HP Select Identity Software

Connector for IBM Informix Dynamic Server (Administration)

Connector Version: 3.71

Installation and Configuration Guide

hp

i n v e n t

Legal Notices

Warranty

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from HP required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notices

© Copyright 2006-2007 Hewlett-Packard Development Company, L.P.

This product includes software developed by the Apache Software Foundation (http://www.apache.org/). Portions Copyright © 1999-2003 The Apache Software Foundation. All rights reserved.

Select Identity uses software from the Apache Jakarta Project including:

- 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

- JGraph developed by JGraph

- Hibernate from Hibernate.org

- BouncyCastle engine for keystore management, bouncycastle.org

This product includes software developed by Teodor Danciu (http://jasperreports.sourceforge.net). Portions Copyright © 2001-2004 Teodor Danciu (teodord@users.sourceforge.net). All rights reserved.

Portions Copyright © 1994-2004 Sun Microsystems, Inc. All Rights Reserved.

This product includes software developed by the Waveset Technologies, Inc. (www.waveset.com). Portions Copyright © 2003 Waveset Technologies, Inc. 6034 West Courtyard Drive, Suite 210, Austin, Texas 78730. All rights reserved.

Portions Copyright © 2001-2004, Gaudenz Alder. All rights reserved.

Trademark Notices

AMD and the AMD logo are trademarks of Advanced Micro Devices, Inc.

Intel and Pentium are trademarks or registered trademarks of Intel Corporation in the United States, other countries, or both.

JAVA™ is a US trademark of Sun Microsystems, Inc.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

Oracle® is a registered US trademark of Oracle Corporation, Redwood City, California

UNIX® is a registered trademark of The Open Group.

Support

You can visit the HP software support web site at:

http://www.hp.com/go/hpsoftwaresupport

HP Software online support provides an efficient way to access interactive technical support tools. As a valued support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest

- Submit and track support cases and enhancement requests

- Download software patches

- Manage support contracts

- Look up HP support contacts

- Review information about available services

- Enter into discussions with other software customers

- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require an active support contract.

To find more information about support access levels, go to:

http://h20230.www2.hp.com/new_access_levels.jsp

Contents

1 Documentation Map

This chapter describes the organization of HP Select Identity connector documentation and provides necessary information on how to use the documentation set to install and configure the connectors.

Figure 1 illustrates the documentation map for HP Select Identity connector. For a list of available product documentation, refer to the Table 1.

Figure 1   Documentation Map

Table 1   Connector Documentation

Document Title and Filename	Contents	Location
Release Note `Informix Admin Connector v3.71 Release Note.htm`	This file contains necessary information on new features of the connector, enhancements, known problems or limitations, and support information.	`/Docs/` subdirectory under the connector directory.

Connector Deployment Guide (for Select Identity 4.20)
`connector_deploy_SI4.20.pdf`
 	
Connector Deployment Guide (for Select Identity 4.10-4.13)
`connector_deploy_SI4.13.pdf`
 	
Connector Deployment Guide (for Select Identity 4.0-4.01)
`connector_deploy_SI4.pdf`
 	
Connector Deployment Guide (for Select Identity 3.3.1)
`connector_deploy_SI3.3.1.pdf`
	Connector deployment guides provide detailed information on:
	• Deploying a connector on an application server.
	• Configuring a connector with Select Identity.
	
	Refer to these guides when you need generic information on connector installation.
		`/Docs/` root directory on the product's CD media.

Connector Installation and Configuration Guide `Informix Admin_guide.pdf`	Connector installation and configuration guide provides installation instructions for a specific connector. It contains resource specific configuration details.	`/Docs/` subdirectory under the connector directory.

2 Introduction

This chapter gives an overview of the HP Select Identity connector for IBM Informix Dynamic Server. An HP Select Identity connector for IBM Informix Dynamic Server enables you to provision users and manage identities on IBM Informix Dynamic Server. At the end of this chapter, you will be able to know about:

- The benefits of HP Select Identity.
- The role of a connector.
- The connector for IBM Informix Dynamic Server.

About HP Select Identity

HP Select Identity provides a new approach to identity management. Select Identity helps you automate the process of provisioning and managing user accounts and access privileges across platforms, applications, and corporate boundaries. Select Identity 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 Select Identity by using a connector. A connector is resource specific. The combination of Select Identity 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 Select Identity, but if any change takes place in resource, it cannot communicate that back to Select Identity. On the other hand, a bidirectional connector can reflect the changes made on resource back to Select Identity. This property of bidirectional connectors is known as **reverse synchronization**.

About Informix Admin Connector

The connector for IBM Informix Dynamic Server administration— hereafter referred to as the Informix Admin connector — enables Select Identity to administer the database server by provisioning database user information in system schemas. The Informix Admin connector can perform the following operations in the database schema on the IBM Informix Dynamic Server:

- Add, update, and remove users

- Retrieve user attributes

- Enable and disable user status

- Verify a user's existence

- Retrieve all entitlements

- Retrieve a list of supported user attributes

- Grant and revoke entitlements to and from users

The connector also provides an agent that can send changes made to the data in IBM Informix Dynamic Server to Select Identity. The following reverse synchronization operations are supported:

- Add, modify, and delete users based on user additions, modifications, and deletions in the schema in Informix

- Assign and revoke entitlements for users

➤ This connector can be used with Select Identity 3.3.1-4.20.

High-Level Architecture

Figure 2 illustrates a high-level architecture of Informix Admin connector. You must install the connector on Select Identity server and the agent on resource system. The agent helps synchronizing the changes made on Informix Admin server with Select Identity.

Figure 2   High-Level Architecture of the Connector
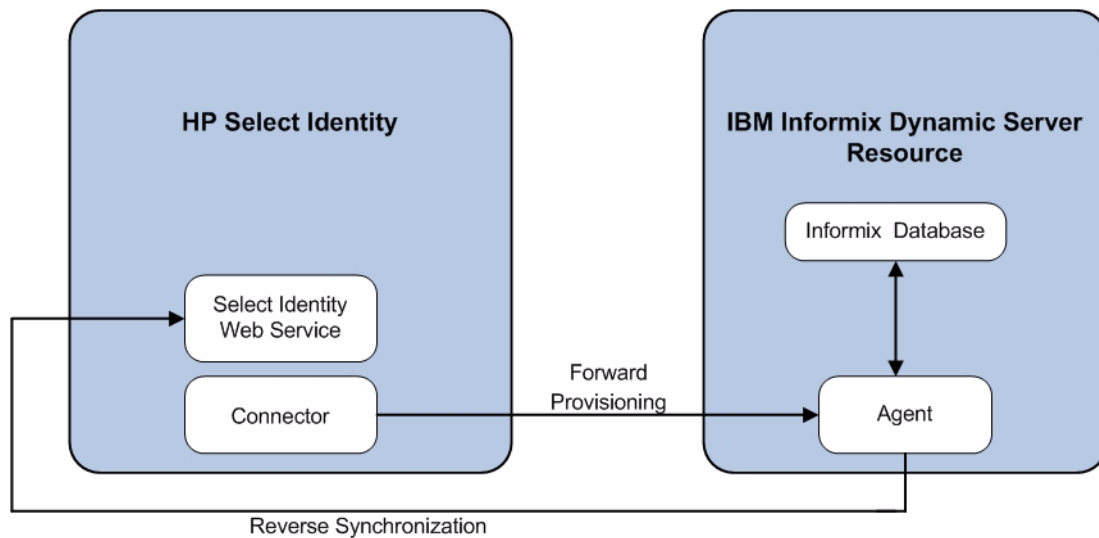
To perform forward provisioning operation on IBM Informix Dynamic Server, the connector communicates either directly with the database or with the agent. The agent detects the changes on the host (Informix database) resource and sends SPML notifications to Select Identity to synchronize the changes. Thus, the Informix Admin connector enables data to flow in both the directions, as illustrated in Figure 2.

Overview of Installation Tasks

Before you start installing the connector, you must ensure that system requirements and all the installation prerequisites are met. Refer to the Table 2 for an overview of installation tasks.

Table 2   Organization of Tasks

Task Number	Task Name	Reference
1	Install the connector on the Select Identity server.	See Installing the Connector on page 13.
	— Plan your installation setup.	See Planning the Installation on page 14.
	— Meet the system requirements.	See System Requirements on page 16.
	— Pre-installation task: Enable JDBC driver or JDBC data source based on your requirement.	See Pre-Installation Task on page 17.
	— Extract contents of the Schema file (the file that contains the mapping XML and XSL files).	See Extracting Contents of the Schema File on page 18.
	— Deploy the connector Resource Adapter Archive (RAR) file on an application server.	See Installing the Connector RAR on page 18.
	— Configure Informix to support secure JDBC communication.	See Configuring Informix to Support Secure JDBC on page 19.
2	Configure the connector with Select Identity	See Configuring the Connector with Select Identity on page 21.
3	Install the agent on IBM Informix Dynamic Server server.	See Installing the Agent on page 25.
	— Perform the pre-installation tasks.	See Pre-Installation Tasks on page 25.
	— Install the agent by using the installation wizard.	See Install the Agent on page 26.

