webMethods Adapter for Alfresco

Installation and User's Guide

Version 10.3

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WEBMETHODS

This document applies to webMethods Adapter 10.3 for Alfresco and to all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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1 About this Guide

This guide describes how to configure and use webMethods Adapter 10.3 for Alfresco. It contains information for administrators and application developers who want to exchange data with an Alfresco system.

To use this guide effectively, you should be familiar with the following:

- The basic concepts and tasks for working with Alfresco
- Creating flow or Java Services
- Terminology and basic operations of your operating system
- The setup and operation of webMethods Integration Server
- How to perform basic tasks with Software AG Designer

1.1 Document Conventions

Convention	Description
Bold	Identifies elements on a screen.
Narrowfont	Identifies storage locations for services on webMethods Integration Server, using the convention *folder.subfolder:service*.
UPPERCASE	Identifies keyboard keys. Keys you must press simultaneously are joined with a plus sign (+).
Italic	Identifies variables for which you must supply values specific to your own situation or environment. Identifies new terms the first time they occur in the text.
Monospace font	Identifies text you must type or messages displayed by the system.
{ }	Indicates a set of choices from which you must choose one. Type only the information inside the curly braces. Do not type the { } symbols.
|	Separates two mutually exclusive choices in a syntax line. Type one of these choices. Do not type the | symbol.
[ ]	Indicates one or more options. Type only the information inside the square brackets. Do not type the [ ] symbols.

...	Indicates that you can type multiple options of the same type. Type only the information. Do not type the ellipsis (...).

1.2 Online Information

Software AG Documentation Website

You can find documentation on the Software AG Documentation website at http://documentation.softwareag.com. The site requires Empower credentials. If you do not have Empower credentials, you should use the TECHcommunity website.

Software AG Empower Product Support Website

You can find product information on the Software AG Empower Product Support website at https://empower.softwareag.com.

To submit feature/enhancement requests, get information about product availability, and download products, go to Products.

To get information about fixes and to read early warnings, technical papers, and knowledge base articles, go to the Knowledge Center.

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- Access articles, code samples, demos, and tutorials.
- Use the online discussion forums, moderated by Software AG professionals, to ask questions, discuss best practices, and learn how other customers are using Software AG technology.
- Link to external websites that discuss open standards and web technology.

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2 Overview of the Adapter

2.1 About Adapter – webMethods Alfresco ECM Adapter

webMethods Adapter for Alfresco is an add-on to webMethods that allows you to interact with Alfresco, an enterprise content management system, developed by Alfresco INC, which comes in three flavors: Alfresco Community Edition, Alfresco Enterprise Edition, and Alfresco Cloud Edition[1].

webMethods Adapter for Alfresco allows you use adapter service templates to preform CRUD operations again objects stored in Alfresco. Your webMethods Integration Server clients can create and run services that use these adapter services to create, query, retrieve, update, and delete data.

2.2 Architecture Overview

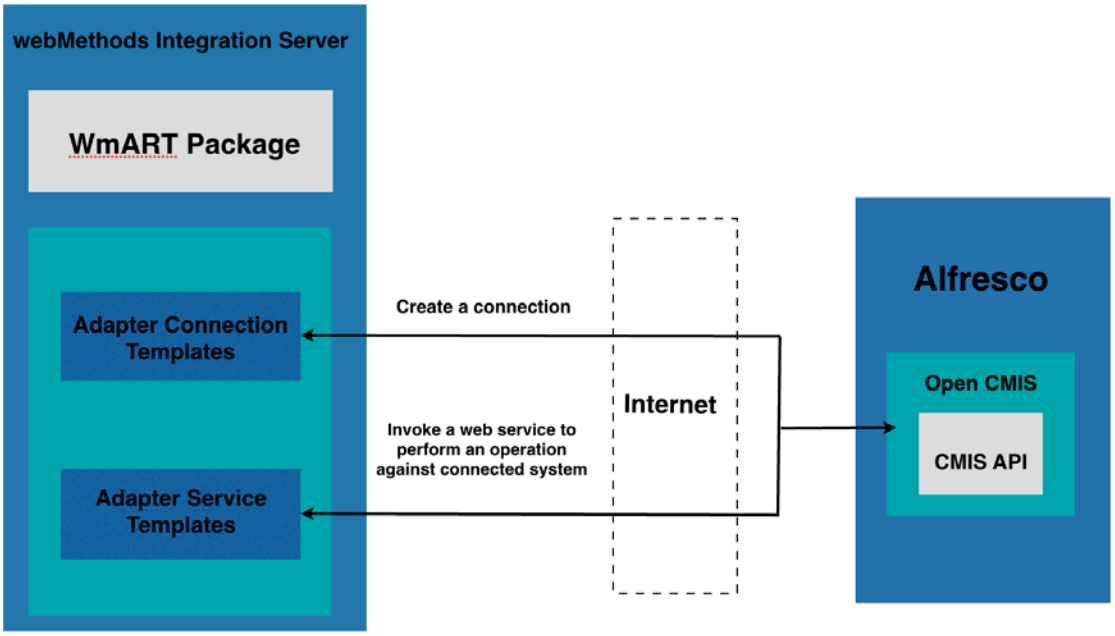
The Adapter for Alfresco provides a set of user interfaces, services, and templates that enable you to create integrations with Alfresco. The adapter connects to the system via Apache OpenCMIS, an open standard that allows control over different content management systems, including Alfresco. The libraries included are Java 8 and work out-of-the-box. If you wish to use an older version of Java, you must use the libraries for that specific version.

The adapter is provided as a single package that is installed on Integration Server. For more detailed installation instructions, see "Installing, Upgrading, and Uninstalling Alfresco". For software requirements, see *webMethods Adapters System Requirements*.

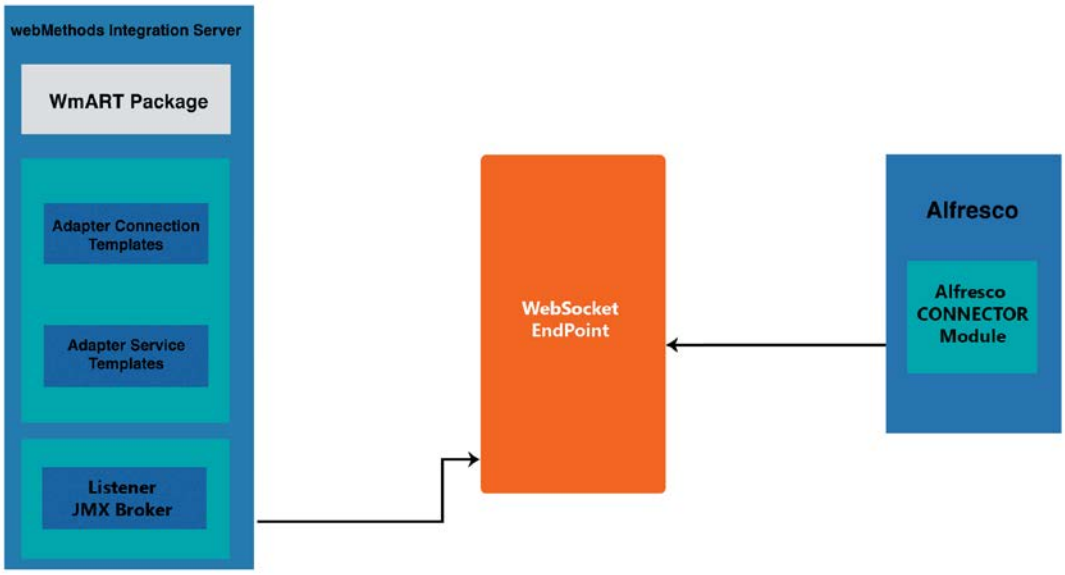
The Adapter for Alfresco enables you to configure the following components:

- **Adapter connections** enable Integration Server to connect to Alfresco systems at run time. You must configure an adapter connection before you can configure adapter services. For a detailed description of adapter connections, see "Adapter Connections".
- **Adapter services** enable Integration Server to initiate and perform operations against an Alfresco system. You can use the services to upload a document into Alfresco or get a document from the same system, including metadata about the document. You configure adapter services using the adapter service templates, provided by the Adapter for Alfresco. There are several services contained in the package. For more detailed description of all these services, please refer to "Adapter Services".

The following diagram shows at a high level how an adapter service uses an adapter connection and adapter services to connect and perform operations on an Alfresco system:



The following diagram shows how the Alfresco Repository communicates with the adapter when an event occurs.



2.3 Package Management

The Adapter for Alfresco is provided as a package called WmAlfrescoAdapter that you manage like any package on Integration Server.

There are several considerations regarding how you set up and effectively manage your packages on Integration Server:

- You must create user-defined packages for your connections and adapter services. For details, see "Adapter for Alfresco Package Management".
- You should understand how package dependencies work to allow you to make the best decisions regarding how you manage your adapter services. For details, see "Package Dependency Requirements and Guidelines".
- You control which development groups have access to which adapter services. For details, see "Group Access Control".

2.4 Adapter Connections

The Adapter for Alfresco connects to Alfresco through Apache Open CMIS at run time. You create one or more connections at design time to use in integrations. The number of connections you create depend on how many Alfresco system repositories you are connecting to and your integration needs.

For example, if you are connecting to different Alfresco repositories, you will need to create connections that are unique to those repositories. Additionally, if you have multiple installations of the same Alfresco repositories in different stages (Development, Test, QA), you access each using different connections.

Adapter for Alfresco connections contain parameters that Integration Server uses to manage connections to the system so that they can be used by the adapter to provide services. You configure connections using Integration Server Administrator. You must have Integration Server Administrator privileges to access Adapter for Alfresco's administrative screens.

For instructions on configuring, viewing, editing, enabling, and disabling the Adapter for Alfresco's connections, see "Adapter for Alfresco Connections". For information about setting user privileges, see *Integration Server administrator's guide*.

2.4.1 Connection Pools

Integration Server includes a connection management service that dynamically manages connections and connection pools based on configuration settings that you specify for each connection. All adapter services use connection pooling.

A connection pool is a collection of connections with the same set of attributes. Integration Server maintains connection pools in memory. Connection pools improve

performance by enabling adapter services to reuse open connections instead of opening new connections.

2.4.1.1 Run-Time Behavior of Connection Pools

When you enable a connection, Integration Server initializes the connection pool, creating the number of connection instances you specified in the connection's **Minimum Pool Size** field when you configured the connection.

Whenever an adapter service needs a connection, Integration Server provides a connection from the pool. If no connections are available in the pool, and the maximum pool size has not been reached, the server creates one or more new connections (according to the number specified in the **Pool Increment Size** field) and adds them to the connection pool. If the pool is full (as specified in **Maximum Pool Size** field), the requesting service will wait for Integration Server to obtain a connection, up to the length of time specified in the **Block Timeout** field, until a connection becomes available.

Periodically, Integration Server inspects the pool and removes inactive connections that have exceeded the expiration period that you specified in the **Expire Timeout** field.

If initialization of the connection pool fails because of a network connection failure or some other type of exception, you can enable the system to retry the initialization any number of times, at specified intervals. For information about configuring connections, see "Configuring Adapter for Alfresco Connections".

2.4.1.2 Built-In Services for Connections

Integration Server provides built-in services that enable you to programmatically control connections. You can use them to enable and disable a connection, and to return usage statistics and the current state (Enabled or Disabled) and error status for a connection. These services are located in the WmART package, in the pub.art.connection folder.

The setAdapterServiceNodeConnection and setPollingNotificationNodeConnection built-in services enable you to change the connection associated with an adapter service or notification respectively.

For details, see *Integration Server built-in services reference guide*.

2.5 Adapter Services

To use the Adapter for Alfresco, you create adapter services. Adapter services allow you to connect to the adapter's resource and initiate an operation on the resource from Integration Server.

You call adapter services from flow or Java services to interact with Alfresco document types.

The adapter services perform repository operations by communicating with Alfresco using the Apache Open CMIS standard.

Adapter services are based on templates provided by the Adapter for Alfresco. Each template represents a specific technique for doing work on a specific resource, such as using the Create Document template to upload a new document the Alfresco system.

An adapter service template contains all the code necessary for interacting with the resource but without the data specifications. You provide these specifications when you create a new adapter service.

The creation of a new service from an adapter service template is straightforward. Using Software AG Designer, you assign the service a default adapter connection.

After selecting the connection for the adapter service, you select the adapter service template and supply the data specifications using Designer. Some familiarity with using Designer is required. For more information, see *Designer Service Development online help*.

More detailed information on the use of these services can be found in "Adapter Services".

Adapter for Alfresco provides the following adapter service templates:

Adapter Service Type	Adapter Service Template	Description
Create	Create Document	Creates a document in Alfresco.
Create	Create Folder Path	Creates a folder path in Alfresco.
Delete	Delete Document	Deletes a document contained in Alfresco.
Delete	Delete Folder	Deletes a folder path in Alfresco allowing the client to specify if to delete subfolders and children.
Search	Search Document (Pass Through)	Pass through search of documents in Alfresco.
Search	Search Document (Basic)	Simple search of documents in Alfresco.

Get	Read Document	Reads metadata of a document in Alfresco and displays it.
Update	Update Document	Updates meta data of documents already existing in Alfresco. Can also be used to update the document itself (uploading a new version).

2.5.1 Using Adapter Services

The following table lists the tasks required to use adapter services.

For this task...	Use these tools...
1. Create an adapter connection. For details, see "Adapter for Alfresco Connections".	Integration Server Administrator
2. Select the appropriate adapter service template and configure the adapter service. Depending on the type of adapter service, you specify: ■ The adapter connection ■ The document type ■ The query expression used to modify or select data, attributes to choose from a document type. ■ The input fields and types as needed ■ The output fields and types as needed For more information about configuring adapter services, see Adapter Services .	Designer
3. If you plan to use an Integration Server flow or Java service to invoke the adapter service, design the flow or Java service to use this adapter service.	Designer
4. Manage the adapter service. For details, see "Package Management", and "Adapter Services".	Designer and Integration Server Administrator

2.5.2 Changing the Connection Associated with an Adapter Service at Run Time

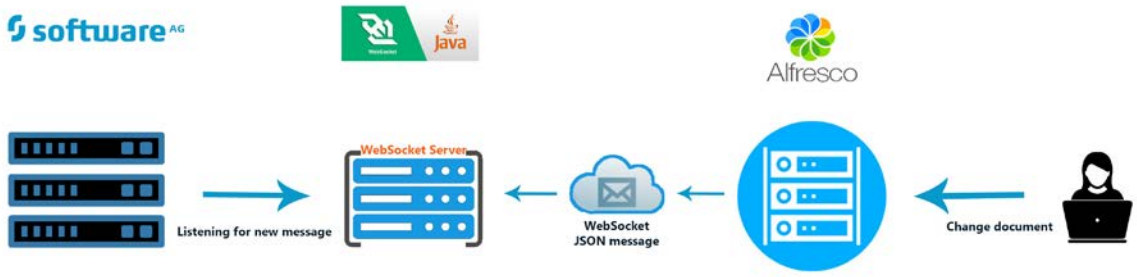
Integration Server enables you to dynamically select the connection a service uses to interact with the adapter's resource. This feature enables one service to interact with multiple, similar backend resources.

For example, a service can be defined to use a default connection that interacts with your company's production Alfresco system. However, at run time you can override the default connection and instead use another connection to interact with the company's test Alfresco system.

2.6 Adapter Listener - Real Time Notification Support

Real Time Notification is a message-based system that allows the user to control all changes that happen inside Alfresco repository. Every time that a document is updated Alfresco sends a message, with all the information what was changed. The adapter can read the message sent from a WebSocket server.

The following image shows how asynchronous notifications for Alfresco Repository work.



3 Installing, Upgrading, and Uninstalling the Adapter for Alfresco

3.1 Overview

This chapter explains how to install, upgrade, and uninstall webMethods Alfresco 10.3 for Alfresco. The instructions use the Software AG Installer and the Software AG Uninstaller wizards. For complete information about the wizards or other installation methods, or to install other webMethods products, see the webMethods installation guide for your release. See “About this Guide” for specific document titles.

3.2 Requirements

For a list of operating systems and webMethods products supported by the Adapter for Alfresco, see *webMethods Adapters System Requirements*.

The Adapter for Alfresco has no hardware requirements beyond those of its host Integration Server.

3.3 The Integration Server Home Directory

Beginning with Integration Server 9.6, you can create and run multiple Integration Server instances under a single installation directory. Each Integration Server instance has a home directory under *Integration Server_directory*\instances*instance_name* that contains the packages, configuration files, log files, and updates for the instance.

For more information about running multiple Integration Server instances, see the Integration Server administration guide for your release. See “About this Guide” for specific document titles.

If you are using Integration Server 9.5 and lower, the Integration Server home directory is *Integration Server_directory*. For example, on Integration Server 9.5 the adapter package is installed in the *Integration Server_directory*\packages directory.

This guide uses the *packages_directory* as the home directory in Integration Server classpaths. For Integration Server 9.6 and above, the *packages_directory* is

Integration Server_directory\instances*instance_name*\packages directory. For Integration Server 9.5 and lower, the *packages_directory* is *Integration Server_directory*\packages directory.

3.3.1 Installing Adapter for Alfresco

Note: If you are installing the Adapter for Alfresco in a clustered environment, you must install the adapter on each Integration Server in the cluster, and each installation must be identical.

To install the Adapter for Alfresco

1. Download Installer from the Empower Product Support website.
2. If you are installing the adapter on an existing Integration Server, shut down the Integration Server.
3. Start the Installer wizard.
4. Choose the webMethods release that includes the Integration Server on which you want to install the adapter. For example, if you want to install the adapter on Integration Server 9.8, choose the 9.8 release.
5. Specify the installation directory as follows:
   - If you are installing on an existing Integration Server, specify the webMethods installation directory that contains the host Integration Server.
   - If you are installing both the host Integration Server and the adapter, specify the installation directory to use.
6. In the product selection list, select **Adapters >webMethods Adapter 10.3 for Alfresco**.

   If you are using Integration Server 9.6 and above, you can choose to install the package in the default instance. In this case, Software AG Installer installs the adapter in both locations, *Integration Server_directory*\packages and the default instance packages directory located in

   Integration Server_directory\instances\default\packages.
7. To download the documentation for the adapter, go to Software AG Documentation website.
8. After the installation completes, close the Installer and start the host Integration Server.
9. (Optional) If you require receiving notification messages on changes of repository content you must install a package on Alfresco repository.

3.4 Uninstalling Adapter for Alfresco

To uninstall Adapter for Alfresco

1. Shut down the host Integration Server. You do not need to shut down any other webMethods products or applications that are running on your machine.
2. Start Software AG Uninstaller, selecting the webMethods installation directory that contains the host Integration Server.
3. In the product selection list, select **Adapters > webMethods Adapter for Adapter for Alfresco**. You can also choose to uninstall documentation.
4. After Uninstaller completes, restart the host Integration Server.

Uninstaller removes all Adapter for Alfresco related files that were installed. However, Uninstaller does not delete files created after you installed the adapter (for example, user created or configuration files), nor does it delete the adapter directory structure.

You can go to the *Integration Server_directory*\packages directory and *Integration Server_directory**instances**default**packages* directory. Delete the WmAlfrescoAdapter directory.

4 Package Management

4.1 Overview

The following sections describe how to set up and manage your Adapter for Alfresco packages, set up Access Control Lists (ACLs), and use the adapter in a clustered environment.

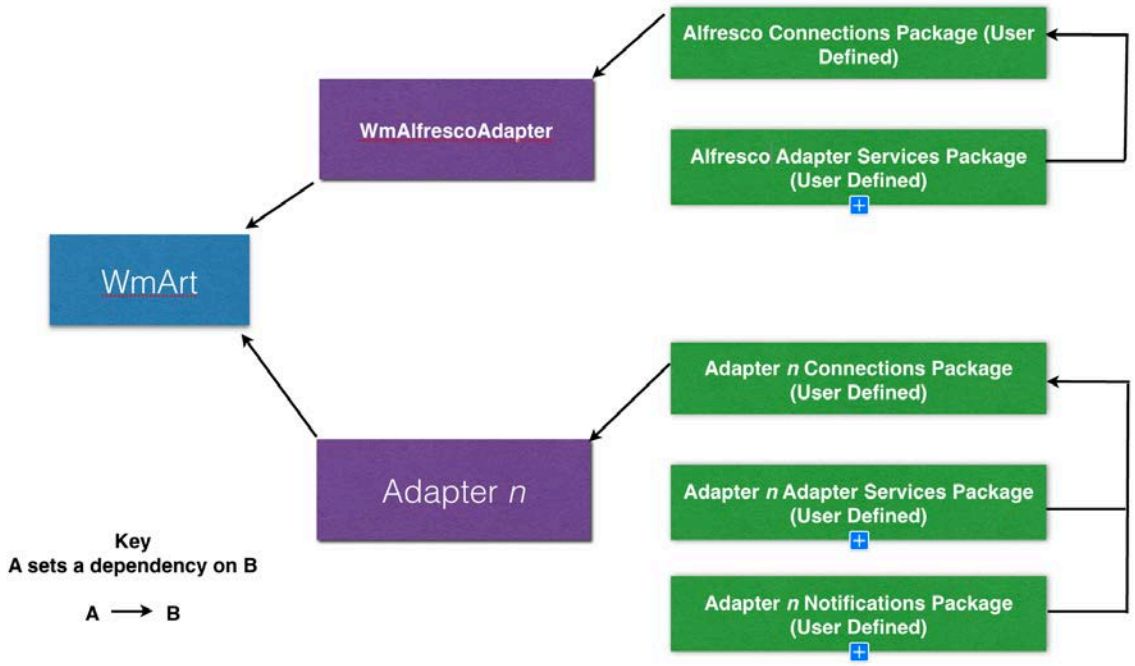
4.2 Adapter for Alfresco Package Management

Adapter for Alfresco is provided as a package called WmAlfrescoAdapter.

You manage the WmAlfrescoAdapter package as you would manage any package on webMethods Integration Server.

When you create connections, adapter services, and adapter notifications, define them in user-defined packages rather than in the WmAlfrescoAdapter package. Doing so will allow you to manage the package more easily.

As you create user-defined packages in which to store connections and adapter services, use the package management functionality provided in Software AG Designer and set the user-defined packages to have a dependency on the WmAlfrescoAdapter package. That way, when the WmAlfrescoAdapter package loads or reloads, the user-defined packages load automatically. See the following diagram:



Package management tasks include:

- Setting package dependencies (see "Package Dependency Requirements and Guidelines")
- "Enabling Packages"
- "Importing and Exporting Packages"
- "Group Access Control"

4.2.1 Package Dependency Requirements and Guidelines

This section contains a list of dependency requirements and guidelines for user-defined packages. For instructions on setting package dependencies, see *webMethods Service Development Help* for your release.

- A user-defined package must have a dependency on its associated adapter package, WmAlfrescoAdapter. (The WmAlfrescoAdapter package has a dependency on the WmART package.)
- Package dependencies ensure that at startup the Integration Server automatically loads or reloads all packages in the proper order: the WmART package first, the adapter package next, and the user-defined packages last. The WmART package is automatically installed when you install Integration Server. You should not need to manually reload the WmART package.
- If the connections and adapter services of an adapter are defined in different packages, then:

  - A package that contains the connections must have a dependency on the adapter package.
  - Packages that contain adapter services must have a dependency on their associated connection package.
- Keep connections for different adapters in separate packages so that you do not create interdependencies between adapters. If a package contains connections for two different adapters, and you reload one of the adapter packages, the connections for both adapters will reload automatically.
- Integration Server will not allow you to enable a package if it has a dependency on another package that is disabled. That is, before you can enable your package, you must enable all packages on which your package depends. For information about enabling packages, see "Enabling Packages".
- Integration Server will allow you to disable a package even if another package that is enabled has a dependency on it. Therefore, you must manually disable any user-defined packages that have a dependency on the adapter package before you disable the adapter package. For information about disabling packages, see "Disabling Packages".
- You can name connections and adapter services the same, provided that they are in different folders and packages.

4.2.2 Enabling Packages

All packages are automatically enabled by default. Use the following procedure when you want to enable a package that was previously disabled.

To enable a package

1. Open Integration Server Administrator if it is not already open.
2. In the **Packages** menu of the navigation area, click **Management**.
3. Click **No** in the **Enabled** column. The server displays a ✔ and **Yes** in the **Enabled** column.

Note: Enabling an adapter package will not cause its associated user-defined packages to be reloaded. For information about reloading packages, see *webMethods Service Development Help*.

Important! Before you manually enable a user-defined package, you must first enable its associated adapter package (WmAlfrescoAdapter).

4.2.3 Disabling Packages

When you want to temporarily prohibit access to the elements in a package, disable the package. When you disable a package, the server unloads all of its elements from memory. Disabling a package prevents Integration Server from loading that package at startup.

Important! If your adapter has multiple user-defined packages, and you want to disable some of them, disable the adapter package first (WmAlfrescoAdapter). Otherwise, errors will be issued when you try to access the remaining enabled user-defined packages.

To disable a package

1. Open Integration Server Administrator if it is not already open.
2. In the **Packages** menu of the navigation area, click **Management**.
3. Click **Yes** in the **Enabled** column for the package that you want to disable. The server issues a prompt to verify that you want to disable the package. Click **OK** to disable the package. When the package is disabled, the server displays **No** in the **Enabled** column.

A disabled adapter will:

- Remain disabled until you explicitly enable it using Integration Server Administrator.
- Not be listed in Designer.

4.2.4 Importing and Exporting Packages

You import and export packages using Designer. Exporting allows you to export the package to a .zip file and save it to your hard drive. The .zip file can then be imported for use by another package.

Important! Do not rename packages you export; the rename function is comparable to moving a package, and when you import the renamed package, you lose any triggers, connections, and notifications associated with this package.

For details about importing and exporting packages, see *Designer Service*

Development online help.

4.3 Group Access Control

To control which groups have access to which adapter services, use access control lists (ACLs). For example, you can use ACLs to prevent one development group from inadvertently updating the work of another group, or to allow or deny access to services that are restricted to one group but not to others.

For information about assigning and managing ACLs, see *Designer Service Development online help.*

5 Adapter for Alfresco Connections

5.1 Overview

This chapter describes how to configure and manage Adapter for Alfresco connections. For more information about how adapter connections work, see *Adapter Connections*.

5.2 Before Configuring or Managing Adapter Connections

Perform the following steps before configuring or managing adapter connections.

The Adapter for Alfresco's functionality is provided out-of-the-box, meaning that the adapter connections are packaged with the adapter. You, therefore, only need to install the Adapter for Alfresco along with the webMethods Integration Server to allow you to configure its connections.

