Configuring a Web Services Transformation in Informatica Cloud to Read Data from SAP BW BEx Query

Abstract

In Informatica Cloud, you can configure a Web Service transformation that calls the SAP BW BEx Query web service from a Mapping Configuration task. This article describes the steps to create a Web Service transformation, configure an SAP BW BEx Query business service in the transformation, and connect to the SAP BW BEx Query web service to read data.

Supported Versions

- Informatica Cloud® Spring 2017

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Overview

You can use SAP BW BEx Query Connector from a Web Services transformation within a Mapping Configuration task to read data from SAP BW BEx Query.

When you use SAP BW BEx Query Connector from a Web Services transformation, you create a business service, associate an SAP BW BEx Query connection, and add the required BEx query operation for the business service. Configure the Web Services transformation in the Mapping Designer and associate the business service to it. When you run the Mapping Configuration task, the Web Services transformation connects to the web service application as a web service client to access, transform, or deliver data.

The Web Services transformation constructs an SAP BW BEx Query request based on the source data that you pass, sends the request to SAP BW BEx Query, and gets a corresponding response from SAP BW BEx Query before you write to the target. In the Web Services transformation, you select elements that you want from the response structure to write to the configured target.

Scenario

You are a financial consultant and you use SAP BW to analyze project costs and revenue planning reports from the BI system. SAP BW BEx contains queries that you can run to analyze the data set of the BI system. You want to use Informatica Cloud to read a query defined in SAP BW BEx Query Designer that analyzes a financial report in SAP BW. You want to use a filter to extract a specific project plan from the financial report.

Configure a business service to read a query from SAP BW BEx Query Analyzer that extracts data from a financial planning report. Configure a Web Service Consumer transformation to receive the name of a specific project plan within the financial planning report and then use the business service to pass the name of the project plan to SAP BW BEx Query. When you run the task, the web service returns the project plan data in the response message, which the Secure Agent writes to the configured target.

You can use business logic to the extracted data that can help you understand and analyze the objectives of the project plan and make changes accordingly.

Configuration Tasks

To implement this scenario, you must have a business service that describes the web service that you are going to connect to. Associate the business service in the Web Service Consumer transformation to read from SAP BW BEx Query.

After you complete the prerequisites, perform the following tasks:

1. Configure an SAP BEx Query connection.
2. Configure a business service.
3. Configure a Web Services transformation mapping.
4. Configure a Mapping Configuration Task.

Prerequisites

Before you use an SAP BW BEx Query connection to read BEx query data, you must perform some administrator tasks for SAP BW BEx Query Connector and SAP BW BEx Query.

SAP BW BEx Query Connector Administrator Tasks

SAP Connector requires configuration on the machine that hosts the Secure Agent and also on the SAP systems. The administrators for each of these systems must perform the configuration tasks for their respective systems.

Before you can use an SAP BW BEx Query connection, you must perform the following tasks:

1. Verify if the required licences are enabled.
2. Download and configure the SAP JCo libraries to read BEx query data.

Step 1. Verify if the Required Licences are Available for SAP BW BEx Query Connector

You must verify if the required licences for SAP BW BEx Query Connector are available before you create an SAP BW BEx query connection and read data from SAP BEx queries.

1. In the Informatica Cloud page, click the **Administer** tab.
2. Under **Connector Licences**, verify if the **SAP BW BEx Query Connector** licence is enabled.
3. Under **Packages**, verify if the following packages are assigned:
   - DataTransformation
   - UDTforHierarchy
   - saas-xmetadataread

   If any of the packages are missing, contact Informatica Global Customer Support to enable the missing license for these packages. When the required licenses are enabled, the packages appear in the Packages section.

Step 2. Download and Configure the Libraries for SAP BEx Query Data Extraction

Before you can use an SAP BW BEx query connection, you must download the SAP JCo libraries from the SAP Service Marketplace and configure them on the machine where the Secure Agent runs.

Contact SAP Customer Support if you encounter any issues with downloading the libraries.

