SAP Integrated Business Planning
Order-based Integration

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Agenda

- IBP Integration
- IBP Order-based integration using SDI technology
- Multi source order-based integration
- Outlook Real-time integration
- Further Information
IBP Integration
SAP IBP Architecture Overview
System Landscape

- **IBP Applications**
  - MS Excel IBP Add-In
  - Web User Interface IBP Fiori
  - REST APIs
  - OData Service
  - Calculations and Algorithms
  - Data Model
  - Application Configurations
  - S&OP
  - Collaboration
  - Demand Driven Replenishment
  - Demand Response & Supply

- **HANA Database**

- **Frontend**
  - Cloud NW
  - Web User Interface IBP Fiori

- **Backend**
  - REST APIs
  - OData Service

- **Data Model**

- **Data Integration**
  - Data Integration for SDI
  - Data Integration for CPI-DS

- **IAM**

- **Job Scheduling**

- **SC Control Tower**

- **Configuration**

- **Customer Cloud Systems**
  - SAP CoPilot
  - SAP CP-IAS
  - SAP JAM
  - SAP Ariba
  - SAP SDI DP Agent
  - SAC (SAP Analytics Cloud)
  - SAP IPS
  - SAP IAG

- **SAP Cloud Platform**

- **SAP SDI**
  - DP Agent

- **SAP CPI-DS**

- **SAP CPI-DS AddOn**
  - ECC only: Demand Driven Replenishment
  - Other (BW, ...)

- **S/4 Hana or ECC**

- **Other**

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### Overview of Main Integration Scenarios for SAP Integrated Business Planning (IBP)

<table>
<thead>
<tr>
<th>Processes</th>
<th>Typical Integrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales and Operations and Supply</td>
<td>S/4 HANA, SAP ERP, SAP APO, SAP DSIM, SAP BPC, SAP CRM and any source</td>
</tr>
<tr>
<td>Demand Plan</td>
<td>SAP Cloud Platform Integration for data services (HCI)</td>
</tr>
<tr>
<td>Inventory Plan</td>
<td>Data Model defined by Algos, master data, time series and KFs, customer project based, periodic loads</td>
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<tr>
<td>Order-Based Planning</td>
<td>SAP Cloud Platform Smart Data Integration (OpenAPI)</td>
</tr>
<tr>
<td>Deployment</td>
<td>Data Model defined by Open API, master data, inventory, orders, customer project-based, periodic loads</td>
</tr>
<tr>
<td></td>
<td>Time series, tactical planning</td>
</tr>
<tr>
<td></td>
<td>Orders, operational planning</td>
</tr>
</tbody>
</table>

### Tools and characteristics
- **SAP Cloud Platform Integration for data services (HCI)**
- **SAP Cloud Platform Smart Data Integration (OpenAPI)**

### Other Integration Scenarios
- **Collaboration**
  - SAP Ariba, SAP Jam
  - S/4 HANA, SAP ERP and any source

- **Direct Connection**
  - Supplier commits, social Networks
  - Periodic, customer-defined

- **Visibility filters, IBP logging, new product introduction**

- **Odata Services**
  - SAP Ariba, SAP Jam
  - S/4 HANA, SAP ERP and any source

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What Integration Tool(s) To Be Used For SAP Integrated Business Planning?

Find correct tool(s) for IBP integration

Main master and transactional data (must have)

Planning Type?

Order based planning (Response Planning)

What to integrate?

Additional processes, Additional data

Integration scenario?

Find correct tool(s) for IBP integration

Integration type?

Also time series needed?

Manual, low data volume

Yes

Automatic, recommended

SAP Cloud Platform Integration for data services*

csv file upload in Data Integration Jobs app

Open API using SAP Cloud Platform Smart Data Integration

Integrate built-in with ERP?

Yes

IBP Add-On for ERP

Several answers might be true in your scenario

SAP Jam

SAP Ariba cXML message

Visibility Filters, Exception Monitoring, External Product References

Forecast Commit

Order based planning (Response Planning)

Planning Type?

Time series based planning

Yes

Also time series needed?

Integration type?

