

HP OpenView Select Identity

Connector for Oracle® Database

Connector Version: 3.2

Installation and Configuration Guide

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Software Release Date: March 2006



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- Commons-beanutils
- Commons-collections
- Commons-logging
- Commons-digester
- Commons-httpclient
- Element Construction Set (ecs)
- Jakarta-poi
- Jakarta-regexp
- Logging Services (log4j)

Additional third party software used by Select Identity includes:

- JasperReports developed by SourceForge
- iText (for JasperReports) developed by SourceForge
- BeanShell
- Xalan from the Apache XML Project
- Xerces from the Apache XML Project
- Java API for XML Processing from the Apache XML Project
- SOAP developed by the Apache Software Foundation
- JavaMail from SUN Reference Implementation
- Java Secure Socket Extension (JSSE) from SUN Reference Implementation
- Java Cryptography Extension (JCE) from SUN Reference Implementation
- JavaBeans Activation Framework (JAF) from SUN Reference Implementation

- OpenSPML Toolkit from OpenSPML.org
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1 Introduction

This chapter gives an overview of the HP OpenView Select Identity connector for Oracle. An HP OpenView Select Identity connector allows you to provision users and manage identities on Oracle database. At the end of this chapter, you will be able to know about:

- the benefits of HP OpenView Select Identity
- the role of a connector
- the connector for Oracle

About HP OpenView Select Identity

HP OpenView Select Identity (OVSI) provides a new approach to identity management. It helps you manage the entire identity lifecycle of an enterprise application. By using OVSI, you can automate the process of provisioning and managing user accounts and access privileges across platforms, applications, and corporate boundaries. OVSI communicates with the enterprise information system through connectors, and automates the tasks of identity management. The enterprise information system, which is also referred to as **resource**, can be a database, a directory service, or an ERP package, among many others.

About Connectors

You can establish a connection between a resource and OVSI by using a connector. A connector is resource specific. It is installed on the system where OVSI is installed. The combination of OVSI and connector helps you perform a set of tasks on the resource to manage identity. A connector can be **unidirectional** or **bidirectional**. A unidirectional connector helps you manage identities from OVSI, but if any change takes place in resource, it cannot communicate that back to OVSI. On the other hand, a bidirectional connector can reflect the changes made on resource back to OVSI. This property of bidirectional connectors is known as **reverse synchronization**.

About Oracle Database Connector

The OVSI connector for Oracle 9i and 10g database — hereafter referred to as Oracle database connector is able to perform the following tasks on an Oracle database:

- Add, update, and remove users
- Retrieve user attributes
- Enable and disable users

- Verify a user's existence
- Change user passwords
- Reset user passwords
- Retrieve all entitlements
- Retrieve a list of supported user attributes
- Grant entitlements (profiles and roles) to users
- Revoke entitlements (profiles and roles) from users



This connector does not provision database system users. Rather, it provisions users into a user-defined database schema in Oracle. To provision database system users, install the Admin Oracle connector.

It is a bidirectional connector and the connector agent can send user changes made in Oracle to Select Identity. The following reverse synchronization operations are supported:

- Change passwords stored in Select Identity based on changes to the passwords in the schema in Oracle
- Add, modify, and delete users based on user additions, modifications, and deletions in the schema in Oracle

When a user is added, modified, or deleted in the database, triggers capture the changes. The agent's reverse synchronization component then sends the changes to Select Identity's Web Service in SPML. If an error occurs during reverse synchronization, the agent stops the operation (without affecting the connector's operations). In order to achieve reverse synchronization, you must install and configure the agent.

The Oracle database agent supports secure channel of communication to OVSI webserivce using HTTPS. The application server needs to be configured with Secure Socket Layer (SSL).

Suitable settings can be made on agent by setting some properties to enable secure communication between agent and OVSI in reverse synchronization. The agent will automatically import the certificate from OVSI and initialize secure communication.

The connector can be used in three different ways.

- *Connector with agent:*
In this configuration, the connector communicates with an agent that resides in the database server. The agent uses a JDBC 2.0 compliant driver to communicate with the database. The agent can also push changes made in Oracle to the Select Identity database (reverse synchronization). You must install the agent before configuring the connector in this mode. Refer to [Install the Agent on the Database Server](#) on page 17 for information on installing agent. In this configuration, you must fill up the fields in Resource Access Information page as mentioned in the table below..

Field	Value
Mapping File	The name of the XML file that will be generated.
Server Name	The name of the database server.
Server Port	The database server's listening port.
Username	The database user.
Password	The password of the specified user.

Field	Value
Agent Port	The agent's listening port.
SQL URL	The name of the JDBC driver to use to connect to the database.
Database/Service Name	The name of the database.
Database Driver String	The JDBC driver being used.

- *Connector without agent and with a JDBC data source:*
In this configuration, the connector communicates with the database directly through JDBC calls. In this case, make sure to create or identify a JDBC data source (and underlying connection pool) on the Select Identity server that can connect to the target Oracle database.

While creating the JDBC Datasource on Weblogic:

- Uncheck the Honor Global Transactions option.
- Check the Emulate Two-Phase Commit for non-XA Driver option.

You must do this configuration to allow the newly created Datasource to co-exist with the OVSI JDBC Datasource. In this configuration, you must fill up the fields in Resource Access Information page as mentioned in the table below.

- ▶ The above mentioned data source is not the OVSI JDBC Data Source, but a connection pool and data source created pointing to the target database to which the connector has to connect and provision

Field	Value
Mapping File	The name of the XML file that will be generated.
JDBC Datasource String	The JNDI name of the JDBC data source that was created on the Select Identity server to connect to the target database.

- *Connector without agent and with JDBC driver:*
The connector communicates to the database by using a JDBC 2.0 compliant driver; no agent is installed on the database server. In this configuration, you must fill up the fields in Resource Access Information page as mentioned in the table below.

Field	Value
Mapping File	The name of the XML file that will be generated.
Server Name	The name of the database server.
Server Port	The database server's listening port.
Username	The database user.
Password	The password of the specified user.

Field	Value
SQL URL	The name of the JDBC driver to use to connect to the database.
Database/Service Name	The name of the database.
Database Driver String	The JDBC driver being used.



This connector can be used with OVSI 4.0 and 3.3.1.

2 Installing the Connector

The Oracle connector is packaged in the following files and folders, which are located in the Select Identity Connector CD:

Table 1 Oracle database Connector Files

Serial Number	File Name	Description
1.0	Gen-Oracle-Connector.rar	It is the Resource Adapter Archive (RAR) file of the connector. It contains the binaries. It is available in
2.0	Oracle-Gen-AgentInstaller-Win.zip	It is zip file that contains the installation executable for the connector agent. This is for the agent to be installed in Windows environment. It is located in Agent Installers subdirectory on the connector CD.
3.0	Oracle-Gen-AgentInstaller-Solaris.tar and Oracle-Gen-AgentInstaller-HPUX.tar	These are tar files that contains the installation executable for the connector agent. This is for the agent to be installed on UNIX environment. It is located in Agent Installers subdirectory on the connector CD.

The Oracle connector is not shipped with any Schema file. The mapping file for the connector must be created by using the attribute mapping utility on OVSI. Refer to *Appendix C : Attribute Mapping* in *HP OpenView Select Identity Administrator Guide* for more information on attribute mapper utility.