To prepare to configure or manage adapter connections

1 Install webMethods Integration Server and the Adapter for Alfresco on the same machine.

5.3 Configuring Adapter for Alfresco Connections

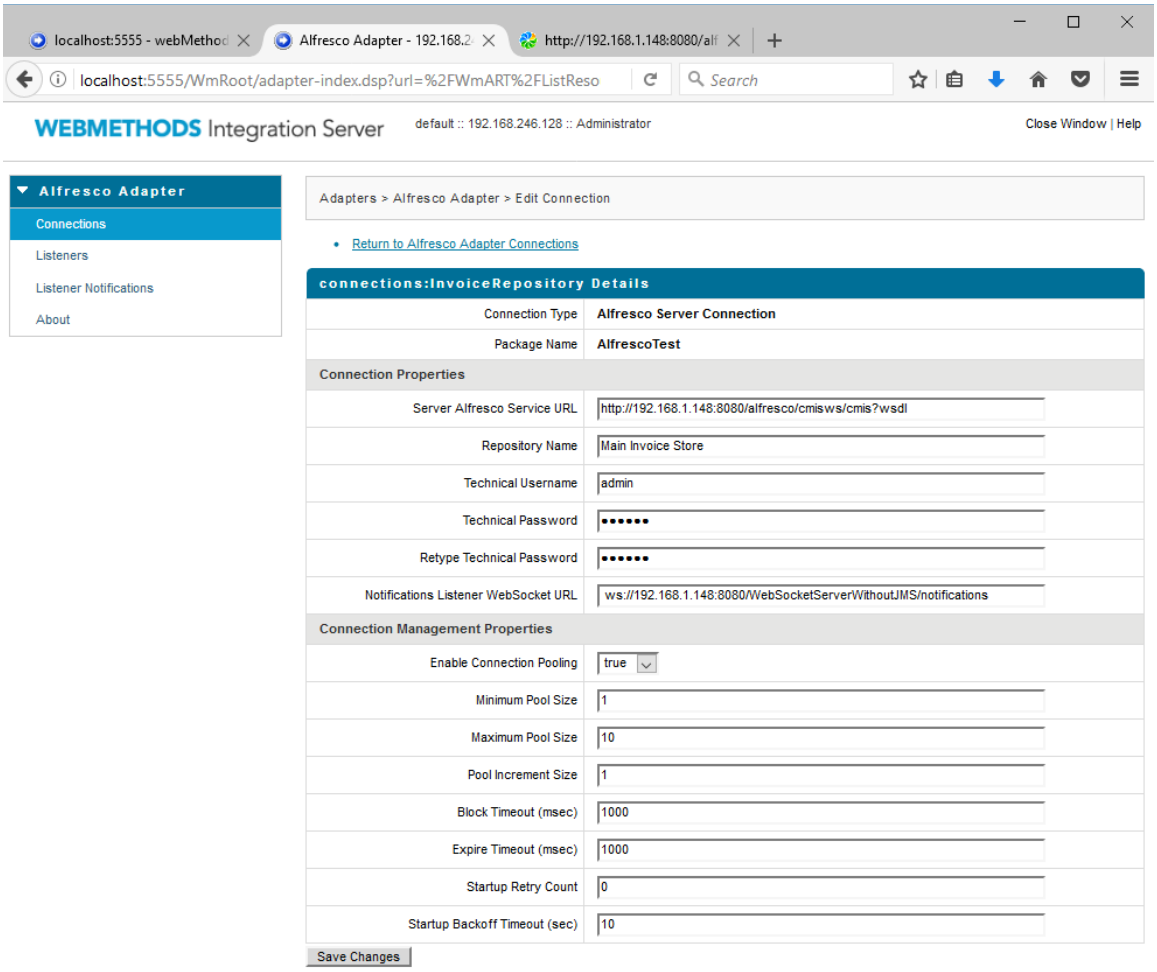
You can configure an adapter's connections from the Integration Server Administrator and Designer.

Perform the following steps to configure the adapter's connections in Integration Service Administrator.

1. In the **Adapters** menu in Integration Server Administrator's navigation area, click **Adapter for Alfresco**.
2. The Connections screen displays all connections that have been created. If no connections have been created for the current package, "No connections found" is displayed.
3. Click "Configure New Connection"
4. The Configure Connection Type is displayed. Enter the parameters that are required for this connection. The screenshot below shows an example configuration. See "Connection Properties" for information of the connection settings.

5. Once the information for the new connection is complete, click Save Connection.
6. The new connection is saved and can be used when creating a new service from the service template. See "Adapter Services"

Example configuration for a new connection



5.4 Connection Properties

The section above shows you how to create a new connection to your Alfresco system. This sections describes the parameters for the defining of a connection.

Adapter Properties

Attribute	(Example) Value	Description

Attribute	(Example) Value	Description
Package	AlfrescoAdapterSamples	The Integration Server package you want to use.
Folder Name	connections	The folder within the IS package.
Connection Name	sample	The name of the connection acting as default.
Service Context Root Url	http://localhost:8080/alfresco/cmisws/cmis?cmis?wsdl	The Alfresco service context root URL; this is where all the Alfresco services are hosted via HTTP/HTTPS.
Repository Name	Main Repository	The Alfresco repository you want to connect to.
Username	Admin	The username for connecting.
Password	secret	The user's password.
Retype Password		The user's password retyped.
Notification Listener WebSocket URL	ws://192.168.1.148/AlfrescoAuditMonitor/notifications	Address URL of WebSocket server.

Connection Management Properties

Field	Description/Action
Enable Connection	Enables the connection to use connection pooling. For more information about connection pooling see the Integration Server connec-

Field	Description/Action
Pooling	tion pool documentation. Note: If you plan to enable connection pooling in a clustered environment, consider the connection pool size.
Minimum Pool Size	If connection pooling is enabled, this field specifies the number of connections to create when the connection is enabled. The adapter will keep open the number of connections you configure here regardless of whether these connections become idle.
Maximum Pool Size	If connection pooling is enabled, this field specifies the maximum number of connections that can exist at one time in the connection pool.
Pool Increment Size	If connection pooling is enabled, this field specifies the number of connections by which the pool will be incremented if connections are needed, up to the maximum pool size.
Block Timeout	If connection pooling is enabled, this field specifies the number of milliseconds that the Integration Server will wait to obtain a connection with Alfresco before it times out and returns an error. For example, you have a pool with Maximum Pool Size of 20. If you receive 30 simultaneous requests for a connection, 10 requests will be waiting for a connection from the pool. If you set the Block Timeout to 5000, the 10 requests will wait for a connection for 5 seconds before they time out and return an error. If the services using the connections require 10 seconds to complete and return connections to the pool, the pending requests will fail and return an error message stating that no connections are available. If you set the Block Timeout value too high, you may encounter problems during error conditions. If a request contains errors that delay the response, other requests will not be sent. This setting should be tuned in conjunction with the Maximum Pool Size to accommodate such bursts in processing.
Expire Timeout	If connection pooling is enabled, this field specifies the number of milliseconds that an inactive connection can remain in the pool before

Field	Description/Action
	it is closed and removed from the pool. The connection pool will remove inactive connections until the number of connections in the pool is equal to the Minimum Pool Size. The inactivity timer for a connection is reset when the connection is used by the adapter. If you set the Expire Timeout value too high, you may have a number of unused inactive connections in the pool. This consumes local memory and a connection on your backend resource. This could have an adverse effect if your resource has a limited number of connections. If you set the Expire Timeout value too low, performance could degrade because of the increased activity of creating and closing connections. This setting should be tuned in conjunction with the Minimum Pool Size to avoid excessive opening/closing of connections during normal processing.
Startup Retry Count	The number of times that the system should attempt to initialize the connection pool at startup if the initial attempt fails. The default is 0.
Startup Backoff Timeout	The number of seconds that the system should wait between attempts to initialize the connection pool.

5.5 Viewing Adapter Connection Parameters

You can view a connection's parameters from Integration Server Administrator and Designer.

5.5.1 Using Integration Server Administrator to View Adapter Connection Parameters

Perform the following steps to view adapter connection parameters in Integration Server Administrator.

To view the parameters for a connection using Integration Server Administrator

1 In the **Adapters** menu in Integration Server Administrator's navigation area, click **Adapter for Alfresco**.

When using the adapter with Integration Server 8.0 and later, you can sort and filter the list of connections that appears on the Connections screen.

- To sort information on the Connections screen, click the **Up** and **Down** arrows at the top of the column you want to sort.
- To filter the list of connections:

  i On the Connections screen, click **Filter Connections**.

  ii Type the criterion by which you want to filter into the **Filter criteria** box. Filtering is based on the node name, not the connection alias. To locate all connections containing specific alphanumeric characters, use asterisks (*) as wildcards. For example, if you want to display all connections containing the string "abc", type `*abc*` in the **Filter criteria** box.

  iii Click **Submit**. The Connections screen displays the connections that match the filter criteria.

  iv To re-display all connections, click **Show All Connections**.

  The Connections screen appears, listing all the current connections. You can control the number of connections that are displayed on this screen.

2 On the Connections screen, click the icon for the connection you want to see.

The View Connection screen displays the parameters for the connection. For descriptions of the connection parameters, see "Configuring Adapter for Alfresco Connections".

3 Click **Return to Alfresco connections** to return to the main connections screen.

5.5.2 Using Designer to View Adapter Connection Parameters

Perform the following steps to view adapter connection parameters in Designer.

To view the parameters for a connection using Designer

1 From the Designer navigation area, open the package and folder in which the connection is located.

2 Double-click the connection you want to view.

The parameters for the connection appear on the **Connection Information** tab. For descriptions of the connection parameters, see "Configuring Adapter for Alfresco Connections".

5.6 Editing Adapter Connections

If the login information for a database changes, or if you want to redefine parameters that a connection uses when connecting to a database, you can update a connection'sparameters using Integration Server Administrator.

To edit a connection

1. In the **Adapters** menu in Integration Server Administrator's navigation area, click **Adapter for Alfresco**.
2. Make sure that the connection is disabled before editing it. For instructions, see "Disabling Adapter Connections".
3. On the Connections screen, click the icon for the connection you want to edit.

   The Edit Connection screen displays the current parameters for the connection. Update the connection's parameters by typing or selecting the values you want to specify.

   For descriptions of the connection parameters, see "Configuring Adapter for Alfresco Connections".
4. Click **Save Changes** to save the connection and return to the Connections screen.

5.7 Copying Adapter Connections

You can copy an existing Alfresco connection to configure a new connection with the same or similar connection properties without having to retype all of the properties for the connection. You copy adapter connections using Integration Server Administrator.

To copy a connection

1. In the **Adapters** menu in Integration Server Administrator's navigation area, click **Adapter for Alfresco**.
2. On the Connections screen, click the icon for the connection you want to copy.

   The Copy Connection screen displays the current parameters for the connection you want to copy. Name the new connection, specify a package name and folder name, and edit any connection parameters as needed by typing or selecting the values you want to specify.

Note: When you copy a connection, the new connection does not save the password of the original connection. You must enter and then retype the password before you can save the new connection.

For descriptions of the connection parameters, see "Configuring Adapter for Alfresco Connections".

3 Click **Save Connection Copy** to save the connection and return to the Connections screen.

5.8 Deleting Adapter Connections

If you no longer want to use a particular Alfresco connection, you can delete it. You delete adapter connections using Integration Server Administrator.

If you delete an Adapter for Alfresco connection, any adapter services configured to use that connection will no longer work. However, you can assign a different connection to an adapter service and reuse the service. To do this, use the setAdapterServiceNodeConnection built-in service.

To delete a connection

1 In the **Adapters** menu in the Integration Server Administrator navigation area, click **Adapter for Alfresco**.

2 Make sure that the connection is disabled before deleting. To disable the connection, click **Yes** in the **Enabled** column and click **OK** to confirm. The **Enabled** column now shows **No** (Disabled) for the connection.

3 On the Connections screen, click for the connection you want to delete.

Integration Server deletes the adapter connection.

5.9 Enabling Adapter Connections

An Alfresco connection must be enabled before you can configure any adapter service to use the connection, or before an adapter service can use the connection at run time. You enable adapter connections using Integration Server Administrator.

Note: When you reload a package that contains enabled connections, the connections will automatically be enabled when the package reloads. If the package contains connections that are disabled, they will remain disabled when the package reloads.

To enable a connection

1 In the **Adapters** menu in the Integration Server Administrator navigation area, click **Adapter for Alfresco**.

2 On the Connections screen, click **No** in the **Enabled** column for the connection you want to enable.

Integration Server Administrator enables the adapter connection and displays a ✔ and **Yes** in the **Enabled** column.

5.10 Disabling Adapter Connections

Note: Alfresco connections must be disabled before you can edit or delete them. You disable adapter connections using Integration Server Administrator.

To disable a connection

1 In the **Adapters** menu in the Integration Server Administrator navigation area, click **Adapter for Alfresco**.

2 On the Connections screen, click **Yes** in the **Enabled** column for the connection you want to disable.

The adapter connection becomes disabled and you see a **No** in the **Enabled** column.

6 Adapter Listener

6.1 Overview

This chapter describes how to configure Alfresco Adapter Listeners to retrieve messages from Alfresco repository. For proper operation, we must

- Configure Adapter
- Start WebSocket
- Install connector module in Alfresco repository

6.2 Before Configuration or Managing Adapter Listener

Before configuring the Listener into the adapter, we must have an:

- Alfresco repository up where is installed the connector that sends messages to the adapter
- WebSocket to sends message to all client connected to it

For this documentation, we install WebSocket into the same machine were Alfresco is installed but we can also install WebSocket into another machine.

6.2.1 Installation of WebSocket

The component that sends notification messages to the Integration Server is a WebApplication developed in Java, that implements a communication between the service with WebSocket communication protocol. In this example we have installed the war-file into the same Tomcat were Alfresco is installed but it is possible to install it on another server (we must configure it into alfresco-global.properties file).

To install this WebApplication follow these steps:

- Stop Apache Tomcat
- Copy the .war file into the folder: <TOMCAT_HOME>/webapps/
- Restart the server

6.2.2 Installation Alfresco Module

For each version of Alfresco repository, we have developed an AMP file. An Alfresco Module is a collection of code, configuration, script which extends the functionality of Alfresco. Modules are usually packaged in the Alfresco Module Package (AMP) file format for deployment in production environments. An AMP is essentially a zip file with a specific layout, containing all of the files required for a specific extension, including data you might upload to the repository.

Required files (Alfresco**AuditMonitor.war and wmAlfrescoAGConnector-2.0.amp**) can be found under **resources** folder inside WmAlfrescoAdapter package.

Copy file with AMP extension into the folder: <ALFRESCO_HOME>/amps/

Go into ***bin*** folder at this path: <ALFRESCO_HOME>/bin/ and execute the file apply_amps.bat (Windows) or apply_amps.sh (Linux)

If module is installed without error, before starting the server, we must configure ***alfresco-global.properties*** file. Add this variable into the file:

```
#software AG: parameter connector for adapter
softwareAG.webSocket.webProtocol=ws
softwareAG.webSocket.hostName=localhost
softwareAG.webSocket.portNumber=8080
softwareAG.webSocket.serviceToCall=AlfrescoAuditMonitor/notifications
softwareAG.webSocket.paramToSend=nothing
softwareAG.repoInfo.type=Alfesco 5.0.d
```

Parameter	Description
softwareAG.webSocket.webProtocol	Web protocol used for communication from system.
softwareAG.webSocket.hostName	Ip address of the server or server domain.
softwareAG.webSocket.portNumber	Port number where the server listens for http requests.
softwareAG.webSocket.serviceToCall	Address of service to call.
softwareAG.repoInfo.paramToSend	Parameters to send to the WebSocket; default value is **nothing** but if set, use the following format: paramName01|value01;paramName02|value02… (it is possible to omit the value)
softwareAG.repoInfo.type	Information on repository type.

Then restart server. For more detail on how to install or develop an AMP file go to the official documentation site (http://docs.alfresco.com/).

If one makes a CRUD operation (Create, Read, Update, Delete), a notification is sent to WebSocket. The message sent has this format:

Field name	Field description
RepositoryId	The url of the document library/list containing the document/list item.
HostName	The url of the Alfresco repository collection containing the

	document/item.
ObjectName	The name of the document/item.
ObjectId	The Id of the document/item in the document library/list.
ObjectPath	The path of the document/item, relative to the document library/list.
RepositoryType	Type of repository.
Username	The username of the user that committed the operation.
EventDate	The date and time of the operation.
ActionType	The type of the committed operation (action).
ItemType	The name of the Content Type of the document.
BeforeProperties	The map of the properties that were changed during the operation and their values before the operation.
AfterProperties	The map of the properties that were changed during the operation and their values after the operation.

7 Adapter Services

7.1 Overview

The following services are available with the Adapter for Alfresco

Service	Description
Create Document	Create a new document in Alfresco
Update Document	Updates metadata of a document in Alfresco
Delete Document	Deletes a document in Alfresco
Read Document	Reads metadata of a document in Alfresco
Search Documents (Basic)	Queries documents in Alfresco according to the parameters defined in the service template.
Search Documents (Passthrough)	Searches documents in Alfresco. A string passed to the service, which represents the CMIS Query Language, defines the query.
Create Folder Path	Creates a folder path in Alfresco.
Delete Folder Path	Deletes a folder path in Alfresco.

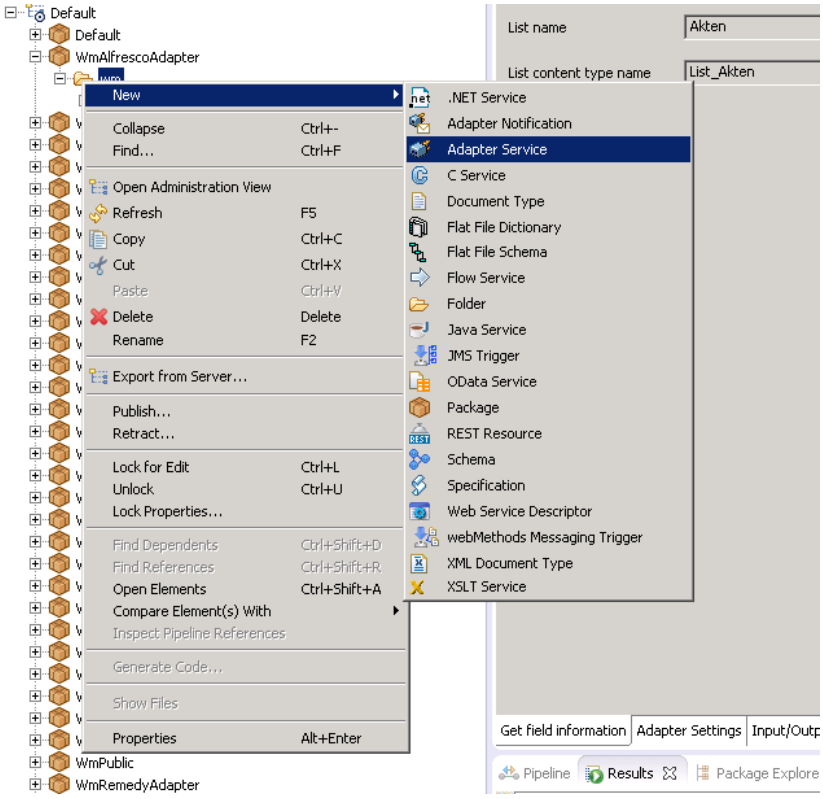
7.2 Creating a New Service

The initial steps to create a new adapter service are the same regardless of the services being created.

Open the Software AG Designer and navigate to the package you want to create the service. In the example below, we will create new services in the `WmAlfrescoAdapterSample` under the folder `services`

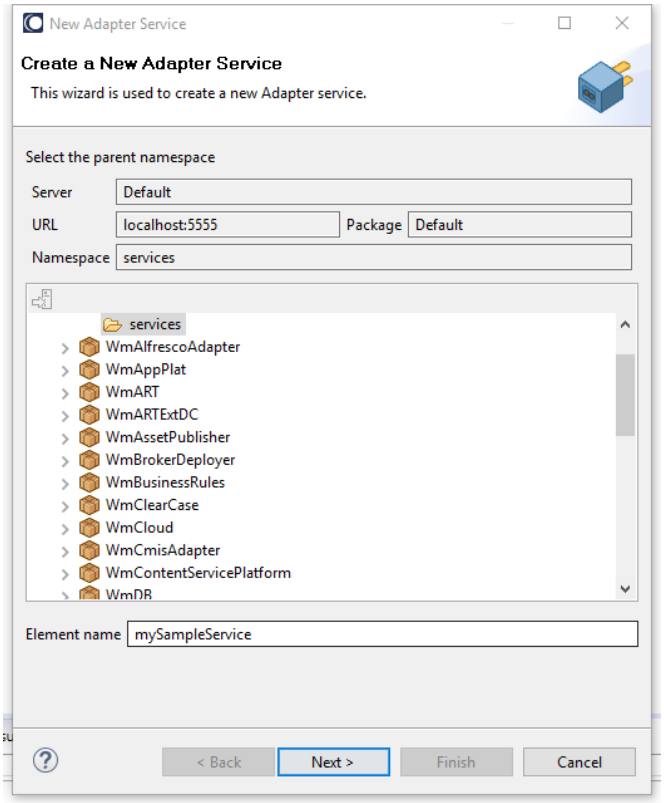
Perform the following steps to create a new service:

1. Right-click-> **New**-> **Adapter Service** as depicted in the following screenshot:

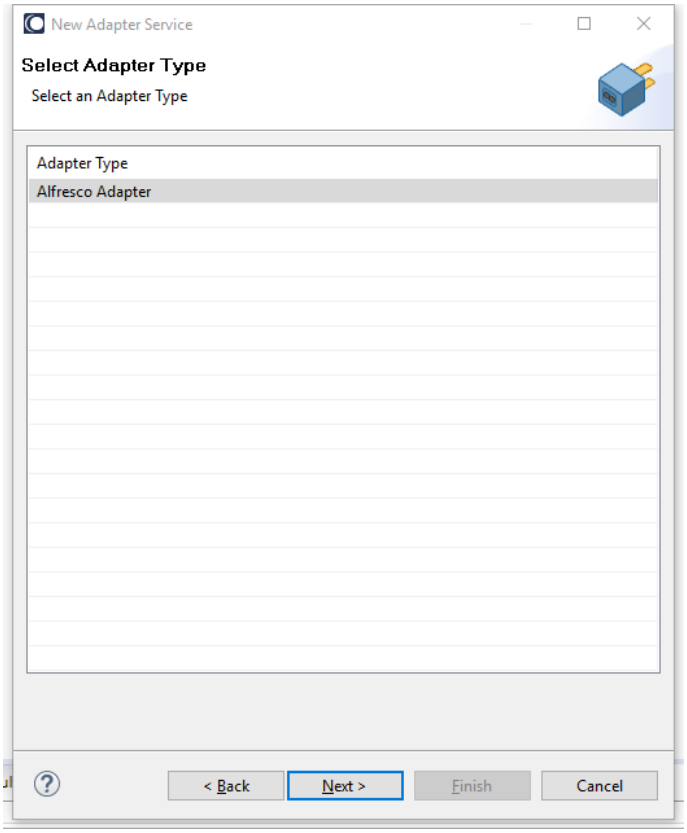


2. Enter the name of the service you want to create in the **Element name** field.

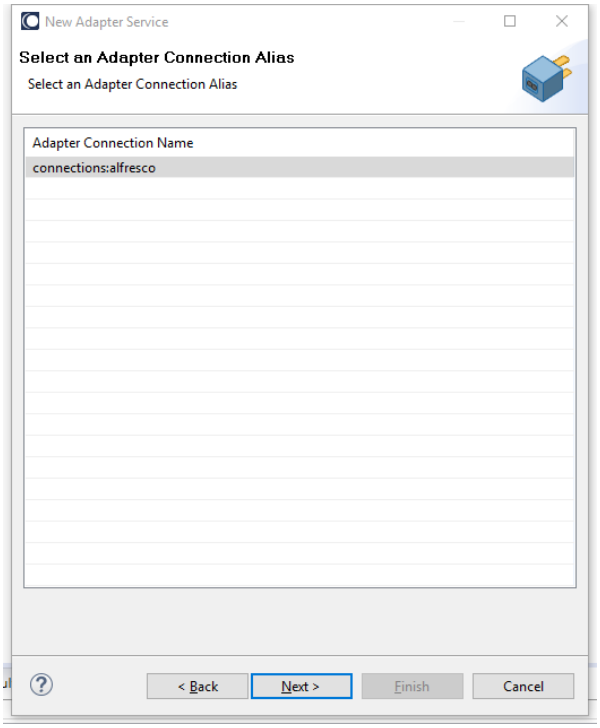
Note: The created service names should be unique within the folder. Example, the name given for the service in **Element name** field can be `ExampleService`.



3. Select your adapter type and click **Next**.



4. Select your preconfigured connection that should be associated with the service and click **Next**.



5. Finally, the service templates screen appears, showing the templates that are contained in the package. Each service has a corresponding template.

The next section describes how to create each service provided by the Adapter for Alfresco.

7.3 Create Document

7.3.1 Description

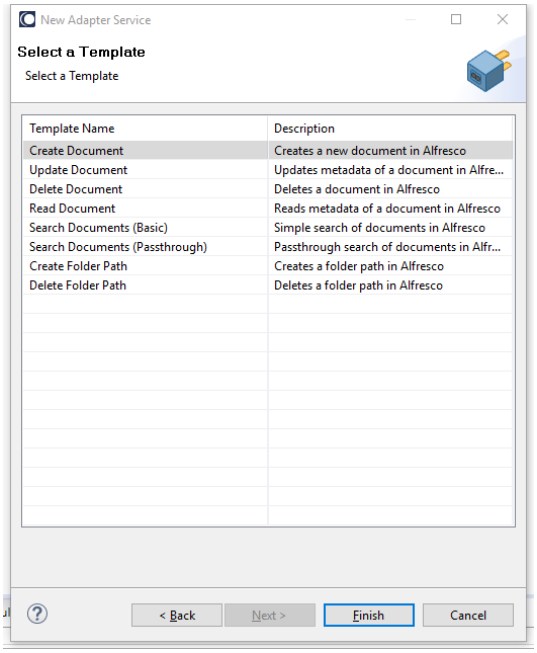
Creates a new document in Alfresco providing its attributes (meta-data), and folder location.