Automatic, recommended

Manual, low data volume

Yes

Order based planning (Response Planning)

What to integrate?

Additional processes, Additional data

Integration scenario?

Several answers might be true in your scenario

Order based planning (Response Planning)

Additional processes, Additional data

Integration scenario?

Several answers might be true in your scenario

* Formerly known as: SAP HANA Cloud Platform, integration service for data services (CPI-DS)
IBP Order-based integration using SDI technology
Smart Data Integration (SDI)

SDI (Smart Data Integration) is a tool to transfer data from a source to a HANA-based system through internet.

- IBP Order-Based Planning uses SDI as technology
- In the on-premise landscape the Data Provisioning Agent (DPAgent) creates the connection between IBP and the source systems
- The DPAgent uses Adapters to enable reading/writing on different kind of sources.
  - IBP supports only ABAP and File adapter
- DPAgent and Data Services OD Agent (for CPI-DS) can not run on the same server
IBP Order-Based Planning – Integration Scenarios

- **Inbound integration** is a process which transfers configuration, master, stock and transactional data from the source into IBP, then prepares it for planning.

- **Outbound Integration** is the process which transfers the results of IBP order-based planning from IBP back to the source.
Inbound Integration

Configuration Data

➢ Calendars, Units of Measure, Currencies

Master Data

➢ Location, Material, Resource, Production data structure, Transportation lane

Stock Data

➢ Planning relevant stock (*Unrestricted-use stock*, *Unrestricted-use Vendor Consignment*, *Quality Inspection Stock*, *Vendor Consignment Stock in Quality Inspection*, *Blocked Stock*, *Blocked Vendor Consignment Stock*)

➢ Not planning relevant stock

Transactional Data

➢ Planned/Production Orders, Purchase Requisitions/Orders, Stock Transfer Requisitions/Orders, Sales Orders, Inbound/Outbound Delivery, Acknowledgements
Outbound Integration

Transactional Data

➢ Planned orders, Purchase requisitions, Sales order confirmations, Stock transfer requisitions

Planning result extraction

➢ Order network pegging information, Planning result orders, Stock information, Forecast quantities information, Forecast characteristics combinations
IBP – Order-based Integration - High Level Architecture

IBP on HANA

EXT Tables

Staging Tables

Timeseries

OBP Tables

SAP S/4HANA or SAP ERP

ECC Add-on

EXT Tables

Standard ERP Tables/Function Modules

CSV Files

DP Agent

Firewall & Internet
Built-in integration for IBP order-based planning
Available for SAP ERP and S/4HANA on premise

➢ For order-based planning a built-in integration for master- and transactional data between SAP S/4HANA on-premise or SAP ERP and SAP IBP

➢ The installation of the IBP Add-On is the pre-requisite for the built-in integration. The Add-On is delivered with the Product versions:
  ➢ SAP S/4HANA, supply chain integration add-on for SAP Integrated Business Planning 1.0 (SAP IBP S/4HANA INTEGR. 1.0)
  ➢ SAP ERP, supply chain integration add-on for SAP Integrated Business Planning 1.1 (SAP IBP ERP INTEGRATION 1.1)

➢ 2 main capabilities of the Add-On:
  ➢ Collection and transformation of the planning relevant data for order-based planning. The data is the stored into staging tables and ready to be pulled from IBP
  ➢ Storage of the IBP order-based planning results into staging tables and creation/update/deletion of the relevant orders
Multi source order-based integration
Order-Based Planning: Multi Source Integration

Multi source order based integration is independent of the supported SDI adapters (file, ABAP)

- < IBP1905: Single Source Integration - Multiple Source Integration not supported
- IBP1905: Multiple Source Integration into individual planning areas
- >= IBP1911: Multiple Integration Sources for one common planning area
1. Single Source Integration

- SAP S/4HANA
  - SAP ERP

- Other Systems
  - SAP BW
  - SAP ERP

- Files

SDI Agent

On Premise

Cloud

IBP 1
- Order-based Planning Area 1
- (Order-based) Planning Area 2
- (Order-based) Planning Area 3

