PPM PROCESS EXTRACTOR SAP-2-PPM - SAP ADMINISTRATION

ARIS Process Performance Manager 10

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This document applies to ARIS Process Performance Manager Version 10 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. General

This manual provides a general description of the functioning of PPM Process Extractor SAP-2-PPM, an application for extracting data from an SAP R/3 system for use in ARIS Process Performance Manager (PPM). A more detailed product description is available in the **PPM Process Extractors** technical reference.

This guide is not intended to replace user or customizing training. It is a source of reference containing information that supplements the information provided in the manuals and online help. It is designed for SAP administrators.

2. Functioning and requirements

PPM Process Extractor SAP-2-PPM is an application that provides a generic interface between SAP and PPM for extracting data.

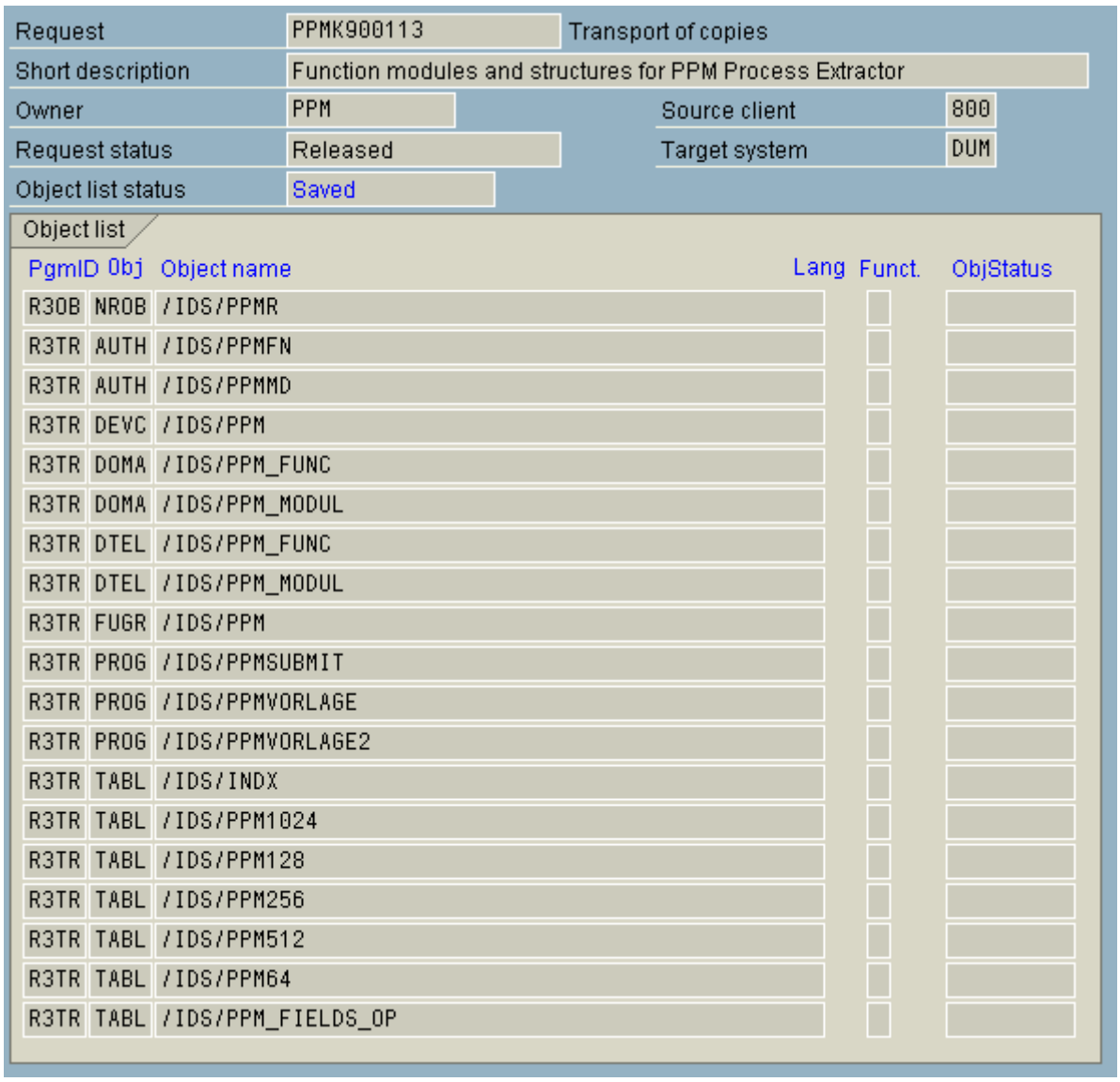
The generic interface can be used to extract data from any SAP table. Extracted data is written to XML output files in PPM system event format. These files can be imported into PPM using the XML import interface (see **PPM Data Import** technical reference).

