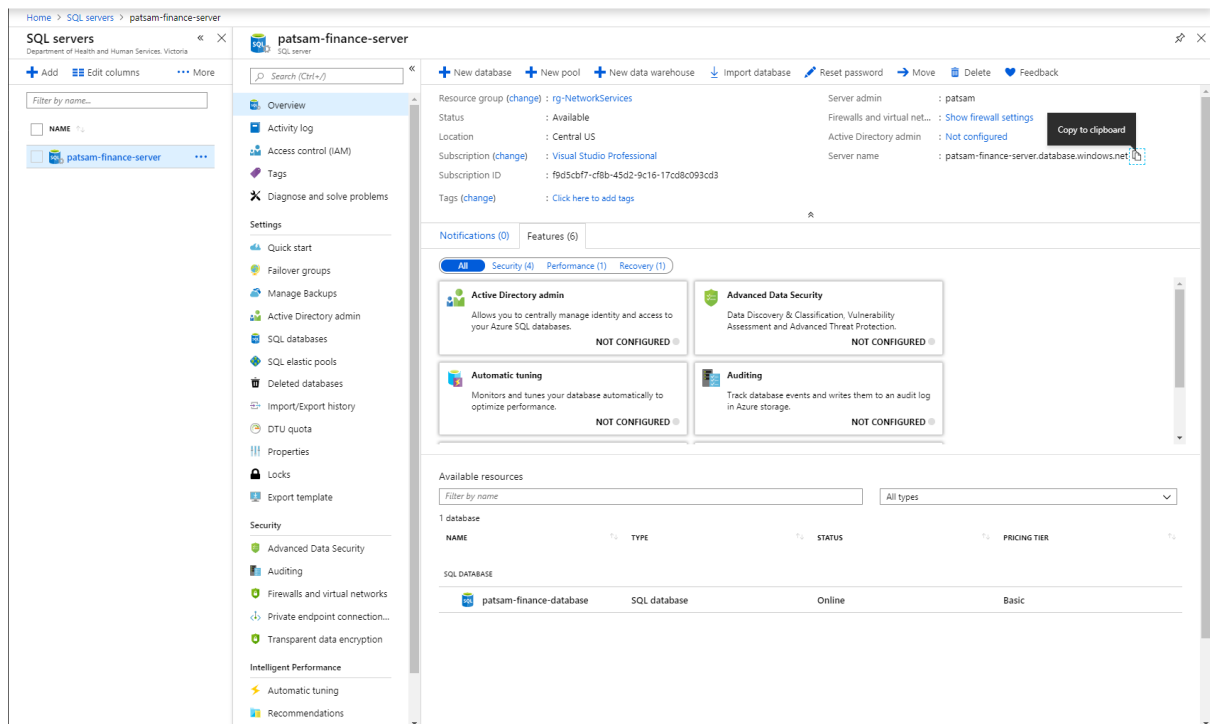
Step 04: Connect to SQL Database through SQL Server Management Studio

Click on the SQL Server: patsam-finance-server



Get Server Name copied: patsam-finance-server.database.windows.net

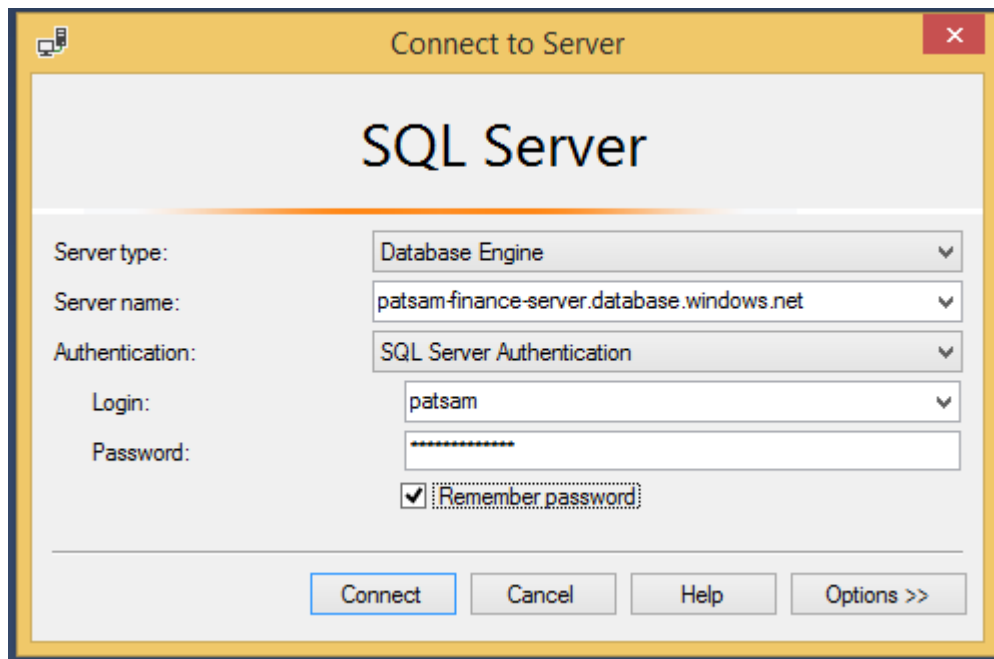
This gives us the fully qualified server name.