1. Go to the SAP Service Marketplace: http://service.sap.com/connectors

   Note: You will need SAP credentials to access the Service Marketplace.

2. Download the most recent version of the 64-bit SAP JCo libraries based on the operating system on which the Secure Agent runs:

Secure Agent System	SAP File Name
Windows	`sapjco3.jar` `sapjco3.dll`
Linux	`sapjco3.jar` `libsapjco3.so`

3. Copy the JCo libraries to the following directory:

   `<Informatica Secure Agent installation directory>\apps\Data_Integration_Server\ext\deploy_to_main\bin\rdtm-extra\tpl\sap`

   Create the `deploy_to_main\bin\rdtm-extra\tpl\sap` directory if it does not already exist.

4. Configure the JAVA_LIBS property in Informatica Cloud.
   a. Log in to Informatica Cloud.
   b. Click **Configure** > **Runtime Environments** to access the **Runtime Environments** page.
   c. To the left of the agent name, click **Edit Secure Agent**.
   d. From the **Service** list, select **Data Integration Server**.
   e. From the **Type** list, select **Tomcat JRE**.
   f. Enter the JAVA_LIBS value based on the operating system on which the Secure Agent runs.

Operating System	Value
Windows	../bin/rdtm-extra/tpl/sap/sapjco3.jar;../bin/rdtm/javalib/sap/sap-adapter-common.jar
Linux	../bin/rdtm-extra/tpl/sap/sapjco3.jar:../bin/rdtm/javalib/sap/sap-adapter-common.jar

   g. Click **OK** to save the changes.
   h. Repeat steps 2 through 7 on every machine where you installed the Secure Agent.

5. Restart the Secure Agent.

SAP BW BEx Query Tasks

Before you use SAP Connector to read data from an SAP BEx query, you must allow access to the SAP BEx query from external systems.

1. Open the query in the SAP BEx Query Designer.

2. Click the **Extended** tab on the right pane.
3. In the **Release for External Access** section, select the **By OLE DB for OLAP** option under **Allow External Access to this Query**.

Step 1. Configure an SAP BEx Query Connection

Create an SAP BW BEx Query connection to connect to SAP BW BEx Query. You can create the connection from the Design Home page in the Process Designer.

1. Click **Configure** > **Connections**.

   The **Connections** page appears.
2. Click **New**.

   The **New Connection** page appears.
3. Enter a name for the SAP BW BEx Query connection.

