Accessing Oracle 11g from SAS on Linux Using DataDirect Connect for ODBC

This article explains how quick and easy it is to connect to an Oracle 11g server from SAS running on a Linux client using the <u>DataDirect Connect for ODBC Oracle Wire Protocol driver</u>.

- <u>Choosing the Right ODBC Driver for SAS on Linux</u>
- Installing DataDirect Connect for ODBC and Connecting to Oracle
- <u>Configuring for Optimal Performance</u>
- Installing SAS and Running a Query

Choosing the Right ODBC Driver for SAS on Linux

SAS is a leading provider of business analytics software and services. It offers an integrated collection of modular software for delivering sophisticated information across an entire organization.

DataDirect's wire protocol architecture makes it an ideal choice to use with SAS. Traditionally, ODBC has required installing specialized database client libraries on any computers that need to interact with a database server. This necessity introduced all sorts of deployment, maintenance, performance, and support headaches for IT administrators. However, with its wire protocol ODBC drivers, DataDirect has eliminated the need to install and configure client-side software, as shown below.





Installing DataDirect Connect for ODBC and Connecting to Oracle

In this simple example, we'll illustrate how to use the SAS query tool to examine information from the EMP table in the 'SCOTT' schema hosted on a remote Oracle database, using the well-known scott/tiger login. To keep things simple, we'll use only the most basic SAS capabilities.

1. Install the DataDirect Connect *for* ODBC Oracle Wire Protocol driver (available in both 32 and 64-bit versions) on your Linux client.

Please keep these important requirements in mind:

- This product has been certified on the Red Hat Enterprise Linux (3.0, 4.0, and 5.0) and SUSE Linux Enterprise Server (8.0, 9.0, and 10.0) distributions.
- Make sure that you have sufficient privileges on this computer to perform a software installation.
- You'll need to run the installer from within the Korn (ksh) shell.
- For the 32-bit version, the default installation directory is /opt/odbc32v53.
- Although these instructions were created using the 5.3 release of the DataDirect ODBC drivers, they can also be easily adapted to earlier or later versions of the drivers.
- 2. Set your environment variables.

To help you perform this task, DataDirect provides shell scripts for both the Bourne (odbc.sh) and C (odbc.csh) shells. You'll find these scripts in your installation directory.

These scripts configure the following environment variables:

```
LD_LIBRARY_PATH
PATH
ODBCINI
ODBCINST
```

3. Use the DataDirect-provided ivtestlib utility to test load the driver.

You'll find this utility in the bin sub-directory of your installation. You'll need to provide it with the path to the Oracle driver as follows:

ivtestlib /opt/odbc32v53/lib/ivora23.so

If your installation was successful and your environment variables are properly set, you should receive a message similar to the following:

```
Load of /opt/odbc32v53/lib/ivora23.so successful, qehandle is 0x944F030
File version: 05.30.0157 (B0108, U0075)
```

If you receive an error message at this point, there's a good chance that your environment variables aren't properly set.

4. Configure a connection to Oracle.

You may either edit the odbc.ini file (found in your installation directory) or use the graphical odbcadmin utility, which you'll find in the tools subdirectory. Note that to run odbcadmin, you'll need to have configured Motif support on your computer.

ODBC Data Source Administrator	ODBC Oracle Wire Protocol Driver Setup
User DSN File DSN Driver Trace About	General Advanced Security Performance
User Data Sources	Data Source Name Help
Name Driver Add	Description DataDirect 5.3 Oracle Wire
Oracle DataDirect 5,3 Oracle	Standard Connection
Dracle Wire Protocol DataDirect 5,3 Oracle Wire Protocol	Host (Oracle_server>
Configure	Port Number (Oracle_server_port)
	SID {Oracle_System_Identifier>
	Service Name
	TNSNames Connection
	Server Name
The DDDC likes data service starse in Connection should have to service to the	TNSNames File name (tnsnames.ora_filename)
An UBL user data source stores information about now to connect to the indicated data provider. A User data source is only visible to you, and can only be used on the current machine	
OK Cancel Apply Help	
	Test Connect OK Cancel Apply

Select the Oracle Wire Protocol driver, and click the Configure button:

Enter details about your connection to Oracle, including:

- The computer (i.e., host) where Oracle is running
- Oracle's port number (the default is 1521, but check with your Oracle administrator to be sure)
- The Oracle system identifier

When you've finished entering these details, it's a good idea to test the connection. Click on the Test Connect button, and you'll receive a login dialog as shown below. After filling in the necessary information, click OK and you should receive a message that the connection was successful.