System Requirements

The Oracle connector is supported in the following environment:

Table 2 Platform Matrix for Oracle database Connector

Select Identity Version	Application Server	Database
3.0.2	WebLogic 8.1.2 on Windows 2000	SQL Server 2000
	WebLogic 8.1.2 on Windows 2003	SQL Server 2000
	WebLogic 8.1.2 on Solaris 9	Oracle 9i
	WebLogic 8.1.2 on HP-UX 11i	Oracle 9i
	WebSphere 5.1.1 on Solaris 9	DB2 8.2 (or DB2 8.1 Service Pack 7)
3.3	WebLogic 8.1.4 on Windows 2003	SQL Server 2000
	WebLogic 8.1.4 on Solaris 9	Oracle 9i
	WebLogic 8.1.4 on HP-UX 11i	Oracle 9i
3.3.1	WebLogic 8.1.4 on Windows 2003	SQL Server 2000
	WebLogic 8.1.4 on Solaris 9	Oracle 9i
	WebLogic 8.1.4 on HP-UX 11i	Oracle 9i
	WebSphere 5.1.1 on HP-UX 11i	Oracle 9i
	WebSphere 5.1.1 on Windows 2003	Oracle 9i
4.0	The Oracle database connector is supported on all the platform configurations of Select Identity 4.0	

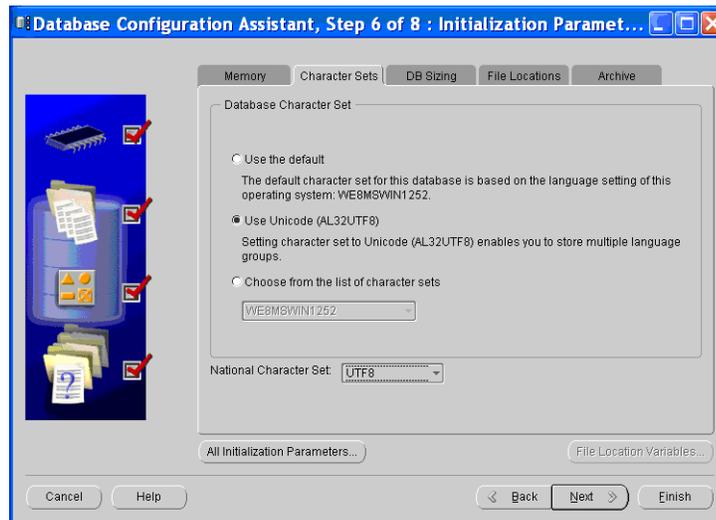
The Oracle database connector is supported for Oracle 9i and 10g database servers on Windows 2003, Solaris 9, and HP-UX 11i

This connector supports secure JDBC for database communication. See [Configure Oracle to Support Secure JDBC](#) on page 34 for more information.

The Oracle connector is internationalized and is able to operate with languages that are supported by the Java Unicode specification. If you wish to use the connector on non-English platforms, make sure that the following prerequisites are met:

- The Select Identity server is configured for internationalization. Refer to the *HP OpenView Select Identity Installation and Configuration Guide* for more information.
- The Oracle database is configured to support internationalization. The database must be in the UTF-8 encoding format. To configure the database for UTF-8 support, create or modify the database with the following settings for Character Sets using the Database Configuration Assistant tool:

- Database Character Set: Use Unicode (AL32UTF8)
- National Character Set: UTF8



Prerequisite

If using a JDBC driver to communicate with the database, copy the JDBC 2.0 compliant driver to the application server. For Oracle, you must copy the JDBC driver file (`classes111.zip`). Obtain these files from your database administrator. Then, add the JDBC driver files to the application server's class path, such as by editing the `myStartWL.cmd` (for WebLogic on Windows) or `myStartWL.sh` (for WebLogic on UNIX) file.

If you want to use a JDBC data source to communicate with the database, create or identify the data source to use.

Installation Procedure

Perform the following tasks to install Oracle database connector.

- 1 [Deploy the Connector on Application Server](#)
- 2 [Configure the Connector with OVSI](#)
- 3 [Install the Agent on the Database Server](#)

Deploy the Connector on Application Server

You must deploy the RAR file (`Gen-Oracle-Connector.rar`) of the connector on an application server. Refer to *Connector Deployment Guide* for more information on deploying the RAR file on an application server.

Configure the Connector with OVSI

After deploying the connector to an application server, you must configure it with Select Identity. To achieve successful configuration, you must perform the following steps.

- 1 Add a new connector – Add a new connector on OVSI. Refer to *HP OpenView Select Identity Connector Deployment Guide* for information on adding a new connector. While adding the connector, under Current Resource Connectors section in Manage Connectors page, do the following:
 - In the Connector Name text box, specify a name for the connector.
 - In the Pool Name text box, enter **eis/Gen-OracleConnector**.
 - Under Mapper Available section, select **Yes**.
- 2 Add a resource — You must add a resource to OVSI that uses the newly created connector. Refer to *HP OpenView Select Identity Connector Deployment Guide* for the instructions to achieve this. You can configure connector and resource in three different ways.
 - If you want to install and use the agent, enter the appropriate values in Database Driver String field and Agent Port. Leave the JDBC Datasource String field empty.
 - If you do not want to install and use the agent, leave the field Agent Port empty. Enter an appropriate value either in Database Driver String, or JDBC Datasource String.

The connector is not packaged with a mapping file. Perform the following steps to create the mapping file by using attribute mapper utility on OVSI.

- a Check the `TruAccess.properties` file, which resides in the `install_dir/sysArchive` directory on the Select Identity server, for the property `com.hp.ovsi.connector.schema.dir`. Set this property to the top-level directory where the mapping files reside, which is specified in the Base Directory field on the Attribute Mapping Utility interface.



If no value is specified in the Base Directory field, the `com/truologica/truaccess/connector/schema/spml` directory structure will be created in the application server's home directory.

For example, if you enter `C:\SI_3.3\schema` in the Base Directory field, the `com/truologica/truaccess/connector/schema/spml` directory structure is created under that directory, and the XML and XSL files are created there. In this example, the files reside in the directory:

```
C:\SI3.3\schema\com\truologica\truaccess\connector\schema\spml.
```

Thus, you must set the `com.hp.ovsi.connector.schema.dir` property as follows:`com.hp.ovsi.connector.schema.dir = C:/SI3.3/schema`

- b Invoke attribute mapping utility to generate the XML file (mapping file) and XSL file (for reverse synchronization) for the database schema. Refer to *Appendix C: Attribute Mapping* chapter of *HP OpenView Select Identity Administrator Guide* for information on attribute mapping utility.
- c Enter the name of this XML file in Mapping File field while entering the resource parameters.

Refer to the following table for sample values for the fields in Resource Basic Info and Resource Access Info pages.

Table 3 Resource Configuration Parameters

Field Name	Sample Values	Description
Resource Name	<i>Gen-Oracle</i>	The name of the resource.
Resource Type	<i>Gen-Oracle</i>	The connector that was deployed in step 1 on page 14.
Authoritative Source	<i>No</i>	Whether this resource is a system that is considered to be the authoritative source for user data in your environment. Specify Yes if the connector is enabled for reverse synchronization. If the resource is not authoritative, the resource can only modify user entitlements during reverse synchronization.
Server Name	<i>HP111</i>	Host name or IP address of the database server. You must specify this parameter if the agent was installed.
Server Port	<i>1521</i>	Port on which the database server is listening. You must specify this parameter if the agent was installed.
Username	<i>sa</i>	The login name of the database administrative user. You must specify this parameter if the agent was installed.
Password	<i>p4ssword</i>	Password of the database administrative user. You must specify this parameter if the agent was installed.
Agent Port	<i>5601</i>	The port where the agent listens for incoming connections. You must specify this parameter if the agent was installed.
SQL URL	<i>jdbc:oracle:thin</i>	URL to use to communicate with the database over a JDBC connection. You must specify this parameter if the agent was installed.

Table 3 Resource Configuration Parameters

Field Name	Sample Values	Description
Database / Service Name	<i>testDB</i>	The database name in which to provision users. You must specify this parameter if the agent was installed.
Database Driver String	<i>oracle.jdbc.driver. OracleDriver</i>	Name of the JDBC driver to connect to the database. You must specify this parameter if the agent was installed.
Mapping File	<i>Mapping.xml</i>	Mapping file containing the mappings generated by the Attribute Mapping Utility. The mapping file must reside in the <code>install/conf/com/truologica/truaccess/connector/schema/spml</code> directory in order for the Select Identity server to find it.
JDBC Datasource String	<i>Jdbc/SQLDataSource</i>	JNDI data source name that was created or identified on the Application server that can connect to the target Oracle database. Specify a value for this property if the agent was not installed. Note that the connection pool must be created by specifying a user with <code>adminstartor</code> privileges.
Encryption Specification Algo	<i>oracle.net.encryption_types_client</i>	Encryption algorithm specification string. Specify this parameter if you wish to use secure communication with Oracle.

Table 3 Resource Configuration Parameters

Field Name	Sample Values	Description
Encryption Algorithm	<i>RC4_128</i>	Name of the encryption algorithm. Specify this parameter if you wish to use secure communication with Oracle.
Encryption Specification Level	<i>oracle.net.encryption_client</i>	Encryption level specification string. Specify this parameter if you wish to use secure communication with Oracle.
Encryption Level	<i>ACCEPTED</i>	Encryption level. Specify this parameter if you wish to use secure communication with Oracle.

