Model Configuration Guide
SAP Integrated Business Planning 6.2, Including Hotfix Collection 6, Emergency Correction 1
Document History

⚠️ Caution
Before you start the implementation, make sure you have the latest version of this document. You can find the latest version at the following location: help.sap.com/ibp62

The following table provides an overview of the most important document changes.

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3</td>
<td>2016-08-31</td>
<td>Information about changing and creating time profiles, creating time periods for time profiles, enabling change history added</td>
</tr>
<tr>
<td>1.2</td>
<td>2016-07-28</td>
<td>ABC classification operator described in more details, two more classes added to description</td>
</tr>
<tr>
<td>1.1</td>
<td>2016-07-19</td>
<td>Docu for advanced modeling enhanced (extend attribute length, attribute transformations)</td>
</tr>
<tr>
<td>1.1</td>
<td>2016-07-19</td>
<td>Docu for model copy enhanced (copy options)</td>
</tr>
<tr>
<td>1.1</td>
<td>2016-07-19</td>
<td>Miscellaneous enhancements (naming restrictions, syntax for disaggregation expression, activating master data types)</td>
</tr>
<tr>
<td>1.1</td>
<td>2016-07-19</td>
<td>Docu for sample planning areas enhanced with a reference to rapid deployment solution for IBP</td>
</tr>
<tr>
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<td>2016-06-06</td>
<td>Initial version</td>
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1 About This Guide

SAP Integrated Business Planning provides extensive functions for creating, updating, and capturing information in a plan, which is configured using a planning model.

This model configuration guide is aimed at expert business users, consultants, and others who are creating, changing, or extending a company planning model. Based on the Web user interface that is used to configure the planning model, the guide provides task-based information to help you carry out common modeling tasks, such as:

- Creating master data types and attributes, time profiles, planning areas, planning levels, key figures (including calculations), versions, and planning operators
- Activating, copying, and transporting a planning model
- Managing reason codes and global configuration parameters

The guide also introduces some advanced modeling concepts, such as modeling for currency conversion and for unit of measure conversion and for attribute transformations.

Note

The guide contains many examples to illustrate modeling tasks and concepts. To make it easier for you to follow the examples, they have been based, wherever possible, on the SAP sample planning area, which is delivered with SAP Integrated Business Planning.

Based on your planning model, you can create planning views and work on your data using the SAP Integrated Business Planning, add-in for Microsoft Excel. For more information, see the SAP Help Portal at help.sap.com/ibp, under Application Help Planning with Microsoft Excel.
2 Planning Models in SAP Integrated Business Planning

A planning model describes the structure of your plan in terms of data and calculations. It defines how data is stored, calculated, and aggregated in the system. From a technical perspective, a planning model is a collection of master data and time series data that is organized in dimensions and enhanced with specific calculations. All models are based on the following entities:

- **Attributes**
- **Master data types**
- **Time profiles**
- **Planning areas**
- **Planning levels**
- **Key figures (including snapshots)**
- **Calculations**
- **Versions**
- **Miscellaneous additional entities such as global configuration parameters, planning operators, and reason codes.**

The figure below shows an entity relationship diagram and illustrates the relationship between the main configuration entities.

![Figure 1: Entities of a Planning Model](image-url)
The entities shown in the figure are explained in the following table:

<table>
<thead>
<tr>
<th>Entity Color</th>
<th>Entities</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Light Blue</strong></td>
<td>Planning area, planning area dimension, planning level, version, key figure, key figure calculation, key figure calculation input, calculation, calculation exit (L-code), operator for planning area</td>
<td>Entities that define the structure and properties of key figures. A set of key figures is bundled under the main entity of a planning area.</td>
</tr>
<tr>
<td><strong>Darker Blue</strong></td>
<td>Master data type, attribute, attribute as key figure, reference master data type, compound</td>
<td>Planning object types that are used to model master data and order data types for the Supply Chain</td>
</tr>
<tr>
<td><strong>Green</strong></td>
<td>Time profile, time profile level, time profile attribute</td>
<td>Time profiles that are used for the time periods of time series.</td>
</tr>
<tr>
<td><strong>Orange</strong></td>
<td>Attributes</td>
<td>Elemental building blocks that describe an individual field and data type that is used in the planning model.</td>
</tr>
<tr>
<td><strong>Pink</strong></td>
<td>Planning operators</td>
<td>Functions that are associated with a planning area. An important example of a planning operator is the S&amp;OP operator. In SAP Integrated Business Planning, you can model and plan an arbitrarily deep network of supply-chain-related locations and production steps, using master data such as sourcing rules, resources, bills of material, and time series and data such as consensus demand, production numbers or capacities. This master data is modeled using master data types, and the time series are defined as key figures in a planning area.</td>
</tr>
</tbody>
</table>

Note

The planning area is often referred to as a “planning model”, because the key figures represent the most important constituents of a planning model.

Note

In this guide, the term “master data type” is used.

SAP Integrated Business Planning allows you to configure and customize your own planning models to address your unique business requirements. The **Configuration** app, which you can access from the launchpad, includes all
features that enable you to configure a model from scratch, and activate it on the Configuration tab. Many model entities (planning areas, master data types, and time profiles) can also be copied and modified. (You cannot, however, copy attributes or planning operators.)

## 2.1 Sample Planning Areas

The SAP Integrated Business Planning web client provides display access to sample SAP planning areas, which are shipped with SAP Integrated Business Planning. You can use sample planning areas as a basis for creating your own planning areas. You can copy one of the planning areas and extend it as necessary to meet your particular business needs. You can add your own master data types, key figures, calculations, and attributes. The following table lists the planning areas that are available:

<table>
<thead>
<tr>
<th>Sample Planning Area</th>
<th>Applications Represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAP1</td>
<td>Sales and operations</td>
</tr>
<tr>
<td>SAP2</td>
<td>Sales and operations and supply</td>
</tr>
<tr>
<td>SAP3</td>
<td>Inventory</td>
</tr>
<tr>
<td>SAP4</td>
<td>Supply (and some of sales and operations)</td>
</tr>
<tr>
<td>SAP5</td>
<td>SAP Supply Chain Control Tower</td>
</tr>
<tr>
<td>SAP6</td>
<td>Demand</td>
</tr>
<tr>
<td>SAP7</td>
<td>Response management</td>
</tr>
<tr>
<td>SAPIBP1</td>
<td>All of the above applications except response management</td>
</tr>
</tbody>
</table>

Each of SAP1–SAP7 supports a specific application of SAP Integrated Business Planning. Unified planning area (technical name SAPIBP1), is an integrated business planning template, which facilitates a global example integrated business planning scenario involving all the above-mentioned applications of SAP Integrated Business Planning except for SAP7. For more information about the integrated planning process using the unified planning area, see the application help on the SAP Help Portal at http://help.sap.com/IBP under SAP Integrated Business Planning Example: Integrated Planning Process with Unified Planning Area.

### Note

We strongly recommend that you use the unified planning area as a starting point for all new implementation projects, even if you need only one part of the planning process since it enables easier integration of different processes at a later point in the planning process. You can customize it to fit your unique requirements just like the other sample planning areas.

For the integrated planning process based on the unified planning area, the SAP HANA Integrated Business Planning rapid-deployment solution provides sample data, planning view templates, predefined dashboards, configuration guides, test scripts and more. Customer test tenants and IBP Starter Edition instances include an activated copy of the unified planning area with the sample content.

You can also download the content directly from SAP Service Marketplace at http://service.sap.com/public/rds-ibp Download package.

The following table shows the scope of the sample planning areas:
<table>
<thead>
<tr>
<th>Model contents</th>
<th>SAP1</th>
<th>SAP2</th>
<th>SAP3</th>
<th>SAP4</th>
<th>SAP5</th>
<th>SAP6</th>
<th>SAP7</th>
<th>SAPIBP1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete demand model example</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Statistical forecasting</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>supply planning optimization</td>
<td>Limited</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Multi-level supply planning</td>
<td>No</td>
<td>Yes</td>
<td>Yes (only the S&amp;OP heuristic)</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Financial and sales planning</td>
<td>Limited</td>
<td>Limited</td>
<td>No</td>
<td>No (only optimizer costs)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Limited</td>
</tr>
<tr>
<td>Inventory planning and optimization</td>
<td>No</td>
<td>No</td>
<td>Yes (only optimize inventory targets)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Response Planning</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>SAP Supply Chain Control Tower</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

To access these planning areas, launch the Configuration app and click Planning Area and Details in the top menu. You can select a planning area by choosing Display SAP Sample from the Edit Active and Inactive drop down.
3 Model Configuration Process

Context

Configuring the SAP Integrated Business Planning model entails following a specific, sequential process. (Of course, to refine and enhance a model, you will revisit individual topics repeatedly, but master data has to exist before you can use it in a planning area.)

Recommendation

Before configuring your planning model, SAP recommends that you create a blueprint based on customer requirements to map the business processes to a planning model. A blueprint outlines the key business functions and the required scope and identifies the master data types, attributes, data integration, key figures, and calculations that need to be modeled in the system.

Steps

1. **Define a model.** Define the following in the order given:
   1. Attributes
   2. Master data types
   3. Time profiles
   4. Planning areas
   5. Planning levels
   6. Key figures
   7. Planning operators

2. **Activate the model.** Check the integrity of the defined model and activate it. This generates the underlying database artifacts. Activate the model in the following order:
   1. Activate time profile
   2. Activate master data types
   3. Activate planning area

3. **Load data.** Import time profile data, master data, and key figures data into the model.

Note

Before you can configure a planning model, the *Planning Model* business catalog must be assigned to a business role that is assigned to your user.

Recommendation

If you want to change your planning model later, **SAP recommends that you create a new entity** (for example, an attribute or a time profile), and use it in your model, **instead of changing the existing entity** that has already been in use in an active model.
SAP recommends that you try out any changes to your planning model in a test environment (including activating the model and testing the results) before you make changes in the production system.
4 Master Data Types and Attributes

Master data types distinguish categories of information, for example, “customer”, “location”, “product”, or “resource”. Master data types are used to segment planning data. For example, a consumer goods company might want to understand sales based on the master data types “product”, “customer”, and “location”.

The following master data types are available:

1. **Simple**: For example, “product”, “customer”, “location”
2. **External**: Enables the handling and integrating master data when the content comes from an external database.
3. **Compound**: Allows you to combine 2 or more simple master data types and derive from them. Example: “customer-location”
4. **Reference**: Used to reference an existing master data type to prevent users from having to enter the same data more than once. For example, reference data type “currency” to “references the “currency” master data type. Note that you cannot load data onto a reference master data type.
5. **Virtual**: Used to create a join between 2 or more master data types.

All master data types have one or more attribute, for example, `CUSTID` is an attribute of the master data type `customer`.

You can find out which master data types are used in specific planning areas by choosing Master Data Types in the Configuration app, and selecting Used in Planning Area.

**Note**

You cannot change the type of an active master data type. For example, you cannot change a simple master data type into an external master data type.

**Attributes**

Attributes are characteristics of master data types. For example, an attribute of the master data type `customer` might be “country” or “region”. Note that attributes can be either numeric or non-numeric.

**Linking Description and ID Attributes**

When you define a master data type, you can link a description attribute to its corresponding ID attribute. When master data is downloaded to the IBP Excel add-in during logon, the system then only downloads one attribute for both the ID and the description instead of two separate attributes. This reduces the data volume in Excel. In addition, it allows you to streamline the relevant planning levels, because it is no longer necessary to include the description in the planning levels.
4.1 Creating Attributes

When you create an attribute, you specify an ID, a description, a data type, and a length. The supported data types are NVARCHAR, INTEGER, DECIMAL, and TIMESTAMP.

Attributes defined as decimal attributes have data type DECIMAL and a fixed length of 18,6. Decimal attributes can be used only as attributes as key figures, and not as planning area dimension attributes.

**Caution**

Make sure that the ID you specify for the attribute does not exist in any of the SAP sample planning areas. If you create an attribute that has the same ID as an attribute in any of the SAP sample planning areas, copying the SAP sample planning area that contains the attribute may overwrite the attribute you created.

Do not reduce the length of an attribute once any of the associated time profiles, master data types, or planning areas has been activated.

Do not change the data type of an attribute if the attribute is in use in any of the master data types, time profiles, or planning areas.

**Example**

To create the attribute “product ID”, you could enter the following:

- Attribute ID: PRDID
- Description: Product ID
- Data Type: NVARCHAR
- Length: 20

**Displaying Attributes**

The following selection criteria are available for displaying attributes:

- View all attributes
- View only attributes that are assigned to one or more master data types
- View attributes that are not assigned to any master data types
- View attributes that are assigned to one or more time profiles

Selections can also be based on a specific master data type or time profile. Once you have created attributes, they are displayed in the system, and you can view the master data types, planning areas, and time profiles associated with them.

**Note**

You cannot delete used attributes and unused active attributes from the Attributes screen.
4.2 Creating Simple Master Data Types

Simple master data types are regular master data types that are used to segment planning data, for example, “Product”, “Customer”, and “Location”.

**Note**
You create the master data types after you have created your attributes.

**Steps**

To create a simple master data type, choose Manage Master Data Types on the initial screen of the Configuration app or click Master Data Types in the top menu.

**Example**
Imagine you want to create a master data type “S2PRODUCT”.

Proceed as follows:
1. Enter an ID for the master data type, for example, S2PRODUCT.
2. Enter a name and description for the master data type, for example, Name: Product; Description: Product
3. To add attributes, make sure Available Attributes is selected in the dropdown box.
4. To restrict the number of attributes displayed, you can set a filter by your prefix (for example, “PRD” or “S2”).

**Recommendation**
SAP recommends that you define a 2- or 3-letter prefix for the IDs of master data types, for example, "ABC" or "XYZ" (as in "ABCPRODUCT" or "XYZPRODUCT"). For example, you could use your company’s ticker symbol. The sample models delivered with SAP Integrated Business Planning have the prefixes "S1", "S2", "S3", "S4", and "S5" respectively for the IDs of the master data types.

You do not have to define a prefix for attribute IDs. However, attribute IDs may be given a prefix in demo or training environments where multiple planning areas have to coexist without affecting each other.

**Note**
Supply Planning has fixed semantics for technical IDs for attributes, master data types, and key figures. For example, the product ID attribute must be named “PRDID”, the customer ID “CUSTID”, the product master data type “PRODUCT” (for example, “S2PRODUCT”). If you plan to use Supply Planning functions, SAP recommends that you adhere to these naming conventions in your project.

5. Select the attributes you want to add to the master data type, for example, PRDID, S2PRDDESC, S2PRDFAMILY.
6. Select PRDID as the key attribute by selecting the Key checkbox.
7. If required, link the description attribute to the corresponding ID attribute by using the Description Attribute dropdown box.
8. Save your changes.
4.3 Creating External Master Data Types

Context

External master data types make it possible for SAP Integrated Business Planning to handle and integrate master data when the content comes from an external database. Before you can use the external master data types, they have to be integrated from SAP ERP to an SAP HANA database table inside SAP Integrated Business Planning using a near real-time integration mechanism. When you set up your planning model, you have to define an external master data type referring to a table that contains the predefined external master data types. Since the integration is continuous, the external master data always contains the latest entries from SAP ERP. Therefore, there is no need for manual data upload.

Steps

When you create an external master data type, you have to start by defining the attributes. To do so, choose Attributes on the initial screen of the Configuration app or click Attributes in the top menu.

1. Click Create New.
2. Define a name, a description, a data type, and length for the new attribute.

   **Note**
   You can use the following naming method as an example. Attribute ID: LOCRF, LOCFRREGION, LOCFRTYPE. Attribute description: location, location region, and location type.

3. Click Save.

   After defining the attributes you have to create the new master data types. Navigate to master data types by choosing Manage Master Data Types on the initial screen of the Configuration app or click Master Data Types in the top menu.

1. Click Create New.
2. Enter a name and a description for the new master data type. Enter an ID: S1LOCATIONFR
3. Select the master data type External from the Master Data Types drop down menu.
4. Select a value from External Master Data Source drop down menu.
5. Filter the attributes list based on the prefix you used when you created the attributes (LOCFR).
6. Assign the attributes to the corresponding data source columns using the Reference Column.
7. Click Save.

4.4 Creating Compound Master Data Types

Context

A compound master data type allows you to add two or more master data types and derive from them. It represents a valid combination of master data types. For example, the compound master data type CUSTOMERPRODUCT, consisting of PRODUCT and CUSTOMER, represents valid combinations of products and
customers. When a key figure containing the keys “product ID” and “customer ID” is loaded, it checks against this compound master data type for valid combinations.

Typically, compound master data types are created when attributes belong to Composed Of master data types. For example, Market Family is an attribute of the CUSTOMER and PRODUCT combination.

You can select additional attributes other than those that are automatically included from the compounded master data types. When you select master data type Compound, a grid table is displayed on the right where you can add the master data types to be included in this compound master data type.

**Example**

S2EXCHANGERATE and S2UOMCONVERSION are examples of compound master data types from the sample models delivered with SAP Integrated Business Planning.

**Steps**

To create a compound master data type, choose Manage Master Data Types on the initial screen of the Configuration app or click Master Data Types in the top menu.

**Example**

Imagine that you want to add a compound master data type S2CUSTOMERPRODUCT, consisting of the simple master data types S2CUSTOMER and S2PRODUCT.

1. Click New.
2. Enter an ID for the master data type: S2CUSTOMERPRODUCT.
3. Enter a name (Customer Product) and description (Customer Product).
4. Select Compound in the dropdown box.
5. Add the master data types: S2CUSTOMER and S2PRODUCT one at a time by clicking the Add a Master Data Type button.
   
   The system selects all the respective key attributes for the compound master data type, for example, CUSTID and PRDID.
6. Check other attributes to include in the compound master data type, for example, S2MARKETFAMILY or S2MARKETSEGMENT.
7. If required, link the description attribute to the corresponding ID attribute by using the Description Attribute dropdown box.
8. Save your entries.

**4.5 Creating Reference Master Data Types**

**Context**

A reference master data type references another master data type. For example, the reference master data type CURRENCYTO references the master data type CURRENCY.
The data is loaded as part of the primary master data type. For example, all currencies can be loaded as part of the Currency master data type and are then available to the Currency To reference master data type. Consequently, you do not have to load data onto a reference master data type.

**Steps**

To create a reference master data type, choose Manage Master Data Types on the initial screen of the Configuration app or click Master Data Types in the top menu.

**Example**

Imagine that you want to create a reference master data type `S2CURRENCYTO`, which references the master data type `S2CURRENCY`.

1. Click **New**.
2. Enter an ID for the master data type: `S2CURRENCYTO`.
3. Enter a name and description.
4. In the Master Data Type dropdown menu, select master data type **Reference**.
5. From the Reference Master Data Type dropdown, choose the master data type to be referenced, for example, `S2CURRENCY`.
6. Select the attributes to be assigned to this master data type.
7. Select one of the attributes as a key, for example, `S2CURRTOID`.
8. Select a Reference Attribute for each of the attributes selected for this master data type. For example, set `S2CURRID` as reference attribute for `S2CURRTOID`.
   
   Make sure that the attribute and the reference attribute have the same data type, and that the length of the attribute is not shorter than the length of the reference attribute.

9. If required, link the description attribute to the corresponding ID attribute by using the Description Attribute dropdown box.
10. Save your entries.

**Example**

The following are examples of reference master data types from the sample models delivered with SAP Integrated Business Planning:

- `S2COMPONENT` is a reference master data type for `S2PRODUCT`
- `S2LOCATIONFR` is a reference master data type for `S2LOCATION`

**4.6 Creating Virtual Master Data Types**

Virtual master data types are used to create a join between 2 or more master data types. A virtual master data type can be based on simple, on compound, or on external master data types, but not on a reference master data types, or on other virtual master data types. The following example from the SAP1 model illustrates their use.
Imagine that you have 3 simple master data types:

- S1PRODUCT
- S1CUSTOMER
- S1LOCATION

The master data type S1CUSTOMER has the key CUSTID and an attribute CUSTOMERGROUP.

In addition, there is a compound master data type S1PRODUCTCUSTOMERLOC with an attribute ACTIVE, which is defined at an aggregated level of PRDID, CUSTOMERGROUP, and LOCID.

You can define a virtual master data type to join the S1CUSTOMER and S1PRODUCTCUSTOMERLOC master data types on CUSTOMERGROUP, such that the attribute ACTIVE can be available to the PRDID, CUSTID, and LOCID levels.

To create a virtual master data type, navigate to Master Data Types in the Configuration app.

The following example illustrates how to create a virtual master data type.

Steps

1. Choose New and enter a name for the virtual master data type, for example, ABCPRODUCTCUSTOMERLOCATION.

2. Select Virtual.

3. Under Composed Of, click “+” to select at least 2 master data types.

   Note that all simple or compound master data types are supported for inclusion in virtual master data types. For example, you could select ABCCUSTOMER and ABCPRODUCTCUSTOMERLOC.

4. Click the Join Conditions icon.

5. Select the master data types and attributes you want to join and click OK. Note the following:
   - Only those master data types previously selected under Composed Of are available in the join conditions dialog. For example, define a join on ABCCUSTOMER->CUSTOMERGROUP = ABCPRODUCTCUSTOMERLOC->CUSTOMERGROUP.
   - The master data type attributes must be of the same data type, for example, both must have either NVARCHAR or TIMESTAMP.
   - A join condition is mandatory.

6. Under Assigned Attributes, note that the key fields for the selected master data types are selected by default. Select the reference attributes and reference master data types for each of the selected attributes. When you select all attributes from the Assigned Attributes dropdown, all attributes are available for selection. The reference attributes are a selection of available attributes from the master data types you selected under Composed Of.

7. If required, link the description attribute to the corresponding ID attribute by using the Description Attribute dropdown box.

8. Save your entries.
5 Time Profiles and Time Periods

A time profile is made up of time profile levels (for example, months, quarters, or years). Each level is made up of periods, which are identified by a number, and describe the start and end time of the time period in question.

