



TEMENOS™

TAFJ-MS SQL Install

R14/R15

2/4/2015

Temenos



Amendment History:

Revision	Date Amended	Name	Description
11	1 st April 2011	TAFJ team	Initial version
12	7 st February 2012	H. Aubert	R12GA review
13	16 th January 2013	R. Vincent	R13GA review
14	29 th April 2013	R. Vincent	R13GA review update
15	2 nd Feb. 2014	R. Vincent	R14GA review
16	4 th Feb 2015	G.Gowrimani	Altered the Collation
17	11 th May 2015	G.Gowrimani	Altered the Trustworthy

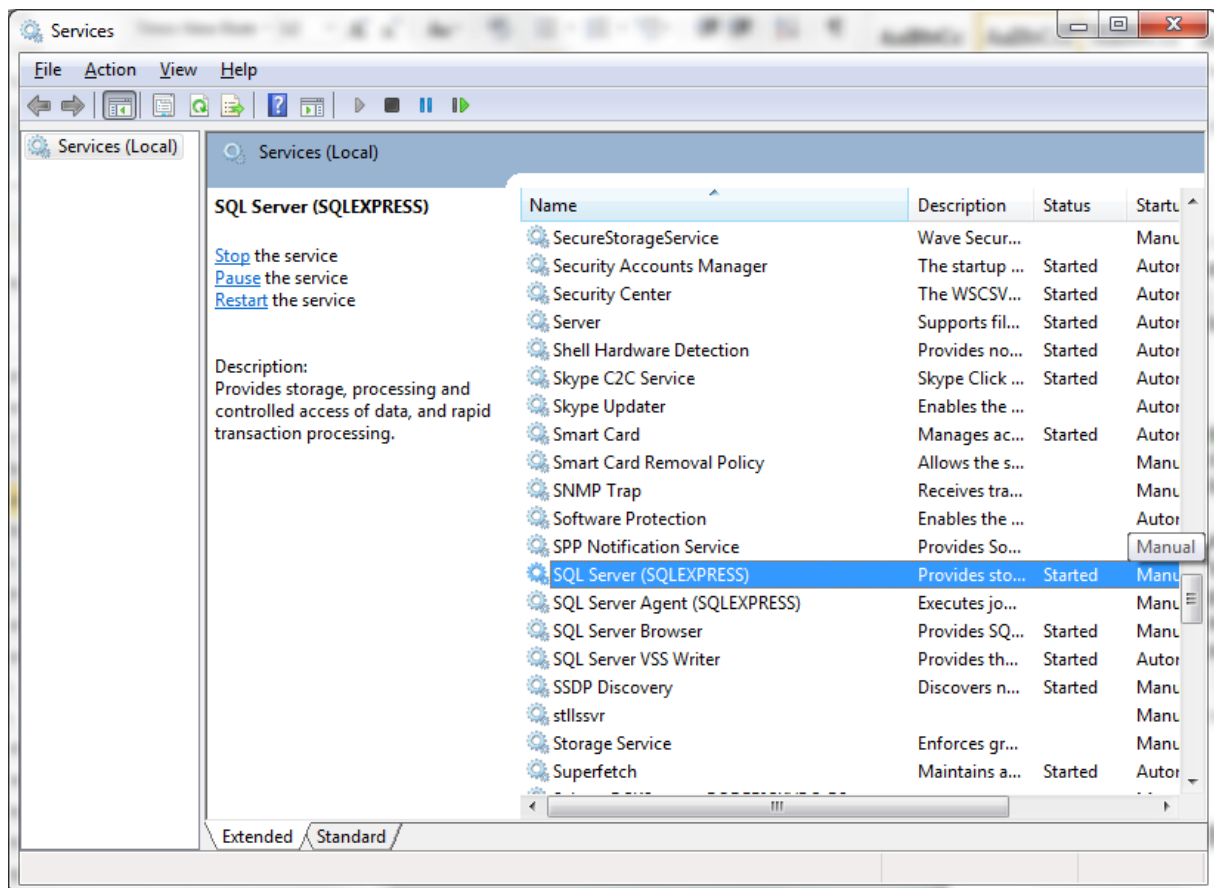
Table of Contents

Instructions for SQL Server 2012 Express Edition.....	4
Ensure SQL Server is started.....	4
Create Database in Microsoft SQL Server Management.....	4
Connect to Database with Visual Studio 2010.....	7
Starting from scratch with a New Visual Studio project—Connect to Database with Visual Studio 2010.....	10
Create a Database on the command line.....	14
Enable TCP/IP for jdbc data connections.....	14
Which port am I running on?.....	14
Loading C# Stored Functions.....	15
Step1.....	15
Step 2.....	15
Step 3.....	17
Step 4.....	17
Step 5.....	18
Set Authentication DLL.....	18
Run a DBImport.....	19
Backup and Restore the Database.....	19
Appendix.....	20
Can't create your database in SQL Server Management.....	20
TAFJ fails with c# stored procedures with HostProtectionException.....	22
JDBC Driver Fails With: Failed to load the sqljdbc_auth.dll or "This driver is not configured for integrated authentication".....	23
SQLCMD Errors: Fails to Start.....	23

Instructions for SQL Server 2012 Express Edition

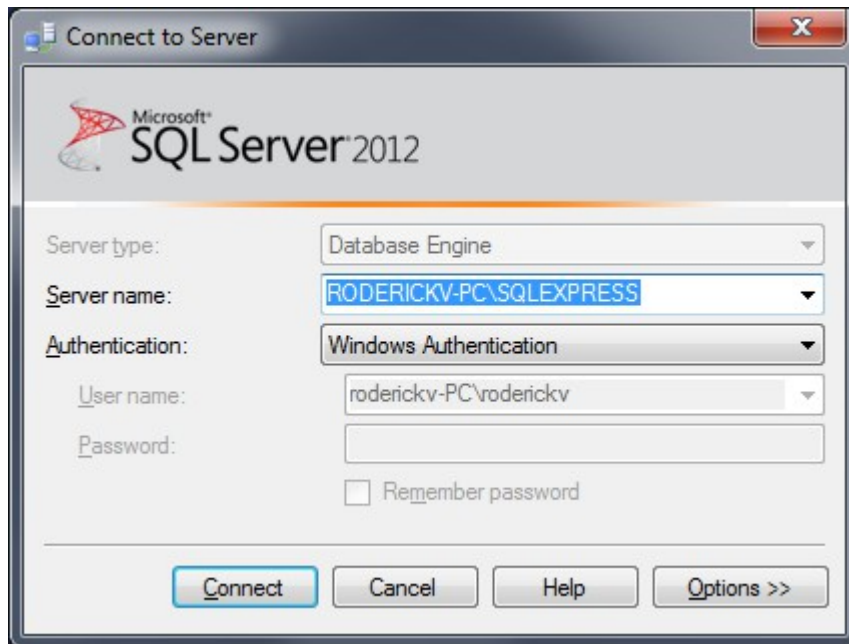
The below instructions describe how to get a SQL Server 2012 Express Edition in a state where the user can do a DBImport. This assumes that SQL Server 2012 Express Edition and TAFJ have already been installed and that the install directory of TAFJ is %TAFJ_HOME%. When downloading SQLServer 2012 Express Edition also download and install **SQL Server Management Studio Express (Tools only)** and **LocalDB**.

Ensure SQL Server is started.

