

## **Oracle® Identity Manager**

Password Synchronization Module for Microsoft Active Directory  
Installation and Configuration Guide

Release 9.0.4

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Oracle Identity Manager Password Synchronization Module for Microsoft Active Directory Installation and Configuration Guide, Release 9.0.4

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# Preface

This guide describes the connector that is used to integrate Oracle Identity Manager with Microsoft Active Directory.

## Audience

This guide is intended for resource administrators and target system integration teams.

## Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible to all users, including users that are disabled. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at <http://www.oracle.com/accessibility/>.

### Accessibility of Code Examples in Documentation

Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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### Access to Oracle Support

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## Related Documents

For information about installing and using Oracle Identity Manager, see the Oracle Identity Manager documentation library.

For generic information about connectors, see *Oracle Identity Manager Connector Concepts*.

The following Oracle Technology Network page provides links to Oracle Identity Manager documentation:

<http://www.oracle.com/technology/documentation/oim.html>

## Documentation Updates

Oracle is committed to delivering the best and most recent information available. For information about updates to the Oracle Identity Manager Connectors documentation, visit Oracle Technology Network at

<http://www.oracle.com/technology/documentation/index.html>

## Conventions

The following text conventions are used in this document:

<b>Convention</b>	<b>Meaning</b>
<b>boldface</b>	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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# What's New in Oracle Identity Manager Password Synchronization Module for Microsoft Active Directory?

This chapter provides an overview of the updates made to the software and documentation for the Microsoft Active Directory connector in release 9.0.4.17.

**See Also:** The earlier release of this guide for information about updates that were new in that release

The updates discussed in this chapter are divided into the following categories:

- [Software Updates](#)

This section describes updates made to the connector software.

- [Documentation-Specific Updates](#)

This section describes major changes made to this guide. These changes are not related to software updates.

## Software Updates

The following sections discuss software updates:

- [Software Updates in Release 9.0.4.5](#)
- [Software Updates in Release 9.0.4.6](#)
- [Software Updates in Release 9.0.4.7](#)
- [Software Updates in Release 9.0.4.8](#)
- [Software Updates in Release 9.0.4.9](#)
- [Software Updates in Release 9.0.4.10](#)
- [Software Updates in Release 9.0.4.10.1](#)
- [Software Updates in Release 9.0.4.11](#)
- [Software Updates in Release 9.0.4.12](#)
- [Software Updates in Release 9.0.4.13](#)
- [Software Updates in Release 9.0.4.14](#)
- [Software Updates in Release 9.0.4.15](#)

- [Software Updates in Release 9.0.4.16](#)
- [Software Updates in Release 9.0.4.17](#)

### Software Updates in Release 9.0.4.5

The following are issues resolved in release 9.0.4.5:

Bug Number	Issue	Resolution
6989471	<p>The following issue was seen if the password synchronization module was installed on Oracle Identity Manager 9.1.0:</p> <p>If a user's password were changed on the target system, then the password synchronization module would make the same change to the user's password on Oracle Identity Manager. However, the flag that indicated that the change was made from the target system would not be set. Next, if the account password were changed on Oracle Identity Manager, then the <code>tcStaleDataException</code> exception was thrown.</p>	<p>This issue has been fixed. The flag that indicates a password change made on the target system is correctly set each time the password is changed on the target system.</p>

### Software Updates in Release 9.0.4.6

There are no software updates in release 9.0.4.6.

### Software Updates in Release 9.0.4.7

There are no software updates in release 9.0.4.7.

### Software Updates in Release 9.0.4.8

There are no software updates in release 9.0.4.8.

### Software Updates in Release 9.0.4.9

The following are issues resolved in release 9.0.4.9:

Bug Number	Issue	Resolution
7021306	<p>While changing the password in Microsoft Active Directory, an error was thrown if a special character was included in the password.</p>	<p>This issue has been resolved. While specifying a password, you can now include any of the supported special characters. See <a href="#">Appendix A, "Special Characters Supported for Passwords"</a> for more information.</p>

### Software Updates in Release 9.0.4.10

There are no software updates in release 9.0.4.10.

### Software Updates in Release 9.0.4.10.1

The following are issues resolved in release 9.0.4.10.1:



Bug Number	Issue	Resolution
6937257	Signature-based login to Oracle Identity Manager did not work even when you set the UseSignature element in the xlconfig.xml file to true.	This issue has been resolved.

### Software Updates in Release 9.0.4.11

The following are software updates in release 9.0.4.11:

- [Support for 32-Bit and 64-Bit Microsoft Windows](#)
- [Resolved Issues in Release 9.0.4.11](#)

### Support for 32-Bit and 64-Bit Microsoft Windows

The password synchronization connector now has separate installers for Microsoft Active Directory running on 32-bit and 64-bit Microsoft Windows. Corresponding changes have been made in this release of the guide.

### Resolved Issues in Release 9.0.4.11

The following are issues resolved in release 9.0.4.11:

Bug Number	Issue	Resolution
7138243	On Microsoft Active Directory, you could change the password even under the following conditions: <ul style="list-style-type: none"> <li>■ Oracle Identity Manager was unavailable.</li> <li>■ The new password was disallowed by password policies on Oracle Identity Manager.</li> </ul>	This issue has been resolved. You are not allowed to change your password on Microsoft Active Directory if Oracle Identity Manager is unavailable or if the new password does not meet the requirements of password policies on Oracle Identity Manager.  <b>Note:</b> The target system UI displays a message saying that the password has been changed. However, an error message is recorded in the log file.

