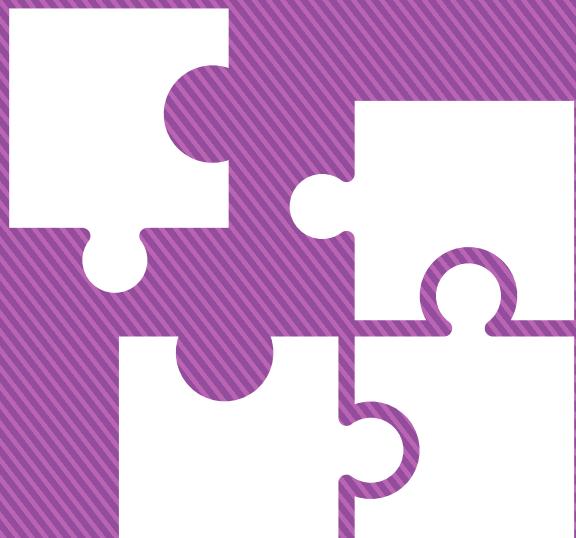


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Data Integration for SAP® IBP



**Ujwalkumar Jetagi
Venugopal Kelkar**

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Ujwalkumar Jetagi, Venugopal Kelkar

Data Integration for SAP® IBP

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The Authors of this E-Bite



Ujwalkumar Jetagi is an SAP IBP solution architect at SAP America with more than 12 years of experience. His focus is on end-to-end SAP IBP design, supply chain planning, integration technologies, SAP HANA, and ABAP.



Venugopal Kelkar is an SAP IBP solution lead at SAP's Mission Control Center with more than 13 years of supply chain planning experience in the areas of implementation, product maintenance, service/support delivery, and product development.

Learn more about Ujwalkumar and Venugopal at www.sap-press.com/4953.

What You'll Learn

Learn how to integrate your SAP and non-SAP data with your SAP IBP system! Choose the right tools for the job and set up those tools for bi-directional integration with step-by-step instructions. As you walk through six integration scenarios—SAP S/4HANA, SAP ERP, SAP Demand Signal Management, SAP Ariba, SAP Sales Cloud, and SAP Analytics Cloud—you'll master the breadth and depth of SAP IBP integration!

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1 **Introduction to SAP Integrated Business Planning Integration**

SAP Integrated Business Planning (SAP IBP) is a cloud-based solution that provides features to model supply chain planning scenarios. Integration of business-related data by sourcing it from multiple peripheral solutions to SAP IBP is an important part of an end-to-end integrated supply chain. Some of the prominent solutions with business relevance for integration are as follows:

- SAP ERP and SAP S/4HANA
- SAP Demand Signal Management
- SAP Ariba
- SAP Sales Cloud
- SAP Analytics Cloud
- SAP Advanced Planning and
Optimization (SAP APO)
- SAP Business Warehouse (SAP BW)

Different tools and technologies can be leveraged to integrate these solutions. This E-Bite acts as a guide to configure and set up different integration scenarios and use cases.

In this section, you'll get an overview of integration scenarios for SAP IBP. You'll also learn about different tools and technologies that support SAP IBP integration with other SAP or non-SAP systems.

1.1 Integration Scenarios

SAP IBP is a supply chain planning solution that allows you to prepare a plan to meet your organization's strategic goals with the help of tactical and operational planning. Tactical planning is used for mid- to long-term planning, whereas operational planning is used for the short term.

SAP IBP requires the following data objects to be integrated periodically for successful supply chain planning:

- **Time profile data**

Represents time data per a time profile definition in SAP IBP (e.g., the lowest storage time level as day granularity, and the highest storage time level as a year can be represented as Day->Week->Month->Quarter->Year).

- **Master data**

Represents actual data objects and attributes of a supply chain defined in SAP IBP (e.g., products with product ID and product description as its attributes).

- **Transactional data**

Represents key figures or orders in SAP IBP. Planning steps require key figure data for the planning level combination based on master data (e.g., time bucketed key figure quantity or actual order quantity).

SAP IBP integration can be categorized into three types of scenarios:

- **Time series-based integration**

Tactical planning is executed on a time bucketed quantity. SAP IBP applications, such as SAP IBP for demand, SAP IBP for sales and operations, SAP

IBP for inventory, and SAP IBP for response and supply work on key figure data based on time series. If you want to plan with these applications, you have to transform order data into time-series data before the integration. The lowest level of time granularity can be days or weeks.

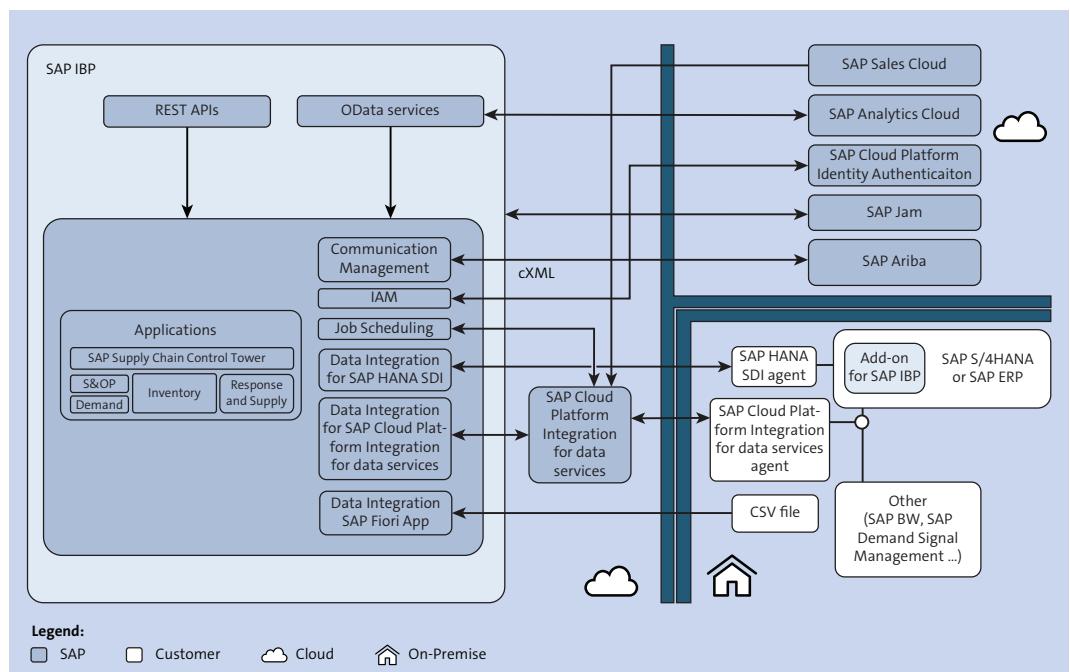
- **Order-based integration**

Operational planning is executed on actual order data. Response planning in SAP IBP for response and supply works on an order-based data model. With this model, you integrate actual orders from the SAP ERP system for running operational planning. This doesn't require transformation from an order quantity into a bucketed quantity.

- **Other integration scenarios**

The rest of the integration requirements, such as supply chain collaboration with SAP Ariba, collaboration with SAP Jam, integrating logging and monitoring data, can be combined as other integration scenarios.

[Figure 1.1](#) shows SAP IBP integration points with different systems.



[Figure 1.1](#) SAP IBP Integration Points

1.2 Integration Tools and Technologies

SAP offers several integration tools and technologies to integrate data. You need to identify the right integration tool depending on the integration scenario and system to be integrated. SAP IBP offers the following integration tools and technologies:

- SAP Cloud Platform Integration for data services
- SAP HANA smart data integration
- Supply chain integration add-on for SAP IBP (available for both SAP S/4HANA and SAP ERP)
- SAP IBP communication management
- SAP Ariba Commercial Extended Markup Language (cXML) message
- OData services
- SAP Jam
- Comma-separated value (CSV) file

Table 1.1 shows the mapping between integration scenarios with tools.

	Time Series-Based Integration	Order-Based Integration	Other Integration Scenarios
SAP IBP Process	<ul style="list-style-type: none"> ■ SAP IBP for sales and operations ■ SAP IBP for demand ■ SAP IBP for response and supply (tactical planning) 	Response and supply planning (order-based supply planning)	Collaboration, logging, and monitoring
Integration Tools	<ul style="list-style-type: none"> ■ SAP Cloud Platform Integration for data services ■ CSV file upload using the Data Integration app 	SAP HANA smart data integration using OpenAPI	<ul style="list-style-type: none"> ■ Direct connection using cXML ■ OData services ■ RESTful web service ■ OpenAPI

Table 1.1 Mapping between Integration Scenarios and Tools

	Time Series-Based Integration	Order-Based Integration	Other Integration Scenarios
SAP Systems	SAP S/4HANA, SAP ERP, SAP APO, SAP Business Planning and Consolidation (SAP BPC), and other systems	SAP S/4HANA, SAP ERP	SAP Ariba, SAP Jam, and other systems

Table 1.1 Mapping between Integration Scenarios and Tools (Cont.)

Basically, the integration scenario determines which integration tool you use. [Table 1.1](#) shows the mapping among processes, tools, and systems to be integrated with SAP IBP. Tools are required for a specific integration need. The SAP Cloud Platform Integration for data services and SAP HANA smart data integration with OpenAPI tools cover two important scenarios, as discussed in [Section 2.3](#).

SAP Cloud Platform Integration for Data Services

SAP Cloud Platform Integration for data services provides the platform to integrate the simple master data as well as time series-based transactional data. The master data (simple master data types) and the time series-based transactional data are used by the following applications: SAP IBP for sales and operations, SAP IBP for demand, SAP IBP for response and supply, and SAP IBP for inventory.

The two components of SAP Cloud Platform Integration for data services are as follows:

- **SAP Data Services agent**

SAP Data Services agent provides a secure connection to the on-premise and cloud systems. The agent can be downloaded and installed on a standalone computer or on a virtual machine. Further information on the configuration of SAP Data Services agent is detailed in the [Set Up SAP Cloud Platform Integration for Data Services](#) section.

■ SAP Cloud Platform Integration server

The SAP Cloud Platform Integration server connects to SAP Data Services agent through secure *Hypertext Transfer Protocol-Secure Socket Layer (HTTPS-SSL)* and *Remote Function Call (RFC)* connections. The server is provisioned by SAP, and the sizing of the servers is “one size fits all.” There is no requirement to execute volume sizing of this server. Multiple SAP Data Services agents can be configured and connected to one SAP Cloud Platform Integration server. Following are some of the criteria to configure multiple agents:

- One agent for test and another for production systems
- Backup agent in case of main agent failures
- Poor performance of one agent due to high data volume

[Figure 1.2](#) shows SAP Cloud Platform Integration for data services web user interface (UI).

Name	Status	Promoted	Description
> S4HANACloud_OData			S4 HANA Cloud Integration with SAP IBP
> S4_Integration_Test			S4 Integration Test
▽ SAPIBPINT			SAPIBPINT Integration Folder

[Figure 1.2](#) SAP Cloud Platform Integration for Data Services Web UI

Before you log in to SAP Cloud Platform Integration for data services web UI, install and configure the SAP Data Services agent. If you need help in installing and configuring, the **GET STARTED** menu provides all the information and help required.

Some of the challenges when integrating applications or systems include representing the source and target systems with the correct system type and achieving connectivity with different authentication methods. The tool used to address these challenges must be able to logically group together

different type of data loads and data flows, execute logically grouped data flows, administer different users and their roles to use the tool, and monitor the capabilities involved in data flow executions.

The web UI shown in [Figure 1.2](#) has all these capabilities, and you can use the following menu options, among others shown:

- **DASHBOARD**

Allows users and administrators to monitor job executions.

- **PROJECTS**

Allows users to create projects to group processes, tasks, and data flows logically. In this context, *processes* are groups of tasks, *tasks* are group of data flows that have the same source and target systems, and *data flows* represent different source and target objects and their data transformations.

- **DATASTORES**

Allows users to create the source and target systems, select system type, and choose authentication methods to connect to the systems.

- **ADMINISTRATION**

Allows administrators to manage users and their roles, such as administrator, developer, publisher, and so on.

SAP HANA Smart Data Integration

SAP HANA smart data integration provides the tools to integrate order-based master data and transactional data. Response planning uses the order-based master data (external master data types) and transactional data.

Like SAP Data Services agent, SAP HANA smart data integration also needs a Data Provisioning Agent to connect the on-premise systems to SAP IBP. Unlike SAP Cloud Platform Integration for data services, the data provisioning server is built on the SAP HANA index server and is native to SAP HANA. The SAP HANA smart data integration agent connects to the on-premise system and SAP IBP through secure HTTPS/RFC connections.

Multiple adapters, such as ABAP, Java, C++, file adapters, database adapters, and so on, can be used for transferring data through SAP HANA smart data integration. In this E-Bite, however, the best practice *ABAP adapter* and *file adapter* are predominantly discussed for connecting SAP IBP for response and supply through SAP HANA smart data integration.

To connect the on-premise systems (SAP ERP or SAP S/4HANA) through SAP HANA smart data integration, the *supply chain integration add-on* is required for data extraction. For file adapters, a secure folder in a virtual machine is required for data transfer. To connect an SAP IBP system to the SAP HANA smart data integration data service agent, *remote data sources* should be configured in SAP IBP. During the setup of the remote data sources in SAP IBP, you define the adapter type that is used to integrate. Near real-time integration is achieved by scheduling two application jobs on the SAP IBP side: *data integration using SAP HANA smart data integration (inbound)* integrates the data into SAP IBP, and *data integration using SAP HANA smart data integration (outbound)* integrates the data from SAP IBP into SAP ERP or SAP S/4HANA.

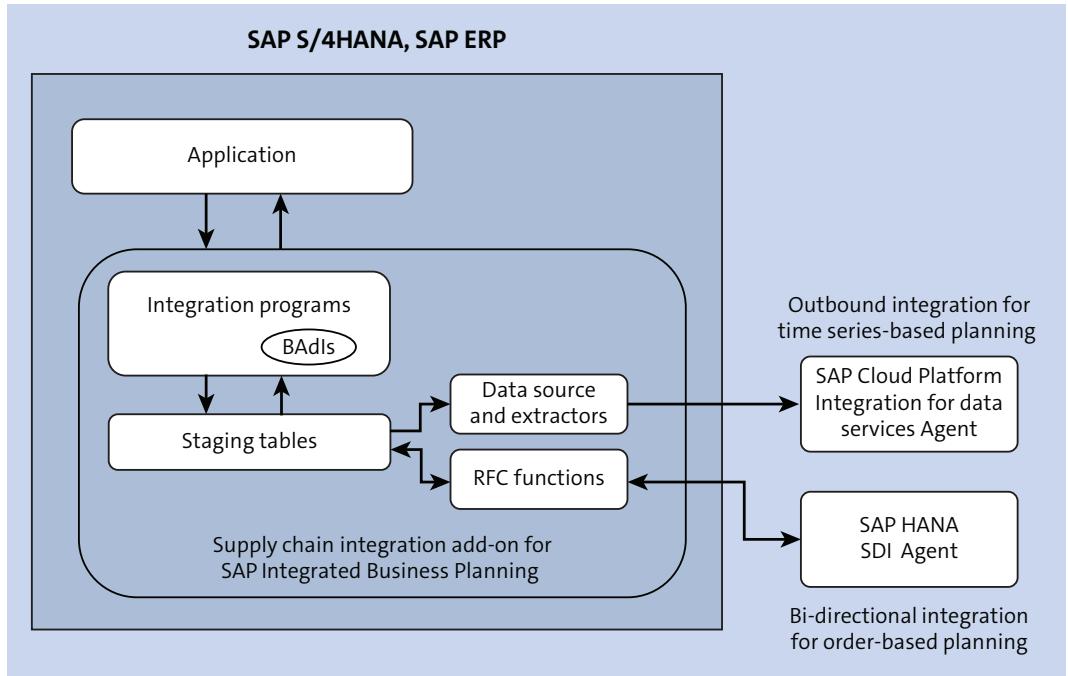
Further detailed information on installation, setup, and usage is covered in [Section 2.4](#).

Supply Chain Integration Add-On

As specified in the previous section, to connect SAP IBP to an on-premise system, either of the following must be installed on the on-premise system, specific to the SAP IBP release: SAP ERP, supply chain integration add-on for SAP Integrated Business Planning or SAP S/4HANA, supply chain integration add-on for SAP Integrated Business Planning.

The supply chain integration add-on can be used to integrate master data and transactional data for both time series-based as well as order-based data. To integrate time series-based data, the system uses predefined SAP BW extractors on SAP S/4HANA or SAP ERP. The add-on provides standard predefined and ready-to-use ABAP dictionary objects and ABAP program objects that allow bidirectional integration.

[Figure 1.3](#) shows the architecture of the supply chain integration add-on.



[Figure 1.3](#) Supply Chain Integration Add-On

Like the SAP HANA smart data integration staging tables in SAP IBP, there are equivalent SAP add-on staging tables in the supply chain integration add-on for SAP ERP or SAP S/4HANA. There are different staging tables for inbound and outbound master data and transactional data. The supply chain integration add-on provides flexibility to transform integrated data through Business Add-Ins (BApis) to realize non-supported SAP IBP business scenarios such as subcontracting, vendor-managed inventory, and material requirements planning (MRP) areas.

Further details on the architecture and usage of the supply chain integration add-on are discussed in [Section 2.2](#).

Note

The supply chain integration add-on support pack release cycle is the same as the SAP IBP quarterly release cycles.

SAP IBP Communication Management

SAP IBP communication management configuration allows SAP IBP to manage the connections to peripheral systems for data integration. Most of the integration scenarios discussed in this section—SAP Cloud Platform Integration for data services, OData services, SAP Jam, and so on—will require communication management settings to be configured for data integration. The multiple predefined communication scenarios that are readily available for integration can be displayed through the Display Communication Scenarios app in SAP IBP. The communication scenario type is set to **Managed by SAP** for these predefined communication scenarios. This is a mandatory step to define and complete the communication management configuration.

Communication Users lists the user IDs that are used for integration. This configuration requires a certificate for communication. **Communication System** specifies the type, host name, and other authorization settings required to represent a system for integration. For example, SAP Analytics Cloud can be defined as a communication system in this app for integration through OData services. The inbound and outbound user IDs can also be maintained in the communication system. The Communication Arrangement app brings the communication scenario, user, and system settings together, along with the services associated with the communication arrangement.

SAP Ariba cXML Message

SAP IBP can be integrated with SAP Ariba for supply chain collaboration of forecasts, inventory levels, forecast commits, and so on. Planning data can

be transferred between SAP IBP and the forecast add-on for SAP Ariba Supply Chain Collaboration for Buyers in cXML format.

The following steps are required to integrate with SAP Ariba:

1. Set up communication management in SAP IBP.
2. Define an authentication method in both systems (SAP IBP and SAP Ariba).
3. Activate supplier enablement to establish a relationship with suppliers in the forecast add-on for SAP Ariba Supply Chain Collaboration for Buyers.
4. Create a data sharing plan and arrangements in SAP IBP.

In [Section 4](#), you'll learn the necessary details for supply chain collaboration and integration setup.

OData Services

OData services and Simple Object Access Protocol (SOAP) services allow the integration of data directly from other peripheral systems, which requires data to be transferred to and from SAP IBP without needing to use standard integration tools such as SAP Cloud Platform Integration for data services or SAP HANA smart data integration. For example, OData services can be used if the peripheral systems require the extraction of master data and transactional data directly into their native applications. Multiple OData services are available in standard SAP IBP. OData services provide interfaces for the following activities:

- **Extraction of master data and transactional data**

OData service /IBP/EXTRACT_SRV extracts master data and transactional data in JSON format.

- **Job scheduling through external scheduling tools**

OData service BC_EXT_APPJOB_MANAGEMENT allows third-party external job scheduling tools to schedule the jobs in SAP IBP.

- **External monitoring tools for exception handling**

As of SAP IBP 1902, exception handling is possible through OData service

/IBP/LOG_VIEW_SRV. Critical business application jobs, such as heuristics and optimizer runs, require careful monitoring, and exceptions can be monitored and handled through this OData service.

- **Integration of business users from any external identity management system**

There are two SOAP services that allow uploading and downloading of business users' data: MANAGEBUSINESSUSERIN allows user creation in SAP IBP, and QUERYBUSINESSUSERIN allows business user data to be read from SAP IBP.

In addition to these OData services, there are services for integrating permission filters and new product introduction, which are detailed further in [Section 7.3](#).

SAP Jam

In today's world, collaboration is key for success, which is especially true for supply chain planning. Integration with SAP Jam allows supply chain planners to collaborate across teams and business units to accomplish the following:

- Exchange ideas.
- Keep all stakeholders informed about the latest activities.
- Align and make rapid decisions.
- Improve planning results.
- Manage sales and operations planning tasks.

Following are the important steps required in SAP Jam integration:

1. Create business users in SAP IBP.
2. These same users are created in identity providers serving SAP IBP.
3. Connect tenants of SAP IBP and SAP Jam.

[Figure 1.4](#) shows a sample SAP Jam collaboration UI and tasks from the SAP IBP Excel add-in.

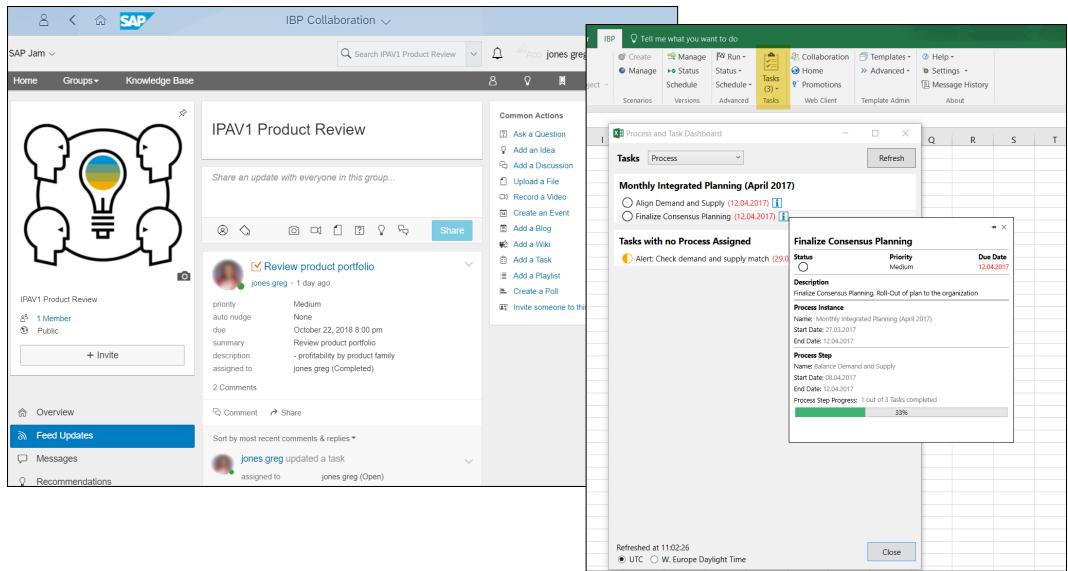


Figure 1.4 Sample SAP Jam Collaboration UI and Tasks from the SAP IBP Excel Add-In

CSV File

In exceptional cases, the standard tools and scenarios might not be enough for integration. For example, you might have a one-time activity in which you want to upload a small data set. In such scenarios, SAP IBP provides the Data Integration Jobs app to upload the data in the CSV file format. The Data Integration Jobs app can be used to upload the following items:

- Master data
- Key figure data
- Time periods
- Snapshots

[Figure 1.5](#) shows an example of the Data Integration Jobs app.

The format of the CSV file can be downloaded through this app. The operation types to upload the listed data can be insert/update, replace, or delete. This app also can be used to monitor all data integration jobs that are

integrated through SAP Cloud Platform Integration for data services, SAP HANA smart data integration, or manual upload. Administrators can use this app to monitor the status of the data integration job, execution start time, total execution time, total records, successful records, and rejected records. You can download the logs to get the status of execution. The data integration jobs that are listed in the Data Integration Jobs app are persisted in the system based on the SAP IBP Global Configuration app parameter STAGCLEANUP, which is maintained in the Integration parameter group. You can also purge these data integration jobs by scheduling the application job via **Purge Data Import Batch Operator** through the Applications Jobs app.

The screenshot shows the SAP Data Integration Jobs app interface. On the left, there is a sidebar with a search bar and a list of jobs. The main area displays detailed information for a selected job, specifically 'MC1PRODUCTIONRESOURCE'. The job details include:

- Job ID:** 20836 (Job ID)
- Status:** PROCESSED
- Started On:** Fri Jun 28 2019 17:16:09 (Eastern Daylight Time)
- Completed On:** Fri Jun 28 2019 17:16:22 (Eastern Daylight Time)
- Total Duration:** 00:00:13
- Waiting Time:** 00:00:06

The 'General Information' section shows:

- Operation Type:** INSERT_UPDATE
- Planning Area:**
- Version:**
- Time Profile ID:**

The 'Technical Data (1)' section contains a table with the following data:

File Name	Data Type	Data Name	Execution Time	Total Records	Successful Records	Rejected Records	Download
PRODRESOURCE-.csv	Master Data	MC1PRODUCTION RESOURCE	00:00:01	14	14	0	Download

Figure 1.5 Data Integration Jobs App

CSV file use cases are detailed further in [Section 7.4](#).

1.3 Supply Chain Example

In this E-Bite, we'll use the sample supply chain model shown in [Figure 1.6](#). In this example, you manufacture a finished product SAPIBPINT_FG_1 at plant 1010 that requires components SAPIBPINT_COMP_1 and SAPIBPINT_COMP_2. The ratio of finished goods to components bill of materials (BOM)

is 1:1. In other words, to produce one piece of product SAPIBPINT_FG_1 requires one piece of SAPIBPINT_COMP_1 and SAPIBPINT_COMP_2. These two components are sourced from supplier 13300003. The arrow marks connecting the supply chain are transportation lanes. *Transportations lanes* represent connections between the source and target as well as the material flow, including lead time. NA_DC and EMEA_DC are two distribution centers that supply two regions, North America and Europe, respectively.

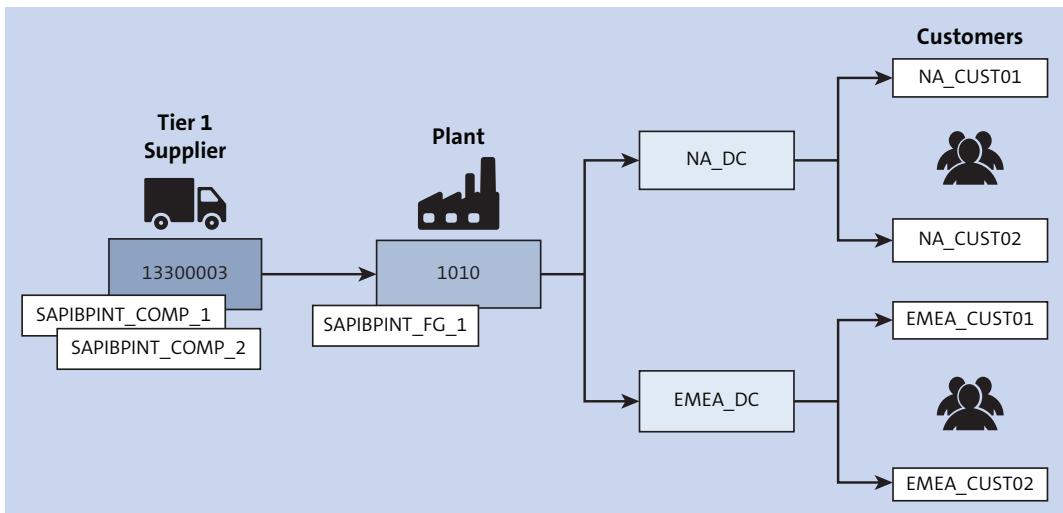


Figure 1.6 Example Supply Chain

In the example, plant 1010, distribution centers NA_DC and EMEA_DC, and supplier 13300003 are modeled as locations in SAP IBP. The BOM provides the relationship between the finished goods and the components. Plant 1010 manufactures SAPIBPINT_FG_1 on a production line (routing) with the help of an operation and a work center. This BOM information with routing, operation, and work center is modeled as a *production data structure* in SAP IBP.

2 Integration with SAP S/4HANA or SAP ERP

In this section, you'll learn the different available strategies to integrate SAP S/4HANA or SAP ERP. This section will cover the integration of master data and transactional data for time series-based planning as well as order-based planning. For time series-based data integration, there are multiple integration points. This section will provide the advantages and disadvantages of these different integration points and the best practice approach.

SAP provides the supply chain integration add-on for SAP IBP to integrate with SAP S/4HANA or SAP ERP. We'll start by looking at the different integration strategies and then move on to the architecture and details of the supply chain integration add-on for SAP IBP.

2.1 Different Integration Strategies

The integration with SAP S/4HANA or SAP ERP can be broadly classified into outbound integration and inbound integration. Outbound integration represents the data transferred out of the system, and inbound integration represents the data coming into the system. For example, if the data flow is from a SAP S/4HANA system to SAP IBP, then the integration in the SAP S/4HANA system will be called outbound, and the integration for SAP IBP will be called inbound.

Outbound Integration

Figure 2.1 shows the different SAP S/4HANA and SAP ERP outbound integration strategies, such as integrating master data and transactional data using SAP Cloud Platform Integration for data services or SAP HANA smart data integration. SAP Cloud Platform Integration for data services uses the supply chain integration add-on, SAP BW extractors, and data files, whereas SAP HANA smart data integration uses only the supply chain add-on for SAP IBP.

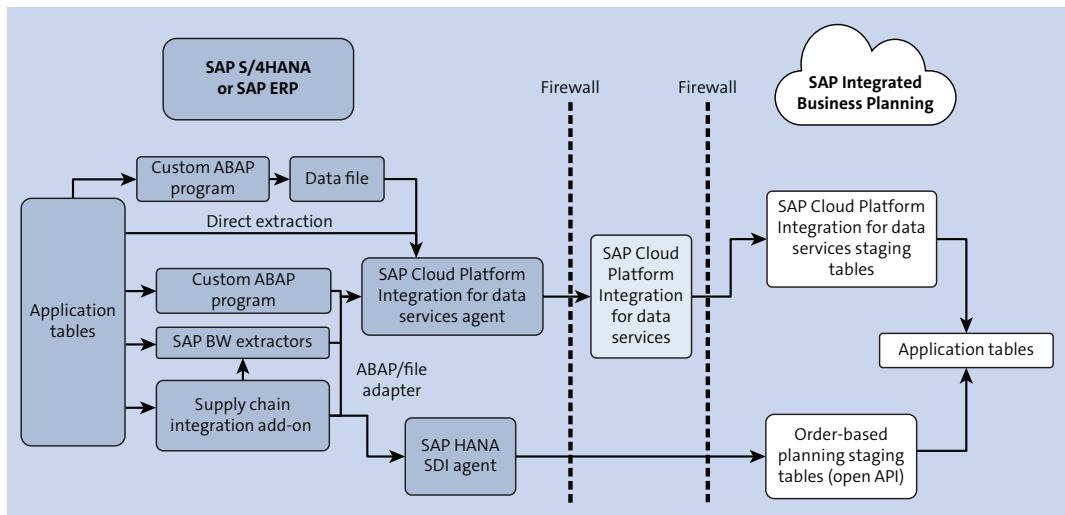


Figure 2.1 SAP S/4HANA and SAP ERP Outbound Integration Strategies

The options currently available for outbound integration from SAP S/4HANA or SAP ERP to SAP IBP for time series-based data are as follows:

- **Data file integration**

The two systems can be integrated through SAP Cloud Platform Integration for data services by downloading a file from the SAP S/4HANA or SAP ERP system into a file path on a virtual machine or on a standalone system and then uploading that file to the SAP IBP system. The download of the data files can be executed through ABAP programs. The SAP Cloud Platform Integration for data services tasks can be configured to read the data files and upload them to the SAP IBP system. This option requires ABAP programs, and maintaining the programs and files is a disadvantage. However, this option can be used for configuration data that needs a one-time data load.

- **SAP Cloud Platform Integration for data services direct extraction**

During the SAP Cloud Platform Integration for data services task and the data flow creation, a direct database query can be executed on the SAP S/4HANA or SAP ERP source tables. A join of more than one database table

can be executed to extract data. In this case, SAP Cloud Platform Integration for data services executes a SQL query directly on the database table on the source system. Such an extraction through a direct SQL query reduces maintenance of the objects and is a relatively easy implementation, but if the source table volume is very high, this method may be performance intensive.

- **SAP Cloud Platform Integration for data services custom ABAP (ABAP endpoint)**

Custom ABAP can be used in the task and the data flow creation in SAP Cloud Platform Integration for data services, which, in turn, generates an ABAP program on the SAP S/4HANA or SAP ERP source system that is included in the change request of the transport organizer in SAP S/4HANA or SAP ERP. When the SAP Cloud Platform Integration for data services tasks are promoted from test to production, this generated ABAP program must also be transported to the production system. Although custom ABAP provides better performance and better control of the data selection from the source system, it involves increased maintenance of ABAP programs. Any changes in the SAP Cloud Platform Integration for data services task and data flow may result in custom ABAP program changes, so care should be taken to ensure that the generated program and the ABAP programs are in sync.

- **SAP BW extractors**

SAP BW extractors can be used to extract the data from SAP S/4HANA or SAP ERP. The data store objects (DSOs) and extractors can be configured through SAP BW transactions. This method involves increased maintenance of extractors. The runtimes of the SAP BW extractors can be considerable if the data volumes are huge, increasing the overall runtime of the SAP Cloud Platform Integration for data services tasks and data flow.

- **Supply chain integration add-on**

The supply chain integration add-on is a standard add-on for SAP S/4HANA and SAP ERP systems for integration. This add-on, which we'll cover in [Section 2.2](#), is the best practice solution for integrating between these two systems.

For order-based planning integration, the SAP HANA smart data integration agent can be used with this add-on. The two different adapters were shown earlier in [Figure 2.1](#).

Inbound Integration

[Figure 2.2](#) shows the different integration strategies for inbound SAP S/4HANA or SAP ERP integration. SAP Cloud Platform Integration for data services uses web services and data files for inbound integration, whereas SAP HANA smart data integration uses only the supply chain integration add-on.

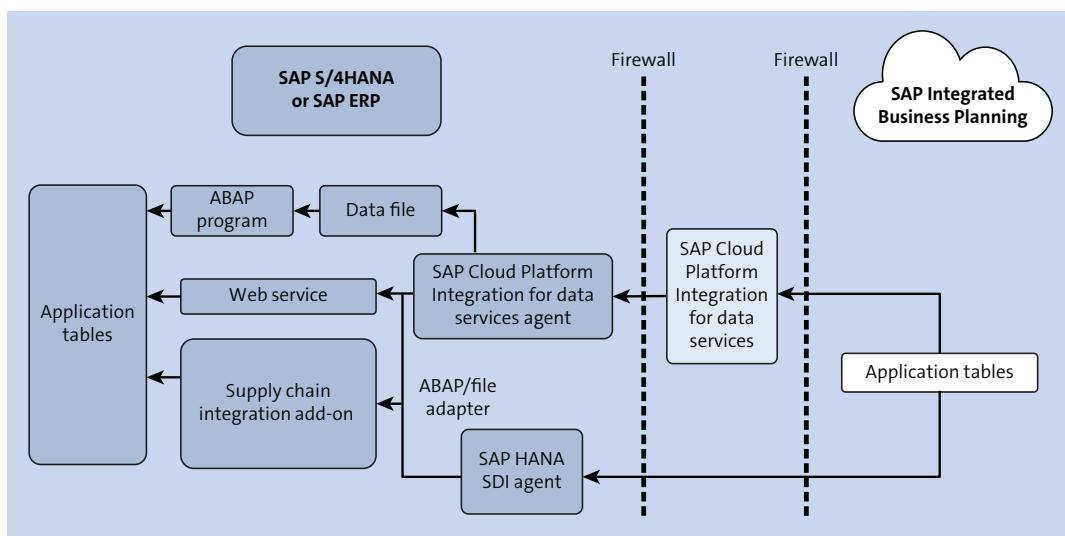


Figure 2.2 SAP S/4HANA or SAP ERP Inbound Integration Strategies

Transactional data is relevant for inbound integration. There are some exceptional scenarios where master data might be integrated from SAP IBP to SAP S/4HANA or SAP ERP. For example, safety stock calculations can be derived by inventory planning, which might be required in the material master in SAP S/4HANA or SAP ERP.

Currently, web services are required for any integration if the target system is an SAP S/4HANA or SAP ERP system. The other option is to use the data

file upload. The best practice approach is to use web services, but data file integration can be used in exceptional cases.

The options for inbound integration from SAP IBP to SAP S/4HANA or SAP ERP for time series-based data are as follows:

- **Web services using a Business Application Program Interface (BAPI)**

If a web service exists in the SAP S/4HANA or SAP ERP system, it can be used for integration. Use Transaction SOAMANAGER to search for existing web services. If there are no standard web services, then a custom web service can be created that can then use the standard BAPI to integrate data. For example, standard BAPIs can be used to create planned orders (BAPI_PLANNEDORDER_CREATE), purchase requisitions (BAPI_REQUSITION_CREATE), planned independent requirements (BAPI_PIRSRVAPS_SAVE-MULTI), and so on. In such cases, create a web service for these BAPI functions, and use this as the target in the SAP Cloud Platform Integration for data services data flow.

- **Data file integration**

This integration method involves downloading the integration data from the SAP IBP source system into a file through SAP Cloud Platform Integration for data services. This file can be retrieved via a custom program in SAP S/4HANA or SAP ERP and then integrated into its applications. This method involves implementation and maintenance efforts on the SAP S/4HANA or SAP ERP ABAP extraction programs, but allows the flexibility to control and transform the integrated data.

- **Web service upload to the supply chain integration add-on**

The web service along with outbound custom staging tables can be used for data upload. In this method, a custom web service can be created in the SAP S/4HANA or SAP ERP system, and the integrated data can be transformed and updated into the inbound custom staging tables using the web service function. A custom program can be used to move this to the supply chain integration add-on staging tables. The standard programs and transactions available in the add-on can then be used to convert this integrated data into the application data. Here the maintenance is mini-

mal, and the implementation cycle is faster because most of the data integration can be handled within the standard supply chain integration add-on. However, care should be taken to ensure the consistency of order data while using this in conjunction with SAP HANA smart data integration.

Note

For inbound integration, the standard supply chain integration add-on has functionality to convert orders such as sales order confirmations, purchase requisitions, planned orders, and stock transfer requisitions. If any other master data or any other transactional data needs to be integrated, then these conversion programs aren't yet part of the standard. In this case, the other options—web service using a BAPI or data file upload/download—should be considered.

2.2 Setting Up the Supply Chain Integration Add-On for SAP IBP

[Figure 2.3](#) shows the architecture of the supply chain integration add-on.