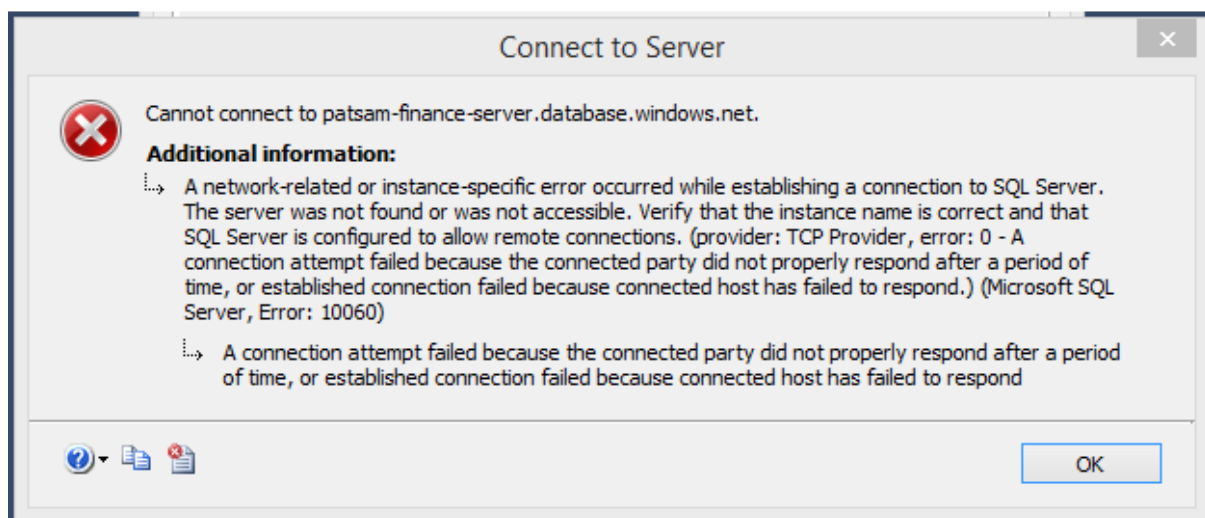
Open SQL Server Management Studio and enter below details.

- Server Name: patsam-finance-server.database.windows.net (fully qualified Server name)
- Authentication: SQL Server Authentication
- Username/password (this will be the Administration Account details we provided when creating the SQL Server instance)

Click Connect button.



You might get below error.



There might be few reasons you might be getting this error. Below articles might help you to get it sorted:

<https://blogs.msdn.microsoft.com/sqlcloud/2017/07/29/azure-learning-1-connectivity-errors-from-external-network-to-azure-database/>

<https://blog.sqlauthority.com/2018/02/14/sql-server-unable-connect-sql-server-azure-virtual-machine-ssms-premise-machine/>

In my case, company Firewall rules weren't allowing me to connect. So, when I tried connecting from outside it did allow me to connect.

So, when connecting from outside, I might have to create another Firewall rule to allow connecting to my SQL Database.

New Firewall Rule

Your client IP address does not have access to the server. Sign in to an Azure account and create a new firewall rule to enable access.

Azure account

You are not signed in to Microsoft Azure

[Sign In...](#)

Firewall rule

☒ Add my client IP address

1.152.104.187

☐ Add my subnet IP address range

From 1.152.104.0 To 1.152.104.255

[OK](#) [Cancel](#)

Add a new Firewall rule with the new Client IP: 1.152.104.187

patsum-finance-server - Firewalls and virtual networks

SQL server

Search (Ctrl+/)

Save Discard Add client IP

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

Settings

Quick start Failover groups Manage Backups Active Directory admin SQL databases SQL elastic pools Deleted databases Import/Export history DTU quota Properties Locks

Connections from the IPs specified below provides access to all the databases in patsum-finance-server.