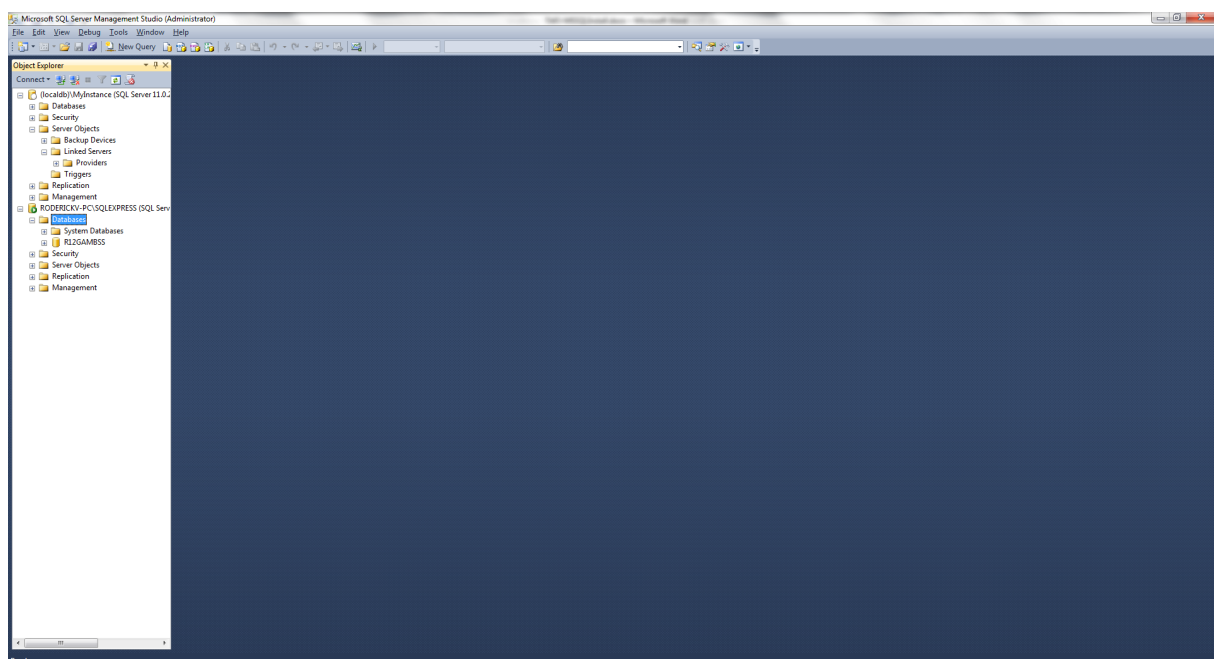


Create Database in Microsoft SQL Server Management

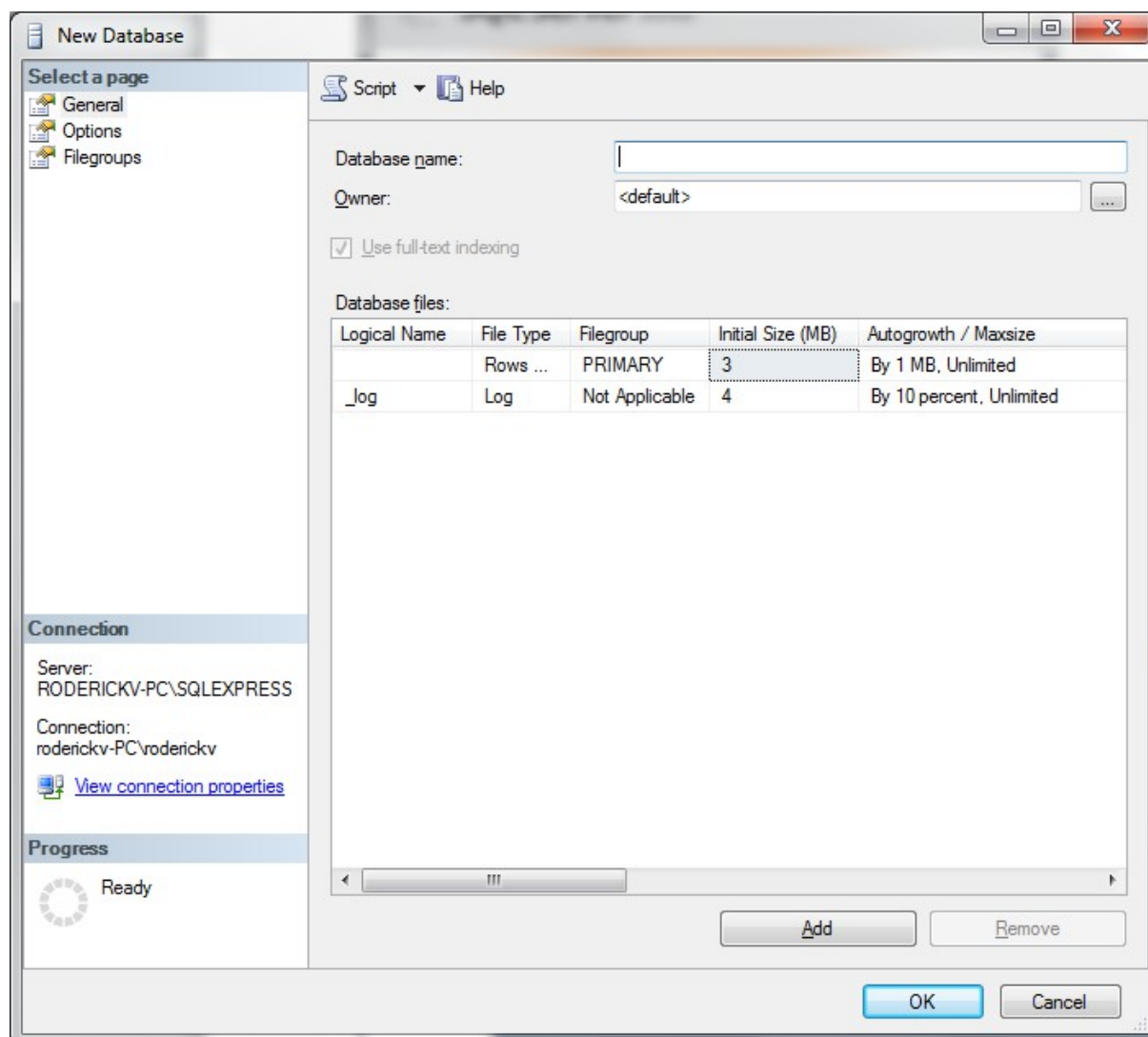
After starting Microsoft SQL Server Management, in the upper left hand corner click "Connect". A pop up should appear as below with the <Name of your PC>SQLEXPRESS. Click "Connect".



Once connected, you should see something similar to the below.

