USING PROGRESS DATADIRECT FOR ODBC WITH THE ORACLE DATABASE GATEWAY
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Introduction

**Heterogeneous Services** and Database Gateway for ODBC allow Oracle customers to access and integrate non-Oracle data sources, offering flexibility in multi-database environments.

Using Database Gateway for ODBC requires optimal connectivity to ensure the best application performance. Progress® DataDirect® for ODBC drivers deliver the most scalable and best-performing connectivity for Oracle Database Gateway.

- Architecture: Oracle Database Gateway for ODBC
- Installation Steps and Code Examples
- Common Errors and Solutions

Architecture: Oracle Database Gateway for ODBC

The Oracle Database Gateway for ODBC is implemented by using a Heterogeneous Services ODBC agent. An ODBC agent is one of the gateways available with the Oracle Database Gateway software.

To access a non-Oracle data store using the Database Gateway for ODBC, the agent works with an ODBC driver. The ODBC driver must be on the same platform as the ODBC agent. The non-Oracle data stores can reside on the same machine as the Oracle database or a different machine.
Installation Steps and Code Examples

This example shows the configuration of the Database Gateway for ODBC on a Sun Solaris system using a DataDirect ODBC driver to connect to Microsoft SQL Server. Please check your Oracle documentation for specific version and platform support.

1. Install the Database Gateway for ODBC

Oracle Database Gateway has its own installer similar to the one used to install the Oracle server. Run the installer and choose Database Gateway for ODBC and follow the prompts. If the Gateway and Oracle server are on the same machine, make sure to configure the Gateway with a different port number than the Oracle listener is using.

2. Install the DataDirect for ODBC Driver

Some non-Oracle data stores will require the database's client library components to be installed. If the database is DB2, Sybase, SQL Server or Informix, you should use the DataDirect for ODBC Wire Protocol driver for that database because DataDirect drivers don't require client libraries to connect to the database.

3. Configure Your ODBC Data Source in the .odbc.ini file

The example below is a data source to connect to Microsoft SQL Server 2008.

Note: Annotations to the following examples that begin with the // symbol should not be included in the actual file.

```
[MS _ SQLServer] // Configured during ODBC driver installation
Driver=/opt/odbc/lib/ivmsqlsXX.so
Description=DataDirect SQL Server Wire Protocol
Database=dbname // Name of target database
HostName=120.2.200.176,1433 // IP address of target database
PortNumber=1433 // Port number of target database.
```
4. Make Sure the Following Entries are in the tnsnames.ora and listener.ora files

TNSNAMES.ORA
hsalias=
    (description=
        (address=(protocol=tcp)(host=hostname)(port=1521))
        (connect_data=(sid=DataDirectODBC)) // Needs to match the sid in listener.ora.
    (hs=ok) // hs clause goes in the description.
)

LISTENER.ORA
listener =
    (description_list =
        (description =
            (address_list =
                (address = (protocol = tcp)(host = unixhost)(port = 1521))
            )
        )
    )
sid_list_listener=
sid_list=
sid_desc=
sid_name=DataDirectODBC) // Match the sid in tnsnames.ora.

(oracle_home=/db/oracle/product/11g)\ // Appropriate $ORACLE_HOME
    (program= dg4odbc) // Agent Executable
    (ENVS=LD_LIBRARY_PATH=/opt/odbc/lib:$ORACLE_HOME/LIB)
)

(Note: Shared library path is LIBPATH on AIX, and SHLIB_PATH on HP-UX PA RISC)
5. Run “lsnrctl Services” to Verify that You Now Have a Service Handler for the hsmsql sid

```
LSNRCTL> status
Services Summary...
Service “dg4odbc” has 1 instance(s).
    Instance “dg4odbc”, status UNKNOWN, has 1 handler(s) for this service...
    The command completed successfully
```

6. Create the Initialization File

You must create and customize an initialization file for your Database Gateway for ODBC agent. Oracle supplies a sample initialization file named “initdg4odbc.ora”—which is stored in the $ORACLE_HOME/hs/admin directory.

To create an initialization file, copy the appropriate sample file and rename the file to initHS_SID.ora. In this example, the SID noted in the listener and tnsnames files is “DataDirectODBC” so the new initialization file is called “initDataDirectODBC.ora.”

**Note** that the SID name and the initialization file name are case sensitive.

7. Make sure the Following Entries are in the initdg4odbc.ora Now Located in ORACLE_HOME/hs/admin

```
INITDataDirectODBC.ORA
# HS init parameters
#
HS_FDS_CONNECT_INFO = MS_SQLServer // odbc data_source_name
HS_FDS_TRACE_LEVEL = OFF // range includes OFF, ON, DEBUG
HS_FDS_TRACE_FILE_NAME = hsmsql.trc // trace file name
HS_FDS_SHAREABLE_NAME = /opt/odbc/lib/libodbc.so
// full path to odbc driver manager
#
#
# ODBC specific environment variables
#
set ODBCINI=/opt/odbc/odbc.ini // location of odbc.ini
#
```
8. Stop and Start the Oracle Net Listener for the Gateway

$ lsnrctl stop
$ lsnrctl start

9. Create a Database Link to Access the Target Database

Be sure to use the appropriate quotes as shown in the following example:

SQL> create database link hsmsql
SQL> connect to "user" identified by "password"
SQL> using 'hsalias';

10. To Test, Run a Simple Query of a Known Table on the Target Data Store

SQL> select * from employee@hsmsql;
8 rows selected.