3 Installing the Connector

This chapter elaborates the procedure to install the Informix Admin connector on the Select Identity server. At the end of this chapter, you will know about

- Software requirements to install the Informix Admin connector.

- Pre-installation tasks.

- Procedure to install the Informix Admin connector.

Informix Admin Connector Files

The Informix Admin connector is packaged in the following files and folders, which are located in the `INFORMIX DYNAMIC SERVER - Admin` directory on Select Identity Connector CD:

Table 3   Informix Admin Connector Files

Serial Number	File Name	Description
1	• `Admin-Informix-Connector_420.rar` for WebSphere • `Admin-Informix-Connector_420WL9.rar` for WebLogic	The RAR file contains the binaries for the connector.
2	`Admin-InformixSchema.zip`	The Schema file contains the mapping files (XML and XSL files) of the connector.
3	`Informix-Admin-AgentInstaller-Win.zip`	A ZIP file that contains the installation executable for the connector agent to be installed on Windows platform. It is located in the `Agent Installers` directory of the CD.
4	`Informix-Admin-AgentInstaller-Solaris.tar`	A TAR file that contains the installation executable for the connector agent to be installed on Solaris platform. It is located in the `Agent Installers` directory of the CD.

Planning the Installation

You can install the Informix Admin connector in three possible ways.

- Connector with the agent.
- Connector without the agent and with a JDBC data source.
- Connector without the agent and with a JDBC driver.

Plan 1: Connector with the Agent

In this configuration, the connector communicates with an agent that resides on 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 Informix Admin to the Select Identity database (reverse synchronization).

Figure 3   Connector Installed with Agent
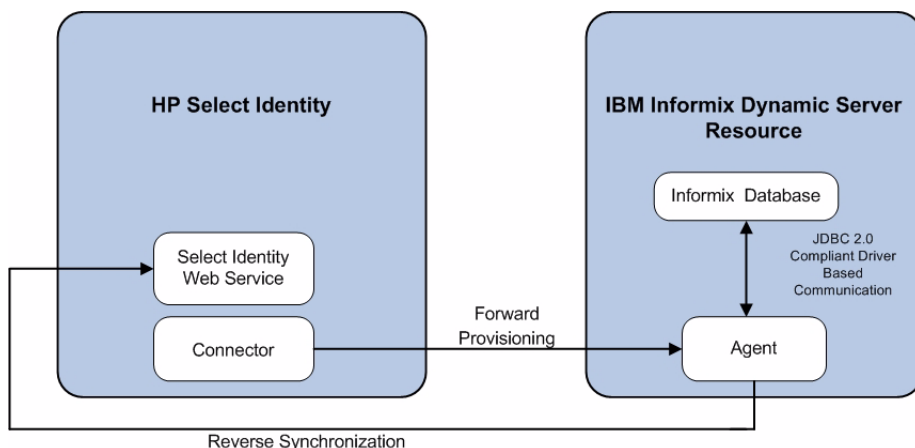
Plan 2: Connector Without the Agent and with JDBC Data Source

In this configuration, the connector communicates with the database directly through JDBC calls. You must create or identify a JDBC data source (and underlying connection pool) on the application server hosting Select Identity and the connector that can connect to the target Informix Admin database. Reverse synchronization is not achieved in this configuration.

Figure 4   Connector Without Agent: JDBC Data Source Based Communication
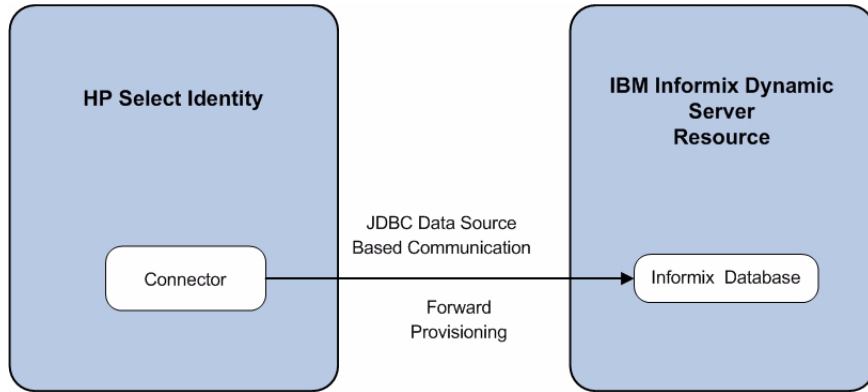
Plan 3: Connector Without the Agent and with JDBC Driver

In this configuration, the connector communicates with the database by using a JDBC 2.0 compliant driver; no agent is installed on the database server. Reverse synchronization is not achieved in this configuration.

Figure 5   Connector Without Agent: JDBC 2.0 compliant Driver Based Communication
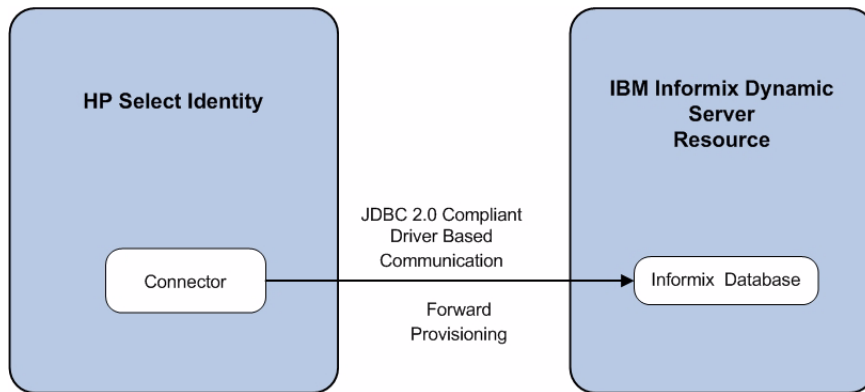
System Requirements

The Informix Admin connector is supported in the following environment:

Table 4   Platform Matrix for Informix Admin Connector

Select Identity Version	Application Server	Database
3.3.1	WebLogic 8.1.4 on Windows 2003	Microsoft 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
4.0-4.20	Informix Admin connector is supported on all the platform configurations of Select Identity 4.0-4.20.	

The connector is supported with Informix Dynamic Server 9.4 running on Windows 2000, Windows 2003, Windows XP, and Solaris 9.

For secure communication, this connector supports secure JDBC for database communication. See Configuring Informix to Support Secure JDBC on page 34 for configuration information.

▶ To support transactions through JDBC connections, the target database must be created using the Buffered_Log option (as the LOGGING type). The connector requires this option for forward and reverse provisioning.

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

• The Select Identity server should be configured for internationalization. Refer to the *HP Select Identity Installation Guide* for more information.

• The Informix database does not require any special configuration for supporting internationalization, though the locale should be set to support local language characters. Ensure that when initializing the Informix server instance, no error occurs (especially when setting the Code page). Here is a snapshot of a successful configuration:

Pre-Installation Task

Before you start installing, you must enable the communication mode between the connector and resource according to you installation plan.

Enable JDBC Driver Based Communication

To enable a JDBC 2.0 compliant driver based communication (for Plan1 or Plan3), you must copy the file `ifxjdbc.jar` on the Select Identity server. Perform the following steps to enable JDBC driver based communication:

1   Obtain the file `ifxjdbc.jar`.

2   For Select Identity on WebLogic:

   a   Copy the files to a location on the Select Identity server.

   b   Add the file to the application server's `CLASSPATH`. To add the files to the application server's `CLASSPATH`:

      —   Edit the startup script `myStartWL.cmd` for WebLogic on Windows.

      —   Edit the startup script `myStartWL.sh` for WebLogic on UNIX.

3   For Select Identity on WebSphere, copy the `ifxjdbc.jar` file to *%WAS_HOME%*`/lib/ext/` where *%WAS_HOME%* is a location like `D:\WebSphere\AppServer`.

Enable JDBC Data Source Based Communication

To enable a JDBC data source based communication between the connector and the Informix Admin database, you must create a new or use an existing JDBC data source and an underlying connection pool on the application server that hosts Select Identity.

While creating a new JDBC data source on WebLogic, you must do the following:

•   Cancel the selection Honor Global Transactions.

•   Select the option Emulate Two-Phase Commit for non-XA Driver.

While creating a new JDBC data source on WebSphere, you must do the following:

- Create the data source as J2C Authentication Data Entry for the target Informix database user ID.

