

"Login failed for user..." - 'orphaned users' problem

SQL Clone operates by attaching databases; when you are attaching a database to a new server, this may expose you to a common issue with SQL Server logins and their internal references on the SQL Server you are delivering a database to.

Scenario

I have 2 SQL Servers; *RM-IClone1* and *RM-IClone2*. In each I create a SQL Server login and map it to a user in my Forex database.

On each server, I run the following to create a SQL Server Login and matching user in the *Forex* database

```
USE [master]
GO
CREATE LOGIN [OneSQLServerUser] WITH PASSWORD=N'MyC0mpliantPa$$word', DEFAULT_DATABASE=[master],
CHECK_EXPIRATION=OFF, CHECK_POLICY=OFF
GO
USE [Forex]
GO
CREATE USER [OneSQLServerUser] FOR LOGIN [OneSQLServerUser]
GO
ALTER ROLE [db_owner] ADD MEMBER [OneSQLServerUser]
GO
```

I then create a **SQL Clone Image** from the *Forex* database on *RM-IClone1*, and deliver it as a clone database to *RM-IClone2*.

Running an identical query on the original Forex database and on its clone database I see the following;

The image contains two side-by-side screenshots of SQL Server Enterprise Manager. The left screenshot shows a query window with the following SQL code: `USE _Forex_Sid_Original; GO; SELECT TOP 100 * FROM dbo.ExchangeRate`. The results pane below shows a table with columns: ID, ISO, TenorID, OutrightRate, AsOfDateTime, and SettlementDate. The first row has ID 1301, ISO EUR, TenorID 1, OutrightRate 0.8823000000, AsOfDateTime 2016-06-09 00:00:00.000, and SettlementDate 2016-06-09 00:00:00.000. The right screenshot shows a query window with the following SQL code: `USE _Forex_Sid; GO; SELECT TOP 100 * FROM ExchangeRate`. The Messages pane below shows an error: 'Msg 916, Level 14, State 1, Line 1 The server principal "OneSQLServerUser" is not able to access the database "_Forex_Sid" under the current security context. Msg 208, Level 16, State 1, Line 4 Invalid object name 'ExchangeRate'.

The solution is to recreate the login on the target SQL Server, but with a matching SID to the source server.

First, obtain the SID that is to be used:

```
-- On the source SQL Server from which the SQL Clone image was created
USE Forex
GO
SELECT name, sid, principal_id
FROM sys.database_principals
WHERE Name = 'OneSQLServerUser'
```

Next, on the server you have delivered the clone database to, run the following to recreate the login and remap the user account:

```
-- On the target SQL Server to which a clone database has been delivered
USE master
go
DROP LOGIN OneSQLServerUser;
GO
CREATE LOGIN OneSQLServerUser
WITH PASSWORD = 'MyC0mpliantPa$$word',
SID = 0x3D195F3CF7D2D443974CBAF65BF7E479;
GO
USE _Forex_SiD
GO
ALTER USER OneSQLServerUser WITH Login = OneSQLServerUser;
```



As this is a server-level operation - updating the SID of the SQL Server login - you should only have to do this once for each server you are delivering the clone databases to. Subsequent clone databases will map the user account to the login correctly.

Full details are in this MSDN article - <https://msdn.microsoft.com/en-GB/library/ms175475.aspx>