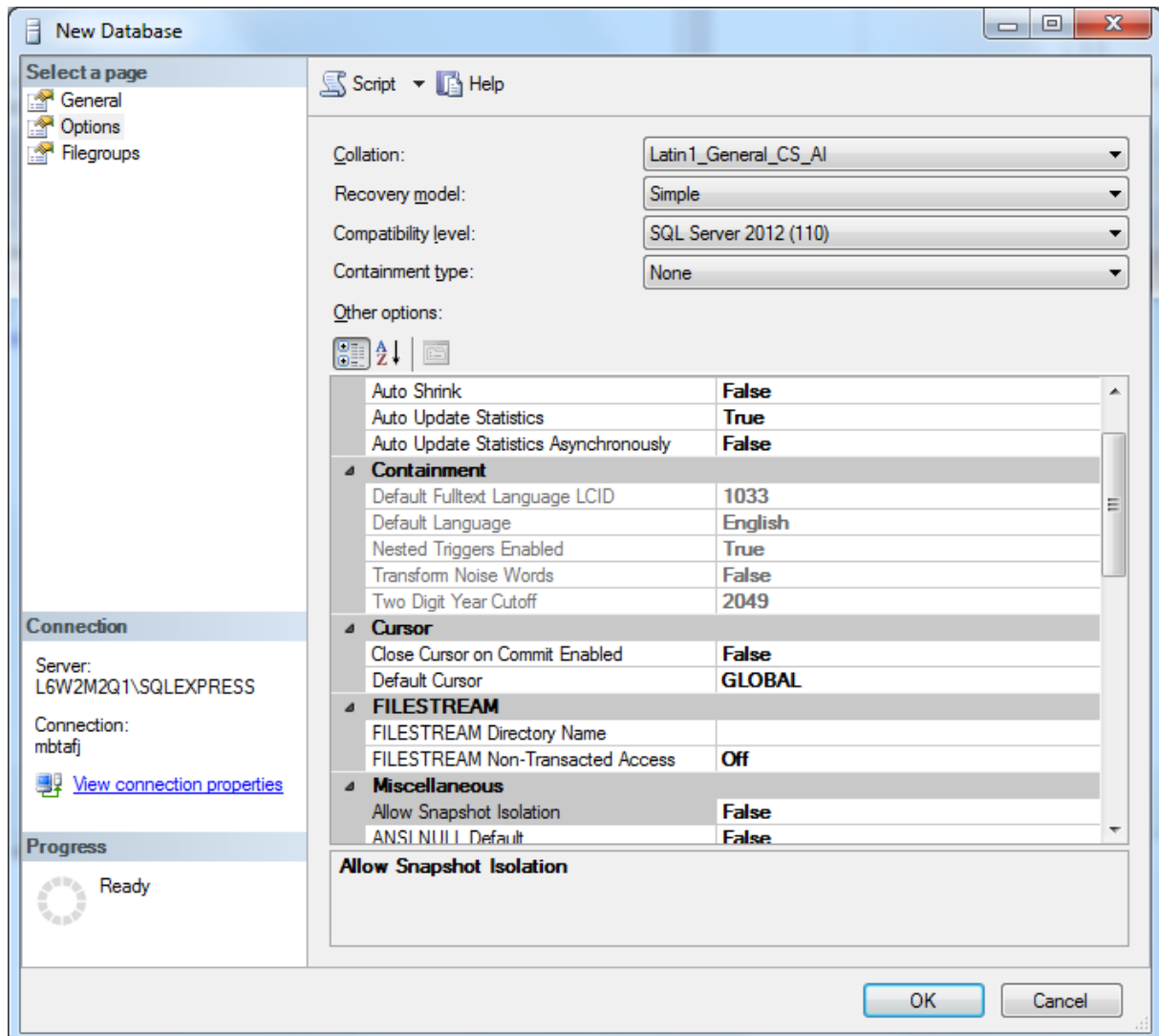


Right-click on "Database", then "New Database" and you should have the following.



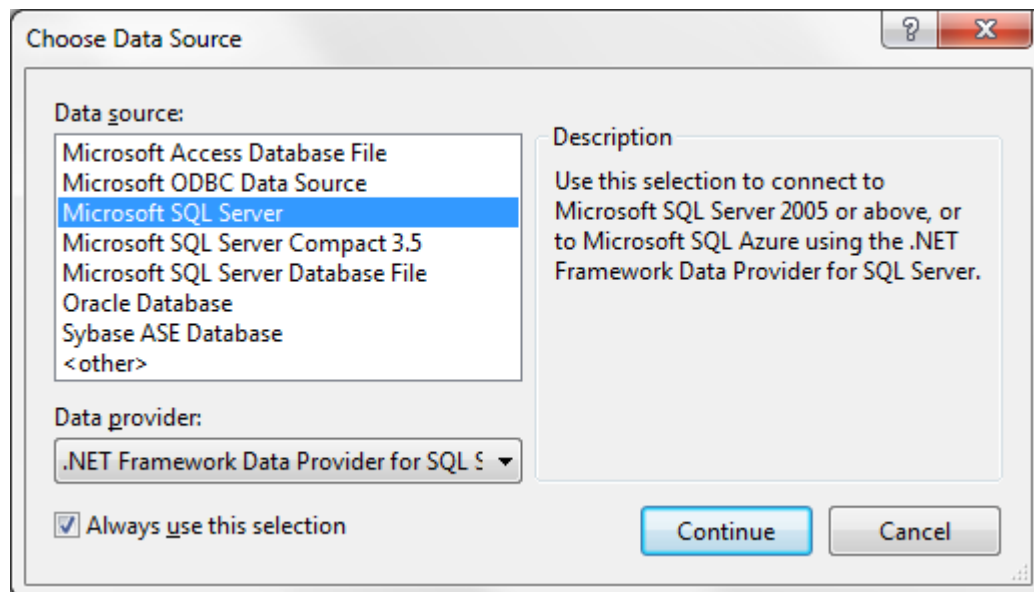
Name your database in "Database name". Make sure collation is set to **Latin1_General_CS_AI** on the "Options" tab as shown below.

NOTE: The client can choose any collation, but care should be taken to make sure the collation accommodates 'CASE-SENSITIVE' CS as this is a requirement for TAFJ.

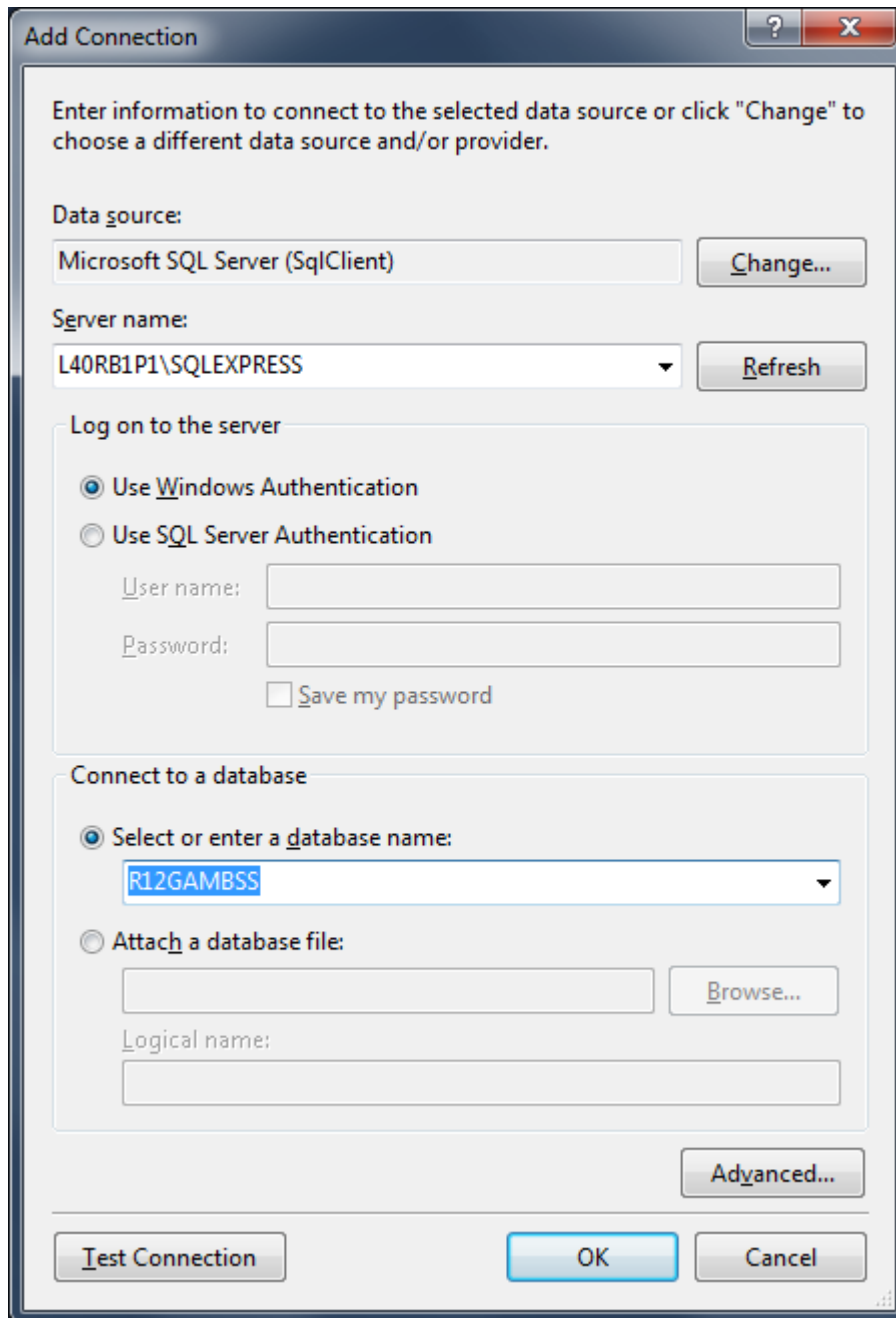


Connect to Database with Visual Studio 2010.

