SAP IBP Integration using CPI-DS Webinar Series
#building the bridge

SAP Product Management
April, 2020

PUBLIC
Agenda

Welcome & Introduction :: 5 min (Michael)
Use cases and prerequisites :: 10 min (Reinhard)
Step by step demo :: 25 min (Reinhard)
Q&A :: 10 min (all)
Overview of Webinar Series

SAP IBP Integration using CPI-DS (1/4): SAP ERP - April 2nd

SAP IBP Integration using CPI-DS (2/4): SAP BW Integration - April 8th

SAP IBP Integration using CPI-DS (3/4): Back integration from SAP IBP to SAP ERP using RFC Enabled Function Modules - April 14th

SAP IBP Integration using CPI-DS (4/4): Microsoft Azure Data Lake & Microsoft Azure Cloud Storage Integration - April 29th

Roadmap session: [Meet the Expert: SAP IBP External Integration – Capabilities and Roadmap] - April 16th
Use cases for using RFC-enabled function modules in IBP integration

IBP to a business suite system, e.g. S/4HANA or SAP ERP

▪ Send data in batches is supported
▪ No background processing possible
▪ Technical target needs to be a file

Modify or extend data from one system in another and send to IBP

▪ First system: extractors, custom ABAP transform, table access or RFC (not recommended, see below)
▪ Second system: only RFC can be used, as the others don’t support freely defined input

Business suite system to IBP

▪ Possible, but not recommended for big data volumes
▪ Very limited support for batch processing on the source side
▪ In many cases extractors, custom ABAP transforms or table access are a better choice, as they fully support batch processing on the source side
Prerequisites for using RFC-enabled function modules

New version of the Data Services Agent

Data store of type SAP Business Suite Application
  ▪ Often already available

Either of
  ▪ IBP add-on for S/4HANA or SAP ERP (for PIR integration, support package available in May 2020, planned)
  ▪ Own RFC-enabled function module

Data store of type SAP Integrated Business Planning
Differences direct RFC call versus web service based on RFC

- No web service and no binding definition in transaction SOAMANAGER needed
- SAP Business Suite Datastore can be reused
- Technically same interface as used for metadata, extractor, custom ABAP transform and table read
- No extra SSL certificates needed
- Cannot be the target of a dataflow
  - If the web service is an intermediate step of a data flow you can easily exchange the transform
  - If it is the target you need to define a new dataflow with a different target and structure
- Faster than web services
  - especially when using TABLES like <row structure> is used
  - Using IMPORTING, CHANGING or EXPORTING type <table type> is still faster than web service
Disclaimer

The delivery of function module /IBP/ETS_PIR_IN_RFC in the May 2020 support package of the add-on and of template IBP_to_ERP_PIR_via_RFC for SAP Cloud Platform Integration for data services are subject to change. This is not a binding documentation for future deliveries.
Load the function module definition to the S/4 or ERP datastore

- Create or navigate to the datastore of type SAP Business Suite Application
- Do a connection test
- The default configuration is used for loading the function metadata, change and save it if needed
- ABAP Execution option Execute preloaded is sufficient and needs less authorizations
- Click on Tab Tables
- Click button Import Object by Name
- On the popup
  - Choose type Function
  - Fill the function module name
  - Click OK
The definition of the function module interface is loaded.

Additionally for every table-like parameter the row structure is also loaded.

CPI-DS treats all table-like parameters as changing parameters, even if they are defined as IMPORTING or EXPORTING.

