webMethods SharePoint Adapter

Installation and User's Guide

Version 10.5

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WEBMETHODS

This document applies to webMethods *SharePoint* Adapter 10.5 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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CONTENTS

1 About this Guide

This guide describes how to configure and use webMethods SharePoint Adapter 10.5. It contains information for administrators and application developers who want to exchange data with a SharePoint system.

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

- The basic concepts and tasks for working with SharePoint
- 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 must 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 Centre.

Software AG TECH community

You can find documentation and other technical information on the Software AG TECH community website at http://techcommunity.softwareag.com. You can:

- Access product documentation, if you have TECHcommunity credentials.
  If you do not, you will need to register and specify "Documentation" as an area of interest.
- 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.

2 Overview of the Adapter

2.1 About Adapter - webMethods SharePoint Adapter

webMethods SharePoint Adapter is webMethods add-on that allows you to interact with SharePoint, an enterprise content and document management tool developed by Microsoft. SharePoint is a web application platform in the Microsoft Office server suite launched in 2001[1].

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

webMethods SharePoint Adapter 10.5 covers Microsoft SharePoint 2013, SharePoint 2016, SharePoint Online.

2.2 Architecture Overview

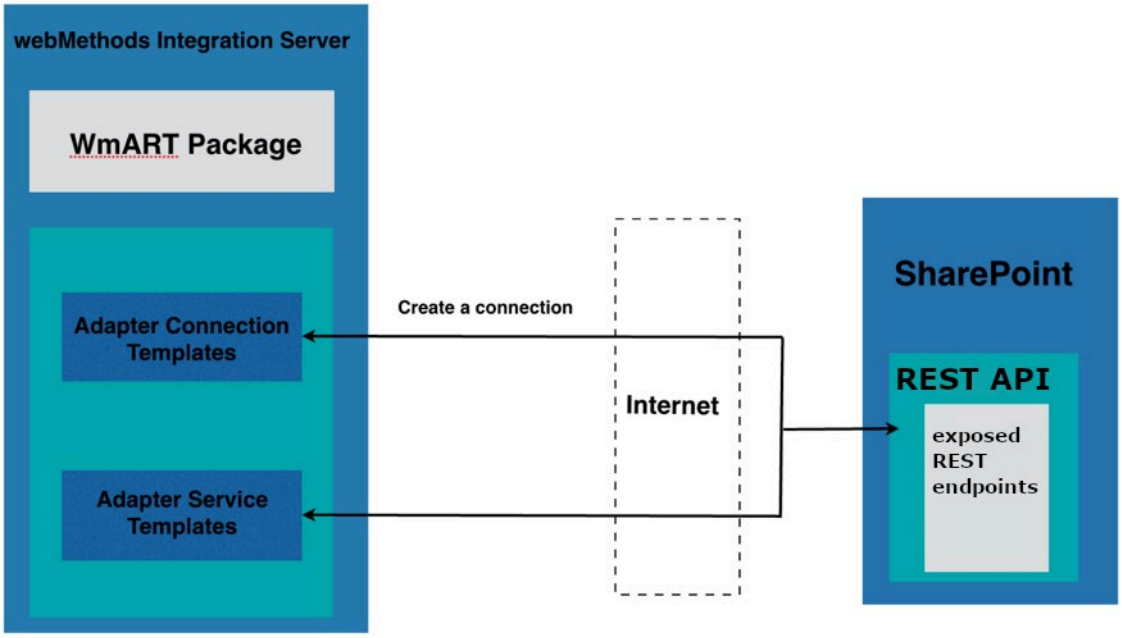
The SharePoint Adapter provides a set of user interfaces, services, and templates that enable you to create integrations with SharePoint. The adapter connects to the system via REST API, using REST endpoints exposed by SharePoint for working with lists, content types, list items and files.

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

Adapter for SharePoint enables you to configure the following components:

- **Adapter connections** enable Integration Server to connect to SharePoint 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 a SharePoint system. You can use the services to upload a document into SharePoint 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 SharePoint Adapter. There are several services contained in the package. For more detailed description of all these services, 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 a SharePoint system:



2.3 Package Management

The SharePoint Adapter is provided as a package called WmSharePointAdapter 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, adapter services, and notifications.
- You should understand how package dependencies work to allow you to make the best decisions regarding how you manage your adapter services.
- You control which development groups have access to which adapter services.
- You should understand how clustering, an advanced feature of Integration Server, works to effectively manage your adapter services.

2.4 Adapter Connections

The SharePoint Adapter connects to SharePoint through REST API 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 SharePoint system repositories you are connecting to and your integration needs.

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

Adapter for SharePoint 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 the SharePoint Adapter's administrative screens.
For instructions on configuring, viewing, editing, enabling, and disabling Adapter for SharePoint connections, see . For information about setting user privileges, see *webMethods Integration Server Administrator's Guide*.

2.4.1 Authentication

The SharePoint Adapter supports connections to SharePoint through REST API, using either basic, SAML or OAuth authentication mechanism.
For both basic and SAML setups you only need to provide SharePoint URL, username and password when defining connection. The SharePoint Adapter will use basic or SAML authentication based on the SharePoint setup.
For OAuth setup SharePoint Adapter offers a different connection type, where you need to provide SharePoint URL, Tenant ID, Client ID and Client Secret when defining it.

2.4.2 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.

2.4.2.1 Run-Time Behaviour 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 .

2.4.2.2 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 *webMethods Integration Server Built-In Services Reference Guide*.

2.5 Adapter Services

To use the SharePoint Adapter, 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 SharePoint document types. Flows, for example, are required when you are streaming a document to or from the server.

The adapter services perform repository operations by calling different REST API endpoints depending on the operation being performed. Adapter services are based on templates provided by the SharePoint Adapter. Each template represents a specific technique for doing work on a specific resource, such as using the Create Document template to create a new document in the SharePoint system.

An adapter service template is generic, containing all the code necessary for interacting with the resource without the data specifications. This data is provided when creating a new adapter service.

The creation of a new service from an adapter service template is straightforward. Using the 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 *webMethods Service Development Help.* For more detailed information about these services refer .

Adapter for SharePoint provides the following adapter service templates:

Adapter Service Type	Adapter Service Template	Description
Create	Create Document	Adds a list item to the specified list with the specified list content type.

Delete	Delete Document	Removes the list item from the specified list.
Update	Update Document	Updates the specified list item in the specified list.
Read	Read Document	Returns the list item information for the specified list item.
Create	Add Attachment	Adds an Attachment to the defined list item in the specified list
Delete	Delete Attachment	Removes the attachment from the defined list item.
Read	Get Attachment	Returns a list of attachment names for the defined list item of the specified list.
Read	Read Attachment	Downloads the attachment from the defined list item.
Create	Create Folder	Adds a folder to the specified list.
Delete	Delete Folder	Removes the defined folder form the specified list.
Search	Simple Search	Queries items according to a query defined in the Simple Search template.
Search	Pass Through Search	Queries items according to a query defined in SharePoint's own query language, passed as a string to the service.
Read	Get Field Information	Get field information of specified list content type.

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 SharePoint Adapter 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 input fields and types as needed ■ The output fields and types as needed	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.	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.

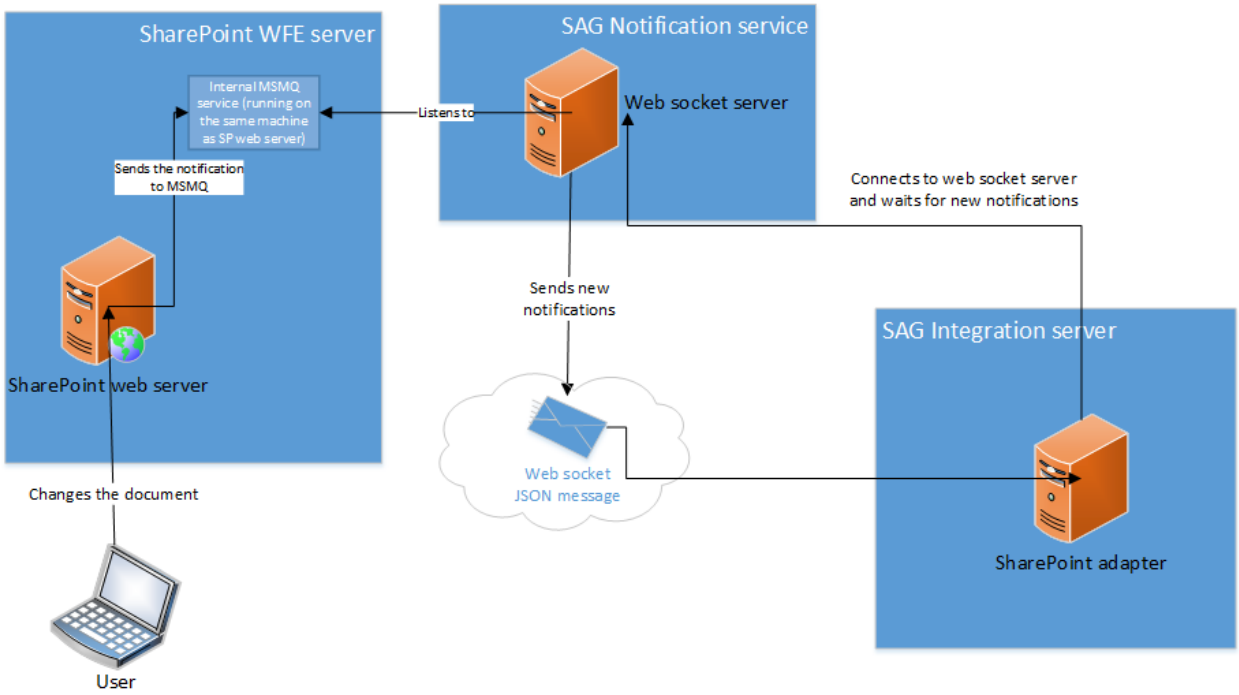
For example, a service can be defined to use a default connection that interacts with your company's production SharePoint system. However, at run time you can override the default connection and instead use another connection to interact with the company's test SharePoint system.

2.6 Real time notifications

If you want the webMethods SharePoint adapter to receive the real time notifications from SharePoint On-premise server about the changes in libraries/lists (i.e. When the new item is added to the list or when the document is deleted from the library…) you can enable it by installing additional components on the SharePoint On-premise server. SharePoint Online notifications are not supported.

2.6.1 Notification support overview

The following image shows how the asynchronous notifications for SharePoint On-premise work.



3 Installing, Upgrading, and Uninstalling the SharePoint Adapter

3.1 Overview

This chapter explains how to install, upgrade, and uninstall webMethods SharePoint Adapter 10.5

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 *Installing Software AG Products*.

3.2 Requirements

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

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

3.3 The Integration Server Home Directory

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 *webMethods Integration Server Administrator's Guide.*

This guide uses the *packages_directory* as the home directory in Integration Server classpaths. The *packages_directory* is

Integration Server_directory\instances*instance_name*\packages directory.

3.3.1 Installing Adapter for SharePoint

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

To install SharePoint Adapter

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 10.5, choose the 10.5 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 for SharePoint 10.5**

   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.

3.4 Uninstalling SharePoint Adapter

To uninstall SharePoint Adapter

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 SharePoint**. You can also choose to uninstall documentation.
4. After Uninstaller completes, restart the host Integration Server.

Uninstaller removes all SharePoint Adapter-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 WmSharePointAdapter directory.

3.5 Real time notifications

3.5.1 The installation of notifications components

Required packages (SAG Notification Service.zip, SharePoint 2013) can be found in **resources** folder inside WmSharePointAdapter package. The installation of the notification components consists of several steps.

1. Activating MSMQ service
2. Installing and activating the wsp solution
3. Preparing the configuration script which contains the details about the document libraries/lists that will be sending the notifications and the events that will be covered.
4. Running the powershell script, that attaches the event receivers to the document libraries mentioned in the previous step
5. Installing the windows service, that acts as web socket server, listens for new notifications and sends them to the SAG integration server.
6. Configuring the windows service

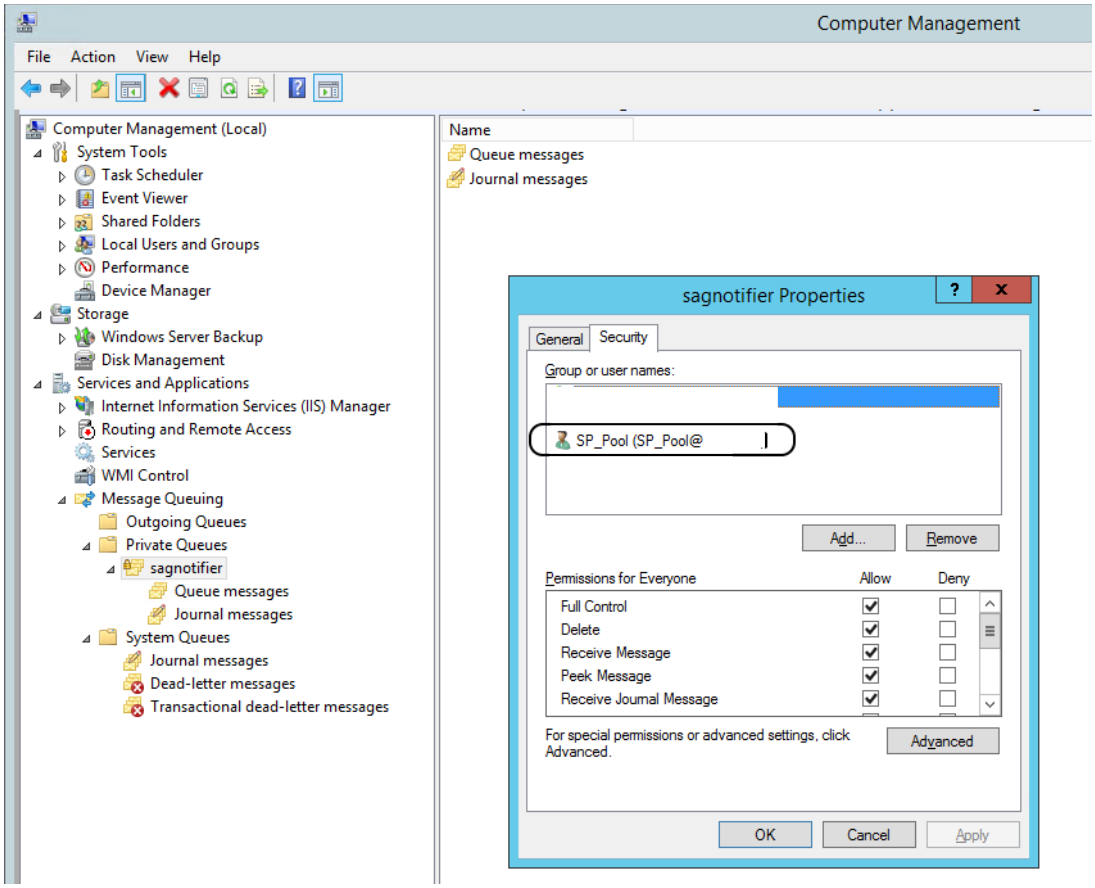
3.5.2 MSMQ (Message Queuing)

In order to be sure that no events get lost, the MSMQ service is used. When the new SharePoint On-premise event happens on the configured library item (like when the document is added, updated, deleted, etc.), SharePoint event receiver creates the new Notification Message, that contains all the data related to the event, and writes it into Message Queue.

Every WFE (Web Front End) server in the SharePoint farm must have the MSMQ service activated (The article on this link shows how to activate it)

After activating the MSMQ, new private queue should be created on all the servers. The name of the new queue must be "**sagnotifier**" (the full name is: .\private$\sagnotifier).

In the properties pane of the "**sagnotifier**" queue (on each server), on the Security tab, the Full control permissions should be added to the user that is used as the Application pool identity for SharePoint web application that needs to send the notifications (This article shows how to check the identity of the Application pool:)



3.5.3 Installing Wsp solution

The component that prepares the messages as the events in the SharePoint happen is implemented using SharePoint Event Receivers. This article contains the basic explanation on what are event receivers, and the links for additional materials. The event receivers implemented here are all “after” event receivers, which run asynchronously.

Event receivers are packed inside the wsp archive file which needs to be installed and activated on all WFE servers in the SharePoint farm.

The following powershell commands can be used for the installation of the wsp solution.

For SharePoint 2013/2016, the following commands should be used:

1. ```
   Add-SPSolution -LiteralPath "[installation folder]\SAG_notifications_sender_2013.wsp"
   Install-SPSolution -GACDeployment -Identity sag_notifications_sender_2013.wsp
   ```
   ```

3.5.4 Attaching the event receivers to the libraries

After installing and activating the wsp solution on all WFE servers, the event receivers should be attached to the libraries that will be sending the notifications to the integration server. There are two steps of this process:

1. Preparing the configuration file (ERConfig2010.xml/ERConfig2013.xml)
2. Running the powershell script (AttachingEvertReceiversScript.ps1)

The powershell script that can be used for attaching the event receivers needs to be configured to know exactly which events should be tracked and on which libraries. The configuration is done through the xml config file.

The xsd schema of the config file is as follows:

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="SagEventHandlers" type="SagEventHandlersType"/>
  <xs:complexType name="EventHandlerType">
    <xs:sequence>
      <xs:element type="xs:string" name="Assembly"/>
      <xs:element type="xs:string" name="Class"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="EventTypesType">
    <xs:sequence>
      <xs:element type="xs:short" name="Type" maxOccurs="unbounded" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ListType">
    <xs:sequence>
      <xs:element type="xs:string" name="Name"/>
      <xs:element type="EventTypesType" name="EventTypes"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ListsType">
    <xs:sequence>
      <xs:element type="ListType" name="List" maxOccurs="unbounded" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="WebType">
    <xs:sequence>
      <xs:element type="xs:anyURI" name="WebUrl"/>
      <xs:element type="ListsType" name="Lists"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="WebsType">
    <xs:sequence>
```

```
      <xs:element type="WebType" name="Web" maxOccurs="unbounded" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:complexType name="SagEventHandlersType">
    <xs:sequence>
      <xs:element type="EventHandlerType" name="EventHandler"/>
      <xs:element type="WebsType" name="Webs"/>
    </xs:sequence>
  </xs:complexType>
</xs:schema>
```

The powershell file for attaching the event receiver to the lists/libraries is called AttachingEvertReceiversScript.ps1 and should be executed from SharePoint Management Shell (which should be run with administrative privileges). The sample files, which can be used as starting point are located in the same directory as the .ps1 file.

The list of possible events follows:

Event name	Event code
ItemAdded	10001
ItemUpdated	10002
ItemDeleted	10003
ItemCheckedIn	10004
ItemCheckedOut	10005
ItemUncheckedOut	10006
ItemAttachmentAdded	10007
ItemAttachmentDeleted	10008
ItemFileMoved	10009
ItemFileConverted	10010

3.5.5 Installing and configuring the web socket service

The component that sends the actual notification messages to the Integration Server is the windows service **SAG Notification Service**. It should be installed on the machine that is in the same network whereas SharePoint On-premise WFE servers and it must be able to communicate with the MSMQ services activated on WFE servers (**the service can be installed on one of the WFE servers** as long as it can communicate with other WFE servers).

The service internally runs the websocket server, that accepts the connection(s) from the Integration Server SharePoint adapter (which acts as the websocket client) and sends the notification messages that come from the MSMQ.

Installation files for the service are located in “SAG Notification Service.zip” file. All the files should be extracted to some location (`C:\[ServiceLocation]`), and installation should be started with the following command (run command prompt with admin privileges):

```
C:\Windows\Microsoft.NET\Framework\v4.0.30319\InstallUtil
"C:\[ServiceLocation]\SAG Notification Service.exe"
```

During the installation, the user will be prompted with the form for entering the details about the identity that will be used to run the service. The suggested identity is the same that is used as application pool identity for SharePoint web application. If different identity is used, then it also needs to be granted the full control on the MSMQ service (on all WFE servers).

After the installation, the service should be configured, by editing the .config file:
`C:\[ServiceLocation]\SAG Notification Service.exe.config`

The config file should contain the names of all the WFE servers that have MSMQ services running. The names should be separated by comma.

```
<add key="sag-msmq-servers"
value="FormatName:DIRECT=OS:[hostname1]\\private$\\sagnotifier,FormatName:DIRECT=OS:[hostname2]\
\private$\\sagnotifier,FormatName:DIRECT=OS:[hostnameN]\\private$\\sagnotifier"/>
```

[hostname1...N] - public dns name of WFE servers that have MSMQ services running

Also, the url and the port that will be used by the web socket server instance must be configured. It is important that firewall must be configured so it doesn’t block the traffic on the configured port.