### Software Updates in Release 9.0.4.12

There are no software updates in release 9.0.4.12.

### Software Updates in Release 9.0.4.13

The following is a software update in release 9.0.4.13:

- [Single Installer for Both 32-Bit and 64-Bit Microsoft Windows](#)

### Single Installer for Both 32-Bit and 64-Bit Microsoft Windows

A single installer has been developed for Microsoft Active Directory running on 32-bit and 64-bit Microsoft Windows. Corresponding changes have been made in this release of the guide.

### Software Updates in Release 9.0.4.14

The following is a software update in release 9.0.4.14:

- [Major Changes in the Password Synchronization Process](#)

### **Major Changes in the Password Synchronization Process**

Major changes have been made in the password synchronization process. For example, the custom target system attribute for tracking password changes is not required from this release onward.

See "[How Password Synchronization Works](#)" for information about the new process.

If required, you can disable or enable the password synchronization process. See "[Disabling and Enabling Password Synchronization](#)" for more information.

### **Software Updates in Release 9.0.4.15**

There are no software updates in release 9.0.4.15.

### **Software Updates in Release 9.0.4.16**

There are no software updates in release 9.0.4.16.

### **Software Updates in Release 9.0.4.17**

There are no software updates in release 9.0.4.17.

## **Documentation-Specific Updates**

The following sections discuss documentation-specific updates:

In the "[Known Issues](#)" chapter:

- The issue described by Bug 6989471 has been added.
- The requirement described in Bug 7207157 has been moved to another chapter of the guide.
- Microsoft Windows 2000 is no longer a supported host for the target system. All occurrences of "Microsoft Windows 2000" have been removed from this guide.
- In the "[Verifying Deployment Requirements](#)" section, changes have been made in the "Target systems and target system host platforms" row.
- From this release onward:

The minimum certified release of Oracle Identity Manager is release 9.1.0.1.

The minimum certified release of JDK is release 1.4.2.

See "[Verifying Deployment Requirements](#)" section for the complete listing of certified components.

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# Overview of the Password Synchronization Module

Oracle Identity Manager is an advanced user account provisioning system for automatically granting and revoking access to enterprise applications and managed systems. The modular architecture of Oracle Identity Manager can handle most IT requirements, without requiring changes to existing infrastructure, policies, or procedures.

This chapter contains the following sections:

- [Components for Connecting Oracle Identity Manager to Microsoft Active Directory](#)
- [How Password Synchronization Works](#)
- [Files and Directories That Comprise the Password Synchronization Module](#)
- [Determining the Release Number of the Password Synchronization Module](#)

## 1.1 Components for Connecting Oracle Identity Manager to Microsoft Active Directory

Oracle Identity Manager provides the following components to link with Microsoft Active Directory:

- Connector for Microsoft Active Directory
- Password synchronization module for Microsoft Active Directory

Depending on your specific needs, you can deploy one or both of these components to connect Oracle Identity Manager and Microsoft Active Directory. Deployed together (along with LDAP over SSL), the connector and the password synchronization module provide full, bidirectional synchronization of all user attributes, including passwords.

The connector for Microsoft Active Directory can update user account attributes bidirectionally. However, password changes are updated only when the password is changed through Oracle Identity Manager, and not when it is changed through Microsoft Active Directory.

In contrast, the password synchronization module for Microsoft Active Directory updates Oracle Identity Manager with passwords changed in Microsoft Active Directory.

The following table compares the functionality offered by both tools.

Functionality	Module	Connector
Updates Microsoft Active Directory with user account attributes (except for passwords) changed in Oracle Identity Manager	No	Yes
Updates Oracle Identity Manager with user account attributes (except for passwords) changed in Microsoft Active Directory	No	Yes
Updates Microsoft Active Directory with passwords changed in Oracle Identity Manager (requires LDAP over SSL)	No	Yes
Updates Oracle Identity Manager with passwords changed in Microsoft Active Directory	Yes	No

## 1.2 How Password Synchronization Works

If the password synchronization module is installed, then the following use cases are supported:

- Password changes made on the target system are propagated to the OIM User form if the target system is configured as a trusted source.
- Password changes made on the target system are propagated to the process form if the target system is configured as a target resource.
- Password changes made on the OIM User form are propagated to the target system.
- Password changes made through the Forgot Password option are propagated to the OIM User form and to the target system.

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**Note:** If the password synchronization module is installed, then password changes made on the process form are not propagated to the target system.

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The password synchronization module intercepts a password change event in Microsoft Active Directory and sends the new password to Oracle Identity Manager. Now, if the password change in Oracle Identity Manager fails because, for example, the password does not meet the password policy, then the password change is not allowed in Microsoft Active Directory. However, if the password change in Oracle Identity Manager succeeds, then the password change is allowed in Microsoft Active Directory.

The `USR_UDF_PWDCHANGEDINDICATION` field is used to track password changes and prevent loop-back conditions in which a password change from Oracle Identity Manager to the target system is propagated back to Oracle Identity Manager, and vice versa.

**See Also:** *Oracle Identity Manager Connector Guide for Microsoft Active Directory* for information about creating this field

When you change the password on Oracle Identity Manager:

1. Oracle Identity Manager sets the value of the `USR_UDF_PWDCHANGEDINDICATION` field to 1.
2. The new password is propagated to the target system.
3. The password synchronization module detects the password change.