2.1. Requirements of SAP source systems

- A PPM-specific development class has been imported into the SAP system using a transport request.
- An R/3 user with system access via Remote Function Call (RFC) and execution privilege for the PPM function modules exists.
- The PPM-specific number range is initialized for the SAP client to be extracted.
- In some cases, additional indices need to be created in the SAP database to improve performance during data extraction or to prevent data extraction being canceled by a timeout in the SAP system.

2.2. SAP transport request

The following objects are included in the SAP transport request (the extract shows only object types and names):



Request	PPMK900113	Transport of copies	
Short description	Function modules and structures for PPM Process Extractor		
Owner	PPM	Source client	800
Request status	Released	Target system	DUM
Object list status	Saved		

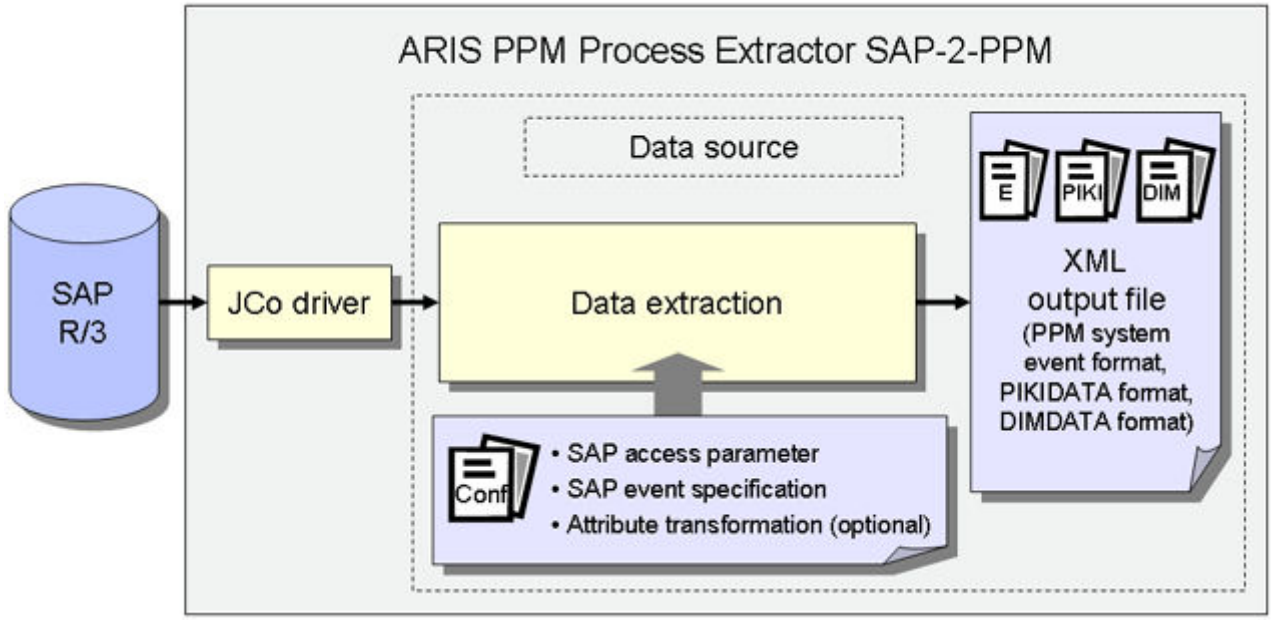
Object list

PgmID	Obj	Object name	Lang	Funct.	ObjStatus
R3OB	NROB	/IDS/PPMR			
R3TR	AUTH	/IDS/PPMFN			
R3TR	AUTH	/IDS/PPMMD			
R3TR	DEVC	/IDS/PPM			
R3TR	DOMA	/IDS/PPM_FUNC			
R3TR	DOMA	/IDS/PPM_MODUL			
R3TR	DTEL	/IDS/PPM_FUNC			
R3TR	DTEL	/IDS/PPM_MODUL			
R3TR	FUGR	/IDS/PPM			
R3TR	PROG	/IDS/PPMSUBMIT			
R3TR	PROG	/IDS/PPMVORLAGE			
R3TR	PROG	/IDS/PPMVORLAGE2			
R3TR	TABL	/IDS/INDX			
R3TR	TABL	/IDS/PPM1024			
R3TR	TABL	/IDS/PPM128			
R3TR	TABL	/IDS/PPM256			
R3TR	TABL	/IDS/PPM512			
R3TR	TABL	/IDS/PPM64			
R3TR	TABL	/IDS/PPM_FIELDS_OP			