7.3.2 Configure the Service

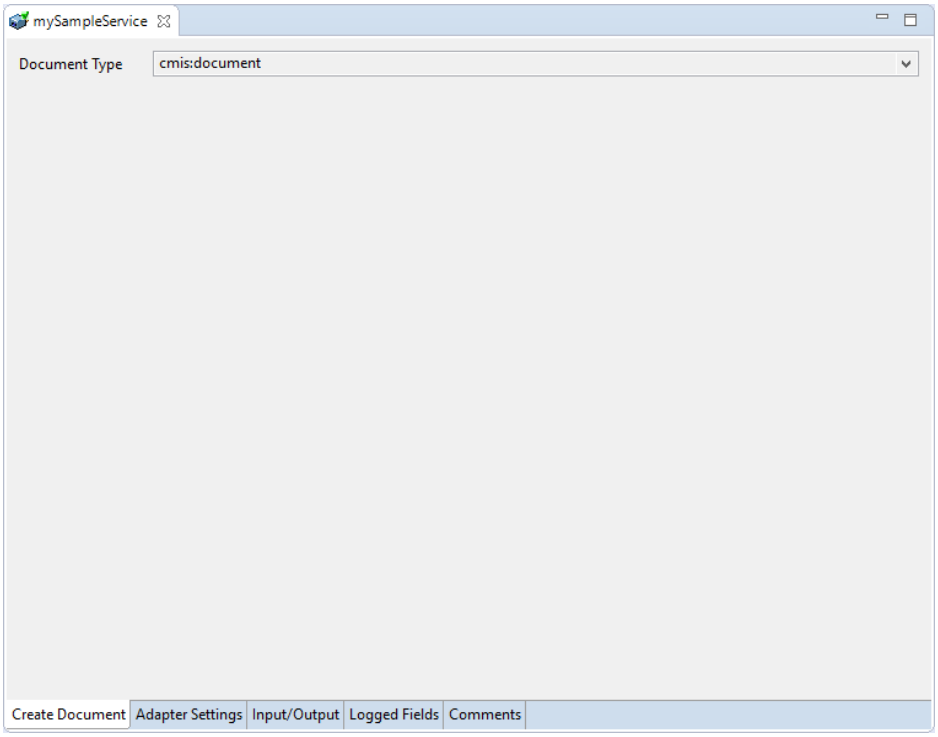
After the initial configuration of the service, as shown above, the **Select a Template** screen appears.

Perform the following steps to configure the service:

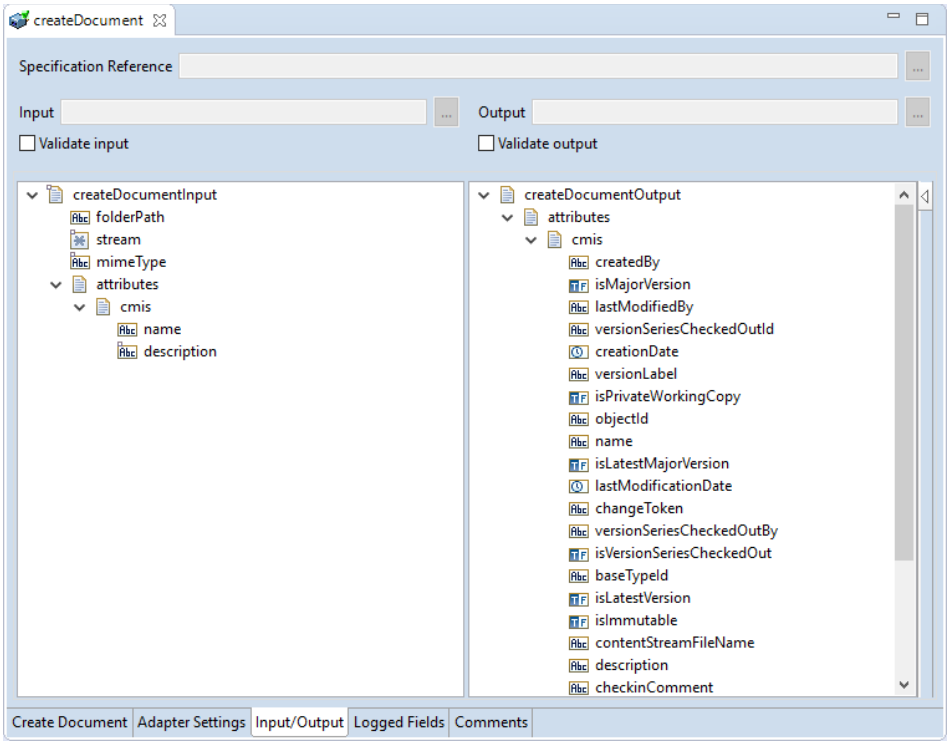
1. Select **Create Document** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Create Document** tab, allows you to select the type of document that will be created. You can choose the document that you require by selecting from the document type dropdown list.



2. Click the second tab, which is used to configure the template, **Input/Output** tab.



This tab shows the Create Document service's input and outputs such as, which is information required and what is then provided after the document is created.

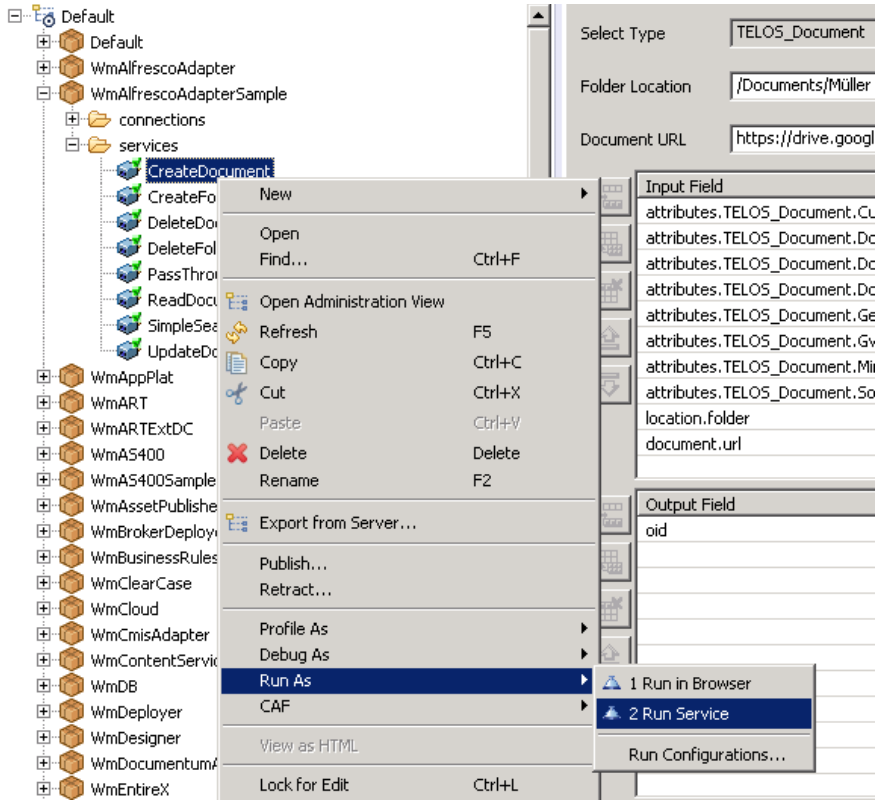
- On the left-hand side of the panel are the parameters that are taken as inputs, while
- On the right-hand side shows the output for the service. Here, the objectId of the created folder path is returned.

3. Save the new service and it will be available under services.

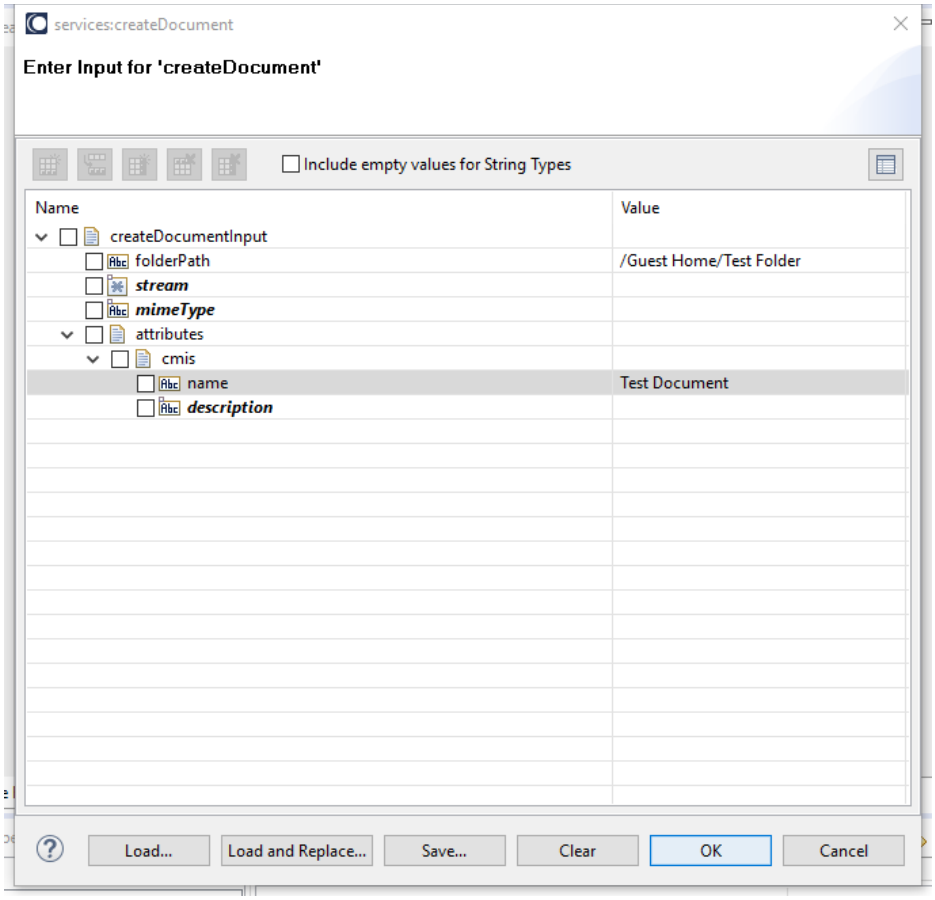
7.3.3 Execute the service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

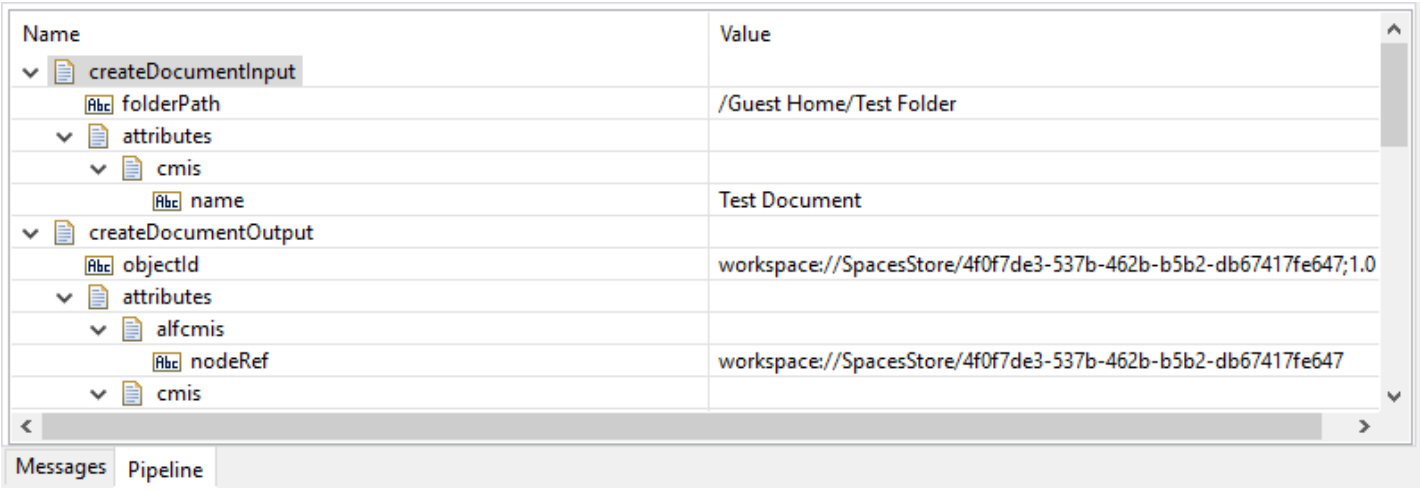


2. Enter the relevant inputs in the text fields.

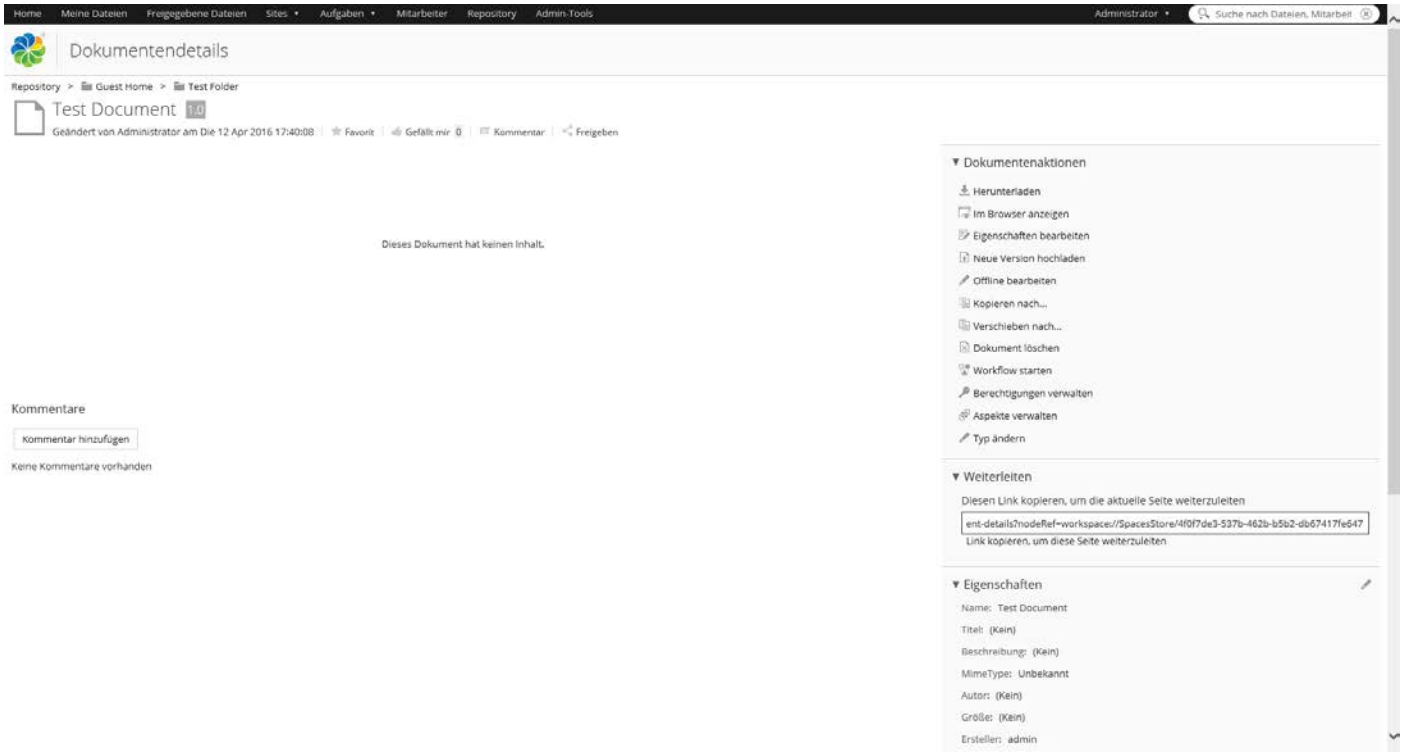


3. Click **OK**.

   The resulting output is displayed.



The document is created in Alfresco.



7.4 Create Folder Path

Creates a folder path in the Alfresco system connected.

7.4.1 Description

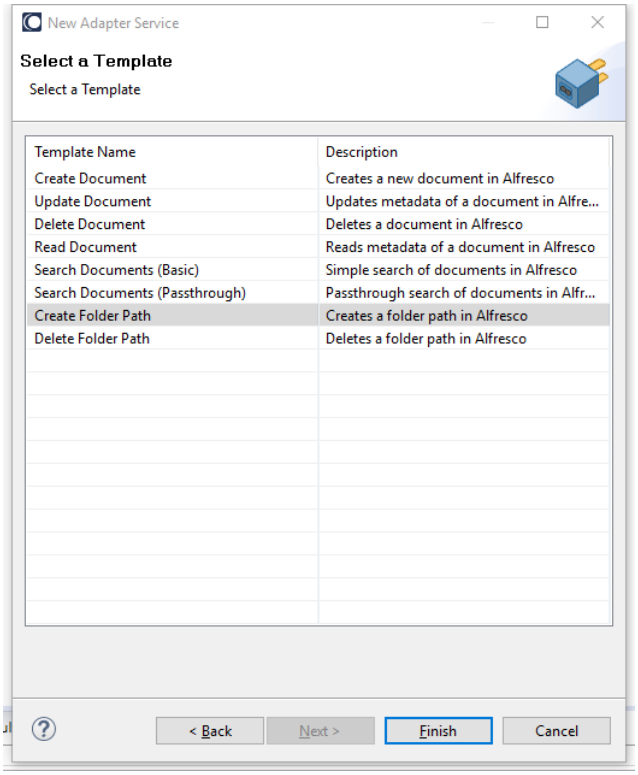
Creates a folder path in Alfresco.

7.4.2 Configure the Service

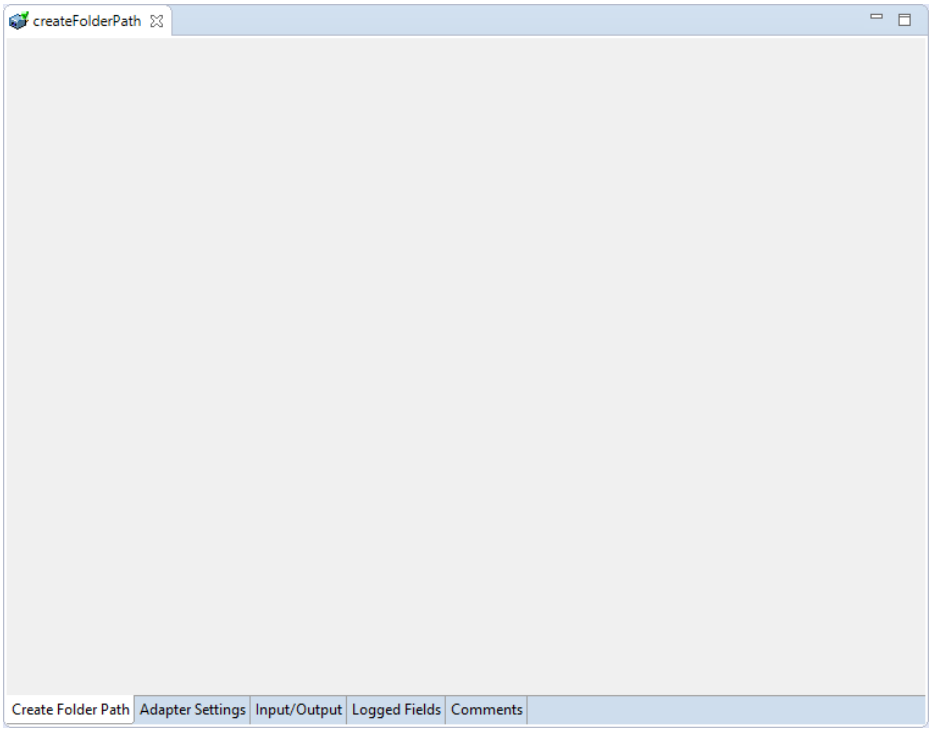
After the initial configuration of the service, as shown above, the **Select a Template** screen appears.

Perform the following steps to configure the service:

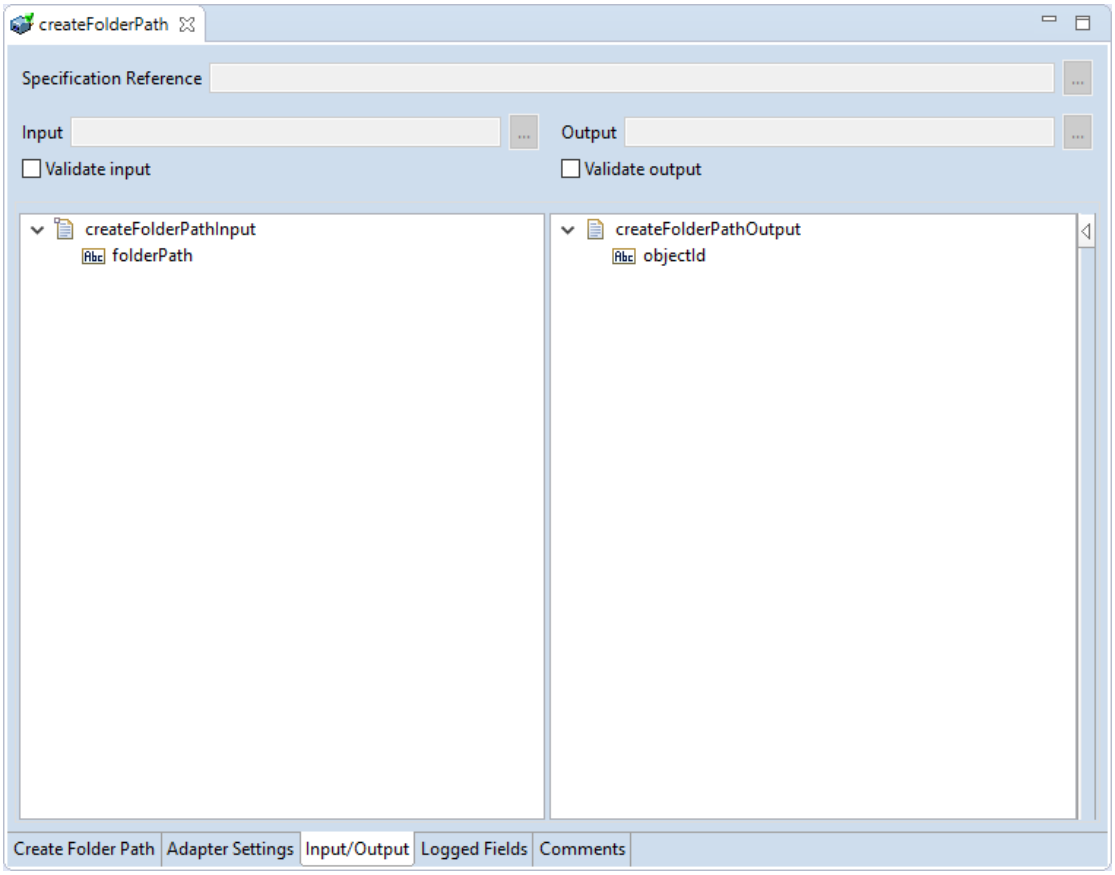
1. Select **Create Folder Path** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Create Folder Path** tab has no properties that require configuration.



2. Click the **Input/Output** tab.



This tab shows the input and output values of **Create Folder Path** service such as, what are the required information and what is then provided after the folder path is created.

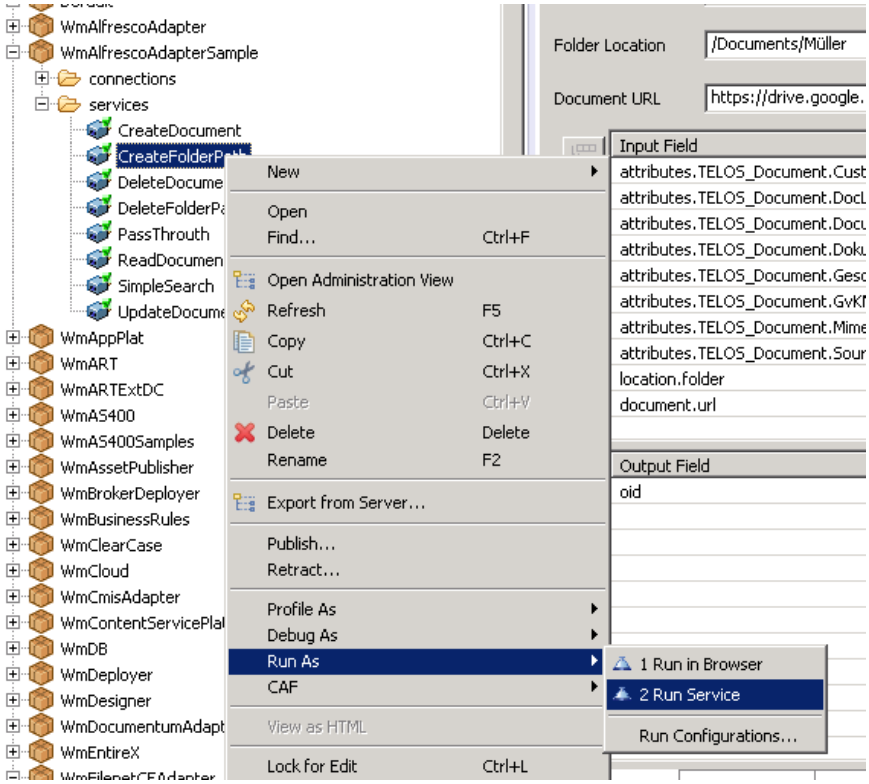
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the input required is as follows:
    - The name of the folder path to be created.
- On the right-hand side shows the output for the service. Here, the objectId of the created folder path is returned.