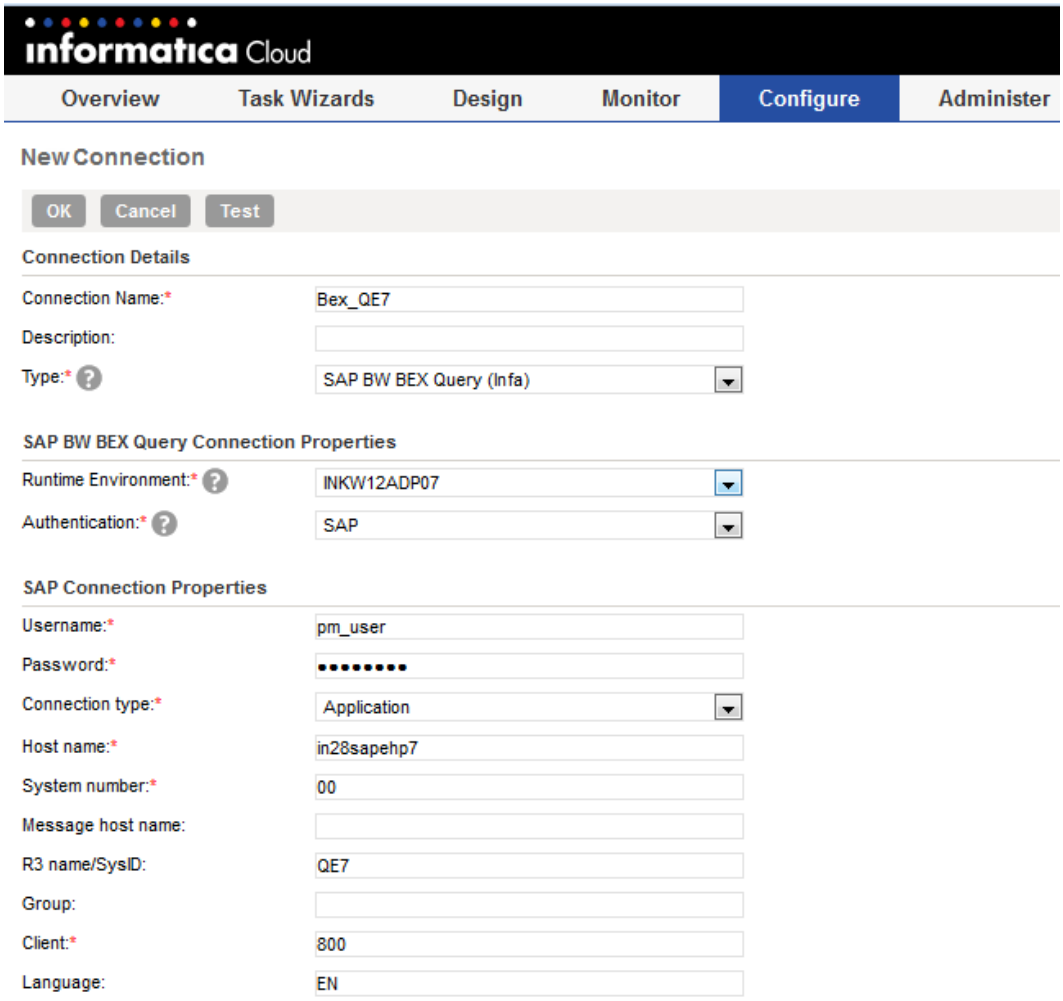
   Connection names are not case sensitive. Connection names can contain alphanumeric characters, spaces, and the following special characters:

   _ . + -
4. Enter a description for the connection.

   The description can have a maximum length of 255 characters.
5. Select **SAP BW BEx Query** as the connection type.

   The **SAP BW BEx Query Connection Properties** section appears.
6. Select the name of the runtime environment where you want to run the tasks.
7. Select **SAP** as the authentication method.
8. Enter an SAP user name with the appropriate user authorization.
9. Enter the SAP password.
10. Select the **Application** connection type to read data from SAP BEx queries.
11. Enter the host name or IP address of the SAP BW server that you want to connect to.
12. Enter the SAP system number.
13. Enter the SAP client number.
14. Enter the language code that corresponds to the language used in the SAP system.

The following image shows the configured SAP BW BEx Query connection:



15. Click **OK** to save the connection.
16. Click **Test** to determine if the connection to the SAP BW system is successful.

