

# webMethods Adapter for SharePoint

Installation and User's Guide

Version 9.12

October 2016

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This document applies to webMethods Adapter 9.12 for SharePoint and to all subsequent releases.

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

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## 1 About this Guide

This guide describes how to configure and use webMethods Adapter 9.12 for SharePoint. 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
<b>Bold</b>	Identifies elements on a screen.
Narrowfont	Identifies storage locations for services on webMethods Integration Server, using the convention <i>folder.subfolder:service</i> .
UPPERCASE	Identifies keyboard keys. Keys you must press simultaneously are joined with a plus sign (+).
<i>Italic</i>	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

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### Software AG Documentation Website

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

### Software AG Empower Product Support Website

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

To submit feature/enhancement requests, get information about product availability, and download products, go to [Products](#).

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

### Software AG TECHcommunity

You can find documentation and other technical information on the Software AG TECHcommunity 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 Adapter for SharePoint

webMethods Adapter for SharePoint 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<sup>[1]</sup>.

webMethods Adapter for SharePoint allows you use adapter service templates to perform 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.

### 2.2 Architecture Overview

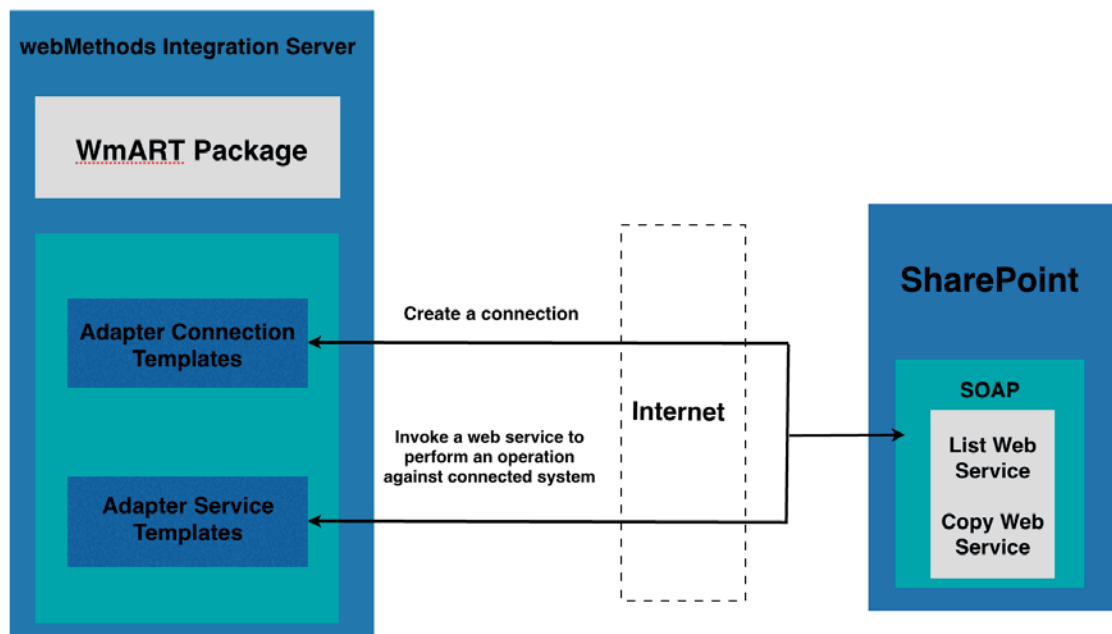
The Adapter for SharePoint provides a set of user interfaces, services, and templates that enable you to create integrations with SharePoint. The adapter connects to the system via SOAP, using the Copy Web Service and Lists Web Service for the copying of elements between Integration Server and SharePoint as well as 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 Adapter for SharePoint"](#). 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 Adapter for SharePoint. 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 Adapter for SharePoint 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. For details, see [“Adapter for SharePoint Package Management”](#).
- You should understand how package dependencies work to allow you to make the best decisions regarding how you manage your adapter services. For details, see [“Package Dependency Requirements and Guidelines”](#).
- You control which development groups have access to which adapter services. For details, see [“Group Access Control”](#).
- You should understand how clustering, an advanced feature of Integration Server, works to effectively manage your adapter services.

## 2.4 Adapter Connections

The Adapter for SharePoint connects to SharePoint through SOAP 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 Adapter for SharePoint's administrative screens.

For instructions on configuring, viewing, editing, enabling, and disabling Adapter for SharePoint connections, see ["Adapter for SharePoint Connections"](#). For information about setting user privileges, see *webMethods Integration Server Administrator's Guide*.

### 2.4.1 Connection Pools

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

A connection pool is a collection of connections with the same set of attributes. Integration Server maintains connection pools in memory. Connection pools improve performance by enabling adapter services to reuse open connections instead of opening new connections.

#### 2.4.1.1 Run-Time Behavior of Connection Pools

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

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

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

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

#### 2.4.1.2 Built-In Services for Connections

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

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

For details, see *webMethods Integration Server Built-In Services Reference Guide*.

## 2.5 Adapter Services

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To use the Adapter for SharePoint, 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 the Copy Web Service or List Web Service depending on the operation being performed. Adapter services are based on templates provided by the Adapter for SharePoint. 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 Services”](#).

Adapter for SharePoint provides the following adapter service templates:

<b>Adapter Service Type</b>	<b>Adapter Service Template</b>	<b>Description</b>
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.
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### 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 <a href="#">“Adapter for SharePoint Connections”</a> .	Integration Server Administrator
2. Select the appropriate adapter service template and configure the adapter service. Depending on the type of adapter service, you specify: <ul style="list-style-type: none"> <li>■ The adapter connection</li> <li>■ The document type</li> <li>■ The input fields and types as needed</li> <li>■ The output fields and types as needed</li> </ul>	Designer
3. If you plan to use an Integration Server flow or Java service to invoke the adapter service, design the flow or Java service to use this adapter service.	Designer
4. Manage the adapter service. For details, see <a href="#">“Package Management”</a> , and <a href="#">“Adapter Services”</a> .	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.

## 3 Installing, Upgrading, and Uninstalling the Adapter for SharePoint

### 3.1 Overview

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This chapter explains how to install, upgrade, and uninstall webMethods Adapter 9.12 for SharePoint . 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

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

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

### 3.3 The Integration Server Home Directory

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

For more information about running multiple Integration Server instances, see *webMethods Integration Server Administrator's Guide*.

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

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

*Integration Server\_directory\instances\instance\_name\packages* directory. For Integration

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Server 9.5 and lower, the *packages\_directory* is *Integration Server\_directory\packages* directory.

### 3.3.1 Installing Adapter for SharePoint

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

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#### To install Adapter for SharePoint

- 1 Download Installer from the [Empower Product Support website](#).
- 2 If you are installing the adapter on an existing Integration Server, shut down the Integration Server.
- 3 Start the Installer wizard.
- 4 Choose the webMethods release that includes the Integration Server on which you want to install the adapter. For example, if you want to install the adapter on Integration Server 9.8, choose the 9.8 release.
- 5 Specify the installation directory as follows:
  - If you are installing on an existing Integration Server, specify the webMethods installation directory that contains the host Integration Server.
  - If you are installing both the host Integration Server and the adapter, specify the installation directory to use.
- 6 In the product selection list, select **Adapters >webMethods Adapter 9.12 for SharePoint**.  
 If you are using Integration Server 9.6 and above, you can choose to install the package in the default instance. In this case, Software AG Installer installs the adapter in both locations, *Integration Server\_directory\packages* and the default instance packages directory located in  
*Integration Server\_directory\instances\default\packages*.
- 7 To download the documentation for the adapter, go to [Software AG Documentation website](#).
- 8 After the installation completes, close the Installer and start the host Integration Server.

## 3.4 Uninstalling Adapter for SharePoint

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### To uninstall Adapter for SharePoint

- 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 Adapter for SharePoint-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.

## 4 Package Management

### 4.1 Overview

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

### 4.2 Adapter for SharePoint Package Management

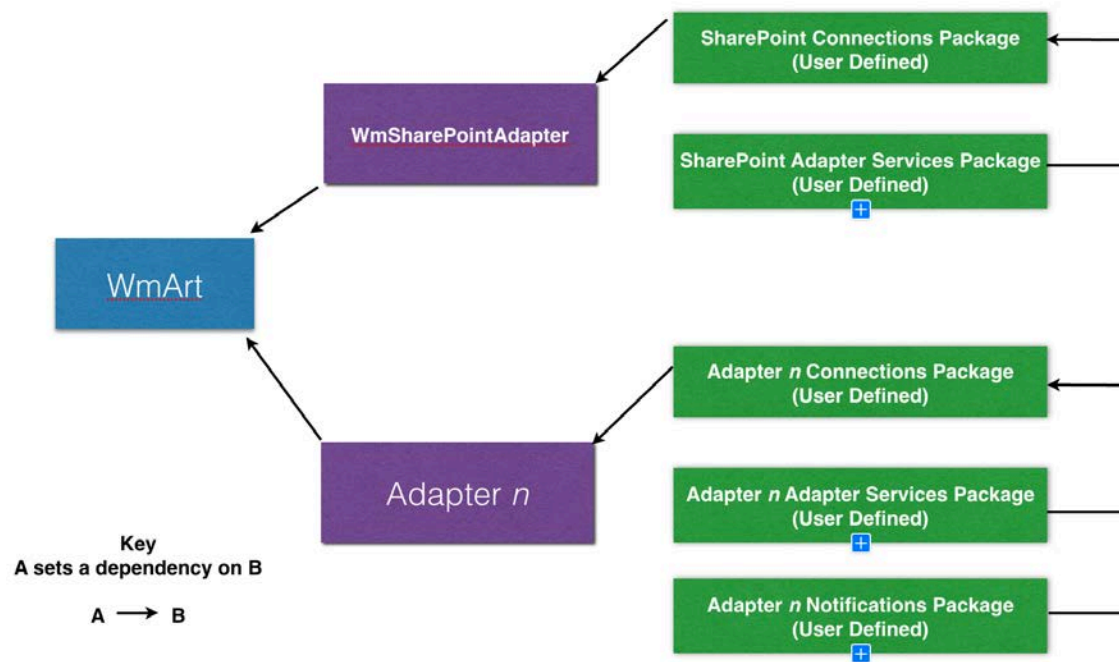
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Adapter for SharePoint is provided as a package called WmSharePointAdapter.

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

When you create connections, adapter services, and adapter notifications, 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, 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 that they are in different folders and packages.

#### 4.2.2 Enabling Packages

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

---

##### To enable a package

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

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**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.

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**Important!** Before you manually enable a user-defined package, you must

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first enable its associated adapter package (WmSharePointAdapter).

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### 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.

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**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.

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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.

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

## 5 Adapter for SharePoint Connections

### 5.1 Overview

This chapter describes how to configure and manage Adapter for SharePoint connections. For more information about how adapter connections work, see [Adapter Connections](#).

### 5.2 Before Configuring or Managing Adapter Connections

Perform the following steps before configuring or managing adapter connections.

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

#### To prepare to configure or manage adapter connections

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

### 5.3 Configuring Adapter for SharePoint Connections

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

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

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



6. The new connection is saved and can be used when creating a new service from the service template. See [“Adapter Services”](#).

### Example configuration for a new connection

Adapters > SharePoint Adapter > View Connection	
• <a href="#">Return to SharePoint Adapter Connections</a>	
wmSharePointAdapterSample.connection:SharePointConnection Details	
Connection Type: SharePoint Server Connection	
Package Name: WmSharePointAdapterSample	
<b>Connection Properties</b>	
Site URL: <a href="http://app-sp2010-docu">http://app-sp2010-docu</a>	
Username: devenet\csp	
Password: *****	
<b>Connection Management Properties</b>	
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 Documentum 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	<a href="http://app-sp2010-docu">http://app-sp2010-docu</a>	the SharePoint service context root URL this is where all the SharePoint services are hosted via HTTP/HTTPS
Username	Devenet\csp	the username for connecting
Password	secret	the user's password
Retype Password		the user's password retyped

## Connection Management Properties

Field	Description/Action
Enable Connection Pooling	<p>Enables the connection to use connection pooling. For more information about connection pooling see the Integration Server connection pool documentation.</p> <p>Note: If you plan to enable connection pooling in a clustered environment, consider the connection pool size.</p>
Minimum Pool Size	<p>If connection pooling is enabled, this field specifies the number of connections to create when the connection is enabled.</p> <p>The adapter will keep open the number of connections you configure here regardless of whether these connections become idle.</p>
Maximum Pool Size	<p>If connection pooling is enabled, this field specifies the maximum number of connections that can exist at one time in the connection pool.</p>
Pool Increment Size	<p>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.</p>
Block Timeout	<p>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.</p> <p>For example, you have a pool with Maximum Pool Size of 20. If you receive 30 simultaneous requests for a connection, 10 requests will be waiting for a connection from the pool. If you set the Block Timeout to 5000, the 10 requests will wait for a connection for 5 seconds before they time out and return an error. If the services using the connections require 10 seconds to complete and return connections to the pool, the pending requests will fail and return an error message stating that no connections are available. If you set the Block Timeout value too high, you may encounter problems during error conditions. If a request contains errors that delay the response, other requests will not be sent.</p> <p>This setting should be tuned in conjunction with the Maximum Pool</p>

Field	Description/Action
	Size to accommodate such bursts in processing.
Expire Timeout	<p>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.</p> <p>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.</p> <p>This setting should be tuned in conjunction with the Minimum Pool Size to avoid excessive opening/closing of connections during normal processing.</p>
Startup Retry Count	The number of times that the system should attempt to initialize the connection pool at startup if the initial attempt fails. The default is 0.
Startup Backoff Timeout	The number of seconds that the system should wait between attempts to initialize the connection pool.

## 5.5 Viewing Adapter Connection Parameters

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

### 5.5.1 Using Integration Server Administrator to View Adapter Connection Parameters

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

### To view the parameters for a connection using Integration Server Administrator

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

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

- To sort information on the connections screen, click the **Up** and **Down** arrows at the top of the column you want to sort.
- To filter the list of connections:
  - i On the Connections screen, click **Filter Connections**.
  - ii Type the criterion by which you want to filter into the **Filter criteria** box. Filtering is based on the node name, 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 Adapter for SharePoint Connections"](#).

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

### 5.5.2 Using Designer to View Adapter for SharePoint 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 **Adapter for SharePoint**.
- 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 Adapter for SharePoint 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 **Adapter for SharePoint**.
- 2 On the Connections screen, click the  icon for the connection you want to copy.  
The Copy Connection screen displays the current parameters for the connection you want to copy. Name the new connection, specify a package name and folder

name, and edit any connection parameters as needed by typing or selecting the values you want to specify.

---

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

---

For descriptions of the connection parameters, see ["Configuring Adapter for SharePoint Connections"](#).

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

## 5.8 Deleting Adapter Connections


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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 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 **Adapter for SharePoint**.
- 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

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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 **Adapter for SharePoint**.
- 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.

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### To disable a connection

- 1 In the **Adapters** menu in the Integration Server Administrator navigation area, click **Adapter for SharePoint**.
- 2 On the Connections screen, click **Yes** in the **Enabled** column for the connection you want to disable.

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

## 6 Adapter Services

### 6.1 Overview

The Adapter for SharePoint 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.

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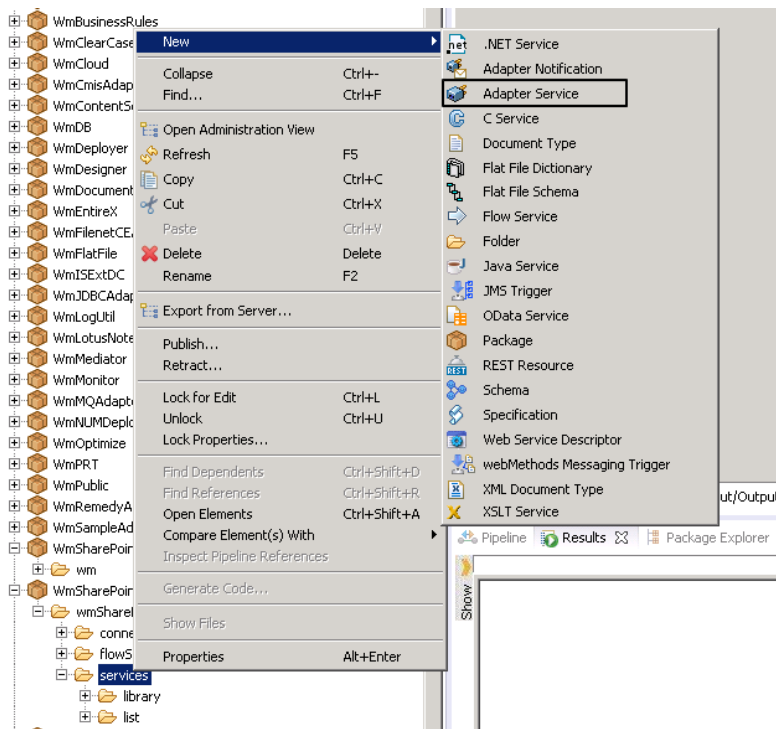
Note: When executing a service that requires a file such as, Add Attachments, then you will have to configure a flow for the streaming of the file.

---

## 6.2 Creating a New Service

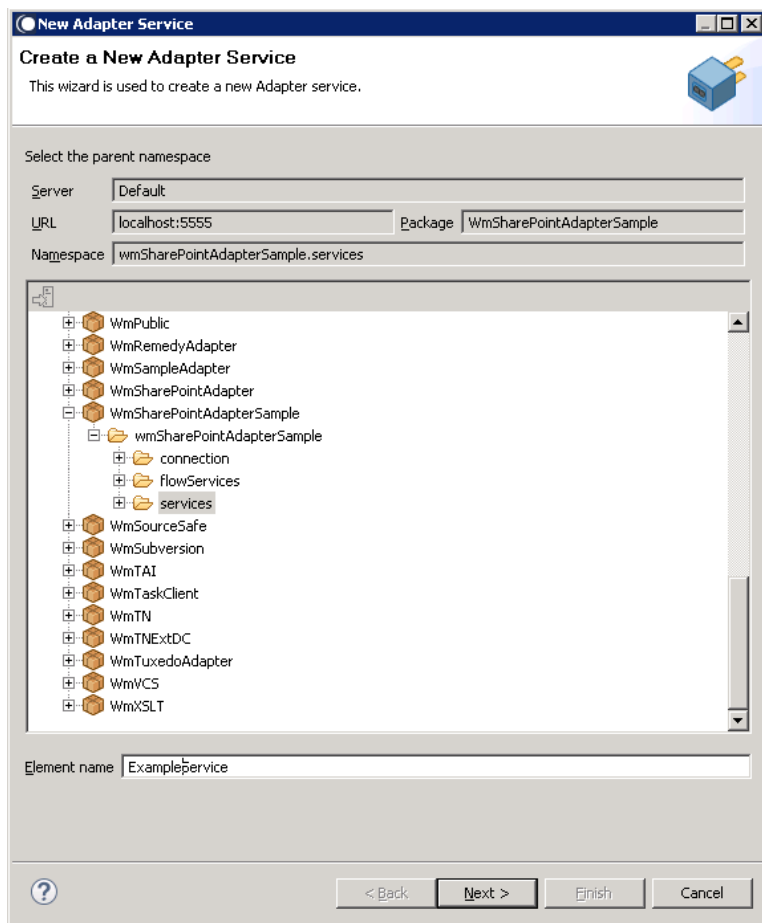
The initial steps to create a new adapter service are the same, regardless of the services being created.

