

PingFederate®

LinkedIn Cloud Identity Connector

Version 1.0.1

User Guide



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PingFederate LinkedIn Cloud Identity Connector *User Guide*
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Introduction

This PingFederate Cloud Identity Connector allows a Service Provider (SP) to leverage LinkedIn as an Identity Provider (IdP) for access to Internet applications in the SP domain. The included PingFederate LinkedIn IdP Adapter works with the LinkedIn authentication Web service and its application programming interface (API) to allow PingFederate to perform single sign-on (SSO) to service applications.

Using the Connector, a Software-as-a-Service (SaaS) provider, for example, can provide customers direct SSO access to its applications. In addition, a service provider may leverage LinkedIn credentials for secure, standards-based SSO to services in other local domains or at partner sites, by using the Adapter in an SP partner connection. (For more information about identity-federation standards and partner connections, see "Key Concepts" in the PingFederate *Administrator's Guide*.)

Intended Audience

This document is intended for system administrators with experience in the configuration and maintenance of IT infrastructure. Knowledge of networking and user-management configuration is assumed. Some exposure to the PingFederate administrative console may be helpful.

Additional Resources

Administrators may want to review "SSO Integration Kits and Adapters" in the "Key Concepts" chapter of the PingFederate *Administrator's Guide*.



Tip: If you encounter any difficulties with configuration or deployment, please try searching the Ping Identity [Support Center](http://www.pingidentity.com/support) (www.pingidentity.com/support).

ZIP Manifest

The distribution ZIP file for the LinkedIn Cloud Identity Connector contains the following:

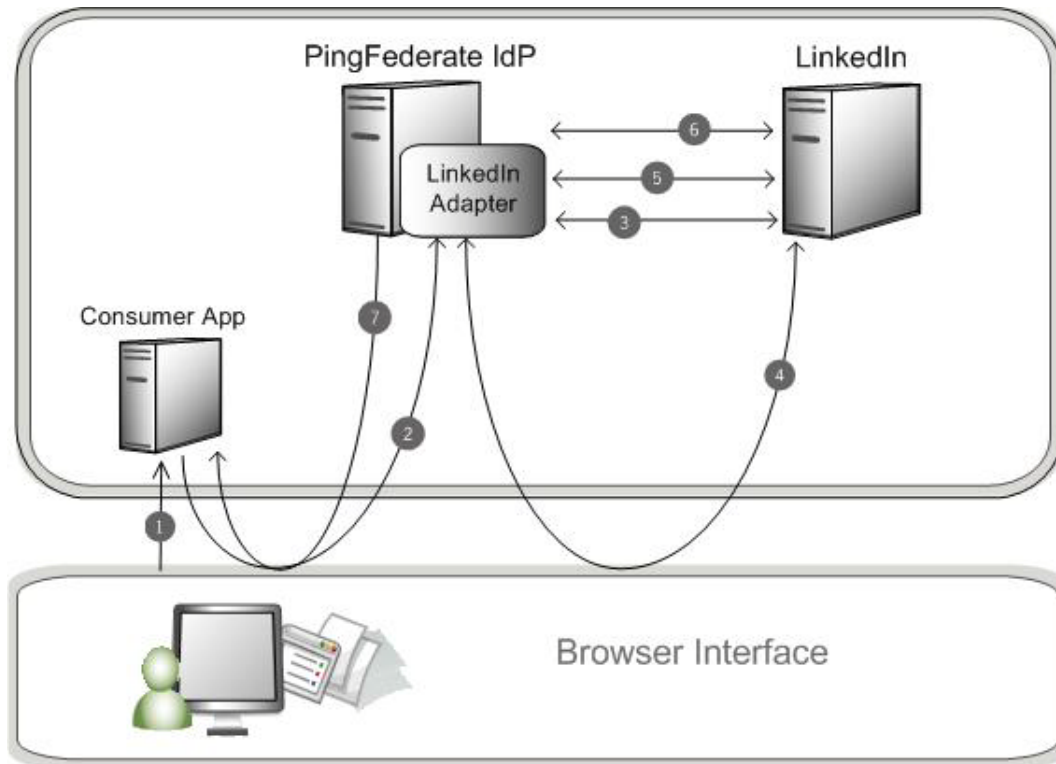
- `ReadMeFirst.pdf` – contains links to this online documentation.
- `/legal` - contains this document:
 - `Legal.pdf` - copyright and license information
- `/dist` – contains libraries needed for the Adapter
 - `pf-linkedin-adapter-1.0.1.jar` – LinkedIn Adapter JAR file
 - `json-simple-1.1.jar` – JavaScript Object Notation (JSON) JAR file
 - `scribe-1.3.3.jar` – OAuth library for Java

System Requirements

The LinkedIn Adapter requires installation of PingFederate 6.2 or higher.