<table>
<thead>
<tr>
<th>EMPID</th>
<th>FIRSTNAME</th>
<th>LASTNAME</th>
<th>DEPT</th>
<th>JOB</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000</td>
<td>Joseph</td>
<td>Johnston</td>
<td>Sales</td>
<td>CDW</td>
</tr>
<tr>
<td>10001</td>
<td>John</td>
<td>Ladd</td>
<td>Sales</td>
<td>WNV</td>
</tr>
<tr>
<td>10002</td>
<td>Ronald</td>
<td>Wall</td>
<td>Relations</td>
<td>NPI</td>
</tr>
<tr>
<td>10003</td>
<td>Julie</td>
<td>Reynolds</td>
<td>Relations</td>
<td>NPO</td>
</tr>
<tr>
<td>10004</td>
<td>Bill</td>
<td>Baird</td>
<td>Telemarket</td>
<td>PHN</td>
</tr>
<tr>
<td>10005</td>
<td>Jason</td>
<td>Linde</td>
<td>Sales</td>
<td>WND</td>
</tr>
<tr>
<td>10006</td>
<td>Edward</td>
<td>Lufner</td>
<td>Telemarket</td>
<td>CDG</td>
</tr>
<tr>
<td>10007</td>
<td>Mike</td>
<td>Seibt</td>
<td>Networking</td>
<td>IDW</td>
</tr>
</tbody>
</table>
# Common Errors and Solutions—Oracle Heterogeneous Services and Database Gateway for ODBC

<table>
<thead>
<tr>
<th>Error</th>
<th>Cause</th>
<th>Action</th>
</tr>
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</table>
| ORA-28509: unable to establish a connection to non-Oracle system | Problem with the Oracle configuration files! | Make sure:  
  - HOST parameter in the tnsnames.ora file is correct.  
  - PORT number is correct.  
  - SID name is correct in both tnsnames.ora and listener.ora. |
| ORA-02063: preceding line from HS | | |
| ORA-02068: following severe error from HS | The required syntax for the TNSNAMES.ORA file is not present. | Add (HS=OK) in the description section of the tnsnames.ora file.  
NOTE: the listener is unable to start if an invalid PROGRAM name is provided. |
| ORA-03114: not connected to ORACLE | | |
| ERROR at line 1: ORA-28500: connection from ORACLE to a non-Oracle system returned this message: [DataDirect][ODBC lib] Data source name not found and no default driver specified | Incorrect parameter settings in the HS init.ora file. | Set HS_FDS_CONNECT_INFO in the HS init.ora file to the data source name located in the odbc.ini file.  
Example:  
HS_FDS_CONNECT_INFO = MS_SQLServer Wire Protocol  
Make sure the HS init.ora file exists in the $ORACLE_HOME/hs/admin directory and has the same name as the SID in the listener.ora.  
Example:  
If SID=hsodbc in the listener.ora file, then the HS init.ora file would be named $ORACLE_HOME/hs/admin/inithsodbc.ora. |
| ORA-02063: preceding 2 lines from ODBCLINK | | |
| ERROR at line 1: ORA-28500: connection from Oracle to a non-Oracle system returned this message: | Incorrect parameter settings in the HS init.ora file. | Set HS_FDS_SHAREABLE_NAME to the full path plus filename to the libodbc.so file.  
Example:  
HS_FDS_SHAREABLE_NAME=/opt/odbc/lib/libodbc.so |
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</tr>
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<tbody>
<tr>
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<td>The data source in the odbc.ini file has incorrect database information.</td>
<td>Consult the DataDirect for ODBC Reference Guide for information on setting parameters for your data source.</td>
</tr>
<tr>
<td>ERROR at line 1: ORA-28500: connection from Oracle to a non-Oracle system returned this message:</td>
<td>The HS agent cannot find the odbc.ini file.</td>
<td>Set the ODBCINI variable in the HS init.ora file. Example: set ODBCINI=/opt/odbc/odbc.ini</td>
</tr>
<tr>
<td>ERROR at line 1: ORA-02063: preceding 2 lines from ODBCLINK</td>
<td>There is a problem communicating with the foreign data source at the network layer.</td>
<td>Make sure the destination host or IP address and port number are correct for the data source in the odbc.ini file.</td>
</tr>
<tr>
<td>ERROR at line 1: ORA-02063: preceding 2 lines from ODBCLINK</td>
<td>The Oracle database link created for the foreign data source either has no credentials or incorrect credentials.</td>
<td>Recreate the Oracle database link with the proper username and password. Note that the username and password must be in double quotes. Example: Create database link ODBC connect to 'sa' identified by 'pencil' using 'hsodbc'.</td>
</tr>
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About Progress

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Worldwide Headquarters

Progress, 14 Oak Park, Bedford, MA 01730 USA  Tel: +1 781 280-4000  Fax: +1 781 280-4095
On the Web at: www.progress.com
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