

Enabling Geo Replication on Azure SQL Server Database

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

- Enable Geo Replication
- Test out Geo Replication

Important:

This tutorial is Part 3, of a series of tutorials. And this one is dependent on Part 2 and Part 1.

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

Step 01: Enable Geo Replication

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)

Home > Resource groups > rg-NetworkServices

Resource groups
Department of Health and Human Services: Victoria

+ Add Edit columns More

Filter by name...

NAME

NetworkWatcherRG

rg-NetworkServices

rg-NetworkServices
Resource group

+ Add Edit columns Delete resource group Refresh Move Export to CSV Assign tags Delete Export template

Subscription (change): Visual Studio Professional Deployments: 7 Succeeded

Subscription ID: f9d5cbf7-cf8b-45d2-9c16-17cd8c093cd3

Tags (change): Click here to add tags

Filter by name... 2 types All locations No grouping

2 items Show hidden types

| NAME | TYPE | LOCATION |
|---|--------------|------------|
| patsam-finance-server | SQL server | Central US |
| patsam-finance-database (patsam-finance-server-...) | SQL database | Central US |

Click on the SQL Database: patsam-finance-database

Home > SQL databases

SQL databases
Department of Health and Human Services: Victoria

+ Add Reservations Edit columns Refresh Assign tags Delete

Try our new Azure SQL resource browser! This experience offers a unified view of all your SQL Server resources in Azure as well as improved sorting and filtering. Click here to go to the new experience.

Subscriptions: 1 of 2 selected – Don't see a subscription? Open Directory + Subscription settings

Filter by name... Visual Studio Professional All resource groups All locations All tags No grouping

1 items

| NAME | STATUS | REPLICATION ROLE | SERVER | PRICING TIER | LOCATION | SUBSCRIPTION |
|-------------------------------|--------|------------------|-----------------------|--------------|------------|----------------------------|
| patsam-finance-database (p... | Online | None | patsam-finance-server | Basic | Central US | Visual Studio Professional |

Click on Geo Replication tab.

Currently our “patsam-finance-database” SQL Database is on “Central US” region.

The screenshot shows the Azure portal interface for the 'patsam-finance-database' Geo-Replication configuration. The left sidebar contains a navigation menu with options like Overview, Activity log, Tags, Diagnose and solve problems, Quick start, Query editor (preview), Settings, Configure, Geo-Replication (selected), Connection strings, Sync to other databases, Add Azure Search, Properties, Locks, Export template, Security, Advanced Data Security, Auditing, Dynamic Data Masking, Transparent data encryption, Intelligent Performance, Performance overview, Performance recommendations, Query Performance Insight, Automatic tuning, Monitoring, and Alerts. The main content area displays a world map with green dots indicating available regions. Below the map, a table lists the current configuration:

| SERVER/DATABASE | FAILOVER POLICY | STATUS |
|-----------------------------------|---|--------|
| PRIMARY | | |
| Central US | patsam-finance-server/patsam-finance-database | None |
| SECONDARIES | | |
| Geo-Replication is not configured | | |
| TARGET REGIONS | | |
| West US | | |
| West US 2 | | |
| Central US | | |
| West Central US | | |
| South Central US | | |

So next we need to set 2nd region where we want to create read only replica.

Let’s say we want to select “Australia Southeast” as the 2nd region.

- From: Central US → To: Australia Southeast

Click on “Australia Southeast” from the region list. It will take you to Create Secondary page.

Create secondary

×

Create geo-replicated secondaries to protect against prolonged datacenter outages. Secondaries have price implications. [Learn more](#)

Region

Southeast Asia

Database name

patsam-finance-database

* Secondary type

Readable

* Target server

Configure required settings

>

Elastic pool

None

* Pricing tier

Configure required settings

OK

Click on Configure Required Settings relating to Target Server.

There we need to create a new SQL Server. (on Australia Southeast region)

- Server name: patsam-finance-server-secondary
- Location: (Asia Pacific) Southeast Asia (auto selected)
- Server admin login: Username/password (this will be the admin login for this server)

The screenshot shows the 'Create secondary' dialog in the Azure portal. The breadcrumb navigation at the top is: Home > SQL databases > patsam-finance-database (patsam-finance-server/patsam-finance-database) - Geo-Replication > Create secondary > Server > New server.

The dialog has three tabs: 'Create secondary', 'Server', and 'New server'.

Create secondary tab:

- Region: Southeast Asia
- Database name: patsam-finance-database
- Secondary type: Readable
- Target server: [Configure required settings](#)
- Elastic pool: None
- Pricing tier: [Configure required settings](#)

Server tab:

- Buttons: + Create a new server
- Text: No servers found

New server tab:

- Server name: patsam-finance-server-secondary ✓
- Server admin login: patsam ✓
- Password: [masked] ✓
- Confirm password: [masked] ✓
- Location: (Asia Pacific) Southeast Asia
- ☒ Allow Azure services to access server ⓘ

Buttons at the bottom: OK (under Create secondary), Select (under New server).