- Deploy the JDBC Provider. You must use only XA type driver to connect to the database (a non-XA driver conflicts with the existing JDBC data source of Select Identity).

- Create a data source for the JDBC Provider and provide a suitable JNDI name, which will be used during resource creation on Select Identity.

▶ The target database must support (or must be configured to support) the connectivity through XA type driver. For example, you must install JTA related stored procedures on a target Microsoft SQL Server 2000 to create a JDBC provider by using an XA driver from WebSphere.

If the target database does not support this, JDBC driver based installation is recommended.

Extracting Contents of the Schema File

The Schema file (`Admin-InformixSchema.zip`) contains the mapping information of the connector. Extract contents of this file to a location on the Select Identity server. You will obtain an XML file (`admininformix.xml`) and an XSL file (`admininformix.xsl`). Perform one of the following procedures depending on the application server (WebLogic or WebSphere) on which the connector will be deployed.

WebLogic

1 Identify a directory that is available in WebLogic `CLASSPATH`.

2 Place the XSL file under this directory.

3 Place the XML file in the path `com\trulogica\truaccess\connector\schema\spml` under this directory.

WebSphere

1 *<WebSphere_Install_Dir>*/`AppServer/lib/ext` is the default directory in WebSphere `CLASSPATH`. Place the XSL file directly under it.

2 Place the XML file in the path `com\trulogica\truaccess\connector\schema\spml` under the *<WebSphere_Install_Dir>*/`AppServer/lib/ext` directory.

Installing the Connector RAR

To install the RAR file of the connector (such as `Admin-Informix-Connector_420.rar`) on the Select Identity server, you must copy the file to a local subdirectory on the Select Identity server, and then deploy on the application server. Refer to the *HP Select Identity Connector Deployment Guide* for detailed information on deploying a RAR file on an application server.

🚩 While deploying the RAR on WebSphere, enter the JNDI Pool Name as
eis/Admin-InformixConnector.

Configuring Informix to Support Secure JDBC

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

1. On the Informix server, create a file named `concsm.cfg` that contains the following text:

   `SPWDCSM("%INFORMIX_HOME%\bin\libixspw.dll","", "p=1")`

2. Select **Start → Programs → IBM Informix Connect version → Setnet32**.

3. On the Server Information tab, enter `csm=(SPWDCSM)` in the Options field:
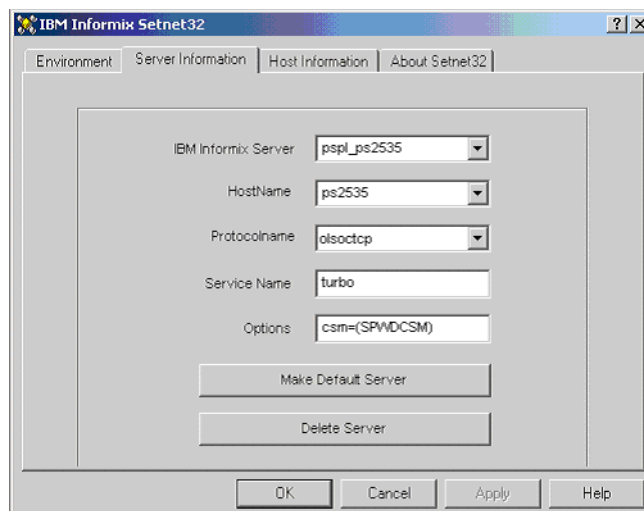
4. On the Host Information tab, provide the appropriate login information.
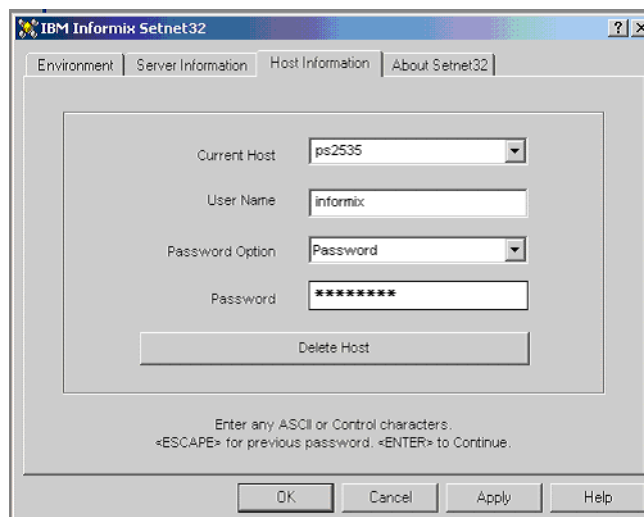
5. Click **OK**.

6. If prompted, click **OK** to confirm the creation of the new host.

4 Configuring the Connector with Select Identity

This chapter describes the procedure to configure the Informix Admin connector with Select Identity. At the end of this chapter, you will know the procedure to configure the Informix Admin connector with Select Identity.

Configuration Procedure

After you deploy the connector RAR on application server, you must configure the connector with Select Identity. Perform the following steps to configure the Informix Admin connector with Select Identity.

1   Add a New Connector

2   Add a New Resource

3   Map Attributes

Add a New Connector

Add a new connector in Select Identity by using the user interface. While adding the connector, do the following:

- In the Connector Name text box, specify a name for the connector.

- In the Pool Name text box, enter **eis/Admin-InformixConnector**.

- Select **No** for the Mapper Available section.

Refer to the *HP Select Identity Connector Deployment Guide* for detailed information on adding a new connector in Select Identity.

Add a New Resource

Add a new resource in Select Identity that uses the newly added connector. Refer to the *HP Select Identity Connector Deployment Guide* for detailed instructions on adding a resource in Select Identity.

Refer to the following table while entering the parameters in the Basic Information and the Access Information pages:

Table 5   Resource Configuration Parameters

Field Name	Sample Values	Description	Comment
Resource Name	Admin-Informix	The name of the resource.	
Connector Name	AdminInformix	The newly deployed connector.	Known as Resource Type on Select Identity 3.3.1.
Authoritative Source*	No	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.	
Associate to Group		Whether the system uses the concept of groups. For this connector, select this option.	This field is applicable only for Select Identity 3.3.1.
Server Name	HP0111	Host name or IP address of the database server. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication.
Server Port	1526/1028	Port on which the database server is listening. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication
Username	Informix	The login name of the database administrative user. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication
Password	P4ssword	Password of the database administrative user. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication

Table 5   Resource Configuration Parameters (cont'd)

Field Name	Sample Values	Description	Comment
Agent Port	5601	The port where the agent listens for incoming connections. You must specify this parameter if the agent was installed.	Leave the field empty if you install the connector without agent
SQL URL	jdbc:Informix-sqli	URL to use to communicate with the database over a JDBC connection. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication
Database / Service Name	testDB	The database name in which to provision users. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication
Database Driver String	com.informix.jdbc.IfxDriver	Name of the JDBC driver to connect to the database. You must specify this parameter if the agent was installed.	Leave the field empty if you configure the connector without agent for a JDBC data source based communication
Mapping File	`admininformix.xml`	The XML mapping file, which must reside in `install/conf/com/trulogica/truaccess/connector/schema/spml` directory in order for the Select Identity server to find it.	
JDBC Datasource String		JNDI data source name that was created or identified on the Select Identity server that can connect to the target Informix database. Specify a value for this property if the agent was not installed.	Leave the field empty if you configure the connector for JDBC driver based communication (with or without agent).
Encryption Specification Algo		Encryption algorithm specification string.	
Encryption Algorithm		Name of the encryption algorithm.	

Table 5   Resource Configuration Parameters (cont'd)

Field Name	Sample Values	Description	Comment
Encryption Specification Level	SECURITY	Encryption level specification string. Specify this parameter if you wish to use secure communication with Informix.	
Encryption Level	PASSWORD	Encryption level. Specify this parameter if you wish to use secure communication with Informix.	
Instance	ol_si1	The Informix Instance Name to which connector has to connect.	

*Instead of creating an authoritative resource, you can create authoritative attributes (in the next step) for the attributes that will be synchronized. Entitlements are authoritative by default in a non-authoritative resource but other attributes are not.

Map Attributes

After successfully adding a resource for Informix Admin connector, you must map the resource attributes to Select Identity attributes. Add new attributes to Select Identity if necessary. Refer to the *HP Select Identity Connector Deployment Guide* for more information on mapping and creating attributes. While mapping the attributes, refer to the following table for Informix Admin connector attribute mapping information.

Table 6   Informix Admin Connector Mapping Information

Name	Description	Sample Value
UserName	This is the name of the user who has to be added to Informix database. The user name given should be present in the operating system of the machine where Informix is installed as Informix users have to be operating system users.	administrator
Password	Password of the operating system user who is to be added to Informix. In case incorrect password is provided, the user will not be added.	Password

After mapping the attributes, you can use the connector to create a service, or you can associate the connector with an existing service. Refer to the *Service Studio* chapter of the *HP Select Identity Administration Online Help* for information on Select Identity services.