4. The password synchronization module checks the value of the `USR_UDF_PWDCHANGEDINDICATION` field, sets the field to 0, and then performs no further action.

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**Note:** When you perform a Create User provisioning operation, the value of the field is NULL. The password synchronization mod treats the NULL value the same as it would treat a value of 1.

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When you change the password on the target system:

1. The password synchronization module sets the value of the `USR_UDF_PWDCHANGEDINDICATION` field to 1.
2. The new password is set in the `USR` table.
3. Oracle Identity Manager detects the password change.
4. Oracle Identity Manager checks the value of the `USR_UDF_PWDCHANGEDINDICATION` field, sets the field to 0, and then performs no further action.

## 1.3 Files and Directories That Comprise the Password Synchronization Module

The installation files for the module are in the following directory on the installation media:

Directory Servers/Microsoft Active Directory/Microsoft Active Directory Password Sync

These files and directories are listed in the following table.

File in the Installation Media Directory	Description
<code>setup_ad.exe</code>	This file is used to install the password synchronization module.
<code>set_ad.jar</code>	This JAR file is used during the installation process.
Files in the <code>com/oracle/xl/installer</code> directory	Each of these resource bundle files contains language-specific information that is used by the connector.  <b>Note:</b> A <b>resource bundle</b> is a file containing localized versions of the text strings that are displayed on the Administrative and User Console. These text strings include GUI element labels and messages.
Files in the <code>jpclient/lib</code> directory	These are password synchronization library files.
Files in the <code>xlhome/ext</code> directory	These are third-party JAR files.
Files in the <code>xlhome/install</code> directory	These JAR files are required by the password synchronization module installer.

## 1.4 Determining the Release Number of the Password Synchronization Module

To determine the release number of an existing password synchronization module:

1. Extract the contents of the `xliADSync.jar` file. This file is copied into the `ADSYNC_HOME/lib` directory after you perform the installation process described in [Chapter 2](#).

2. Open the `manifest.mf` file in a text editor. The `manifest.mf` file is one of the files bundled inside the `xliADSync.jar` file.

In the `manifest.mf` file, the release number of the connector is displayed as the value of the `Version` property.

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# Deploying the Password Synchronization Module

This guide covers two scenarios:

- Upgrading an existing instance of the password synchronization module to the current version

To implement this option, follow the instructions provided in [Chapter 3](#).

- Deploying the password synchronization module

To implement this option, follow the instructions provided in this chapter.

Deploying the password synchronization module involves performing the following steps:

- [Preparing to Install the Password Synchronization Module](#)
- [Installing the Password Synchronization Module](#)
- [Performing Postinstallation Steps for the Password Synchronization Module](#)
- [Configuring the Password Synchronization Module](#)

If you want to use the Strong Password Authentication (Password Complexity) feature of Microsoft Active Directory, then perform the procedure described in the following section:

- [Enabling the Strong Password Authentication \(Password Complexity\) Feature of Microsoft Active Directory](#)

If you want to disable or enable password synchronization, then:

- [Disabling and Enabling Password Synchronization](#)

## 2.1 Preparing to Install the Password Synchronization Module

This section contains the following topics:

- [Determining the Release Number of the Connector](#)
- [Verifying Deployment Requirements](#)

### 2.1.1 Determining the Release Number of the Connector

You might have a deployment of an earlier release of the connector. While deploying the current release, you might want to know the release number of the earlier release. To determine the release number of the connector that has already been deployed:

1. In a temporary directory, extract the contents of the following JAR file:  
`ADSYNC_HOME\lib\xliADSync.jar`  
 Here, `ADSYNC_HOME` is the directory on the Microsoft Active Directory host computer in which you had installed the connector.
2. Open the `manifest.mf` file in a text editor. The `manifest.mf` file is one of the files bundled inside the `xliADSync.jar` file.  
 In the `manifest.mf` file, the release number of the connector is displayed as the value of the `Version` property.

## 2.1.2 Verifying Deployment Requirements

Before you install the connector, you must ensure that the following deployment requirements are addressed:

- The computer on which you are installing the connector meets the requirements listed in [Table 2-1](#).

**Table 2-1 Certified Deployment Configurations**

Item	Requirement
Oracle Identity Manager	Oracle Identity Manager release 9.1.0.1
Target systems and target system host platforms	Microsoft Windows Server 2003 Active Directory installed on Microsoft Windows Server 2003 with SP1 or later service packs (x86 or x64)  <b>Note:</b> Target systems installed on Itanium 64-bit processors are not supported.
JDK	JDK 1.4.2

- The target system host computer must be able to ping the application server host using both IP address and host name.
- If you use a firewall between Oracle Identity Manager and Microsoft Active Directory, then open one of the following ports:
  - 636 (outgoing toward Microsoft Active Directory), if SSL is configured
  - 389 (outgoing toward Microsoft Active Directory), if SSL is not configured
  - RMI port (incoming), which you had selected while installing connector
- If Oracle Identity Manager is running on IBM WebSphere Application Server, then you must install IBM WebSphere Application Client and Oracle Identity Manager Design Console on the Microsoft Active Directory host computer.

## 2.2 Installing the Password Synchronization Module

To install the password synchronization module:

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**Note:** You must install the password synchronization module on the physical system drive for the Microsoft Active Directory host computer. You must *not* install the module on a mapped drive.