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:

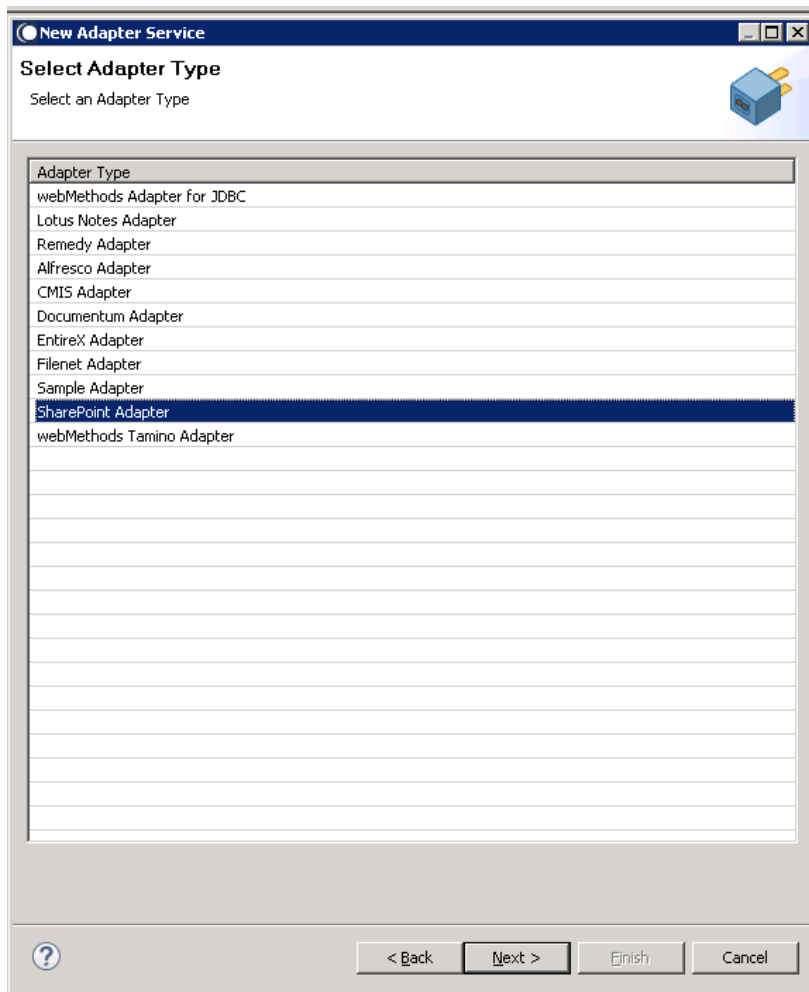


Enter the name of the service you want to create in the **Element name** field.

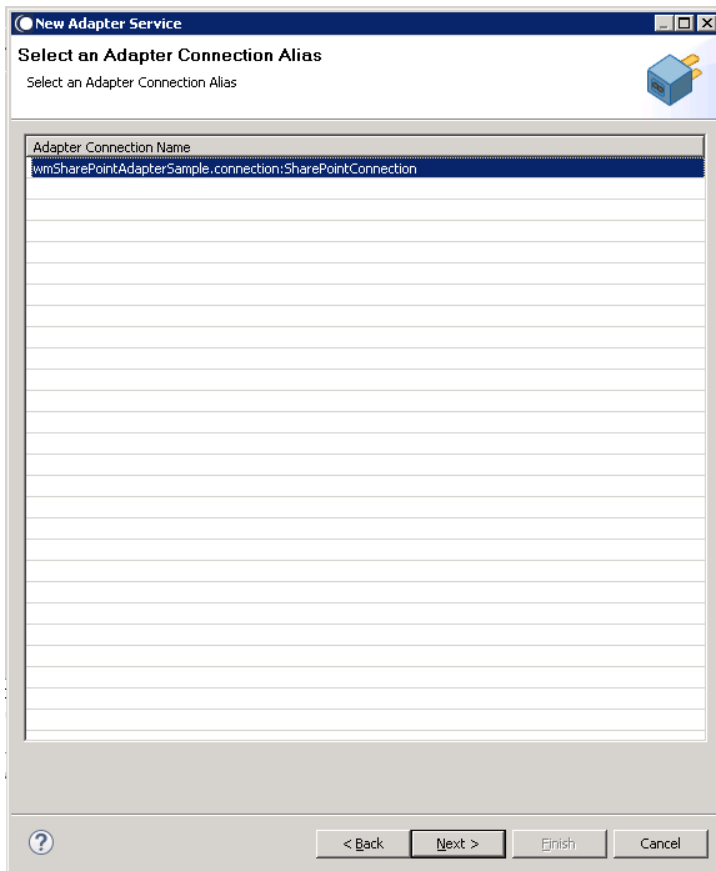
Note: The created service names should be unique within the folder. Example, the name given for service in **Element name** field can be `ExampleService`.



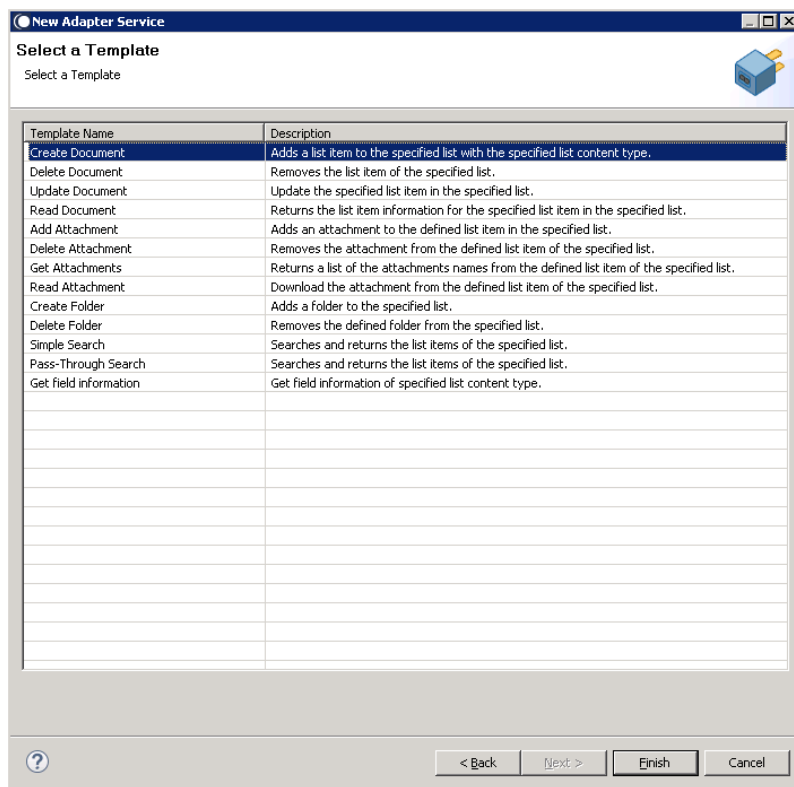
Select your adapter type and click **Next**.



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 Adapter for SharePoint provides.

### 6.3 Create Document

### 6.3.1 Description

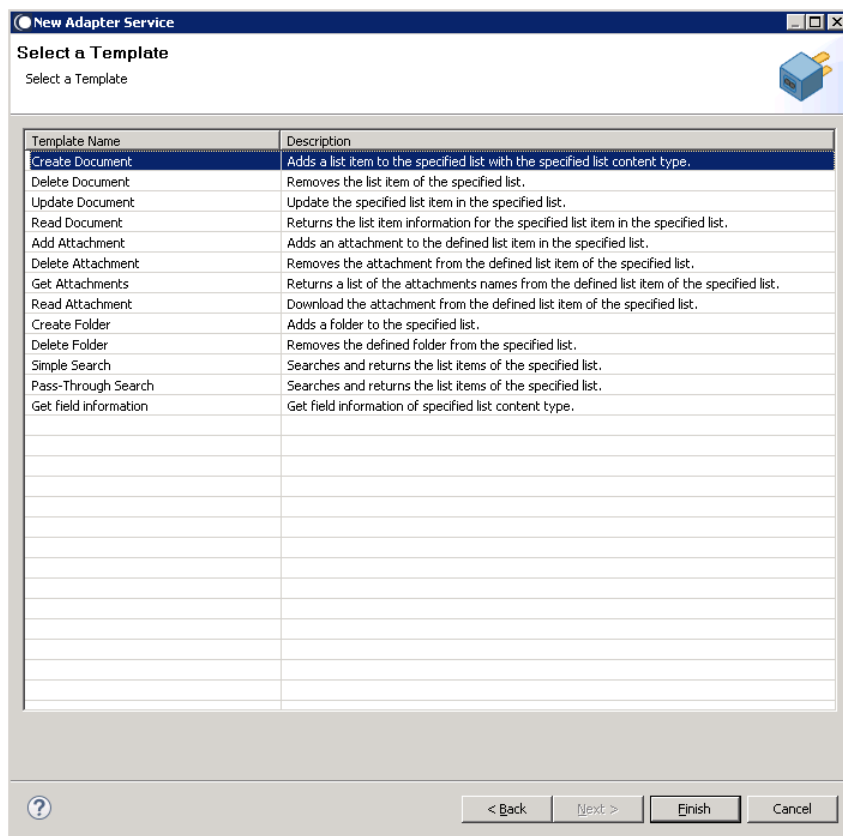
A list item can be added to the specified table with the specified List content type name.

### 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.

List name: **Customized Reports**

List content type name: **Document**

Create Document | Adapter Settings | **Input/Output** | Logged Fields | Comments

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

Specification Reference: \_\_\_\_\_

Input: \_\_\_\_\_ Output: \_\_\_\_\_

☐ Validate input ☐ Validate output

**new\_adapterServiceInput**

- FolderPath
- systemValues
  - Title
  - BaseName
- fileName
- stream

**new\_adapterServiceOutput**

- id
- systemValues
  - ContentTypeId
  - Title
  - ID
  - ContentType
  - Modified
  - Created
  - Author
  - Editor
  - FileDirRef
  - FileLeafRef
  - ServerUrl
  - BaseName
- values
  - Modified\_x0020\_By
  - Created\_x0020\_By

Create Document | Adapter Settings | **Input/Output** | Logged Fields | Comments

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.



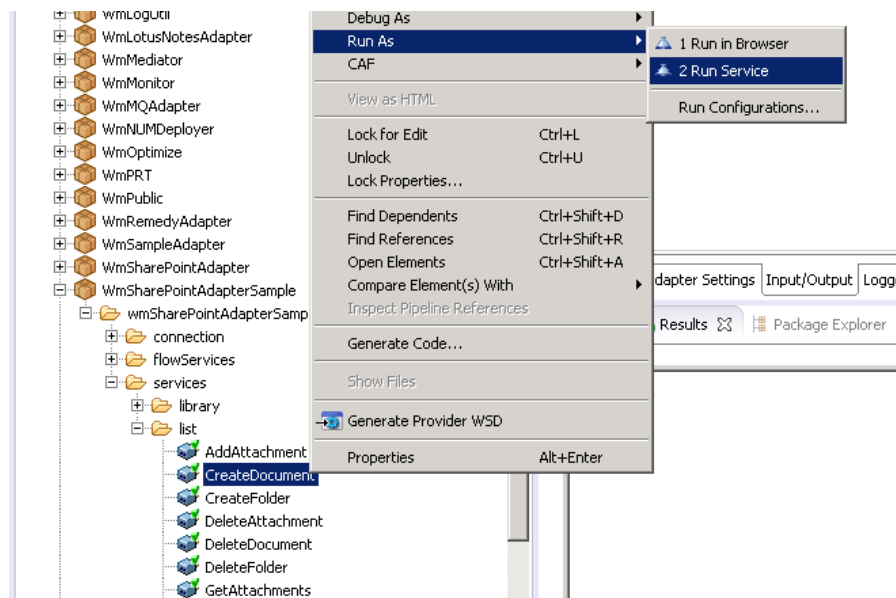
Note: The inputs given during the execution of the service depends on the content type selected

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.

wmSharePointAdapterSample.services.list:CreateDocument

Enter Input for 'CreateDocument'

☐ Include empty values for String Types

Name	Value
<b>CreateDocumentInput</b>	
FolderPath	
systemValues	
Title	Test Document
values	
_Publisher	2
_of_Department	3
_TaskCompanies	4
_URL	http://www.google.at
Vertragssumme	6.0
_Priority	7
_Version	8
_DCDateCreated	9/9/2009 0:00:00 CEST
DateCompleted	10/10/2010 0:00:00 CEST
_Comments	11

Load... Load and Replace... Save... Clear OK Cancel

3. Click OK.

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

Localhost:55555 wmSharePointAdapterSample.services.list:CreateDocument (Apr 12, 2016 5:40:33 PM)

Name	Value
CreateDocumentInput	
systemValues	
Title	Test Document
values	
_Publisher	2
_of_Department	3
_TaskCompanies	4
_URL	http://www.google.at
Vertragssumme	6.0
_Priority	7
_Version	8
_DCDateCreated	9/9/2009 0:00:00 CEST
DateCompleted	10/10/2010 0:00:00 CEST
_Comments	11
CreateDocumentOutput	
id	323
values	
_DCDateCreated	9/9/2009 23:00:00 CEST
_Comments	11
_Version	8
_of_Department	3
_Publisher	2
DateCompleted	10/9/2010 23:00:00 CEST
_Priority	7
Vertragssumme	6.0
_TaskCompanies	4
_URL	http://www.google.at, http://www.google.at
systemValues	
ServerUrl	/lists/Alten/201_000
FileContent	323;#lists/Alten
Modified	4/12/2016 17:37:40 CEST
ContentType	List_Alten
BaseName	323_
ContentTypeId	0x01000238BE3848AC9444A8BE07D664C1E1DF0096511C9158A8A4478D60E0CEFF968122
Author	6:4pdp
Title	Test Document

## 6.4 Delete Document

### 6.4.1 Description

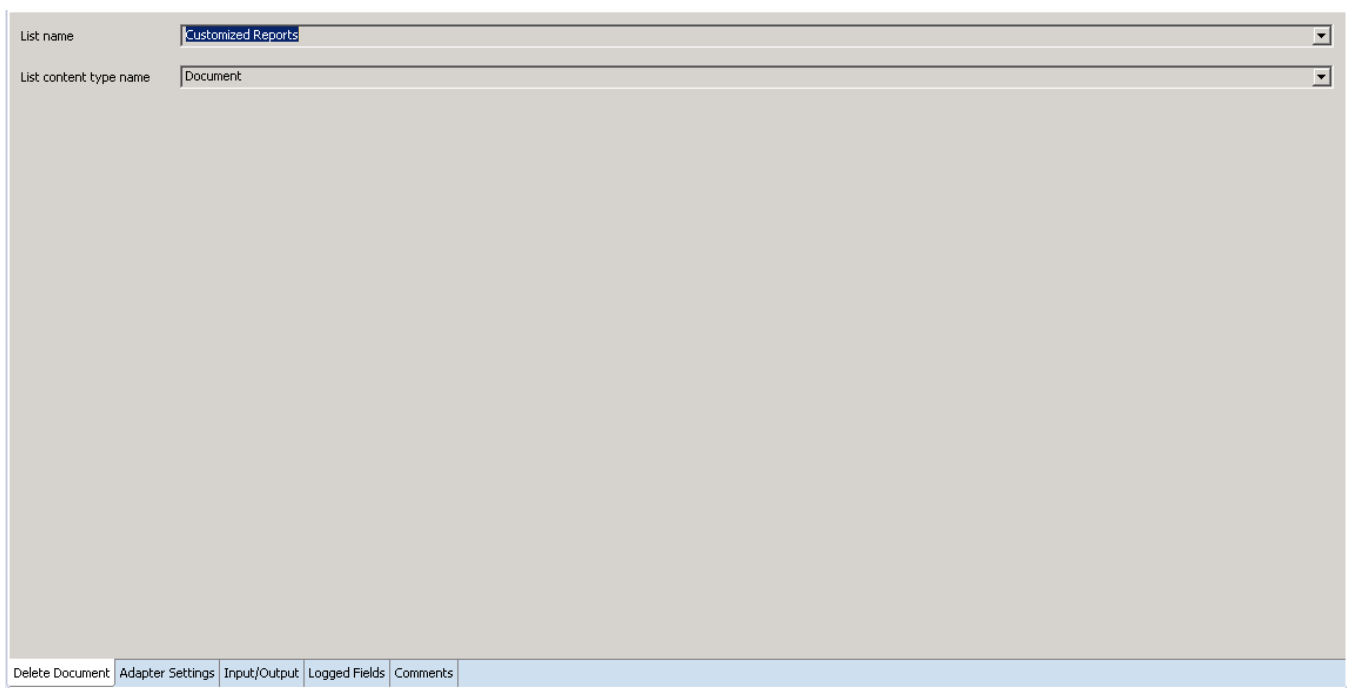
Removes list items from the specified list. The deleted document is specified during the execution of the service by the provided document ID.

### 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**.

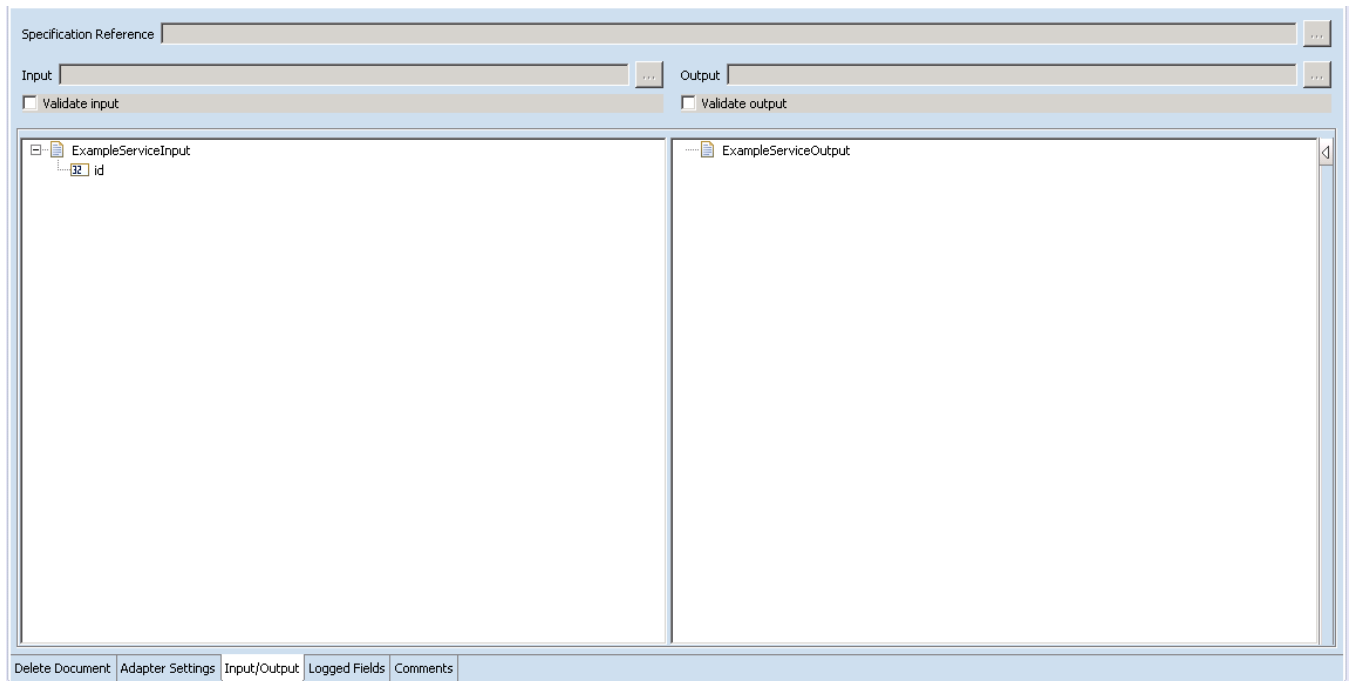


The screenshot displays the 'Select a Template' configuration screen. At the top, there are two dropdown menus. The first, labeled 'List name', has 'Customized Reports' selected. The second, labeled 'List content type name', has 'Document' selected. Below these is a large, empty rectangular area. At the bottom of the screen, there is a horizontal tab bar with five tabs: 'Delete Document' (which is the active tab), 'Adapter Settings', 'Input/Output', 'Logged Fields', and 'Comments'.