- 3 Map the attributes – You must map the OVSI attributes to the attributes of the resource. Refer to *HP OpenView Select Identity Connector Deployment Guide* for information on mapping attributes. Add new attributes on OVSI, if necessary. Refer to *Service Studio* chapter of *HP OpenView Select Identity Administrator Guide* for information on adding new attributes on OVSI.
- 4 Associate the newly added resource to a service. Refer to the chapter *Service Studio* of *HP OpenView Select Identity Administrator Guide* for more information on service.

Install the Agent on the Database Server

After you install the Oracle connector on the Select Identity server, you can install the agent on the database server. This is optional; the connector can provision users in Oracle without the agent. However, the agent enables you to send data back to Select Identity (reverse synchronization).

You can install the agent using the installation wizard or by manually copying files to the server.



Make sure to generate the XML and XSL mapping files before installing the agent. Copy the mapping files from the Select Identity server to the system where you will install the agent (on the database server). The agent installation requires that the mapping files are available on the local system.

Installation Using the Wizard on Windows

Complete the following steps to run the installation wizard, which installs the agent on Windows.

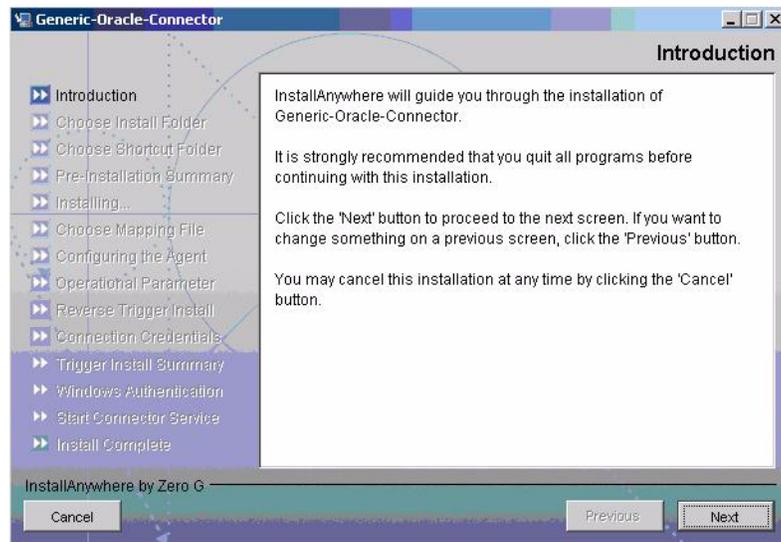


Before running the installation wizard, make sure that Java 1.4.2 (or above) is installed on the system and %JAVA_HOME%\bin is specified in the Path system variable.

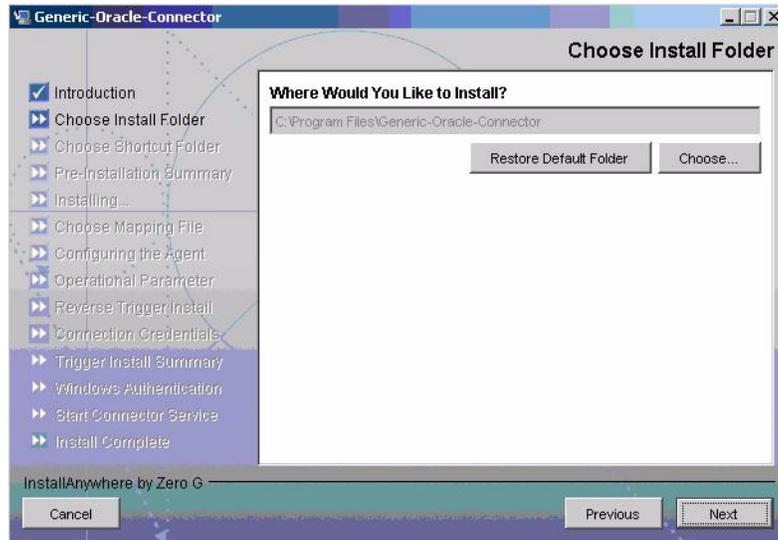
Also, you can pass the LAX_VM argument to point the wizard directly to the correct java.exe executable. Here is an example:

```
install.exe LAX_VM c:\java14\bin\java.exe
```

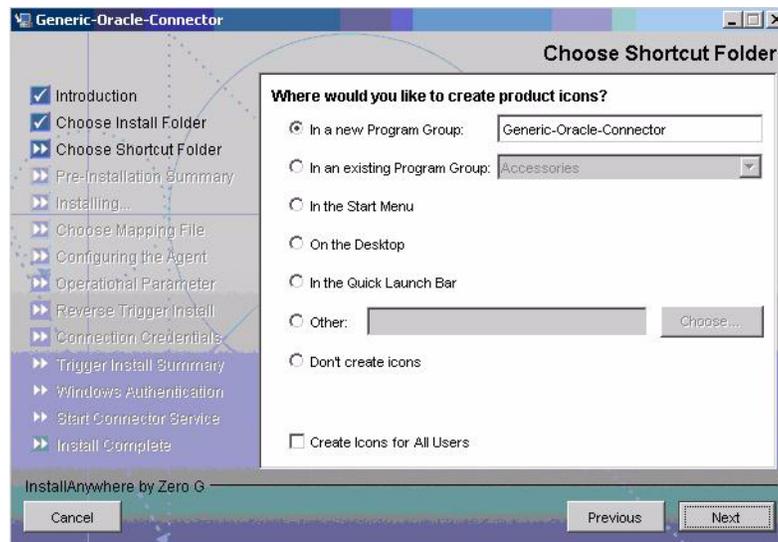
- 1 Extract the contents of the Oracle-Gen-AgentInstaller-Win.zip file, which is located in the Agent Installers directory on the CD.
- 2 Run Gen-Oracle-Connector-Installer.exe, which is located in the *target_dir*\CDROM_Installers\Windows\Disk1\InstData\NoVM. The following dialog appears:



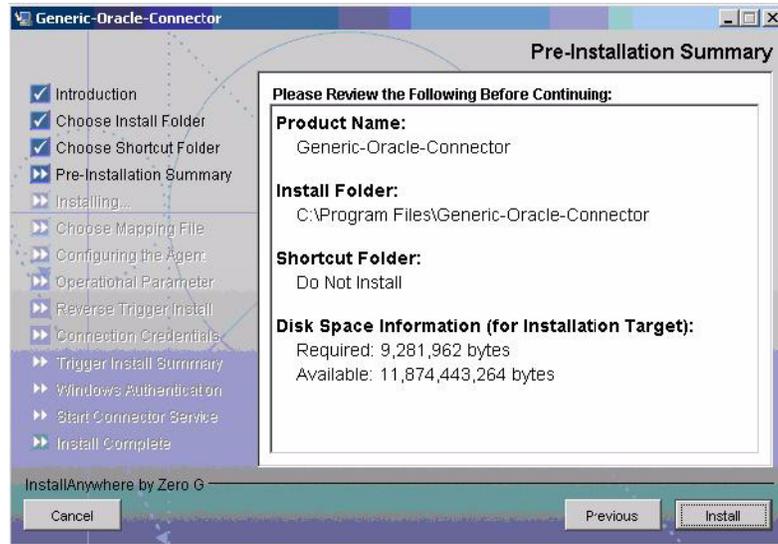
- 3 Click **Next**.
- 4 Specify an installation directory, and then click **Next**. By default, the agent is installed in C:\Program Files\Generic-Oracle-Connector.



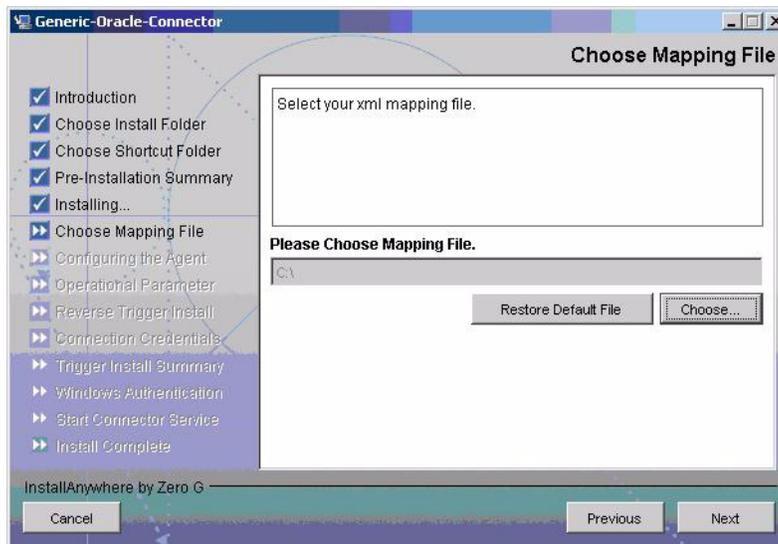
- 5 Select the location(s) where the product icons will be installed, and then click **Next**.