Step 2. Configure an SAP BW BEx Query Business Service

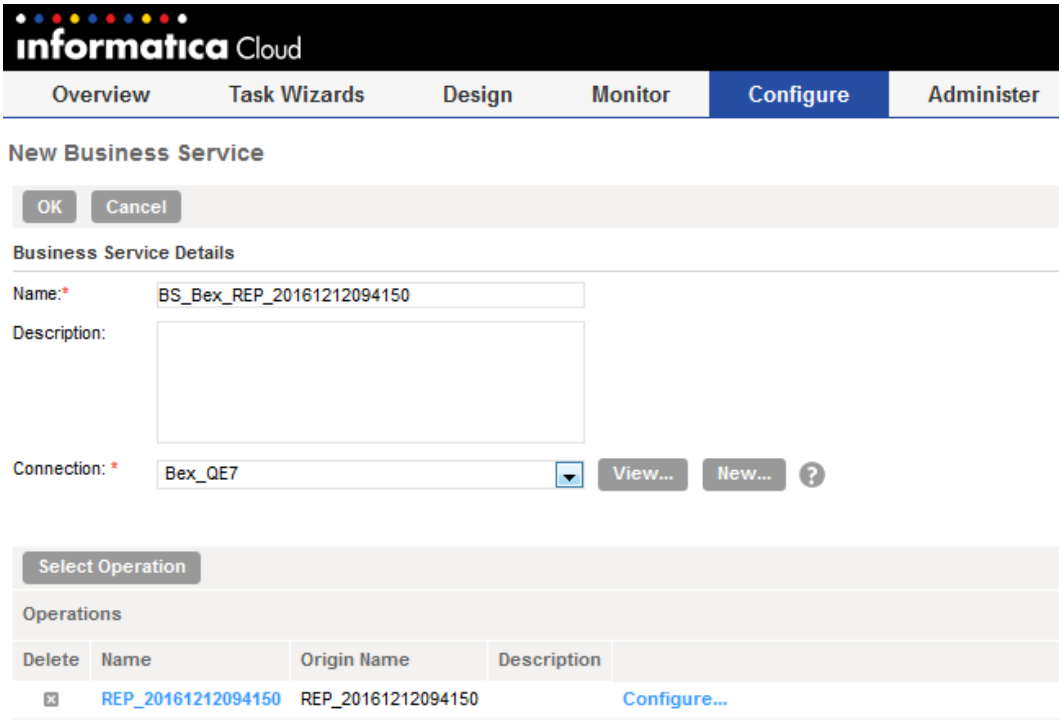
When you create an SAP BW BEx Query business service, select the SAP BW BEx Query connection. Select the required query as the read operation for the Web Service that you want to perform in the SAP BW BEx Query module. The query in this use case is defined in SAP BW BEx Query Designer to extract data from a financial project in SAP BW.

1. Select **Configure** > **Business Services**.
2. Click **New**.
3. Enter a name and description for the business service.
4. Select the configured SAP BW BEx Query connection.
5. Click **Select Operation**, and then click **Select** to select the required SAP BW BEx query, `REP_20161212094150`, as the source operation.

   Special characters in the queries are replaced by _.

6. Enter a name and description for the connection, and click **OK**.

   The following image shows the configured business service:



7. Click **OK**.

The business service is created and appears in the **Business Services** page.

Step 3. Configure a Web Services Transformation in a Mapping

Use the Informatica Cloud Mapping Designer to configure a mapping. Create a Web Services transformation to read data from an SAP BW BEx query. Use a flat file source file to provide the input details to the Web Services transformation. The input file include details of a specific project plan that you want to extract from the financial report.

1. Click **Design** > **Mappings**, and then click **New Mapping**.

   The **New Mapping** dialog box appears.

2. Enter a name `SAP_BEx_example` and a description for the mapping, and click **OK**.

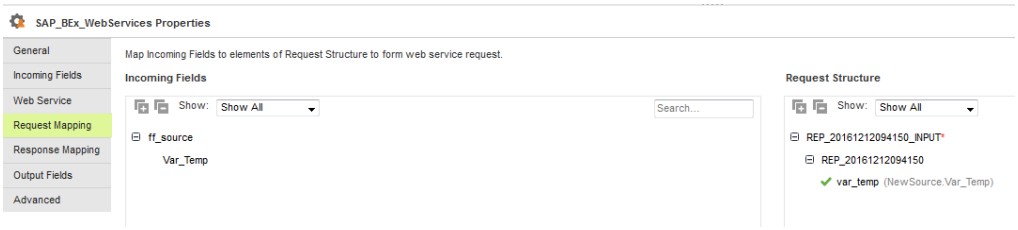
   You can use alphanumeric characters and underscores (_) in the mapping name.

3. To add a Source transformation, on the **Transformation palette**, click **Source**.
   a. On the **General** tab, enter a name and description for the transformation.
   b. On the **Source** tab, specify a flat file connection.
   c. Add a source object `Bex_input.txt` to provide inputs to the Web Services transformation.

      The flat file connection provides input to the variable `Var_Temp PR00004446` that represents a specific project plan that you want to extract from the financial report.
   d. In the Advanced section, set the tracing level to normal.