2.3. Architecture

The figure below illustrates the functionality of

PPM Process Extractor SAP-2-PPM:

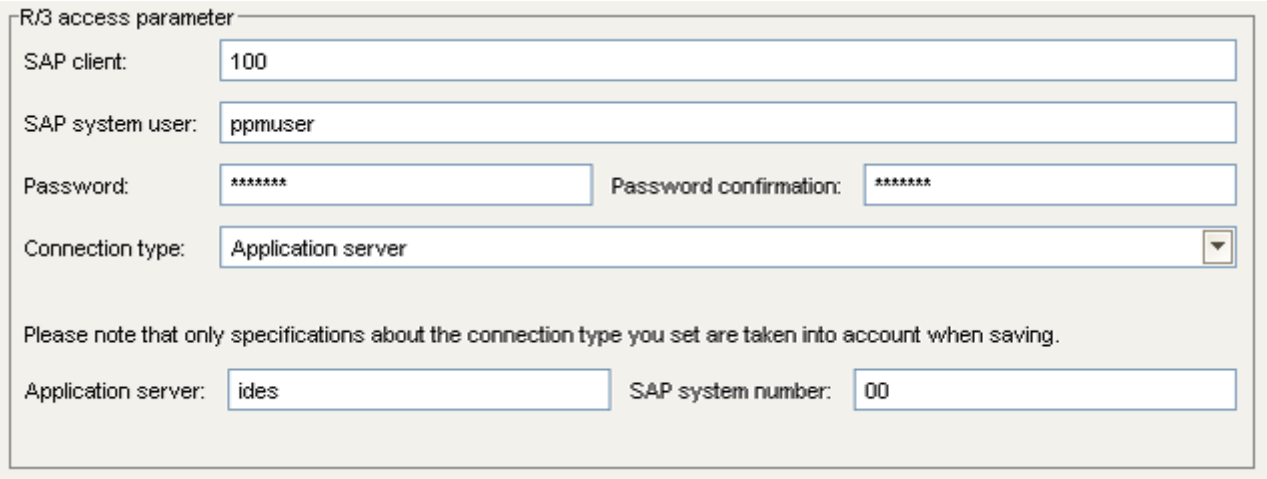


The SAP Java Connector (SAP JCo) is used to establish the connection to the SAP system using SAP access parameters. Data is then extracted from the SAP tables in accordance with the SAP event specification. Finally, an optional attribute transformation takes place and the data is output to XML files in a PPM-compatible output format.

3. Data extraction

3.1. Connection parameters

For data extraction, it is first necessary to specify the SAP access parameters. The connection to an SAP system can be established directly to the application server, via a message host or via a gateway server. The following is an example of a direct connection to the application server:



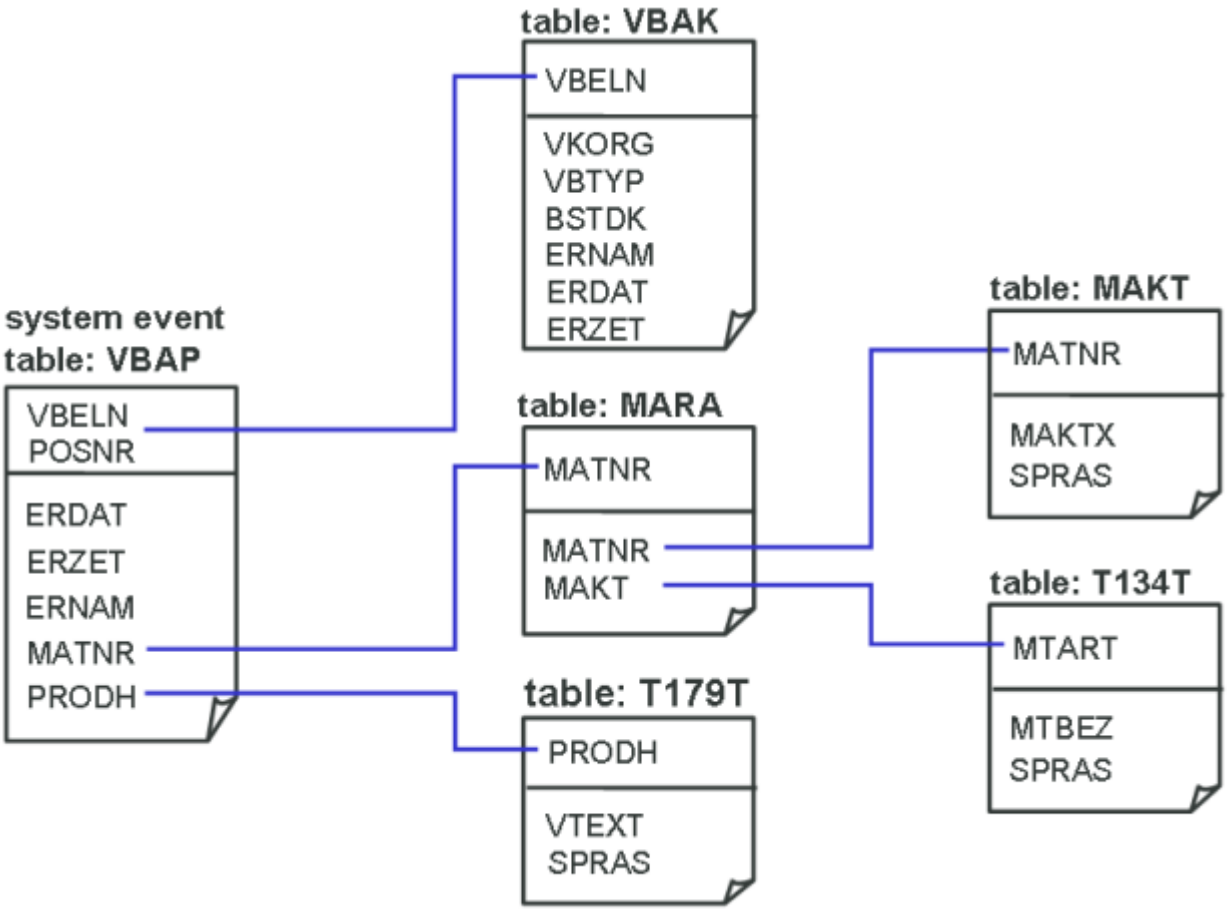
3.2. SAP event specification

The data tables of the SAP system are extracted using SAP Java Connector (SAP JCo). In an XML file, you configure the settings concerning the rows and fields to be extracted from which tables. This file can be created and edited manually but should ideally be created using PPM Customizing Toolkit (PPM CTK), which provides a graphical user interface for creating and editing the configuration.