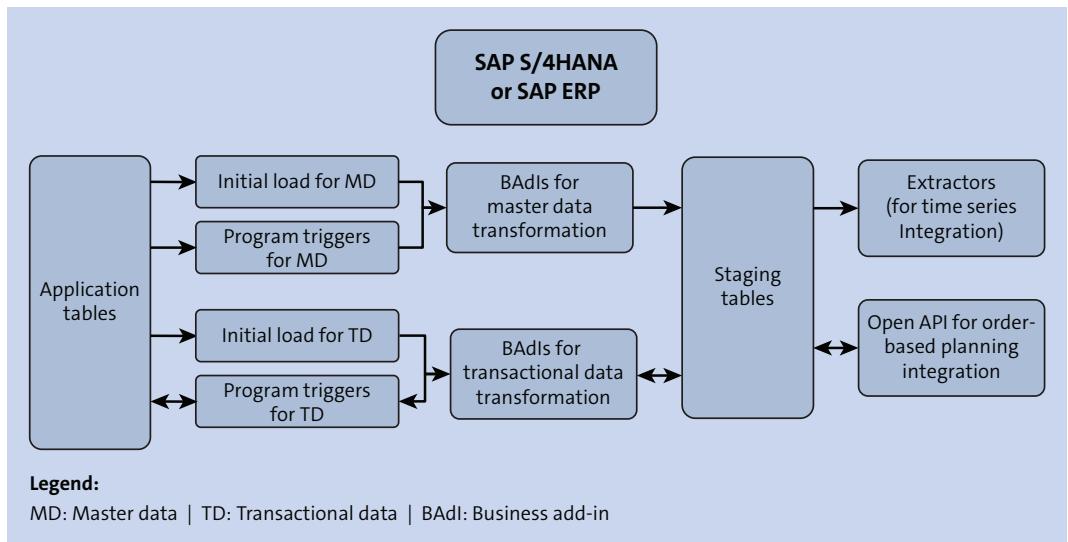


Figure 2.3 Architecture Diagram of the Supply Chain Integration Add-On

The supply chain integration add-on consists of staging tables for master data and transactional data. For transactional data, the inbound and outbound staging tables are normal ABAP dictionary tables that contain all the data integrated into SAP IBP. The supply chain integration add-on has all the required SAP transactions, OpenAPI functions, and ABAP reports to integrate master data and transactional data. The staging tables and their corresponding BAdIs will be discussed in the [Business Add-Ins](#) section.

The steps to set up and configure the integration model, including loading master data and transactional data, are executed in SAP S/4HANA or SAP ERP. To get started, you'll need to define an integration model. After the integration model is defined, you can execute the initial load of planning-relevant master data and its corresponding transactional data. The supply chain integration add-on also provides functionality to reconcile, delete, and monitor the integrated data.

Define Integration Model

To define the integration model, follow these steps:

1. Go to Transaction /IBP/ECC_INT_MOD1, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Define • Define Plants**.
2. Specify the plants that you want to integrate to SAP IBP. All the plant-related master data and transactional data integration validates whether the plant is maintained in the **Define Plants** configuration. Save this setting.
3. Navigate back to the same menu path, but this time, select **Define MRP Types** or go to Transaction /IBP/ECC_INT_MOD2.
4. Specify the **MRP Types** that are relevant for integration. All the materials that have the MRP types maintained in this configuration are integrated to SAP IBP. The MRP type of the materials are maintained in the **MRP 1** view in the material master maintenance Transactions MM01/MM02. Configure this setting and save the data.

5. To integrate planning-relevant configuration data such as material groups, unit of measure, and so on, go to Transaction /IBP/ECC_MDCKTABFILL, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Configuration • Integrate Configuration Data To IBP**.
6. Select the **Integrate Configuration Data** checkbox, and execute this transaction. This transaction loads planning-relevant configuration data from SAP S/4HANA or SAP ERP into the staging tables, including material types, unit of measure, MRP controllers, purchasing organizations, customer classifications, calendars, currency settings, and so on.
7. Execute this transaction, and click the **Back** button.

For daily loads, the supply chain integration add-on works on business transaction events (BTEs) to load the master data and transactional data to the staging tables. The BTE for SAP IBP can be activated through the Transaction SPRO menu by choosing **Integration with Other SAP Components • Integrated Business Planning • Activate BTE Application**.

Initial Load of Master Data

To integrate master data into the staging tables, navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Initial Load of Master Data**. The transactions that are available in this SAP menu should be executed during the cutover to do an initial load.

To integrate locations, go to Transaction /IBP/ECC_INT_LOC, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Initial Load of Master Data • Integrate Locations to IBP**. This transaction allows you to integrate locations such as plants, distribution centers, vendors, and customers. When integrating plants, specify only those plants that were maintained in **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Define • Define Plants**. Execute the transaction to update the locations staging table /IBP/

LOC_EXT. Similarly, to integrate vendors and customers, specify the vendors and customers selection fields in the transaction. Select the **Initial Load** radio button to execute the transaction. Navigate back to the SAP Menu.

To integrate materials, go to Transaction /IBP/ECC_INT_MAT, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Initial Load of Master Data • Integrate Materials to IBP**.

Figure 2.4 shows the **Integrate Materials to IBP** screen.

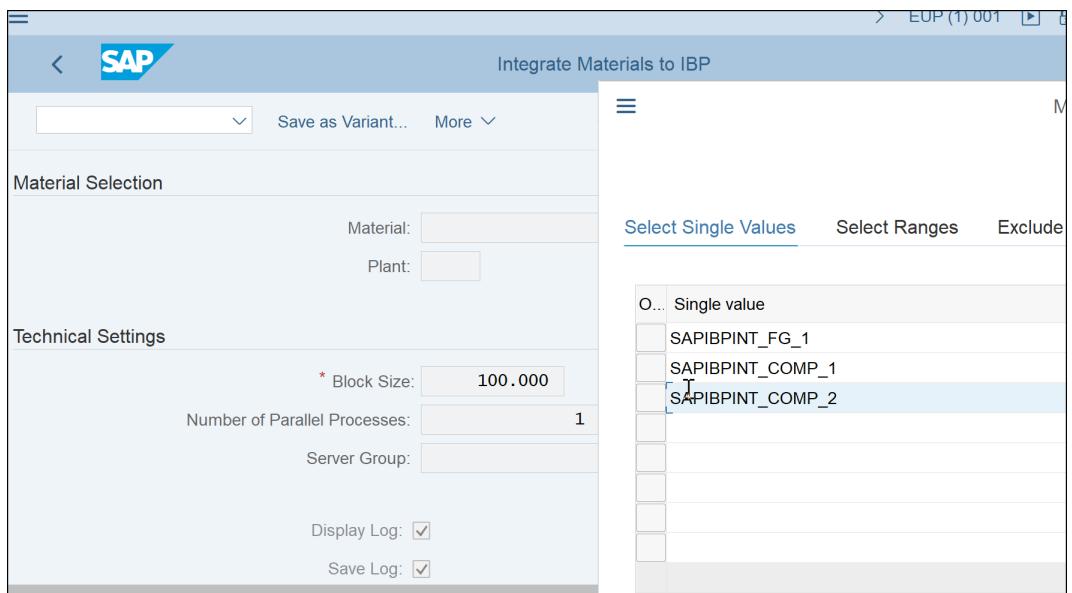


Figure 2.4 Integrate Materials to SAP IBP Transaction

This transaction will update the materials staging tables /IBP/MARA_EXT (Basic Material Data), /IBP/MARC_EXT (Material Plant Data), and /IBP/MAKT_EXT (Material Descriptions). Only those materials that have the right MRP types and plants maintained in the integration model will be transferred to the staging tables. Figure 2.4 shows an example screenshot of integrating the materials. To improve the runtime and performance of this transaction, you can also specify the following:

- **Block Size**

Limits the number of materials processed within a single dialog work process.

- **Number of Parallel Processes**

Specifies the number of dialog work processes that this transaction can use for parallel processing.

- **Server Group**

Specifies the server group name on which the parallel threads will be processed.

If you want to have a default value for the parallel processing, use the Customizing Transaction SPRO menu, **Integration with Other SAP Components • Integrated Business Planning • Adjust Parallel Processing**. Execute this transaction, and navigate back to the SAP Menu.

To integrate transportation lanes, go to Transaction /IBP/ECC_INT_TLANE, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Initial Load of Master Data • Integrate Transportation Lanes to IBP**. This transaction allows you to integrate purchasing info records (Transactions ME11/ME12) ① as transportation lanes to staging table /IBP/TLANE_EXT ②. [Figure 2.5](#) shows the side-by-side screenshots of these transactions.

Specify the filtering criteria of **Material, Plant, Purch. Organization, and Vendor**. Purchasing info records of only those materials, plants, and vendors defined in the integration model will be selected for transportation lane integration. Important fields that are relevant for planning, such as purchasing info record number, planned delivery time in days, info record type, purchasing organization, and validity dates, are automatically considered during the update.

This transaction also allows delta mode, which works based on change pointers that are activated for the message type /IBP/ECC_SRC in Transaction BD50 (Activate Change Pointers for Message Type). If this Customizing setting is activated, change pointers will be recorded for any new changes to the relevant purchasing info record. When this **Delta Load** option is selected

as the **Transfer Mode**, the system uses these change pointers to read only those purchasing info records that have been changed or newly created. Transaction /IBP/ECC_INT_TLANE (Integrate Transportation Lanes to IBP) can be executed daily with the transfer mode set to **Delta Mode** to improve the overall performance and reduce the runtime of the transaction. To reduce the total memory used by this transaction, the system uses the **Block Size** setting to read purchasing info records in blocks.

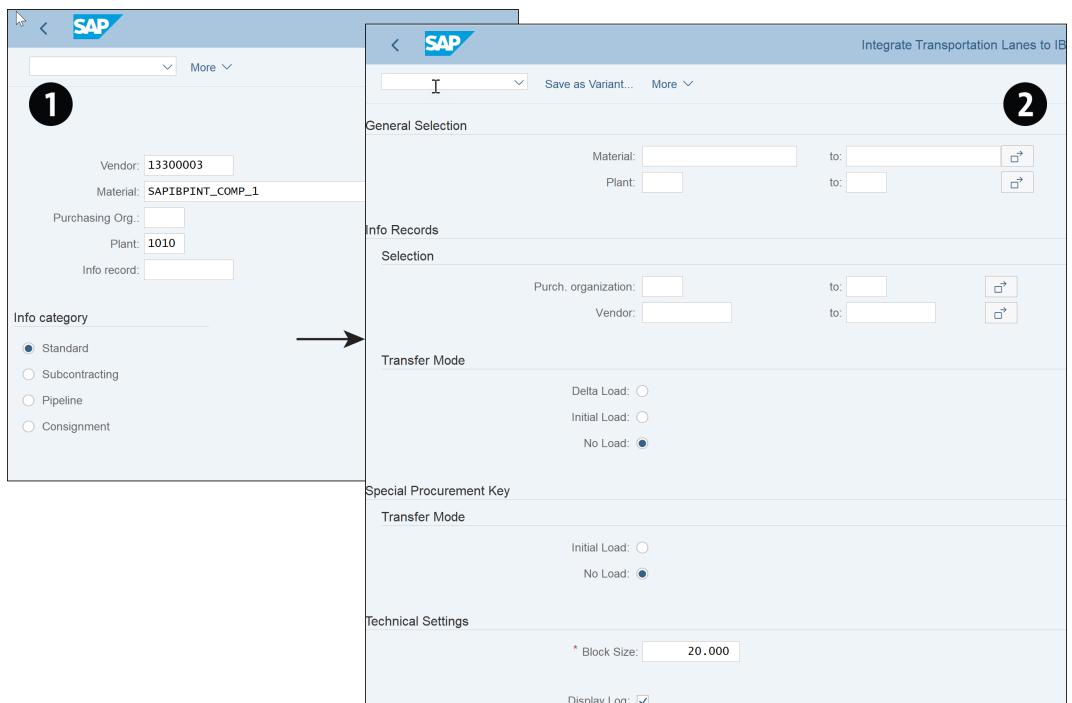


Figure 2.5 Integrating Purchasing Info Record Transactions as Transportation Lanes in SAP IBP

Between two physical locations, such as plants, distribution centers, vendors/ suppliers and customers, there are multiple *modes of transport* to deliver the finished goods. The mode of transport can be by road (trucks), by sea (ships), or by air (planes). They have different transportation durations (lead times) for transporting the goods between the two physical locations. During planning and depending on the required delivery date of the

customer, these alternative modes of transport can be used to meet the delivery Service Level Agreements (SLAs).

In your business scenario, you can maintain your mode of transport in Transaction /IBP/ECC_MOT or via **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Maintain Master Data • Transportation Lane • Mode of Transport Maintenance**.

You can also maintain the mode of transport rules that can be derived between the locations through Transaction /IBP/ECC_MOTDECISION or via **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Maintain Master Data • Transportation Lane • Mode of Transport Rule Maintenance**.

In Transaction /IBP/ECC_MOT, you can specify the **Transport Duration** and the **Transport Duration Source**. You can also specify different rules for the mode of transportation, as shown in [Figure 2.6](#).

Mode of Transport Decision Table Maintenance						
Location To	Location Type To	Location From	Location Type From	Mode of Transport	Transport Duration	Transport Duration Source
NA_DC	P	1010	P	SEA	25	<input checked="" type="checkbox"/>
NA_DC	P	1010	P	AIR	3	<input checked="" type="checkbox"/>
NA_DC	P	*	*	SEA	30	<input checked="" type="checkbox"/>

Figure 2.6 Mode of Transport Rule Maintenance

Different transportation durations can be maintained. During the integration of transports lanes, the most specific rule from this transaction is determined.

It's possible that no purchasing info record exists, but you need a transportation lane for planning purposes. One such example is stock transfers between plants and distribution centers. In such cases, execute Transaction /IBP/ECC_TLANE (Transportation Lane Maintenance), or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Maintain Master Data • Transportation Lane • Transportation Lane Maintenance**.

Transaction /IBP/ECC_TLANE allows you to create, change, and delete transportation lanes. Deletion of transportation lane sets the **Deletion** flag to ensure that SAP IBP doesn't consider these transportation lanes during planning.

[Figure 2.7](#) shows the example data for Transaction /IBP/ECC_TLANE.

Material	Location To	L Tr	Location From	Purch MTr	Available From	Available To	Max. Lot Size (SoS Sel.)	PDT PEOUn
MAT_11	0001	P 0	0000100056	V 0001	01.01.1970	31.12.9999	0	8 EA
ZMC_FG001	0001	P 7	0002	P DEF	01.01.1970	31.12.9999	0	1 EA
SAPIBPINT_FG_1	NA_DC		1010		01.07.2019	31.12.2019	5	

Figure 2.7 Transportation Lane Maintenance Transaction

Navigate back to the SAP Menu after maintaining the transportation lanes. To integrate work centers, go to Transaction /IBP/ECC_INT_WC, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Initial Load of Master Data • Integrate Work Centers to IBP**.

Transaction /IBP/ECC_INT_WC allows for integration of work centers (Transaction CRO1/CRO2) in SAP S/4HANA or SAP ERP as resource capacities in SAP IBP. Executing this transaction updates staging table /IBP/RESHEAD_EXT with the resource header data. The resource name is a text concatenation of the work center name in SAP S/4HANA or SAP ERP, plant number, and the capacity category number. Staging table /IBP/RESCAPA_EXT is filled with the available resource capacity based on the work center capacity that is maintained for the work center in Transactions CRO1/CRO2. The resource description is updated in staging table /IBP/RESDESC_EXT. Execute this transaction, and then navigate back to the SAP Menu.

To integrate routing and a BOM as the production source of supply, go to Transaction /IBP/ECC_INT_PDS, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Integration Model • Data Transfer • Initial Load of Master Data • Integrate Production Source of Supply to IBP**.

Transaction /IBP/ECC_INT_PDS allows for the integration of BOMs (Transactions CS01/CS02), routing (Transactions CRO1/CRO2), and operations with work centers as the *production source of supply* or *production data structures* to SAP IBP. For this transaction to work, the production version should be maintained in the material master maintenance (Transaction MM01/MM02) **MRP 4** view. It's possible for one finished good to have multiple production versions, but each production version is transferred as a separate source of supply to staging tables /IBP/SOSHEAD_EXT, /IBP/SOSRES_EXT, and /IBP/SOSBOM_EXT. The source of supply IDs is text concatenation of the material number, plant, production version, and source of supply type. Normally, the source of supply type is set to **S** (supply network planning type).

This transaction maps and updates the production data structures as follows:

- The routing header and the BOM header material as the production source of supply header replication table /IBP/SOSHEAD_EXT
- BOM material components in replication table /IBP/SOSBOM_EXT
- Routing operations as the source of supply activity in replication table /IBP/SOSACT_EXT
- Operation work center capacity as the source of supply capacity demand in replication table /IBP/SOSRES_EXT

Similar to Transaction /IBP/ECC_INT_TLANE (Integrate Transportation Lanes to IBP), Transaction /IBP/ECC_INT_PDS also works based on delta mode with the **Change Transfer** setting.

Before using Transaction /IBP/ECC_INT_PDS (Integrate Production Source of Supply to IBP), execute Transaction PDS_MAINT, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Maintain Master Data • Location Material • Maintain Additional Data for Production Data Structure**.

This transaction should be executed to ensure that the fixed bucket consumption and the variable bucket consumption capacities are maintained correctly in the operations data.

Figure 2.8 shows the **Maintain Additional Data for Production Data Structures** screen to maintain the bucket consumptions setting.

The screenshot shows the SAP Fiori interface for maintaining additional data for production data structures. It features two main tables:

- PDS Sources:** Shows details like Name of PDS Source of Supply in SCM, Material, Plant, Ver., T_P, Costs, Priority Discretiz., Cost Fun, BucketO, Per.Fact, Depen., and Name of PP/DS.
- Activity A Work center PrioCapacity:** Shows Valid From, Seq., Activit A, Work center, PrioCapacity, Change Number, Ping, and three columns for BucketCons (0, 0 H, 0).

Figure 2.8 Maintain Additional Data for Production Data Structure Transaction

Now you've completed the transfer of the master data to the SAP IBP staging tables.

Load Outbound Transactional Data

After the initial load of the master data is completed, the transactional data can now be transferred to the supply chain integration add-on staging tables for outbound integration. This integrated data is transferred from SAP S/4HANA or SAP ERP to SAP IBP.

To load transactional data for the first time, execute Transaction /IBP/ECC_INT_TRANS, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Data Transfer • Initial Load of Transactional Data • Initial Load of Orders and Stocks**.

This transaction updates transactional data such as sales orders, inbound/outbound deliveries, purchase orders, advanced shipping notifications, purchase requisitions, planned orders, and production orders to the replication table /IBP/ORDER_EXT; goods movements/stock data to table /IBP/STOCK_EXT; and the sales order field catalog to table /IBP/SLDFCAT_EXT. All the orders that are relevant based on the integration models are loaded as an initial update into these staging tables. For newly created orders after the proj-

ect cutover phase is completed, the data is loaded to these staging tables automatically through BTEs. During the BTEs execution, the staging tables are loaded in an update task, which doesn't reduce the performance of the business transactions. For example, when a sales order is created and saved, the execution time of the sales order save isn't impacted by the loading of replication tables /IBP/ORDER_EXT and /IBP/SLDFCAT_EXT.

[Figure 2.9](#) shows the **Initial Load of Orders And Stock** screen where you can make the necessary selections.

The screenshot shows the SAP Fiori-style interface for the 'Initial Load of Orders and Stock' transaction. The top navigation bar includes the SAP logo and a back arrow. The title 'Initial Load of Orders and Stock' is displayed. Below the title, there is a search bar and a 'More' dropdown. The main content area is divided into sections: 'Material Selection', 'Object Selection', and 'Technical Settings'. In 'Material Selection', there are fields for 'Material' and 'Plant' with 'to:' buttons. In 'Object Selection', there are checkboxes for various document types: Purchase Requisition, Purchase Order, Stock, Sales Order and Outb. Delivery, Planned Order, and Production Order. In 'Technical Settings', there are fields for 'Block Size' (set to 256), 'Number of Parallel Processes' (set to 1), and 'Server Group'. There are also checkboxes for 'Display Log' (checked) and 'Save Log' (checked).

[Figure 2.9](#) Selection Screen of the Initial Load of Orders and Stock Transaction

Similar to Transaction /IBP/ECC_INT_TLANE (Integrate Transportation Lanes to IBP), Transaction /IBP/ECC_INT_TRANS (Initial Load of Orders and Stock) can also be executed in parallel mode.

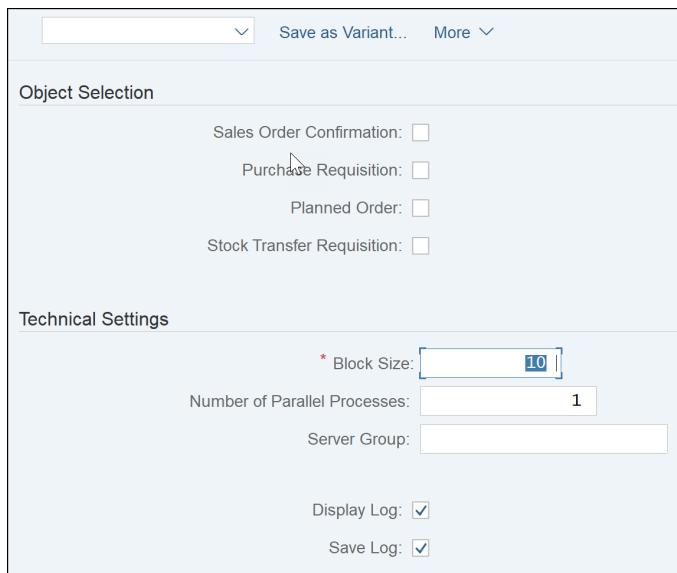
Load Inbound Transactional Data

Transaction /IBP/ECC_INB_ORD converts the uploaded data in staging table /IBP/ORDER_0_EXT into the SAP S/4HANA or SAP ERP applications. The staging table is filled when the outbound SAP HANA smart data integration application job is executed in SAP IBP, as explained in the [Configure SAP Integrated Business Planning Remote Data Source](#) section.

To load inbound transactional data from the staging table to the application, execute Transaction /IBP/ECC_INB_ORD or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Data Transfer • Send and Receive Data • Order Inbound**.

All the order-based data is loaded either from SAP HANA smart data integration or SAP Cloud Platform Integration for data services into staging table /IBP/ORDER_0_EXT. Normally, planned documents such as purchase requisitions, planned orders, and stock transfer requisitions are uploaded into this staging table.

[Figure 2.10](#) shows the selection screen of Transaction /IBP/ECC_INB_ORD (Order Inbound).



[Figure 2.10](#) Selection Screen of the Order Inbound Transaction

Similar to Transaction /IBP/ECC_INT_TLANE (Integrate Transportation Lanes to IBP), Transaction /IBP/ECC_INB_ORD allows parallel processing to improve the performance by reducing the usage of memory and execution runtimes. The selection screen doesn't have the selection based on material or plant because the business process requires all the transactional data to be converted and available in near real-time in the SAP S/4HANA or SAP ERP applications. But uploading selective data to this replication table is possible through SAP HANA smart data integration or SAP Cloud Platform Integration for data services.

Some documents uploaded to this replication table might not update successfully in the applications due to various application-specific reasons. In such cases, the entries in replication table /IBP/ORDER_0_EXT remain with error messages. These errors are visible in Transaction /IBP/ECC_INB_ORD (Order Inbound) after the execution. If you want to monitor and reprocess such erroneous documents, use the Order Inbound Monitor via **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Data Transfer • Send and Receive Data • Order Inbound Monitor**.

Reconcile Transactional Data

Due to update failures, documents might not be updated into the outbound staging tables /IBP/ORDER_EXT, /IBP/SLDFCAT_EXT, and /IBP/STOCK_EXT. In such situations, you can reconcile the transactional data by executing Transaction /IBP/ECC_REC_TRANS or by navigating to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Data Transfer • Reconciliation of Transactional Data • Reconciliation of Orders and Stock**.

The selection screen of this transaction is like Transaction /IBP/ECC_INT_TRANS (Initial Load of Orders and Stock). Based on the selection criteria, the transaction first deletes all the selected data from staging tables /IBP/ORDER_EXT, /IBP/SLDFCAT_EXT, and /IBP/STOCK_EXT and then reloads the staging tables from the SAP S/4HANA or SAP ERP application tables.

Deletion

As part of the data lifecycle, some of the master data and transactional data becomes obsolete and isn't relevant for planning. To delete the obsolete data from the staging table, use the deletion Transaction /IBP/ECC_DEL_ALL, or navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Data Transfer • Deletion • Delete Master Data and Transactional Data from IBP**.

The master data can be deleted only after the relevant transactional data is deleted from the system. For example, if you want to delete the master data, the transactional data relevant to this master data should be deleted first.

Figure 2.11 shows the **Delete Master Data and Transactional Data from IBP** selection screen.

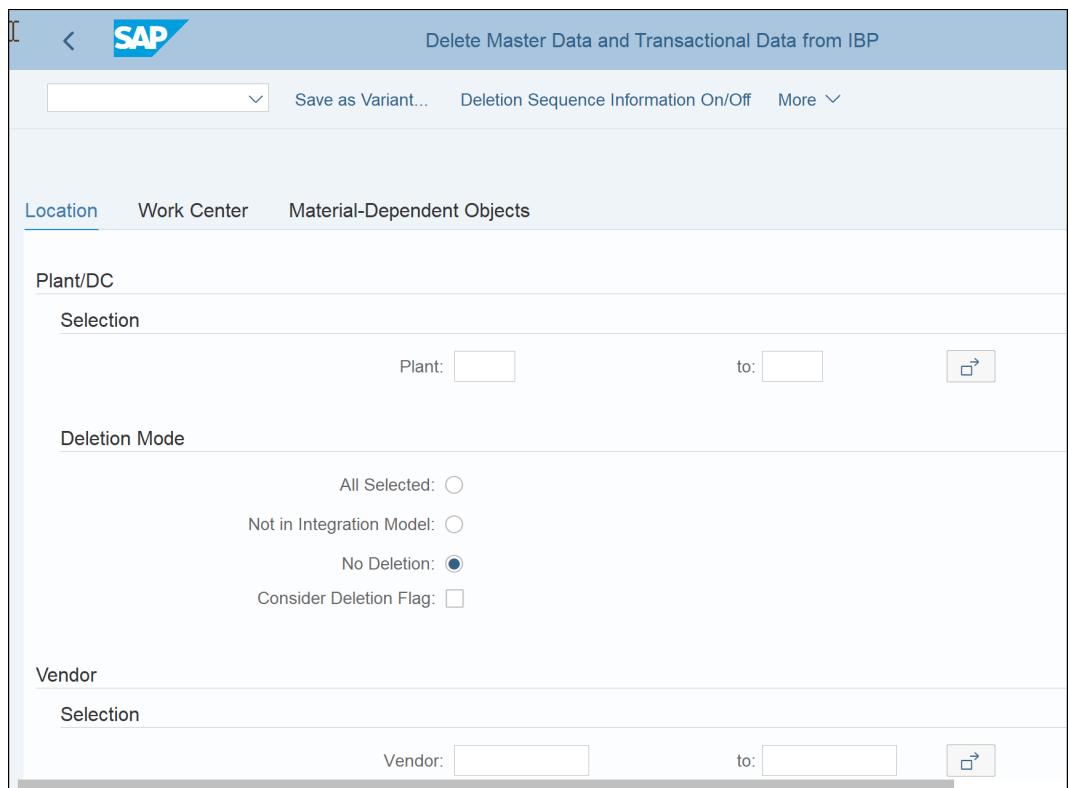


Figure 2.11 Delete Master Data and Transactional Data from SAP IBP Screen

There are three tabs for data deletion:

■ **Location**

This tab allows the deletion of plant/distribution centers, vendors, and customers. There are multiple deletion modes to delete the location master data, as follows:

- **All Selected:** Deletes the plant specified in the plant selection.
- **Not in Integration Model:** Deletes those plants that aren't part of the integration model.
- **No Deletion:** Selected plants aren't deleted. This deletion mode is the default mode to ensure that data isn't deleted by mistake.
- **Consider Deletion Flag:** Deletes the data based on the deletion flag set in the staging tables.

Note

The deletion mode explained is specific for location master data. Similar deletion mode also exists for work center and material-dependent objects sub screens. The deletion mode explained also can be generalized to these sub screens.

■ **Work Center**

This tab allows users to delete work centers. To delete a work center, all the production data structures that have the work center as the resource should be deleted first.

■ **Material-Dependent Objects**

This tab allows users to delete material-dependent master data and transactional data objects. Caution should be exercised that the deletion of the data is agreed upon by the business users. This report normally isn't scheduled as a batch job and is executed on an ad hoc basis.

In some order-based planning scenarios, the master data and transactional data might not be relevant for planning, but the business users might need it to view the historical data in the SAP IBP system. In such scenarios, rather than deleting the data from SAP IBP, the replication tables provide the

option to mark such data as **Planning non-relevant**. The planning nonrelevant data is still integrated to SAP IBP, but the planning application jobs in SAP IBP don't consider this data for planning.

Caution

Only users who have administrative rights should be allowed to delete master data or transactional data from SAP IBP.

Monitoring

All the transactions to integrate master data and transactional data are capable of creating application logs. The application logs can be saved by setting the **Save Log** option in the selection screen of the supply chain planning interface transactions. These logs can be accessed and analyzed by choosing **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Monitoring • Analyze Application Log**.

Figure 2.12 shows the **Analyze Application Log** selection screen.

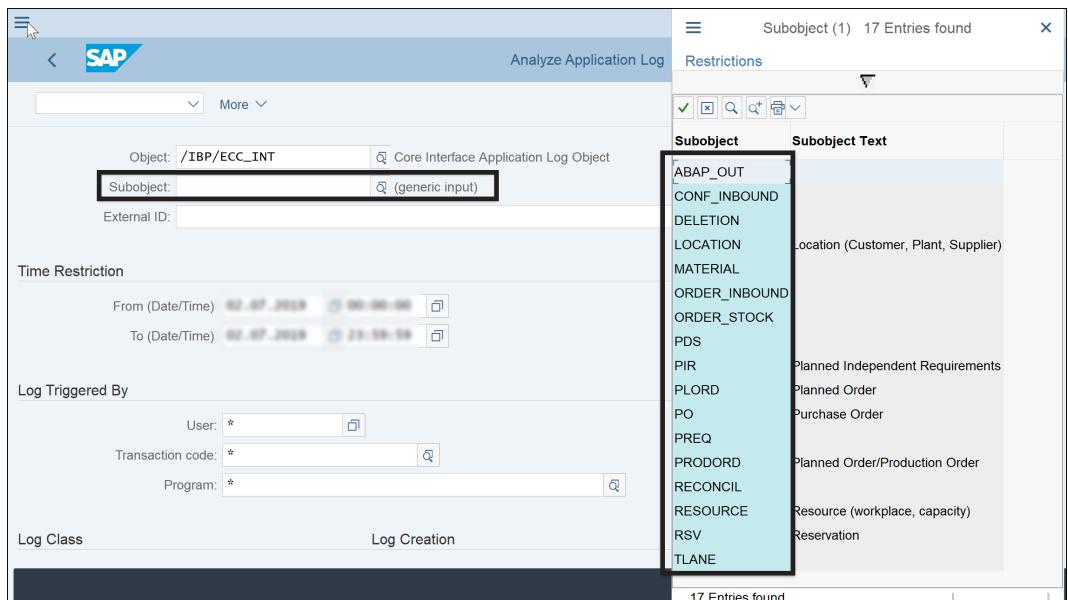


Figure 2.12 Analyze Application Log Screen

For **Object /IBP/ECC_INT**, there are multiple subobjects. Based on the type of master data or transactional data, you can choose the **Subobject** in the selection screen and provide the **From (Date/Time)** and **To (Date/Time)**. On execution of this transaction, the system will display all the relevant logs.

These application logs grow in volume if the application logs are switched on. These logs can be deleted periodically as a batch job by choosing **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Monitoring • Delete Application Log**.

Business Add-Ins

Many nonsupported business scenarios are possible in SAP S/4HANA and SAP ERP that might require data transformation to allow SAP IBP to plan. For example, as of SAP IBP 1905, the subcontracting scenario and planning with MRP areas aren't supported. For the subcontracting scenario, planning of materials and its packaging is executed by the manufacturers. The subcontractor will execute the operations to package the finished goods by procuring the material and its packaging from the manufacturer. In such a scenario, vendors from SAP S/4HANA or SAP ERP must be integrated as plants into SAP IBP to allow planning on the subcontracting vendor.

The subcontracting scenario involves transformation of the vendor as plant in SAP IBP. Materials should be created at the transformed vendor, which is represented in SAP IBP as a plant. Subcontracting transactional data that is integrated from SAP IBP to SAP S/4HANA or SAP ERP must be mapped as subcontracting purchase requisitions.

Similarly, MRP areas currently aren't supported in SAP IBP. To allow SAP IBP to plan on MRP areas, the MRP areas need to be integrated as plants in SAP IBP. The standard supply chain integration add-on transactions might not have all the fields for filtering the data to be integrated. For example, Transaction **/IBP/ECC_INT_MAT** (Integrate Materials to IBP) doesn't have material type or MRP controller as filters.

To realize such scenarios in SAP IBP and to have transformation and filtering capabilities, the supply chain integration add-on has BAdIs in the master

data and transactional data for this purpose. The master data and transactional data outbound BAdIs are executed before the master data and transactional data are updated in the supply chain integration add-on staging tables. For example, to transform the subcontracting vendor to be mapped as a plant in SAP IBP, use the /IBP/ECC_SAVE_LOCATION BAdI. This BAdI is called before the data is updated into staging table /IBP/LOC_EXT.

This BAdI has three methods:

- **SAVE_LOCNO**

The location number can be changed in this method.

- **SAVE_LOC**

The /IBP/LOC_EXT fields can be transformed in this method. As of the SAP IBP 1905 release, this method has been deprecated.

- **SAVE_LOC_MASS**

This is like the SAVE_LOC method, but it's used for mass changes where more than one location can be transformed.

Note

Similar to the BAdI explained for location master data, there are BAdIs for other master data objects that are self-explanatory. You can find a list of BAdIs in Transaction SPRO by choosing **Integration with Other SAP Components • Integrated Business Planning • Business Add-Ins (BAdI)**. If there are any fields that don't exist in the staging tables, then the custom fields of the staging tables can be used, and their field values can be updated through the BAdIs. These staging tables also can be enhanced to have more custom fields whose data can be updated through this BAdI.

Note, however, that these added custom fields can't be integrated to SAP HANA smart data integration, but they can be integrated through SAP Cloud Platform Integration for data services. More information on this is provided in [Section 2.3](#).

Transaction data inbound BAdIs are executed during the execution of Transaction /IBP/ECC_INB_ORD (Order Inbound). BAdIs that are available for data filtering and transformation are as follows:

- **/IBP/ECC MODIFY_REQ**
Data transformation for purchase requisition integrated from staging table /IBP/ORDER_O_EXT to SAP S/4HANA or SAP ERP *purchasing*.
- **/IBP/ECC MODIFY_PLANNED_ORDER**
Data transformation for planned orders integrated from staging table /IBP/ORDER_O_EXT to SAP S/4HANA or SAP ERP *production*.

2.3 Integration for Tactical and Time Series-Based Planning

In the previous section, you learned about different inbound/outbound integration strategies for time-series data between SAP IBP and SAP S/4HANA or SAP ERP. To enable time series-based data integration, you'll need to set up SAP Cloud Platform Integration for data services. The following sections describe setup and interface development details.

Set Up SAP Cloud Platform Integration for Data Services

To set up and configure SAP Cloud Platform Integration for data services, you need to install SAP Data Services agent, set up the supply chain integration add-on, and enhance the add-on selection structures. The following sections provide further details.

Install SAP Data Services Agent

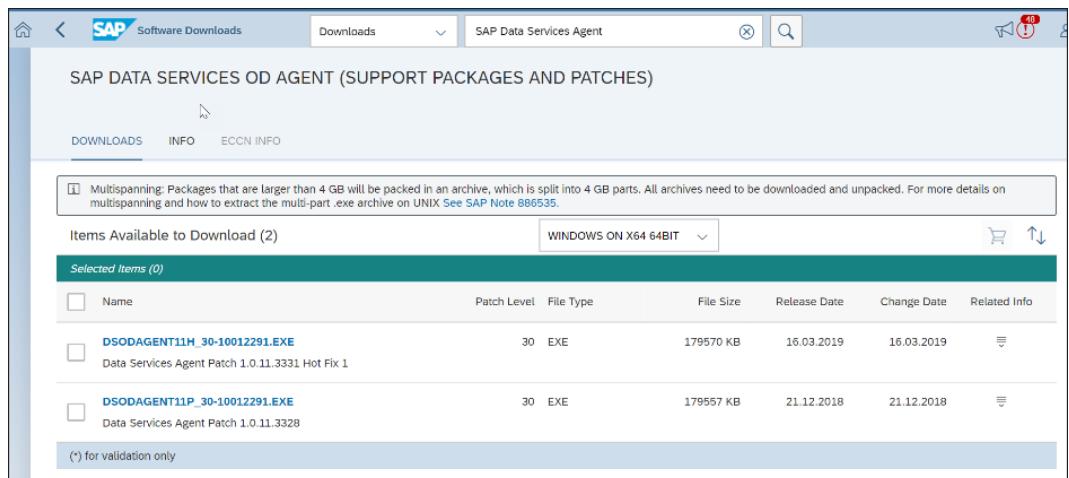
SAP Data Services agent installation is required to connect on-premise systems with SAP Cloud Platform Integration and ensure secure connectivity between on-premise systems and SAP Cloud Platform Integration. SAP Data Services agent can be installed on on-premise Microsoft Windows or Linux servers. You can have multiple SAP Data Services agents to handle large-volume scenarios or to support failover. SAP Data Services agent should be accessible and in running state during integration. If the agent is installed on a machine running the Windows operating system (OS), by de-

fault, the agent is installed in the *C:\Program Files\SAP\DataServicesAgent* path.

Note

On Windows systems, support is restricted to a single agent on one system.

To begin the process of installation, go to the SAP ONE Support Launchpad (<https://launchpad.support.sap.com>), and search for “SAP Data Services agent” under **Downloads**. In the results list, click on **SAP Data Services OD Agent** to view the latest available patches. Download the most recent patch, and follow the steps given in the *SAP Data Services Agent Guide* (https://help.sap.com/cpi_ds) to complete the installation and configuration of SAP Data Services agent. Note that you’ll have to create an RFC destination for SAP Cloud Platform Integration for data services within the SAP S/4HANA or SAP ERP system using Transaction SM59. [Figure 2.13](#) shows the SAP Cloud Platform Integration for data services download page.



[Figure 2.13](#) Downloading SAP Cloud Platform Integration for Data Services Agent

After the agent installation, you can configure the agent by selecting the configure agent program from the Windows menu path: **Start Menu • Programs • SAP Data Services Agent • Configure Agent**.

Data Flow and the Supply Chain Integration Add-On

[Figure 2.14](#) shows the data flow between SAP IBP and SAP S/4HANA or SAP ERP for time series-based data integration. Before starting development of the SAP Cloud Platform Integration for data services interfaces, you need to ensure that the time series-based planning area is set up in SAP IBP and that the application/staging tables are successfully activated. From the source system (SAP S/4HANA or SAP ERP), identify the list of data objects to be integrated.