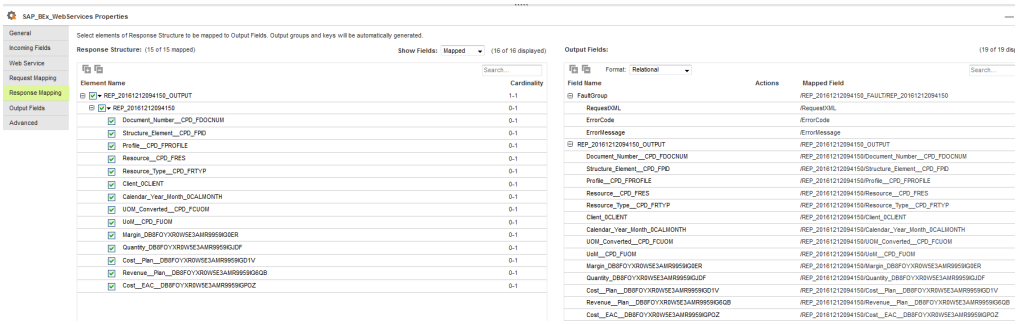
4. To add a Web Services transformation, on the **Transformation palette**, click **Web Services**.
   a. On the **General** tab, you can enter a name `SAP_BEx_WebServices` and description for the transformation.
   b. Click the **Web Service** tab and select the configured SAP BW BEx Query business service `BS_Bex_REP_20161212094150` with the `REP_20161212094150` operation.
   c. Draw a link to connect the Source transformation to the Web Services transformation.
   d. On the **Request Mapping** tab, map the incoming field `Var_Temp` field with the corresponding field in the request structure.

      The following image shows the mapped incoming fields with the request structure:



   e. On the **Response Mapping** tab, map the incoming fields from the response structure with the output fields.

      The following image shows the mapped fields between the response structure and the output fields:



   f. On the **Output Fields** tab, you can edit the precision and scale of the fields, if required.
   g. On the **Advanced** tab, specify the cache size for the web service request and response.
5. To add a Target transformation, on the **Transformation palette**, click **Target**.
   a. On the **General** tab, enter a name for the flat file and description for the target.
   b. Draw a link to connect the previous transformation to the Target transformation.
   c. Click the **Target** tab, and create a target at run time, specify the target object and configure the advanced target properties.
   d. Click **Field Mapping** and view the fields that are automatically mapped to the target.
6. Click **Save and Close**.

Step 4. Configure a Mapping Configuration Task

Configure a Mapping Configuration task and add the configured mapping. When you run the Mapping Configuration task, the Secure Agent writes the details of the project plan to the flat file.

1. Click **Task Wizards** > **Mapping Configuration**.

   The **Mapping Configuration Task** page appears.
2. Click **New**.

The **New Mapping Configuration Task** page appears.

