

# How to Create a linked server to an iSeries (V5R4M0 and others probably) Using IBM's OLE DB Drivers via Server Management Studio

In the past we researched this many times before and tried extensively in the past on SQL 2000 and always failed to get linked servers working Via IBM's OLE DB providers. This left us having to use Microsoft's ODBC drivers instead and then a rather clunky manually written Openquery method to query data despite having read that this could be quite slow in comparison.

Anyway we are finally upgrading our SQL server to 2008 (Standard Edition AP Clusters, we had Enterprise before but didn't use anything bar clustering from this edition) I decided to have another go, having discovered that Microsoft think we ought to pay Enterprise edition money if we want to use their OLE DB drivers for DB2 I was even more determined to get IBM's (included free with Iseries Access) own OLE DB drivers working.

Anyway I have finally puzzled out settings that work and its actually quite easy through Server Management Studio. I thought I would post details here for anyone else who has struggled to get this working. Similar settings should in theory work through SISS though I haven't done enough with SISS yet to give details!

First Open Server Management Studio (SMS) and expand out

Server Objects, then Linked Servers, then Providers.

Right click Properties on the Providers you want to use (IBM ones start IBM, they are DA400, DASQL and DARLA, The first two perform well the last seems extremely slow so I don't recommend using DARLA unless you have to for some reason.)

Tick the box for Allow InProcess. This must be done on any IBM driver provider before you create any Linked servers based on it. IBM have a technical document on this if you want the reasons I suggest you read at

<http://www-01.ibm.com/support/docview.wss?uid=na10366ef927408bcff862572bc00761f57>

Now for the easy bit...

Right click Linked Servers and select new.

Enter the following into each field, where you need to use your own data I have highlighted this in Bold

"Linked Server" = **xxxxxxxx** whatever you want to call this linked server, Keep it simple, I suggest the Library name you want to connect to on your iSeries.

"Provider" = Drop down the list box and select IBM DB2 UDB for iseries IBMMDA400 OLE DB provider or IBM DB2 UDB for iseries IBMMDASQL OLE DB provider as you wish. as I say I dont recommend the DARLA version as this seems very slow in performance (slower than MS's ODBC drivers!)

"Product Name" = **i520** Anything you like here it really doesn't matter to much so keep it simple again, it wont even be part of the naming string for a select statement.

"Data Source" = **x.x.x.x** This is the biggy and I kept trying to give the datasource a datasource name! Just stick to the ip address of your iseries or its declared DNS hostname on your windows DNS servers.

"Provider String" = User Id=**uuuu**;Password=**pppp**;Default Collection=**LibraryName**;  
You need to get this right! User Id is your iSeries machine username that you want to connect as (obvioucly must have rights to the Iseries DB2 Library concerned) password that goes with your iSeries account and finally the DB2 Library name you want to link to. To avoid mistakes copy the entire line below to your clipboard and paste it in and edit the User, password and library to suit you.

User Id=**uuuu**;Password=**pppp**;Default Collection=**LibraryName**;

"Catalog" = Leave blank as you don't need this.

Because you have to provided the Account details in the "provider string" section above you do NOT need to provider any logon context info in the "Security page" part of the Linked Server setup.

Click OK and you should have a working configured ISeries linked server to a library on your machine.

Repeat the above to all other Libraries on your iSeries hat you need to link to.

In our tests the IBM OLE DB provider based linked servers (excluding DARLA) worked about three times faster than ones configured through the Microsoft ODBC drivers and a preset ODBC datasource connection to the iSeries.

We are now expecting systems we have written that pull order details out of our excellent iSeries based ERP package to perform very much faster having tested performance on some multi million row record sets now.

I hope the above helps some other shops set up efficient links into their iSeries machines. It seems a shame that Microsoft should think that their DB2 OLE DB drivers to do the same should only go to people using Enterprise Edition of SQL 2008!!!

Anyway good luck.

PS if you want the Script for the above (generated by scripting the Create for the linked server, that's below, again just change the ORANGE bits to suit!

```
/****** Object: LinkedServer [TEST]      Script Date: 03/19/2010
12:12:24 *****/
EXEC master.dbo.sp_addlinkedserver @server = N'TEST',
@srvproduct=N'i520', @provider=N'IBMDA400', @datasrc=N'x.x.x.x',
@provstr=N'User Id=uuuu;Password=pppp;Default
Collection=IseriesLibraryName;'
/* For security reasons the linked server remote logins password is
changed with ##### */
EXEC master.dbo.sp_addlinkedsrvlogin
@rmtsrvname=N'TEST',@useself=N'False',@locallogin=NULL,@rmtuser=NULL,@r
mtpassword=NULL

GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'collation
compatible', @optvalue=N'false'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'data
access', @optvalue=N'true'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'dist',
@optvalue=N'false'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'pub',
@optvalue=N'false'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'rpc',
@optvalue=N'false'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'rpc out',
@optvalue=N'false'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'sub',
@optvalue=N'false'
GO
```

```
EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'connect
timeout', @optvalue=N'0'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'collation
name', @optvalue=null
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'lazy schema
validation', @optvalue=N'false'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'query
timeout', @optvalue=N'0'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'use remote
collation', @optvalue=N'true'
GO

EXEC master.dbo.sp_serveroption @server=N'TEST', @optname=N'remote proc
transaction promotion', @optvalue=N'true'
GO
```

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- Changed Type [Tom PhillipsModerator](#) Friday, March 19, 2010 1:28 PM
- Moved by [Tom PhillipsModerator](#) Friday, March 19, 2010 1:29 PM Possibly better answer from TSQL forum (From:SQL Server Database Engine)
- Changed Type [Ian Mountain](#) Friday, March 19, 2010 1:43 PM Its not a question, read the content and you will see its information to help anyone searching for a solution
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## All Replies

- Friday, March 19, 2010 1:45 PM

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No Idea why this has been moved to TSQL forum, its general info on how to set up a linked server through SQL Management Studio to and iSeries using IBM's OLE DB drivers, the TSQL at the end is there for anyone who prefers to do it the hard way!