If you want to perform aggregation or disaggregation along time, then the periods on different levels need to form a hierarchy. In this hierarchy, time profile levels can have multiple parents, and there can be time profile levels without a parent level. For more information about setting up your planning model for aggregating and disaggregating data across different time levels, see Aggregation and Disaggregation of Data Across Different Time Levels [page 137].

Example

In the following example, the time profile consists of the following three levels:
- Year
- Quarter
- Month

![Figure 2: Time Profile with Three Time Levels](image)

The sample models delivered with IBP also provide time profile definitions, for example:

<table>
<thead>
<tr>
<th>Time Profile ID</th>
<th>Name</th>
<th>Levels</th>
<th>Planning Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7 Year M, Q, Y</td>
<td>Month, Quarter, Year</td>
<td>SAP1, SAP2, SAP4</td>
</tr>
<tr>
<td>2</td>
<td>SPA DWMQY</td>
<td>Day, Week, Month, Quarter, Year</td>
<td>SAP1BP1</td>
</tr>
<tr>
<td>5</td>
<td>CT DWMQY</td>
<td>Day, Week, Month, Quarter, Year</td>
<td>SAP5</td>
</tr>
<tr>
<td>7</td>
<td>SAP7 DW</td>
<td>Day, Week</td>
<td>SAP7</td>
</tr>
<tr>
<td>66</td>
<td>SAP6 D, W, CW, M, Q, Y</td>
<td>Day, Technical Week, Week, Month, Quarter, Year</td>
<td>SAP6</td>
</tr>
<tr>
<td>100</td>
<td>4 Years - D, W, M, Q, Y</td>
<td>Day, Week, Month, Quarter, Year</td>
<td>SAP3</td>
</tr>
</tbody>
</table>
Recommendation

SAP recommends that you either create your own time profile or that you copy one of the supplied time profiles to a customer time profile ID, for example, you could copy time profile "1" to time profile "1000".

After creating and activating a time profile, you must load a time profile data file, or schedule an application job to create the time periods.

5.1 Creating Time Profiles

To create a time profile, choose Manage Time Profiles on the initial screen of the Configuration app, or click Time Profiles in the top menu.

Steps

The following example illustrates how to create a time profile with start and end dates and multiple time profile levels, for example, monthly, quarterly, and yearly.

1. Click the New icon.
2. Enter a unique time profile ID, for example, 201. Note that the time profile ID is always an integer (of up to 9 digits in length).
3. Click OK.
4. Enter a description, for example: S2 Time Profile.
5. Select the start date, for example, the first day in January, four years in the past.
6. Select the end date, for example, the last day in December, two years in the future.
7. Click Add Level to add new levels (Monthly, Quarterly, and Yearly) one by one, as shown in the table below.
8. Enter level details and horizon values.

For base level, enter the level that is the child in this relationship. For example, for the quarter time profile level, you can enter month as the base level.

Specify the period type as well. You can choose from the following period types: day, technical week, week, month, quarter, year, custom (empty value). The time profile levels must forma sequence based on the period type. For example, a time profile level that has the period type “day” must come before the one that has “month” set, and “month” must come before “quarter”.

Note

Day and calendar week refer to the Gregorian calendar.

The default display horizon you set for a time profile level determines the default from-to date range in a planning view in the IBP Excel add-in. The values in the default display horizon fields are relative values compared to the current period. For example, if the current period is May 2016, and you set –3 for default display horizon - past, and 6 for default display horizon - future, then the planning view will offer the time frame from February 2016 to November 2016 as the default.

When creating levels, you can enter data values directly in the table rows. For an example, see the table below.
Table 6: Time Profile Levels

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Base Level</th>
<th>Period Type</th>
<th>Default Display Horizon - Past</th>
<th>Default Display Horizon - Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monthly</td>
<td>Month</td>
<td></td>
<td>-6</td>
<td>18</td>
</tr>
<tr>
<td>2</td>
<td>Quarterly</td>
<td>1</td>
<td>Quarter</td>
<td>-2</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Yearly</td>
<td>2</td>
<td>Year</td>
<td>-1</td>
<td>2</td>
</tr>
</tbody>
</table>

9. Save your changes.

Note
When you choose Assign Attributes, you can assign any attribute to that level, except for attributes that have the DECIMAL data type.

5.2 PERIODID and PERIODID(n) Attributes in Time Profile Levels

The PERIODID and PERIODID(n) attributes are technical attributes. The PERIODID(n) attribute is the hierarchy level ID for the time period. The PERIODID attribute identifies a specific time period, and not a time profile level. For example, 25503 is the PERIODID for May 2016 as a time period, and 25504 for June 2016. You won’t find these attributes on the Time Profiles screen, but you may need them when defining calculations for key figures or attribute transformations.

The assignment of PERIODID(n) attributes varies according to the time profile ID and levels that have been defined. PERIODID0 represents the lowest level of time granularity. If the time profile has multiple time profile levels, then PERIODID1 represents the highest level. The next PERIODID(n) value represents the next highest level of time granularity.

For example, if a time profile is defined with the levels "Day", "Technical Week", "Week", "Month", and "Year", the assignment is as follows:
- PERIODID0: Daily periods
- PERIODID1: Yearly periods
- PERIODID2: Monthly periods
- PERIODID3: Weekly periods
- PERIODID4: Technical weekly periods

5.3 Creating Time Periods for a Time Profile

Using this application job, you generate the time periods for a selected time profile.
Note
You can also create time periods in the following ways:

- In the Data Integration app, by uploading them from a CSV file
- By uploading them from SAP HANA Cloud Platform, integration service

For more information, see Data Integration in the application help.

We recommend that you use the above options if you are working with complex time profiles, that is, time profiles that contain time profile levels of the custom period type, or if you have assigned attributes to time profile levels.

Note
SAP HANA Cloud Platform, integration service was previously called SAP HANA Cloud Integration (HCI). You might still find the old name at some places.

Time periods are generated for days, (technical) weeks, months, quarters, and years. The start and end dates for the time periods are taken from the selected time profile (but are checked against the start and end date of the factory calendar to make sure that the dates are within the calendar’s time frame). As necessary, weeks are split into subweeks (or “technical weeks”) to assign the weekdays to the correct month. Days are aggregated to technical weeks (and to months, quarters, and years) using the calendar days as illustrated in the following table:

<table>
<thead>
<tr>
<th>Months</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weeks</td>
<td>Technical week 1-1</td>
<td>Technical week 1-2</td>
</tr>
<tr>
<td>Days</td>
<td>Mo</td>
<td>Tu</td>
</tr>
</tbody>
</table>

Figure 3: Grouping of Days into Technical Weeks

Setting Up the Application Job

1. From the Fiori launchpad, under Administrator, select the Application Jobs tile.
   The Application Jobs screen appears.
2. To create a new application job, select New.
3. Under Job Details, from Job Template, choose the Create Time Periods for Time Profile template.
4. Under Time Profile, enter the ID for the time profile for which you want to generate time periods.
5. Choose Schedule.

Analyzing the Results

1. To view the results of the job, go to the Application Jobs screen, where all the jobs are listed.
2. To see the log messages, select the Information icon in the Job column of the finished job.
5.4 Changing and Deleting Time Profiles

You may want to change a time profile. However, you’ll find that you not all fields on the time profile screen are available for editing. The changes you can do depend on the following factors:

- The status of the time profile: active or inactive
- If the time profile is assigned to planning areas or not
- If time periods have already been created for the time profile

Note

If you have created and saved a time profile, but have not activated it yet (that is, only an inactive instance of the time profile exists), you can change any parameters of the time profile. You can also delete the time profile.

If a time profile has already been activated (even if it currently has an inactive instance), certain rules apply for which fields or parameters you can change or delete.

Changing a Time Profile

Description

You can change the description of a time profile any time.

Start Date and End Date

If the time profile is not used in any planning area, you can change the start date and end date of a time profile at any time.

You have to activate the time profile for the changes to take effect.

Note

If changing the start and end date of the time profile extends the entire validity period of the time profile, in other words, if the new start date is earlier than the old start date or the new end date is later than the old end date, no time periods will exist for these parts of the time profile. In such a case, you need to create the missing time periods by either uploading them, or by using the application job for creating time periods.

Caution

If the time profile is already used in a planning area and transactional data exists, changing the time profile dates is not recommended as it may cause issues.

Recommendation

We recommend that you define the start and end date of the time profile so that no changes to the dates are needed. For example, define the end date many years in the future.

Time Profile Levels

You can’t delete time profile levels.

You can change the base level, the period type, and the default display horizon of time profile levels.
If time periods already exist for the time profile, even if the time profile isn’t assigned to any planning areas, and you add a new time profile level, you’ll have to upload the time periods again.

If the time profile is already assigned to a planning area, you can’t add new time profile levels. You have to activate the time profile for the changes to take effect.

Attributes Assigned to Time Profile Levels

You can assign additional attributes to a time profile level any time. Keep in mind that you can assign an attribute to one time profile level only. If you have assigned an attribute to a planning area, you can’t assign the same attribute to a time profile level.

To set an attribute to required, you must have data uploaded for the attribute for each time period. You can activate the time profile only if all time periods are uploaded with a value for this attribute (empty values are not allowed).

If time periods already exist for a time profile, you can add a new required attribute in two steps. First, assign the attribute to the time profile level without setting it to required. Activate the time profile, then upload the time periods with this attribute filled out. Make sure that you don’t change any other data for the already existing time periods. As the last step, in the time profile definition, mark the attribute as required.

You can remove an assigned attribute from a time profile level only if the given attribute is not used in any planning levels. You have to activate the time profile for the changes to take effect.

Deleting a Time Profile

You can delete a time profile only if it is not assigned to any planning areas. You delete an active time profile in two steps, using the active deletion.

First, when you choose Active deletion, the system creates a new instance of the time profile, which has the pending for deletion status. When you activate the time profile, the system carries out the deletion: both instances (active and pending for deletion) are deleted.

If you delete a time profile, the time periods that belong to the given time profile are deleted as well.
6 Planning Areas

A “planning area” is a set of configuration elements that defines the structure and forms the backbone of the planning process. The configuration elements include attributes, master data types, time profiles, planning levels, key figures, and versions. You could compare this to SAP APO or SAP ERP, where tables, table values, and configuration are defined to support the planning process.

Planning areas can contain multiple planning datasets, that is, 1 base version dataset and additional version datasets. The “versions” are for alternative plans for all or part of what is in the base version and need to be configured and activated. Versions can share master data with the base version or can be based on independent sets of version-specific master data. User-defined scenarios also exist, which lie on top of the versions (including the base version).

A company can have multiple planning areas to enable the process of Integrated Business Planning in different business units.

Note
As you can use the Microsoft Excel UI for only one planning area at a time, there are limitations to this use case.

Separate planning areas are also used for configuration work to separate on-going configuration activities from end-user testing, for example, or to separate the work from different project phases. See Best Practices for Transporting Planning Models [page 116].

A planning area consists of the following:

- **ID**, for example, ABC
- **Description**, for example, ABC’s planning area
- **Time Profile**: time profile ID (160)
- **Time Profile Storage Level** (for example, weekly or monthly)
- Planning horizon
- List of available attributes, and the master data types they originate from, for example:

  ![Table 7](image)

  - Planning level
  - Key figures
  - Versions
6.1 Creating Planning Areas

Context

To create a planning area, navigate to Planning Area and Details in the Configuration app. The following example illustrates how to create a planning area by entering header data and then assigning master data types, attributes, and time profiles, and by defining planning levels, key figures, and versions.

Steps

Imagine that you want to create a planning area ABC.

1. Click New, and enter a Name: ABC.
2. Click OK.
3. Enter the following details:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>ABC</td>
</tr>
<tr>
<td>Time Profile</td>
<td>Select a time profile, for example, “201”</td>
</tr>
<tr>
<td>Storage Time Profile Level</td>
<td>Select the lowest level of granularity of the assigned time profile. This defaults to Monthly level of time profile 201.</td>
</tr>
<tr>
<td>Current Period Offset</td>
<td>Note: Current period offset allows you to shift your planning period. For example, “-1” means the current period starts from the previous period of the lowest time profile level. In this example, with time profile 201, the current period starts from the previous month.</td>
</tr>
</tbody>
</table>

4. Click the Planning Horizons icon and enter from and to values for the planning horizon. For example, for Month, enter the following values:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning Horizon From</td>
<td>-6</td>
</tr>
<tr>
<td>Planning Horizon To</td>
<td>18</td>
</tr>
</tbody>
</table>

5. Click OK.

6. To assign planning operators such as snapshots to the planning area, click the Planning Operator icon and select the planning operators you want to assign.

7. Click OK.

8. Select the Available Attributes dropdown.
To make it easier to find master data types and attributes, you can set a filter, for example, filter by the prefix “ABC”.

9. Select the master data types to be assigned to planning area ABC, for example, select S2CUSTOMER, S2PRODUCT, and S2CUSTOMERPRODUCT.

- Selecting a master data type automatically selects all attributes that are part of that master data type. You can verify this by expanding master data type S2CUSTOMER.
- If you assign a compound or a virtual master data type to a planning area, make sure you also assign all master data types the compound or virtual master data type is composed of. Similarly, if you assign a reference master data type to a planning area, assign the master data type that is referenced as well.
- If the ID attribute of a master data type is linked to the description attribute, you only need to include the ID in the planning area. The description is then included via the link. For more information about linking ID and description attributes, see Master Data Types and Attributes [page 14].
- The Time Reference Attribute, From Period, and To Period fields are relevant for attributes defined as key figures.
- If you don’t specify a value in either of the Time Reference Attribute, From Period, and To Period fields, the value of the attribute is copied to the key figure for the entire calendar.
- If you specify an attribute in the Time Reference Attribute field, the value of the attribute defined as a key figure is copied over to the key figure only for the period determined by the time reference attribute.
- You can specify a start period (From Period) and an end period (To Period) to restrict the time interval for which the value of the attribute is copied over to the key figure. The values you provide here are relative values, on the basis of the current period, determined by the base planning level of the key figure. In this case, the attribute value is copied over for the specified time interval, or for the subset of the specified time interval that is available in the time profile. You can specify either or both of these values, but you can’t specify a Time Reference Attribute for the same attribute as key figure.

10. Save your entries.

- An attribute assigned to a planning area can be associated with only one master data type.
- Refer to the following table for detailed information about additional fields:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Planning Enabled</td>
<td>If supply planning is enabled for a planning area, users can invoke advanced supply planning functions, such as heuristics and optimizers.</td>
</tr>
<tr>
<td>Change History, Planning Area Enabled</td>
<td>Enables change history for planning areas.</td>
</tr>
<tr>
<td>Filter Setting</td>
<td>You can choose from the available options: Display, Auto-Open in Explorer, and Do Not Display.</td>
</tr>
</tbody>
</table>
6.2 Validate Master Data for New Planning Objects

In the Configuration app, on the Planning Area and Details screen, you can assign an attribute category to a planning area attribute to specify whether master data has to exist for the attribute when new planning objects are added in the IBP Excel add-in or during data integration.

By default, all attributes have the category NULL (optional).

Table 11

<table>
<thead>
<tr>
<th>Attribute Category</th>
<th>Explanation</th>
<th>Relevant for Data Integration</th>
<th>Relevant for New Planning Objects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>The attribute value must be found, although the value itself might be NULL. That is, master data must exist.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Key figure records for which no attribute value is found (that is, where the master data is missing) are rejected.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optional (default value)</td>
<td>An attribute value does not have to be found. That is, master data does not necessarily have to exist.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>No attribute value is found (master data missing). The planning level attribute value is set to NULL, and the key figure record(s) are processed for that planning object. Attribute value is found (master data available) The planning level attribute value is set to fetched value, and the key figure record(s) are processed for that planning object.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculated</td>
<td>The attribute value must be found, although the value itself might be NULL. That is, master data must exist. As this indicator is not relevant for either data integration or for new planning objects, select value</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Attribute Category</td>
<td>Explanation</td>
<td>Relevant for Data Integration</td>
<td>Relevant for New Planning Objects</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------</td>
<td>-------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>NULL in both cases. Values for such attributes will be calculated using an operator of some description and must not be overwritten by data integration.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example

For the Customer-Product master data type the **Market Segment** attribute is defined with the following records:

Table 12

<table>
<thead>
<tr>
<th>Product</th>
<th>Customer</th>
<th>Market Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>C1</td>
<td>Small</td>
</tr>
<tr>
<td>P2</td>
<td>C2</td>
<td>Medium</td>
</tr>
<tr>
<td>P3</td>
<td>C3</td>
<td>Large</td>
</tr>
<tr>
<td>P4</td>
<td>C4</td>
<td></td>
</tr>
</tbody>
</table>

The following list shows the effect of assigning the different attribute categories to planning area attribute **Market Segment**:

- **Mandatory**
  
  In this case you can only import a key figure or create a new planning object for the records that exist in the CustomerProduct table. The value for **Market Segment** from the master data is populated. Null values for attribute are allowed.
  
  If you try to import data for the planning object, for example, P1/C2, the record is rejected.

- **Optional**
  
  In this case you can import data in a key figure or create a new planning object irrespective of whether the master data exists in the CustomerProduct table.
  
  If you try to import data for the planning object, for example, P1/C2, the record is processed. The value for **Market Segment** is set to null in the planning object.

- **Calculated**
  
  In this case you can only import key figure or create a new planning object for the records that exist in the CustomerProduct table. The value for **Market Segment** from master data is not considered.
  
  If you try to import data for the planning object, for example, P1/C2, the record is rejected.
A “planning level” is a set of attributes that identify and label key figure values and forms part of the definition of a planning area.

All key figures in SAP Integrated Business Planning are calculated or stored at specific planning levels. The same key figure exists at many different planning levels and can be queried at these levels. Depending on the planning level – that is, the specific set of attributes that is used in a key figure query – different calculation and/or aggregation steps are performed to compute the key figure numbers at that level. These steps are defined by specifying key figure calculations.

For more information, see Key Figure Calculations [page 44]

We differentiate between “root attributes” and “non-root attributes”:

- Root attributes are necessary as keys to identify (find) individual key figure values. They define the independent dimensions in which the key figure values exist. The root attributes are often also the keys of master data object types but this is not a necessary condition.
- Non-root attributes are also associated with the key figure values but don’t on their own uniquely identify what the key figure value is for. They can be thought of as labels (sometimes hierarchies) to group together key figure values.

### Note

A key figure SALESFORECAST might depend on the following attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
<th>Root Attribute (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRDID</td>
<td>Product ID</td>
<td></td>
</tr>
<tr>
<td>CUSTID</td>
<td>Customer ID</td>
<td></td>
</tr>
<tr>
<td>REGION</td>
<td>Sales Region</td>
<td></td>
</tr>
<tr>
<td>PRDGRP</td>
<td>Product Group</td>
<td></td>
</tr>
<tr>
<td>PRDFAM</td>
<td>Product Family</td>
<td></td>
</tr>
<tr>
<td>MARKET</td>
<td>Market Segment</td>
<td></td>
</tr>
<tr>
<td>PERIODID0</td>
<td>Month</td>
<td></td>
</tr>
</tbody>
</table>

Let’s assume that the attributes PRDID, CUSTID, and PERIODID0 are the root attributes. Let’s call this set of attributes the planning level PRDCUST. (You could choose any name for the planning level.)

The implication is that every stored key figure value for SALESFORECAST depends on a value for PRDID, CUSTID, and PERIODID0, that is, on a value for a Product ID, a Customer ID and a Month. For example, the forecast for sales (SALESFORECAST) of product P1 to customer C1 in 2015/12 might be “100”.

The key figure value also depends on the other attributes. For example, you could ask about the SALESFORECAST for a market “M1”. MARKET might, for example, be an attribute of customer or customer product: You specify the origin of the attributes in the planning area.

When key figure data is loaded, the system determines all attribute values based on the given keys. If these values cannot be uniquely determined, the dataset contains an error.
7.1 Creating Planning Levels

Context

To create a planning level, choose Manage Planning Levels on the initial screen of the Configuration app or click Planning Levels in the top menu.

The following example illustrates how to create the required planning levels for a planning area.

Example

Imagine that you want to create a planning level PERPRODCUST, which has PRDID and CUSTID as root attributes, along with other attributes of the master data types S2PRODUCT and S2CUSTOMER.

Steps

1. At the top of the screen, make sure that the planning area selected is your planning area.
2. Click New and enter a Name: PERPRODCUST.
3. Click OK.
4. Enter a description: Period/Product/Customer.
5. Select the master data types and attributes you want to include in the planning level. Select the following master data types:
   ○ 201- S2 Time Profile
   ○ S2PRODUCT
   ○ S2CUSTOMER

   All attributes of the master data type to be included in the planning level are selected along with the root attributes.

   Note

   You cannot assign time profile attributes to planning levels from the Configuration app.

   If the ID attribute of a master data type is linked to the description attribute, you only need to include the ID in the planning level. The description is then included via the link. For more information about linking ID and description attributes, see Master Data Types and Attributes [page 14].

6. Validate that the root attributes are selected, as in the table below.

   Table 14

<table>
<thead>
<tr>
<th>Planning Level</th>
<th>Description</th>
<th>Master Data</th>
<th>Root ATTR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERPRODCUST</td>
<td>Period/Product/Customer</td>
<td>Time Profile</td>
<td>1-Monthly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2PRODUCT</td>
<td>PRDID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S2CUSTOMER</td>
<td>CUSTID</td>
</tr>
</tbody>
</table>

7. Save your entries.
A planning level can include root attributes that are not keys of a master data type. For example, in the SAP2 model, the planning level PERPRODFMLCUSTRGN includes S2PRDFAMILYID and S2CUSTREGION as root attributes, though S2PRDFAMILYID is not a key attribute of master data type S2PRODUCT.

