

"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 screenshot displays two SQL Server query windows side-by-side. The left window, titled 'SQLQuery3.sql - RM-IClone1.testnet.red-gate.com..._Forex_SID_Original (OneSQLServerUser (59))', shows a query that successfully returns a table of exchange rates. The right window, titled 'SQLQuery2.sql - RM-IClone2.testnet.red-gate.com...master (OneSQLServerUser (55))', shows the same query but with an error message: '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'.'

ID	ISO	TenorId	OutrightRate	AsOfDateTime	SettlementDate
1301	EUR	1	0.8823000000	2016-06-09 00:00:00.000	2016-06-09 00:00:00.000
1302	EUR	1	0.9035000000	2016-06-02 00:00:00.000	2016-06-02 00:00:00.000
1303	EUR	1	0.9148000000	2016-05-26 00:00:00.000	2016-05-26 00:00:00.000
1304	EUR	1	0.9090000000	2016-05-19 00:00:00.000	2016-05-19 00:00:00.000
1305	EUR	1	0.8974000000	2016-05-12 00:00:00.000	2016-05-12 00:00:00.000
1306	EUR	1	0.8887000000	2016-05-05 00:00:00.000	2016-05-05 00:00:00.000
1307	EUR	1	0.9047000000	2016-04-28 00:00:00.000	2016-04-28 00:00:00.000
1308	EUR	1	0.9209000000	2016-04-21 00:00:00.000	2016-04-21 00:00:00.000
1309	EUR	1	0.9208000000	2016-04-14 00:00:00.000	2016-04-14 00:00:00.000
1310	EUR	1	0.9183000000	2016-04-07 00:00:00.000	2016-04-07 00:00:00.000
1311	EUR	1	0.9212000000	2016-03-31 00:00:00.000	2016-03-31 00:00:00.000
1312	EUR	1	0.9165000000	2016-03-24 00:00:00.000	2016-03-24 00:00:00.000
1313	EUR	1	0.9141000000	2016-03-17 00:00:00.000	2016-03-17 00:00:00.000
1314	EUR	1	0.9170000000	2016-03-10 00:00:00.000	2016-03-10 00:00:00.000
1315	EUR	1	0.9141000000	2016-03-03 00:00:00.000	2016-03-03 00:00:00.000
1316	EUR	1	0.9316000000	2016-02-25 00:00:00.000	2016-02-25 00:00:00.000
1317	EUR	1	0.9419000000	2016-02-18 00:00:00.000	2016-02-18 00:00:00.000
1318	EUR	1	0.9367000000	2016-02-11 00:00:00.000	2016-02-11 00:00:00.000
1319	EUR	1	0.9295000000	2016-02-04 00:00:00.000	2016-02-04 00:00:00.000
1320	EUR	1	0.9196000000	2016-01-28 00:00:00.000	2016-01-28 00:00:00.000
1321	EUR	1	0.9080000000	2016-01-21 00:00:00.000	2016-01-21 00:00:00.000
1322	EUR	1	0.8926000000	2016-01-14 00:00:00.000	2016-01-14 00:00:00.000
1323	EUR	1	0.8785000000	2016-01-07 00:00:00.000	2016-01-07 00:00:00.000
1324	EUR	1	0.8860000000	2015-12-31 00:00:00.000	2015-12-31 00:00:00.000
1325	EUR	1	0.8921000000	2015-12-24 00:00:00.000	2015-12-24 00:00:00.000
1326	EUR	1	0.8931000000	2015-12-17 00:00:00.000	2015-12-17 00:00:00.000
1327	EUR	1	0.8834000000	2015-12-10 00:00:00.000	2015-12-10 00:00:00.000
1328	EUR	1	0.8893000000	2015-12-03 00:00:00.000	2015-12-03 00:00:00.000
1329	EUR	1	0.8930000000	2015-11-26 00:00:00.000	2015-11-26 00:00:00.000

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>