```
<add key="sag-websocket-server-url" value="http://[sharepoint public dns name]:4649"/>
```

[sharepoint public dns name] – public dns name of SharePoint server accessible by webMethods Integration Server.

3.5.6 Message format

The format of the Notification Message, with the explanation of every field is listed in the next table.

Field name	Field description
RepositoryId	the url of the document library/list containing the document/list item
HostName	the url of the site collection (SPSite object) 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	string "sp"
Username	the username of the user that committed the operation
EventDate	date and time of the operation

ActionType	the type of the committed operation (action)
ItemType	name of the Content Type of the document
BeforeProperties	map of the properties that were changed during the operation and their values before the operation
AfterProperties	map of the properties that were changed during the operation and their values after the operation

3.6 Logging SharePoint Adapter Services Request and Response

SharePoint Adapter logs the details of the Request and Response on DEBUG level. It logs headers and payload. The binary payload is logged as following:

- content length
- MIME type
- content itself

By default, **1024 bytes** of the payload (content also) are logged. This can be influenced by adding **watt.adapter.sharepoint.logging.payload.size** to the Integration Server. Set the value to 0 or negative to disable logging any payload data into the Server log.

4 Package Management

4.1 Overview

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

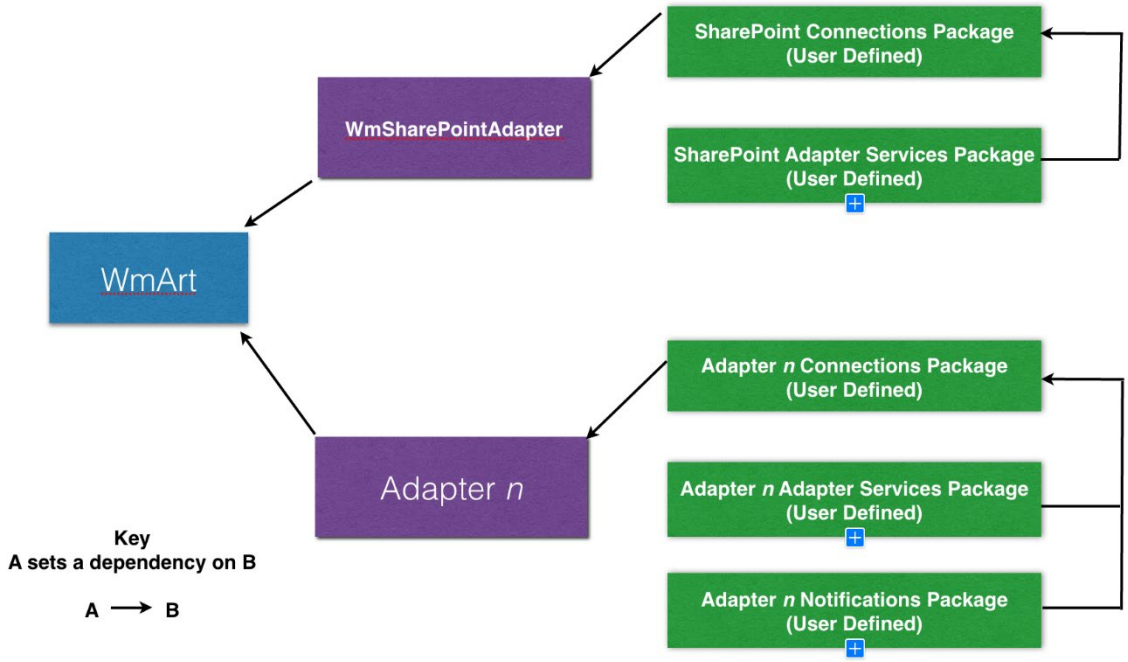
4.2 SharePoint Adapter Package Management

Adapter for SharePoint is provided as a package called WmSharePointAdapter.

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

When you create connections, adapter services, and adapter notifications (not supported in this version), define them in user-defined packages rather than in the WmSharePointAdapter package. Doing so will allow you to manage the package more easily.

As you create user-defined packages in which to store connections, adapter services, and adapter notifications (not supported in this version), use the package management functionality provided in Software AG Designer and set the user-defined packages to have a dependency on the WmSharePointAdapter package. That way, when the WmSharePointAdapter 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*.

- A user-defined package must have a dependency on its associated adapter package, WmSharePointAdapter. (The WmSharePointAdapter 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 do 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 not 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 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 the Designer Service Development online help for your release. See “About this Guide” for specific document titles.

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

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 (WmSharePointAdapter). 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 *webMethods Service Development 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.authe

For information about assigning and managing ACLs, see *webMethods Service Development Help.*

5 SharePoint Adapter Connections

5.1 Overview

This chapter describes how to configure and manage SharePoint Adapter connections. For more information about how adapter connections work, see .

5.2 Before Configuring or Managing Adapter Connections

Perform the following steps before configuring or managing adapter connections.

The SharePoint Adapter'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 SharePoint Adapter 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 SharePoint Adapter on the same machine.

5.3 Configuring SharePoint Adapter 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 **SharePoint Adapter**.
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. SharePoint Server Connection and OAuth SharePoint Server Connection types are displayed. Choose the desired type.
5. 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.
6. Once the information for the new connection is complete, click Save Connection.
7. 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 basic or SAML connection

wmSharePointAdapterSample.connection:SharePointConnection Details	
Connection Type	**SharePoint Server Connection**
Package Name	**WmSharePointAdapterSample**
Connection Properties	
Site URL	**http://sp2013**
Username	**itbiz\damjan**
Password	******
webSocketUrl	**ws://192.168.1.108:4649/SAGNotifier**
Connection Management Properties	
Enable Connection Pooling	**true**
Minimum Pool Size	**1**
Maximum Pool Size	**10**
Pool Increment Size	**1**
Block Timeout (msec)	**1000**
Expire Timeout (msec)	**1000**
Startup Retry Count	**0**
Startup Backoff Timeout (sec)	**10**

Example configuration for a new OAuth connection

testSharePoint:sharePointOnlineOauth Details	
Connection Type	OAuth SharePoint Server Connection
Package Name	Default
Connection Properties	
Site URL	http://sp2016
Tenant ID	abf988bf-86f1-41af-91ab-2d7cd011db46
Client ID	269d98e4922fb3895e9ae2108cbb5064
Client Secret	******
WebSocket URL	
Connection Management Properties	
Enable Connection Pooling	true
Minimum Pool Size	1
Maximum Pool Size	10
Pool Increment Size	1
Block Timeout (msec)	1000
Expire Timeout (msec)	1000
Startup Retry Count	0