5 Installing the Agent

This chapter gives an overview of the agent for Informix Admin connector and the procedure to install the agent on an IBM Informix Dynamic Server. At the end of the chapter, you will be able to know about:

- The role of an agent.
- The procedure to install the agent.

About the Agent

The Informix Admin connector agent performs forward provisioning operations on the resource and sends back any changes made on resource to Select Identity web service in the form of SPML requests and sends back any changes made on resource to Select Identity web service in the form of SPML requests. The connector is packaged with agent installers for the Windows and Solaris platform.

When a user is added, modified, or deleted in the database, the agent captures the change from reverse notification table. 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 Informix Admin agent supports secure channel of communication to Select Identity web service by using HTTPS. You must configure the application server with Secure Socket Layer (SSL). You configure the agent by to enable secure communication between agent and Select Identity in reverse synchronization. The agent automatically imports the certificate from Select Identity and initializes secure communication.

Installing the Agent on the IBM Informix Dynamic Server

After you install the Informix Admin connector on the Select Identity server, you can install the agent on the database server depending on your installation plan. If you do not need reverse synchronization (Plan 2 and Plan 3), you can skip this chapter. However, agent installation is mandatory if you need reverse synchronization (Plan 1). The agent enables you to send data back to Select Identity.

Pre-Installation Tasks

Before you start installing the agent on resource, make sure the following prerequisites are met:

- Copy the mapping files to the resource (IBM Informix Dynamic Server) system as the agent installation requires the mapping files to be available on the local system.

- Copy the database driver file `ifxjdbc.jar` to the resource system and they must be in the database server's `CLASSPATH`.

- Make sure that Java 1.4.2 (or above) is installed on the system and `JAVA_HOME` environment variable is set. Also, *%JAVA_HOME%*`\bin` must 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. For example: **install.exe LAX_VM c:\java14\bin\java.exe**

Install the Agent

You can install the agent by using the installation wizard. The wizard is packaged in the file `Informix-Admin-AgentInstaller-Win.zip` for installation on Windows and in the file `Informix-Admin-Agent-Solaris.tar` for installation on Solaris. Perform the following steps to run the installation wizard and install the agent:

Windows

1 Extract the contents of the `Informix-Admin-AgentInstaller-Win.zip` file, which is located in the Agent Installers directory on the CD.

2 Run `Admin-Informix-Connector-Installer.exe`, which is located in the `target_dir\CDROM_Installers\Windows\Disk1\InstData\NoVM`. The Introduction screen appears:
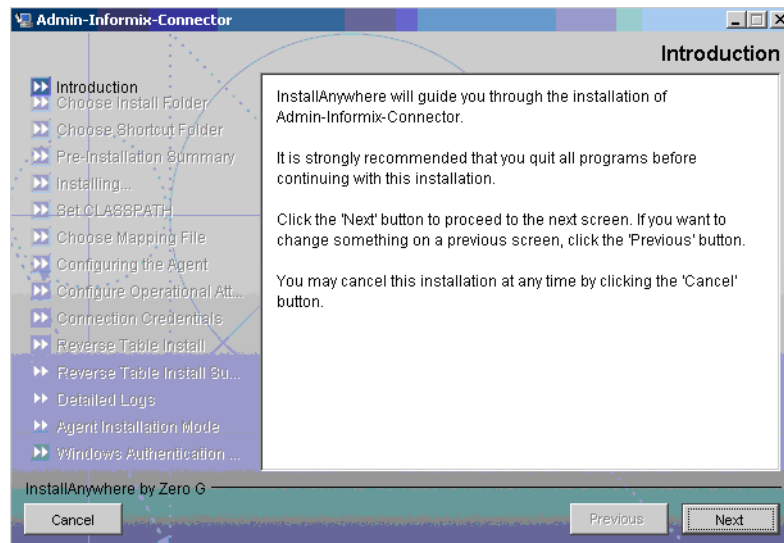
3 Click **Next**. The Choose Install Folder screen appears.
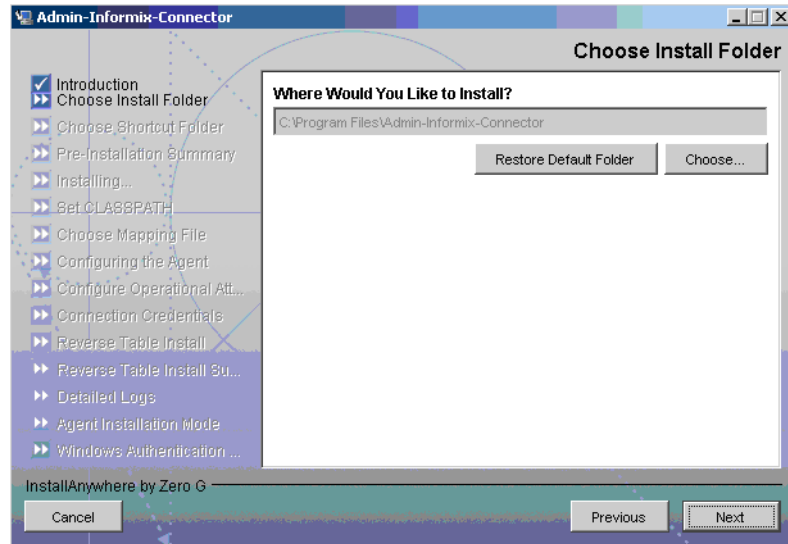
4   Keep the default location or click **Choose** to change the location, specify an installation directory, and then click **Next**. The Choose Shortcut Folder screen appears.
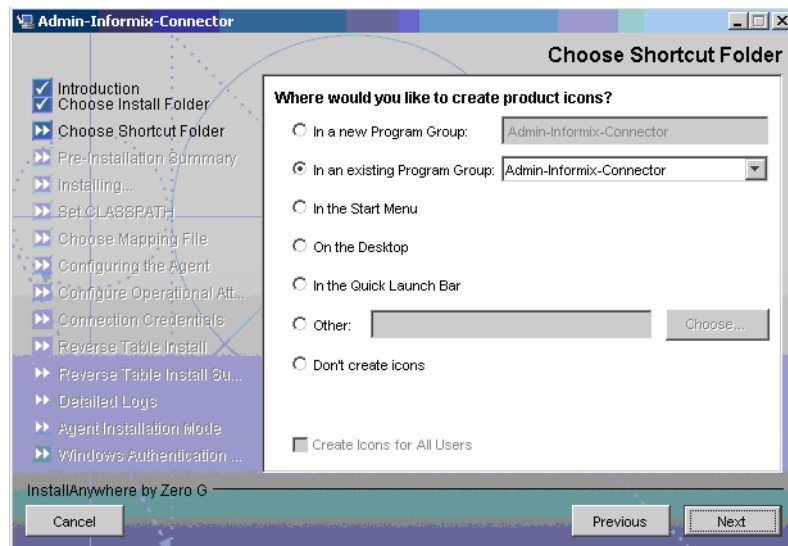
5   Select the location(s) where the product icons will be installed, and then click **Next**. The Pre-Installation screen appears.
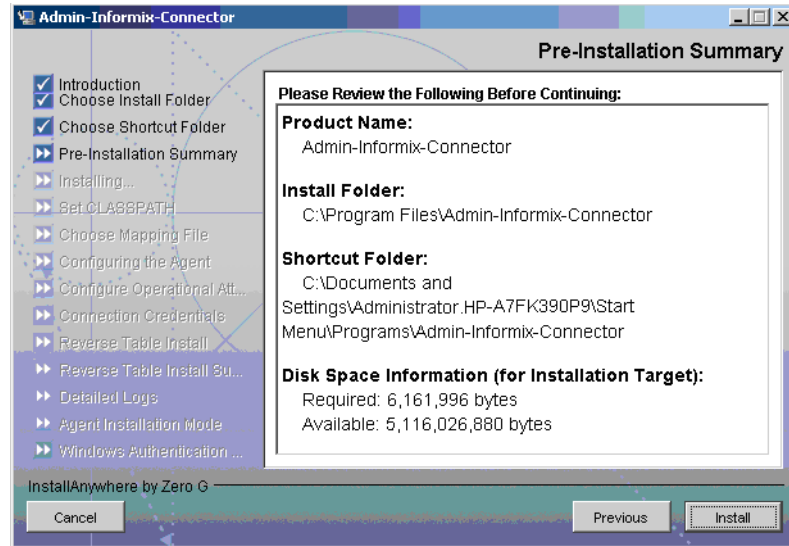
6 Review the pre-installation summary, click **Previous** if you want to change any setting, and then click **Install** to begin installation. During the course of installation, the Set CLASSPATH screen appears.
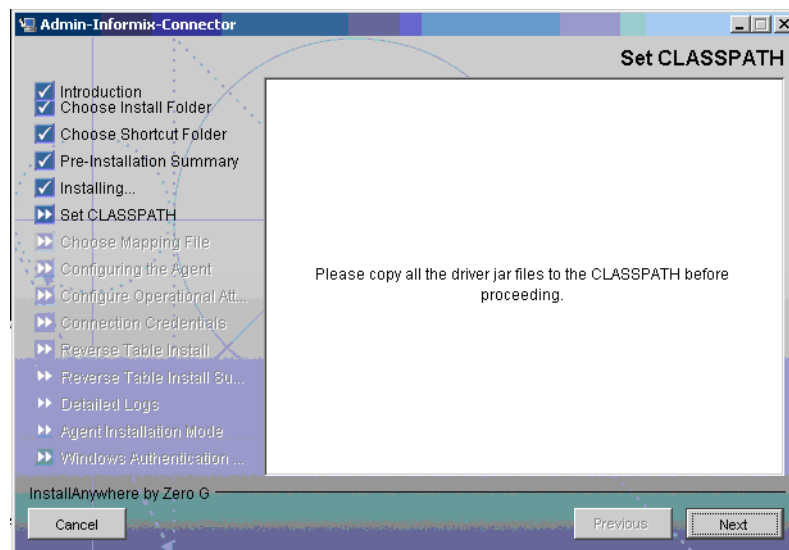
7 Verify that the database driver file (`ifxjdbc.jar`) is in the database server's system classpath, and then click **Next**. The Choose Mapping File screen appears.
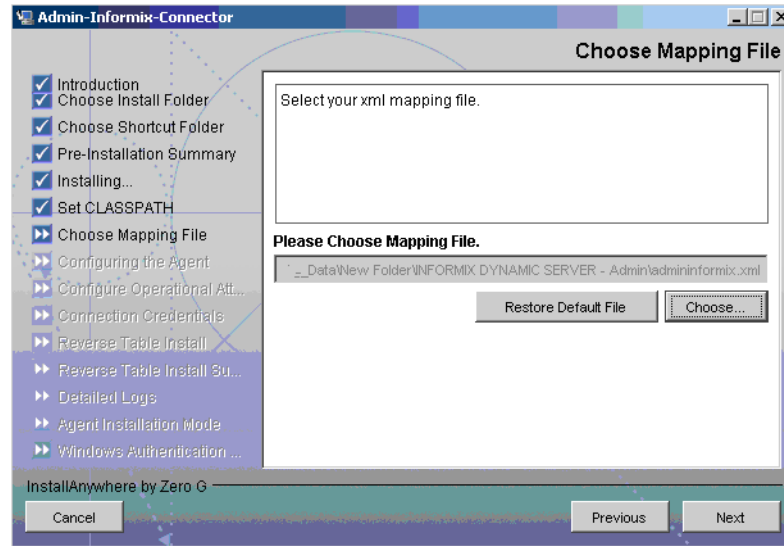
8   Click **Choose** to browse for and select the mapping file. This will copy the mapping file to the `<install_dir>`/conf/com/trulogica/truaccess/connector/schema/spml directory, where `<install_dir>` is the installation folder.