3. Save the new service and it will be available under services.

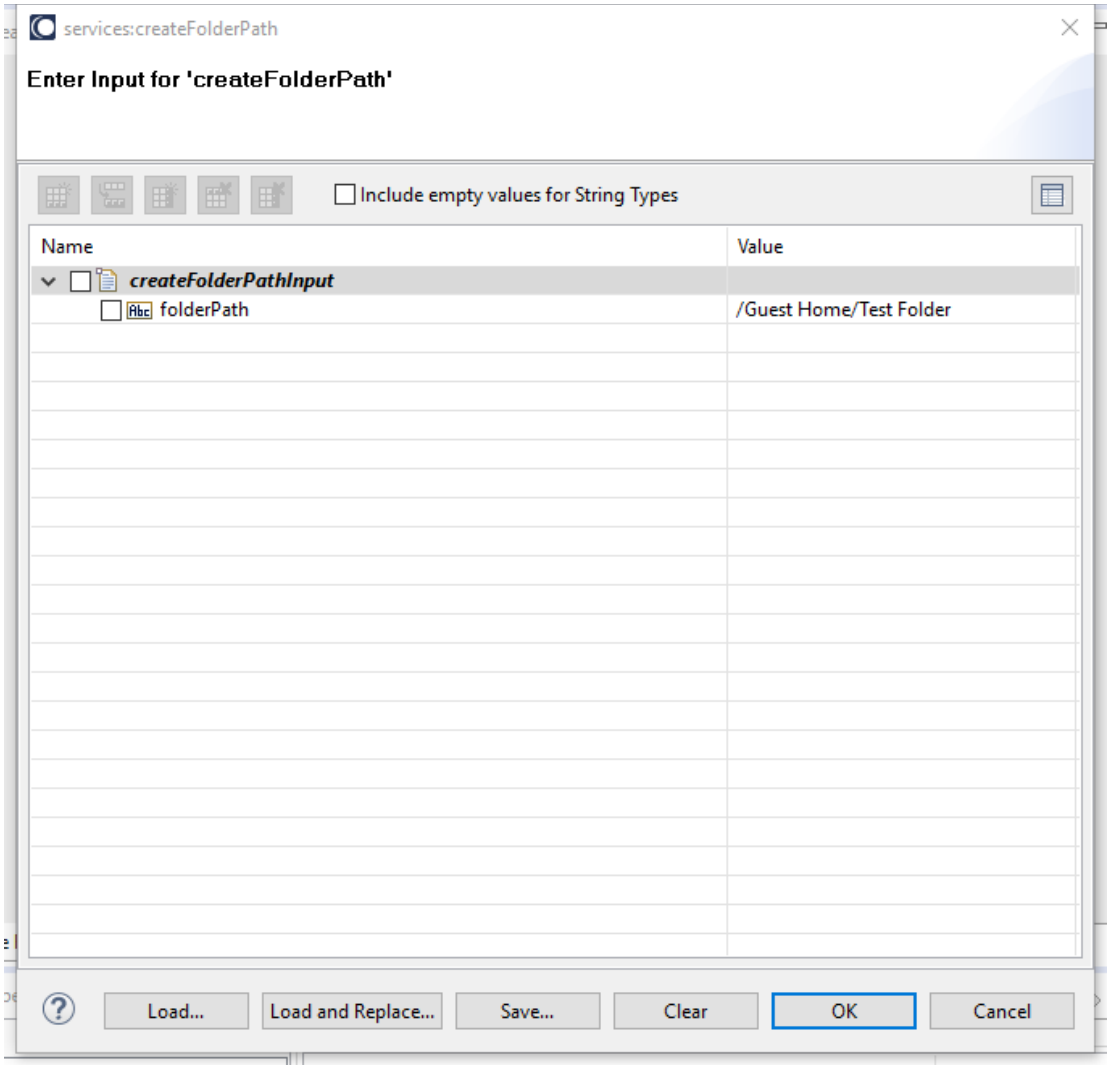
7.4.3 Execute the Service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

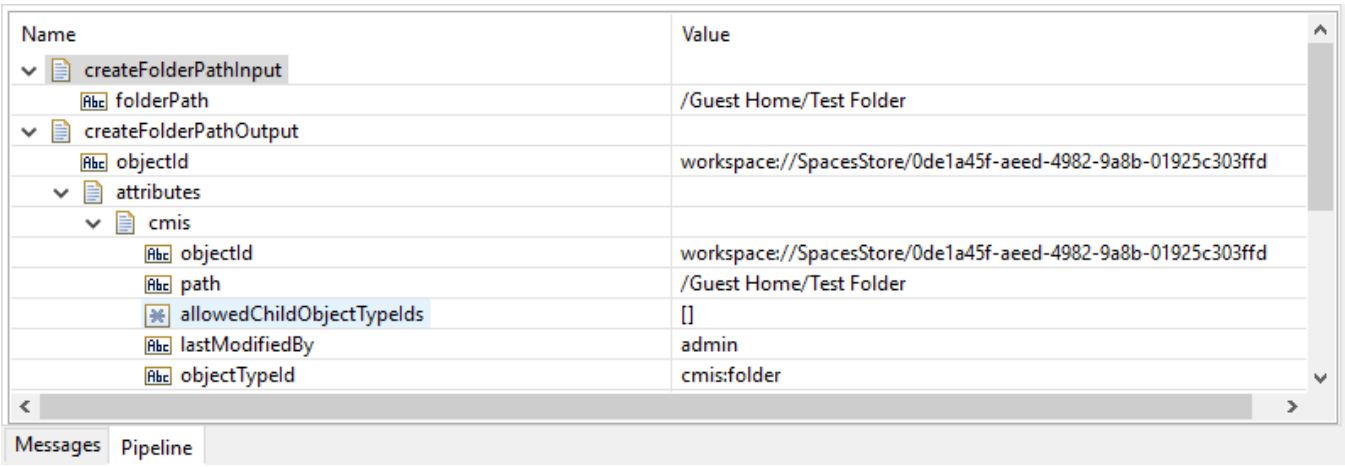


2. Enter the relevant information into the resulting form as follows:



3. Click **OK**.

   The resulting output is displayed.



The new folder is created in Alfresco.

7.5 Delete Document

7.5.1 Description

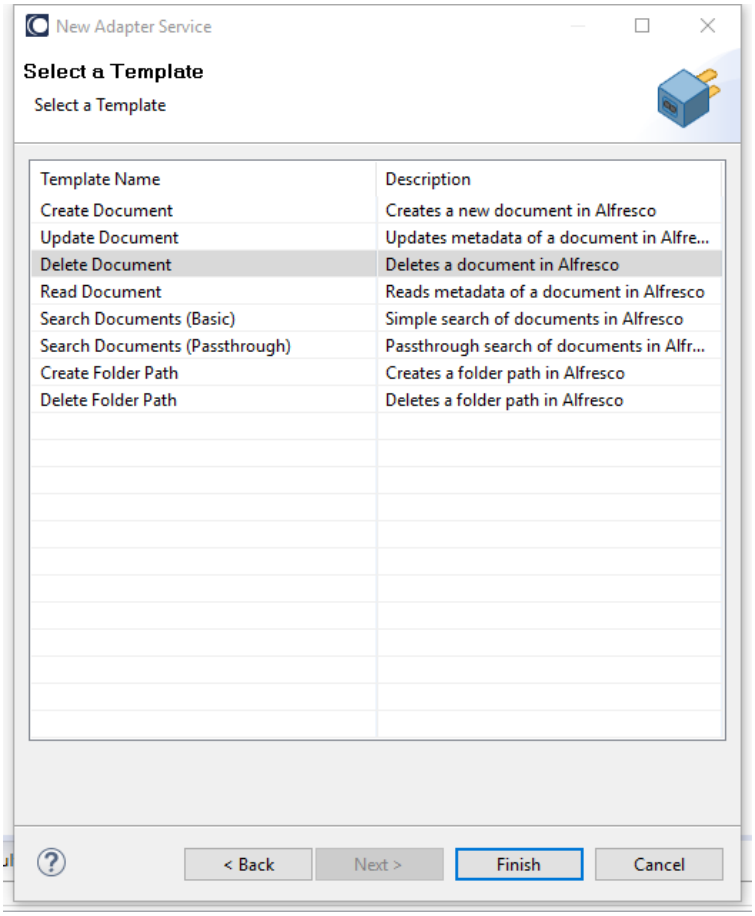
This service enables you to delete a document in Alfresco.

7.5.2 Configure the Service

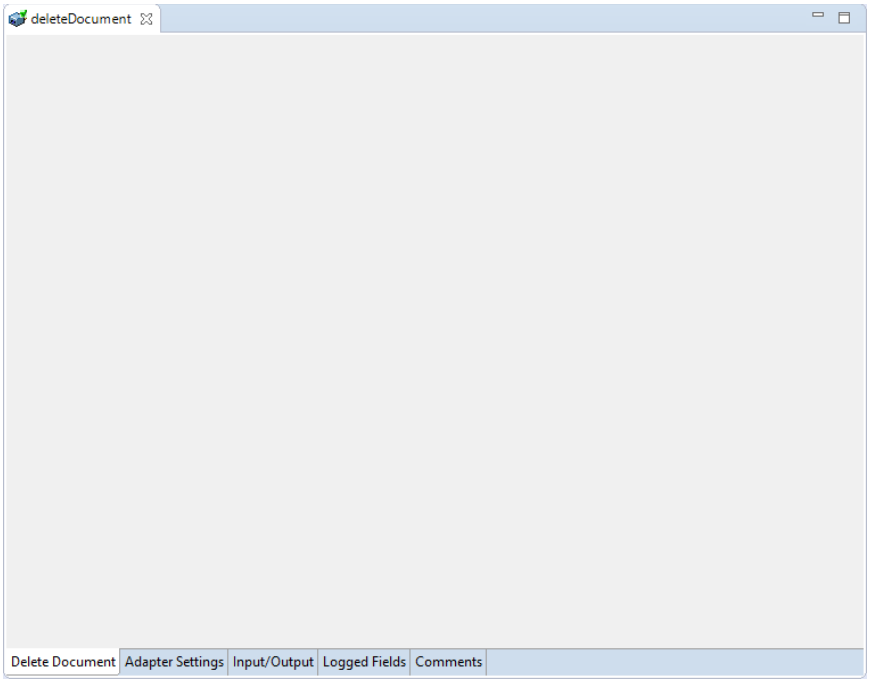
After the initial configuration of the service, as shown above, the **Select a Template** screen is displayed.

Perform the following steps to configure the service:

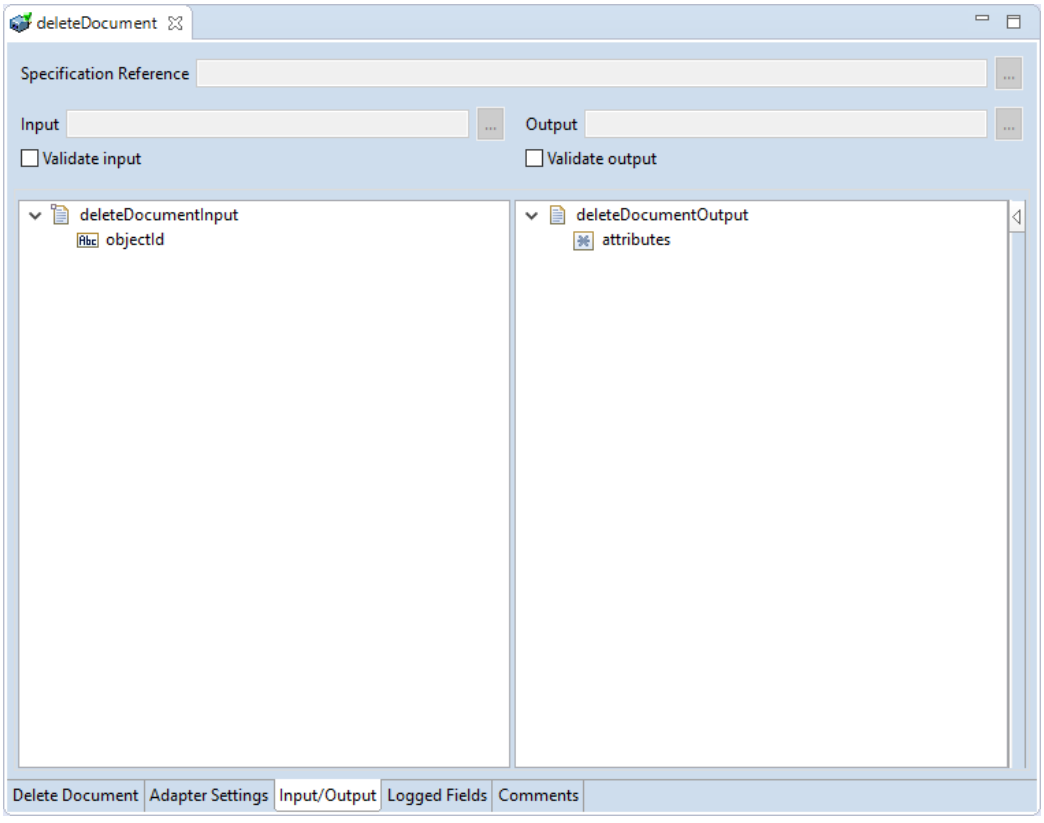
1. Select **Delete Document** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Delete Document** tab has no properties that require the configuration.



2. Click the **Input/Output** tab.



This tab shows the input and output values of Delete Document service such as, what are the required information and what is then provided after the document is deleted.

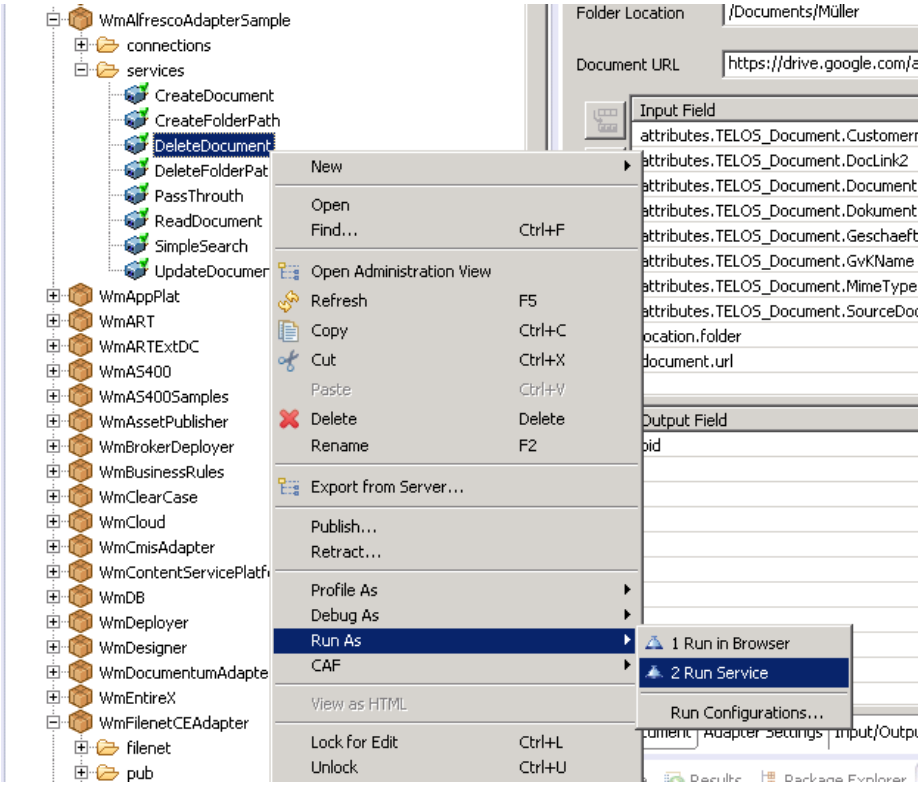
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the input required is as follows:
    - The objectId of the document that is to be deleted.
- On the right-hand side shows the output for the service. Here, attributes are returned.

3. Save the new service and it will be available under services

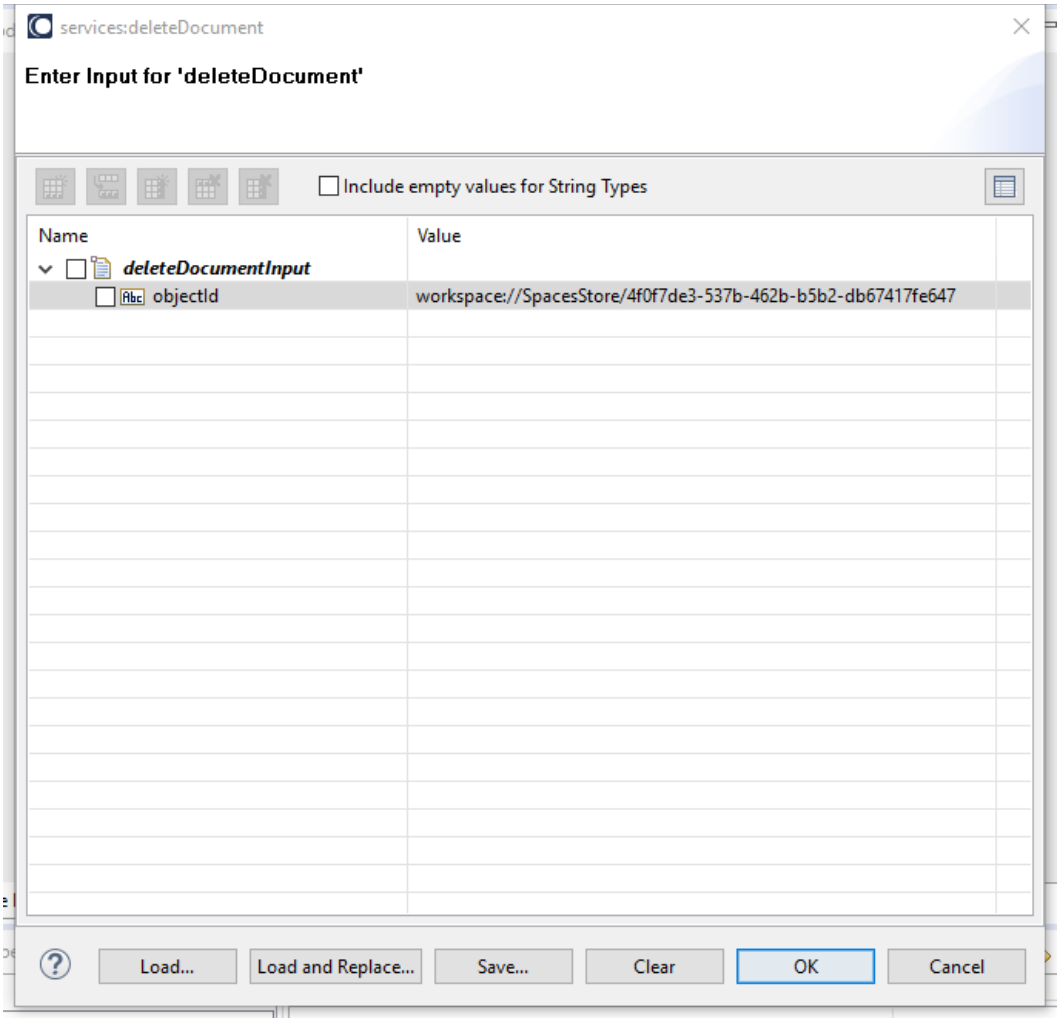
7.5.3 Execute the Service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

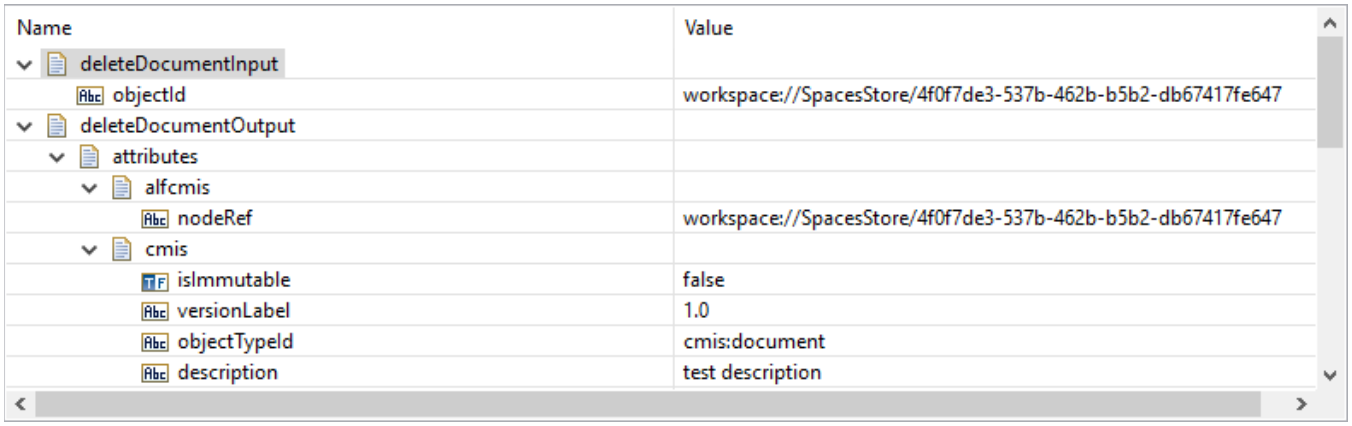


2. Enter the relevant input information in the resulting panel:



3. Click **OK**.

   The service is executed, and the resulting output appears



The document is deleted from Alfresco.

7.6 Delete Folder Path

7.6.1 Description

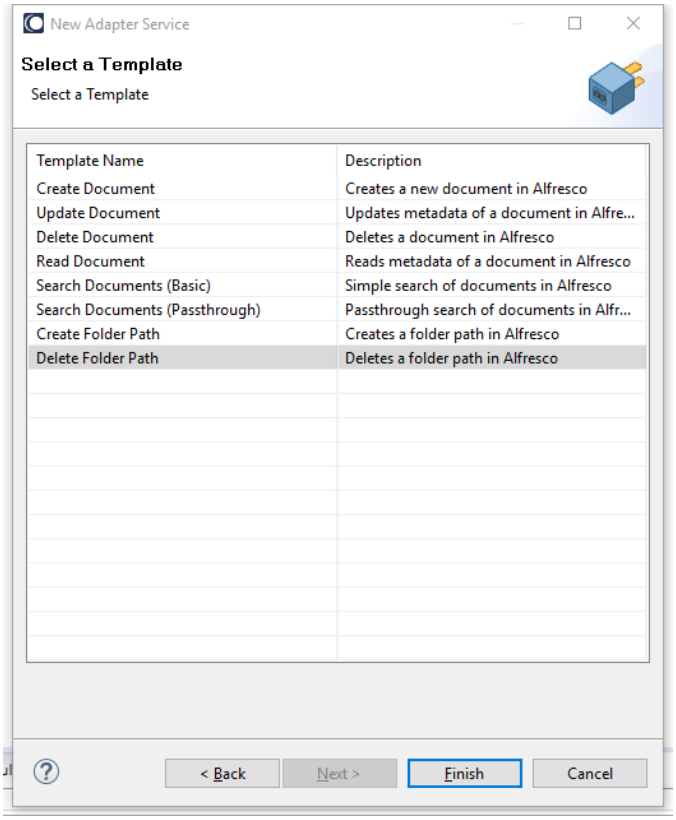
This service allows you to delete a folder path in Alfresco. The actual folder path that is deleted is defined by the folder path give as an input when the service is executed.

7.6.2 Configure the Service

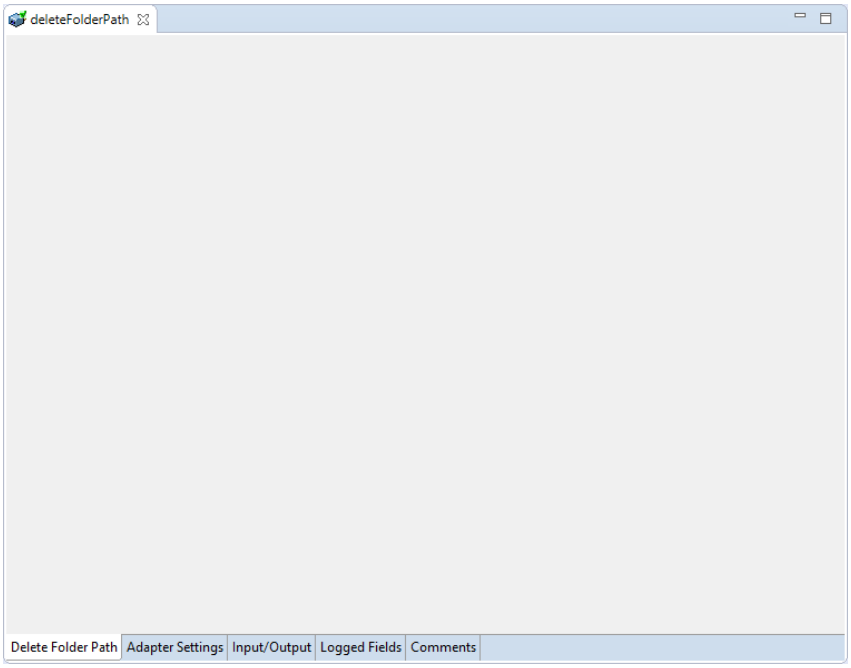
After the initial configuration of the service, as shown above, the select a template screen appears.

Perform the following steps to configure the service:

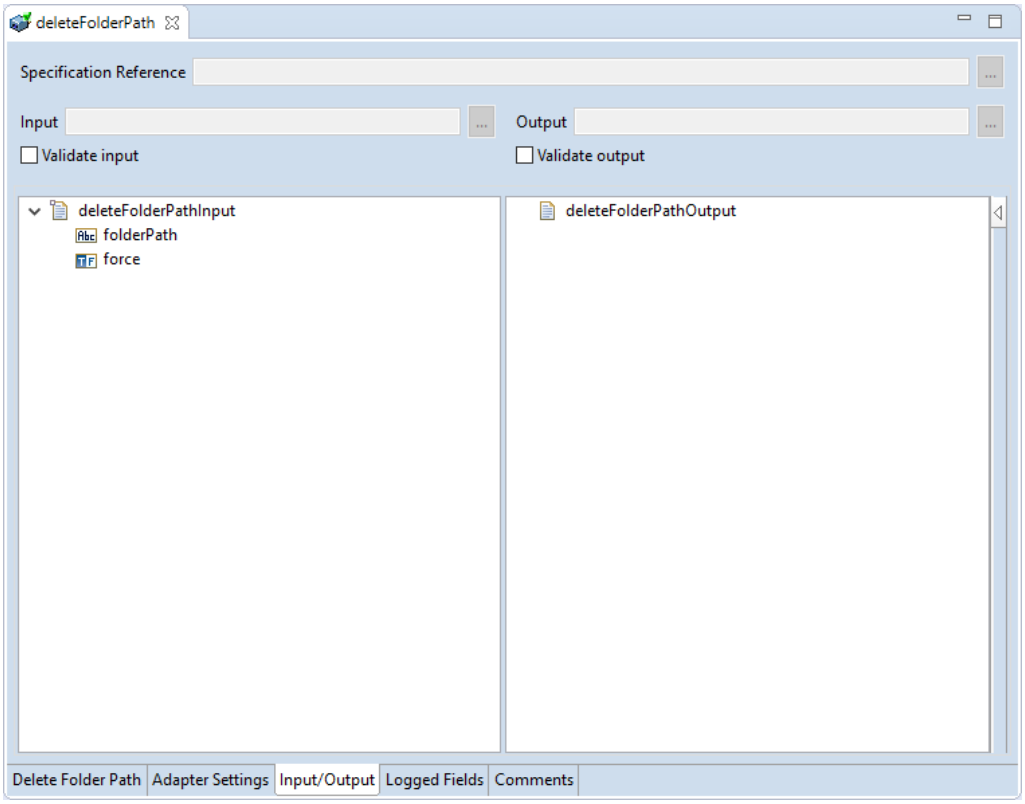
1. Click **Delete Folder Path** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Delete Folder Path** tab has no properties that require configuration.



2. Click the **Input/Output** tab.



This tab shows the input and output values of **Delete Folder Path** service such as, what are the required information and what is provided after the folder path is deleted.

- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the following two inputs are required:

- The folder path to be deleted
- Whether the deletion should be forced or not.