If data are not loaded correctly it’s often a connection or authorization issue.
Create a file format group for the target file

- Navigate to DATASTORES
- Click New Datastore
- Fill the fields Name and Description
- Choose Type File Format Group
- Choose an agent
  - Specify a root directory
    - The use access to that directory needs to be allowed in the agent configuration
    - Is agent operating system dependent
- Click Save
Create a file format for the target file

- Navigate to File Formats (if not done yet)
- Click Create File Format
  => Create from Scratch
- On the popup
  - Fill field Name with DUMMY_OUTPUT_FILE
  - Fill field Description, e.g. with Dummy output file for RFC and web service calls
  - Click OK
- On the tab Columns click Add Column
- On the second popup
  - Fill field Name with DUMMY
  - Choose Data Type varchar
  - Specify length 1
  - Add Description Dummy Field
  - Click Submit
Create the task for planned independent requirements Integration

- Create a project or mark an existing one
- Click Create Task
- Fill the Name field
- Check Use Template
- Scroll down to entry IBP_to_ERP_PIR_via_RFC and mark it
- Click Next
- Mark the source IBP datastore
- Scroll down if needed and click Next
- Choose the target file share
- Click Save => Save and Define Dataflow
Flow [IBP_to_ERP_PIR]

Drag sources and transforms onto the canvas and then connect them.

How to map the ERP function:
- In the intermediate data store for the S/4HANA / ERP system load definition of function module /IBP/ETS_PIR_IN_RFC
- Delete transform CallRFC above
- Replace it with a transform of type Web Service or Function Call
- Name it CallRFC again
- Create the mapping arrows from PrepareRFC to CallRFC and CallRFC to GetRFCOutput
- In CallRFC load the function definition to the output
- Map all first level nodes of PrepareRFC (e.g., CT_PIR_IN, IV_PROCESS_PIR) to the corresponding nodes of CallRFC.

How to map the IBP key figure table:
- In the output data store of type File Format Group do:
  - Create a file format from scratch
  - Name it DUMMY_OUTPUT_FILE
  - Click OK
  - Add a field DUMMY with type VARCHAR(1)
  - Save the changes
- If you choose a different name, you need to copy the dataflow to a new target.
Adapt the dataflow
Delete and recreate transform CallRFC

- Mark transform CallRFC
- Delete it
- Confirm by clicking OK
- Create a transform of type Web Service or Function Call by drag and drop at the same position in the dataflow
- Name it CallRFC again
- Recreate the arrows
  - From PrepareRFC to CallRFC
  - From CallRFC to GetRFCOutput
Adapt the dataflow
Load function module definition to transform CallRFC

- Double-click transform CallRFC
- On Output node CallRFC
  – Click action Select Function: Web Service or RFC Function
Adapt the dataflow
Load RFC function module definition

- Mark function module /IBP/ETS_PIR_IN_RFC of your S/4HANA or ERP datastore
- Click OK
Adapt the dataflow
Drag and drop first level nodes in transform CallRFC

- Drag and drop all first level nodes from PrepareRFC to CallRFC
- Close the transform
Adapt PrepareRFC for function modules with other parameters

- The step before is only possible if the parameters in PrepareRFC and CallRFC are the same
- If not please open transform PrepareRFC
- On the output side click Generate schema from Web Service function or RFC Functions
- Select the same function module as in CallRFC
- Recreate all the mappings on all levels from the source transform(s)
- Don’t forget iteration rules and eventually filters for tables
- An iteration rule for the root node is needed for batch processing
- Delete tables from the output that shall not be filled (empty or exporting only)
Output and error handling

- **/IBP/ETS_PIR_IN_RFC** has an output status field, which is greater zero in case of issues when saving data to the staging table.
- It also has a message table filled with output of the optional direct processing of the staged data.
- Dataflow **IBP_to_ERP_PIR** prints all messages to the log ordered by severity and throws an exception if:
  - A technical RFC error occurred
  - The status is greater than zero
  - An abort message in processing
- This behavior can be adapted in transform **ExceptionIfNeeded**
Global parameters

