Reading from Structures in SAP R/3
Overview

PowerCenter and PowerExchange for SAP NetWeaver provide the ability to integrate data from SAP R/3 into data warehouses, analytic applications and other applications without writing ABAP code. The SAP objects from which the Integration Service extracts include transparent tables, pool tables, cluster tables, hierarchies and ABAP function modules. In some instances, you may be told to extract from an R/3 structure. While there is no actual data to extract, you can use PowerExchange for SAP NetWeaver to get the required data. This article describes how to extract data from SAP structures.

SAP Structures

A “structure” in SAP R/3 is a data format that is used as an interface between programs and between programs and screens. The structure is an object that is defined in the SAP data dictionary, but it does not have any content. The format of the structure can be viewed in the SAP data dictionary just like a table or a view. The primary difference between a structure and tables or views is that the structure does not exist in the database.

If you examine a structure using transaction SE11 in SAP GUI, you can see its format. For example, the following figure shows the structure KUAGV:

When an object has content, you can select Utilities > Table Contents > Display. However, because the structure has no content, you cannot view the table contents.

Also, an ABAP program cannot issue a “select” statement to read from the structure.

Extracting Data from an SAP Structure

PowerExchange for SAP NetWeaver supports automatic invocation of ABAP function modules. The function module feature in PowerExchange for SAP NetWeaver supports the input and output of structures. To extract data from an SAP structure, you need to find the appropriate the ABAP Function module and R/3 tables to use in the mapping. Fortunately, this is fairly straightforward with SAP GUI.
This procedure uses SAP R/3 4/7 and PowerExchange for SAP NetWeaver 8.6. You can also perform this task in earlier versions of SAP R/3 and PowerExchange for SAP NetWeaver.

1. Determine the functional module of the SAP structure you want to use in the PowerCenter mapping.
2. Import the function module.
3. Import a source definition.
4. Configure the Application Source Qualifier.

After you complete these steps, you can configure downstream transformations and targets to complete the mapping.

**Step 1. Determine the Function Module**

In SAP GUI, determine the function module of the SAP structure you want to use in the PowerCenter mapping.

To determine the functional module:

1. Log in to SAP GUI.
2. Enter transaction se11 in the command field as follows: /nse11.
   
   The ABAP Dictionary: Initial Screen page appears.

5. Select “Function module interfaces” and “Tables”.

![Where-used List Structure](image)
6. Click the Execute button and then click Yes. A list of Function modules and tables that use this structure appears.

7. Note the function module you want use as an SAP R/3 source definition for the PowerCenter mapping. For example, select SD_SALES_DOCUMENT_READ.

Step 2. Import the Function Module
Import the SAP function module into the Designer. You use the functional module to create an SAP R/3 source definition.

To import the function module:
1. Open the Designer.
2. In the Source Analyzer, select SAP Functions and click Import.
3. In the Import SAP Metadata dialog box, enter the connection information to connect to SAP.
4. Optionally, enter a filter condition.
5. Click Connect.
6. Select the functional module you want to use in the mapping. For example, select SD_SALES_DOCUMENT_READ.
7. Click Add To Import List, and then click OK twice.
8. Select the function you imported to view function details

The functions input parameters show which SAP tables are required in the function. For example, the parameter DOCUMENT_NUMBER with the structure VBAK-VBELN is a required field.

9. Click Close.

**Step 3. Import an SAP R/3 Source Definition**

Import an SAP R/3 source definition based on the function module you imported in the previous step.

To import a source definition based on the SAP function parameter:
1. Click Sources > Import from SAP.
2. In the Import SAP Metadata dialog box, enter the connection information to connect to SAP.
3. Optionally, enter a filter condition.
4. Click Connect.

The Import SAP Metadata dialog box displays a list of tables to import.

5. Select the table you want to import.
   For example, select VBAK.
6. Click Add To Import List, and then click OK twice.
Step 4. Configure the Application Source Qualifier

The mapping to extract data from the function module includes an Application Source Qualifier for the SAP R/3 source. The Application Source Qualifier contains pre-defined input/output ports. You need to insert the SAP function into the ABAP program flow. You use the function to create additional output ports in the Application Source Qualifier that you link to downstream transformations and targets.

To configure the Application Source Qualifier to extract data from the function module:
1. Create a mapping that includes the source definition you imported.
2. Edit the Application Source Qualifier.
3. On the Properties tab, click the right corner of the Program Flow option. The ABAP Program Flow dialog box appears.
4. Click Insert Function.
5. Select the SAP function you want to insert and click OK. For example, select SD_SALES_DOCUMENT_READ.
6. On the Scalar Input tab, select Source Field as the Value Type for the first parameter in the list.
7. From the Value list, select the structure associated with the parameter in SAP from which you want the Integration Service to read the data.
For example, select VBAK-VBELN for DOCUMENT_NUMBER, because it is associated with this parameter in SAP:

8. On the Scalar Output tab, expand the parameter associated with the structure you selected in SAP. For example, expand EVBAK, which is associated with VBAK in SAP:

9. Enter a variable for the parameter. For example, enter SD_DOC, because the parameter represents a sales and distribution document in SAP. For more information about variable syntax, see the *PowerExchange for SAP NetWeaver User Guide*.

10. Select the ports you want to use as output ports in the Source Qualifier transformation.
11. Repeat steps 8 to 10 for any additional parameters, which are required or for which you want to enter variables. You can determine if a parameter is required by verifying if the Pass Value option is selected for the parameter on the Export tab in SAP GUI.

12. Click Validate All to validate the variable syntax.

13. Click OK twice.

The Application Source Qualifier includes the ports as output ports using the following naming convention:

<variable name>_<field name>

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