For information about additional fields in the Planning Levels window, see the table below:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conversion Source</td>
<td>Indicates that an attribute is used as a source unit for conversion purposes.</td>
</tr>
<tr>
<td>Conversion Target</td>
<td>Indicates that an attribute is used as a target unit for conversion purposes.</td>
</tr>
</tbody>
</table>

### 7.2 Examples of Planning Levels

The following example planning levels are taken from the SAP2 model:

- **Planning Level PERPRODFMLCUSTRGN**
  - Keys: Capacity Key Figures, for example, Capacity Overload Alert, Available Capacity, Handling Capacity Load, and Utilization Pct.
  - Base planning level for the *Finance Qty* key figure. That is, data for *Finance Qty* is loaded at the granularity level of date, product family, and customer group. “Product Family” is an attribute of the master data type “Customer”. Attributes of planning level PERPRODFAMLYCUSTREGION cannot have a granularity level lower than “Product Family”, for example, “Product ID” is not a valid attribute for planning level PERPRODFAMLYCUSTREGION.

- **Planning Level PERLOCRES**
  - Keys: “Monthly”, “Location”, and “Resource”
  - Base planning level for *Capacity Key Figures*, for example, *Capacity Overload Alert, Available Capacity, Handling Capacity Load, and Utilization Pct*
Figure 5: Planning Level PERLOCRES

- Planning Level PERPRODLOC
  - Keys: “Monthly”, “Product”, and “Location”.
  - Base planning level for Inventory Figures (amongst other things) including Initial Inventory, Inventory Target, and Inventory Target Cost.

Figure 6: Planning Level PERPRODLOC

- Planning Level PERPRODCUSTCURRCURRTO
  - Planning level for the Target Revenue key figure.
  
  At this planning level, we perform currency conversion by multiplying exchange rate by a currency key figure such as Target Revenue. This planning level is used purely for calculation, and there are no stored key figures.

Figure 7: Planning Level PERPRODCUSTCURRCURRTO
8 Key Figures

Key figures are series of numbers over time, where each number corresponds to a particular time period value. Key figures have a business context: In SAP Integrated Business Planning, end users view and use key figures in the planning views or in Analytics. Every key figure has a base planning level.

Key figures are associated with a key, which is a combination of attributes from one or more master data objects. Key figures represent variables that are associated with attributes (master data types), and can be imported into the SAP Integrated Business Planning system, calculated, and/or manually edited.

Example

Examples of key figures are Sales Forecast, Marketing Forecast, Consensus Demand Plan, Projected Inventory, Capacity Plans or actual data such as Sales Orders and Shipment History.

Once you have created your attributes, master data types, time profiles, and planning areas and levels, you define the key figures you want to include in your planning model.

See Creating Key Figures [page 38]

8.1 Types of Key Figures

When you create key figures, you can select between the following:

<table>
<thead>
<tr>
<th>Type</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key figure</td>
<td>The key figures that end users view in the planning views or in Analytics.</td>
</tr>
<tr>
<td>Helper key figure</td>
<td>Helper key figures are typically used for results of intermediate calculations in a regular key figure or else in another helper key figure. For example, they can be used to break down a large calculation into manageable subcalculations. Helper key figures that are not visible to the end user and do not have a base planning level. They can be used at request level or at any other planning level. They are used in calculations that have more than 3 inputs at different planning levels. Helper key figures are primarily used in ratio calculations, last period aggregation, and in cost calculations. You can also use them in cases where the same key figure would otherwise occur twice in a single calculation. (You cannot use the same key figure name twice in one calculation.)</td>
</tr>
</tbody>
</table>
Type | Explanation
---|---
| As they are used only in calculations, helper key figures do not have key figure properties such as “stored”, “editable”, “aggregation”, and “disaggregation”. For ease of identification, helper key figures are usually prefixed “H”.

Attribute Transformations | Attributes of master data types that are assigned to a planning level can be transformed to a different value based on certain conditions, for example, Period ID can be transformed to calculate lead time offset. For more information, see Example: Attribute Transformations [page 144].

Attributes as Key Figures | As well as creating key figures, you can define attributes as key figures: You can assign attributes of a master data type as a key figure. For example, unit price is an attribute of CUSTOMERPRODUCT, that is, it has a single value for a unique customer and product combination. This attribute can be defined as a key figure such that the same unit price value can be repeated across all of the planning time periods of the customer and product combination. For more information, see Example: Defining an Attribute as a Key Figure [page 140].

**Note**

Note the following guidelines with respect to key figures:

<table>
<thead>
<tr>
<th>Key Figures Affected</th>
<th>Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Planning input and output key figures</td>
<td>Must be stored key figures</td>
</tr>
<tr>
<td>Input key figures added via data integration</td>
<td>Mark as Stored. If you need to edit such a key figure, mark it as Editable.</td>
</tr>
<tr>
<td>Quantity and value key figures</td>
<td>Typically set to aggregation mode SUM, MIN, or MAX. If such key figures are defined as Editable, Disaggregation Mode is set to Proportional if aggregated value is not zero; otherwise, equal distribution.</td>
</tr>
<tr>
<td>Ratio, price, cost, and percentage key figures</td>
<td>Typically set to aggregation mode Custom, Min, Max, or Avg. If Editable, typically set to Proportional if aggregated value is not zero; otherwise, Copy Value To or Copy Value. Such key figures generally have request level calculations.</td>
</tr>
</tbody>
</table>

**More Information**

Creating Key Figures [page 38]
8.2 Creating Key Figures

Context

Once you have created your attributes, master data types, time profiles, and planning areas and levels, you define the key figures you want to include in your planning model.

Steps

1. Choose Manage Key Figures on the initial screen of the Configuration app, or click Key Figures in the top menu.
2. Select the Key Figure radio button.
3. Enter an ID for the key figure, for example, SALESFORECASTQTY.
4. Select the desired base planning level from the drop-down menu (for example, PERPRODCUST).
5. Fill out the header data as required:

<table>
<thead>
<tr>
<th>Field Label</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| Display Settings     | Determines how the key figure is displayed in Analytics. (Note that Microsoft Excel and add-in formatting mechanisms are used to display key figure data in the Excel Add-In.):  
|                      | **Decimal Places**: Specify the number of decimal places required. The default setting is 6 decimal places.  
|                      | **Display as Percentage**: Select to display the key figure as a percentage.                                                                |
| Base Planning Level  | Shows the planning level you selected earlier.                                                                                               |
| Aggregation Mode     | SUM (default value), MIN, MAX, AVG, CUSTOM  
|                      | You use aggregation mode CUSTOM in the following cases:  
|                      | • When key figures have complex calculations at request level, for example, Unit Price, which has inputs at request level.  
|                      | • When the base planning level is different from the planning level used in the request level calculation, for example, in unit of measure or currency conversions. |
| Disaggregation Mode  | Disaggregation mode is available only for key figures for which Edit Allowed is selected. Select from the following:  
|                      | • Proportional if aggregated value is not zero; otherwise, equal distribution. Typically used for quantity and revenue key figures. |
Field Label | Explanation
--- | ---
• Copy Value
• Equal Distribution
• Proportional if aggregated value is not zero; otherwise, copy value to Typically used for price and cost key figures, for example, CONSENSUSDEMANDPRICE and COSTPERUNIT.

Disaggregation Expression

Used to enter a disaggregation expression, that is, a mathematical expression that disaggregates the values entered for the key figure that is defined using other attributes and key figures. The following conditions apply to disaggregation expressions:

• All the key figures in the expression must be stored and must have the same base planning level as the key figure for which the expression is defined.
• All the attributes must be from the base planning level of the key figure for which the expression is defined.

You can enter a disaggregation expression only when Edit Allowed has been selected.

Examples of values in Disaggregation Expression:

• "KEYFIGURE1"
• "KEYFIGURE1" + "KEYFIGURE2"
• "KEYFIGURE1" + "ATTRIBUTE"
• (IF(ISNULL("ADJUSTEDACTUALSQTY"),"ACTUALSQTY","ADJUSTEDACTUALSQTY"))

Note
You must enter key figure IDs and attribute IDs in uppercase, and place them in double quotation marks.

Example
A demand planner has a product family PF1 with only two products, P1 and P2. These products have the following values at the base planning level:

<table>
<thead>
<tr>
<th>Product</th>
<th>Customer</th>
<th>Month</th>
<th>Marketing Forecast Qty</th>
<th>Actuals Qty 12 Months Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>C1</td>
<td>Jan</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

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At the aggregated level, the values for the product family are as follows:

Table 20

<table>
<thead>
<tr>
<th>Product Family</th>
<th>Customer</th>
<th>Month</th>
<th>Marketing Forecast Qty</th>
<th>Actuals Qty 12 Months Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF1</td>
<td>C1</td>
<td>Jan</td>
<td></td>
<td>300</td>
</tr>
</tbody>
</table>

The demand planner would now like to disaggregate the marketing forecast quantity to individual products in the product family proportionally based on the key figure *Actuals Qty 12 Months Offset*.

If, at the aggregated level, the demand planner enters 330 for *Marketing Forecast Qty* without the expression in the *Disaggregate Expression* box, the quantity would be distributed equally between the two lower levels as 165 and 165. Now, with the disaggregation expression, the values are disaggregated based on values in reference key figure *Actuals Qty 12 Months Offset* as follows:

Table 21

<table>
<thead>
<tr>
<th>Product</th>
<th>Customer</th>
<th>Month</th>
<th>Marketing Forecast Qty</th>
<th>Actuals Qty 12 Months Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>C1</td>
<td>Jan</td>
<td>110</td>
<td>100</td>
</tr>
<tr>
<td>P2</td>
<td>C1</td>
<td>Jan</td>
<td>220</td>
<td>200</td>
</tr>
</tbody>
</table>

**Snapshot Key Figure**

By default, this field is greyed out. However, if the key figure was created from the Manage Snapshot window, then the Snapshot Key Figure in the Key Figure window is enabled.
### Field Label | Explanation
--- | ---
Note that snapshot key figures are system generated and are always stored. | **Alert Key Figure**
Calculated key figures with user-defined criteria that monitor and manage the execution of business plans. Alert key figures must be calculated. They cannot be stored or edited. Alert key figures can only have the values ‘0’ or ‘1’, meaning that the alert itself is either ON or OFF. Alerts typically check conditions on other key figures, such as TargetRev vs. ConsensusRev > 10%.
Indicates a key figure in which data is stored at a defined base planning level. Note that all edited key figures are designated as **Stored**. However, an imported key figure can be designated **Not editable**. (For example, Actuals Qty must not be changed.)
Select both **Stored** and **Calculated** only for key figures that are configured to default to another key figure. See **Defaulting to Another Key Figure**.
Select from the following:
- **Not Editable**
- **Editable by System Algorithm**
- **Editable in the Current or Future**
- **Editable in the Past**
- **All Editable**
Key figures in which values are always calculated based on user-defined formulae (for example, Revenue = Qty * Price). This type of key figure is usually not editable. However, to support use cases such as defaulting, a key figure can be both editable and stored. For more information about defaulting, see **Defaulting to Another Key Figure** [page 46].
Indicates an input and/or output key figure for supply planning. If the planning area is enabled for supply planning, this field determines whether the key figure is used as an I/O for supply planning.

---

I/O for Supply Planning | Indicates an input and/or output key figure for supply planning. If the planning area is enabled for supply planning, this field determines whether the key figure is used as an I/O for supply planning.
--- | ---
To enable a planning area for supply planning, navigate to Planning Area and Details in the Configuration user interface, select your planning area, and select Supply Planning Enabled.

Convert Using
Used for disaggregation of conversion key figures. Required only for key figures that are editable. Select the key figure that you want to use to convert the current key figure. Note that this key figure must be a stored key figure.

Change History Enabled
Indicates that changes to the key figure will be tracked. For more information, see Enabling Change History for Key Figures [page 150]

### 8.3 Copying Key Figures

#### Context

Note the following with respect to copying key figures:

- The associated planning area must have the status Active or Inactive.
- You can copy key figures only within the same planning area.
- The planning area must be within the customer space.
- When you copy a key figure, the new key figure has the same type (for example, when you copy a helper key figure, the new key figure is also a helper key figure).

#### Steps

1. Choose Manage Key Figures on the initial screen of the Configuration app or click Key Figures in the top menu.
2. In the dropdown menu on the top right of the screen, select Edit Active and Inactive
3. In the list of key figures on the left of the screen, select the key figure that you want to copy.
4. Choose Copy.
5. Enter the ID for your new key figure.
6. Choose Copy.  
   The source key figure is copied to the new key figure.
7. Review the new key figure and adjust the properties as required, adapt calculations, and remove any calculations that you do not need.
8.4 Changing Key Figures

Context

You can change all properties of a key figure except the key figure ID.
You can change the key figure name and description of an active key figure. For all other changes, the key figure must be inactive.

8.5 Display Options for Key Figures

Context

You have the following display options for key figures in the Key Figures screen of the Configuration app:

Table 22

<table>
<thead>
<tr>
<th>Left-Hand Panel</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search this view</td>
<td>Search for key figures in the planning area</td>
</tr>
<tr>
<td>Toggle Key Figure ID/Key Figure ID and Name</td>
<td>Toggle between listing only the IDs of the key figures and both the IDs and the names of the key figures.</td>
</tr>
<tr>
<td>Toggle Key Figures/Planning Levels</td>
<td>Toggle between the key figures and the planning levels associated with the key figures.</td>
</tr>
<tr>
<td>Expand All</td>
<td>Expand the list to display both key figures and the associated planning views.</td>
</tr>
<tr>
<td>Collapse All</td>
<td>Collapse the list. You can see only key figures or planning levels (according to which list you are viewing).</td>
</tr>
<tr>
<td>Formula/Graph View</td>
<td>Toggle between the calculation expression for a key figure and the calculation graph</td>
</tr>
</tbody>
</table>

Note

The calculation graph for a key figure does not show a complete graph when one of the input key figures has an attribute transformation.

Table 23

<table>
<thead>
<tr>
<th>Dropdown Menu on Top Right</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edit Active and Inactive</td>
<td>List active and inactive elements</td>
</tr>
<tr>
<td>Display Active Only</td>
<td>List active elements only</td>
</tr>
<tr>
<td>Display SAP Sample</td>
<td>List the elements for the SAP sample model you select</td>
</tr>
</tbody>
</table>
8.6Creating External Key Figures

Context

External key figures enable SAP Integrated Business Planning to work with special stored key figures where the actual time series content comes from an external database. To use external key figures, the application-relevant orders, for example, sales orders or purchase orders, have to be aggregated and integrated from ERP to an SAP HANA database table inside the Integrated Business Planning system using a near real-time integration mechanism. When you set up your planning model, you have to define an external key figure or key figures referring to this table. Since the integration is continuous, the reference key figure data always contains the latest aggregated entries from SAP ERP. Therefore, there is no need for manual update.

Steps

To create external key figures you have to do the following:

1. Go to the Planning Area and Details screen by choosing Define Planning Area on the initial screen of the Configuration app or click Planning Area and Details in the top menu.
2. Select the External Time Series Enabled checkbox.
3. Click Save.
4. Navigate to the Planning Levels screen and select an entry from Data Source for External Key Figure Definition.
   
   Note
   Make sure that a value has been selected for Data Source for External Key Figure Definition. Otherwise, the planning level does not support external key figures on this base level.

5. Assign a reference column to each root attribute using the Reference Column.
6. Click Save.
7. Navigate to the Key Figures Screen.
8. Select the Stored checkbox.
9. Choose a reference column in the External Key Figure Quantity drop down which contains the time series data for this key figure.
10. Click Save.

8.7Key Figure Calculations

Context

Once you have created a key figure, you can add calculations to it. Note the following:

- All key figures that an end user is able to query from the user interface must have a calculation at request level, because the system determines how to calculate the key figure starting from this calculation.
• You can additionally define calculations that aggregate the key figure data from a lower base planning level using an operator such as SUM, MIN, or MAX.
• You can also define calculations across key figures, for example, KF1 plus KF2.
• All key figure calculations have calculation inputs, which can be marked as stored or non-stored. The calculation chain for every key figure must result in a stored key figure.

**Example**
KF1@PL1 = KF2@PL1 plus KF3@PL1. Key figure 2 (KF2) is a stored input key figure and key figure 3 (KF3) is a calculated input key figure. The calculated chain for key figure 3 (KF3) must finish with a stored key figure (such as KF3@PL1 = SUM(KF4@PL2), where KF4@PL2 is a stored key figure).

### 8.7.1 Stored Key Figure Calculation

**Context**

Stored key figures refer to key figures that are stored in the underlying database tables and that are either imported from a source system or else are entered manually in an Excel planning view. Examples include SALESFORECASTQTY and ACTUALSQTY.

The following apply to stored key figure calculations:

• The associated key figure is marked as Stored (and can also be set to **Editable**)
• The key figure has only one request level calculation, but can also have some other calculations.
• The input key figure for the calculation is the same key figure at base planning level.

**Example: Calculation Definition for Actuals Qty from SAP2 Sample Model**

ACTUALSQTY@REQUEST = “SUM(ACTUALSQTY@PERPRODCUST)”

Note that the inputs for this calculation have ACTUALSQTY as a stored value:

<table>
<thead>
<tr>
<th>Key Figure</th>
<th>Select as Input</th>
<th>Stored Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTUALSQTY@PERPRODCUST</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### 8.7.2 Calculations at Request Level

**Context**

In request level calculations, the inputs for the calculation are also at request level. (“Request level”) is a built-in planning level that represents the level at which a user looks at the data [in the Microsoft Excel client or in Analytics]. When a key figure of this type is called at request level, the key figures in the calculation are first calculated at request level. The results are then returned to the key figure calculation. Request level calculations
are typically used for calculation of ratios, prices, and cost. The following example shows the calculation of sales forecast price, which is a weighted average calculation:

**Example**

Request Level Calculation: Sales Forecast Price: \( \text{SALESFORECASTPRICE}@\text{REQUEST} = \text{IF}(\"\text{SALESFORECASTQTY}@\text{REQUEST}\"=0,0,\"\text{SALESFORECASTREV}@\text{REQUEST}\"/\"\text{SALESFORECASTQTY}@\text{REQUEST}\")

Note the following:

- Request level calculations must have aggregation mode Custom.
- Aggregation methods such as SUM and MIN are not allowed for request level calculations. Only request level inputs are allowed.
- The inputs for request level calculations are not stored.

**Input Key Figures: Request Level Calculation Sales Forecast Price**

<table>
<thead>
<tr>
<th>Key Figure</th>
<th>Select as Input</th>
<th>Stored Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALESFORECASTREV@REQUEST</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>SALESFORECASTQTY@REQUEST</td>
<td>√</td>
<td></td>
</tr>
</tbody>
</table>

**8.7.3 Defaulting to Another Key Figure**

**Context**

You can configure key figures in such a way that a key figure calculation defaults to another key figure value based on a condition. You can also define a chain of key figures, where a key figure defaults to another defaulting key figure.

**Note**

Chaining is not restricted to defaulting. As all definitions of key figure are iterative, you can define a chain for any calculations.

**Example**

In this example, the key figure Sales Forecast Qty is defined as defaulting key figure for the key figure Consensus Demand Qty. If the data value for Consensus Demand Qty is null or empty, the system defaults to Sales Forecast Qty.

As there is no stored value for Consensus Demand Qty, the value defaults to the value for Sales Forecast Qty: 2000.
Note the following:

- If there is no stored data value for *Consensus Demand Qty*, then the value “2000” from *Sales Forecast Qty* is used.
- If you enter a value, such as “1000” for *Consensus Demand Qty* or save a value from planning views, this new value will override the default value.
- To revert to a calculated value, simply set the value to null (empty) in the planning view and save your entries.

**Steps**

1. Create a key figure, for example, *CONSENSUSDEMANDQTY* at base planning level PERPRODCUST
2. Mark the key figure as *Stored*, *Editable*, and *Calculated*.
3. Define a request level calculation and a calculation for the base planning level:
   - Request level calculation:
     
     ```
     CONSENSUSDEMANDQTY@REQUEST = SUM("CONSENSUSDEMANDQTY@PERPRODCUST")
     ```
   - Calculation for the base planning level:
     
     ```
     CONSENSUSDEMANDQTY@PERPRODCUST = IF(ISNULL("CONSENSUSDEMANDQTY@PERPRODCUST",
     "DEMANDPLANNINGQTY@PERPRODCUST", "CONSENSUSDEMANDQTY@PERPRODCUST")
     ```

**Note**

Note that the input key figure can be either a stored or a calculated key figure. In this example, both inputs are stored key figures:

**Table 26**

<table>
<thead>
<tr>
<th>Key Figure</th>
<th>Selected as Input</th>
<th>Stored Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONSENSUSDEMAND@PERPRODCUST</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DEMANDPLANNINGQTY@PERPRODCUST</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Note**

Since the key figure is marked as both stored and calculated, on activation, the system generates a defaulting expression as follows:

```
IF(ISNULL("CONSENSUSDEMANDQTY@PERPRODCUST"), "DEMANDPLANNINGQTY@PERPRODCUST", "CONSENSUSDEMANDQTY@PERPRODCUST")
```
The system generates this expression provided the inputs for the calculation are stored key figures that are at the same base planning level as the Key figure itself.

### 8.8 Adding Calculations to Key Figures

#### Note

You can copy or delete key figures with L-Code, but for modification please contact SAP.

1. Choose Manage Key Figures on the initial screen of the Configuration app or click Key Figures in the top menu.
2. Select the key figure to which you want to add a calculation.
3. Click the Add Calculation button.
4. Select the planning level for the left side of the calculation. This can be request level (“@REQUEST”) or another planning level.
5. Place the cursor on the expression editor (to the right of the “=” sign) and type your calculation expression. When you enter the “” character (double quotes), a dropdown menu appears from which you can select the desired key figure. For example, enter the following: SUM(“SALESFORECASTQTY@PERPRODCUS”).

#### Note

For calculation expressions, a maximum of 2 input planning levels is supported. If there are more than 2 input planning levels, you can use helper key figures to break down the calculation expressions.

6. Once you have entered the expression, click Validate Calculation and verify that the correct inputs have been selected by the system.