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1. On the Microsoft Active Directory server, start the installer as follows:



- a. The installation files for the password synchronization module are in the following directory on the installation media:

Directory Servers/Microsoft Active Directory/Microsoft Active Directory Password Sync

Copy the contents of this directory to a temporary directory.

**See Also:** The "[Files and Directories That Comprise the Password Synchronization Module](#)" section on page 1-3 for more information about the installation files

- b. In the temporary directory, run the `setup_ad.exe` file to start the installer.
2. Specify a language.
3. Click **Next**.
4. On the Target Directory page, you can either accept the default installation directory or specify the path to the directory in which you want install the module. For example, you can specify a path similar to the following:

C:\OracleProvisioningAD

Alternatively, you can use the **Browse** button to navigate to the installation directory.

5. Click **Next**.

The installer creates a directory named `adsynch` inside the installation directory that you specify. Then, it copies the password synchronization module components into the `adsynch` directory and creates certain directories inside the `adsynch` directory.

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**Note:** From this point onward, this guide refers to the directory `user_specified_install_directory/adsynch as ADSYNC_HOME`.

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6. On the Application Server page, specify the application server that hosts the Oracle Identity Manager server to which the Active Directory domain controller will connect. Then, click **Next**.

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**Note:** If you specify IBM WebSphere as the application server, then perform the next step. Otherwise, directly proceed to Step 7.

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7. On the WebSphere Directory page, specify the path to the directory where the IBM WebSphere Application Client is installed, on the computer where you are installing the module. Then, click **Next**.
8. On the JRE page, specify the JRE option that you want to use with the module. The following choices are available:
  - JRE bundled with Oracle Identity Manager
  - An existing JRE 1.4.2 installation on the computer where you are installing the password synchronization module. The following table lists the appropriate JRE version for the supported application servers.

Application Server	Required JRE	Comments
JBoss Application Server	Sun JRE 1.4.2_09 or later	However, all versions of Sun JRE 1.5 are <i>not</i> supported.
Oracle WebLogic Server	Sun JRE 1.4.2_09 or later	However, all versions of Sun JRE 1.5 are <i>not</i> supported.
IBM WebSphere	IBM JRE 1.4.2_x	Available as part of the IBM WebSphere Application Client installation that is compatible with IBM WebSphere on the server on which Oracle Identity Manager is installed
Oracle Application Server	SunJRE 1.4.2_09 or later	However, all versions of Sun JRE 1.5 are <i>not</i> supported.

For an existing JRE installation, you must specify the path to the installation. Then, click **Next**.

- On the System Administration page, specify the account name and password required to log in to the Oracle Identity Manager server.

The default account for login is `xelsysadm`.

After specifying the required information, click **Next**.

- On the Application Server Configuration page, specify the following:
  - The host name or IP address of the application server computer hosting Oracle Identity Manager
  - The naming port associated with the application server. The following table lists the default naming ports for the supported application servers.

Application Server	Default Naming Port
JBoss Application Server	1099
Oracle WebLogic Server	7001
IBM WebSphere	2809
Oracle Application Server	12401

If the application server for Oracle Identity Manager uses a nondefault naming port, then use that port number and consult your system administrator for additional guidance.

After you specify the required information, click **Next**.

- On the Summary page, verify that the installation directory for the module, which you specify on the Target Directory page, is correctly displayed.

If you need to change the installation directory, click **Back** until you reach the Target Directory page, make the required changes, and then proceed through the installation sequence again.

When the installation directory is displayed correctly, click **Install**.

- The Complete page displays a message indicating successful installation.

Click **Finish** to close the installer.

13. If you are installing the connector on a 64-bit Microsoft Windows operating system, then copy the `Adsync.dll` file from the `Windows\SysWOW64` directory to the `WINDOWS\system32` directory.
14. Restart the computer.

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**Caution:** Do not change the Oracle Identity Manager administrator password after you install the password synchronization module. If you change the password after installation, then the password synchronization module would stop working.

If you change the password, then you must reinstall the password synchronization module.

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## 2.2.1 Files Copied During Password Synchronization Module Installation

The following table lists the installation locations for the key components of the password synchronization module.

File	Description
<code>ADSYNC_HOME\config\xlconfig.xml</code>	This file contains all the user-configurable settings for the password synchronization module. Users can edit this file after installing the module. For details, refer to the " <a href="#">Configuring the Password Synchronization Module</a> " section on page 2-7.
<code>ADSYNC_HOME\lib\xliADSync.jar</code>	This JAR file contains the class files required by the Change Password script.
<code>ADSYNC_HOME\ChangePassword.cmd</code>	This script, which is called by <code>adsync.dll</code> in response to a password change, uses the required classpath and command-line parameters to call the <code>ChangePassword</code> class, which is in the <code>xliADSync.jar</code> file.
<code>ADSYNC_HOME\wsChangePassword.cmd</code>	This is the version of the Change Password script that is used by IBM WebSphere.
<code>ADSYNC_HOME\lib\xliADSync.ear</code>	This file contains the class files required by the version of the Change Password script used by IBM WebSphere.
<code>Windows\system32\Adsync.dll</code>	If you install the connector on a 32-bit Microsoft Windows operating system, then the <code>Adsync.dll</code> file is registered as a listener for password changes.
<code>Windows\SysWOW64\Adsync.dll</code>	If you install the connector on a 64-bit Microsoft Windows operating system, then the <code>Adsync.dll</code> file is registered as a listener for password changes.

