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

Additional third party software used by Select Identity includes:

- JasperReports developed by SourceForge
- iText (for JasperReports) developed by SourceForge
- BeanShell
- Xalan from the Apache XML Project
- Xerces from the Apache XML Project
- Java API for XML Processing from the Apache XML Project
- SOAP developed by the Apache Software Foundation
- JavaMail from SUN Reference Implementation
- Java Secure Socket Extension (JSSE) from SUN Reference Implementation
- Java Cryptography Extension (JCE) from SUN Reference Implementation
- JavaBeans Activation Framework (JAF) from SUN Reference Implementation
• OpenSPML Toolkit from OpenSPML.org
• JGraph developed by JGraph
• Hibernate from Hibernate.org
• BouncyCastle engine for keystore management, bouncycastle.org

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This web site provides contact information and details about the products, services, and support that HP OpenView offers.

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1 Documentation Map

This chapter describes the organization of HP OpenView 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 OpenView Select Identity connector. For a list of available product documentation, refer to the Table 1.

Figure 1 Documentation Map
<table>
<thead>
<tr>
<th>Document Title and Filename</th>
<th>Contents</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Release Note</strong></td>
<td>This file contains necessary information on new features of the connector, enhancements, known problems or limitations, and support information.</td>
<td>/Docs/subdirectory under the connector directory.</td>
</tr>
<tr>
<td>Active Directory LDAP Connector v4.3 Release Note.htm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| **Connector Deployment Guide (for Select Identity 4.0/4.01.000)** | 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/subdirectory under the connector directory. |
| connector_deploy_SI4.pdf | | |
| **Connector Installation and Configuration Guide** | Connector installation and configuration guide provides installation instructions for a specific connector. It contains resource specific configuration details. | /Docs/subdirectory under the connector directory. |
| Active Directory LDAP_install.pdf | | |
2 Introduction

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

- The benefits of HP OpenView Select Identity.
- The role of a connector.
- The connector for Active Directory.

About HP OpenView Select Identity

HP OpenView Select Identity provides a new approach to identity management. It helps you manage the entire identity lifecycle of an enterprise application. 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. It is installed on the system where Select Identity is installed. 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 Active Directory LDAP Connector

The one-way LDAP based connector for Active Directory — hereafter referred to as Active Directory LDAP connector — enables HP OpenView Select Identity to perform the following operations on Active Directory server:

- Add, update, and remove users
• Retrieve user attributes
• Enable and disable users
• Verify a user's existence
• Change user passwords
• Reset user passwords
• Retrieve all entitlements
• Retrieve a list of supported user attributes
• Grant and revoke entitlements to and from users, including the addition of users to multiple OUs.
• Provision users over SSL.

⚠️ When the connector adds a user to the Active Directory LDAP resource, the user is assigned to a default group called "Domain User." Do not use this group as an entitlement; you cannot remove this group from the user.

The Active Directory LDAP connector is a one-way connector that pushes changes made to user data in the Select Identity database to a target Active Directory server. The mapping file controls how Select Identity fields are mapped to LDAP fields.

This connector can be used with Select Identity 4.01.000 and 4.0.
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**

<table>
<thead>
<tr>
<th>Task Number</th>
<th>Task Name</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Install the connector on the Select Identity server.</td>
<td>See Installing the Connector on page 13.</td>
</tr>
<tr>
<td></td>
<td>— Meet the system requirements.</td>
<td>See System Requirements on page 13.</td>
</tr>
<tr>
<td></td>
<td>— Enable secure LDAP communication</td>
<td>See Pre-Installation Task: Enabling Secure LDAP on page 14.</td>
</tr>
<tr>
<td></td>
<td>— Extract contents of the Schema file (file that contains the mapping files for the connector) to location on the Select Identity server.</td>
<td>See Extracting Contents of the Schema File on page 16.</td>
</tr>
<tr>
<td></td>
<td>— Install the Resource Adapter Archive (RAR) of the connector on an application server.</td>
<td>See Installing the Connector RAR on page 17.</td>
</tr>
<tr>
<td>2</td>
<td>Configure the connector with the Select Identity server.</td>
<td>See Configuring the Connector with Select Identity on page 19.</td>
</tr>
</tbody>
</table>
This chapter elaborates the procedure to install Active Directory LDAP on Select Identity server and agent on Active Directory. At the end of this chapter, you will know about

- Software requirements to install the Active Directory LDAP connector.
- Prerequisite conditions to install Active Directory LDAP connector.
- Procedure to install Active Directory LDAP connector.

### Active Directory LDAP Connector Files

Active Directory LDAP connector is packaged with the following files.

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>File Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TALDAPv3.rar</td>
<td>The connector RAR file (the binaries).</td>
</tr>
<tr>
<td>2</td>
<td>schema.jar</td>
<td>It contains the attribute mapping file (activedir40.xml) for this system, which control how Select Identity fields are mapped to Active Directory LDAP fields.</td>
</tr>
</tbody>
</table>

These files are located in the `LDAP Active Dir` directory on the Select Identity Connector CD.