   The system automatically marks the Key Figures @ planning level that are used in the expression as inputs in the Input Key Figures dialog box.

7. Click OK.

   If your expression is correct, it will change color from black to green (planning level) and blue (key figure). This indicates that it is validated. Otherwise, you receive an error message.

8. Once your expressions are correct, save your changes.

   When you save your entries, the system creates a request level calculation by default.

#### Example

This example illustrates how to create a calculation for SALESFORECASTQTY. At request level, the calculation expression aggregates (SUMS) the stored SALESFORECASTQTY.

The system creates a request level calculation when a key figure is created. The following procedure shows how to add the above calculation for SALESFORECASTQTY:

1. Click the Add Calculation button.
2. Select the planning level for the left side of the calculation. This can be REQUEST or another planning level. Choose REQUEST.
3. Place the cursor on the expression editor (to the right of the “=” sign) and type your calculation expression. When you enter the “” character (double quotes), a dropdown menu appears from which
you can select the desired key figure. For example, enter the following:

```
SUM("SALESFORECASTQTY@PERPRODCUST")
```

4. Once you have entered the expression, click Validate Calculation and verify that the correct inputs have been selected by the system.

The system automatically marks the Key Figures @ planning level that are used in the expression as inputs in the ‘Input Key Figures’ dialog box.

5. Define the Input key figures as shown in the table below.

<table>
<thead>
<tr>
<th>Input Key Figure</th>
<th>Stored</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALESFORECASTQTY@PERPRODCUST</td>
<td>X</td>
</tr>
</tbody>
</table>

6. Click OK.

If your expression is correct, it will change color from black to green (planning level) and blue (key figure). This indicates that it is validated. Otherwise, you receive an error message.

7. Once your expressions are correct, save your changes.

### 8.9 Decimal Places in Key Figure Values

In the Configuration app, you can define the number of decimal places you want to be displayed for each key figure. If the number of decimal places is not specified, the maximum possible value is used, which is 6 decimal places.

This setting affects disaggregation only for key figures that have aggregation mode SUM or AVG. The information provided here refers only to such key figures.

When a user enters a key figure value in a planning view, the value is disaggregated. The system manages the values as follows:

- The disaggregated key figure values at the base planning level are always rounded to the configured number of decimal places.
- The aggregation of the base planning level values is a key figure value that is also always rounded to the configured number of decimals (when not taking conversion into account).
- The aggregation of the base planning level values is the same as the number entered by the user (provided the number entered does not exceed the number configured).

#### Example

You entered 2 decimal places for a key figure Demand.

Product group PG has 3 products: A, B, and C.

You enter a value of 10 for Demand at the aggregated planning level PG.

Result: After disaggregation, the key figure values at the base planning level are 3.33, 3.33, and 3.34 for the 3 products A, B, and C. The system arbitrarily decides which product gets 3.34.

You enter 12.456 for Demand at the aggregated planning level PG.

Result: After disaggregation, the key figure values at the base planning level are 4.15, 4.15, and 4.16 for the 3 products A, B, and C. This aggregates to 12.46 according to the configuration setting of 2 decimal places for the key figure.
Example
You entered 4 decimal places for a key figure Supply.

Product group PG has 3 products: A, B, and C.

You enter a value of 12.456 for Supply at the aggregated planning level PG.

Result: After disaggregation, the key figure values at the base planning level are 4.152, 4.152, and 4.152 for the 3 products A, B, and C.

Note
In some circumstances, taking the number of decimal places into account during disaggregation can affect performance. So if you do not need this feature for a particular key figure, you can deactivate it by setting the number of decimal places for the key figure to null in the Configuration app.

Rounding is not considered in the mass disaggregation after a forecasting run, numbers are calculated and displayed with 6 decimal places.

8.10 Commonly Used Functions and Expressions

Operators

The following operators are available:

+, -, *, /, >, =, >=, <=, !=, **, %, AND, OR, NOT

Table 28

<table>
<thead>
<tr>
<th>Operator</th>
<th>Details</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>Modulus operator. Returns the remainder, for example, 17%5 = 2.</td>
<td>KF1@PERPRODLOC % KF2@PERPRODLOC</td>
</tr>
<tr>
<td>**</td>
<td>Power operator</td>
<td>KF2@PERPRODLOC = KF2@PERPRODLOC * ((1/KF2@PERPRODLOC) ** 0.5)</td>
</tr>
<tr>
<td>AND</td>
<td>Boolean operator that returns a value of TRUE if both its operands are true, and FALSE otherwise.</td>
<td>KF1@PERPRODLOC = 0 AND KF2@PERPRODLOC = 0</td>
</tr>
<tr>
<td>OR</td>
<td>Boolean operator that returns a value of TRUE if any of its operands are TRUE, and FALSE otherwise.</td>
<td>KF1@PERPRODLOC = 0 OR KF2@PERPRODLOC = 0</td>
</tr>
</tbody>
</table>

Aggregation Methods

The following aggregation methods are available:

SUM, MIN, MAX, AVG
### Table 29

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Details</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>IF(intarg, arg2, arg3)</td>
<td>Return arg2 if intarg is considered true (not equal to zero), else return arg3.</td>
<td>CAPACITYOVERLOADS@PERLOCRES = IF(&quot;CAPADEMANDUTILPCT@PERLOCRES&quot; &gt; 1, 1, 0)</td>
</tr>
<tr>
<td>ISNULL(arg1)</td>
<td>Return 1 (= true), if arg1 is set to null.</td>
<td>MARKETINGFORECASTQTY@PERPRODCUST = IF(ISNULL(MARKETINGFORECASTQTY@PERPRODCUST), SALESFORECASTQTY@PERPRODCUST, MARKETINGFORECASTQTY@PERPRODCUST)</td>
</tr>
<tr>
<td>CASE(arg1, default)</td>
<td>Return value1 if arg1 == cmp1, value2 if arg1 == cmp2, and so on. default if there is no match.</td>
<td>CASE(SELECTEDOPTION@PERPROD, 1, KF1@PERPROD, 2, KF2@PERPROD, KF@PERPROD)</td>
</tr>
<tr>
<td>CASE(arg1, cmp1, value1, cmp2, value2, ..., default)</td>
<td>Return value1 if arg1 == cmp1, value2 if arg1 == cmp2, and so on. default if there is no match.</td>
<td>CASE(SELECTEDOPTION@PERPROD, 1, KF1@PERPROD, 2, KF2@PERPROD, KF@PERPROD)</td>
</tr>
<tr>
<td>ABS(arg)</td>
<td>Returns arg, if arg is positive or zero, else -arg.</td>
<td>IF(ABS(SUPPLYREV@PERPRODFML - CONSENSUSDEMANDREV@PERPRODFML) / CONSENSUSDEMANDREV@PERPRODFML &gt; 0.2, 1, 0)</td>
</tr>
<tr>
<td>ROUND(double, int)</td>
<td>ROUND(123.456, 0) = 123 ROUND(123.456, 1) = 123.5 ROUND(-123.456, 1) = -123.5 ROUND(123.456, -1) = 120</td>
<td>KF1@PERPRODLOCSRC = ROUND(KF@PERPRODLOCSRC, 0)</td>
</tr>
<tr>
<td>ROUNDDOWN(double, int)</td>
<td>ROUNDDOWN(123.456, -1) = 120 ROUNDDOWN(-123.456, -1) = -130</td>
<td>KF1@PERPRODLOCSRC = ROUNDDOWN(KF@PERPRODLOCSRC, 0)</td>
</tr>
<tr>
<td>FLOOR(double)</td>
<td>FLOOR(35.1) = 35</td>
<td>KF1@PERPRODLOC = FLOOR(KF@PERPRODLOC)</td>
</tr>
<tr>
<td>CEIL(double)</td>
<td>CEIL(35.1) = 36</td>
<td>KF1@PERPRODLOC = CEIL(KF@PERPRODLOC)</td>
</tr>
<tr>
<td>LTRIM(string)</td>
<td>Remove a whitespace prefix from a string. The whitespace characters may be specified in an optional argument.</td>
<td></td>
</tr>
<tr>
<td>Syntax</td>
<td>Details</td>
<td>Example</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>RTIM(string)</td>
<td>Remove trailing whitespace from a string.</td>
<td></td>
</tr>
<tr>
<td>RTIM(string,string)</td>
<td>Remove trailing whitespace from a string. The whitespace characters may be specified in an optional argument.</td>
<td></td>
</tr>
<tr>
<td>TRIM(string)</td>
<td>Remove whitespace from the beginning and end of a string.</td>
<td></td>
</tr>
<tr>
<td>TRIM(string,string)</td>
<td>Remove whitespace from the beginning and end of a string.</td>
<td></td>
</tr>
</tbody>
</table>

The following example shows a sample configuration for aggregation of standard deviation:

**Example**

Take the sum of the squares; then calculate the square root of the total:

1. Calculate the squares:
   1. Square the values:
      
      \[
      HKF1@PL = \text{PROPAGATEDDEMANDSTDEV@PL}^2
      \]
   2. Sum the squares:
      
      \[
      HKF1@REQUEST = \text{SUM(HKF1@PL)}
      \]

2. Calculate the square root of the total:
   
   \[
   \text{PROPAGATEDDEMANDSTDEV@REQUEST} = HKF1@REQUEST^{0.5}
   \]

**ISNULL**

The ISNULL condition works only when an underlying time series record exists for the planning object.

Imagine that Sales Forecasting and Marketing Forecast Quantity are the stored key figures for planning level PERPROD.

<table>
<thead>
<tr>
<th>Planning Object</th>
<th>Period</th>
<th>Key Figure: Sales Forecast Qty</th>
<th>Key Figure: Marketing Forecast Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>Jan 2015</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>P1</td>
<td>Mar 2015</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

With the above data, \( \text{IF(ISNULL(SALESFCSTQTY),1,0)} \) exhibits the following behavior:

<table>
<thead>
<tr>
<th>Period</th>
<th>ISNULL Value</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2015</td>
<td>1</td>
<td>January 2015 has the value “100”.</td>
</tr>
<tr>
<td>Feb 2015</td>
<td>Not evaluated</td>
<td>The planning object for the time period February 2015 does not exist.</td>
</tr>
<tr>
<td>Mar 2015</td>
<td>0</td>
<td>Though there is no value for Sales Forecast Qty, the Marketing Qty key figure (for the same planning level) has a valid value. Therefore, a record exists</td>
</tr>
</tbody>
</table>
Sample Expressions

Table 32

<table>
<thead>
<tr>
<th>Key Figure</th>
<th>Calculation Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuals Price</td>
<td>ACTUALSPRICE@REQUEST = IF(&quot;ACTUALSQTY@REQUEST&quot;=0, 0, &quot;ACTUALSREV@REQUEST&quot;/&quot;ACTUALSQTY@REQUEST&quot;)</td>
</tr>
<tr>
<td>Capacity Overloads</td>
<td>CAPACITYOVERLOADS@PERLOCRES = IF(&quot;CAPADEMANDUTILPCT@PERLOCRES&quot;&gt; 1,1,0)</td>
</tr>
<tr>
<td>Capacity Usage</td>
<td>CAPAUSAGE@PERPRODLOCRES = &quot;CAPADEMAND@PERPRODLOCRES&quot;/&quot;CAPADEMAND@PERPRODLOCRES&quot;*&quot;(IF(CAPASUPPLY PERDEMAND@PERLOCRES&quot;&gt;1,1, &quot;CAPASUPPLYPERDEMAND@PERLOCRES&quot;))</td>
</tr>
<tr>
<td>Marketing Forecast Profit</td>
<td>MARKETINGFORECASTPROFIT@PERPRODCUST = &quot;MARKETINGFORECASTREV@PERPRODCUST&quot;- &quot;HMARKETINGFORECASTCOST@PERPRODCUST&quot;</td>
</tr>
<tr>
<td>Marketing Forecast Quantity</td>
<td>MARKETINGFORECASTQTY@PERPRODCUST = IF(ISNULL(&quot;MARKETINGFORECASTQTY@PERPRODCUST&quot;), &quot;SALESFORECASTQTY@PERPRODCUST&quot;, &quot;MARKETINGFORECASTQTY@PERPRODCUST&quot;)</td>
</tr>
<tr>
<td>Constrained Versus Consensus Demand Revenue</td>
<td>CONSTRAINEDVSCONSENSUSREV@PERPRODFML = IF(ISNULL(&quot;CONSENSUSDEMANDREV@PERPRODFML&quot;) OR &quot;CONSENSUSDEMANDREV@PERPRODFML&quot;=0, 0, IF(ABS(&quot;SUPPLYREV@PERPRODFML&quot; - &quot;CONSENSUSDEMANDREV@PERPRODFML&quot;)/&quot;CONSENSUSDEMANDREV@PERPRODFML&quot; &gt; 0,2,1,0))</td>
</tr>
<tr>
<td>Supply Quantity</td>
<td>SUPPLYQTY@PERPRODLOC = IF(&quot;HPROJECTEDINVENTORYQTY@PERPRODLOC&quot;=0, &quot;DEPENDENTDEMANDQTY@PERPRODLOC&quot;, &quot;DEPENDENTDEMANDQTY@PERPRODLOC&quot;+ &quot;HPROJECTEDINVENTORYQTY@PERPRODLOC&quot;)</td>
</tr>
<tr>
<td>Bill Cost per Area</td>
<td>BILL_COST_PER_AREA@BSCIRTRSCFRCTOUFRUTO2L3AVG_A = IF(isnull(&quot;ASSETAREA5@BSCIRTRSCFRCTOUFRUTO2L3AVG_A&quot;) or &quot;ASSETAREA5@BSCIRTRSCFRCTOUFRUTO2L3AVG_A&quot;=</td>
</tr>
</tbody>
</table>
Calculations Across Different Planning Levels

In SAP Integrated Business Planning, you can easily perform calculations across different planning levels. In the SAP sample planning areas, calculations are made in real time. Based on changes to the sales forecast or to consensus demand, calculations are made for the complete supply side and for Finance.

Caution

When a key figure contains calculations at different planning levels, the attributes for the output planning level must match the union of all the attributes for the input planning levels.

Example

The following figure shows an example for capacity demand from the SAP1 planning area:

CAPADEMAND@PERPRODLOCRES is calculated from CAPCONSUMPTION@PERPRODLOCRES and NETDEMANDQTY@PERPRODLOC.

For the calculation shown below, the same attributes must have been defined for planning level PERPRODLOCRES as for planning levels PERPRODLOC and PERPRODLOCRES combined.

Calculation of Capacity Demand

CAPADEMAND@REQUEST = SUM("CAPADEMAND@PERPRODLOCRES")
CAPADEMAND@PERPRODLOCRESC = “NETDEMANDQTY@PERPRODLOC” * 
“SMICAPACONSUMPTION@PERPRODLOCRESC”
CAPADEMAND@PERLOCRES = SUM(“CAPADEMAND@PERPRODLOCRESC”)  

**Input Key Figures for Calculation of Capacity Demand**

- Calculation CAPADEMAND@REQUEST = SUM(“CAPADEMAND@PERPRODLOCRESC”)  

<table>
<thead>
<tr>
<th>Key Figures</th>
<th>Stored Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPADEMAND@PERPRODLOCRESC</td>
<td></td>
</tr>
</tbody>
</table>

- Calculation CAPADEMAND@PERPRODLOCRESC = “NETDEMANDQTY@PERPRODLOC” “SMICAPACONSUMPTION@PERPRODLOCRESC”

<table>
<thead>
<tr>
<th>Key Figures</th>
<th>Stored Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMICAPACONSUMPTION@PERPRODLOCRESC</td>
<td>Yes</td>
</tr>
<tr>
<td>NETDEMANDQTY@PERPRODLOC</td>
<td>Yes</td>
</tr>
</tbody>
</table>

- Calculation CAPADEMAND@PERLOCRES = SUM(“CAPADEMAND@PERPRODLOCRESC”)  

<table>
<thead>
<tr>
<th>Key Figures</th>
<th>Stored Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPADEMAND@PERPRODLOCRESC</td>
<td></td>
</tr>
</tbody>
</table>

**8.12 Using Attributes in Key Figure Calculations**

You can use attributes in both conditional expressions and in calculation expressions.

**Example**

Examples of using attributes in expressions:
- KEYFIGURE1 = IF (ATTRIBUTE = ”VALUE”, KEYFIGURE * 2, KEYFIGURE, * 3)
- KEYFIGURE1 = KEYFIGURE2 + ATTRIBUTE
- ATTRIBUTE = ATTRIBUTE + 2
- ATTRIBUTE = ”VALUE”

Note the following:
- An attribute that is used in a calculation must belong to the planning level of at least one of the inputs to the calculation.
- An attribute cannot be used in a calculation if all the inputs are specified at request planning level.
- If you use a constant in an expression, you must use two single quotation marks before and after the attribute value (for example, “constant”)
8.13 Using Time Periods in Key Figure Calculations

You may sometimes need to define calculations that are based on criteria relating to time periods. For example, imagine that for key figure Sales Forecast Qty, you want to show the Actuals Qty for time periods that lie in the past:

### Actuals Qty Shown for Sales Forecast Qty in Past Time Periods

<table>
<thead>
<tr>
<th>Key Figure</th>
<th>Current Time Period -2</th>
<th>Current Time Period -1</th>
<th>Current Time Period</th>
<th>Current Time Period +1</th>
<th>Current Time Period +2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prod1/Cust1</td>
<td>100</td>
<td>120</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales Forecast Qty</td>
<td>100</td>
<td>120</td>
<td>150</td>
<td>175</td>
<td>100</td>
</tr>
</tbody>
</table>

To achieve this, define the following calculation expression:

```plaintext
SALESFCSTQTY@BASEPLANNINGLEVEL = IF(PERIODIDn >= $$PERIODIDCUn$$, SALESFCSTQTY@BASEPLANNINGLEVEL, ACTUALSQTY@BASEPLANNINGLEVEL)
```

**Note**

If you have key figures at different planning levels (Week, Month, Quarter, Year), you might want to use PERIODIDn:

- $$PERIODIDCUn$$: Fixed variable for the current period.
- PERIODIDn: Time period attribute

"n" refers to the time period level. For example, in a planning area where the time profile has the levels "Week", "Month", "Quarter", and "Year", the period IDs would be as follows:

<table>
<thead>
<tr>
<th>Period ID</th>
<th>Time Period Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERIODID0</td>
<td>Week</td>
</tr>
<tr>
<td>PERIODID1</td>
<td>Year</td>
</tr>
<tr>
<td>PERIODID2</td>
<td>Quarter</td>
</tr>
<tr>
<td>PERIODID3</td>
<td>Month</td>
</tr>
</tbody>
</table>

If Sales Forecast Qty is defined at the base planning level with “Month” as the root, then “PERIODIDn” would be replaced by “PERIODID3”. 
9 Versions

Versions (before Release 4.0 FP 01 referred to as “scenarios”) are used to manage alternate plans. They can be defined using all or subsets of the key figures of the planning area, including calculated key figures. Versions can contain references to the base version key figures, so that these can be used in calculations within the version.

Versions can have version-specific master data. The versions that do not have version-specific master data share the master date with the base version.

You can copy key figures and/or master data (where applicable) between versions.

Besides versions, you can also create user-defined “scenarios”.

The following table gives an overview of the difference between “versions and scenarios”:

Table 38

<table>
<thead>
<tr>
<th>Object Type</th>
<th>Version</th>
<th>Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>Alternate plans maintained over time.</td>
<td>On-the-fly “what if” scenarios</td>
</tr>
<tr>
<td>Created By</td>
<td>Administration user at time of configuration. (The number of versions is defined during configuration.)</td>
<td>Planner or end user (dynamically when using the system)</td>
</tr>
<tr>
<td>Created From</td>
<td>Configuration app, by choosing Versions, and then Create New.</td>
<td>Microsoft Excel add-in by choosing Create in the Scenarios group.</td>
</tr>
<tr>
<td>Change Method</td>
<td>Copy</td>
<td>Delta</td>
</tr>
<tr>
<td></td>
<td>Customers copy data between versions. As a result, a version is based on a copy (or an overlay of multiple copies) and not on a collection of deltas. Changes to the base version (or to another version that you copied from) do not automatically “shine through” in the target version of the copy.</td>
<td>The system keeps track of all changes to key-figure values as delta records inside the scenario. If, at the same time, changes are made in the base version, these are visible in the user-defined scenarios, unless there are conflicting scenario deltas, in which case those take precedence. This change method could be thought of as “shine-through” logic.</td>
</tr>
</tbody>
</table>

For more information about user-defined scenarios, see Creating User-Defined Scenarios [external document] in the application help.

9.1 Creating Versions

Context

To create a version, choose Manage Versions on the initial screen of the Configuration app or click Versions in the top menu.

The following example illustrates how to create an upside version:
Steps

1. Verify that your planning area is selected.
2. Click New and enter an ID for the new version (for example, UPSIDE).
3. Enter a name and description:
   ○ Name: Upside
   ○ Description: Upside version
4. Select the Version-Specific Key Figures (in the case of the basic S&OP Model, you can select all).
5. Save the version.
10 Planning Operators

A planning operator uses an algorithm to compute large amounts of key figure data within a planning session. You can schedule a planning operator to be processed in the background.

