

/* This document contains the TSQL needed to configure Classic Mirroring using certificates for encrypted mirroring connections*/

We will need 2 servers with the same version of SQL Server on **Principal** and **Mirror**.

We will also create 2 Logins and 2 users. PRINCIPAL_LOGIN and PRINCIPAL_USER ; MIRROR_LOGIN and MIRROR_USER

Based on these logins, we will create a certificate. For testing purposes, we will use a database called **mirrordbtest**. Please replace this with the user database that you want to mirror.

Note: Before starting, please take a full and log backup from **Principal** to restore on **Mirror** with option **RESTORE WITH NORECOVERY**.

<https://docs.microsoft.com/en-us/sql/database-engine/database-mirroring/prepare-a-mirror-database-for-mirroring-sql-server?view=sql-server-ver15#CombinedProcedure>

Create a directory to store the certificates on each server. In this example script below, we used **C:\Certs** to simplify the script across all servers. All 2 certificates will be stored here.

We are using port 5022 for the mirroring endpoint so please open the firewall/Network Security Group for port 5022.*/

/*Create the master key, certificate from the master key, and encrypt the mirroring endpoint on the Principal * Please use a secure password /

--create a master key on Principal

USE master;

CREATE MASTER KEY ENCRYPTION BY PASSWORD = 'PassWOrd123!';

GO

--create a certificate from the master key

USE master;

CREATE CERTIFICATE PrincipalCert

WITH SUBJECT = 'Principal Certificate';

GO

--CREATE the mirroring endpoint

CREATE ENDPOINT Mirroring

STATE = STARTED

AS TCP (

LISTENER_PORT=5022

, LISTENER_IP = ALL

)

FOR DATABASE_MIRRORING (

AUTHENTICATION = CERTIFICATE PrincipalCert

, ENCRYPTION = REQUIRED ALGORITHM AES

, ROLE = ALL

);

GO

--Backup the certificate and transfer it to the mirror server

```
BACKUP CERTIFICATE PrincipalCert TO FILE = 'C:\certs\PrincipalCert';  
GO
```

/*Create the master key, certificate from the master key, and encrypt the mirroring endpoint on the Mirror*/

--create a master key on Mirror

```
USE master;  
CREATE MASTER KEY ENCRYPTION BY PASSWORD = 'PassWOrd123!';  
GO
```

--create a certificate from the master key

```
USE master;  
CREATE CERTIFICATE MirrorCert  
    WITH SUBJECT = 'Mirror Certificate';  
GO
```

--CREATE the mirroring endpoint

```
CREATE ENDPOINT Mirroring  
    STATE = STARTED  
    AS TCP (  
        LISTENER_PORT=5022  
        , LISTENER_IP = ALL  
    )  
    FOR DATABASE_MIRRORING (  
        AUTHENTICATION = CERTIFICATE MirrorCert  
        , ENCRYPTION = REQUIRED ALGORITHM AES  
        , ROLE = ALL  
    );  
GO
```

--Backup the cert and transfer it to the Principal server

```
BACKUP CERTIFICATE MirrorCert TO FILE = 'C:\certs\MirrorCert';  
GO
```

```
-----  
/*After all 2 servers have generated the certificates, place all 2 certificates on each server in the  
C:\certs directory*/  
-----
```

/*This portion of the script is to create the logins, users, and set CONNECT ON ENDPOINT permissions on the Principal for Mirror*/

--On the Principal, create a login for the mirror server

USE master;

CREATE LOGIN Mirror_Login WITH PASSWORD = 'PassWord123!';

GO

--create a user from the login

CREATE USER Mirror_User FOR LOGIN Mirror_Login;

GO

--create a certificate that the login uses for authentication

CREATE CERTIFICATE MirrorCert

AUTHORIZATION Mirror_User

FROM FILE = 'C:\certs\MirrorCert'

GO

--grant connect for login

GRANT CONNECT ON ENDPOINT::Mirroring TO [Mirror_login];

GO

/*This portion of the script is to create the logins, users, and set CONNECT ON ENDPOINT permissions on the Mirror for Principal*/