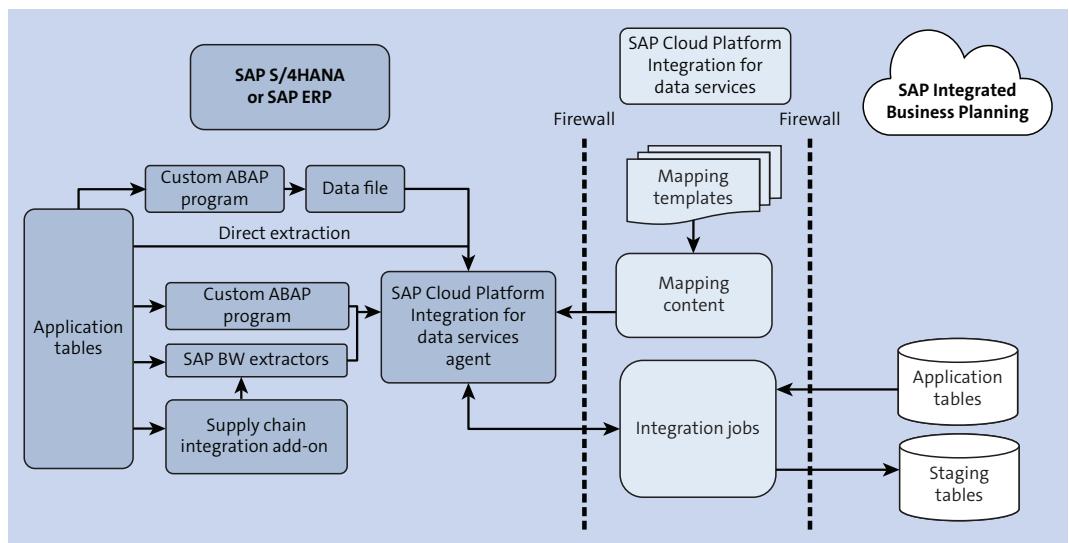


Figure 2.14 SAP Cloud Platform Integration for Data Services Architecture and Data Flow

The supply chain integration add-on provides extractors and an extractor framework to integrate relevant master data and transactional data. Following are the extractors:

- /IBP/S_ETS_CAPASUPPLY_KF_ALL
- /IBP/S_ETS_LOCATION_ATTR_ALL
- /IBP/S_ETS_LOCPROD_ATTR_ALL
- /IBP/S_ETS_ORDER_KF_ALL

- /IBP/S_ETS_PRODSRCITM_ATTR_ALL
- /IBP/S_ETS_PRODUCT_ATTR_ALL
- /IBP/S_ETS_PRODUCT_TEXT_ALL
- /IBP/S_ETS_PRODUCTUOM_ATTR_ALL
- /IBP/S_ETS_RESLOC_ATTR_ALL
- /IBP/S_ETS_RESOURCE_ATTR_ALL
- /IBP/S_ETS_RESOURCE_TEXT_ALL
- /IBP/S_ETS_SOURCELOC_ATTR_ALL
- /IBP/S_ETS_SRCPROD_ATTR_ALL
- /IBP/S_ETS_STOCK_KF_ALL
- /IBP/S_ETS_TIMEPRF_ATTR_ALL
- /IBP/S_ETS_UOM_ATTR_ALL
- /IBP/S_ETS_UOM_TEXT_ALL

You can add additional custom fields to these extractors by enhancing them using Transaction RSA6. Additionally, you can add these custom fields to selection screens and update values using BAdIs.

Enhancing Selection Structure

Two options are available to update values into custom fields that are added to extractors. In the first option, there will be an automatic move corresponding from the source replication tables. In this option, the framework will determine the field mapping between extractor tables and staging tables by ignoring any suffixes and customer namespace (ZZ or ../../). If the search is successful, values from the staging table will be copied automatically.

[Table 2.1](#) lists the available extractors, corresponding staging tables, and BAdIs.

Extractor	Staging Tables	Staging Table BAdls
/IBP/LOCATION_ATTR	/IBP/LOC_EXT	/IBP/ECC_SAVE_LOCATION
/IBP/PRODUCT_ATTR	/IBP/MARA_EXT	/IBP/ECC_SAVE_MATERIAL
/IBP/PRODUCT_TEXT	/IBP/MAKT_EXT /IBP/MARA_EXT	/IBP/ECC_SAVE_MATERIAL
/IBP/RESOURCE_ATTR	/IBP/RESHEAD_EXT	/IBP/ECC_SAVE_WORK_CENTER
/IBP/RESOURCE_TEXT	/IBP/RESDESC_EXT /IBP/RESHEAD_EXT	/IBP/ECC_SAVE_WORK_CENTER
/IBP/LOCATIONPRODUCT_ATTR	/IBP/MARC_EXT /IBP/MARA_EXT	/IBP/ECC_SAVE_MATERIAL
/IBP/RESOURCELOCATION_ATTR	/IBP/RESHEAD_EXT /IBP/RESCAPA_EXT (current date only) /IBP/LOC_EXT	/IBP/ECC_SAVE_WORK_CENTER /IBP/ECC_SAVE_LOCATION
/IBP/SOURCEPRODUCTION_ATTR	/IBP/SOSHEAD_EXT /IBP/MARC_EXT	/IBP/ECC_SAVE_PDS /IBP/ECC_SAVE_MATERIAL
/IBP/PRODUCTIONSOURCEITEM_ATTR	/IBP/SOSBOM_EXT /IBP/SOSHEAD_EXT /IBP/MARC_EXT	/IBP/ECC_SAVE_PDS /IBP/ECC_SAVE_MATERIAL
/IBP/PRODUCT_UOM_ATTR	/IBP/MARM_EXT /IBP/MARA_EXT	/IBP/ECC_SAVE_MATERIAL
/IBP/UNIT_OF_MEASURE_ATTR	RST006 (structure)	N/A
/IBP/UNIT_OF_MEASURE_TEXT	RSLANGUSEL (structure) RST006A (structure) RST006 (structure)	N/A
/IBP/CAPASUPPLY_KF	/IBP/RESCAPA_EXT /IBP/RESHEAD_EXT /IBP/LOC_EXT /IBP/ETS_TIMEPRF	/IBP/ECC_SAVE_WORK_CENTER

Table 2.1 Supply Chain Integration Add-On Extractors, Corresponding Staging Tables, and BAdls

Extractor	Staging Tables	Staging Table BAdls
/IBP/ORDER_KF	/IBP/ORDER_EXT /IBP/MARC_EXT /IBP/ETS_TIMEPRF	/IBP/ECC_SAVE_ORDER_STOCK
/IBP/STOCK_KF	/IBP/STOCK_EXT /IBP/MARC_EXT /IBP/MARA_EXT	/IBP/ECC_SAVE_ORDER_STOCK
/IBP/SOURCELOCATION_ATTR	/IBP/TLANE_EXT /IBP/MARC_EXT	/IBP/ECC_SAVE_TLANE

Table 2.1 Supply Chain Integration Add-On Extractors, Corresponding Staging Tables, and BAdls (Cont.)

The second option is to implement the BAdI /IBP/BADI_ES_ETS_SELECTION of the enhancement spot /IBP/ES_ETS_SELECTION to update values if option one isn't feasible. [Table 2.2](#) shows the BAdls for enhancing the selection structure of the supply chain integration add-on.

Extractor	Extractor Structure	Structure of BAdl Table Parameter CT_ITAB	Implementing Class
/IBP/LOCATION_ATTR	/IBP/S_ETS_LOCATION_ATTR_PUB	/IBP/S_ETS_LOCATION_ATTR_ALL	/IBP/CL_ETS_GET_LOCATION_ATTR
/IBP/PRODUCT_ATTR	/IBP/S_ETS_PRODUCT_ATTR_PUB	/IBP/S_ETS_PRODUCT_ATTR_ALL	/IBP/CL_ETS_GET_PRODUCT_ATTR
/IBP/PRODUCT_TEXT	/IBP/S_ETS_PRODUCT_TEXT_PUB	/IBP/S_ETS_PRODUCT_TEXT_ALL	/IBP/CL_ETS_GET_PRODUCT_TEXT
/IBP/RESOURCE_ATTR	/IBP/S_ETS_RESOURCE_ATTR_PUB	/IBP/S_ETS_RESOURCE_ATTR_ALL	/IBP/CL_ETS_GET_RESOURCE_ATTR
/IBP/RESOURCE_TEXT	/IBP/S_ETS_RESOURCE_TEXT_PUB	/IBP/S_ETS_RESOURCE_TEXT_ALL	/IBP/CL_ETS_GET_RESOURCE_TEXT
/IBP/LOCATIONPRODUCT_ATTR	/IBP/S_ETS_LOCPROD_ATTR_PUB	/IBP/S_ETS_LOCPROD_ATTR_ALL	/IBP/CL_ETS_GET_LOCPROD_ATTR

Table 2.2 BAdls for Enhancing the Selection Structures of the Supply Chain Integration Add-On

Extractor	Extractor Structure	Structure of BAdI Table Parameter CT_ITAB	Implementing Class
/IBP/RESOURCELOCATION_ATTR	/IBP/S_ETS_RESLOC_ATTR_PUB	/IBP/S_ETS_RESLOC_ATTR_ALL	/IBP/CL_ETS_GET_RESLOC_ATTR
/IBP/PRODUCT_UOM_ATTR	/IBP/S_ETS_PRODUCTUOM_ATTR_PUB	/IBP/S_ETS_PRODUCTUOM_ATTR_ALL	/IBP/CL_ETS_GET_PROD_UOM_ATTR
/IBP/UNIT_OF_MEASURE_ATTR	/IBP/S_ETS_UOM_ATTR_PUB	/IBP/S_ETS_UOM_ATTR_ALL	/IBP/CL_ETS_GET_UOM_ATTR
/IBP/UNIT_OF_MEASURE_TEXT	/IBP/S_ETS_UOM_TEXT_PUB	/IBP/S_ETS_UOM_TEXT_ALL	/IBP/CL_ETS_GET_UOM_TEXT
/IBP/SOURCEPRODUCTION_ATTR	/IBP/S_ETS_SRCPROD_ATTR_PUB	/IBP/S_ETS_SRCPROD_ATTR_ALL	/IBP/CL_ETS_GET_SRCPROD_ATTR
/IBP/PRODUCTIONSOURCEITEM_ATTR	/IBP/S_ETS_PRODSRCITM_ATTR_PUB	/IBP/S_ETS_PRODSRCITM_ATTR_ALL	/IBP/CL_ETS_GET_PRDSRCITM_ATTR
/IBP/CAPASUPPLY_KF	/IBP/S_ETS_CAPASUPPLY_KF_PUB	/IBP/S_ETS_CAPASUPPLY_KF_ALL	/IBP/CL_ETS_GET_CAPASUPPLY_KF
/IBP/ORDER_KF	/IBP/S_ETS_ORDER_KF_PUB	/IBP/S_ETS_ORDER_KF_ALL	/IBP/CL_ETS_GET_ORDER_KF
/IBP/STOCK_KF	/IBP/S_ETS_STOCK_KF_PUB	/IBP/S_ETS_STOCK_KF_ALL	/IBP/CL_ETS_GET_STOCK_KF
/IBP/SOURCELOCATION_ATTR	/IBP/S_ETS_SOURCELOC_ATTR_PUB	/IBP/S_ETS_SOURCELOC_ATTR_ALL	/IBP/CL_ETS_GET_SOURCELOC_ATTR

Table 2.2 BAdIs for Enhancing the Selection Structures of the Supply Chain Integration Add-On (Cont.)

You can also define your own custom extractor based on example extractors provided by SAP. For this, you'll have to activate an example BAdI from the SAP Reference IMG by choosing **SAP Customizing Implementation Guide • Integration with Other SAP Components • Integrated Business Planning • Business Add-Ins (BAdIs)**. [Table 2.3](#) shows the custom extractors and example BAdI implementations.

Extractor	Extractor and BAdI Structure	Enhancement Implementation	Implementing Class
/IBP/ SOURCECUSTOMER_CI_ATTR	/IBP/S_ETS_S RCCUST_ATTR_CI	/IBP/ETS_SEL_ SRCCUST_CI	/IBP/CL_ETS_SEL_ SRCCUST_CI
/IBP/FORECAST_QTY_CI_ KF	/IBP/S_ETS_ FORECAST_QTY_KF_CI	/IBP/ETS_SEL_ FORECAST_QTY_CI	/IBP/CL_ETS_SEL_ FORECASTQTY_CI
/IBP/ACTUALS_QTY_CI_KF	/IBP/S_ETS_ ACTUALS_QTY_KF_CI	/IBP/ETS_SEL_ ACTUALS_QTY_CI	/IBP/CL_ETS_SEL_ ACTUALS_QTY_CI

Table 2.3 Customer Extractors and Example BAdI Implementations

To aggregate orders into time series-based key figure data, the supply chain integration add-on uses time profile data that can be uploaded using Transaction /IBP/ETSTP. You can reuse the time profile that was uploaded to SAP IBP or use the Data Integration Jobs app to download a prefilled template with the **Existing Time Periods** option.

Note

For more detailed information on using and enhancing these extractors, refer to *Administrator's Guide - SAP S/4HANA, Supply Chain Integration Add-On for SAP Integrated Business Planning* (<http://s-prs.co/v495300>).

SAP Cloud Platform Integration for Data Services Interface Development

Prepackaged data flow contents are available to extract most of the master data or transactional data using the supply chain integration add-on. There may be other data objects for which prepackaged contents may not be available. Interface development is illustrated with the master data type PRODUCT and key figure data *capacity supply of resources*.

Prerequisite

You need to set up SAP S/4HANA or SAP ERP add-on integration as discussed in [Section 2.2](#). Additionally, activate extractors using Transactions RSA9 and RSA5. In Transaction RSA5, you'll see SAP IBP extractors in the following path:

SCM-IBP-INT (SCM: Integration of SAP Integrated Business Planning) • SCM-IBP-INT-ECC-TS-IO (IBP Time-Series Based ERP Integration: Master Data) and SCM-IBP-INT (SCM: Integration of SAP Integrated Business Planning) • SCM-IBP-INT-ECC-TS (IBP Time-Series Based ERP Integration: Transactional Data).

To develop the SAP Cloud Platform Integration for data services interface, you'll need to develop inbound tasks and outbound tasks for bidirectional data integration. After development, these tasks can be executed and monitored in SAP Cloud Platform Integration for data services. The following sections provide further details.

Inbound Tasks

You need to have a data store created for the source system and target cloud application. Follow these steps to create a data store in SAP Cloud Platform Integration for data services:

1. Go to the **DATASTORES** tab, click on **Create New Datastore**, and enter the data store details, such as **Name** (e.g., “S4HANA_EUP”), **Description**, **Type**, **Agent**, and **Credentials**. For **Type**, select **SAP Business Suite Application** for SAP S/4HANA or SAP ERP. For example, [Figure 2.15](#) shows the steps to create data store and import objects.
2. Similarly, to create a data store for SAP IBP, go to the **DATASTORES** menu, click on **Create New Datastore**, and enter the data store details, such as **Name** (e.g., “SAPIBPINT”), **Description**, **Type**, **Agent**, and **Credentials**. For **Type**, select **SAP HANA Application Cloud** for SAP IBP.
3. For the master data integration, select the **S4HANA_EUP** data store, and click **Import Objects** to import the extractors available for SAP IBP integration. From the **Import Objects** screen, choose **Extractors • By Application • BW_ROOT • SCM: Integration of SAP Integrated Business Planning • IBP Time Series Based ERP Integration: Master Data • /IBP/PRODUCT_TEXT**. Click on **import**. Repeat the same steps for all master data objects that are to be integrated.

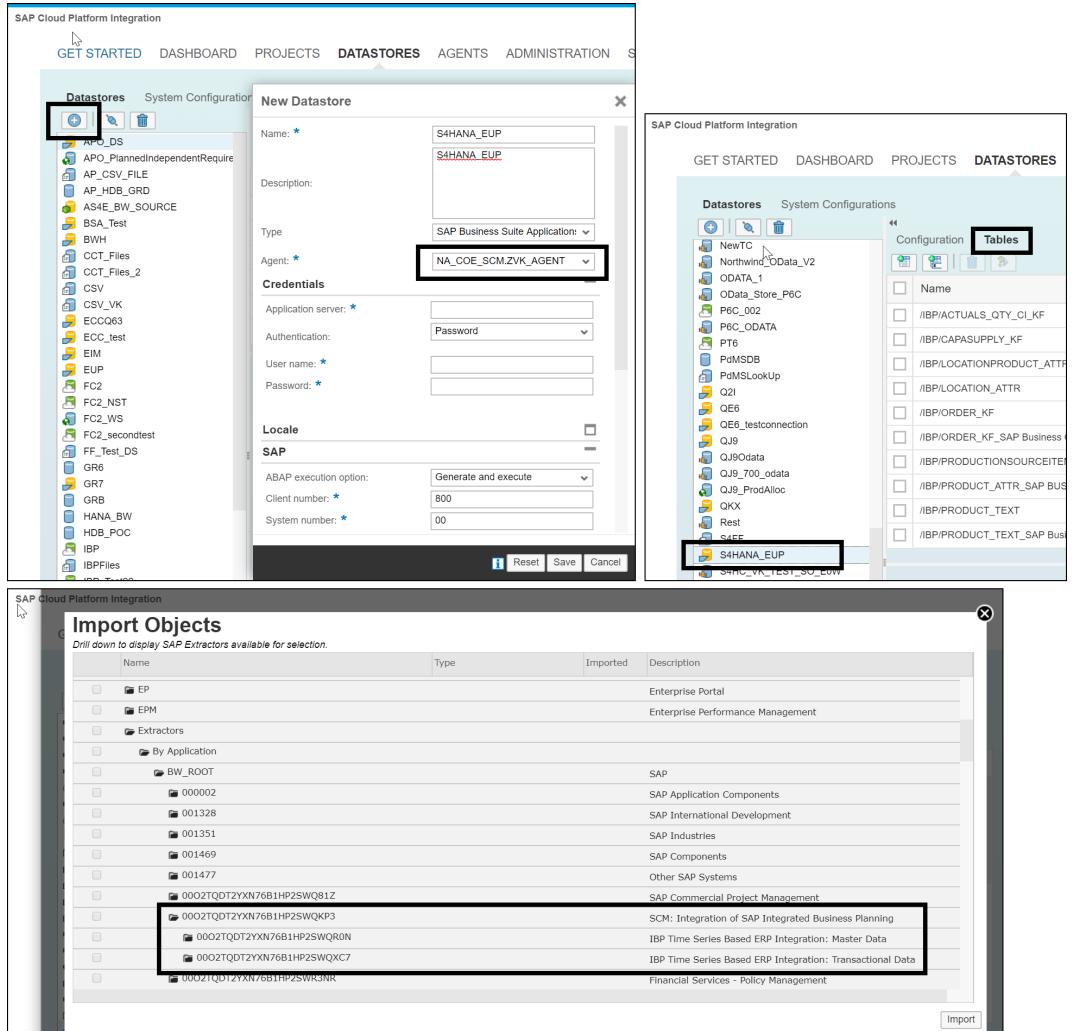


Figure 2.15 Creating a Data Store and Importing Objects

Hint

Extractors may not be visible in SAP Cloud Platform Integration for data services if they are inactive. If you don't see available extractors, go to the source SAP S/4HANA or SAP ERP system, and activate extractors using Transaction RSA6.

4. For the transactional data integration, select the **S/4HANA_EUP** data store, and click **Import Objects** to import the extractors available for integration. From the **Import Objects** screen, select **extractors • By Application • BW_ROOT • SCM: Integration of SAP Integrated Business Planning • IBP Time Series Based ERP Integration: Transactional Data • /IBP/ORDER_KF**. Click on **Import**. Repeat the same steps for all transactional data objects.
5. To import master data objects, select the **SAPIBPINT** data store, and click **Import Objects**. From the **Import Objects** screen, select **Master Data Folder • SAPIBPINT (Planning Area Name) • SOPMD_STAG_IN1PRODUCT** (IN1PRODUCT is the product master data type in SAP IBP). Click on **Import**. Repeat the same steps for all master data objects that are to be integrated with SAP IBP.
6. To import transactional data objects, select the **SAPIBPINT** data store, and click **Import Objects**. From the **Import Objects** screen, select **Timeseries Folder • SAPIBPINT (Planning Area Name) • SOPDD_STAGING_KFTAB_SAPIBP1SAPIBPINT** (each planning version will have time-series staging tables). Click on **Import**. Repeat the same steps for all transactional data.

Next, the **PROJECTS** tab of SAP Cloud Platform Integration for data services allows you to create and manage projects and tasks. Each project contains a list of tasks with data flow and mapping between the sources and targets. Design for the integration will be done under **PROJECTS**. SAP-delivered templates come with predefined data flows and mapping. If you're not using standard templates, then create custom data flows. Follow these steps to create tasks and data flows:

1. Go to the **PROJECTS** tab, and click on **New Project** to create a new project.
2. From the list of projects, select the project created in step 1, and click on **Create Task** to create a task based on the standard integration template, as shown in [Figure 2.16](#).
3. Enter the **Name** and **Description**.
4. Select **IBP_MD_S4_ERP_AddOn** from the templates listed in the table. Ensure that you select the template that is released for the most recent SAP IBP version. Click **Next**.

Projects: All Projects(46)								Organization: NA_COE_SGM User: Ujwal Jetagi
Edit Create Task Create Process More Actions ▾		Status	Promoted ⓘ	Description	Changed By	Changed On (UTC)	Locked By	
Quintin_Test_Pckg					Quintin Schellin	2018.11.08.17.44.22		
> S4HANACloud_OData				S4 HANA Cloud Integration with SAP IBP	Arun Yarragudi	2018.05.15.18.24.33		
> S4_Integration_Test				S4 Integration Test	Ujwal Jetagi	2019.07.06.18.21.30		
SAPIBPINT				SAPIBPINT Integration Folder	Venu Kelkar	2019.04.27.16.28.43		

Figure 2.16 Creating a Task for the Inbound Scenario

5. As shown in [Figure 2.17](#), on screen **Source Datastores** select the data store **S4HANA_EUP** that was created before for SAP S/4HANA system. Select **Next** to proceed.

The screenshot displays the SAP Cloud Platform Integration interface for creating a task. The main window is titled "SAPIBPINT: Create Task". It is divided into three main steps: 1. Set Up, 2. Connect Source, and 3. Connect Target. Step 1 is completed with a template task named "Product_S4toBP2". Step 2, "Connect Source", shows a list of available datastores, with "S4HANA_EUP" selected. Step 3, "Connect Target", also shows a list of available datastores, with "SAPIBPINT" selected. Below the main dialog, two smaller windows are visible: one for "Source Datastores" listing "QKX" and "S4HANA_EUP", and another for "Target Datastores" listing several SAP HANA application clouds. A "Test Connection" button is present in both of these smaller windows.

Figure 2.17 Selecting the Data Store for the Inbound Scenario

6. As shown in [Figure 2.17](#), under **Target Datastores**, select the **SAPIBPINT** data store created earlier for the SAP IBP system.
7. Select **Save and Define Data Flow** to proceed.
8. In the table displaying the template task/data flow and target object for the product master data, select **SOPMD_STAG_IBPPRODUCT->IBP_MD_Product_w_Text_Addon**.
9. Click **Actions • Copy to New Target**.
10. Enter the **Data Flow Name** as “**DF_MD_PRODUCT**”. Target objects from the target data store (**SAPIBPINT**) will be displayed. A new target object can be added from the existing list by choosing one via **Choose an Existing Target Object** or by importing one via **Import a New Target Object**.
11. Choose **SOPMD_STAG_IN1PRODUCT**, and click on **Copy Data Flow**.
12. Select the newly created data flow **DF_MD_PRODUCT**, and click on **Actions->Edit** to review the data flow design. When your review is complete, click on **Done**.

Similarly, you can create a new task and data flow for transactional data by following these steps:

1. From the list of projects, select the project that was created, and click on **Create Task** to create a task based on the standard integration template data flow.
2. Enter the **Name**, and select **IBP_KF_S4_ERP_AddOn** from the list of templates in the table. Ensure that you select the template corresponding to the most recent SAP IBP release. Click **Next**.
3. Under **Source Datastores**, select the **S4HANA_EUP** data store for the SAP S/4HANA system. Select **Next** to proceed.
4. Under **Target Datastores**, select the **SAPIBPINT** data store for the SAP IBP system. Select **Save and Define Data Flow**.

5. From the table displaying the template data flow and target object for transactional data, select **SOPDD_STAGING_KFTAB_SAPIBP1SAPIBP1> IBP_KF_CapaSupply_AddOn**.
6. Click **Actions • Copy to New Target**.
7. Enter the **Data Flow Name** as “DF_KF_CAPASUPPLY”. Target objects from the target data store (SAPIBPINT) will be displayed. A new target object can be added from the existing list by choosing one via **Choose an Existing Target Object** or by importing one via **Import a New Target Object**.
8. Choose **SOPDD_STAGING_KFTAB_SAPIBP1SAPIBPINT**, and click on **Copy Data Flow**.
9. Select the newly created data flow **DF_KF_CAPASUPPLY**, and click on **Actions • Edit** to review data flow design. When your review is complete, click on **Done**.

Hint

Upload the time profile data in the SAP S/4HANA or SAP ERP system using Transaction /n/IBP/ETSTP to ensure time aggregation for key figure data.

You'll now be able to see both inbound tasks under the project folder:

- Task name for master data: **Product_S4toIBP**
- Task name for transactional data: **CapacitySupply_S4toIBP**

Outbound Tasks

You can integrate data from SAP IBP to SAP S/4HANA or SAP ERP by staging data into a CSV file or calling a SOAP web service for the target. Outbound integration for integrating planned independent requirements is illustrated using the web service approach. This template requires a web service published from a SAP S/4HANA or SAP ERP system. [Figure 2.18](#) shows the screen for Transaction SE80.

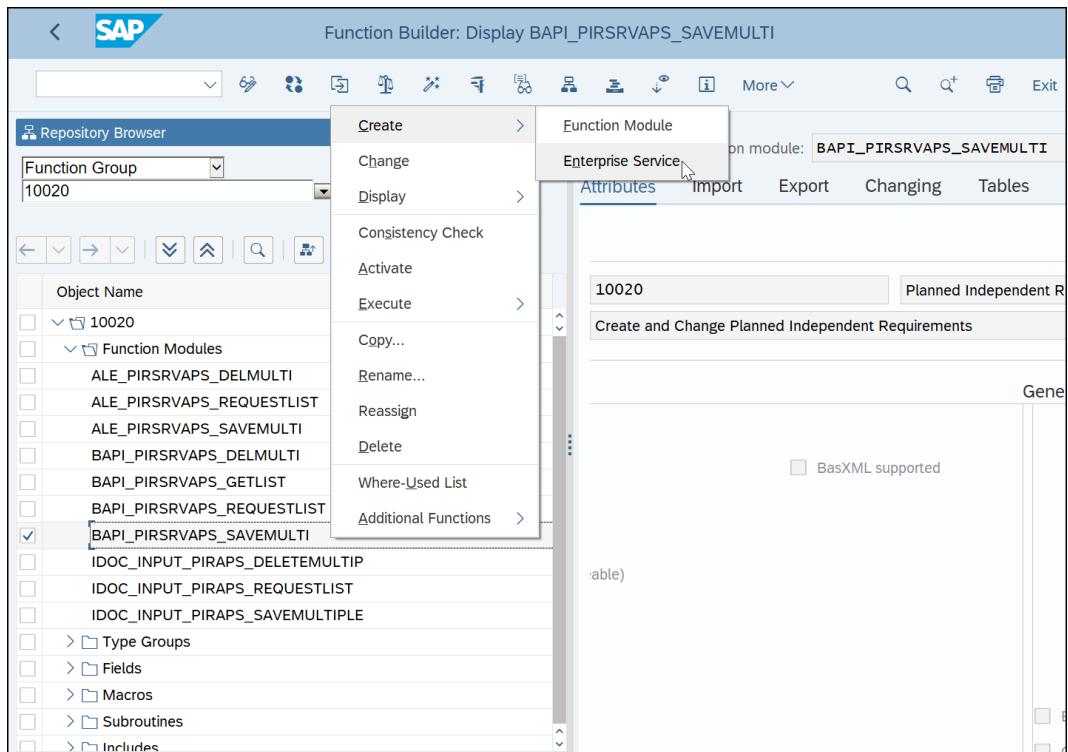


Figure 2.18 Creating a Web Service for a Function Module

Follow these steps to create and publish a web service from SAP S/4HANA or SAP ERP:

1. Navigate to Transaction SE80, open the **10020** function group, and click on **Display**.
2. Right-click on function module **BAPI_PIRSRVAPS_SAVEMULTI**, and choose **Create • Enterprise Service** or **Create • Web Service**.
3. In the guided procedure wizard popup of the web service, provide a **Service Definition** name and **Description**.
4. Select **Continue** twice, and select the authentication profile as **Authentication with User and Password, No Transport Guarantee**. Then, click the **Cont.** button.

5. Specify the **Package** and **Transport Request**. Click on **Complete** to open the **Service Definition** screen.
6. In the **Service Definition** screen, navigate to **External View**.
7. If you have multiple modules within the same web service, you can change the **External Operation** field by double-clicking on the function **BAPI_PIRSRVAPS_SAVEMULTI**. Now you've completed the service definition.
8. Create the web service by calling Transaction SOAMANAGER. On the **SOA Management** webpage, navigate to **Service Administration • Web Service Configuration**. Search for the object name, which will be the service definition you've created.
9. Click on your web service definition, navigate to the **Configurations** screen, and click on the **Create Service** button.
10. Specify the **Service Name** and the **New Binding Name** in the popup screen that appears.
11. Specify the **Transport Channel Authentication** and the **Message Authentication** to the appropriate authentication methods, and then click **Next** and **Finish**.
12. Click on the **Open Binding WSDL Generation** button. This will provide the URL that can be used as the target for the data flow.

Now you've created the web service for the inbound integration from SAP IBP to SAP S/4HANA or SAP ERP.

Next, follow these steps to create a data store with web service as a target:

1. Go to the **DATASTORES** tab, click on **Create New Datastore**, and enter the data store details, such as **Name**, **Description**, **Type**, **Agent**, and **Credentials**. For **Type** of web service, choose **SOAP Web Service**. For this example, enter the **Name** as "S4_WebService" and enter the **WSDL Path** as "WSDL URL", which was the binding URL after creating the web service.
2. Select the **S4_WebService** data store, and click **Import Objects** to import the available extractors.

3. From the **Import Objects** screen, select your web service binding name, and mark the web service to import. Click on **Import**.
4. Select the **SAPIBPINT** data store as specified in the previous section. To extract data from SAP IBP, you need to use the calculation scenario table, not the time-series tables. Click **Import Objects** to import the source table available for SAP IBP integration under **Calculation Scenario Folder**.
5. From the **Import Objects** screen, select **SAPIBPINT Calculation Scenario -> SAPSOPG001.SOPSAPIBPINTSAPIBP1SAPIBPINT**. Click on **Import**.

To create a new project, task, and data flow for the outbound scenario, follow these steps:

1. Go to **PROJECTS** tab, and click on **New Project** to create a new project.
2. Enter the **Name** and **Description**.
3. From the list of projects shown in [Figure 2.19](#), select the project created in the previous step, and click on **Create Task** to create a task based on the standard integration template.

The screenshot shows the SAP Cloud Platform Integration interface. At the top, there's a navigation bar with links for GET STARTED, DASHBOARD, PROJECTS (which is highlighted), DATASTORES, AGENTS, ADMINISTRATION, and SETTINGS. On the right, it shows 'Organization: NA_COE_SCN User: Ujwal Jetagi' and a radio button for 'Sandbox'. Below the navigation, a banner says 'Projects: All Projects(46)' with buttons for 'Edit', 'Create Task' (which is highlighted with a red box and has an arrow pointing to it), 'Create Process', and 'More Actions'. The main area is titled 'SAPIBPINTOUTBOUND: Create Task'. It has a progress bar with three steps: '1 Set Up' (highlighted with a red box), '2 Connect Source', and '3 Connect Target'. Below the steps, there are fields for 'Name: *' (containing 'PIRs_IBPtoS4') and 'Description:' (containing 'Publish PIRs to S4'). There's also a checkbox for 'Use Template'. A table below lists various tasks with columns for Name, Description, Source, Target, and Changed On (UTC). At the bottom right, there are buttons for 'Cancel', 'Previous', 'Next', and 'Save' (with a mouse cursor hovering over it).

Name	Description	Source	Target	Changed On (UTC)
IBP_DDR_KF_ERP_AddOn	IBP_DDR_KF_ERP_AddOn 1908 - Transfer aggr...	SAP Application	HANA_CLOUD_DEPOT/SNOP	2019.06.11.22.34.36
IBP_DDR_KF_to_ERP_AddOn_via_WS	IBP_DDR_KF_to_ERP_AddOn_via_WS 1908 - S...	HANA_CLOUD_DEPOT/SNOP	WEB_SERVICE	2019.07.03.12.18.09
IBP_DDR_MD_ERP_AddOn	IBP_DRP_MD_ERP_Addon 1908 - Transfer mast...	SAP Application	HANA_CLOUD_DEPOT/SNOP	2019.06.11.22.35.49
IBP_KF_Actuals	IBP_KF_Actuals - Extract actuals quantity and rev...	SAP Application	HANA_CLOUD_DEPOT/SNOP	2018.03.28.01.15.36
IBP_KF_DemandPlanning	IBP_KF_DemandPlanning - Extract demand plann...	SAP Application	HANA_CLOUD_DEPOT/SNOP	2016.11.30.16.22.46

Figure 2.19 Create Task for Outbound Scenario

4. Enter the **Name** and **Description**, and click **Next** to proceed.
5. Under **Source Datastores**, select the **SAPIBPINT** data store as specified in the previous section (see [Figure 2.20](#)). Click **Next**.

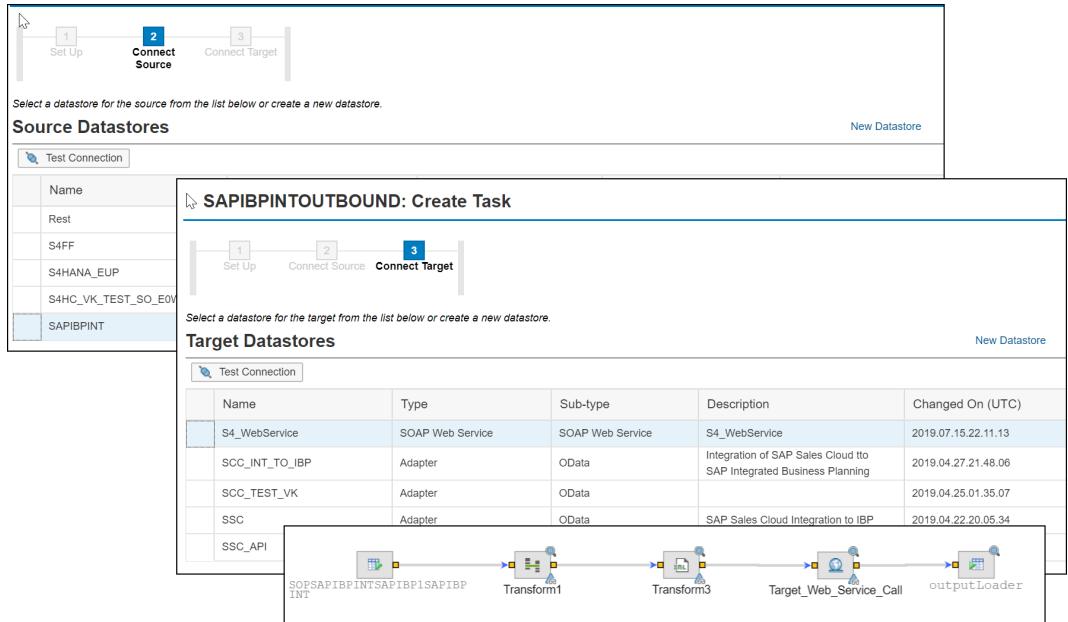


Figure 2.20 Selecting Data Stores for the Outbound Scenario

6. Under **Target Datastores** (see [Figure 2.20](#)), select the **S4_WebService** data store that was created in the previous steps. Select **Save and Define Data Flow** to proceed.
7. Click **Add Target Object** to add the web service as the target.
8. Select the web service from the list, and click **Create Data Flow**.
9. Enter the **Data Flow Name**, for example, “PIR_IBP_TO_S4”. Target objects from the target data store **S4_WebService** will be displayed.
10. Drag **Source Table** from the available transform options to add the source as the SAP IBP calculation scenario.
11. Select **SOPSAPIBPINTSAPIBP1SAPIBPINT**, and click **OK**.

12. Add a **Query Transform**, and double-click the query transform to map the required inputs.
13. Apply the required data type conversion, for example, **TSTFR** is represented as a *decimal* data type in SAP IBP and a *varchar (10)* data type in SAP S/4HANA or SAP ERP. You can edit the output field to make it *varchar (10)*.
14. Add the **XML Map** transform to map query transform data to XML format. Double-click on the **XML Map** transform.
15. Add the web service function in the **Output** section by selecting **Generate Schema • Generate Schema from Web Service Function** to create a nested schema for the web service that was created.
16. Map **Logical System**, **Planning Version**, **Product**, **Location**, **Date From**, and **Quantity** from the source to the target. **Logical System** and **Planning Version** can be modeled as global variables.
17. When you map to the table type entry on the target, select **Map the column**.
18. Connect XML map **Transform1** to **Target_Web_Service_Call**.
19. Navigate into the **Target_Web_Service_Call** transform, and map at the top-level node from the input to the output section by dragging and dropping. Click **Close** and **Done**.

You can restrict the number of records exported from SAP IBP using attribute-based filters, value-based filters, or time filters. In the query transform, you can use the **Filter** tab for this purpose.

Runtime and Monitoring

You can now go to each project, select a task, and click on **Run** to execute it. Before executing, you'll have an option to select the Data Provisioning Agent, source/target systems, and global variables. You can click on **View History** anytime to monitor and view the history of task executions and see a status of each task executed along with **Trace Log**, **Monitor Log**, and **Error**

Log. For the outbound web service scenario, a tab is also available to show you the output of web services, which is useful for troubleshooting task failures.

[Figure 2.21](#) shows an example task execution status and its logs. If there are failures, you'll also see logs on the **Error Log** tab.

The screenshot displays two tabs: 'Trace Log' and 'Monitor Log'. The 'Monitor Log' tab is selected, showing a table of task history. The table has columns: Start Time (UTC), End Time (UTC), Status, Actions, and Description. One row is shown with the start time as 2019-07-15 16:42:38 and end time as 2019-07-15 16:43:53, with a green status icon. The 'Description' column contains a link 'Click to add description'. Below the table, the 'Trace Log' tab is selected, showing a detailed log of task execution steps. The log includes timestamp, process ID, and log message for each step, such as 'JOB:Executing job post-processing on SAP HANA cloud application SNOP.' and 'JOB:Post-processing finished, details: packet=SOPMD_STAG_IN1PRODUCT, record count = 20'. The 'Error Log' tab is also visible at the bottom.

Product S4toIBP History					Clear History
	Start Time (UTC)	End Time (UTC)	Status	Actions	Description
	2019-07-15 16:42:38	2019-07-15 16:43:53	■		Click to add description

Trace Log	Monitor Log	Error Log
<pre> h9VU2V env:SANDBOX 2019-07-15 16:42:49 (2227:22444) LOADER:Hostname lookup time: 0.000000 seconds, Connect time: 0.094000 seconds, Application Connect time: 0.312000 seconds, Start transfer time: 0.672000 seconds, Total time: 0.672000 seconds. 2019-07-15 16:42:49 (2227:22444) LOADER:Uploaded size: 814.000000 bytes, Average upload speed: 1211.000000 bytes/sec, Total size of issued requests: 1722 bytes, Uploaded size before compression: 2801 bytes, Uploaded size after compression: 814 bytes. 2019-07-15 16:42:49 (2227:22276) DATAFLOW:Data flow <Product_S4toIBP_copy_DF_MD_PRODUCT> is completed successfully. 2019-07-15 16:42:49 (2227:22276) DATAFLOW:Process to execute data flow <Product_S4toIBP_copy_DF_MD_PRODUCT> is completed. 2019-07-15 16:42:49 (2220:22204) PRINTFN:INFO - Remember successful load date: 2019.07.15 16:42:42 2019-07-15 16:42:50 (2220:22204) JOB:Executing job post-processing on SAP HANA cloud application SNOP. 2019-07-15 16:42:52 (1:1) JOB:First post process status check interval is 5 seconds , Maximum time for status check is 3 hours. 2019-07-15 16:42:52 (1:1) JOB:Checking the status of post processing for application: PT6_001 2019-07-15 16:42:53 (1:1) JOB:Post-processing status will be checked again in 10 sec. 2019-07-15 16:43:10 (1:1) JOB:Checking the status of post processing for application: PT6_001 2019-07-15 16:43:10 (1:1) JOB:Post-processing status will be checked again in 15 sec. 2019-07-15 16:43:25 (1:1) JOB:Checking the status of post processing for application: PT6_001 2019-07-15 16:43:25 (1:1) JOB:Post-processing status will be checked again in 25 sec. 2019-07-15 16:43:53 (1:1) JOB:Checking the status of post processing for application: PT6_001 2019-07-15 16:43:53 (1:1) JOB:Post-processing finished, details: packet=SOPMD_STAG_IN1PRODUCT, record count = 20 2019-07-15 16:43:53 (1:1) JOB:Post processing was completed successfully. Job <PRODUCT_S4TOIBP_COPY> completed successfully. </pre>		

Trace Log	Monitor Log	Error Log		
<pre> Path Name State Row Count Elapsed time (Sec) Absolute time (Sec) ===== +Product_S4toIBP_copy_DF_MD_PRODUCT/Map_To_Target-Mapping1 STOP 20 7.115 7.812 /Products_S4toIBP_copy_DF_MD_PRODUCT/Round_Robin_Split STOP 20 0 7.813 /Products_S4toIBP_copy_DF_MD_PRODUCT/Map_To_Target STOP 20 0 7.814 /Products_S4toIBP_copy_DF_MD_PRODUCT/Map_To_Target-Mapping2 STOP 0 0 7.814 /Products_S4toIBP_copy_DF_MD_PRODUCT/Merge: 0 STOP 20 0.002 7.815 -Products_S4toIBP_copy_DF_MD_PRODUCT/Map_To_Target_SOPMD_STAG_IN1PRODUCT STOP 20 0 7.822 </pre>				

[Figure 2.21](#) View History Showing Task Execution Status and Logs

2.4 Integration for Order-Based Planning

In the [SAP HANA Smart Data Integration](#) section, you learned about SAP HANA smart data integration, and in the [Supply Chain Integration Add-On](#) section, you learned about the supply chain integration add-on. In this section, we'll build on those sections by providing more details on the setup, configuration, and internal architecture of SAP HANA smart data integration and the supply chain integration add-on. Multiple business scenarios

require data transformations to plan successfully in SAP IBP for both inbound and outbound master data and transactional data integration. This section provides the business add-on details that can aid in these data transformations.