9   Click **Next**. The Configuring the Agent screen appears.
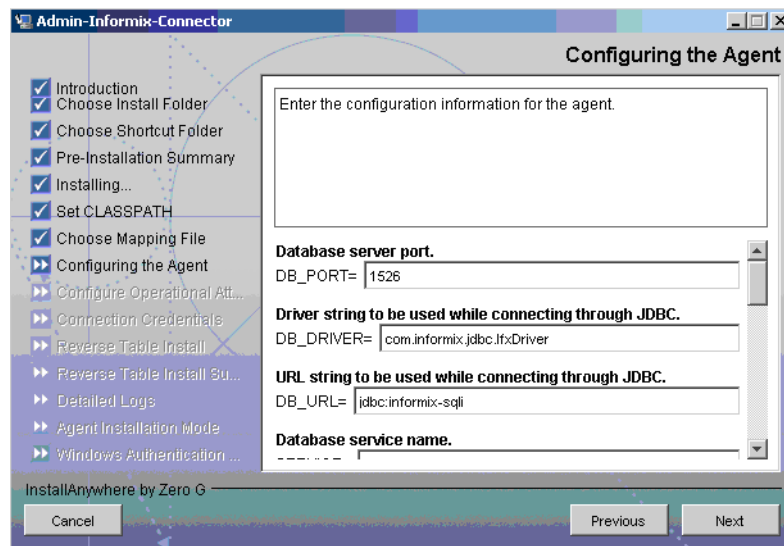
10 On the Configuring the Agent dialog, specify the configuration parameters, which are explained in the table below:

Parameter	Description	Example Value
DB_PORT	The port on which the database server is listening.	1526/1028
DB_DRIVER	The JDBC driver for the database connection.	com.informix.jdbc.IfxDriver
DB_URL	The JDBC URL string used for the database communication.	jdbc:Informix-sqli
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.	Select this check box if you want to establish a secure communication (HTTPS).
CONCERO_SERVER_URL	The URL of the Select Identity Web Service.	http://host:port/lmz/ webservice
PollDelay	The polling delay for reverse polling (in seconds).	10
AGENT_PORT	The port on which the agent listens for user provisioning requests from Select Identity.	5601
MAPPING_FILE	The XML mapping file.	`admininformix.xml`
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
instanceName	The name of the Informix instance.	ol_si1

> 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**. The Configure Operational Attributes screen appears.
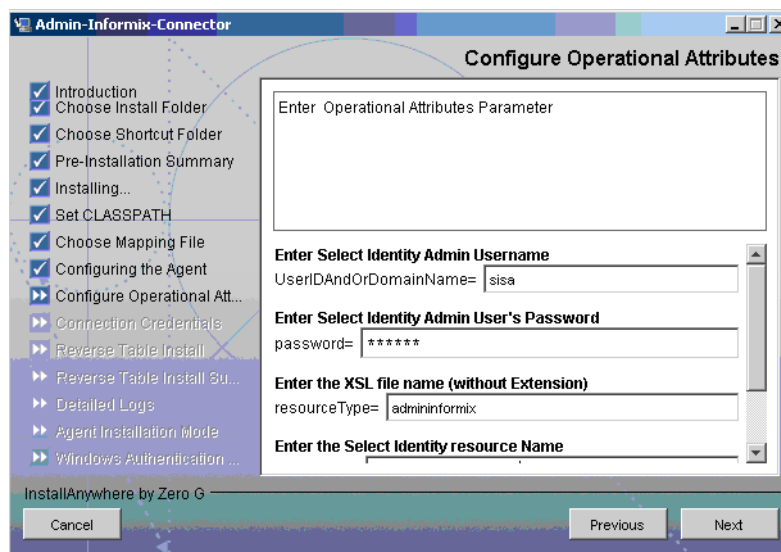
11 Provide the operational attributes that are sent to the Select Identity server during reverse synchronization requests. The table below gives a description of the attributes:

Attribute	Description
UserIDAndOrDomainName	User ID of the administrative user on Select Identity. For example, sisa.
password	Password of the administrative user.
reverseSync	Select this check box to enable reverse synchronization.
resourceType	The name of the XSL file (without the .xsl extension) that is used during reverse synchronization. For example, adminInformix.
resourceId	The name of the Select Identity resource that is created for the Informix Admin connector. For example, AdminInformix-Resource.