- The behavior of the task can be influenced by the global parameters.
- If you change the default value please also adapt the preload script.
- Most important ones:
  - `$G_LINE_ITEMS_PER_PACKAGE` approximate line items per package, same product location stays together, bigger package sizes are normally faster as long as you don’t run into timeouts or memory issues.
  - `$G_PROCESS_PIR` triggers the immediate processing of the staged data in every package.

```sql
# Global parameters example
$G_LINE_ITEMS_PER_PACKAGE = 100000
$G_PROCESS_PIR = 'X'
```

```sql
# Preload script example
if ($G_PROCESS_PIR = 'X')
    print(INFO - 'Processing staged data immediately...');
else
    print(INFO - 'Processing staged data in packages...');
```

```sql
# Global variables example
<table>
<thead>
<tr>
<th>Name</th>
<th>Data Type</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$G_LINE_ITEMS_PER_PACKAGE</td>
<td>INTEGER</td>
<td>100000</td>
<td>Approximate Line Items per Package</td>
</tr>
<tr>
<td>$G_PROCESS_PIR</td>
<td>VARCHAR(3)</td>
<td>'X'</td>
<td>Parameter used for processing</td>
</tr>
<tr>
<td>$G_LAST_SELECTION_WEEK</td>
<td>INTEGER</td>
<td>105</td>
<td>Last selection week (before or...</td>
</tr>
</tbody>
</table>
```

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Run task

- Validate the task and correct it if errors are displayed
- Run the task in the sandbox environment
- For planning the task as a recurring job you need to promote it to production

![Run task interface](image)

- **Agent:** IBP_official
- **System Configuration:**
- **Description:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Data Types</th>
<th>Defined Value</th>
<th>Current Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$Q_LINEITEMS_PER_PACKAGE</td>
<td>INTEGER</td>
<td>100000</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_AGGREGATION_UOM</td>
<td>VARCHAR(3)</td>
<td>&quot;IBU&quot;</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_PROCESS_PIR</td>
<td>VARCHAR(1)</td>
<td>&quot;X&quot;</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_LAST_SELECTION_WEEK</td>
<td>INTEGER</td>
<td>105</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_FIRST_SELECTION_WEEK</td>
<td>INTEGER</td>
<td>0</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_VERSION_ACTIVE</td>
<td>VARCHAR(1)</td>
<td>&quot;X&quot;</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_VERSION_NUMBER</td>
<td>VARCHAR(2)</td>
<td>&quot;00&quot;</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_REQ_TYPE</td>
<td>VARCHAR(4)</td>
<td>&quot;VSP&quot;</td>
<td></td>
<td>This run only</td>
</tr>
<tr>
<td>$Q_REQ_PLAN_NUMBER</td>
<td>VARCHAR(10)</td>
<td>&quot;&quot;</td>
<td></td>
<td>This run only</td>
</tr>
</tbody>
</table>
Monitoring in S/4HANA or ERP

- Call transaction /n/IBP/ETS_PIR_MON in the S/4HANA or ERP system
- You can select by material, plant and session ID (Current Job GUID from the trace log of the task)
- Relevant entries are displayed
- They can be reprocessed and/or deleted
Documentation for direct RFC calls
(planned for May 2020)

SAP Cloud Platform Integration Guide

Templates for SAP Integrated Business Planning

Key Figure Templates for Unified Planning Area
 IBP_to_ERP_PIR_via_RFC

Key Figure Templates for Application-Specific Planning Areas
 IBP_DDR_to_ERP_AddOn_via_RFC
 Special use case, but can be used as template for own tasks with own functions

Extensibility Information

RFC-Enabled Function Modules
 Good entry point for understanding concepts and adaption options
Recent Webinars & Blogs

Meet the Expert SAP IBP WEBINAR: CPI-DS Customer Use Cases
https://dam.sap.com/a/3aClujF

Meet the Expert: SAP IBP Webinar: External Integration Capabilities and Roadmap
https://dam.sap.com/a/2HX9hxg

SAP IBP Data Extraction via SAP CPI-DS – Curl ERROR 52

SAP IBP Data Extraction via CPI-DS: How to best filter data by time?

SAP IBP Data Extraction via CPI-DS: How to extract key figures on different planning levels?
https://blogs.sap.com/2019/09/09/sap-ibp-data-extraction-via-cpi-ds-how-to-extract-key-figures-on-different-planning-levels/

SAP IBP Data Extraction via CPI-DS: Are your Filters considered?

Troubleshooting Data Integration Tasks in SAP IBP

Use SAP S/4HANA core data services in CPI-DS
Thank you.

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