Startup Backoff Timeout (sec)	10

5.4 Connection Properties

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

Adapter Properties

Attribute	(Example) Value	Description
Package	SharePointAdapterSamples	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://my-sharepoint-host.com	the SharePoint service context root URL this is where all the SharePoint services are hosted via HTTP/HTTPS
Username	DOMAIN\username	the username for connecting
Password	Secret	the user's password
Retype Password		the user's password retyped
Tenant ID	abf988bf-86f1-41af-91ab-2d7cd011db46	the unique identifier of the Azure Active Directory instance
Client ID	a0897e6d0ea94f589c38278bca4e9342	the public identifier for adapter
Client Secret	c94dbd582d594e8aa04934f9c7ef0f52	the secret known only to the adapter and the Azure Active Directory
Retype Client Secret		the client’s secret retyped
webSocketUrl	ws://<sharepoint server host name>:<port>/SAGNotifier	the address of the web socket client that sends the

Attribute	(Example) Value	Description
	ws://my-sharepoint-host.com:4649/SAGNotifier	real time notifications about updated content in SharePoint On-premise

Connection Management Properties

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

Field	Description/Action
	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 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 **SharePoint Adapter**.

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, and 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 SharePoint Adapter Connections".

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

5.5.2 Using Designer to View SharePoint 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 SharePoint Connections"

5.6 Editing Adapter Connections

To edit a connection

1. In the **Adapters** menu in Integration Server Administrator's navigation area, click **SharePoint Adapter**.
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 SharePoint Connections".
4. Click **Save Changes** to save the connection and return to the Connections screen.

5.7 Copying SharePoint Adapter Connections

You can copy an existing SharePoint connection to configure a new connection with the same or similar connection properties without having to re-type 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 **SharePoint Adapter**.
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 SharePoint Adapter 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 SharePoint connection, you can delete it. You delete adapter connections using Integration Server Administrator.

If you delete an Adapter for SharePoint connection, the adapter services or notifications (not supported in this version) that are defined to use the connection will no longer work. However, you

can assign a different connection to an adapter service and re-use 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 **SharePoint Adapter**.
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

A SharePoint connection must be enabled before you can configure any adapter service using 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, they 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 **SharePoint Adapter**.
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: SharePoint 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 **SharePoint Adapter**.
2. On the Connections screen, click **Yes** in the **Enabled** column for the connection you want to disable.
3. The adapter connection becomes disabled and you see a No in the Enabled column.

5.11 Dynamically Changing a Service's Connection at Run Time

You can run a service using a connection other than the default connection that was associated with the service when the service was created. To override the default connection, you must code your flow to pass a value through the pipeline into a service's $connectionName field.

6 Adapter Services

6.1 Overview

The SharePoint Adapter provides a series of services that are used to create, edit, delete, search and add attachment to SharePoint objects and lists. This section will show you how to configure each of the services before executing.

Services can be executed on either List or Library items of SharePoint.

Service	Description
Create Document	Adds a list item to the specified list with the specified list content type.
Delete Document	Removes the list item of the specified list.
Update Document	Update the specified list in the specified list.
Read Document	Returns the list item information for the specified list item.
Add Attachment	Adds an attachment to the defined list item.
Delete Attachment	Removes the attachment from the defined list.
Get Attachments	Returns a list of the attachment names from the defined list of item list.
Read Attachments	Download the attachment from the defined list item of the specified list.
Create Folder	Adds a folder to a specified list.
Delete Folder	Removes the defined folder from the specified list.
Simple Search	Configure a query that will return the elements matching your query. In comparison to the Pass-Through search, which uses SharePoint's own query language, the query is defined during the configuration of the Simple Search template.

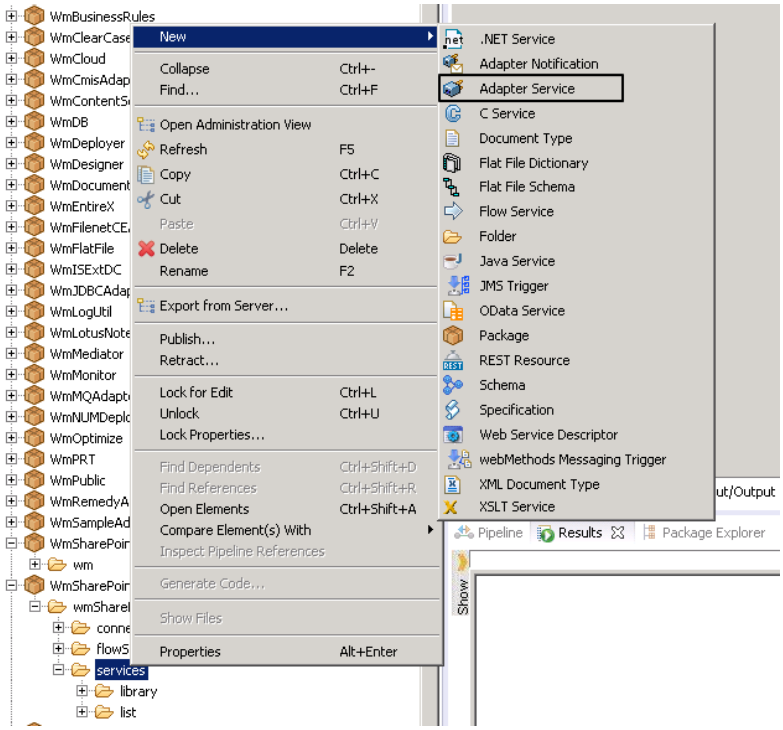
Service	Description
Pass Through Search	Undertakes a Pass-Through search. This means that you specify as a string a query that will returns elements matching this query. The syntax of the string should correspond to the system, which is queried. In the case of SharePoint, you should use the Collaborative Application Markup Language (CAML).