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

After entering the attributes, click **Next**. The Connection Credentials screen appears.
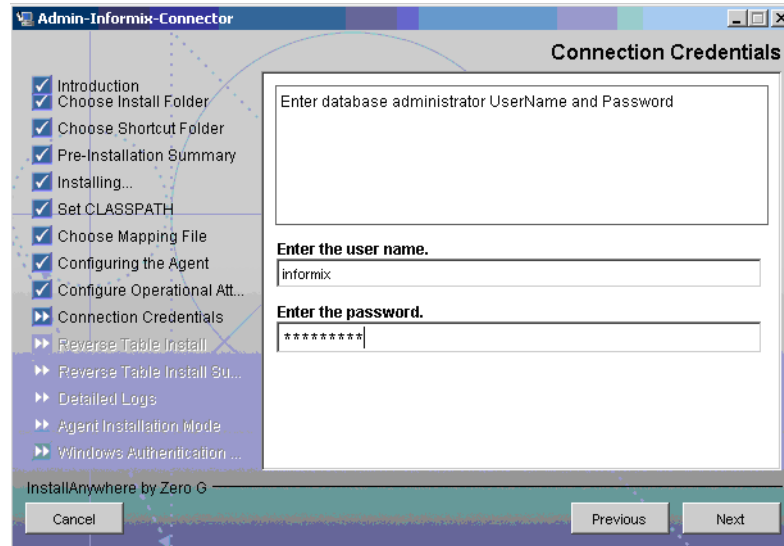
12 Enter Username/password for the resource user with which the agent can connect to the Database. This user should have admin privileges, and then click **Next**. The Reverse Table Install screen appears.
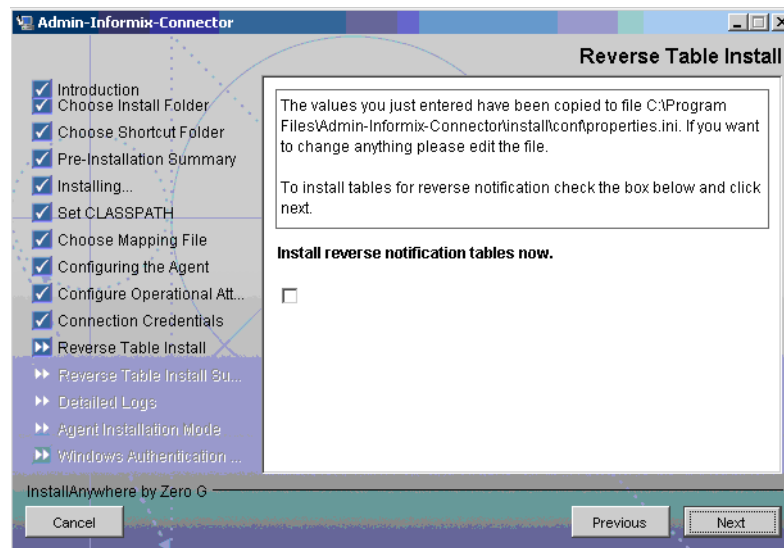
13 To enable reverse synchronization, select the Install reverse notification tables now check box, and then click **Next**. The Reverse Table Install Summary table appears.
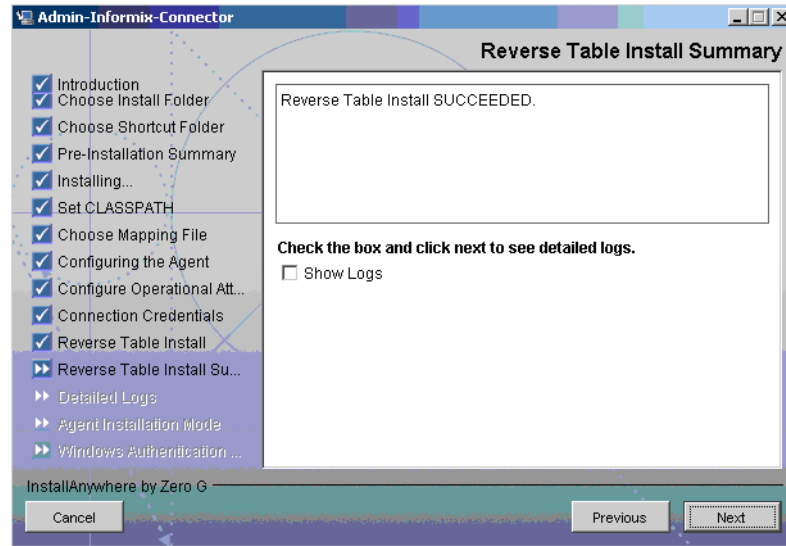
14 Select the ShowLog check box to view the detailed log, and then click **Next**. The Detailed Logs screen appears.
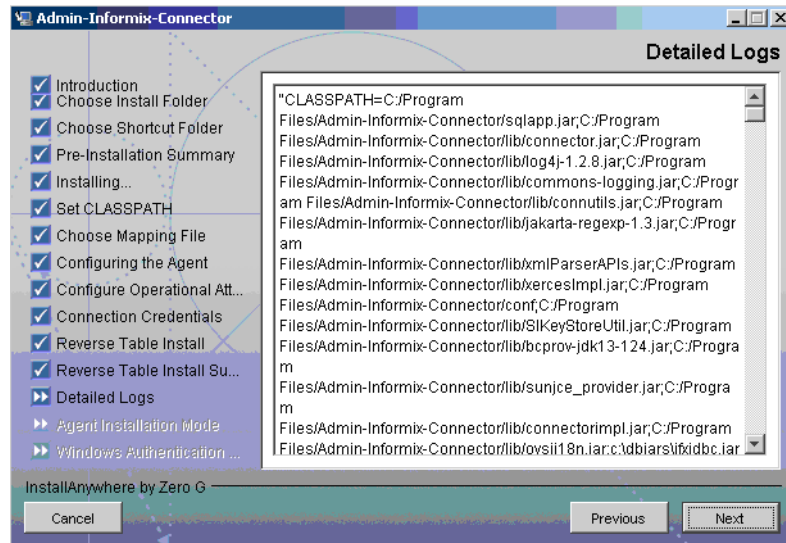
15 Click **Next**. The Agent Installation Mode screen appears.
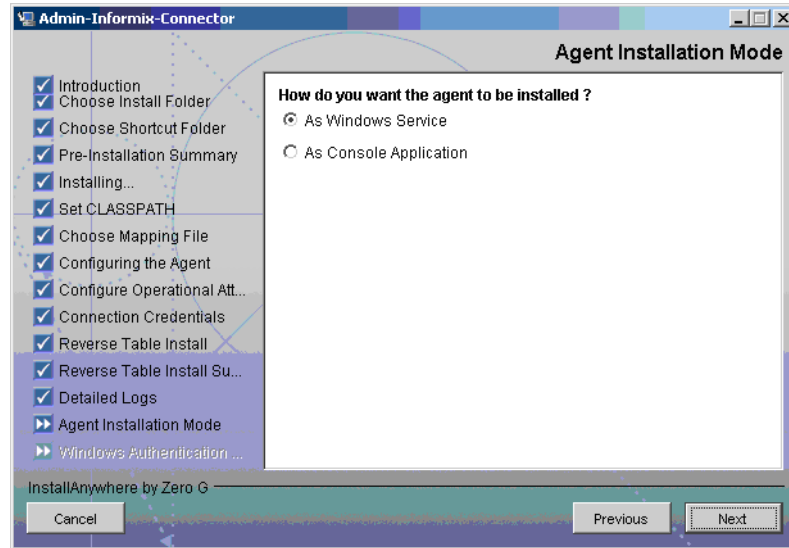
16 In the Agent Installation Mode screen, perform one of the following:

- To run the agent as a Windows service, select the As Windows Service radio button, and then click **Next**. The Windows Authentication Parameters screen appears (step 17).

- To run the agent as a console application, select the As Console Application radio button, and then click **Next**. The Install Complete screen appears (step 20).