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.

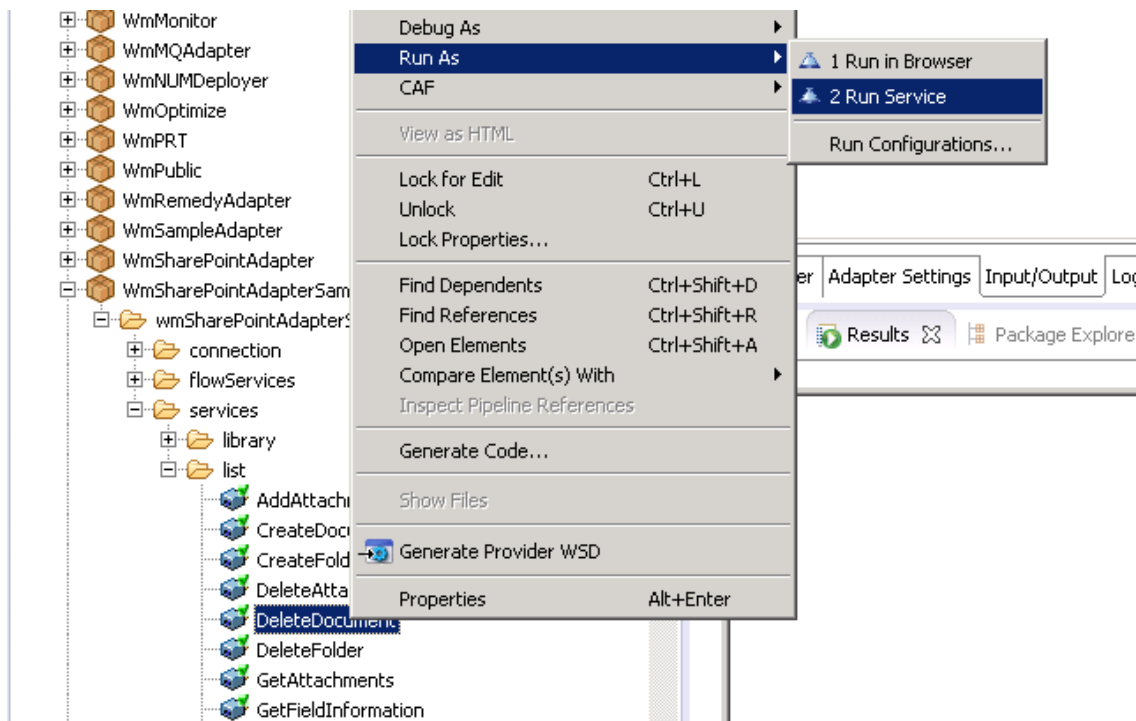
As you can see from the screenshot above, there are no outputs and only one input. The ID relates to the ID of the document that is to be deleted.

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

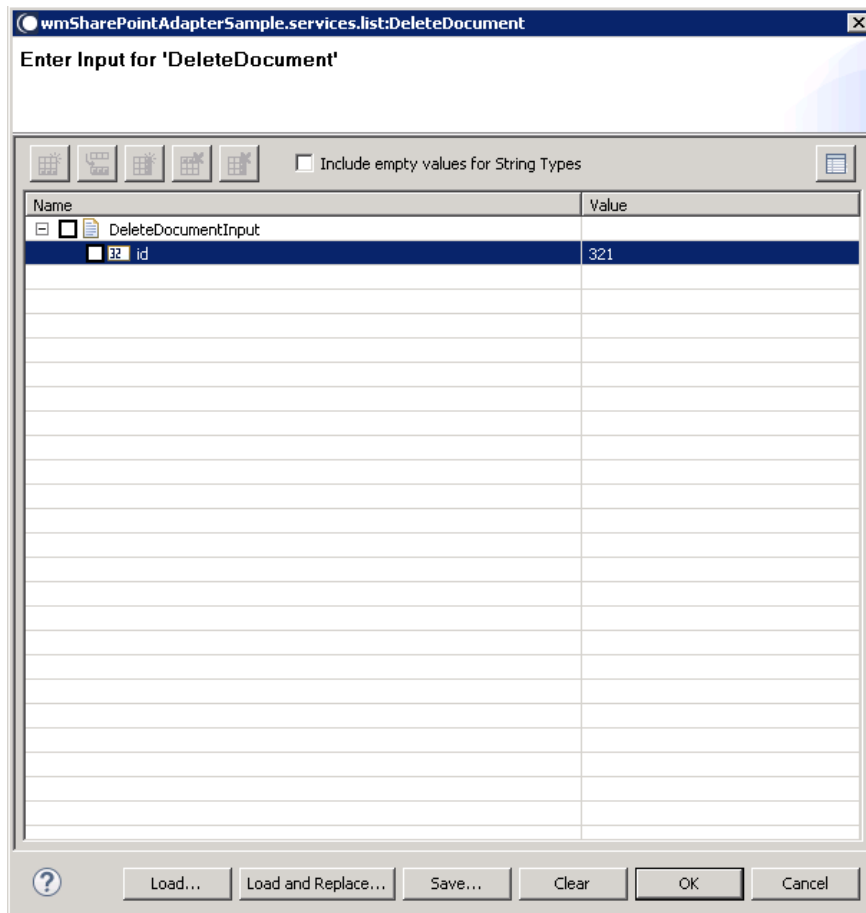
### 6.4.3 Execute the Service

Perform the following steps to execute the service:

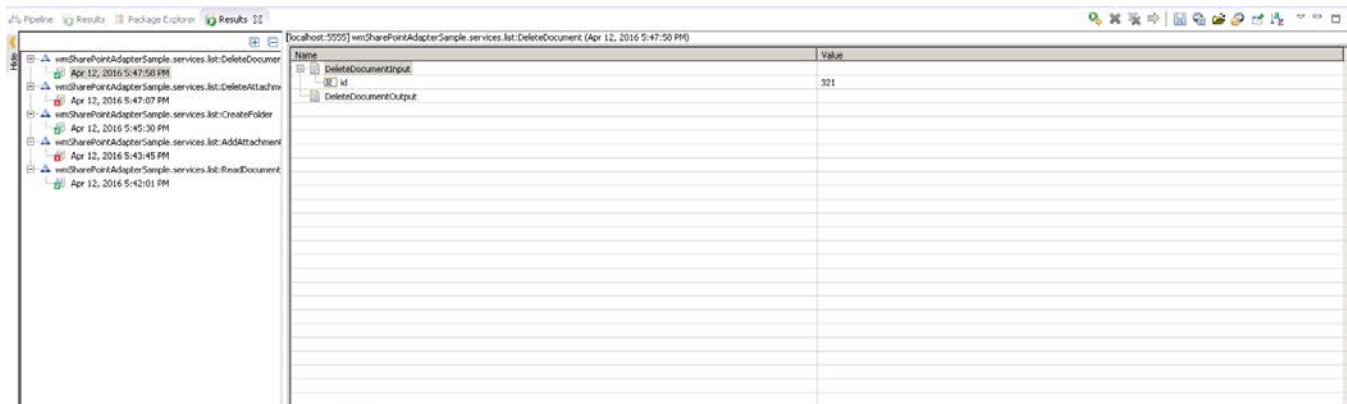
1. Right-click your newly created service and select **Run -> Run As Service**.



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



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



Name	Value
DeleteDocumentInput	
id	321
DeleteDocumentOutput	

The document is deleted.

## 6.5 Update Document

### 6.5.1 Description

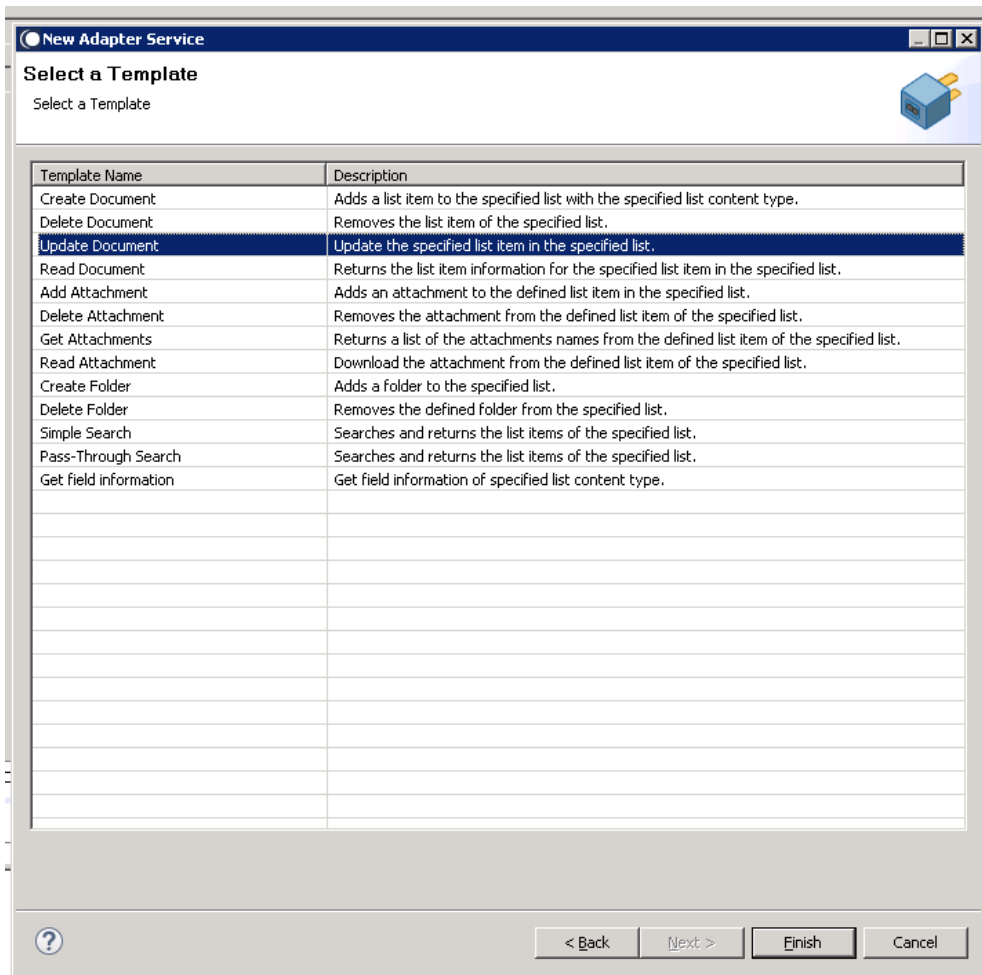
Updates the specific list item information for the specified item in the specified list.

### 6.5.2 Configure the Service

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

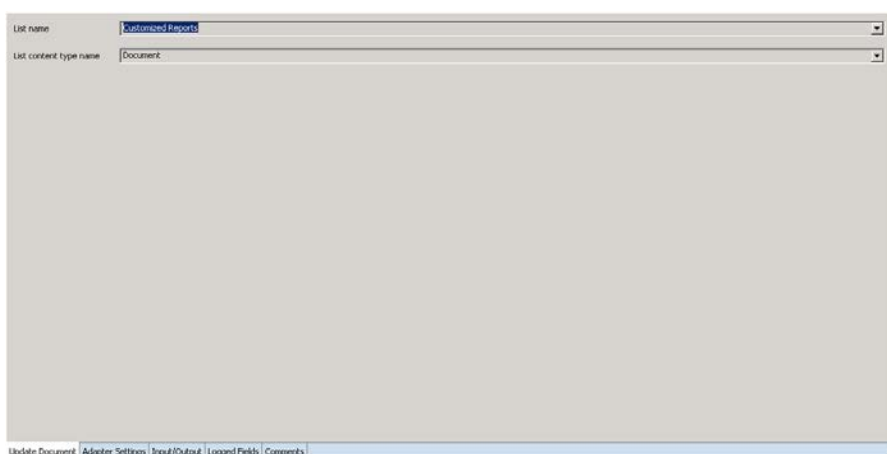
Perform the following steps to configure the service:

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

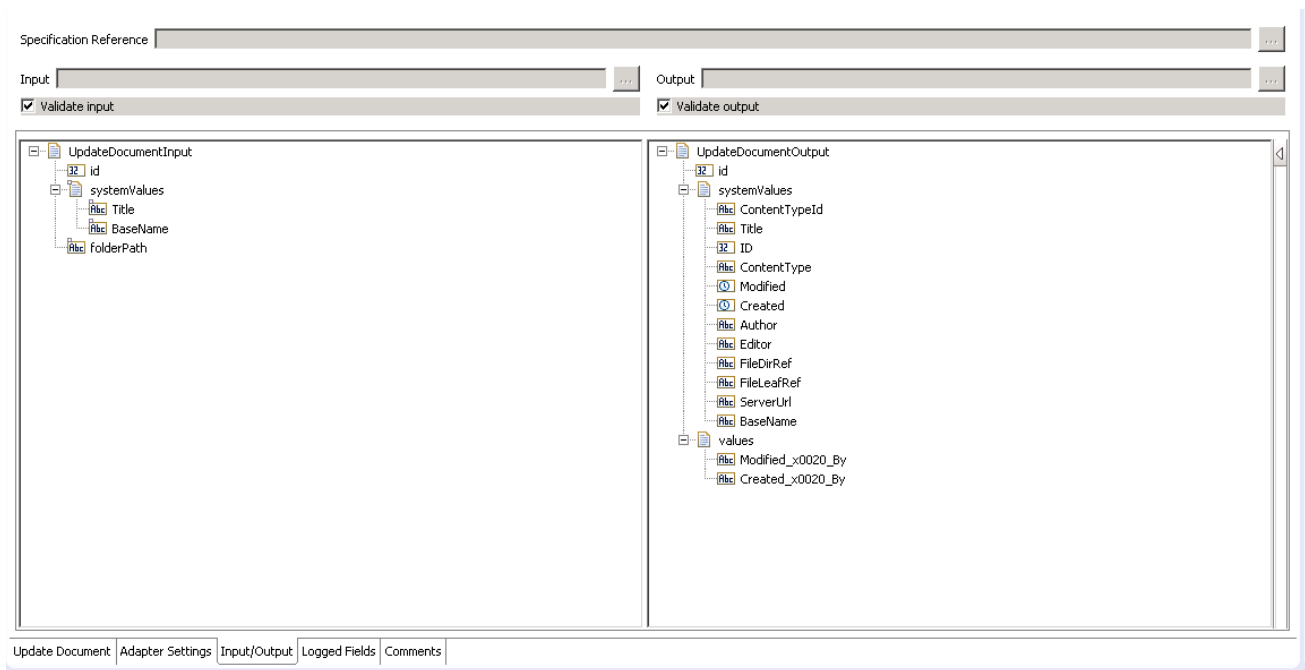


You can now configure the template. The service template contains a series of tabs along the bottom of the panel. The **Update Document** tab contains the following two dropdown lists.

- 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 **Delete 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.
- On the right-hand side output values are displayed, determined by the content type selected in the **Update Document** tab.

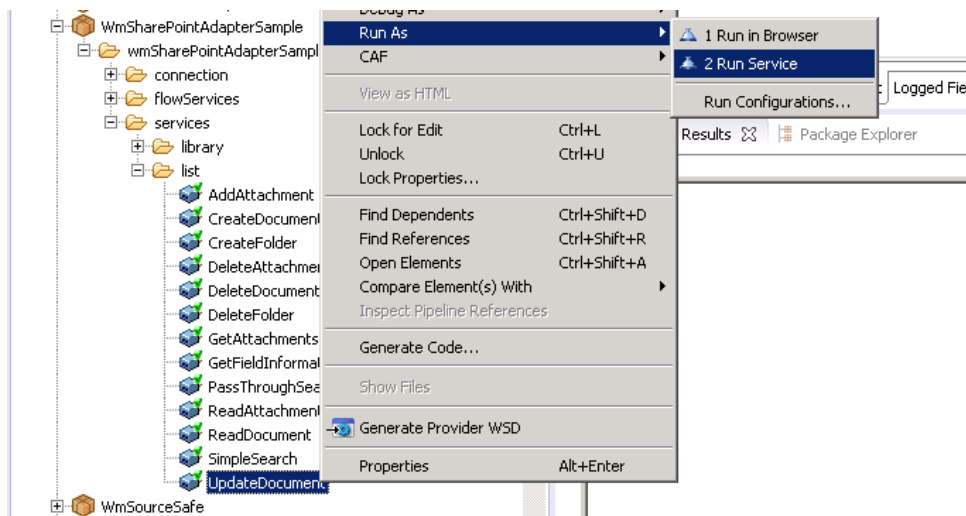
3. Save the new service and it will be available under services.