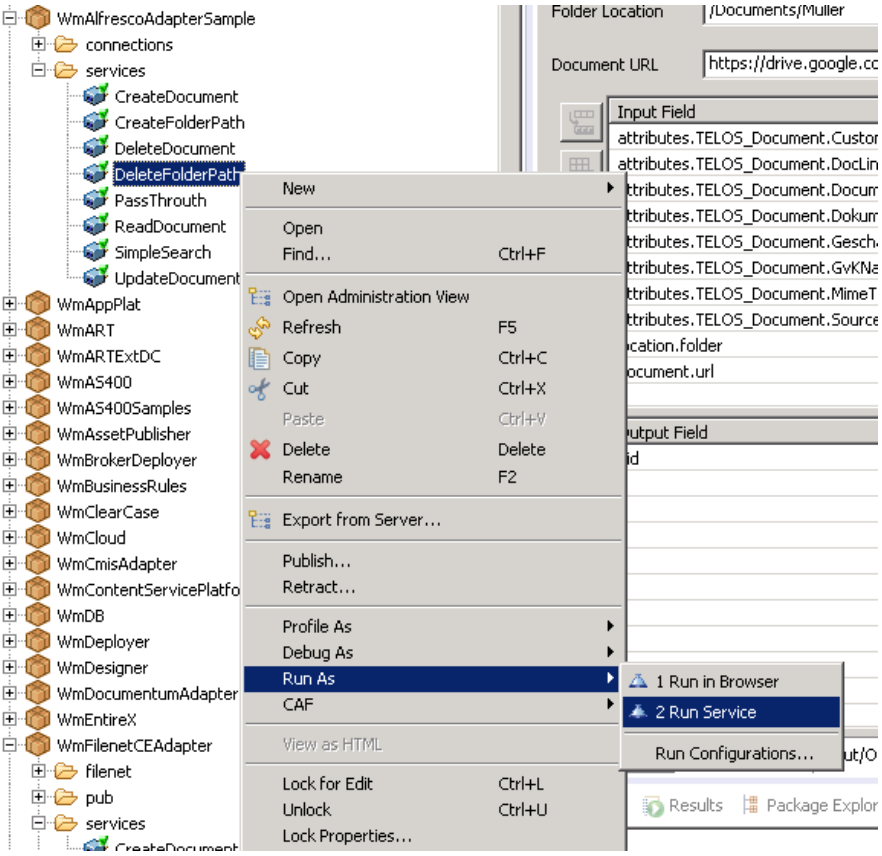
- On the right-hand side it shows the output for the service. Here, the attributes are returned.

3. Save the new service and it will be available under services.

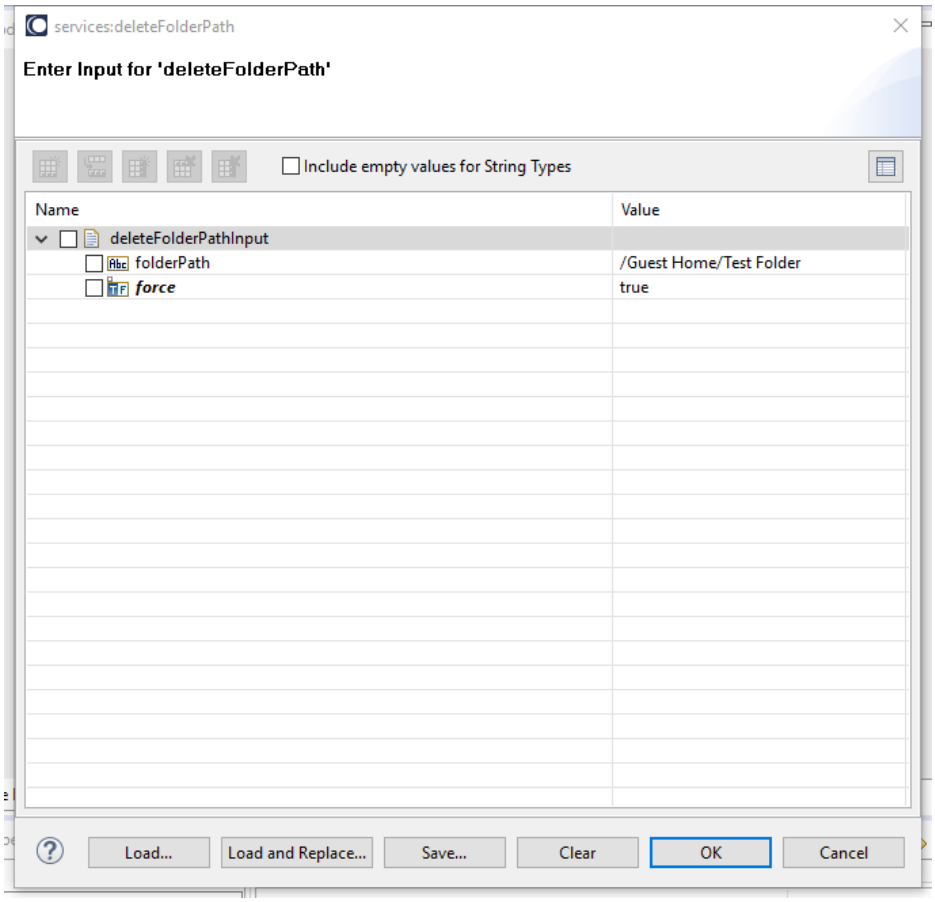
7.6.3 Execute the Service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

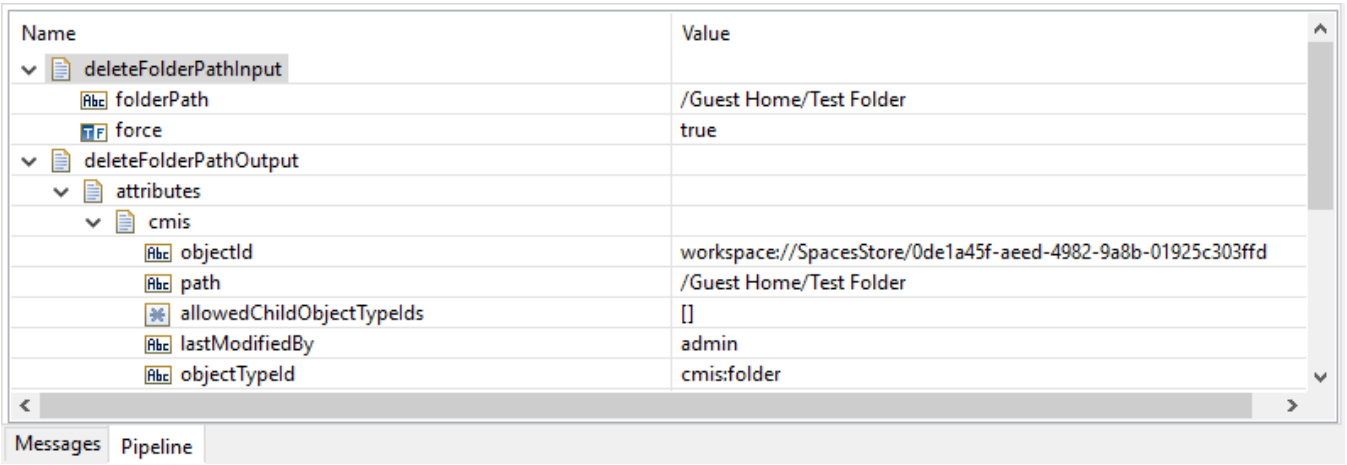


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed and the resulting output appears.



The folder is deleted from Alfresco.

7.7 Search Document (Basic)

This service performs a basic search of document found in the Alfresco system.

7.7.1 Description

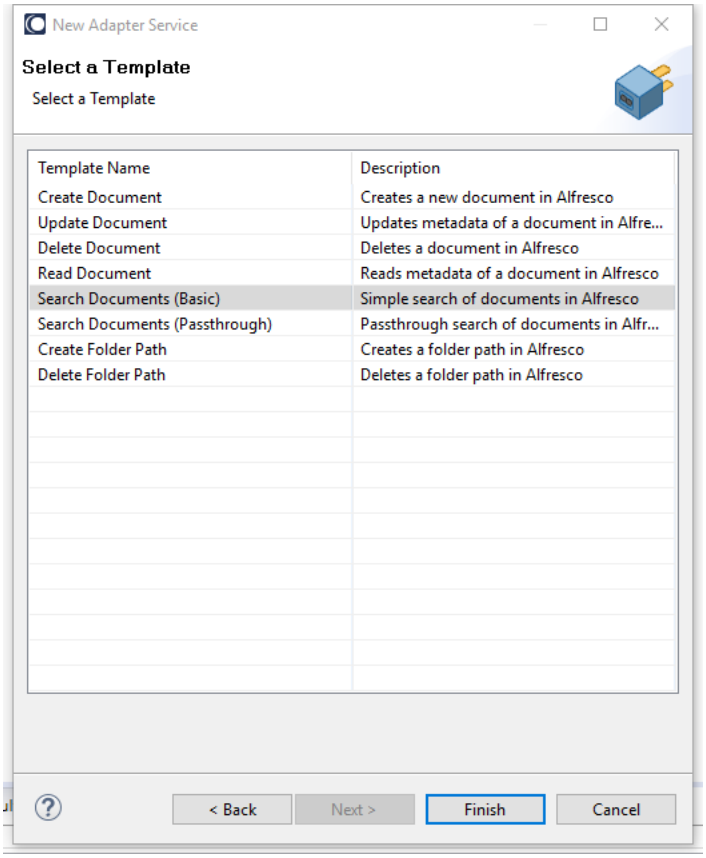
This service performs a basic search for documents found in the Alfresco system.

7.7.2 Configure the Service

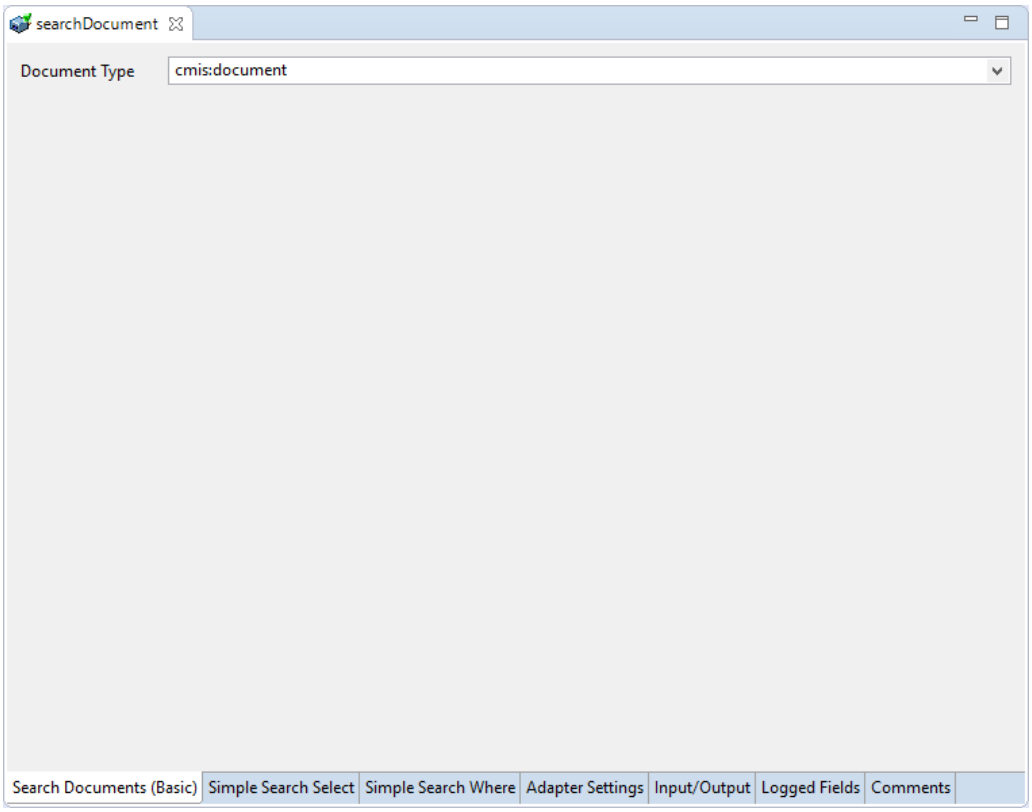
After the initial configuration of the service, as shown above, the **Select a Template** screen is appears.

Perform the following steps to configure the service:

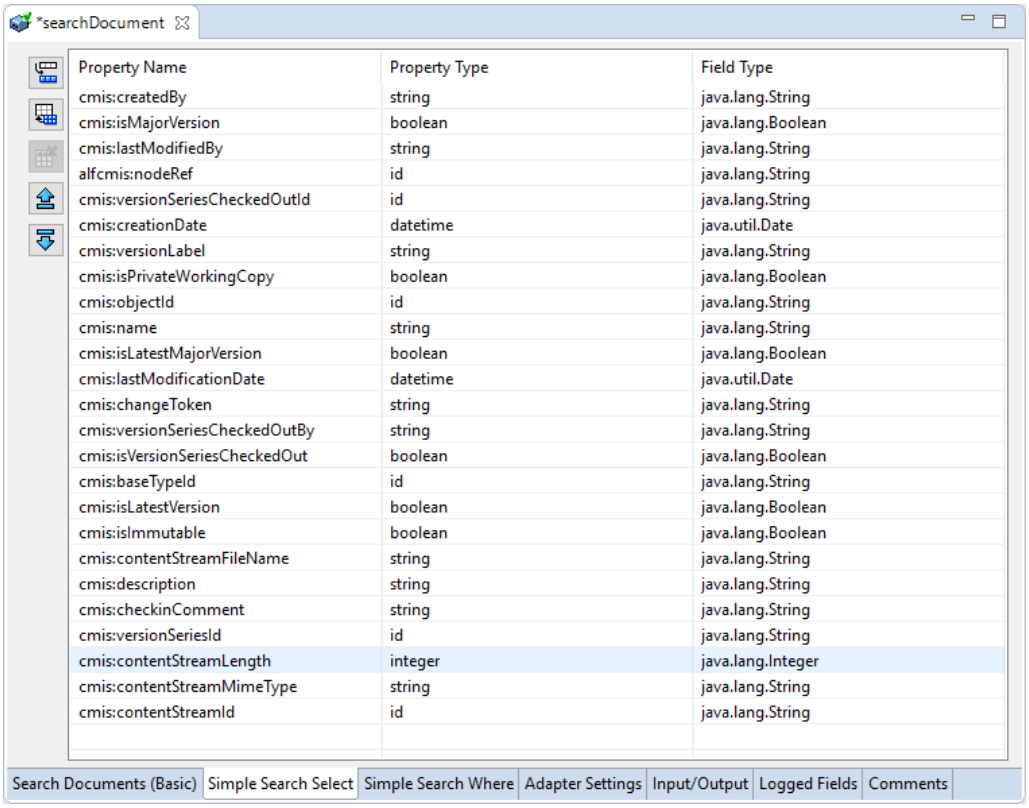
1. Select **Search Documents (Basic)** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Search Documents (Basic)** tab, allows you to select the type of document that will be queried. You can choose the document type that you wish to query by selecting from it the Document Type dropdown list.



2. Click **Simple Search Select** tab.

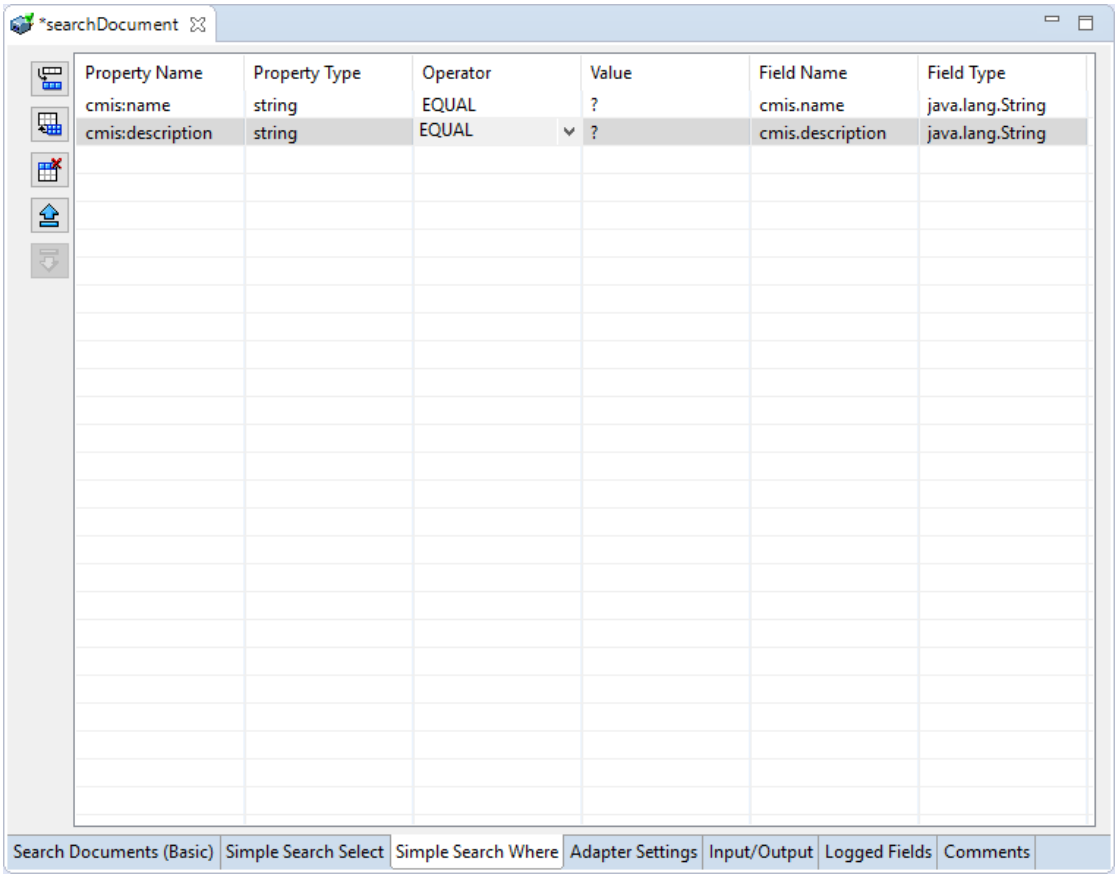


This tab allows you to select which properties of the selected document should be selected such as, returned by the query. This will determine the output values of the executed service and is similar to the SELECT statement of SQL.

The buttons displayed on the columns to the left of the select panel allow you add new rows, add all fields from the content type, delete rows and order them.

You can select the field name by clicking on this column and selecting the field from the resulting dropdown list.

After selecting your properties, click **Simple Search Where** tab.



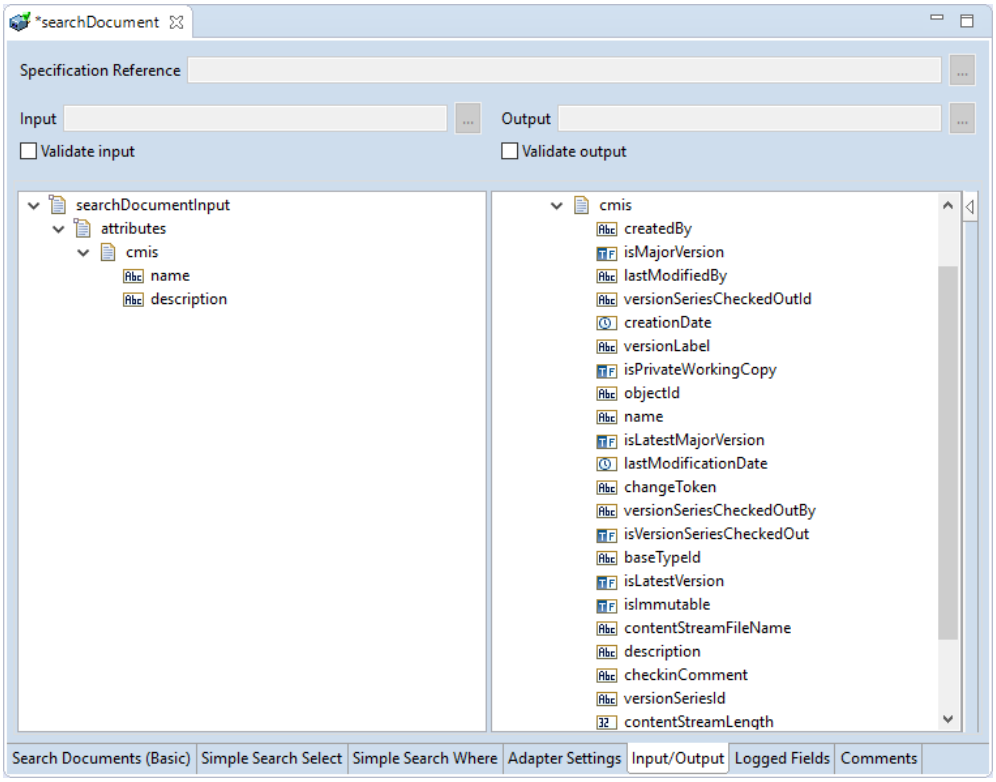
This tab allows you to define conditions for which documents should be returned.

The buttons displayed to the left of the WHERE tab allow you to add new rows for conditions, add a condition for each field in the content type, delete rows, and order the different rows. Additionally above the Where panel is a dropdown lists allowing you to determine the expression operation of the conditions. You can select from a disjunction (OR) or conjunction (AND).

You can click on the various columns to edit the conditions. Some, such as Field Name, will display a dropdown list where elements can be selected, while others, such as Query Value, allow you to enter your own values.

If you wish to have dynamic conditions, i.e., conditions whose values are defined by a user, use the '?' character, as shown in the screenshot above. It is also possible to use wildcards, using the '*' character

3. Finally, select the **Input/Output** tab.



This tab shows the input and output values of the Search Document (Basic) service such as, what are the required information and what is then provided after the query is executed.

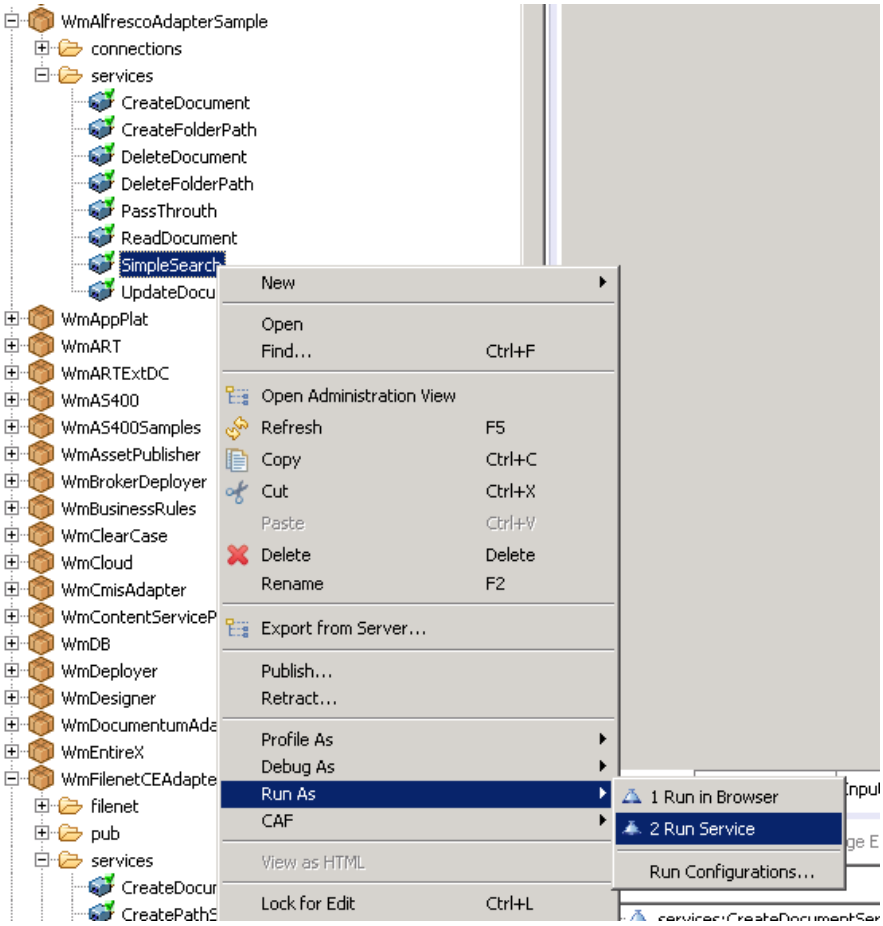
- On the left-hand side of the panel are the parameters that are taken as inputs.
    - The actual inputs and outputs will depend on how you have configured the query in the **Simple Search Select** tab and **Simple Search Where** tab.
    - In the example above, the two inputs are defined by the conditions set in **Simple Search Select**, where two conditions were created with the value '?', meaning user input is required.
- The outputs are determined by the properties selected in the **Simple Search Select**.

4. Save the new service and it will be available under services.

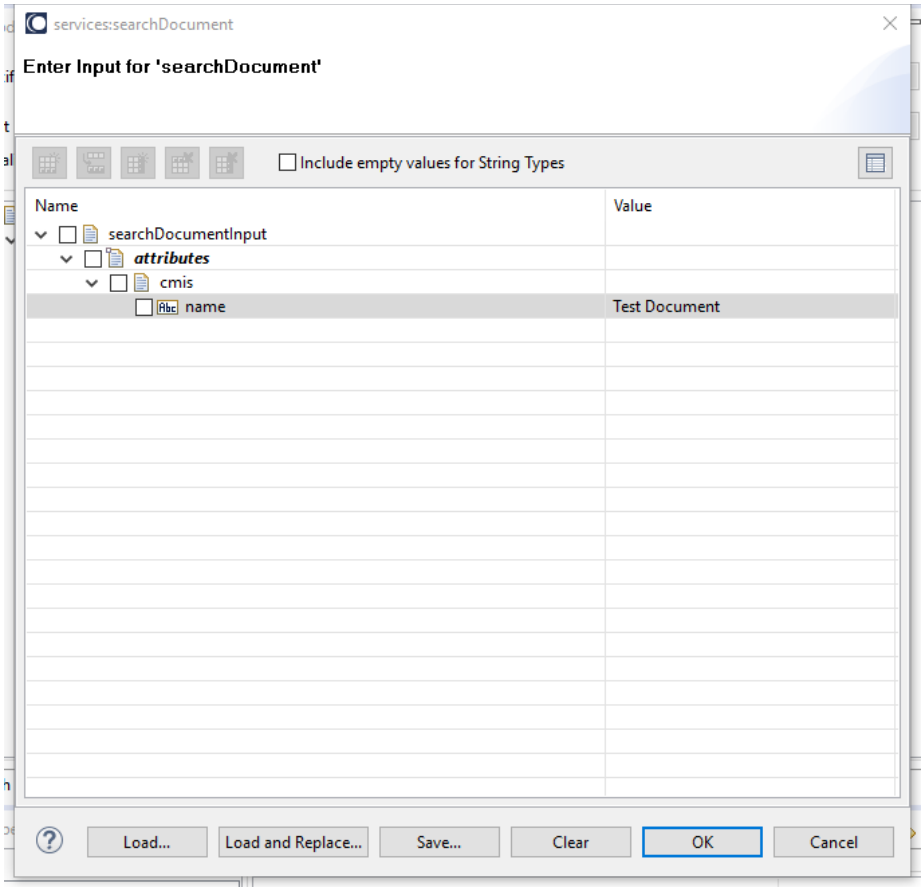
7.7.3 Execute the Service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

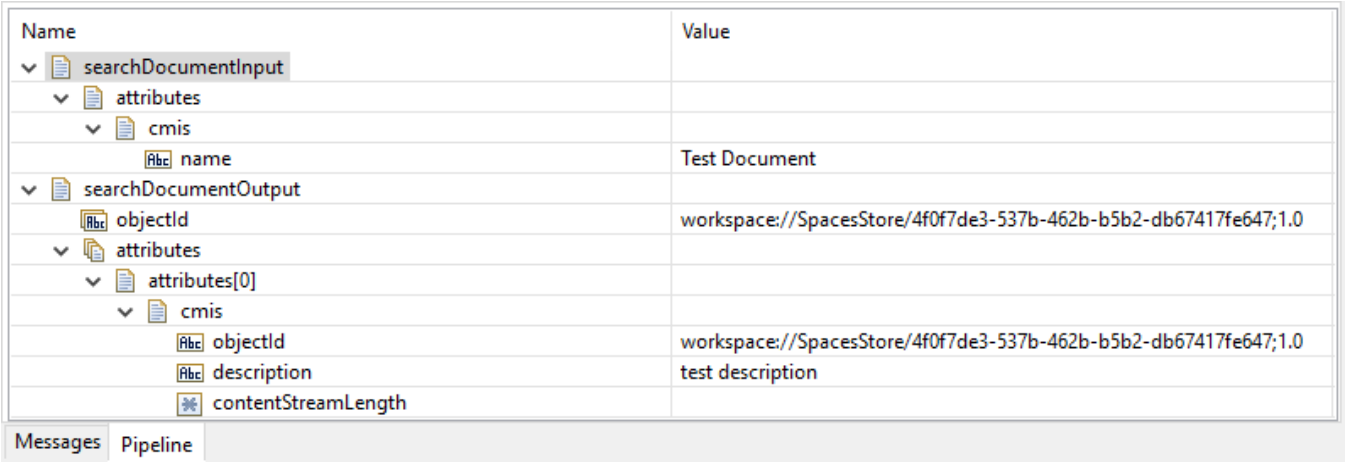


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

The service will be executed, and the resulting output displayed.