SAP delivers the following planning operator types:

<table>
<thead>
<tr>
<th>Planning Operator Type</th>
<th>Name</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADVSIM</td>
<td>Advanced Simulation</td>
<td>Preprocessing and postprocessing operations for simulation</td>
</tr>
<tr>
<td>COPY</td>
<td>Copy Key Figure Data</td>
<td>Copy values of source key figures to target key figures in the same version (base or other) of a planning area.</td>
</tr>
<tr>
<td>DISAGG</td>
<td>Copy and Disaggregate Key Figure Data</td>
<td>Copy and disaggregate values of source key figures to target key figures in the same version (base or other) of a planning area.</td>
</tr>
<tr>
<td>IBPFORECAST</td>
<td>Statistical Forecasting</td>
<td>Run statistical forecasting for a selection of your data.</td>
</tr>
<tr>
<td>GROUP</td>
<td>Group</td>
<td>Run a group of planning operators in a single batch job in a defined sequence. A group operator can be run automatically after importing key figure values and manually from the Excel add-in (batch mode only).</td>
</tr>
<tr>
<td>IO</td>
<td>Inventory Optimization</td>
<td>Run inventory optimization for a given supply chain network.</td>
</tr>
<tr>
<td>PCH</td>
<td>Purge Change History</td>
<td>Delete all change history data that is older than a specified number of days.</td>
</tr>
<tr>
<td>PURGE</td>
<td>Purge Key Figure Data</td>
<td>Delete all key figure data that is older than a specified time period.</td>
</tr>
<tr>
<td>SCM</td>
<td>S&amp;OP</td>
<td>Run global supply planning across your supply chain network. This planning operator type offers different algorithms (for example, heuristic and optimizer).</td>
</tr>
<tr>
<td>SNAPSHOT</td>
<td>Snapshot</td>
<td>Take a snapshot of a predefined set of key figures in a batch process.</td>
</tr>
</tbody>
</table>
### 10.1 Creating a Planning Operator

#### Steps

1. On the initial screen of the *Configuration* app select *Manage Planning Operators*.
2. Select a planning operator type from the list of planning operator types on the left side of the screen.
   
   You can specify the following pieces of information for your planning operator:
   
   - Planning operator name and description
   - Required modes (one or more): interactive, batch, or filter mode
   - Planning operator parameters

   For more information, see the following table:

<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactive Mode</td>
<td>Specifies whether the user can run the planning operator interactively in the current planning session in IBP Excel add-in (by choosing Simulate and then the operator name).</td>
</tr>
<tr>
<td>Batch Mode</td>
<td>Specifies whether the user can schedule the planning operator to run in the background (either immediately or as a scheduled job).</td>
</tr>
<tr>
<td>Filter Mode</td>
<td>Specifies whether the user can use filters when running or scheduling the planning operator in IBP Excel add-in.</td>
</tr>
<tr>
<td></td>
<td>For example, if you activate the filter mode for the planning operator type SNAPSHOT, the user can use a stored filter or create an ad-hoc filter when taking the snapshot from IBP Excel add-in. Only the data that satisfies the filter is included in the snapshot.</td>
</tr>
<tr>
<td>Define Parameters</td>
<td>Parameters that are relevant for the planning operator (parameter name and parameter value).</td>
</tr>
</tbody>
</table>

4. Save your changes.
Next Steps

Once you created and defined your planning operators, assign them to a planning area. For more information see Assigning a Planning Operator to a Planning Area [page 61].

10.2 Assigning a Planning Operator to a Planning Area

Prerequisites

Make sure you have already created planning operators for the planning operator types available in the system. For more information see Creating a Planning Operator [page 60].

Steps

1. On the initial screen of the Configuration app select Define Planning Area or choose Planning Area and Details in the top menu.
2. Select your planning area from the list of planning areas on the left side of the screen.
3. Choose Planning Operators.

Step Result

The Assign Planning Operators dialog appears.
4. Select the planning operators you want to assign to your planning area and choose OK.
   You can assign planning operators one by one, or you can assign all planning operators associated with a certain planning operator type by selecting the planning operator type.
5. Save your changes.
6. Activate your planning area.

10.3 Advanced Simulation (ADVSIM) Operator

The Advanced Simulation (ADVSIM) operator copies key figure values from source key figures to target key figures during simulation. The ADVSIM operator supports disaggregation based on calculated key figures.

Example

The following are sample use cases for the ADVSIM operator:
- Disaggregate Sales Forecast Qty based on the last 12 months of sales history
- A complex calculation based on key figures at different planning levels before disaggregation

The operator supports the following operations:
- **Pre-Copy**: Copies configured source key figure values to target key figure values before disaggregation
- **Post-Copy**: Copies configured source key figures to target key figures after disaggregation
• **Disaggregation Key Figures**: Whenever a change is made to a key figure defined as a disaggregation key figure, the advanced simulation operator is triggered.

When a key figure is configured in an ADVSIM operator as a disaggregation key figure and its value is subsequently changed or simulated in a planning view, the ADVSIM operator is triggered and does the following for the changed cells only:

1. Pre-copy
2. Regular disaggregation of the key figure
3. Post-copy

Before calculated key figures can be used for disaggregation, the value of the calculated key figure must be stored in another stored key figure at the same base planning level as the key figure that is being disaggregated. This is done in the Pre-copy or the Post-copy operations of the ADVSIM operator.

The following table lists the configuration settings for the ADVSIM operator:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE_SOURCE_KFIDnn</td>
<td>Source key figure ID. &quot;n&quot; is a number starting from &quot;1&quot;.</td>
<td>Optional</td>
</tr>
<tr>
<td>PRE_TARGET_KFIDnn</td>
<td>Target key figure ID. &quot;n&quot; is a number starting from &quot;1&quot;.</td>
<td>Optional</td>
</tr>
<tr>
<td>POST_SOURCE_KFIDn</td>
<td>Source key figure ID.&quot;n&quot; is a number starting from &quot;1&quot;.</td>
<td>Optional</td>
</tr>
<tr>
<td>POST_TARGET_KFIDnn</td>
<td>Target key figure ID. &quot;n&quot; is a number starting from &quot;1&quot;.</td>
<td>Optional</td>
</tr>
<tr>
<td>DISAGG_KFIDnm</td>
<td>Key figures that invoke that ADVSIM operator when their values change.</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

**Note**

Note the following with respect to the parameter IDs:

- "n" represents the sequence or order of a key figure for disaggregation. For example, if a user updates 2 or more key figures as part of a simulation and a calculation dependency exists between the key figures, "n" indicates the order in which the key figures are to be disaggregated. As this disaggregation sequence is not yet supported, "n" must always have the value "1".

- "m" represents the key figure pair for source and target key figures. You configure it as follows:

  ```
  PRE_SOURCE_KFID11 = KF1, PRE_TARGET_KFID11 = KF2;
  PRE_SOURCE_KFID12 = KF3, PRE_SOURCE_KFID12 = KF4
  ```

  KF1 is then copied to KF2, and KF3 is copied to KF4 as part of pre-copy, allowing copying of multiple key figures in a single operator call.

Other important conditions for the ADVSIM operator are as follows:

- If a source key figure ID is set to NULL, then the corresponding target key figure ID will be filled with null values, for example:

  ```
  PRE_SOURCE_KFID11 = NULL, PRE_TARGET_KFID11 = KF5
  ```

- Like any other simulation, the ADVSIM operator uses the filters from the planning view and applicable for changed cell values of the DISAGG_KFID key figure.
The \text{DISAGG\_KFID} key figure must have the same base planning level and must be a stored key figure.

The source key figure for the copy operation can be either stored or calculated. The source key figures are queried and then copied at the base planning level of the target key figures. The attributes available at request level for the source key figure must be a superset of the base planning level of the target key figure.

The target key figure for \text{Pre-copy} and \text{Post-copy} must be a stored key figure and must have the same base planning level as the \text{DISAGG\_KFID} key figure.

\textbf{Recommendation}

The \text{ADVSIM} operator is a workaround for disaggregation with reference to a calculated key figure whose values changed during a previous simulation. SAP recommends that you use this operator only when absolutely necessary because it may affect performance during simulation or during saving and because it requires a stored key figure. Instead, if the calculation can be made and stored in the target key figure for the disaggregation outside the simulation, SAP recommends that you use a copy operator.

\section*{10.3.1 Example: Setting Up the ADVSIM Operator}

The \text{ADVSIM} planning operator type is delivered as part of the standard SAP content for planning operators. In this example, an \text{ADVSIM} operator is created to copy the calculated value of \text{ACTUALSQTY} offset by 12 months (\text{ACTUALQTYOFFSET}) to a stored key figure \text{ACTUALSQTYOFFSETSTORED}.

1. Choose Manage Planning Operators on the initial screen of the Configuration app.
2. To create a new operator for \text{ADVSIM}, click "+".
3. Enter Name enter \text{COPYACTUALOFFSET} and the description enter \text{Copy Actuals Offset}.
4. Choose \text{Define Parameters}.
5. Add the parameters for the \text{COPYACTUALOFFSET} operator as follows:

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>\text{DISAGG_KFID11}</td>
<td>\text{SALEFCSTQTY}</td>
</tr>
<tr>
<td>\text{PRE_SOURCE_KFID11}</td>
<td>\text{ACTUALQTY12OFFSET}</td>
</tr>
<tr>
<td>\text{PRE_TARGET_KFID11}</td>
<td>\text{ACTUALSQTYOFFSETSTORED}</td>
</tr>
</tbody>
</table>

6. Assign the operator to your planning area.

\textbf{Result}

When \text{SALEFCSTQTY} is simulated or saved, the following takes place:

1. \text{ACTUALQTY12OFFSET} is calculated and copied to \text{ACTUALSQTYOFFSETSTORED}.
2. The disaggregation is performed on \text{SALEFCSTQTY} based on \text{ACTUALSQTYOFFSETSTORED}.

Note that \text{SALEFCSTQTY} is configured as follows with \text{ACTUALSQTYOFFSETSTORED} in the disaggregation expression:
10.4 Copy (COPY) Operator

The copy (COPY) operator copies calculated values of one key figure to another key figure in the same version (base or other) of a planning area. In addition, the copy operator can create the missing time periods for the target key figure and assign these periods an empty value.

The copy operator calculates values of the source key figure at the base planning level of the target key figure for all possible combinations, and updates the target key figure values. Values are calculated based on the calculation configuration.

Example

KF1 is a stored key figure with base planning level Prod-Loc-Cust, and KF2 is a stored key figure at Prod-Loc base planning level.

If you define a COPY operator to copy KF1 to KF2, the operator calculates values of KF1 for all possible combinations of Prod-Loc and stores the result in KF2.

Note

- The source key figure can be calculated or stored, but the target key figure must be stored.
- Copy works only if the source key figure can be calculated at the base planning level of the target key figure.
- If copy is used for version key figures, both source and target key figures must be added to the version.

You can configure this operator in a similar way to other batch operators (for example, Forecasting) and can make it available in the IBP Excel add-in by adding it to the roles.
### Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOURCE_KFIDn</td>
<td>Source key figure ID. ( n ) is a number starting from 1</td>
<td>Mandatory for copy</td>
</tr>
<tr>
<td></td>
<td>Optional if you only want to create the missing time periods for the target key figure. For more information, see the CREATE_TIMEPERIODS parameter below.</td>
<td></td>
</tr>
<tr>
<td>TARGET_KFIDn</td>
<td>Target key figure ID. ( n ) is a number starting from 1.</td>
<td>Mandatory</td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Define source and target key figures in pairs. For example, SOURCE_KFID1 is copied to TARGET_KFID1, SOURCE_KFID2 is copied to TARGET_KFID2, and so on. This allows execution of multiple key figure copies in a single operator call.</td>
<td></td>
</tr>
<tr>
<td>PERIOD_OFFSET</td>
<td>Offset relative to current period. If not specified, the default value is 0.</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>If not specified or specified as 0, only values in future buckets are copied.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To copy values in the past, a negative offset has to be set.</td>
<td></td>
</tr>
<tr>
<td>DURATION</td>
<td>Number of periods to be copied starting from the offset defined in PERIOD_OFFSET. Can be used with PERIOD_OFFSET to restrict the copy to specific range of time buckets. If not specified or specified as 0, it is considered to be until the end of the horizon.</td>
<td>Optional (Mandatory if PERIOD_OFFSET is specified.)</td>
</tr>
<tr>
<td></td>
<td><strong>Example</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you want to copy values from the past and future, for example 12 months in the past and 12 months in the future, then you define the following: PERIOD_OFFSET: -12 and DURATION: 25.</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Explanation</td>
<td>Mandatory/Optional</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><code>&lt;Attribute&gt;_VALUn</code></td>
<td>Configured filter</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>Note the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● <code>&lt;Attribute&gt;</code> is the name of an attribute.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● <code>n</code> is a number starting from 1 for each attribute, which enumerates the allowed values.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● You can specify multiple values for a single attribute.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● You can specify multiple attributes.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● This configured filter is applied for every COPY operation. It cannot be overridden from the IBP Excel add-in, but users can specify a user filter when scheduling the operator to restrict it further. The system considers the intersection of configured filter and user-specified filter.</td>
<td></td>
</tr>
<tr>
<td>CREATE_TIMEPERIODS</td>
<td>Creates the missing periods for the target key figure and assigns these periods an empty value. The parameters listed above are taken into account.</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>If you activate this parameter (by setting the parameter value to <code>{X}</code>), the copy operator does the following:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● If you have specified a source key figure, the copy operator copies the source key figure to the target key figure and creates the missing periods.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>● If you have not specified a source key figure, the copy operator only fills in the missing time periods for the target key figure.</td>
<td></td>
</tr>
</tbody>
</table>

### 10.4.1 Example: Setting Up the Copy Operator

#### Context

To set up the Copy operator, choose *Manage Planning Operators* on the initial screen of the *Configuration* app.
**Note**
To configure planning operators, the Planning Model business catalog must be assigned to a business role assigned to your user.

The following example illustrates how to set up the Copy operator.

**Steps**

1. **Choose** COPY **from the list of planning operator types on the left side of the screen.**
2. **Select** + (**Add Planning Operators**).  
   
   Make the following entries:

   **Table 44**
<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>COPY_STORED</td>
</tr>
<tr>
<td>Description</td>
<td>Copy from Stored KFs to Stored KFs</td>
</tr>
<tr>
<td>Interactive Mode</td>
<td>No</td>
</tr>
<tr>
<td>Batch Mode</td>
<td>Yes</td>
</tr>
<tr>
<td>Filter Mode</td>
<td>Select or deselect according to whether you want the user to use filters when running or scheduling the operator in IBP Excel add-in.</td>
</tr>
</tbody>
</table>

   Define parameters as follows:

   **Table 45**
<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Parameter Value</th>
<th>Stored/Calculated</th>
<th>Base Planning Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DURATION</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERIOD_OFFSET</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOURCE_KFID1</td>
<td>FINANCEPLANPROFIT</td>
<td>Stored</td>
<td>PERPRODFMLCUSTREG</td>
</tr>
<tr>
<td>SOURCE_KFID2</td>
<td>FINANCEPLANQTY</td>
<td>Stored</td>
<td>PERPRODFMLCUSTREG</td>
</tr>
<tr>
<td>TARGET_KFID1</td>
<td>FINANCEPLANREV</td>
<td>Stored</td>
<td>PERPRODFMLCUSTREG</td>
</tr>
<tr>
<td>TARGET_KFID2</td>
<td>CMPAVAILABLEQTY</td>
<td>Stored</td>
<td>PERPRODFMLCUSTREG</td>
</tr>
<tr>
<td>SM1PRDID_VALUE1</td>
<td>x101 Phone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SM1PRDID_VALUE2</td>
<td>x101 Media Player</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. **Add a second planning operator.**  
   
   Make the following entries:
### Table 46

<table>
<thead>
<tr>
<th>Field</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>COPY_CALCULATED</td>
</tr>
<tr>
<td>Description</td>
<td>Copy from Calculated KFs to Stored KFs</td>
</tr>
<tr>
<td>Interactive Mode</td>
<td>No</td>
</tr>
<tr>
<td>Batch Mode</td>
<td>Yes</td>
</tr>
<tr>
<td>Filter Mode</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Define parameters as follows:

### Table 47

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Parameter Value</th>
<th>Stored/Calculated</th>
<th>Base Planning Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>DURATION</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERIOD_OFFSET</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOURCE_KFID1</td>
<td>FINANCEPLANPRIC E</td>
<td>Calculated</td>
<td>PERPRODFMUCSTR EG</td>
</tr>
<tr>
<td>SOURCE_KFID2</td>
<td>INVENTORYTARGET COST</td>
<td>Calculated</td>
<td>PERPRODFMUCSTR EG</td>
</tr>
<tr>
<td>TARGET_KFID1</td>
<td>FINANCEPLANREV</td>
<td>Stored</td>
<td>PERPRODFMUCSTR EG</td>
</tr>
<tr>
<td>TARGET_KFID2</td>
<td>FINANCEPLANPROF IT</td>
<td>Stored</td>
<td>PERPRODLOC</td>
</tr>
</tbody>
</table>

4. Save your entries.
5. Assign the planning operator to the relevant planning area. For more information see Assigning a Planning Operator to a Planning Area [page 61].

### 10.5 Snapshot (SNAPSHOT) Operator

The snapshot (SNAPSHOT) planning operator type allows you to define snapshots on the Manage Snapshot Configurations screen of the Configuration app. Once you have defined a snapshot, the system automatically creates a planning operator for it.

Planning operators of this type cannot be edited and cannot be added to a group operator.

For more information, see the Snapshots section of the current guide.
10.6 Redo Snapshot (SNAPSHOTREDO) Operator

The redo snapshot (SNAPSHOTREDO) planning operator type allows you to retake a snapshot in the IBP Add-In for Microsoft Excel in case there are errors in the data. The operator overwrites the most recent snapshot with a new snapshot for the same set of key figures in a batch process. Planning operators of this type are not editable and cannot be added to a group operator. For more information, see the Snapshots section of the current guide.

10.7 Statistical Forecasting (IBPFORECAST) Operator

The statistical forecasting (IBPFORECAST) operator allows you perform statistical forecasting by making the following features available in Excel:

- Run and schedule statistical forecasting
- Simulate statistical forecasting

The following settings are defined by the system for the IBPFORECAST operator:

- Interactive mode: Yes
- Batch mode: Yes
- Filter mode: Yes

Note that the IBPFORECAST operator type does not have planning operators that can be added to a group operator, since it uses the concept of forecast models for configuring forecasting. Background forecasting is done by defining a job and specifying the forecast model, the aggregation level, and a filter to be used. For the same reason, you cannot specify any parameters for a forecasting operator.

10.8 Disaggregation (DISAGG) Operator

The disaggregation (DISAGG) operator copies and disaggregates calculated values of one key figure to another key figure in the same version (base or other) of a planning area. In addition, the disaggregation operator can create the missing time periods for the target key figure, and assign these periods an empty value. However, the disaggregation operator does not create new planning objects.

The disaggregation operator can read values of the source key figure at a higher level than the base planning level of the target key figure (at the aggregation level). The operator then copies the values from the source key figure to the target key figure, disaggregating the values to the base planning level of the target key figure.

Example

KF1 is a stored key figure with base planning level product-customer, and KF2 is a stored key figure with base planning level product-location.

If you define a DISAGG operator to copy and disaggregate the values from KF1 to KF2 at the aggregation level of PRID, then the DISAGG operator reads the key figures values of KF1 at the aggregation level of product, then disaggregates and writes the values to KF2 at product-location level.
Note

- The source key figure can be calculated or stored, but the target key figure must be stored.
- Disaggregation works even if the source key figure cannot be calculated at the base planning level of the target key figure.
- If the disaggregation operator is used for version key figures, both source and target key figures must be added to the version.

You can configure this operator in a similar way to other batch operators (for example, Forecasting) and can make it available in the IBP add-in for Microsoft Excel by adding it to the roles. The disaggregation operator works in batch mode only.

The DISAGG operator type has the following attributes:

Table 48

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Disaggregation Operator</td>
</tr>
<tr>
<td>Description</td>
<td>Disaggregation Operator</td>
</tr>
<tr>
<td>Add Job Procedure</td>
<td>&quot;/IBP/CL_SAP_SFND_SOPAPI=&gt;SOPAPI_OPERATOR_SCHED_JOB_ADD&quot;</td>
</tr>
<tr>
<td>Schedule Job Procedure</td>
<td>&quot;/IBP/CL_DISAGG_OPERATOR=&gt;EXECUTE_JOB&quot;</td>
</tr>
</tbody>
</table>

Note

You can also define your own operator types for disaggregation. This allows you to organize the planning operators in the system into multiple groups, to control authorizations on operator type level.

When you define a new planning operator type for disaggregation, make sure that you enter the procedures in the above table when you specify the Add Job Procedure and the Schedule Job Procedure.