3. Enter a name for the task.

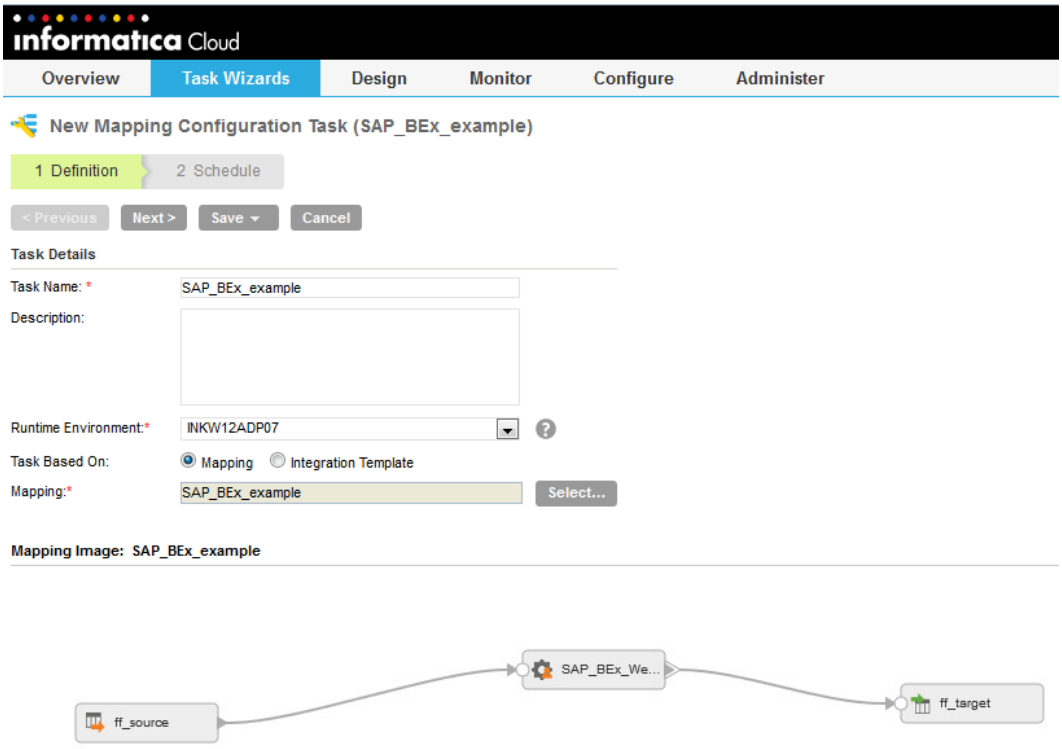
   Task names must be unique within the organization. Task names are not case sensitive. Task names can contain alphanumeric characters, spaces, and the following special characters: _ . + -

4. Select the runtime environment that contains the Secure Agent that you want to use to access the SAP BEx queries.
5. Select **Mapping** as the task based on which you want to create the Mapping Configuration task.
6. Click **Select** to specify a mapping.

   The **Select a Mapping** dialog box appears.

7. Select the configured mapping.
8. Click **OK**.

   The following image shows the configured mapping in the Mapping Configuration task:



9. Click **Next**.

   The **Schedule** page appears.

10. Click **Save and Run**.

    After you run the task, the following flat file contains the extracted details of the project plan from the financial report:

```
"Document_Number__CPD_FDOCNUM","Structure_Element__CPD_FPID","Profile__CPD_FPROFILE","Re
source__CPD_FRES","Resource_Type__CPD_FRTYP","Client_0CLIENT",
"Calendar_Year_Month_0CALMONTH","UOM_Converted__CPD_FCUOM","UoM__CPD_FUOM","Margin_DB8FO
YXR0W5E3AMR9959IG0ER","Quantity_DB8FOYXR0W5E3AMR9959IGJDF",
"Cost__Plan__DB8FOYXR0W5E3AMR9959IGD1V","Revenue__Plan__DB8FOYXR0W5E3AMR9959IG6QB","Cost
__EAC__DB8FOYXR0W5E3AMR9959IGPOZ",
"Var_Temp","800PR00004446",,"800ZMRS0MRS1429","800ZMRS0MRS",,,,,-12,0,1200,0,20000,"PR00
004446"
```

General Rules and Guidelines for SAP BW BEx Query Operations

Consider the following rules and guidelines when you read data from SAP BW BEx Query:

- Configure characteristics as rows and key figures as columns in the SAP BEx query.
- Configure characteristics to be displayed as keys and suppress the result rows. To do this, open the query in the SAP BEx Query Designer, select the characteristic, and click the **Display** tab on the right pane. In the **Value Display** section, select the **Key** option under **Display As**. In the **Result Rows** section, select the **Always Suppress** option.
- Verify that the SAP BEx query does not contain more than one key figure structure.
- The value of each key figure must be in a single currency.
- You cannot read data from free characteristics. Even though the free characteristic fields appear in the response structure, the data from the free characteristics is not fetched in the output.
- Verify that the SAP BEx query does not contain the following components:
  - Characteristic hierarchies
  - Characteristic structures
- To read large number of records from SAP BW BEx Query, you must perform the following tasks:
  - Set the JVM options for type DTM to increase the -Xms and -Xmx values in the system configuration details of the Secure Agent.
  - Increase the cache size for the web service response in the advanced properties of the SAP BW BEx Query Web Services transformation

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