- 6 Verify the pre-installation summary. If you wish to make changes, click **Previous**, and then edit the chosen options. To install the agent, click **Install**.

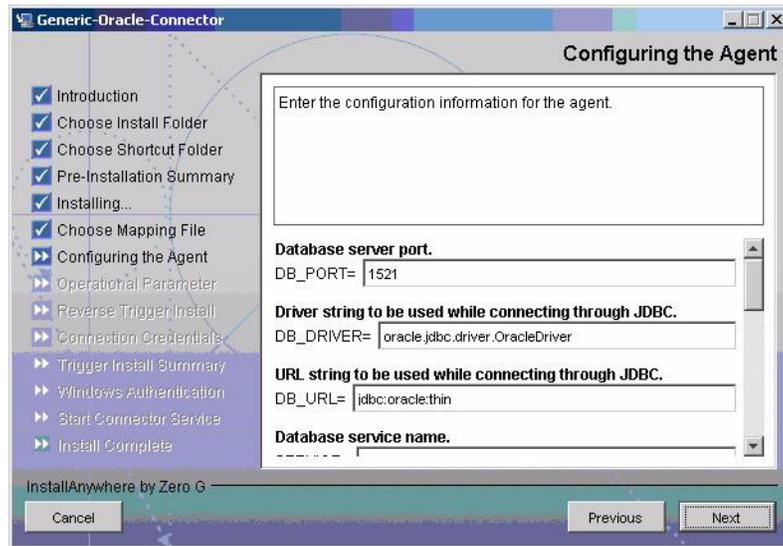


- 7 On the Set CLASSPATH dialog, click **Next** after you verify that the database driver file (`classes111.zip`) is in the database server's System class path.
- 8 Click **Choose** to browse and select the mapping file. This will copy the mapping file to the `install_dir/conf/com/trulogica/truaccess/connector/schema/spml` directory, where `install_dir` is the installation folder.



Then, click **Next**.

- 9 On the Configuring the Agent dialog, specify the requested information:



The following gives a description of the configuration options:

Option	Description	Example Value
DB_PORT	The port on which the database server is listening.	1521
DB_DRIVER	The JDBC driver for the database connection.	oracle.jdbc.driver.OracleDriver
DB_URL	The JDBC URL string used for the database communication.	jdbc:oracle:thin
SERVICE	The database name.	SI_DB
SERVER_SECURE	Whether communication between the agent and Select Identity must be secure. By default, non-secure communication is used. 0 - HTTP is used. 1 - Secure HTTPS communication is used	Must be checked if the secure communication is required.
CONCERO_SERVER_URL	The URL of the Select Identity Web Service. If the SERVER_SECURE is checked, the SI webservice should be running on SSL* and the protocol will be 'https'.	If running on SSL https://host:port/lmz/webservice else http://host:port/lmz/webservice
PollDelay	The polling delay for reverse polling (in seconds).	10

Option	Description	Example Value
AGENT_PORT	The port on which the agent listens for user provisioning requests from Select Identity.	5601
SPML_DELAY	The delay (in milliseconds) between successive SPML requests sent from the agent. Increase this delay if the network or Select Identity server is performing slowly.	10000
NO_OF_RETRIES	The number of times the agent will retry sending SPML requests in case of failure.	10
DELAY_BETWEEN_RETRIES	The delay (in milliseconds) between each retry.	10000



To edit any of these values after installation, you can edit the `properties.ini` file, which resides in `install_dir\conf`.

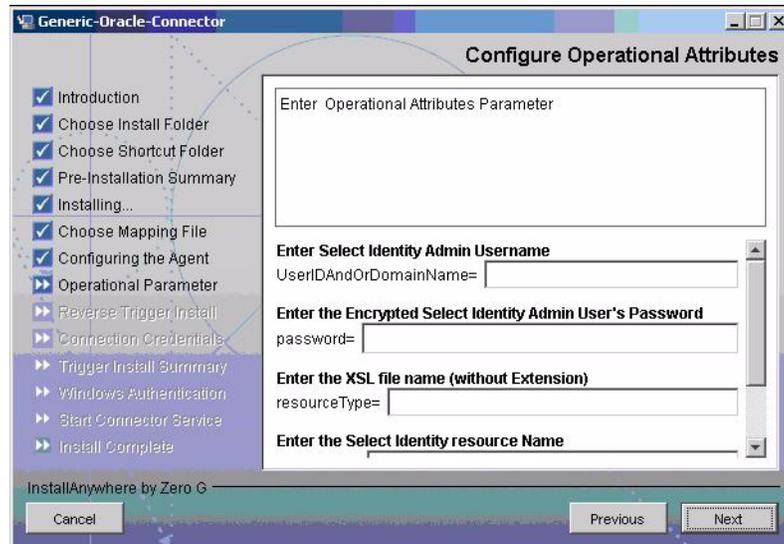
After specifying these values, click **Next**.

- 10 Provide the operational attributes that are sent to the Select Identity server during reverse synchronization requests. The table gives a description of the attributes:

Parameter	Sample Values	Description
urn:oasis:names:tc:SPML:1:0#UserIDAndOrDomainName	Sisa	User ID of the administrative user on Select Identity.
urn:trologica:concerro:2.0#password	*	Password of the administrative user. This password should be generated using the encryption utility provided with Select Identity.
urn:trologica:concerro:2.0#reverseSync	true	Set to true if you want to enable reverse synchronization.
urn:trologica:concerro:2.0#resourceType	OracleMap	The name of the XSL file (without the <code>.xsl</code> extension) that is used during reverse synchronization.
urn:trologica:concerro:2.0#resourceId	Oracle-Resource	The name of the Select Identity resource that is created for the Oracle connector.

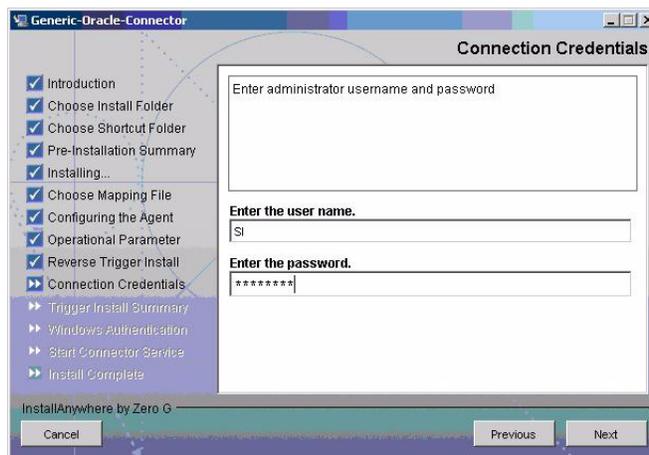


To edit any of these values after installation, you can edit the `opAttributes.properties` file, which resides in `install_dir\conf`.



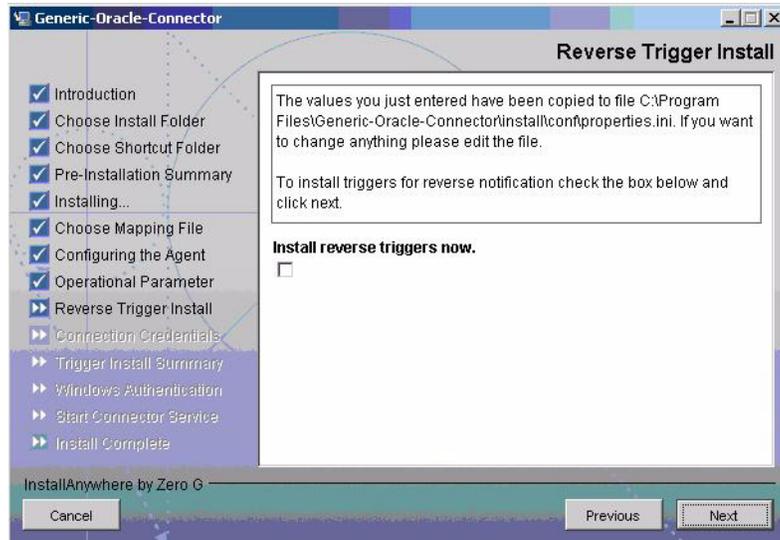
After specifying the values, click **Next**.