Processing Overview

The following figure illustrates an example SSO process flow using the LinkedIn Adapter:



Processing Steps

1. User navigates to a Web application and chooses to log on using LinkedIn.
2. The browser is redirected to the LinkedIn Adapter.
3. The LinkedIn Adapter requests a request token from LinkedIn. The LinkedIn Adapter callback URL is passed as a parameter with this request. LinkedIn returns the request token.
4. The PingFederate server redirects the user to LinkedIn for authentication, including the request token as a parameter. A list of requested permissions is provided in this call.

If the user is not already logged on, LinkedIn challenges the user to authenticate. LinkedIn authenticates the user and provides a consent page for the user to authorize the sharing of information. Once the user authorizes, LinkedIn redirects the browser to the LinkedIn Adapter callback URL with a verification code.

If the user does not authenticate, an error is returned rather than the verification code.

5. The Adapter makes an HTTP request to LinkedIn to obtain an access token, sending the request token and verification code as parameters. LinkedIn validates these components and returns an access token.
6. The Adapter uses the access token to retrieve user information from LinkedIn, and LinkedIn returns the user information.



Note: For optional, additional LinkedIn interaction using the access token, see the [LinkedIn API documentation](#).

7. The Adapter redirects the user to the Web application with the user attributes.



Note: There are two ways for a PingFederate administrator to set up this process, depending on whether the service is part of the enterprise domain or outside that domain (see “[Complete the Configuration](#)” on page 10).

Installation and Configuration

The following sections describe how to set up and integrate the LinkedIn Cloud Identity Connector with your application:

- Install the LinkedIn Adapter
- Register the LinkedIn application
- Configure PingFederate
- Integrate Applications

Step 1 -- Install the LinkedIn Connector

To install the LinkedIn Adapter:

1. Stop the PingFederate server if it is running.
2. Unzip the distribution ZIP file.
3. From the `dist/` directory, copy:
 - `pf-linkedin-adapter-1.0.1.jar`
 - `json-simple-1.1.jar`
 - `scribe-1.3.3.jar`into the directory:
`<PF-install>/server/default/deploy`
4. Start or restart PingFederate.

(For more information, see “Starting and Stopping PingFederate” in the “System Administration” chapter of the *PingFederate Administrator’s Manual*.)

Step 2 -- Register the LinkedIn Application

You must use a LinkedIn developer account to register PingFederate as a LinkedIn application.



Tip: LinkedIn navigational details and identification of screens and selections in these steps are subject to change. Only configuration options directly relevant to the LinkedIn Connector are described. Some configuration steps are summarized, and different configurations may be possible. Please consult LinkedIn documentation for more information.

To register a LinkedIn application:

1. Go to www.linkedin.com/secure/developer and log on to your LinkedIn developer account.

2. Click **Add New Application** .
3. Enter identifying and descriptive information for the application.
4. Select, as needed, the appropriate choice from the required drop-down fields.
5. Enter required contact information, at minimum, and complete the Term of Service section.
6. When finished, click **Add Application**.
7. Copy the API Key and the Secret Key from the application details page that follows.



Note: These credentials are needed in the LinkedIn Adapter setup (see next sections). You may want to keep the page open to copy the keys directly during the adapter configuration.

Step 3 -- Configure PingFederate

To configure PingFederate, follow the instructions in each of the following sections, in order.

Configure the IdP Adapter

To configure the IdP Adapter, do the following:

To configure the IdP Adapter:

1. Log on to the PingFederate administrative console and click **Adapters** under My IdP Configuration on the Main Menu.
2. On the Manage IdP Adapter Instances screen, click **Create New Instance**.
3. On the Type screen, enter an Instance Name and Instance ID.
The Name is any you choose for identifying this Adapter Instance. The ID is used internally and may not contain spaces or non-alphanumeric characters.
4. Select LinkedIn Adapter 1.0.1 from the Type list and click **Next**.

🏠 Main
🗄️ Manage IdP Adapter Instances
🗄️ Create Adapter Instance

Type
★ IdP Adapter
Extended Contract
Adapter Attributes
Summary

🔒 Complete the configuration necessary to look up user security contexts in your environment. This configuration was designed into the adapter for use at your site.

The LinkedIn Adapter works with the LinkedIn API to allow PingFederate to perform SSO to SP applications based on LinkedIn credentials.

ATTRIBUTE SELECTOR (Optional. Use this section to add additional user attributes provided by LinkedIn.)