Now connect to your database in Visual Studio by Tools→Connect to Database, you will then see the following:



Click "Continue"



Add Connection

Enter information to connect to the selected data source or click "Change" to choose a different data source and/or provider.

Data source:
Microsoft SQL Server (SqlClient) Change...

Server name:
L40RB1P1\SQLEXPRESS Refresh

Log on to the server

☒ Use Windows Authentication
☐ Use SQL Server Authentication

User name:
Password:
☐ Save my password

Connect to a database

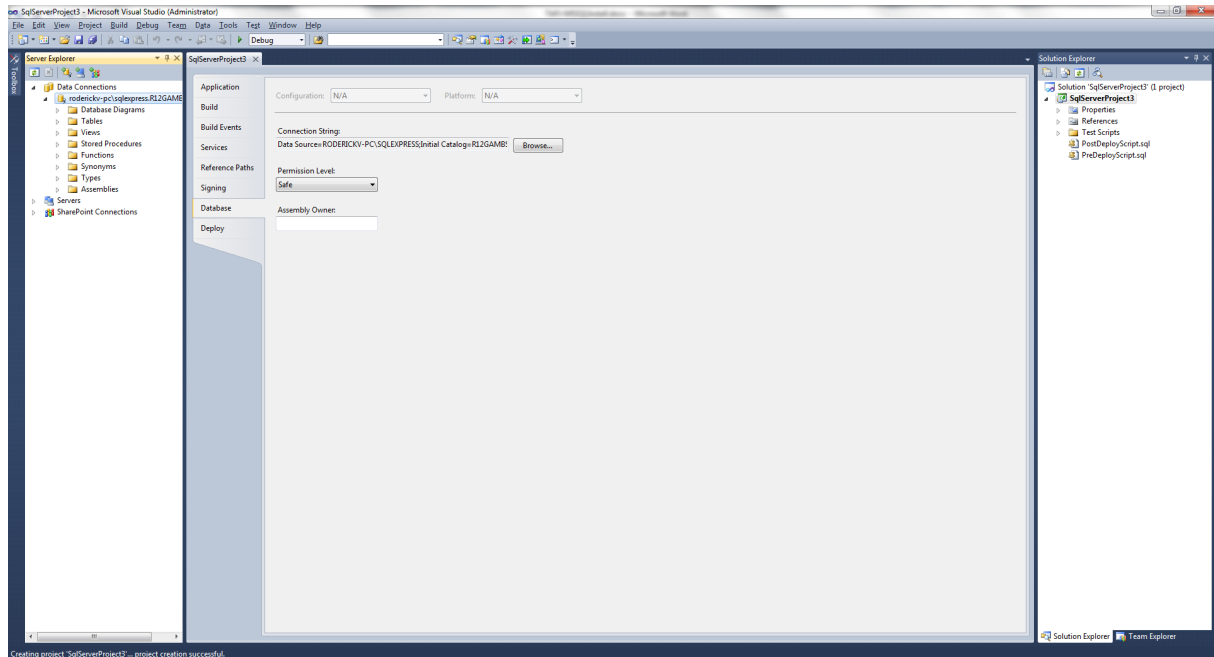
☒ Select or enter a database name:
R12GAMBSS ▼

☐ Attach a database file:
 Browse...
Logical name:

Advanced...

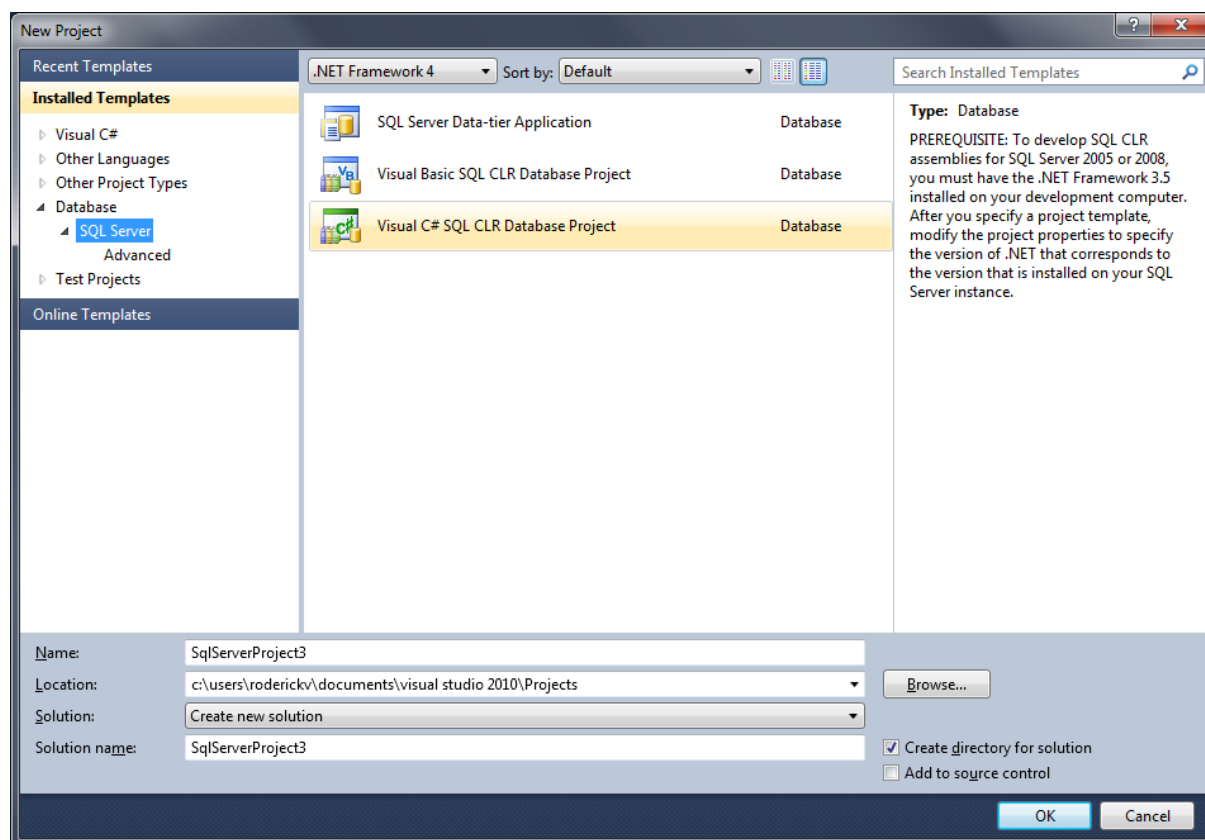
Test Connection OK Cancel

Test the connection and then hit "OK"

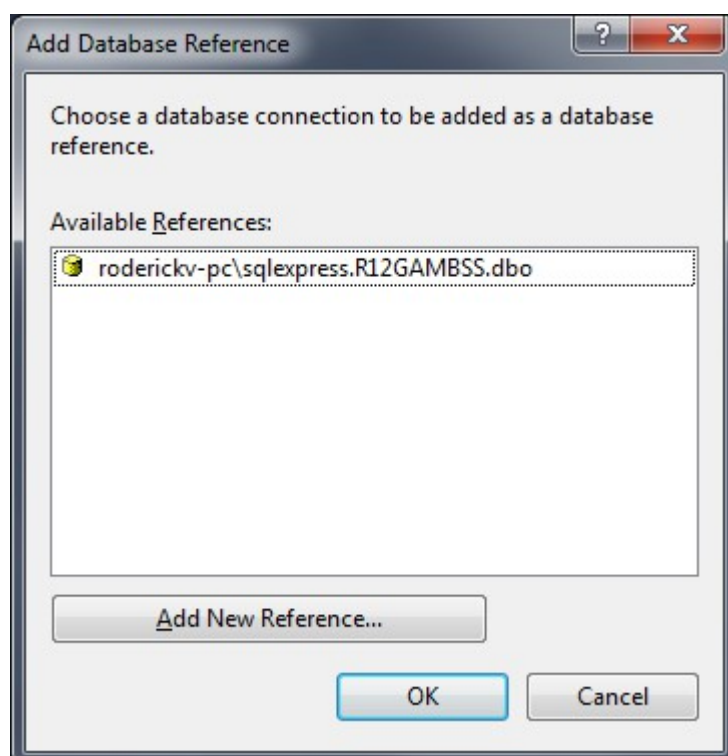


Starting from scratch with a New Visual Studio project—Connect to Database with Visual Studio 2010.