### System Requirements

The Active Directory LDAP connector is supported in the following environment:

<table>
<thead>
<tr>
<th>Select Identity Version</th>
<th>Application Server</th>
<th>Database</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0/4.01.000</td>
<td>The Active Directory LDAP connector is supported on all the platform configurations of Select Identity 4.0 and 4.01.000.</td>
<td></td>
</tr>
</tbody>
</table>

This connector is supported with Active Directory on Windows 2000 and Windows 2003.
The Active Directory LDAP connector is internationalized and able to operate with languages that are supported by the Java Unicode specification. If you wish to use the connector on non-English platforms, make sure that the following prerequisites are met:

- The Select Identity server should be configured for internationalization. Refer to the HP OpenView Select Identity Installation and Configuration Guide for more information.
- The resource should be configured to support local language characters.

Pre-Installation Task: Enabling Secure LDAP

You must use secure LDAP (LDAPS) to connect to Windows Active Directory for user password changes. Without this, the Active Directory LDAP connector cannot update passwords in Active Directory. Also, for Active Directory on Windows 2003, you must use LDAPS for all tasks.

Perform the following steps to enable secure communication (LDAPS) on the Active Directory system:

1. Install the Certificate Services Component from the Windows CD.
2. Configure HTTPS on the system.
3. Create a Certificate Authority (from Administrative Tools → Certification Authority), which also creates a root certificate. The following shows the certificate after it is created on Windows 2003:

When prompted, select **Domain Controller**, as shown here:

5. After the new entries are displayed in Administrative Tools → Certification Authority → Issued Certificates, open the certificate (using the snap-in from mmc), which is located under Trusted Root Certification Authorities → Certificates and has the same name as the CA.

6. Export the certificate and specify a file name with the extension `.cer`.
Download the certificate to the Select Identity server from the Active Directory server by loading the following URL in a browser on the Select Identity server:

**http://AD_host/certsrv**

Specify the login credentials for the Active Directory server when prompted. Be sure to download the certificate to the `%JAVA_HOME%\jre\lib\security` directory.

You can also copy the certificate to the Select Identity server.

From the command line, change directories to the `%JAVA_HOME%\jre\bin` directory and verify the certificate by printing it by using the following command:

```
keytool -printcert -v -file filename.cer
```

It should display an output similar to this:

```
C:~cd hea\jdk142_05\jre\lib\security
C:~hea\jdk142_05\jre\lib\security>keytool -printcert -v -file AD_03_28_1.cer
Owner: CN=HP-DM9266CE0560, DC=trulogics, DC=local
Issuer: CN=HP-DM9266CE0560, DC=trulogics, DC=local
Serial number: 7602c3c5a4f30a6884a0798ad0aaahcf
Certificate fingerprints:
```

Perform the following steps to install the certificate on the Select Identity server:

a. Import the certificate into the cacerts keystore using this keytool command:

```
keytool -import -v -trustcacerts -alias alias -file filename.cer -keystore cacerts
```

b. When challenged, enter the keystore password.

c. Specify yes when prompted to trust the certificate.

d. Ensure that the certificate is imported by listing it:

```
keytool -list -alias CA123 -keystore file_name
```

e. Copy the keystore file to the `%JAVA_HOME%\jre\lib\security` directory, which may overwrite an existing file.

f. Restart the application server.

To verify that the Select Identity server can connect to the Active Directory server using a secure connection (LDAPS), specify `ldaps://AD_host:636` for the Access URL when you create a resource for the connector.

Refer to the white paper *Provisioning to AD with HP OpenView Select Identity using LDAP over SSL* for more information on configuring Active Directory with certificate.

### Extracting Contents of the Schema File

The Schema file of the connector contains necessary mapping information to map resource attributes to Select Identity. Extract contents of the `schema.jar` file to a directory that is in the application server CLASSPATH. Refer to the *HP OpenView Select Identity Connector Deployment Guide* for detailed instruction to extract contents of the Schema file.
Installing the Connector RAR

To install the RAR file of the connector (TALDAPv3.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 OpenView 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/LDAPv3.

After deploying the connector RAR on application server, you must configure Active Directory LDAP connector with Select Identity. Refer to Configuring the Connector with Select Identity on page 19 for configuration steps.
This chapter describes the procedure to configure the Active Directory LDAP connector with Select Identity. At the end of this chapter, you will know the procedure to configure the Active Directory LDAP 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 Active Directory LDAP 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/LDAPv3`.
- Select No for the Mapper Available section.