## 2.3 Performing Postinstallation Steps for the Password Synchronization Module

After you install the password synchronization module, perform the following steps:

1. Copy the following files from the `OIM_HOME/ext` directory to the `ADSYNC_HOME\ext` directory on the computer where you installed the password synchronization module:
  - `javagroups-all.jar` or `jgroups-all.jar`
  - `oscache-2.0.2-22Jan04.jar` or `oscache.jar`
2. Copy all the JAR files from the `OIM_Design_Console_installation_dir/lib` directory on the computer

hosting the Oracle Identity Manager Design Console to the *ADSYNC\_HOME\lib* directory on the computer where you install the password synchronization module.

3. Depending on the application server used, perform one of the following steps:
  - For JBoss Application Server, copy the *JBOSS\_HOME/client/jbossall-client.jar* to the *ADSYNC\_HOME/ext* directory.
  - For Oracle WebLogic Server, copy the *BEA\_HOME/weblogic81/server/lib/weblogic.jar* into the *ADSYNC\_HOME/ext* directory.
  - For IBM WebSphere, extract and copy the *x1DataObjectBeans.jar* file into the *ADSYNC\_HOME/lib* directory as follows:
    - a. Use the following URL to connect to the IBM WebSphere administrative console:  
`http://localhost:9090/admin`
    - b. Use the Oracle Identity Manager administrator account credentials to log in.
    - c. Click **Applications**, and then click **Enterprise Applications**.
    - d. Select **Xellerate**.
    - e. Click **Export**.
    - f. Save the *Xellerate.ear* file to a temporary directory.
    - g. Extract the *x1DataObjectBeans.jar* file from the *Xellerate.ear* file.
    - h. Copy the *x1DataObjectBeans.jar* file into the *ADSYNC\_HOME/lib* directory.

---

---

**Note:** Ensure that you extract and copy the *x1DataObjectBeans.jar* file, not the *x1DataObjects.jar* file.

---

---

- For Oracle Application Server, copy the following files into the *ADSYNC\_HOME/ext* directory:  
*ORACLE\_HOME/j2ee/home/oc4jclient.jar*  
*ORACLE\_HOME/j2ee/home/lib/ejb.jar*
4. If you plan to run Oracle Identity Manager on a clustered application server, then:
    - a. Establish a trust relationship between the virtual server that represents the Oracle Identity Manager cluster and the computer hosting the Active Directory domain controller on which you install the password synchronization module.
    - b. Add the host name of the virtual server to the *hosts* file of the computer hosting the Active Directory domain controller on which you install the password synchronization module.
    - c. Edit the *x1config.xml* file associated with the password synchronization module you install. This file is located in the *ADSYNC\_HOME/config* directory.

In the `xlconfig.xml` file, change the value of the `<java.naming.provider.url>` tag to the fully qualified host name of the virtual server.

---

**Note:** Each instance of the `xlconfig.xml` file is in the `config` directory. This directory is in the root installation directory for the component with which the configuration file is associated. For example, the path of the `xlconfig.xml` file associated with the password synchronization module is as follows:

```
ADSYNC_HOME\config
```

---

After you update the value of the `<java.naming.provider.url>` tag in the `xlconfig.xml` file associated with the password synchronization module, save and close the file.

5. In the IT resource for Microsoft Active Directory, set the value of the `AD_Sync installed (yes/no)` parameter to `yes`.

See *Oracle Identity Manager Design Console Guide* for detailed information about modifying values of IT resource parameters.

---

**Note:** If you set the value of this parameter to `no`, then you must also disable password synchronization. See "[Disabling and Enabling Password Synchronization](#)" for more information.

---

## 2.4 Configuring the Password Synchronization Module

After you complete installation of the password synchronization module, you can configure it by editing the `xlconfig.xml` file, which is located in the `ADSYNC_HOME\config` directory.

To configure the parameters in the `xlconfig.xml` file, first open the file by using any text editor. The following table lists the elements you can configure within the `<ADsync>` tag in the `xlconfig.xml` file.

Tag Within the <code>&lt;ADSync&gt;</code> Tag	Description
<code>&lt;UserMatch&gt;</code>	<p>The <code>MatchingMethod</code> parameter specifies how Oracle Identity Manager matches an Oracle Identity Manager user to the Active Directory ID passed to the <code>adsync.dll</code> file. The first of the following three options is the default. Use it when all the login IDs in Oracle Identity Manager match all the Active Directory user IDs. When the login IDs in Oracle Identity Manager and the Active Directory IDs do not match, then use one of the remaining options.</p> <ul style="list-style-type: none"> <li>▪ <b>UserID:</b> The Active Directory user ID matches the Oracle Identity Manager user login.</li> <li>▪ <b>UDF:</b> The Active Directory user ID matches the UDF specified in the <code>&lt;FieldName&gt;</code> attribute.</li> <li>▪ <b>ResourceField:</b> The Active Directory user ID matches the <code>&lt;FieldName&gt;</code> attribute in the process form of the Oracle Identity Manager user to whom a resource object specified by the <code>&lt;ResourceObject&gt;</code> attribute is provisioned.</li> </ul>