Allow access to Azure services

ON OFF

Client IP address 165.225.114.181

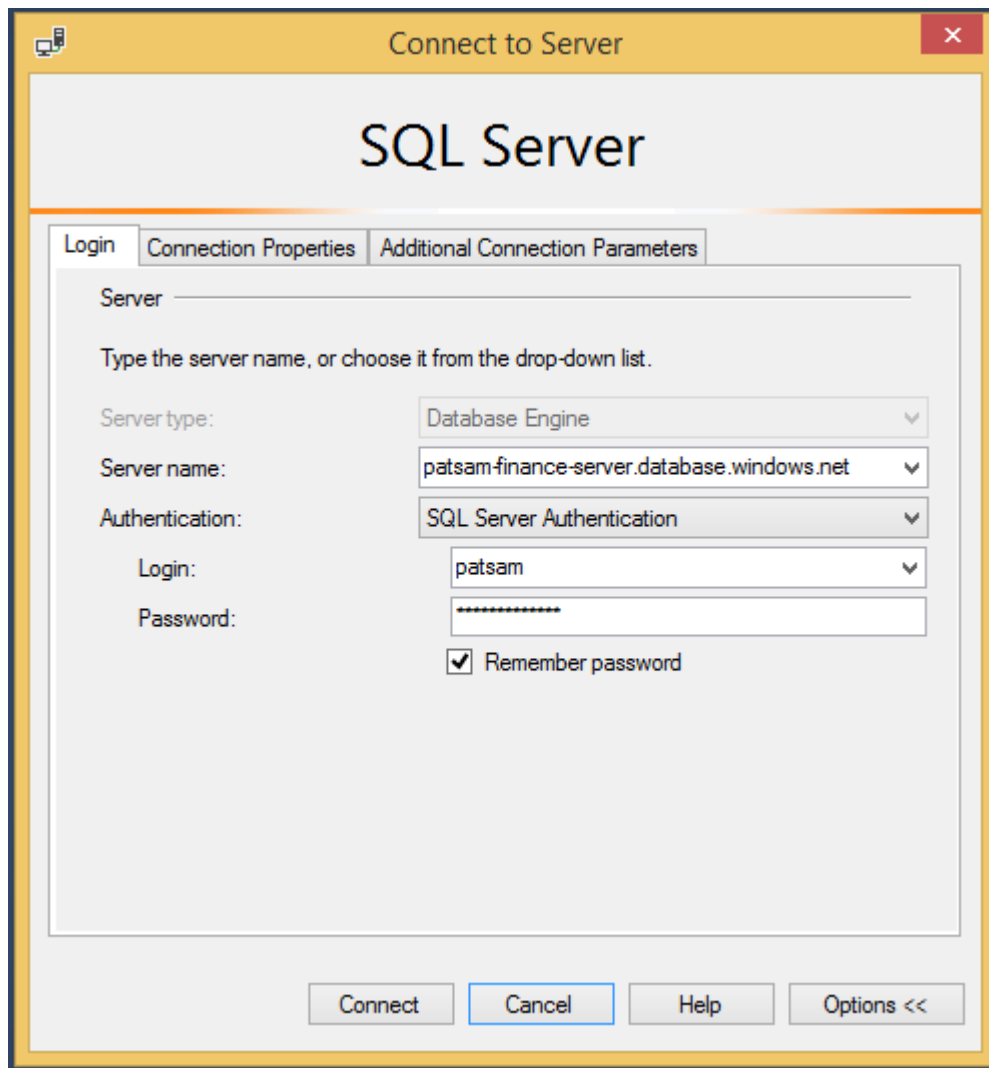
RULE NAME	START IP	END IP
AddClientIP-1	165.225.114.191	165.225.114.191
AddClientIP-2	1.152.104.187	1.152.104.187

Connections from the VNET/Subnet specified below provides access to all databases in patsum-finance-server.

Virtual networks + Add existing virtual network + Create new virtual network

RULE NAME	VIRTUAL NETWORK	SUBNET	ADDRESS RANGE	ENDPOINT STATUS	RESOURCE GROUP	SUBSCRIPTION	STATE
No vnet rules for this server.							

After adding the new Firewall rule, click Connect again on SQL Server Management Studio.