### 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.

WmSharePointAdapterSample.services.list:UpdateDocument

Enter Input for 'UpdateDocument'

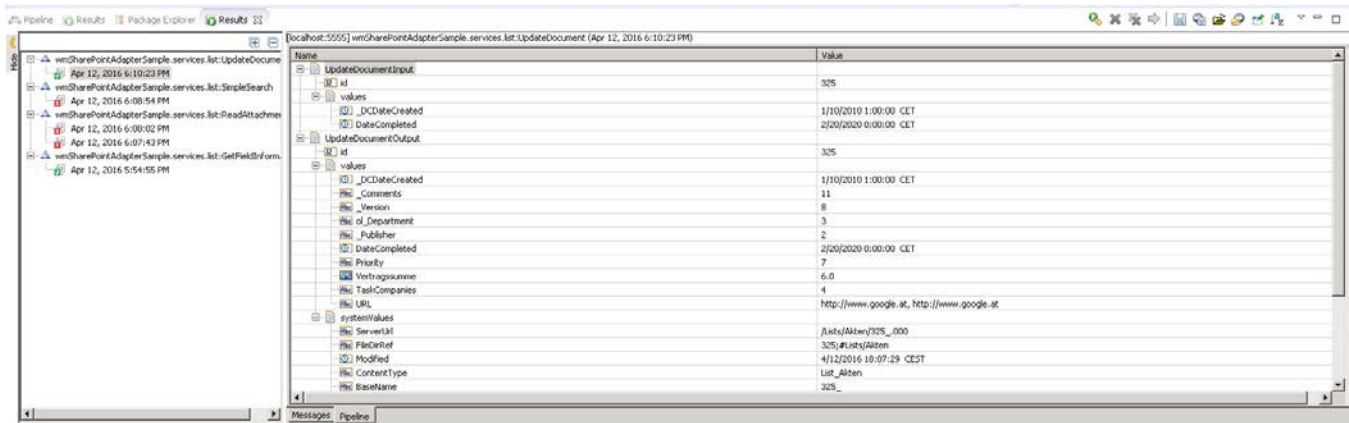
☐ Include empty values for String Types

Name	Value
<input type="checkbox"/> UpdateDocumentInput	
<input type="checkbox"/> id	325
<input type="checkbox"/> systemValues	
<input type="checkbox"/> Title	
<input type="checkbox"/> values	
<input type="checkbox"/> _Publisher	
<input type="checkbox"/> of_Department	
<input type="checkbox"/> TaskCompanies	
<input type="checkbox"/> URL	
<input type="checkbox"/> Vertragssumme	
<input type="checkbox"/> Priority	
<input type="checkbox"/> _Version	
<input type="checkbox"/> _DCDateCreated	1/10/2010 1:00:00 CET
<input type="checkbox"/> DateCompleted	2/20/2020 0:00:00 CET
<input type="checkbox"/> _Comments	

Load... Load and Replace... Save... Clear OK Cancel

### 3. Click OK.

The service is executed and the resulting output is displayed.



Name	Value
UpdateDocumentInput	
id	325
values	
_DocDateCreated	1/10/2010 1:00:00 CET
DateCompleted	2/20/2020 0:00:00 CET
UpdateDocumentOutput	
id	325
values	
_DocDateCreated	1/10/2010 1:00:00 CET
_Comments	11
_Version	8
Department	3
_Publisher	2
DateCompleted	2/20/2020 0:00:00 CET
Priority	7
Verbragsoomsme	6.0
TaskCompanies	4
URL	http://www.google.at, http://www.google.at
systemvalues	
ServerUrl	/tasks/Alteren/325_000
FileDirRef	325/Listx/Alteren
Modified	4/12/2016 10:07:29 CEST
Content Type	List_Alten
BaseName	325_

The document is updated.

## 6.6 Read Document

### 6.6.1 Description

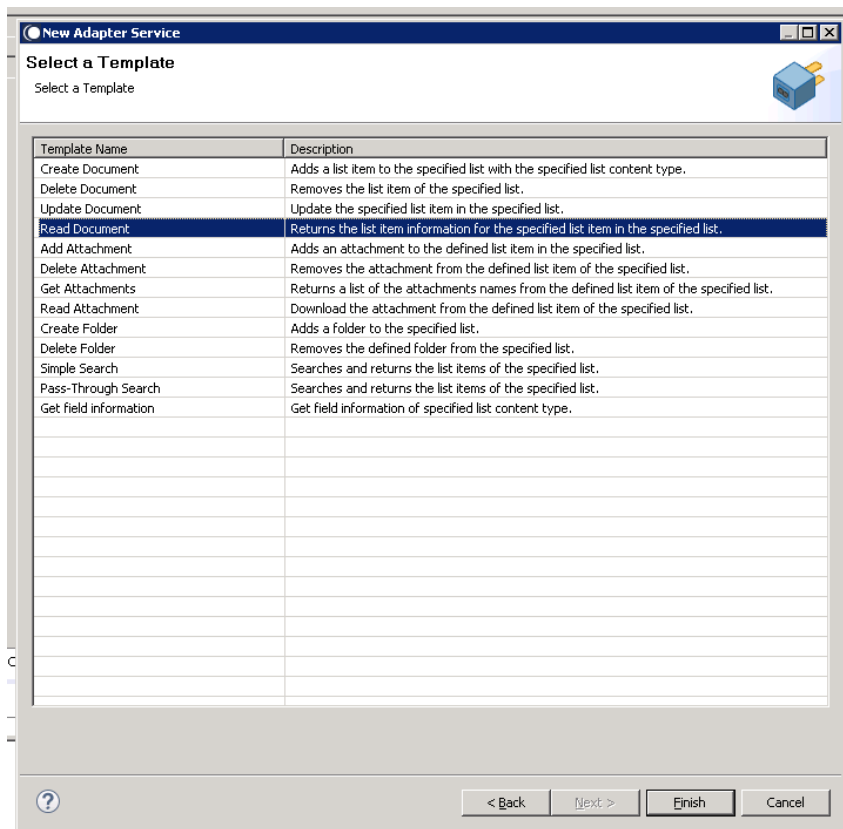
Returns the list item information for the specified list item in the specified list.

### 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.

List name:

List content type name:

Read Document | Adapter Settings | **Input/Output** | Logged Fields | Comments

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

Specification Reference:

Input:  Output:

☒ Validate input ☒ Validate output

ReadDocumentInput

- id

ReadDocumentOutput

- id
- systemValues
  - ContentTypeId
  - ID
  - ContentType
  - Modified
  - Created
  - Author
  - Editor
  - FileDirRef
  - FileLeafRef
  - ServerUrl
  - BaseName
- stream
- values

Read Document | Adapter Settings | **Input/Output** | Logged Fields | Comments

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.

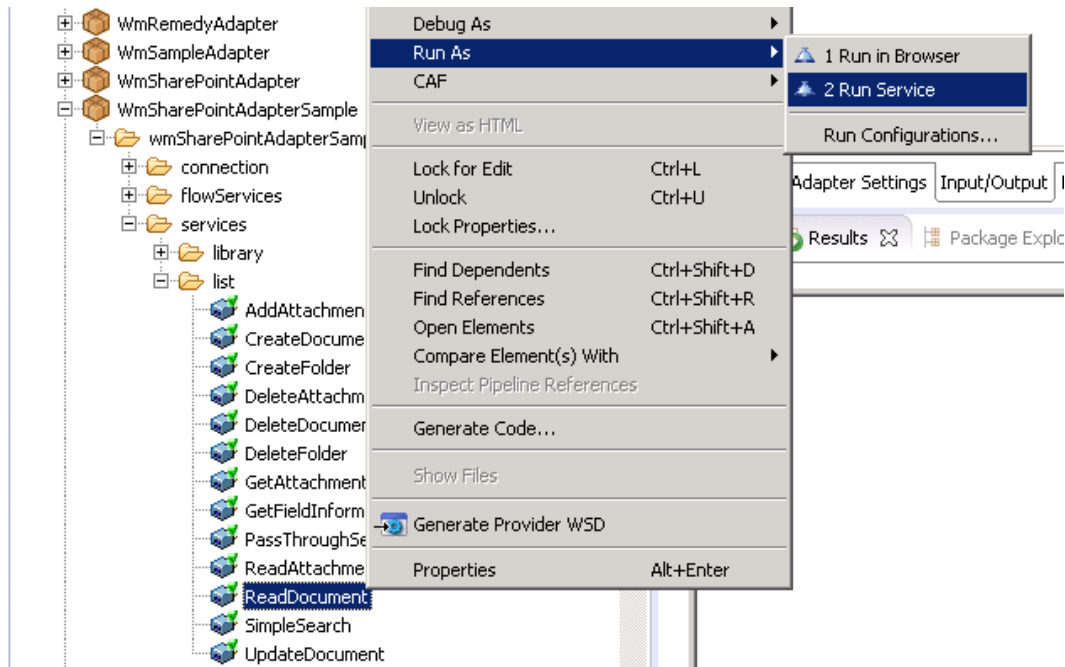
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, there is only one input required and which is the objectID of the document that has to be read.
- On the right-hand side it shows the output for the service. Here, the attributes returned are determined by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

wmSharePointAdapterSample.services.list:ReadDocument

Enter Input for 'ReadDocument'

☐ Include empty values for String Types

Name	Value
ReadDocumentInput	
id	264

Load... Load and Replace... Save... Clear OK Cancel

3. Click OK.

The service is executed and the resulting output displayed.

Results

Localhost:5555 wmSharePointAdapterSample.services.list:ReadDocument (Apr 12, 2016 5:42:01 PM)

Name	Value
ReadDocumentInput	
id	321
ReadDocumentOutput	
id	321
values	
IDCreated	9/8/2009 23:00:00 CEST
Comments	11
Version	8
Department	3
Publisher	2
DateCompleted	10/9/2010 23:00:00 CEST
Priority	7
Vertragsnummer	6.0
TaskCompleted	4
URL	http://www.google.at, http://www.google.at
systemvalues	
ServerUrl	/lists/Alten/321_000
FileRef	321_#lists/Alten
Modified	4/12/2016 17:37:40 CEST
ContentType	list_Alten
BaseName	321
ContentTypeId	0x01000228BE284BAC444ABBE07D64C1E1CF0096811C915A8A447ED88E0CFF968122
Author	6/#osp
Title	Test Document
ID	321
Editor	6/#osp
FileRef	321_#321_000
Created	4/12/2016 17:37:40 CEST

Messages Pipeline

The metadata for your document is returned.

## 6.7 Add Attachment

### 6.7.1 Description

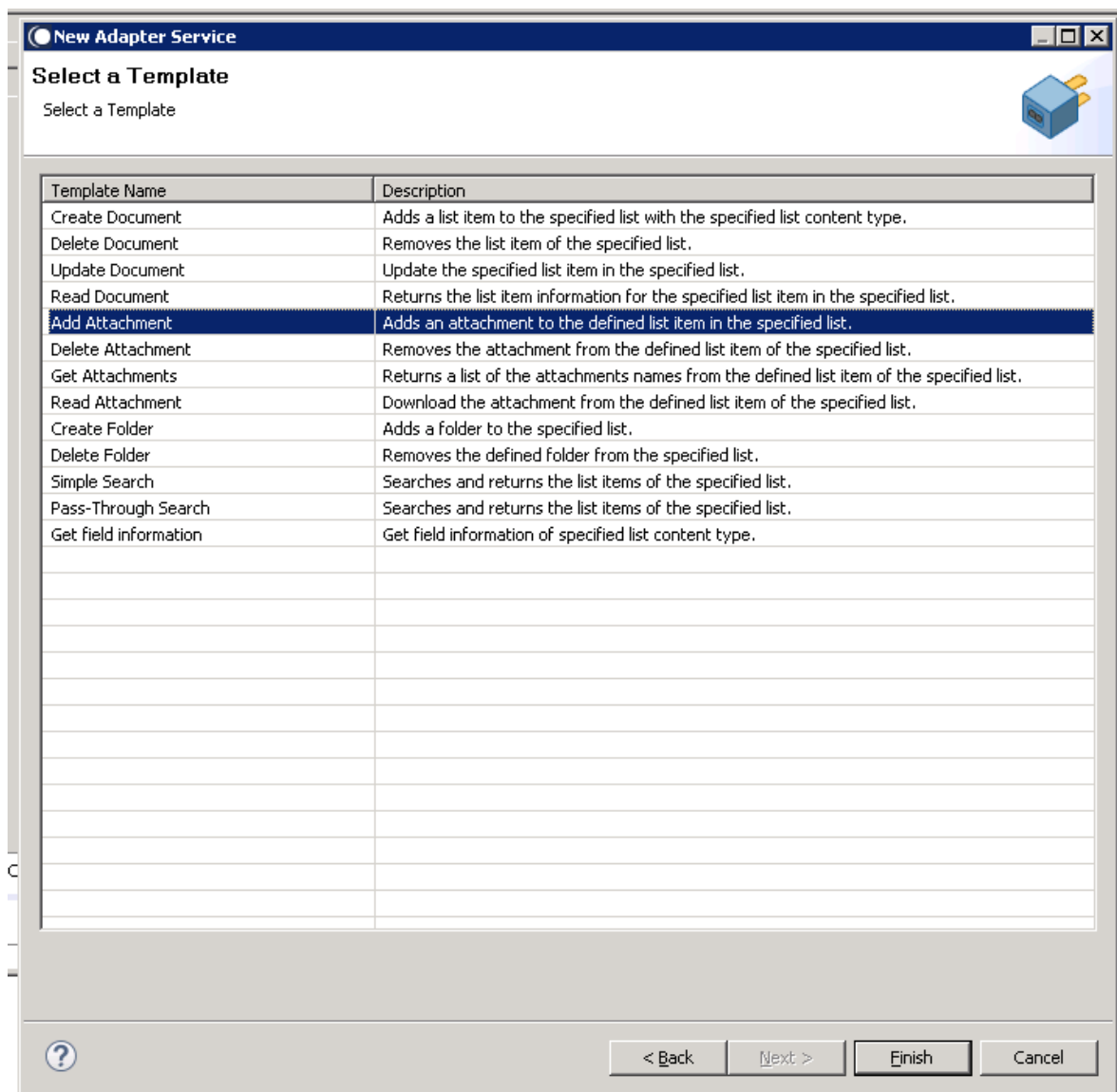
Adds an attachment to the defined list item.

### 6.7.2 Configure the Service

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

The screenshot shows the 'Add Attachment' configuration window. At the top, there are two dropdown menus. The first, labeled 'List name', has 'Akten' selected. The second, labeled 'List content type name', has 'Comment' selected. Below these is a large, empty grey rectangular area. At the bottom, there is a horizontal tab bar with five tabs: 'Add Attachment' (selected), 'Adapter Settings', 'Input/Output', 'Logged Fields', and 'Comments'.

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

The screenshot shows the 'Add Attachment' configuration window with the 'Input/Output' tab selected. At the top, there is a 'Specification Reference' field. Below it are 'Input' and 'Output' fields, each with a dropdown arrow. Under the 'Input' field, there is a checkbox labeled 'Validate input' which is checked. Under the 'Output' field, there is a checkbox labeled 'Validate output' which is also checked. The main area is divided into two panels. The left panel, titled 'AddAttachmentInput', shows a tree structure with three items: 'id' (with a key icon), 'fileName' (with a file icon), and 'stream' (with a stream icon). The right panel, titled 'AddAttachmentOutput', shows a tree structure with one item: 'fileName' (with a file icon). At the bottom, there is a horizontal tab bar with five tabs: 'Add Attachment', 'Adapter Settings', 'Input/Output' (selected), 'Logged Fields', and 'Comments'.

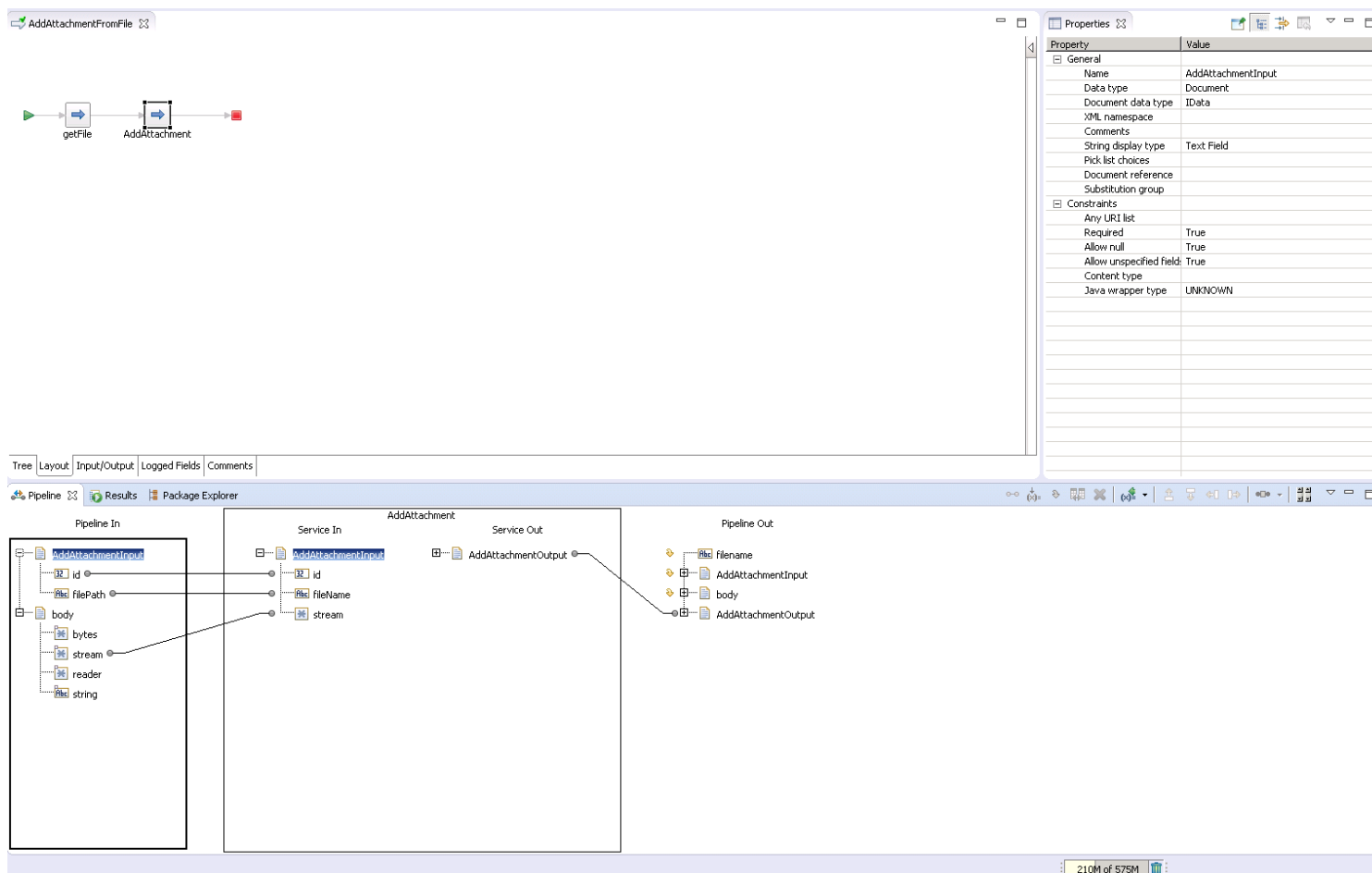
This tab shows the input and output values of **Add Attachment** service, which is information required and what is then provided after the file is attached.



- 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.

The screenshot shows a Windows-style application window titled "wmSharePointAdapterSample.flowServices.list:AddAttachmentFromFile". Below the title bar is a header area containing five icons (spreadsheet, printer, grid, calculator, and another spreadsheet) and a checkbox labeled "Include empty values for String Types". The main body of the window contains a table with two columns: "Name" and "Value". There are three rows visible:

Name		Value
AddAttachmentInput	[icon]	
id	[numeric icon]	286
filePath	[text icon]	C:\{wm\9.9}\IntegrationServer\instances\default\pa...