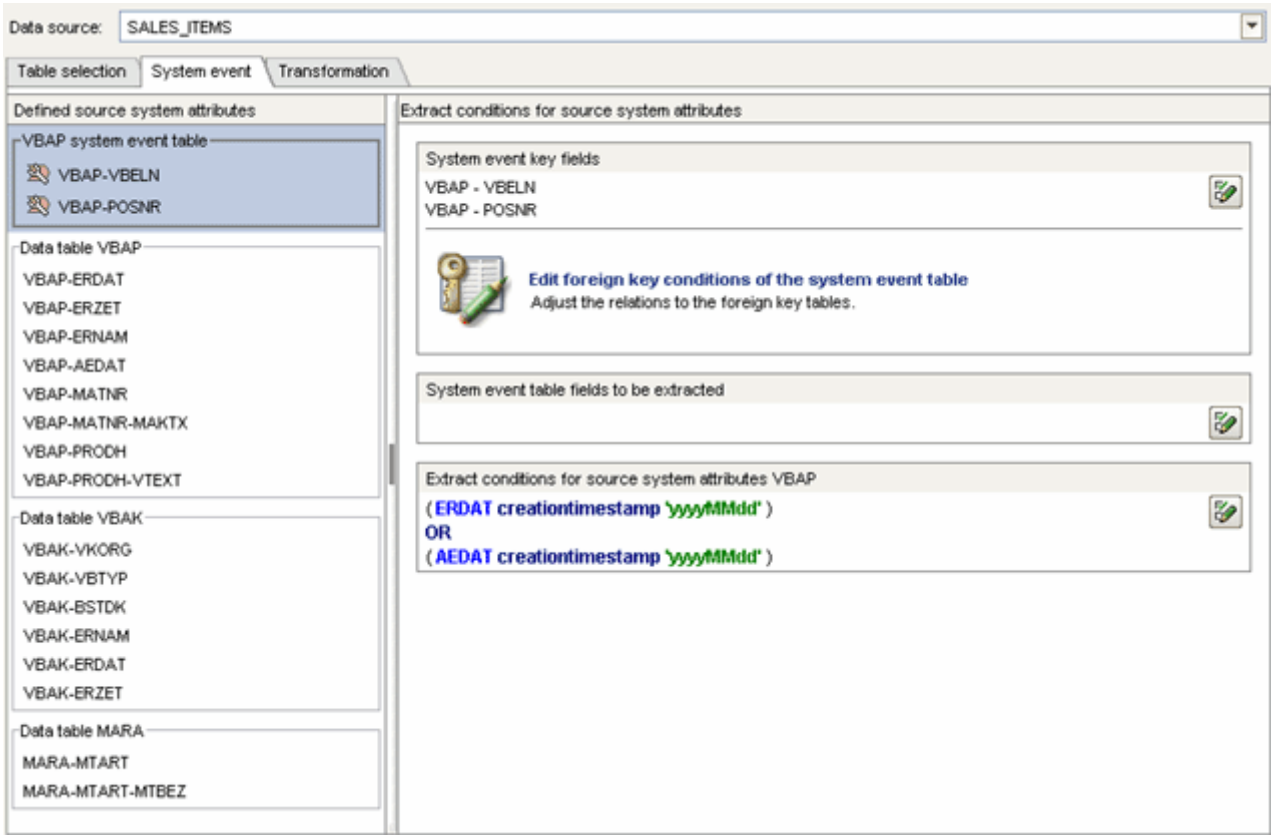
The tables to be extracted depend on the processes to be measured and analyzed using PPM and are specified in a workshop.

3.3. Extraction process

The illustration below shows an example data model of a data extraction.



You need to define a table for which a PPM system event is to be generated for each data row read. In our example, a PPM system event is to be generated for each sales document item created or modified in January 2006 and contained in the VBAP SAP table. In addition, for each sales document item, the corresponding rows and fields from the other tables are to be extracted. The associated configuration in PPM CTK or XML looks like this:




```
<docspec>
<doctable name="VBAP">
<booleancondition logicaloperator="OR">
<condition logicaloperator="creationtimestamp"

  fieldname="ERDAT">
<value>yyyyMMdd</value>
</condition>
<condition logicaloperator="creationtimestamp"

  fieldname="AEDAT">
<value>yyyyMMdd</value>
</condition>
</booleancondition>
<pkfield name="VBELN" />
<pkfield name="POSNR" />
</doctable>
</docspec>
<table name="VBAP">
<pkfield name="VBELN" fktablename="VBAP"

  fkfieldname="VBELN"/>
<pkfield name="POSNR" fktablename="VBAP"

  fkfieldname="POSNR"/>
<fieldtoread name="ERDAT"/>
<fieldtoread name="ERZET"/>
<fieldtoread name="ERNAM"/>
```

```
<fieldtoread name="AEDAT"/>
<fieldtoread name="MATNR">
<textref tablename="MAKT" reffieldname="MATNR"

  textfieldname="MAKTX" langfieldname="SPRAS"/>
</fieldtoread>
<fieldtoread name="PRODH">
<textref tablename="T179T" reffieldname="PRODH"

  textfieldname="VTEXT" langfieldname="SPRAS"/>
</fieldtoread>
</table>
<table name="VBAK">
<pkfield name="VBELN" fktablename="VBAP"

  fkfieldname="VBELN"/>
<fieldtoread name="VKORG"/>
<fieldtoread name="VBTYP"/>
<fieldtoread name="BSTDK"/>
<fieldtoread name="ERNAM"/>
<fieldtoread name="ERDAT"/>
<fieldtoread name="ERZET"/>
</table>
<table name="MARA">
<pkfield name="MATNR" fktablename="VBAP"

  fkfieldname="MATNR"/>
<fieldtoread name="MTART">
<textref tablename="T134T" reffieldname="MTART"

  textfieldname="MTBEZ" langfieldname="SPRAS"/>
</fieldtoread>
</table>
```