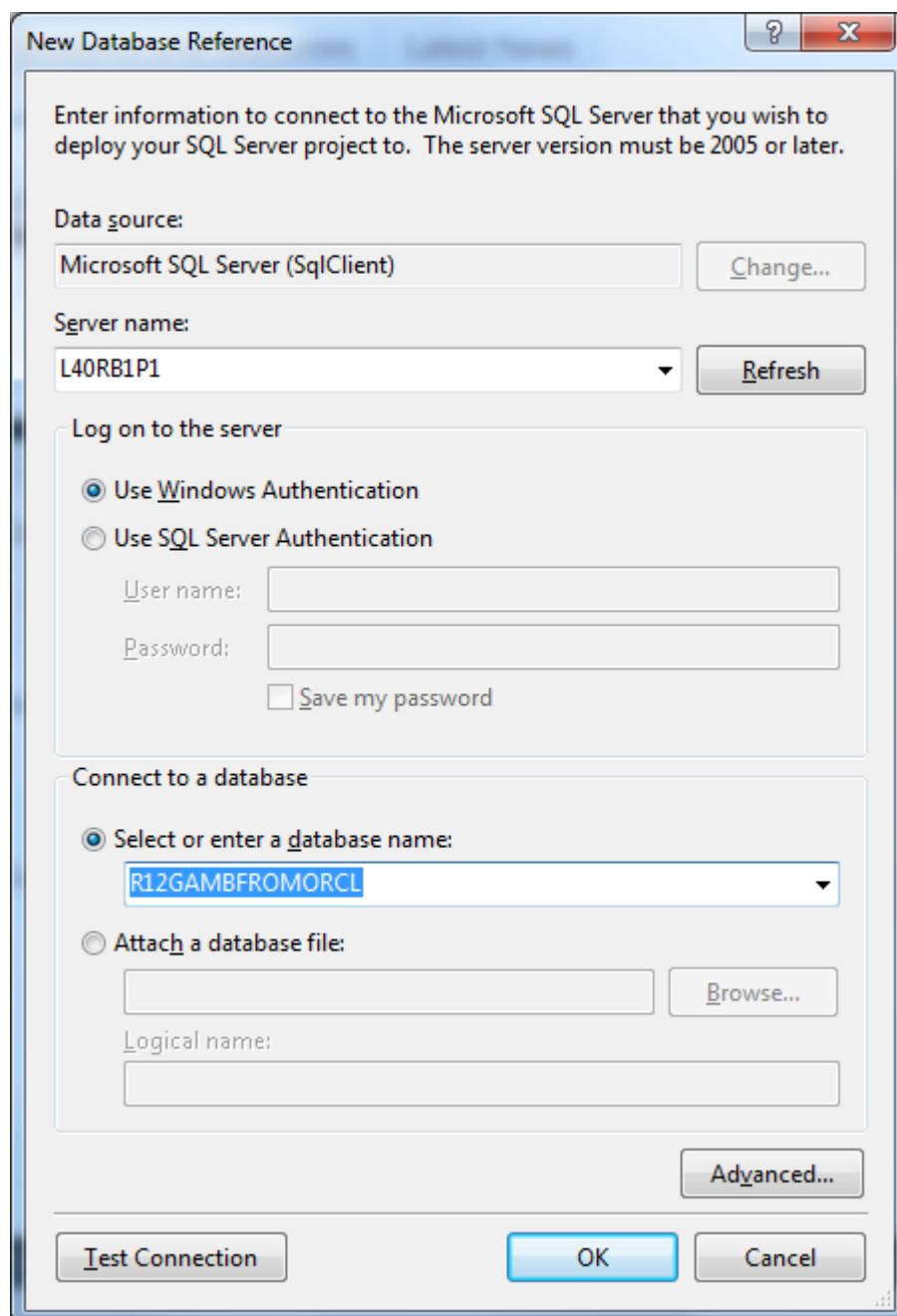
Start Visual Studio 2010, click on File→New→ Project. Select the database tab, then SQL Server, then “Visual C# SQL CLR Database Project”.



You then should see a pop-up with your database that you just created. Select it and then hit "OK".



If you don't see it, hit "Add New Reference" and you will be redirected to the following screen in which case you put your computer name in "Server Name", hit refresh, then select your database.



New Database Reference

Enter information to connect to the Microsoft SQL Server that you wish to deploy your SQL Server project to. The server version must be 2005 or later.

Data source:
Microsoft SQL Server (SqlClient) Change...

Server name:
L40RB1P1 Refresh

Log on to the server

☒ Use Windows Authentication

☐ Use SQL Server Authentication

User name:

Password:

☐ Save my password

Connect to a database

☒ Select or enter a database name:
R12GAMBFROMORCL

☐ Attach a database file:

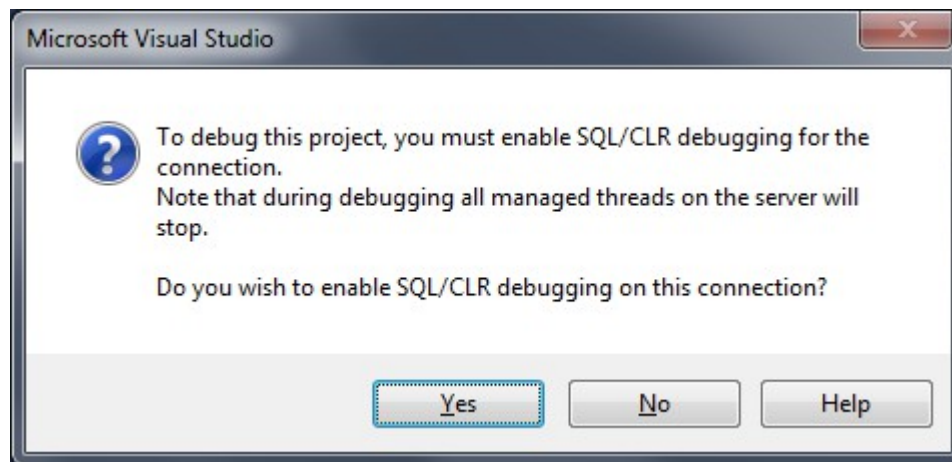
Browse...

Logical name:

Advanced...

Test Connection OK Cancel

Select "Yes" on this screen.



Create a Database on the command line.

