

HP OpenView Select Identity

Connector for SAP

Connector Version: 3.6

Installation and Configuration Guide

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- Commons-logging
- Commons-digester
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- Jakarta-poi
- Jakarta-regexp
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- BeanShell
- Xalan from the Apache XML Project
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1 Introduction

This chapter gives an overview of the HP OpenView Select Identity connector for SAP. An HP OpenView Select Identity connector allows you to provision users and manage identities on SAP system. 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 SAP

About HP OpenView Select Identity

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

About Connectors

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

About SAP Connector

The OVSI connector for SAP — hereafter referred to as SAP connector — is comprised of two modules, which are:

- SAP R/3 module
- SAP HR agent module

SAP R/3 module of the connector enables HP OpenView Select Identity to provision SAP users on target SAP R/3 systems.

It is a unidirectional module, which can perform the following tasks from HP OpenView Select Identity to SAP R/3 systems.

- 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 (profiles and roles)
- Retrieve a list of supported user attributes
- Grant and revoke entitlements (profiles and roles) to users

The SAP HR Agent, can push the changes made on SAP HR module to OVSI. These changes are:

- Add new employee
- Modify employee
- Terminate employee



This connector can be used with OVSI version 4.0 and 3.3.1

2 Installing the Connector

SAP connector is packaged with the following files.

Table 1 SAP Connector Files

Serial Number	File Name	Description
1.	sapr3connector.rar	This is the Resource Adapter Archive (RAR) file of the connector. It contains a collection of binary files.
2.	sapr3schema.jar	This JAR file consists of the following files: <ul style="list-style-type: none">• Sap-R3.xml – the mapping file to map attributes from SAP R/3 to OVSI• Sap-HR.xml – the mapping file to map attributes from SAP HR module to OVSI
3.	SAPHRAgent.zip	This zip file consists of the following files: <ul style="list-style-type: none">• SAPHRAgent.jar – contains the agent binaries• sapHrConnector.properties – specifies the agent properties and is packaged in resources subdirectory.• sapHrConnector.cmd – command file to start the SAP agent. It is packaged in resources subdirectory.• sapHrConnector.xml – provides connectivity configuration information to SAP R/3 and Select Identity server. It is packaged in xml subdirectory.• sapHrConnectorBapiList.xml – BAPIs for which data is retrieved. It is packaged in xml subdirectory.• sapHrConnectorStatus.xml – used internally by the agent. It is packaged in xml subdirectory.

These files are located in the `SAP Connector` directory on the Select Identity Connector CD.

System Requirements

The SAP connector is supported in the following environment:

Table 2 Platform Matrix for SAP connector

Select Identity Version	Application Server	Database
3.0.2	WebLogic 8.1.2 on Windows 2003	SQL Server 2000
3.3	WebLogic 8.1.4 on Windows 2003	SQL Server 2000
3.3.1	WebLogic 8.1.4 on Windows 2003	SQL Server 2000
4.0	The SAP connector is supported on all the platform configurations of Select Identity 4.0	

This connector is supported with SAP R/3 4.6c and SAP R/3 4.7.

In addition, this connector requires the SAP Java Connector (JCo) API to be present on the web application server. Install this API before installing and running the SAP connector. Distribution packages are available for various JRE versions and hardware processors. Log on to <http://service.sap.com> and download the appropriate file from the Downloads section:

- `sapjco-ntintel-2.1.3.zip` for a 32-bit JRE running on a 32-bit INTEL x86 or a 64-bit INTEL Itanium processor
- `sapjco-ntia64-2.1.3.zip` for a 64-bit JRE running on a 64-bit INTEL Itanium processor

Perform the following to install the SAP JCo API:

- 1 Unzip the distribution package in a designated directory on the server.
- 2 If you have an existing `librfc32.dll` in the `System32` directory, replace it with the one that comes with the JCo API. Also, copy the `sapjcorfc.dll` file that comes with the JCo API to the `System32` directory.
- 3 Add the SAP JCo installation path to the `PATH` environment variable.
- 4 Add `sapjco-install-path\sapjco.jar` to your `CLASSPATH` environment variable.