Cheers,

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- Friday, June 11, 2010 11:18 PM

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Hi Ian, great post!

Recently I got the requirement to get data from an AS/400 Data Base that is in an remote server however for some reason the server administrators can't install de iseries driver in the SharePoint server I need because it runs in 64 bits, so I've had to find a different approach and I found about a linked server.

I've been trying to achieve this, however, when I want to create a new linked server in the providers list, there is no provider from IBM even though I have installed the iseries access windows driver (this is on my localhost).

Do I need something else in order to add the IBM providers to the list?

I would really appreciate it if you could point me in the right direction.

Thank you very much.

Best regards,

Jessica Garcia.

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- Monday, June 14, 2010 9:35 AM

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Hi Ian, great post!

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Thank you very much.

Best regards,

Jessica Garcia.

Hi Jessica,

You should not need to install anything else, the IBM data providers are part of the iSeries Access installation so once these are installed on the SQL server they should be available for use (after a reboot). Just make sure when you do the iSeries install you do a full or custom install to make sure all the data providers are included in your installation, do the reboot and check again. Bear in mind you will not see the IBM "DA400, DASQL and DARLA" drivers in Control Panel, administrative tools odbc because they are not ODBC drivers they are ole db so you will only see these driver names in the SQL 2008 Management studio in the provers drop dow list box when doing it that way. If you go into odbc and see the iseries access driver when "adding" a new odbc connection its a good sign that all the iseries drivers are installed on the SQL server.

Are you trying to install these drivers on your own PC? If so does your own PC have SQL Server installed on it? Bear in mind that iSeries Access for windows needs installing on the SQL Server for you to create a linked server in SQL.

If you can't find the IBM DA400, DASQL and DARLA, drivers but you can see the iSeries Access driver then do some web searches for adding an AS400 using Microsofts ODBC instead as this works its just much slower than using the native IBM ole DB derivers.

Good Luck

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- Monday, June 14, 2010 5:22 PM

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Hi Ian, thank you very much for your quick response.

After a lot of research and still no luck I started to question if Windows 7 had anything to do with it since I had been having warnings about compatibility issues, so I installed the iseries access driver in a machine with Windows XP and voilà, everything worked like it should, I suppose the driver is too old, I really don't know but at least now I can move forward.

Thanks again.

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- Sunday, July 11, 2010 8:27 AM

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thanks this really helps! however.. am trying to pull hebrew data with no success on either IBMDA400 or IBMDASQL. tried playing with the collation settings in properties.

any ideas??

thanks

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- Monday, July 12, 2010 8:58 AM

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thanks this really helps! however.. am trying to pull hebrew data with no success on either IBM DA400 or IBM DASHQL. tried playing with the collation settings in properties.

any ideas??

thanks

Hi,

I am afraid I have never had to deal with multiple language issues between the two machines.

We have our SQL server set the one of the standard Latin Collations using the normal English Character sets and similarly the AS400 / iSeries is in a matching collation.

I think you may be in the right area looking at the collation but only if the errors you get mention collation. Otherwise I would look at something more fundamental (like the user above with the IBM driver not working in Windows 7).

If you are looking at collations bear in mind you can create SQL db's in different collations than the SQL server default collation so I don't think the SQL server would not create or fail to create a linked server based on its default collation alone as it could have many db's with different collations, unless it checks and only creates the link if it has a DB in a matching collation.

Anyway sorry I can't help more but good luck looking.

Cheers,

PS feel free to post back here if you get a solution as it adds to the info for others searching for solutions.

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- Thursday, August 12, 2010 6:55 PM

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I have set up the Linked server on my SQL 2005 server via your instructions, thanks. I am experiencing long; like 10 - 15 minute query times for anything more than a simple "select from" query. The SQL Server and the ISeries server don't seem to take any hits it just takes forever to return data. I am using the IBMDASQL OLE DB provider. Any Idea's?

Thanks,

Nathan

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- Tuesday, October 19, 2010 6:03 PM

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Good post. We were using the MS OleDb ODBC driver which relies on a ODBC DSN on the SQL 2005 node(s). SQL 2008 R2 broke that method, so we're using the IBMDASQL driver instead. Per IBM support this driver is good for general sql selects, but not as robust as the odbc driver. Benefits include not having to create an ODBC dsn on the server.

FYI, the DARLA driver is a row level access driver that per IBM was not appropriate for general sql selects.

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/bac

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- Monday, March 19, 2012 7:58 PM

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Ian - Perfect! I've been grappling with this onn and off for months. With your step-by-step I've gotten what i need with the IBMDA400 provider. I look forward to performance testing against the MS\_OLEDB provider which we've been using up to this point.

Here's what can be done to get the add-on for SQL 2008 Std. as long as you're a MSDN subscriber:

- Install MSDN SQL 2008 Pro to your server FOR TESTING ONLY: Do not import any databases
- Install the OLE DB provider add-on etc. from Microsoft public web site

- Test by linking your servers
- Uninstall MSDN SQL 2008 Pro
- Install your Production copy of SQL 2008 Std.
- Link your servers and go.....