

# HP Select Identity Software

## Connector for Linux (with BSH Scripts)

Software Version: 1.41

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### Installation and Configuration Guide

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

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- 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
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# 1 Documentation Map

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

[Figure 1](#) illustrates the documentation map for Select Identity connector. For a list of available product documentation, refer to the [Table 1](#).

**Figure 1 Documentation Map**



**Table 1 Connector Documentation**

<b>Document Title and Filename</b>	<b>Contents</b>	<b>Location</b>
<i>Release Note</i> Linux_bsh Connector v1.41 Release Note.htm	This file contains necessary information on new features of the connector, enhancements, known problems or limitations, and support information.	/Docs/ subdirectory under the connector directory.
<i>Connector Deployment Guide (for Select Identity 4.20)</i> connector_deploy_SI4.20.pdf	Connector deployment guides provide detailed information on: <ul style="list-style-type: none"> <li>• Deploying a connector on an application server.</li> <li>• Configuring a connector with Select Identity.</li> </ul>	/Docs/ root directory on the product's CD media.
<i>Connector Deployment Guide (for Select Identity 4.10-4.13)</i> connector_deploy_SI4.13.pdf		
<i>Connector Deployment Guide (for Select Identity 4.0-4.01)</i> connector_deploy_SI4.pdf	Refer to these guides when you need generic information on connector installation.	
<i>Connector Installation and Configuration Guide</i> Linux_bsh_guide.pdf	Connector installation and configuration guide provides installation instructions for a specific connector. It contains resource specific configuration details.	/Docs/ subdirectory under the connector directory.



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## 2 Introduction

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

- The benefits of HP Select Identity.
- The role of a connector.
- The connector for Linux.

### About HP Select Identity

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

### About Connectors

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

### About Linux Connector with BeanShell (BSH) Scripts

The Linux connector with BeanShell (BSH) scripts enables Select Identity to perform the following tasks on Linux server:

- Add, update, and remove users
- 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



Do not use the user's primary group as an entitlement. If the primary group is changed, it remains as an entitlement in Select Identity but not on the resource.

Linux connector with BSH is a unidirectional connector and pushes changes made to user data in the Select Identity database to a target server. The mapping file controls how Select Identity fields are mapped to Linux fields.



This connector can be used with Select Identity 4.0-4.20.

## Overview of Installation Tasks

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

**Table 2 Organization of Tasks**

Task Number	Task Name	Reference
1	Install the connector on the Select Identity server.	See <a href="#">Installing the Connector</a> on page 11.
	— Meet the system requirements.	See <a href="#">System Requirements</a> on page 11.
	— Extract contents of the Schema file (file that contains the mapping files for the connector) to a location on the Select Identity server.	See <a href="#">Extracting Contents of the Schema File</a> on page 12.
	— Install the Resource Adapter Archive (RAR) file of the connector on the application server.	See <a href="#">Installing the Connector RAR</a> on page 12.
2	Configure the connector with the Select Identity server.	See <a href="#">Configuring the Connector with Select Identity</a> on page 15.

# 3 Installing the Connector

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

- Software requirements to install Linux connector with BSH.
- Procedure to install Linux connector with BSH.

## Linux Connector Files

Linux connector is packaged in the following files in the `Linux - BSH` directory on the Select Identity Connector CD:

**Table 3 Linux Connector Files**

Serial Number	File Name	Description
1	<ul style="list-style-type: none"><li>• <code>UnixBshConnector.rar</code> for WebSphere</li><li>• <code>UnixBshConnector_420WL9.rar</code> for WebLogic</li></ul>	The Resource Adapter Archive (RAR) file contains the connector binaries.
2	<code>unixBshSchema.jar</code>	The Schema file contains the mapping files that contain attribute information of Linux.
3	<code>unix-bsh-scripts.zip</code>	The zip file contains the BSH scripts.
4	<code>ConnectorExt.jar</code>	Use this file while using the connector with versions of Select Identity prior to 4.10.

## System Requirements

Linux connector with BSH is supported in the following environment:

**Table 4 Platform Matrix for the Linux Connector**

Select Identity Version	Operating System, Application Server, and Database
4.0-4.20	Linux connector with BSH is supported on all the platform configurations of Select Identity 4.0-4.20.

The connector can communicate with UNIX by using Secure Shell (SSH) or Telnet.

If you are using SSH method you must ensure that the SSH daemon is running on the Red Hat Linux AS 3.0 to which you will provision users by using the connector.