The bottom row has a blue background. At the very bottom of the window is a footer bar with a question mark icon on the left and four buttons: "Load...", "Load and Replace...", "Save...", and "OK". A partial "Cancel" button is also visible.

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

The screenshot shows the Visual Studio Package Explorer for the 'wmSharePointAdapterSample' project. The file structure is as follows:

- wmSharePointAdapterSample.flowServices.list:AddAttachmentFromFile (Apr 13, 2016 11:08:47 AM)
  - AddAttachmentOutput
    - fileName (index.html)
- wmSharePointAdapterSample.flowServices.library:C
  - Apr 13, 2016 11:06:37 AM

The status bar at the bottom indicates 225M of 575M.

The file is attached to the specified object.

## 6.8 Delete Attachment

### 6.8.1 Description

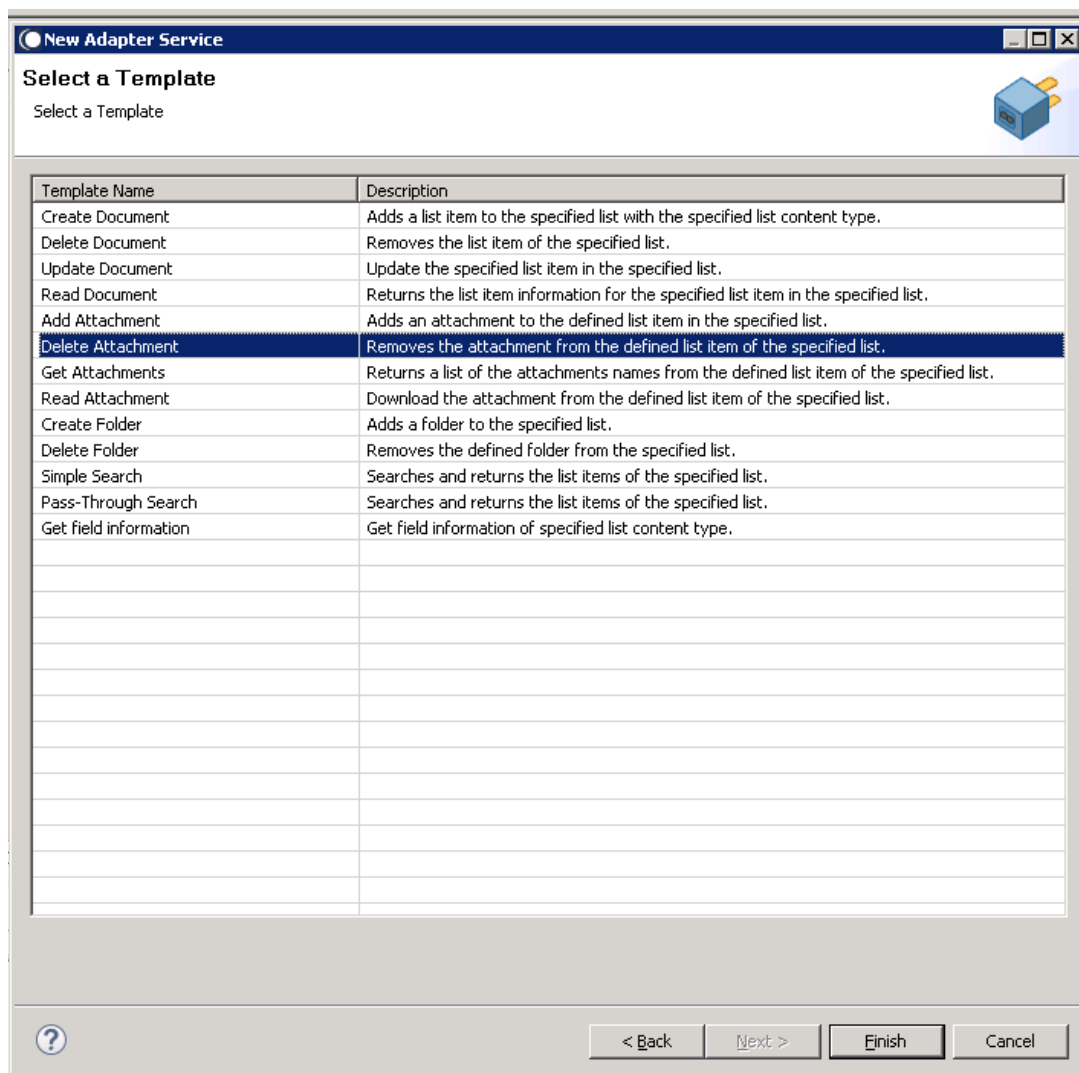
Removes the attachment from the defined list item of the specified list.

### 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.

List name:

List content type name:

Delete Attachment | Adapter Settings | **Input/Output** | Logged Fields | Comments

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

Specification Reference:

Input:  Output:

☒ Validate input ☒ Validate output

DeleteAttachmentInput

- id
- fileName

DeleteAttachmentOutput

Delete Attachment | Adapter Settings | **Input/Output** | Logged Fields | Comments

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.

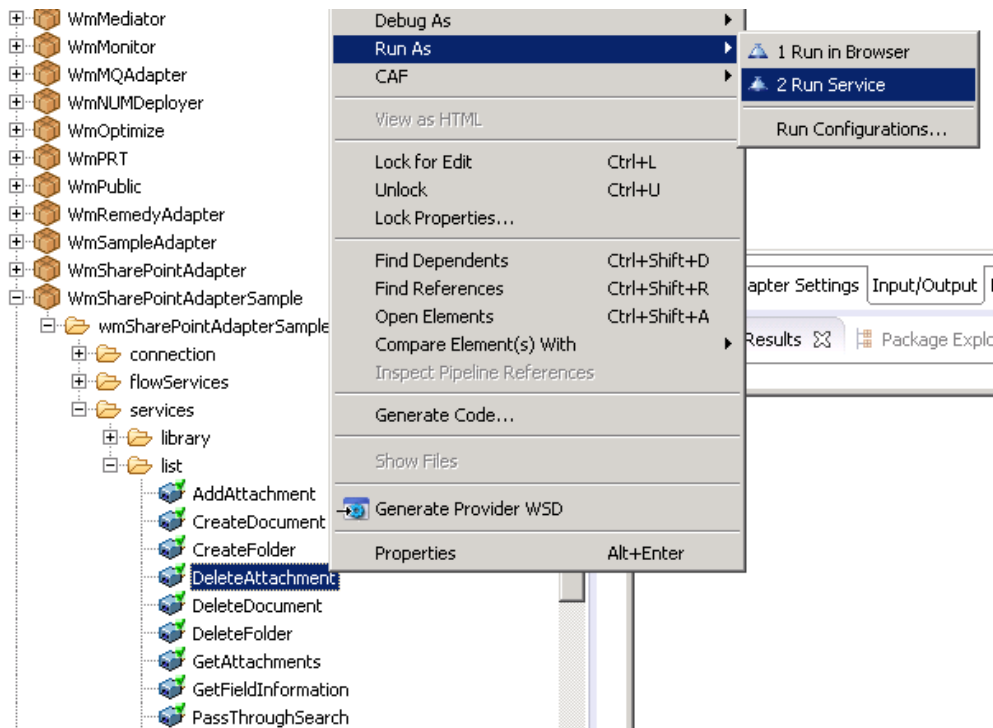
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the inputs required are as follows:
  - The id of the document where the attachment to be found is,
  - The file name of the attachment.

- 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.

[illegible]

3. Click OK.

The service is executed and the resulting output displayed.

The screenshot displays the Visual Studio Code interface. On the left, the Package Explorer shows a project named 'wmSharePointAdapterSample' with the following structure:

- wmSharePointAdapterSample.services.list:DeleteAttachment (Apr 13, 2016 11:11:06 AM)
- wmSharePointAdapterSample.services.list:ReadAttachment (Apr 13, 2016 11:10:13 AM)
- wmSharePointAdapterSample.flowServices.list:AddAttachment (Apr 13, 2016 11:08:47 AM)
- wmSharePointAdapterSample.flowServices.library:CreateAttachment (Apr 13, 2016 11:06:37 AM)

The main Output window on the right shows the execution of the 'DeleteAttachment' task. The output content is a JSON object:

```
{
  "id": 286,
  "fileName": "index.html"
}
```

The bottom status bar indicates the current state as 'Messages Pipeline'.

The attachment is deleted.

## 6.9 Get Attachments

### 6.9.1 Description

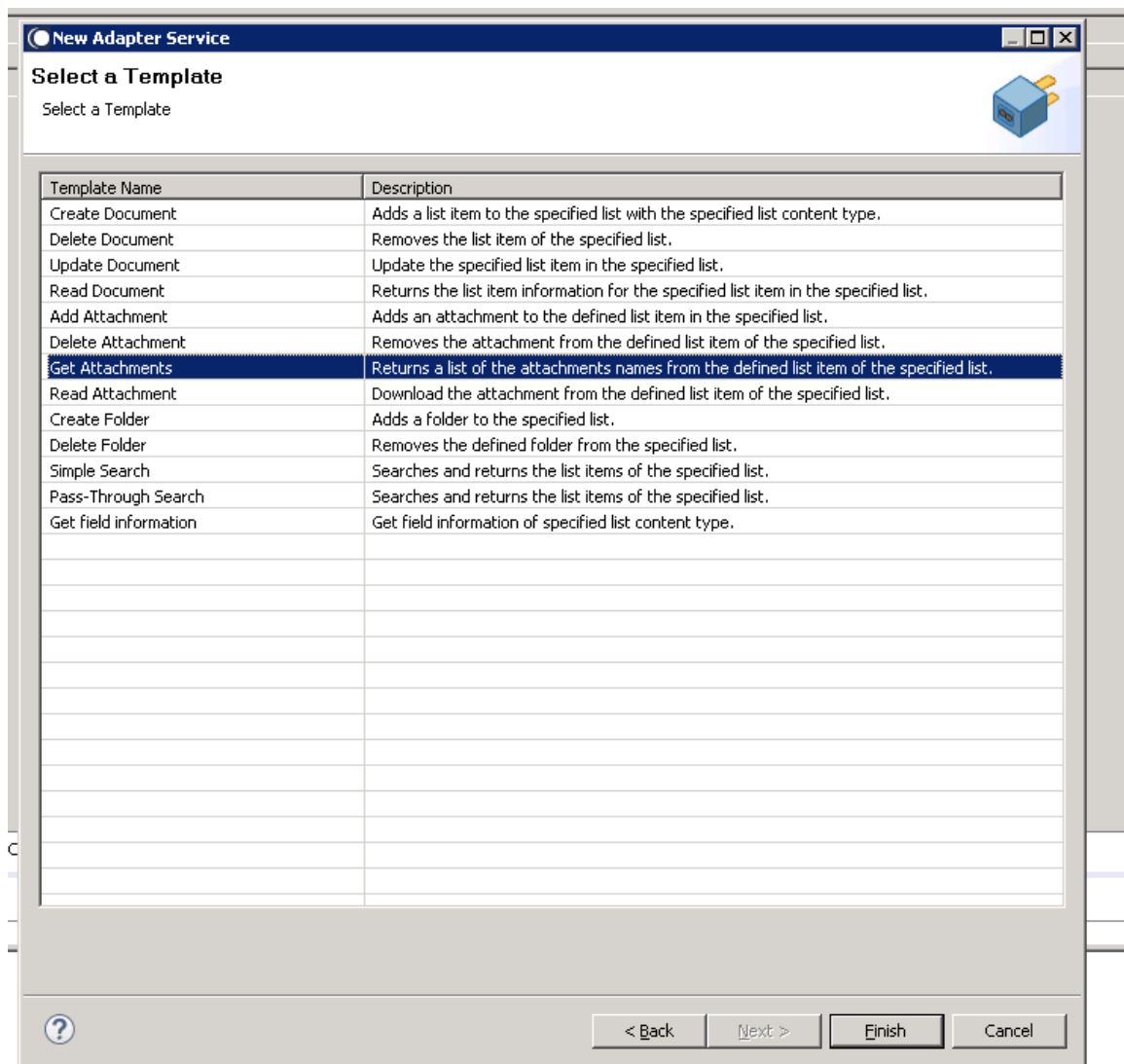
Returns a list of the attachment names from the defined list item.

### 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.

List name: Akten

List content type name: Comment

Get Attachments | Adapter Settings | Input/Output | Logged Fields | Comments

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

Specification Reference:

Input: ☒ Validate input

Output: ☒ Validate output

GetAttachmentsInput

- id

GetAttachmentsOutput

- attachments
  - fileName

Get Attachments | Adapter Settings | Input/Output | Logged Fields | Comments

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:

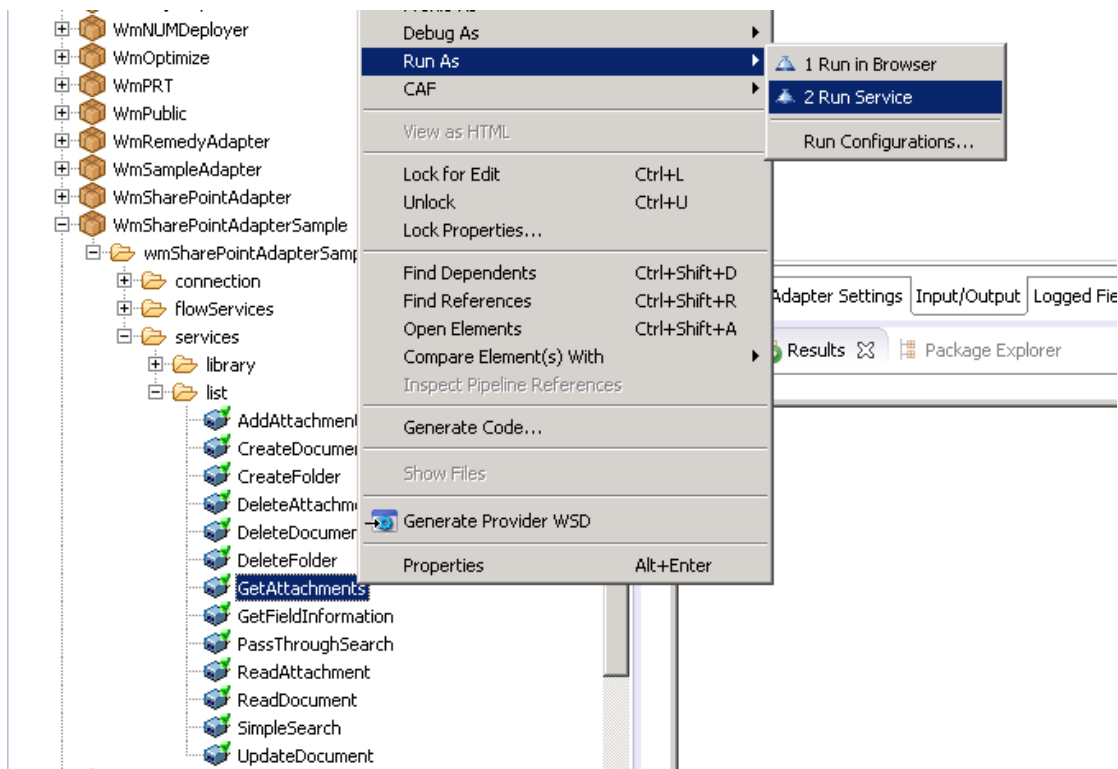


- The ID of the list where the attachments are found.
  - While to the right-hand side are the outputs. Here, the service will return a list of file names for all attachments found at this list.
3. Save the new service and it will be available under services.

### 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.

[illegible]

3. Click **OK**.

The service is executed and the resulting output appears.

The screenshot shows the Azure Data Studio interface. On the left, the 'File Explorer' pane displays the file structure of a VM. The selected file is 'vmSharePointAdapterSample.services.lst:Attachments'. The file structure includes folders like 'vmSharePointAdapterSample.services.lst:Attachments', 'vmSharePointAdapterSample.services.lst:DeleteFolder', and 'vmSharePointAdapterSample.services.lst:AttachmentsOutput'. The console window on the right shows the output of a command, displaying a table with columns 'Name' and 'Value'. The table contains one row with 'GetAttachmentsOutput' and '325'.

Name	Value
GetAttachmentsOutput	325

The metadata for the relevant attachments are returned.

## 6.10 Read Attachment

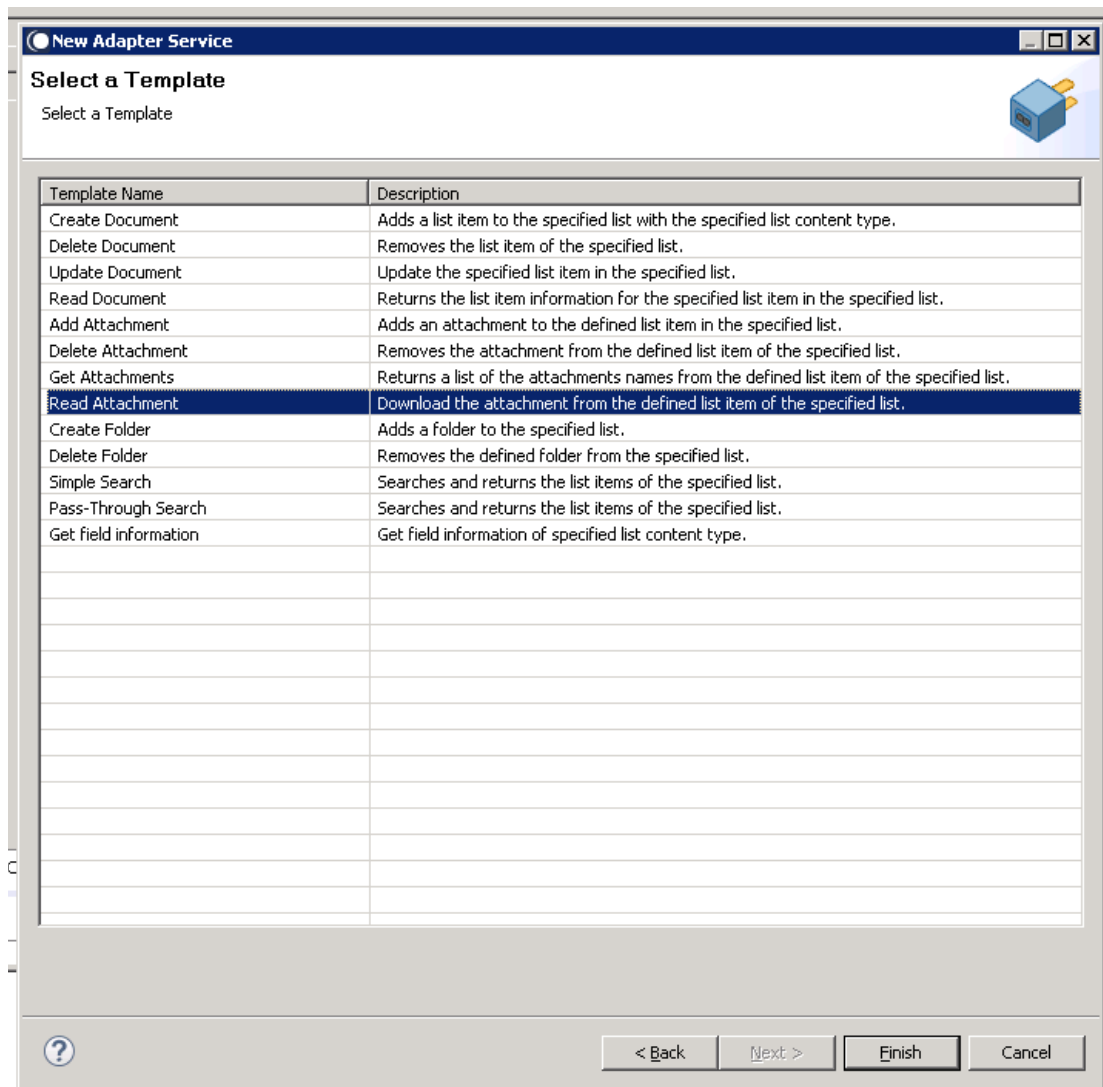
### 6.10.1 Description

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.