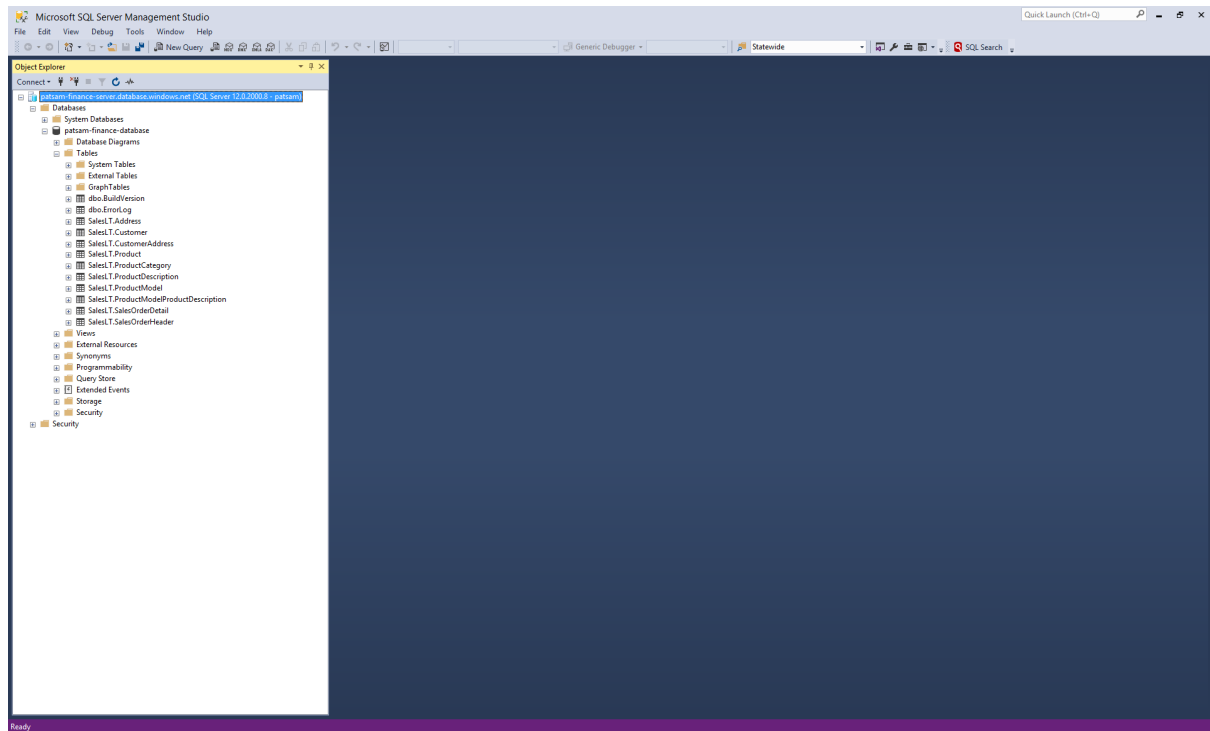


The screenshot shows the 'Connect to Server' dialog box with the 'Login' tab selected. The dialog has a title bar with a close button. The main area is titled 'SQL Server'. Below the title bar, there are three tabs: 'Login', 'Connection Properties', and 'Additional Connection Parameters'. The 'Login' tab is active, showing the following fields:

- Server: A text box with the placeholder text 'Type the server name, or choose it from the drop-down list.'
- Server type: A dropdown menu set to 'Database Engine'.
- Server name: A dropdown menu set to 'patsam-finance-server.database.windows.net'.
- Authentication: A dropdown menu set to 'SQL Server Authentication'.
- Login: A dropdown menu set to 'patsam'.
- Password: A text box with masked characters (dots).
- A checkbox labeled 'Remember password' which is checked.

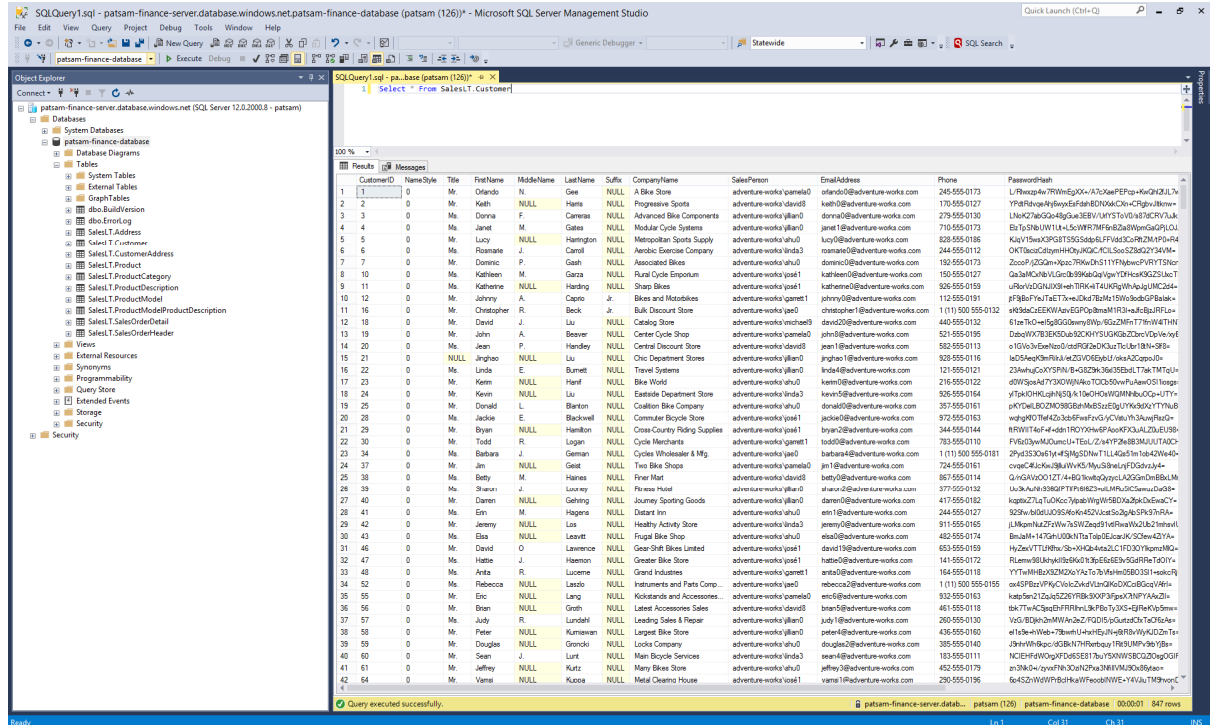
At the bottom of the dialog, there are four buttons: 'Connect', 'Cancel', 'Help', and 'Options <<'. The 'Cancel' button is highlighted with a blue border.