Get Field Information	Get field information of specified list content type.

Note: When executing a service that requires a file such as, Add Attachments, then you will have to configure a flow for the streaming of the file.

6.2 Creating a New Service

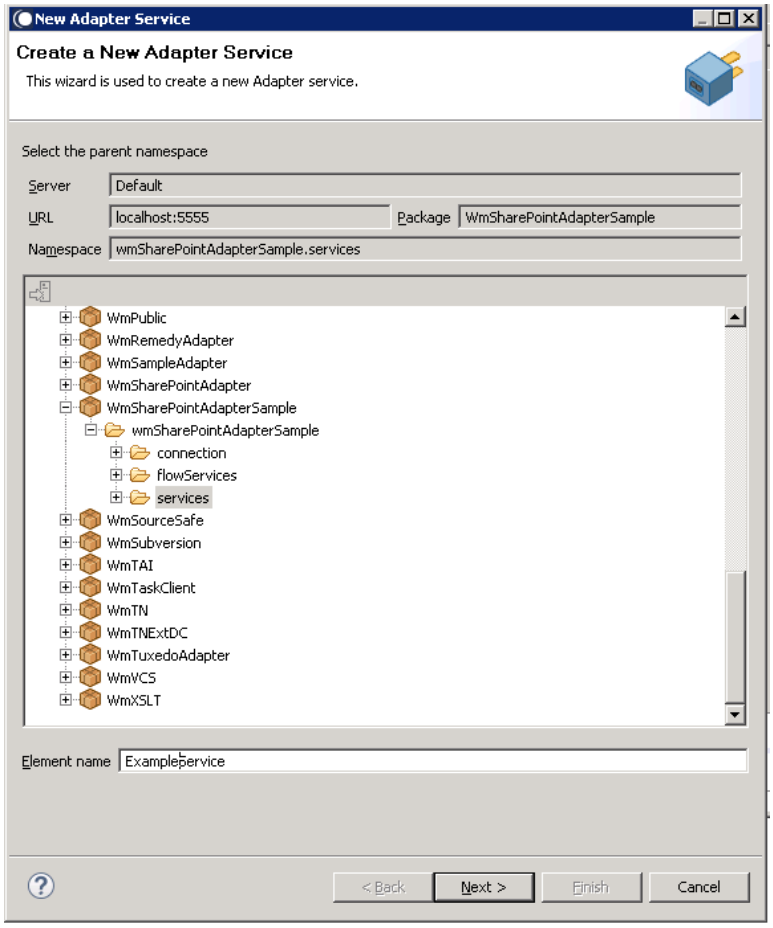
The initial steps to create a new adapter service are the same, regardless of the services being created.

Open the Software AG Designer and navigate to the package in which you want to create the service. In the example below, we will create new services in the `WmSharePointAdapterSample` under the `services` folder. To create a new service, Right-click -> **New** -> **Adapter Service** as depicted in the following screenshot:

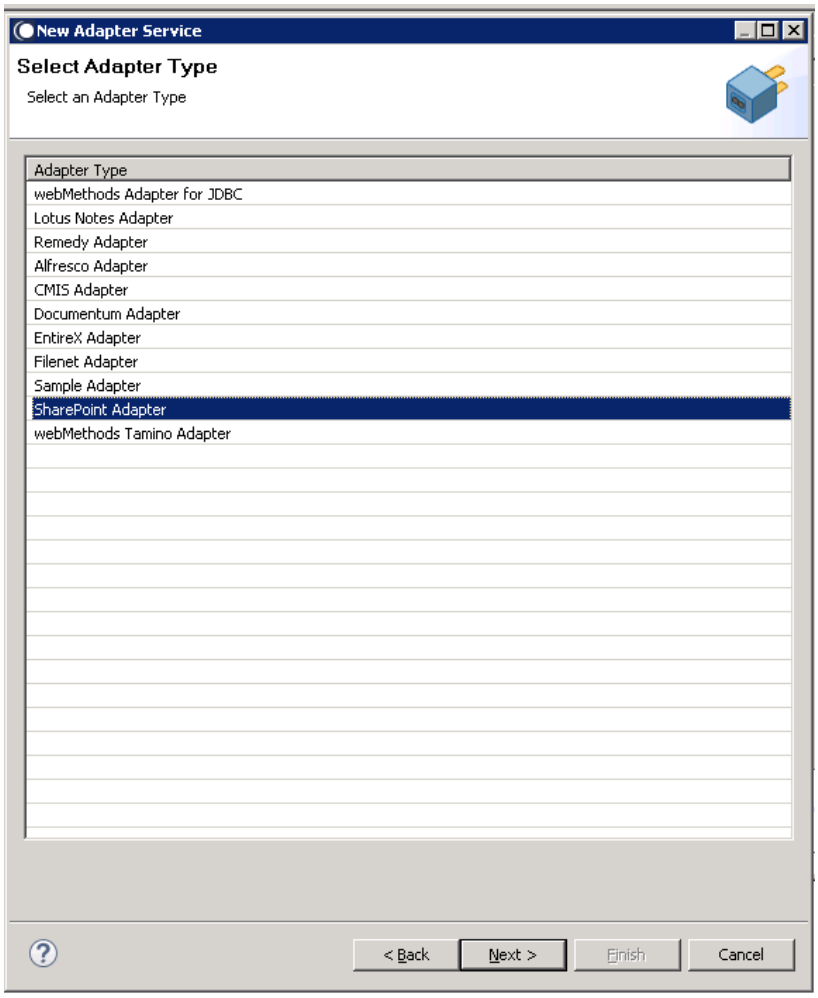


Enter the name of the service you want to create in the **Element name** field.

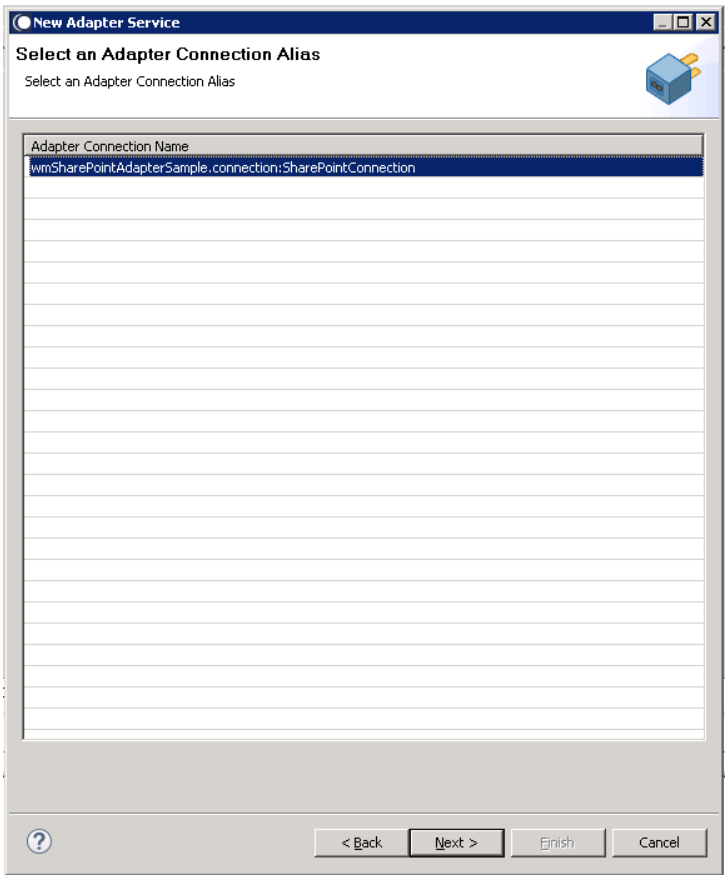
Note: The created service names should be unique within the folder. Example, the name given for service in **Element name** field can be `ExampleService`.



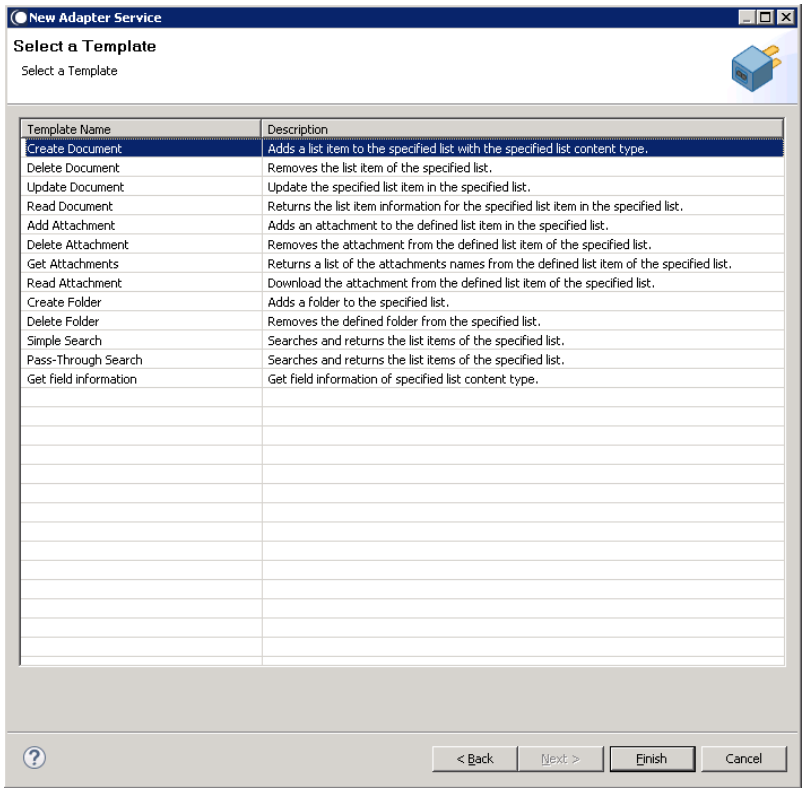
Select your adapter type and click **Next**.



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



Finally, the **Select a Template** screen appears which shows the templates that are contained in the package. Each service has a corresponding template as shown below.



The following section describes how to create each service that the SharePoint Adapter provides.

6.3 Create Document

6.3.1 Description

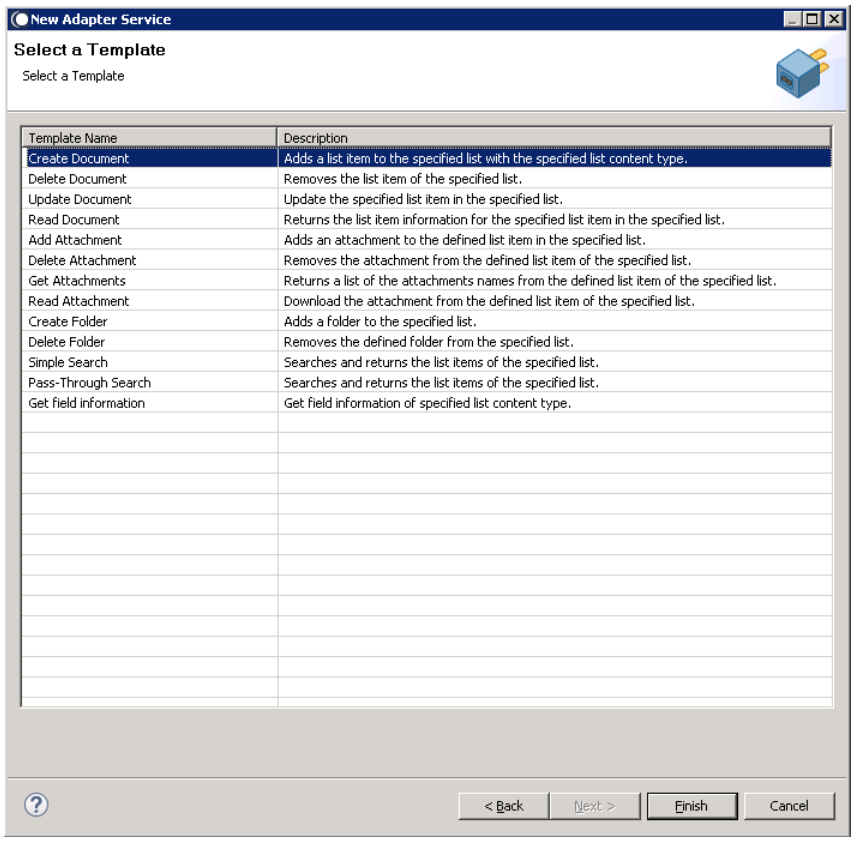
A list item can be added to the specified table with the specified List content type name.

6.3.2 Configure the Service

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

Perform the following steps to configure the service:

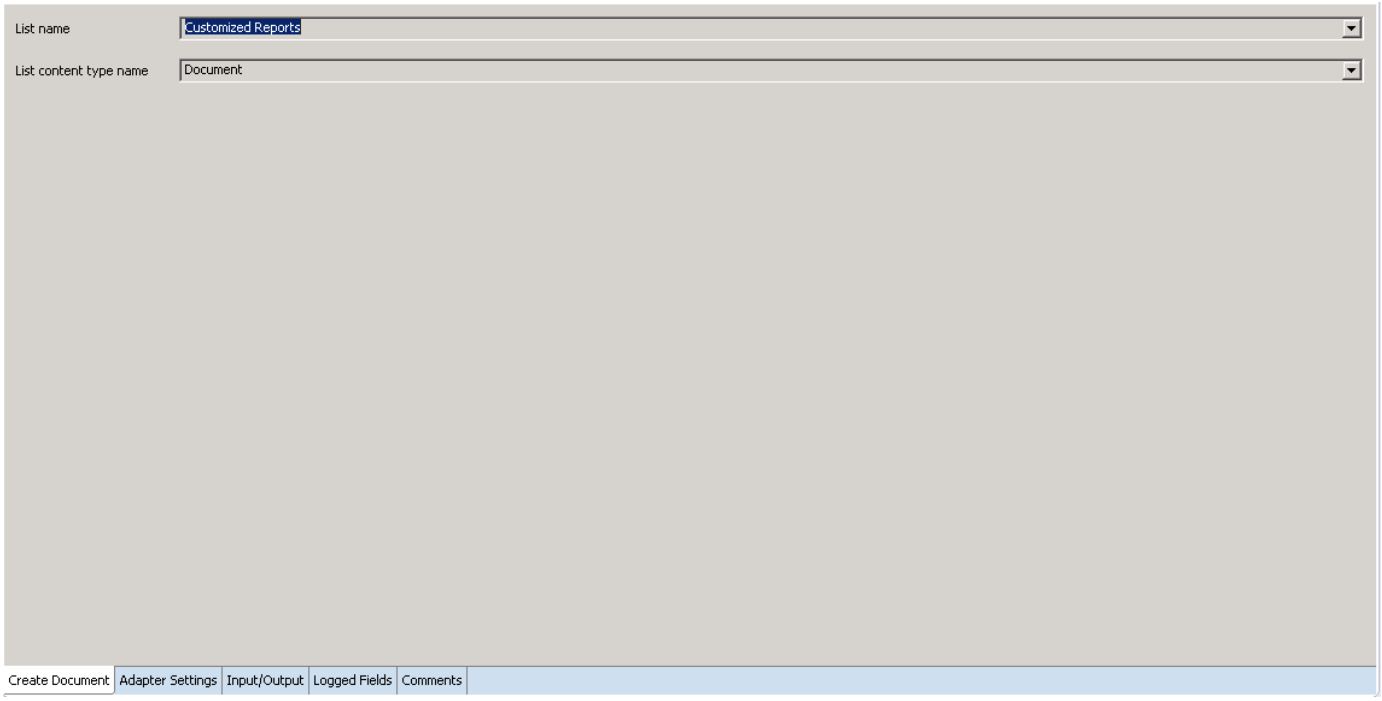
1. Select **Create Document** and click **Finish**.



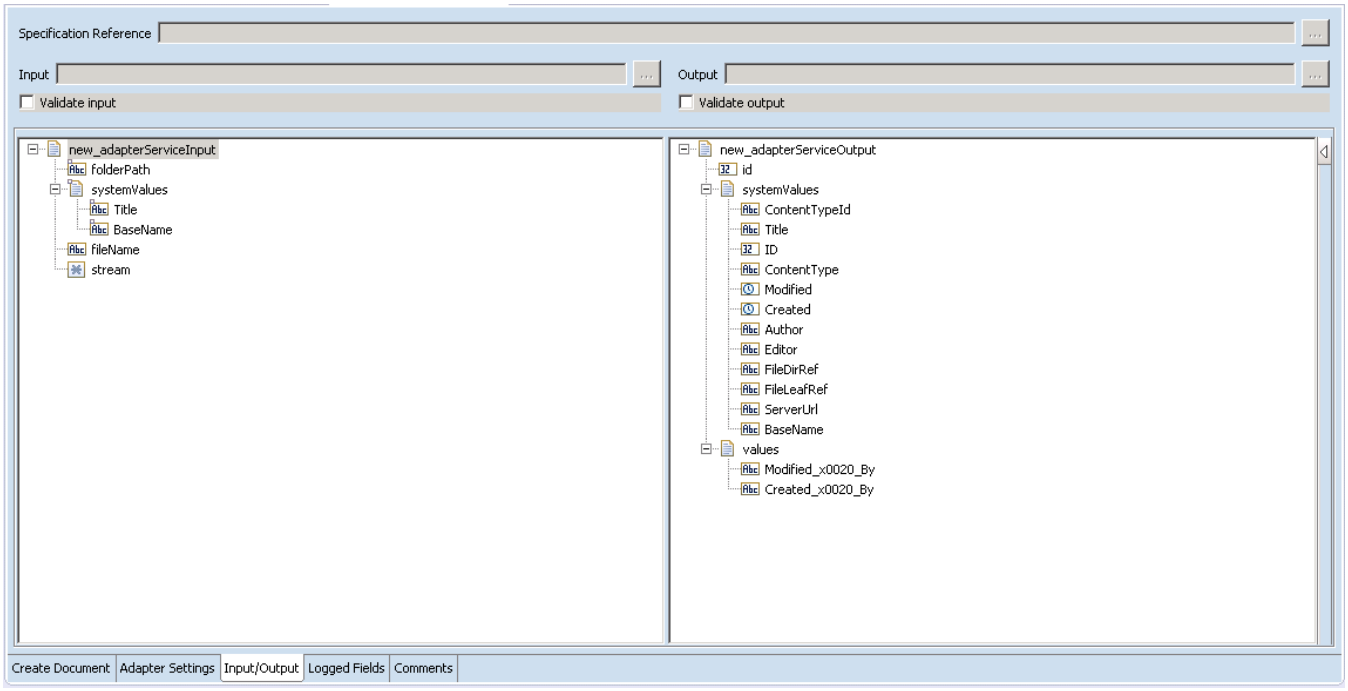
You can now configure the template. The service template contains a series of tabs in the bottom of the panel. The **Create Document** template displays the following drop-down menu boxes:

- **List name.** Defines the list in which the new document is created.
- **List content type name.** Defines the content type name of the created document.

The content type selected here will affect the inputs required on the execution of this service.



2. Click the **Input/Output** tab, which can be used to configure the template.



The **Input/Output** tab shows the input and output values of **Create Document** service, such as the information that is required during the creation of the document and the information that is provided after the creation of the document.

Note: The input parameters appear on left-hand side of the panel and the output for the services appears on the right-hand side of the panel.

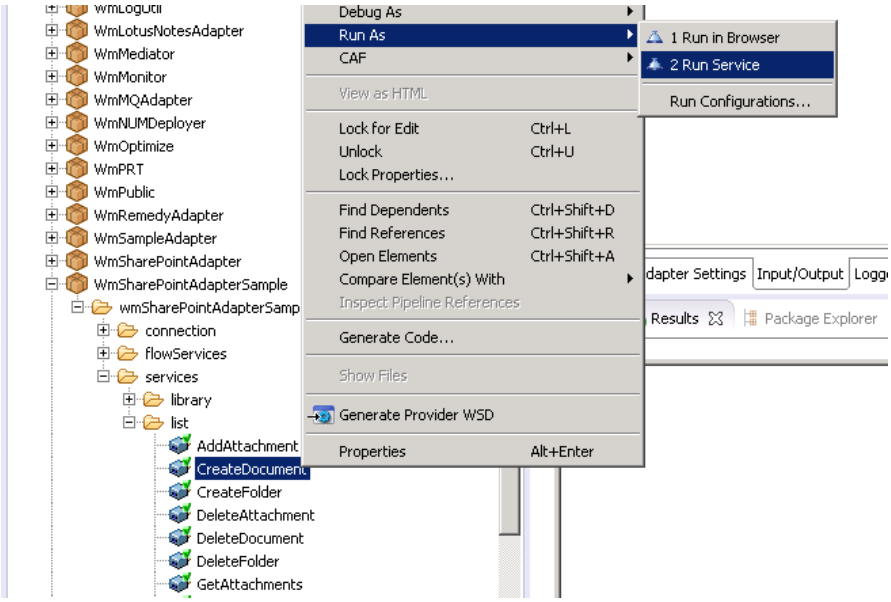
Note: The inputs given during the execution of the service depends on the content type selected

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

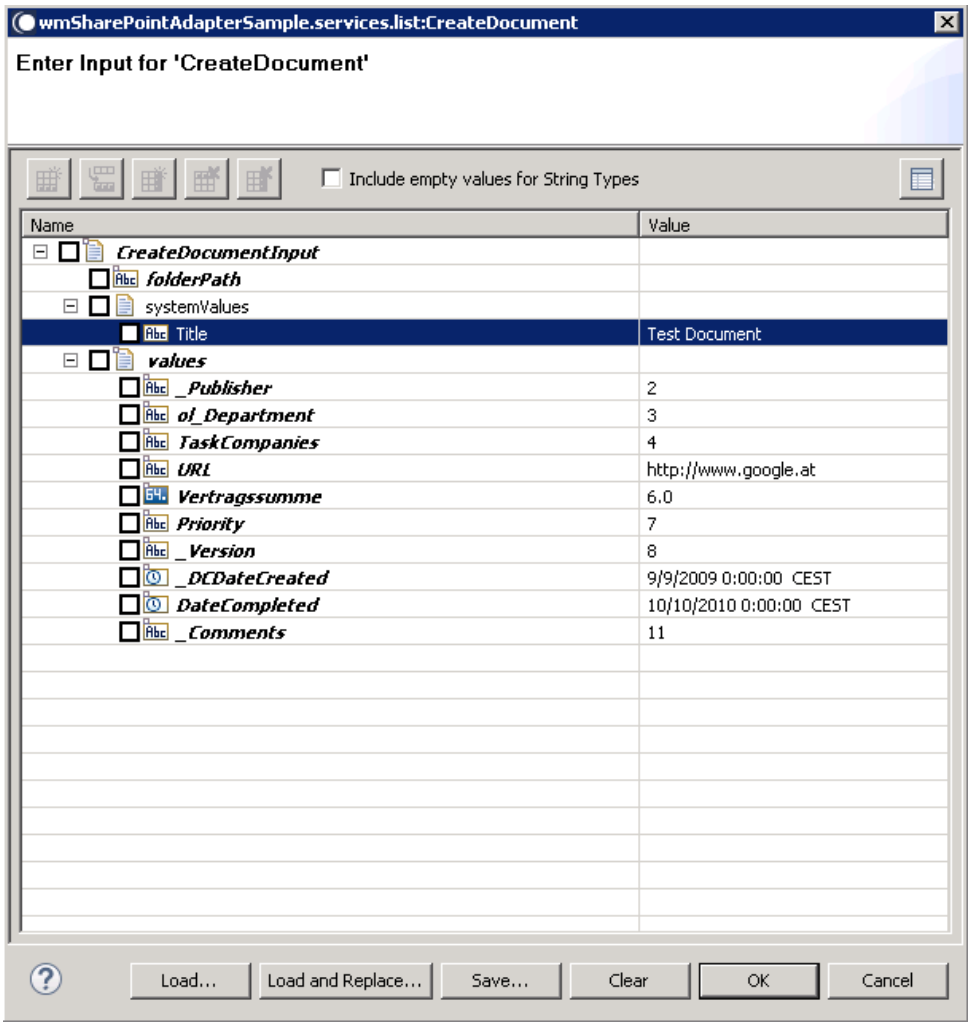
6.3.3 Execute the Service

Perform the following steps to execute the service:

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

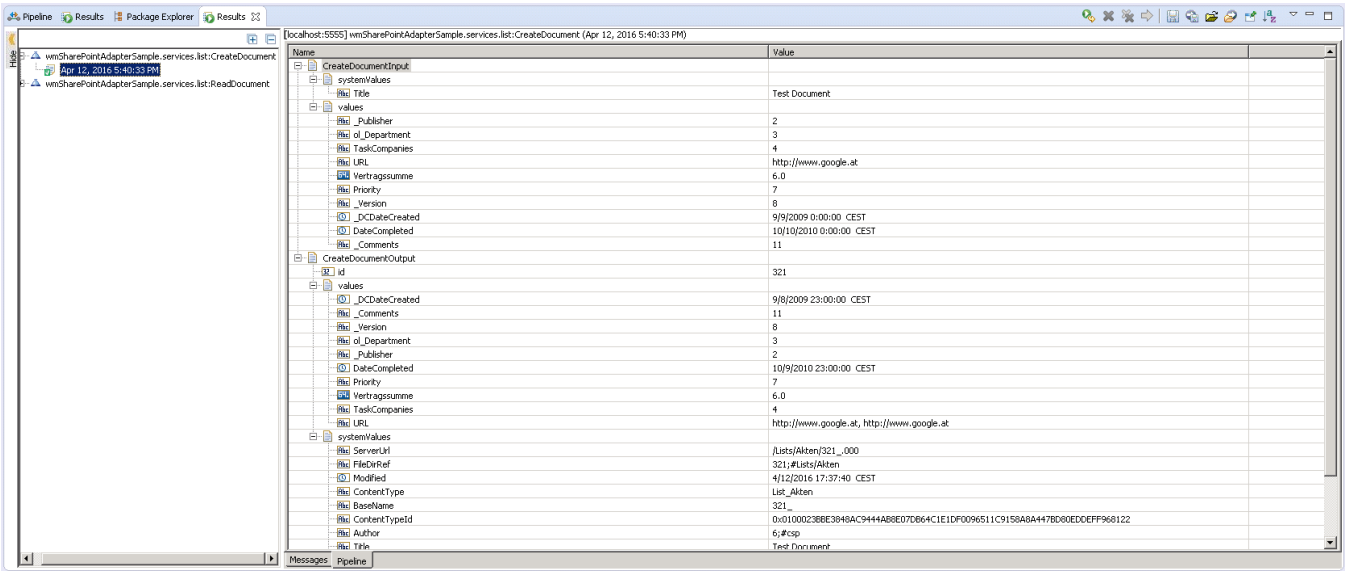


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The resulting output appears, and then the document is generated.



6.4 Delete Document

6.4.1 Description

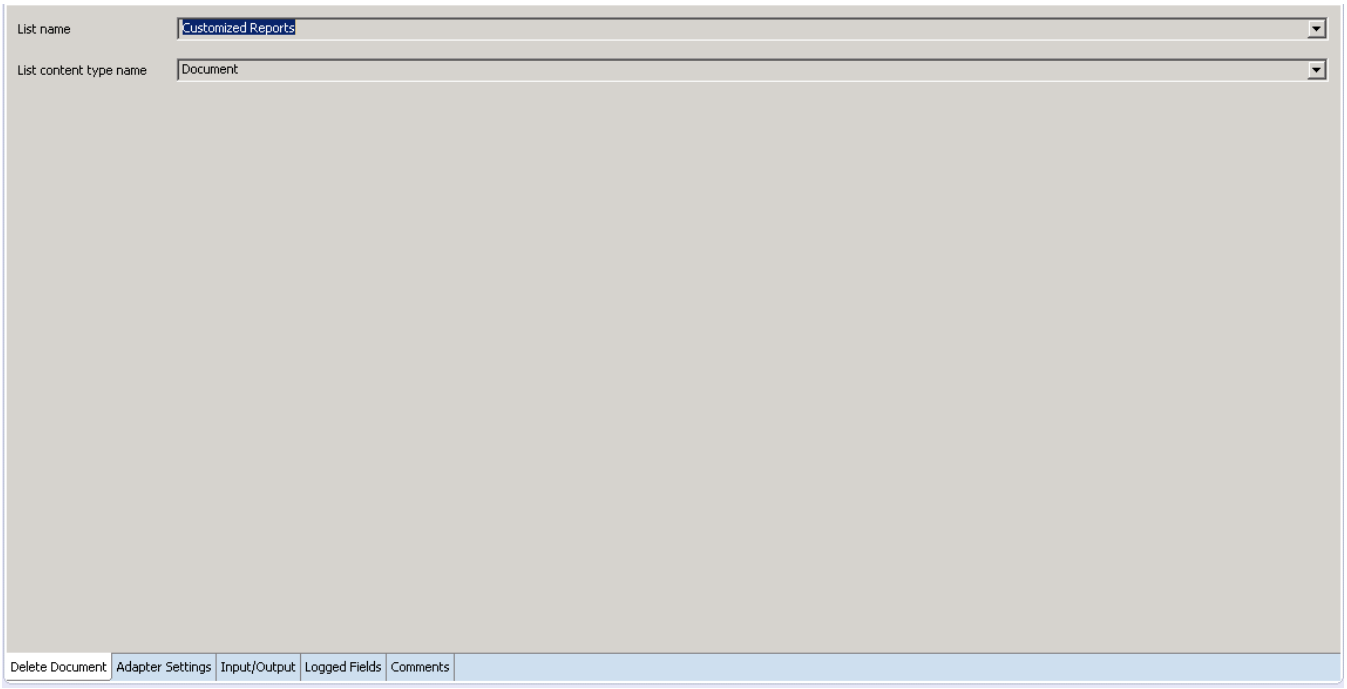
Removes list items from the specified list. The deleted document is specified during the execution of the service by the provided document ID.

6.4.2 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:

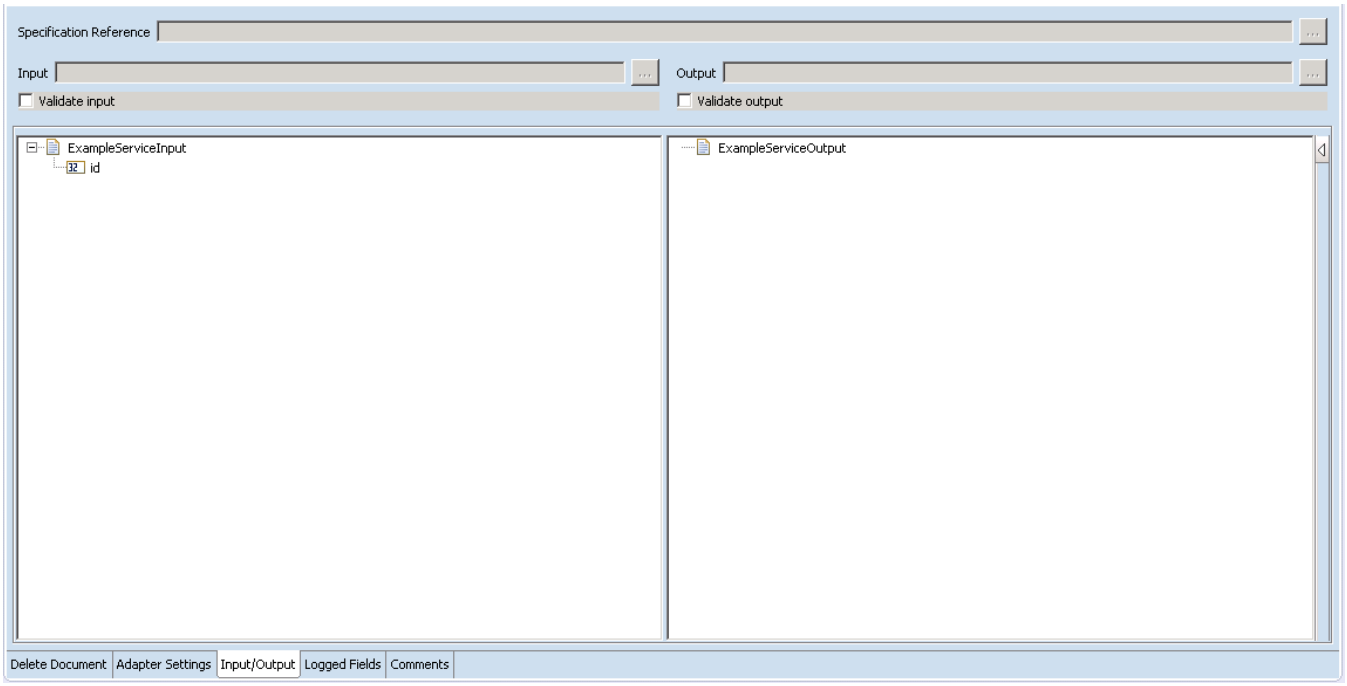
1. Select **Delete Document** and click **Finish**.



You can now configure the template. The service template contains a series of tabs in the bottom of the panel. The **Delete Document** tab contains the following two dropdown lists:

- The first dropdown determines the list where the document to be deleted can be found.
- The second determines its content type.

2. Click the **Input/Output** tab, to configure the template.



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

- On the left-hand side of the panel are the parameters that are taken as inputs, and the right-hand side of the panel shows the output for the service.

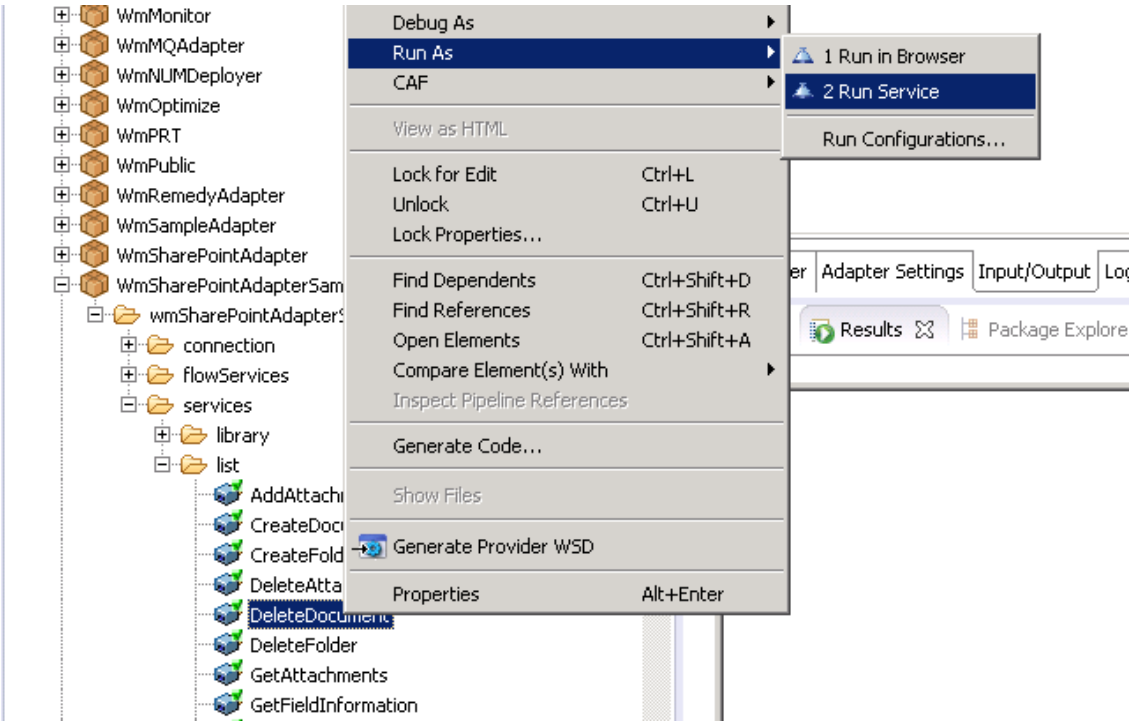
As you can see from the screenshot above, there are no outputs and only one input. The ID relates to the ID of the document that is to be deleted.

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

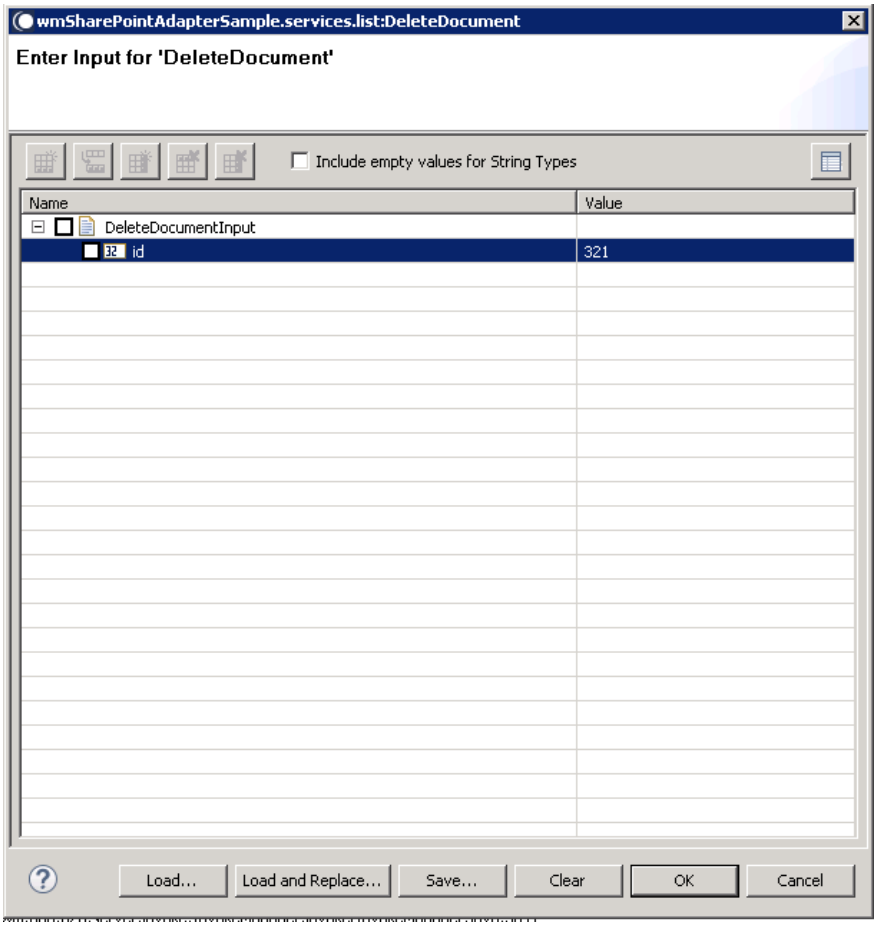
6.4.3 Execute the Service

Perform the following steps to execute the service:

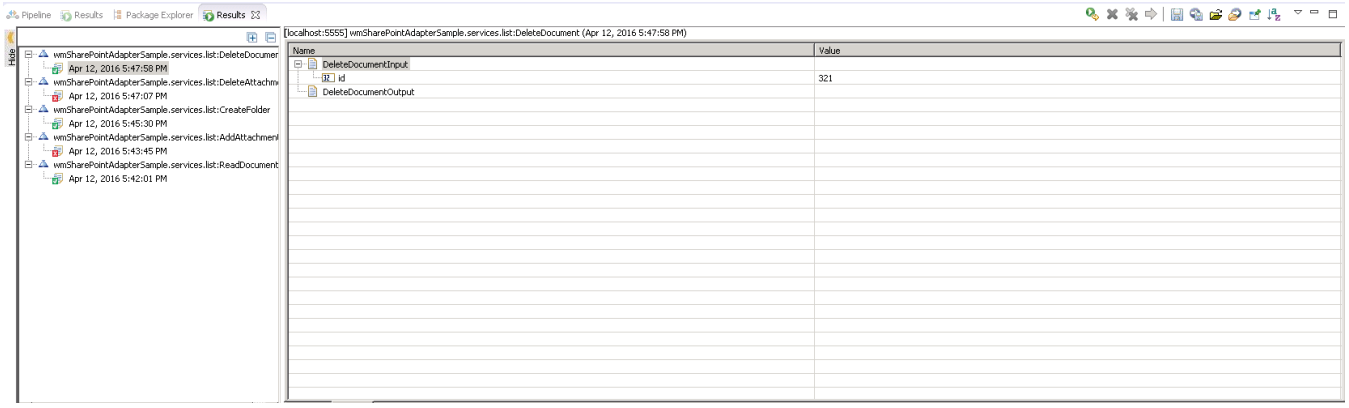
1. Right-click your newly created service and select **Run** -> **Run As Service**.



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



3. Click **OK**. The service is executed, and the resulting output is displayed.



The document is deleted.

6.5 Update Document

6.5.1 Description

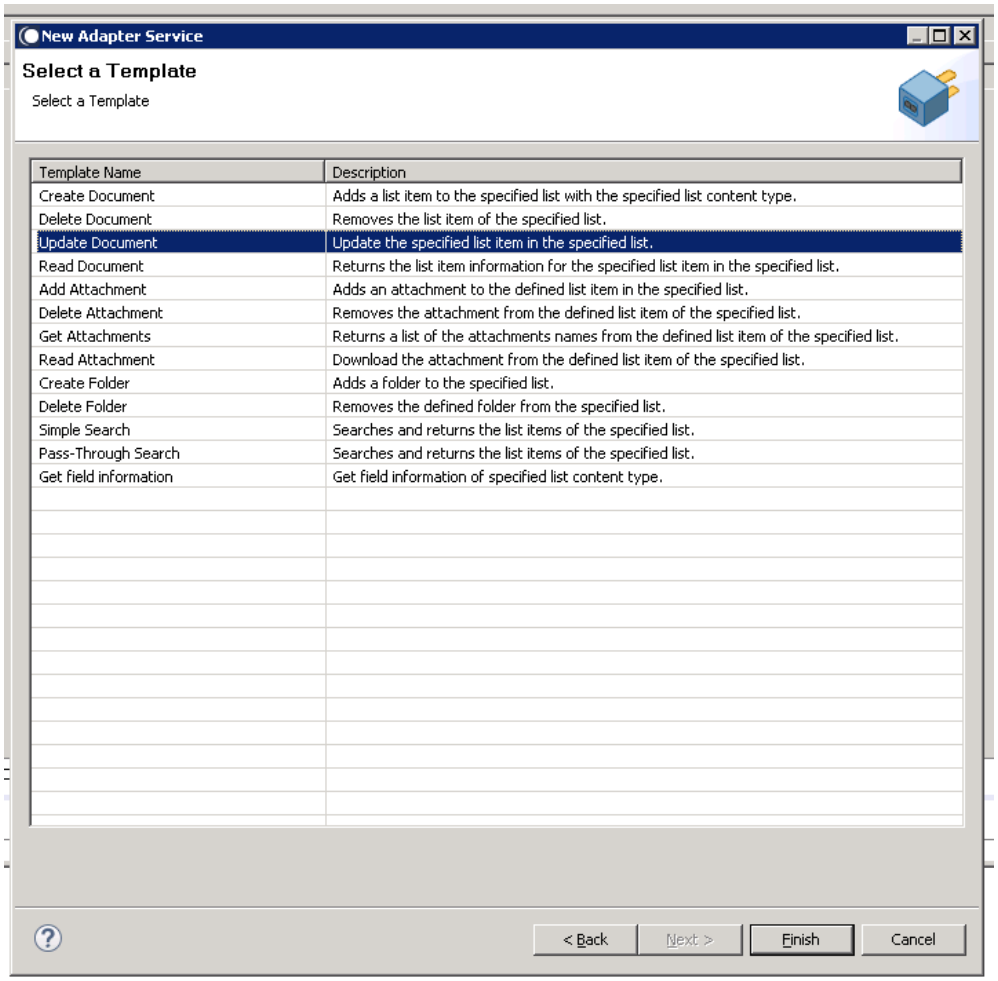
Updates the specific list item information for the specified item in the specified list.

6.5.2 Configure the Service

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

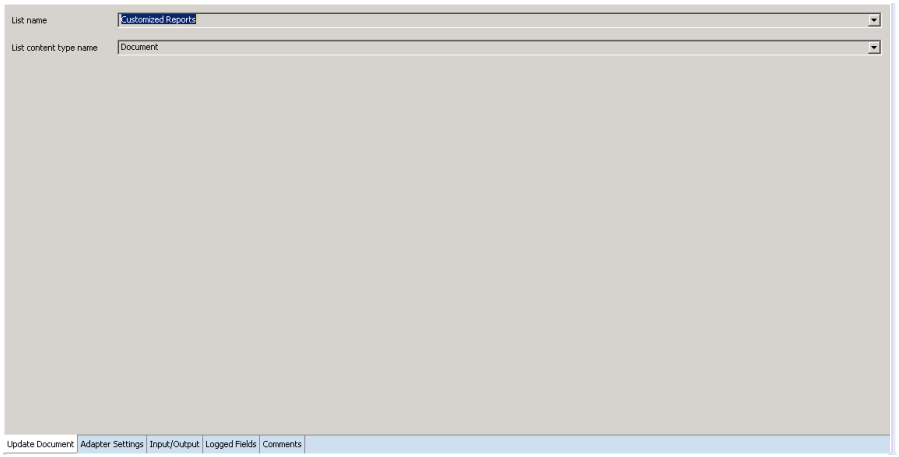
Perform the following steps to configure the service:

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