The screenshot shows a configuration window with two dropdown menus at the top. The first dropdown, labeled 'List name', has 'Akten' selected. The second dropdown, labeled 'List content type name', has 'Comment' selected. Below these is a large, empty grey rectangular area. At the bottom, there is a horizontal tab bar with five tabs: 'Read Attachment', 'Adapter Settings', 'Input/Output', 'Logged Fields', and 'Comments'. The 'Read Attachment' tab is currently selected.

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

The screenshot shows the same configuration window, but now the 'Input/Output' tab is selected in the bottom tab bar. The main area is divided into two panels. The left panel, titled 'ReadAttachmentInput', contains a tree view with two items: 'id' (with a key icon) and 'fileName' (with a document icon). The right panel, titled 'ReadAttachmentOutput', contains a tree view with one item: 'stream' (with a document icon). Above the panels, there are 'Input' and 'Output' text boxes, and checkboxes for 'Validate input' and 'Validate output', both of which are checked. At the bottom, the tab bar remains the same, with 'Input/Output' now being the active tab.

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.

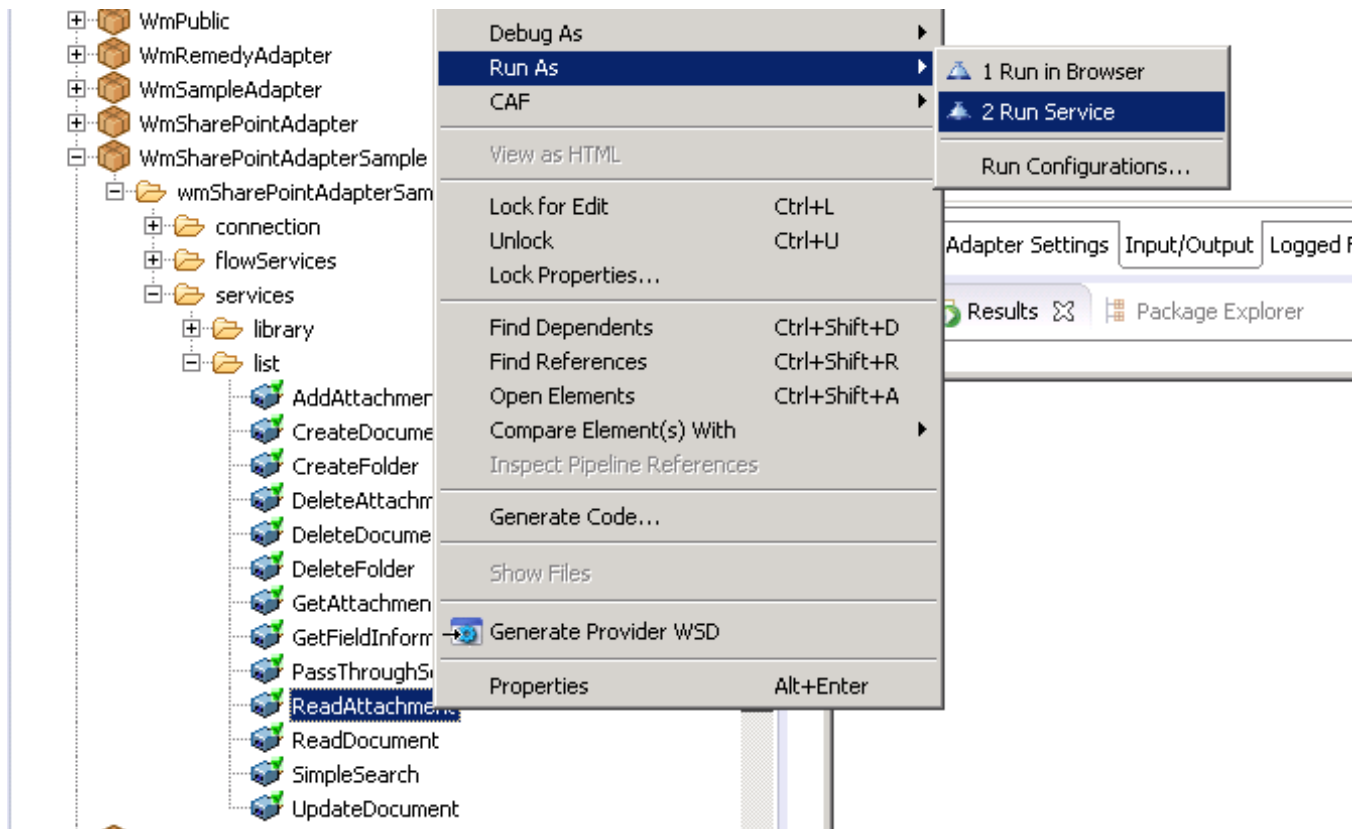
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case, the inputs required are as follows:
  - The ID of the document where the attachment is found
  - The name of the attachment itself.

- 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.

[illegible]

3. Click OK.

The service is executed and the resulting output appears.

The screenshot shows the Azure Data Studio interface. The left pane displays the pipeline structure, with a folder named 'wmSharePointAdapterSample.services.list:ReadAttachment' expanded, showing a task 'Apr 13, 2016 11:10:13 AM'. The right pane shows the output of this task as a table with columns 'Name' and 'Value'. The table contains three rows: 'ReadAttachmentInput' with 'id' 286 and 'fileName' 'index.html'; 'ReadAttachmentOutput' with 'stream' containing a URL 'sun.net.www.protocol.http.HttpURLConnection@httpInputStream'.

Name	Value
ReadAttachmentInput	
id	286
fileName	index.html
ReadAttachmentOutput	
stream	sun.net.www.protocol.http.HttpURLConnection@httpInputStream

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

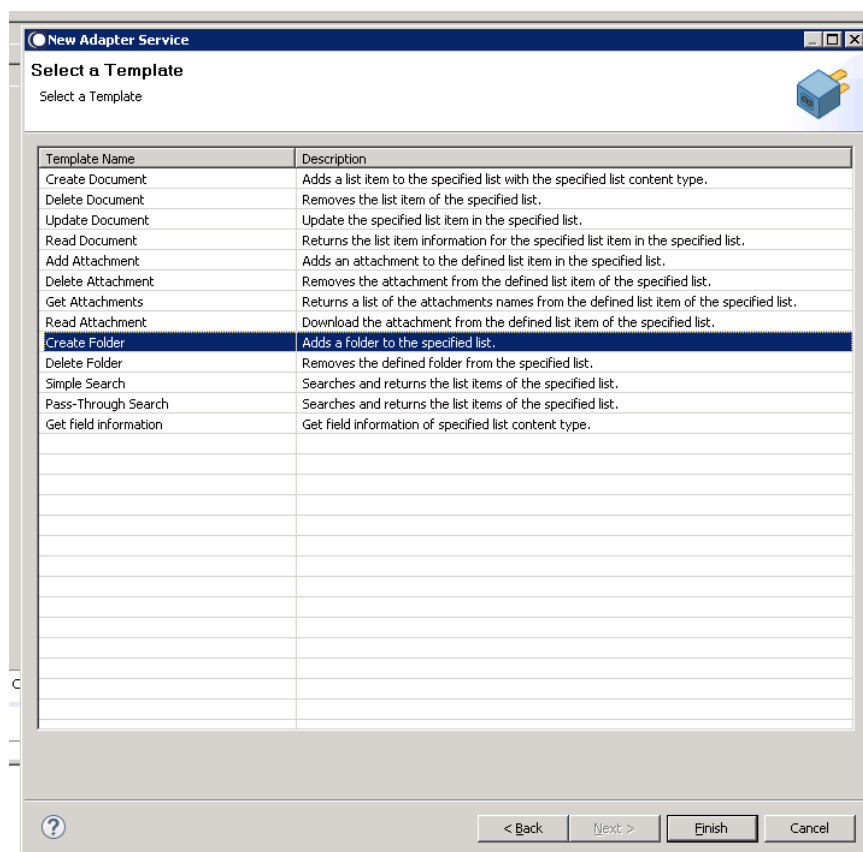
Adds a folder to the specified list.

### 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**.

List name: Customized Reports  
 List content type name: Folder

Create Folder | Adapter Settings | Input/Output | Logged Fields | Comments

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

Specification Reference:   
 Input:   
 Output:   
☒ Validate input ☒ Validate output

**Input:** CreateFolderInput  
 - folderPath  
 - systemValues (Title)

**Output:** CreateFolderOutput  
 - id  
 - values (ItemChildCount, FolderChildCount)  
 - systemValues (ContentTypeId, Title, ID, ContentType, Modified, Created, Author, Editor, FileDirRef, FileLeafRef, ServerUrl, BaseName)

Create Folder | Adapter Settings | Input/Output | Logged Fields | Comments

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:

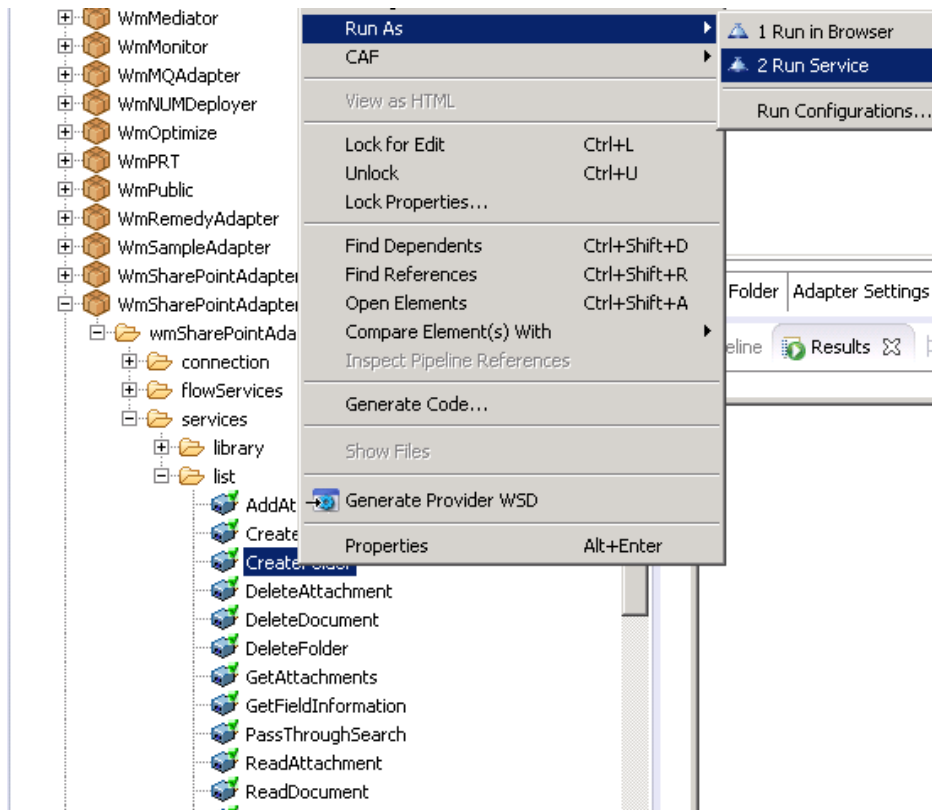


- The path of the folder to be created
  - The title of the folder.
  - On the right-hand side, the outputs are returned as shown above. This provides metadata to the newly created folder.
3. Save the new service and it will be available under services.

### 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.

wmSharePointAdapterSample.services.list.CreateFolder

Enter Input for 'CreateFolder'

☐ Include empty values for String Types

Name	Value
CreateFolderInput	
FolderPath	1/2/3
systemValues	
Title	Test Folder

Load... Load and Replace... Save... Clear OK Cancel

3. Click OK.

The service is executed and the resulting output appears.

Results

localhost:5555 wmSharePointAdapterSample.services.list.CreateFolder (Apr 12, 2016 5:45:30 PM)

Name	Value
CreateFolderInput	
FolderPath	1/2/3
systemValues	
Title	Test Folder
CreateFolderOutput	
id	324
ItemChildCount	324.#0
FolderChildCount	324.#0
systemValues	
ServerUrl	/lists/Items/1/2/3
FileUrlRef	324.#listy/Items/1/2
Modified	4/12/2016 17:42:36 CEST
ContentType	Folder
BaseName	3
ContentTypeId	0x012000F5A1774FB4EFD04A97B37AD71F4379E93
Author	6:#csp
Title	Test Folder
ID	324
Editor	6:#csp
FileLocalRef	324.#3
Created	4/12/2016 17:42:36 CEST

Messages Pipeline

The new folder is created.

## 6.12 Delete Folder

### 6.12.1 Description

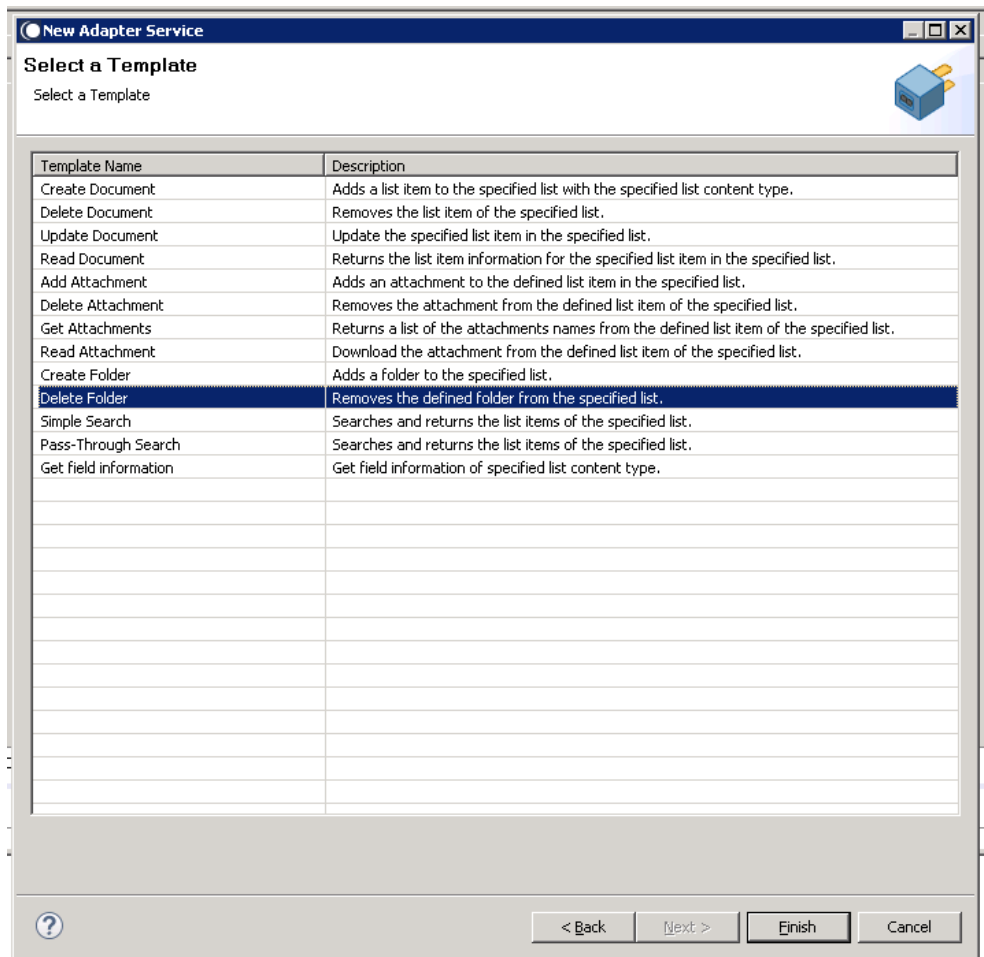
Removes the defined folder from the specified list.

### 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**.

This screenshot shows the 'Delete Folder' configuration window with the 'Adapter Settings' tab selected. At the top, there are two dropdown menus: 'List name' set to 'Customized Reports' and 'List content type name' set to 'Folder'. Below these is a large, empty light-gray rectangular area. At the bottom, a tab bar contains five options: 'Delete Folder' (selected), 'Adapter Settings', 'Input/Output', 'Logged Fields', and 'Comments'.

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

This screenshot shows the 'Delete Folder' configuration window with the 'Input/Output' tab selected. At the top, there is a 'Specification Reference' field. Below it are 'Input' and 'Output' text boxes, each with a small icon to its right. Underneath these are two checked checkboxes: 'Validate input' and 'Validate output'. The main area is split into two panels. The left panel, titled 'DeleteFolderInput', contains a tree view with 'FolderPath' (indicated by a folder icon) and 'force' (indicated by a checkbox icon). The right panel, titled 'DeleteFolderOutput', is currently empty. At the bottom, the same tab bar as in the previous screenshot is visible, with 'Input/Output' now selected.