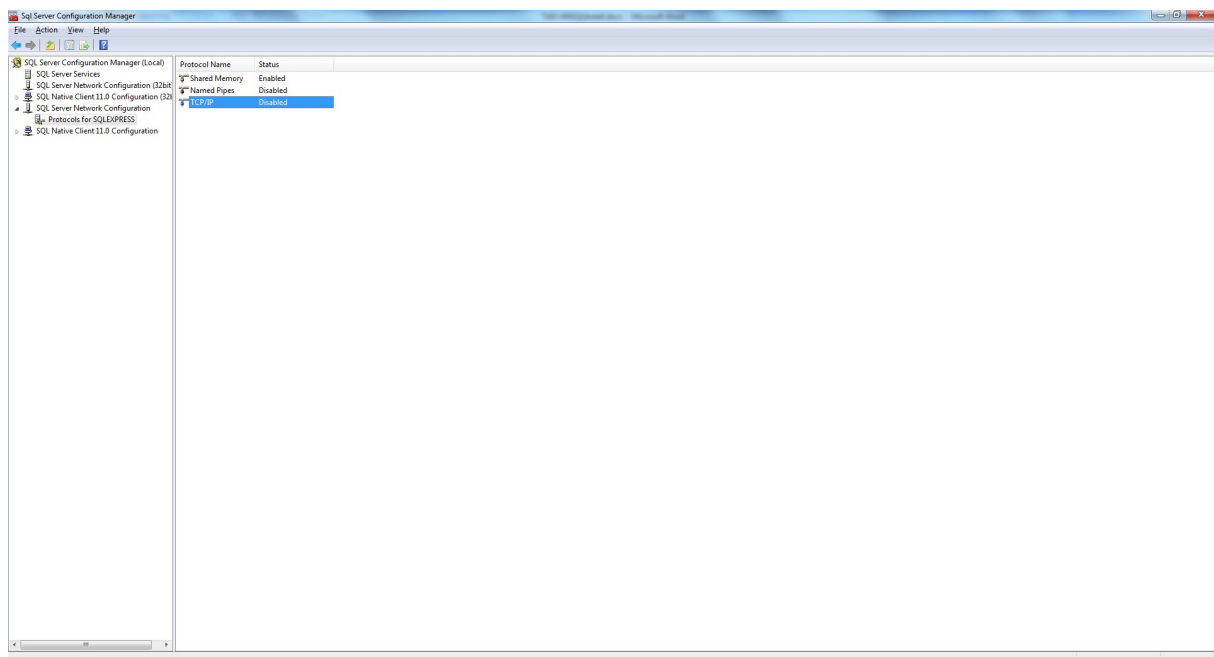
Using SQLCMD, create a database as below.

```
C:\> sqlcmd -S<Computer Name>\SQLEXPRESS -E -h-1 -y 0
1> CREATE DATABASE TESTDB COLLATE Latin1_General_BIN2
2> GO
1> Use TESTDB
2> go
```

Changed database context to 'TESTDB'.

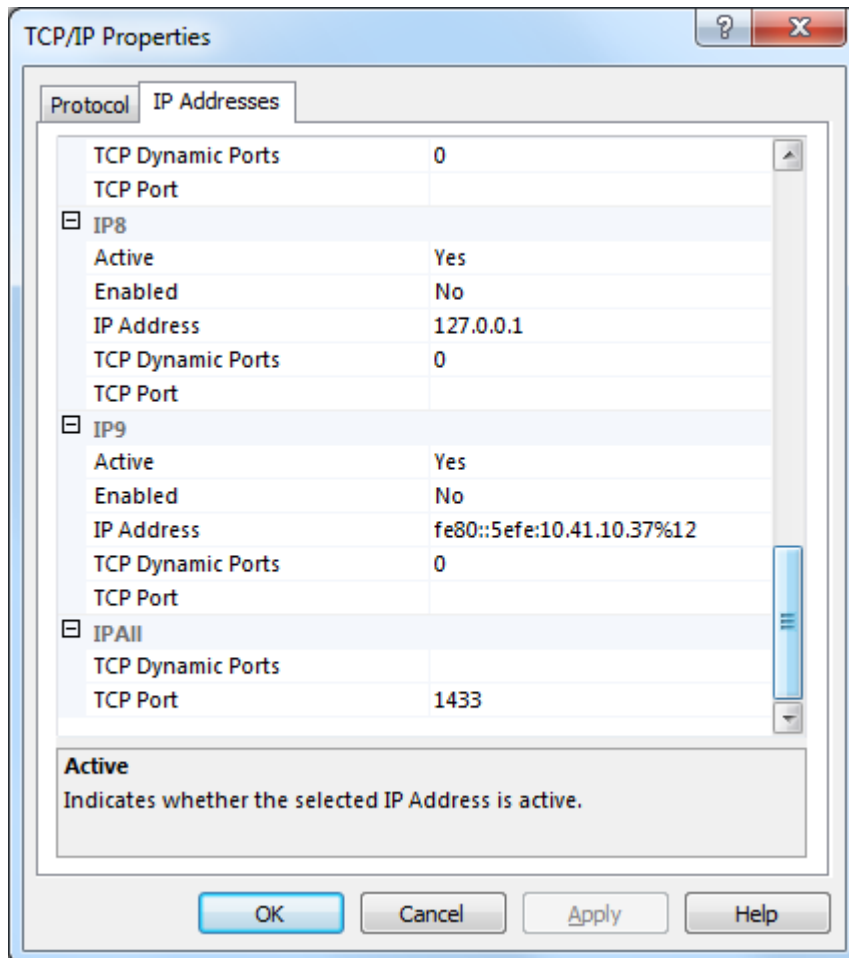
Enable TCP/IP for jdbc data connections

Open SQL Server Configuration Manager, click on « SQL Server Network Configuration » → Protocols for SQLEXPRESS, then in right pane right click on TCP/IP and enable it.



Which port am I running on?

By default, sqlserver should start on port 1433, but it is not always the case (for whatever reason). You can force it by clicking on the properties of TCP/IP, clicking on the IP Addresses tab, and doing as show below for the IPALL section where the TCP Dynamic Ports has been erased and forced in TCP Port 1433.



Loading C# Stored Functions

Go to %TAFJ_HOME%\dbscripts\ms-sql.

Step1

Alter the script csharpload.sql to your target database, default is master, (Temenos recommends something other than this), and the full path to TAFJSQLServer.dll

Step 2

Startup sqlcmd with: `sqlcmd -S<Computer Name>\SQLEXPRESS -E -h-1 -y 0`

As master db, give the following permission to your target DB

```
1> ALTER DATABASE TESTDB SET TRUSTWORTHY OFF;  
2> GO
```

Enable clr code within your database.

```
1> use TESTDB  
2> go
```

Changed database context to 'TESTDB'.

```
1> sp_configure 'clr enable', 1  
2> go  
1> RECONFIGURE WITH OVERRIDE  
2> go
```

Restart the SQLServer Express addition service

Step 3

Now load the c# stored functions (the output of this will go to output.txt in this example):

Launch: `sqlcmd -S<Computer Name>\SQLEXPRESS -i %TAFJ_HOME%\dbscripts\ms-sql\csharpload.sql -o output.txt`

(Note that output.txt will only contain "Changed database context to TESTDB if objects already created)

Step 4

Now verify that functions are loaded as below on the `sqlcmd` prompt:

```
1> SELECT ROUTINE_NAME FROM INFORMATION_SCHEMA.ROUTINES WHERE ROUTINE_TYPE =  
'FUNCTION' ORDER BY ROUTINE_NAME  
2> GO  
ROUTINE_NAME  
-----  
extractValueJS  
FM  
SM  
tafjcat  
tafjcats  
tafjchar  
tafjconvert  
tafjcount  
tafjdate  
tafjdcount  
tafjequal  
tafjfget  
tafjfield  
tafjfields  
tafjfmt  
tafjget  
tafjiconv  
tafjlen  
tafjlower  
tafjmatches  
tafjmatchfield  
tafjoconv  
tafjraise  
tafjsub  
tafjsubstrings  
tafjsum  
VM
```

Step 5

If something went wrong in steps 1 and 2) (unloading c# stored functions) :

- Alter the script csharpunload.sql to the database you want (default is master)
- Launch: `sqlcmd -i %TAFJ_HOME%\dbscripts\ms-sql \csharpunload.sql -o output.txt`

Set Authentication DLL

Set TCP/IP enabled using SQL Server Configuration manager and then restart the SQL Server service.