- 11 Enter the Username/password for the Oracle user with which the agent can connect to the Database. This user should have admin privileges.

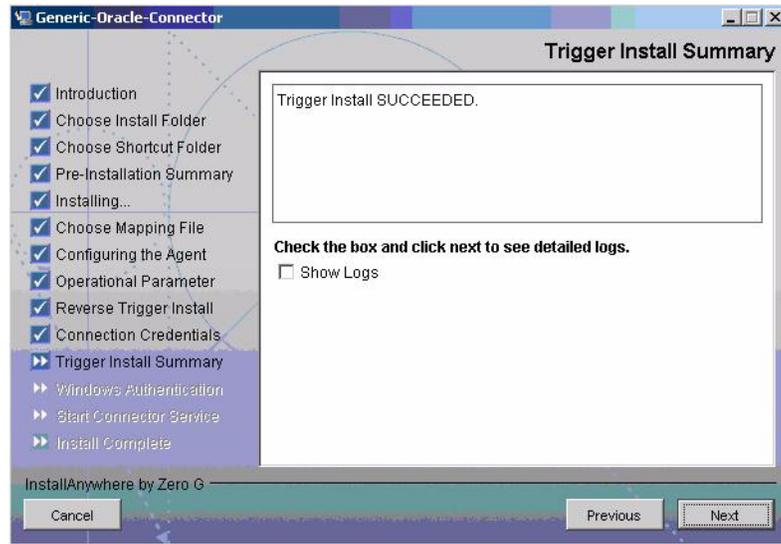


The agent will proceed only when you provide the correct connection credentials. The encrypted passwords will be written to the property files only after a successful connection is established with Database.

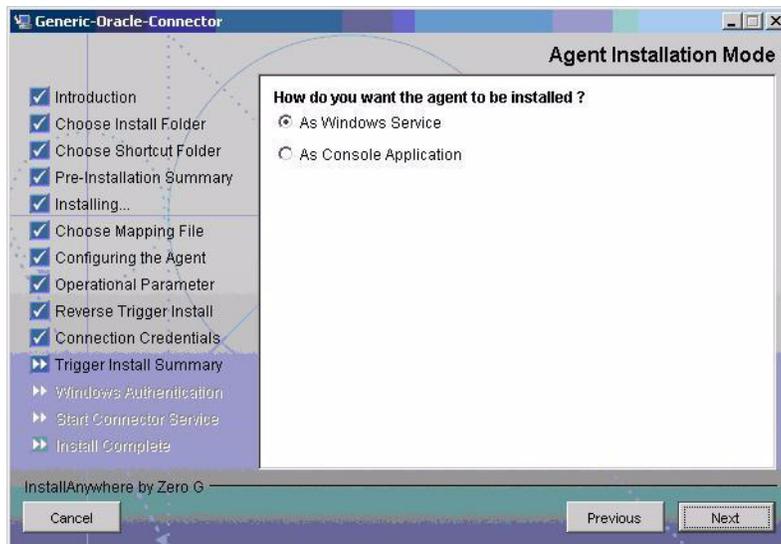
- 12 To enable reverse synchronization, you must install the reverse triggers. Select the **Install Triggers Now** option to install the triggers. Then, click **Next** and proceed to the next step.



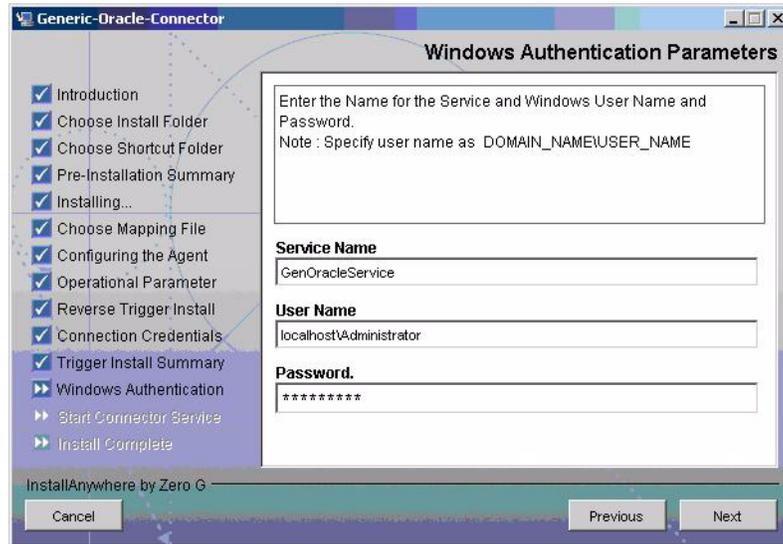
- 13 Review the installation summary for the triggers. If you wish to make changes, or if the trigger installation failed, click **Previous** and edit the chosen options, such as the credentials.



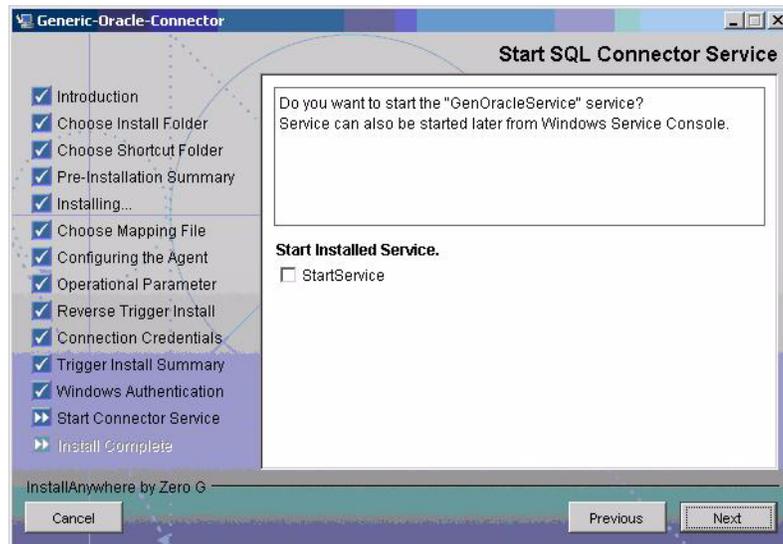
- 14 If you select the **Show Logs** option, the Detailed Logs dialog appears. Review the log entries, and then click **Next**.
- 15 Select if you want to run the Oracle Generic Connector Agent as a Console application or a Windows Service.



- 16 If you select to run the agent as A Console Application, skip to the next step. If you select A Windows Service, provide the Windows User account having the privilege to register the service along with the window's service name the Agent should be registered with.



- 17 After the Service is registered, if you want to start the Service, check the option of StartService.



- 18 When the installation wizard completes, click **Done** on the Install Complete dialog to close the installation program.

Installation Using the Wizard on UNIX

Complete the following steps to run the installation wizard, which installs the agent on UNIX:

- 1 Extract the contents of the Oracle-Gen-AgentInstaller-Solaris.tar or Oracle-Gen-AgentInstaller-HPUX.tar file, which are located in the Agent Installers directory on the CD, to a directory that will server as the agent's home

directory. (Use **tar xvf** to extract the contents of the TAR file.) This will create the required directory structure in the `Oracle-Gen-AgentInstaller-Unix` subdirectory of the home directory.