Tag Within the <ADSync> Tag	Description
<Result>	<p>This optional configuration element specifies where the result of the password change operation must be logged (apart from the <code>adsync.log</code> file). Values for the following parameters are provided as tags within the &lt;Result&gt; tag:</p> <ul style="list-style-type: none"> <li>▪ <b>UpdateUDF:</b> Set to <code>True</code> or <code>False</code> to update a status field in the Users form.</li> <li>▪ <b>FieldName:</b> Specify a field name when the <code>UpdateUDF</code> tag is set to <code>True</code>. For example, <code>FieldName</code> can be <code>USR_UDF_STATUS</code>.</li> <li>▪ <b>FailureValue:</b> This string goes into the status field if the password reset operation fails.</li> <li>▪ <b>SuccessValue:</b> This string goes into the status field if the password reset operation succeeds.</li> <li>▪ <b>AppendTimeStamp:</b> Set this to <code>True</code> or <code>False</code> to append a timestamp to the string in the status field.</li> </ul>
<Installed>	<p>Use the &lt;Installed&gt; tag to specify whether the Microsoft Active Directory connector has been installed. If you have installed that connector, then specify <code>true</code> as the value of the &lt;Installed&gt; tag. Otherwise, specify <code>false</code>.</p> <p>For example:</p> <pre>&lt;ADConnectorConfig&gt;   &lt;Installed&gt;true&lt;/Installed&gt;   &lt;OIMUserUDF&gt;&lt;/OIMUserUDF&gt; &lt;/ADConnectorConfig&gt;</pre>
<OIMUserUDF>	<p>Use the &lt;OIMUserUDF&gt; tag to specify the name of the USR table column that holds is used as flag to track password changes from Oracle Identity Manager to the target system and vice versa. See <a href="#">"How Password Synchronization Works"</a> for more information about this flag. The <code>USR_UDF_PWDCHANGEDINDICATION</code> field is used as the default. If you have created a different UDF, then specify the name of that UDF as the value of this field.</p> <p>For example:</p> <pre>&lt;ADConnectorConfig&gt;   &lt;Installed&gt;true&lt;/Installed&gt;   &lt;OIMUserUDF&gt; USR_UDF_PWDCHANGEDINDICATION &lt;/OIMUserUDF&gt; &lt;/ADConnectorConfig&gt;</pre>
<Disabled>	See <a href="#">"Disabling and Enabling Password Synchronization"</a> for information about this tag.

After you make the required changes to the user-configurable tags in the `xlconfig.xml` file, save and close the file.

## 2.5 Step 6: Configuring the Password Synchronization Module for SSL Communication

**Note:** This is an optional step of the procedure.

However, the configuration of secure client operation (using SSL at the server) affects all clients. This means that if you use SSL to secure Oracle Identity Manager communication with the password synchronization module, then the Oracle Identity Manager Design Console and any other custom clients must also communicate with Oracle Identity Manager using SSL.

You can configure SSL to secure the transfer of password information from Microsoft Active Directory to Oracle Identity Manager. The procedure that you must follow depends on the application server on which Oracle Identity Manager is installed:

**See Also:** The "Step 8: Configuring SSL" section on page 2-14 of *Oracle Identity Manager Connector Guide for Microsoft Active Directory* for information about configuring SSL to secure data transfer from Oracle Identity Manager to Microsoft Active Directory.

- [Configuring the Password Synchronization Module for SSL Communication on JBoss Application Server](#)
- [Configuring the Password Synchronization Module for SSL Communication on Oracle WebLogic Server](#)

After you configure the password synchronization module and the Design Console for SSL communication, you must check if SSL has been enabled for these clients by performing the following procedure:

- Validating SSL Communication for the Password Synchronization Module and the Design Console

## 2.5.1 Configuring the Password Synchronization Module for SSL Communication on JBoss Application Server

To configure password synchronization module for SSL communication on JBoss Application Server:

1. To export the Oracle Identity Manager Server certificate, in a terminal window, change to the `OIM_home/config` directory and then enter the following command:

---



---

**Note:** You create the `xlserver.cer` file by performing Step 2 of the procedure described in the "Configuring the Design Console for SSL Communication on JBoss Application Server" section. If you have already created the `xlserver.cer` file, then you can skip Step 1.

---



---

```
JAVA_HOME/bin/keytool -export -file xlserver.cer -keystore .xlkeystore
-storepass xellerate -alias xell
```

A file named `xlserver.cer` is created in the `config` directory. This is the Oracle Identity Manager certificate file.

2. Copy the `xlserver.cer` file from the `OIM_home/config` directory to the `ADSYNC_HOME\java\lib\security` directory on the Microsoft Active Directory server.
3. On the Microsoft Active Directory server, change to the directory into which you copy the `xlserver.cer` file, and then enter the following command to import the certificate:

```
keytool -import -alias alias -file xlserver.cer -keystore my_cacerts -storepass
password -trustcacerts
```

In this command:

- `alias` is the alias for the certificate (for example, the server name)

- *my\_cacerts* is the full path and name of the certificate store (the default is *cacerts*)

The actual certificate store location is

*JBOSS\_HOME/jre/lib/security/cacerts*.

- *password* is the keystore password

**Note:** *changeit* is the default password for the *cacerts* file stored in the Sun JVM. This may change depending on the JVM that you are using.

4. In the command window, when you are prompted to specify whether or not you want to trust this certificate, enter YES.

After you configure the password synchronization module for SSL communication, you must ensure that all other clients of Oracle Identity Manager, such as the Design Console, are configured for SSL communication.