Order-based planning helps supply chain planners react to supply chain disruptions in a short-term horizon, which normally is in days to weeks.

Note

A prerequisite for setting up integration for order-based planning is to have a copy of sample order-based planning area SAP7. The sample SAP7 planning area can be copied through the Sample Model Entities in SAP IBP app.

Figure 2.22 shows the integration steps necessary for order-based planning. In the following sections, we'll show you how to perform these steps.

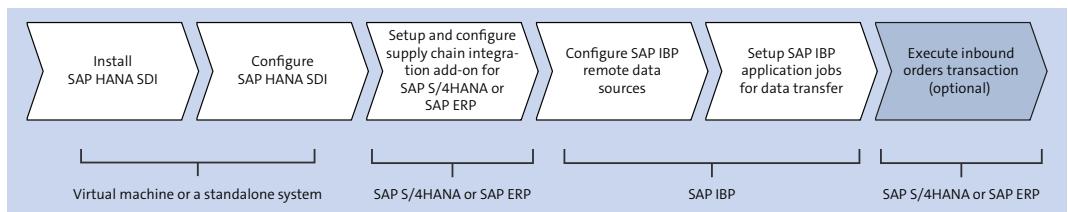


Figure 2.22 Integration for Order-Based Planning Steps

Install and Set Up SAP HANA Smart Data Integration

The first step for integrating order-based planning with SAP S/4HANA or SAP ERP is to download and install the SAP HANA smart data integration Data Provisioning Agent:

1. Download the Data Provisioning Agent installation from the **Downloads** section of SAP ONE Support Launchpad at <https://launchpad.support.sap.com>.
2. Search for “HANA DP Agent”, and download the latest **x86_64bit** or **x64 64bit** .SAR file (see [Figure 2.23](#)).

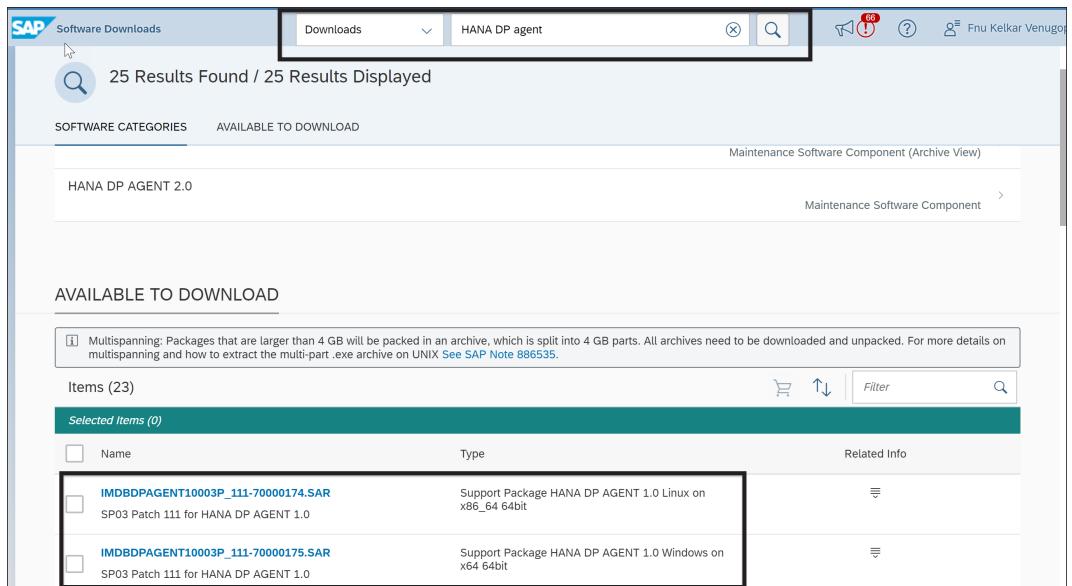


Figure 2.23 Data Provisioning Agent Installation Files

3. Download the most recent patch, and follow the steps given in the *SAP Data Services Agent Guide* (https://help.sap.com/viewer/product/HANA_SMART_DATA_INTEGRATION). Navigate to the **Installation and Upgrade** section and click on **Installation and Configuration Guide**. Further details on the installation are given in [Section 7.2](#).

Note

The installation and setup detailed is for the Windows OS. To install the Data Provisioning Agent, you must have the administrator role on the system or be part of the administrator's group.

Configure SAP HANA Smart Data Integration Add-On

Two types of adapters are predominantly used to integrate SAP S/4HANA or SAP ERP to SAP IBP through SAP HANA smart data integration: ABAP adapter or file adapter.

If you're using the RFC connections to integrate the data between SAP S/4HANA or SAP ERP and intending to use the supply chain integration add-on, then the recommendation is to create the remote source of type ABAP adapter. If you're using an ABAP adapter, the prerequisite to configure the SAP HANA smart data integration add-on are the steps listed in [Section 2.2](#). In addition, ensure that the staging tables are setup and updated with the master data and transactional data.

To transform or filter the master data and transactional data, the supply chain integration add-on has the ABAP In and ABAP Out BAdIs in SAP S/4HANA or SAP ERP, as described here:

- **/IBP/ECC_ABAP_IN**

This BAdI is called before the data is integrated into staging table /IBP/ORDER_O_EXT. This BAdI can be used to filter or transform the order data that is integrated into SAP S/4HANA or SAP ERP. Planning data that can be integrated includes planned orders, purchase requisitions, sales order confirmations, and stock transfer requisitions.

- **/IBP/ECC_ABAP_OUT**

This BAdI is called before the master data and transactional data is transferred from SAP S/4HANA or SAP ERP. Use this BAdI to filter or transform the data before integrating to SAP IBP. To differentiate between different master data and transactional data objects, the BAdI method MODIFY_DATA has the importing parameter IV_TABNAME. This parameter has the staging table name as the value.

If you're using the file adapter, see [Section 7.2](#).

Configure SAP Integrated Business Planning Remote Data Source

To start the integration between SAP IBP and SAP S/4HANA or SAP ERP systems, the remote data source should be configured in SAP IBP. Open the Configure Remote Sources – Smart Data Integration app in SAP IBP. [Figure 2.24](#) shows the **ABAPAdapter** remote source creation.

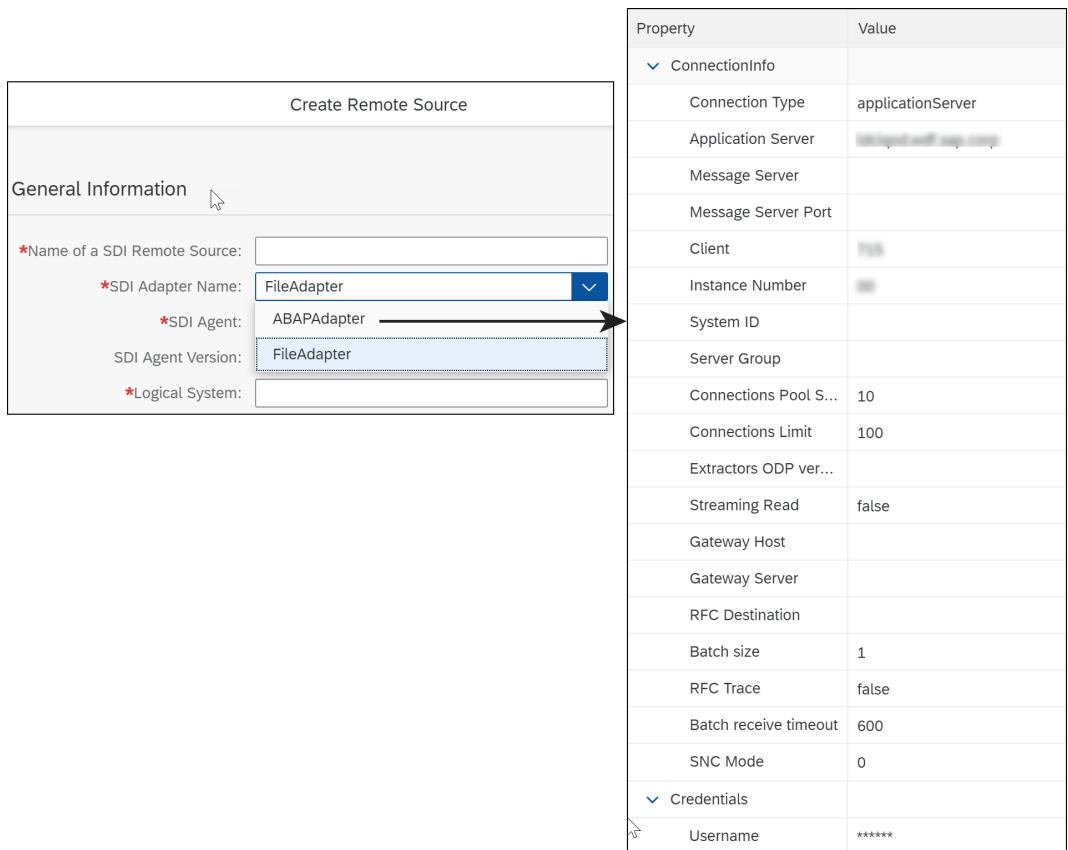


Figure 2.24 Creation of Remote Source Type ABAP Adapter

Specify the **Application Server** of the SAP S/4HANA or SAP ERP system, and maintain the **Client** and **Instance Number**. The user credentials need to be maintained as well, which are same as the RFC connection user credentials maintained in the SAP S/4HANA or SAP ERP system.

Test the remote source that you've created by selecting the **Test** button to ensure that the connection is successfully tested. Save your changes. The remote source configuration for SAP HANA smart data integration is

complete. Now you're ready to integrate data between SAP S/4HANA or SAP ERP and SAP IBP.

First, there are three application jobs in SAP IBP that can be scheduled to transfer master data and transactional data using the following SAP IBP application job templates:

- **Data integration using SAP HANA smart data integration (calendar, UoM, currency)**

Schedule this job to transfer **Calendar**, **Unit of Measure**, and **Currency** data from SAP S/4HANA or SAP ERP. This application job can be scheduled weekly or depending on the frequency of changes via **Scheduling Options • Recurrence Pattern**.

- **Data integration using SAP HANA smart data integration (inbound)**

Schedule this job to transfer master and/or transactional data from SAP S/4HANA or SAP ERP to SAP IBP. This application job has the parameter **OpenAPI Version**, which can have different options:

- **<OpenAPI release version>_Full**: This option integrates both master data and transactional data. Schedule the application job with the **Scheduling Options • Recurrence Pattern** as **Daily**.
- **<OpenAPI release version>_Trans**: This option integrates only transactional data. Runtime with this value will be much faster compared to the option **<OpenAPI release version>_Full**.

Note

The value of **<OpenAPI release version>** changes for every quarterly release, for example, **1905.0.0** for the 1905 release. If you're using a recently released OpenAPI version, then the SAP HANA smart data integration agent adapter should be upgraded to the corresponding version.

- **Data integration using SAP HANA smart data integration (outbound)**

Schedule this application job to transfer transactional data to SAP S/4HANA or SAP ERP. Transactional data such as sales order confirmations, purchase

requisitions, planned orders, and stock transfer requisitions are relevant for transfer. This application job has the following parameters:

Note

The prerequisite for this step is to execute order-based planning in SAP IBP so that the order data is generated.

- **Disable Auto Order Processing:** By default, when this application job is executed, Transaction /IBP/ECC_INB_ORD (Order Inbound) is automatically executed in SAP S/4HANA or SAP ERP. This transaction is explained in the [Load Inbound Transactional Data](#) section. If you set this parameter, then you don't have to execute Transaction /IBP/ECC_INB_ORD as a separate task in SAP S/4HANA or SAP ERP.
- **Integration Transfer Mode:** After the planning is executed, all the order-based data isn't updated. Use the **Delta** option to integrate only the changed data. Use the **Full** option to integrate all the data. The **Delta** option reduces the execution time of the application job.

Other filter criteria, such as **Material**, **Location**, and **MRP Controller**, provide flexibility to the business planners and administrators to integrate or publish only required data.

Schedule and execute these jobs. Ensure that they have executed successfully by checking the application job status in the Application Logs app. Now you should be able to view the master data and transactional data in SAP IBP as well as order data in SAP S/4HANA or SAP ERP.

You've now completed the end-to-end integration for order-based planning. [Figure 2.25](#) shows the integrated data for the example specified in [Section 1.3](#).

1 Stock/Requirements List as of 06:38 hrs

Stock/Requirements List as of 06:38 hrs

Material	SAPIBPINT_FG_1	SAPIBPINT_FG_1					
MRP area	1010						
Plant	1010	MRP type	XO	Material Type	FERT	Unit	
A... Date	16.07.2019	MRP el... MRP element data	Rescheduling... E... Receipt/Reqmt				
CusOrd	16.07.2019	0000004033/000010/00					100-

2 /IBP/ORDER_EXT: Display of Entries Found

Table to be searched: /IBP/ORDER_EXT Order External
Number of hits: 4 Maximum no. of hits: 500
Runtime: 0

Log System	Order No.	Order Item	Schedule MRP Elemt.	Material	Location	Batch Plan.	Seg. Pl Seg
EIMCLNT001	0000004033	10	1 VC	SAPIBPINT_FG_1	1010		2
EIMCLNT001	0002252499		PA	SAPIBPINT_FG_1	1010		2
EIMCLNT001	0002252499	1	SB	SAPIBPINT_COMP_1	1010		2
EIMCLNT001	0002252499	2	SB	SAPIBPINT_COMP_2	1010		2

3 Application Jobs

Status: Standard * Search: *From: 07/14/2019, 00:00:00 *To: 07/16/2019, 23:59:59

Jobs (433) Standard

Status	Log	Results	Steps	Description	Planned Start	Created By
Finished			1	Post-process for batch OBP Integration - M...	07/15/2019, 23:18	SAP System Pr >
Finished			1	Post-process for batch OBP Integration - M...	07/15/2019, 23:18	SAP System Pr >
Finished			1	SAPIBPINT SDI Inbound Job	07/15/2019, 23:09	_SAPI04497 >

4 View Projected Stock

Version YK7 / Base Version

Standard *

Filtered By (3): Material Number, Date Horizon for Status, Status

Req...	Goo...	Rec...	Typ...	Item...	Sour...	Mod...	Mod...	Rec...	Projected Stock
			Stock	Stock				75.000 EA	75.000 EA
07/1...		403...	Sale...	TAN	Whir...			-100... EA	-25.000 EA
07/1...	07/1...	225...	Plan...					75.000 EA	50.000 EA

Figure 2.25 Integrated Data Example through the ABAP Adapter

The **Stock/Requirements List** screen ① shows the order data in SAP S/4HANA or SAP ERP. The **Display of Entries Found** screen ② shows the data in the staging table after the add-on transactions are executed. The **Application Jobs** screen ③ shows the SAP IBP to SAP HANA smart data integration job's successful execution, and the **View Projected Stock** app screen ④ shows the integrated order data in SAP IBP.

2.5 Integration for Demand-Driven MRP

Demand-driven material requirements planning (DDMRP), also known as demand-driven replenishment (DDR), is a new concept to execute MRP but with added advantages over traditional planning.

DDR has been available in SAP S/4HANA as a standalone solution since the 1709 release. DDR was also released to market in SAP IBP 1905 onwards. In the SAP S/4HANA DDR solution, the buffer decoupling isn't determined automatically; however, in SAP IBP DDR, this step is executed automatically.

Note

The supply chain integration add-on explained in this chapter deals with the version for SAP ERP. Along with the SAP IBP 1905 release, the supply chain integration add-on has the functionality to integrate SAP ERP and SAP IBP for DDR. To integrate SAP S/4HANA to SAP IBP for DDR, the current planned release cycle for the supply chain integration add-on is 1911.

This section explains the supply chain integration add-on for SAP ERP and SAP IBP integration only—not with SAP S/4HANA.

For DDR, the supply chain integration add-on provides the functionality to do the following:

- Integrate master data and transactional data from SAP ERP through the supply chain integration add-on extractors and SAP Cloud Platform Integration for data services tasks. Further details are provided in the [Data Flow and the Supply Chain Integration Add-On](#) section.
- Integrate data derived from DDR in SAP IBP to SAP ERP through the SAP Cloud Platform Integration for data services tasks and the web service for the function group /IBP/EDD_INBOUND_INTERFACE, as specified later in [Figure 2.27](#).
- Execute the DDR planning run to create supply orders and to monitor the planning results through the DDR cockpit and other DDR-relevant transactions.

In the following sections, you'll learn how to configure SAP IBP data stores and SAP ERP for DDR.

Configure SAP Integrated Business Planning Data Stores

To start the integration process for DDR, the prerequisite is to configure the supply chain integration add-on, as mentioned in [Section 2.2](#). The steps are executed in the SAP Cloud Platform Integration for data services web UI tool.

Three data stores are required for integrating DDR:

- **SAP Business Suite application data store**

This data store represents the data store for the SAP ERP system. The [SAP Cloud Platform Integration for Data Services Interface Development](#) section shows the data store creation steps for SAP S/4HANA. A similar data store should be created for the SAP ERP system but referencing the SAP ERP system application server.

- **SAP HANA application cloud data store**

This data store represents the data store for the SAP IBP system. Ensure that the planning area is DDR-relevant (you'll find the SAP8 sample planning area in the Sample Model Entities app in SAP IBP).

- **SOAP web service data store**

This data store is used to integrate time-dependent buffer levels and decoupling points data from the SAP IBP system to SAP ERP system. This data is used as the input to the DDR planning run executed in SAP ERP. The web service must be created for the function group /IBP/EDD_INBOUND_INTERFACE, as specified later in [Figure 2.27](#).

After the data stores are created, you can create the tasks and data flows, as follows:

1. **SAP Cloud Platform Integration for data services preconfigured templates and data flows for integrating the DDR data**

[Figure 2.26](#) shows three predefined templates in SAP Cloud Platform

Integration for data services that can be readily used to copy into a new project for DDR.

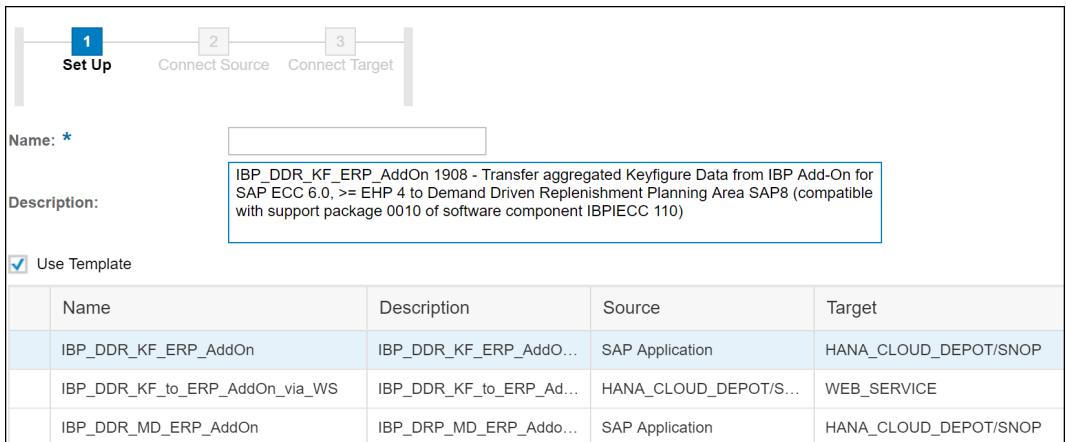


Figure 2.26 Three Predefined Templates in SAP Cloud Platform Integration for Data Services

2. Task IBP_DDR_MD_ERP_AddOn

Copy this task to integrate master data from SAP ERP to SAP IBP for DDR. The preconfigured master data flows that can be integrated are planning units, currency, customer, DDR profile, product, location, LocationProduct, production data structures, source locations, and so on. After the task is copied, create a new target, and specify the correct target master data types for the data flows.

3. Task IBP_DDR_KF_ERP_AddOn

Copy this task to integrate transactional data from SAP ERP to SAP IBP for DDR. The preconfigured transactional data flows that can be integrated are supply orders, inventory, total demand, confirmed orders, and so on. This data is integrated through the respective supply chain integration add-on extractors, such as /IBP/ORDER_KF, /IBP_STOCK_KF, /IBP/TOTAL_DEMAND_QTY_CI_KF, and so on.

4. Task IBP_DDR_KF_to_ERP_AddOn_via_WS

Copy this task to integrate the DDR data from SAP IBP to SAP ERP. Before

you copy the task, the prerequisite is to create a web service on the SAP ERP side.

Now that you've created the tasks and data flows, you can run the `IBP_DDR_MD_ERP_AddOn` and `IBP_DDR_KF_ERP_AddOn` tasks to integrate the master data and transactional data from SAP ERP. After the replenishment order recommendations are obtained from DDR, execute task `IBP_DDR_KF_to_ERP_AddOn_via_WS` and the DDR run in SAP ERP.

Configure SAP ERP

To configure the SAP ERP for DDR functions of the supply chain integration add-on, activate the business function from Transaction SPRO by choosing **Activate Business Functions • IBP DDR Heuristics for ECC (SCM_IBP_ECC_DDHH)**.

To enable the inbound integration (SAP IBP to SAP ERP), the prerequisite is to create a web service to integrate time-dependent buffer levels, decoupling points, and DDR product locations. The steps provided in this section should be executed in the SAP ERP system. [Figure 2.27](#) shows the function group to be used for creating the web service.

Use the steps explained in the [Outbound Tasks](#) section, but use the function group `/IBP/EDD_INBOUND_INTERFACE` for the web service creation.

In the service definition screen, navigate to **External View**. Double-click on function `IBP_EDD_BLT_FILL`, and change the **External Operation** field to `IbpEddTimeDependBufferLevelFill`. Similarly, navigate to `IBP_EDD_PL_FILL`, and specify the **External Operation** as `IbpEddDemandDrivenProductLocation-Fill`. Now you've completed the service definition. After the web service is created from Transaction SOAMANAGER, copy the **Binding URL**, and use this to create the target web service that will be inserted using task `IBP_DDR_KF_to_ERP_AddOn_via_WS` as the target.

You've now created the web service for the inbound integration to SAP ERP for DDR.

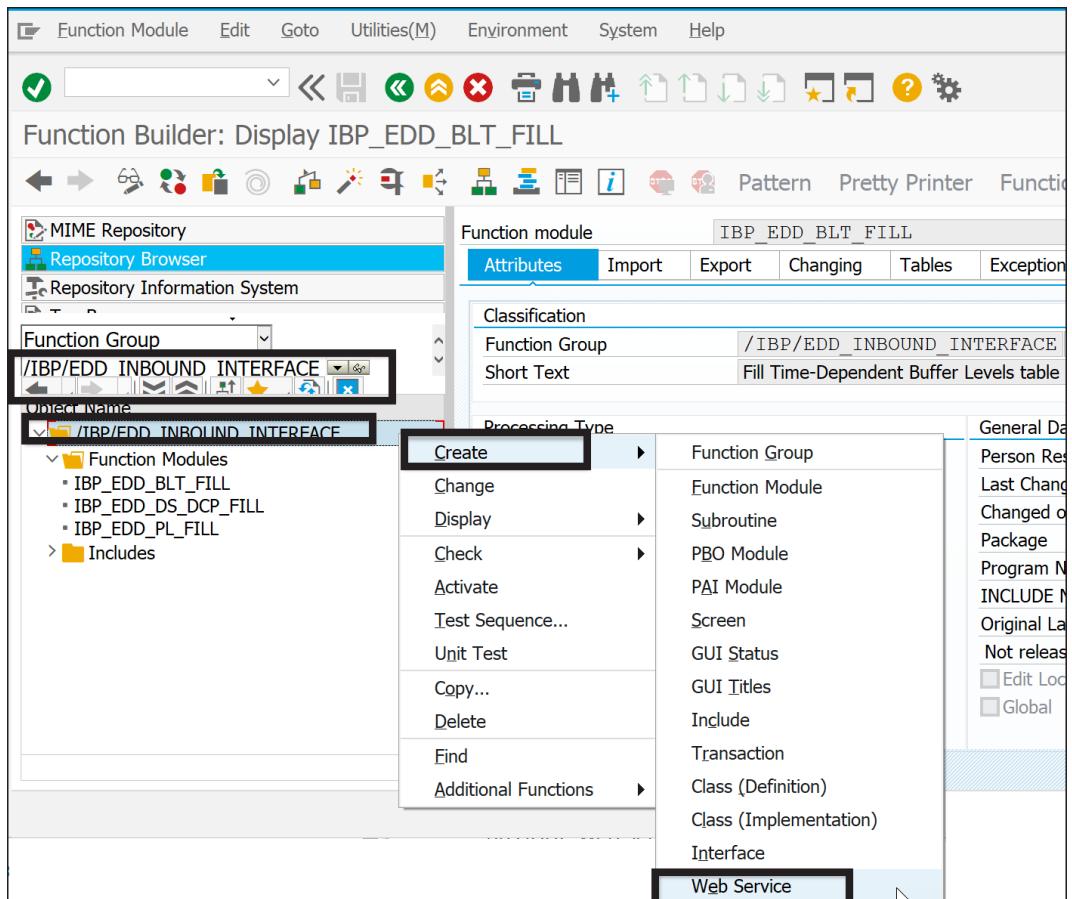


Figure 2.27 The Function Group for Creating the Web Service

Note

As of SAP IBP 1905, function group /IBP/ECC_EXT_INTERFACE is the valid web service function group. This web service function group doesn't have the corresponding template in SAP Cloud Platform Integration for data services and has been deprecated from release 1908. From SAP IBP release 1908 onwards, the function group /IBP/EDD_INBOUND_INTERFACE is valid and has the IBP_DDR_KF_to_ERP_AddOn_via_WS corresponding template in SAP Cloud Platform Integration for data services.

To access the DDR transaction, navigate to **SAP Menu • Logistics • Central Functions • Supply Chain Planning Interface • Integrated Business Planning • Demand-Driven Replenishment**.

In the DDR transaction, maintain the **Global Settings**, **Plant Settings**, and **External Interface Settings**. Then, navigate to **External Interface**. The **Demand-Driven Materials** option displays the list of location products and the integrated data to SAP ERP through function modules **IBP_EDD_PL_FILL** and **/IBP/EDD_DS_DCP**. **Decoupling Point**, **Decoupled Lead Time**, and **External Order Recommendation** published values are displayed on this screen.

The **Time-Dependent Buffer Levels** option displays the buffer levels data that is integrated through function module **IBP_EDD_BLT_FILL**, which has the quantities of the buffer levels. The buffer levels **Top of Green**, **Top of Yellow**, and **Top of Red** are displayed in the DDR transaction.

If you're using file upload to upload the data to SAP ERP, then you can use the DDR transaction, and web services won't be required. From SAP Cloud Platform Integration for data services, create the target as a file. Provide the file path in the DDR transaction to upload the data directly.

Note

Transactions **/IBP/EDD_RUN_MRP** (Demand-Driven Planning), **/IBP/EDD_MONITOR** (Monitor DDMRP Planning Runs), and **/IBP/EDD_ELEM_LIST** (Display DDMRP Element List) aren't part of the integration; they are more relevant to executing the DDR planning, so they aren't covered as part of this E-Bite.

3 Integration with SAP Demand Signal Management

In supply chain planning, there is always a need to improve the accuracy of short-term demand forecasts through demand sensing. This will ensure that the distribution centers and stores with higher customer demands are replenished in time to minimize loss of sales.

In this section, you'll learn the importance of integrating SAP Demand Signal Management and how this will improve the accuracy of short-term demand forecasts. This section will cover the data model differences between SAP Demand Signal Management and SAP IBP. You'll also learn the tools and the steps required for this integration.

3.1 Business Relevance

SAP Demand Signal Management provides a scalable and robust repository to collect and manage *point of sale* (POS) data, market, and research related data. SAP Demand Signal Management can collect, cleanse, and harmonize very high-volume and discrete data from different sources. This POS data and market-related data can then be used in SAP IBP for demand planning and demand sensing. The aim of this business process is to drive better fulfillment of demands in the short term, lower the loss of sales, and optimize inventory at retailers and stores. The business process for short-term operational planning is shown in [Figure 3.1](#).

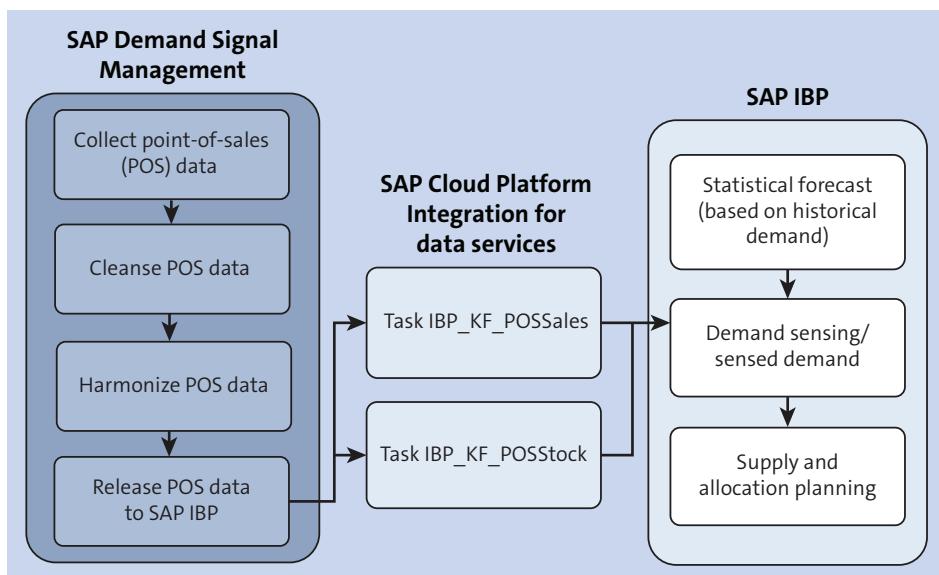


Figure 3.1 Business Process for Short-Term Operational Planning

The POS data is obtained from retailers and stores discretely from multiple sources into SAP Demand Signal Management. This discrete data is cleansed and harmonized in SAP Demand Signal Management. Harmonized data is verified and released to SAP IBP through DSOs in SAP Demand Signal Management. This released data is integrated to SAP IBP through SAP Cloud Platform Integration for data services as input to demand-sensing algorithms that drive the short-term forecast. This improved short-term forecast then drives the operational supply planning processes, such as deployment, inventory optimization, and procurement. For example, POS data can be actual sales, new product introductions, promotion-related sales, or stock on the shelves of stores or distribution centers.

When a new product is introduced to the market or there are promotional sales, the demand at different regions in a country will defer based on multiple factors, such as weather, culture, and so on. For example, if a new ice cream flavor is introduced in the market by a manufacturing conglomerate, the demand for the ice cream can vary in cold or rainy regions versus warm or hot regions. If this near real-time POS data is input during the demand sensing in SAP IBP, then the short-term demand forecast in warm and hot regions will be higher.

3.2 Prerequisites

Master data such as products that are collected in SAP Demand Signal Management need to be harmonized to ensure that the collected master data from different sources into SAP Demand Signal Management are mapped to a product master that exists in SAP IBP.

There are differences in data models in SAP Demand Signal Management and SAP IBP. The planning level in SAP IBP consists of distribution center, customer, and product in weekly buckets. The customers denoted in SAP IBP are retailers that are supplied by distribution centers of the manufacturer, which isn't the same as the customer in SAP Demand Signal Management. In other words, the combination of distribution center and customer in SAP IBP will be a retailer store in SAP Demand Signal Management. This

mapping of SAP Demand Signal Management retailer stores to distribution center and customer in SAP IBP needs to be set up in SAP Demand Signal Management and is possible through harmonization.

Note

Harmonization isn't covered in this section further as this topic is out of scope for this E-Bite.

3.3 Configuring Integration Using SAP Cloud Platform Integration for Data Services

To develop SAP Cloud Platform Integration for data services interfaces, you'll need to prepare the data in SAP Demand Signal Management, set up and configure SAP Cloud Platform Integration for data services, and execute the interfaces. The following sections provide further details.

Prepare Data in SAP Demand Signal Management

To begin, execute report /DSR/BW_CONT_INST_AND_CHECK, which gives the list of SAP Demand Signal Management business intelligence (BI) content on SAP HANA, allowing administrators to install (for both new installation and upgrades) and check whether the SAP Demand Signal Management metadata is active. This must be executed in all SAP Demand Signal Management systems within the landscape.

Navigate to Transaction RSA1 (Modeling – DW Workbench) to check the metadata. [Figure 3.2](#) shows the list of data sources, process chains, and InfoProviders in SAP Demand Signal Management that are relevant for integration.

In Transaction RSA1, create a new source system via the **Source systems ODP_BW** menu. After the system is created, replicate data sources **DS91_F** (Sales for IBP) and **DS92_F** (Stock for IBP) via the **Replicate Datasources** context menu. These two data sources will be the sources based on which you can create the data store in SAP Cloud Platform Integration for data services.

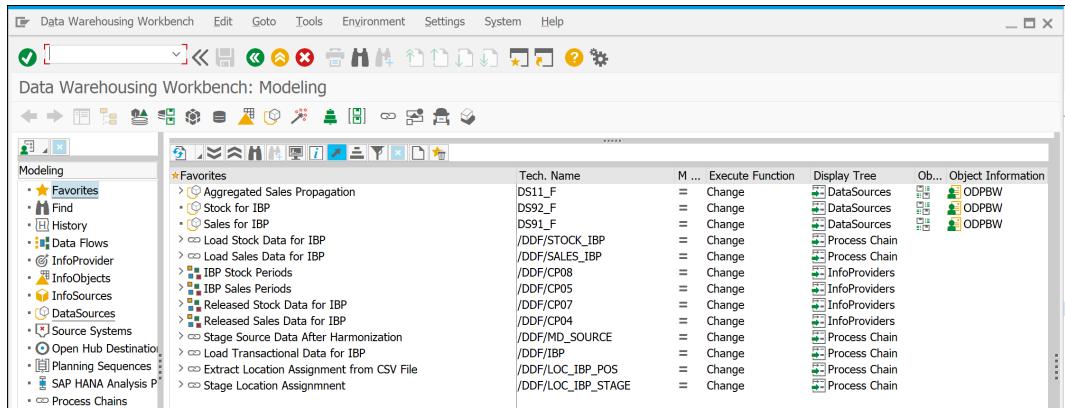


Figure 3.2 Relevant Data Sources, Process Chains, and InfoProviders in SAP Demand Signal Management

Create a source system for uploading the master data. This could be an SAP ERP system or another SAP BW system. If an upload needs to be done through the SAP ERP system, then create a source system of type **SAP** via Transaction RSA1. Similarly, for another SAP BW system, create a source system of type **BW**. You need to have an RFC connection to these systems via Transaction SM59.

Note

The connection setup to the SAP ERP system to upload master data and perform harmonization can be viewed at <http://s-prs.co/v495301>.

Customize the stock and the sales data through the IMG path: **SPRO • Cross Application Components • Demand Data Foundation • Integration with Other SAP Components • Integrated Business Planning**.

Under **Integrated Business Planning**, you'll find the following tasks:

■ General Settings

This setting allows business users to specify the start day of the week and the number of weeks for aggregation. SAP Demand Signal Management uses this Customizing to aggregate on weekly buckets based on the start day and the number of weeks.

- **Define Types of Sales Data as Relevant for IBP**

This setting is used to list the sales data types that are relevant for SAP IBP. Promotional sales data types are aggregated into one single key figure, and other sales data types are aggregated at location, which is either a retailer or a distribution center.

- **Define Stock Types as Relevant for IBP**

This setting is used to specify which stock document types are relevant for SAP IBP (e.g., unrestricted stock, blocked stock, etc.). This data is aggregated at the retailer of the manufacturer's distribution center.

The following Customizing settings are optional:

- **Define CompositeProviders for Transferring Sales Data to IBP**

- **Define CompositeProviders for Transferring Stock Data to IBP**

Normally, to transfer sales data, SAP Demand Signal Management uses the standard InfoProviders /DDF/CP04 and /DDF/CP05. For stock data, it uses /DDF/CP07 and /DDF/CP08. If you've created your own CompositeProvider, then use these Customizing settings to maintain these CompositeProviders.

The relevant data for POS data integration is transferred multiple times by the retailers. This data needs to be cleansed before integrating with SAP IBP. SAP Demand Signal Management provides two SAP Fiori apps for this purpose, as follows:

- **Release Data for IBP app**

This app provides the list of distribution centers, SAP IBP customers, and products, along with the quantities, in weekly aggregated format. This app enables you to set the SAP IBP relevant statuses to the data (**Pending**, **Outdated**, and **Released**). Rows that have **Pending** or **Outdated** statuses are filtered during data integration, and only **Released** data is sent to SAP IBP.

- **Mass Release to IBP app**

This app allows you to release multiple combinations of distribution centers, customers, and periods. Through the filter function, you can filter the relevant customers, distribution centers, and locations. You can also select rows en masse and set the status to **Released**.

Set Up SAP Cloud Platform Integration for Data Services

To transfer the data from SAP Demand Signal Management to SAP IBP through SAP Cloud Platform Integration for data services, you'll follow the steps in the following sections.

Create a Data Store for SAP Demand Signal Management

Create the data store by navigating to **DATASTORES** in the SAP Cloud Platform Integration for data services portal. [Figure 3.3](#) shows the example data store.

The screenshot shows the 'New Datastore' dialog box. The 'Name:' field contains 'DSIM_SAPIBPINT'. The 'Description:' field contains 'DSIM Integration to SAPIBPINT'. The 'Type' dropdown is set to 'SAP BW Source'. The 'Agent:' dropdown is set to 'IBP_DSIIM_BW_SOURCE_AGENT'. The 'Credentials' section includes fields for 'Application server:', 'Authentication:', 'User name:', and 'Password'. The 'Locale' section is set to 'SAP'. At the bottom, there are 'Reset', 'Save', and 'Cancel' buttons.

[Figure 3.3](#) Data Store of Type SAP BW Source

Choose the objects for importing to the data store, as shown in [Figure 3.4](#).