	ODBC Oracle Wire Protocol Driver Setup X
	General Advanced Security Performance
Oracle Wire Protocol Logon Dialog X	Data Source Name ORACLE_ASPEN Help
Standard Connection	Description DataDirect 5 3 Oracle Wire
Host 192,168,2,16	Description pacabilities 3.5 of able with
	Standard Connection
Port Number	Host 192.168.2.16
SID DRCL	Port Number 1521
Service Name	SID ORCL <u>i</u>
TNSNames Connection	Service Name Test Connect X
Server Name	TNSNames Connection
User Name scottž	Server Name
Password *****	
OK Cancel Help	
	Test Connect OK Cancel Apply

If you're unable to successfully connect, double check your login settings with your database administrator.

Configuring for Optimal Performance

Given all of Oracle's capabilities, it can be difficult to come up with optimal configuration settings. To help you in this important task, DataDirect offers a helpful Performance Tuning Wizard.

1. On Linux, you launch this wizard by pointing your browser at the index.html page found in the wizards subdirectory of your installation.

Note: Make sure that you have Java runtime support enabled on your computer, or the wizard applet won't run properly.

2. Once the wizard has launched, you'll be asked to select your DataDirect driver:

Performan	DataDirect Connect® for ODBC DataDirect Connect64® for ODBC NCE WIZARD
	Which DataDirect ODBC driver are you using?
	ODB2 Wire Protocol
	⊖Informix Wire Protocol
	⊖MySQL Wire Protocol
	Oracle Wire Protocol
	OSQL Server Wire Protocol
	OSybase Wire Protocol
	Oracle (client-based)
	Next >

3. Once the driver is chosen, you'll be shown a series of questions about how you interact with Oracle. Each question includes some additional guidance to help you provide the most accurate answer:

Performance Wiz	act Connect® for ODBC act Connect64® for ODBC ARD
Oracle Wire Protocol Choose Driver Select Statements Stored Procedures Multi-Threaded Application Corollable Results Corollable Results Coracle Synonyms Server Settings Catalog Options Encryption Result	Does your application execute SQL Select Statements? Pes No
	< Back Next > Detail: If your application executes SQL Select statements, the driver can be tuned to improve performance. The wizard will lead you through a series of questions to determine the correct settings for multiple connection string attributes.

Once you've finished, the wizard will update your Oracle data source with optimal performance settings.

Installing SAS and Running a Query

1. Install the required SAS products.

Now that you have a working connection to Oracle through ODBC, it's time to install the necessary SAS software to use this connection. For the purposes of this example, we'll install the SAS Foundation along with the SAS/ACCESS interface to ODBC.

2. Launch SAS Foundation.

When you install SAS Foundation, you're prompted to provide an installation directory. We chose /usr/local/SAS. SAS then created a subdirectory called SASFoundation/9.2, which is where you'll find the sas command that launches the product.

If you're unable to locate the SAS installation, contact your SAS administrator for more details.

3. Run a basic SAS query.

Once SAS Foundation is launched, you can access its query capabilities by switching into the SAS Log window and choosing Tools -> Query:

SAS: Explorer	SAS: Log-Untitled
File Edit View Tools Solutions Help	File Edit View Tools Solutions Help
Contents of 'SAS Environment'	Table Editor IIe "news" in the "mis A
Elbraries	The command improved failer and information in the pnews" will prevent th
File Shortcuts	No Image Editor
Favorite Folders	🔯 Text Editor
	: New Library
	CNOTE: SAS in: New File Shortcut ed:
	real t: Options > .22 seconds
	cpu time21 seconds
	M
	SAS: Program Editor-Ontitied
	File Edit View Tools Run Solutions Help
	00001
	00002
	: 00003
	00004
	00005
	■) [El 2

4. This launches the SAS:Query dialog. Once this is running, choose the Tools -> Switch Access Mode -> ODBC menu option:

5. SAS now displays a dialog box where you can enter in the data source, username, and password details that you configured earlier.