**See Also:** *Oracle Identity Manager Design Console Guide* for information about configuring the Design Console for SSL communication

## 2.5.2 Configuring the Password Synchronization Module for SSL Communication on Oracle WebLogic Server

To configure the password synchronization module for SSL communication on Oracle WebLogic Server:

1. Open the Oracle WebLogic Server console.
2. Generate a signed certificate as follows:
  - a. In a terminal window, navigate to the following directory:

*JDK\_used\_by\_WebLogic/jre/lib/security*

- b. Enter the following command to generate the certificate:

```
keytool -genkey -alias private_key_alias -keyalg RSA -keysize 1024 -dname
"DN_value" -keypass private_key_password -keystore identity_store_file
-storepass identity_store_file_password
```

In this command:

- *private\_key\_alias* is the alias that you want to use for the private key
- *private\_key\_password* is the password that you want to use for the private key
- *DN\_value* is the distinguished name (DN) for your organization

The CN value in the DN must be the host name or IP address of the Oracle Identity Manager server. You can get the CN value from the *ADSYNC\_HOME/config\xlconfig.xml* file. For example, suppose the value of the `<java.naming.provider.url>` tag is as follows:

```
t3://oimserver:7001
```

Then, the DN that you enter in the command must contain CN=oimserver.

- *identity\_store\_file* is the identity store that you want to use
- *identity\_store\_file\_password* is the password of the identity store that you want to use



The following is a sample command:

```
keytool -genkey -alias adpwmmod -keyalg RSA -keysize 1024 -dname
"CN=oimserver, OU=Identity, O=Acme Widgets Corp,L=RedwoodShores,
S=California, C=US" -keypass adpw_pass -keystore idstore.jks -storepass
idstorepass
```

- c. Enter the following command to sign the certificate:

```
keytool -selfcert -alias private_key_alias -sigalg MD5withRSA -validity
2000 -keypass private_key_password -keystore identity_store_file -storepass
identity_store_file_password
```

- d. Enter the following command to export the certificate

```
keytool -export -alias private_key_alias -file cert_file_name -keypass
private_key_password -keystore identity_store_file -storepass
identity_store_file_password
```

In this command, replace *cert\_file\_name* with the name that you want to use for the certificate file. For example, you can use `adsslcert.pem` as the name of the file.

3. Enable the SSL listening port of Oracle WebLogic Server as follows:
  - a. Expand **Servers**, and then click the name of the server that you want to use.
  - b. Click **Configuration**, and then click **General**.
  - c. On the General tab, select the **SSL Listen Port Enabled** check box.

The default SSL port, 7002, is enabled.

- d. Click **Apply**.

4. Configure the keystore in Oracle WebLogic Server as follows:

- a. On the Keystores & SSL tab, specify the following values:

**Custom Identity Keystore:** Specify the name and location of the keystore that you want to use. The following is the default keystore:

```
WebLogic_home/server/lib/DemoIdentity.jks
```

**Type:** Specify the type of the keystore.

**Passphrase** and **Confirm Passphrase:** Specify the password for the keystore.

- b. Click **Change**.

- c. From the Keystores list, select **Custom Identity And Java Standard Trust**.

- d. Specify the following values:

- **Custom Identity Key Store File Name:** Enter the complete location of the identity store file, *identity\_store\_file*, that you generate in Step 2.

For example:

```
c:\bea814\jdk142_05\jre\lib\security\idstore.jks
```

- **Custom Identity Key Store Type:** Specify the type of the keystore (JKS).

- **Custom Identity Key Store Pass Phrase** and **Confirm Custom Identity Key Store Pass Phrase:** Enter the identity store file password, *identity\_store\_file\_password*

- e. Click **Continue**.

- f. Specify the following values:

**Private Key Alias:** Enter the alias that you have created for the identity keystore, *private\_key\_alias*.

**Passphrase and Confirm Passphrase:** Enter the private key password, *private\_key\_password*.

- g. Click **Continue**, and then click **Finish**.

5. Restart Oracle WebLogic Server for the changes to take effect.

After you configure Oracle WebLogic Server for SSL, configure the password synchronization module for SSL communication as follows:

1. Copy the certificate file from the *JDK\_used\_by\_WebLogic/jre/lib/security* directory to the JRE configured with the password synchronization module. This certificate file is created when you perform Step 2.d of the earlier procedure.

For example, if you are using the JRE bundled with the module, then copy the certificate file into the *<ADSYNC\_HOME>/java/lib/security* directory.

2. Change to the directory into which you copy the certificate file, and then enter the following command to import the certificate:

```
keytool -import -alias private_key_alias -file cert_file_name -keystore  
my_cacerts -storepass password -trustcacerts
```

In this command:

- *alias* is the alias for the certificate (for example, the server name)
- *my\_cacerts* is the full path and name of the certificate store (the default is *cacerts*)

The actual certificate store location is as follows:

```
JBOSS_HOME/java/jre/lib/security/cacerts
```

- *password* is the keystore password

**Note:** *changeit* is the default password for the *cacerts* file stored in the Sun JVM. This may change depending on the JVM that you are using.