Import Objects				
	Name	Type	Imported	Description
<input type="checkbox"/>	/DDF/ROOT			Demand Data Foundation
<input type="checkbox"/>	/DDF/ATMA			ATMA Interface
<input type="checkbox"/>	/DDF/IO			Master Data
<input type="checkbox"/>	/DDF/TD			Transaction Data
<input type="checkbox"/>	/DDF/TD_DIS			Distributor Data
<input type="checkbox"/>	/DDF/TD_IBP			Integration with IBP
<input type="checkbox"/>	/DDF/DS91			Sales for IBP
<input checked="" type="checkbox"/>	/1DD/ADS9100	Table		ODS Object /DDF/DS91 : Active Records
<input checked="" type="checkbox"/>	/1DD/ADS9140	Table		DataStore Object /DDF/DS91 : Update
<input type="checkbox"/>	/DDF/DS92			Stock for IBP
<input type="checkbox"/>	/1DD/ADS9200	Table		ODS Object /DDF/DS92 : Active Records
<input type="checkbox"/>	/1DD/ADS9240	Table		DataStore Object /DDF/DS92 : Update

Figure 3.4 Import Objects Table for the SAP Demand Signal Management Source System

Create a Data Store for SAP Integrated Business Planning

As specified in the [Inbound Tasks](#) section, create a data store for SAP IBP. Import the target planning area into this data store. The SAP IBP target key figure examples are shown in [Figure 3.5](#).

Key Figures (3) All Key Figures * ▾		Search	New	Copy	Edit	Restore	Action
ID	Name	Base Planning Level	Type				
CUSTDCSLSQTY	Customer DC Sales Qty	LOCPRDCUSTWEEKLY					
CUSTDCSTOCKQTY	Customer DC Stock Qty	LOCPRDGUSTWEEKLY					

Figure 3.5 Target Key Figures in SAP IBP

These example key figures exist as a standard key figure in the SAP6 sample planning area. **CUSTDCSLSQTY** is relevant for the POS sales data, and **CUSTDCSTOCKQTY** is relevant for the POS stock data. Both these key figures are at planning level distribution center, product, and customer at a weekly bucket granularity. These key figures can be seen in the SAP IBP Model Configuration app.

Create the Remote Function Call User in SAP Demand Signal Management

Create the RFC user SAPDS in Transaction SM59 as shown in [Figure 3.6](#).

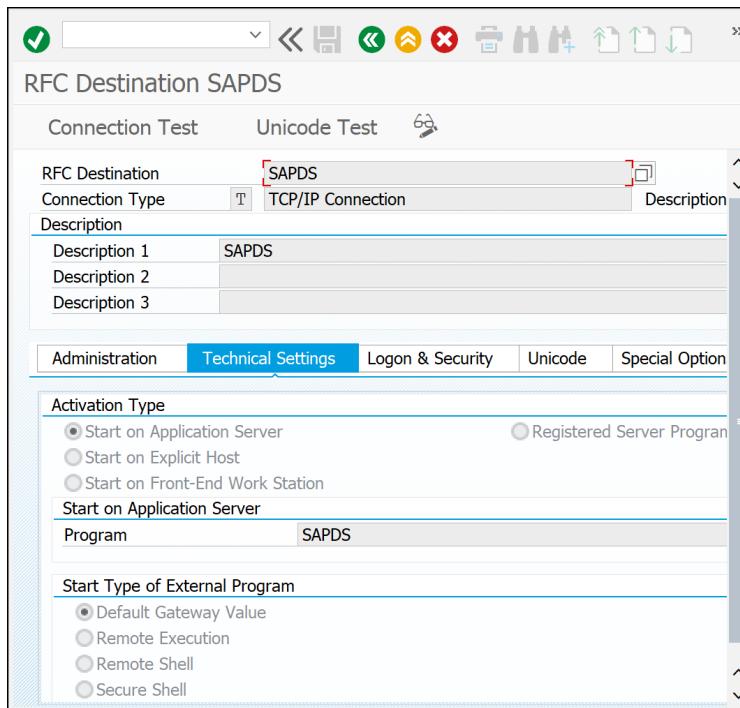


Figure 3.6 SAPDS RFC User in Transaction SM59

Now you've completed the data store creation for SAP Demand Signal Management and SAP IBP.

Set Up Project, Task, and Integration into SAP IBP

Create the task and the data flow in SAP Cloud Platform Integration for data services by navigating to **Projects • Create Task**, as shown in [Figure 3.7](#).

There are two predefined templates in SAP Cloud Platform Integration for data services. Create a new task based on these templates. Through forward navigation, select the source and the target. Select the **Save and Define Data Flow** button.

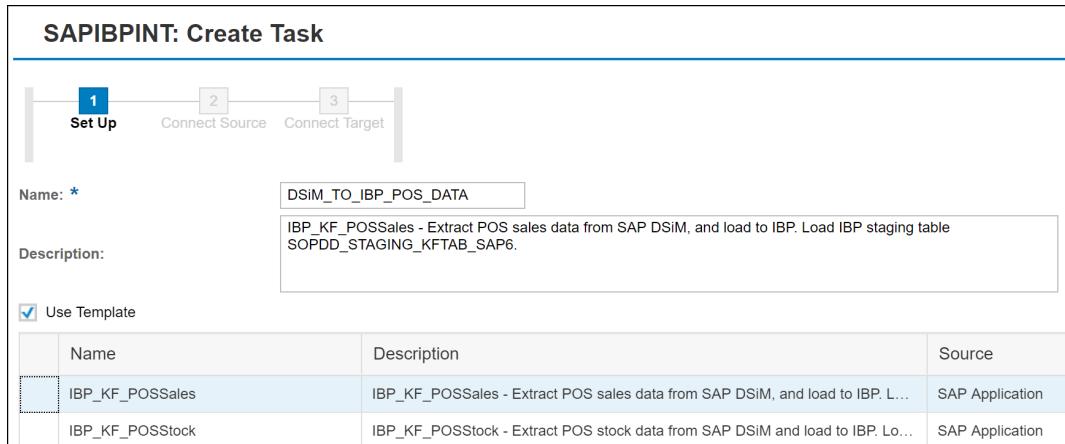


Figure 3.7 Predefined Templates for SAP Demand Signal Management in SAP Cloud Platform Integration for Data Services

In the following screen, highlight the data flow, and navigate to **Actions** • **Copy to new target**. Add a new target as the SAP IBP planning area that was imported in the previous section to the data flow that has been copied. An example is shown in [Figure 3.8](#).

	Description	Changed By
SOPDD_STAGING_KFTAB_SAP6		Venu Kelkar
IBP_KF_POSSales	Imported DataFlow with name:DF_IBP_KF...	Venu Kelkar

Figure 3.8 Creation of the Data Flow with the New Target

Edit the data flow as shown in [Figure 3.9](#), and insert the source table.

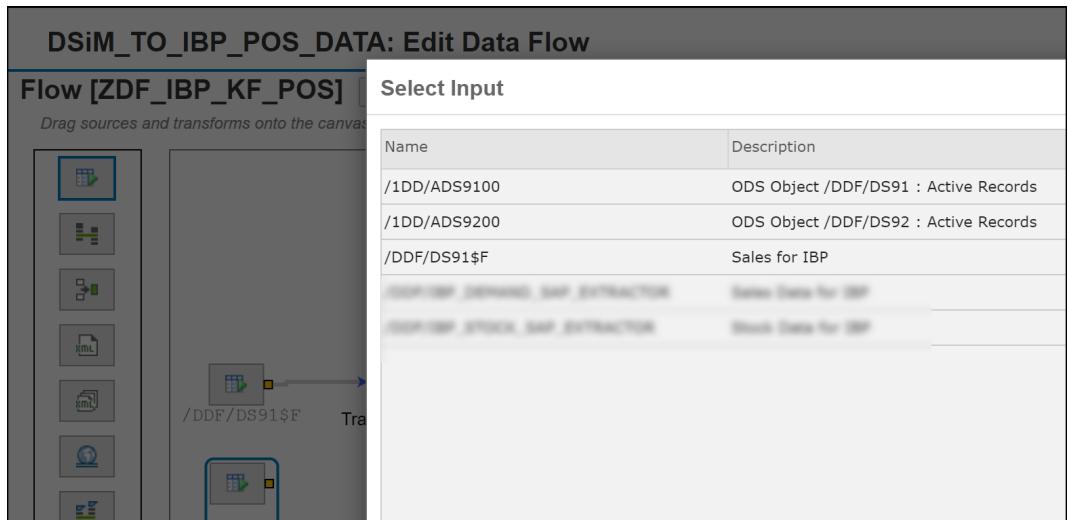


Figure 3.9 Data Source Table Definition for the POS Data and Stock Data

Map the fields from the source to the target. An example data flow for integrating POS sales data is shown in [Figure 3.10](#).

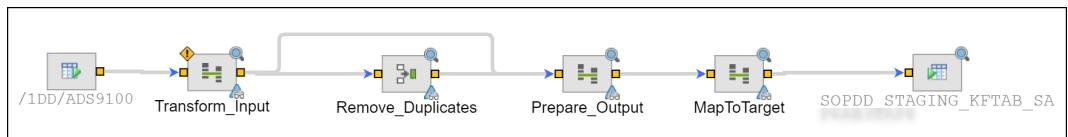


Figure 3.10 Example Data Flow for Integration of POS Data

Similarly, you can create the POS stock data with the relevant source table name. Now you're ready to integrate the data from SAP Demand Signal Management into SAP IBP through SAP Cloud Platform Integration for data services.

Note

In the example shown previously in [Figure 3.9](#), the SAP Cloud Platform Integration for data services data flow shows the source table name as **/1DD/ADS9100** for POS sales data. The template displays the source table name **/DDF/DS91\$F**.

Depending on the version of SAP Demand Signal Management, this DSO table name could change. You could verify the source table name in SAP Demand Signal Management by verifying the technical attributes of the DSO in Transaction RSA1.

In SAP Demand Signal Management, there are two predefined standard process chains for sales POS data and stock POS data that can be used to extract the data from SAP Demand Signal Management (see [Figure 3.11](#)):

- **Load Sales Data for IBP**

This process chain inserts the POS sales data into DSO /DDF/DS91 from DSO /DDF/DS11, which is the DSO for the POS discrete data. The process chain ensures that only released data is harmonized and transformed into DSO /DDF/DS91.

- **Load Stock Data for IBP**

Like **Load Sales Data for IBP**, this process chain inserts the POS stock data into DSO /DDF/DS92 from DSO /DDF/DS12.

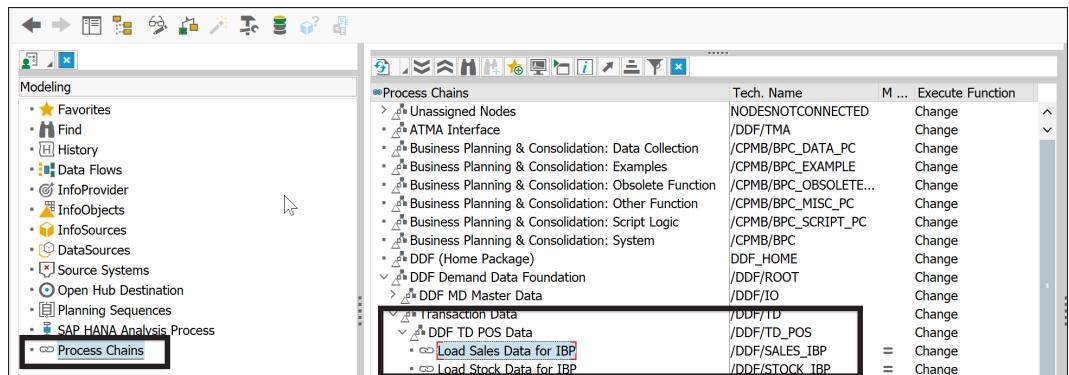


Figure 3.11 Predefined Process Chains

These process chains must be executed before the SAP Cloud Platform Integration for data services task is executed. Follow these steps to perform the integration:

1. Verify the data to be released to SAP IBP through the Release Data to IBP and Mass Release to IBP apps. Set the correct status.

2. Execute the **Load Sales Data for IBP** and **Load Stock Data for IBP** process chains.
3. Execute the SAP Cloud Platform Integration for data services task.

[Figure 3.12](#) shows the example steps executed for the supply chain planning example described in [Section 1.3](#). These steps are as follows:

- ❶ The product **SAPIBPINT_FG_1** POS data can be seen in the data source **Preview** tab in SAP Demand Signal Management Transaction RSA1.
- ❷ The SAP Cloud Platform Integration for data services task is executed successfully to integrate the three rows shown in SAP Demand Signal Management.
- ❸ The integrated data is displayed in the SAP IBP Excel add-in for the **NA_CUST01** (customer), **NA_DC** (manufacturer distribution center), and **SAPIBPINT_FG_1** (product) in weekly buckets.

The figure consists of three screenshots labeled 1, 2, and 3.

Screenshot 1: SAP Demand Signal Management Transaction RSA1. The screenshot shows the 'Preview' tab for DataSource DS91_F(ODPBW). It displays a table with three rows of data:

No. of Data Records	20	Read Preview Data
IPB Customer/Manufacturer DC Material for IBP First Day of IBP Week BW Delta Process: Update Mode Sales for IBP (Units) Pro		
NA_CUST01 NA_DC	SAPIBPINT_FG_1 26.08.2019	1.000,000
NA_CUST01 NA_DC	SAPIBPINT_FG_1 02.09.2019	2.500,000
NA_CUST01 NA_DC	SAPIBPINT_FG_1 09.09.2019	500,000

Screenshot 2: DSIM_Int_to_IBP_POS History. This is a history log for a task. The table shows two entries with timestamps from August 19, 2019, at 15:12:13 to 15:13:01.

Start Time (UTC)	End Time (UTC)	Status	Actions
2019.08.19.15.12.13	2019.08.19.15.13.01	Success	

Screenshot 3: SAP IBP Excel add-in interface. A screenshot of an Excel spreadsheet showing data for Customer I, Location, Product ID, and Key Figures / Weekly. The data includes sales quantities for weeks 34 through 40.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Customer I	Locati	Product ID	Key Figures / Weekly	W34 2019	W35 2019	W36 2019	W37 2019	W38 2019	W39 2019	W40 2019		
2	NA_CUST01	NA_DC	SAPIBPINT_FG_1	Customer DC Sales Qty		1000	2500	500					
3													
4													

[Figure 3.12](#) Steps Executed for the Supply Chain Planning Example

Now you've integrated the POS data successfully from SAP Demand Signal Management through SAP Cloud Platform Integration for data services. Similarly, if there is a need to integrate market-related data for SAP IBP from SAP Demand Signal Management, similar configuration can be executed.

In the next section, you'll learn how to integrate with SAP Ariba Supply Chain Collaboration.

4 Integration with SAP Ariba

In this section, you'll get an overview of SAP Ariba Supply Chain Collaboration and learn how to integrate it with SAP IBP. For illustration purposes, we'll focus on a *forecast collaboration* use case. However, most of the setup is valid for other use cases of SAP Ariba Supply Chain Collaboration.

We'll use the sample supply chain model as described in [Section 1.3](#).

4.1 Supply Chain Collaboration

SAP Ariba Supply Chain Collaboration enables buyers and suppliers to collaborate on a connected digital platform. Sharing key business planning data provides visibility and helps with efficient planning. Visibility into planning data, such as forecasts, supplier commits, inventory levels, and so on, will help users make better and faster planning decisions. This improves buyers' as well as suppliers' inventory levels, capacity utilization, customer service, and more.

Following are some of the typical SAP IBP and SAP Ariba Supply Chain Collaboration use cases:

- SAP Ariba Supply Chain Collaboration supported with an SAP Ariba front-end add-on that provides the following:
 - Forecast collaboration
 - Inventory visibility

- SAP Ariba Supply Chain Collaboration supported for business-to-business (B2B) (without SAP Ariba add-on frontend) that provides the following:
 - Sharing target stock levels with suppliers
 - Sharing supplier component forecasts with buyers
 - Sharing purchase order time-series with buyers

The *forecast collaboration* process between SAP IBP and SAP Ariba Supply Chain Collaboration is represented in [Figure 4.1](#).

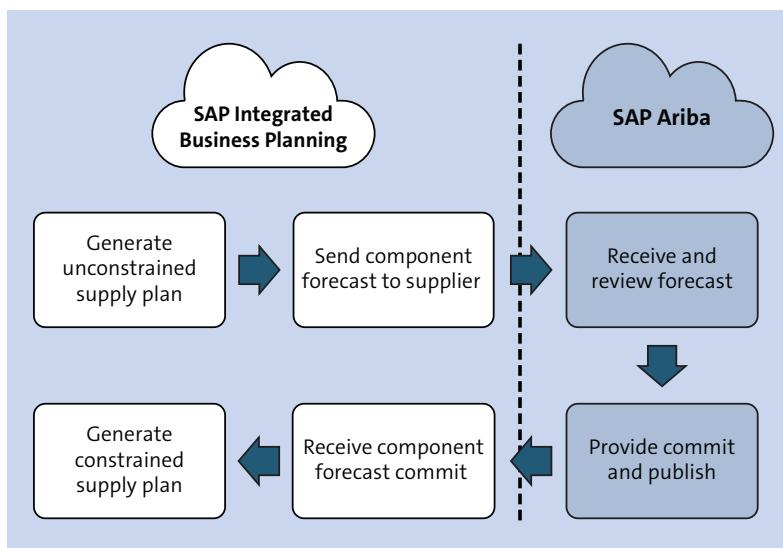


Figure 4.1 Forecast Collaboration Process Steps

In the traditional world, you would take this component forecast and communicate via email or phone to collaborate with suppliers and get their commitment. However, this approach can cause delays and manual mistakes that have negative impacts on business.

Sharing your component forecast with your supplier on a connected digital platform such as SAP Ariba Supply Chain Collaboration will allow suppliers to gain visibility and provide commitment quickly. As a result, you can identify potential issues in meeting your customer demand and make

necessary supply planning decisions and arrangements. From a supplier context, suppliers can use component forecasts in their *supply planning* as a demand signal and generate a *constrained supply plan* to come up with the correct commitment.

You as a buyer can invite your suppliers on Ariba Network and enable them quickly for supply chain collaboration. After buyer and supplier relationships are established, the buyer can send component forecasts to the supplier. The supplier can log in to the SAP Ariba UI as a supplier to review and provide component forecast commit. The supplier can then publish the provided commit to the buyer to make it visible in the buyer's SAP IBP system. This component forecast commit can be used as a component constraint while generating a constrained supply plan in SAP IBP.

In our example, if supplier 13300003 commits for only 400 out of 500 components forecast, you as a buyer will have this commitment in your SAP IBP system. You can review the supplier commit within SAP IBP and generate a constrained supply plan. In this case, you'll be able to support only 400 out of the 500 finished good SAPIBPINT_FG_1. This integrated process will allow planners to trigger appropriate actions to handle the quantity shortage of 100.

4.2 High-Level Architecture

SAP IBP to SAP Ariba Supply Chain Collaboration integration uses cXML messages to exchange data. SAP Ariba Supply Chain Collaboration forecast add-on within SAP IBP has the following:

- **Synchronous outbound adapter**

When outbound jobs are executed, messages are pushed synchronously to SAP Ariba.

- **Polling client**

Polling client will keep checking the SAP Ariba outbox for any inbound messages. The frequency of the polling check is configurable within the communication arrangement.

[Figure 4.2](#) shows the high-level architecture of the SAP IBP and SAP Ariba integration.

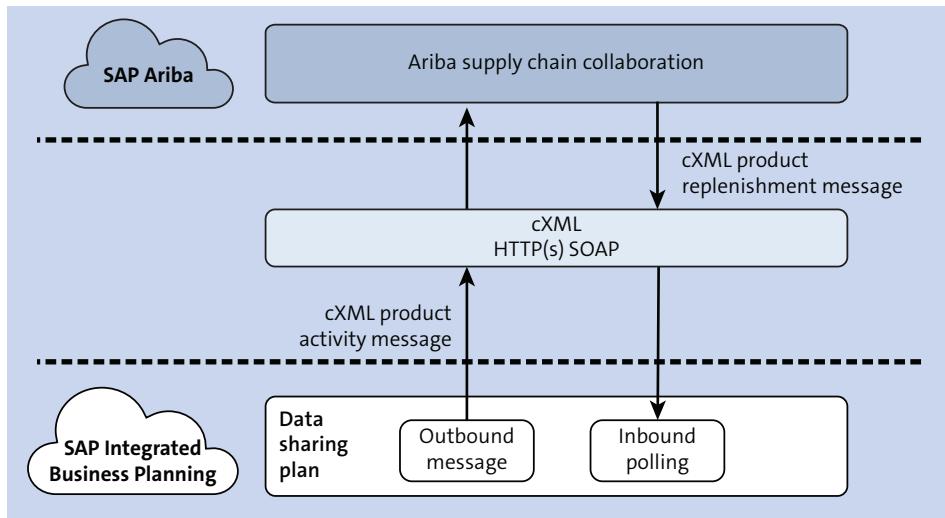


Figure 4.2 SAP IBP and SAP Ariba Integration: High-Level Architecture

4.3 SAP Ariba Configuration

You need to have a buyer account on the SAP Ariba Supply Chain Collaboration for Buyers forecast add-on. This account will provide the *Ariba Network ID* (ANID), which is used to establish authentication between SAP IBP and the SAP Ariba Supply Chain Collaboration forecast add-on.

A one-time technical setup is required to establish communication between SAP IBP and the forecast add-on.

System administrators will have to perform the following steps to prepare the forecast add-on:

1. Invite suppliers to Ariba Network.
2. Maintain the shared secret.
3. Upload the client certificate.

Note

For more details, refer to the *Configuration Guide for Business Network Collaboration* in the SAP Help documentation (<http://s-prs.co/v495302>).

As a buyer, you need to perform the following steps for each supplier you want to collaborate and share data with using the forecast add-on. Note that suppliers must have a supplier account on SAP Ariba that is enabled to establish relations.

Figure 4.3 shows the steps for supplier enablement:

- ❶ Log in to <https://service.ariba.com/Buyer.aw> with your buyer account. After login, go to the **SUPPLIER ENABLEMENT** tab.
- ❷ You'll see a list of suppliers with whom relationships have been established. Select the supplier, and click **Actions • Enable/Disable Supply Chain Collaboration** to enable SAP Ariba Supply Chain Collaboration.
- ❸ Select the **Collaborative supply chain** checkbox.

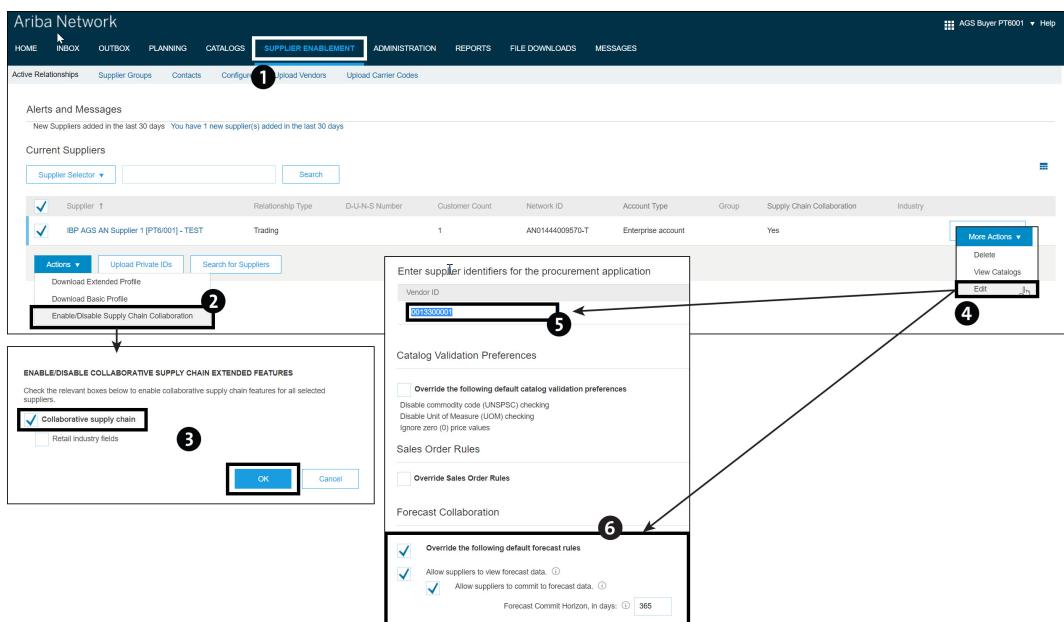


Figure 4.3 Supplier Enablement Steps

- ④ Select the supplier, and click **More Actions • Edit**.
- ⑤ Edit the preferences for the selected supplier. Enter the **Vendor ID** under **Enter supplier identifiers for the procurement application**. This is same as the supplier ID in SAP IBP. Per the example, it's **0013300001**.
- ⑥ In the **Forecast Collaboration** area, follow these steps:
 - Select **Override the following default forecast rules**.
 - Select **Allow suppliers to view forecast data**.
 - Select **Allow suppliers to commit to forecast data**.
 - Enter a value for **Forecast Commit Horizon (in days)**. For example, enter “365” days.

Note

In order to complete supplier enablement, you need to perform the same steps under **Manage Profile • Default Transaction Rules • Forecast Collaboration**.

4.4 SAP Integrated Business Planning Configuration

To set up SAP Ariba integration, you'll need to configure a communication management and data sharing plan in SAP IBP. The following sections provide further details.

Prerequisite System Setup

A one-time technical setup is required to establish communication between SAP IBP and the forecast add-on for SAP Ariba Supply Chain Collaboration. System administrators will have to perform one of the following authentication steps in SAP IBP to communicate with forecast add-on:

- Authenticate using client certification
 - Create communication system
 - Create communication arrangement
- Authenticate using the shared secret
 - Create communication system

- Create communication arrangement
- Specify Ariba Network credentials

We'll use the authentication using shared secret option for illustration purposes in this section:

1. Create the communication system.

Open the Communication Systems app in the SAP IBP system to define a communication system. Click on **New**, and enter the **System ID** and **System Name**. Click **Create**, and enter the SAP Ariba system host name “service-2.ariba.com” in the **Host Name** field. Under **Users for Outbound Communication**, click the **+** button to set the authentication method to **None**. Click on **Save** to save the changes.

2. Create the communication arrangement.

Open the Communication Arrangements app in the SAP IBP system to define a new communication arrangement. Click on **New**, select communication scenario **SAP_COM_0201**, and click **Create**. Enter the **Arrangement Name**, and select the **Communication System** created in the previous step from the available search help. Specify the job frequency for the product replenishment messages, and then click on **Save** to save the changes.

3. Specify Ariba Network credentials.

Open the Manage Ariba Network Credentials and Endpoints app in the SAP IBP system to specify the Ariba Network credentials. Click on **New**, enter your ANID, and specify the shared secret. Click on **Save** to save the changes.

Create a Data Sharing Plan

Data sharing plans are used to define an agreement between SAP IBP and SAP Ariba Supply Chain Collaboration. A data sharing plan is specific to a planning area in SAP IBP. To set up a data sharing plan, follow these steps:

1. Go to the Manage Data Sharing Plans app.
2. Click on **Create New** to create a new data sharing plan.
3. Enter the **Header Information**, such as data sharing **Plan ID**, **Name**, **Planning Area**, and **Plan Type**. **Plan Type** signifies the direction of the data flow. If a

buyer is sending data, then the plan type will be **Provider**. If a buyer is receiving data, then the plan type will be **Consumer**.

In the example described in [Section 1.3](#), the plan type for sending the component forecast to SAP Ariba Supply Chain Collaboration will be **Provider** and the receiving component forecast commit from SAP Ariba Supply Chain Collaboration will be **Consumer**.

4. Under the **GENERAL INFORMATION** tab, enter the description and default settings that can be applied to each data sharing arrangement.
 5. Go to the **Plan Attributes** area of the screen, and click **New** to enter the plan attributes.
 6. Select a **FREETEXT** attribute to map the **Buyer ANID** and **Supplier Location**.
In the example described in [Section 1.3](#), the **ANID** provided for the buyer account is **AN01443930905**, and the **Supplier Location ID** is **0013300001**.
- [Figure 4.4](#) shows the header, **GENERAL INFORMATION**, and **PLAN ATTRIBUTES** used for our example. The left side of the figure represents the outbound data sharing plan, and the right side of the figure represents the inbound data sharing plan.

GENERAL INFORMATION		PLAN ATTRIBUTES		MAPPINGS		ARRANGEMENTS	
Description:		Default Time Filter:		From:		To:	
Send Component Forecast to Supplier		Time Period:					
Default Sharing Mode:		Week					
MESSAGE							
Rolling:							
Default Communication Arrangement:	2019 CW17						
No							
Ariba							
Rolling:							
Default Mapping:	2020 CW17						
No							
MAP_SUPPLIERFORECAST_TO_CXML							

PLAN ATTRIBUTES		
Items (2)		
Attribute	Alias	Default Value
LOCID	HDR_SUPPLIER_ID	0013300001
FREETEXT	HDR_BUYER_COMPANY_ANID	AN01443930905

GENERAL INFORMATION		PLAN ATTRIBUTES		MAPPINGS		ARRANGEMENTS	
Description:		Default Time Filter:		From:		To:	
Receive Component Forecast Commit from Supplier		Time Period:					
Default Sharing Mode:		Week					
MESSAGE							
Rolling:							
Default Communication Arrangement:	2019 CW17						
No							
Ariba							
Rolling:							
Default Mapping:	2020 CW17						
No							
RECEIVECOMPONENTCOMMITFROMSUPPLIER							

PLAN ATTRIBUTES		
Items (2)		
Attribute	Alias	Default Value
LOGID	HDR_SUPPLIER_ID	0013300001
FREETEXT	HDR_BUYER_COMPANY_ANID	AN01443930905

[Figure 4.4](#) Data Sharing Plan Showing Header, General, and Plan Attributes

7. Go to the **MAPPINGS** tab, and click **New** to create field mapping. Under the header section, select the **Source** and **Target**. This depends on the plan type. [Table 4.1](#) shows the plan types for provider and consumer data sharing plans.

Plan Type	Source	Target
Provider	_BASELINE (planning area version)	CXML_PROACT (message type)
Consumer	CXML_PREM (message type)	_BASELINE (planning area version)

Table 4.1 Plan Types for Provider and Consumer Data Sharing Plans

8. Create a mapping to associate the source and target fields. The following source fields are available for mapping.
- Attributes from the data sharing plan
 - Attributes from the planning area master data
 - Key figures
 - Time level
 - Time profile attributes

In our example, provider mapping MAP_SUPPLIERFORECAST_TO_CXML has the mapping shown in [Table 4.2](#).

Source	Source Field	Target Field	Mandatory
Time level	PERIODID4	\$\$TIME_LEVEL\$\$	Yes
Attribute	LOCTO	BUYER_LOCATION_ID	Yes
Attribute	LOCTODESCR	BUYER_LOCATION_DESC	Yes
Attribute	PRDID	BUYER_PART_ID	Yes
Attribute	PRDDESCR	BUYER_PART_DESCRIPTION	No
Time attribute	TSTFR	FORECAST_START_DATE	No
Time attribute	TSTTO	FORECAST_END_DATE	No
Key figure	SUPPLIERFORECASTDS	FORECAST_QUANTITY	No
Data sharing plan Attribute	HDR_SUPPLIER_ID	TO_VENDOR_ID	Yes
Data sharing plan attribute	HDR_BUYER_COMPANY_ANID	FROM_NETWORK_ID	Yes

Table 4.2 Provider Mapping for Sending a Supplier Forecast

In our example, consumer mapping MAP_SUPPLIERCOMMIT_TO_CXML has the mappings shown in [Table 4.3](#).

Source	Source Field	Target Field	Mandatory
Attribute	BUYER_LOCATION_ID	LOCTO	No
Attribute	BUYER_PART_ID	PRDID	No
Key figure	CONFIRMATION_QUANTITY	SUPPLIERCOMMIT	No
Time attribute	CONFIRMATION_START_DATE	TSTRFR	No
Attribute	SUPPLIER_LOCATION_ID	LOCID	No
Data sharing plan Attribute	FROM_VENDOR_ID	HDR_SUPPLIER_ID	No
Data sharing plan attribute	TO_NETWORK_ID	HDR_BUYER_COMPANY_ANID	No

Table 4.3 Consumer Mapping for Receiving the Supplier Commit

[Figure 4.5](#) shows the inbound mapping for our example.

Source Category	Source Field	Target Field	Target Field Path	Mandatory
Time Level	PERIODID4	\$\$TIME_LEVELSS\$	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/Contact[@role='locationTo']/{@reference[@ domain='buyer.locationID'] [@@identifier]}	Yes
Attribute	LOCTO	BUYER_LOCATION_ID	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/Contact[@role='locationTo']/{@name[@xmlLang]}{@label}	Yes
Attribute	LOCTODESCR	BUYER_LOCATION_DESC	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/ItemID/BuyerPartID	Yes
Attribute	PRDID	BUYER_PART_ID	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/Description[@type='string']	Yes
Attribute	PRDDESCR	BUYER_PART_DESCRIPTION	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/TimeSeries[@type='orderForecast']/{@startDatetime}	No
Time Attribute	TSTFR	FORECAST_START_DATE	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/TimeSeries[@type='orderForecast']/{@endDatetime}	No
Time Attribute	TSTTO	FORECAST_END_DATE	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/TimeSeries[@type='orderForecast']/{@forecastPeriod}	No
Key Figure	SUPPLIERFORECASTDS	FORECAST_QUANTITY	/cXML/Message/@deploymentMod e='production' ProductActivityMess age/ProductActivityDetails/TimeSeries[@type='orderForecast']/{@forecastQuantity}	No
Data Sharing Plan Attribute	HDR_SUPPLIER_ID	TO_VENDOR_ID	/cXML/Header/To/Credential[@domain='VendorID']/Identity/	Yes
Data Sharing Plan Attribute	HDR_BUYER_COMPANY_ANID	FROM_NETWORK_ID	/cXML/Header/From/Credential[@domain='NetworkID']/Identity/	Yes

Figure 4.5 Data Sharing Plan: Inbound Mapping

Figure 4.6 shows the data sharing plan for the outbound mapping scenario.

Source Field	Source Field Path	Mandatory	Target Category	Target Field
BUYER_LOCATION_ID	/cXML/Message[@deploymentMode='production']/ProductReplenishment/entMessage/ProductReplenishment/Details/Contact[@role='locationTo']/IdReference[@domain='buyerLocationID'][@idIdentifier]	No	Attribute	LOCTO
BUYER_PART_ID	/cXML/Message[@deploymentMode='production']/ProductReplenishment/entMessage/ProductReplenishment/Details/itemID/BuyerPartID/	No	Attribute	PRRID
CONFIRMATION_QUANTITY	/cXML/Message[@deploymentMode='production']/ProductReplenishment/entMessage/ProductReplenishment/Details/ReplenishmentTimeSeries[@type='forecastConfirmation']/TimeSeries/Details/TimeSeriesQuantity[@quantity]	No	Key Figure	SUPPLIERCOMMIT
CONFIRMATION_START_DATE	/cXML/Message[@deploymentMode='production']/ProductReplenishment/entMessage/ProductReplenishment/Details/ReplenishmentTimeSeries[@type='ForecastConfirmation']/TimeSeries/Details/Period[@startDate]	No	Time Attribute	TSTFR
FROM_VENDOR_ID	/cXML/Header/From/Credential[@domain='VendorID']/Identity/	No	Data Sharing Plan Attribute	HDR_SUPPLIER_ID
SUPPLIER_LOCATION_ID	/cXML/Header/From/Credential[@domain='VendorID']/Identity/	No	Attribute	LOCID
TO_NETWORK_ID	/cXML/Header/To/Credential[@domain='NetworkID']/Identity/	No	Data Sharing Plan Attribute	HDR_BUYER_COMPANY_ANID

Figure 4.6 Data Sharing Plan: Outbound Mapping

Note

In the preceding mapping, we've shown the key figure mapping for FORECAST_QUANTITY. However, the XML_PROACT message interface has 10 custom key figures that can be mapped from SAP IBP.

9. Go to the **ARRANGEMENT** tab, and click **New** to create a new data sharing arrangement. The data sharing arrangement defines how data is shared between SAP IBP and SAP Ariba Supply Chain Collaboration. You create separate data sharing arrangements for each supplier. For our example, we'll create the arrangement for supplier 0013300001:

- Enter the **ID**, **Name**, and **General Information**. Select **Sharing mode** as the **XML Message**, and maintain the default settings that are applicable to this data sharing arrangement.
- Select a **Mapping** as defined in the previous step. In our example, sending the component forecast to SAP Ariba Supply Chain Collaboration uses `MAP_SUPPLIERFORECAST_TO_CXML` mapping, and receiving the component commit uses `MAP_CXML_TO_SUPPLIERCOMMIT`.
- Select a **Permission Filter**. You can restrict what data is to be shared in this arrangement by specifying a permission filter. For example, for this supplier, we want to share forecast key figure values for the component products that are sourced from supplier 0013300001. So, the permission filter can be set to have a read restriction on **PRRID** with filter values `SAPIBPINT_COMP_1` and `SAPIBPINT_COMP_2`.
- Select the **Default time filter**. Select **Time Period**, **From**, and **To** time periods to indicate time bucket restrictions. You can choose the **Rolling** option to roll over the period automatically.
- Select the **Status** of the data sharing arrangement as **Enabled** to use it for outbound data sharing.

[Figure 4.7](#) shows the inbound/outbound mapping for our example. The left side of the figure represents the data sharing arrangement for the provider, and the right side of the figure represents the data sharing arrangement for the consumer.

10. Click **Apply** to check all changes, and click **Save** to save your data sharing plan.
11. Navigate back to the **Manage Data Sharing Plans** screen, select your data sharing plan from the **Inactive** tab, and click **Activate**.
12. Go to the **Active** tab, reselect your data sharing plan, and click **Enable** to enable data sharing.

Now your data sharing plan is active and enabled for SAP IBP Ariba Supply Chain Collaboration integration.

Outbound Arrangement (Left Screen):

- Plan Type:** Provider
- Status:** Enabled
- Planning Area:** SAP IBP INT
- Changed By:** Ujjwakumar Jetagi
- Changed On:** Apr 27, 2019
- GENERAL INFORMATION:**
 - Sharing Mode:** MESSAGE
 - Communication Arrangement:** Ariba
 - Mapping:** Yes
 - Default Time Filter:** Week
 - Time Period:** From: 2019 CW20
 - To:** MAP_SUPPLIERFORECAST_TO_CXML
 - Routing:** No
 - Permission Filter:** Yes
 - Default Value:** SUPPLIER0013300001
- ARRANGEMENT ATTRIBUTES:**

Attribute	Alias	Default Value
LOCID	HDR_SUPPLIER_ID	0013300001
FREETEXT	HDR_BUYER_COMPANY_ANID	AN01443930905-T

Inbound Arrangement (Right Screen):

- Plan Type:** Consumer
- Status:** Enabled
- Planning Area:** SAP IBP INT
- Changed By:** Ujjwakumar Jetagi
- Changed On:** Apr 29, 2019
- GENERAL INFORMATION:**
 - Sharing Mode:** MESSAGE
 - Communication Arrangement:** Ariba
 - Mapping:** Yes
 - Default Time Filter:** Week
 - Time Period:** From: 2019 CW19
 - To:** MAP_CXML_TO_SUPPLIERCOMMIT
 - Routing:** No
 - Permission Filter:** Yes
 - Default Value:** SUPPLIER0013300001
- ARRANGEMENT ATTRIBUTES:**

Attribute	Alias	Default Value
LOCID	HDR_SUPPLIER_ID	0013300001
FREETEXT	HDR_BUYER_COMPANY_ANID	AN01443930905-T

Figure 4.7 Data Sharing Arrangements

4.5 Runtime and Monitoring

After setting up the SAP IBP and SAP Ariba configuration, now the outbound and inbound data sharing plans can be executed and monitored. The following sections provide further details on the runtime and monitoring of the outbound sharing to SAP Ariba, inbound sharing to SAP IBP, and message monitoring.