Installation Procedure

Perform the following tasks to install SAP connector.

- 1 [Extract the Contents of Schema File](#)
- 2 [Deploy the Connector on Application Server](#)
- 3 [Configure the Connector with OVSI](#)
- 4 [Install the SAP HR Agent Module](#)

Extract the Contents of Schema File

Create a subdirectory in the OVSI home directory on OVSI system. Extract the contents of `sapr3schema.jar` file to this subdirectory. Ensure that the `CLASSPATH` environment variable in the application server startup script references this `Schema` subdirectory.

Deploy the Connector on Application Server

You must deploy the RAR file (`sapr3connector.rar`) of the connector on an application server. Before deploying the RAR file, you must copy it to a local directory from the connector CD. Refer to *HP OpenView Select Identity Connector Deployment Guide* for more information on deploying a connector on an application server.

Configure the Connector with OVSI

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

- 1 Add a new connector – Add a new connector on OVSI. Refer to *HP OpenView Select Identity Connector Deployment Guide* for information on adding a new connector. While adding the connector, under Current Resource Connectors section in Manage Connectors page, do the following:
 - In the Connector Name text box, specify a name for the connector.
 - In the Pool Name text box, enter `eis/SAP`
 - Under Mapper Available section, select **No**.
- 2 Add a new resource – You must add a new resource to OVSI that uses the newly added connector. Refer to *HP OpenView Select Identity Connector Deployment Guide* for the instruction to add a new resource to OVSI. While entering the resource parameters for SAP connector, refer to the table below.

Table 3 Resource Configuration Parameters

Field Name	Sample Values	Description
Resource Name	<code>sap_server</code>	Name given to the resource.
Resource Type	<code>SAP</code>	
Authoritative Source	<code>No</code>	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.
Associate to Group	<code>Selected</code>	Whether the system uses the concept of groups. For this connector, select this option.

Table 3 Resource Configuration Parameters

Field Name	Sample Values	Description
User Name	<i>admin</i>	User name of a SAP R/3 user with privileges to add other users, and also execute Remote Function Calls (RFCs).
Password	<i>password123</i>	Password of the above user.
Client ID	<i>00</i>	Server client ID.
Language	<i>EN</i>	Language for the system.
Host Address	<i>server.company.com</i>	The address of the server.
System Number	<i>00</i>	The system number.
Mapping File	<i>Sap-R3.xml</i>	Name of the resource mapping file.

Refer to [Sample Images](#) on page 21 to view sample screen shot of Resource Access Information page.

- 3 Map the attributes – You must map the OVSI attributes to the attributes of the resource. Refer to *HP OpenView Select Identity Connector Deployment Guide* for information on mapping attributes. While mapping the attributes, refer to the following table for resource specific mapping information.

Table 4 SAP Mapping Information

Select Identity Resource Attribute	SAP Attribute	Description
Username	Username	Key field on the resource.
Password	Password	
Firstname	Firstname	
Lastname	Lastname	
Middlename	Middlename	
Fullname	Fullname	
Department	Department	
City	City	
Country	Country	
Title	Title	
Email	E_Mail	
Zip	Postl_Cod1	
Address1	Building_P	
Address2	Floor_P	

Table 4 SAP Mapping Information

Select Identity Resource Attribute	SAP Attribute	Description
Homephone	Tel1_Numbr	
Salutation	Title_P	
Costcenter	Kostl	
Company	Company	

Refer to [Sample Images](#) on page 21 to view sample screen shot of View Attribute page.

- Associate the newly added resource to a service. Refer to the chapter *Service Studio of HP OpenView Select Identity Administrator Guide* for more information on service.