- 2 Set the `JAVA_HOME_14` environment variable to the directory where the JDK 1.4 is installed. Also, add the JVM to the system PATH variable.
- 3 Add the JDBC 2.0 compliant driver file (`classes111.zip`) for the database to the CLASSPATH.
- 4 Start the wizard by running the following command:

```
agent_home/Oracle-Gen-AgentInstaller-Unix/  
Gen-Oracle-Connector-Installer.bin
```

The following message appears:

```
=====  
Extracting the installation resources from the installer archive...  
Configuring the installer for this system's environment...  
  
Launching installer...  
  
Preparing CONSOLE Mode Installation...  
=====
```

```
(created with InstallAnywhere by Zero G)  
-----
```

```
Choose Install Folder  
-----
```

```
Where would you like to install?
```

```
Default Install Folder: /Generic-Oracle-Connector
```

```
ENTER AN ABSOLUTE PATH, OR PRESS <ENTER> TO ACCEPT THE DEFAULT:
```

- 5 Specify the installation location of the agent. Enter a path and press ENTER, or press ENTER to accept default path. The following message appears:

```
=====  
Choose Link Location  
-----
```

```
Where would you like to create links?
```

```
->1- Default: /
```

```
2- In your home folder
```

```
3- Choose another location...
```

```
4- Don't create links
```

```
ENTER THE NUMBER OF AN OPTION ABOVE, OR PRESS <ENTER> TO ACCEPT THE  
DEFAULT:
```

- 6 Select where you would like the agent shortcut location to be created. Select the number of the desired option as shown and press ENTER, or just press ENTER to accept the default. The following message appears:

```
=====  
Pre-Installation Summary  
-----
```

```
Please Review the Following Before Continuing:
```

```
Product Name:
```

```
Generic-Oracle-Connector
```

```

Install Folder:
/install_dir

Link Folder:
/

Disk Space Information (for Installation Target):
Required: xxx bytes
Available: yyy bytes

PRESS <ENTER> TO CONTINUE:

```

- 7 Verify the pre-installation summary and press ENTER. The following message appears:

```

=====
Installing...
-----

[=====|=====|=====|=====]
[-----|-----|-----|-----]

=====
Configuring the Agent
-----

Enter the port number where database server listens. Hit <ENTER> to accept
default.

Enter DB_PORT : (DEFAULT: 1521):

```

- 8 Specify the database port number and press ENTER to continue, or just press ENTER to accept the default. The following message appears:

```

=====
Configuring the Agent
-----

Enter the driver string (Driver string to be used by Java program to
connect to the database).

Enter the database driver : (DEFAULT: oracle.jdbc.driver.OracleDriver):

```

- 9 Enter the database driver and press ENTER to continue, or just press ENTER to accept the default. The following message appears:

```

=====
Configuring the Agent
-----

Enter the driver URL (URL to be used by Java program to connect to the
database).

Enter the database URL : (DEFAULT: jdbc:oracle:thin):

```

- 10 Enter the JDBC URL and press ENTER to continue, or just press ENTER to accept the default. The following message appears:

```

=====
Configuring the Agent
-----

Enter the database service name.

Enter the service name : (DEFAULT: ): SIDB

```

- 11 Enter the database name and press ENTER to continue, or ENTER to accept the default. The following message appears:

```
=====
Configuring the Agent
-----

Enable Server Secure (Y/N) ?
Enable Server Secure : (DEFAULT: N) : y
```

- 12 To enable secure communication, enter **y**, and then press ENTER to continue, or press ENTER to accept the default. The following message appears:

```
=====
Configuring the Agent
-----

Enter the URL where spml is to be sent by reverse sync.
Enter the concero server URL : (DEFAULT: ): http://localhost:7001/lmz/
webservice
```

- 13 Enter the URL of the Select Identity Web Service, which is where SPML requests are sent. Press ENTER to continue, or press ENTER to accept the default. The following message appears:

```
=====
Configuring the Agent
-----

Enter the interval (in seconds) at which polling is desired for reverse
sync.
Enter poll delay : (DEFAULT: 10):
```

- 14 Enter the polling interval (in seconds) that is used by the agent to check for changes on the resource that must be sent to the Select Identity server (during reverse synchronization), and then press ENTER, or just press ENTER to accept the default. The following message appears:

```
=====
Configuring the Agent
-----

Enter the port where the agent should listen.
Enter the agent port : (DEFAULT: ):6000
```

- 15 Enter the listening port number for the agent and press ENTER, or just press ENTER to accept the default and continue. The following message appears:

```
=====
Configuring the Agent
-----

Enter the time (in milli seconds) for which the agent should wait before
sending SPML.
Enter the spml delay : (DEFAULT: 100):
```

- 16 Specify the delay (in milliseconds) for which the agent will wait before sending SPML requests to the Select Identity server, and then press ENTER, or just press ENTER to accept the default and continue. The following message appears:

```
=====  
Configuring the Agent  
-----
```

```
Enter the Number of Retries to send SPML  
Number of Retries to send SPML : (DEFAULT: 3): 5
```

- 17 Specify the number of times the agent will attempt to send SPML requests after a failure to the Select Identity server, and then press ENTER, or just press ENTER to accept the default and continue. The following message appears:

```
=====  
Configuring the Agent  
-----
```

```
Enter the time (in milliseconds) This is Delay Between Retries (Number of  
mSec the agent will wait before going to next Retry)  
Enter the spml retry delay : (DEFAULT: 100): 10000
```

- 18 Specify the delay (in milliseconds) for which agent should wait before attempting to send SPML requests again after a failure to the Select Identity server, and then press ENTER, or just press ENTER to accept the default and continue. The following message appears:

```
=====  
Configuring the Agent  
-----
```

```
Enter Directory Path of the XML mapping file. (e.g. If the mapping file is  
"/osd5/trulogica/xxx.xml", enter "/osd5/trulogica/" including slashes)  
Directory Path of the XML mapping file. (DEFAULT: ): /opt/
```

- 19 Enter the path to the mapping file (include trailing slashes but do not include the file name), and then press ENTER, or just press ENTER to accept the default. The following message appears.

```
=====  
Configuring the Agent  
-----
```

```
Enter name of the XML mapping file. (Enter extension also.)  
Name of the XML mapping file. (Enter extension also.) (DEFAULT: ) : xxx.xml
```

- 20 Enter the name of the mapping file, and then press ENTER, or just press ENTER to accept the default. The following message appears:

```
=====  
XML Mapping Path  
-----
```

```
This is your directory path of Mapping File  
"/opt/"  
This is the Mapping File  
"xxx.xml"  
Is it Correct Path?(Y/N) (DEFAULT: Y): y
```

- 21 Press ENTER to accept the default (y), or enter n, and then press ENTER to change the values. If you enter y, the following message appears:

```
=====
Configure Operation Attribute Parameter
-----
```

```
Enter Select Identity Admin Username
Select Identity Admin Username : (DEFAULT: ): sisa
```

- 22** Specify the Select Identity administrator's user name and press ENTER. The following message appears:

```
=====
Configure Operation Attribute Parameter
-----
```

```
Please Enter the Encrypted Select Identity Admin User's Password: abc123
```

- 23** Enter the administrator's password, and then press ENTER.

The following message appears:

```
=====
Configure Operation Attribute Parameter
-----
```

```
Enter the XSL file name (without Extension)
XSL file name (without Extension): (DEFAULT: ): Oracle
```

- 24** Enter the name of XSL file on Select Identity server. Make sure that the extension (.xsl) is not specified. Press ENTER, and the following message appears:

```
=====
Configure Operation Attribute Parameter
-----
```

```
Enter the Select Identity resource name
Select Identity resource name : (DEFAULT: ): GenOracleResource
```

- 25** Enter the name of the Select Identity Oracle resource then press ENTER. The following message appears:

```
=====
Configure Operation Attribute Parameter
-----
```

```
do you want to Enable Reverse Sync(true/false)?
Enable Reverse Sync? (Y/N) (DEFAULT: Y): y
```

- 26** Specify whether you want to enable reverse synchronization. Enter **n** or **y**, and then press ENTER. The following message appears:

```
=====
Connection Credentials
-----
```

```
Enter resource user name.
Enter Resource UserName: (DEFAULT: ): SYS as sysdba
```

```
=====Connection Credentials
-----
```

```
This installation requires a password to continue.
Enter Resource Password : : password
```

- 27 Enter the Database User Account information to connect to the database. This user should have admin privileges. After entering the username and password, the agent installer attempts to connect to the database. If the connection is successfully established, the entries will be written to the property files. The following is displayed

```
=====
Reverse Notification Tables Install
-----

The values you just entered have been copied to file /
Generic-Oracle-Connector\conf\properties.ini. If you want to change
anything please edit the file.
Do you want to install reverse notification triggers now? (Y/N)
(DEFAULT: Y) : y
```

- 28 To enable reverse synchronization, you must install the reverse triggers. See Operations Supported by the Connector on page 10 for more information. Enter y and press ENTER to install the triggers (or just press ENTER to accept the default), or enter n and press ENTER to bypass this installation.