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

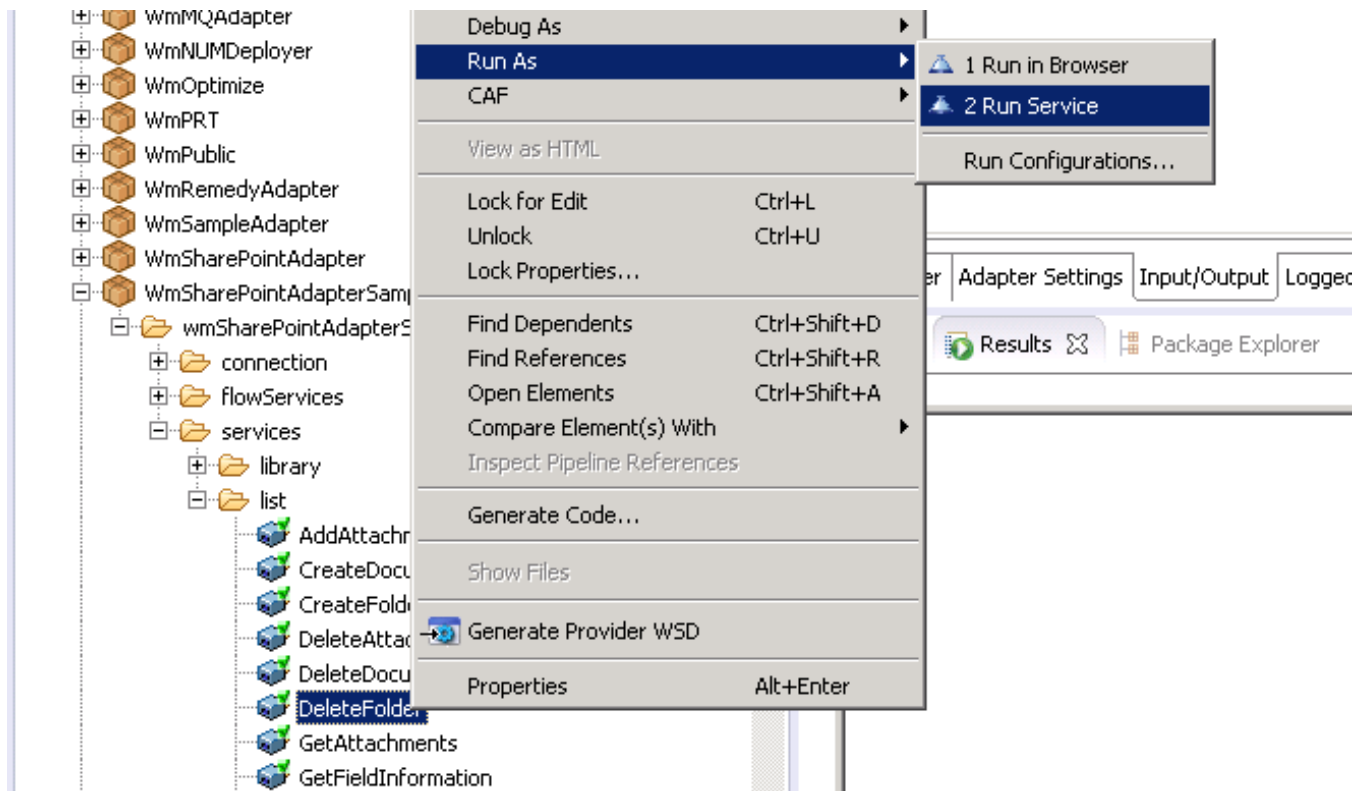
- On the right-hand side, shows the returned output, and can be seen from the screenshot above. There are no outputs on the completion of this service.

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

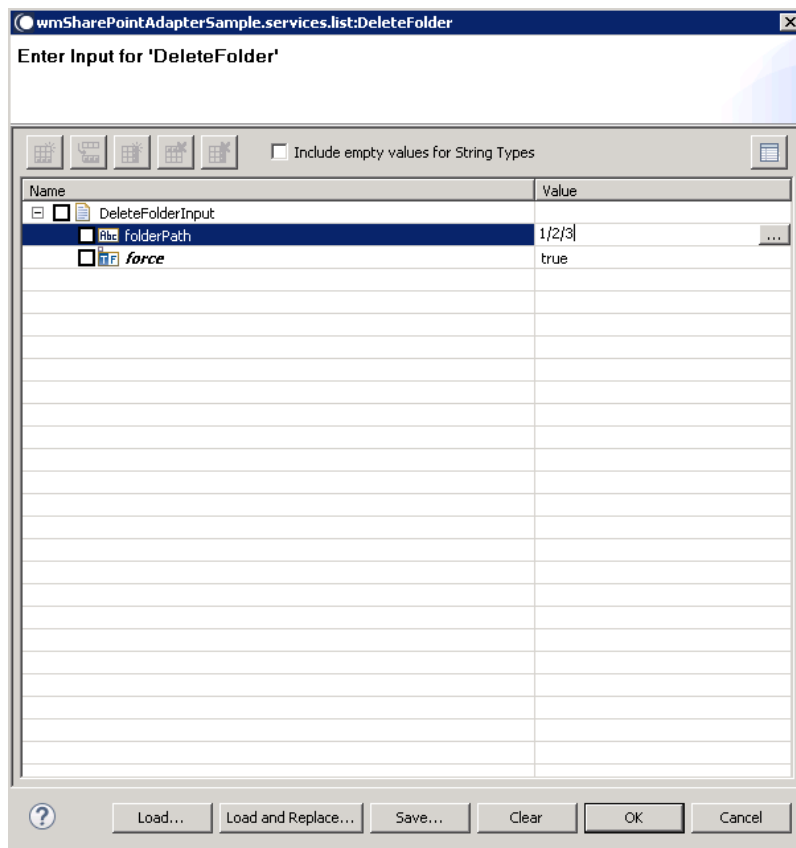
### 6.12.3 *Execute the Service*

Perform the following steps to execute the service:

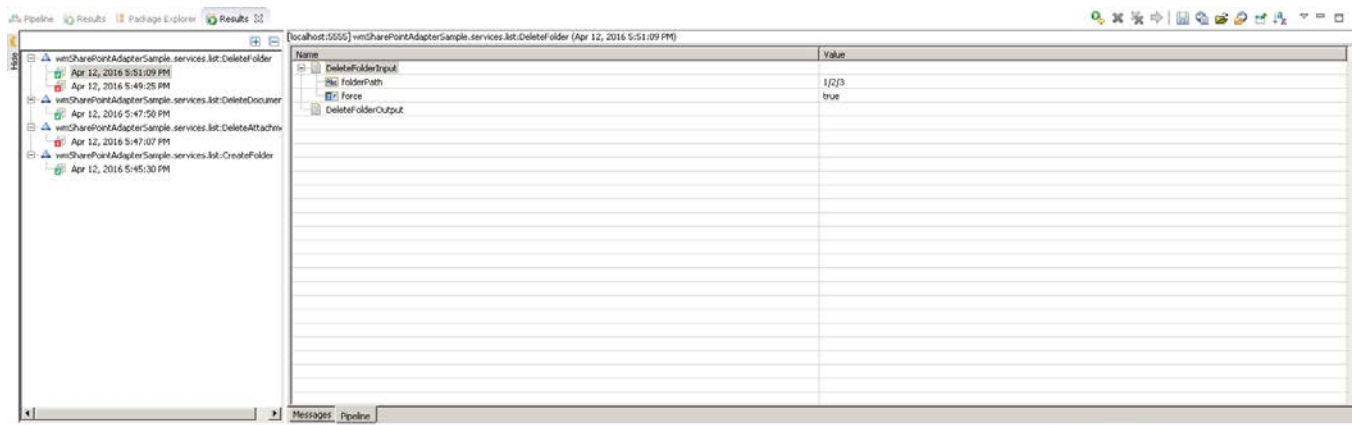
1. Right-click your newly created service and select **Run -> Run As Service**.



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

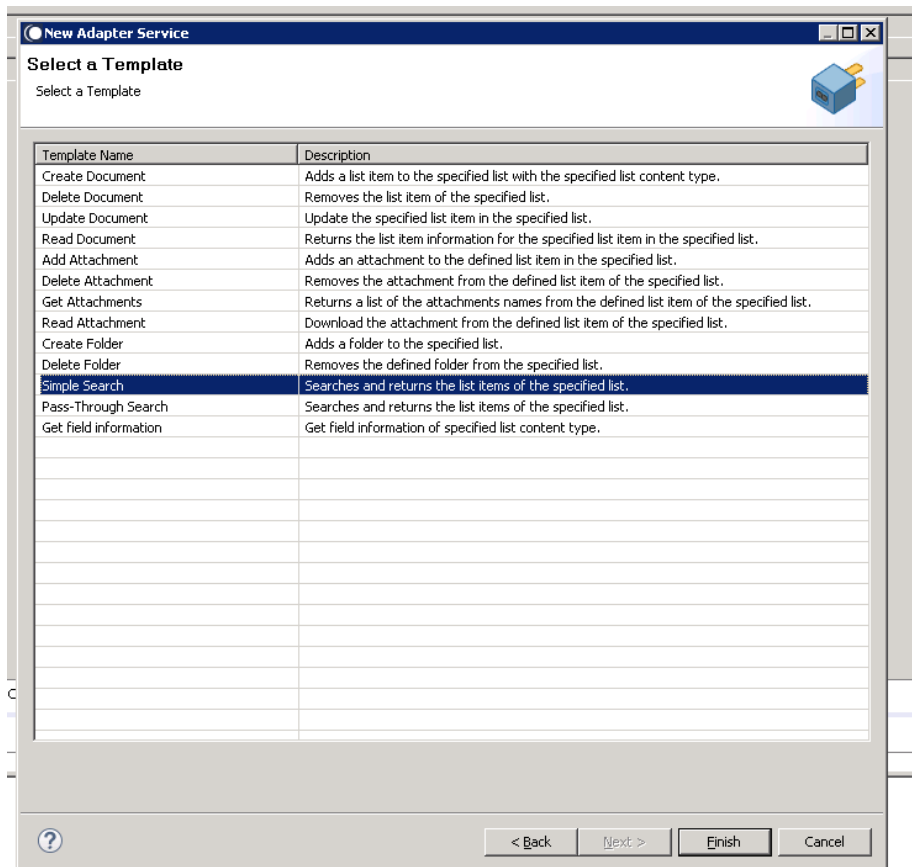
Searches and returns the list items of a specified list according to the conditions configured in the setup of this service template.

### 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.

List name

Customized Reports

List content type name

Document

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.

Field name	Field type	Output field type
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
Modified_x0020_By	Text	java.lang.String
ContentTypeId	ContentTypeId	java.lang.String
Title	Text	java.lang.String
ID	Counter	java.lang.Integer
ContentType	Computed	java.lang.String
Modified	DateTime	java.util.Date
Created	DateTime	java.util.Date
Author	User	java.lang.String
Editor	User	java.lang.String
FileDirRef	Lookup	java.lang.String
FileLeafRef	File	java.lang.String
ServerUrl	Computed	java.lang.String
BaseName	Computed	java.lang.String

Maximum Result Count:

Simple Search
Select
Where
Adapter Settings
Input/Output
Logged Fields
Comments



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

Expression Operator    And

	Field name	Field type	Operator	Query value	Input field name	Input field type
	Modified_x0020_By	Text	=	?	_Publisher	java.lang.String
	Modified_x0020_By	Text	=	?	ol_Department	java.lang.String
	Modified_x0020_By	Text	=	?	TaskCompanies	java.lang.String
	Modified_x0020_By	Text	=	?	URL	java.lang.String
	Modified_x0020_By	Text	=	?	Vertragssumme	java.lang.String
	Modified_x0020_By	Text	=	?	Priority	java.lang.String
	Modified_x0020_By	Text	=	?	_Version	java.lang.String
	Modified_x0020_By	Text	=	?	_DCDateCreated	java.lang.String
	Modified_x0020_By	Text	=	?	DateCompleted	java.lang.String
	Modified_x0020_By	Text	=	?	_Comments	java.lang.String
	ContentTypeId	ContentTypeId	=	?	ContentTypeId	java.lang.String
	Title	Text	=	?	Title	java.lang.String
	ID	Counter	=	?	ID	java.lang.Integer
	ContentType	Computed	=	?	ContentType	java.lang.String
	Modified	DateTime	=	?	Modified	java.util.Date
	Created	DateTime	=	?	Created	java.util.Date
	Author	User	=	?	Author	java.lang.String
	Editor	User	=	?	Editor	java.lang.String
	FileDirRef	Lookup	=	?	FileDirRef	java.lang.String
	FileLeafRef	File	=	?	FileLeafRef	java.lang.String
	ServerUrl	Computed	=	?	ServerUrl	java.lang.String
	BaseName	Computed	=	?	BaseName	java.lang.String

Simple Search   Select   Where   Adapter Settings   Input/Output   Logged Fields   Comments

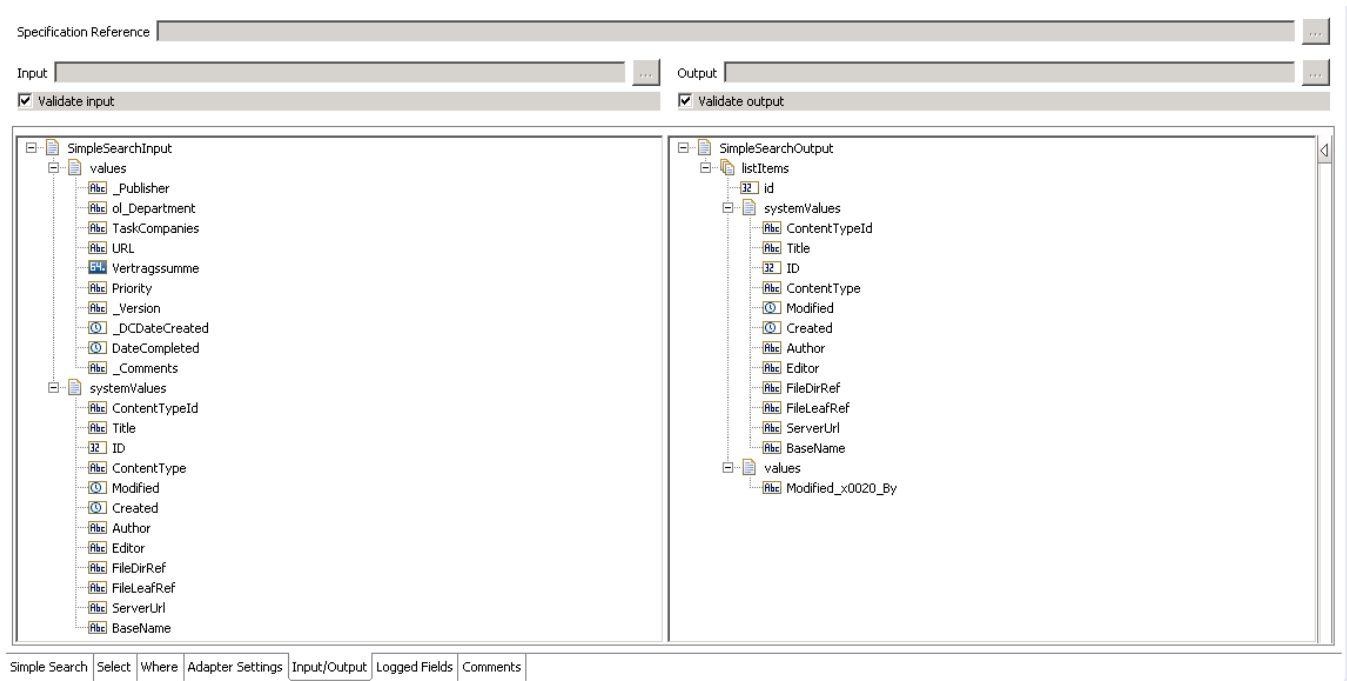
This tab allows you to define conditions for which documents should be returned.

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.



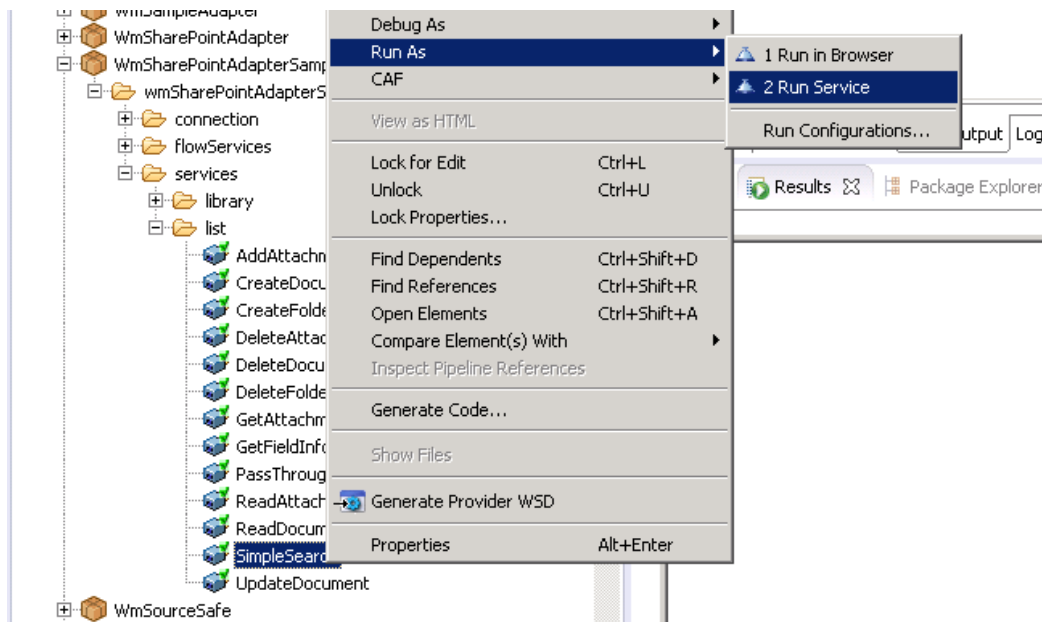
This tab shows input and output values of **Simple Search** service such as, which is information required and what is then provided after the query is executed.

- 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.

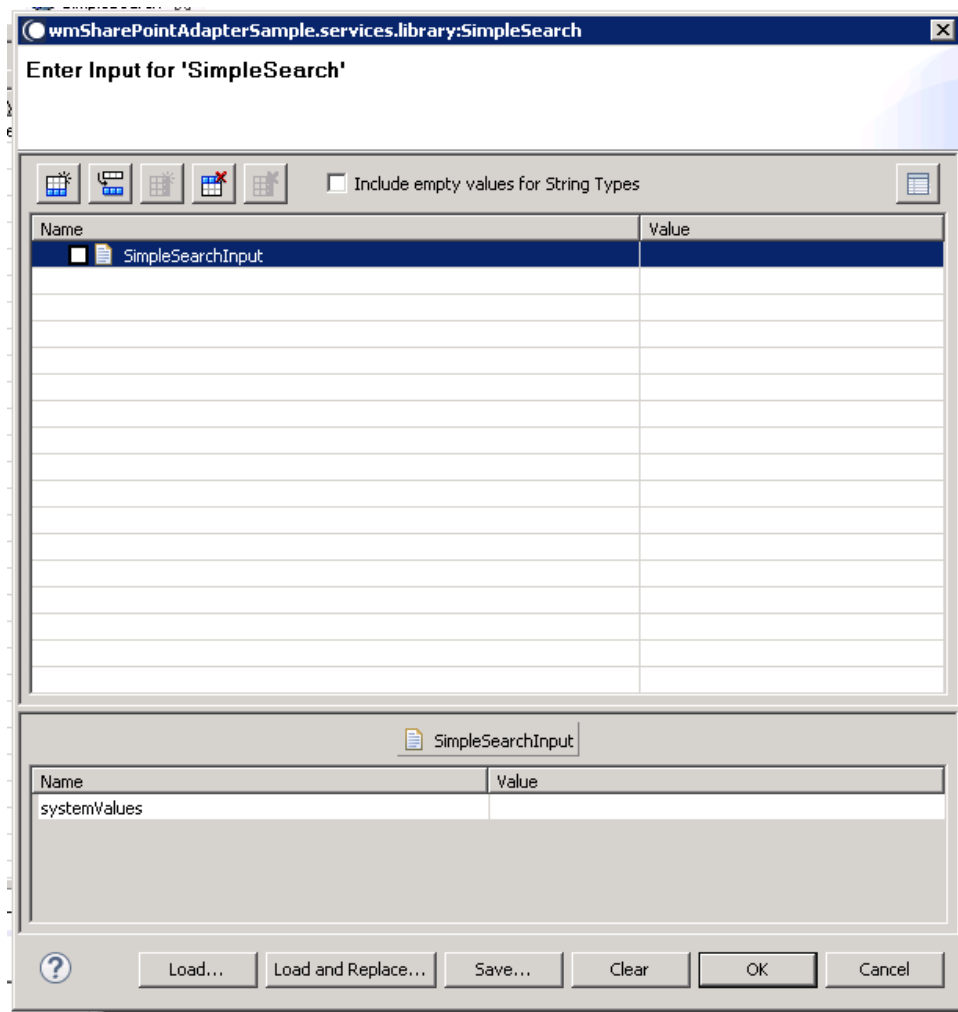
### 6.13.3 *Execute the Service*

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.