Generally, the SQLServer default port is 4333, but could be another one (such as 53963). Use a tool such as tcpview if you are having issues discovering it and can't find it in SQL Server Configuration manager or refer back to section "Which port am I running on?" You will need the port for the JDBC url which is shown below in "Run a DBImport"

```
set PATH=%PATH%;%TAFJ_HOME%\ext\sqljdbc_1.2\enu\auth\x64
or
```

```
set PATH=%PATH%;%TAFJ_HOME%\ext\sqljdbc_1.2\enu\auth\x86
```

Make sure you are using the 32 bit one if your JVM is 32 bit otherwise you get an error such as the following:

```
Jan 17, 2013 4:17:35 PM com.microsoft.sqlserver.jdbc.AuthenticationJNI <clinit>
WARNING: Failed to load the sqljdbc_auth.dll
```

```
com.microsoft.sqlserver.jdbc.SQLServerException: This driver is not configured for
integrated authentication.
```

```
at com.microsoft.sqlserver.jdbc.SQLServerException.makeFromDriverError(Unknown
Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.sendLogon(Unknown Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.logon(Unknown Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.access$000(Unknown Source)
```

```
at
```

```
com.microsoft.sqlserver.jdbc.SQLServerConnection$LogonCommand.doExecute(Unknown
Source)
```

```
at com.microsoft.sqlserver.jdbc.TDSCommand.execute(Unknown Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.executeCommand(Unknown
```

```
Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.connectHelper(Unknown
Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.loginWithoutFailover(Unknown
Source)
```

```
at com.microsoft.sqlserver.jdbc.SQLServerConnection.connect(Unknown Source)
```

at com.microsoft.sqlserver.jdbc.SQLServerDriver.connect(Unknown Source)
at java.sql.DriverManager.getConnection(DriverManager.java:582)

Run a DBImport

Please refer to TAFJ-DBSetup documentation. Typical TAFJ properties for SQL Server (using integrated security) are shown below.

```
temn.tafj.jdbc.url                =  
jdbc:sqlserver://localhost:1433;databaseName=TESTDB;integratedSecurity=true;  
  
temn.tafj.jdbc.driver             =  
com.microsoft.sqlserver.jdbc.SQLServerDriver  
  
temn.tafj.jdbc.username           =  
temn.tafj.jdbc.password          =
```

To connect to a remote Database or from a client on different windows domain or on non-windows domain you will have to use SQL Server authentication, thus the database should be defined with a mixed authentication mode.

You should also create a MSSQL user and grant him with DBO privilege.

```
temn.tafj.jdbc.url                =  
jdbc:sqlserver://localhost:1433;databaseName=TESTDB;  
  
temn.tafj.jdbc.driver             =  
com.microsoft.sqlserver.jdbc.SQLServerDriver  
  
temn.tafj.jdbc.username           = sqlserveruser  
temn.tafj.jdbc.password          = sqlserveruserpwd
```

Backup and Restore the Database

Here is a backup example for machine L40RB1P1:

```
sqlcmd -S<Computer Name>\SQLEXPRESS -E -h-1 -y 0
```

```
1> BACKUP DATABASE R12GAMBSS TO DISK =  
'C:\SQLServerBackups\R12GAMBSS.bak' WITH FORMAT;  
1>GO
```

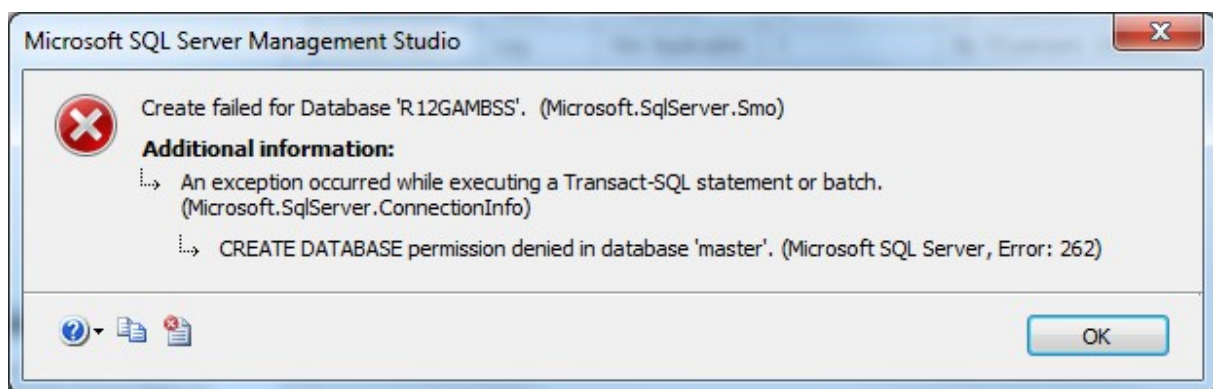
A restore example:

```
1>RESTORE DATABASE R12GAMBSS FROM DISK =  
'C:\SQLServerBackups\R12GAMBSS.bak';  
1>GO
```

Appendix

Can't create your database in SQL Server Management.

The below is perhaps because you are not in the same domain when you installed SQLServer.



Login to your computer name from sqlcmd, ie

```
C:\>sqlcmd -SMYCOMPUTERNAME\SQLEXPRESS -E -h-1 -y 0
```

Check your username.

```
1> select user_name()  
2> GO  
Guest
```

Create a login for your user that must have admin privileges. In this case it is roderickv

```
1> CREATE LOGIN [MYCOMPUTERNAME\roderickv] FROM WINDOWS;  
2> GO
```

Check that it worked:

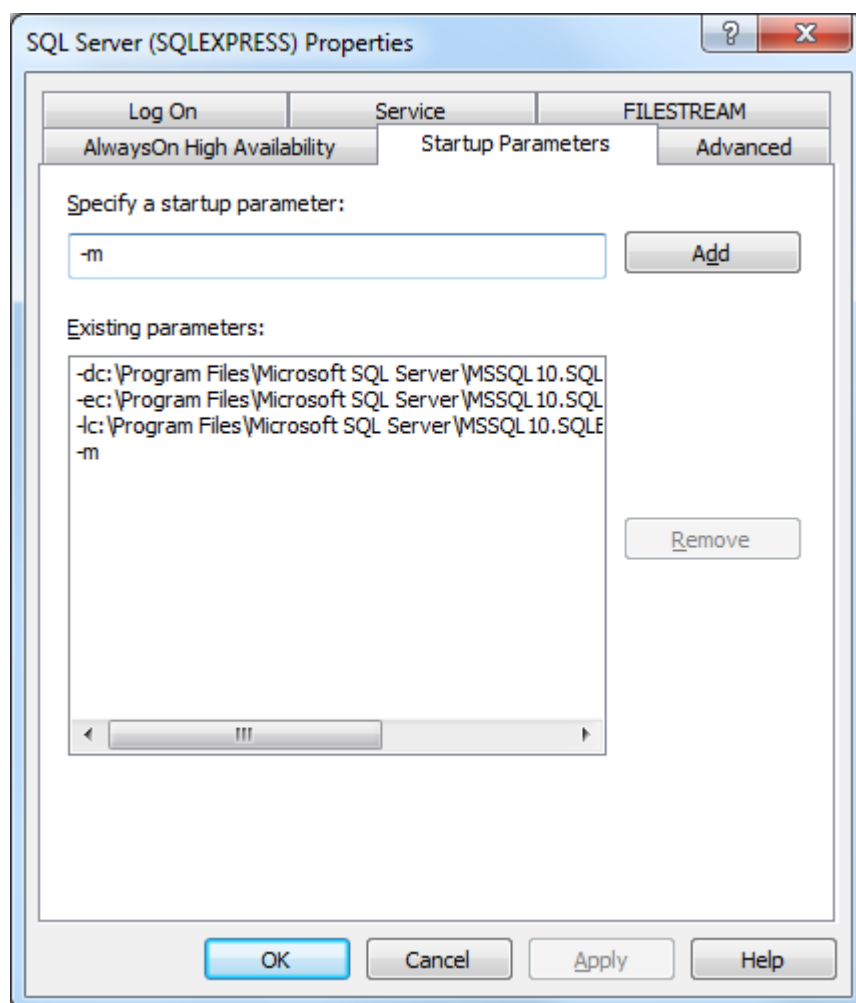
```
1> SELECT NAME FROM SYS.SERVER_PRINCIPALS  
2> GO  
sa  
public  
sysadmin  
securityadmin
```