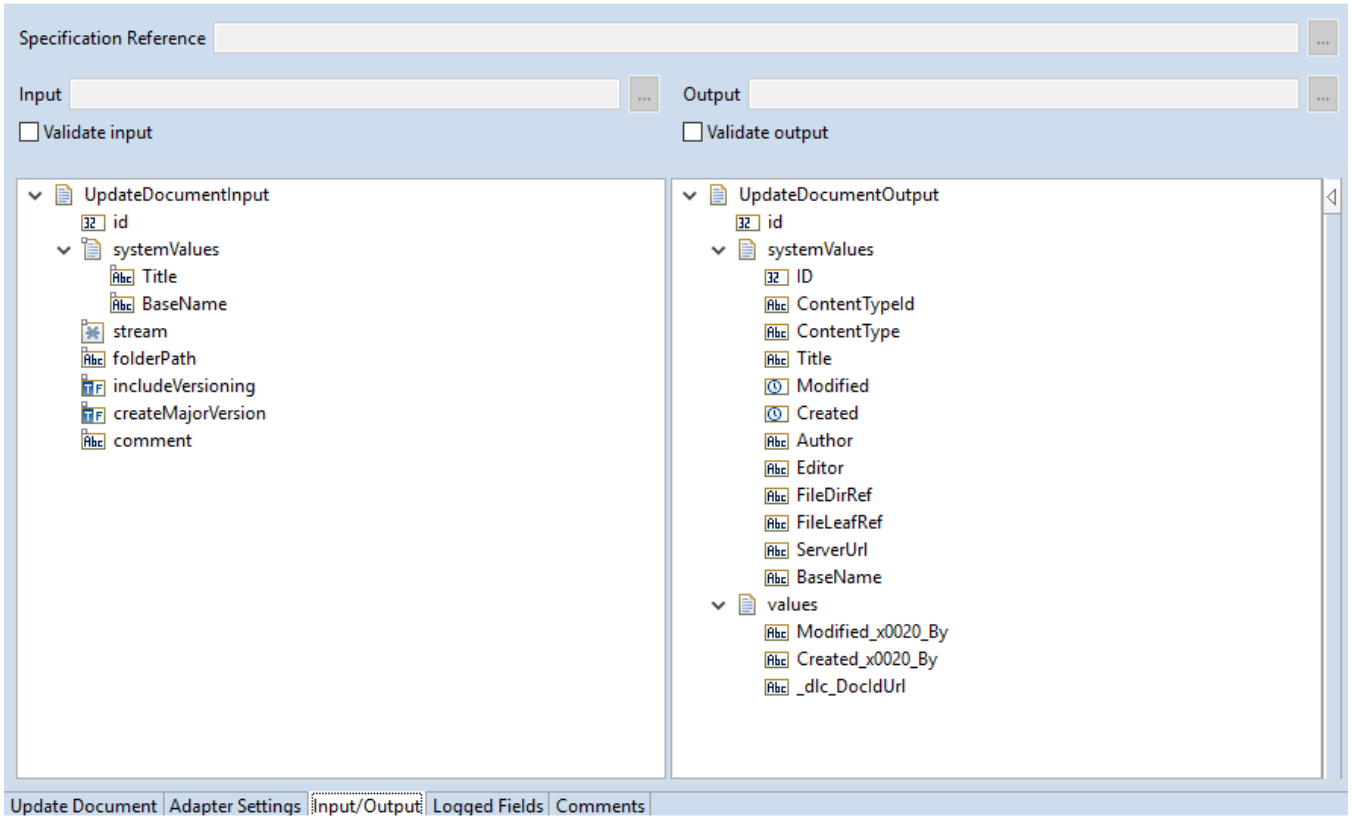


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Update Document** tab contains the following two dropdown lists.

- The first dropdown determines the location of document that has to be updated
- The second determines its content type.



2. Now, click **Input/Output** tab.



This tab shows the input, and output values of **Update Document** service, such as what is the information required and what is the information provided after the folder path is updated.

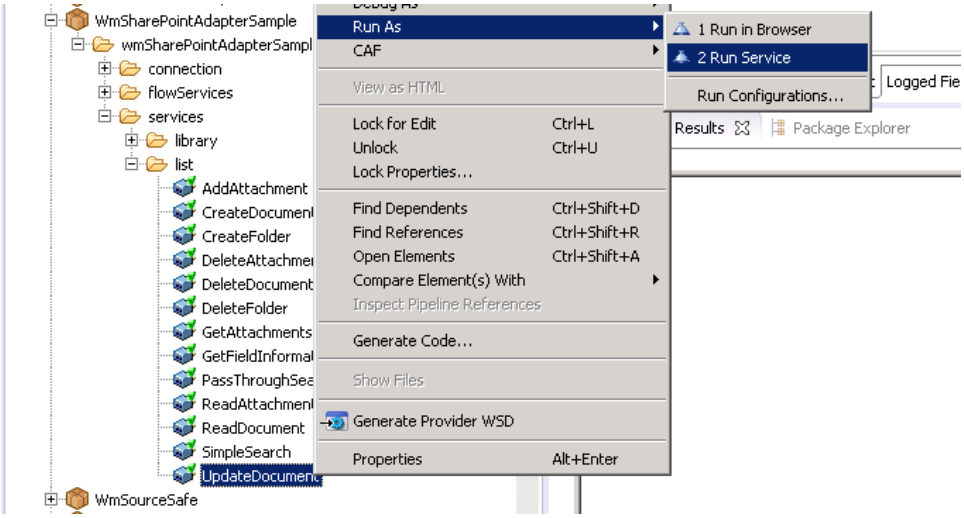
- On the left-hand side of the panel are the parameters that are taken as input. The actual values required as inputs. The important thing to note is that, in order to use the parameters related to versioning (includeVersioning, createMajorVersion and comment), versioning must be turned on for the document library that contains the document that is being updated with this service.
- On the right-hand side output values are displayed, determined by the content type selected in the **Update Document** tab.

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

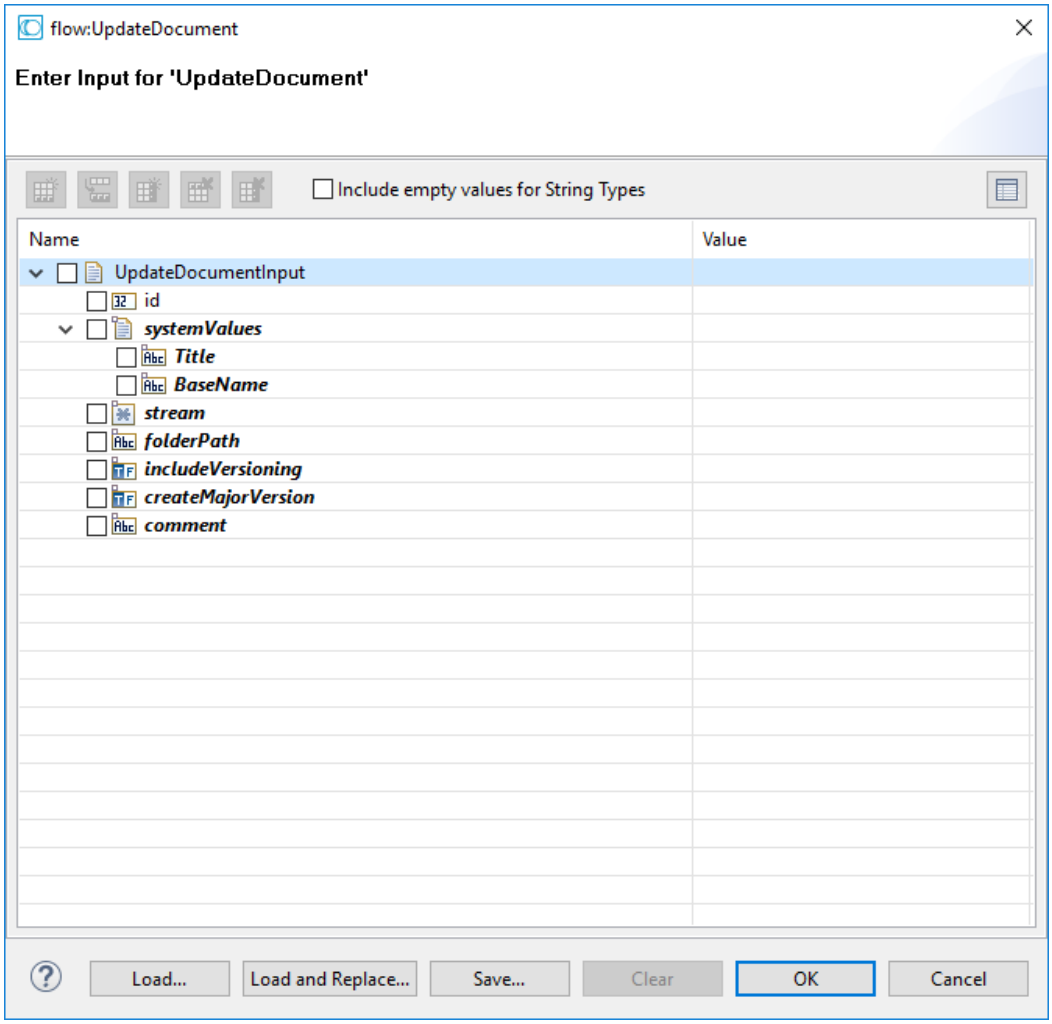
6.5.3 Execute the Service

Perform the following steps to execute the service:

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

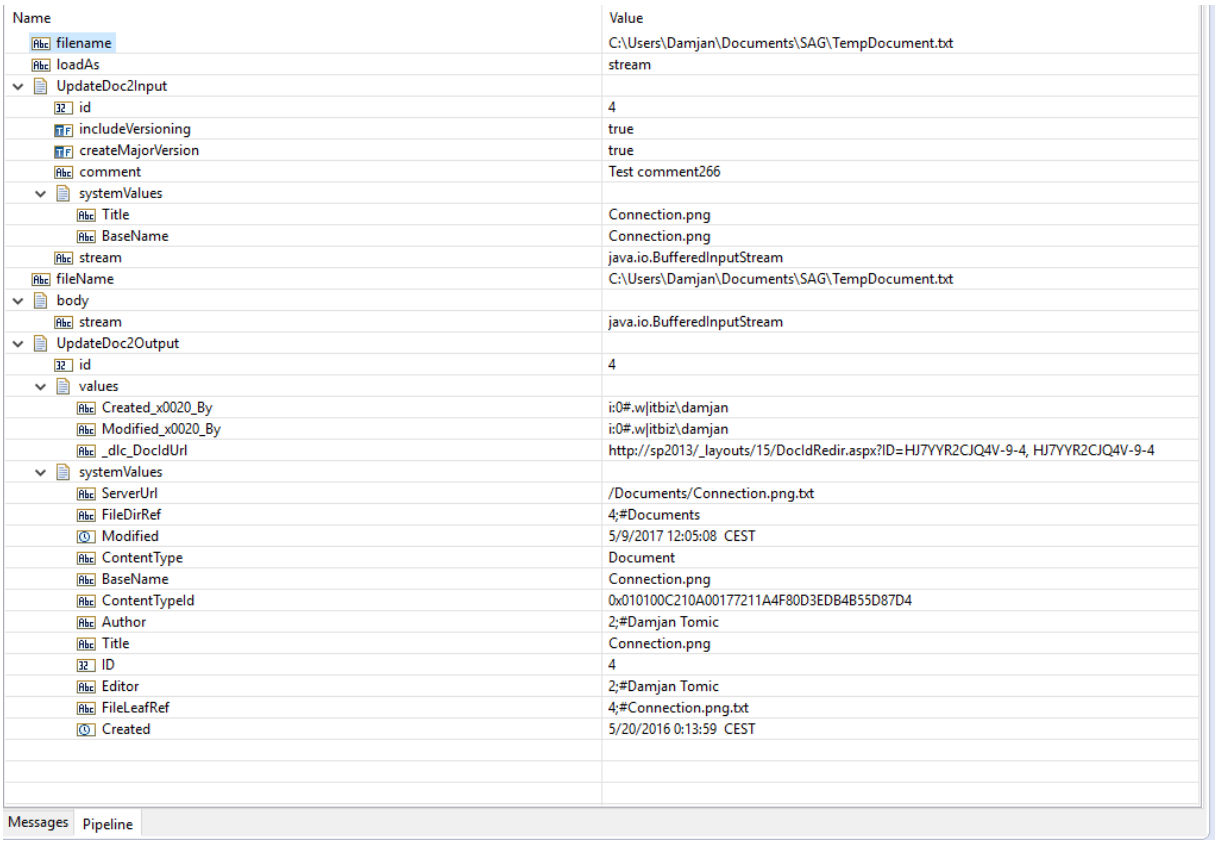


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output is displayed.



Name	Value
filename	C:\Users\Damjan\Documents\SAG\TempDocument.txt
loadAs	stream
UpdateDoc2Input	
id	4
includeVersioning	true
createMajorVersion	true
comment	Test comment266
systemValues	
Title	Connection.png
BaseName	Connection.png
stream	java.io.BufferedInputStream
fileName	C:\Users\Damjan\Documents\SAG\TempDocument.txt
body	
stream	java.io.BufferedInputStream
UpdateDoc2Output	
id	4
values	
Created_x0020_By	i:0#.w|itbiz\damjan
Modified_x0020_By	i:0#.w|itbiz\damjan
_dlc_DocIdUrl	http://sp2013/_layouts/15/DocIdRedir.aspx?ID=HJ7YYR2CJQ4V-9-4, HJ7YYR2CJQ4V-9-4
systemValues	
ServerUrl	/Documents/Connection.png.txt
FileDirRef	4;#Documents
Modified	5/9/2017 12:05:08 CEST
ContentType	Document
BaseName	Connection.png
ContentTypeId	0x010100C210A00177211A4F80D3EDB4B55D87D4
Author	2;#Damjan Tomic
Title	Connection.png
ID	4
Editor	2;#Damjan Tomic
FileLeafRef	4;#Connection.png.txt
Created	5/20/2016 0:13:59 CEST

Messages Pipeline

The document is updated.

6.6 Read Document

6.6.1 Description

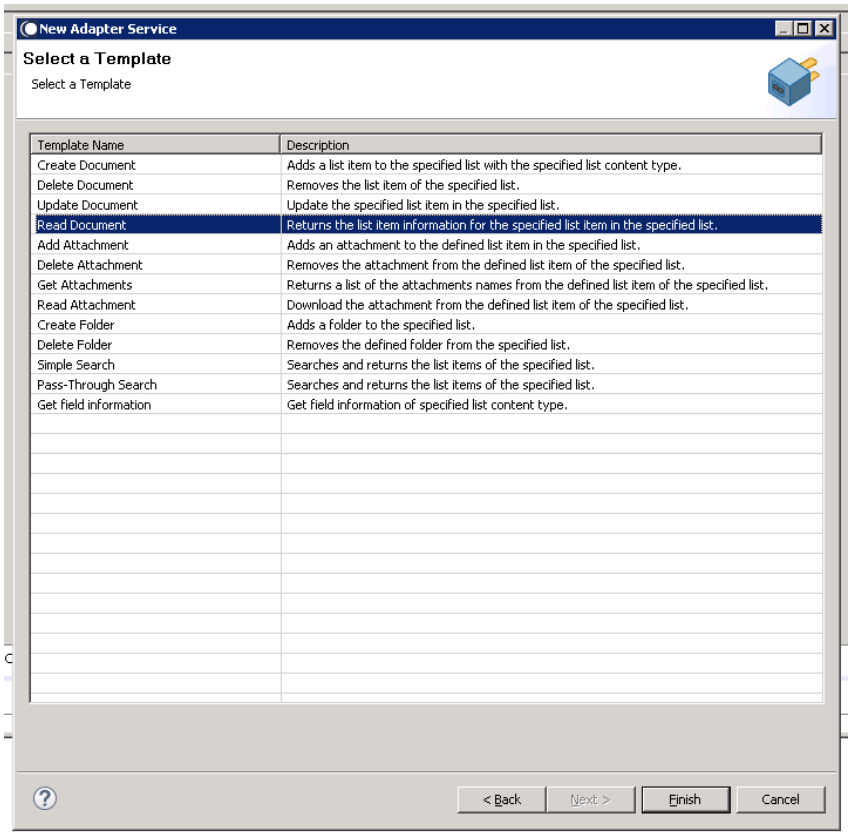
Returns the list item information for the specified list item in the specified list.

6.6.2 Configure the service

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

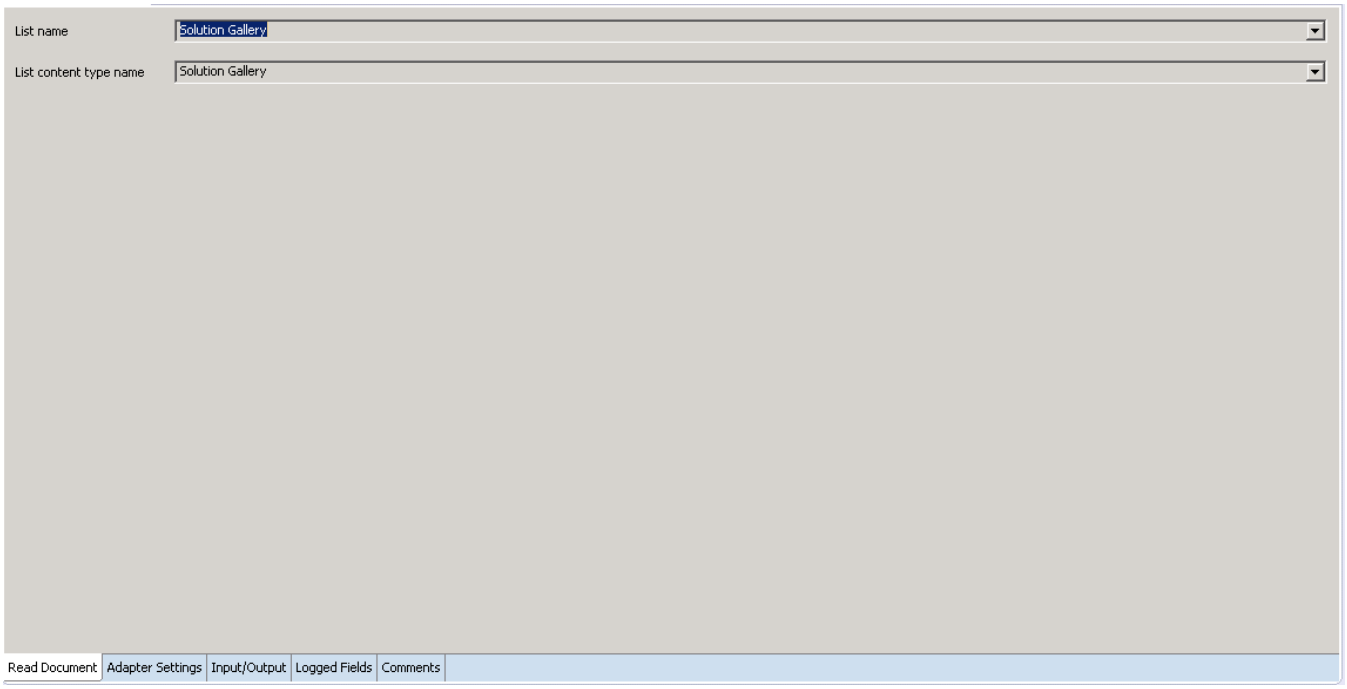
Perform the following steps to configure the service:

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

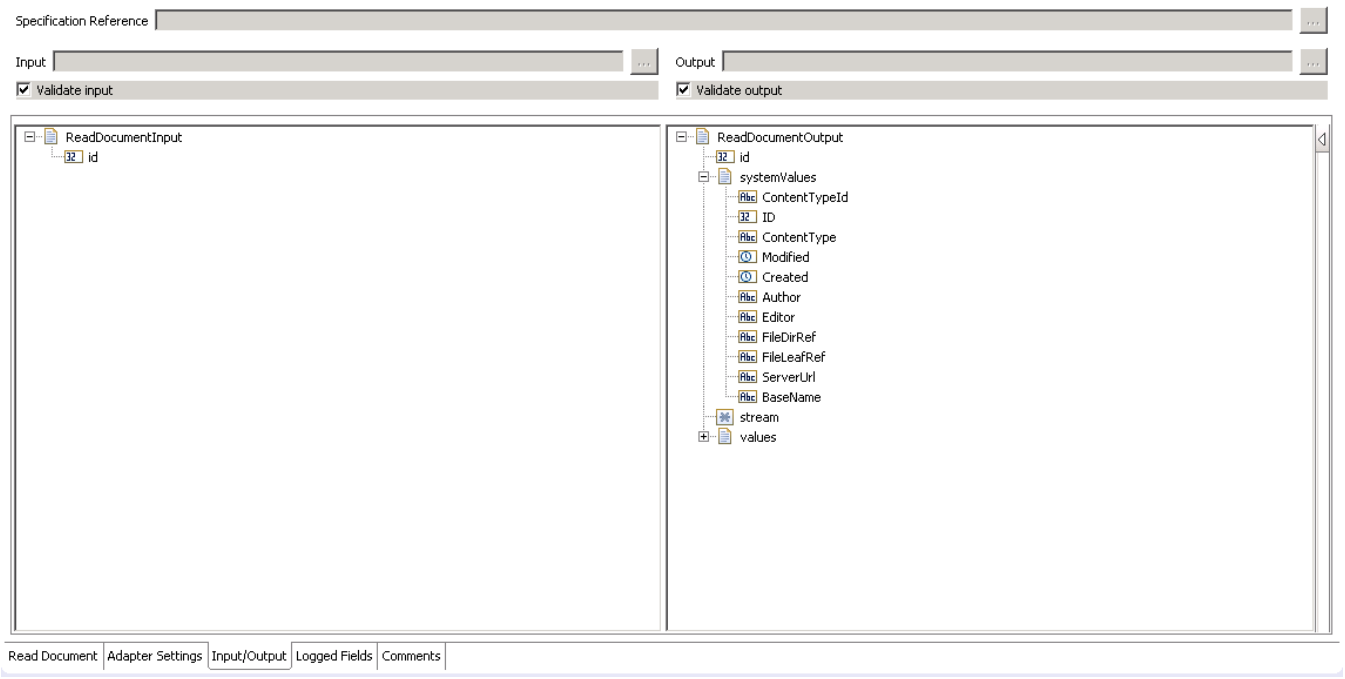


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Read Document** tab contains two dropdown lists.

- The first dropdown determines the list where the document to be read is found.
- The second determines the content type of the document.



2. Click **Input/Output** tab, if you have selected the list and the content type.



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

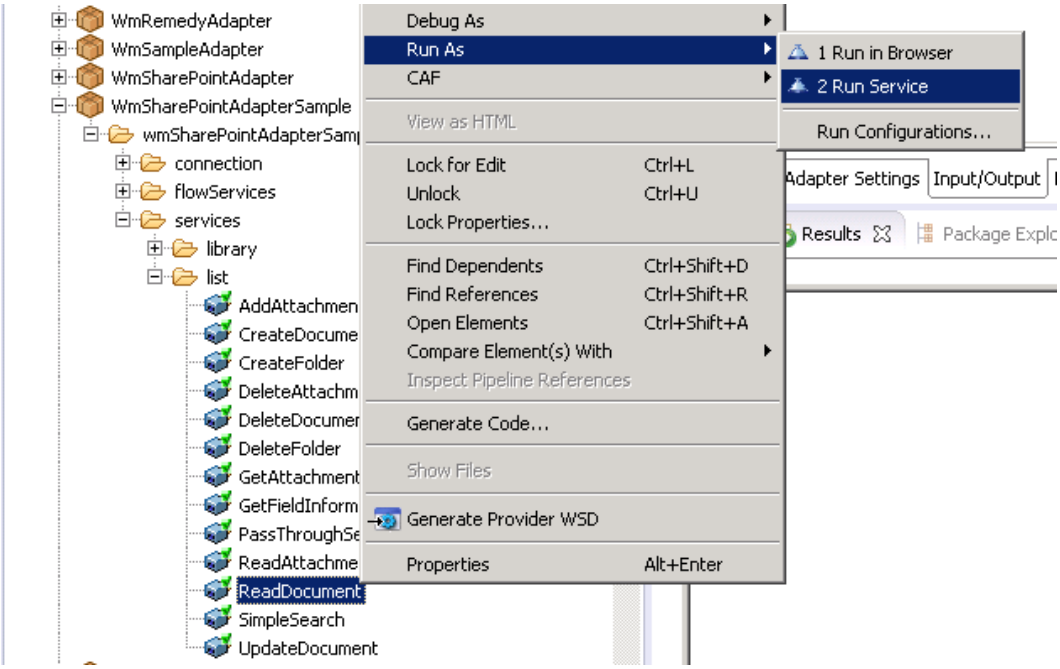
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, there is only one input required and which is the objectID of the document that has to be read.
- On the right-hand side it shows the output for the service. Here, the attributes returned are determined by the content type of the document to be read.

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

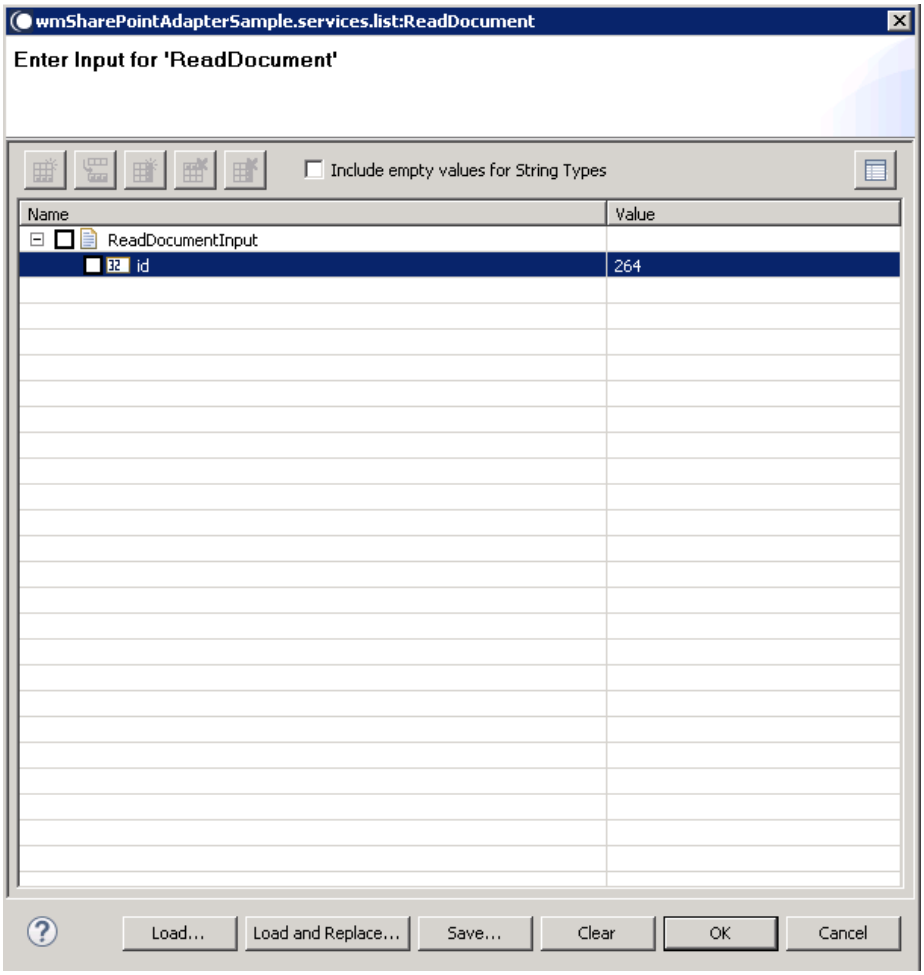
6.6.3 Execute the service

Perform the following steps to execute the service:

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

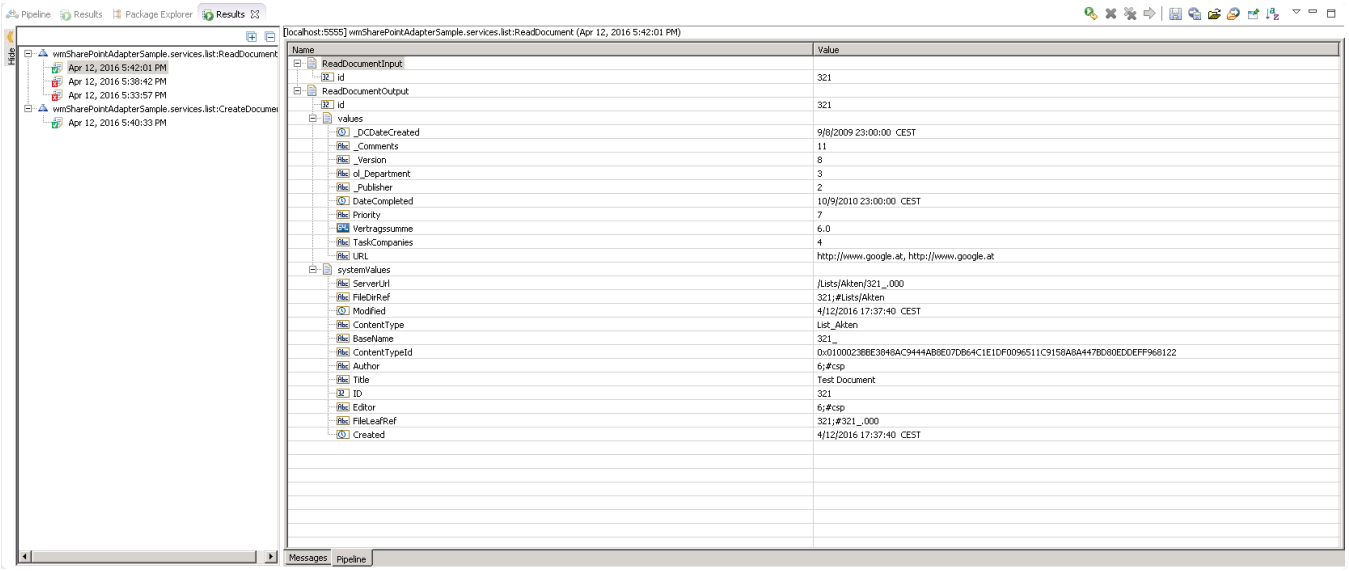


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output displayed.



The metadata for your document is returned.

6.7 Add Attachment

6.7.1 Description

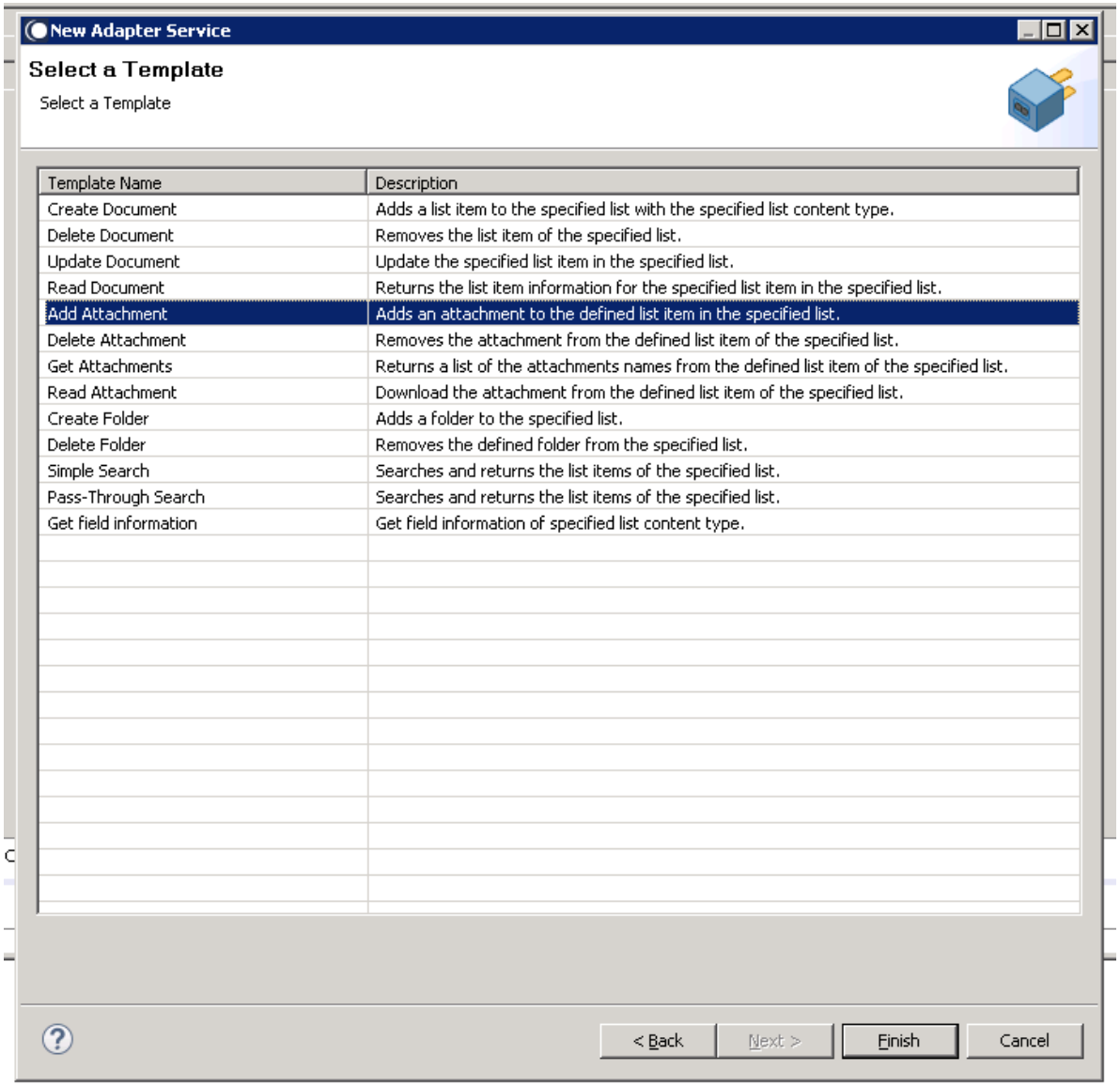
Adds an attachment to the defined list item.

6.7.2 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 **Add Attachment** and click **Finish**.

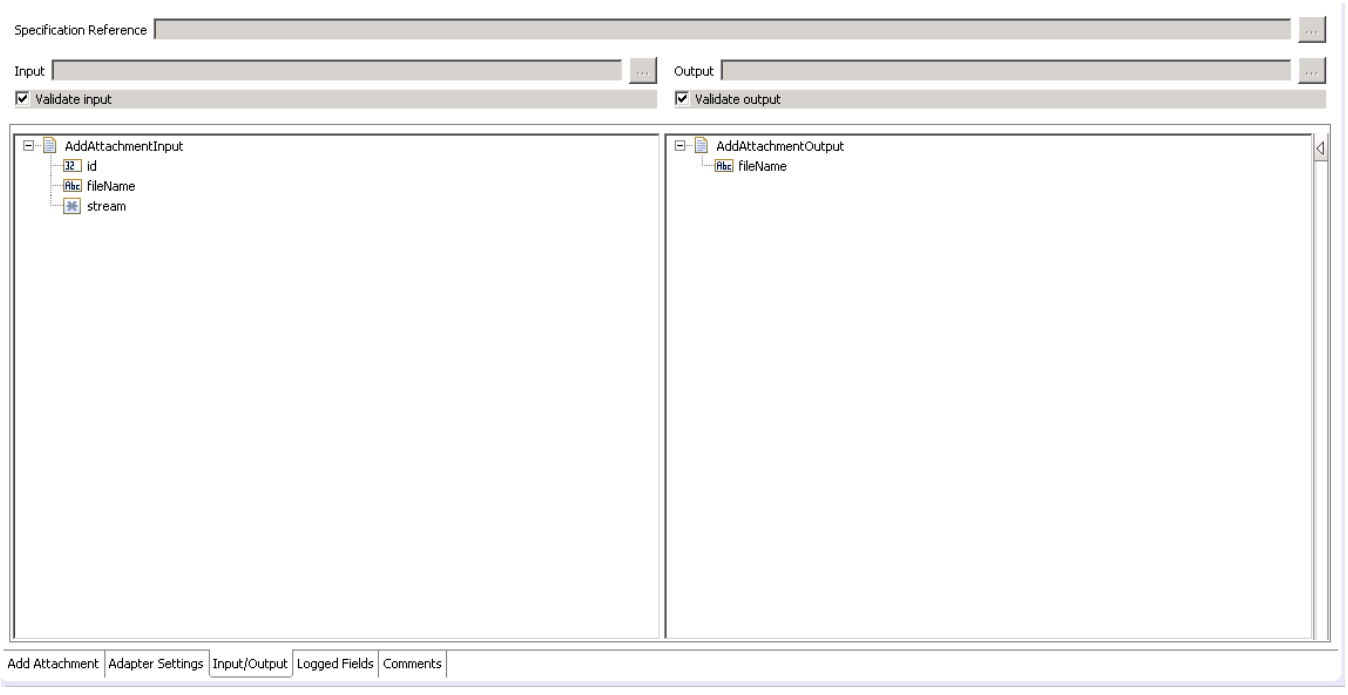


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Add Attachment** tab contains two dropdown lists.

- The first dropdown determines the list where the attachment should be added.

- The second determines the content type of the attached item.

Click **Input/Output** tab, once you select the required list and content type.

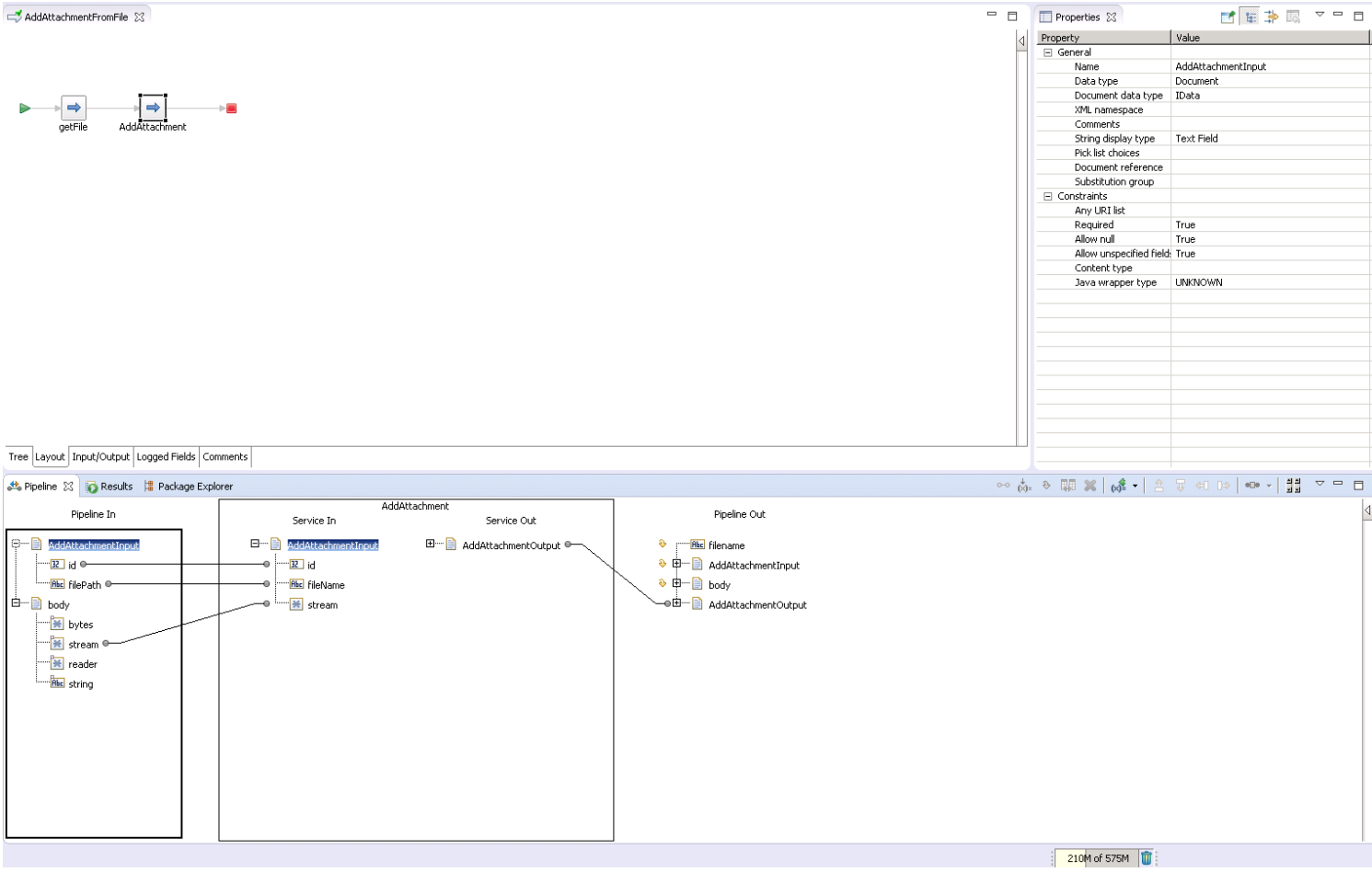


This tab shows the input and output values of **Add Attachment** service, which is information required and what is then provided after the file is attached.

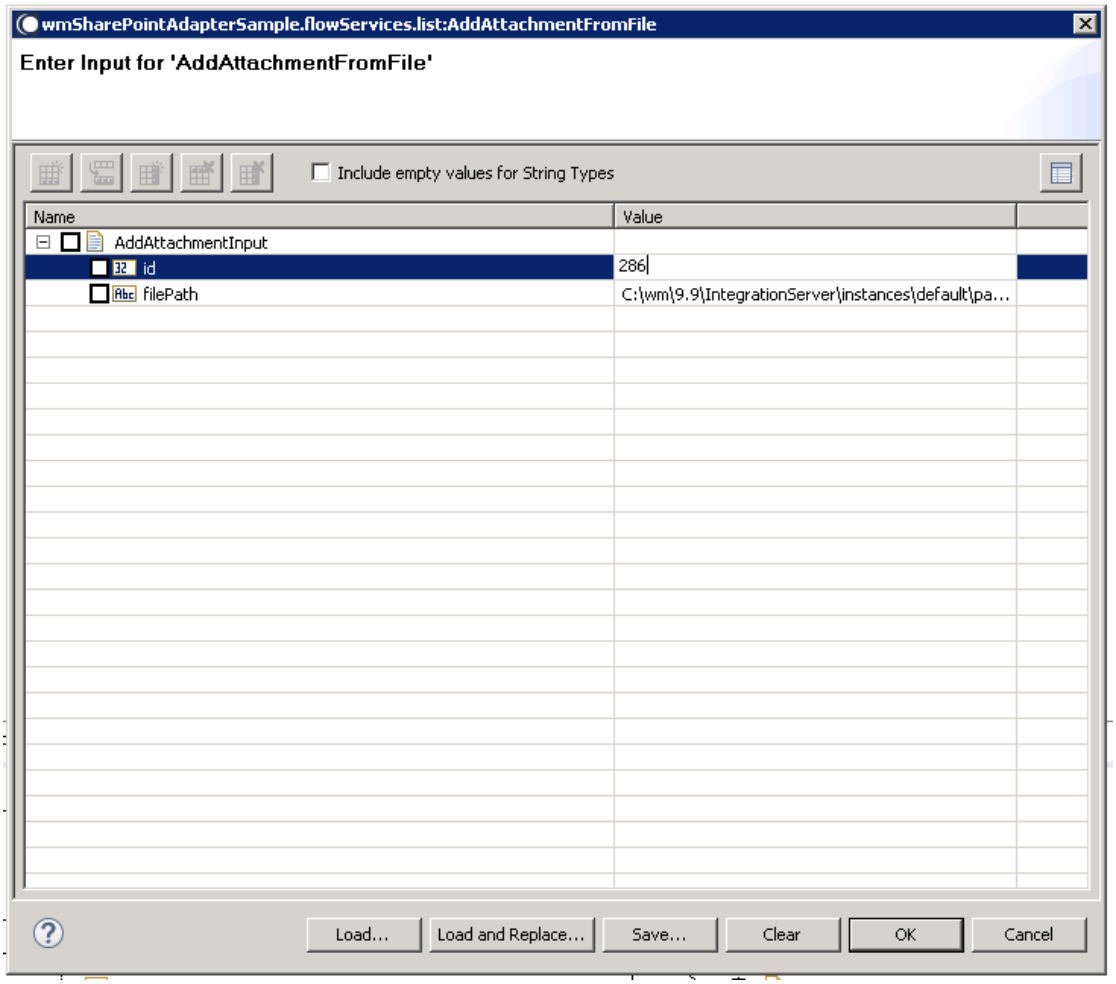
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the parameters required are as follows:
    - the id of the document where the file is to be attached,
    - the name of the file,
    - and finally, the file itself.
- On the right-hand side shows the returned output. The name of the attached file is the only returned value.

6.7.3 Execute the Service

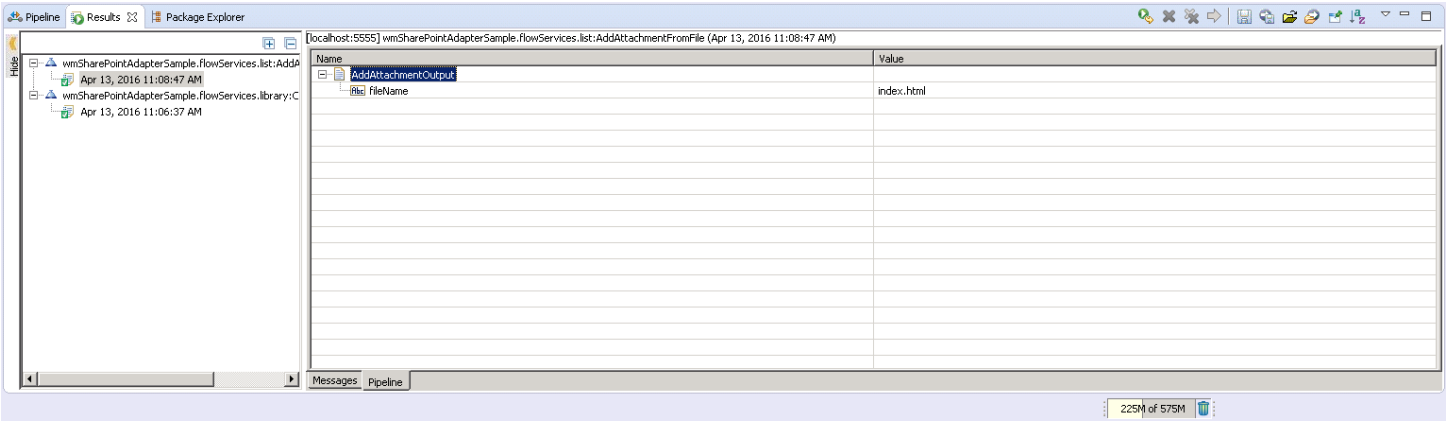
Because we are going to upload an attachment through a stream, we are required to use a flow created in Designer.



The flow is executed, where the file is retrieved, and launches the service input template, displayed with the relevant information already inputted. If required, you can change the value of the object ID, the object to where the file will be attached.