This time we could connect to SQL Database successfully.



Run below query.

*Select * From SalesLT.Customer*



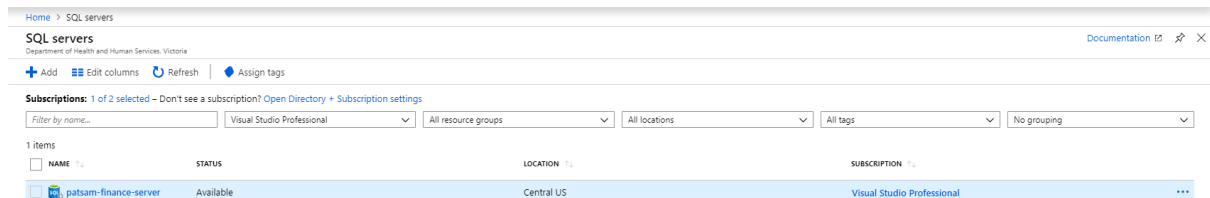
Patrick Sameera Jayalath

Step 05: Add Virtual Network to SQL Server Firewall Rules

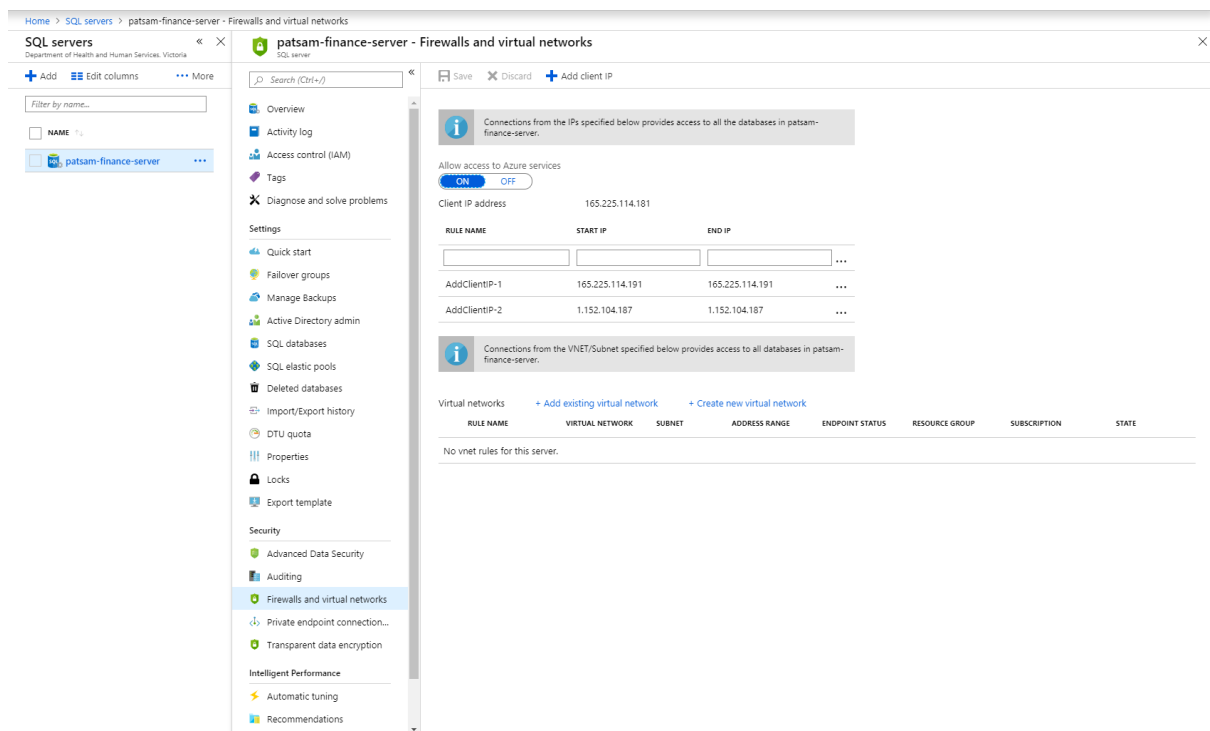
We can configure a Virtual Network in SQL Server Firewall Rules to allow accessing this SQL Database.

Basically, any Virtual Machine existing in the Virtual Network can connect to this SQL Server and the SQL Database.