Parameters

When you define a new planning operator of the DISAGG planning operator type, specify values for the following parameters:

Table 49

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTRIBUTEn</td>
<td>The aggregation level is the level at which the source key figure is read and copied to the target key figure (before disaggregation takes place).</td>
<td>Mandatory to specify at least one attribute for the aggregation level.</td>
</tr>
</tbody>
</table>

Example

You want to read the source key figure data at product-customer level. Specify the root attributes of the respective master data types,
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>such as PRDID and CUSTID, as ATTRIBUTE1, and ATTRIBUTE2.</td>
<td></td>
</tr>
<tr>
<td>DURATION</td>
<td>The number of periods to be copied and disaggregated starting from the offset defined in PERIOD_OFFSET. Can be used with PERIOD_OFFSET to restrict the copy and disaggregation to a specific range of time buckets. If you have not specified DURATION and PERIOD_OFFSET, the operator processes the key figure values in the whole planning horizon.</td>
<td>Optional Mandatory if PERIOD_OFFSET is specified</td>
</tr>
<tr>
<td>FILTER_ATTRIBUTE&lt;sup&gt;n&lt;/sup&gt;</td>
<td>The attribute for the configured filter. You can define multiple filter attributes.</td>
<td>Optional</td>
</tr>
<tr>
<td>FILTER_VALUE&lt;sup&gt;n&lt;/sup&gt;</td>
<td>The value for the corresponding filter attribute that you have specified.</td>
<td>Optional</td>
</tr>
<tr>
<td>PERIODID</td>
<td>Technical ID of the time level (for example, PERIODID1).</td>
<td>Either PERIODID or PERIODNAME is mandatory. Specify only one of them.</td>
</tr>
<tr>
<td>PERIODNAME</td>
<td>The name of the time level at which you want to read and disaggregate the data as defined in the time profile of your planning area (for example, Monthly).</td>
<td>Either PERIODID or PERIODNAME is mandatory. Specify only one of them.</td>
</tr>
<tr>
<td>PERIODSHIFT</td>
<td>The period shift is the source key figure value from period n copied and disaggregated to target key figure value</td>
<td>Optional</td>
</tr>
<tr>
<td>Parameter</td>
<td>Explanation</td>
<td>Mandatory/Optional</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Parameter</td>
<td>in period ( n ) plus the value defined for the PERIODSHIFT parameter.</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Example</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>You specify <em>Yearly</em> for PERIODNAME. In this case, the value 1 for the PERIODSHIFT parameter means that the values of the source key figure are copied and disaggregated to the next year period of the target key figure.</td>
<td></td>
</tr>
<tr>
<td>PERIOD_OFFSET</td>
<td>Offset relative to the current period.</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>If you have specified a value for DURATION, the default value for PERIOD_OFFSET is 0.</td>
<td></td>
</tr>
<tr>
<td>SEQUENTIAL</td>
<td>If you have multiple pairs of source and target key figures, you can specify that the system processes them sequentially. With sequential processing, the system includes the result of a key figure copy and disaggregation in the subsequent copy and disaggregation.</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>For an example about the use of this parameter, see Example: Setting Up the Disaggregation Operator [page 73].</td>
<td></td>
</tr>
<tr>
<td>SOURCE_KFIDn</td>
<td>Source key figure ID. ( n ) is a number starting from 1.</td>
<td>Mandatory to define at least one source key figure.</td>
</tr>
<tr>
<td>TARGET_KFIDn</td>
<td>Target key figure ID. ( n ) is a number starting from 1.</td>
<td>Mandatory to define at least one target key figure.</td>
</tr>
<tr>
<td>Note</td>
<td>Define source and target key figures in pairs. For example, SOURCE_KFID1 is copied to TARGET_KFID1, SOURCE_KFID2 is copied to TARGET_KFID2, and so on. This enables the execution of multiple key figure copies and disaggregations in a single operator call.</td>
<td></td>
</tr>
</tbody>
</table>

Do not select *Interactive Mode*, but select *Batch Mode*. Select *Filter Mode* if you want to use filters when you schedule a job for this planning operator in the IBP add-in for Microsoft Excel.
Handling Conversion-Relevant Key Figures

If either the source or the target key figure in the disaggregation process is relevant for conversion, (for example, currency or unit of measure conversion), you must specify a conversion-to attribute, for example `CURRENCYTO`, or `UOMTO`, in one of the following ways:

- as a filter in the planning operator definition
- as a filter in the `Run` or `Schedule` dialog box in the IBP Excel add-in

10.8.1 Example: Setting Up the Disaggregation Operator

Context

The `DISAGG` planning operator type is delivered as part of the standard SAP content for planning operators. In this example, a `DISAGG_PROMO` operator is created to read values of the `PROMOUPLIFT` key figure at product-customer level, and to disaggregate the key figure values to the `PROMOSPLITALL` key figure at product-location-customer level.

To set up the disaggregation operator, choose `Manage Planning Operators` on the initial screen of the `Configuration` app.

Note
To configure planning operators, the Planning Model business catalog must be assigned to a business role assigned to your user.

The following example illustrates how to set up a disaggregation operator.

Steps

1. **Choose** `DISAGG` from the list of planning operator types on the left side of the screen.
2. **To add a planning operator**, select the `+ (Add Planning Operators)` button.
   
   Make the following entries:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td><code>DISAGG_PROMO</code></td>
</tr>
<tr>
<td>Description</td>
<td>Disaggregation for Promotion</td>
</tr>
<tr>
<td>Interactive Mode</td>
<td>No</td>
</tr>
<tr>
<td>Batch Mode</td>
<td>Yes</td>
</tr>
<tr>
<td>Filter Mode</td>
<td>Select or deselect according to whether you want the user to use filters when running or scheduling the operator in the IBP add-in for Microsoft Excel.</td>
</tr>
</tbody>
</table>

3. **Choose** `Define Parameters`, and enter the following parameters:
Table 51

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Parameter Value</th>
<th>Stored/Calculated</th>
<th>Base Planning Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTRIBUTE1</td>
<td>PRDID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATTRIBUTE2</td>
<td>CUSTID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DURATION</td>
<td>156</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERIODNAME</td>
<td>Weekly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERIOD_OFFSET</td>
<td>-104</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOURCE_KFID1</td>
<td>PROMOUPLIFT</td>
<td>Stored</td>
<td>PERPRODCUST</td>
</tr>
<tr>
<td>TARGET_KFID1</td>
<td>PROMOSPLITALL</td>
<td>Stored</td>
<td>PERPRODOCCUST</td>
</tr>
</tbody>
</table>

4. Save your entries.
5. Assign the planning operator to the relevant planning area. For more information see Assigning a Planning Operator to a Planning Area [page 61].

Using the SEQUENTIAL Parameter

You can use the SEQUENTIAL parameter to control whether the system takes the result of one key figure copy and disaggregation into consideration when performing the subsequent key figure copy and disaggregation.

Study this example about the use of the SEQUENTIAL parameter. To keep the example simple, all key figures have the same base planning level.

Table 52

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Initial Key Figure Value for a Given Period</th>
<th>Key Figure Value After DISAGG Run</th>
<th>Key Figure Value After DISAGG Run</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SEQUENTIAL Parameter not Set</td>
<td>SEQUENTIAL Parameter Value = X</td>
</tr>
<tr>
<td>SOURCE_KFID1 = MARKETINGFCSTQTY</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>TARGET_KFID1 = DEMANDPLANNINGQTY</td>
<td>50</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SOURCE_KFID2 = DEMANDPLANNINGQTY</td>
<td>50</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>TARGET_KFID2 = CONSENSUSDEMANDPLAN</td>
<td>50</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
10.9 Group (GROUP) Operator

The group (GROUP) operator allows you to define a group of planning operators that are executed in a single batch job in a defined sequence. Since a group operator can be run in batch mode only, all planning operators that you assign to a group operator must also be configured to run in batch mode.

A group operator can be triggered as follows:

- Automatically after importing key figure data
  
  For example, to update key figure calculations immediately after the data import, you can define a group of copy operators for the relevant key figures.
  
  To run a group operator automatically, you must specify the key figure IDs in the group operator settings.

- Manually in Excel (batch mode only)
  
  For example, if you always want a copy job to be run before supply planning, you can define a group operator that contains the relevant copy operator and S&OP operator. By using the group operator, the sequence of the jobs is always guaranteed and one batch job can be scheduled in Excel instead of two separate batch jobs.

Each individual planning operator in a group operator is run based on its own configuration settings, which cannot be changed by the settings in the group operator (for example, copy operator settings for copying key figures). However, if the user specifies a filter when he or she schedules the group operator in Excel, the filter applies to all planning operators assigned to the group operator.

Note that the group operator and the assigned planning operators must belong to the same planning area.

Table 53: Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATOR_TYPEn</td>
<td>Operator type (for example, COPY or SCM)</td>
<td>Mandatory</td>
</tr>
<tr>
<td></td>
<td>n is a number starting from 1 (the same applies to the other parameters).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The operator type and ID must be defined in pairs.</td>
<td></td>
</tr>
<tr>
<td>OPERATOR_IDn</td>
<td>Planning operator ID</td>
<td>Mandatory</td>
</tr>
<tr>
<td>DI_KFIDn</td>
<td>Key figure ID</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>You can enter as many key figures as required. If you enter key figures, the</td>
<td></td>
</tr>
<tr>
<td></td>
<td>group operator is triggered automatically when the key figure values are</td>
<td></td>
</tr>
<tr>
<td></td>
<td>uploaded using the data import functions.</td>
<td></td>
</tr>
<tr>
<td>STOPONERROR</td>
<td>Stops execution of a group operator if any of the included operators returns</td>
<td>Optional</td>
</tr>
<tr>
<td></td>
<td>an error. For example, if 5 operators have been defined and operator 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>returns an error, then operators 4 and 5 will not be executed.</td>
<td></td>
</tr>
</tbody>
</table>
### 10.9.1 Example: Setting Up a Group Operator

The following example illustrates how to set up a group operator for a group of copy operators.

#### Note
To configure planning operators, the Planning Model business catalog must be assigned to a business role assigned to your user.

#### Steps

1. Select *Manage Planning Operators* on the initial screen of the *Configuration* app.
2. Choose the *GROUP* planning operator type from the list of planning operator types on the left side of the screen.
3. Select *+ (Add Planning Operators)*.
   
   Make the following entries:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Group1</td>
</tr>
<tr>
<td>Description</td>
<td>Group Operator for Copy Operators</td>
</tr>
</tbody>
</table>
   | Interactive Mode | No  
   |              | This mode is not allowed for the group operator. |
   | Batch Mode  | Yes                                        |
   | Filter Mode | Select or deselect according to whether you want the user to use filters when running or scheduling the operator in the IBP Excel add-in. |

4. Choose *Define Parameters*, and enter the following parameters:
Table 55

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Parameter Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATOR_TYPE1</td>
<td>COPY</td>
</tr>
<tr>
<td>OPERATOR_ID1</td>
<td>10002</td>
</tr>
<tr>
<td>OPERATOR_TYPE2</td>
<td>COPY</td>
</tr>
<tr>
<td>OPERATOR_ID2</td>
<td>10003</td>
</tr>
<tr>
<td>DI_KFID1</td>
<td>TARGETREV</td>
</tr>
</tbody>
</table>

5. Assign the operator to the relevant planning area (see Assigning a Planning Operator to a Planning Area [page 61]).

**Result**

When key figure values are imported into the system, the copy operators assigned to the group operator will be run automatically for the key figure TARGETREV. In addition, the user can run the group operator in batch mode in the IBP Excel add-in.

### 10.10 Inventory Optimization (IO) Operator

The Inventory Optimization (IO) planning operator allows you to run inventory optimization for a given supply chain network. You can define the following inventory operators:

**Operators**

Table 56

<table>
<thead>
<tr>
<th>Inventory Operator</th>
<th>Algorithm Type</th>
<th>Parameter Name in Excel Add-In</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Single-Stage Inventory Opt</strong></td>
<td>SINGLE STAGE IO</td>
<td><em>Decomposed (single-stage) inventory optimization</em></td>
<td>Optimizes recommended safety stock locally for each customer-facing product-location combination in a decomposed manner. Ideal for running simulations where you want to determine the impact on recommended safety stock of local changes to the input key figures after multistage inventory optimization has been run.</td>
</tr>
<tr>
<td><strong>Multi-Stage Inventory Opt</strong></td>
<td>MULTI STAGE IO</td>
<td><em>Global (multi-stage) inventory optimization</em></td>
<td>Optimizes recommended safety stock globally across</td>
</tr>
<tr>
<td>Inventory Operator</td>
<td>Algorithm Type</td>
<td>Parameter Name in Excel Add-In</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------------------------------------------------------</td>
<td>------------------------</td>
<td>--------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Expected Demand Loss</td>
<td>LOST SALES IO</td>
<td>Expected lost demand</td>
<td>Calculates the expected lost demand quantity under given inventory plans and demand distribution.</td>
</tr>
<tr>
<td>Forecast Error CV Calculator</td>
<td>FORECAST_ERROR</td>
<td>Calculate Forecast Error CV</td>
<td>Calculates the forecast error coefficient of variation, that is, the difference between forecasted and actual demand. Forecast error is a statistical measure of forecast accuracy used to estimate the variability of the underlying demand.</td>
</tr>
<tr>
<td>Calculate Inventory Components</td>
<td>IO_DETERMINISTIC</td>
<td>Calculate Target Inventory Components</td>
<td>Calculates Inventory components, that is, the types of inventory that comprise the total inventory for a given item. By delineating what type of inventory exists in the supply chain, more granular inventory optimization calculations can be made.</td>
</tr>
</tbody>
</table>

### Parameters for Forecast Error CV Calculator

To tune the output of the Forecast Error algorithm, you can set the following parameters for the Forecast Error CV Calculator:

**Table 57**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADJUSTFORBIAS</td>
<td>Adjust forecast error for bias tendencies, whether for all tendencies (ADJUSTALL), positive tendencies only (ADJUSTPOSITIVE), negative tendencies only (ADJUSTNEGATIVE), or no adjustment to the forecast (ADJUSTNONE).</td>
</tr>
<tr>
<td>Parameter</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>The default parameter uses ADJUSTPOSITIVE as a conservative input to generate higher safety stock recommendations.</td>
<td></td>
</tr>
<tr>
<td>BIASCONFIDENCEINTERVAL</td>
<td>Confidence interval used for the forecast error bias, ranging between 0 and 1 (actual maximum is 0.9999). Default value = 0.99.</td>
</tr>
<tr>
<td>CVCAP</td>
<td>Non-negative number limiting the value of the coefficient of variance. Default value = 3.</td>
</tr>
<tr>
<td>CVDEFAULT</td>
<td>Non-negative default value of the coefficient of variance in absence of an input value. Default value = 1.</td>
</tr>
<tr>
<td>ERRORMEASURE</td>
<td>Type of error measure, either MAPE (Mean Absolute Percent Error) or MAD (Mean Absolute Deviation). Default is MAD.</td>
</tr>
<tr>
<td>PECAP</td>
<td>Non-negative number limiting the value of the percent error. Default value = CVCAP/1.25 (or 3/1.25)</td>
</tr>
<tr>
<td>PEDEFAULT</td>
<td>Non-negative default value of percent error in absence of input value. Default value = CVDEFAULT/1.25 (or 1/1.25).</td>
</tr>
</tbody>
</table>

**Example: Adjust for All Bias in Forecast Error Calculations**

The following example illustrates how to set up a forecast error operator that adjusts for all bias:

**Steps**

1. Navigate to *Manage Planning Operators* on the *Configuration* UI.
2. Select the IO planning operator type and click the “+” button to add a planning operator.

Make the following entries:

<table>
<thead>
<tr>
<th>Field</th>
<th>Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Forecast Error Calculator</td>
</tr>
<tr>
<td>Description</td>
<td>Calculate Forecast Error</td>
</tr>
<tr>
<td>Interactive Mode</td>
<td>No</td>
</tr>
<tr>
<td>Batch Mode</td>
<td>Yes</td>
</tr>
<tr>
<td>Filter Mode</td>
<td>Yes</td>
</tr>
</tbody>
</table>
3. Choose Define parameters and enter the ADJUSTFORBIAS parameter with ADJUSTALL as the parameter value.

4. Assign the operator to the relevant planning area (see Assigning a Planning Operator to a Planning Area [page 61]).

Result
The user can run the planning operator in the IBP add-in for Microsoft Excel in simulation mode and batch mode.

10.11 Purge Change History (PCH) Operator

The Purge Change History (PCH) operator deletes all change history data that is older than a specified number of days. It can be run in batch mode only.

Table 59

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAY_OFFSET</td>
<td>Offset in days relative to the current date. For example, if you enter 100, the operator deletes all change history data that is older than 100 days.</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

When you define a PCH operator, you must make the following mode settings:

- Interactive mode: No
- Batch mode: Yes
- Filter mode: Select or deselect according to whether you want the user to use filters when running or scheduling the operator in Microsoft Excel.

10.12 S&OP (SCM) Operator

You use the S&OP (SCM) operator type to define planning operators that allow users to do the following:

- Perform demand and supply planning across the supply chain network using the S&OP heuristic and optimizer algorithms.
- Check the consistency of planning data.
- Perform local updates of basic key figures (for example, projected stock, deficit, and shortage) without recalculating a new supply plan.

Each planning operator has an algorithm and, in most cases, additional parameters. The S&OP (SCM) operator type and the related algorithms and parameters are delivered in the standard system.

For more information, see S&OP Operators (System Administrator) in the application help.
10.13 Purge Key Figure Data (PURGE) Operator

The Purge Key Figure Data (PURGE) operator allows you to delete all key figure data that is older than a specified time period. It can be run in batch mode only.

Table 60

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Explanation</th>
<th>Mandatory/Optional</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERIOD_OFFSET</td>
<td>Period offset relative to the current time period. You must specify the offset as a number of time periods, based on the Storage Time Profile Level of the planning area. For example, you have a planning area for which the storage time profile level is monthly. If you set 12 as the period offset and the current period is May 2015, the operator deletes all key figure data older than May 2014.</td>
<td>Mandatory</td>
</tr>
</tbody>
</table>

When you define a PURGE operator, you must make the following mode settings:
- Interactive mode: No
- Batch mode: Yes
- Filter mode: Select or deselect according to whether you want the user to use filters when running or scheduling the operator in Microsoft Excel.

10.14 ABC Classification (ABC) Operator

The ABC Classification operator allows you to categorize the values of a set of planning objects into A, B or C categories based on the values of a key figure defined on those attributes. For example, you may want to categorize the product attribute based on the revenue key figure. You can also choose to categorize the product family attribute or the combination of product and customer. Attribute combinations are called planning objects in SAP Integrated Business Planning.

The system can perform the classification in four different ways, meaning that there are four classification types. In all of these types the planning objects are sorted in decreasing order of key figure values. What is different is how the top tier, middle tier, and bottom tier are determined.

The classification types are illustrated by the table below, in which “Product” is used as the planning object and “Revenue” as the key figure that the classification is based on.

Table 61

<table>
<thead>
<tr>
<th>Product</th>
<th>Revenue</th>
<th>Cumulative Revenue</th>
<th>% of Total Revenue</th>
<th>Cumulative %</th>
<th>Class. Type 1</th>
<th>Class. Type 2</th>
<th>Class. Type 3</th>
<th>Class. Type 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A: 70%</td>
<td>A: 100,000</td>
<td>A: 20%</td>
<td>A: 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>B: 20%</td>
<td>B: 50,000</td>
<td>B: 50%</td>
<td>B: 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C: 10%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Classification Types

#### Classification Type 1: By Contribution to the Total Revenue in Percentage

In this classification type, the products assigned to the A, B, or C classes account for specific percentages of the total revenue. In the example above, the limit for class A is set to include the products with the top 70% contribution. PROD10 and PROD9 are the two top grossing products in that order, but the cumulative percentage of revenue they contribute is only 62%, so they do not pass the limit. PROD10, PROD9, and PROD8 are therefore all classified as A as together they contribute 75%, which is over the 70% limit. Further products could be included as well if their key figure values were identical with that of a product already included.

The limit for class B is set to 20%, which equals to a cumulative limit of 90% (70% for class A and 20% for class B). In the example above, class A contributes 75%, which is complemented by PROD7 and PROD6 to pass the limit with a cumulative 91%. Therefore, PROD7 and PROD6 are assigned to class B and the rest of the products to class C.

#### Classification Type 2: By Contribution to the Total Revenue in Absolute Value

In this classification type, the products assigned to the A, B, or C classes account for specific amounts of the total revenue. In the example above, the limit for class A is set to include the products with the top 100,000 contribution. PROD10 and PROD9 are the two top grossing products in that order, but the cumulative amount of revenue they contribute is only 95,438, so they do not pass the limit. PROD10, PROD9, and PROD8 are therefore all classified as A as together they contribute 114,918, which is over the 100,000 limit.

The limit for class B is set to 50,000, which equals to a cumulative limit of 150,000 (100,000 for class A and 50,000). In the example above, class A contributes 114,918, which is complemented by PROD7, PROD6, PROD5, PROD4, and PROD3 to pass the limit with a cumulative 152,761. Therefore, these products are assigned to class B and the rest of the products to class C.

#### Classification Type 3: By the Number of Revenue Grossing Products in Percentage

In this classification type, the products assigned to the A, B, or C classes account for specific percentages of the revenue grossing products. In the example above, the limit for class A is set to include the first 20% of all products.
ordered by revenue. There are 10 products in total, so the first 20% equals to 2. Therefore, PROD10 and PROD9 are assigned to class A as those 2 of products that bring in the most revenue.

In the example above, PROD8, PROD7, PROD6, PROD5, and PROD4 are those 50% of all products that bring in the most revenue after the products in class A. Therefore, these products are assigned to class B and the rest of the products to class C.

**Classification Type 4: By the Number of Revenue Grossing Products in Absolute Value**

In this classification type, the products assigned to the A, B, or C classes account for specific numbers of products ordered by revenue. In the example above, the limit for class A is set to include the first 3 of all products ordered by revenue. Therefore, PROD10, PROD9, and PROD8 are assigned to class A as those 3 products that bring in the most revenue.

The limit for class B is set to 4. In the example above, PROD7, PROD6, PROD5, and PROD4 are those 4 products that bring in the most revenue after the products in class A. Therefore, these products are assigned to class B and the rest of the products to class C.

### 10.14.1 Example: Setting Up the ABC Classification Operator

The ABC Classification planning operator type is delivered as part of the standard SAP content for planning operators. In this example, an ABC Classification operator is created to classify the Product attribute combination (PRODID - PRODDESCR - PRODFAMILY) by the values of the CONSENSUSDEMANDREVENUE key figure.

The attribute combination you classify must be a subset of the attributes in the planning level of the key figure you classify by. If you use the PRODID attribute for the product dimension, create a planning level, for example, PRD, with PRODID as the only the attribute. In general, create a planning level with the exact attribute combination that you want to classify. Such a planning level typically does not have any attribute from the time dimension unless you want to classify the month into high, moderate, and low selling month.

1. On the Manage Attributes screen of the Configuration app, create new attribute, ABCCODE with data type NVARCHAR and length 1, to hold the ABC classification value.

   Optionally, you can also create an ABCLOCKED attribute that prevents the values of the ABCCODE attribute from being updated. The data type of this attribute is INTEGER and its value 1.

2. On the Manage Master Data Types screen, add the new attribute to the master data type that contains the Product attribute combination that you want to classify. Activate the product master data.

3. Upload a planning view from the IBP add-in for Excel with the ABCCODE attribute set for each attribute combination as A, B, and C.