The results of your search are returned.

7.8 Read Document

7.8.1 Description

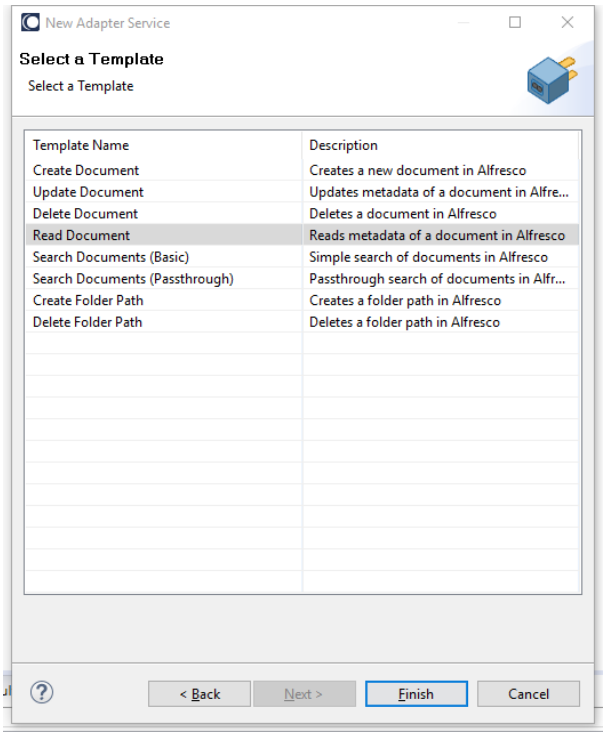
The Read Document service allows you to enter an object ID for a document and have it returned with metadata from Alfresco.

7.8.2 Configure the Service

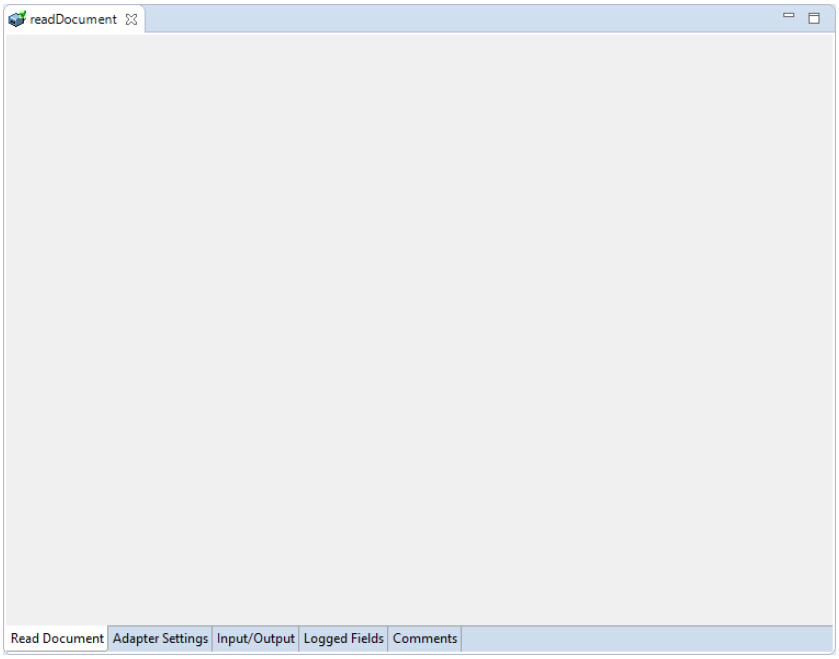
After the initial configuration of the service, as shown above, the **Select a Template** screen is appears.

Perform the following steps to configure the service:

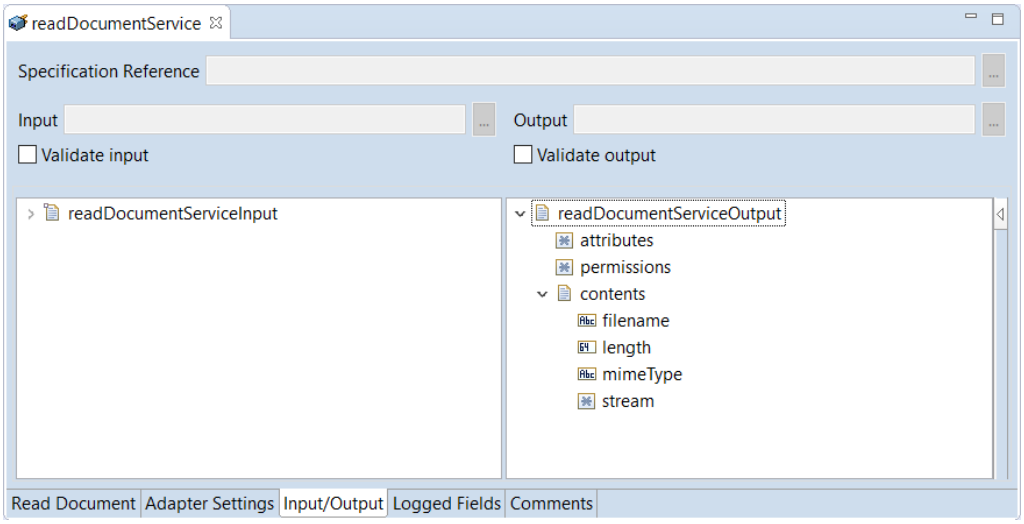
1. Select **Read Documents** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Read Document** tab, has no properties that require configuration.



2. Click the **Input/Output** tab.



This tab shows the input and output values of the Read Document service such as, what are the required information and what is the information provided after the document is read.

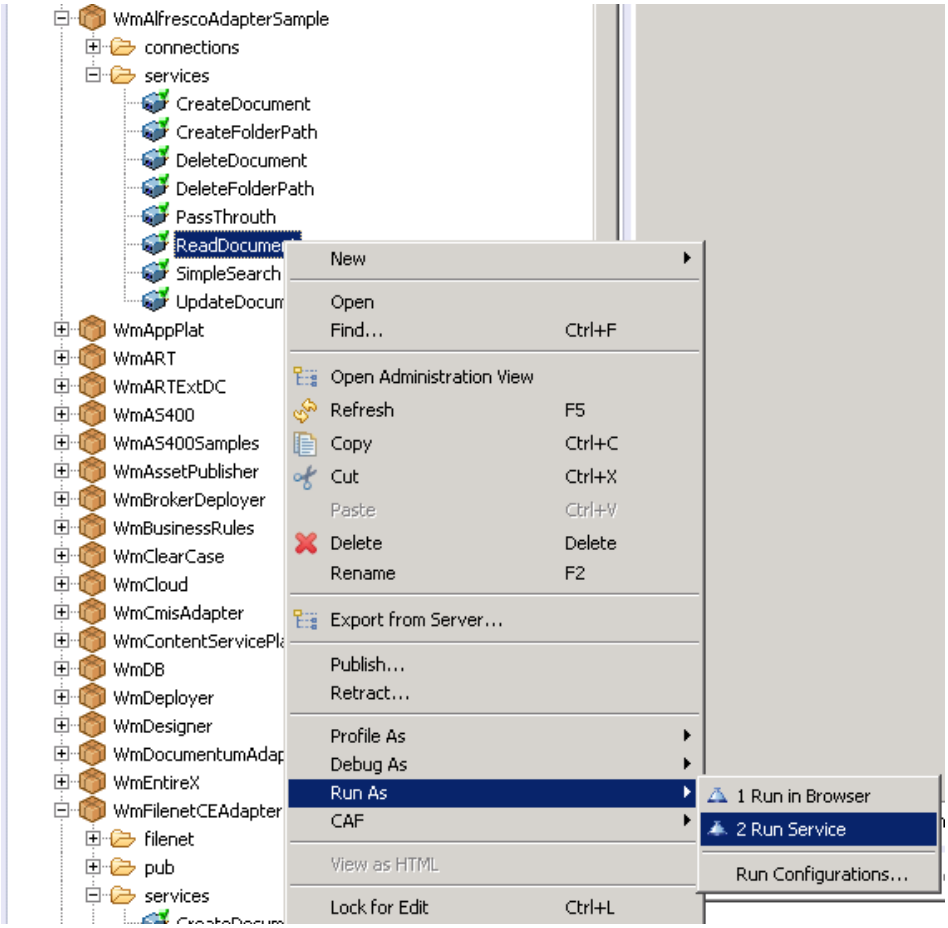
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the input required is as follows:
    - The objectId of the document you want to read.
- On the right-hand side the outputs returned as shown, including the document itself (through the stream) as well as some metadata relating to the document itself and permissions applied to this document.

3. Save the new service and it will be available under services.

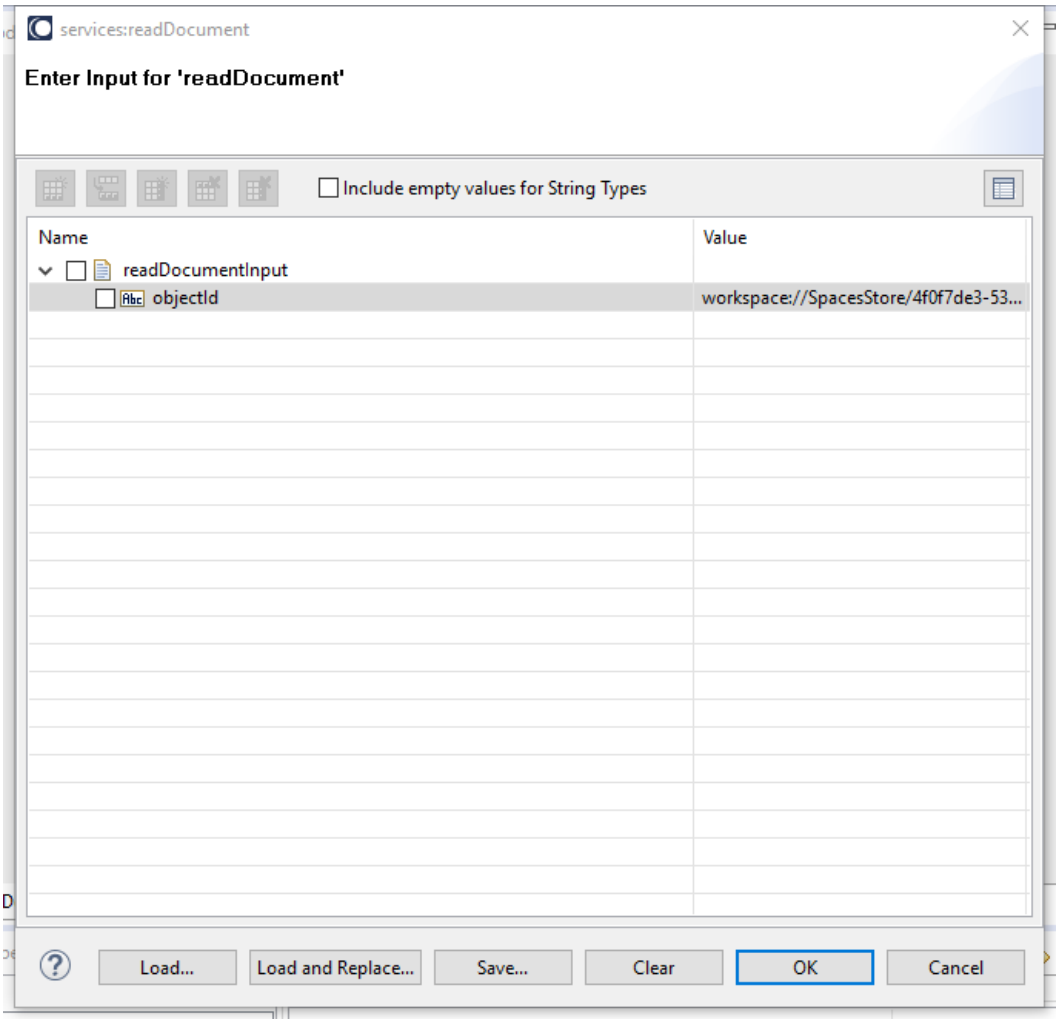
7.8.3 Execute the Service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

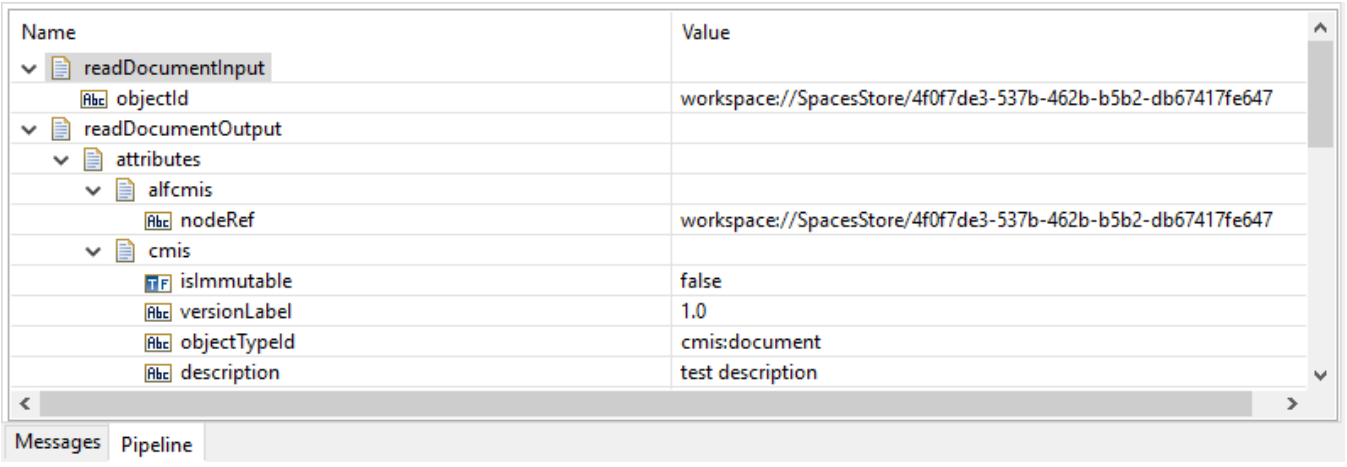


2. Enter the relevant information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



The metadata for your document is returned.

Together with metadata, you can see in the output list of permissions applied to the document:

isLatestMajorVersion	true
versionSeriesCheckedOutId	
permissions	
acl	
principal	GROUP_EVERYONE
direct	false
permission	{http://www.alfresco.org/model/content/1.0}cmobject.Contributor
acl	
principal	GROUP_site_swsdp
direct	true
permission	{http://www.alfresco.org/model/system/1.0}base.DeleteChildren
acl	
principal	admin
direct	true
permission	cmis:all
permission	cmis:read
permission	cmis:write
contents	
filename	9-12_Working_with_Designeraaa.pdf
length	306754
mimeType	application/pdf
stream	org.apache.axiom.attachments.utils.BAAInputStream

7.9 Search Document (Pass Through)

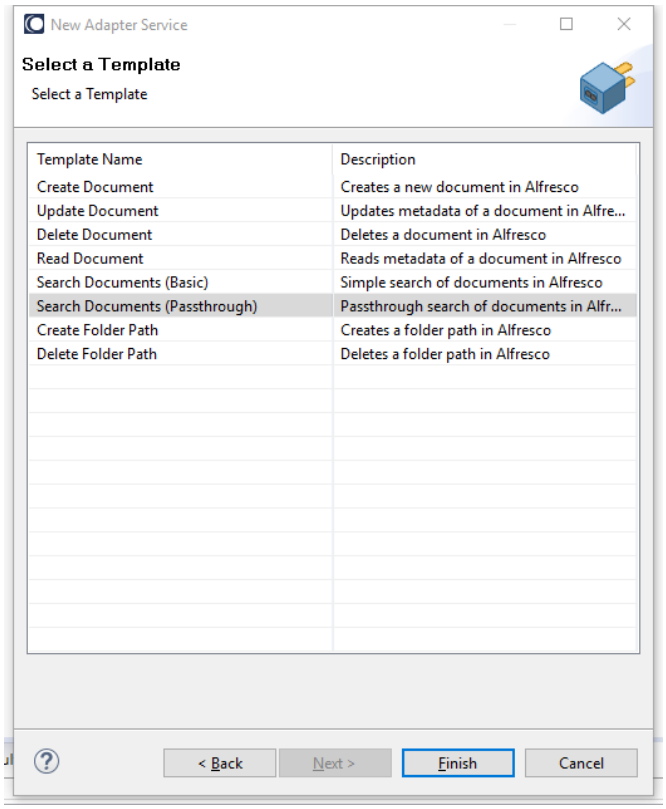
The Search Document (Pass Through) allows you to perform a pass-through search of documents contained in the connected Alfresco system.

7.9.1 Configure the Service

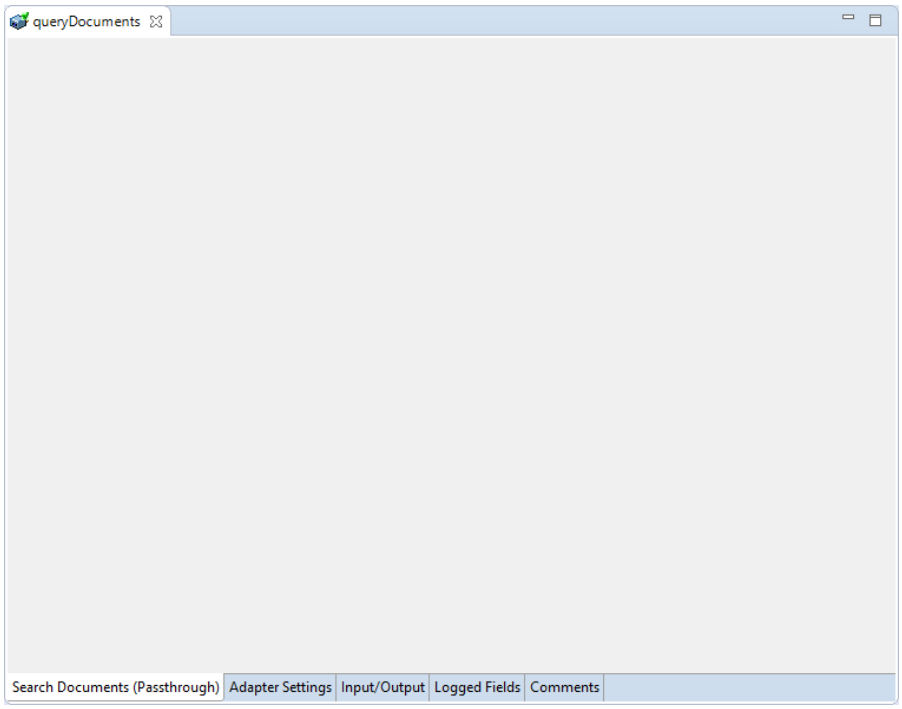
After the initial configuration of the service, as shown above, the **Select a Template** screen appears.

Perform the following steps to configure the service:

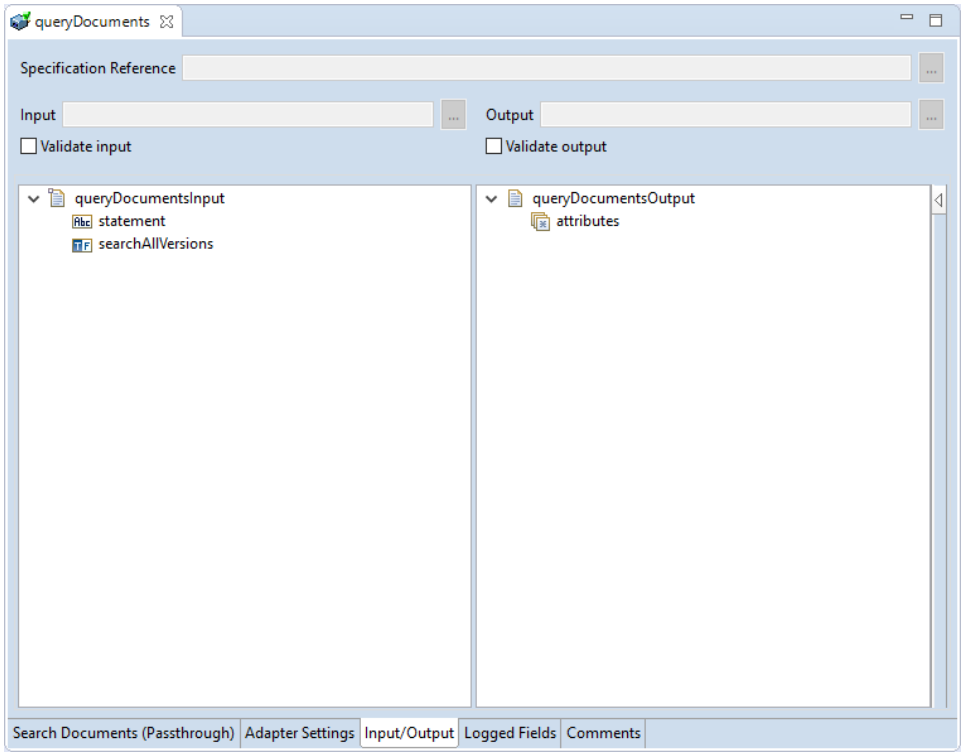
1. Select **Search Documents (Pass Through)** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Search Documents (Passthrough)** tab, has no properties that require configuration.



2. Therefore, click the **Input/Output** tab.



This tab shows the input and output values of the Search Documents (Pass Through) service such as, what are the required information and what is provided after the query is executed.

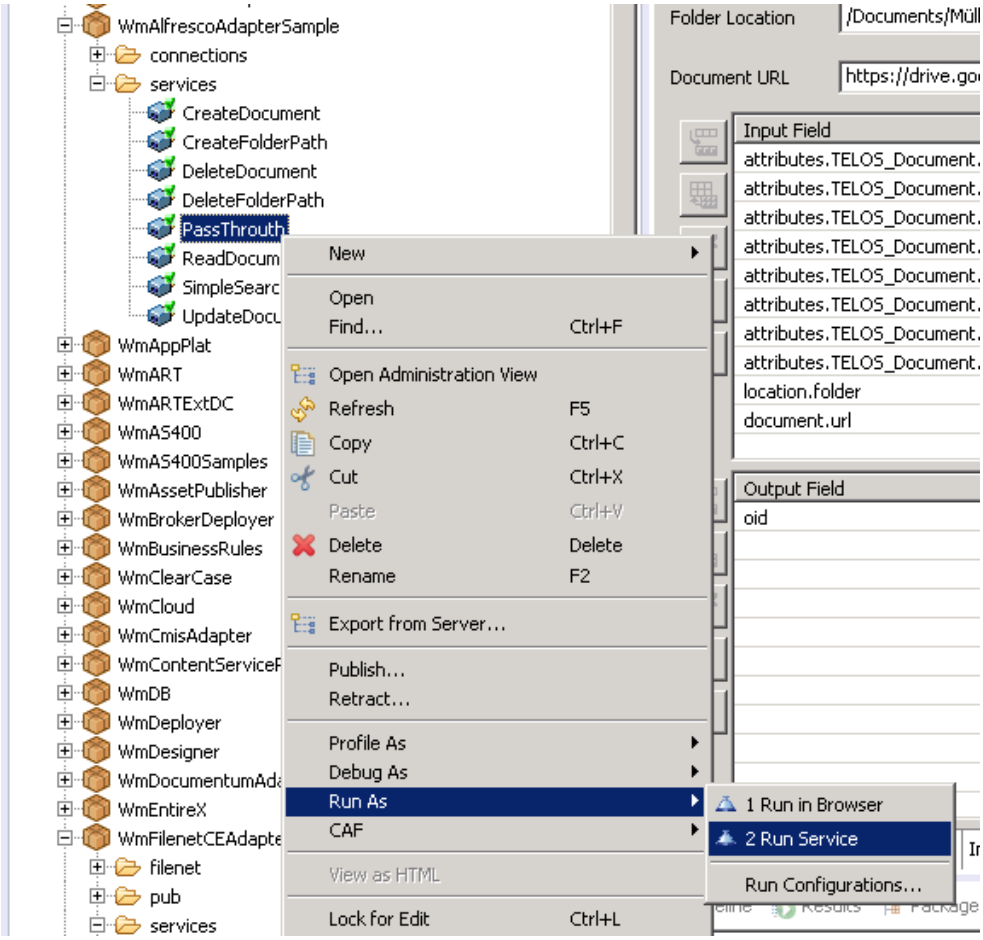
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case this are two inputs required:
    - the statement of the query you wish to make
    - and whether this query should be done on all versions.
- On the right-hand side the attributes such as, the results of the search.