Outbound to SAP Ariba

You can send data from SAP IBP to SAP Ariba Supply Chain Collaboration using the *Data Sharing Plan Outbound* job template from the Application Jobs app or via the SAP IBP Excel add-in. Select **Data Sharing Plan** and **Data Sharing Arrangement** you created in the [Create a Data Sharing Plan](#) section

to schedule the outbound job. Optionally, you can enter a **Planning Filter** to restrict shared data and **Max Records per Message** to specify the maximum number of records sent together in a single message. [Figure 4.8](#) shows an example of the outbound job scheduling from the SAP IBP application job template and SAP IBP Excel add-in.

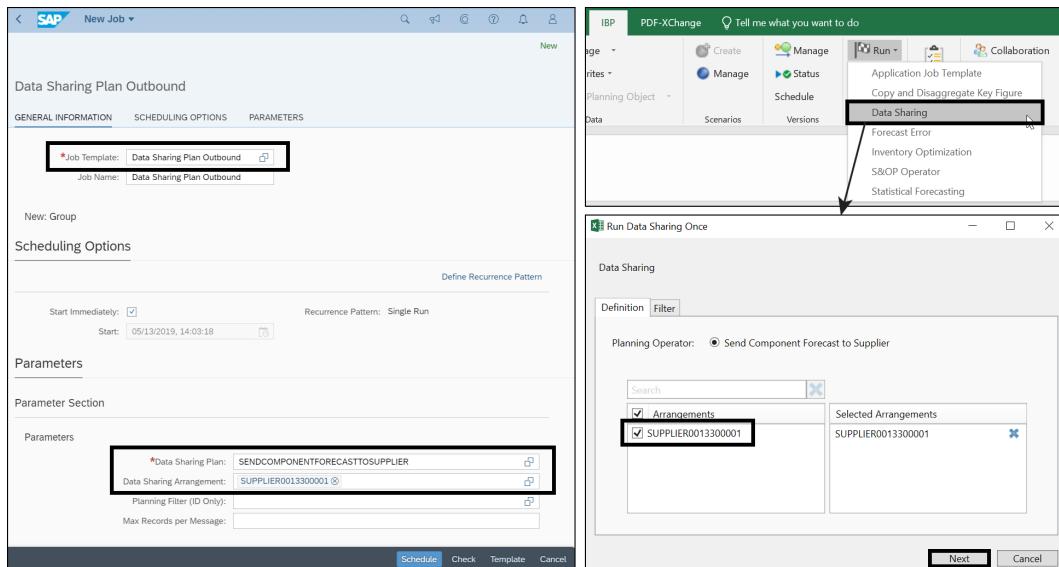


Figure 4.8 Outbound Job Scheduling

Inbound to SAP Integrated Business Planning

SAP IBP runs a polling job to check and retrieve data from the SAP Ariba Supply Chain Collaboration outbox. Message **PREM (Product Replenishment Message)** is used to transfer data from SAP Ariba Supply Chain Collaboration to SAP IBP. The consumer data sharing plan must be active and enabled for successful inbound integration.

Note

Polling job details are maintained in the communication arrangement.

Supplier can log in to <https://service.ariba.com/Supplier.aw>. When the supplier provides a commit and publishes to SAP IBP, there will be a *product*

replenishment message created in the SAP Ariba Supply Chain Collaboration outbox. [Figure 4.9](#) shows the steps for providing a commit from SAP Ariba:

- ① Click on the **Click To Specify Commit Quantities** button to open the **Forecast Commit** screen. This screen shows the forecast quantities that was transferred from SAP IBP.

The screenshot illustrates the steps for providing a commit from SAP Ariba:

- Step 1:** In the **Ariba Supply Chain Collaboration** interface, under the **PLANNING** tab, click on the **Forecast** link. This opens the **Forecast** screen for **IBP AGS AN Buyer [PT6/100] - TEST Forecast**. The screen displays a table of forecast data for part **SAPIBPINT_COMP_1** at location **1010**. The table includes columns for Customer Part #, Customer Location, Last Modified, Actions, Forecast, Change, and Committed. A tooltip indicates that the **Actions** column contains a **Click To Specify Commit Quantities** button (marked with a circled '1').
- Step 2:** Click the **Click To Specify Commit Quantities** button in the **Actions** column of the first row. This action opens the **Forecast Commit** dialog box.
- Step 3:** In the **Forecast Commit** dialog, review the forecast details for part **SAPIBPINT_COMP_1** and click the **Commit** button (marked with a circled '2').
- Step 4:** After committing, click the **Commit And Close** button (marked with a circled '3') to close the dialog and return to the Forecast screen.

Forecast Commit Dialog Details:

- Customer:** IBP AGS AN Buyer [PT6/100] - TEST
- Customer Part #:** SAPIBPINT_COMP_1
- Supplier Part #:** SAPIBPINT_COMP_1
- Description:** SAPIBPINT_COMP_1
- Last Committed:** 29 Apr 2019 2:40:27 PM
- Inventory:** (empty input field)
- Comments:** (empty input field)
- Commit Horizon:** 365 days.
- Customer Planner:** (empty fields: Phone, Email)
- Customer Location:** Plant Beijing

Forecast Screen Data (Table 1):

Date	Forecast	Change	Availability	Committed	Upside	Previous Commit	Difference	Ordered
8 May 2019	500	500	400	400		0	-100	
9 May 2019								
10 May 2019								
11 May 2019								
12 May 2019								
13 May 2019								
14 May 2019								

Forecast Screen Data (Table 2):

Date	Forecast	Change	Availability	Committed	Upside	Previous Commit	Difference	Ordered
13 May 2019	500	500	400	400		0	-100	

Figure 4.9 Supplier Commit Steps from SAP Ariba Supply Chain Collaboration

- ② Provide the commit quantities in the **Committed** field. This is the quantity that you wish to transfer as the supplier commit from SAP Ariba to SAP IBP. Click on the **Commit and Close** button. In case you wish to commit to the forecasted quantity, you can click on the button **Commit to Forecast Quantities**.
- ③ Publish the committed quantities by clicking on the **Send Commitment to buyer** button.

Message Monitoring

You can monitor inbound and outbound messages from the Message Dashboard app. As shown in [Figure 4.10](#), you can restrict time periods using the **Calendar Monitor** screen to monitor messages exchanged during a specified duration. With this app, you'll be able to do the following, among other things:

- Check status logs of inbound/outbound messages.
- Reprocess failed messages.
- Check the content of the message structure.

The screenshot shows the SAP Interface Monitor - Calendar Monitor interface. At the top, there are navigation buttons for 'Current Week' and 'Current Month', and search fields for 'From (Date/Time)' (04/23/2019) and 'To (Date/Time)' (04/23/2019), along with a 'Search' button. Below this is a large grid displaying a 6-month calendar from February 2019 to June 2019. Each day cell contains a number representing the count of messages. Red boxes highlight specific days: February 28, March 6, April 27, May 27, and June 12. Below the calendar is a 'Result List' section with tabs for 'Message Summary', 'Interface Key Fields', and 'My Messages'. Under 'Message Summary', there is a table showing message counts for three namespaces: 'Integrated Business Planning - /IBP01' (Status: 3, Alert: 0, Mail: 0, All Messages: 3, Warnings: 0, Errors: 0, Successfully Processed: 3), 'Product Replenishment - PREM_IN1' (Status: 1, Alert: 0, Mail: 0, All Messages: 1, Warnings: 0, Errors: 0, Successfully Processed: 1), and 'Product Activity Notification - PROA_OUT/1' (Status: 2, Alert: 0, Mail: 0, All Messages: 2, Warnings: 0, Errors: 0, Successfully Processed: 2).

Figure 4.10 Message Monitoring Dashboard

In this section, you learned about SAP Ariba Supply Chain Collaboration and the configuration steps to achieve successful integration with SAP IBP for *forecast collaboration*. Similarly, other scenarios, such as inventory visibility and stock replenishment based on target stock level, can be configured.

5 Integration with SAP Sales Cloud

SAP Sales Cloud provides presales as well as post-sales capabilities. This section provides insights on the importance of integration of SAP Sales Cloud with SAP IBP. We'll walk through the basic data flow options between SAP Sales Cloud and SAP IBP. Further, we'll touch upon the integration of the master data and sales data, such as products, customers, sales leads, opportunities, sales forecast, and so on, to SAP IBP for sales and operations planning and SAP IBP for demand. To enable this, we'll create business analytics and sales OData services, provision data stores in SAP Cloud Platform Integration for data services, configure a simple task with the source as SAP Sales Cloud and the target as the SAP IBP planning area, and view the data in SAP IBP.

5.1 Basic Data Flow between SAP Sales Cloud and SAP IBP

Figure 5.1 shows the data integration between SAP Sales Cloud and SAP IBP. Master data and transactional data can be integrated between these two systems. Some of the most relevant master data for integration includes products, product categories, accounts, customers, and customer groups.

Depending on the SAP IBP for sales and operations planning and SAP IBP for demand business requirements, the following documents can be integrated from SAP Sales Cloud to SAP IBP:

- Sales leads
- Opportunities
- Sales quotes
- Quotations and sales orders
- Forecasts

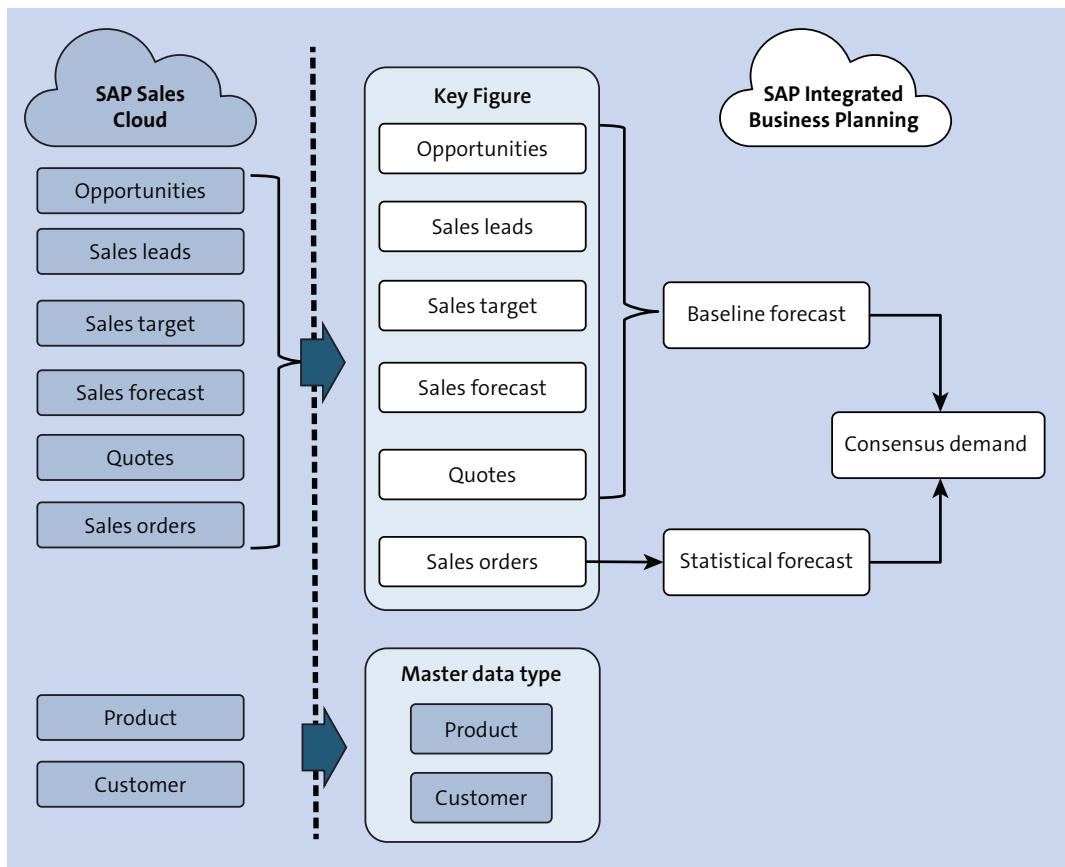


Figure 5.1 Data Integration between SAP Sales Cloud and SAP IBP

Normally, master data, quotations, and sales orders are integrated from the SAP ERP system if they exist in the system landscape. Integrating the sales document quantities or revenue numbers into the baseline and consensus demand planning not only improves the accuracy of the forecast but also reduces the forecast variances and provides a more stable demand planning output.

Not all documents are relevant for planning. For example, for sales leads, you can maintain the **Qualification Level (Cold or Hot)**, **Status (Open or Qualified)**, which will determine the probability of sales leads getting converted

to opportunities and ultimately into sales orders. Sales leads that are hot and qualified make the best sense to be considered for consensus demand planning.

Similarly, for opportunities, you can maintain the probability percentage and publish to forecast fields. Opportunities can be filtered using these fields, for example, integration opportunities with a probability of 80%.

For sales forecasts, you can use the opportunity level forecast and product level forecast to filter the most relevant forecasts for integration.

These sales documents can be integrated and used in planning at any consensus demand planning hierarchy. Data such as leads can be integrated at the product/customer, product/region, product/country, and so on levels based on the business requirements.

5.2 Technical Integration

[Figure 5.2](#) shows the technical view of the SAP Sales Cloud integration through OData services consumption via SAP Cloud Platform Integration for data services.

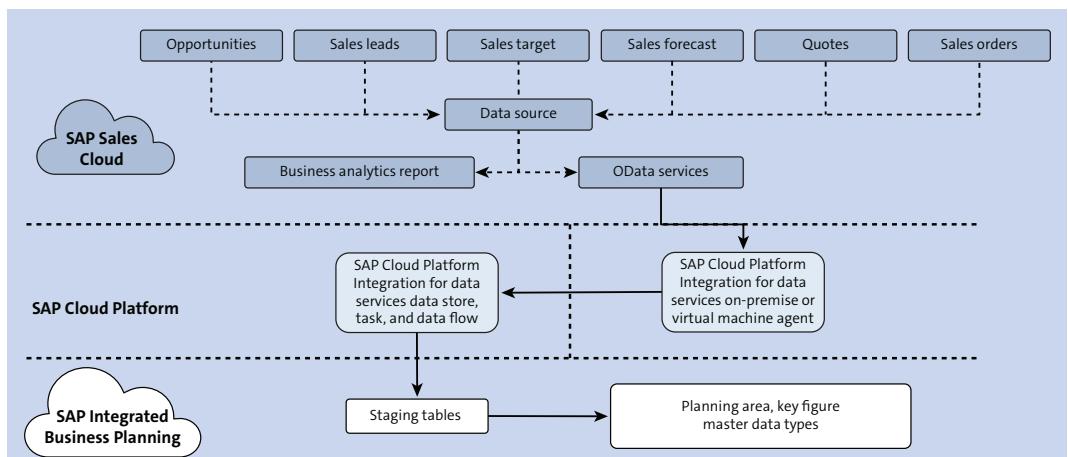


Figure 5.2 Technical View of the SAP Sales Cloud and SAP IBP Integration

There are two options to integrate data from SAP Sales Cloud:

- OData using business analytics
- OData services v2 using the c4cODataapi namespace released in SAP Cloud for Customer 1808

Note

SAP Cloud Platform Integration for data services allows integration of OData v2 and v4 only as of software version 3.13.7.

The volume of data and the number of fields for integration are key factors to consider when choosing between the two options specified earlier. When integrating the data through the business analytics, you can limit the fields, which in turn improves the runtime and performance of the SAP Cloud Platform Integration for data services task execution.

Following are the requirements for integration:

- SAP Cloud Platform Integration for data services agent: Even though the SAP Sales Cloud, SAP Cloud Platform Integration for data services server, and SAP IBP systems are available in the cloud, you still need a SAP Cloud Platform Integration for data services agent set up on an on-premise or a virtual machine. The agent must be available to execute the SAP Cloud Platform Integration for data services tasks successfully.
- SAP Sales Cloud data store of type *adapter*
- SAP IBP planning area with the required planning levels and key figures. For example, unified planning area SAPIBP1 as of 1902 has key figure OPPORTUNITIESQTY at planning level WKPRODCUST (Week/Product/Customer).
- IBP system data store with the following:
 - Type: **HANA Application Cloud**
 - Application type: **Integrated Business Planning**
- SAP Cloud Platform Integration for data services task and data flow with required transformations

Now let's look at the steps in SAP Sales Cloud to set up the OData integration to SAP Cloud Platform Integration for data services.

5.3 OData in SAP Sales Cloud

In [Section 5.2](#), you learned about the two OData service options to integrate data from SAP Sales Cloud. Log on to the SAP Sales Cloud frontend to execute the necessary steps to use OData in SAP Sales Cloud, which we'll cover in the following sections.

OData Services Using Business Analytics

Create a business analytics report by navigating to **Business Analytics • Design Reports • Design and Assign Reports • New**. The guided procedure helps you in defining the data source and the key figures that are relevant for the report. If only the master data is required, then select **Only for Master Data in Business Analytics • Design Reports • Design and Assign Reports • New • Define Report and Data Source**.

You can improve the performance of the integration by selecting only the relevant key figures, characteristics, and characteristics properties during the creation of the business analytics report. The *characteristics* that should be included in the report depend on the planning levels defined in the relevant key figures. For example, the standard opportunities key figure is defined at the WKPRODCUST planning level. In this case, the most appropriate fields are account number (**Customer ID**) and **Product ID**, and the key figures are start date of the opportunity, probability, item quantity, or item revenue value. For date extraction, you can also pick week, month, quarter, or year depending on the base planning level of the key figure.

The *characteristics properties* play a major part in the selection of the business analytics report, which in turn determines the performance of the SAP Cloud Platform Integration for data services task. In characteristics properties, you can define the value selection and the display of the master data value. Normally, the date range selections that are relevant for planning should be selected.

[Figure 5.3](#) shows an example of a design report of sales leads that can be configured in SAP Sales Cloud.

New Report

1 Define Report and... 2 Select Key Figures 3 Select Characteristics 4 Characteristic Prop... 5 Define Variables 6 Review 7 Confirmation*

Previous Next Finish Cancel

To create a report, select a data source. In the following steps, you select and define key figures, characteristics, and variables. You can also decide if you want the report to be available for without any key figures.

Report

* Name: SSC_OPPORTUNITIES_INT_TO_IBP

Description:

Data Source

* Name: Opportunity Item

Description: Contains all opportunity item data. It allows you to analyze opportunities by item data such as opportunity items or net values.

Access Context: 1010 Employee;4 Sales Unit;1000 Employee Self Service;1015 Employee, Territory, Account, Sales Data

Properties

Only for Master Data:

[Figure 5.3 Example of a Design Report of Sales Leads](#)

After the business analytics report is designed, note down the **Report ID**, which is visible in the **Business Analytics • Design Report** path. This **Report ID** will be used in selecting the right object while defining the SAP Sales Cloud object that is detailed in the [SAP Cloud Platform Integration for Data Services Task and Data Flow Definitions](#) section.

Build the OData queries by clicking on **Business Analytics • Design Reports • Build OData Queries • Generate Meta Data Query**. Note down the **Metadata Query** as this will be used during SAP Cloud Platform Integration for data services data store definition for source metadata extraction.

OData Services Application Programming Interface V2

The newly released OData services API V2 (1808 release) can also be used for integration. The relevant OData APIs can be viewed in **Administrator • OData**

Service Explorer. If the relevant OData doesn't exist in the standard SAP OData services, then a custom OData service can also be created by choosing **Administrator • OData Service Explorer • Custom OData Services**. The recently released OData services V2 are available in namespace c4cOData-api. [Figure 5.4](#) shows the frontend of the ODATA CONSOLE application in SAP Sales Cloud.

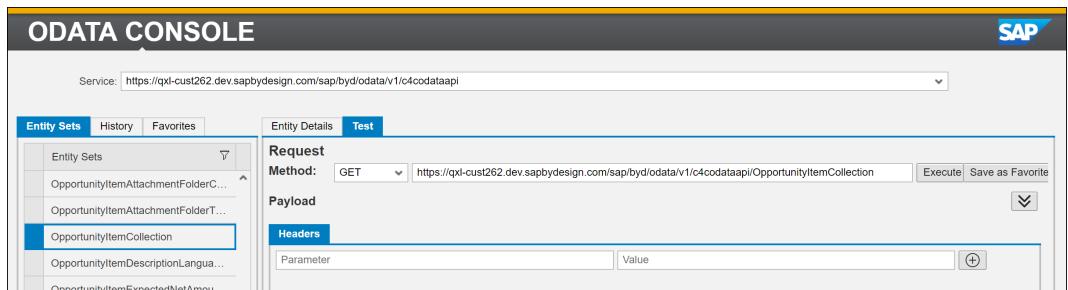


Figure 5.4 ODATA CONSOLE Application Screen in SAP Sales Cloud

Note down the service and/or the Get method request URL as this will be used for the source metadata extraction in SAP Cloud Platform Integration for data services.

5.4 SAP IBP Planning Area Setup

Log on to SAP IBP to configure the planning area, which can have the OPPORTUNITIESQTY key figure. This planning area and the key figure will then be used to set up the data store in SAP Cloud Platform Integration for data services. [Figure 5.5](#) shows an example from the **SAPIBP1** planning area with key figures **OPPORTUNITIESQTY** and **OPPORTUNITIESREV**.

The screen displays the SAP IBP standard unified planning area (**SAPIBP1**) key figure for opportunities integration. Depending on the business requirements, the base planning levels can be any characteristics of the product and customer.

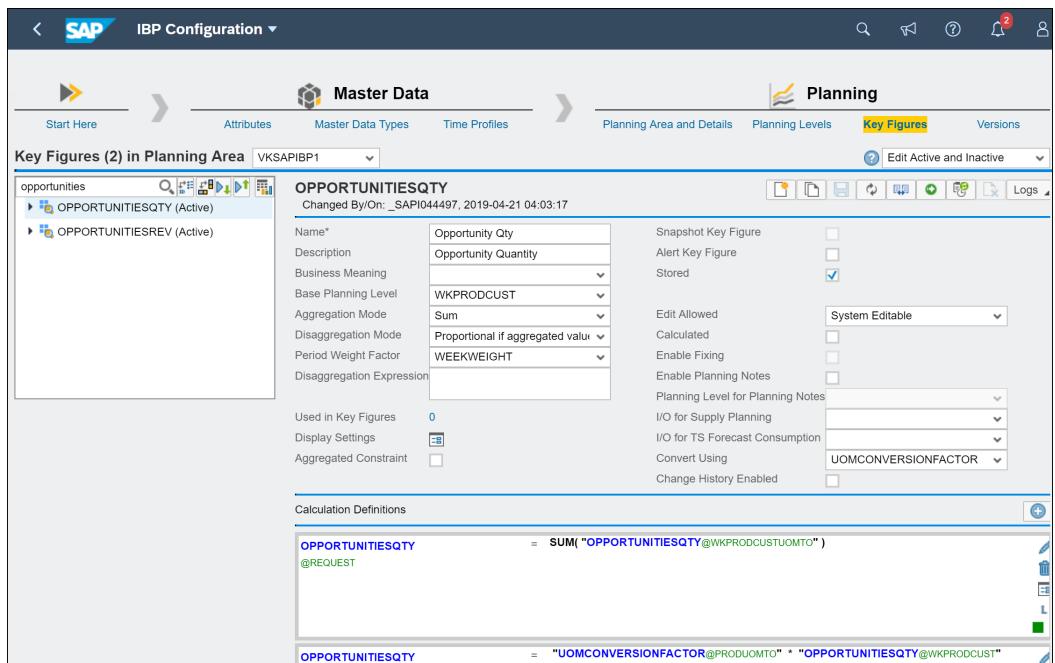


Figure 5.5 Key Figure Configuration in SAP IBP Unified Planning Area SAPIBP1 for Opportunities Quantity and Revenue

Note

As of release 1902, the **OPPORTUNITIES** document key figure exists in the **SAPIBP1** sample planning area. You can create a similar key figure if the business requires key figures such as **Sales Leads** in line with the **OPPORTUNITIES** key figure.

5.5 SAP Cloud Platform Integration for Data Services Setup

For the successful integration of the master data and transactional data through SAP Cloud Platform Integration for data services, you require the following:

- SAP Sales Cloud data store definition
- SAP IBP data store definition

SAP Sales Cloud Data Store Definition

This section gives information on how the data stores can be created for SAP Sales Cloud. Connect to SAP Cloud Platform Integration for data services, and navigate to **Datastores • New Datastore**. In [Section 5.1](#), we discussed these two options. For both options, the data store should be created as shown in [Figure 5.6](#):

- ① Specify the name of the data store in the **Name** field.
- ② Specify the business analytics URL you noted down from the OData services console in the **Endpoint URI** field.
- ③ SAP Cloud Platform Integration for data services supports OData V2 and V4. Specify this in the **OData Version** field.

New Datastore

Name: *	SSC_INT_TO_IBP 1
Description:	Integration of SAP Sales Cloud to SAP Integration Business planning
Type	Adapter
Adapter Type: *	OData Adapter
Agent: *	IBP_SALES_INTEGRATION_ADAPTER
Adapter Options	
Endpoint URI: *	Business analytics or oDATA URL 2
User Name:	<input type="text"/>
Password:	<input type="password"/> *****
Default Base64 binary field length: *	150
Depth: *	2
OData Version: *	V2 3
Require CSRF Header:	no

Reset **Save** **Cancel**

Figure 5.6 Creation of SAP Sales Cloud Data Store in SAP Cloud Platform Integration for Data Services

If you want to use the business analytics reports, use the endpoint URL you noted down in the [OData Services Using Business Analytics](#) section. There are two ways you can define this URL. The URL normally has the following pattern: <URL>*sap/c4c/OData/ana_businessanalytics_analytics.svc/\$metadata?entityset=<Report ID>*. You can use the complete URL to import only the defined business analytics report ID, which will allow you to import only the report ID specified in the URL.

Alternatively, you can use the pattern *https://<serviceurl>*sap/c4c/odata/ana_businessanalytics_analytics.svc*, which allows you to select and import all the business analytics reports, which are exposed to the external systems from SAP Sales Cloud.*

If OData services need to be used, then use the service URL that was noted down in the [OData Services Application Programming Interface V2](#) section. Ensure that the OData version is set to V2.

After defining the data store, test the connection by selecting **Datastores • Test Connection** with default configuration. After the connection is successful, you can now import the objects by selecting **Datastores • Tables • Import Objects or Import Objects by Name**. The system will display the list of business analytics reports or OData services. For the business analytics report, the object name displayed in the **Import Objects** list has the suffix “RP” followed by the **Report ID** from SAP Sales Cloud that you’ve noted down in the [OData Services Using Business Analytics](#) section.

[Figure 5.7](#) shows the example list of OData services that are available from SAP Sales Cloud in SAP Cloud Platform Integration for data services.

In [Figure 5.7](#), you can see all the OData services that are visible in the SAP Sales Cloud OData service explorer. Select the objects that you want to import. The selected objects after the import will now be visible in the **Tables** section of the data store. You’ve now successfully added the SAP Sales Cloud data store to SAP Cloud Platform Integration for data services.

Name	Type	Import	Description
<input type="checkbox"/> <input checked="" type="checkbox"/> ActivityAttachmentFolderCategoryCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> ActivityAttachmentFolderTypeCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> ActivityTextCollectionLanguageCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> ActivityTextCollectionTypeCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> AnswerAttachmentCategoryCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> AnswerAttachmentCollection	Table	c4codata.AnswerAttachment	
<input type="checkbox"/> <input checked="" type="checkbox"/> AnswerAttachmentReferenceCollection	Table	c4codata.AnswerAttachmentReference	
<input type="checkbox"/> <input checked="" type="checkbox"/> AnswerAttachmentTypeCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> AnswerOptionsCollection	Table	c4codata.AnswerOptions	
<input type="checkbox"/> <input checked="" type="checkbox"/> AnswersCollection	Table	c4codata.Answers	
<input type="checkbox"/> <input checked="" type="checkbox"/> AppointmentAttachmentFolderCollection	Table	c4codata.AppointmentAttachmentFolder	
<input type="checkbox"/> <input checked="" type="checkbox"/> AppointmentAttachmentFolderTypeCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> AppointmentAvailabilityCodeCollection	Table	c4codata.CodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> AppointmentBTDReferenceActivityGroupCodeCollection	Table	c4codata.ContextualCodeList	
<input type="checkbox"/> <input checked="" type="checkbox"/> AppointmentBTDReferenceActivityTypeCodeCollection	Table	c4codata.CodeList	

Import

Figure 5.7 The OData Services of SAP Sales Cloud in SAP Cloud Platform Integration for Data Services

SAP Integrated Business Planning Data Store Definition

[Figure 5.8](#) shows an example of creating a SAP Cloud Platform Integration for data services data store for the SAP IBP system. This data store should be created as follows:

- ① Specify the **Name** of the data store.
- ② Select the **Type**.
- ③ Select the **Instance** of the SAP IBP system.

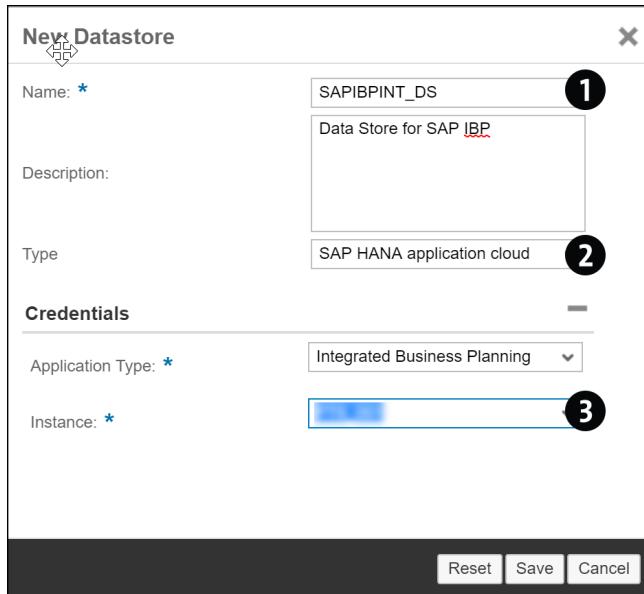


Figure 5.8 Adding the SAP IBP Data Store in SAP Cloud Platform Integration for Data Services

The application type and the instance are crucial in defining the data store for the SAP IBP system. The instance is defined by the SAP Cloud Operations team during the provisioning of the SAP Cloud Platform Integration for data services server instance. You can test this connection just like you tested the SAP Sales Cloud data store that you created earlier. Now you're ready to import objects from the SAP IBP system. Import the objects by choosing **Datastores • Tables • Import Objects or Import Objects by Name**.

[Figure 5.9](#) shows the key figure and master data imports for the SAP IBP data store. Here you can see the following:

- ① Select the **Timeseries Folder** for the key figure data import. Select the **Master Data Folder** for master data import.
- ② If the **Master Data Folder** is selected, then scroll and select the appropriate master data type for import.

- ③ If the **Time Series Folder** is selected, then scroll and select the appropriate planning area and the version.

Import Objects

Name	Type	Imported	Description
<input type="checkbox"/> Calculation Scenario Folder			Calculation Scenario Folder
<input type="checkbox"/> Calendar Folder			Calendar Folder
<input type="checkbox"/> Master Data Folder			Master Data Folder
<input type="checkbox"/> Timeseries Folder			Timeseries Folder

Import Objects

Name	Type	Imported	Description
<input type="checkbox"/> SAPIBPINT			Unified Planning Area
<input type="checkbox"/> <input type="checkbox"/>	table		
<input type="checkbox"/> <input type="checkbox"/> SOPMD_IN1AGGCONSTRAINT	table		
<input type="checkbox"/> <input type="checkbox"/> SOPMD_IN1ASSUMPTIONCATEGORY	table		
<input type="checkbox"/> <input type="checkbox"/> SOPMD_IN1BATCH	table		
<input type="checkbox"/> <input type="checkbox"/> SOPMD_IN1BATCHPRODUCT	table		
<input type="checkbox"/> <input type="checkbox"/> SOPMD_IN1COMPONENT	table		

Import Objects

Name	Type	Imported	Description
<input type="checkbox"/> SAPIBPINT			Unified Planning Area
<input type="checkbox"/> <input type="checkbox"/> SOPDD_STAGING_KFTAB_DOWNSIDESAPIBPINT	table		
<input type="checkbox"/> <input type="checkbox"/> SOPDD_STAGING_KFTAB_DOWNSIDESAPIBPINT_REP	table		
<input type="checkbox"/> <input type="checkbox"/> SOPDD_STAGING_KFTAB_SAPIBP1SAPIBPINT	table		
<input type="checkbox"/> <input type="checkbox"/> SOPDD_STAGING_KFTAB_SAPIBP1SAPIBPINT_REP	table		
<input type="checkbox"/> <input type="checkbox"/> SOPDD_STAGING_KFTAB_UPSIDESAPIBPINT	table		
<input type="checkbox"/> <input type="checkbox"/> SOPDD_STAGING_KFTAB_UPSIDESAPIBPINT_REP	table		

Figure 5.9 Key Figure and Master Data Object Imports for SAP IBP Data Store

After selecting the right objects, click on **Import** to see these objects in the **Tables Section of the Datastore**. Set up the system configuration by navigating to **Datastores • System Configurations**. Create a new **System Configuration**, and add the SAP IBP data store that you've just created. Save your entries.

You've successfully created the SAP IBP data store. Now you can create the SAP Cloud Platform Integration for data services task and data flow for actual integration.

SAP Cloud Platform Integration for Data Services Task and Data Flow Definitions

The SAP Cloud Platform Integration for data services task definition includes the selection of the source and the target data stores. The tables that were imported in the [SAP Sales Cloud Data Store Definition](#) and [SAP Integrated Business Planning Data Store Definition](#) sections are the only objects that can be selected from the source and the target data stores. You can encapsulate the different tasks in a **Projects** folder.

Note

As of the SAP IBP 1902 release, there are no standard templates available for the SAP Sales Cloud and SAP IBP integration.

Create a project by navigating to **Projects • New Project**. After creation of the project through forward navigation of the **Project** screen, select **Save and Create Task**. In the task, specify the task name. Select the source as the SAP Sales Cloud data store that you created. Similarly, select the target as the SAP IBP data store that you created. Through forward navigation, click on **Save Task and Define the Dataflow**. You're now in the **Task Definition** screen. In this screen, select **Add Target Object**, and add the object to initiate the data flow creation. Select the target object name. Specify the data flow name in the next screen, and the system will automatically insert the target object and the query transform for the target object.

[Figure 5.10](#) shows the example data flow for the sales lead integration.

Drag and drop the source element by selecting the source in the left navigation pane as displayed in [Figure 5.10](#). Similarly, drag and drop a transform if there are any field transformations. For example, if you want to map the date to a week format, you can use this transform. Provide an appropriate name for the transform. Connect the elements of the data flow as displayed in [Figure 5.10](#).

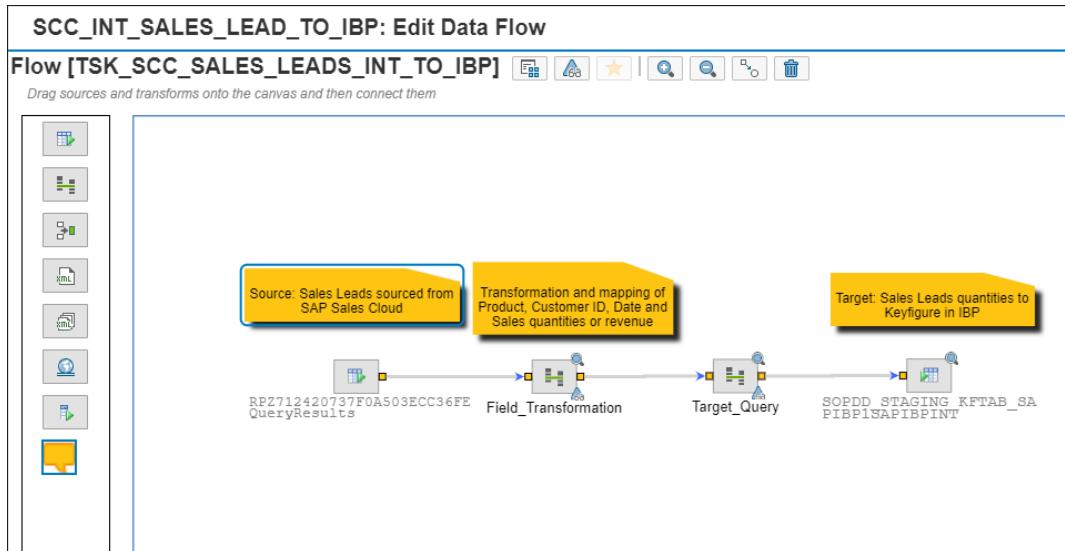


Figure 5.10 Sample Sales Leads Integration Data Flow

Within the source and transforms elements, you'll perform the following tasks:

- Specify the input mapping of the fields. Input mapping fields are input to the data flow element.
- Specify the output mapping of the fields. Output mapping is the output of the transform.
- The target query will have the mapping of the input fields of the target query to the output fields of the key figure or master data.
- Save the data flow by clicking on **Done**.

Now the data flow definition is complete. Navigate back to the **Projects** menu. Execute the created task by selecting the task in the **Projects** menu and clicking on **Run Now**. After the task is completed successfully, you can view the key figure data in SAP IBP via a template in the SAP IBP Excel add-in.

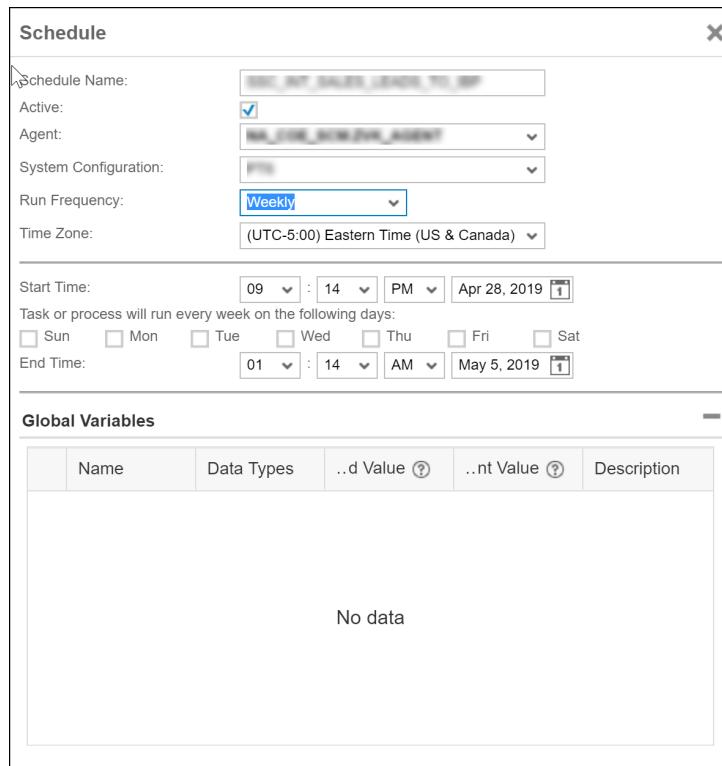
5.6 Scheduling and Monitoring

After the data flow and the task definitions are defined, you can schedule this as a job in SAP Cloud Platform Integration for data services and monitor the task executions. The following sections provide further details.

Job Scheduling

There are two options to schedule the SAP Cloud Platform Integration for data services task. First, in the **Projects** menu, select the task you want to schedule, and choose **Schedule • New**.

[Figure 5.11](#) shows the schedule function in SAP Cloud Platform Integration for data services.



[Figure 5.11](#) Task Schedule in SAP Cloud Platform Integration for Data Services

After the scheduling is completed, you can view the task executions by choosing **Dashboard • Schedules**. The schedules can be set up both on the sandbox and in production tenants.