The first query generated by PPM Process Extractor SAP-2-PPM and executed in the SAP system looks like this:

```
SELECT vbeln, posnr FROM vbap WHERE (erdat >= 20060101 AND erdat <= 20060131)
OR (aedat >= 20060101 AND aedat <= 20060131)
```

As the VBAP table is normally very large, we recommend that you create the following two database indices to prevent a full table scan of the database and thus speed up the extraction process:

- MANDT, ERDAT
- MANDT, AEDAT

Once the key fields of the source system event have been extracted from the VBAP table, the other fields are extracted from the VBAP table or the other tables and added to the source system event. In our example, data is extracted from these tables using simple foreign key relationships. The corresponding query, for example, executed to extract the fields from the VBAK table, looks like this:

```
  SELECT vbeln, vkorg, vbtyp, bstdk, ernam, erdat, erzet FROM vbak WHERE vbeln
in (…)
```

The source system event, which is extracted using the above event specification, can look like this:

```
<event>
<attribute type="MARA-MTART">HAWA</attribute>
<attribute type="MARA-MTART-MTBEZ">Trading goods

  </attribute>
<attribute type="VBAK-BSTDK">19970306</attribute>
<attribute type="VBAK-ERDAT">19970306</attribute>
<attribute type="VBAK-ERNAM">BOLLINGER</attribute>
<attribute type="VBAK-ERZET">091423</attribute>
<attribute type="VBAK-VGTYP"></attribute>
<attribute type="VBAK-VKORG">1000</attribute>
<attribute type="VBAP-AEDAT">20020117</attribute>
<attribute type="VBAP-ERDAT">19970306</attribute>
<attribute type="VBAP-ERNAM">BOLLINGER</attribute>
<attribute type="VBAP-ERZET">091423</attribute>
<attribute type="VBAP-MATNR">DPC1009</attribute>
<attribute type="VBAP-MATNR-MAKTX">

  Standard Keyboard - EURO Model

  </attribute>
<attribute type="VBAP-POSNR">000020</attribute>
<attribute type="VBAP-PRODH">001250010000000135</attribute>
<attribute type="VBAP-VBELN">0000005056</attribute>
</event>
```

4. Requirements for R/3 source systems

To extract data from an R/3 system using PPM Process Extractor SAP-2-PPM, the R/3 system must meet the following requirements:

- PPM-specific function modules are available.
- An R/3 user with system access via Remote Function Call (RFC) and execution privilege for the PPM function modules exists.
- In some cases, additional indices need to be created in the R/3 database.
- The PPM-specific number range is initialized for the R/3 client to be extracted. For data extraction, it is necessary to create a program that executes the ABAP SQL SELECT query. The number range is used to generate a unique program name. The program is deleted immediately after execution.

4.1. R/3 access

If PPM Process Extractor SAP-2-PPM is installed on a computer that is protected by a firewall, the corresponding port must be enabled. By default, a port number of the form **3300** plus the **<SAP system number>** used is to be enabled for SAP Java Connector (JCo). For example, if the system number is **03**, the port number **3303** must be enabled.

4.2. R/3 function modules

PPM Process Extractor SAP-2-PPM requires specific function modules to access R/3 data.

For the following R/3 systems, ARIS provides an R/3 transport request to be used for importing all required function modules into the R/3 system:

R/3 version	Transport request (file name)
from 4.6	4_6_extractor.zip
from 6.20 of the SAP basic component	640_extractor.zip

Obtain information on the release version of the SAP system that you will extract data from and import the matching transport request in line with the data provided in the table above. Only one transport request is to be imported.

The files with the transport request are located under <installation directory>\ppm\server\bin\agentLocalRepo\.unpacked\<installation_time>_ppm-client-run-prod-<version>-runnable.zip\ppm\sap2ppm\SAPTransports.

After importing the function modules, an **/IDS/PPM** development class with the **/IDS/PPM** function group and all necessary structures and function modules is created in the R/3 system.

4.3. R/3 user

The R/3 user that PPM Process Extractor SAP-2-PPM uses for access must have the following privileges:

- General RFC privileges
- CPIC authorization
- Unlimited access privilege within the /IDS/PPM development class and execution privilege for the /IDS/PPM_GENERATE_TABLE_ACCESS and /IDS/PPM_RFC_READ_TABLE_FLOAT function modules contained in the development class.
- Access privilege for the SDIFRUNTIME function group (before R/3 release 4.6D: SDIF) to be able to create programs during runtime for efficient extraction.
- Access privilege for RFC_METADATA function group if SAP JCo 3.1 is used.
- Additional privileges depend on the version of the SAP system (see examples below) or on the version of the SAP Java Connector (JCo).