If you enter y, the following message appears:

```
=====Reverse Table
Install Summary
-----

Reverse Table Install SUCCEEDED.
PRESS <ENTER> TO CONTINUE:
```

- 29 Press ENTER to continue. The following message appears:

```
=====View Logs
-----

Do you want to see detailed logs? (Y/N) (DEFAULT: Y): y
```

- 30 If you wish to view the installation log file, enter y and press ENTER. Otherwise, enter n and press ENTER. The following is displayed:

```
=====
Agent Installation Mode
-----

Do you want to install agent as a Daemon process? (DEFAULT: Y)
```

- 31 To install the Agent as a Unix Daemon, enter y and press ENTER. In order to install the agent as a Console Application, enter N and press ENTER. If you entered y, the following is displayed:

```
=====Get User Input
-----

Enter requested information
```

```
Enter Application Name for Daemon (DEFAULT: ): OracleGenericAgent
```

- 32 Enter the Daemon name and press ENTER. The following is displayed

```
=====Daemon Status
Starting OracleGenericAgent...

PRESS <ENTER> TO ACCEPT THE FOLLOWING (OK):
=====Summary
-----

Congratulations! Gen-Oracle-Connector has been successfully installed to:
/space/Gen-Oracle-Connector
PRESS <ENTER> TO CONTINUE:
```

33 To exit the installation wizard, press ENTER.

Installed Files

The following provides a listing of the directories and files installed for the agent:

Directories and Files	Description
<i>agent_home/</i>	<p>Contains the following files:</p> <ul style="list-style-type: none"> • <i>AddToStartupGroup.cmd/sh</i> — Adds icons to startup group; this file is present only if the agent was installed using the wizard • <i>CopyFile.cmd/sh</i> — Used by agent to copy files; this file is present only if the agent was installed using the wizard • <i>DelFile.cmd/sh</i> — Used by agent to delete files; this file is present only if the agent was installed using the wizard • <i>setup.cmd/sh</i> — Installs the reverse triggers • <i>sqlapp.cmd/sh</i> — Used by agent to communicate with the database • <i>SQLConnectorConsole.cmd/sh</i> — Starts the agent • <i>uninstall.cmd/sh</i> — Uninstalls triggers • <i>LogonTest.cmd</i> - Checks the login of user on database. • <i>passwordEncrypt.cmd</i> - Encrypts the DB user and SI Admin password in the property files. • <i>PortTest.cmd</i> - Checks if the agent port given is available.
<i>agent_home/conf/</i>	<p>Contains the following files:</p> <ul style="list-style-type: none"> • <i>properties.ini</i> — Provides configuration settings for the agent • <i>opAttributes.properties</i> — Provides configuration settings for reverse synchronization • <i>log4j.properties</i> — Provides settings for logging. • <i>serviceName.conf</i> - The configuration file for Agent service. • <i>wrapper.conf</i> - The configuration file for the Agent Service wrapper.
<i>agent_home/conf/com/</i>	<p>Contains the <i>trulogica/truaccess/connector/schema/spml</i> directory structure where the XML mapping file is stored</p>
<i>agent_home/lib/</i>	<p>Contains JAR files used by the agent.</p>
<i>agent_home/logs</i>	<p>Contains log files produced by the agent.</p>
<i>agent_home /bin/</i>	<p>Contains <i>wrapper.exe</i> which is the utility used for registering the agent as service.</p>

Directories and Files	Description
<code>agent_home/Uninstall_Generic-Oracle-Connector/</code>	Contains files for uninstalling the agent. This subdirectory is created only if the agent is installed using the installation wizard.

Starting the Agent

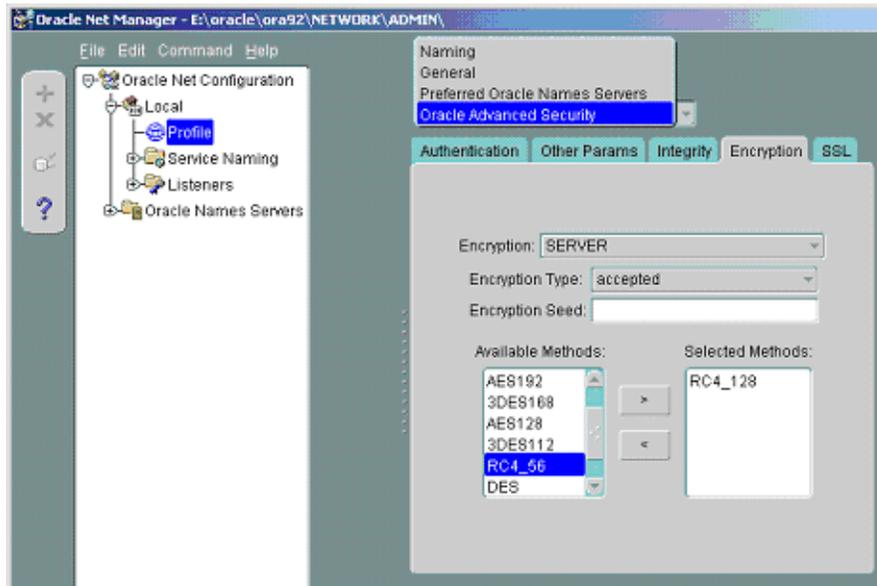
To start the agent, run `SQLConnectorConsole.cmd` (on Windows) or `SQLConnectorConsole.sh` (on UNIX), which resides in the agent's home directory. This program logs in to the database server using the user name and password of a user who has administrative privileges on the database.

If you start the agent before or without configuring reverse synchronization (the reverse triggers), a message is displayed stating that reverse notification is disabled.

Configure Oracle to Support Secure JDBC

Complete the following steps to configure the Oracle server to support secure JDBC:

- 1 Start the Oracle Net Manager by entering the following command from `$ORACLE_HOME/bin/`:
run netmgr
- 2 In the Navigator window, expand **Local** → **Profile**
- 3 Select **Oracle Advanced Security** from the drop-down menu in the upper right-side of the frame. The Oracle Advanced Security tabbed window displays:



- 4 Click the **Encryption** tab.
- 5 Select **SERVER** from the drop-down menu.
- 6 Select **accepted** from the Encryption Type drop-down menu.
- 7 Move the desired method(s) from the Available Methods list to the Selected Methods list.

- 8 For each method selected, ensure that you specify the same encryption method in the Encryption Algorithm field when creating the connector resource (step 2 on page 51). The following table illustrates the resulting security settings when the server-side settings for the accepted methods overlap with the client-side encryption settings. Ensure that the client and server settings are set such that an ON condition results.

	Client - Rejected	Client - Accepted (Default)	Client - Requested	Client - Required
Server - Rejected	OFF	OFF	OFF	Connection fails
Server - Accepted (Default)	OFF	OFF	ON	ON
Server - Requested	OFF	ON	ON	ON
Server - Required	Connection fails	ON	ON	ON

ON — Secure JDBC connection

OFF — Unsecure JDBC connection

Connection Fails — The connection between client and the server fails.

- 9 Select **File** → **Save Network Configuration**. The `sqlnet.ora` file is updated.

Make sure to enable SSL on the application server. For example, on WebLogic, select the currently running server and select the **SSL Listener** check box on the Security tab. You must restart the application server after enabling SSL.

3 Uninstalling the Connector

Perform the following steps to uninstall Oracle database connector.

- 1 Remove all resource dependencies.
- 2 Delete the connector from Select Identity homepage.
- 3 Uninstall the connector from application server.
- 4 Uninstall the agent

See *HP OpenView Select Identity Connector Deployment Guide* for more information on deleting the connector from application server and OVSI.