--On the Mirror, create a login for the Principal server

USE master;

CREATE LOGIN Principal_Login WITH PASSWORD = 'PassWord123!';

GO

--create a user from the login

CREATE USER Principal_User FOR LOGIN Principal_Login;

GO

--create a certificate that the login uses for authentication

CREATE CERTIFICATE Principlcert

AUTHORIZATION Principal_User

FROM FILE = 'C:\certs\PrincipalCert'

GO

--grant connect for login

GRANT CONNECT ON ENDPOINT::Mirroring TO [Principal_Login];

GO

/*In this section, we will configure mirroring for the database on each server. */

--At Mirror, set Principal server as partner. We are using principal IP because there is no domain DNS

ALTER DATABASE mirrordbtest

SET PARTNER = 'TCP://Principal_IP:5022'; .

GO

--At Principal, set Mirror server as partner. We are using Mirror IP because there is no domain DNS.

ALTER DATABASE mirrordbtest

SET PARTNER = 'TCP://Mirror_IP:5022';

GO

-- Turn off transaction safety since Principal and mirror servers are far away to each other:

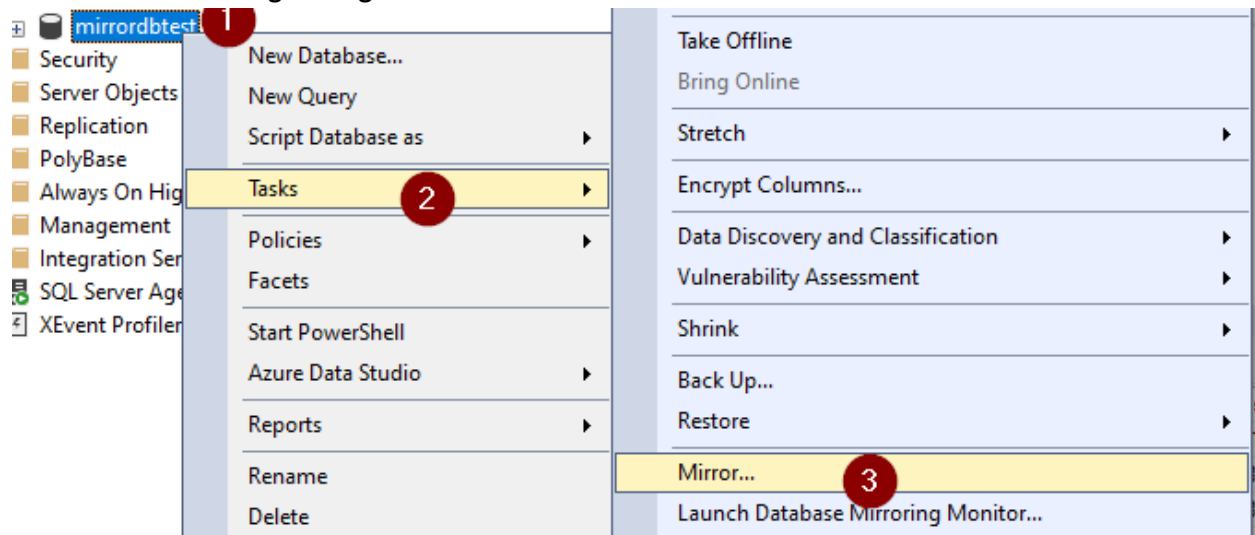
ALTER DATABASE mirrordbtest SET PARTNER SAFETY OFF

go

Note: Turning off transaction safety shifts the session into asynchronous operating mode, which maximizes performance

<https://docs.microsoft.com/en-us/sql/database-engine/database-mirroring/change-transaction-safety-in-a-database-mirroring-session-transact-sql?view=sql-server-ver15>

****Check the mirroring setting at the database level:**



More information: Setting Up Database Mirroring

<https://docs.microsoft.com/en-us/sql/database-engine/database-mirroring/setting-up-database-mirroring-sql-server?view=sql-server-ver15>