Click on the SQL Server: patsam-finance-server



Click on Firewall and Virtual Networks tab.



Click on Add Existing Virtual Network button.

Provide below details and click Enable.

- Name: AddVirtualNetwork-1
- Virtual network: the virtual network we have created

Create/Update

virtual network rule



* Name ⓘ

AddVirtualNetwork-1



provide vnet rule name

* Subscription ⓘ

Visual Studio Professional (f9d5cbf7-cf8b-45d2-9c16-17cd8c093cd:✓

* Virtual network ⓘ

vn-Finance



* Subnet name / Address prefix ⓘ

sn-WebServers / 99.0.1.0/24



Selected subnet does not have service endpoint enabled for Microsoft.Sql. Enabling access may take up to 15 minutes to complete.

VIRTUAL NETWORK

SERVICE ENDPOINT STATUS

vn-Finance/sn-WebServers

Not Enabled

☐

Ignore Missing Microsoft.Sql Service Endpoint ⓘ

Enable

It will create a new rule that allows Virtual Machines on Virtual Network “vn-Finance” to allow accessing SQL Database.

Home > SQL servers > patsam-finance-server > Firewalls and virtual networks

SQL servers

Department of Health and Human Services, Victoria

+ Add

Edit columns

More

Filter by name...

NAME

↑

patsam-finance-server

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Overview

Activity log

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Settings

Quick start

Failover groups

Manage Backups

Active Directory admin

SQL databases

SQL elastic pools

Deleted databases

Import/Export history

DTU quota

Properties

Locks

Export template

Save

Discard

+ Add client IP

Connections from the IPs specified below provides access to all the databases in patsam-finance-server.

Allow access to Azure services

ON OFF

Client IP address

165.225.114.181

RULE NAME	START IP	END IP	
			...
AddClientIP-1	165.225.114.191	165.225.114.191	...
AddClientIP-2	1.152.104.187	1.152.104.187	...

Connections from the VNET/Subnet specified below provides access to all databases in patsam-finance-server.

Virtual networks

+ Add existing virtual network

+ Create new virtual network

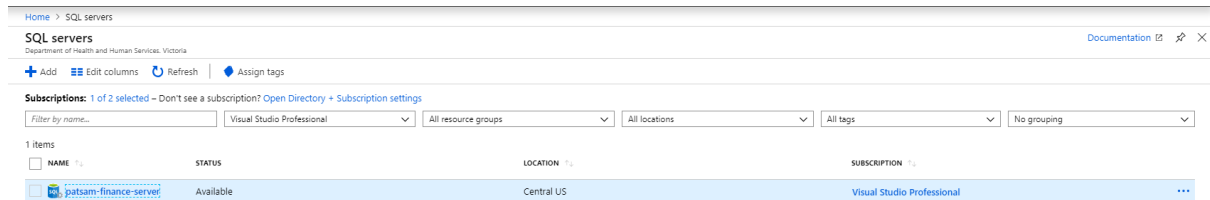
RULE NAME	VIRTUAL NETWORK	SUBNET	ADDRESS RANGE	ENDPOINT STATUS	RESOURCE GROUP	SUBSCRIPTION	STATE	
AddVirtualNetwork-1	vn-Finance	sn-WebServers	99.0.1.0/24	Enabled	rg-NetworkServices	Visual Studio Professi...	Ready	...

Step 06: Adding Active Directory Admin

Now we are going to connect to SQL Query Editor using Active Directory Authentication.

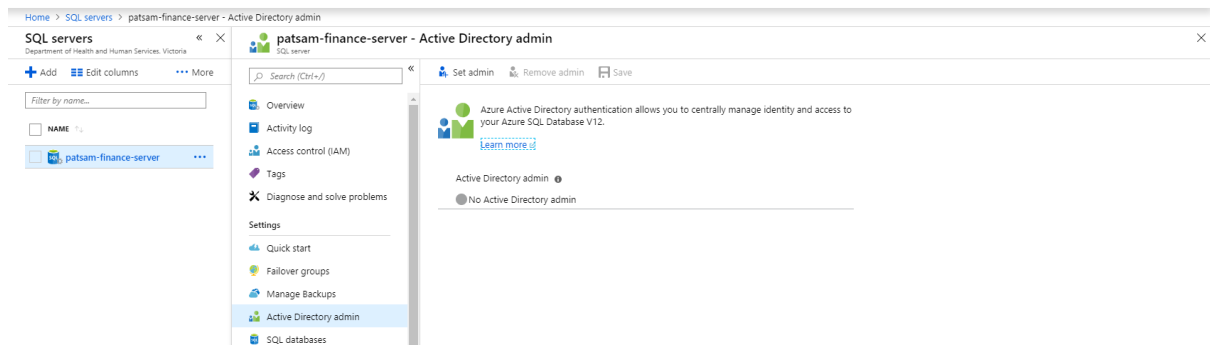
This will allow centrally manage identity and access to SQL Database.