Second, through the Application Jobs app in SAP IBP, you can also schedule and execute the SAP Cloud Platform Integration for data services task. Use the *Data Integration Using Cloud Platform Integration for data services* template file in the Application Jobs app. Specify the **Organization Name** and **Task Name** to schedule this. If there are multiple steps in the job execution and other templates in SAP IBP that needs to be executed as a multistep template, then you can use this approach to schedule the task execution.

Monitoring Tools

In SAP Cloud Platform Integration for data services under the **Administration • Notifications** menu, you can configure email notifications for the task, process failures/successes, and set up agent notifications. Use the **Notifications** functionality to monitor the SAP Cloud Platform Integration for data services task execution. If the tasks have failed, the detailed log can be viewed either through the **Dashboard • Status** menu or by navigating to the **Projects** menu and selecting the task in the **Projects • View History** menu.

The Data Integration app can be used to check the SAP Cloud Platform Integration for data services task job execution status in SAP IBP. If you've used the Application Jobs app to schedule the task, then the detailed status and logs of the execution is also available in the Application Jobs or Application Logs apps.

The integration concepts and configuration settings provided in this section are applicable for other documents in SAP Sales Cloud such as satisfaction surveys and visits that are part of the service module. You can use the relevant OData services to connect and use these for planning purposes in SAP IBP.

6 Integration with SAP Analytics Cloud

In this section, you'll learn the need for integrating planning data with SAP Analytics Cloud. This section will briefly explain business scenarios and provide an example use case and steps to extract data from SAP IBP to SAP Analytics Cloud.

[Figure 6.1](#) shows the high-level integration points with SAP Analytics Cloud. SAP IBP provides OData services to read and write master data and key figure data. SAP IBP uses communication management to enable integration based on OData services. SAP Analytics Cloud uses the OData URL provided by SAP IBP's communication management.

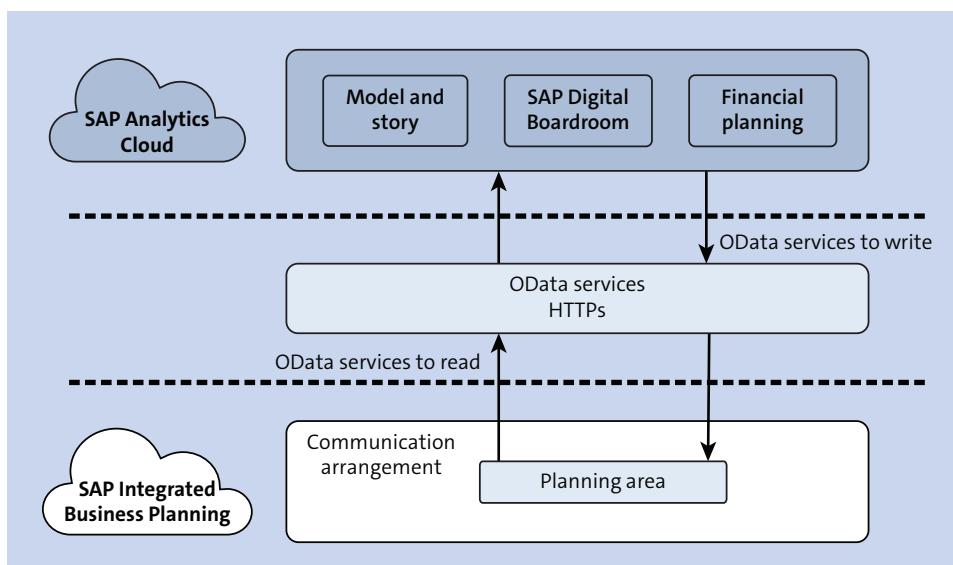


Figure 6.1 High-Level Integration Points with SAP Analytics Cloud

6.1 Business Scenarios for Collaborative Enterprise Planning

SAP has several planning solutions for different domains of business to perform planning activities. Each of these solutions is capable of computing

effective planning results involving different data structures and level of details.

Some of the examples of planning solutions from SAP are as follows:

- **SAP IBP**

Used for supply planning.

- **SAP S/4HANA**

Used for production planning.

- **SAP Analytics Cloud**

Used for financial planning, sales planning, and so on.

Typically, every organization will have strategic planning, financial planning, and operational planning. Strategic planning prepares a plan to meet certain strategic goals for mid- to long-term horizon. Financial planning takes a strategic plan to convert into a financial plan by setting financial targets and key performance indicators (KPIs). Operational plans consider financial targets as input to compute the optimal plan.

Collaborative enterprise planning uses SAP's planning and analytics solutions to align planning data between SAP IBP and SAP Analytics Cloud. SAP Digital Boardroom, with its superior analytical capabilities, plays an important role in bringing all data points from different SAP or non-SAP systems to provide a 360-degree view.

Some use cases of collaborative enterprise planning are as follows:

- Financial planning based on SAP IBP for demand

- S&OP based on financial targets from financial planning

- Revised financial planning based on the constrained demand plan

- 360-view of financial and S&OP information in SAP Digital Boardroom

Figure 6.2 shows the sample integration use case between SAP IBP and SAP Sales Analytics Cloud.

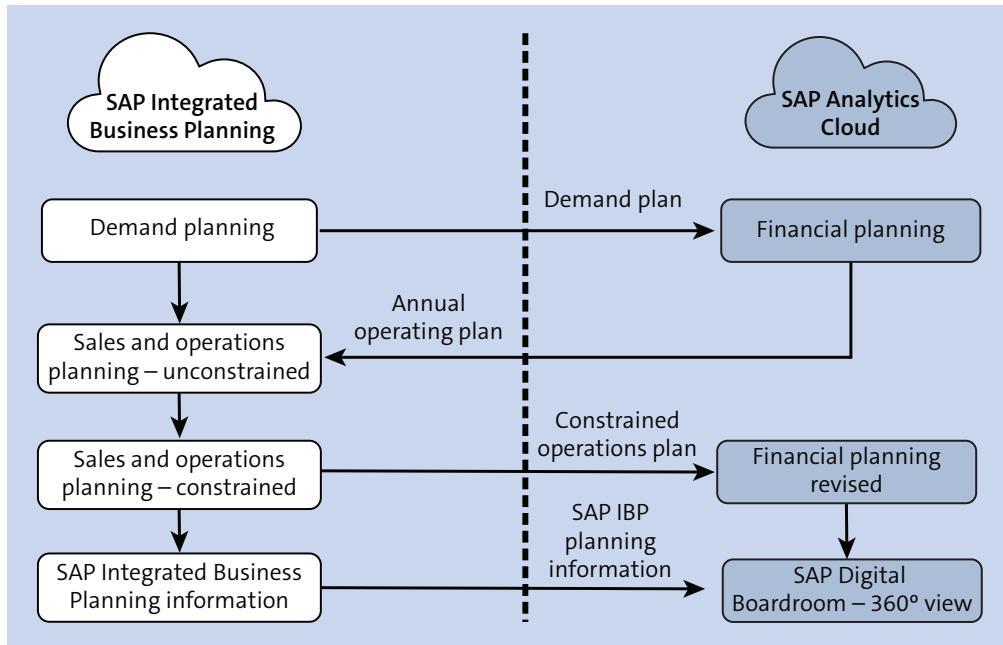


Figure 6.2 SAP IBP and SAP Analytics Cloud Integration Use Cases

6.2 Tactical Financial Planning and Operational Financial Planning

The financial planning process can be divided into tactical financial planning and operational financial planning. Tactical financial planning sets financial targets while operational financial planning derives profitability planning and revised profit/loss planning.

Financial targets are derived in SAP Analytics Cloud based on SAP IBP for sales and operations sales forecasts. Tactical financial planning creates an annual budget plan based on these financial targets.

Operational financial planning starts with the creation of unconstrained demand planning in SAP IBP based on financial targets. An approved SAP IBP consensus demand plan created based on all constraints available within the supply chain is used for deriving profitability in SAP Analytics

Cloud. Based on the new profit and loss plan, revised financial targets and a profit/loss plan are shared with SAP IBP for visibility.

[Figure 6.3](#) shows a flow diagram for tactical and operational financial planning.

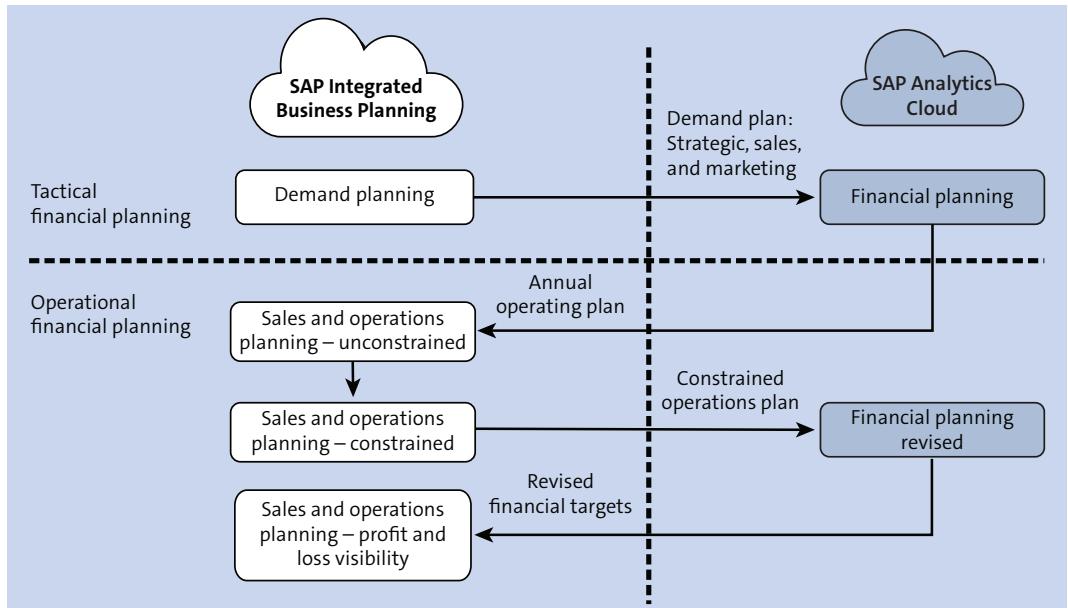


Figure 6.3 Tactical versus Operational Financial Planning

6.3 Set Up SAP Analytics Cloud and OData API Integration

You can import data from SAP IBP into SAP Analytics Cloud for financial planning and enhance analytical reporting.

Note

This section will focus on outbound data integration from SAP IBP to SAP Analytics Cloud. Inbound integration from SAP Analytics Cloud to SAP IBP isn't in the scope of this section. Similar setup and configuration can be realized for the inbound integration.

SAP IBP provides OData service /IBP/EXTRACT_ODATA_SRV to extract key figure data and master data. This OData service is exposed via the SAP_COM_0143 communication scenario. The following setup steps are required to extract data from SAP IBP into SAP Analytics Cloud (steps to set up the required integration are detailed in the [SAP Integrated Business Planning Configuration](#) and [SAP Analytics Cloud Configuration](#) sections):

SAP Integrated Business Planning Configuration

First, you'll need to open the Maintain Communication Users app in the SAP IBP system to define a communication user. Click on **New** to create the new user. Enter the **User Name**, **Description**, and **Password**. Click **Create** to save changes. [Figure 6.4](#) shows an example of a communication user.

The screenshot shows the SAP IBP 'Define Communication User' interface. At the top, it says 'Define Communication User ▾'. Below that, the user name is listed as 'EXT-SAPIBPSAC'. Underneath, there are fields for 'User ID' (disabled), 'Changed By' (disabled), and 'Changed On' (08/03/2019, 14:41:29). A navigation bar at the bottom includes 'General' (selected), 'Used by Communication Systems', and 'Used by Communication Arrangements'. The main area is divided into sections: 'User Data' and 'Password'. In 'User Data', the 'User Name' field contains 'EXT-SAPIBPSAC' and the 'Description' field contains 'SAP IBP SAC User'. There is also a 'Locked' checkbox which is unchecked. In the 'Password' section, there is a password input field with placeholder text 'Enter password ...' and a status message 'Password Status: Productive'. At the bottom, there are buttons for 'Propose Password' and 'Deactivate Password'. A dark grey footer bar at the bottom right contains 'Save', 'Cancel', and 'Display Changes' buttons.

Figure 6.4 Communication User

Next, open the Communication Systems app in the SAP IBP system to define a communication system. The communication system will represent the

OData details and inbound communication user. Click on **New**, and enter the **System ID** and **System Name**. Click **Create** to enter the following details:

- **Host Name**

Enter the SAP IBP system host name – localhost or specify the correct host name for the SAP IBP system.

- **HTTPS Port**

Enter the SAP IBP system port number (e.g., 443).

- **Users for Inbound Communication**

Add the user that was created in the previous step, and then click on **Save** to save the changes.

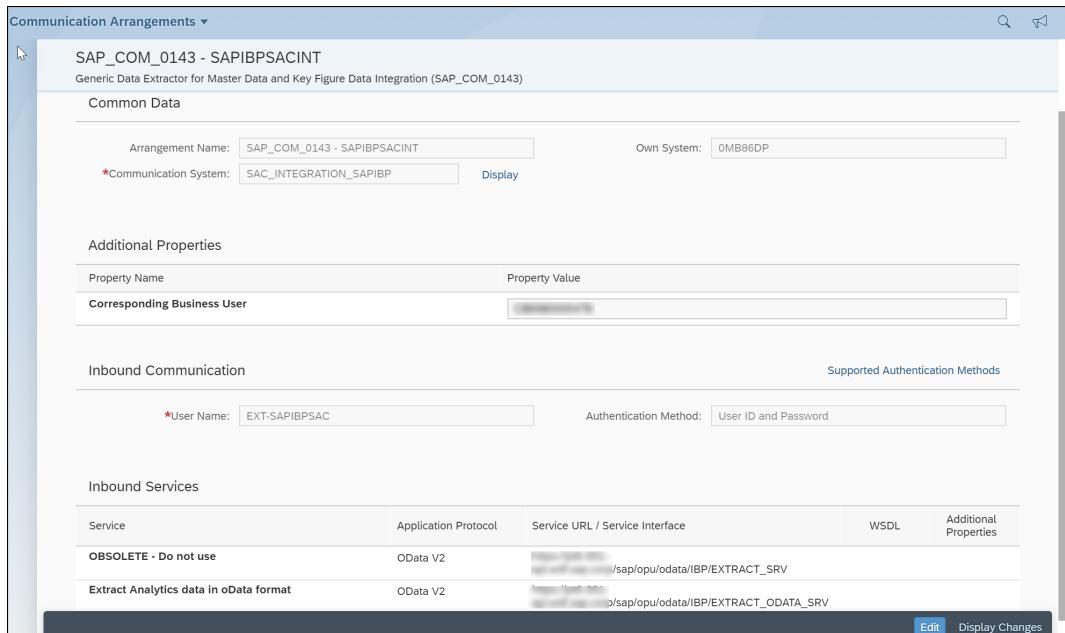
Figure 6.5 shows an example of the communication system.

Figure 6.5 Communication System

Next, open the Communication Arrangements app in the SAP IBP system to define a new communication arrangement. The communication arrangement will establish a link between the communication system and communication

scenario. Click on **New**, select communication scenario **SAP_COM_0143**, and click **Create**. Enter the **Arrangement Name**, and select the **Communication System** that you've created. Then click on **Save** to save the changes.

[Figure 6.6](#) shows an example of a communication arrangement.



[Figure 6.6](#) Communication Arrangement

Finally, go to the Global Configuration app in SAP IBP to enable the planning area for external extraction using OData services. Add the PLANNING AREA parameter under the FLEXQUERY parameter group. Enter the planning area name from which you want to extract the data into SAP Analytics Cloud.

Now you've completed the configuration required for SAP IBP to consume OData in SAP Analytics Cloud.

SAP Analytics Cloud Configuration

From the home page menu of SAP Analytics Cloud, click on **Connection** to create a new connection. Click on **Add Connection**, and select **SAP Integrated Business Planning** as a data source. Enter the following details:

■ **Connection Name**

Specify the connection name of your choice.

■ **Description**

Enter the description which explains the connection.

■ **Data Service URL**

This can be obtained from communication arrangement in SAP IBP.

■ **User Name**

Use the communication user name that was created in the previous section.

■ **Password**

Use the password used in the communication user created in the previous section.

If the URL and credentials are correct, you'll see a success message after the connection is created.

Figure 6.7 shows an example of defining a connection in SAP Analytics Cloud.

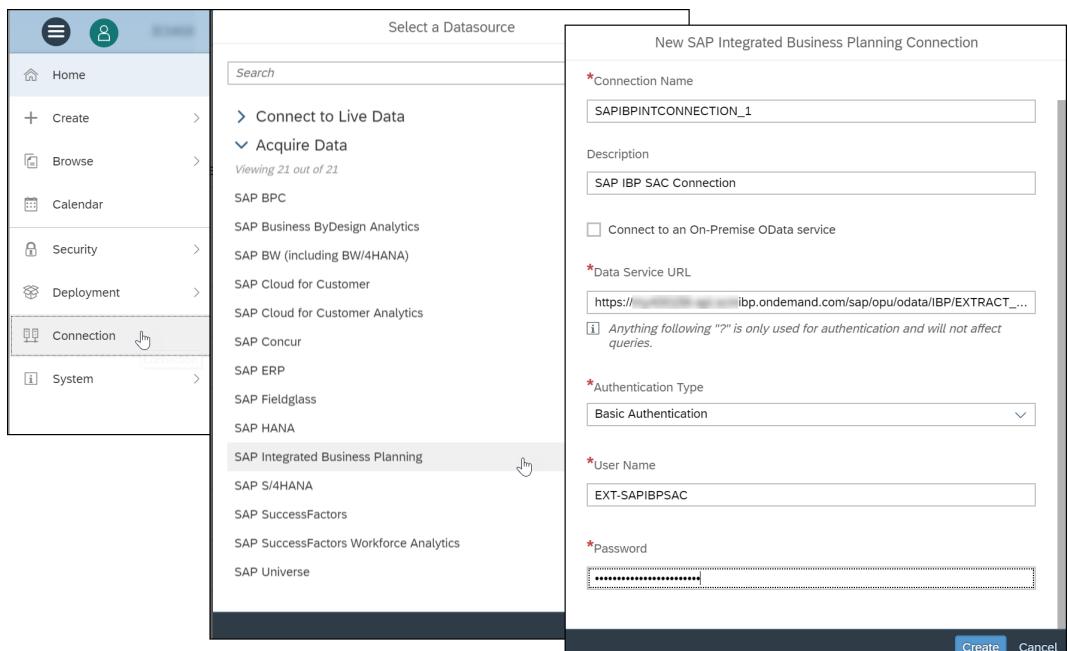


Figure 6.7 Defining a Connection in SAP Analytics Cloud

Next, as shown in [Figure 6.8](#), you'll create a model and build a query to extract data from SAP IBP.

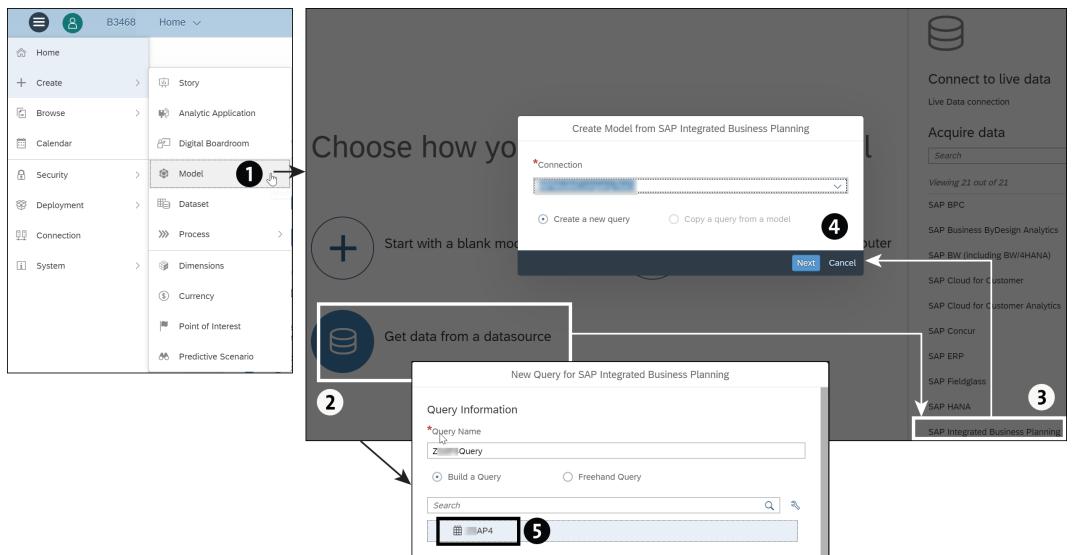


Figure 6.8 Creating a Model and Extracting from the SAP IBP Data Source

The steps are as follows:

- ① From the menu, select **Create • Model** to create a new model.
- ② Select **Get data from a datasource**.
- ③ Choose **SAP Integrated Business Planning** from the list.
- ④ Select the connection you just created. Select **Create a new query**, and click **Next**.
- ⑤ Enter a **Query Name**, select the SAP IBP planning area from the list, and click **Next**.

As shown in [Figure 6.9](#), all master data attributes and key figures from the selected SAP IBP planning area are listed in the **Available Data** section of the query builder. You can select required attributes, time periods, and key figures (e.g., **Week**, **Product ID**, **Customer ID**, and **Consensus Demand**). Drag and drop the selected object from the **Available Data** to the **Selected Data** area.

The screenshot shows two main windows side-by-side.

Top Window: Build SAP Integrated Business Planning Query

- Available Data:** A search bar with 'consens' and a dropdown menu showing results under 'ZSAP4' (e.g., 22 Consensus Demand, 22 Consensus Demand Final, etc.).
- Selected Data (4):** Three items selected: 'AA Week', 'AA Product ID', and '22 Consensus Dem...'. A 'Clear Selection' button is at the top right.
- Filters:** A section with a 'Set Incremental Load' button and a 'Clear Selection' button. It includes a dropdown for 'AA Product ID' set to 'Equal to' 'T-F201;T-F202...'. A 'Filters' button is also present.
- Bottom Buttons:** Back, Create (highlighted in blue), and Cancel.

Bottom Window: Result View

- Header:** Files / New Model.
- Toolbar:** File, Layout, Display, Actions, with a 'Create Transform' button highlighted in blue.
- Table:** A grid showing data from row 2 to 10. The columns are Customer..., Product ID, Week, and Consensu... (partially visible). The data is as follows:

	Customer...	Product ID	Week	Consensu...
2	2200H_01	T-F201	2019 CW22	750
3	2200H_01	T-F201	2019 CW23	875
4	2200H_01	T-F201	2019 CW24	875
5	2200H_01	T-F201	2019 CW25	875
6	2200H_01	T-F201	2019 CW26	875
7	2200H_01	T-F201	2019 CW27	875
8	2200H_01	T-F201	2019 CW28	875
9	2200H_01	T-F201	2019 CW29	875
10	2200H_01	T-F201	2019 CW30	875

Figure 6.9 Query Builder and Result View

Additionally, you can add filters based on master data attributes to restrict data for required data combinations. Click **Create** to view the draft data that is imported from the SAP IBP planning area.

You can now consume integrated data from SAP IBP in SAP Analytics Cloud stories. Similarly, it can be used for SAP Digital Boardroom use cases. In the next section, you'll learn about SAP IBP integration with systems not already covered in this E-Bite.

7 Integration with Any System

SAP IBP can be integrated with any SAP or non-SAP systems. This section describes tools and methods that can be leveraged to integrate any system. You'll also learn the following:

- Integration of SAP APO and SAP BW through SAP Cloud Platform Integration for data services
- SAP HANA smart data integration using a file adaptor
- Integration through OpenAPI and OData services
- CSV file upload using the Data Integration Jobs app

7.1 Integration Using SAP Cloud Platform Integration for Data Services

SAP Cloud Platform Integration for data services can be used to integrate with any SAP cloud solution. Other SAP solutions that have business relevance to be integrated are SAP APO and SAP BW.

SAP Advanced Planning and Optimization

SAP APO is an advanced planning and optimization tool that consists of Demand Planning (DP), Supply Network Planning (SNP), Production Planning and Detailed Scheduling (PP-DS), and Global Available-to-Promise (GATP). This solution consists of very similar functionalities to those in its successor product SAP IBP. Demand planning and supply network planning

functionalities have been moved to SAP IBP. Production planning and detailed scheduling and global available-to-promise are now part of SAP S/4HANA and SAP ERP solutions. There are use cases where the planning data or procurement proposals (planned orders and purchase requisitions that aren't published yet to SAP ERP or SAP S/4HANA) that exist in SAP APO are needed in SAP IBP for executing further planning.

The consensus demand planning data that is derived in SAP APO can be transferred to SAP IBP as input for supply planning. Master data as well as the key figure data that exists in the demand planning area are required in this use case.

Another use case is that SAP APO SNP planned orders or purchase requisitions that aren't published into SAP ERP or SAP S/4HANA can also be transferred as demand for order-based planning to generate procurement proposals.

For SAP APO, you create a data store in SAP Cloud Platform Integration for data services as explained in the [SAP Cloud Platform Integration for Data Services Interface Development](#) section, except that the application server will be SAP APO. All other settings specified in the section remain the same.

To realize these business scenarios, SAP Cloud Platform Integration for data services has predefined key figure templates, which we'll discuss in the following sections.

Template IBP_KF_DEMANDPLANNING

This template data flow consists of master data such as the product master (data flow: DF_IBP_PRODUCTMASTER), units of measure (data flow: DF_IBP_UnitsOfMeasure), units of measure conversion (data flow: DF_IBP_UnitsOfMeasure_Conversion), location master (data flow: DF_IBP_LocationMaster), customer master (data flow: DF_IBP_CustomerMaster), and template (data flow: DF_IBP_PRODUCTMASTER), as shown in [Figure 7.1](#).

	Name	Description
▼	SOPMD_STAG_IBPPRODUCT DF_IPB_ProductMaster	Imported DataFlow with name:DF_IPB_ProductMaster
▼	SOPMD_STAG_IBPUOMTO DF_IPB_UnitsOfMeasure	Imported DataFlow with name:DF_IPB_UnitsOfMeasure
▼	SOPMD_STAG_IBPUOMCONVERSIONFA... DF_IPB_UnitsOfMeasure_Conversion	Imported DataFlow with name:DF_IPB_UnitsOfMeas...
▼	SOPMD_STAG_IBPLOCATION DF_IPB_LocationMaster	Imported DataFlow with name:DF_IPB_LocationMaster
▼	SOPMD_STAG_IBPCUSTOMER DF_IPB_CustomerMaster	Imported DataFlow with name:DF_IPB_CustomerMaster

Figure 7.1 Template IBP_KF_DEMANDPLANNING

To implement these data flows, a data source for this demand planning area must be created in SAP APO.

Figure 7.2 shows the steps to create the data source in SAP APO.

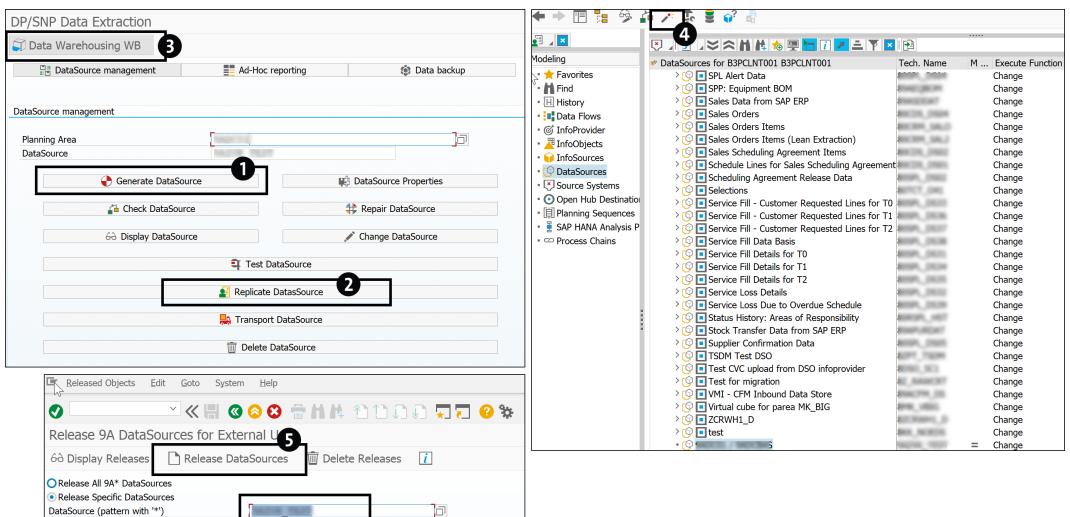


Figure 7.2 Steps to Create the Data Source in SAP APO

To create the data source, execute Transaction /SAPAPO/SDP_EXTR, and follow these steps:

- ① Generate the data source through this transaction for the key figures that are relevant for integration.
- ② Replicate the data source.
- ③ Navigate to the Data Warehousing Workbench.
- ④ Activate this data source.
- ⑤ After activation, expose this data source to the SAP Cloud Platform Integration for data services through report /SAPAPO/PAREA_EXTR_EXPOSE (Transaction SE38).

In the SAP Cloud Platform Integration for data services data flow that has been created, replace the specific data sources with the data sources that have been newly created.

If the data volume is very high, performance degradation may occur with data extraction through data sources. In such scenarios, an ABAP endpoint with the ABAP program in an SAP APO system can be used to extract the data. In this case, the ABAP program can use the existing BAPI to extract the data from the Demand Planning (DP) planning area. Similarly, for extracting the procurement proposals from SAP APO, use the ABAP endpoint as the source in SAP Cloud Platform Integration for data services data flows to extract the data.

Template SOP_APO_TASK

This template doesn't have any transformations but has the preload and postload execution scripts that can be used to create new data flows. The preload script includes the required global variables, such as planning area, load date, scenario, time profiles, and so on.

Template SOP_KF_CapacityLimit

This template integrates the capacity limit of the resource. The resource header and the capacity key figure from SAP APO are joined in the source to extract the data. Create a key figure data source as explained in the [Template IBP_KF_DEMANDPLANNING](#) section to extract the data from the SAP APO system. Replace the 9A_CAPACITY_SOP source with this new data source that was created for capacity.

Template SOP_KF_Consumption

This template integrates the production data structures bucket consumption and the variable consumption data from SAP APO.

SAP Business Warehouse

SAP Business Warehouse (SAP BW) provides the tools to logically group huge volumes of business master data and transactional data for analysis. By analyzing the data through BI tools such as SAP Business Explorer (SAP BEx), important information can be extracted to drive business decisions. Some of the key components of SAP BW are data warehouse, planning modeler, and SAP BEx. SAP BW can be used to store historical, current, and planned data. This data can be analyzed to extract BI data, such as market fluctuations, and can be used to analyze data errors. SAP BW historical data can be used by SAP IBP for demand and SAP IBP for sales and operations to derive forecasts.

To integrate data with SAP BW or SAP BW/4HANA, SAP Cloud Platform Integration for data services provides three data stores types, as follows:

- **SAP BW source**

Create this data store type for extracting data from SAP BW. The objects that can be imported into this type of data store are table and SAP_EXTRACTOR. The SAP_EXTRACTOR object type requires a DSO to be created and exposed externally in SAP BW or SAP BW4/HANA.

■ SAP BW target

Create this data store type for extracting data from SAP IBP and integrating into SAP BW or SAP BW/4HANA. The *transaction InfoSources* and *master InfoSources* maintained in Transaction RSA1 are the available objects that can be imported for this type of data store.

■ Database

Create this data store for extracting data from SAP BW or SAP BW/4HANA. For this type of data store, specify the database. For SAP BW/4HANA, the database parameter should be set to **SAP HANA**. Connection to the database can be set up either by using Open Database Connectivity (ODBC) or through the database server name. If you use ODBC, then the ODBC data source name and user name are mandatory parameters to create the data store. If you use the database server name, then the database server name, database name, port number, and user name are mandatory parameters.

[Figure 7.3](#) shows the different data stores that can be created for SAP BW in SAP Cloud Platform Integration for data services.

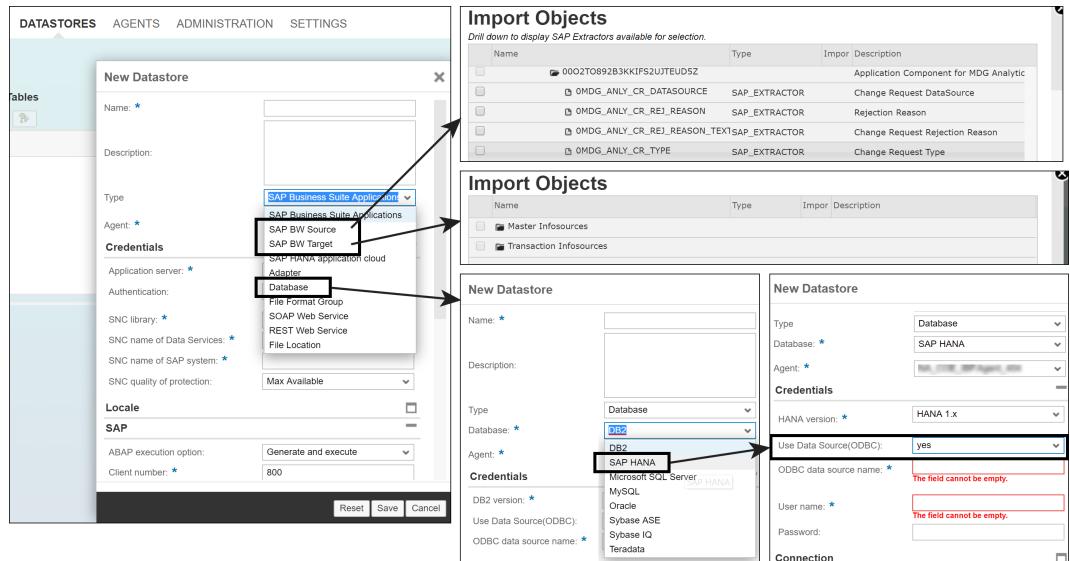


Figure 7.3 Data Stores and the Import Objects for SAP BW in SAP Cloud Platform Integration for Data Services

As explained in the [Create the Remote Function Call User in SAP Demand Signal Management](#) section, an RFC connection is required for the connections to SAP BW and SAP BW/4HANA.

The creation of the project, tasks, and data flow is similar to the setup explained in the [Set Up SAP Cloud Platform Integration for Data Services](#) section.

Note

SAP BEx queries in SAP BW can't be executed by SAP Cloud Platform Integration for data services, so they aren't supported by that application.

7.2 Integration Using SAP HANA Smart Data Integration File Adapter

Some integration use cases might be using other third-party ERP systems instead of SAP ERP. In such scenarios, SAP IBP allows data transfers through file adapters.

You learned in [Section 2.4](#) about the integration of order-based planning through the ABAP adapter. You'll learn in this section about the integration of master data and transactional data through file adapters.

The architecture of integration using the SAP HANA smart data integration file adapter was shown earlier in [Figure 2.1](#). Instead of the ABAP adapter, you select the file adapter as the **SDI Agent** parameter.

SAP IBP uses OpenAPIs to transfer the data through the file adapters.

The requirements for SAP HANA smart data integration through file adapters are as follows:

- File format for download and upload of data
- SAP HANA smart data integration Data Provisioning Agent setup
- Remote sources configured in SAP IBP

- File download and upload capabilities in third-party ERP solutions or SAP ERP
 - Integrating data between SAP IBP and SAP ERP through file adapters

File Format for Download and Upload of Data

OpenAPI in SAP IBP requires the integrated data to be in CSV and CFG (configuration) file formats. The CFG files provide the format of the data files and consists of data file format, filename pattern, row delimiter, codepage format, columns, column data types, and so on. [Figure 7.4](#) shows an example of configuration and data file formats (CFG ① and CSV ②) for integrating material master data.

```
1 FORMAT=CSV
2 FORCE_FILENAME_PATTERN=IBP_MATERIAL_XX%.CSV
3 FORCE_DIRECTORY_PATTERN=
4 LOCALIZE=en_US
5 COLUMN_DELIMITER|,
6 ROW_DELIMITER=\r\n
7 CODEPAGE=UTF-8
8
9 TEXT_QUOTES="
10 TEXT_QUOTES_ESCAPE_CHAR="
11 ESCAPE_CHAR=\
12 ERROR_ON_COLCOUNT=true
13 QUOTED_TEXT_CONTAIN_ROW_DELIMITER=false
14 SKIP_HEADER_LINES=1
15 COLUMN_CUST_ATTR1:VARCHAR(10 ) :Extension Attribute 1 (Length 10)
16 COLUMN_CUST_ATTR10:VARCHAR(40 ) :Extension Attribute 10 (Length 40)
17 COLUMN_CUST_ATTR2:VARCHAR(10 ) :Extension Attribute 2 (Length 10)
18 COLUMN_CUST_ATTR3:VARCHAR(10 ) :Extension Attribute 3 (Length 10)
19 COLUMN_CUST_ATTR4:VARCHAR(8 ) :Extension Attribute 4 (Date)
20 COLUMN_CUST_ATTR5:VARCHAR(20 ) :Extension Attribute 5 (Length 20)
21 COLUMN_CUST_ATTR6:VARCHAR(20 ) :Extension Attribute 6 (Length 20)
22 COLUMN_CUST_ATTR7:INTEGER(10 ) :Extension Attribute 7 (Int4)
23 COLUMN_CUST_ATTR8:DECIMAL(13 ,3 ) :Extension Attribute 8 (Quantity 13,3)
24 COLUMN_CUST_ATTR9:DECIMAL(5 ,2 ) :Extension Attribute 9 (Decimal 3,2)
25 COLUMN_LVNM:VARCHAR(1 ) :Deletion Indicator
26 COLUMN_MATTR:VARCHAR(9 ) :Material Group
27 COLUMN_MATTRN:VARCHAR(40 ) :Material Number
28 COLUMN_MEINS:VARCHAR(3 ) :Base Unit of Measure
29 COLUMN_MTART:VARCHAR(4 ) :Material Type
30 COLUMN_PRDHA:VARCHAR(18 ) :Product Hierarchy
```

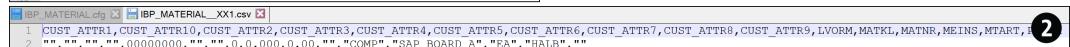


Figure 7.4 Example CFG and CSV Files for Integrating Material Master Data

As of release SAP IBP 1905, there are 50 file formats covering configuration, master data, and transactional data. Refer to SAP Note 2479514 for more information and to download all the CFG and CSV files. Just make sure the correct OpenAPI version formats are downloaded from this note.

Data Provisioning Agent Setup

You must install the SAP HANA smart data integration agent (Data Provisioning Agent) and configure the Data Provisioning Agent for the file adapter.

To install the Data Provisioning Agent, download the Data Provisioning Agent installation files. [Figure 7.5](#) shows the following steps for installation after the Data Provisioning Agent installation files are downloaded:

- ① The downloaded file will contain a Data Provisioning Agent zip file.
- ② Extract the ZIP file, and navigate to the *hdbsetup.exe* file.
- ③ Execute the *hdbsetup.exe* file as an administrator by right clicking and selecting **Run as Administrator** from the context menu. Forward navigate on the **SAP HANA Data Provisioning Agent** screen, and specify the installation path and installation properties, such as the Data Provisioning Agent unique name, domain user name/password, and password for the agent service user. After the installation is complete, an entry in the Windows **Start** menu is created: **SAP HANA • SAP HANA Data Provisioning Agent Configuration**. The Data Provisioning Agent configuration files are stored in the directory path that was specified during the installation.