<table>
<thead>
<tr>
<th>PRODID</th>
<th>PRODDESCR</th>
<th>PRODFAMILY</th>
<th>ABCCODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>x100</td>
<td>x100 Phone</td>
<td>x Phone</td>
<td>B</td>
</tr>
<tr>
<td>x101</td>
<td>x101 Phone</td>
<td>x Phone</td>
<td>C</td>
</tr>
<tr>
<td>x102</td>
<td>x102 Phone</td>
<td>x Phone</td>
<td>A</td>
</tr>
<tr>
<td>x103</td>
<td>x103 Phone</td>
<td>x Phone</td>
<td>B</td>
</tr>
</tbody>
</table>

4. On the Define Planning Area screen, include the ABCCODE attribute in the planning area and mark it as calculated.
5. On the Manage Planning Levels screen, add the ABCCODE attribute to the planning levels that contain all the attributes of the combination that is to be classified, in this case PRDID. This ensures that every time a key figure is displayed in the planning view in the IBP add-in for Excel, the ABC code is also displayed with it.

![Note]
The attributes must not be added to the planning level created in step 2, which is to contain only the attribute combination you are classifying.

6. Create the ABC Classification Operator type on the Manage Planning Operators screen of the Configuration UI. Enter the following:

   - Add Job Procedure: "/IBP/CL_SAP_SFND_SOPAPI=>SOPAPI_OPERATOR_SCHED_JOB_ADD"
   - Schedule Procedure: "/IBP/CL_SAP_SFND_SOPAPI_SCHED=>SOPAPI_EXEC_SCHEDULER_ABC_JOB"

7. Create an operator of type ABC and name it, for example, TXXABC. Select Batch Mode and if you want to allow the users to specify a filter while scheduling the ABC operator, then also select Filter Mode.

The following are mandatory parameters of the operator type:

<table>
<thead>
<tr>
<th>Table 63</th>
<th>Parameter Name</th>
<th>Example Value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABCCODE_ATTR</td>
<td>AAAABCCODE</td>
<td>The attribute where the ABC code is stored. Replace AAA in the parameter value by your group ID.</td>
<td></td>
</tr>
<tr>
<td>PLEVEL</td>
<td>PRD</td>
<td>The planning level that contains only the attribute combination to be classified.</td>
<td></td>
</tr>
<tr>
<td>INPUT_KFID</td>
<td>CONSENSUSDEMANDREVENUE</td>
<td>Key figure ID by which to classify.</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>0.2</td>
<td>Defines which values belong to class A. Specified in percentage or absolute value depending on the classification type you choose for parameter B (both must be the same). If it is a percentage, enter it as decimal. For example 20% as 0.2.</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>0.5</td>
<td>Defines which values belong to class B. Specified in percentage or absolute value depending on the classification type you choose for parameter A (both must be the same). If it is a percentage, enter it as decimal. For example 50% as 0.5.</td>
<td></td>
</tr>
</tbody>
</table>

The conversion attributes are also mandatory if the key figure specified in the parameter INPUT_KFID is conversion-relevant, such as the unit of measure (UoM) or currency. For example, if the key figure has UoM,
and the attribute that is marked as conversion target is **UOMTOID**, then specify **UOMTOID** as the parameter name and a UoM such as Kg as the parameter value.

The following are optional parameters of the operator type:

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Example Value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABCCODE_ATTR_FIX</strong></td>
<td>ABCLOCKED</td>
<td>Indicates whether the classification is locked for certain attribute value combination.</td>
</tr>
<tr>
<td><strong>CLEAR_ABC</strong></td>
<td>Yes</td>
<td>Clears the previously calculated ABC code. If set to 'yes', the other parameters except for <strong>MASTERDATA_UPDATE</strong> should not be set. <strong>MASTERDATA_UPDATE</strong> is optional.</td>
</tr>
<tr>
<td><strong>CLASSIFICATION_TYPE</strong></td>
<td>1</td>
<td>Can be 1, 2, 3, or 4. If not specified, the default value is 1.</td>
</tr>
<tr>
<td><strong>DURATION</strong></td>
<td>2</td>
<td>An integer value larger than 1. If not set, it is assumed to be 1. The key figure values are aggregated for each attribute value combination and the duration selected. The aggregation depends on the key figure configuration. The value of the key figure thus calculated for each attribute combination value will be used for classification. Duration will be assumed to be specified in the smallest time bucket that the key figure is defined on. If the smallest time bucket on which the key figure is defined is month, then the duration will be assumed to be in month.</td>
</tr>
</tbody>
</table>
| **PERIOD_START_OFFSET_REL_CURRENT** | 4           | An integer value. If not set, it is assumed to be 0. The period that is considered to calculate the key figure values begins at the current period plus the offset, and ends at the current period plus the offset plus one less the duration. **PERIOD_START_OFFSET_REL_CURRENT** is assumed to be specified in the
<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Example Value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>smallest time bucket</td>
<td></td>
<td>smallest time bucket that the key figure is defined on.</td>
</tr>
<tr>
<td>MASTERDATA_UPDATE</td>
<td>Yes</td>
<td>If set to Yes, it updates the master data type from where the ABC Code attribute was assigned to the planning area. In this case the master data type must also contain all the attributes of the planning level specified in the parameter PLEVEL, and it must be a simple or compound master data type.</td>
</tr>
</tbody>
</table>

8. Assign the ABC classification operator to the planning area.

9. Run the ABC Classification operator in the IBP add-in for Excel. Once the job is completed, refresh the view to see the results.
11 Snapshots

A snapshot takes a copy of a key figure at a particular point in time. To check how key figures have evolved over time, you can compare multiple snapshots. The Redo Snapshot function in the IBP Excel add-in lets you re-take a snapshot if there are errors or incorrect data.

To avoid having to capture too much data, the system does not always take a snapshot of the actual key figure, but rather of the inputs used to calculate it. A snapshot is taken only if a snapshot operator is run (by a user from the IBP Excel add-in or scheduled as a background job).

**Note**

 Unlike snapshots that capture key figure values at a particular point in time, the change history automatically keeps track of all changes to key figures (that are enabled for this feature) without the need for a planning operator. See also Enabling Change History for Key Figures [page 150].

However, you can still set up a snapshot operator as type Change History. This is required if you want to use the operator to create historical forecast snapshots for demand sensing purposes. In all other cases, choose Original for the snapshot type.

You can create up to 9 time snapshots at periodic intervals, producing a time-elapsed view of your data. The most recent snapshot is numbered 1. When a new snapshot is created, the number of the previous snapshot is increased by 1. You can also configure the snapshot to run periodically in the background. Once you have created a snapshot, activate the planning area to make the snapshot available in the system.

**Note**

- You cannot modify definitions for snapshot key figures. This means that you cannot modify the following:
  - Input key figures
  - Number of snapshots
  - From-to time period settings
- You cannot define snapshots for figures that include a helper key figure with attribute transformation.
- You cannot include snapshots in a group operator.
- The change history is not supported for snapshots.

11.1 Configuring Snapshots

You configure snapshots at the level of a planning area.

**Note**

You cannot change a snapshot definition once the snapshot has been created. It is not possible, for example, to choose different key figures or change the maximum number of snapshots stored in the system. If you need different settings, create a new snapshot definition.
Steps

1. Launch the **Configuration** app by clicking the corresponding tile on the launchpad.
2. If it is not already selected, click **Start Here** under **Overview**.
3. Under **Miscellaneous Settings**, select **Manage Snapshot Configuration**. From this screen you can add, edit, or delete snapshot definitions.
4. Select your planning area.
5. Choose **Create New**.

The following table explains the snapshot settings:

<table>
<thead>
<tr>
<th>Field</th>
<th>Explanation</th>
<th>Example Entry</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong></td>
<td>Short descriptive name for the snapshot</td>
<td>ABCSALESFORECASTSN</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Longer description of the snapshot</td>
<td>Sales Forecast Snapshot</td>
</tr>
<tr>
<td><strong>Snapshot Type</strong></td>
<td>Type of the snapshot: <em>Original</em> or <em>Change History</em>. Choose <em>Change History</em> only if you are defining a snapshot of the consensus demand for demand sensing purposes.</td>
<td>Original</td>
</tr>
<tr>
<td><strong>Input Key Figures</strong></td>
<td>Key figures to include in the snapshot</td>
<td>FORECAST, HISTORY, SALESFORECAST</td>
</tr>
<tr>
<td><strong>Key Figure ID Suffix</strong></td>
<td>Suffix that identifies the object as a snapshot key figure. The naming convention is $KFNAME_$suffix$_snapshotnumber</td>
<td>SN</td>
</tr>
<tr>
<td><strong>From</strong></td>
<td>The first time period in your snapshot time period range. Periods are defined in the time storage level of the key figure’s planning area.</td>
<td>-6</td>
</tr>
<tr>
<td><strong>To</strong></td>
<td>The last time period in your snapshot time period range. Periods are defined in the time storage level of the key figure’s planning area.</td>
<td>6</td>
</tr>
<tr>
<td><strong>Max Number of Stored Snapshots</strong></td>
<td>The maximum number of elapsed photos you can take of a key figure. The most recent snapshot is numbered 1, the previous 2, and so on. When the maximum number is reached, the oldest</td>
<td>9</td>
</tr>
</tbody>
</table>
6. Save your entries

To check that the snapshot is correctly assigned to the snapshot planning operators, go to your planning area and click *Planning Operators*: The snapshot definition you have just created is listed (and selected) under the snapshot operator.

7. Activate your planning area.

The new snapshots are created as key figures.

These snapshots are also created in the relevant *Key Figure* window. Based on the maximum number of stored snapshots selected, that number of snapshots will be created in the *Key Figures* window.
12 Activating Planning Models

Before you can use the data you have set up in the application, you have to activate your planning model. When the model is activated, the database artifacts such as tables, procedures, and permissions are created based on the metadata of the custom model you created.

**Recommendation**

SAP recommends that you perform model activation in isolation when no other concurrent activations are running.

You must activate your objects in the following order:

1. Time profiles
2. Master data types
3. Planning areas

Once you have activated your model, you can copy your data model, and perform active deletion of objects if needed.

12.1 Statuses of Model Entities

The background information provided in this chapter can help you better understand how modeling and activation in SAP Integrated Business Planning works.

**Model Entities and Their Activation**

In SAP Integrated Business Planning, planning models are based on the following model entities:

- Attributes
- Master data types
- Time profiles
- Planning areas
- Planning levels
- Key figures
- Versions
- Miscellaneous additional entities: planning operators, global configuration parameters, and reason codes

**Activating Model Entities**

Out of these entities, you can perform activation for the following ones:

- Master data types
  
  The activation of a master data type will activate all attributes assigned to the master data type as well.
- **Time profiles**
  The activation of a time profile will activate all attributes assigned to the time profile as well.

- **Planning area**
  The activation of a planning area will activate all attributes assigned to the planning area, the key figures, planning levels and versions as well.
  You can also include the master data types used in the planning area (and with them, the attributes they include) in the activation.

Other entities can be activated only together with the higher-level entity that includes them.

## Statuses of a Model Entity

A **time profile**, a **master data type**, and a **planning area** can have the following statuses:

- **Inactive**
  An entity has the inactive status either when it’s created and first saved, or when the active entity is changed and saved.

- **Active**
  An entity has the active status after it has been activated, either directly or indirectly (together with a higher-level entity).

- **Pending for deletion**
  If an entity is marked for deletion, it has the pending for deletion status. Actual deletion takes place with the next activation of the entity. Until then, you can revert the pending for deletion status to active.

### Note

Planning levels, key figures, and versions can have the same three statuses. However, you can’t activate these model entities on their own, only via the planning area that includes them.

Attributes are a special case. An attribute has a status on its own, but you can activate it only as part of the activation of a higher level entity (master data type, time profile, planning area). An **attribute** can have the following statuses:

- **Inactive**
  An attribute has the inactive status either when it’s created and first saved, or when the active attribute is changed and saved.

- **Active**
  An attribute has the active status after it has been activated (together with a master data type, a time profile, or a planning area).

## Instances of a Model Entity

Along with statuses, entity instances are also a key concept in model activation. An instance is a saved state of a model entity, and it is classified by the status.

One or two instances – which have different statuses – of a model entity can exist at the same time:

- **Inactive**
  The entity is created and first saved, but not activated yet.
- **Active**
  The entity has been activated, and has not been changed since the last activation.
- **Active and inactive**
  The entity has been activated (active instance), and changed since the last activation (inactive instance).
- **Active and pending for deletion**
  The entity has been activated (active instance), and marked for deletion since the last activation (pending for deletion instance).

In the Configuration app, you can choose to display the most recent instance of the model entity (Edit Active and Inactive), or the active instance (Display Active Only).

**Note**
The inactive instance of a higher-level entity refers to the latest instance of the dependent entity, be it active or inactive.

For example, if both an attribute and a master data type that uses the attribute have inactive and active instances, the active instance of the master data type uses the active instance of the attribute, while the inactive instance of the master data type uses the inactive instance of the attribute.

### Status Changes of a Model Entity

The life cycle of a model entity starts with the inactive status, after the entity has been created and saved. The entity can get into the active status by activation.

#### Changing an Active Entity

When an active entity is changed, but not activated yet, the active instance of the entity stays unchanged, and an inactive instance is created, which stores the changes.

The active instance is used throughout SAP Integrated Business Planning, for example, in the IBP Excel add-in, in planning operators, and in data integration. Once the entity is activated again, the changes take effect, and the inactive instance becomes the active (and, until the next changes, the only) instance of the entity.

**Note**
If you have activated an entity, you cannot restore the previous active instance.

#### Deleting an Entity

You can use active deletion to delete active master data types, planning levels, key figures, planning areas, and time profiles. For more information, see Deleting Active Objects (Active Deletion) [page 106].

With active deletion, the inactive instance of the entity is immediately deleted. If there is an active instance of the entity, the active instance remains unchanged, and a pending for deletion instance is created. These two instances exist in parallel until the next activation of the entity.

Until the next activation, the active instance of the entity is used throughout SAP Integrated Business Planning, for example, in the IBP Excel add-in, in planning operators, and in data integration. The next activation will delete the entity (both the active and the pending for deletion instances), and the data that has been uploaded for the given entity.

If the entity has only an inactive instance, it is immediately deleted if you choose Delete (active deletion is not available in this case).
12.1.1 Example: Changing Model Entities That Are Dependent on Each Other

In this example, we start with 3 attributes (A1, A2, and A3), which are used in a master data type (MDT1), which is then used in a planning area (PA1).

We then create a new attribute, A4, add it to the MDT1 master data type, and activate the master data type. After it, we assign the A4 attribute to the PA1 planning area, and activate the PA1 planning area.

The next step is creating a new attribute, A5, and adding it to the MDT1 master data type, without activating the master data type.

As the last step, we change the period offset in the PA1 planning area (this change does not have any effect on attributes or master data types).

Starting Point

Table 66

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2, A3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, A3, and MDT1</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

Step 1: Creating the A4 Attribute, and Adding it to the MDT1 Master Data Type

Table 67

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A4</td>
<td>Selected for use in MDT1</td>
<td>Inactive</td>
<td></td>
</tr>
</tbody>
</table>

The A4 attribute is saved, and included in the MDT1 master data type. Until MDT1 is activated, only the inactive instance of A4 exists.
Step 2: Activating the MDT1 Master Data Type

Table 68

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1, A1, A2, A3</td>
<td>Active</td>
<td>Until MDT1 is activated again, the active instance is unchanged.</td>
</tr>
<tr>
<td></td>
<td>Used in PA1, A1, A2, A3, A4</td>
<td>Inactive</td>
<td>The inactive instance of MDT1 is created to store the changes - in this case, the A4 attribute added to MDT1.</td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, A3, and MDT1</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

The IBP Excel add-in, the data integration, and other functions of IBP continue using the active instance of the MDT1 master data type.

In the Configuration app, if you display the inactive entities as well, you can assign the newly added A4 attribute to the PA1 planning area.

The A4 attribute becomes active when the MDT1 master data type is activated. The inactive instance of A4 does not exist any longer.

The previously inactive instance of MDT1 becomes the active - and only - instance of MDT1. There is no inactive instance of MDT1.

Activating the MDT1 master data type has no effect on the PA1 planning area. It still has one active version, which is unchanged.
Step 3: Assigning the A4 Attribute in the PA1 Planning Area and Activating the PA1 Planning Area

Table 69

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A4</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1 Uses A1, A2, A3, A4</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, A3, A4, and MDT1</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

The A4 attribute is now used in the PA1 planning area as well.

Step 4: Creating the A5 Attribute, and Adding it to the MDT1 Master Data Type

Table 70

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A4</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A5</td>
<td>Used in MDT1</td>
<td>Inactive</td>
<td>The A5 attribute has been saved, and included in the MDT1 master data type. Until MDT1 is activated, only the inactive instance of A5 exists.</td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1 Uses A1, A2, A3, A4</td>
<td>Active</td>
<td>As no activation has happened, the active instance of MDT1 is unchanged.</td>
</tr>
<tr>
<td>Used in PA1</td>
<td>Uses A1, A2, A3, A4, A5</td>
<td>Inactive</td>
<td>Adding A5 to MDT1 results in an inactive instance of MDT1.</td>
</tr>
</tbody>
</table>
The IBP Excel add-in, the data integration, and other functions of IBP continue using the active instance of the MDT1 master data type.

In the Configuration app, if you display the inactive entities as well, you can assign the newly added A5 attribute to the PA1 planning area.

### Step 5: Changing the Period Offset of the PA1 Planning Area

Changing the period offset affects the planning area only, and not the master data types and attributes the planning area uses.

#### Table 71

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A4</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A5</td>
<td>Used in MDT1</td>
<td>Inactive</td>
<td></td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2, A3, A4</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used in PA1</td>
<td>Inactive</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2, A3, A4, A5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, A3, A4, and MDT1</td>
<td>Active</td>
<td>The active instance of PA1 still refers to the active instance of MDT1.</td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2, A3, A4, A5, and MDT1</td>
<td>Inactive</td>
<td>The inactive instance of PA1 still refers to the inactive instance of MDT1.</td>
</tr>
</tbody>
</table>

#### Note

In such cases, when an inactive instance of a planning area refers to an inactive instance of a master data type, you should either activate the master data type before you activate the planning area, or activate the planning area with the Include Related Master Data Types option selected.
12.1.2 Example: Deleting an Attribute from an Active Master Data Type and Active Planning Area

In this example, we start with 3 attributes (A1, A2, and A3), which are used in a master data type (MDT1), which is then used in a planning area (PA1).

To delete the A3 attribute, which is used in a master data type, which is then used in a planning area, you must work top down. First, remove the attribute from the planning area, then from the master data type.

Starting Point

Table 72

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Master data type</td>
<td>MDT1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning area</td>
<td>PA1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note

Make sure that the A3 attribute is not used in any planning levels. You cannot delete an attribute if it is used in higher-level entities.

Step 1: Mark the A3 Attribute for Deletion in the PA1 Planning Area

Table 73

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Master data type</td>
<td>MDT1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning area</td>
<td>PA1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The inactive instance of the PA1 planning area does not include the A3 attribute.
### Step 2: Activating the PA1 Planning Area

Table 74

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1</td>
<td>Active</td>
<td>The attribute is not used in the PA1 planning area anymore</td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2, A3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, and MDT1</td>
<td>Active</td>
<td>The PA1 planning area has an active instance only, which does not include the A3 attribute.</td>
</tr>
</tbody>
</table>

### Step 3: Mark the A3 Attribute Pending for Deletion in the MDT1 Master Data Type

Table 75

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>Used in MDT1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1</td>
<td>Active</td>
<td>The active instance is unchanged. It still includes the A3 attribute.</td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2, A3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Used in PA1</td>
<td>Inactive</td>
<td>An inactive instance of the MDT1 master data type has been created, which does not include the A3 attribute.</td>
</tr>
<tr>
<td></td>
<td>Uses A1, A2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, and MDT1</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

An attribute does not have a pending for deletion status, so the active instance of the attribute is unchanged. The A3 attribute is pending for deletion in relation to the MDT1 master data type only. If, unlike this example, other master data types also use the A3 attribute, A3 is still available to them.
Step 4: Activating the MDT1 Master Data Type

Table 76

<table>
<thead>
<tr>
<th>Entity</th>
<th>Uses</th>
<th>Instance</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribute A1</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A2</td>
<td>Used in MDT1 and in PA1</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Attribute A3</td>
<td>No uses</td>
<td>Active</td>
<td>The A3 attribute is not used in any higher-level entities. The active instance of the attribute is unchanged.</td>
</tr>
<tr>
<td>Master data type MDT1</td>
<td>Used in PA1, Uses A1, A2</td>
<td>Active</td>
<td>The active instance is now does not include the A3 attribute.</td>
</tr>
<tr>
<td>Planning area PA1</td>
<td>Uses A1, A2, and MDT1</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

12.2 Activating Time Profiles

Context

Caution

Make sure you activate a time profile before the planning areas that use the time profile.

Steps

1. In the Configuration app, navigate to Time Profiles, select the time profile you want to activate, and choose Check.

   The system executes three sets of checks:
   - Validating the definition of the time profile
   - Validating the dependencies and connections of the time profile, for example, connections to planning areas
   - Checking if the changed time profile is still consistent with the already existing time periods

Step Result

You can display and study the check result in the log.

Note

There are additional checks that can be executed only during activation. Thus, activation of a time profile might fail even if the previously executed checks were successful.
2. Select the time profile you want to activate from the list on the left, and choose *Activate*. In the dialog box that appears, make sure you have selected the time profile you want to activate, and choose *Activate*.

**Step Result**

If all the activation checks were successful, the time profile is active.
You can check the activation status and steps in the log.

**More Information**

Time Profile Activation: Checks and Errors [page 101]

### 12.3 Activating Master Data Types

**Context**

⚠️ **Caution**

Make sure you activate the master data types only after you have activated the time profiles.

**Steps**

1. In the *Configuration* app, navigate to *Master Data Types*, select a master data type you want to activate. Choose *Activate*.
2. In the dialog box that appears, select one or more master data types you to activate, and choose *Activate*. You also have the option to activate dependent master data types.