LINKEDIN ATTRIBUTE (Click 'Add a new row ...' below to select a field from the drop-down list.) **ADDITIONAL LINKEDIN ATTRIBUTE** (If the desired field does not appear in the drop-down list, add it here.) Action

Add a new row to 'Attribute Selector'

FIELD NAME	FIELD VALUE	DESCRIPTION
API KEY	<input type="text"/>	* The API Key generated by LinkedIn when you create the LinkedIn application.
SECRET KEY	<input type="text"/>	* The Secret Key generated by LinkedIn when you create the LinkedIn application.
PINGFEDERATE BASE URL	<input type="text"/>	* The fully qualified host name, port, and path for the PingFederate server. This URL is used to construct a callback URL.
ERROR REDIRECT URL	<input type="text"/>	The URL where you want the user redirected when there are errors.
UNAUTHORIZED REDIRECT URL	<input type="text"/>	The URL where you want users redirected if they are not authenticated or do not authorize LinkedIn to share their information.
PERFORM LOGOUT	<input type="checkbox"/>	Enables single logout from LinkedIn.

Show Advanced Fields

5. On the IdP Adapter screen provide entries for each of the fields shown, as indicated in the table below.

Field Name	Description
API Key	Enter the key generated when you created the LinkedIn application.
Secret Key	Enter the key generated when you created the LinkedIn application.
PingFederate Base URL	Enter the fully-qualified host name, port, and path on which the PingFederate server runs: <code>http[s]://<pf_host>:<pf_port></code> The Adapter uses this URL to construct a callback URL at runtime, sent with the initial request. Note: If PingFederate is running behind a reverse proxy, enter the fully qualified host name, port, and path (if applicable) of the proxy server.

Field Name	Description
Error Redirect URL	<p>Optional. Enter a URL for redirecting the user if there are errors: for example, incorrect parameters in the link. This URL may contain query parameters.</p> <p>The URL has an <code>errorMessage</code> query parameter appended to it, which contains a brief description of the error that occurred. The error page can optionally display this message on the screen to provide guidance on remedying the problem.</p> <p>Note: When employing the <code>errorMessage</code> query parameter in a custom error page, adhere to Web-application security best practices to guard against common content injection vulnerabilities.</p> <p>If no URL is specified, the appropriate default error landing page appears. (For more information, see "Customizing User-Facing Screens" in the "System Administration" chapter of the PingFederate <i>Administrator's Guide</i>.)</p>
Unauthorized Redirect URL	<p>Optional. Enter an endpoint URL for redirecting the user if the user declines authorizing LinkedIn to share information. This URL may contain query parameters.</p> <p>If no URL is specified, the appropriate default error landing page appears. (For more information, see "Customizing User-Facing Screens" in the "System Administration" chapter of the PingFederate <i>Administrator's Manual</i>.)</p>

6. (Optional) To add attributes beyond the defaults that LinkedIn provides, use the Attribute Selector section of the IdP Adapter screen.



Note: A list of the default attributes is shown on the Extended Contract screen. Be sure to extend the contract with the same attributes you add here.

- a. Click **Add a new row to 'Attribute Selector'**.
- b. Select an attribute from the drop-down list on the left.

If the desired attribute does not appear in the list, type it into the Additional LinkedIn Attributes box.

You must use the correct syntax for manual entries.

For a list of available attributes, see the following page at LinkedIn:

<http://developer.linkedin.com/docs/DOC-1061>



Note: The LinkedIn API is subject to change without notice, including renaming of user attributes requested by the Adapter in this setup.

- c. Click **Update**.

7. (Optional) Click **Show Advanced Fields** to view additional configuration settings.

The default values for these fields may be modified if necessary:

Field Name	Description
Authorization URL	Displays the LinkedIn endpoint used to retrieve the verification code. If LinkedIn altered this endpoint, modify it accordingly.

Field Name	Description
LinkedIn User Data URL	Displays the LinkedIn endpoint used when retrieving user data. If LinkedIn altered this endpoint, modify it accordingly.
Logout URL	Displays the endpoint used by LinkedIn for single logout. If LinkedIn altered this endpoint, modify it accordingly.

8. Click **Next**.



Tip: PingFederate verifies the LinkedIn credentials before going to the next screen.

9. On the Extended Contract screen, *if* you added additional attributes (scope permissions) on the previous screen, then you *must* add the corresponding attribute to the contract in order for those values to be passed to the Web application.

(For information on using the Extended Contract screen, see “Extending an Adapter Contract” in the



Note: For extended contract values, the format is camelCase rather than hyphenated, as in the additional attributes definitions. For example, if you have added an additional attribute called first-name, for the extended contract, the value you would enter is firstName. See <http://developer.linkedin.com/documents/api-requests-json> for more information.

"Identity Provider SSO Configuration" chapter of the PingFederate *Administrator's Manual* or click **Help** on the screen.)

10. Click **Next**.

11. On the Adapter Attributes screen under Pseudonym, select a checkbox for an attribute that may be considered a unique user identifier.

