Create SDE Schema Enterprise Geodatabase in Azure SQL database

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Azure SQL Database provides the following deployment options for an Azure SQL database.

Image source: https://docs.microsoft.com/en-us/azure/sql-database/sql-database-technical-overview

We are using Microsoft Azure SQL Database Managed Instance for creating SDE Schema based Enterprise Geodatabase.

- 1. Connect Azure SQL Server Instance thorough Microsoft SQL Server Management Studio (SSMS).
- 2. Instance Level (One-time Job):
 - i. Open New Query in SSMS and Create SDE login

CREATE LOGIN sde WITH PASSWORD = 'xxx'

ii. Create **SDE** user on **master** database:

CREATE USER sde FROM LOGIN sde

- 3. Database level (For every ArcGIS Enterprise database):
 - i. Add login to the **loginmanager** role.

ALTER ROLE loginmanager ADD MEMBER sde;

- ii. Create a database in Azure SQL Server.
- iii. Create a user **SDE** on newly SQL Server database.

4. Open ArcCatalog and click **Create Enterprise Geodatabase** tool to create enterprise geodatabase.

🔨 Create Enterprise Geodatabase	—		×
Database Platform			
SQL_Server		~	·
Instance			-
Database (optional)			
Operating System Authentication (optional)			
Database Administrator (optional)			
Deteksen Advisioheter Bernwerd (antionel)			
∑ Sde Owned Schema (optional)			
Geodatabase Administrator (optional) sde			
Geodatabase Administrator Password (optional)			
•••••			7
Tablespace Name (optional)			1
Authorization File			
C:\Program Files\ESRI\License10.7\sysgen\keycodes		2	,
			\sim
OK Cancel Environments		Show Help	>>

5. Upon successful completion of enterprise geodatabase tool, it will show following message.

Create Enterprise Geodatabase	×
Completed	Close
]	<< Details
Close this dialog when completed successfully	
	^
Start Time: Tue Feb 18 23:13:55 2020	_
User has privileges required to create database objects.	
Database aiready exists.	
Validated authorization file	
Variable authorization file.	
XML support is enabled for the database instance.	
Successfully enabled database option ALLOW SNAPSHOT ISOLATION and READ COMMITTED SNAPSHOT.	
Created geodatabase tables and stored procedures.	
Finished creating geodatabase schema.	
Succeeded at Tue Feb 18 23:17:02 2020 (Elapsed Time: 3 minutes 6 seconds)	
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- 6. Verify permissions for user **SDE** in database.
 - Right-click the database in which the user was applied > **Properties.**
 - Select **Permissions** from the top left corner of the **Database Properties** dialog box under the **Select a Page** heading
 - Select the newly added user on the right.
 - **SDE** user should have following permission.
 - Connect
 - Create Function
 - Create procedure
 - Create table
 - Create view
 - View database state
 - View definition

Database Properties -					- 🗆	×
Select a page	🔲 Script 💌 🕗 Help					
🖋 General	E Schipt - G Help					
 Øptions Configure SLO Change Tracking 	Server name:					
 Permissions Query Store 	Database name:					
	Users or roles:				Searc	h
	Name				Туре	
	🔓 sde				User	
Connection Server: recruit5-sql.database.windows.net	Permissions for sde: Explicit					
Connection:	Permission	Grantor	Grant	With Grant	Denv	~
gisweblechadmin	Create function					
y₩ View connection properties	Create function	dbo				
	Create message ty					
	Create procedure					
Progress	Create procedure	dbo				
Ready	Create queue					
	Create remote ser					_
	Craste mla					¥
				OK	Ca	ancel

7. Check ALLOW_SNAPSHOT_ISOLATION and READ_COMMITTED_SNAPSHOT and Set them True.

For Checking the value execute following command.

```
SELECT name,
snapshot_isolation_state,snapshot_isolation_state_desc,
is_read_committed_snapshot_on
FROM sys.databases
WHERE name = 'DBName'
```

It will show following result.

name	snapshot_isolation_state	snapshot_isolation_state_desc	is_read_committed_snapshot_on
DBName	1	ON	1

- 1: READ_COMMITTED_SNAPSHOT option is ON. Read operations under the READ COMMITTED isolation level are based on snapshot scans and do not acquire locks.
- 0 (default): READ_COMMITTED_SNAPSHOT option is OFF. Read operations under the READ COMMITTED isolation level use Shared(S) locks.
- 8. Create a connection to Azure SQL database through SDE user.

Credit : We have taken great help from <u>https://community.esri.com/thread/243141-</u> <u>enterprise-geodatabase-in-azure-sql-database</u> for preparing the document.