3. Save the new service and it will be available under services.

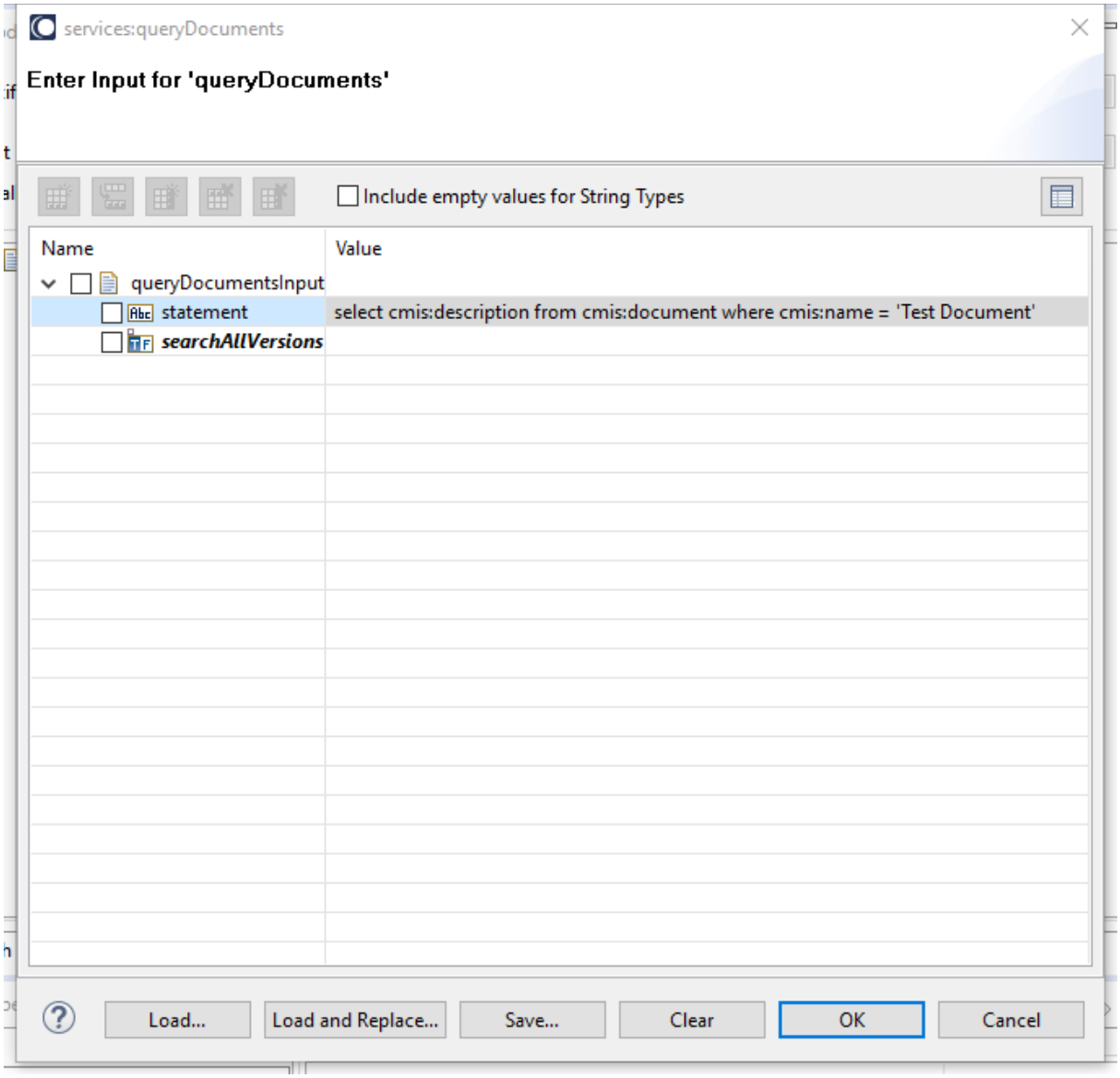
7.9.2 Execute the Service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

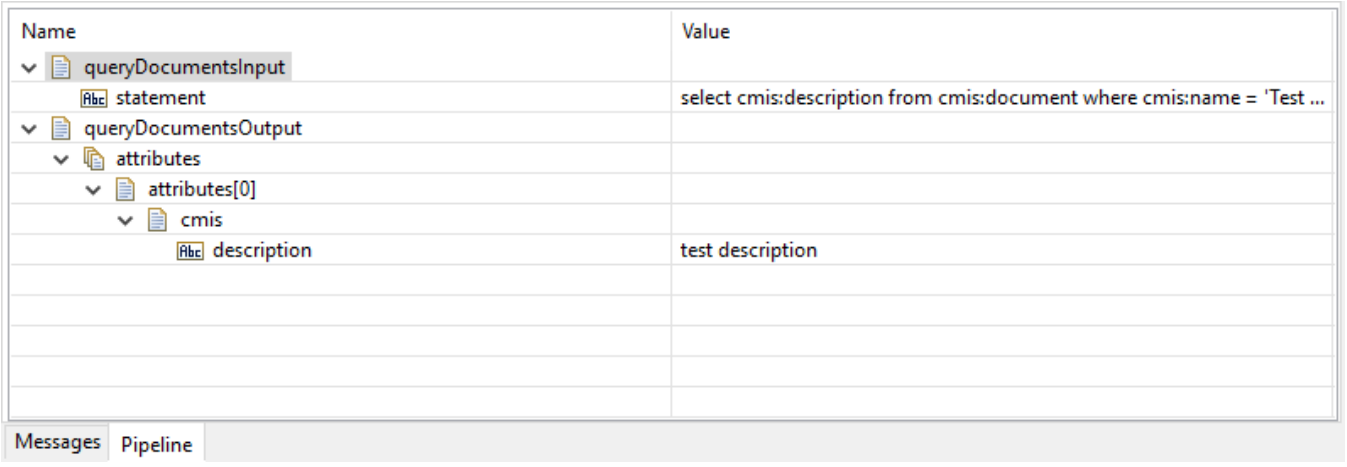


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output displayed.



The results of your search are returned.

7.10 Update Document

7.10.1 Description

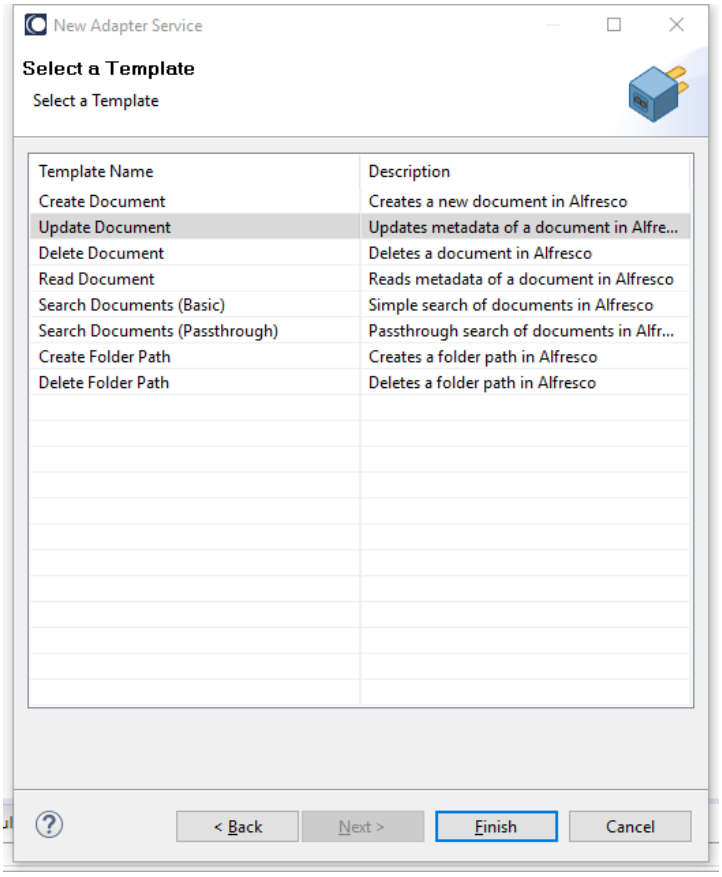
The Update Document will update the metadata of a document stored in Alfresco.

7.10.2 Configure the service

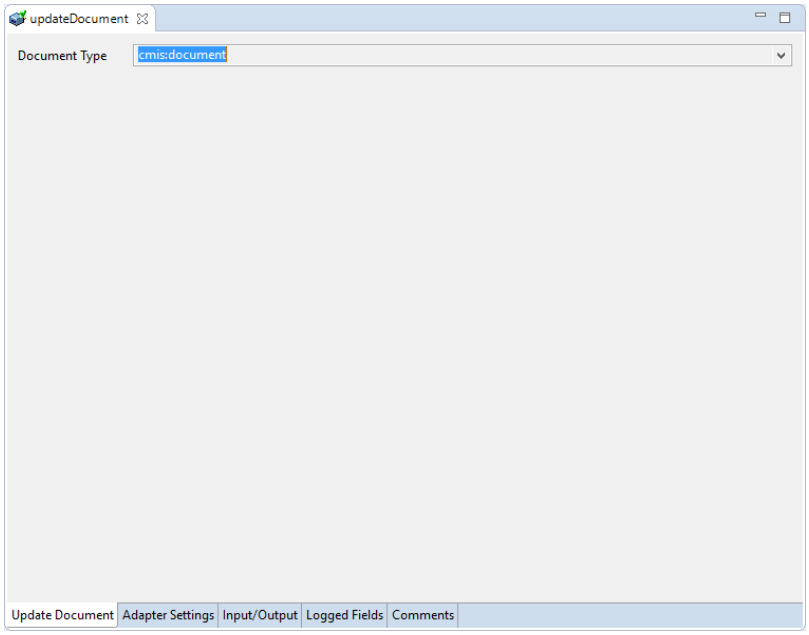
After the initial configuration of the service, as shown above, the **Select a Template** screen appears.

Perform the following steps to configure the service:

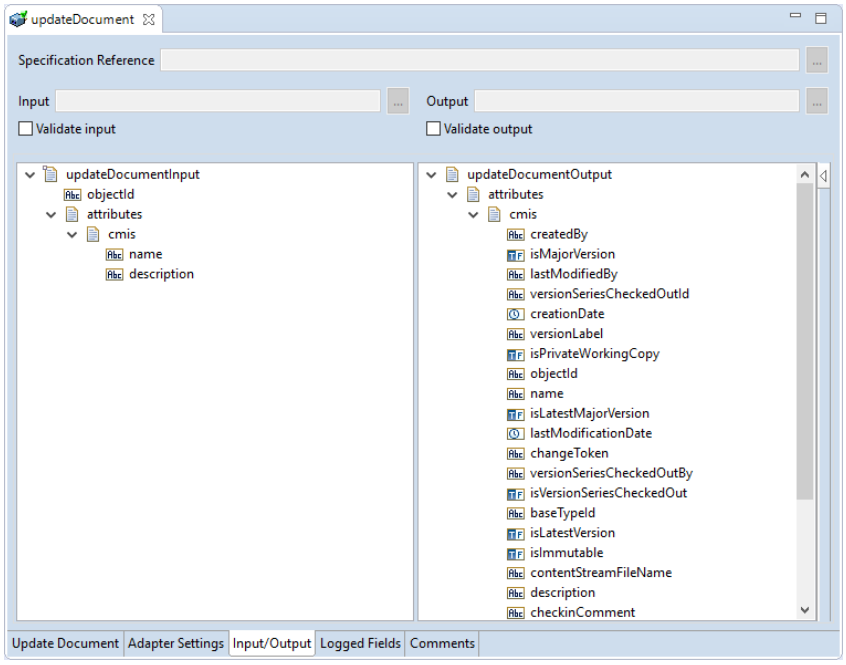
1. Select **Update Document** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Update Document** tab, allows you to select the type of document that will be updated. You can choose the document that you require by selecting from the document type dropdown list.



2. Click the **Input/Output**.



This tab shows the input and output values of the **Search Documents (Pass Through)** service such as, what are the required information and what information is provided after the document is updated.

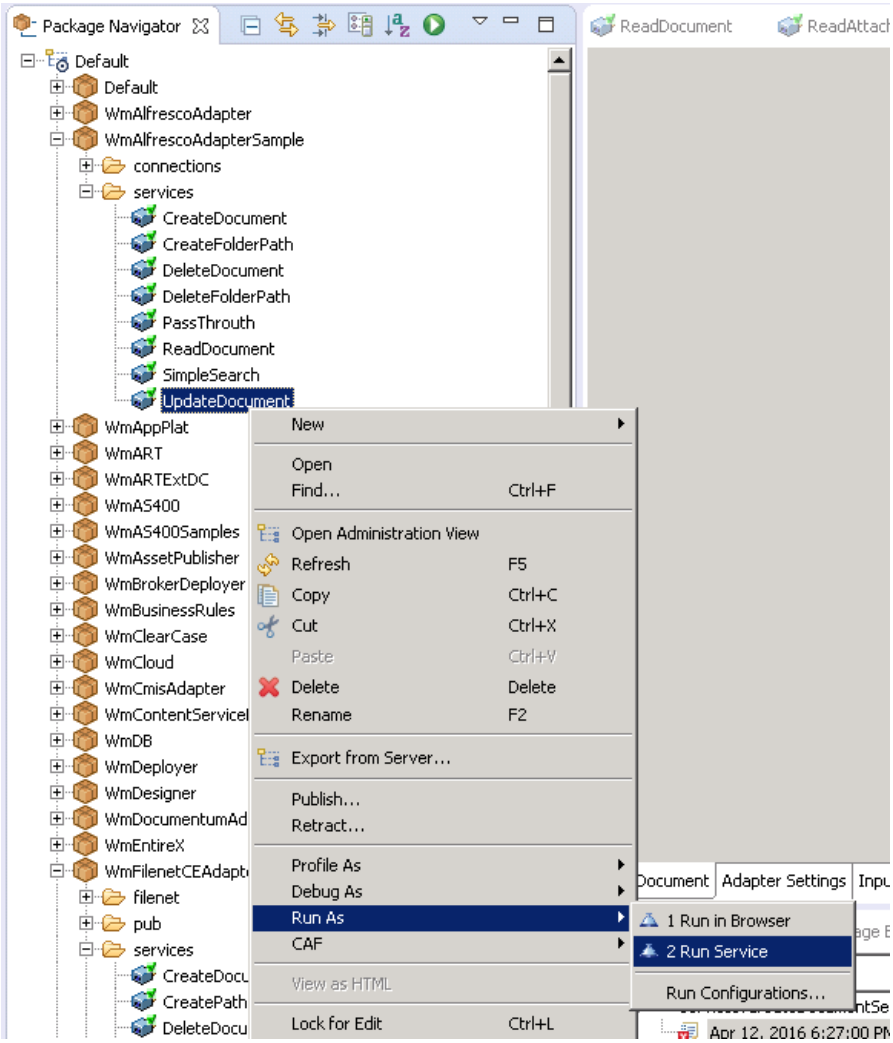
- On the left-hand side of the panel are the parameters that are taken as inputs. The input required are as follows:
    - The objectId of the document to be updated is required.
    - A new name and description for the updated document should also be given.
- On the right-hand side the attributes of the document are returned.

3. Save the new service and it will be available under services.

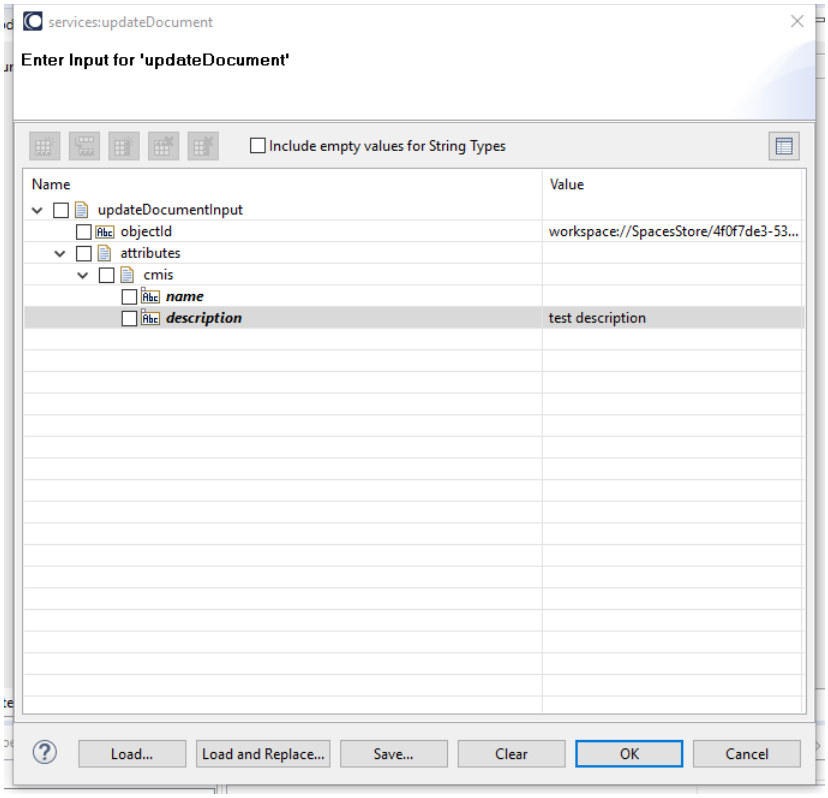
7.10.3 Execute the service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.

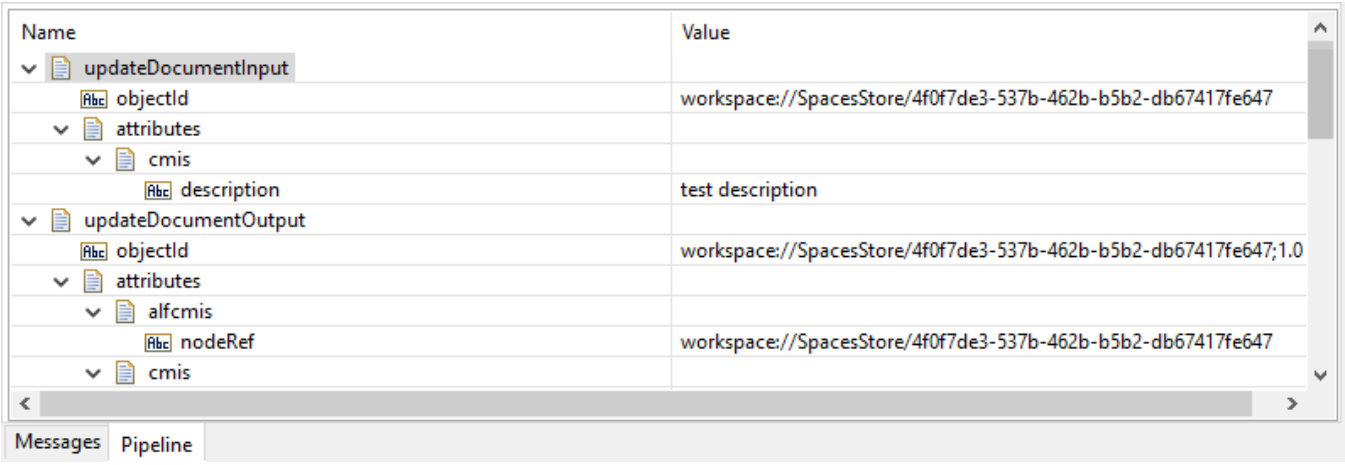


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



Your document is updated.

7.11 Get Principals

7.11.1 Description

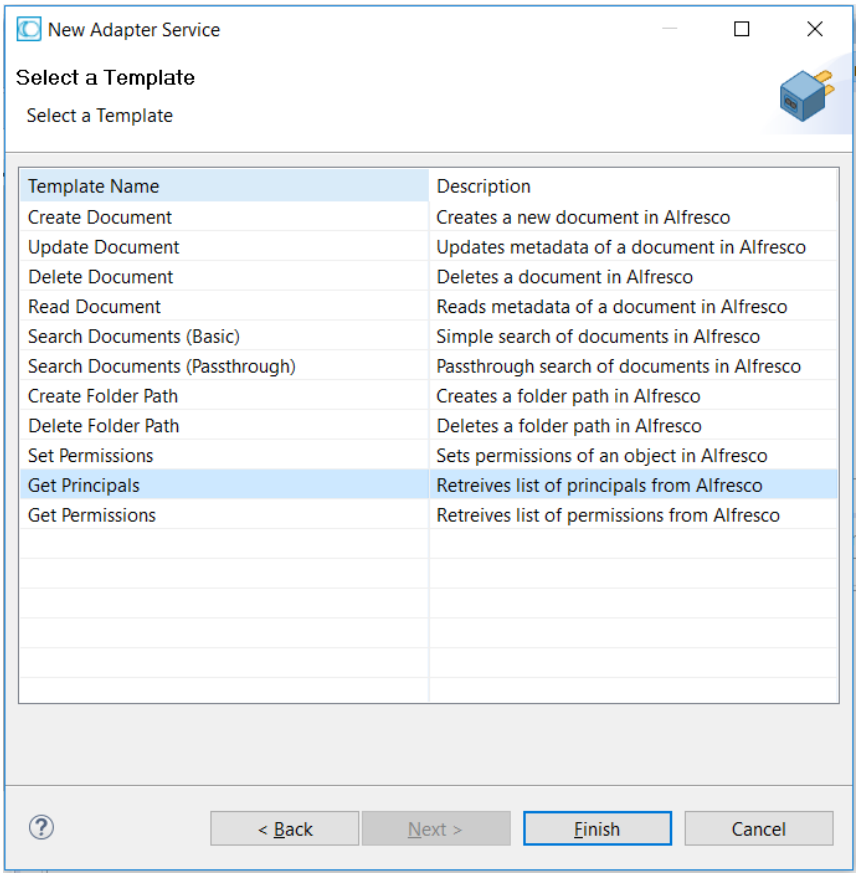
The Get Principals will provide list of principals from Alfresco.

7.11.2 Configure the service

After the initial configuration of the service, as shown above, the **Select a Template** screen appears.

Perform the following steps to configure the service:

1. Select **Get Principals** and click **Finish**.

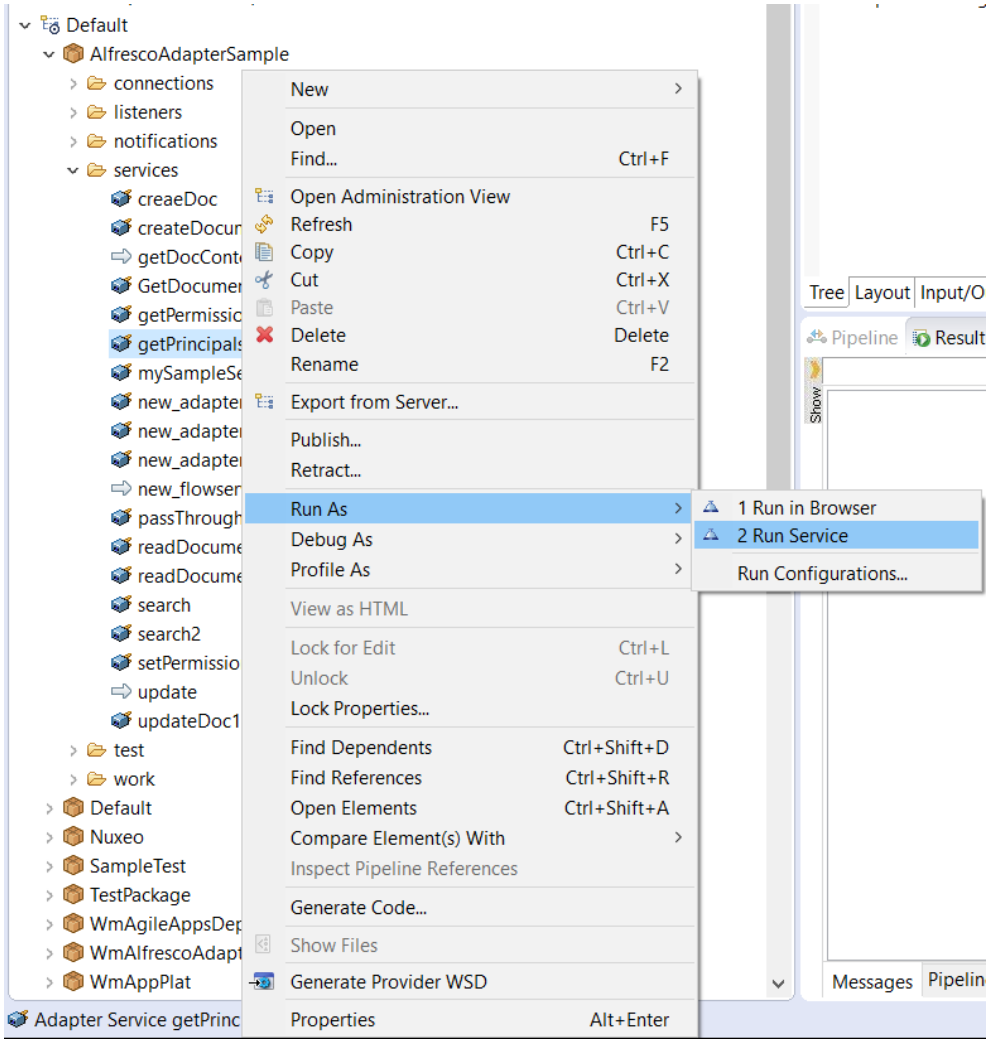


This service doesn't require further configuration and input parameters, so you can run the service immediately.