Pseudonyms are opaque subject identifiers used for SAML account linking and are not generally applicable in the context of cloud-identity deployments. To ensure correct PingFederate performance under all circumstances, however, a selection is required. (For information about account linking, refer to “Account Linking” in the "Key Concepts" chapter of the PingFederate *Administrator's Manual* or use the context-sensitive **Help** for this screen.)

12. On the Summary screen, verify that the information is correct and click **Done**.

13. On the Manage IdP Adapter Instances screen, click **Save**.

Complete the Configuration

To complete the SSO setup in PingFederate:

- For SSO to an application at your site in the domain covered by PingFederate, a standard SAML connection is not necessary; instead you can use direct IdP-to-SP adapter mapping (see instructions under “For SSO to an Enterprise Service Application” next).
- For an external SP partner (or any service outside the domain covered by PingFederate), configure an SP connection (see instructions under “For SSO to an SP Partner”).

For SSO to an Enterprise Service Application

1. On the Main Menu, click **Server Settings**.

2. On the Roles and Protocols screen in the Server Settings configuration, ensure that both the IdP and SP roles are enabled.



Note: The choice of protocol is not relevant for either role to implement the LinkedIn Cloud Identity Connector for in-domain SSO, but a selection is required to enable a role. If updates are needed on the screen, be sure to click **Save**.

3. Configure an SP Adapter Instance, if one is not already configured or you want to use a new one. Click **Adapters** under SP Configuration on the Main Menu.

Use any adapter type, such as the ReferenceID Adapter (available separately in the PingFederate Agentless Integration Kit) or the OpenToken Adapter (bundled with PingFederate).

For a list of other available Ping Identity integration kits, see the [Ping Identity Web site](http://www.pingidentity.com/support-and-downloads) (www.pingidentity.com/support-and-downloads).

4. On the Main Menu under System Settings, click **IdP-to-SP Adapter Mapping** and follow the screen flow to complete this configuration.

Select the LinkedIn IdP Adapter Instance configured earlier as the Source instance and any SP Adapter Instance as the Target.

For more information, see “IdP-to-SP Adapter Mapping” in the "System Settings" chapter of the PingFederate *Administrator's Manual* (or use the context-sensitive **Help**).

For SSO to an SP Partner

- ▶ Use the LinkedIn IdP Adapter Instance (configured earlier) in an SP Connection.

You select the Adapter Instance for the IdP Adapter Mapping setup under Assertion Creation.

For more information, see “Managing SP Connections” in the "Identity Provider SSO Configuration" chapter of the PingFederate *Administrator's Manual* and refer to the context-sensitive **Help** for IdP Adapter Mapping screens.

Step 4 -- Application Integration

For users to authenticate via the LinkedIn Cloud Identity Connector, administrators must provide a specific PingFederate URL:

For IdP-to-SP adapter mapping configuration:

- ▶ Use the following URL in a hypertext link on your Web-application logon page to start SSO:

```
https://<pf_host>:<pf_port>/pf/  
adapter2adapter.ping?IdpAdapterId=<adapterId>
```

where:

- <pf_host> is the host name or IP address where PingFederate is running.
- <pf_port> is the port number for PingFederate.
- <adapterId> is the Instance ID defined in the LinkedIn IdP Adapter set up earlier.

For an SP-connection configuration:

- Use the following URL in your Web-application for SSO to the target application:

```
https://<pf_host>:<pf_port>/idp/
startSSO.ping?PartnerSpId=<ConnectionId>&
IdpAdapterId=<IdPAdapterId>
```

where:

- <pf_host> is the host name or IP address where PingFederate is running.
- <pf_port> is the port number for PingFederate.
- <ConnectionId> is the SP-connection identifier (e.g.: SAML 2.0 Entity ID) for the connection using the LinkedIn Adapter instance.
- <IdPAdapterId> is the applicable Instance ID for the LinkedIn Adapter used in the SP-connection.

Troubleshooting

The following table lists potential problems administrators might encounter during the setup or deployment of the LinkedIn Adapter, along with possible solutions.

Problem	Possible Cause/Solution
The launch URL fails to reach the PingFederate endpoint, and you are running the PingFederate server behind a reverse proxy.	You may need to extend the existing proxy rules within your network to allow network traffic to the endpoint (<code>http[s] :<pf_host>:<pf_port></code>).
User is presented with an unauthorized page by LinkedIn containing a link to the Adapter. User clicks the link and is redirected to the configured Unauthorized Redirect URL (in the Adapter setup) or the standard Adapter error page if an Unauthorized Redirect URL is not specified.	During authentication, the user did not authorize transfer of his or her attributes.
The HTTP Error 400 - Bad Request error message displays.	The user attempted to access the PingFederate endpoint (<code><pf_host>:<pf_port></code>) directly from the browser.