Go to the SQL Server: patsam-finance-server



Click on Active Directory Admin tab.

Click on Set Admin button.



Type the Username and select the user.

Add admin

Active Directory admin

×

+

Invite

Select

patrick.sameera

✓

PS

Patrick Sameera (Guest)

patrick.sameera@

PS

Patrick Sameera

Patrick.Sameera@

Selected

None

Select

Patrick Sameera Jayalath

Once user been selected click Select.

Add admin

Active Directory admin

×

+

Invite

Select

patrick.sameera

✓

PS

Patrick Sameera ()

patrick.sameera@ ()

PS

Patrick Sameera ()

Patrick.Sameera@ ()

Selected

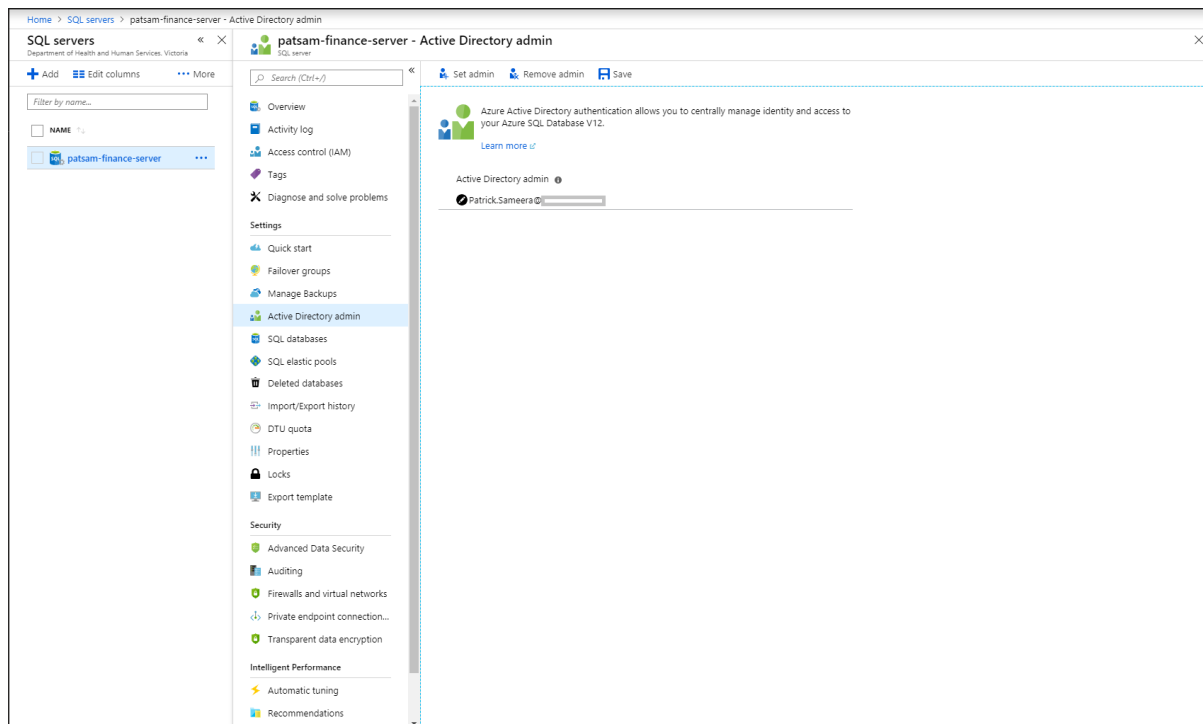
Patrick Sameera ()