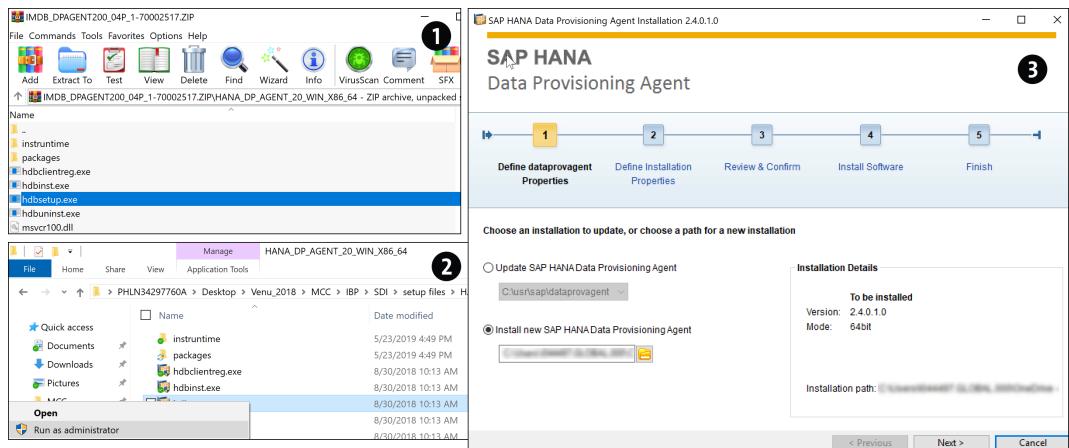


Figure 7.5 Steps for SAP HANA Smart Data Integration Data Provisioning Agent

The Data Provisioning Agent configuration steps are shown in [Figure 7.6](#), as follows:

- ➊ Configure **Connect to HANA** and **Configure SSL**. The hostname, user names, and passwords to connect to SAP HANA are provided by SAP Cloud Operations during the provisioning of SAP IBP.
- ➋ After the connection to SAP HANA is set up, register the agent by selecting the **Register Agent** button. After the agent is registered, you'll be able to see the list of adapters that are deployed.

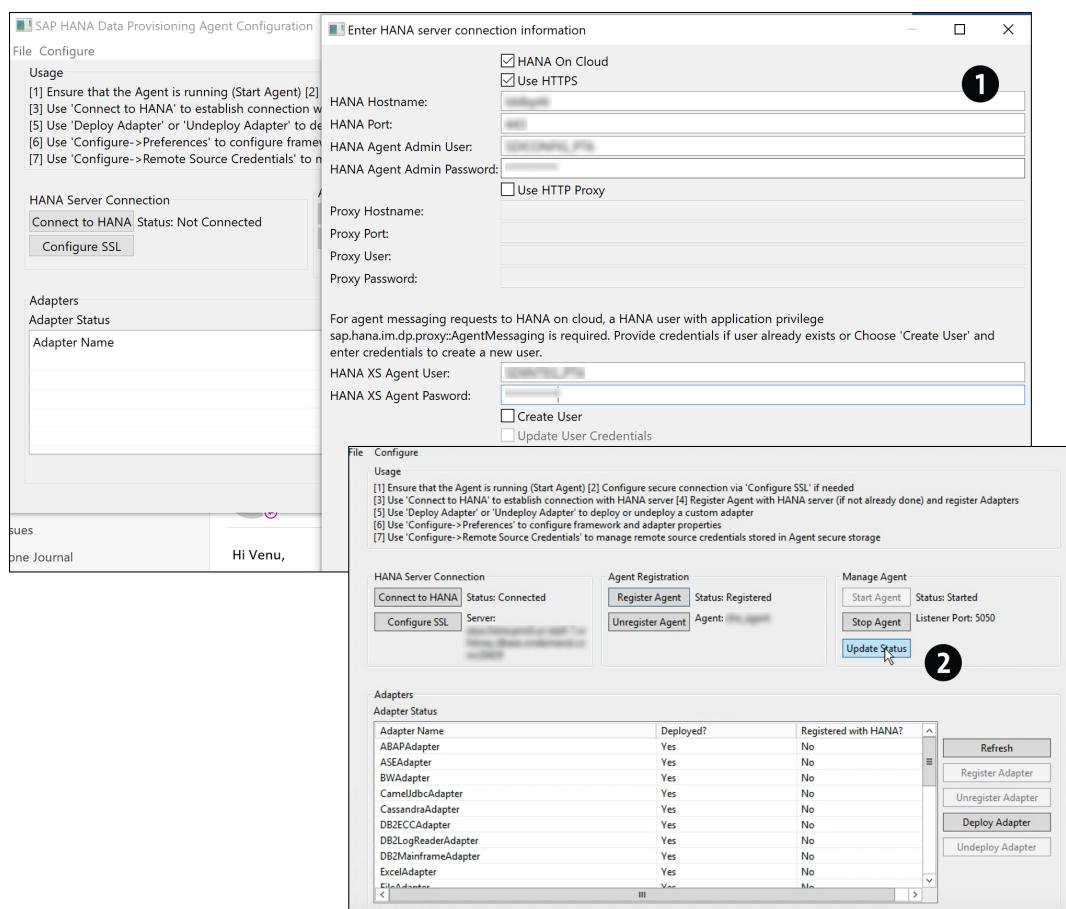


Figure 7.6 Data Provisioning Agent Configuration Steps

Now you've completed the Data Provisioning Agent installation and configuration setup.

Configure Remote Sources in SAP Integrated Business Planning

Use the Configure Remote Source – Smart Data Integration app in SAP IBP for this purpose. The Data Provisioning Agent that was configured in the previous section can now be used to configure remote sources. An example of configure remote sources for file adapters is shown in the [Configure SAP Integrated Business Planning Remote Data Source](#) section. Select the **SDI Agent** parameter as the **File Adapter**.

Select the **Source Options** and **Target Options** parameters as the **Local File System**. The path to the file directory should be maintained in **Root Directory**, and the format of the files should be maintained in **Directory of the File Format Definitions (.cfg files)**.

File Download and Upload Capabilities in Third-Party ERP Solutions

In third-party ERP systems, you must include the functionality to upload and download the file data from the root directory. These third-party ERP solutions should also have the capability to integrate the relevant data into their native applications, such as logistics, sales and distribution, purchasing, and so on.

If file adapters are used for integration with SAP ERP, then implement the following SAP Notes (see [Figure 7.7](#)):

① SAP Note 2316969

Implement to integrate order data from SAP IBP into SAP ERP. This SAP Note has the steps to create ABAP program ZIBP_ERP_INBOUND_INTEGRATION.

② SAP Note 2289945

Implement to integrate the configuration, master data, and transactional data from SAP ERP. This SAP Note has the steps to create SAP ERP database table ZIBP_OPEN_ORDER and ABAP program ZIBP_ERP_OUTBOUND_INTEGRATION.

The interfaces of programs ZIBP_ERP_OUTBOUND_INTEGRATION and ZIBP_ERP_INBOUND_INTEGRATION are shown in [Figure 7.7](#).

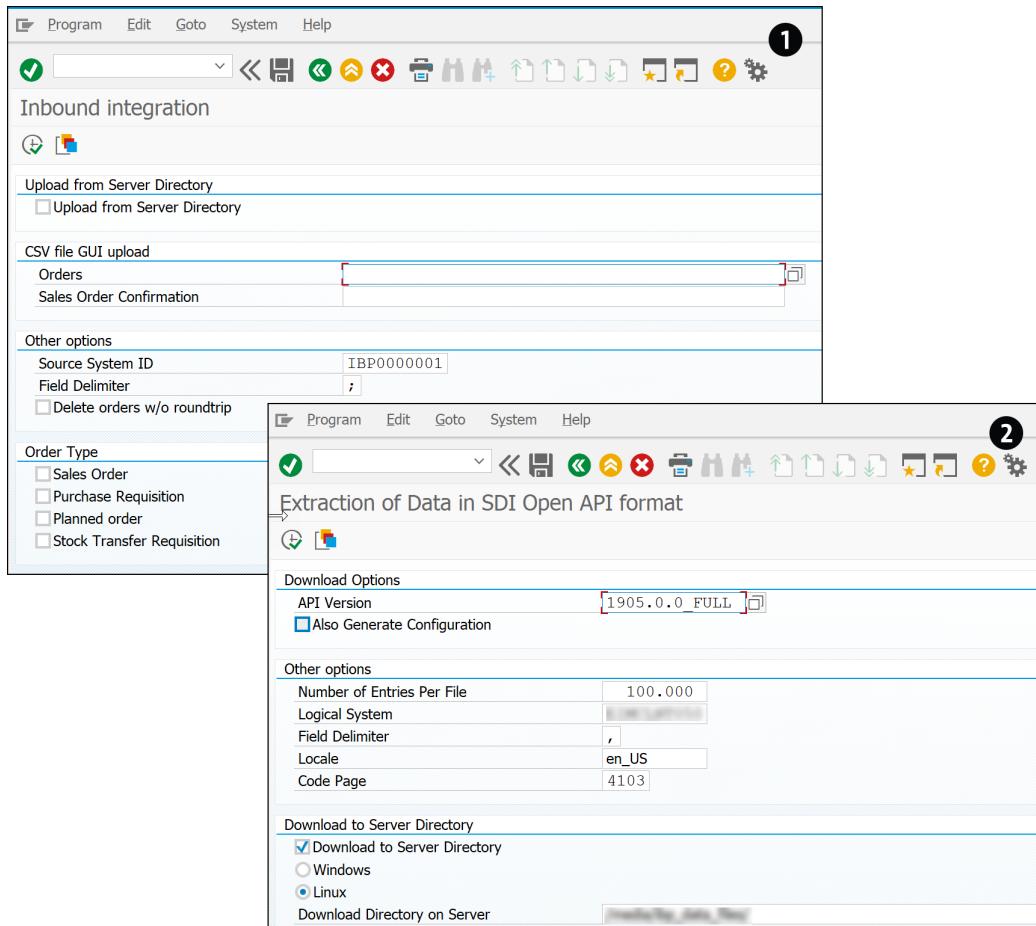


Figure 7.7 SAP ERP ABAP Reports for File Adapter Integration

Note

SAP Notes 2289945 and 2316969 are consulting notes and aren't supported by standard SAP support. These SAP Notes provide sample programs and templates to perform the file adapter integration with SAP IBP and SAP ERP. One of the prerequisites of implementing these notes is to install the SAP ERP, supply chain integration add-on for SAP Integrated Business Planning version 1.1.

Integrating Data between SAP IBP and SAP ERP via File Adapters

Follow these steps to integrate data from SAP ERP to SAP IBP through a file adapter:

1. Execute report ZIBP_ERP_OUTBOUND_INTEGRATION in SAP ERP to transfer the configuration, master data, and transactional data from SAP ERP to the CSV files.
2. Execute the application job **Data Integration using SAP HANA SDI (Inbound)** from the Application Jobs app in SAP IBP. The steps to create the job are the same as mentioned in the [Configure SAP Integrated Business Planning Remote Data Source](#) section, except that the **Remote Source** field in the parameters section is set to the remote source with the **File Adapter** type.

Similarly, to integrate the order data, such as sales order confirmations, planned orders, and purchase requisitions, follow these steps:

1. Execute the **Data Integration using SAP HANA SDI (outbound)** application job from the Application Jobs app in SAP IBP. The steps to create the job are the same, except that the **Remote Source** field in the parameters section is set to the remote source with the **File Adapter** type.
2. Execute report ZIBP_ERP_INBOUND_INTEGRATION in SAP ERP to transfer the order data from CSV files to the SAP ERP applications.

7.3 Integration Using OpenAPI and OData Services

OpenAPI is based on SAP HANA smart data integration and can be used for periodic data transfer from any system to an order-based external data store in SAP IBP. If the source system is SAP ERP, you can use the SAP ERP, supply chain integration add-on to transform master data and transactional data. If the source system is SAP S/4HANA, you can use the SAP S/4HANA, supply chain integration add-on to transform master data and transactional data. Refer to [Section 2.4](#) for a detailed use case using OpenAPI.

SAP IBP also provides OData services to integrate data with external systems to support several integration scenarios. While integrating with external systems, you need to establish a connection with SAP IBP by setting up the communication system, communication user, and communication arrangement. Refer to the [SAP Analytics Cloud Configuration](#) section for detailed steps in the context of integrating SAP IBP with SAP Analytics Cloud.

Some of the supported scenarios and respective OData services are as follows:

- **Integrating permission filters and attribute permissions**
 - /IBP/VISIBILITY_FILTER_SRV: Can be used to read, create, or maintain permission filters and assign them to users and user groups. This service is part of the SAP_COM_0069 communication scenario.
 - /IBP/ATTPERM_API_SRV: Can be used to read, create, or maintain attribute permissions and assign them to users and user groups. This service is part of the SAP_COM_0069 communication scenario.
- **Integrating exception monitoring with SAP IBP logging**

This integration is typically implemented with SAP Solution Manager for business process monitoring and exception handling. /IBP/LOG_VIEW_SRV can be used to read SAP IBP logs and is part of communication scenario SAP_COM_0068.
- **Integrating job scheduling via external tools**

In a complex system landscape, a centralized job scheduling tool will be needed to orchestrate the execution and monitoring of cross-system application jobs (e.g., SAP Business Process Automation by Redwood). BC_EXT_APPJOB_MANAGEMENT can be used to schedule, cancel, and check the status of a job. A typical use case for this is managing job scheduling with an external job scheduler in both on-premise and cloud systems. This service is part of the SAP_COM_0064 communication scenario.
- **Integrating reference product assignments for new product introduction**

/IBP/DEMAND_LIFE_CYCLE_EXT_SRV can be used to maintain and display reference product assignments for new product introduction and is part of communication scenario SAP_COM_0072.

- **Extracting key figure data and master data from SAP IBP**

This type of OData service is used for SAP Analytics Cloud integration with SAP IBP. /IBP/EXTRACT_ODATA_SRV can be used to extract master data and key figure data and is part of communication scenario SAP_COM_0143.

In the following sections, we'll look at two example scenarios of integration using an OData service.

Scheduling SAP IBP Application Jobs with Postman

OData service BC_EXT_APPJOB_MANAGEMENT integrates job scheduling through external tools. The example provided in this section uses the *Postman* tool to trigger the OData service that schedules the application job template. Postman is a freely downloadable tool used for interfacing the APIs. Similarly, any other job scheduler tools, such as SAP Business Process Automation by Redwood or Azure Scheduler, can be used. The aim of this example is to demonstrate the steps required to execute the OData service successfully. In this example, the application job template created in SAP IBP executes an S&OP operator. Follow these steps:

1. In SAP IBP, create an application job template through the Application Job Templates app. [Figure 7.8](#) shows an example of creating an application job template in SAP IBP.

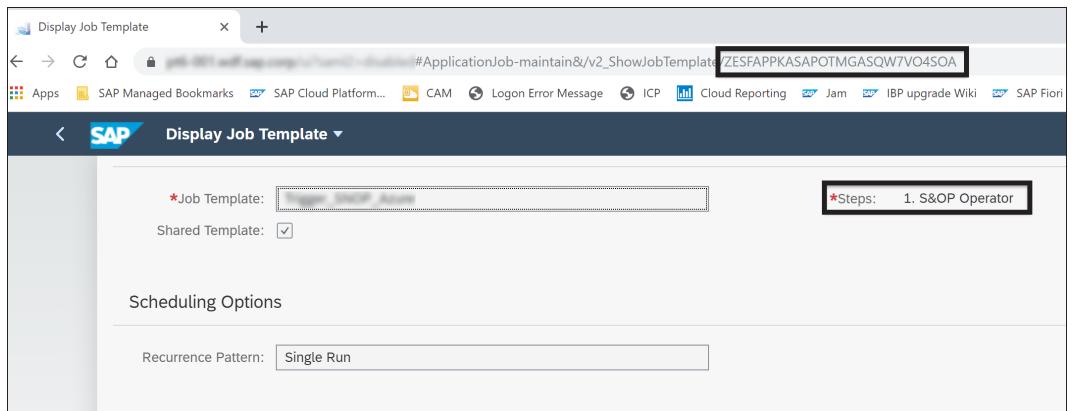


Figure 7.8 Creating the Application Job Template in SAP IBP

Note the application **Job Template** name. This job template name will be used in calling the OData service from Postman. Ensure that this application job template has the **Shared Template** checkbox selected.

2. Create the communication arrangement, communication system, and communication user for communication scenario SAP_COM_0064. For further details, refer to the [SAP Integrated Business Planning Configuration](#) section. Note down the communication user name/password and the URL from the **Inbound Services • Service URL/Service Interface**. Normally the service URL is in this format:

`https://<IBPsystemURL>/sap/opu/odata/sap/BC_EXT_APPJOB_MANAGEMENT;v=0002`

3. In the Postman tool, use the GET method of OData service BC_EXT_APPJOB MANAGEMENT to fetch x-csrf-token. [Figure 7.9](#) shows the execution of the GET method.

The screenshot shows the Postman interface with the following details:

- Method:** GET (top left)
- URL:** https://pt6-001-api.wdf.sap.corp/sap/opu/odata/sap/BC_EXT_APPJOB_MANAGEMENT;v=0002/JobTemplateSet (top center)
- Send Button:** A large blue "Send" button with a dropdown arrow is located at the top right.
- Headers Tab:** The "Headers" tab is selected, indicated by a red underline. It contains one header entry: "x-csrf-token" with the value "Fetch".
- Temporary Headers:** A section titled "Temporary Headers (9)" is shown below the main headers, containing five entries: "content-type" (value: "application/atom+xml;type=feed; charset=utf-8"), "content-length" (value: "38899"), "x-csrf-token" (value: "9iQxH-OZk5orm4DDi7vGrw=="), and "dataserviceversion" (value: "2.0").
- Status Bar:** At the bottom right, it shows "Status: 200 OK", "Time: 870ms", and "Size: 38.57 KB".
- Save Response:** A "Save Response" button is located at the bottom right of the status bar.

Figure 7.9 Executing the Get Method in Postman

This token is used in the Post method of the OData service to post the job scheduling. In [Figure 7.9](#), you see the following steps:

- ❶ Select the **GET** method, and insert the service URL along with “/JobTemplateSet” concatenated at the end of the service URL.
 - ❷ Navigate to the **Headers** tab, and enter the key value for **x-csrf-token** as **Fetch**. In the **Authorization** tab, enter the **Communication User Name** and **Password**.
 - ❸ Click on the **Send** button.
 - ❹ The result of the output is shown in the **Status** section.
 - ❺ Navigate to the **Headers** tab of the **Result** area. Note down the **x-csrf-token**.
4. In the Postman tool, use the Post method to execute the application job template in SAP IBP. [Figure 7.10](#) shows the following steps for executing the Post method in Postman:
- ❶ Select the Post method, and input the service URL in the following format:
https://<IBPsystemURL>/sap/opu/odata/sap/BC_EXT_APPJOB_MANAGEMENT;v=0002/JobSchedule?JobTemplateName='ZESFAPPKASAPOT-MGASQW7VO4SOA'&JobText='<Any Job text>'&JobUser='<Business User>'
In the service URL, insert the job template that has been noted as the *jobTemplateName*. The *Job text* can be any text you prefer. *JobUser* should be the business user ID for the user who will execute the Job.
 - ❷ In the **Params** tab, you can see the service URL parameters.
 - ❸ Navigate to the **Headers** tab, and insert the **x-csrf-token** obtained in the Get method.
 - ❹ Click on the **Send** button.
 - ❺ In the results section, you should be able to see the **Status** of the Post method.

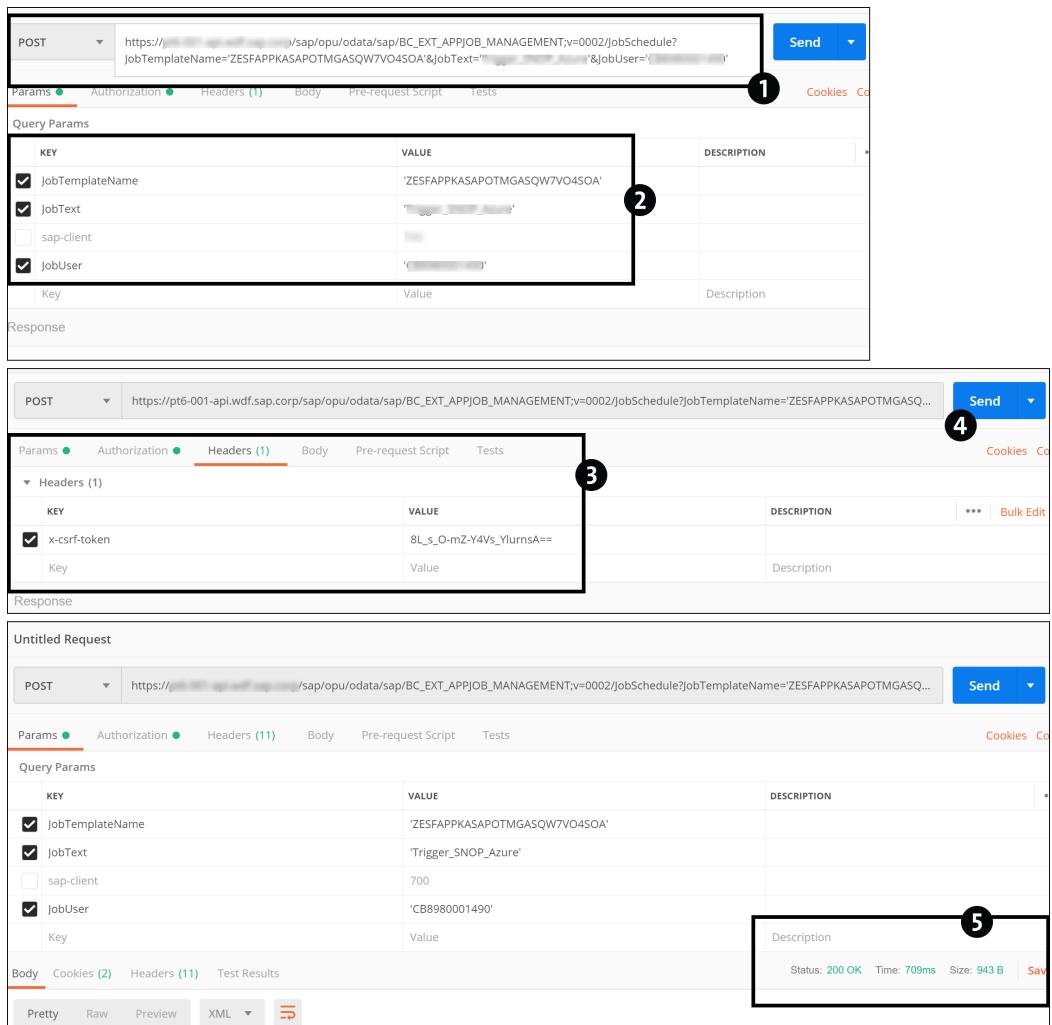


Figure 7.10 Executing the Post Method in Postman

5. Ensure that the status is green. You've now successfully executed the application job template in SAP IBP.
6. To verify the execution, navigate to the Application Jobs SAP IBP system app. You should be able to see the execution of the application job with the specified job text. [Figure 7.11](#) shows the Application Jobs app after the Post method was executed.

Status	Log	Results	Steps	Description	Planned Start	Created By
Finished	[i]		1	Trigger_IBP_Job	08/19/2019, 17:20	Test for Job scheduler >
Failed	[i]		1	Trigger_IBP_Job	08/19/2019, 15:21	Test for Job scheduler >

Figure 7.11 SAP IBP Application Jobs App

Many application job templates are available to be executed through OData service BC_EXT_APPJOB_MANAGEMENT.

Reading SAP IBP Logs with Microsoft Power Business Intelligence

The /IBP/LOG_VIEW_SRV ODATA service allows administrators to monitor SAP IBP application logs. This OData service provides the header, status, and detailed logs. The example scenario mentioned in this section uses this OData service to create reports and dashboards through the freely downloadable *Power BI Desktop* application from Microsoft. The *Power BI Desktop* reports and dashboard can be migrated to the *Power BI Embedded* services in Microsoft Azure. This scenario uses xibpxC_log_hdr to display the application log headers in the Power BI Desktop reports and dashboard. A graph can also be generated, for example, to represent the most-used applications in SAP IBP.

Figure 7.12 shows the Power BI Desktop frontend, where you'll take the following steps:

- ① Navigate to **Get Data • OData feed** on the toolbar.
- ② In the next screen, specify the OData link in the format: https://<IBPsystem URL>/sap/opu/odata/IBP/LOG_VIEW_SRV/. Select the **Basic** authentication. The user name and password that you specify here must be the

communication user name and password that is used in the communication arrangement. Select the **OK** button.

- ③ Now you'll be able to view all the output entries from the OData service. Select table **xibpxC_log_hdr**.

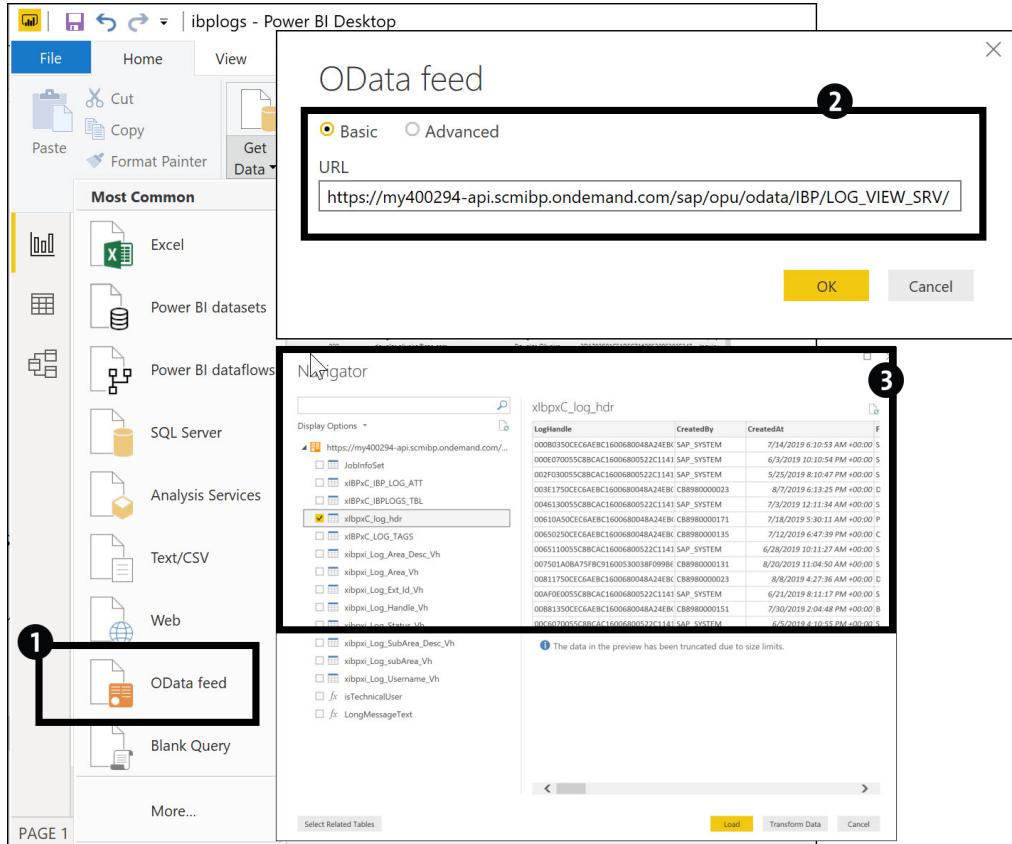


Figure 7.12 Microsoft Power BI Desktop Application Frontend

If you want to edit the output of the report, for example, the order of columns, click on **Transform Data**, as shown in [Figure 7.13](#), and edit the report view. Save your report by selecting the **Save** button.

Similarly, you can create a stacked bar chart from the visualizations pane. Provide the **Axis**, **Legend**, and **Value** fields by dragging from the **Fields** pane into the **Values** pane.

The screenshot shows the Power Query Editor interface. A query named 'ibpxc_log.hdr' is open. A specific row is selected for editing, with its details visible in the preview pane below. The 'IBP/CM_JOB_SCHE' column is highlighted.

Figure 7.13 Editing the Output of the Report

Publish the report and the bar chart by selecting the **Publish** button. After the publish is complete, you'll get a success message. Go to the Power BI app by selecting the link from the **Publish** screen.

Figure 7.14 shows the report display with application logs from SAP IBP.

The screenshot shows the Power BI Desktop interface. A report titled 'ibplogs' is displayed. The report contains a table of application logs from SAP IBP, with columns including Area, Year, Quarter, Month, CreateBy, DetailsMgld, EmailAddress, and LogNumber. The table is sorted by LogNumber.

Figure 7.14 Report Display of Application Logs in Power BI Desktop

[Figure 7.15](#) shows the stacked bar chart in Power BI Desktop revealing the most-used application in SAP IBP.

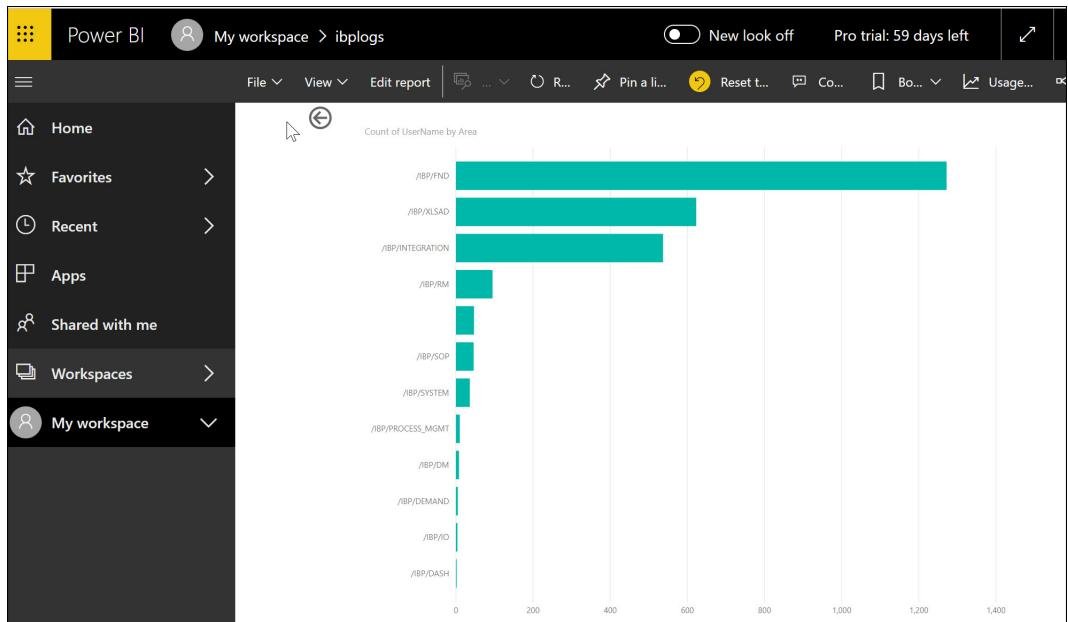


Figure 7.15 Stacked Bar Chart in Power BI Desktop

Similar to both of our example scenarios, the OData services that are listed in [Section 7.3](#) can be used in different cloud platforms to leverage this integration capability.

7.4 Integration Using CSV Files

SAP IBP provides the Data Integration Jobs app from SAP Fiori with which you can integrate data using the CSV file format. This app is intended for administrators and configuration experts to manually upload smaller sets of data into SAP IBP on a need basis. This method isn't recommended for uploading larger data sets. Data upload should be done in a sequence for successful and consistent integration. Following are the supported data objects and their sequence:

1. Time periods
2. Master data (simple only)
3. Key figures

You can download CSV file templates using the Data Integration Jobs app to help with prepopulated columns per the object selected. Actions allowed while uploading data include insert or update, delete, and replace.

Caution

Extra caution should be taken while using the delete or replace options. These two actions may result in unintentional data deletion. Users with access to this app should be educated regarding the consequences of the actions chosen while uploading data. Deletion of master data will delete all dependent transactional data as well.

You can download templates using the Data Integration Jobs app to ease CSV file preparation to upload data. [Figure 7.16](#) shows the options available to download templates.

Following are the options to download the templates:

- **Time Periods**

You can select the time profile for which you want to create or update time periods. For first time usage, you can use the **With New Time Periods** option to create new time periods. After the time periods are created, you can select the **With Existing Time Periods** option for any changes. Optionally, you can also create time periods using the **Create Time Periods for Time Profiles** application job.

- **Master Data**

Select the master data type from the list to download a template.

- **Key Figures**

Select the planning area and key figure from the list to download a template. The template will include all the key figures that are at the same planning level as the selected key figure.

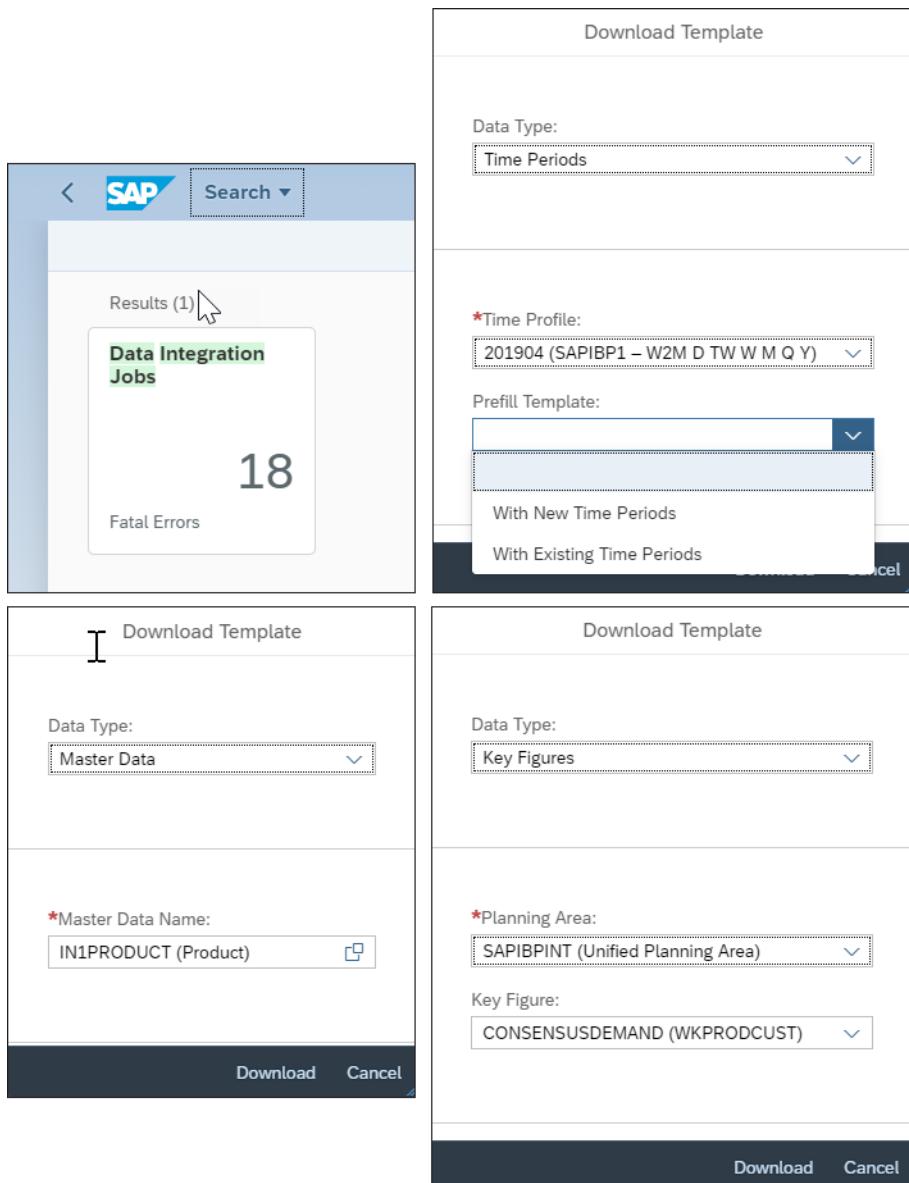


Figure 7.16 Template Download Options

Figure 7.17 shows the options available to upload data templates.

The image displays three vertically stacked windows, each titled "New Import Job".

Top Window (Data Type: Time Periods):

- Data Type: Time Periods
- *Time Profile: 201904 (SAPIBP1 – W2M D TW W M Q Y)
- *File: 201904 TEMPLATE.csv (Browse... button)
- Separator: Comma (,)
- *Operation Type: Replace
- *Job Name: Time Periods Test

Middle Window (Data Type: Master Data):

- Data Type: Master Data
- *Master Data Name: IN1PRODUCT (Product) (Delete icon)
- *File: UP2PRODUCT TEMPLATE.csv (Browse... button)
- Separator: Comma (,)
- *Operation Type: Insert/Update
- *Job Name: IN1PRODUCT Test

Bottom Window (Data Type: Key Figures):

- Data Type: Key Figures
- *Planning Area: SAPIBPINT (Unified Planning Area)
- Version: Baseline (Baseline)
- Time Profile Level: Week 3
- *File: MSC_CWKPRODLOC TEMPLATE.csv (Browse... button)
- Separator: Comma (,)
- *Operation Type: Insert/Update
- *Job Name: Key Figures

Figure 7.17 Template Upload Options

On these screens, you can perform the following actions:

■ **Uploading time periods:**

- From the Data Integration Jobs application, choose **Add** to open the **New Import Job** window.
- Select **Time Periods** from the **Data Type** list.
- Select the **Time Profile** for which time periods are to be uploaded.
- Select the **File** using the **Browse** button from your on-premise system.
- Select the **Separator** used in the CSV file.
- Select the **Operation Type** as **Replace**.
- Enter a **Job Name**.
- Click **Save** to create the upload integration job.

■ **Uploading master data:**

- From the Data Integration Jobs application, choose **Add** to open the **New Import Job** window.
- Select **Master Data** from the **Data Type** list.
- Select the **Master Data Name** for which the master data is to be uploaded.
- Select the **File** using the **Browse** button from your on-premise system.
- Select the **Separator** used in the CSV file.
- Select the **Operation Type** as intended: **Insert/Update** for updating existing master data, **Replace** to delete and create a new set of master data, or **Delete** to delete master data from the system.
- Enter a **Job Name**.
- Click **Save** to create the upload integration job.

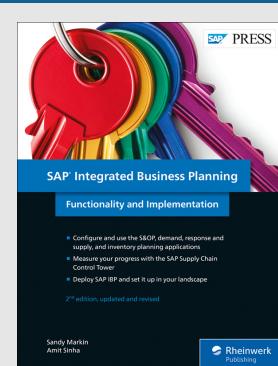
■ **Uploading key figures:**

- From the Data Integration Jobs application, choose **Add** to open the **New Import Job** window.
- Select **Key Figures** from the **Data Type** list.
- Select the **Planning Area** for which the key figures are to be uploaded.
- Select the **Version** for the planning area. This step is optional.

- Select the **Time Profile Level** at which the key figure is stored. This step is optional.
- Select the **File** using the **Browse** button from your on-premise system.
- Select the **Separator** used within the CSV file.
- Select the **Operation Type** as intended: **Insert/Update** for updating existing key figure data, **Replace** to delete and create a new set of key figure data, or **Delete** to delete key figure data from the system.
- Enter a **Job Name**.
- Click **Save** to create the upload integration job.

8 What's Next?

Now that you know how to integrate SAP IBP with whatever system you have, it's time to learn more about your SAP IBP system. Whether your focus is on SAP IBP for demand, SAP IBP for response and supply, SAP IBP for sales and operations, or SAP IBP for inventory, there's so much to learn!



Recommendation from Our Editors

Get to know SAP IBP with *SAP Integrated Business Planning: Functionality and Implementation, 2nd edition* by Sandy Markin and Amit Sinha. With this guide, walk through the complete S&OP, demand, response and supply, and inventory planning picture—and then learn to monitor and control these processes. You'll understand how to set up and use your SAP IBP system, from planning models to user roles.

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