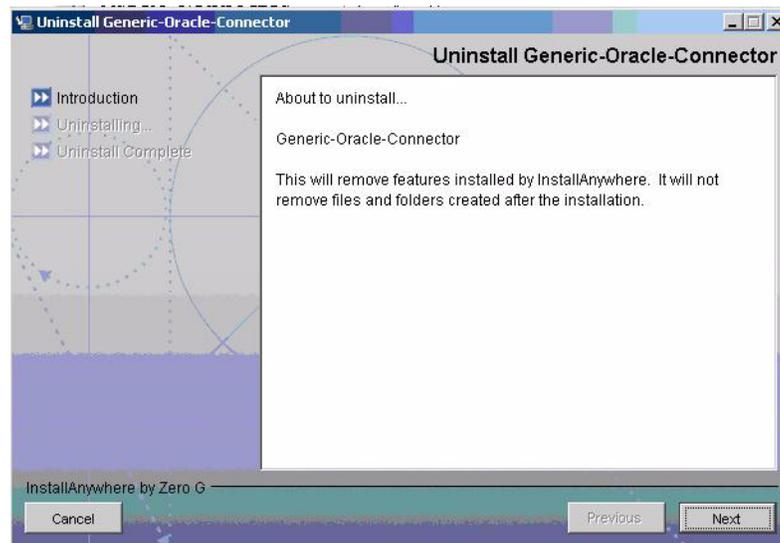
Uninstalling the Agent

The following sections describe how to remove the agent, which you can do using a wizard or manually.

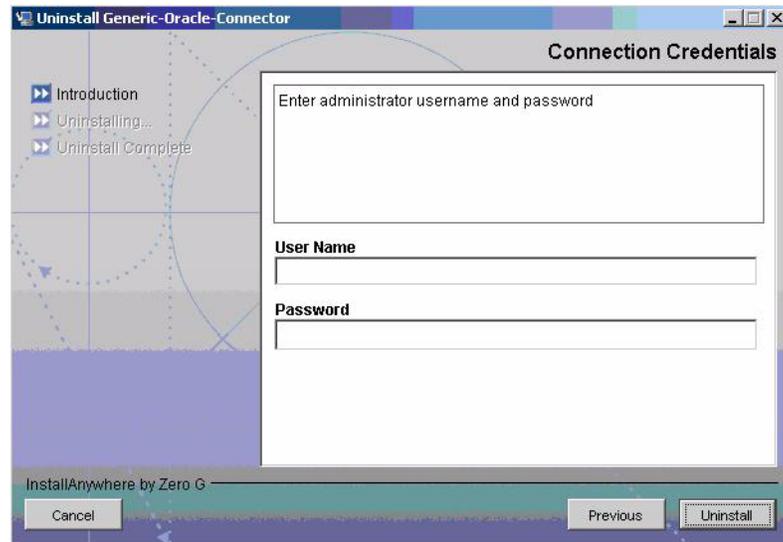
Using the Wizard to Remove the Agent on Windows

Perform the following steps to delete the agent on the Windows server:

- 1 Select **Programs** → **Generic-Oracle-Connector** → **Uninstall Agent** from the Start menu. The wizard displays.



- 2 Click **Next** on the introductory dialog.
- 3 Provide the database credentials to uninstall the reverse triggers, if they were installed. Then, click **Uninstall**.



- 4 Click **Continue** when the pop-up dialog indicates that the triggers were successfully uninstalled.
- 5 Click **Done** on the Uninstall Complete dialog to close the wizard.

Using the Wizard to Remove the Agent on UNIX

Perform the following steps to delete the agent on the UNIX server:

- 1 Start the wizard by running the following command:

```
agent_home/Uninstall_Generic-Oracle-Connector/  
Uninstall_Generic-Oracle-Connector
```

The following displays:

```
=====
Preparing CONSOLE Mode Installation...
=====
(created with InstallAnywhere by Zero G)
-----

=====
Uninstall Generic-Oracle-Connector
-----

About to uninstall...
Generic-Oracle-Connector

This will remove features installed by InstallAnywhere. It will not remove
files and folders created after the installation.

PRESS <ENTER> TO CONTINUE:
```

- 2 Press ENTER to continue. The following displays:

```
=====
Get User Input
-----
Enter requested information
Enter user name : (DEFAULT: ): TEST
```

- 3 Enter the database user name and press ENTER. The following displays:

```
=====
Get User Input
-----
Enter requested information
Enter password : (DEFAULT: ): password
```

- 4 Enter the user's password and press ENTER. The installer removes the reverse triggers (if installed) and displays a success or failure message, as follows:

```
=====
Executed the command
-----
"/Generic-Oracle-Connector/Uninstall.sh" -userName "TEST" -password
"password"
Reverse Notification Trigger Uninstall Summary
Reverse Trigger Uninstall SUCCEEDED.
```

- 5 To view the log file, select the Show Logs and press ENTER.
- 6 Press ENTER to exit the wizard.

A Troubleshooting

This appendix describes common problems encountered during the installation and use of the connector and its agent.

Connector Installation

This section lists the common problems encountered during installation and use of the connector.

- After redeploying the connector, Select Identity does not display the current connector information.

Possible Cause: The application is using a cached connector file.

Solution: Restart the application server.

- Select Identity does not display the most current mapping file information.

Possible Cause: The application server is using a cached mapping file.

Solution: Restart the application server.

- The mapping file of an existing resource is changed and, when you attempt to modify the resource to add a new mapping file, the following error displays:

```
Application cannot be modified at this time
```

Possible Cause: Major differences may exist between the old and new mapping files.

Solutions:

- Create a new resource with the new mapping file.
 - Unmap all attributes in the current resource and modify the resource to reference the new mapping file. You cannot use this second solution, however, if users were provisioned using this resource.
- Select Identity can successfully add a user but the new user is not shown in the resource's database table.

Possible Causes:

- The mapping file lacks the Create operation for the Key attribute.
- The Create operation for the User entity is not added in the XML file.
- The XML parser files may be missing from the `BEA_HOME/jdk_1.4.1/jre/lib/endorsed` folder (on WebLogic).
- A database exception occurred.

Solutions:

- Add the Create operation or add the relevant JARs to the path. Refer to the *HP OpenView Select Identity Attribute Mapping Utility User's Guide* for details on how to add create operations for an entity.

- If a database exception occurred, refer to the logs for details of the exception. Common exceptions include size mismatches for columns and foreign key constraint violations. Refer to the database documentation for more information on the database exceptions.

Agent and Trigger Installation

This section lists the common problems encountered while installing and configuring reverse synchronization.

- An error message similar to one of the following is displayed while installing the agent:

```
Object already exists
```

```
Table_Audit (or Column_Audit) already exists
```

Possible Cause: Triggers or audit tables exist, possibly from a prior attempt to install and configure the agent.

Solution: Run `uninstall.cmd` (on Windows) or `uninstall.sh` (on UNIX), which removes the triggers from the database. Verify that the `Table_Audit`, `Column_Audit`, and `SID_TAB` tables were removed from the database. If removal was not successful, delete the tables manually before installing the agent triggers.

- A `NullPointerException` occurs

Possible Cause: The specified mapping file is not available in the class path.

Solution: Make sure that the file is placed in the `Install/conf` directory. Ensure the name of the file specified in `properties.ini` is spelled correctly. Note that it is case sensitive. Also, check the format of the mapping file.

- The agent installation wizard fails to start and displays an error message.

Possible Cause: The JVM is not in the System Path environment variable or Java 1.4 is not available.

Solution: Add the Java 1.4 to the System Path.

- While deploying the reverse synchronization triggers, the installation stops and displays an exception.

Possible Cause: A version of Java that is older than 1.4 is the default JDK in use.

Solution: Set the `JAVA_HOME_14` variable to the path of Java version 1.4.

Agent Execution

This section lists the common problems encountered while running the agent.

- An exception similar to the following is displayed:

```
java.net.BindException: Address in use: JVM_Bind
```

Possible Cause: The listening port on the agent's system is in use, possibly by another invocation of the agent.

Solution: Stop the older invocation and run the agent again.

- An error message similar to the following is displayed:

```
Invalid Object schema.tableName
```

Possible Cause: The schema specified in the mapping file is incorrect.

Solution: Check the mapping file. For more information on the format of mapping file, see the *HP OpenView Select Identity Attribute Mapping Utility User's Guide*.

- An error message similar to the following is displayed:

Invalid Object Table_Audit or Column_Audit

Possible Cause: Audit tables are deleted or moved, or they are inaccessible to the triggers. If a trigger fails, the operation that caused the trigger is also rolled back.

Solution: Make sure that the audit tables (Table_Audit, Column_Audit) are available. If that does not work and the connector's operations are failing, triggers and audit tables can be uninstalled, though this will cause reverse synchronization to stop.

- The agent console shows a Log4jFactory exception when started.

Possible Cause: The agent cannot find the `log4j-1.2.8.jar` in the classpath.

Solution: Add the JAR to the class path.