IBP 2
- Order-based Planning Area 1
- (Order-based) Planning Area 2
- (Order-based) Planning Area 3
2. Multiple Source Integration into Individual Planning Areas

On Premise

Cloud

SDI Agent

SAP S/4HANA
SAP ERP

SAP S/4HANA
SAP ERP

Other Systems
SAP BW
SAP ERP

Files

IBP

Order-based Planning Area 1
Order-based Planning Area 2
Order-based Planning Area 3
3a. Multiple Source Integration into a common Planning Area

Master- & Transactional Data from the same source system

* Data is harmonized before the integration to IBP
3b. Multiple Source Integration into a common Planning Area
Master Data from Central Source & Transactional Data from other Source Systems

On Premise

Cloud

SDI Agent

SAP ERP-S/4HANA
Master Data

SAP S/4HANA
SAP ERP
Transactional Data

Other Systems
SAP BW
SAP ERP

Files

IBP

Order-based Planning Area 1
(Order-based) Planning Area 2
(Order-based) Planning Area 3

* Data is harmonized before the integration to IBP
Enhancements in Integration Profiles App

Functionality:

- Assign planning area to integration profile
- Add new logical system(s)
  - New logical system is added to same integration profile
- Replace logical system
  - Logical system is replaced by new logical system.
- Remove logical system
  - Base version and all planning versions referencing the base version must be cleared beforehand (e.g. integration job with flag: Erase Prev. Integrated data)
Enhancements in Master Data Apps

- All master data apps are enhanced with the *Logical System* attribute.
- For example, the View Location Materials app.
Enhancements in Order-Based Planning Apps

- OBP apps are enhanced with the **Logical System** attribute.
- Apps:
  - View Confirmations
  - View Projected Stock
  - View Gating Factors
  - Analyze Supply Usage
  - View Demands by Priority
Important Rules for Multi Source Integration

Master Data

- Master data must be harmonized before it is sent to IBP.
- Master data such as material, location, or location material can be integrated from multiple ERP systems.
- Master data must be unique and it is therefore not possible to integrate identical master data from multiple ERP systems.
- If IBP detects duplicate master data it ignores the duplicate master data set and the conflict must be resolved.
  - The duplicate master data must be excluded from the next integration of the data in the IBP system.
Important Rules for Multi Source Integration

Transactional Data

➢ Transactional data like sales orders can be integrated from multiple ERP systems.

➢ Transactional data can have identical IDs from multiple ERP systems (logical system is a key field for transactional data).

➢ Stock transfers between locations of different systems are not supported

Outbound Integration

➢ The ERP system for the outbound integration (from IBP to ERP) is determined by the system from which the stock is sent.

  ▪ If stock is transferred from ERP A, the outbound is sent from IBP to system ERP A.
Important Rules for Multi Source Integration

Integration scenario “Master Data from Central Source & Transactional Data from other Source Systems”

You have to restrict the master data and transactional data that is sent from SAP ERP or SAP S/4HANA with custom adaptation

➢ Use BAdI /IBP/ECC_ABAP_OUT to restrict the data set that is sent from SAP ERP or SAP S/4HANA to IBP.

▪ E.g. use BAdI /IBP/ECC_ABAP_OUT to send all transactional data but only a subset of master data to IBP.
Important Rules for Multi Source Integration

External Configuration Data

External configuration data for Order-Based Planning (e.g. Delivery Priority, Mode of Transport, or a Factory Calendar definition) can be sent from multiple source systems. The configuration data is stored for each logical system.

If logical systems are assigned to the same integration profile, duplicate entries are removed during integration.