Name	Value
SimpleSearchOutput	
systemValues	
ID	459
listItems	
listItems[0]	
id	482
values	
systemValues	
Title	3
ID	482
listItems[1]	
id	483
values	
systemValues	
Title	3
ID	483
listItems[2]	
id	484
values	
systemValues	
Title	3
ID	484

The results are returned.

## 6.14 Pass-Through Search

### 6.14.1 Description

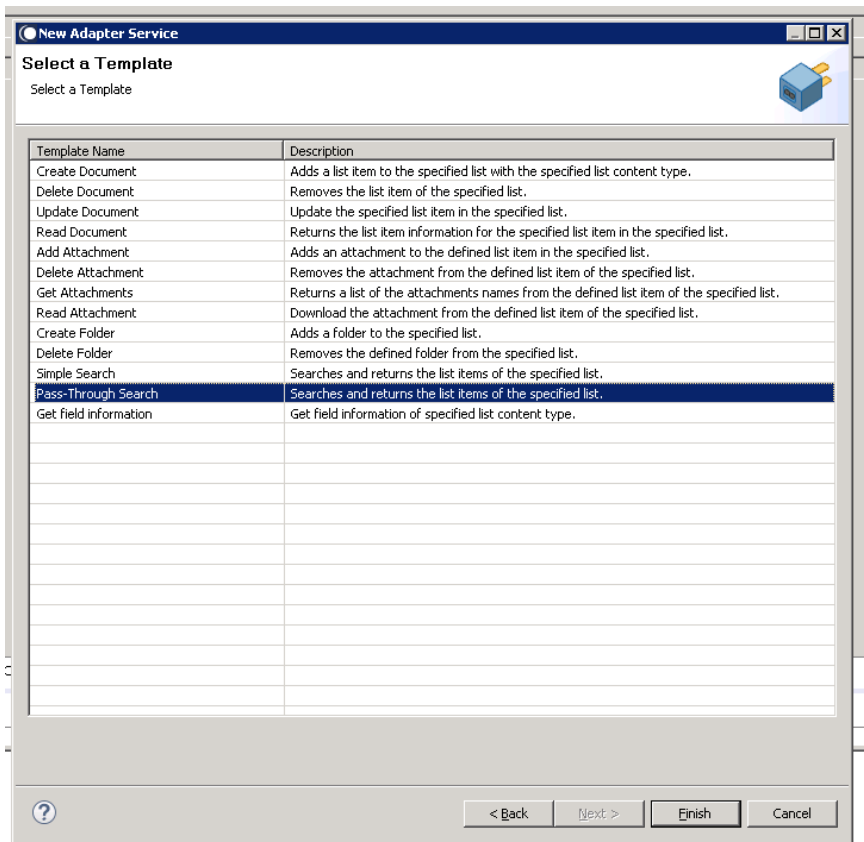
Undertakes a Pass Through search. This means that you specify as a string a query that will returns elements matching this query. The syntax of the string should correspond the system being queried. In the case of SharePoint, you should use the Collaborative Application Markup Language (CAML).

### 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.

The screenshot shows a configuration window with two dropdown menus at the top. The first dropdown, labeled 'List name', is set to 'Customized Reports'. The second dropdown, labeled 'List content type name', is set to 'Document'. Below these is a large, empty rectangular area. At the bottom, there is a horizontal tab bar with five tabs: 'Pass-Through Search', 'Adapter Settings', 'Input/Output', 'Logged Fields', and 'Comments'. The 'Pass-Through Search' tab is currently selected.

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

The screenshot shows the same configuration window, but now the 'Input/Output' tab is selected in the bottom tab bar. The interface is divided into two main panels. The left panel, titled 'PassThroughSearchInput', contains a single item 'camlQuery'. The right panel, titled 'PassThroughSearchOutput', displays a hierarchical tree structure of output fields. This structure includes 'listItems' which contains 'id' and 'values'. 'values' further branches into 'Modified\_x0020\_By' and 'Created\_x0020\_By'. Below these is a 'systemValues' section containing 'ContentTypeId', 'FileLeafRef', 'Title', 'ID', 'ContentType', 'Created', 'Author', 'Modified', 'Editor', 'FileDirRef', 'ServerUrl', and 'BaseName'. Each field in the tree has a small icon next to it. The bottom tab bar remains the same, with 'Input/Output' now being the active tab.

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.

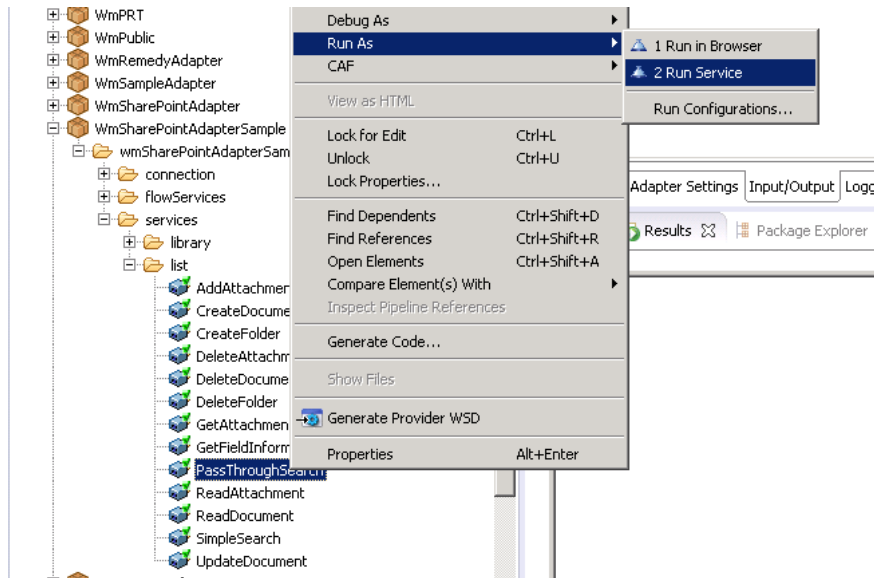
- On the left-hand side of the panel are the parameters that are taken as inputs.
  - There is only one input required for this service and it is the string representation of the query to be executed. This should be the string of the CAML query.
- On the right-hand side the attributes of the matched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

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

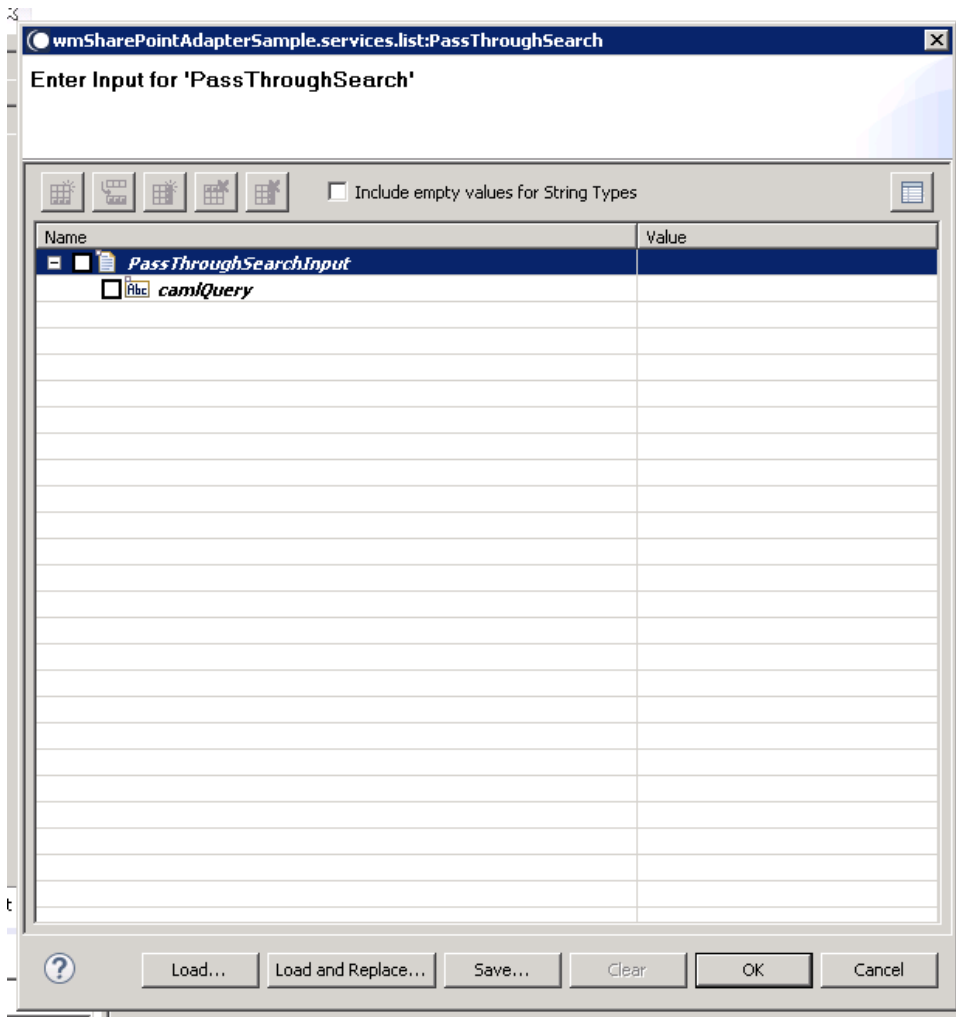
### 6.14.3 *Execute the Service*

Perform the following steps to execute the service:

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

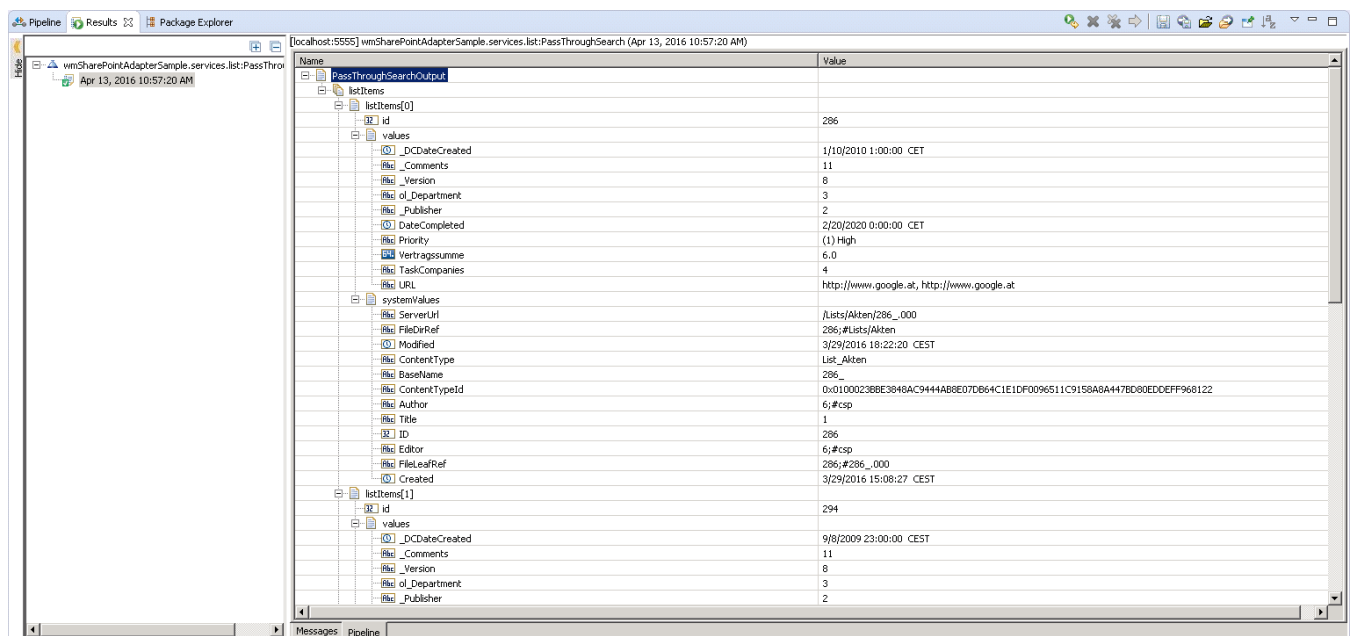


2. Enter the relevant input information in the resulting panel.



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

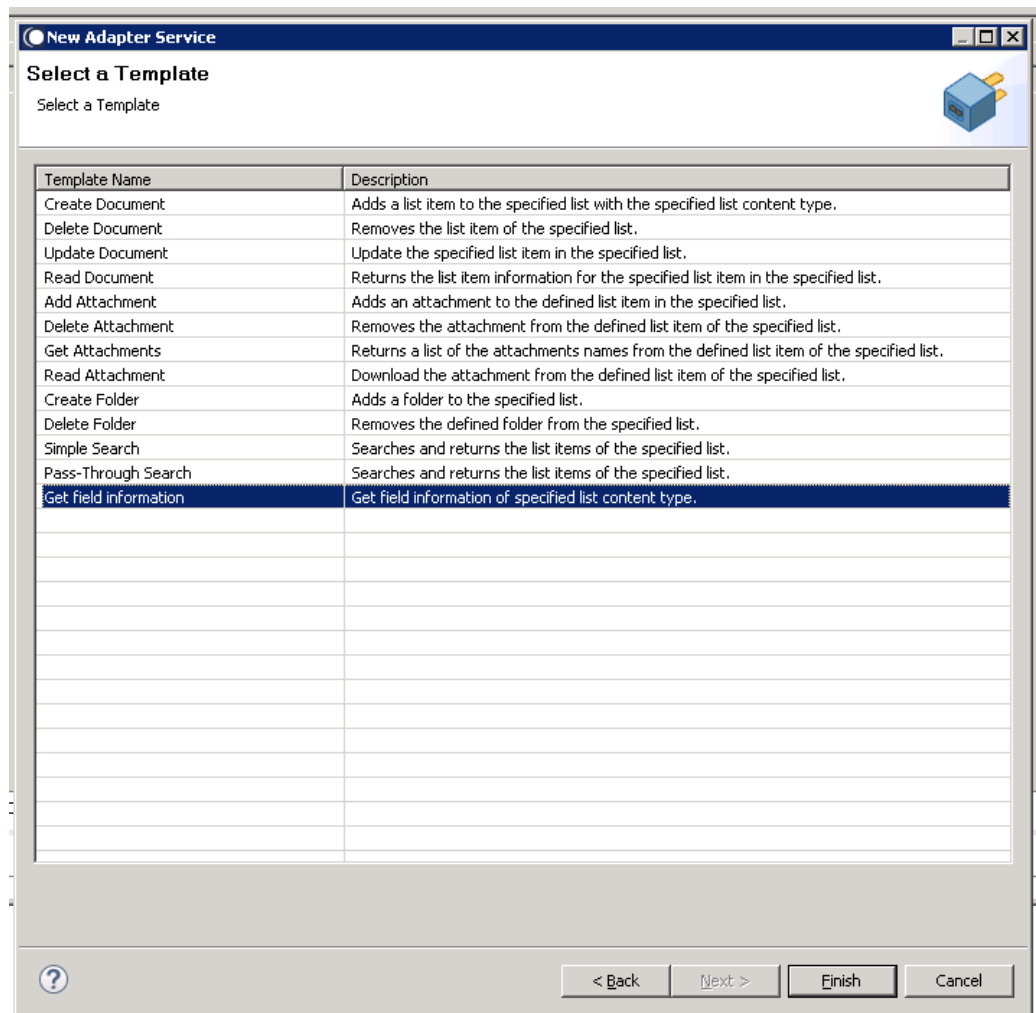
Get field information of the specified list content type.

### 6.15.2 Configure the Service

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

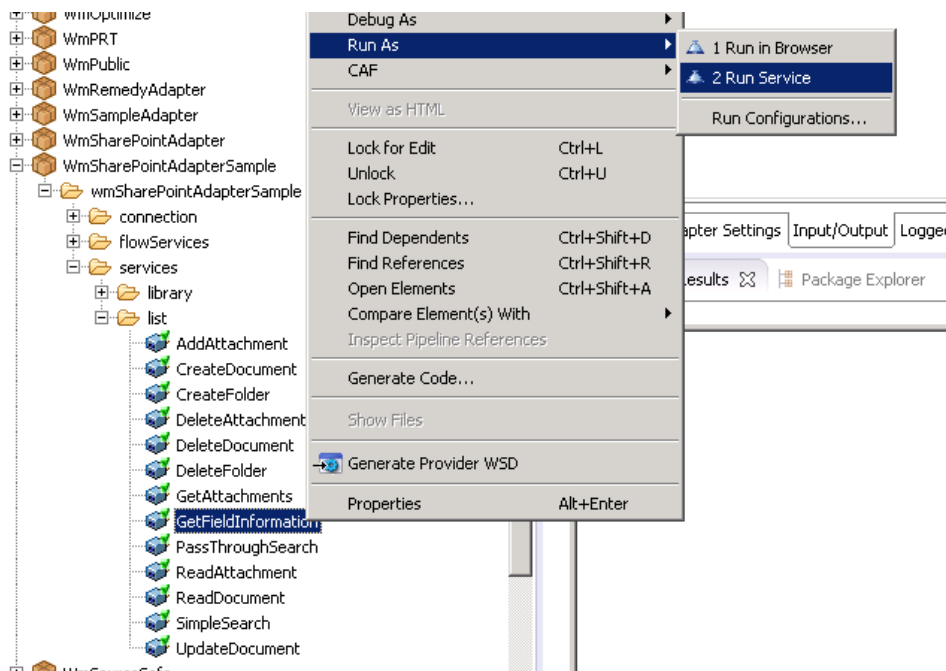
- On the left-hand side of the panel are the parameters that are taken as inputs. In this case only one input required:

- 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.

[illegible]

3. Click OK.

The service is executed and the resulting output appears.

The screenshot shows the Visual Studio IDE with the Results window open. The left pane displays a tree view of the test results, including 'wmsSharePointAdapterSample.services.lst:CreateDocume' and 'wmsSharePointAdapterSample.services.lst:GetFieldInformation'. The right pane shows the details of the 'GetFieldInformation' test, including the 'Name' and 'Value' columns. The 'Name' column lists the test's input and output fields, and the 'Value' column shows the corresponding values, such as 'true' for 'requiredOnly' and 'staticName'.

The metadata field information is returned.