The user must have read privileges for all tables specified in the table configuration. The user also requires read privileges for the tables **TNRO**, **NRIV**, **DD02L**, **DD02T**, **DD03L**, **DD03T**, **DD04T**, **CDHDR**, and **CDPOS**. The read privilege for these tables is necessary because the PPM system verifies the correct installation of the number range and checks whether the configuration of the table fields to be extracted is correct.

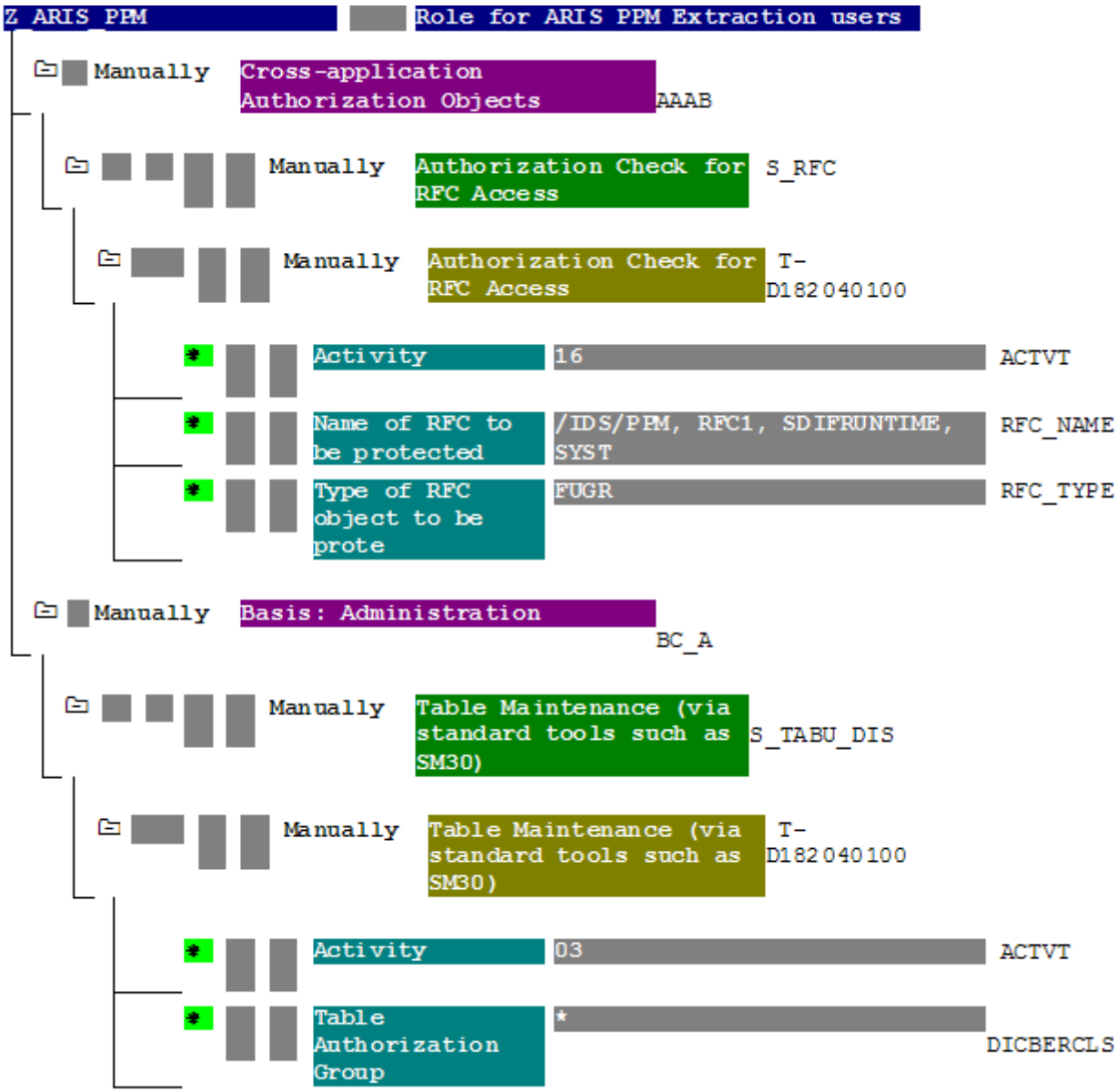
Below are two examples of this configuration with privileges to read all tables. One applies to S/4 HANA.