Install the SAP HR Agent Module

To enable the SAP connector to reconcile employee data changes made on SAP HR with the OVSI server, you must install the SAP HR agent. The agent identifies changes on the SAP HR system and sends this information to the OVSI system, updating the corresponding identity information on OVSI.

The SAP agent is generic and can be used on any SAP HR system (locally or on the network). It provides the flexibility to process all data entries of SAP JCo tables specified in the configuration files included with the agent.

The SAP agent is packaged in `SAPHRAgent.zip` file. This file contains the following files:

Serial Number	File Name	Description
1.	<code>SAPHRAgent.jar</code>	Contains agent binaries.
2.	<code>resources\sapHrConnector.properties</code>	It specifies the agent properties including the location of the following configuration files:
		<code>resources\sapHrConnector.cmd</code> - command file to start the SAP agent.
		<code>xml\sapHrConnector.xml</code> - connectivity configuration to SAP/R3 and OVSI.
		<code>xml\sapHrConnectorBapiList.xml</code> - Business Application Programming Interfaces (BAPIs) for which data is retrieved.
		<code>xml\sapHrConnectorStatus.xml</code> - used internally by agent.

Prerequisites

The SAP agent requires the SAP Java Connector (JCo) API, version 2.1.2 or higher. You must install this API before installing and running the agent. To download the API, log on to **<http://service.sap.com>**. The API is available in the **Downloads** section. (If you installed the JCo API while installing the connector, you can skip this step.)

The implementation of the SAP agent relies on the following Java software components from the Apache Jakarta Project:

- Commons-logging
- Commons-httpclient

Additional third-party software used by Select Identity includes the following:

- 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
- OpenSPML Toolkit from OpenSPML.org

These libraries are shipped with the agent, in the `lib` folder.

Deployment

The SAP HR agent is a stand-alone component and can be deployed in any of the following physical locations:

- On the Select Identity server
- On the SAP HR server
- On any other system that can communicate freely with both the SAP and Select Identity servers

No matter where the agent is installed, ensure that the SAP JCo libraries are installed correctly and the `sapjco.jar` is in the system classpath.

After you choose where to deploy the agent, perform the following steps to install the SAP agent:

- 1 Create a directory for the agent, which is referred to as the SAP HR agent directory in the remainder of this guide.
- 2 Extract the contents of the `SAPHRAgent.zip` file into this directory.
- 3 Ensure that the `JAVACLASSPATH` variable contains the location of the SAP JCo API `sapjco.jar` file, which resides in the SAP agent start script (`resources/startSapHrConnector.cmd`).
- 4 Identify the IP address, credentials, and clients of the SAP HR system.
- 5 Identify the IP address, port, service name, resource name, and Select Identity administrative user credentials.
- 6 Modify the `sapHrConnector.xml` file with this information as described in [Understanding the Configuration Files](#) on page 15.
- 7 Identify the SAP business module and corresponding BAPI RFCs to be called, including the required parameters.

- 8 Modify the `sapHrConnectorBapiList.xml` and `sapHrConnectorStatus.xml` files, which are described in [Agent Configuration](#) on page 15.
- 9 Copy and update the sample stylesheet to implement the data mapping.
- 10 If the SAP agent is planned to be executed within a scheduled task of the operating system, perform the corresponding steps.

Agent Configuration

The SAP agent is deployed with the following configuration files, which must be modified in order to configure the agent:

- `resources\sapHrConnector.properties` — specifies the agent properties including the location of the configuration files
- `xml\sapHrConnector.xml` — contains the connectivity configuration to SAP HR and the Select Identity server
- `xml\sapHrConnectorBapiList.xml` — describes the BAPIs for which data is retrieved

The mapping of resource data from the SAP system to Select Identity is configurable in the XSL stylesheet.

The following sections describe the configuration of the SAP agent in detail.

Understanding the Configuration Files

The configuration files for the SAP agent contain information about connectivity to the SAP HR system, the BAPI RFCs to be performed to retrieve the data, and connectivity information for the Select Identity server to send SPML requests.