🔒

Select

Patrick Sameera Jayalath

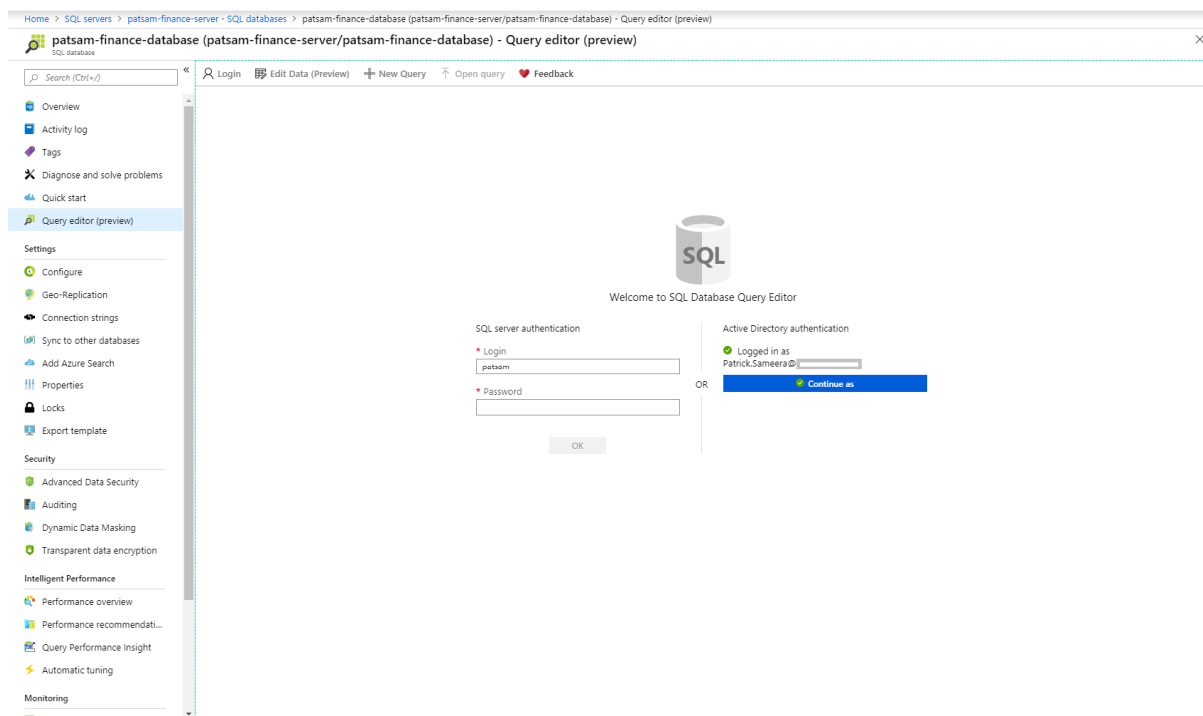
Click Save.



Now go inside the Database and go the Query Editor.

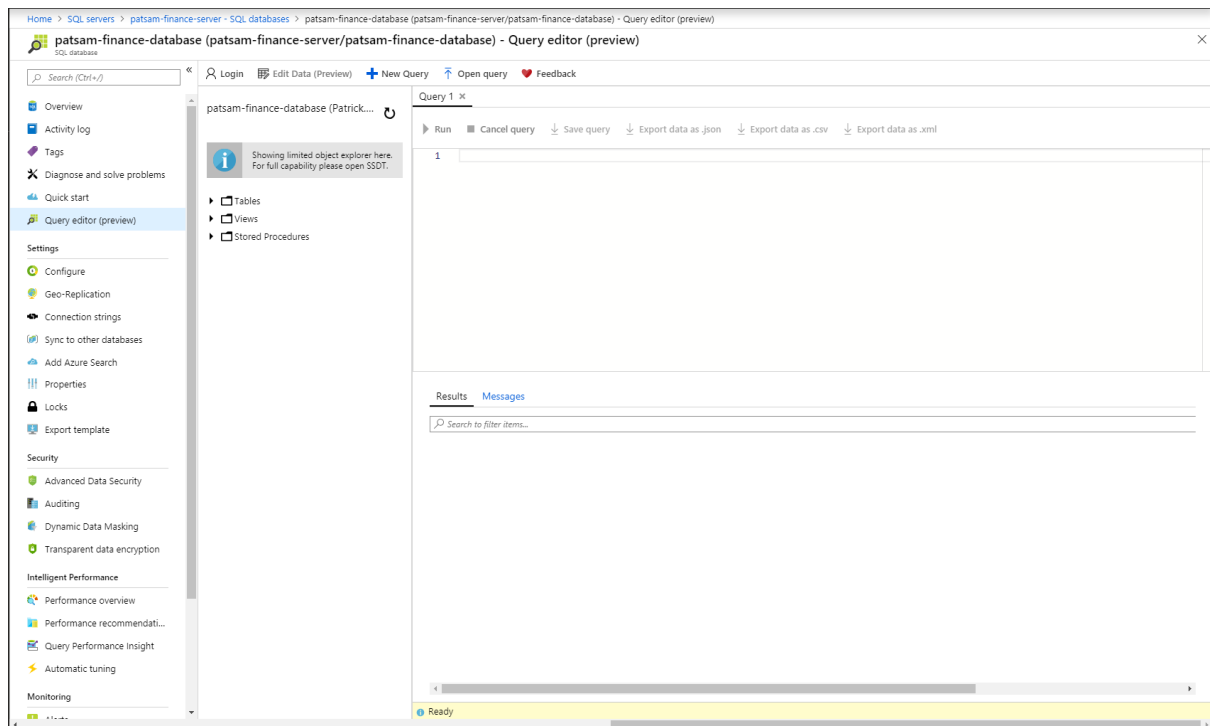
We can see now Active Directory Authentication is green and enabled.

Click on Continue As button.



Patrick Sameera Jayalath

We can go in to Query Editor.



Same way now we can connect through SQL Server Management using Active Directory Authntication.

- Server Name: patsam-finance-server.database.windows.net (fully qualified Server name)
- Authentication: Active Directory - Integrated