2. Click **OK**. The service is executed, and the resulting output appears.



The file is attached to the specified object.

6.8 Delete Attachment

6.8.1 Description

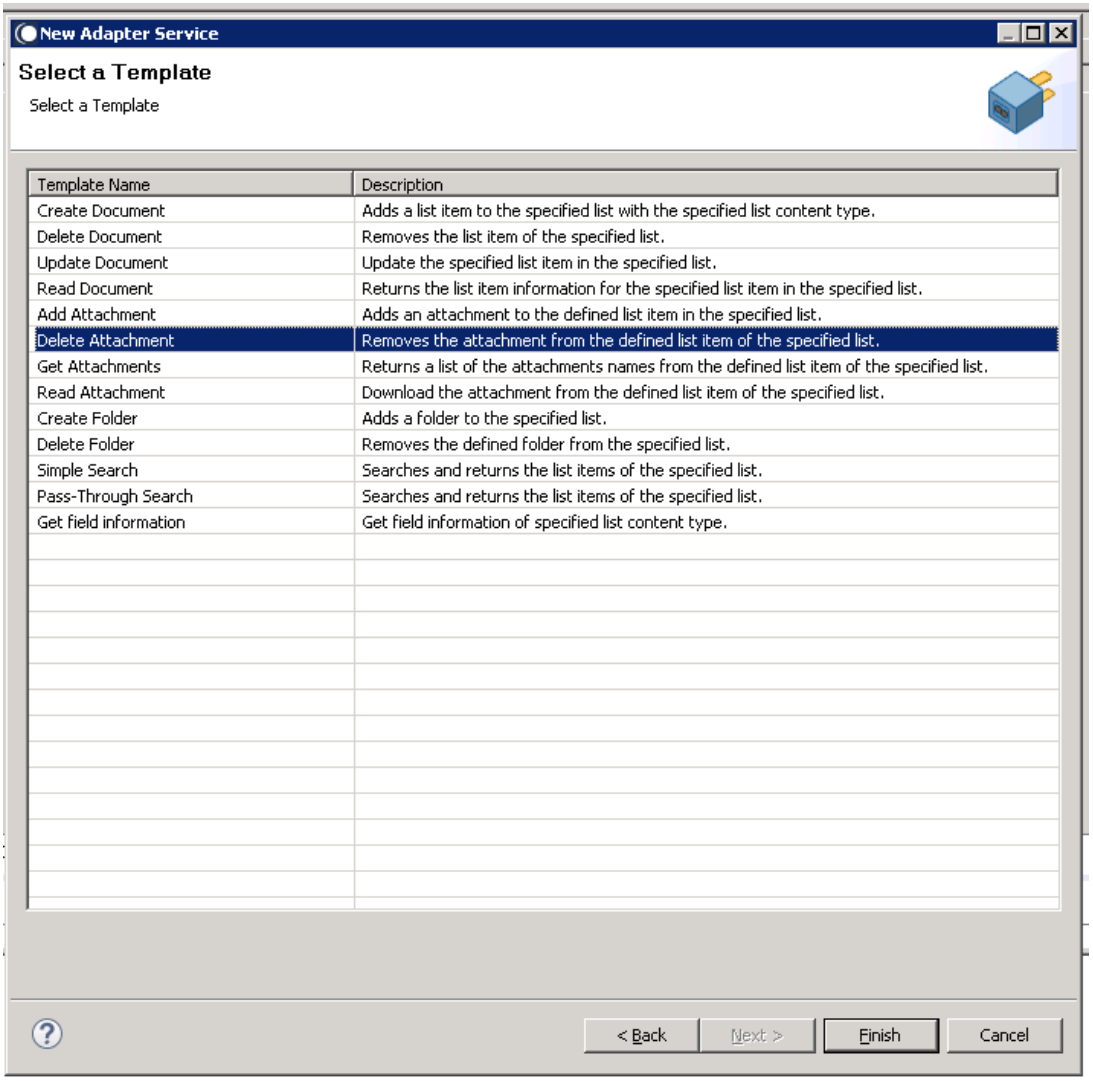
Removes the attachment from the defined list item of the specified list.

6.8.2 Configure the service

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

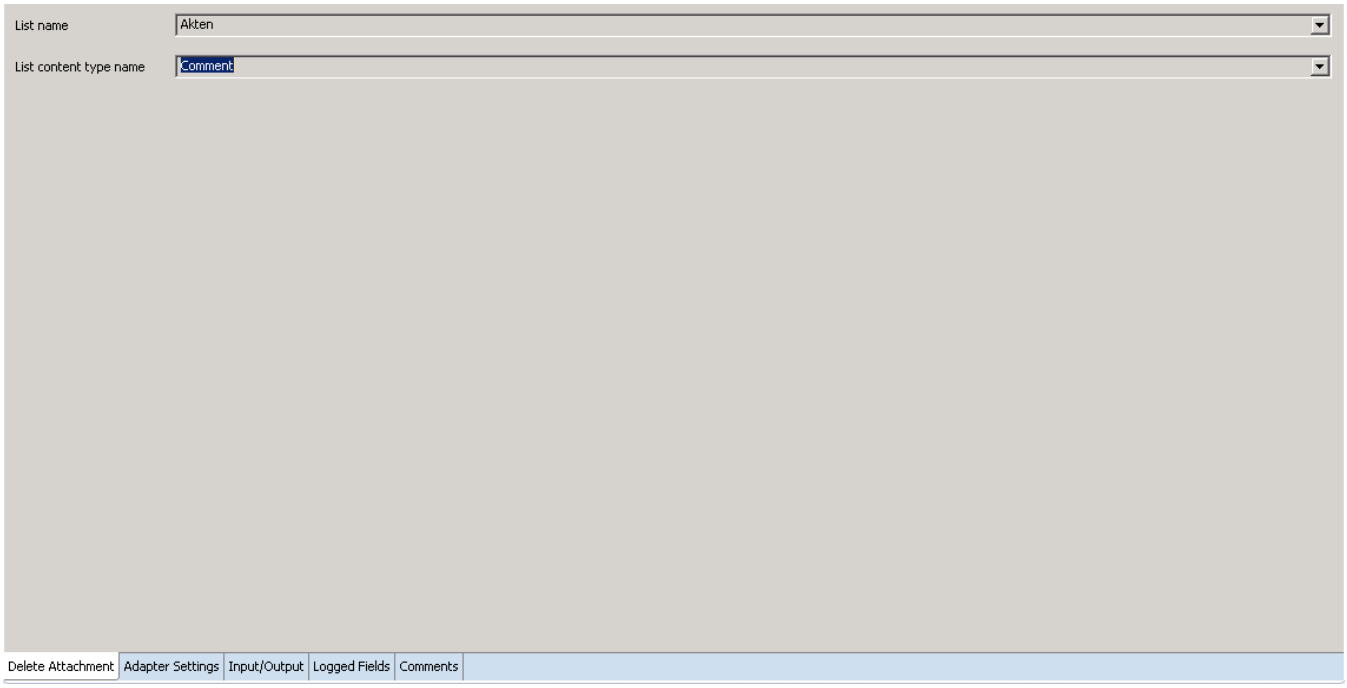
Perform the following steps to configure the service:

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

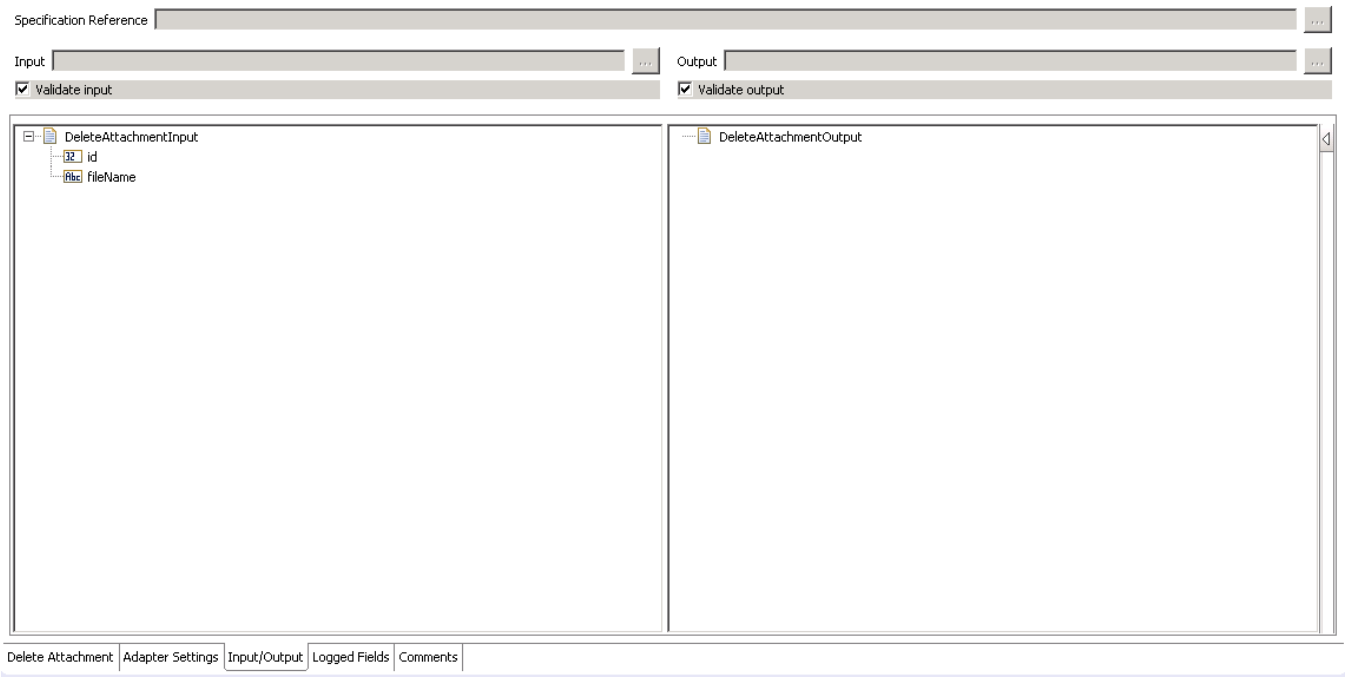


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Delete Attachment** tab, contains the following two dropdown lists:

- The first determines the lists where the attachment is found, while
- The second determines the content type.



2. Click **Input/Output, once** you select the required list and content type.



This tab shows the Delete Attachment service's input and outputs, i.e., which is information required and what is then provided after the attachment is deleted.

- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the inputs required are as follows:
    - The id of the document where the attachment to be found is,
    - The file name of the attachment.

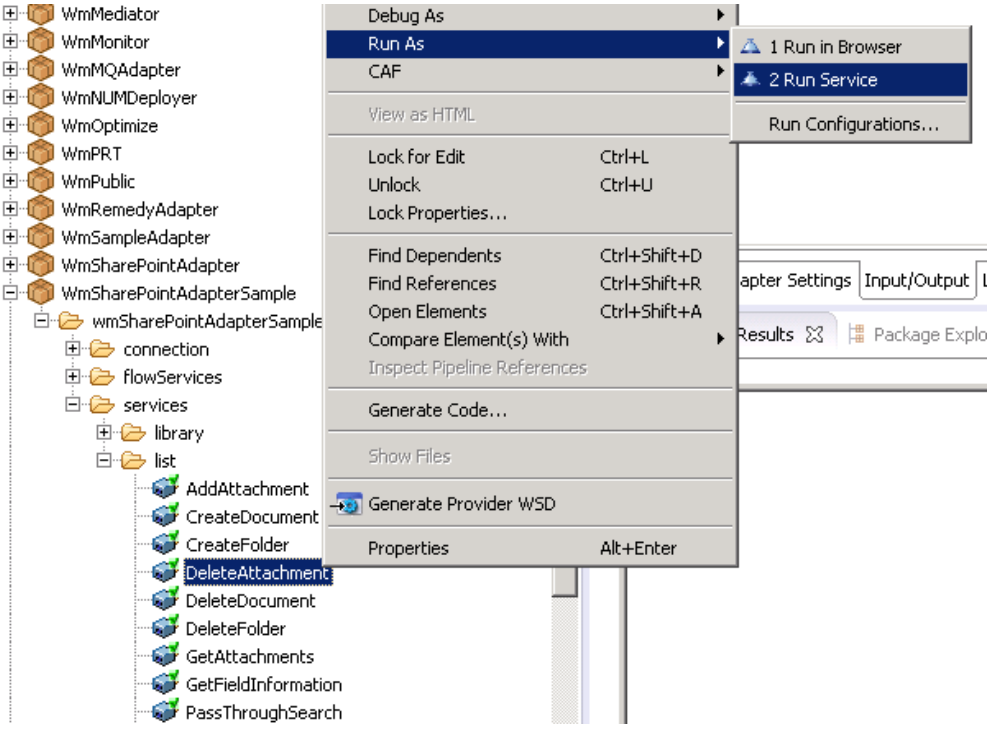
- On the right-hand side are the outputs. As seen in the screenshot above, this service returns no outputs.

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

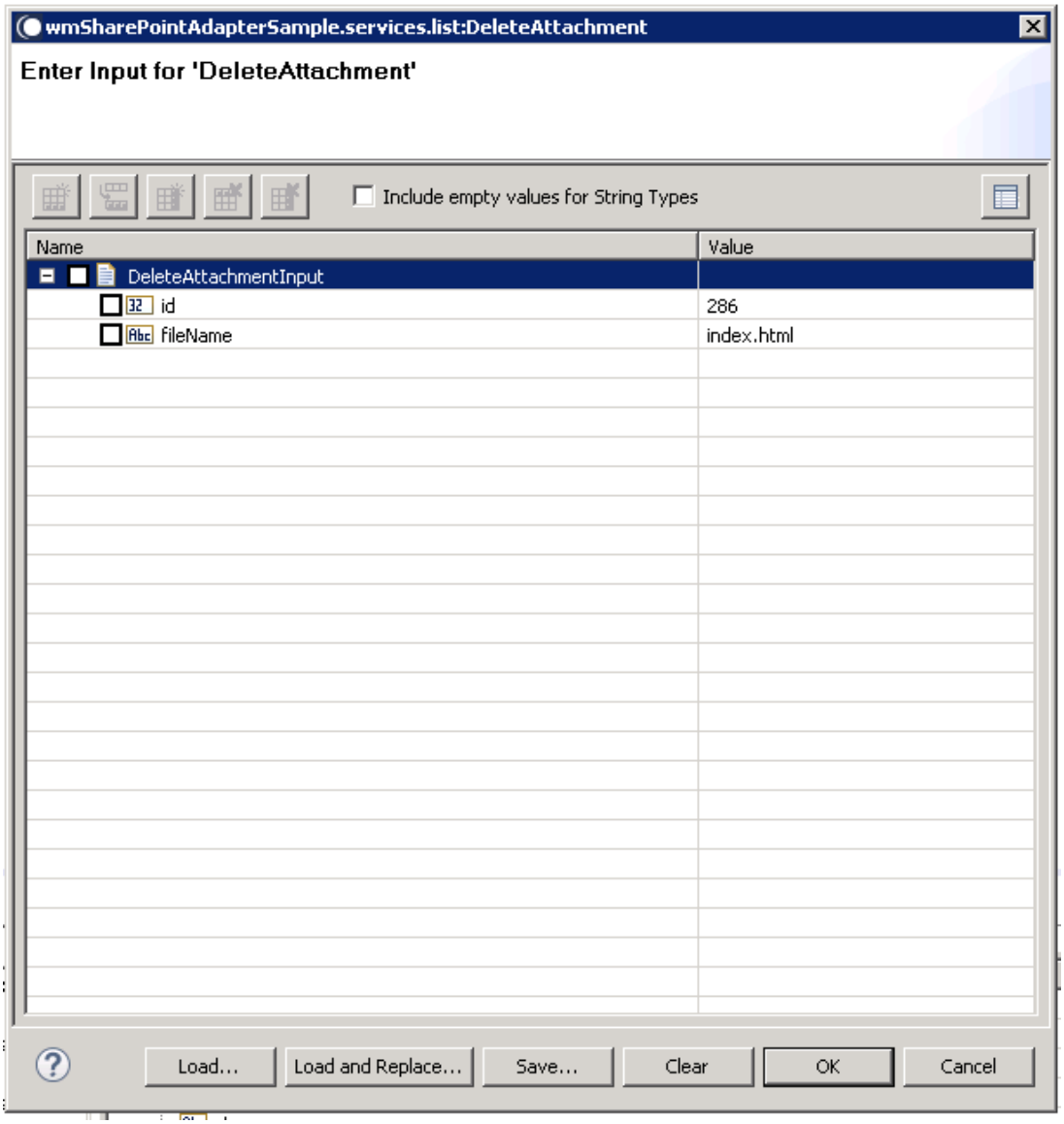
6.8.3 Execute the service

Perform the following steps to execute the service:

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

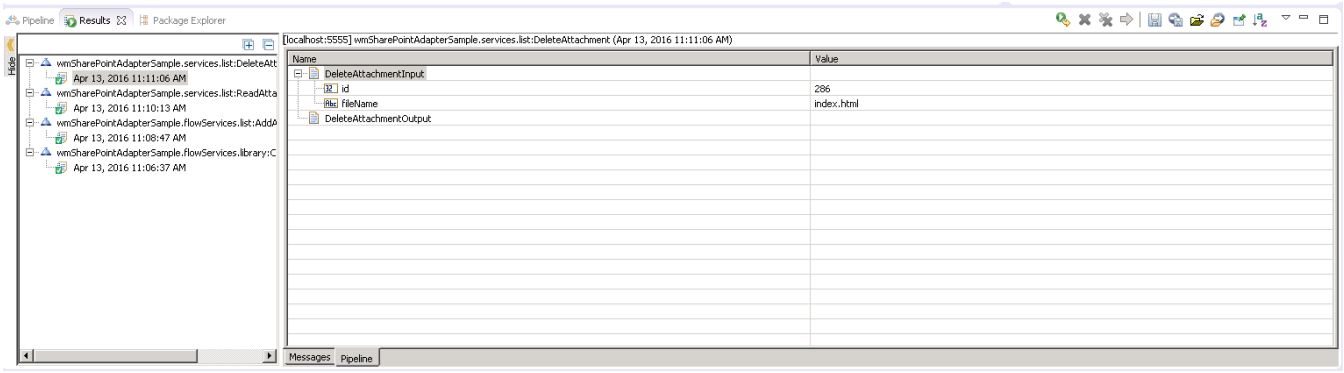


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output displayed.



The attachment is deleted.

6.9 Get Attachments

6.9.1 Description

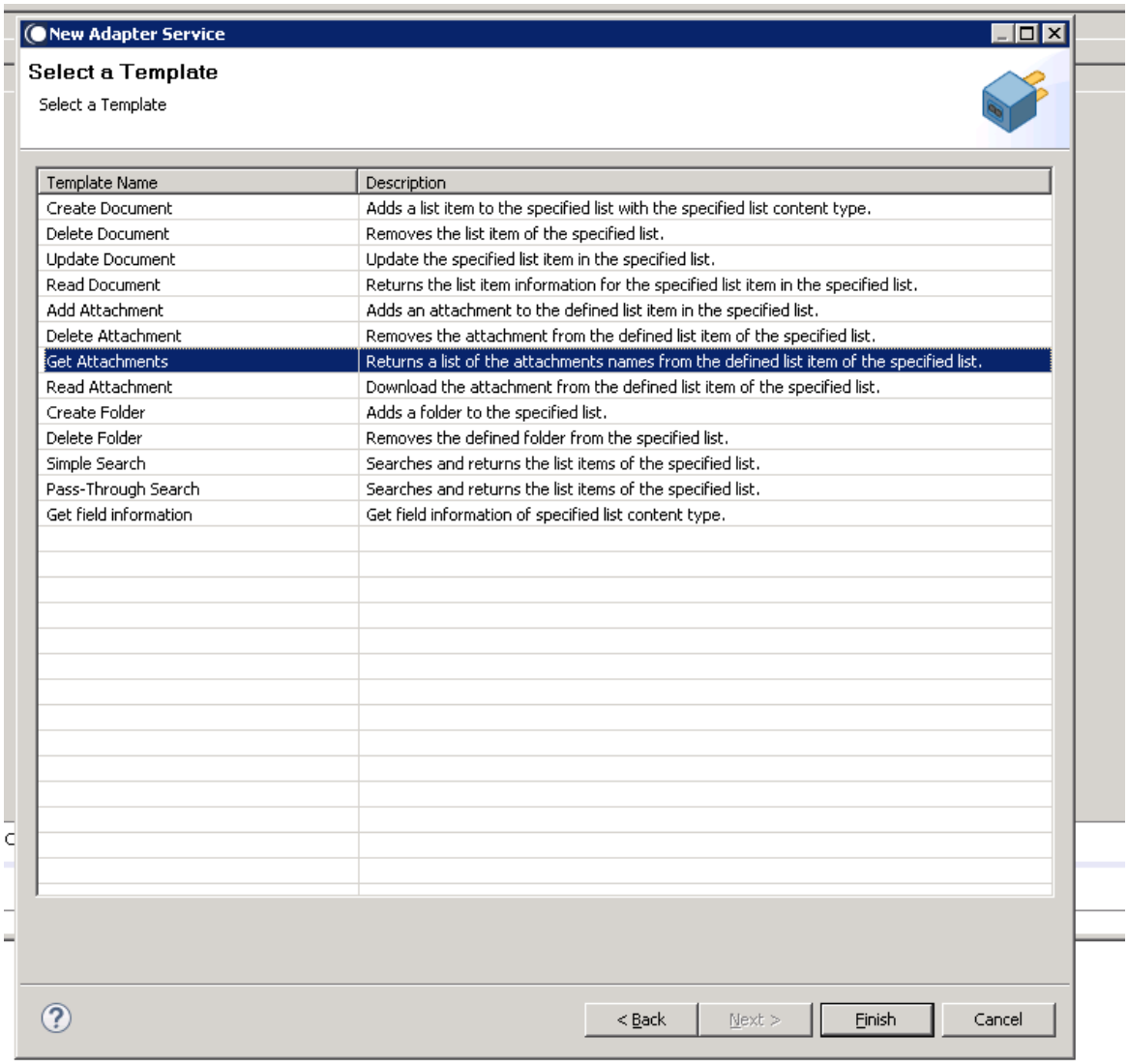
Returns a list of the attachment names from the defined list item.

6.9.2 Configure the Service

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

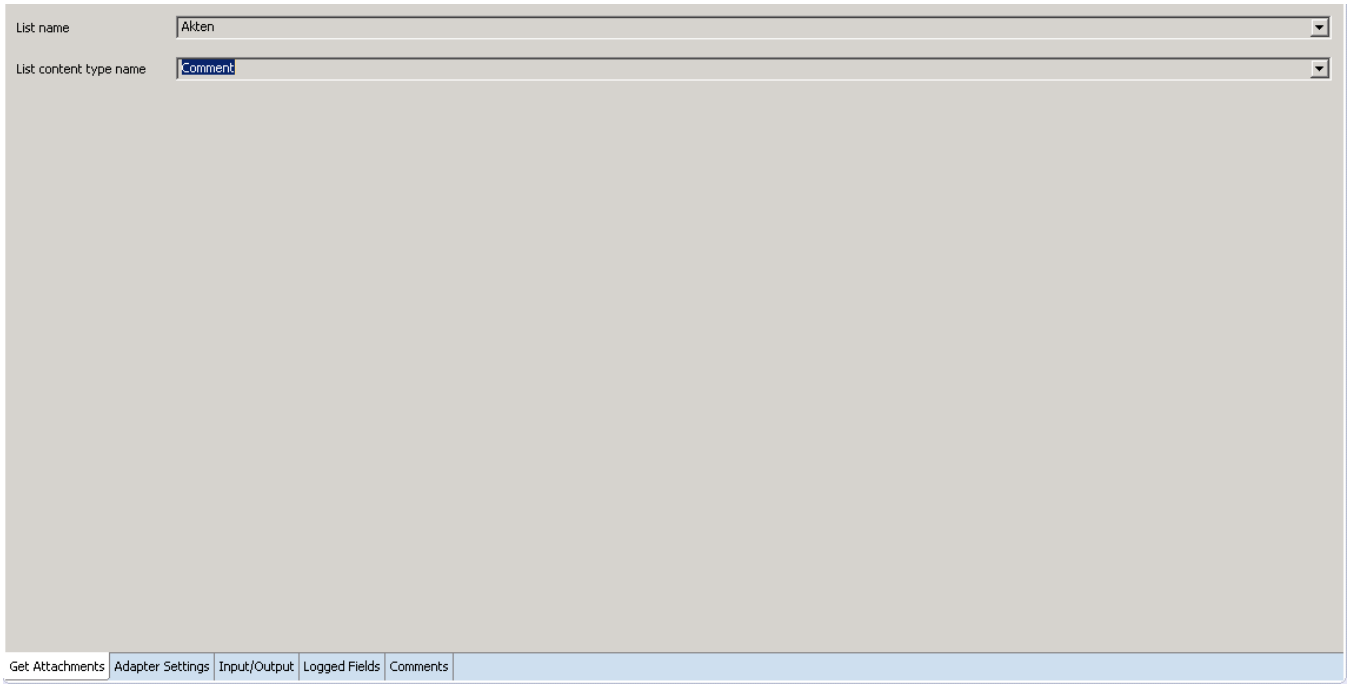
Perform the following steps to configure the service:

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

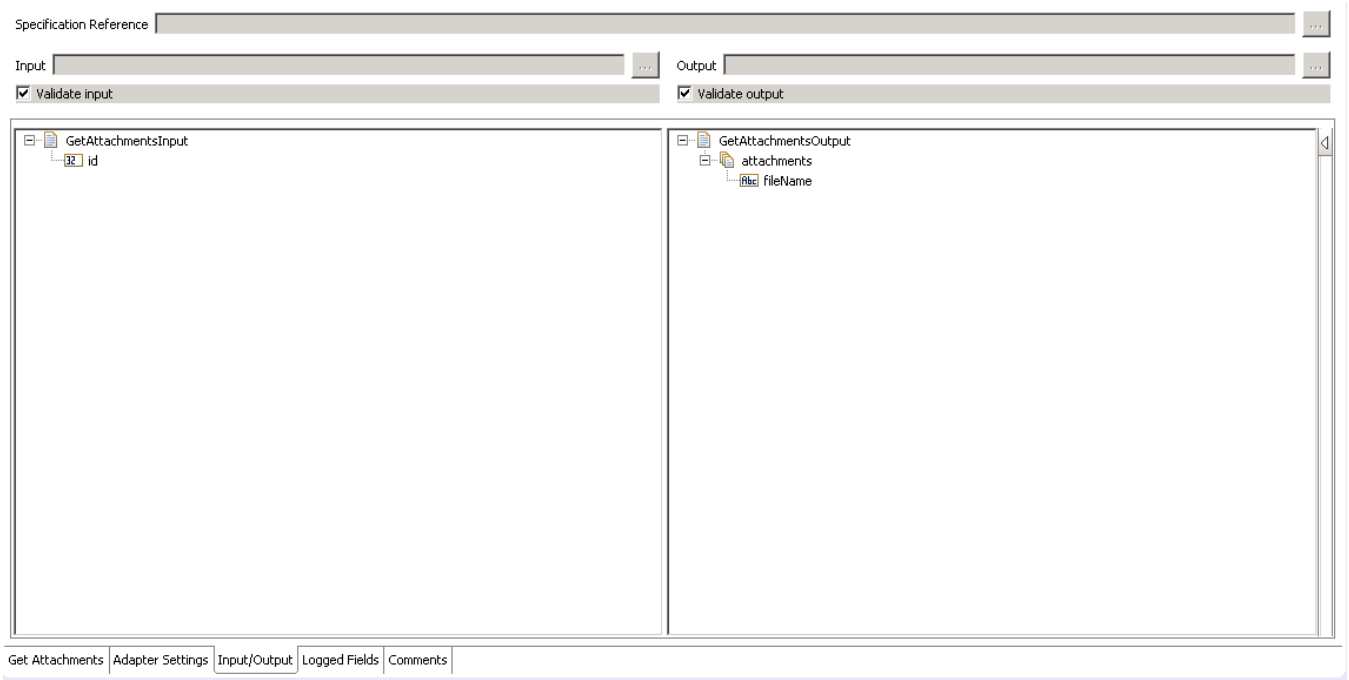


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Get Attachments** tab, contains the following two dropdown lists.

- The first determines the list where the attachments to be returned are found.
- The second determines the content type.



2. Click **Input/Output** tab, once you select the list and content type.



This tab shows the input and output values of **Get Attachments** service such as, which is information required and what is provided after the service has been executed.

- 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 ID of the list where the attachments are found.

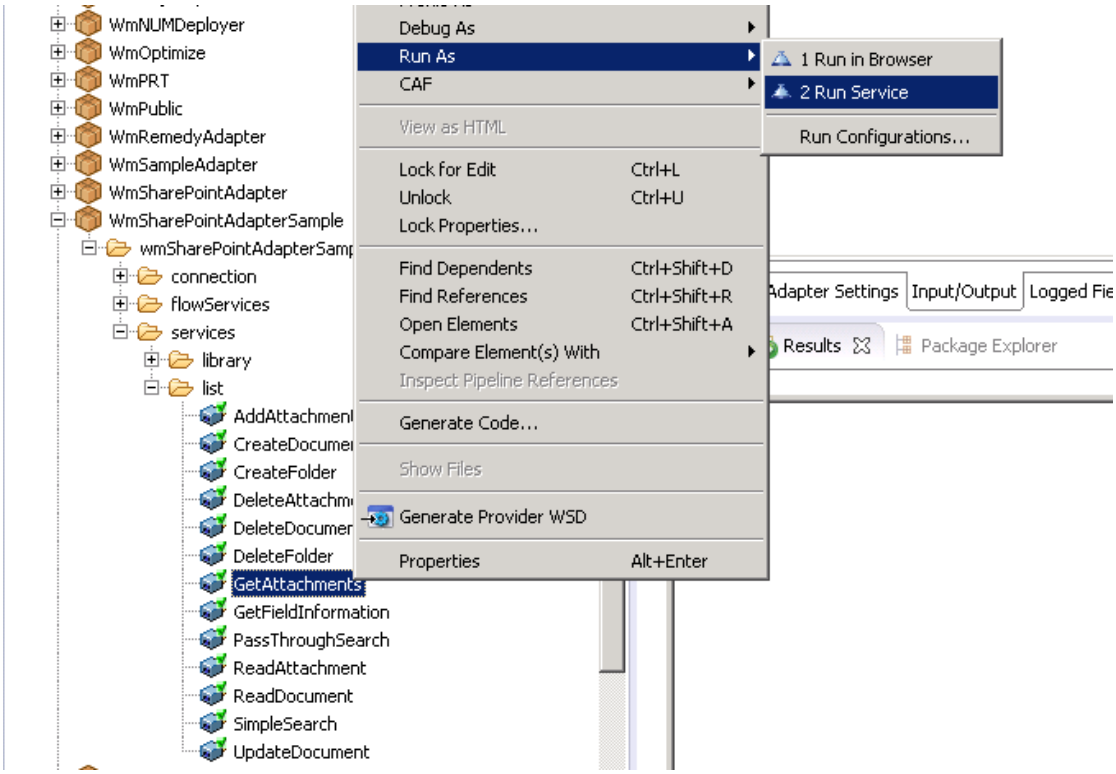
- While to the right-hand side are the outputs. Here, the service will return a list of file names for all attachments found at this list.

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

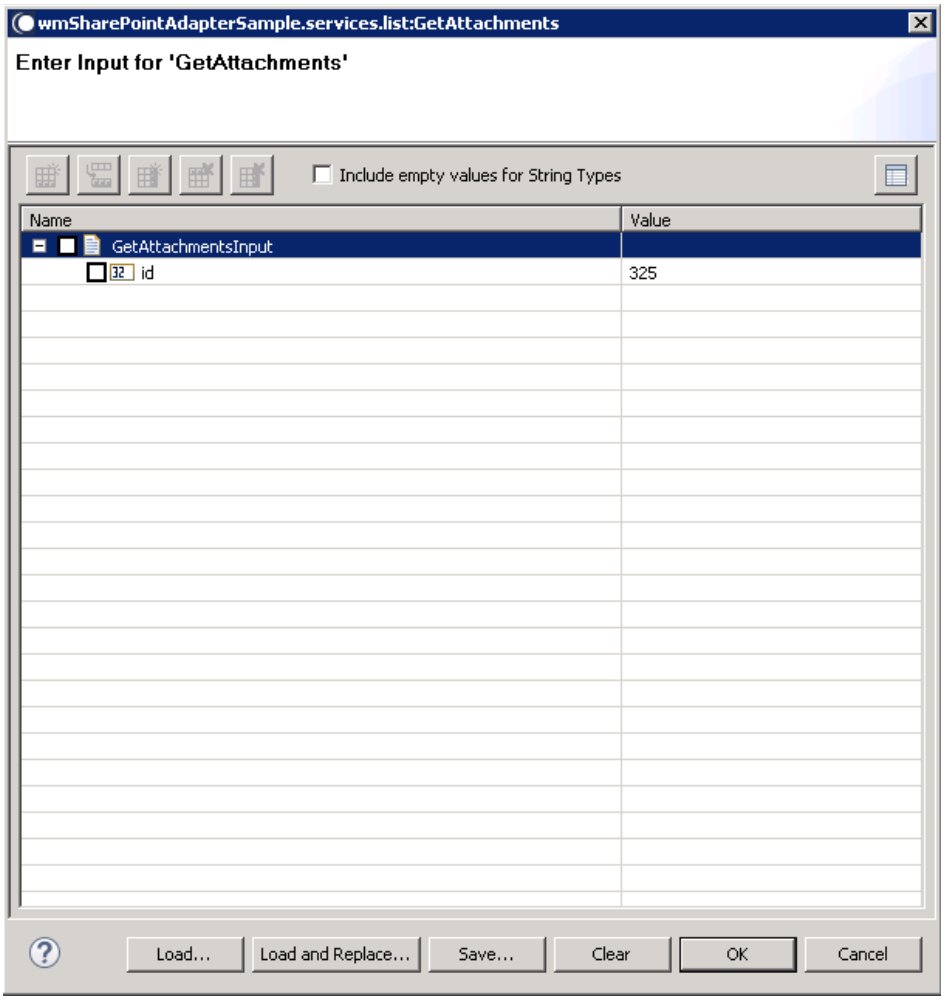
6.9.3 Execute the Service

Perform the following steps to execute the service:

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

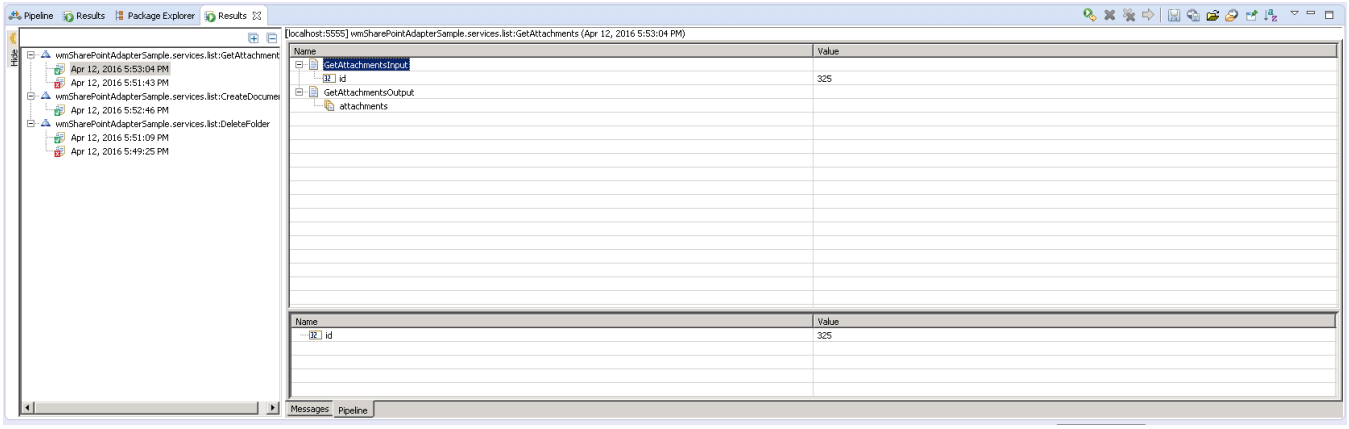


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



The metadata for the relevant attachments is returned.

6.10 Read Attachment

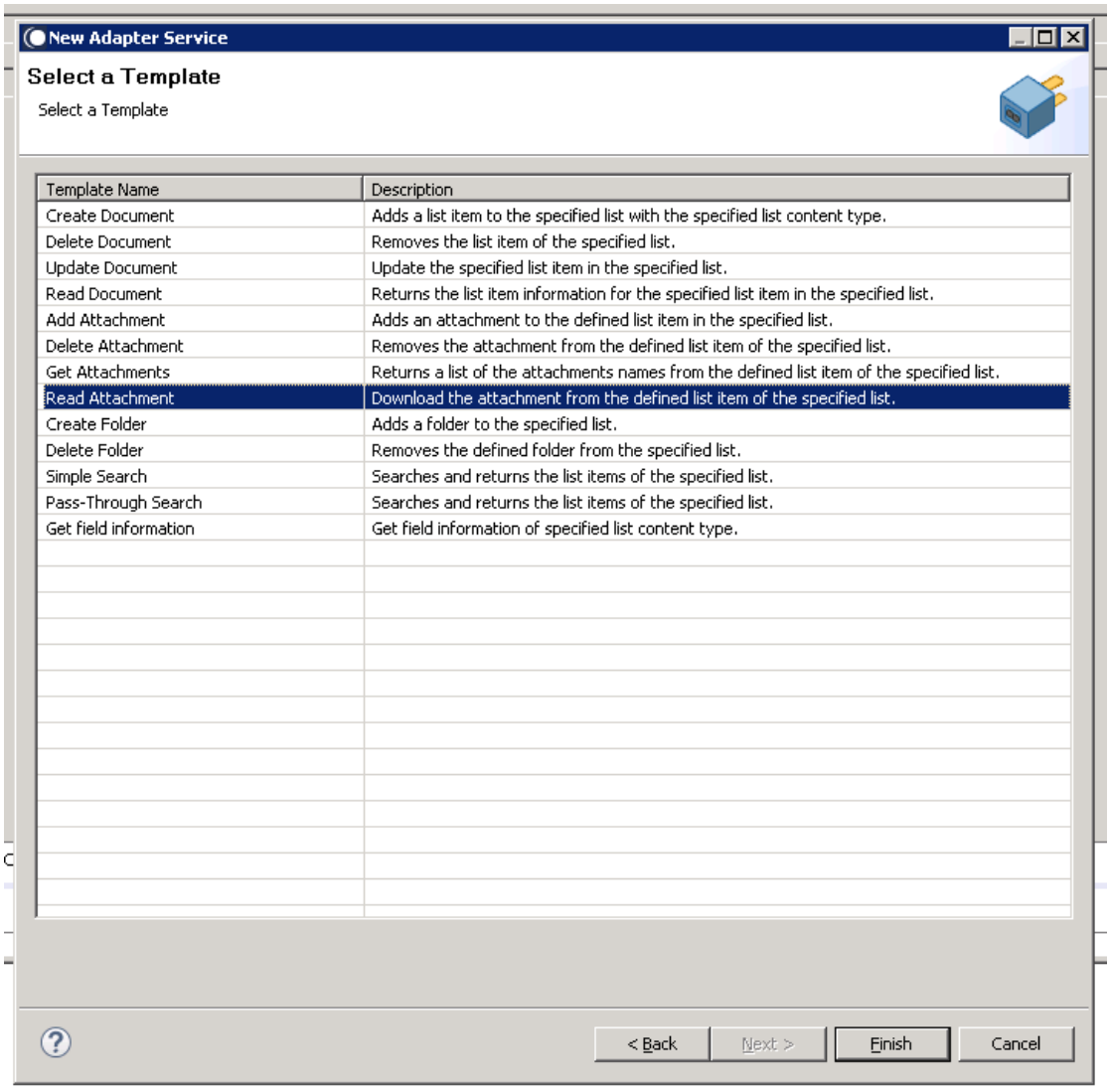
6.10.1 Description

Download the attachment from the defined list item of the specified list.

6.10.2 Configure the Service

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

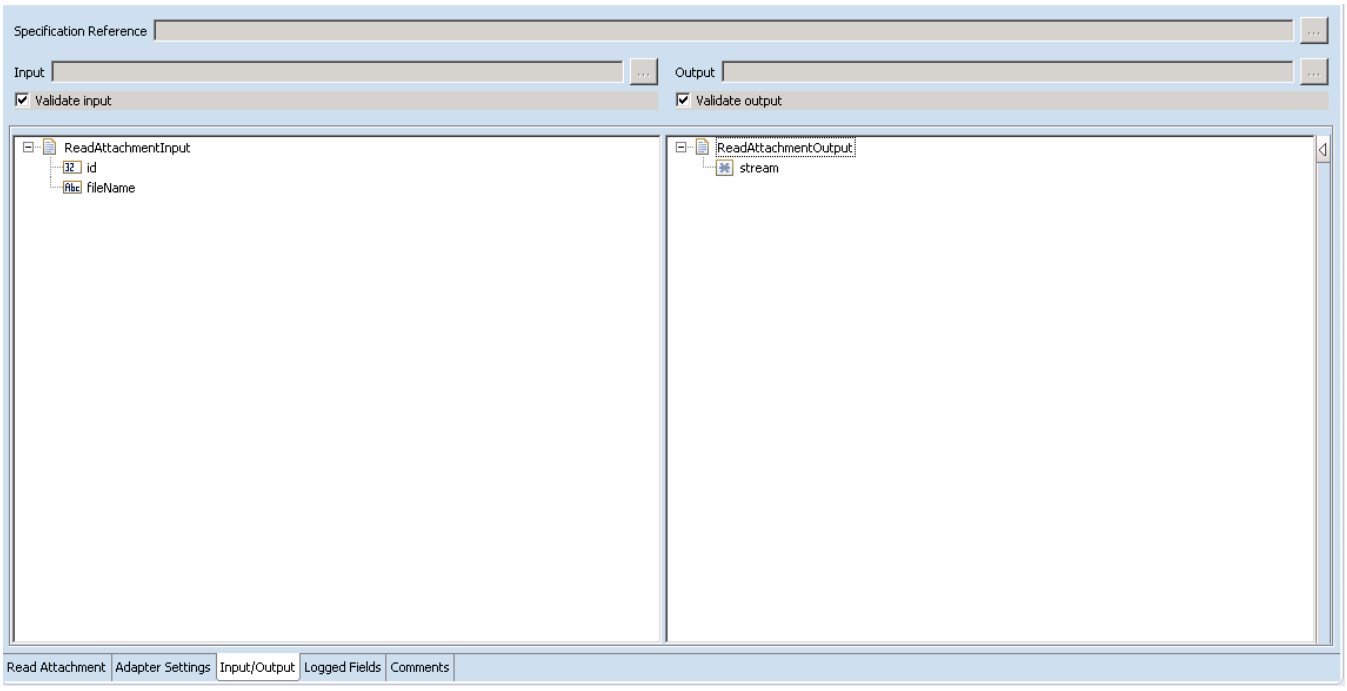
1. Select **Read Attachment** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Read Attachment** tab, contains the following two dropdown lists:

- The first determines the list where the attachment is to be found.
- The second determines the content type.

2. Click **Input/Output** tab, once you select the list and content type.



This tab shows the input and output values of **Read Attachment** service such as, which is information required and what is the information provided after the service is executed.

- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the inputs required are as follows:
    - The ID of the document where the attachment is found
    - The name of the attachment itself.

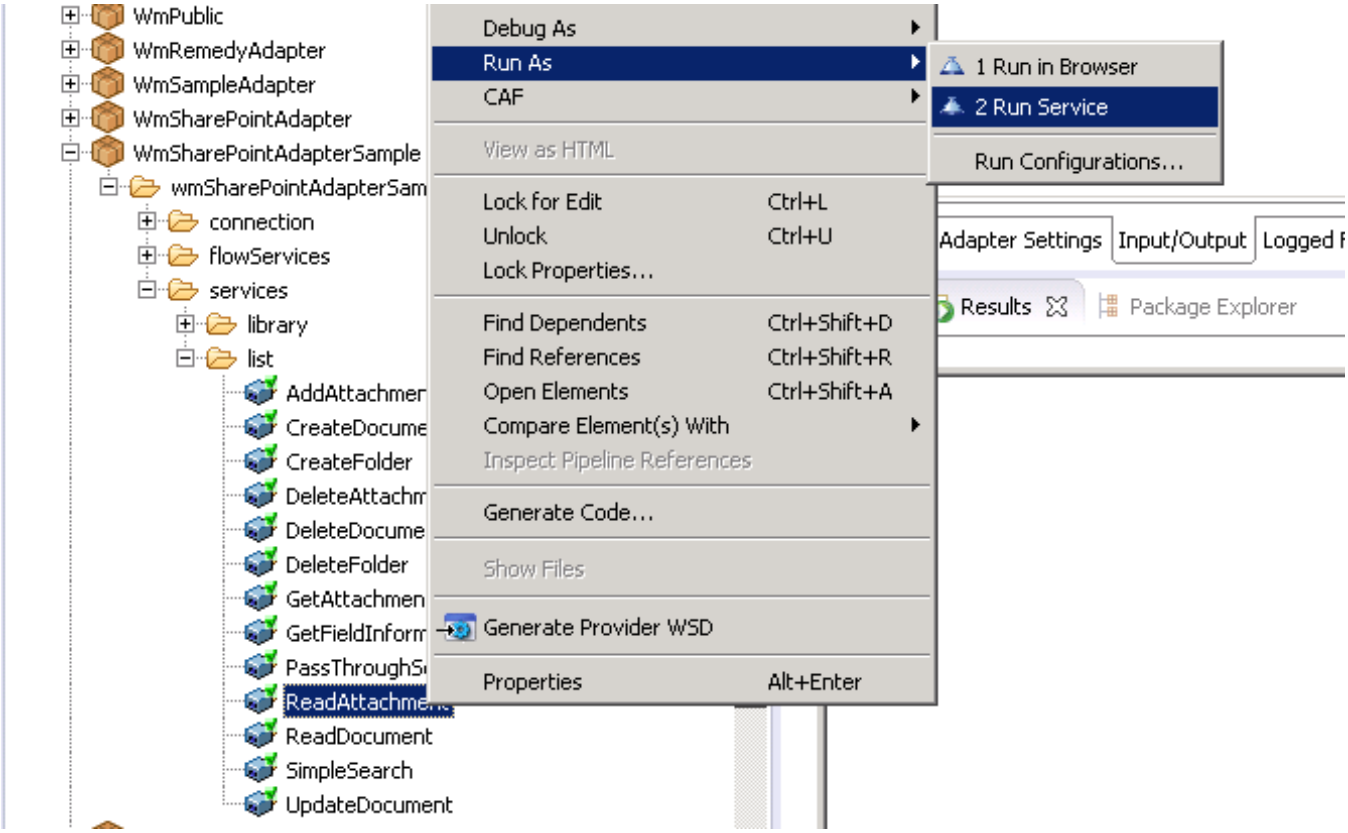
- On the right-hand side are the outputs. Read Attachment contains only one output and that is that actual file itself.

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

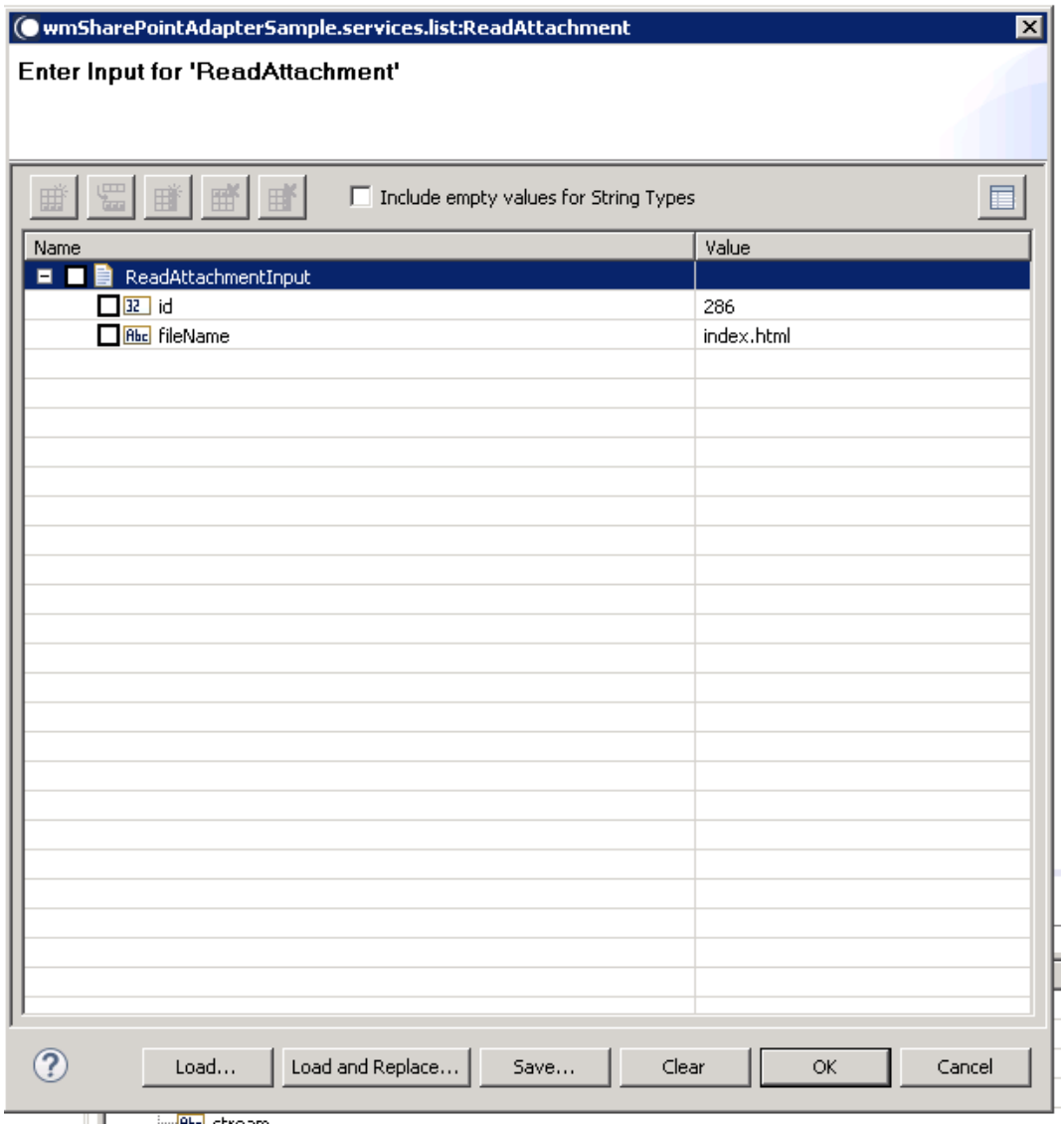
6.10.3 Execute the Service

Perform the following steps to execute the service:

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

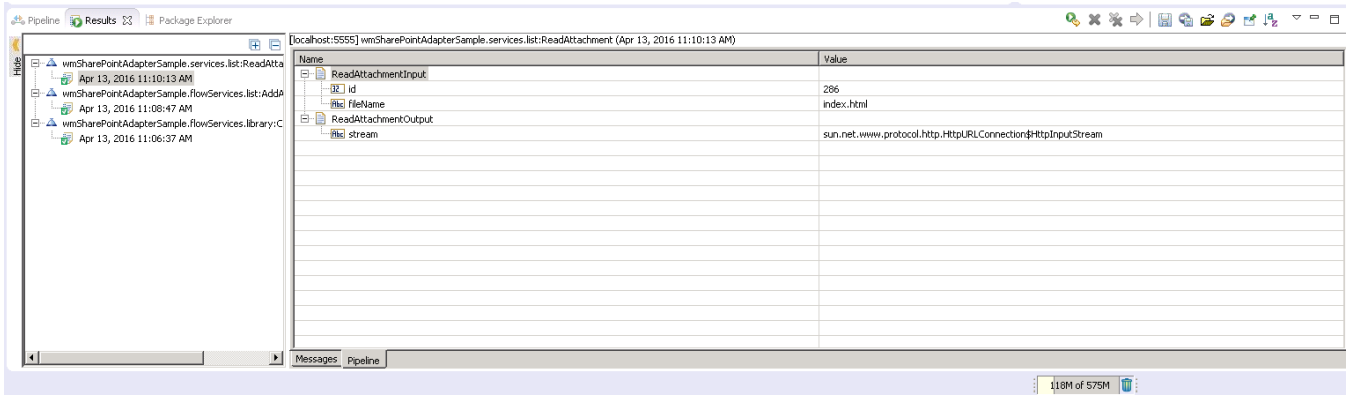


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



The attachment is returned. You can also configure a new flow, so that the stream returned is readable.

6.11 Create Folder

6.11.1 Description

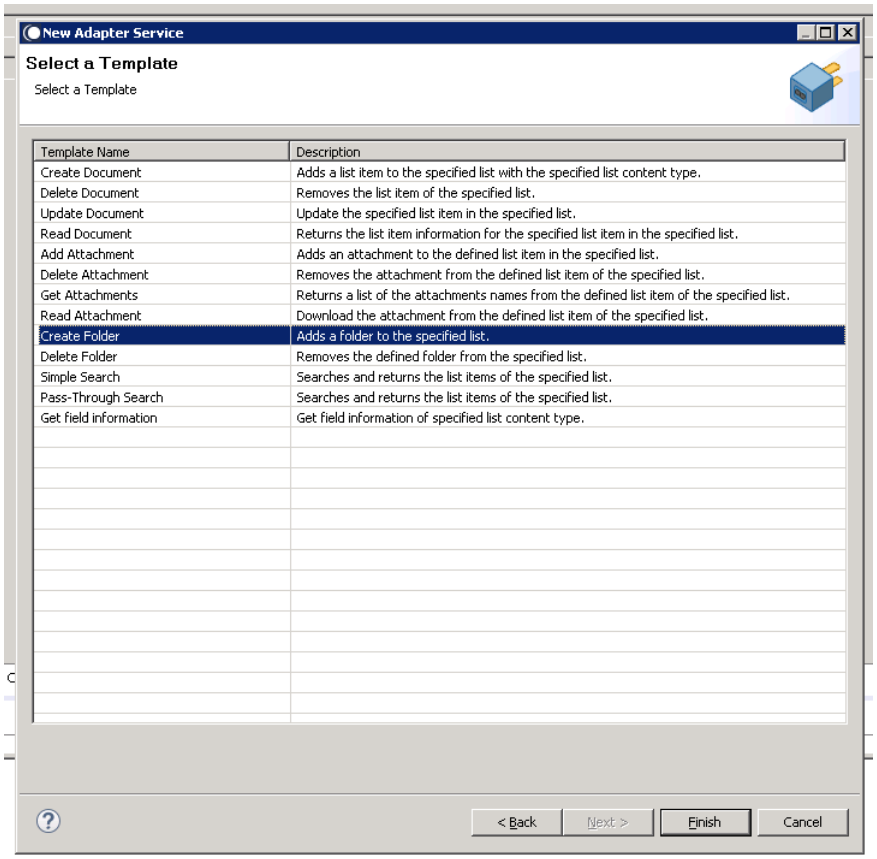
Adds a folder to the specified list.

6.11.2 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:

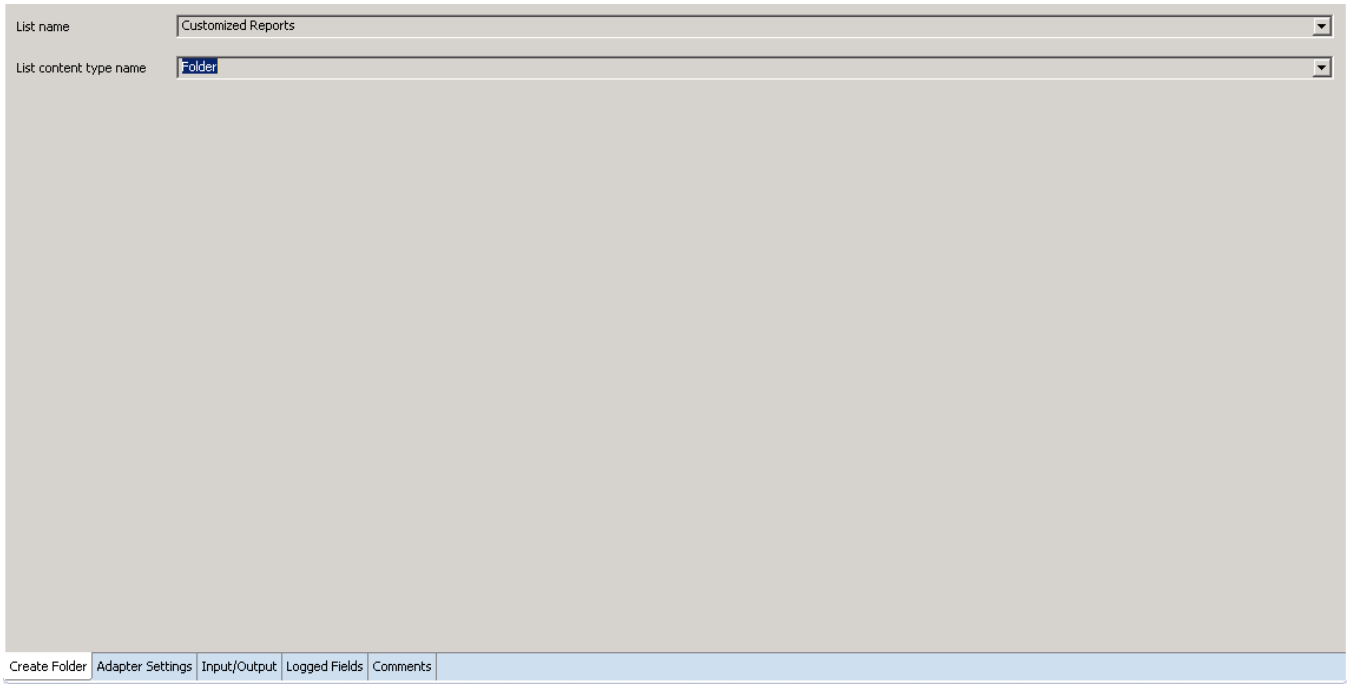
1. Select **Create Folder** and click **Finish**.



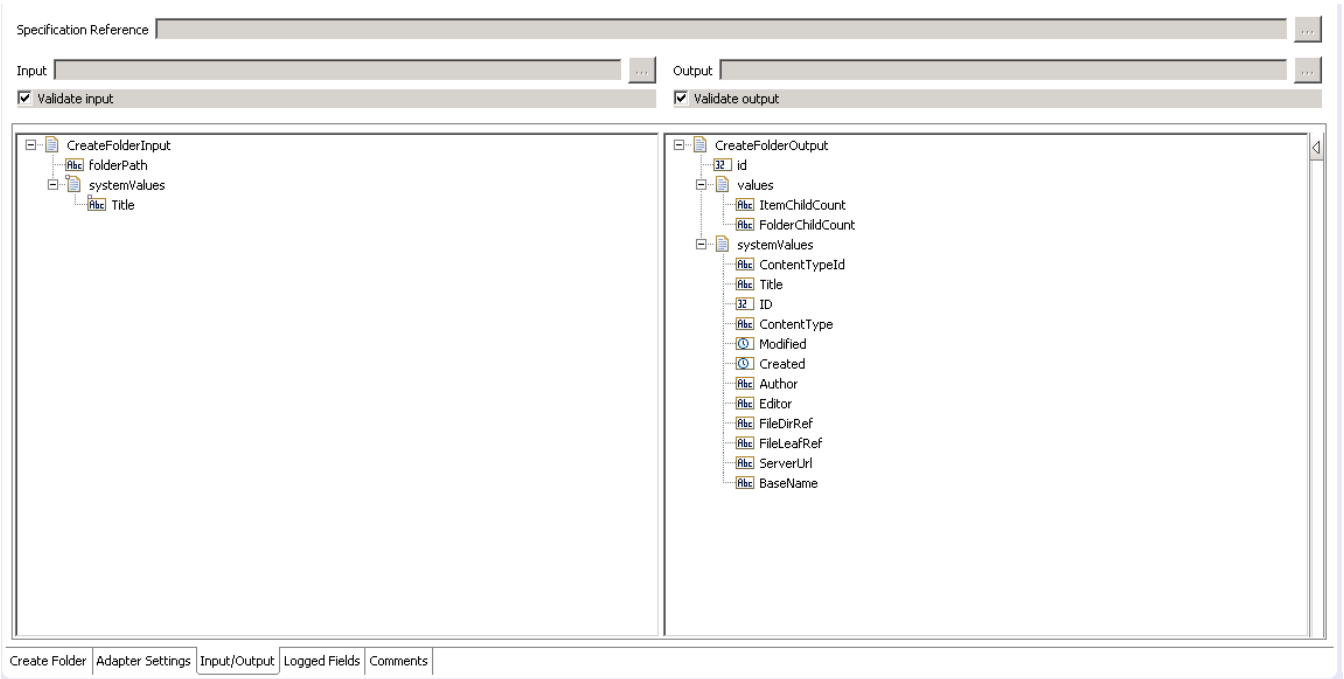
You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Create Folder** tab, contains the following two dropdown lists:

- The first determines the list where the new folder should be created, while