Refer to the *HP OpenView 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 OpenView 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>
<thead>
<tr>
<th>Field Name</th>
<th>Sample Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Name</td>
<td>ActiveDirectory</td>
<td>Name of the target resource.</td>
</tr>
<tr>
<td>Connector Name</td>
<td>AD LDAP</td>
<td>The newly deployed connector.</td>
</tr>
<tr>
<td>Authoritative</td>
<td>No</td>
<td>Whether this resource is a system that is considered to be the authoritative source for user data in your environment. You must specify No because the connector cannot synchronize account data with the Select Identity server.</td>
</tr>
<tr>
<td>Source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delete User</td>
<td>No</td>
<td>Specifies whether the user should be deleted from the resource when a DeleteServiceMembership operation is performed for the user in Select Identity.</td>
</tr>
<tr>
<td>Access URL</td>
<td>ldap://136.168.1.20:389</td>
<td>URL to access the resource. If using secure LDAP (ldaps) for password changes, specify ldaps as the protocol and 636 as the port.</td>
</tr>
<tr>
<td></td>
<td>ldaps://192.168.1.19:636</td>
<td></td>
</tr>
<tr>
<td>Suffix</td>
<td>dc=qa, dc=hp, dc=com</td>
<td>The domain(s) to which the users will be provisioned.</td>
</tr>
<tr>
<td>Login Name</td>
<td>cn=Administrator,</td>
<td>Login account with administrative privileges to add and delete users. This is required to log in to the resource.</td>
</tr>
<tr>
<td></td>
<td>cn=Users, dc=qa, dc=hp, dc=com</td>
<td></td>
</tr>
<tr>
<td>Password</td>
<td>Password123</td>
<td>Password corresponding to the login account.</td>
</tr>
<tr>
<td>User Suffix*</td>
<td>cn=users</td>
<td>Suffix of user's distinguished name. This is the location in the tree where the users will be provisioned.</td>
</tr>
<tr>
<td>User Object Class</td>
<td>top, person, organizational p</td>
<td>Object class for the users.</td>
</tr>
<tr>
<td></td>
<td>person, inetorgperson</td>
<td></td>
</tr>
<tr>
<td>Group Suffix*</td>
<td>cn=users</td>
<td>Suffix part of group's distinguished name. This is the location in the tree where the user groups will be provisioned. This parameter is optional (you can leave this field blank).</td>
</tr>
</tbody>
</table>
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 the Active Directory LDAP connector, you must map the resource attributes to Select Identity attributes. Refer to the HP OpenView Select Identity Connector Deployment Guide for information on mapping and creating attributes. While mapping attributes, refer to the following table for resource specific mapping information.

**Table 5  Resource Configuration Parameters**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Sample Values</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Object Class</td>
<td>top, groupofuniquenames</td>
<td>Object class of user groups.</td>
</tr>
<tr>
<td>Mapping File</td>
<td>activedir40.xml</td>
<td>Location of the connector mapping file, which is used to map resource attributes to Select Identity attributes.</td>
</tr>
<tr>
<td>Cleanup Groups</td>
<td>Selected</td>
<td>Whether to delete the user’s entitlements when the user is deleted from Select Identity.</td>
</tr>
</tbody>
</table>

*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.*

**Table 6  Active Directory LDAP Mapping Information**

<table>
<thead>
<tr>
<th>Select Identity Resource Attribute</th>
<th>Active Directory LDAP Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>User Name</td>
<td>cn</td>
<td>Key field on the resource</td>
</tr>
<tr>
<td>Password</td>
<td>UnicodePwd</td>
<td></td>
</tr>
<tr>
<td>First Name</td>
<td>givenname</td>
<td></td>
</tr>
<tr>
<td>Last Name</td>
<td>sn</td>
<td></td>
</tr>
<tr>
<td>User Name</td>
<td>samaccountname</td>
<td></td>
</tr>
<tr>
<td>FirstName + LastName</td>
<td>displayname</td>
<td></td>
</tr>
<tr>
<td>Directory</td>
<td>homeDirectory</td>
<td></td>
</tr>
<tr>
<td>Last Name + First Name</td>
<td>userPrincipalName</td>
<td></td>
</tr>
<tr>
<td>Address 1</td>
<td>streetAddress</td>
<td></td>
</tr>
<tr>
<td>Address 2</td>
<td>postOfficeBox</td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>l</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>st</td>
<td></td>
</tr>
<tr>
<td>Zip</td>
<td>postalCode</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>title</td>
<td></td>
</tr>
</tbody>
</table>
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 OpenView Select Identity Administrator Guide for information on Select Identity services.

<table>
<thead>
<tr>
<th>Select Identity Resource Attribute</th>
<th>Active Directory LDAP Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Phone</td>
<td>telephoneNumber</td>
<td></td>
</tr>
<tr>
<td>Home Phone</td>
<td>homePhone</td>
<td></td>
</tr>
<tr>
<td>Profile Path</td>
<td>profilePath</td>
<td></td>
</tr>
<tr>
<td>Script Path</td>
<td>scriptPath</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>description</td>
<td></td>
</tr>
<tr>
<td>Disable function</td>
<td>userAccountControl=514</td>
<td>Disables a user</td>
</tr>
<tr>
<td>Enable function</td>
<td>userAccountControl=512</td>
<td>Enables a user</td>
</tr>
</tbody>
</table>
If you want to uninstall a connector from Select Identity, perform the following steps:

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

See *HP OpenView Select Identity Deployment Guide* for information on deleting a connector from Select Identity and application server.