This must be considered when setting up the different integration scenarios.
Important Rules for Multi Source Integration

General rules

**Logical system:** A logical system can only be assigned to one integration profile at each point in time.

**Integration profile:** An integration profile can be assigned only to one operative planning area.
Outlook Real-time integration
Order Based Integration – Data Flow

Order Based Integration:
- **Integration technology:**
  - SDI (SAP HANA Smart Data Integration)
  - File-Based integration (IBP Open-API)
  - Tables Integration

- **Integration flow:**
  - Periodic data integration
  - Pull-Logic for master and transactional data from source system (ECC, S/4HANA On Premise) via scheduled job
  - Full data load

**SDI Data Provisioning Agent**

- HTTPS
- SAP IBP
- SAP S/4HANA or ERP

Full Data Load
- Periodic Data Integration (pull from IBP)

SDI Data Provisioning Adapter

- Application Tables
- Inbound/Outbound Tables
- Data Integration for Orders
- SDI
- Open API

SDI: SAP HANA Smart Data Integration

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Real Time Integration

Real-Time Integration:

- Definition: 
  *Almost real time* integration from source to target system via *asynchronous* functions
- Goals:
  - Initial Load & Delta load of data
  - Transactional consistency:
    - Data is loaded continuously, and planning should always be based on the most recent data
    - Transactional consistent data integration is required on business transaction level of the source system
    - Example: When a purchase requisition is converted into a purchase order in one business transaction in S/4HANA, then both orders need to be send, integrated and received in IBP as one atomic action to avoid missing or doubled quantities for subsequent planning.
Real Time Integration*

*Below figure shows an overview of the data flow from ECC / S/4HANA to IBP. Plan is to provide bidirectional integration, including back-integration from IBP to ECC / S/4HANA.

Main differences to existing order based integration:
- Push from source system to target system, instead of pulling the data
- Initial Load + Delta Load
- Real-Time

Data Capturing for each Planning Relevant Object
- create, update, delete -
  - Transactional Data: PO, Purchase Req, ...
  - Master Data: Product, Location, ...

Business Transaction Events

Continuous Delta

SAP IBP
- Transactional Data Model
- Master Data Model
- IBP Data Processing (business logic like creation of new planning objects, etc.)
- Data mapping for each planning relevant object
  - Connectivity Agent (NW)
  - qRFC

ECC, S/4HANA
- Data transformation and simplification for each planning relevant object

Labs Preview - Prototype -

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This is the current state of planning and may be changed by SAP at any time.
**Real Time Integration**

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**Main differences to existing order based integration:**
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- Initial Load + Delta Load
- Real-Time

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This is the current state of planning and may be changed by SAP at any time.
Further Information
Links for Order-Based Integration

IBP Order-Based Integration - Application Help

IBP Add-On for SAP S/4HANA (Administrator's Guide & Application Help)
http://help.sap.com/ibp_s4hana_addon

IBP Add-On for SAP S/4HANA Release Information Note (2558971)
https://launchpad.support.sap.com/#/notes/2558971

IBP Add-On for SAP ERP (Administrator's Guide & Application Help)
http://help.sap.com/ibp_erp_addon

IBP Add-On for SAP ERP Release Information Note (2268538)
https://launchpad.support.sap.com/#/notes/2268538
Questions?

Find answers and ask your questions about SAP IBP on our Q&A community

https://answers.sap.com/questions/ask.html
2020 Webinar Series on SAP IBP

Available Sessions focusing on operational supply planning:

Meet the Expert : SAP IBP Webinar: Operational Supply Planning - Overview PDF | Recording

Meet the Expert – SAP IBP Operational Supply Planning - Deployment Planning PDF | Recording

Meet the Expert - Operational Supply Planning: Supplier Commit Scenario w/ Ariba PDF | Recording
Recent Webinars & Blogs

Webinar series: How the order based, finite priority heuristic satisfies demands?


Webinar: Learn about Rules for demand prioritization:

Webinar: Learn about Planning Run Types - Process Choreography:

Webinar series: Planning Area SAP7


Webinar: How to best create prototypes with SAP Integrated Business Planning order-based planning

Webinar: Order based Integration using SDI
Recent Webinars & Blogs

How to visualize a Freeze horizon in IBP Excel?

What’s new in IBP Response and Supply 1805 – Order-based Planning

What’s new in IBP Response and Supply 1808 – Order-based Planning

What’s new in IBP Response and Supply 1902 – Order-based Planning

What’s new in IBP Response and Supply 1905 – Order-based Planning

FAQ on Order-based Planning:
https://wiki.scn.sap.com/wiki/x/5AHXHQ
Thank you.

Contact information:

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