Click Select and OK.

Create secondary



Create geo-replicated secondaries to protect against prolonged datacenter outages. Secondaries have price implications.

[Learn more](#)

Region

Southeast Asia



Database name

patsam-finance-database

* Secondary type

Readable



* Target server

patsam-finance-server-secondar...



Elastic pool

None



* Pricing tier

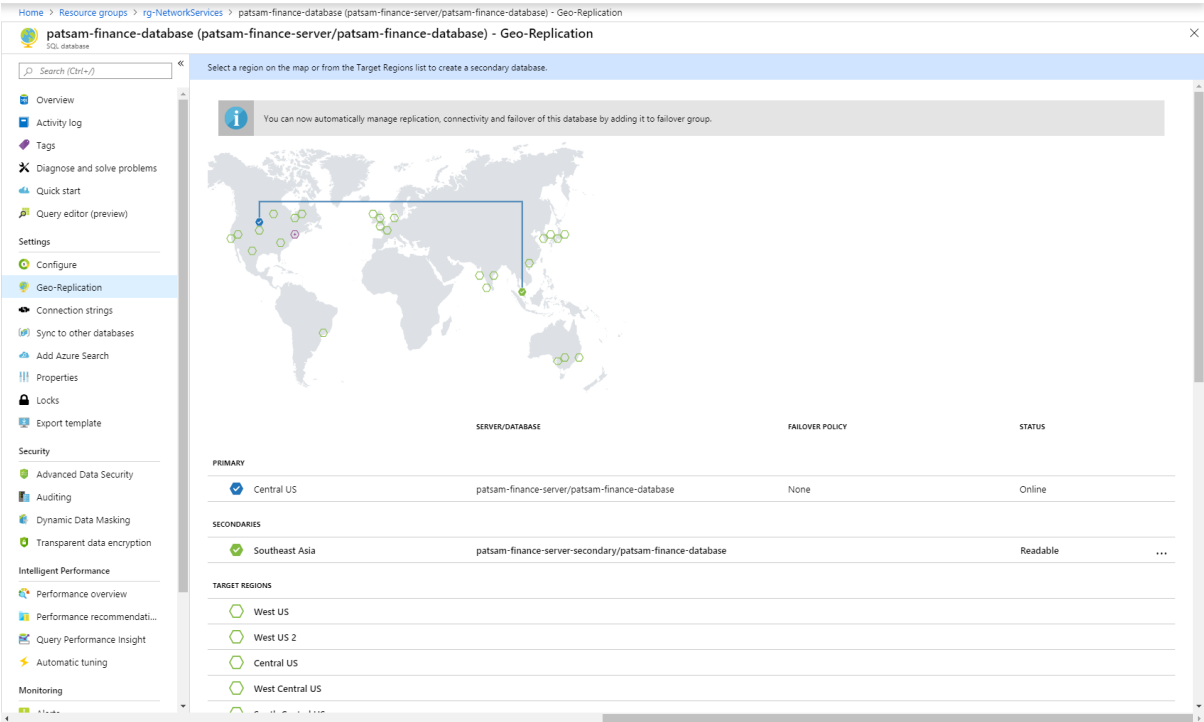
Basic: 100 MB storage



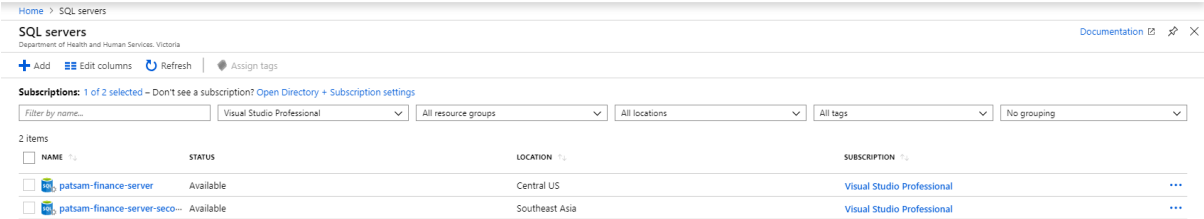
OK

Once deployment is completed go to Geo Replication tab.

It now shows the data been replicated from: Central US → to: Australia Southeast



We can see the newly created SQL Server on Australia Southeast region.