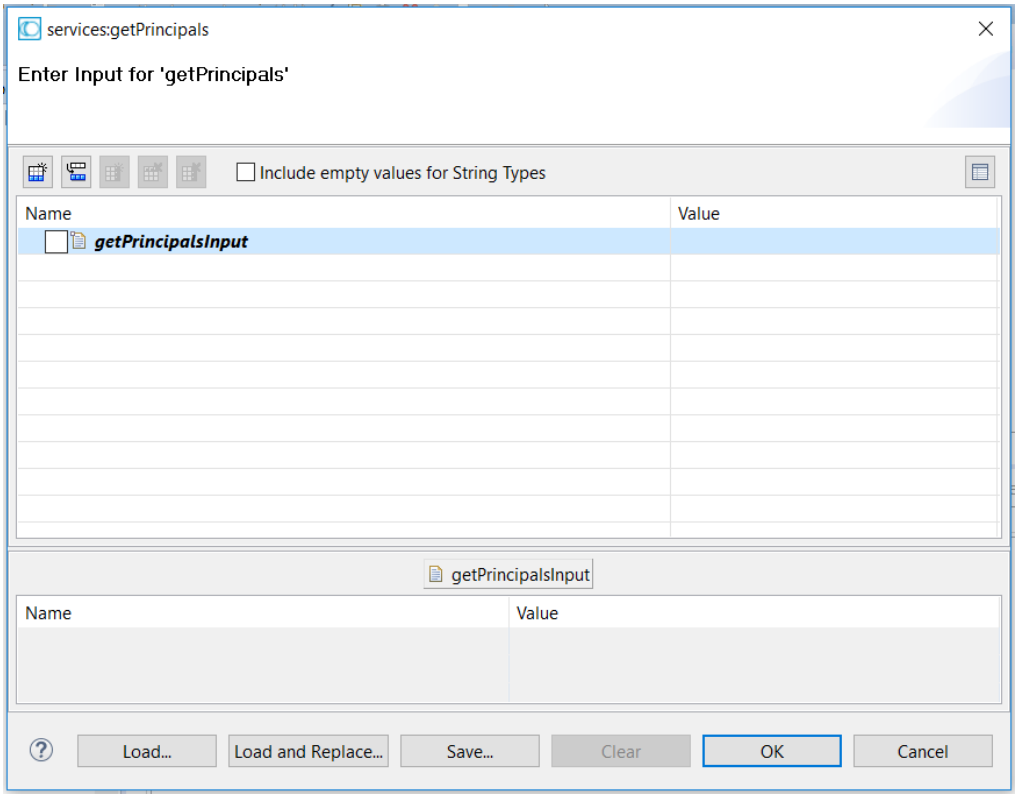
7.11.3 Execute the service

Perform the following steps to execute the service:

4. Right-click your newly created service and select **Run** -> **Run As**.

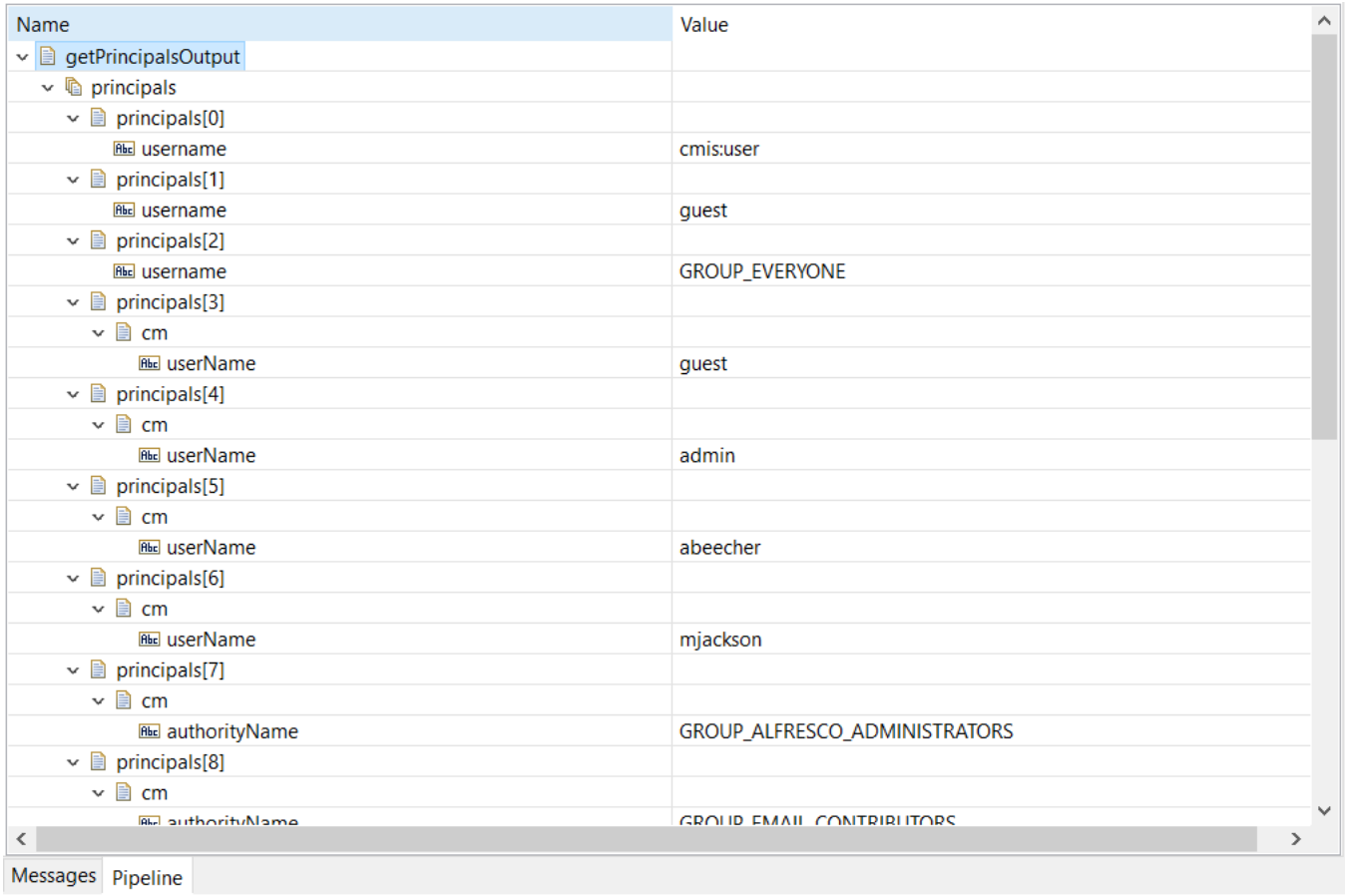


5. “Enter input for service” panel appears. As this service doesn’t require any input data, just click “OK” button.



6. Click **OK**.

   The service is executed, and the resulting output appears.



7.12 Get Permissions

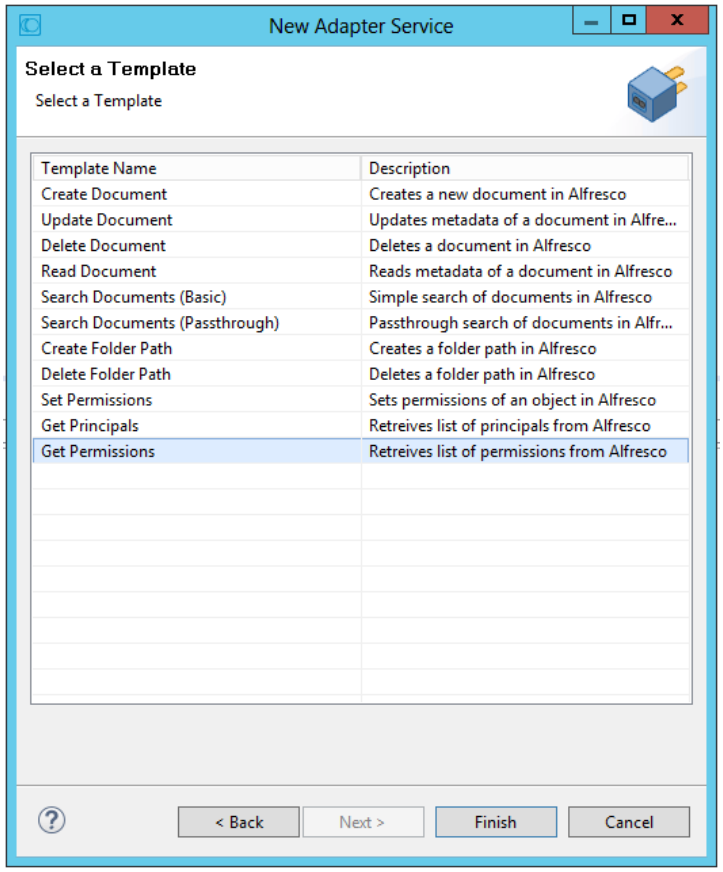
7.12.1 Description

The Get Permissions will provide list of possible permissions from Alfresco.

7.12.2 Configure the service

After the initial configuration of the service, as shown above, the **Select a Template** screen appears. Perform the following steps to configure the service:

2. Select **Get Permissions** and click **Finish**.

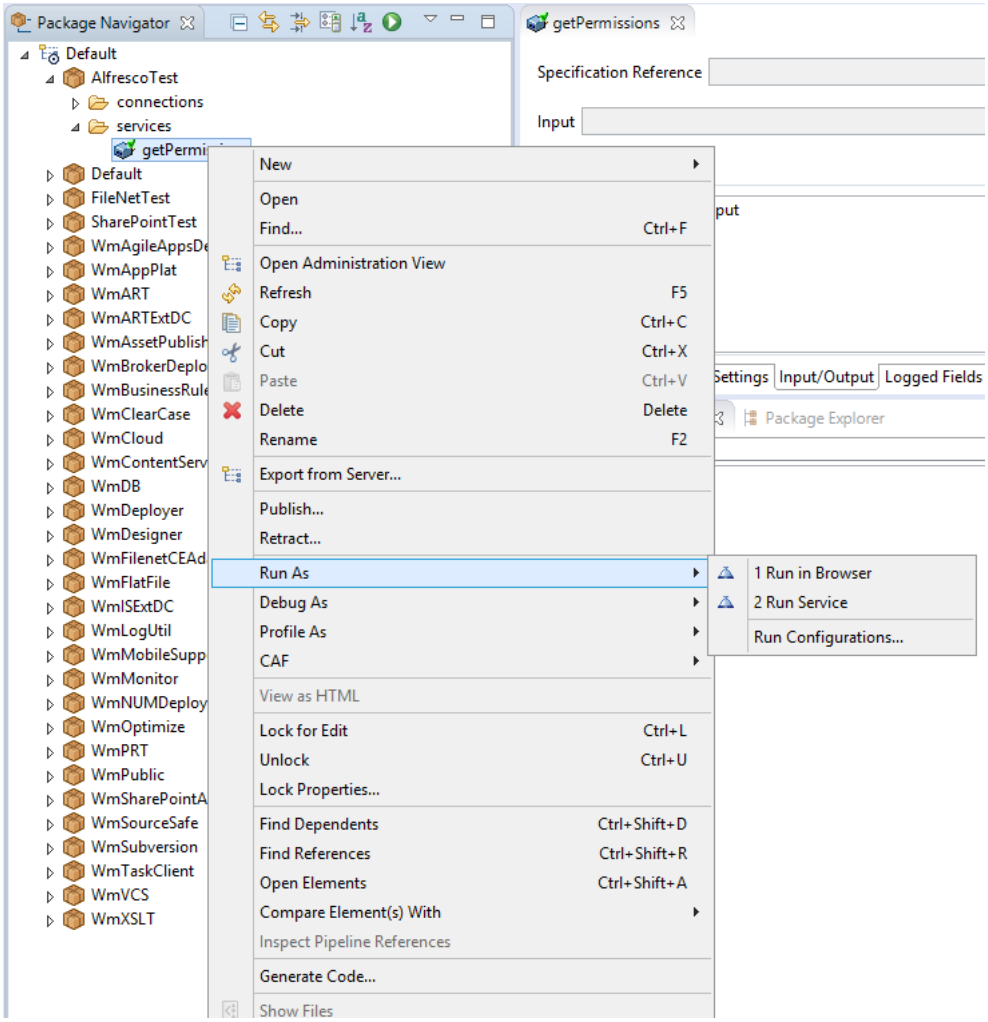


This service doesn't require further configuration and input parameters, so you can run the service immediately.

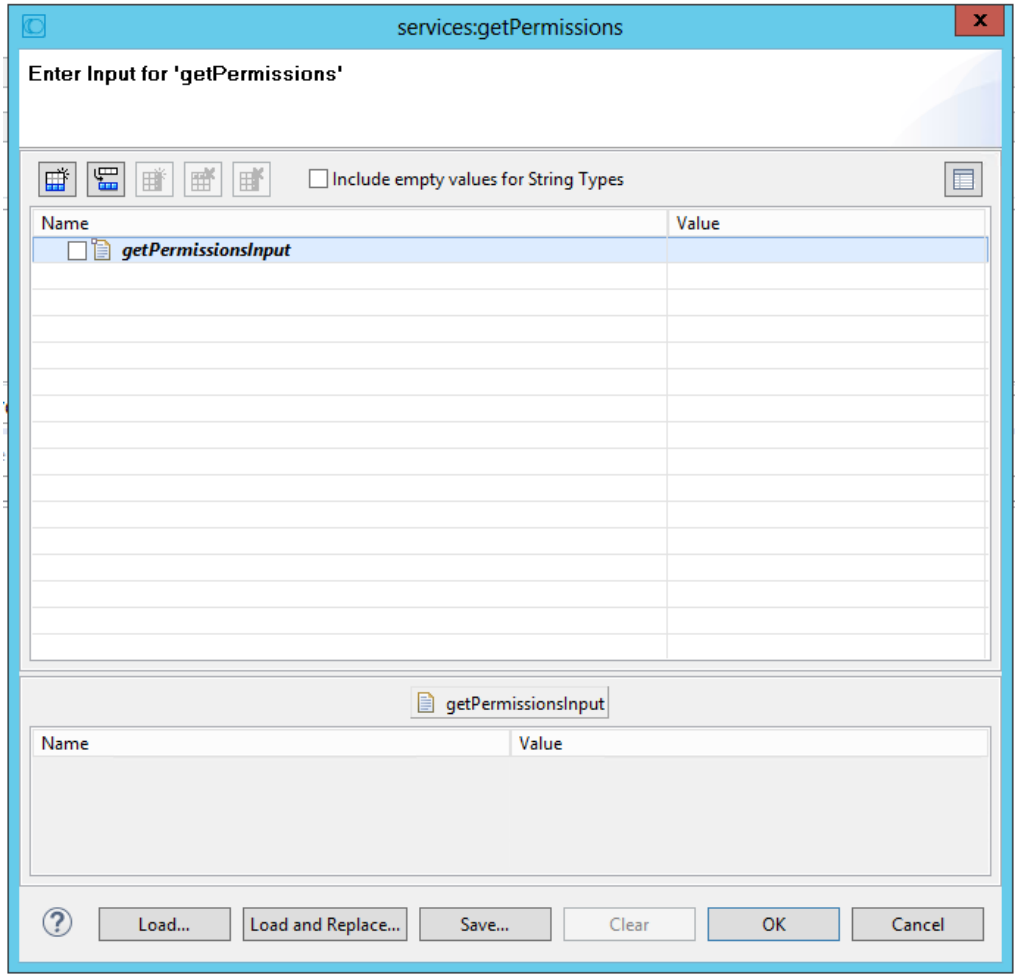
7.12.3 Execute the service

Perform the following steps to execute the service:

7. Right-click your newly created service and select **Run** -> **Run As**.

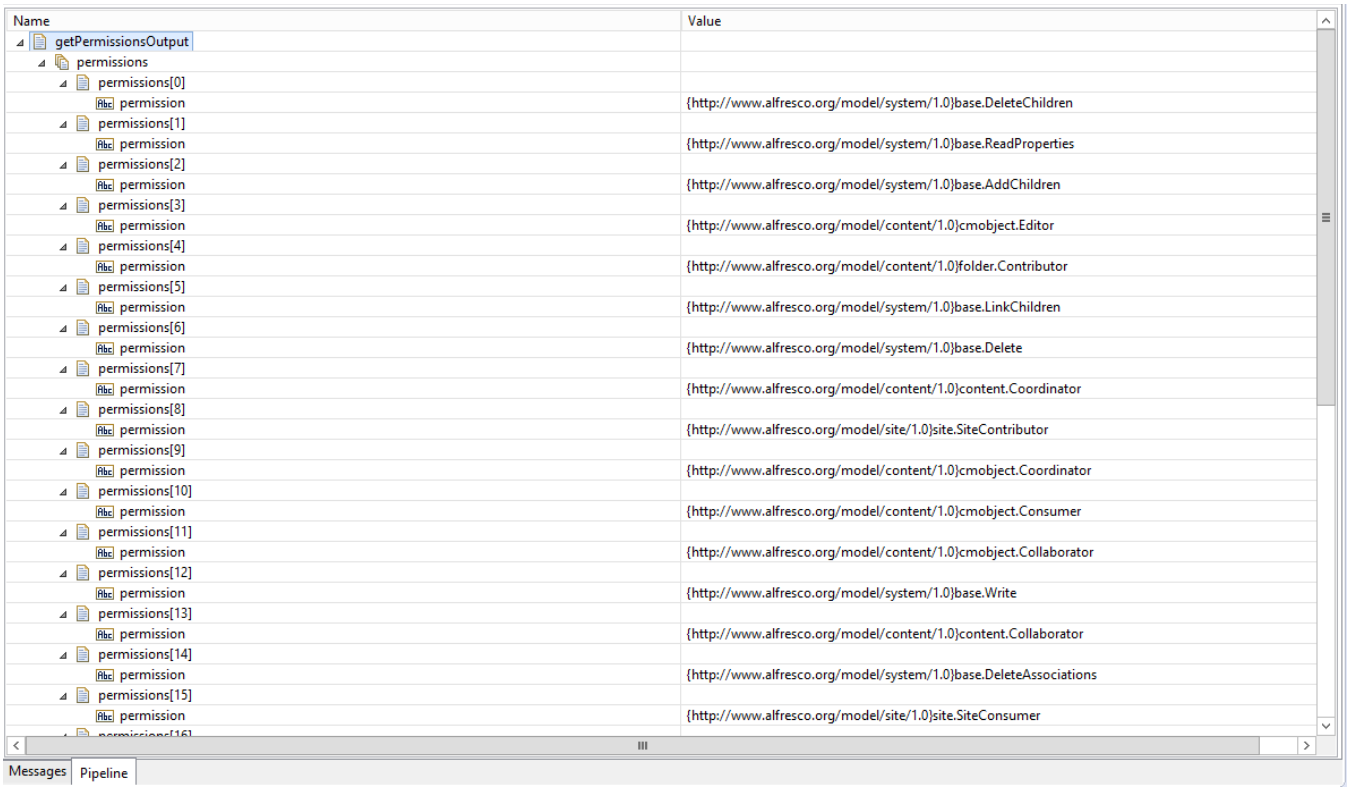


8. “Enter input for service” panel appears. As this service doesn’t require any input data, just click “OK” button.



9. Click **OK**.

   The service is executed, and the resulting output appears.



7.13 Set Permissions

7.13.1 Description

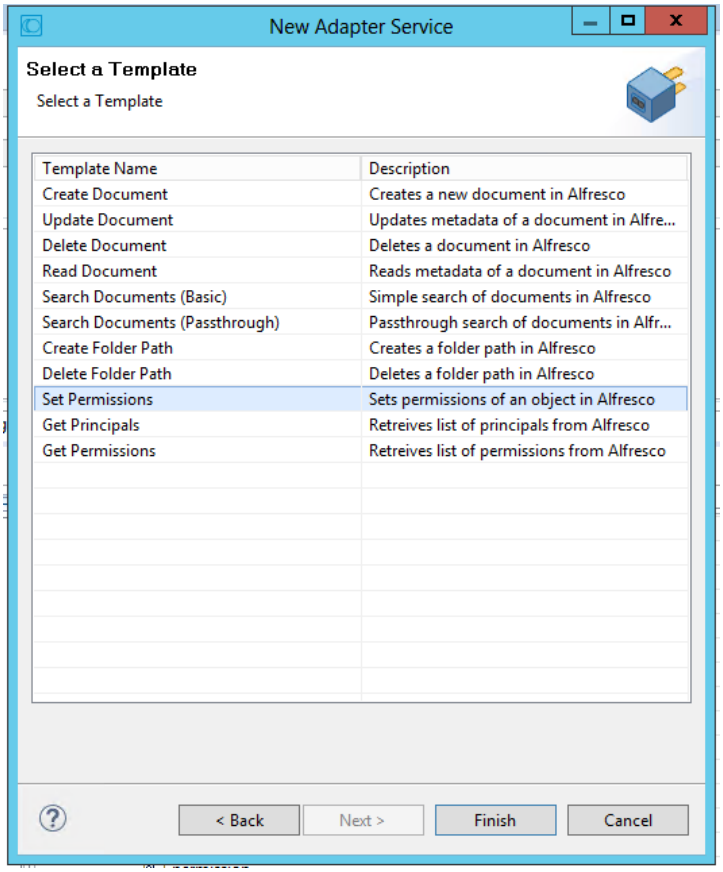
The Set Permissions sets permissions on folder or document in Alfresco repository.

7.13.2 Configure the service

After the initial configuration of the service, as shown above, the **Select a Template** screen appears.

Perform the following steps to configure the service:

1. Select **Set Permissions** and click **Finish**.

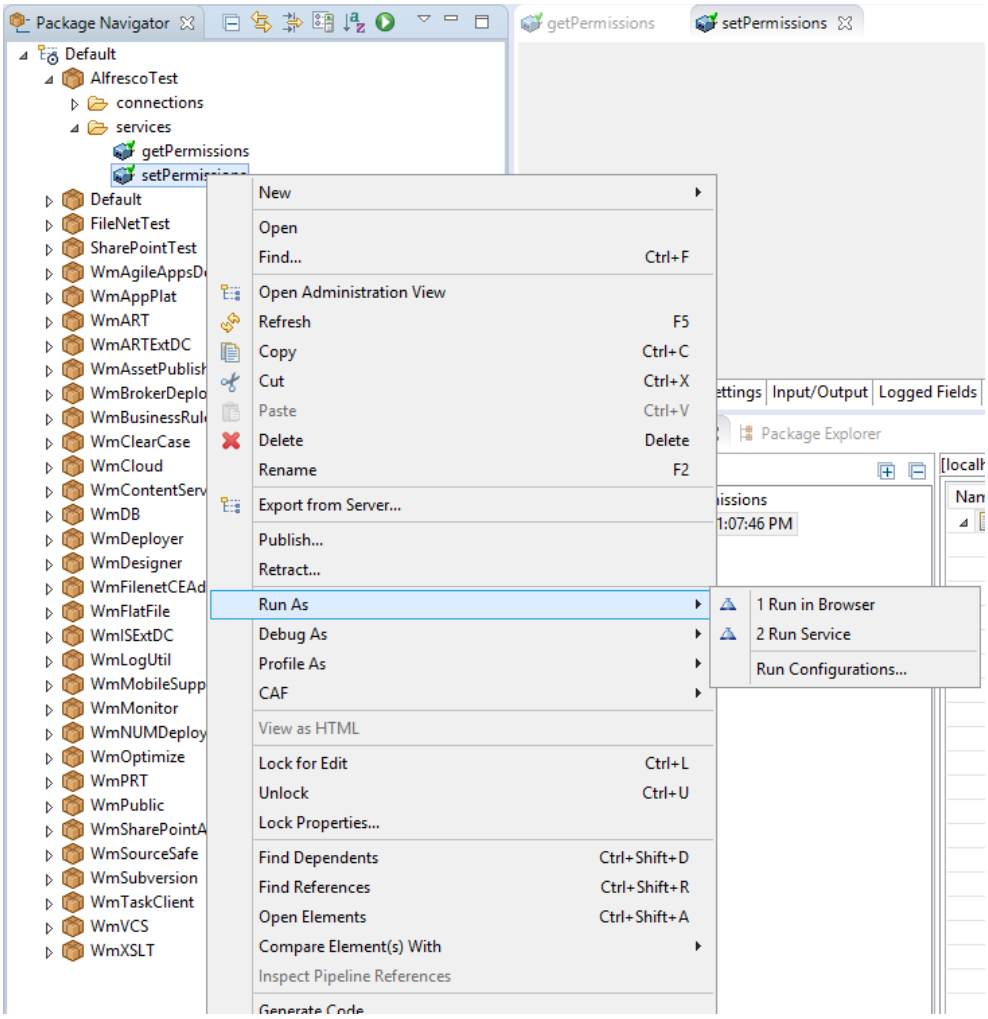


This service doesn't require further configuration, so you can run the service immediately.

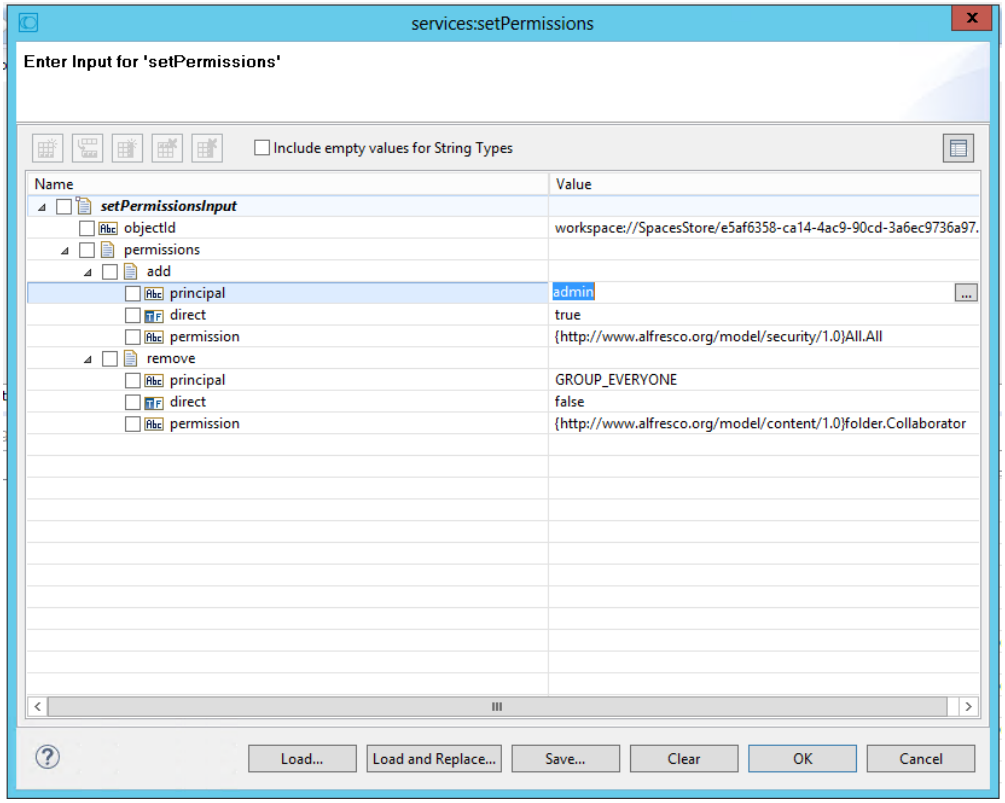
7.13.3 Execute the service

Perform the following steps to execute the service:

1. Right-click your newly created service and select **Run** -> **Run As**.



2. “Enter input for service” panel appears. Enter the relevant input information in the resulting panel. ObjectId parameter is required. If you want to add permissions, populate add section with **principal**, **direct** (true=permission applies only to this object, false=permission applies to subfolders and documents contained in this folder), and **permission** field comma-separated list of permissions. The same applies to **remove** section. If you don’t want to add any permissions, but want just to remove permissions, leave **add** section unpopulated, and populate just **remove** section, or vice-versa.



3. Click **OK**.

   The service is executed, and the resulting output appears.

Name	Value
setPermissionsInput	
objectId	workspace://SpacesStore/ebc4355c-1d1e-4121-8431-a15da6b67d3a
permissions	
add	
principal	admin
direct	true
permission	{http://www.alfresco.org/model/security/1.0}All.All
remove	
principal	GROUP_EVERYONE
direct	false
permission	{http://www.alfresco.org/model/content/1.0}cmobject.Contributor
setPermissionsOutput	
permissions	
admin	
DIRECT	true
PERMISSIONS	cmis:all