3. In the command window, when you are prompted to specify whether or not you want to trust this certificate, enter YES.
4. Copy the *WebLogic\_home/license.bea* file into the *ADSYNC\_HOME* directory.
5. Add the *ADSYNC\_HOME* directory path to the CLASSPATH environment variable.  
To do this, you first enter a semicolon (;) at the end of the existing value of the CLASSPATH and then enter the *ADSYNC\_HOME* directory path.
6. In the *ADSYNC\_HOME\config\xlconfig.xml* file, search for the `<java.naming.provider.url>` tag and change the protocol value to `t3s` and the port value to the SSL port number.

For Example:

```
<java.naming.provider.url>t3s://solqe4:7002</java.naming.provider.url>
```

7. Copy the *BEA\_HOME/weblogic81/server/lib/wlcipher.jar* file to the *<ADSYNC\_HOME>\ext* directory.

8. Open the `ADSYNC_HOME\classpath.bat` file and add the following at the end of the file:

```
;. \ext\wlcipher.jar
```

## 2.6 Enabling the Strong Password Authentication (Password Complexity) Feature of Microsoft Active Directory

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**Note:** Perform the procedure described in this section only if you want to use the Strong Password Authentication (Password Complexity) feature of Microsoft Active Directory.

---

---

Microsoft Active Directory provides the Strong Password Authentication feature through the implementation of a password filter. If you want to use this password filter along with the password synchronization module, then follow the instructions on the Microsoft Web site for enabling the "Passwords must meet complexity requirements" policy setting. After you enable this policy setting, password changes in Microsoft Active Directory are checked against the Strong Password Authentication requirements before they are passed on to the password synchronization module.

## 2.7 Disabling and Enabling Password Synchronization

If you want to temporarily disable password synchronization, then:

1. Search for the following lines in the XML file:

```
<ADSyncConfig>  
<Disabled>no</Disabled>  
</ADSyncConfig>
```

2. Change the value of the `Disabled` element to `yes`. For example:

```
<ADSyncConfig>  
<Disabled>yes</Disabled>  
</ADSyncConfig>
```

3. In the IT resource for Microsoft Active Directory, set the value of the `AD Sync installed (yes/no)` parameter to `no`.

**To reenabling password synchronization:**

1. Change the value of the `Disabled` element to `no`. For example:

```
<ADSyncConfig>  
<Disabled>no</Disabled>  
</ADSyncConfig>
```

2. In the IT resource for Microsoft Active Directory, set the value of the `AD Sync installed (yes/no)` parameter to `yes`.



---

## Upgrading the Password Synchronization Module

You can upgrade an existing password synchronization module to the current revision. To do this, perform the following procedures:

1. Refer to [Chapter 4](#) for instructions on removing an earlier instance of the password synchronization module.
2. Verify that your environment is ready for the latest release of the password synchronization module by completing the procedure described in the "[Preparing to Install the Password Synchronization Module](#)" section on page 2-1.
3. Complete the procedure described in the "[Enabling the Strong Password Authentication \(Password Complexity\) Feature of Microsoft Active Directory](#)" section on page 2-13.
4. Complete the procedure described in the "[Installing the Password Synchronization Module](#)" section on page 2-2 to install the password synchronization module on the computer hosting the Active Directory domain controller for which you want to implement password synchronization.
5. Complete the procedure described in the "[Performing Postinstallation Steps for the Password Synchronization Module](#)" section on page 2-5 to copy the required files from the computer hosting Oracle Identity Manager to the computer on which you install the password synchronization module.



---

## Removing the Password Synchronization Module

To remove an installed and configured instance of the password synchronization module:

1. Delete the module-related registry keys by performing the following steps:
  - a. Run `regedit.exe`. This file is usually located in the Microsoft Windows registry

- b. Navigate to the following key:

```
HKEY_LOCAL_MACHINE | System | CurrentControlSet | Control | Lsa
```

- c. Double-click the **Notification Packages** key.
    - d. In the Edit Binary Value dialog box, delete **adsync** from the list of values, and then click **OK**.

For example, suppose the original data string displayed in the Data column on the right pane of the Registry Editor application window is as follows:

```
FPNWCLNT RASSFM KDCSVC scecli adsync
```

After you delete **adsync** from the list of values, the data string would appear as follows:

```
FPNWCLNT RASSFM KDCSVC scecli
```

- e. Navigate to the following key:

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Lsa\adsync
```

- f. Delete this key along with all of its properties.
2. Delete the `Adsync.dll` file from the `Windows\system32` directory.
3. If you have installed the connector on a 64-bit Microsoft Windows operating system, then delete the `Adsync.dll` file from the `Windows\SysWOW64` directory.
4. Delete the `ADSYNC_HOME` directory.
5. Restart the computer.





---

---

## Known Issues

The following is a known issue associated with this release of the password synchronization module:

- **Bug 6989471**

The following error may be displayed on the Administrative and User Console when you use the Forgot Password option to change the password:

Error:

```
15:16:07,640 ERROR [ACCOUNTMANAGEMENT] Class/Method: tcDataBase/getUser  
encounter some problems: Invalid user found: anonymous  
java.lang.RuntimeException: Invalid user found: anonymous
```

However, the password is correctly updated in both Oracle Identity Manager and the target system. You can ignore the error.



# A

---

---

## Special Characters Supported for Passwords

There are some restrictions on the special characters that you can use in the Password field on both Oracle Identity Manager and Microsoft Active Directory. For information about the supported special characters, refer to the "Special Characters Supported for Passwords" appendix in *Oracle Identity Manager Connector Guide for Microsoft Active Directory*.



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