Under Resource Group: rg-NetworkServices

The screenshot displays the Azure portal interface for the resource group 'rg-NetworkServices'. The left-hand navigation pane includes sections for 'Resource groups', 'Settings', 'Cost Management', 'Monitoring', and 'Support + troubleshooting'. The main content area shows the 'Overview' tab, which includes subscription information (Subscription ID: f9d5cbf7-cf8b-45d2-9c16-17cd8c093cd3) and a table of resources. The table lists four items: 'patsam-finance-server' (SQL server, Central US), 'patsam-finance-database (patsam-finance-server-...)' (SQL database, Central US), 'patsam-finance-server-secondary' (SQL server, Southeast Asia), and 'patsam-finance-database (patsam-finance-server-...)' (SQL database, Southeast Asia).

| NAME | TYPE | LOCATION |
|---|--------------|----------------|
| patsam-finance-server | SQL server | Central US |
| patsam-finance-database (patsam-finance-server-...) | SQL database | Central US |
| patsam-finance-server-secondary | SQL server | Southeast Asia |
| patsam-finance-database (patsam-finance-server-...) | SQL database | Southeast Asia |

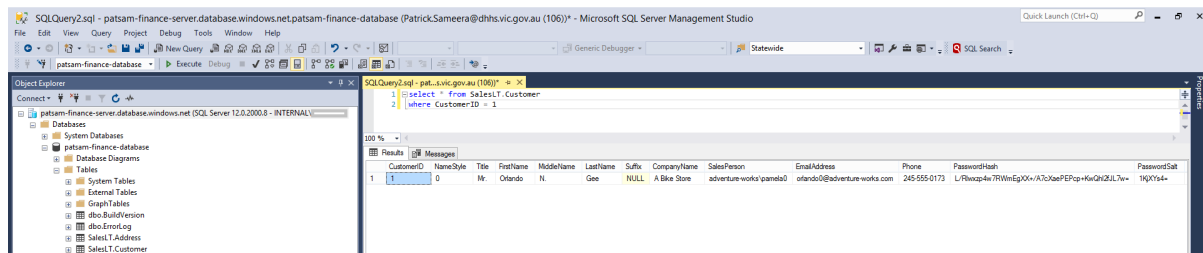
If want to set up multiple secondary replicas, same way we can select multiple regions from the list.

Step 02: Test out Geo Replication

Once Geo Replication been set up correctly, to test out the functionality, now we are going to update a record on the SQL Database which resides on Central US and check whether that change get reflected on the SQL Database which resides on Australia Southeast region.

Before the update:

- Server/Database: patsam-finance-server/patsam-finance-database
- Customer Id: 1
- Company name: A Bike Store



Run the update SQL:

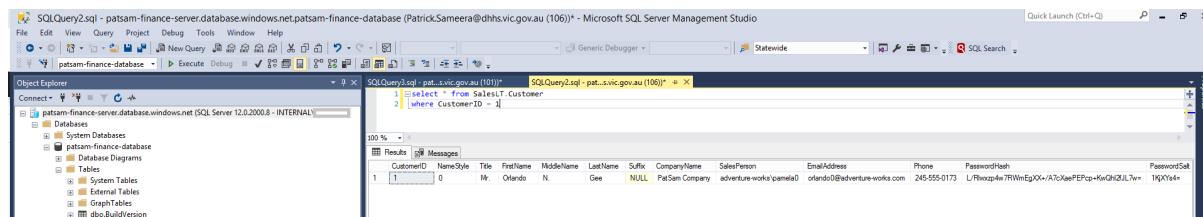
Update SalesLT.Customer

Set CompanyName = 'PatSam Company'

Where CustomerID = 1

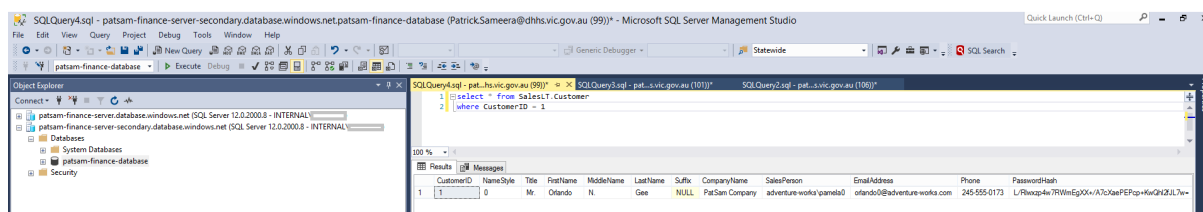
After the update:

- Server/Database: patsam-finance-server/patsam-finance-database
- Customer Id: 1
- Company name: PatSam Company



Now check the value on the SQL Database which resides in Australia Southeast region.

- Server/Database: patsam-finance-server-secondary/patsam-finance-database
- Customer Id: 1
- Company name: PatSam Company



We can see the for CustomerID “1”, CompanyName been set as “PatSam Company”.