See the `SAP/SampleFiles` directory on the Select Identity Connector CD for an example of each configuration file.

`sapHrConnector.properties`

This properties file must be placed in the Java classpath. After installation, it is located in the `SAP agent directory/resources` directory and describes the following basic configuration parameters:

- `poll.interval` — Polling interval (in milliseconds) that specifies the scheduled data retrieval from SAP R/3 for reconciliation
- `sap.config.file` — Name and location of the configuration file containing the connectivity parameters for the SAP R/3 system and the Select Identity server
- `sap.bapi.config.file` — Name and location of the configuration file that specifies the BAPI RFCs called to retrieve the SAP R/3 data
- `status.file` — Internal status file, which should not be edited or moved
- `com.hp.ovsi.connector.saphr.encoding` — The HR agent can encode the output SPML before sending the same to OVSI. Edit this attribute to indicate the encoding of the OVSI system's locale.

sapHrConnector.xml

This configuration file describes the parameters for the agent to connect to the SAP R/3 system and the Select Identity server. After installation, it is located in the *SAP agent directory/xml* directory. Its location and name are configured in the `sapHrConnector.properties` file.

The XML configuration includes the following elements:

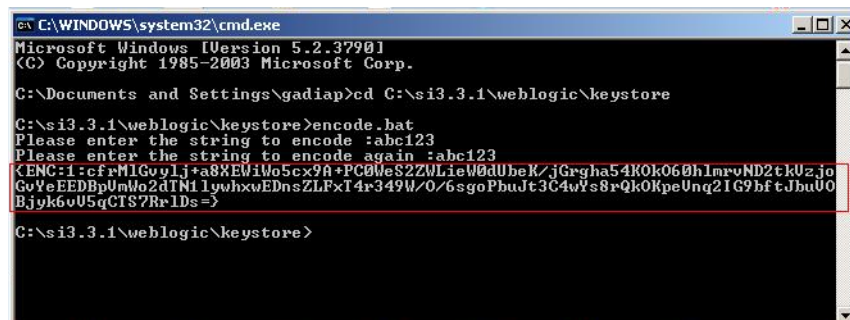
- `sapConnectionList` — This is the root element. There can be multiple connections, such as to support multiple SAP servers.
 - `sapConnection` — This element describes the connectivity information for the SAP HR system including the following:
 - `sapApplicationServer` — IP address of the SAP server
 - `client` — SAP client ID
 - `language` — Language for the SAP connection
 - `sapSystem` — SAP system identifier
 - `user` — User name for authentication to SAP HR
 - `password` — Corresponding password for the authentication
 - `ovsiConfiguration` — This element describes the configuration for the Select Identity SPML client component

- `ovsiConnection` — Connectivity parameters for the Select Identity server including the following:

`ovsiRequestUrl` — IP address, port, and URI of the SOAP web server. For example, **`http://localhost:7001/lmz/webservice`**.

`ovsiAdminName` — Select Identity administrator name allowed to perform the SPML requests.

`ovsiAdminPwd` — Password of the Select Identity administrator. To encrypt the password, run `encode.bat` (on Windows) or `encode.sh` (on UNIX), which is provided in the `weblogic/keystore` subdirectory in the Select Identity home directory. This utility prompts you for the password to encrypt and will generate the encrypted password. Be sure to copy the entire encrypted password in the field, as shown here:



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 5.2.3790]
(C) Copyright 1985-2003 Microsoft Corp.