For testing purposes, the user must also have a dialog privilege.

Using the **su02** R/3 transaction, you can view and modify the privilege configurations and users assigned to a role. Use the **su01** transaction to display the profiles assigned to a user.

Example 1.

The figure below illustrates an example configuration in the SAP administration component (this does not apply to S/4 HANA).



The figure below illustrates an authorization example for S/4 HANA.

Group/Object/Authorization/Field	Maintena...	Ac...	'From'	'To' value
Object class AAAB	Manually			
Authorization Object S_RFC	Manually			
Authorizat. T-A308011700	Manually			
RFC_TYPE	Manually		Function group	
RFC_TYPE	Manually		Function Module	
RFC_NAME	Manually		/IDS/PPM	
RFC_NAME	Manually		/IDS/PPM_RFC_READ_TABLE_FLOAT	
RFC_NAME	Manually		DDIF_FIELDINFO_GET	
RFC_NAME	Manually		RFC1	
RFC_NAME	Manually		RFCPING	
RFC_NAME	Manually		RFC_GET_FUNCTION_INTERFACE	
RFC_NAME	Manually		SDIFRUNTIME	
RFC_NAME	Manually		SYST	
RFC_NAME	Manually		SYSTEM_RESET_RFC_SERVER	
RFC_NAME	Manually		SYSU	
ACTVT	Manually		Execute	
Object class BC_A	Manually			
Authorization Object S_TABU_DIS	Manually			
Authorizat. T-A308011700	Manually			
DICBERCLS	Manually		*	
ACTVT	Manually		Display	
Authorization Object S_TABU_NAM	Manually			
Authorizat. T-A308011700	Manually			
ACTVT	Manually		Display	
TABLE	Manually		*	

4.4. R/3 table indices

Extraction can be accelerated by indexing all tables in the R/3 system that are used for an extraction process. At least one index must be created for the creation and change date and, if specified, also for the creation and change time.

4.5. Initializing a number range

The R/3 transport (see chapter on R/3 function modules [13]) loaded for the use of PPM Process Extractor SAP-2-PPM creates the **/IDS/PPMR** number range object in the R/3 system, which has to be initialized for the R/3 client.

Procedure

1. Log on to the R/3 system with the client you want to use for extraction.
2. Call up the **SNUM** transaction.
3. Enter **/IDS/PPMR** as the object name.
4. Click **Goto/Number ranges**.
5. Click **Interval/Change**.

6. Click **Edit/Interval**.

   Enter the following values:

   Number input box: Value **1** (without leading zero)

   From number input box: Value **0000000001**

   To number input box: Value **9999999999**

   > **Warning**
   > Do not changed other settings (especially the external flag must be disabled).

7. Confirm your entries.
8. Save the changes.

Your settings are applied.

4.6. Check installation using PPM Customizing Toolkit

If PPM Customizing Toolkit (PPM CTK) is installed, you can use the following method to check whether R/3 system requirements are met:

1. Launch PPM CTK, open the corresponding PPM client and switch to the **Data source management** component in the **Client** module.
2. Click the **Edit** button in the toolbar and either select an existing SAP data source or create a new SAP data source with the correct access parameters.
3. Click the **Test system access** button in the toolbar.
4. If a test failed, you can display detailed information using the **View details** button.
5. If the access data test was successful the result is confirmed with **OK**.

5. Support and legal information

This section provides you with some general information regarding product support and legal aspects.

5.1. Documentation scope

The information provided describes the settings and features as they were at the time of publishing. Since documentation and software are subject to different production cycles, the description of settings and features may differ from actual settings and features. Information about discrepancies is provided in the Release Notes that accompany the product. Please read the Release Notes and take the information into account when installing, setting up, and using the product.

If you want to install technical and/or business system functions without using the consulting services provided by SAG ARIS GmbH, you require extensive knowledge of the system to be installed, its intended purpose, the target systems, and their various dependencies. Due to the number of platforms and interdependent hardware and software configurations, we can describe only specific installations. It is not possible to document all settings and dependencies.

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Documentation

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