- The second determines the content type.

- If we are creating a new folder, the content type should be mentioned as **Folder**.



2. Click **Input/Output** tab, once you select the list and the content type.



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

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

- The path of the folder to be created
- The title of the folder.

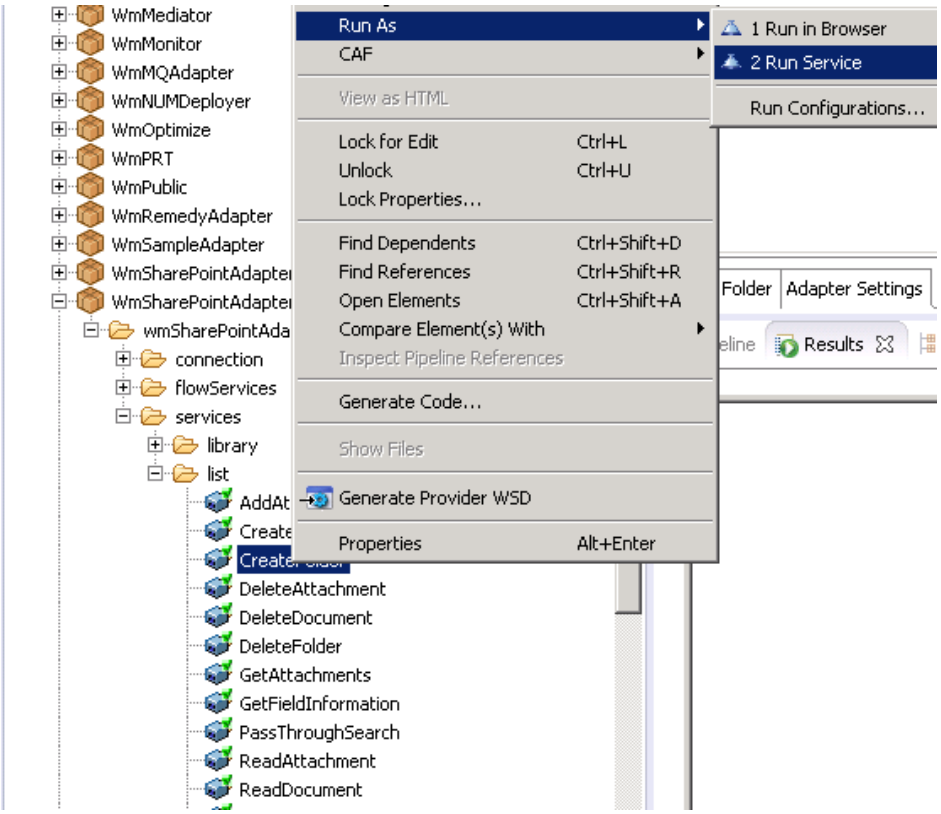
- On the right-hand side, the outputs are returned as shown above. This provides metadata to the newly created folder.

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

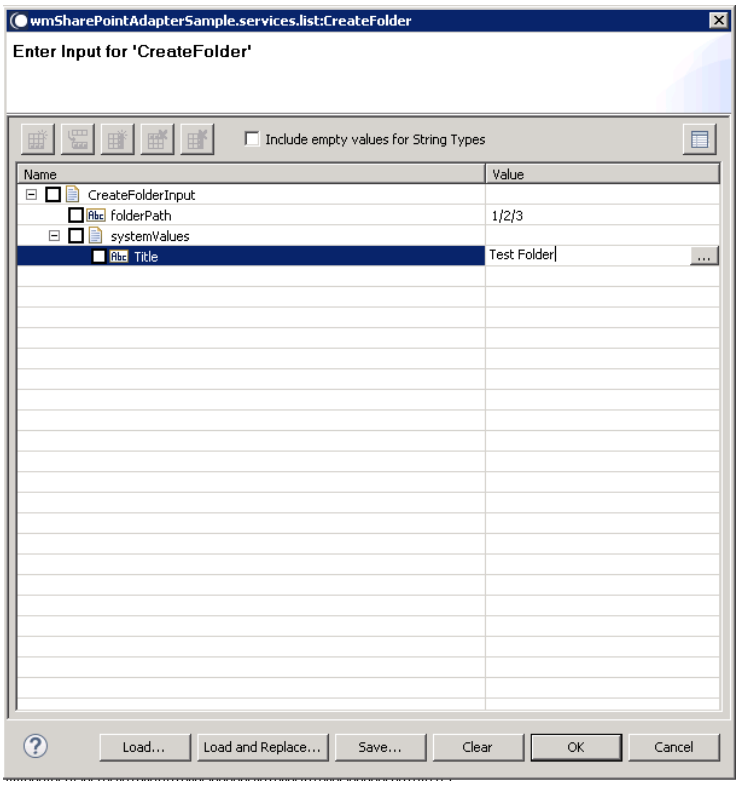
6.11.3 Execute the Service

Perform the following steps to execute the service:

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

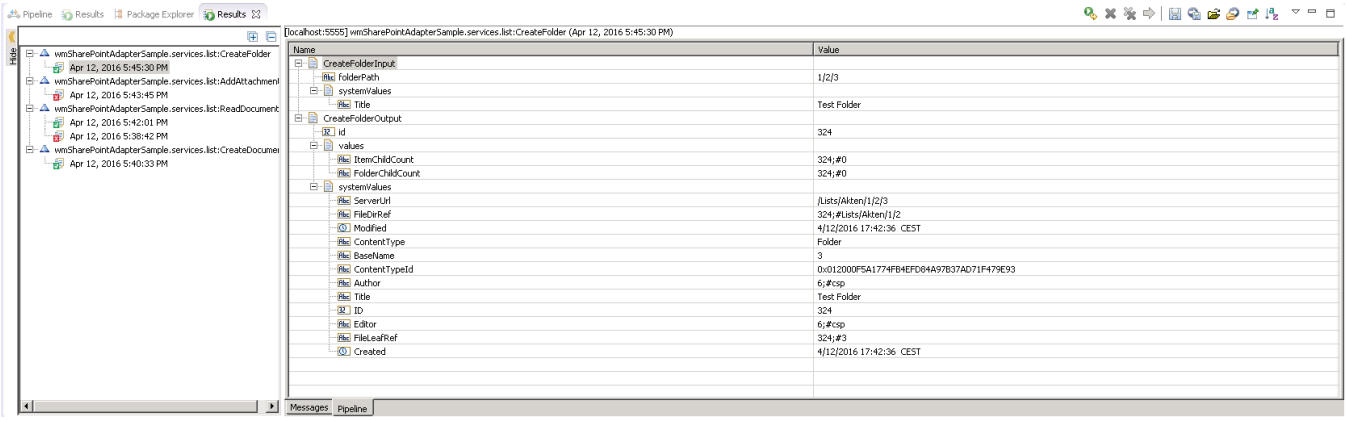


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



The new folder is created.

6.12 Delete Folder

6.12.1 Description

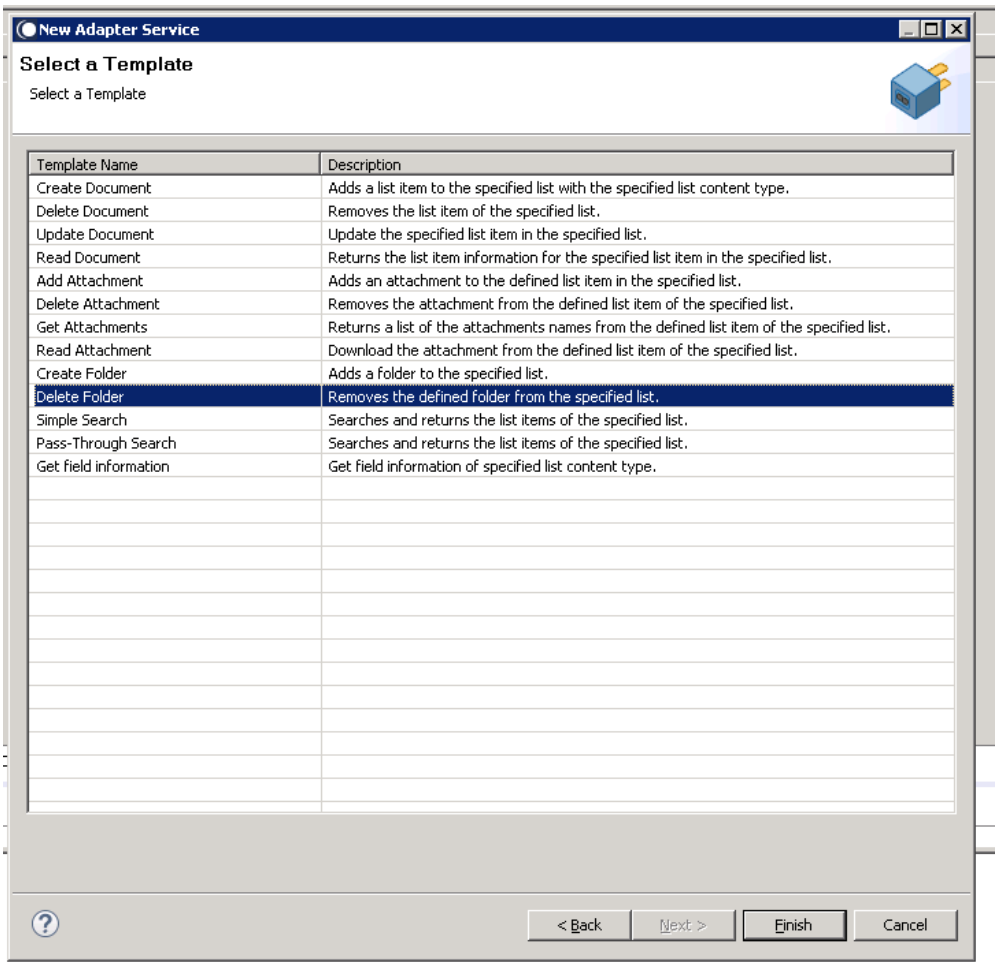
Removes the defined folder from the specified list.

6.12.2 Configure the Service

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

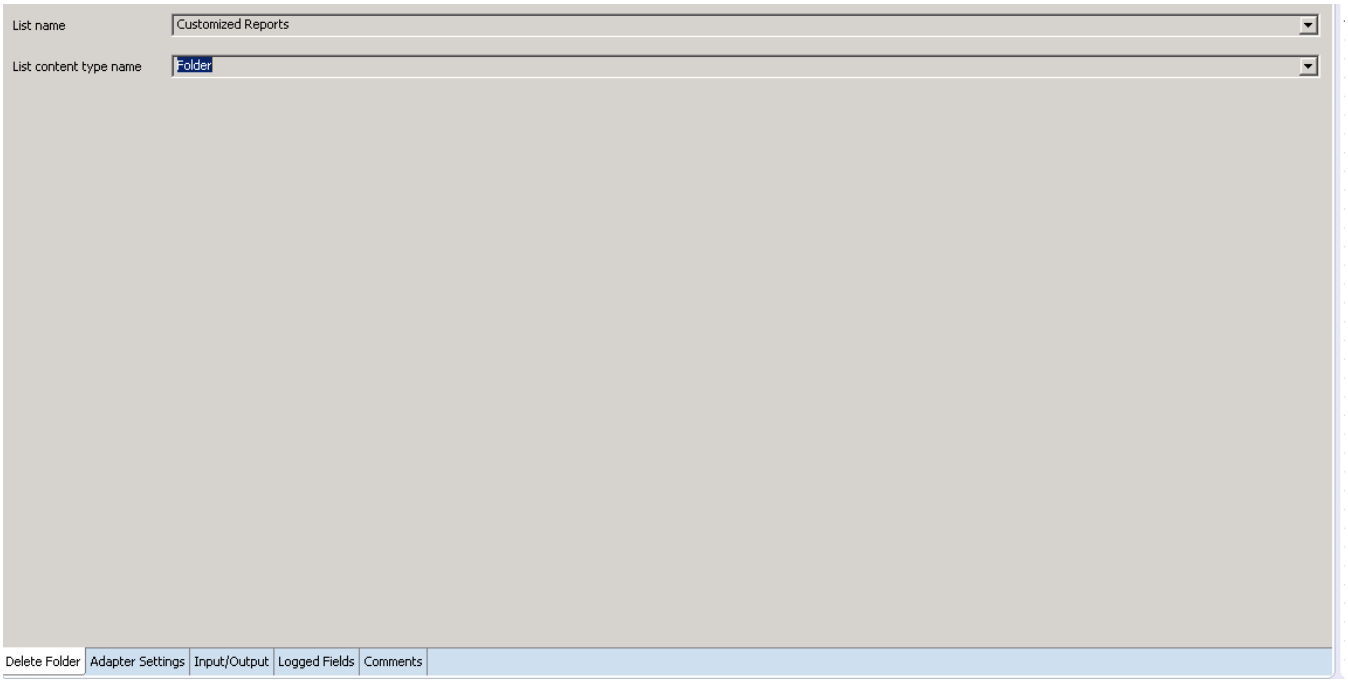
Perform the following steps to configure the service:

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

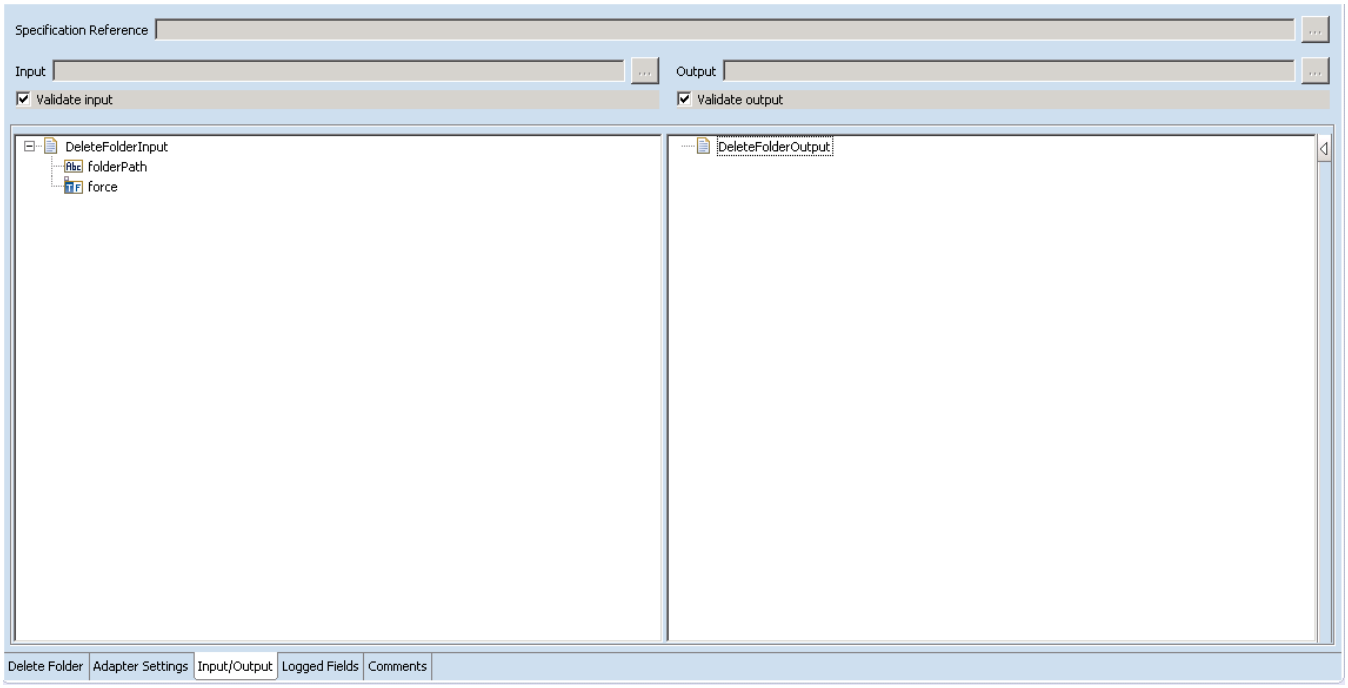


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Delete Folder** tab, contains the following two dropdown lists:

- The first determines the lists where the folder to be deleted is found, while
- The second determines the content type.
    - If we are attempting to delete a folder, the content type should be mentioned as **Folder**.



2. Click **Input/Output,** once you select the list and content type.



This tab shows the Read Document service's input and outputs, i.e., which is information required and what is then 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 only one input required:
    - The folder path for the folder to be deleted.

- Either deletion should be forced or not

- Note: The square shown above the force input indicates that the input is optional

---

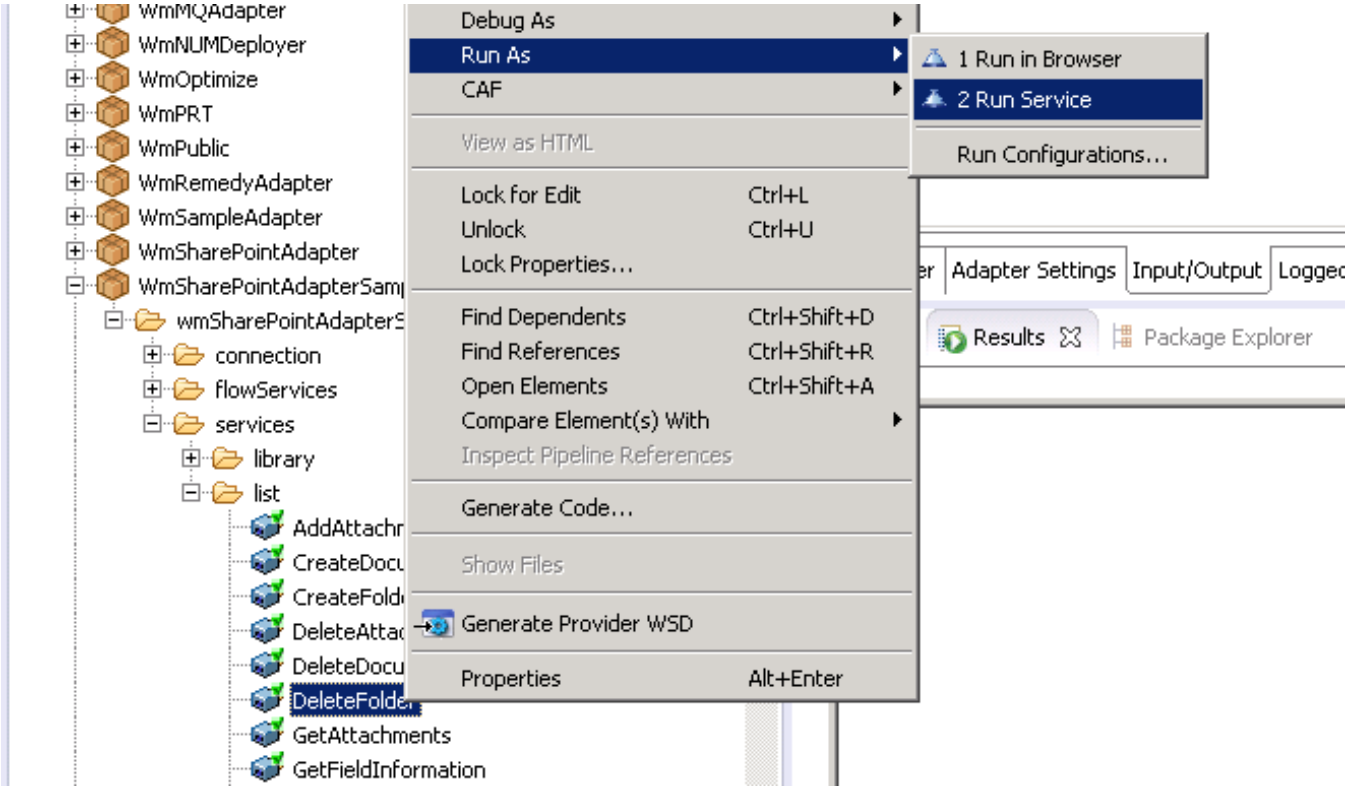
- On the right-hand side, shows the returned output, and can be seen from the screenshot above. There are no outputs on the completion of this service.

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

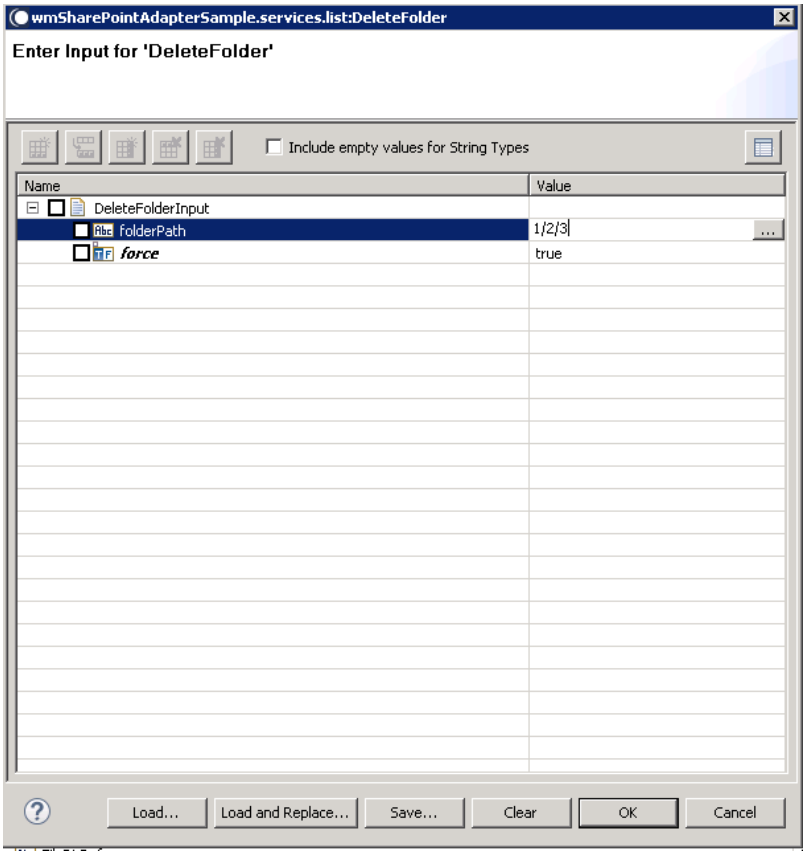
6.12.3 Execute the Service

Perform the following steps to execute the service:

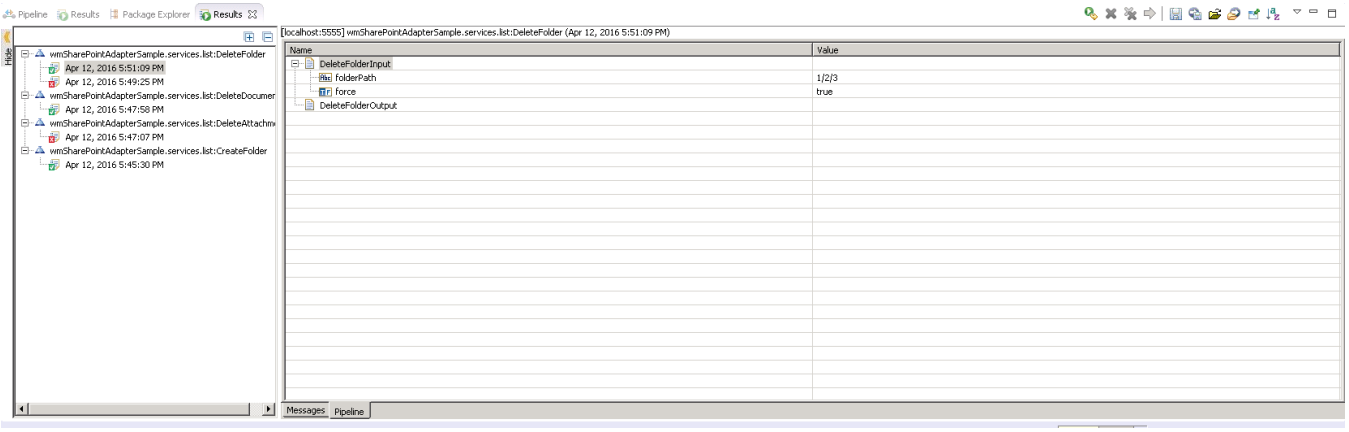
1. Right-click your newly created service and select **Run** -> **Run As Service**.



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.

6.13 Simple Search

6.13.1 Description

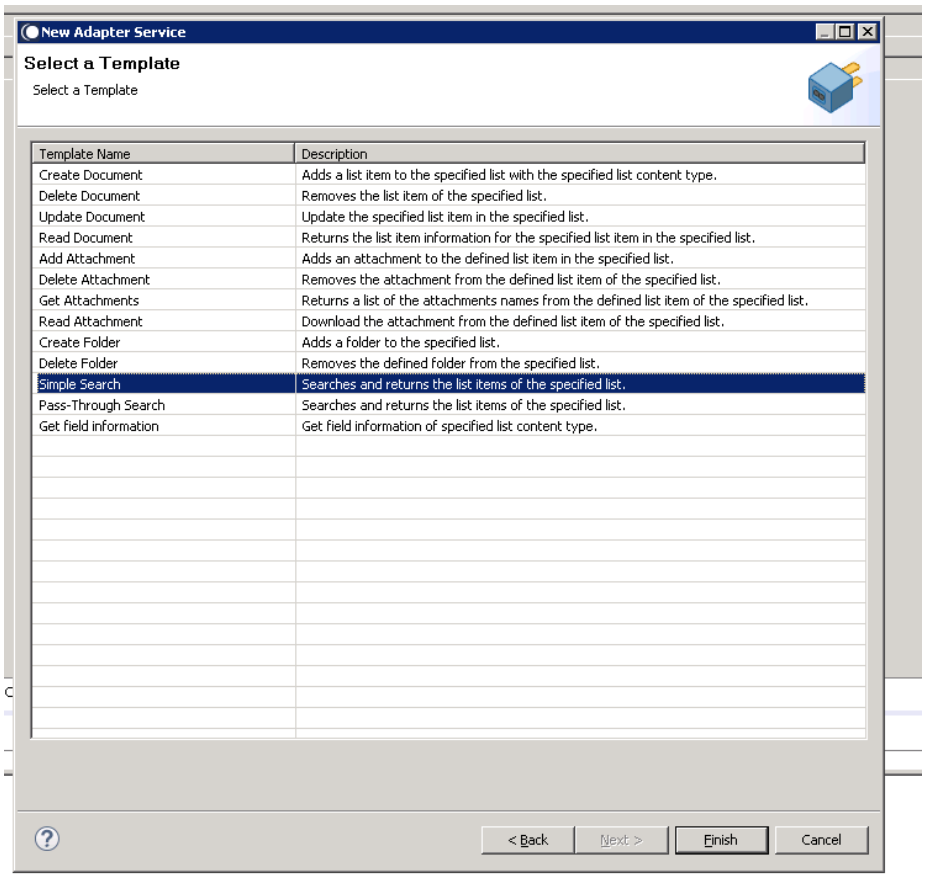
Searches and returns the list items of a specified list according to the conditions configured in the setup of this service template.

6.13.2 Configure the Service

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

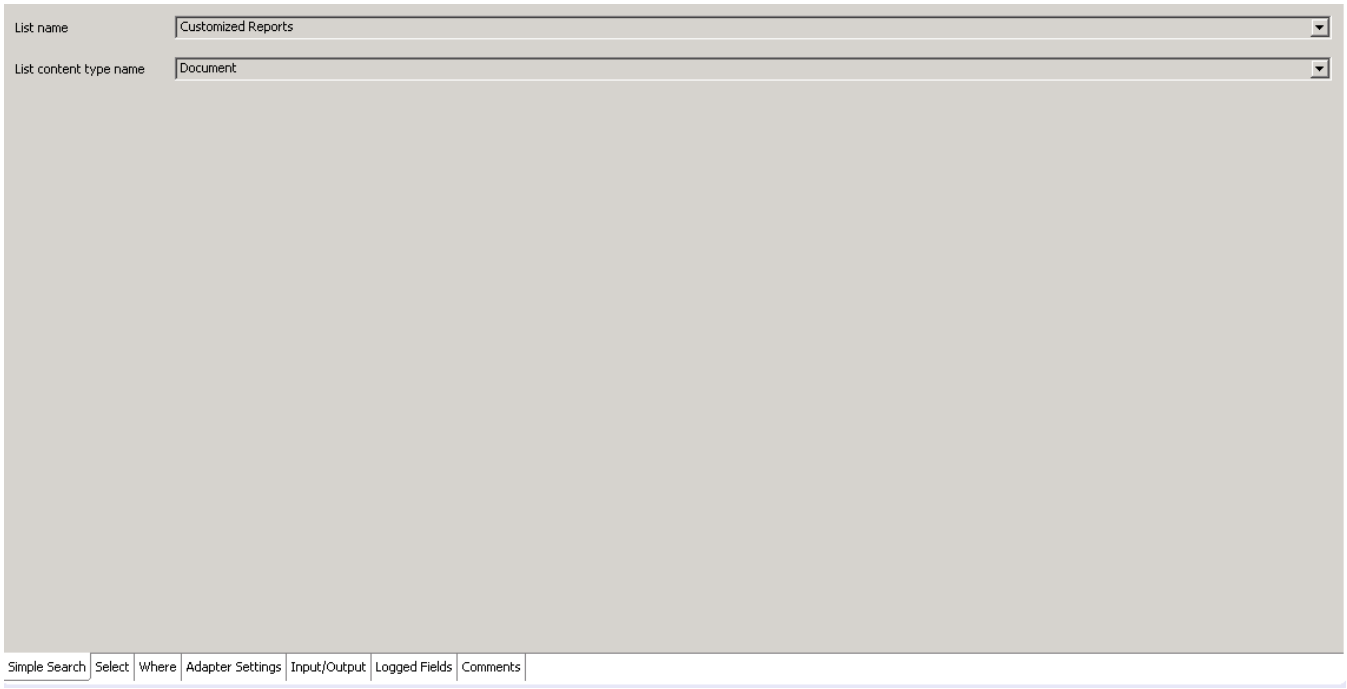
Perform the following steps to configure the service:

1. Select **Simple Search** and click **Finish**.



You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Simple Search** tab, contains the following two dropdown lists:

- The first determines the list that should be searched, while
- The second determines that lists content type.

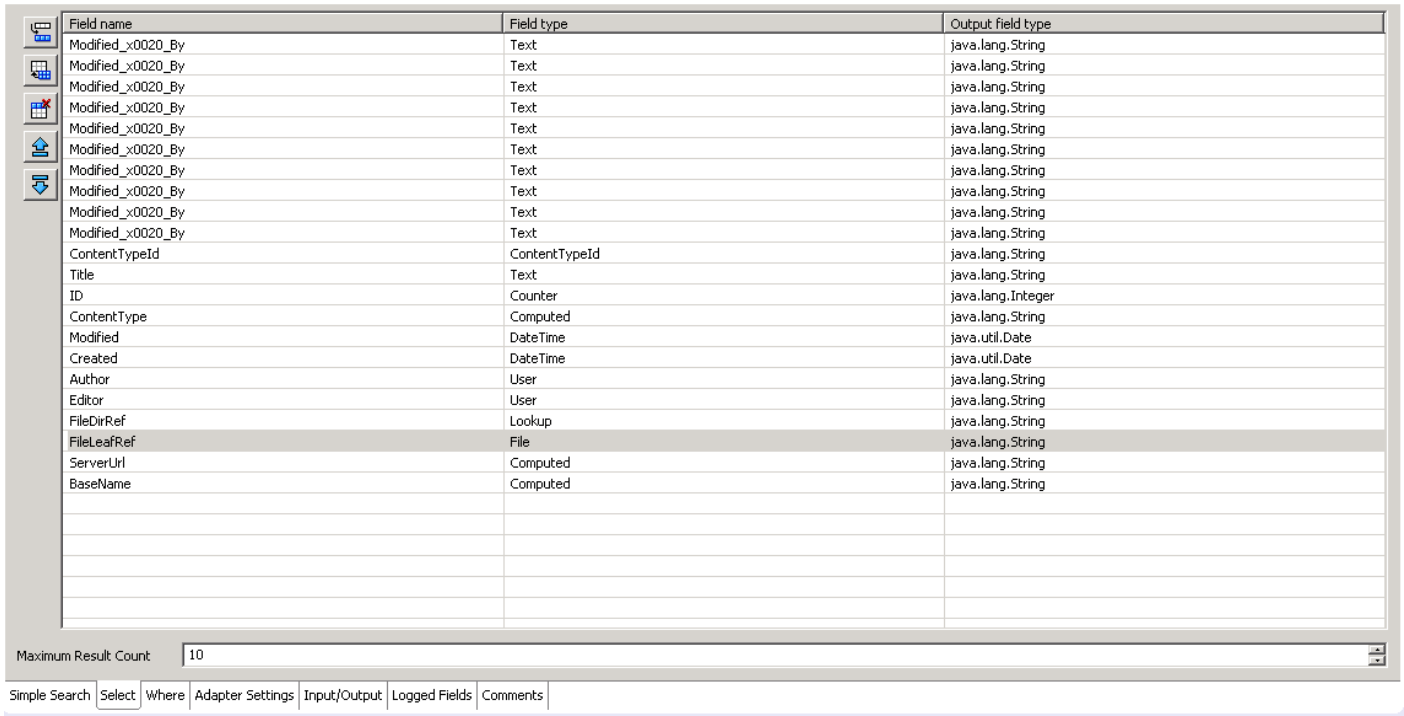


2. Click the **Simple Search Select** tab.

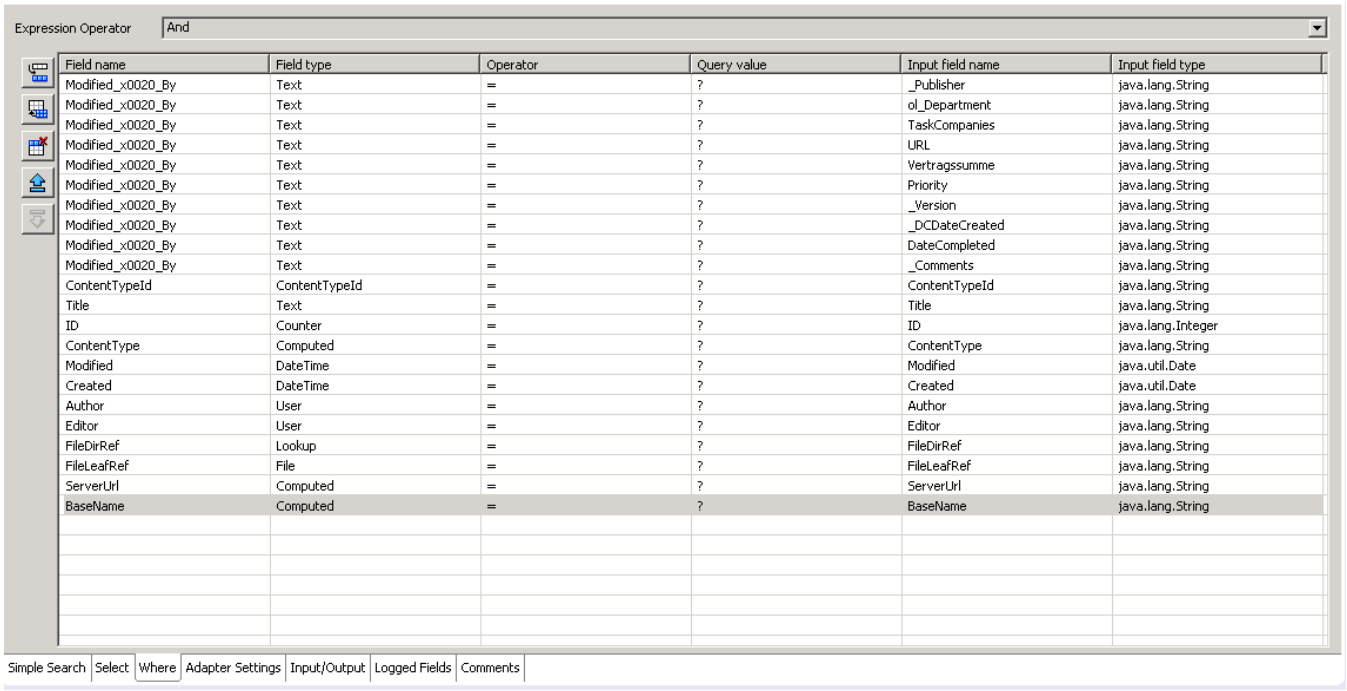
This tab allows you to select which properties of the selected document should be selected, i.e. returned by the query. This will determine the output values of the executed service and is similar to the SELECT statement of SQL.

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.



3. Click **Simple Search Where** tab, after you select the properties.



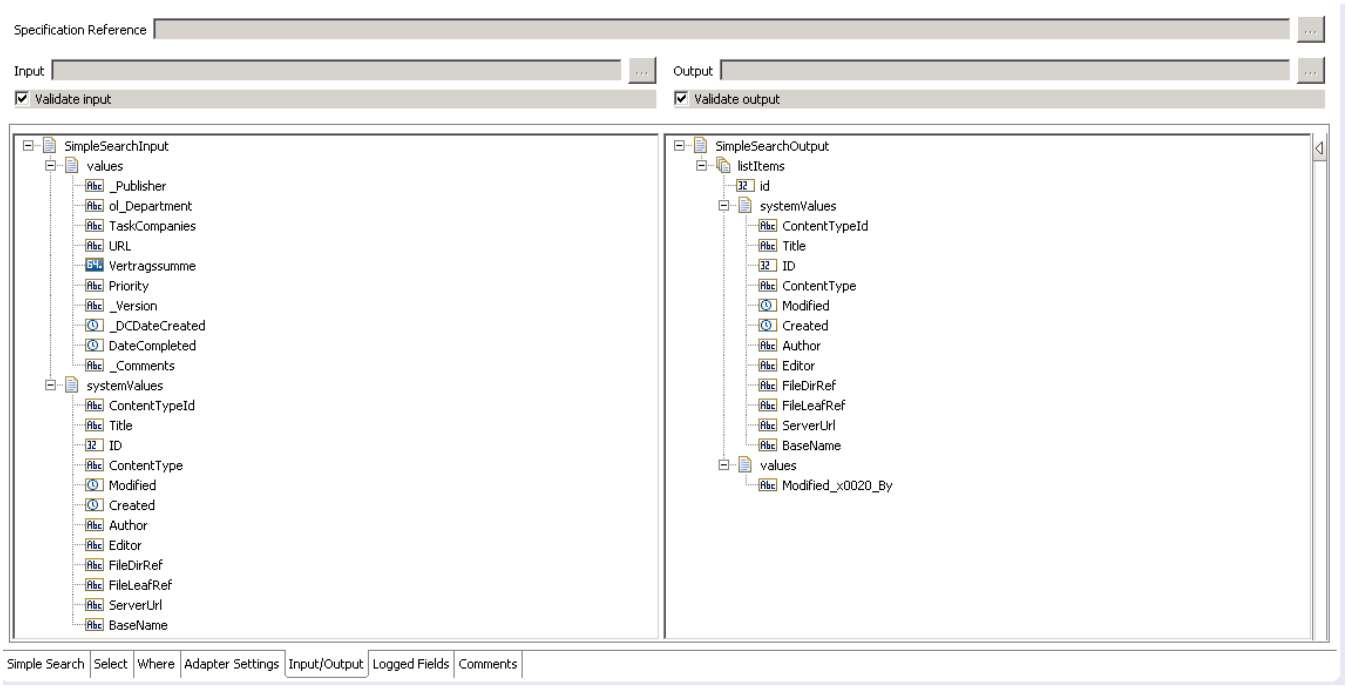
This tab allows you to define conditions for which documents should be returned.

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.

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



This tab shows input and output values of **Simple Search** service such as, which is information required and what is then provided after the query is executed.

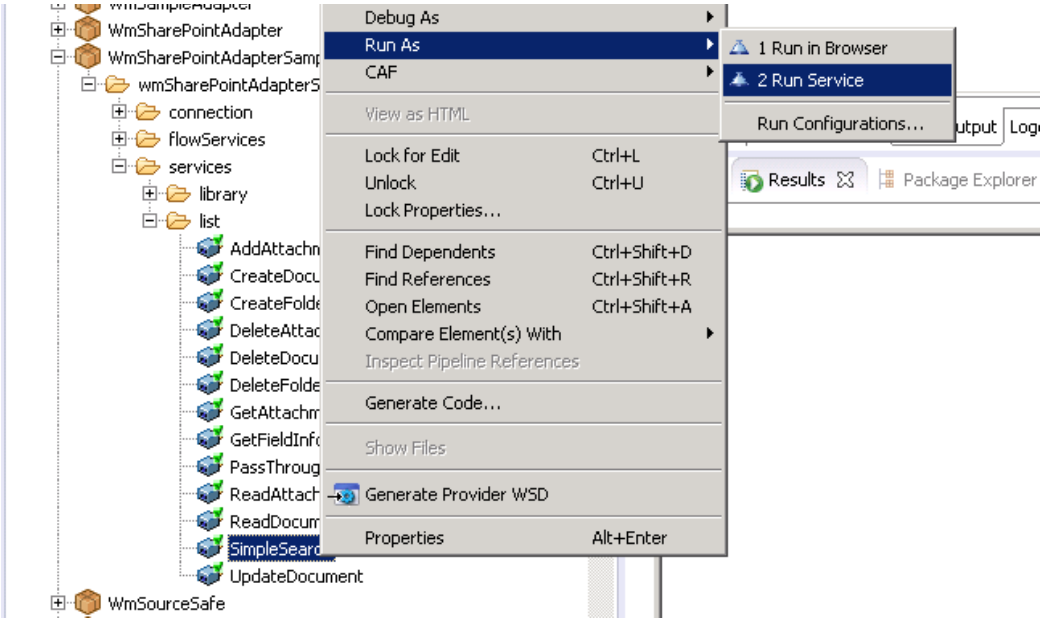
- On the left-hand side of the panel are the parameters that are taken as inputs.
    - The actual inputs and outputs will depend on how you have configured the query in the 'Select' and 'Where' tabs.
    - In the example above, the two inputs are defined by the conditions set in 'Simple Search Select', 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'.

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

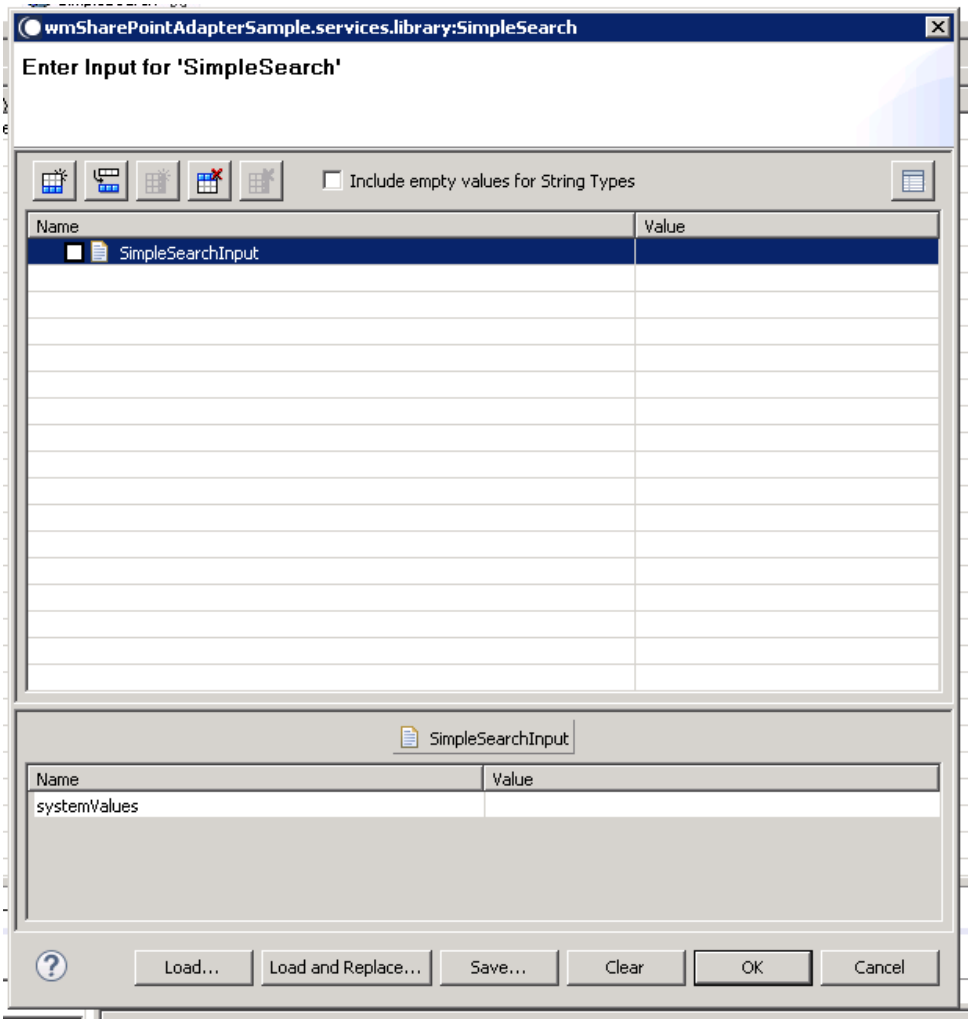
6.13.3 Execute the Service

Perform the following steps to configure the service:

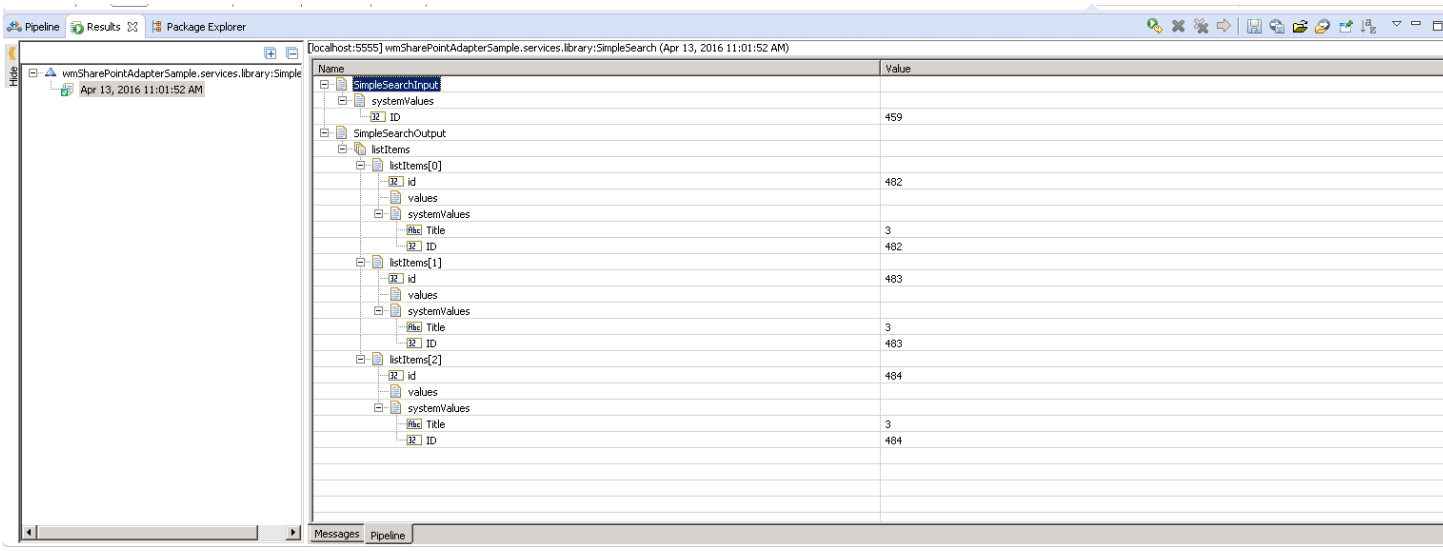
1. Select your newly created service and Right-click-> **Run As** -> **Run As Service**.



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



3. Click **OK**. The service is executed, and the resulting output appears.



The results are returned.

6.14 Pass-Through Search

6.14.1 Description

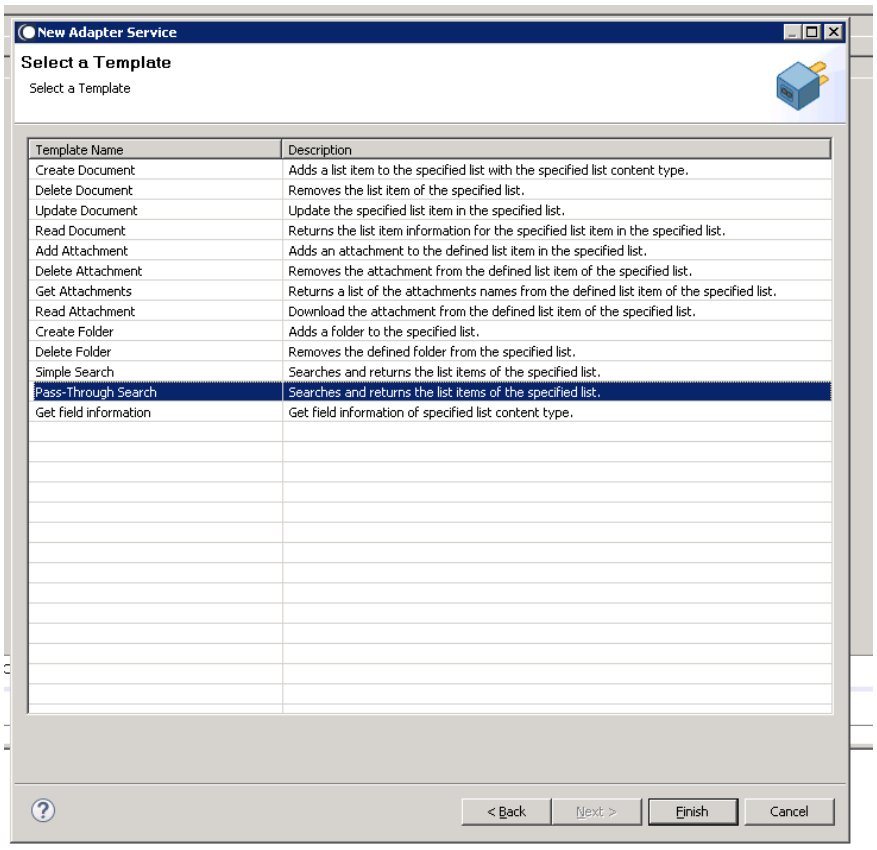
Undertakes a Pass-Through search. This means that you specify as a string a query that will returns elements matching this query. The syntax of the string should correspond the system being queried. In the case of SharePoint, you should use the Collaborative Application Markup Language (CAML).