C:\Documents and Settings\gadiap>cd C:\si3.3.1\weblogic\keystore

C:\si3.3.1\weblogic\keystore>encode.bat
Please enter the string to encode :abc123
Please enter the string to encode again :abc123
<ENC:1:cfRm1Gwylj+a8XEJllo5ex9A+PC0MeS2ZULieW0dlheK/jGqgha54R0k060h1mrvND2tKuzjo
GoVeEEDBpUmHo2dTN1lywhxwEDnsZLFxT4r349H/O/6sgoPbuJt3C4wVs8rQk0KpeUnq2IG9bftJbuU0
Bjyk6u05qCIS7Rr1Ds=>

C:\si3.3.1\weblogic\keystore>
```

- `ovsiTargetDir` — Target location to which the SPML request files are written (only required if the Select Identity Web Service is not used; for file-based reconciliation).
- `maxMessages` — Maximum number of messages.

The `ovsiConnection` element is required in order to send SPML requests over the network to the Select Identity SOAP Web Service. If there are requirements that do not allow sending requests over the network, the SAP agent supports writing SPML files to the directory specified by the `ovsiTargetDir` parameter. These can then be used for file-based reconciliation with Select Identity.

The `maxMessages` parameter specifies the maximum number of SPML messages contained in one of these reconciliation files. This parameter may be used for tuning file-based reconciliation.

[sapHrConnectorBapiList.xml](#)

This configuration file describes the BAPI RFCs called through the SAP JCo API to retrieve the data from the SAP R/3 system. After installation, it is located in the `SAP agent directory/xml` directory. Its location and name are configured in the `sapHrConnector.properties` file.

The XML configuration includes the following elements:

- `bapiList` — The root element supporting the data retrieval using multiple BAPIs
 - `bapi` — The element specifying the BAPI RFC and describing the following detailed parameters:
 - `importParms` — Import (input) parameters for the BAPI call already filtering the results on the specified condition
 - `parm` — Single import parameter element
 - `field` — Field name of the import parameter
 - `value` — Value of the import parameter
 - `tables` — The element describing the list of SAP export tables to be read from the BAPI call
 - `table` — Single table element containing the `name` (SAP name of the table) and `key` (unique key field of the table that is used to equi-join multiple tables specified for a BAPI) elements
 - `createDateField` — Field name of the export table(s) containing the timestamp for creation of an entry
 - `modDateField` — Field name of the export table(s) containing the timestamp for modification of an entry
 - `deleteDateField` — Field name of the export table(s) containing the timestamp for deletion of an entry
 - `addOperation` — Flag specifying whether SPML `addRequests` are submitted for new entries
 - `modifyOperation` — Flag specifying whether SPML `modifyRequests` are submitted for modified entries
 - `deleteOperation` — Flag specifying whether SPML `deleteRequests` are submitted for deleted entries
 - `ovsiResourceName` — Select Identity resource name required for reconciliation
 - `ovsiServiceName` — Select Identity Service name for which delegated administrative requests are submitted
 - `spmlStyleSheet` — Name and location of XSL stylesheet implementing the data mapping

The SAP agent detects changes and change types based on configurable date fields of the corresponding SAP source table(s). These are compared with the last synchronization timestamp. The last synchronization timestamp is internally managed by the agent and is set after SPML requests are successfully created.

The date field name parameters are optional and they support initial loads with a specific request type, such as `<modifyOperation>true</modifyOperation>` and no date fields configured results in `modifyRequests` for all entries returned by the BAPI call.

[sapHrConnectorStatus.xml](#)

This configuration file is virtually identical to the `sapHrConnectorBapiList.xml` file. It describes internally used parameters for each BAPI. After installation, it is located in the `SAP agent directory/xml` directory. Its location and name are configured in the `sapHrConnector.properties` file.

The XML configuration includes the following elements:

- `bapiList` — The root element supporting the data retrieval using multiple BAPIs
 - `bapi` — The element for a single BAPI
 - `rfm` — Name of the BAPI RFC
 - `num` — Identifier for the BAPI used to internally reference `sapHrConnectorStatus.xml` and `sapHrConnectorBapiList.xml`
 - `syncTable` — Name of the export table resulting from the RFC
 - `sync` — Last synchronization timestamp

Note that this configuration file is only modified to add or remove BAPIs and export tables configured in `sapHrConnectorBapiList.xml`.

Running the Agent

To run the agent, you must execute the `startSapHrConnector.cmd` file located in the `resources` directory. The syntax to execute this command file is:

```
startSapHrConnector.cmd <number of polling cycles>
```

Number of polling cycles can be any positive integer. For example, if it is 10, the agent polls the SAP HR system for 10 times, and sends the corresponding changes to OVSI.



You must ensure that `sapjco.jar` is copied into the `lib` folder, under the agent's installation folder.

You can stop the agent manually from the command line by pressing **Ctrl+C**.

3 Uninstalling the Connector

To uninstall a connector from OVSI, perform the following steps:

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

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

Uninstalling the Agent

To uninstall the SAP HR agent from the system, perform the following steps:

- 1 If the agent is executed within a scheduled task of the operating system, remove this task from the system. If otherwise the SAP HR agent is running as a stand-alone process, stop this process.
- 2 Log files and reconciliation files may be required for certain purposes. If required, back up the files; the location of the files are specified in `log4j.properties` and `sapHrConnector.xml`.
- 3 Remove the SAP agent directory.

The SAP agent does not leave registry information on the system. If the configuration was changed, files must be manually deleted from corresponding locations.

A Sample Images

This chapter illustrates some sample images of OVSI when SAP connector is deployed on it.

- OVSI 4.0 displays the Resource Access Information page in the following format, when a SAP resource is deployed on it.

sapr3-gmbh-mezial: Resource Access Information

Review the access information about the resource and edit as necessary. Click Apply. Select the next link to continue updating the resource.

*Required Field **

User Name: * test

Password: * *****

Client ID: * 000

Language: * EN

Host Address: * mezial.deu.hp.com

System Number: * 78

Is Employee: * No

Mapping File: * Sap-R3.xml ([View](#))

- OVSI 4.0 displays the View Attribute page in the following format, when a SAP resource is deployed on it and resource attributes are mapped to OVSI 4.0.

sapr3-gmbh-mezial: Resource Attribute Mapping

Map the applicable resource attributes to the associated HP OpenView Select Identity attributes.

Resource Attribute	Attribute	Sync In	Sync Out
Class	Class	true	true
Cost Center	CostCenter	true	true
Email	Email	true	true
First Name	FirstName	true	true
Last Name	LastName	true	true
Password	Password	true	true
User Name	UserName	true	true
sapr3-gmbh-mezial_ENTITLEMENTS	sapr3-gmbh-mezial_ENTITLEMENTS	true	true
sapr3-gmbh-mezial_KEY	sapr3-gmbh-mezial_KEY	true	true

- OVSI 3.3.1 displays the Resource Access Information page in the following format, when a SAP resource is deployed on it.

Resource Access Information	
* Resource Name:	SAP
* User Name:	sap*
* Password:	*****
* Client ID:	00
* Language:	EN
* Host Address:	15.139.88.155
* System Number:	00
* Mapping File:	Sap-R3.xml

- OVSI 3.3.1 displays the Map Attribute page in the following format, when a SAP resource is deployed on it and resource attributes are mapped to OVSI 3.3.1.

Resource Attribute	MinLength	MaxLength	Mapped To	Authoritative
Class	0	10	class	<input type="checkbox"/>
Cost Center	0	10	CostCenter	<input type="checkbox"/>
Email	0	50	Email	<input type="checkbox"/>
First Name	0	50	FirstName	<input type="checkbox"/>
Last Name	0	50	LastName	<input type="checkbox"/>
Password	0	10	Password	<input type="checkbox"/>
sapr3_ENTITLEMENTS	1	255	sapr3_ENTITLEMENTS	<input checked="" type="checkbox"/>
sapr3_KEY	1	255	sapr3_KEY	<input checked="" type="checkbox"/>
User Name	0	10	(Select one)	<input type="checkbox"/>