Linux connector with BSH is supported on Red Hat Linux AS 3.0.



To use this connector on versions of Select Identity prior to 4.10, add the `ConnectorExt.jar` file (available in the connector folder) to the application server classpath.

## 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 `unixBshSchema.jar` file to a directory that is in the application server `CLASSPATH`. Refer to the *HP 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 (such as `UnixBshConnector.rar`) on the Select Identity server, you must copy the file to a local subdirectory on the Select Identity server, and then deploy on the application server. Refer to the *HP Select Identity Connector Deployment Guide* for detailed information on deploying a RAR file on an application server.



While deploying the RAR on WebSphere, enter the JNDI Pool Name as `eis/UnixBshConnector`.

## Extracting Common-net Jar File

If the connector is installed on Weblogic 9.x, the `common-net-1.4.0.jar` in the RAR file should be extracted into `JAVA_HOME/jre/lib/ext` directory. The `JAVA_HOME` directory is the JDK home directory used by Weblogic.

## Installing the Scripts on the Application Server

The Linux connector with BSH uses a Java-based scripting called BeanShell (<http://www.beanshell.org>). The BeanShell scripts control the interactions between the UNIX machine and the Select Identity server.

Copy the `unix-bsh-scripts.zip` file from the Select Identity connector CD and extract the scripts onto a local folder where Select Identity is installed. You must enter the location of this folder in Script Location field while entering the resource configuration parameters in Resource Access Information page.

## Creating a Known Hosts File for Linux with SSH

If you use SSH, you must create a text file (for example, `known_hosts.txt`) that contains the names and public keys of all the trusted Linux machines to which you can provision users. You must provide the name of this file Ssh Known Hosts field while entering resource access parameters

One way of obtaining this information is to use PuTTY (`putty.exe`) to connect to the machine. When you connect to the Linux machine for the first time by using PuTTY, a pop up appears. This pop up displays the host key of the machine. You can connect to trusted Linux machines individually from a Windows system by using PuTTY, capture this information, and put it in a text file, which can be used as known hosts file. PuTTY can be downloaded from [www.putty.nl/download](http://www.putty.nl/download).



Sample contents of `known_hosts.txt` file:

```
16.73.17.88 ssh-rsa 1024 57993be4462bc4a536e8e58cad40f5ae
16.73.17.91 ssh-rsa 1024 664c2580121e2e06f702c195ae4e8885
```



# 4 Configuring the Connector with Select Identity

This chapter describes the procedure to configure the Linux connector with Select Identity and the connector specific parameters that you must provide while configuring the connector with Select Identity.

## Configuration Procedure

After deploying the connector RAR on application server, you must configure it with Select Identity. Perform the following steps to configure the Linux 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/UnixBshConnector**.
- Select No for the Mapper Available section.

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

### Add a New Resource

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

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

**Table 5 Resource Configuration Parameters**

<b>Field Name</b>	<b>Sample Values</b>	<b>Description</b>
Resource Name	Linux_Server	Name given to the resource.
Connector Name	Linux	The newly deployed connector.
Authoritative Source	No	Whether this resource is a system that is considered to be the authoritative source for user data in your environment. You must specify <b>No</b> because the connector cannot synchronize account data with the Select Identity server.
Host Name	server.company.com	IP address or the hostname of the Linux machine.
User Name	ovsi (name must be less than 8 characters long)	Login account of the Linux machine.
User Password	Password123	Password for the user name ovsi.
Admin Account Name	root	Login account with root (administrative) privileges on the Linux machine. The default value is root.
Admin Password	rootPassword	Password of the super user that has the privilege to provision users on this system.
Unix Type	Linux	The type of the UNIX operating system.
Use ssh	True or False	Whether to use SSH while connecting to the resource. If you specify false, telnet is used.
Ssh known hosts	known_hosts.txt	This is needed only for SSH communication and indicates the name of a text file on the application server that contains the list of host and their host keys for the SSH protocol.
Port	22	The TCP/IP port to use to connect to the server. This is optional and if you use SSH, the default is 22. Otherwise, the default is 23.
Script Location	connectorScripts/ Linuxbsh/	Location of the BSH scripts that are used by the connector. These are the ones extracted from <code>unix-bsh-scripts.zip</code> file.