6.14.2 Configure the Service

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

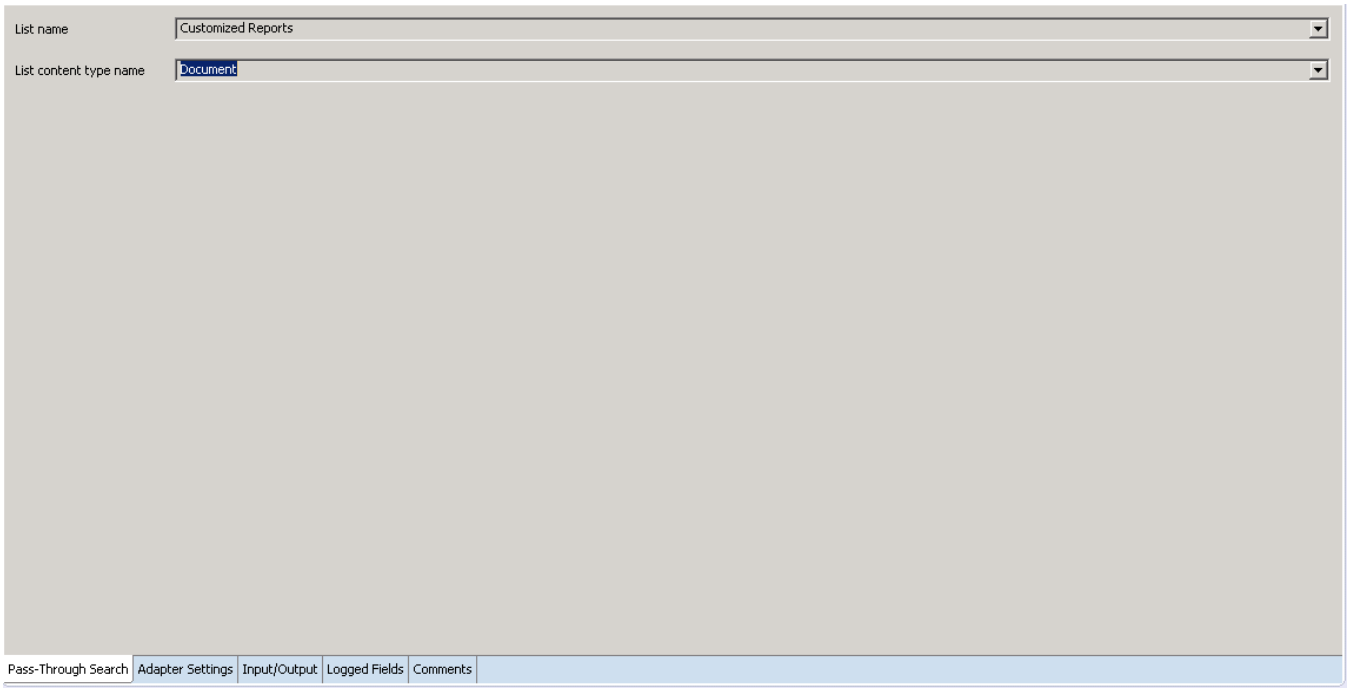
Perform the following steps to configure the service:

1. Select **Pass-Through Search** and click **Finish**.

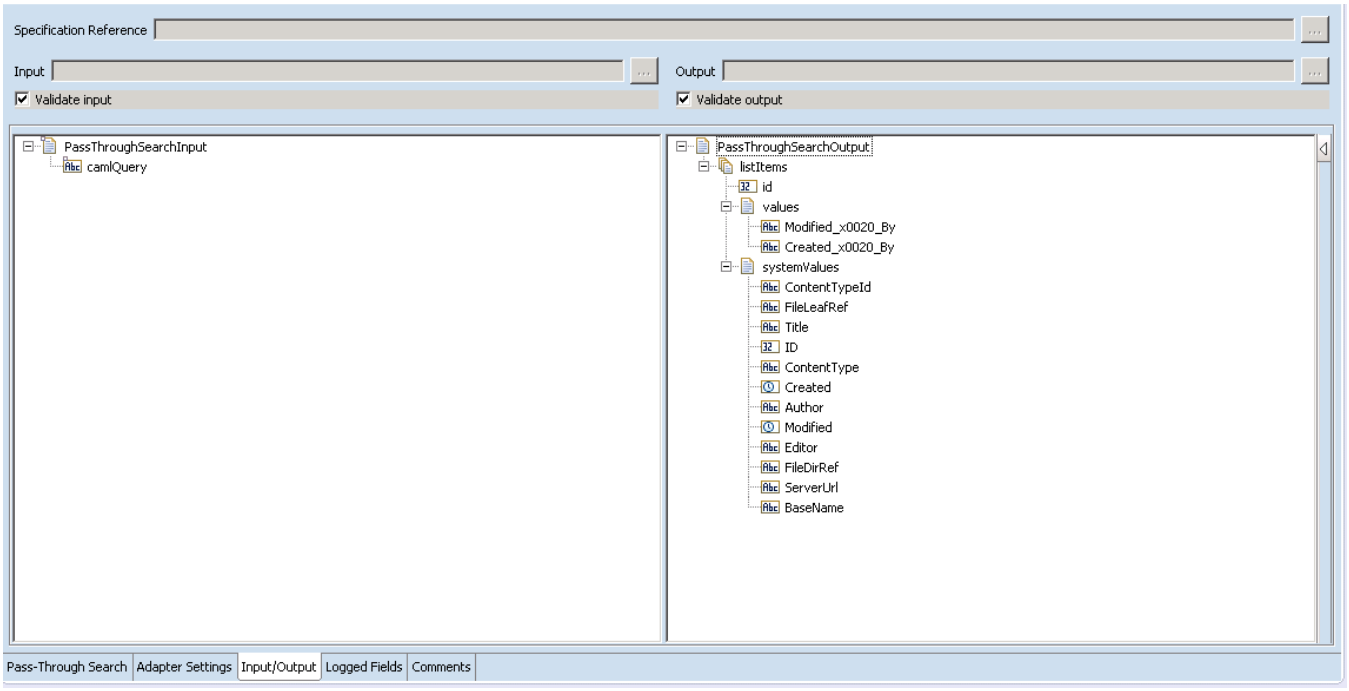


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Pass-Through Search** tab, contains the following dropdown lists:

- The first determines the list that is to be queried, while
- The second determines the content type of that list.



2. Click **Input/Output** tab, after you select the list and the content type.



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

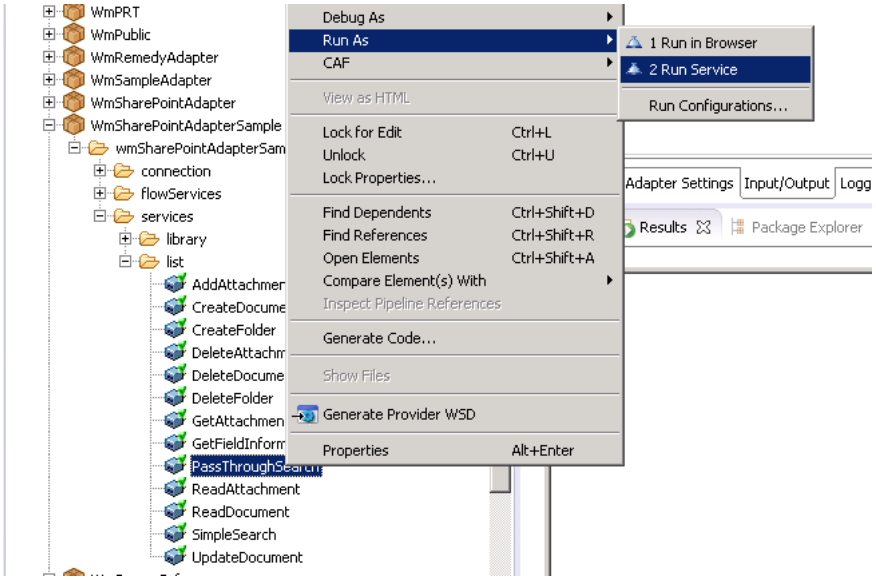
- On the left-hand side of the panel are the parameters that are taken as inputs.
    - There is only one input required for this service and it is the string representation of the query to be executed. This should be the string of the CAML query.
- On the right-hand side the attributes of the matched list items are returned.

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

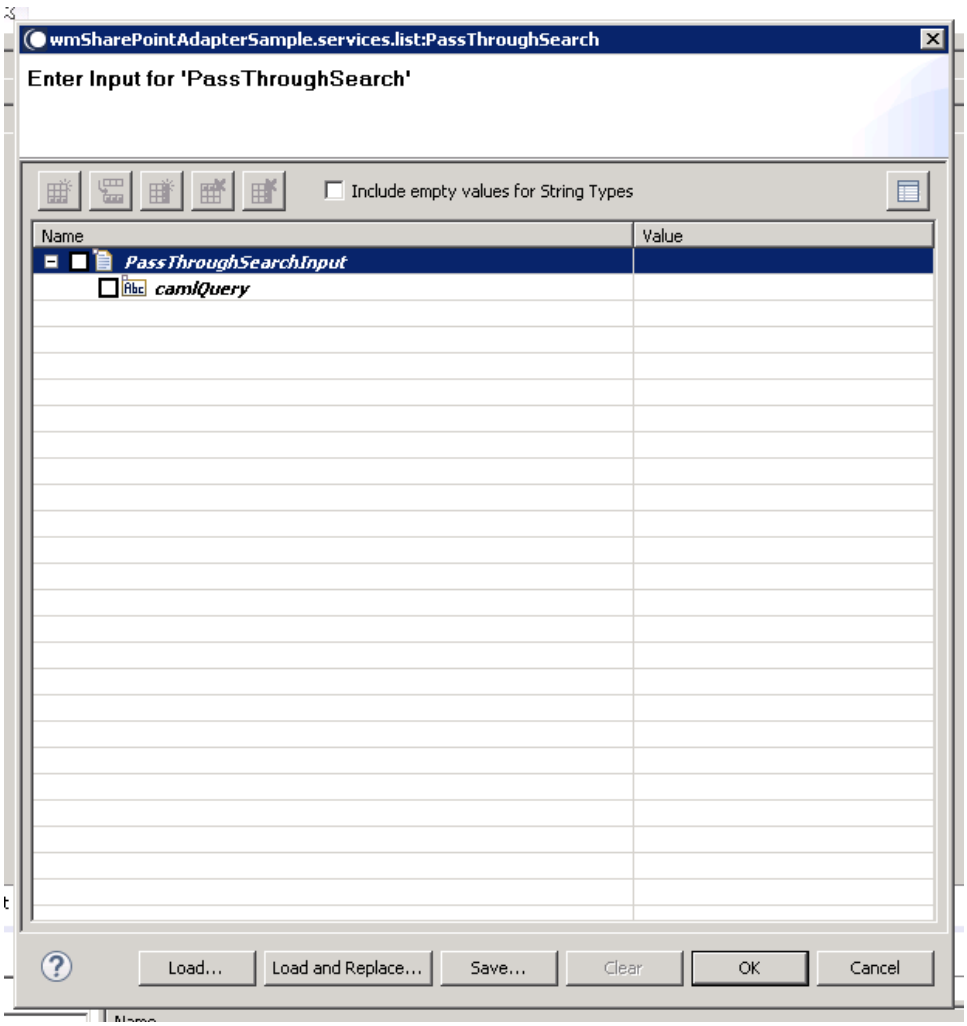
6.14.3 Execute the Service

Perform the following steps to execute the service:

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

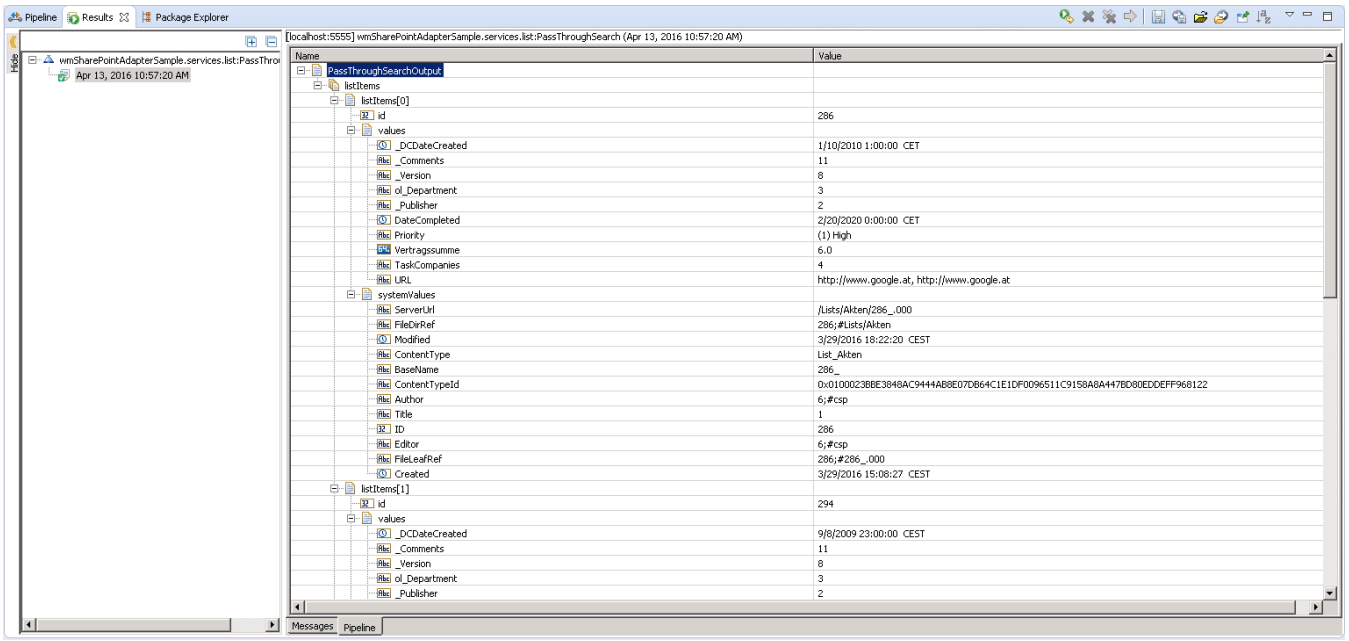


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



The results are returned.

6.15 Get Field Information

6.15.1 Description

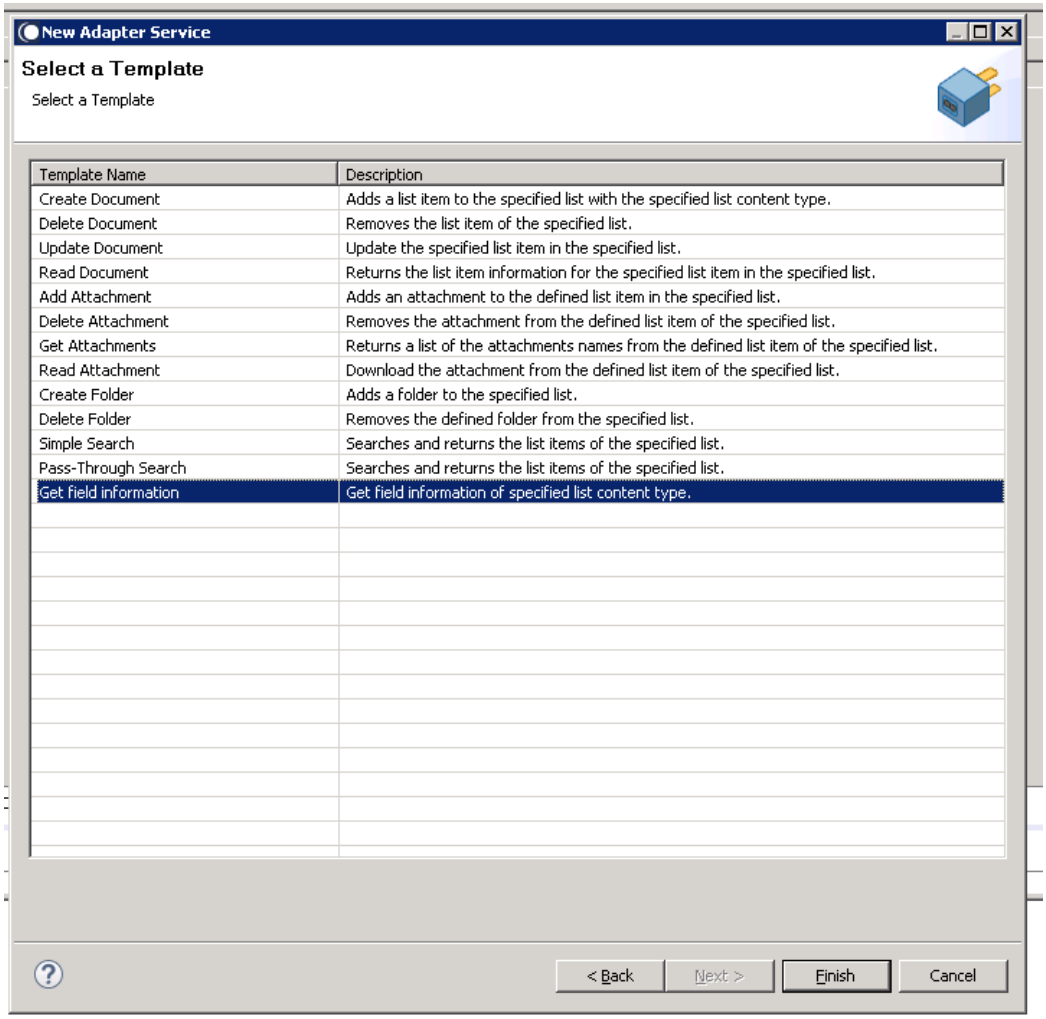
Get field information of the specified list content type.

6.15.2 Configure the Service

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

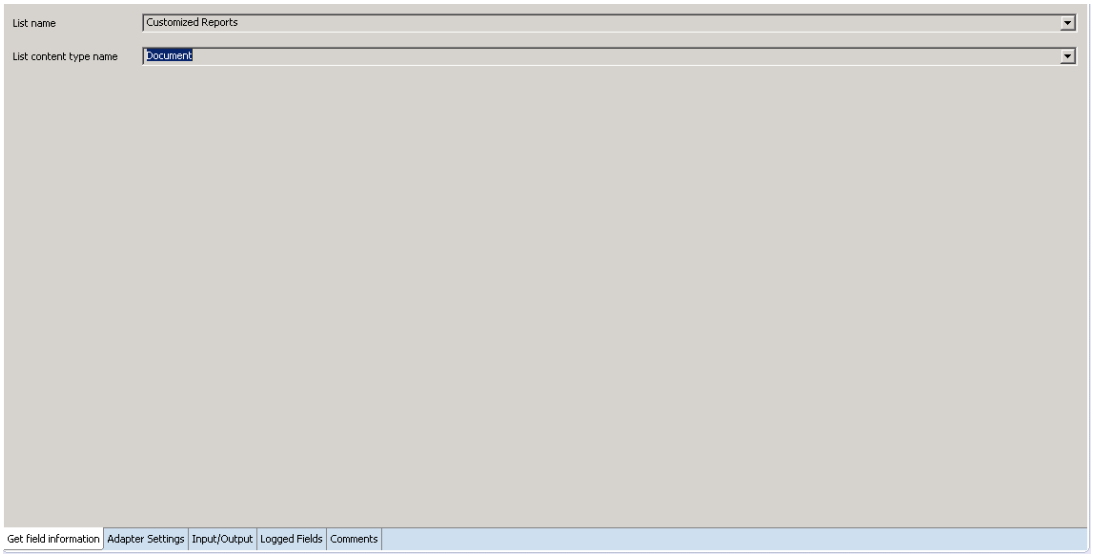
Perform the following steps to configure the service:

1. Select **Get Field Information** and click **Finish**.

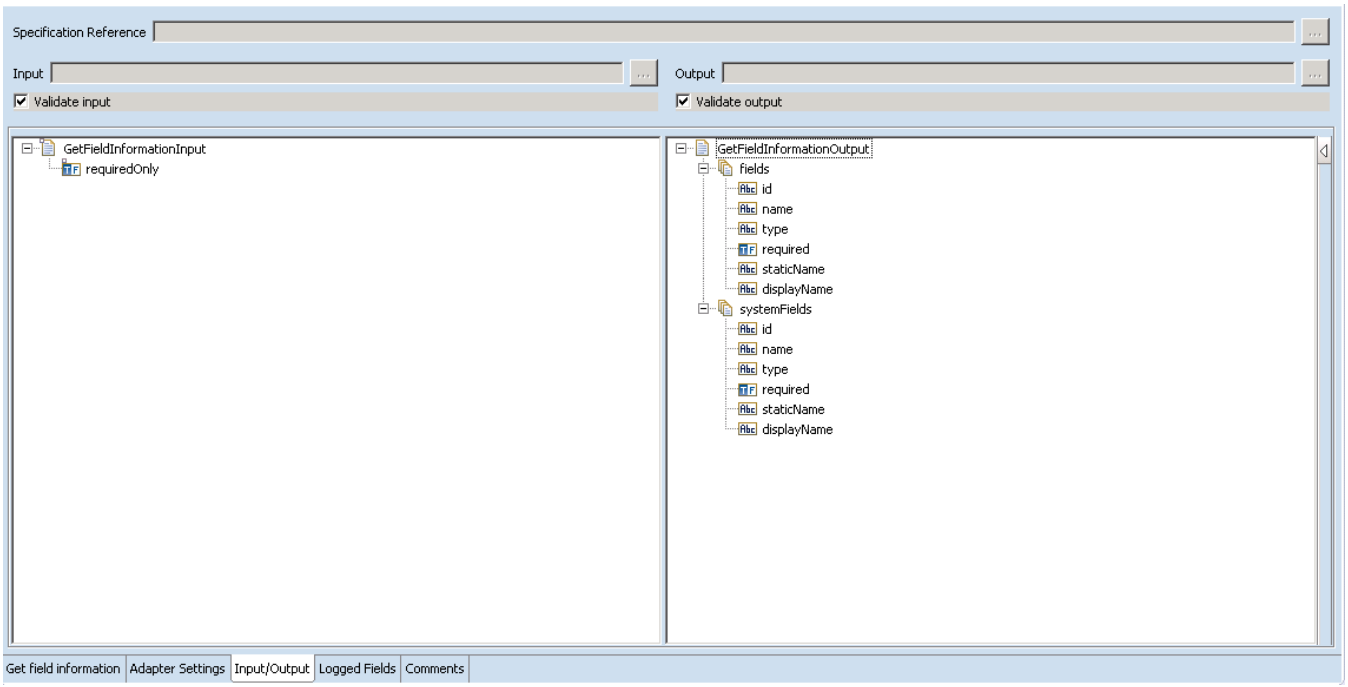


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Get Field Information** tab, contains two dropdown lists

- The first determines the lists where the field metadata is to be found, while
- The second determines the content type of the list.



2. Click the **Input/Output** tab, once you select the list and the content type.



This tab shows the input, output values of Get Field Information services such as, which is information required, and what is provided after the service is executed.

- On the left-hand side of the panel are the parameters that are taken as inputs. In this case only one input required:

- An optional Boolean value whether only the specific field provided is required.

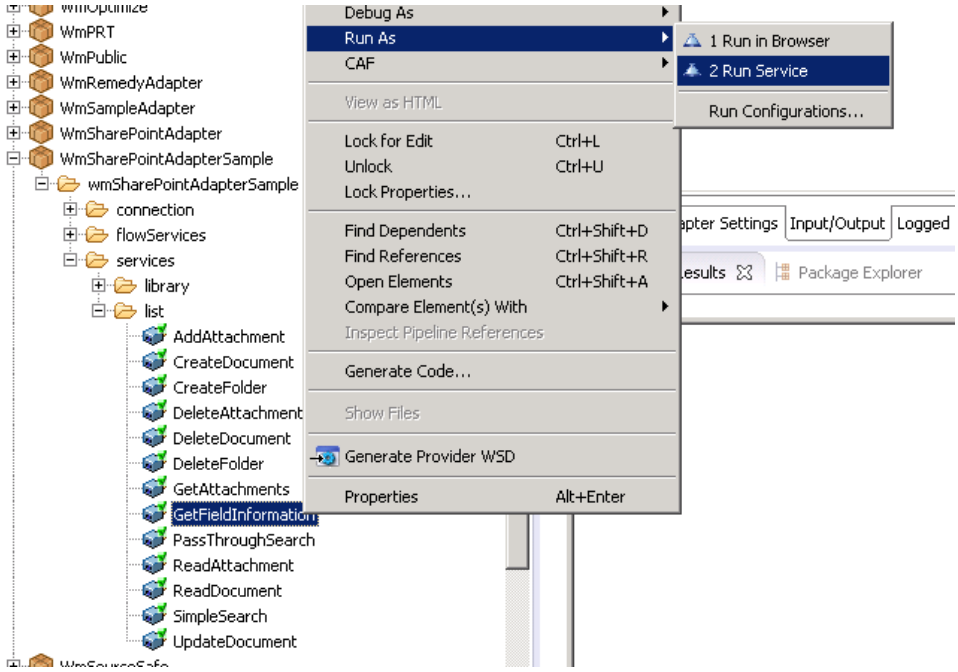
- On the right-hand side of the panel, shows the output for the service.

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

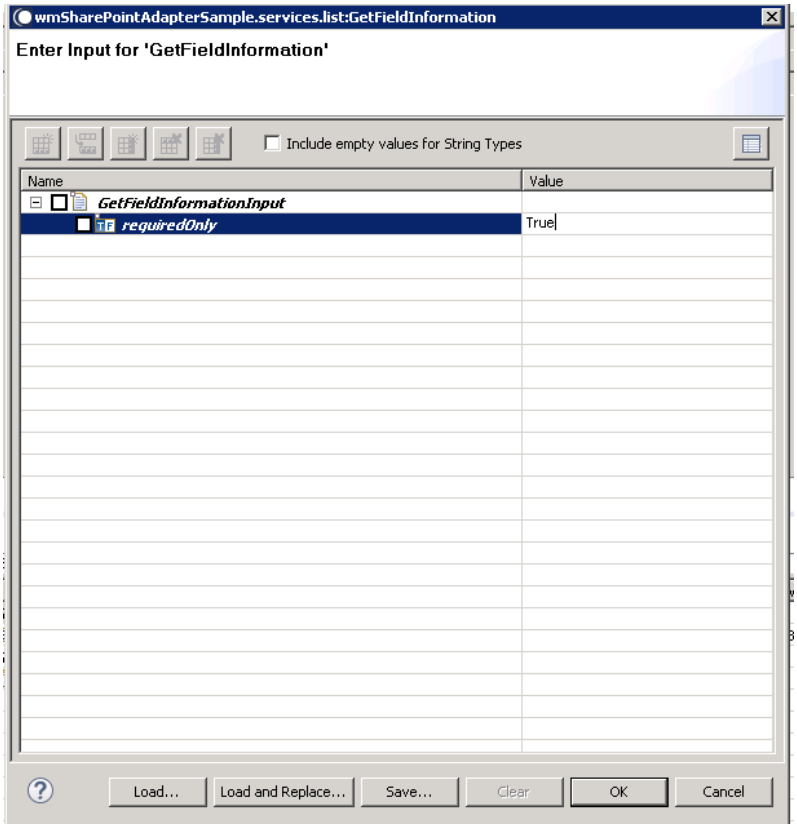
6.15.3 Execute the Service

Perform the following steps to execute the service:

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

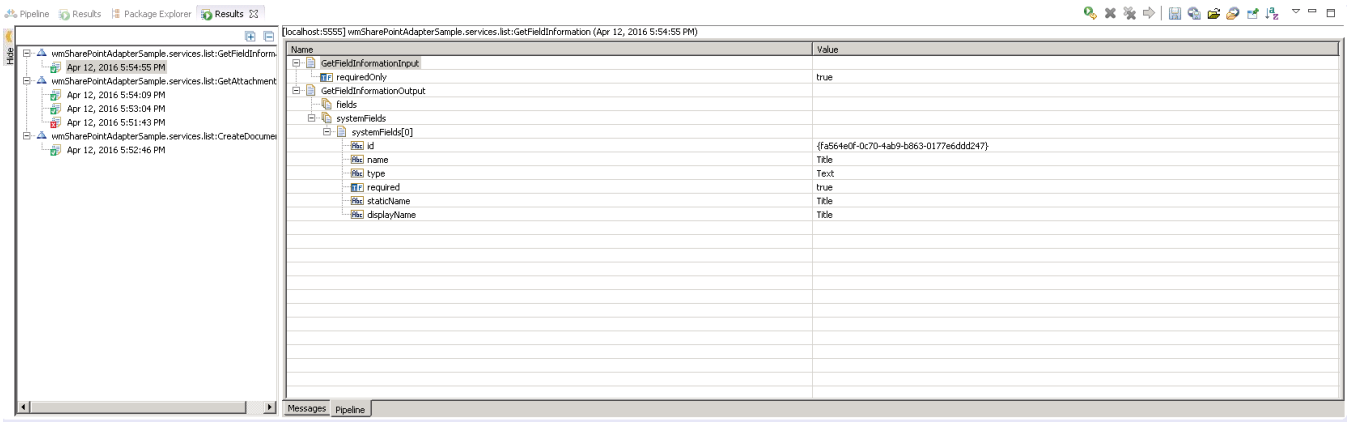


2. Enter the relevant input information in the resulting panel.



3. Click **OK**.

   The service is executed, and the resulting output appears.



The metadata field information is returned.

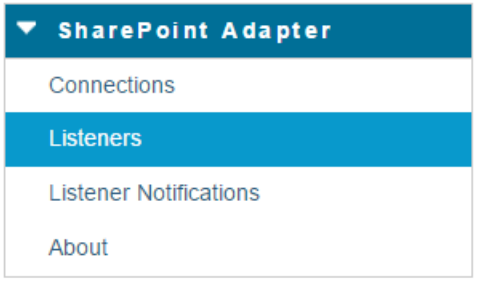
7 Adapter Notifications

Adapter notifications provide powerful model for detecting and processing events that occur in SharePoint repository.

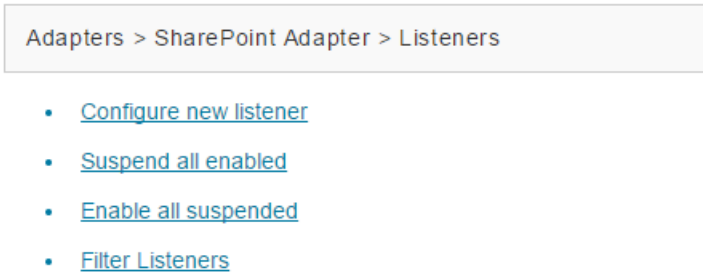
7.1 Adapter listener

If you have installed our add-on in SharePoint repository and provided webSocketUrl in your connection, you will be able to configure Listener.

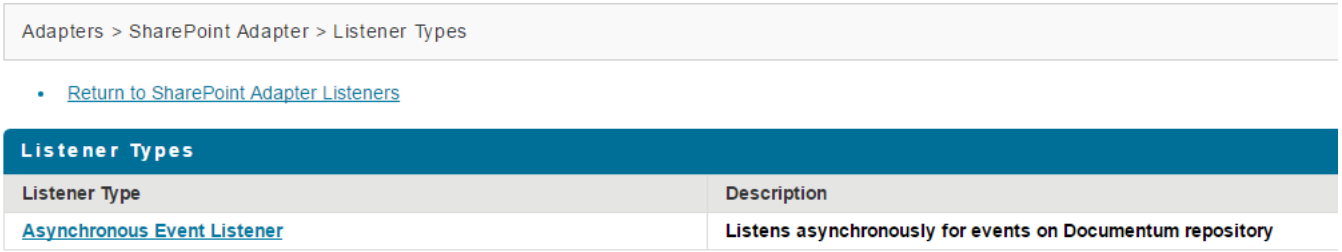
First, you have to create new Listener. Go to Adapters > SharePoint adapter > Listeners,



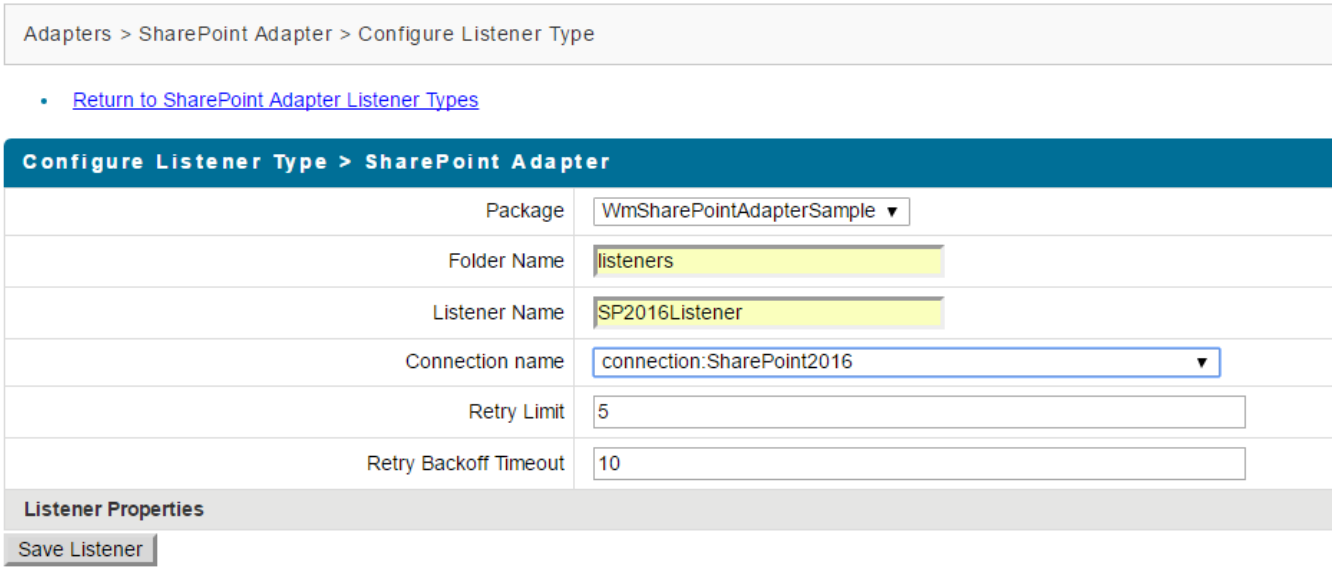
Click on “Configure new listener”



Select “Asynchronous Event Listener”



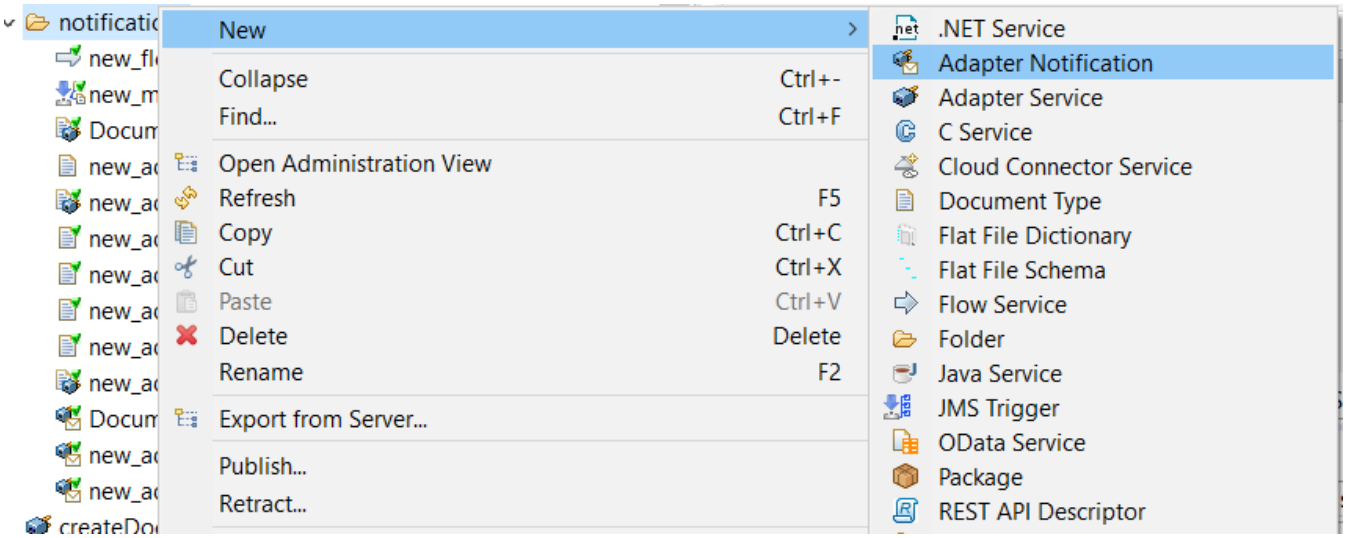
Select package and folder where you want the new listener to be created, provide listener name and select connection that you want to use for your listener.



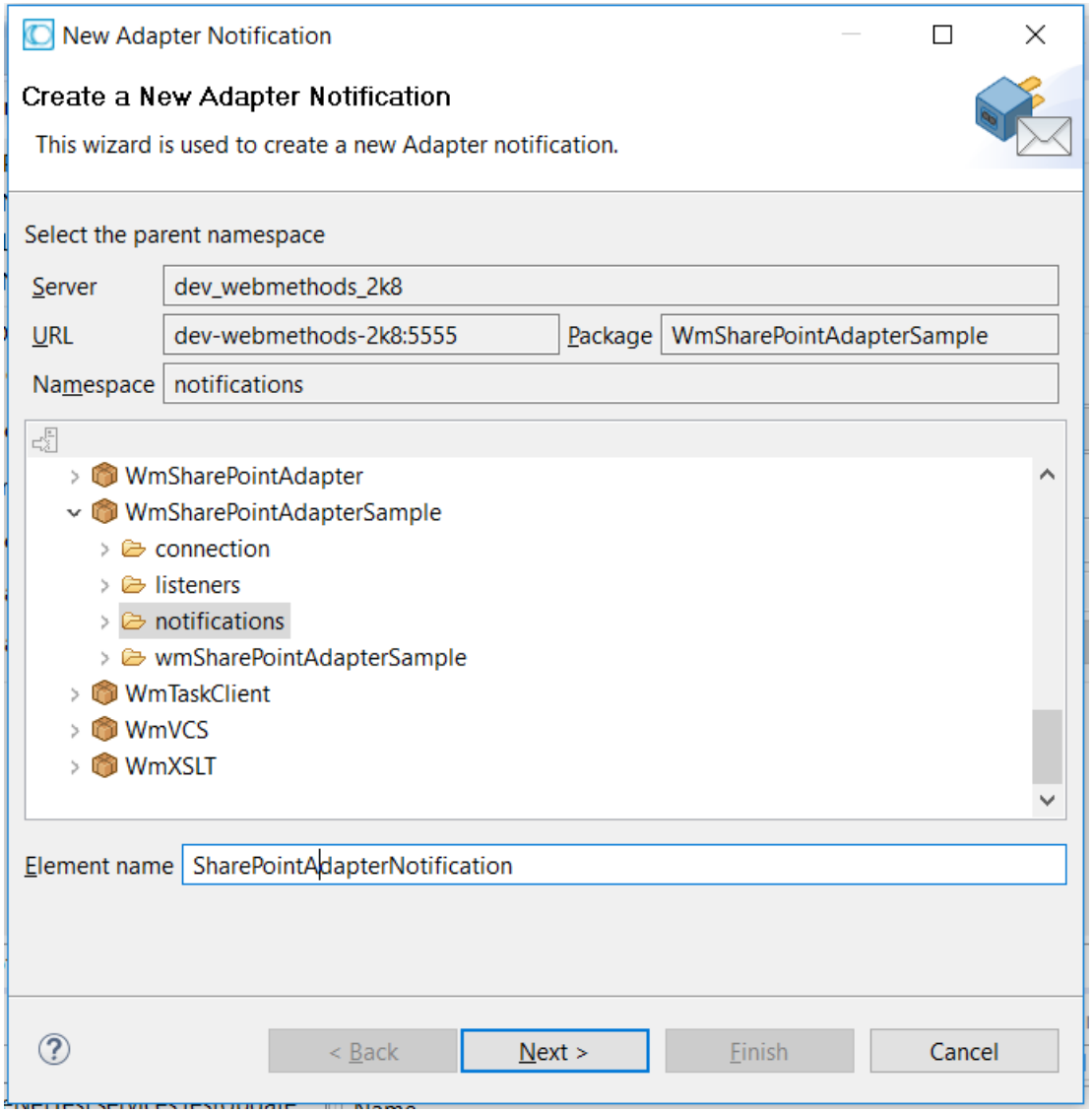
After new adapter listener is created, you have to enable it.

7.2 Create and configure notifications

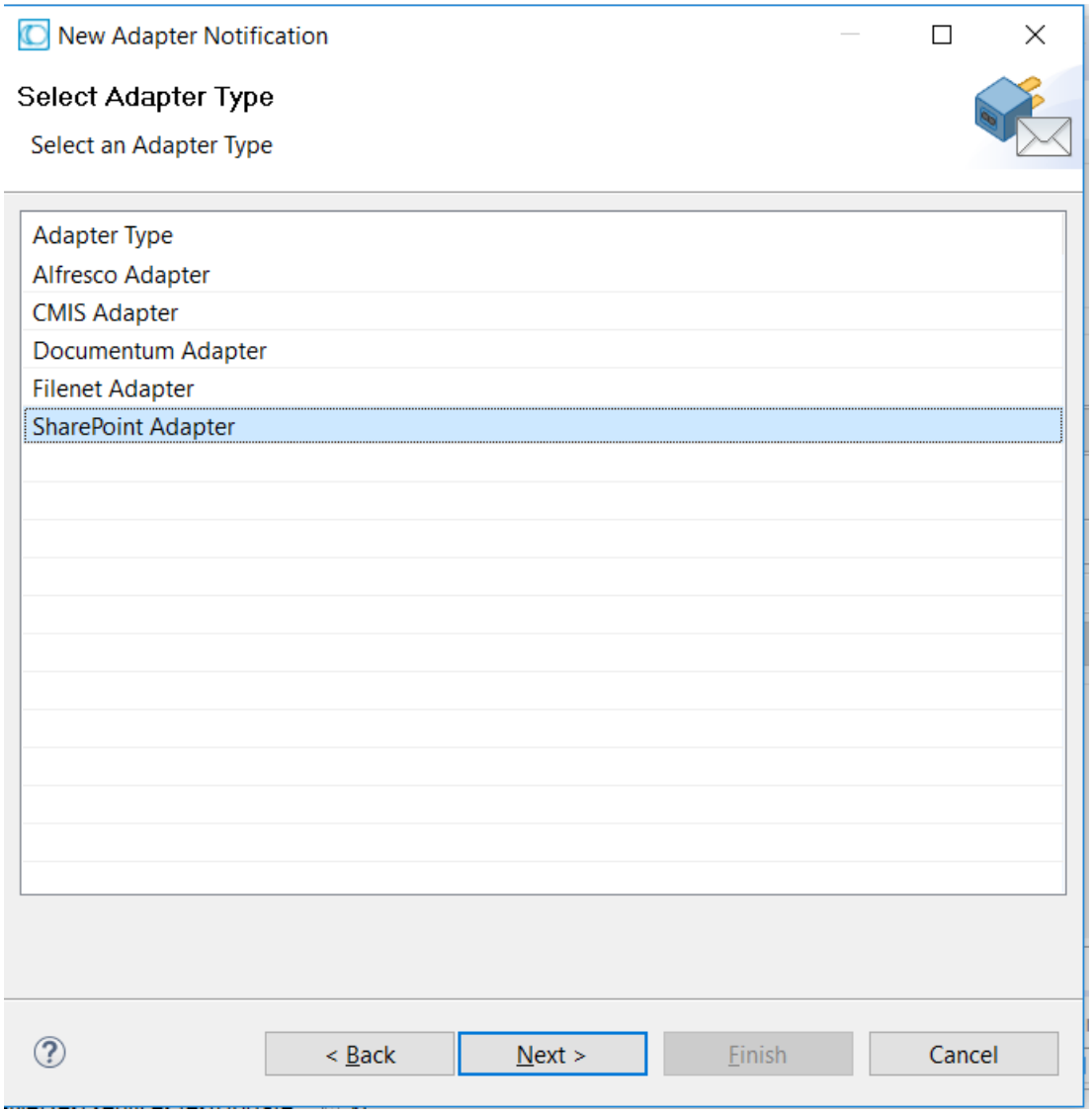
After the listener is enabled, you can create new Adapter Notification using Designer



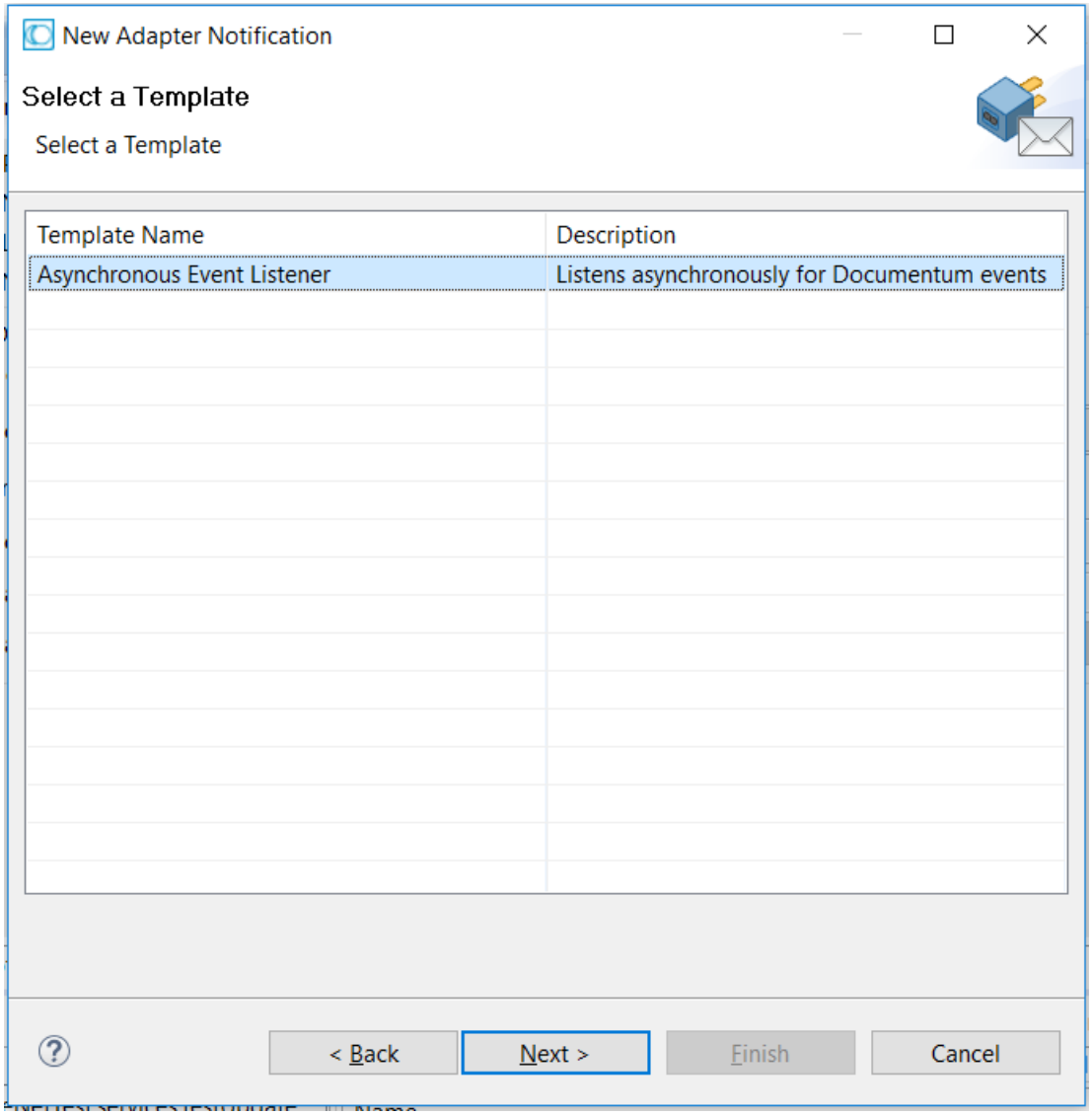
Select folder where you want new adapter notification to be created and provide name of your adapter notification.



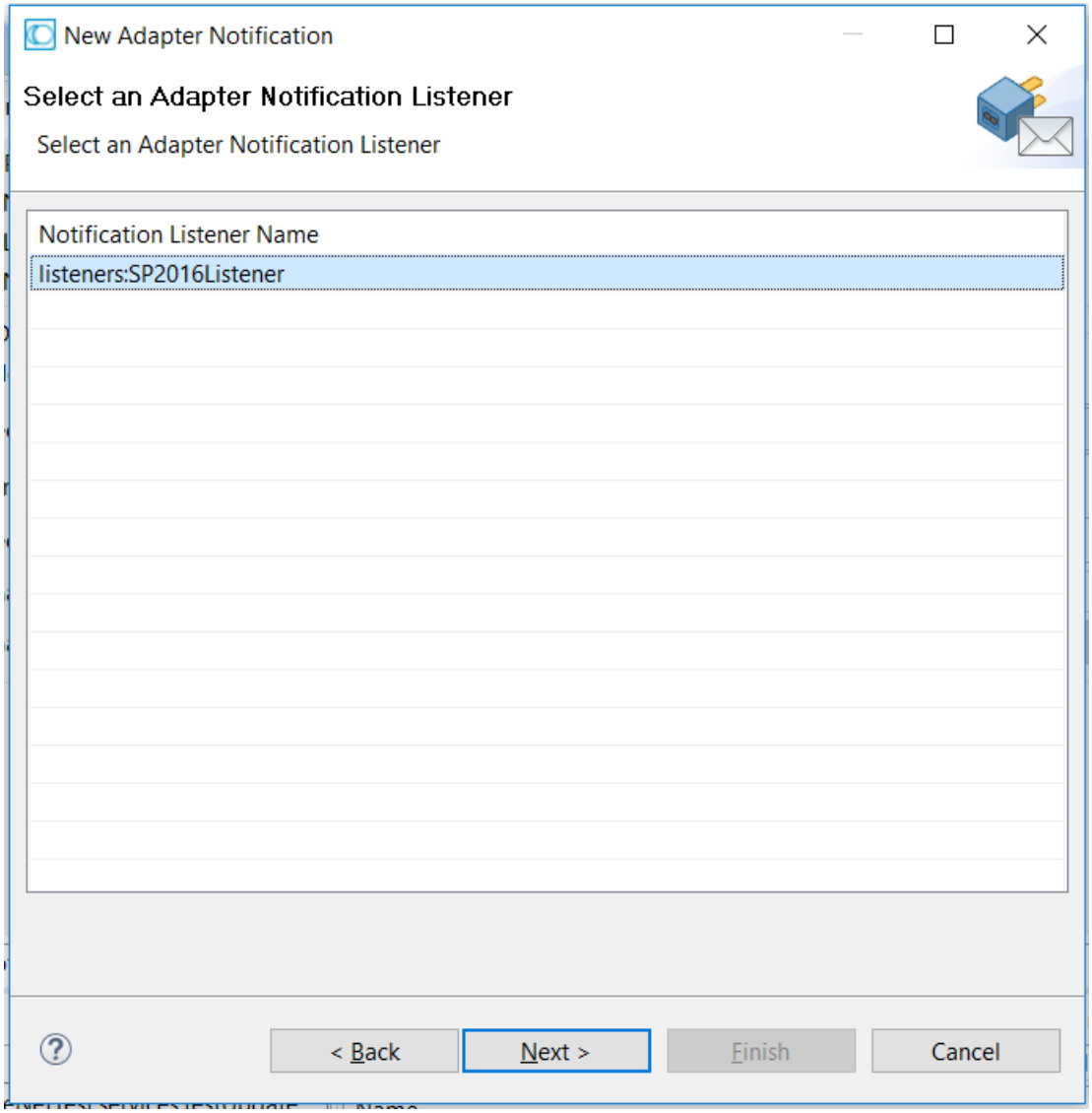
Select “SharePoint Adapter” from list of available adapters.



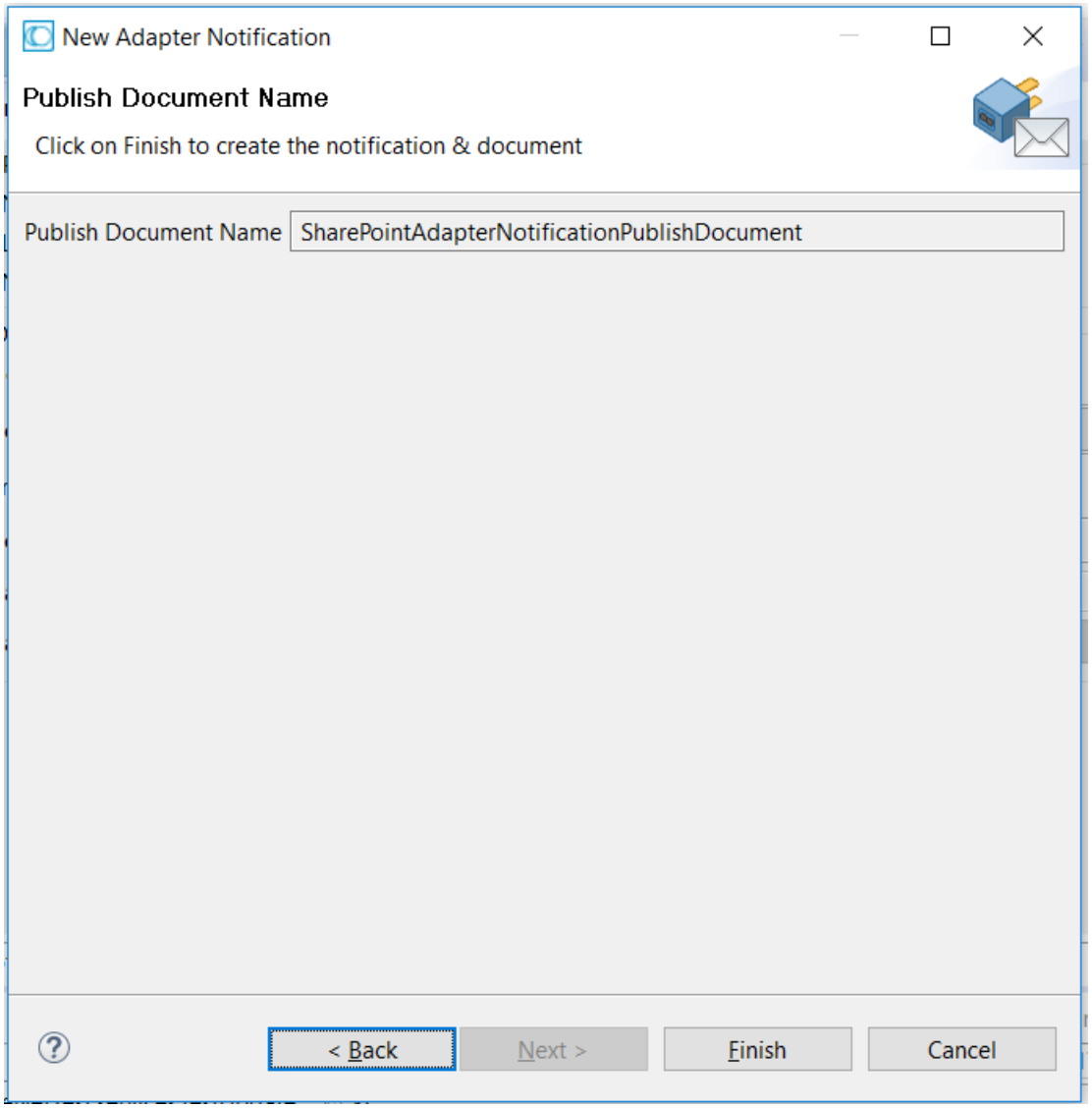
Select “Asynchronous Event Listener” from available notification templates.



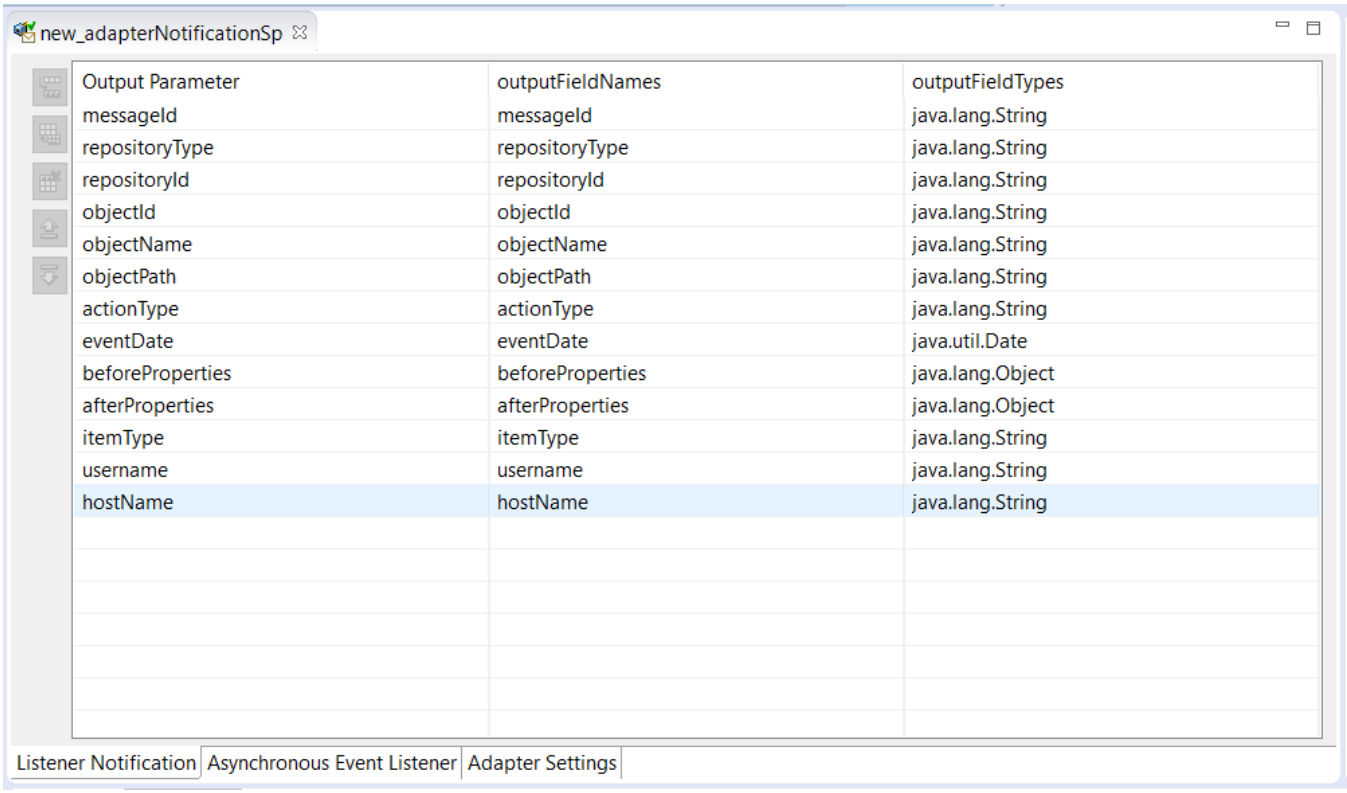
Select the listener that you have created in first step.



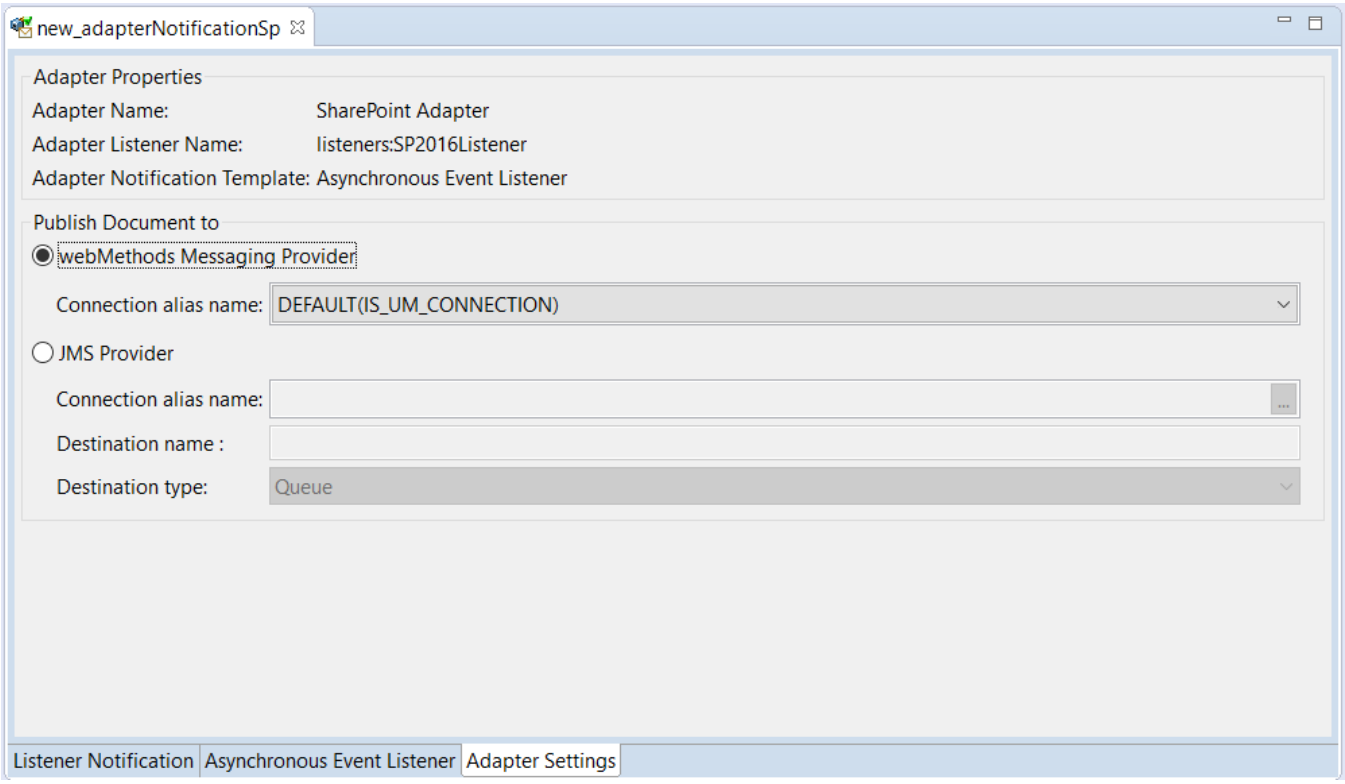
Click “Finish” button to finish creation of notification and document. Name of the document cannot be changed.



In next screen, you can see output fields and their corresponding types.



In “Adapter Settings” tab you can select messaging provider, destination name and destination type.



These steps enable saving documents published by Adapter Notifications to messaging system. In order to process published documents, you can use webMethods Messaging Trigger or JMS Trigger, depending on the type of messaging provider you have selected in previous step.

You can use IS Administrator UI to enable or disable adapter notifications. In column “Enabled” click on No/Yes in order to enable/disable notifications.