	ODBC Access Options	1 1 1
Data Source:	ORACLE_ASPEN	
Login name:	scott	_
Password:		
ок	Cancel	

Once you press OK, SAS will attempt to connect, via the SAS/ACCESS interface to ODBC and the DataDirect Oracle Wire Protocol driver, to the Oracle data source. If everything is configured correctly, you should see a list of all available tables as follows:

	SQL QUERY TABLES	
File <u>View Tools Profile Solutions H</u> elp		
Available Tables BI.CHANNELS BI.COSTS BI.COUNTRIES BI.CUSTOMERS BI.PRODUCTS BI.PRODUCTS BI.PROMOTIONS BI.SALES BI.TIMES CTXSYS.CTX_CLASSES CTXSYS.CTX_INDEX_ERORS CTXSYS.CTX_INDEX_ERORS CTXSYS.CTX_INDEX_PARTITI CTXSYS.CTX_INDEX_PARTITI CTXSYS.CTX_INDEX_SETS CTXSYS.CTX_INDEX_SETS CTXSYS.CTX_INDEX_SET_INI OK	Image: Alias	Selected Tables

- 6. At this point, all that's left to do is select the EMP table from the SCOTT tablespace, followed by any columns that you want to include in your query. Remember to click on the OK button to finalize your choices.
- 7. Once you've made these selections, choose the Tools -> Run Query -> Run Immediate menu option to launch your query:

This will return results into the SAS output window:

SAS: Results	SAS: Output-Untitled	_
<u>File Edit View Tools Solutions Help</u>	File Edit View Tools Solutions Help	
Results	The SAS System	.day, Marc
⊡~ கு SQL: The SAS System ட இ Query Results	EMPNO ENAME JOB MGR HIREDATE DEPTNO	SAL
	7369 SMITH CLERK 7902 17DEC1980:00:00:00 20	800.00
	7499 ALLEN SALESMAN 7698 20FEB1981:00:00:00 30	1600.00
	7521 WARD SALESMAN 7698 22FEB1981:00:00:00 30	1250.00
	7566 JONES MANAGER 7839 02APR1981:00:00:00 20	2975.00
	7654 MARTIN SALESMAN 7698 28SEP1981:00:00:00 30	1250.00
	7698 BLAKE MANAGER 7839 01MAY1981:00:00:00 30	2850.00
	The SAS System 13:48 Fri	.day, Marc
	EMPNO ENAME JOB MGR HIREDATE DEPTNO	SAL
	7782 CLARK MANAGER 7839 09JUN1981:00:00:00 10	2450.00

You're now ready to use all of the power of SAS by using the DataDirect Connect *for* ODBC Oracle Wire Protocol driver to interact with your Oracle-based information.

Ready to try DataDirect Connect *for* ODBC with SAS? <u>Download a free trial today</u>, submit a <u>Request for Information</u>, or call **1-800-876-3101** to speak with an account executive.

Biography: Robert Schneider is a Silicon Valley-based technology consultant. He has written five books and numerous articles on advanced technical topics such as Service Oriented Architecture (SOA), open source, and relational database design/optimization. He can be reached at <u>Robert.Schneider@think88.com</u>

FOR MORE INFORMATION

800-876-3101

Worldwide Sales

Belgium (French)	0800 12 045
Belgium (Dutch)	0800 12 046
France	0800 911 454
Germany	0800 181 78 76
Japan	0120.20.9613
Netherlands	0800 022 0524
United Kingdom	0800 169 19 07
United States	800 876 3101

© 2009 Progress Software Corporation. All rights reserved. DataDirect is a registered trademark of Progress Software Corporation. Other company or product names mentioned herein may be trademarks or registered trademarks of their respective companies.

4/2009



DataDirect Technologies is the software industry's only comprehensive provider of software for connecting the world's most critical business applications to data and services, running on any platform, using proven and emerging standards. Developers worldwide depend on DataDirect® products to connect their applications to an unparalleled range of data sources using standards-based interfaces such as ODBC, JDBC[™] and ADO.NET, XQuery and SOAP. More than 300 leading independent software vendors and thousands of enterprises rely on DataDirect Technologies to simplify and streamline data connectivity for distributed systems and to reduce the complexity of mainframe integration. DataDirect Technologies is an operating company of Progress Software Corporation (Nasdaq: PRGS).

www.datadirect.com