**Table 5 Resource Configuration Parameters (cont'd)**

Field Name	Sample Values	Description
Timeout (sec)	300	Number of seconds to wait for a request to complete.
Max Retries	5	Number of times the request has to be retried upon a connection timeout given in the above parameter.
Mapping File	UnixConnector.xml	Location of the connector mapping file used to map resource attributes to Select Identity attributes.

## Map Attributes

After successfully adding a resource for the Linux connector, you must map the resource attributes to Select Identity attributes. Refer to the *HP 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 6 Linux Mapping Information**

Select Identity Resource Attribute	Connector Attribute	Attribute on Linux Resource	Description
User Name	username	login (login argument)	UNIX logon name.
Password	password	password	Logon password
Directory	directory	login home directory (-d option)	User's home directory
Shell	shell	login shell (-s option)	UNIX logon shell
PrimaryGroup	defaultgroup	login primary group (-g option)	Default group membership
Description	description	login comment (-c option)	Comment section in /etc/passwd.

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



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## 5 Uninstalling the Connector

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

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

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



# A Understanding the Scripts

This connector uses a Java-based scripting engine called BeanShell (<http://www.beanshell.org>). The BeanShell scripts control the interactions between the Linux machine and the Select Identity server. There are some special variables and classes available to the BeanShell script when executing in the Linux connector. Each is described in this chapter.

The bean shell scripts control how the interaction with the UNIX system is to be made. You can customize the scripts if you want to customize the interaction for provisioning. The `comon.inc` script has all the common variables and methods. Other individual scripts have operation specific variables and methods.

**Table 7** Scripts in `unix-bsh-scripts.zip`

Script Name	Description	Parameters Passed
<code>common.inc</code>	Commonly used variables and methods. Defines the UNIX prompt that the connector expects and the UNIX commands to be used for provisioning	
<code>dotest.bsh</code>	Test the initial connectivity to Linux, including login as regular user, super user and check for the existence of <code>/etc/passwd</code> file	<code>login</code> , <code>loginPassword</code> , <code>rootPassword</code> , <code>connection_timeout</code>
<code>finduser.bsh</code>	Checks for existence of user in Linux	<code>username</code> , <code>connection_timeout</code>
<code>adduser.bsh</code>	Adds a new user to Linux by preparing all the options needed for the UNIX command	<code>args</code> (semi-colon-separated <code>name=value</code> pairs), <code>username</code> , <code>connection_timeout</code>
<code>modifyuser.bsh</code>	Modify the comment, shell, primary or secondary groups of the user	<code>args</code> (semi-colon-separated <code>name=value</code> pairs), <code>username</code> , <code>connection_timeout</code>
<code>expirepasswd.bsh</code>	Locks the password entry for the user	<code>username</code> , <code>connection_timeout</code>
<code>changepasswd.bsh</code>	Changes the user's password	<code>username</code> , <code>password</code> , <code>connection_timeout</code>

**Table 7 Scripts in unix-bsh-scripts.zip (cont'd)**

<b>Script Name</b>	<b>Description</b>	<b>Parameters Passed</b>
changestatus.bsh	Change the status of the user	args (semi-colon-separated name=value pairs), username, connection_timeout
deleteuser.bsh	Delete the user	username, connection_timeout
findgroup.bsh	Get details of a UNIX group	group, connection_timeout
listgroups.bsh	Get all UNIX groups, Get groups of a specific user, Get users of a specific group	connection_timeout, username, connection_timeout, gname, connection_timeout
listusers.bsh	Get all users in system	connection_timeout

## B Troubleshooting

The information in this chapter will help you diagnose configuration problems that you may encounter when using the connector to provision users on the resource.

- While you create a resource, if you get an error similar to the following:

```
inline evaluation of: sessionLogin(); : Method Invocation
session.sendExpect
```

*Cause:*

It is caused by unmatched `initialPrompt` of Unix server. You can find default prompt definition in script `common.inc`. The default definition is shown as below, which follows regular expression syntax:

```
initialPrompt = ".*(%|#|\\|\\$|>|:|.).*$";
```

*Solution:*

Check the prompt after user login and prompt after root user login. If the prompt does not match the `initialPrompt`, change the `initialPrompt` in `common.inc` to make it match the prompt of Unix server.

If the login banner contains some characters that are matched by the regular expression in `initialPrompt`, the connector might also fail. So, edit the `initialPrompt` to match the actual prompt exactly or as close as possible so that it does not match the login banner. For example, If there is a “:” or a “\$” sign in your login banner the `initialPrompt` will match it and will pre-maturely assume it is the actual prompt.