17 The Windows Authentication Parameters screen displays the fields to enter the Windows username and password with administrative privilege, and the agent service name.
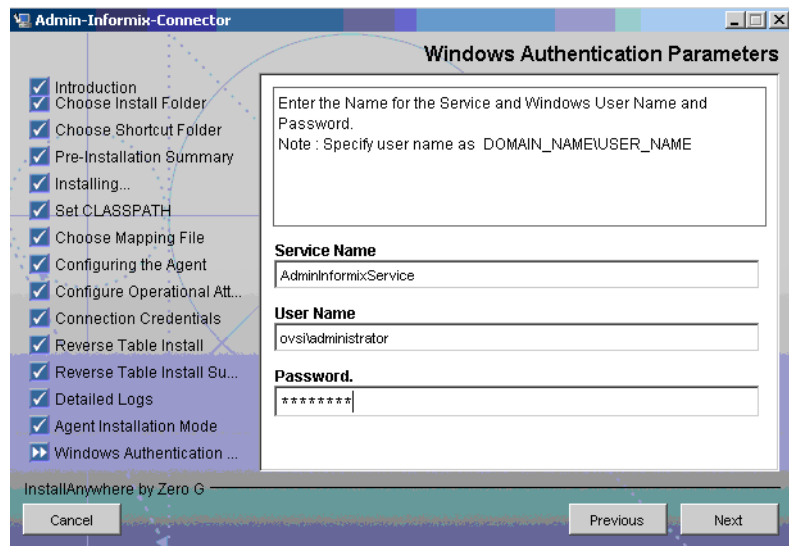
18 Type the agent service name and the administrative username and password for the Windows, and then click **Next**. The Start SQL Connector Service appears.
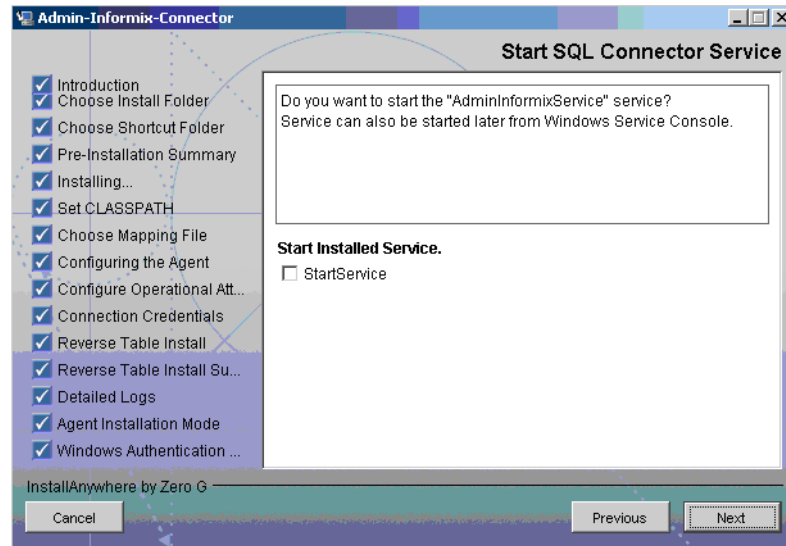
19 Select the StartService check box to start the agent service immediately after installation and **Next**. The Install Complete screen appears.
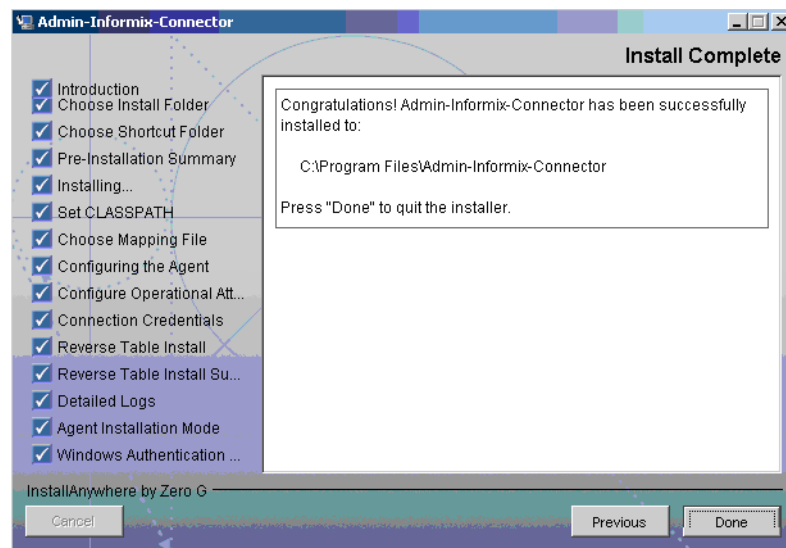
20 In the Install Complete screen, click **Done**.

Solaris

1 Extract the contents of the `Informix-Admin-AgentInstaller-Solaris.tar` file, which is 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 `Informix-Admin-AgentInstaller-Solaris` subdirectory of the home directory.

2 Start the wizard by running the following command:

```
agent_home/Informix-Admin-AgentInstaller-Solaris/
AdminInformixConnector.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: /Admin-Informix-Connector
ENTER AN ABSOLUTE PATH, OR PRESS <ENTER> TO ACCEPT THE DEFAULT:
```

3   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:
```

4   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 simply press **ENTER** to accept the default.The following message appears:

```
================================================================
Pre-Installation Summary
-----------------------
Please Review the Following Before Continuing:
Product Name:
Admin-Informix-Connector
Install Folder:
/install_dir
Link Folder:
/
Disk Space Information (for Installation Target):
Required: xxx bytes
Available: yyy bytes
PRESS <ENTER> TO CONTINUE:
```

5   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: 1526 ):
```

6   Specify the database port number and press **ENTER** to continue, or simply 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: com.informix.jdbc.IfxDriver):
```

7   Enter the database driver and press **ENTER** to continue, or simply 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:Informix-sqli):
```

8   Enter the JDBC URL and press **ENTER** to continue, or simply press **ENTER** to accept the
    default. The following message appears:

```
===============================================================
Configuring the Agent
--------------------
Enter the database service name.
Enter the service name : (DEFAULT: ): SIDB
```

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

```
===============================================================
Configuring the Agent
--------------------
Enable Server Secure (Y/N) ?
Enable Server Secure : (DEFAULT: N) : y
```

10 To enable secure communication, enter y and 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
```

11 Enter the URL of the Select Identity Web Service, which is where SPML requests are sent
    and press **ENTER** to continue. (If secure communication is enabled, you must specify the
    Web Service URL with HTTPS.), 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):
```

12 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 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
```

13 Enter the listening port number for the agent and press **ENTER**, or simply press **ENTER** to
    accept the default and continue. The following message appears:

```
================================================================
Configuring the Agent
--------------------
Enter Informix Server Instance Name
instanceName : (DEFAULT: ): ol_si1
```

14 Enter the instance name of Informix and press **ENTER**, or simply press **ENTER** to accept
    the default setting. 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):
```

15 Specify the delay (in milliseconds) that the agent will wait before sending SPML requests
    to the Select Identity server and press **ENTER**, or simply 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
```

16 Specify the number of times agent will attempt to send SPML requests after a failure to
    the Select Identity server, and then press **ENTER**, or simply 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
```

17 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 simply 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/
```

18 Enter the path to the mapping file (include trailing slashes but do not include the file name) and press **ENTER**, or simply press **ENTER** to accept the default setting. 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:
) : admininformix.xml
```

19 Enter the name of the mapping file and press **ENTER**, or simply press **ENTER** to accept the default setting. The following message appears:

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

20 Press **ENTER** to accept the default setting (**y**) or enter **n** and 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
```

21 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
```

22 Enter the administrator's password and press **ENTER**. The following message appears:

```
==================================================================
Configure Operation Attribute Parameter
---------------------------------------
Enter the XSL file name (without Extension)
XSL file name (without Extension): (DEFAULT: ): adminInformix
```

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

```
==================================================================
Configure Operation Attribute Parameter
---------------------------------------
Enter the Select Identity resource name
```

```
         Select Identity resource name : (DEFAULT: ): AdminInformixResource
```

24 Enter the name of the Select Identity IBM Informix Dynamic Server resource and 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
```

25 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: ): Informix
======================================================================
Connection Credentials
----------------------
This installation requires a password to continue.
Enter Resource Password : : password
```

26 Enter the Database User Account information to connect to the database and press
    ENTER. 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 are written to the property files, and the following
    message appears:

```
================================================================
Reverse Notification Tables Install
-----------------------------------
The values you just entered have been copied to file\
Admin-Informix-Connector\conf\properties.ini. If you want to change
anything please edit the file.
Do you want to install reverse notification tables now? (Y/N)
(DEFAULT: Y) : y
```

27 To enable reverse synchronization, you must install the reverse notification tables. Enter
    y and press **ENTER** to install the reverse notification tables (or simply press **ENTER** to
    accept the default setting), 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:
```

28 Press **ENTER** to continue. The following message appears:

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

29 If you wish to view the installation log file, enter **y** and press **ENTER**. Otherwise, enter **n**
    and press **ENTER**. The following message appears:

```
===========================================================
Agent Installation Mode
-----------------------
Do you want to install agent as a Daemon process? (DEFAULT: Y)
```

30 To install the agent as a UNIX daemon, enter **y**, and then press **ENTER**. If you enter **y**, the following message appears:

```
===========================================================
Get User Input
--------------
Enter requested information
Enter Application Name for Daemon (DEFAULT: ): InformixAdminAgent
```

31 Enter the daemon name and press **ENTER**. The following message appears:

```
===========================================================
Daemon Status
Starting InformixAdminAgent...
PRESS <ENTER> TO ACCEPT THE FOLLOWING (OK):
===========================================================
Summary
-------
Congratulations! Admin-Informix-Connector has been successfully installed
to:
/space/Admin-Informix-Connector
PRESS <ENTER> TO CONTINUE:
```

32 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
agent_home/	Contains the following files: • AddToStartupGroup.cmd/sh — Adds icons to startup group. • CopyFile.cmd/sh — Used by agent to copy files. • DelFile.cmd/sh — Used by agent to delete files. • AdminSetup.cmd/sh — Installs the reverse notification tables. • sqlapp.jar — Agent library JAR. • SQLConnectorConsole.cmd/sh — Starts the agent. • AdminUninstall.cmd/sh — Uninstalls reverse notification table. • passwordEncrypt.cmd/sh — Utility to populate Properties.ini and opAttributes.properties file with encrypted password. • PortTest.cmd/sh — The utility to check the availability of the port number mentioned in Properties.ini for agent. • LogonTest.cmd/sh — Utility to check the database connectivity.
agent_home/conf/	Contains the following files: • properties.ini — Provides configuration settings for the agent. • opAttributes.properties — Provides configuration settings for reverse synchronization. • log4j.properties — Provides settings for logging.
agent_home/conf/com	Contains the trulogica/truaccess/connectior/schema/spml directory structure where the XML mapping file is stored.
agent_home/lib/	Contains JAR files used by the agent.
agent_home/logs	Contains log files produced by the agent.
agent_home/Uninstall_Admin-Informix-Connector/	Contains files for uninstalling the agent.

Staring the Agent

To start the agent, run `SQLConnectorConsole.cmd` (on Windows) or `SQLConnectorConsole.sh` (on Solaris), 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.

The following is an example you can use on Windows:
<agent_home>/**SQLConnectorConsole.cmd**

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

Operating the Agent Daemon

If you install the agent on Solaris platform, perform the following steps to start or stop the daemon of the agent:

1   Go to the *<agent_home>*/bin directory.

2   Run the following command to start the daemon:

   $ ./SQLConAgent start

3   Run the following command to stop the daemon:

   $ ./SQLConAgent stop

4   Run the following command to view the status of the daemon:

   $ ./SQLConAgent status

Modifying the Database Account and Select Identity Passwords

After the agent is installed, if you change the database account password or the Select Identity administrative password, you must update the agent with the change.

Perform the following steps on IBM Informix Dynamic Server machine to update password change to the agent.

*   To update the change in database password, run the following command on the Windows command prompt:

   <install_dir>**passwordEncrypt.cmd -r** *<db-password>*

   where *<install_dir>* is the location of the agent and *<db-password>* is the new database password.

*   To update the change in Select Identity administrative password, run the following command on the Windows command prompt:

   <install_dir>**passwordEncrypt.cmd -s** *<ovsi-password>*

where *<install_dir>* is the location of the agent and *<ovsi-password>* is the new Select Identity password.

6 Uninstalling the Connector

If you want to uninstall Informix Admin connector from Select Identity, perform the following steps:

- Remove all resource dependencies.
- Delete the connector from Select Identity.
- Delete the connector from application server.
- Uninstall the agent.

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

Uninstalling the Agent on Windows

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

1 Select **Programs** → **Admin-Informix-Connector** → **Uninstall Agent** from the Start menu. The wizard appears.

2 Click **Next** on the introductory screen.

3 Provide the database credentials to uninstall the reverse tables, if they were installed.

4 Click **Uninstall**.

5 Click **Continue** when the pop-up dialog indicates that the reverse tables were successfully uninstalled.

6 Click **Done** on the Uninstall Complete screen to close the wizard.

Uninstalling 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_Admin-Informix-Connector/
Uninstall_Admin-Informix-Connector
```

The following message appears:

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

```
Chapter 4
56
================================================================
Uninstall Admin-Informix-Connector
--------------------------------
About to uninstall...
Admin-Informix-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 notification
tables (if installed) and displays a success or failure message, as follows:

```
================================================================
Executed the command
-------------------
"/Admin-Informix-Connector/Uninstall.sh" -userName "TEST" -password
"password"
Reverse Notification Tables Uninstall Summary
Reverse Notification Tables 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.

Agent and Reverse Notification Table Installation

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

- 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 following error message is displayed:

  ```
  Can't create view dbo.DBA_USERS Message received from the database: There
  is already an object named ... Cannot proceed.
  ```

  Possible Cause: You are attempting to reinstall the agent without removing previously installed database tables.

  Solution: Uninstall the agent as documented in Uninstalling the Connector on page 45. This removes previously installed tables. Then, run the agent installation wizard again.

- 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 tables, 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` variable to the path of Java version 1.4.

- During agent installation, error message appears displaying `Invalid Login credentials` even though correct values are provided for database username and password.

  Possible Causes:

  — `JAVA_HOME` environment variable is not set correctly or not set at all.

  — The JDBC driver JARs are not placed in system `CLASSPATH`.

  — The `commons-logging.jar` is present in the *JAVA_HOME*`/jre/lib/ext` folder.

  — Other reasons that are not displayed in the log file.

  Solutions:

  — Set the `JAVA_HOME` up to the path from where the `bin` folder containing the `java.exe` file is accessible.

  — Update the system `CLASSPATH` with paths JDBC Jars.

  — Place the `log4j-1.2.8.jar` file along with the `commons-logging.jar` file in the same path.

  — If the possible solutions mentioned above do not work, use `LogOnTest.cmd`/sh utility provided with the agent to debug the issue. You must run the utility from the command prompt as:

    *<agent_home_folder>*__/LogonTest.cmd -userName__ *<db_username>* __-Password__ *<db_password>*

    This will try to establish connection to the database and display the result/error on the command window.

- While registering the agent as a service, the Windows account name given is not accepted.

  Possible Causes:

  — The complete Windows account name (*<Domain_Name>/<user name>*) is not given.

  — The local account is given in the form `localhost\administrator`.

  Solutions:

— The installer needs the complete Windows username (with Domain Name) for registering the agent as service.

— The account names with `localhost` are not supported. Instead, machine name can be prefixed for local accounts. For example, `machine1\Administrator`.

- An error message appears displaying `CREATE VIEW permission denied in database` while deploying the agent.

  Possible Causes: The database user account used does not have all the necessary privileges to the database.

  Solutions: Select a user with proper privileges to install the agent.

- An error message appears displaying `Class Not Found Exception caught Can not establish connection to the DB` while deploying the agent.

  Possible cause: The JDBC Driver files are not in system `CLASSPATH` of database server machine.

  Solutions: Place the JDBC JAR files in system `CLASSPATH`.

- The agent service is registered but not starting.

  Possible Causes:

  — The user account provided does not have sufficient privileges.

  — Multiple instances of JVM are running on the machine and agent is being invoked by an unsupported version of JRE (1.3 or 1.5). In this case, the logs show the following error:

  ```
  Wrapper Started as Service

  Launching a JVM...

  | WrapperSimpleApp: Unable to locate the class
  com.trulogica.sql.conncore.commanager.ComManager:
  java.lang.UnsupportedClassVersionError:com/trulogica/truaccess/
  connector/exception/TAConnectorException (Unsupported major.minor
  version 48.0)
  ```

  Solutions:

  — Go to the Services window, right-click on the newly registered agent service, go to Properties, and then go to the LogOn tab. If This Account option is selected, cancel that selection and select the Local System Account option.

  — Check the system if JREs of different versions are installed. Make sure that only JRE 1.4 is running and available in system `PATH` variable and `JAVA_HOME`.

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.

- The following error is displayed:

  ```
  SQLException occurred while adding element into SNAPSHOT_TAB. Message
  received from the database: table or view does not exist
  ```

  Possible Cause: The agent is installed without the reverse notification tables.

  Solution: Install the tables by running the installation, then run the agent.

- An error message appears displaying `The system cannot find the path specified` while starting/ running the agent.

  Possible Cause: The agent is not able to find JAVA in system `PATH`.

  Solutions:

  — Make sure that `JAVA_HOME` variable is set on Informix machine.

  — JAVA is available in system `PATH`.

B Connector Behavior

This chapter describes key connector behaviors during forward provisioning and reverse synchronization.

Connector Behavior During Forward Provisioning:

- The connector only supports adding and assigning users to the database if the user exists on the target system (a Windows or UNIX user). The connector attempts to log in using the user name and password provided. If the user is not a system user, the connector returns an Invalid Userid exception. The same error is thrown if the password is incorrect.

- The connector does not display the CONNECT entitlement of Informix in Select Identity. It implicitly grants this entitlement to user when performing an ADD request and revokes the entitlement when issuing a DELETE request.

- At any given time, an Informix user can have only one entitlement (C, R, or D). The connector simulates the same behavior.

  — When a user has the RESOURCE entitlement and DBA is assigned, the agent sends an UNLINK request of RESOURCE to Select Identity. Thus, the user is only assigned DBA in Select Identity and on the Informix resource.

  — When the user has the DBA entitlement and RESOURCE is assigned the user, the connector returns an error stating 'Only one Entitlement can be assigned to a user.'

- The Reset Password operation is not supported because the connector cannot reset the password of a system user.

- There is no STATUS attribute for a user on Informix, where the information of whether the user is enabled or disabled can be stored. Hence, the Enable All Services and Disable All Services request returns success.

- Roles can be created on Informix and the connector will retrieve them with the prefix ENTITLEMENTS.

Connector Behavior During Forward Provisioning:

- The agent sends an ADD request (in the form of SPML) to the Select Identity server when a user is granted the CONNECT privilege on Informix. A DELETE request (in the form of SPML) is sent when the CONNECT privilege is revoked for that user.

- The agent synchronizes the event of assigning DBA to a user with the RESOURCE entitlement by sending an UNLINK request to the Select Identity server.