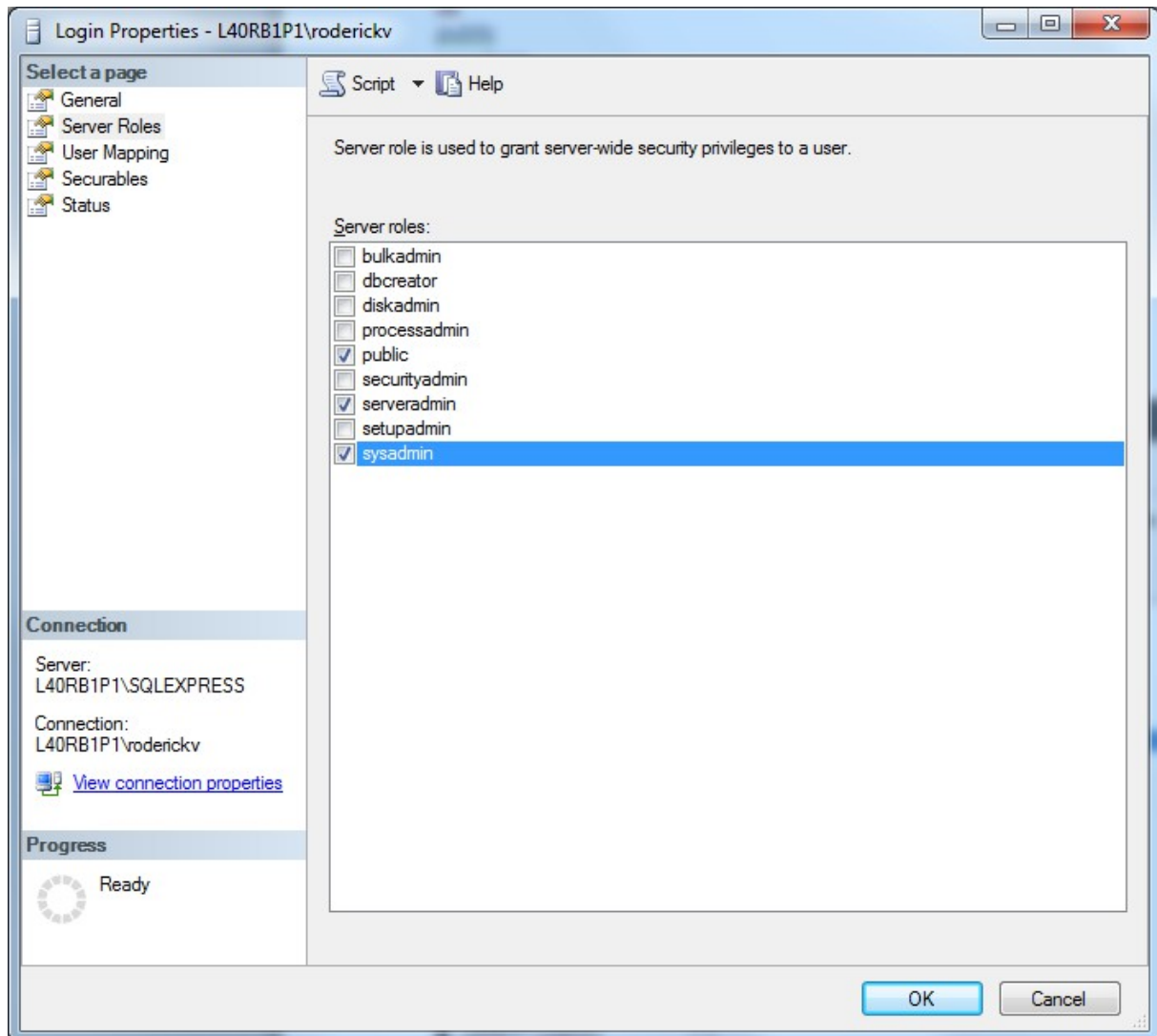
serveradmin
setupadmin
processadmin
diskadmin
dbcreator
bulkadmin
BUILTIN\Users
L40RB1P1\roderickv
(12 rows affected)

Put sqlserver in single instance mode by starting SQL Server Configuration Manager

Then click on “SQL Server Services”. On the right pane, right click on the SQL Server running, then “Properties”

Then add -m as a startup property and restart the sql server service once changes are applied.





TAFJ fails with c# stored procedures with HostProtectionException.

The error will look like this in the database.log

```
[ERROR] 2013-04-04 11:25:04,492 [tSA 2_733366180] DATABASE - Error in  
executeSQLQueryForXMLSchema: A .NET Framework error occurred during execution of  
user-defined routine or aggregate "tafjmatches":  
System.Security.HostProtectionException: Attempted to perform an operation that was  
forbidden by the CLR host.
```

The protected resources (only available with full trust) were: All
The demanded resources were: Synchronization

```
System.Security.HostProtectionException:  
  at System.RuntimeMethodHandle.PerformSecurityCheck(Object obj,  
RuntimeMethodHandleInternal method, RuntimeType parent, UInt32 invocationFlags)  
  at System.Reflection.RuntimeConstructorInfo.Invoke(BindingFlags invokeAttr, Binder  
binder, Object[] parameters, CultureInfo culture)  
  at System.SecurityUtils.ConstructorInfoInvoke(ConstructorInfo ctor, Object[] args)
```

```
at System.Diagnostics.TraceUtils.GetRuntimeObject(String className, Type baseType,
String initializedData)
at System.Diagnostics.TypedElement.BaseGetRuntimeObject()
at System.Diagnostics.ListenerElement.GetRuntimeObject()
at System.Diagnostics.ListenerElementsCollection.GetRuntimeObject()
at System.Diagnostics.TraceInternal.get_Listeners()
at System.Diagnostics.TraceInternal.WriteLine(String message)
at UserDefinedFunctions.tafjmatches(String sVal1, String sMask)
```

To fix this:

- 1) Set appropriate permissions on the DB
 - a. As master db, give the following permission to your target DB
 - b. 1> ALTER DATABASE R12GAMBSS SET TRUSTWORTHY OFF;
 - c. 2> GO
- 2) Reimport your assembly code

JDBC Driver Fails With: Failed to load the sqljdbc_auth.dll or “This driver is not configured for integrated authentication”

This occurs when the jdbc url includes integratedSecurity=true. Either the version of sqljdbc_auth.dll is incorrect (you are using a 32 bit version on a 64 bit machine or vice versa) or java is failing to load the sqljdbc_auth.dll

Option 1) set PATH=%PATH%;%TAFJ_HOME%\ext\sqljdbc_1.2\enu\auth\x64 (or x86 depending on your JVM architecture, ie. java -version)

Option 2) Undesirable—Add -Djava.library.path=<<Path where sqljdbc_auth.dll resides>> to ALL of the batch files in %TAFJ_HOME%\bin

SQLCMD Errors: Fails to Start

Description: After trying to start sqlcmd it complains with Named Pipe error

```
C:\data\srcT24\rtc>sqlcmd -h-1 -y 0
```

HResult 0x2, Level 16, State 1

Named Pipes Provider: Could not open a connection to SQL Server [2].

Sqlcmd: Error: Microsoft SQL Native Client : An error has occurred while establishing a connection to the server. When connecting to SQL Server 2005, this failure may be caused by the fact that under the default settings SQL Server does not allow remote connections..

Sqlcmd: Error: Microsoft SQL Native Client : Login timeout expired.

Solution: start sqlcmd like this: `sqlcmd -S<computerName>\SQLEXPRESS -E`