**Step Result**

If all the activation checks were successful, the master data type is active.
You can check the activation status and steps in the log.

### 12.4 Activating Planning Areas

**Context**

⚠️ **Caution**

Make sure you activate a planning area only after you have activated the time profile and the master data types that are assigned to the planning area.
Steps

1. In the Configuration app, navigate to Planning Area and Details, select the planning area you want to activate.
2. Choose Activate.

   In the dialog box, you have the option to activate the related master data types.

   **Note**

   Make sure you activate all related master data types upfront, or you select the Include Related Master Data Types checkbox when you activate the planning area.

Step Result

If all the activation checks were successful, the planning area is active. You can check the activation status and steps in the log.

Result

If you activate a planning area, all attributes assigned to the planning area, the key figures, planning levels and versions will be activated as well. You can't activate these model entities directly.

If you have selected the Include Related Master Data Types option, the master data types used in the planning area (and with them, the attributes they include) are also activated.

More Information

Troubleshooting for Model Activation Errors [page 101]

12.5 Troubleshooting for Model Activation Errors

The errors listed below are the most common errors that can occur during activation.

12.5.1 Time Profile Activation: Checks and Errors

Consistency Checks for Time Profiles

When you start the consistency check or the activation of a time profile, the system performs the following checks:

- Checking the definition of the time profile
  - A description must exist for the time profile.
  - A start date and an end date must be specified.
  - The end date must be later than the start date.
○ At least one time profile level must exist.
○ All time profile levels must have a description.
○ Time profile levels must form a sequence based on the period type. That is, a lower time profile level must have lower granularity than the higher ones.
  For example, a time profile level with the period type “Day” must come before the one that has “Month” for period type.
○ The base level of a time profile level must be a time profile level that has lower granularity.
○ If attributes are assigned to a time profile level, they must not be of the DECIMAL data type.
○ If an attribute of NVARCHAR data type is assigned to a time profile level, the length of the attribute must be between 1 and 5000.

• Checking the dependencies and connections of the time profile
  ○ It is not allowed to add or delete a time profile level if the time profile is assigned to any planning areas.
  ○ It is not allowed to remove an attribute assigned to a time profile level if the attribute is used in a planning level of an active planning area that uses the time profile.
  ○ It is not allowed to use active deletion on a time profile that is assigned to any planning areas.

• Checking the time profile against the already existing time periods
  ○ If time periods already exist for the time profile, you cannot add an additional required attribute.

Help for Error Analysis

Study the check log and the activation log to learn what made the check or the activation fail. The messages you find in the log provide you with information about the errors.

For certain messages, which originate from complex situations, you’ll find additional information in the table below.

Table 77

<table>
<thead>
<tr>
<th>Message Text</th>
<th>Reason and What to Do</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannot lock time profile &amp;1.</td>
<td>Another activation may be running. Try activating the time profile later.</td>
</tr>
<tr>
<td>Cannot add &amp;1 as required attribute to a not empty table (&amp;2).</td>
<td>You assigned a new required attribute to a time profile level, while time periods already exist for the time profile. Assign the attribute as optional attribute. Upload the time periods again. Each time period must have a value for this attribute. As a last step, select the required checkbox for the attribute. For more information, see Changing and Deleting Time Profiles [page 25].</td>
</tr>
<tr>
<td>Inconsistent period types (TP level &amp;1 must not be before level &amp;2)</td>
<td>In the definition of the time profile, a time profile level with a period type of a lower granularity must come before a time profile level that has a higher-level period type. For example, the time profile level for months must come before the one for quarters.</td>
</tr>
<tr>
<td>Attribute &amp;1 is already used in PA &amp;2. It cannot be removed from TP.</td>
<td>The attribute you wanted to remove from the time profile is in use in a planning area. Remove the attribute from the all</td>
</tr>
<tr>
<td>Message Text</td>
<td>Reason and What to Do</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Attribute &amp;1 is already used in PA &amp;2. It cannot be added to TP.</td>
<td>The attribute you wanted to assign to a time profile level is in use in a planning area, via the assignment to a master data type. Based on your modeling decision, remove the attribute from the planning area first, then you can assign it to the time profile level. Or, you can create a new attribute, and assign this attribute to the time profile level.</td>
</tr>
<tr>
<td>Uploading time periods needed as number of TP levels in TP &amp;1 changed.</td>
<td>This is an information message. You get this message if you change the time profile for which you have already created the time periods. You must upload the time periods again.</td>
</tr>
</tbody>
</table>

### 12.5.2 Error: Ensure …. is included in the generated calculation graph.

E – Ensure that calculation 4 | TXXACTUALSQTY@REQUEST is included in the generated calculation graph.

**Analysis**

The text “Ensure … is included in the calculation graph” indicates that the calculation graph is incomplete. The “calculation graph” shows all the calculations for a key figure. To view the calculation graph for a key figure, select the key figure and click the **Formula/Graph View** button. In the graph, the calculation nodes are colored blue and the stored inputs are colored green. Every key figure calculation graph must end with a stored key figure (marked in green):
In the calculation graph shown above, TXXCONSENSUDEMANDQTY ends with a stored key figure TXXSALESFORECASTQTY and TXXCONSENSUDEMANDQTY. Note that the above calculation is an example of defaulting.

The original error E – Ensure that calculation 4 | TXXACTUALSQTY@REQUEST is included in the generated calculation graph. Indicates that TXXACTUALSQTY does not result in a stored key figure. That is, TXXACTUALSQTY is a stored key figure, but is not marked as such in the Input Key Figures dialog.

Solution

Select Stored Value for the input key figure and activate the planning area.
12.5.3  Error: Check that key figure ID has a calculation at REQUEST Level

E – Check that key figure TXXINVENTORTARGETQTY has a calculation defined at the REQUEST level.

Analysis

No request level calculation exists for this key figure. When you look at the key figure definition, you see that no calculations have been defined.

Solution

Add a request level calculation to the key figure as follows:
1. Click Add Calculation (on the right of the screen above Calculation Definitions).
2. Add an expression.
3. Click Validate.
4. Click Input Key Figures and make sure that TXXINVENTORYQTY is selected as a stored value.

12.5.4  Error: Expression is not valid

E – Expression is not valid.

Analysis

You might, for example, see a detailed error such as the following:
Exception raised from InternalError: derror(PreparedStatement.execute): 2048 - column store error: fail to create scenario: [34011] Inconsistent calculation model;CalculationNode (9_53) -> attributes -> calculatedAttribute (CAPDEMANDUTILPCT) -> expression:Expression is not valid: Evaluator: syntax error in expression string:expected TK_RPAREN,parsing 'fixed(IF(ISNULL("T10CAPASUPPLY") OR "T10CAPASUPPLY")=0, "HCAPADEMAND"/"T10CAPASUPPLY", 12, 6)[here]”at ptime/query/plan_executor/trex_wrapper/trex_wrapper_body/trex_metadata.cc:1965 The above error text indicates that there is a syntax problem in the calculation expression and that the expression is invalid or incomplete. In this case a closing bracket ”)” is missing.

Solution

Add the closing bracket (or other syntax element that is missing from your expression) and activate the planning area.
12.5.5 Errors relating to key figures with calculations at different planning levels

The following errors relate to key figures with calculations at different planning levels:

- Error: In calculation 16 | TXDEPENDENDEMANDQTY@TXPERPRODLOCUST, ensure that the granularity of the output key figure planning level is in sync with the input key figure(s) planning level
- Error: Union of attributes of all input planning levels should be equal to all attributes of output planning level
- Error: In calculation 15 | TXDEPENDENDEMANDQTY@TXPERPRODLOC, ensure that the output key figure planning level is a subset of the input key figure(s) planning level

Analysis

When a key figure contains calculations at different planning levels, the output planning level attributes must match the union of all the input planning levels. That is, the output planning level must have the same attributes as the combined attributes of the input planning levels.

Solution

Compare the attributes for the input and output planning levels. Add any missing attributes to the planning levels and activate the planning area.

12.6 Deleting Active Objects (Active Deletion)

SAP Integrated Business Planning allows you to delete active master data, planning levels, key figures, and planning areas. You can also delete active time profiles, provided the time profile is not associated with any planning areas.

With active deletion, you change the status of objects to Pending for Deletion. The objects are then deleted the next time they are activated.

When performing active deletion, observe the following sequence:

1. Delete key figures from the version and activate the planning area.
2. Delete all key figures from any and all calculations, and delete all key figures that are assigned to any planning level containing the attributes you want to delete.
3. Activate the planning area.
4. Delete all planning levels that contain the attributes that you want to delete, and activate the planning area.
5. Delete all attributes of the master data type from the planning area, and activate the planning area.
6. Delete the master data type and then activate the master data type.
7. Delete the relevant time profiles and then activate the time profiles.

Note

Virtual and compound master data types: If you select master data types in the Composed Of area for deletion, the join conditions and all the attributes associated with those master data types are also marked Pending for Deletion.
**Deletion.** You can independently mark for deletion the attributes and join conditions associated with the master data types specified under *Composed Of*.

**Steps**

1. Select the specific object (for example, master data type or key figure) that you want to delete.
2. Click the active deletion button.
3. Click the *Delete* button.
4. The *Delete* dialog appears.
5. Click Yes. The status of the object changes to *Pending for Deletion*.
6. Select the object you want to delete.
7. Click the *Activate* button.

**Result**

Once activation is complete, the object you deleted no longer appears in the list of objects.

**12.7 Troubleshooting for Active Deletion**

If you receive any of the error messages listed below during active deletion of objects, refer to the *Solution* column for information about how to proceed.

### Deleting Active Master Data Types

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>The selected items are still assigned to one or more planning areas. Unassign the items first and then delete them.</em></td>
<td>Before deleting the active master data types, delete them from the planning areas with <em>Active Deletion</em>.</td>
</tr>
</tbody>
</table>

### Deleting Master Data Types (and Attributes) from an Active Planning Area

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>The planning area attribute is used in the configuration of planning levels. The deletion may affect calculations. Do you want to continue?</em></td>
<td>Before removing the master data types (and associated attributes) from the planning area, remove the attributes from each active planning level to which they are assigned.</td>
</tr>
</tbody>
</table>
Deleting Attributes from an Active Planning Level

Table 80

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>This planning level attribute is used in the configuration of key figures or attribute transformation. The deletion may affect calculations. Do you want to continue?</td>
<td>Before deleting the attribute (or planning level), remove all key figures from the planning level.</td>
</tr>
<tr>
<td>This planning level attribute is used in the configuration of key figures or attribute transformation. The deletion may affect calculations. You need to re-import the data for the affected key figures. Do you want to continue?</td>
<td>Check whether this action makes sense.</td>
</tr>
</tbody>
</table>

Deleting an Active Key Figure

Table 81

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Figure is being used in (key figure) (version) and cannot be deleted.</td>
<td>The key figure you are trying to delete is being used in an active version. Before you can delete the key figure, remove it from the version with Active Deletion.</td>
</tr>
<tr>
<td>Key Figure is being used in (key figure) and cannot be deleted.</td>
<td>The key figure you are trying to delete is being used in the calculation of other key figures (as indicated in the Used in Key Figures field). Before you can delete the key figure, you must delete it from all the calculations it is being used in.</td>
</tr>
</tbody>
</table>

Active Deletion Sequence Error

Table 82

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Solution</th>
</tr>
</thead>
</table>
| I: Activation Running | You have activated objects in the incorrect sequence. Proceed as follows (in the sequence given):  
  ● Delete key figures from the version and activate the planning area.  
  ● Delete all key figures from any and all calculations, and delete all key figures that are assigned to any planning level containing the attributes you want to delete.  
  ● Activate the planning area.  
  ● Delete all planning levels that contain the attributes you want to delete, and activate the planning area.  
  ● Delete all attributes of the master data type from the planning area, and activate the planning area.  
  ● Delete the master data type and then activate the master data type. |
13 Copy Options for Planning Areas

SAP Integrated Business Planning offers you both simple and advanced copy options within the planning area. With the simple copy, master data types, time profiles, and attributes associated with a planning area are not copied. To copy these entities, you must use the advanced copy function.

You cannot use the copy functions to copy favorites, templates, and user-defined filters.

To access the copy functions, select Define Planning Area on the initial screen of the Configuration app, or choose Planning Area and Details in the top menu, select your planning area, choose Copy and then Simple Copy or Advanced Copy as required.

The Overview of Simple Copy and Advanced Copy table contains a high-level overview of the configuration objects that you can copy using simple copy and advanced copy. For more information, see Simple Copy [page 110] and Advanced Copy [page 110] respectively.

Table 83: Overview of Simple Copy and Advanced Copy

<table>
<thead>
<tr>
<th></th>
<th>Simple Copy</th>
<th>Advanced Copy of SAP Sample Planning Area</th>
<th>Advanced Copy of Own Planning Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning area details</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Planning area–time profile assignments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Time profile used in the planning area</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Planning area–attribute assignments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Attributes used in the planning area</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Master data type–attribute assignments</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Master data types used in the planning area</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Planning levels used in the planning area</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Planning level–attribute assignments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Key figures used in the planning area</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Attributes as key figures used in the planning area</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Versions and scenarios used in the planning area</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Snapshots used in the planning area</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Planning area–planning operator assignments</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Forecast models</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
13.1 Simple Copy

The simple copy allows you to create a new planning area by copying the following configuration from the source planning area:

- Planning area details
- Planning area–time profile assignments
- Planning area–attribute assignments
- Planning levels used in the planning area
- Planning level–attribute assignments
- Attributes as key figures used in the planning area
- Key figures used in the planning area
- Versions and scenarios used in the planning area
- Snapshots used in the planning area
- Planning area–planning operator assignments
- Forecast models

Master data types, time profiles, and attributes associated with the planning area are not copied.

Simple copy also enables you to copy your planning area into an existing planning area by copying the configuration listed above in the following ways:

- You can use **Merge** to keep all the configuration in the target planning area and add everything new from the source planning area.
- You can use **Overwrite Existing (Replace)** to create an exact copy of the source planning area into the existing target planning area, that is, delete configuration in the target planning area that is not included in the source planning area, add new configuration from the source planning area and update existing configuration in the target planning area based on the source planning area.

**Note**

If you copy attributes as key figures using **Overwrite Existing (Replace)**, the result is the same as if you had used **Merge**. You have to manually remove unused configuration for attributes as key figures.

Changes take effect when you activate the target planning area.

13.2 Advanced Copy

The advanced copy allows you to copy master data types, time profiles, and attributes associated with a planning area. You can use advanced copy to copy both your own content and SAP sample planning areas to your work area.

**Note**

If you change an attribute that you copied from an SAP sample planning area using advanced copy and then copy the same SAP sample planning area with advanced copy again, the changes you made to the attribute will be overwritten. However, if you have extended the length of an attribute that originates from an SAP sample...
planning area, a subsequent advanced copy of the same SAP sample planning area will not overwrite the changed length. For more information see Extending the Length of an Attribute [page 139].

The advanced copy enables you to create a new planning area by copying the following configuration from the source planning area:

- Planning area details
- Time profile used in the planning area
- Attributes used in the planning area

**Note**

When you copy an SAP sample planning area using advanced copy, the attributes are copied with the ID that they have in the source planning area. When you copy a planning area that you created using advanced copy, the attributes are not copied.

- Master data types used in the planning area
- Planning levels used in the planning area
- Planning level–attribute assignments
- Attributes as key figures used in the planning area
- Key figures used in the planning area
- Versions and scenarios used in the planning area
- Snapshots used in the planning area
- Planning area–planning operator assignments
- Forecast models

When you copy a planning area using advanced copy, you have the following options for copying the master data types in the planning area:

- Copy the source master data type “as is”

**Note**

This option is only available when copying an SAP sample planning area.

- Replace the prefix in the master data type name
- Add a prefix to the master data type name
- Remove the prefix from the master data type name

Advanced copy also enables you to copy configuration associated with a planning area into an existing planning area. You use advanced copy with replace to create an exact copy of the source planning area in an existing target planning area, that is, delete configuration in the target planning area that is not included in the source planning area, add new configuration from the source planning area, and update existing configuration in the target planning area based on the source planning area. When using advanced copy with replace, both the source and target planning areas can be active or inactive.
13.3 Copying an SAP Sample Planning Area with Advanced Copy

Steps

1. On the initial screen of the Configuration app, select Define Planning Area or choose Planning Area and Details in the top menu.
2. From the dropdown list in the top right corner of the screen choose Display SAP Sample.
3. Select the sample planning area you want to copy and choose Copy.

Example
For example, copy the SAP6 sample planning area.

4. Select Advanced Copy and create a new planning area.
5. Enter an ID for the target planning area.
   Use an ID that is up to 10 characters long, contains alphanumeric characters, and starts with an alphabetic character, for example, ABCMODEL2. When copying an SAP sample planning area, you can keep the ID of the source planning area, or you can use a different ID of your choice.
6. Enter an ID for the new time profile.
   Use an ID that is up to nine characters long and only contains numeric characters.
   **Note**
   Make sure that the ID you select for the time profile does not already exist.

7. Enter the source prefix of the master data types.

Example
For example, when you copy the SAP6 sample planning area, you enter S6 as source prefix.
You can leave the source prefix field empty if you would like to add another prefix in front of the one that already exists.

8. Enter a target prefix for the master data types.
   A prefix must only contain alphanumeric characters and can be up to three characters long. The prefix must start with an alphabetic character.
   Depending on what the desired end result is, you have the following options when specifying the source and target prefixes:
   - To copy the master data types “as is”, leave both the source prefix and the target prefix empty.
     **Note**
     This option is only available when copying SAP sample planning areas.
   - To replace the master data type prefix, enter the source prefix and a target prefix.
   - To add another prefix to the master data type, leave the source prefix empty and enter a target prefix.
   - To remove the master data type prefix, enter the source prefix and leave the target prefix empty.

9. Copy the planning area.
Result

A new planning area and time profile with the IDs you selected are created in your work area. The new planning area contains master data types with names corresponding to your selection. The names of the attributes, key figures, and planning levels remain unchanged.
14 Transporting Model Entities

Prerequisites

Transporting model entities is based on the Change and Transport System in Application Server ABAP. Make sure that the following settings are made in your systems:

1. You have set up a transport route between the two SAP Integrated Business Planning systems involved.
2. Both in the source and the target systems, check, and if required, change the values of the ATTRIBUTES and TARGET_GROUP parameters of the TRANSPORT parameter group. To do so, launch the Configuration app by clicking the corresponding tile on the launchpad, and choose Manage Global Configurations.
   - TARGET_GROUP
     Defines the transport layer. The default value is /IBP_DMT/. In case you use a different transport layer, enter it as the value for the TARGET_GROUP parameter.
   - ATTRIBUTES
     Transport requests may require one or more attributes, depending on the setup of your system.
     Define the attribute in the source system by entering a value for the ATTRIBUTES parameter. Use the following syntax: `<attribute1>"="<value1">;<attribute2>"="<value2">`. The default value of this parameter is ADD-ON="SCMIBP".

Transportable Model Entities

You can transport the following model entities:

- A complete planning model (a planning area with all its dependent entities):
  - Planning area
  - Attributes
  - Master data types
  - Time profiles
  - Planning levels
  - Key figure definitions
  - Planning versions
  - Planning operators
- A master data type with its attributes
- A forecast model
- A visibility filter
14.1 Exporting a Model Entity from the Source System

Prerequisites

You have been assigned the required authorization for creating, releasing, locking, and editing transport requests and tasks.

The planning model and the master data type that you want to transport must be active. There is no such requirement for forecast models, and for visibility filters.

Steps

1. Log on to SAP Integrated Business Planning in the source system.
2. Launch the Transport Model Entities app by clicking the corresponding tile on the launchpad.
3. Select the model entity you want to transport. If you want to transport a complete planning model, you select it by selecting the planning area.
4. Choose Export.
   
   The system creates and releases a transport request that contains the entity you selected, and, if applicable, the dependent entities of that entity. For example, if you select a master data type, its attributes are also included in the transport request.
   
   Once a transport request has been created, you can check the export information, including the logs, by choosing the Exports icon.
   
   In case errors occurred before or during the creation of the transport request, the system displays an error message, and does not create the transport request.

14.2 Importing a Model Entity into the Target System

Steps

1. The import of the transport request takes place according to the configuration of your system (automatically or manually, using the Change and Transport System of the Application Server ABAP)
2. To check the status of the import, log on to the launchpad of the target SAP Integrated Business Planning system
3. Launch the Transport Model Entities app. Look for the model entity you previously exported from the source system. Select the entity type, then the model entity, then choose the Imports icon to display the list of previous imports. You can also display the log information for the completed imports.
4. After a successful import, activate the planning area.
14.3 Best Practices for Transporting Planning Models

**Recommendation**

SAP recommends the following approach for setting up planning areas and moving them from the test system to the production system.

Carry out configuration tasks and user testing in the test system. For these activities, you require at least two planning areas in the test system:

- **Configuration planning area** for ongoing configuration work
- **Consolidation planning area** for consolidating the configuration changes and for initial integration and unit testing (which is typically performed by consultants and expert business users)

![Planning Areas in the Test System](image)

Provided that no major changes are expected to the master data structure, these planning areas can share master data types.

The consolidation planning area typically has a smaller dataset than its counterpart in the production system. Nonetheless, the test dataset must be representative of actual production data. However, the consolidation planning area can contain a copy of the full production system dataset. Whether the consolidation planning area has a full or reduced dataset depends on the size of the test system and on customer requirements. Consolidation of changes from the **Configuration** app on the **Planning Area and Details** screen, select **Copy > Select Existing > Overwrite Existing (Replace)**.

Once you have completed configuration and/or user testing, you can export the consolidation planning area using the **Transport Model Entities** app.

The exported planning area can then be imported into production system using the steps outlined above. Note that every time a planning area is exported, the entire planning area and the related configuration are transported. (You can test and activate only an entire planning area.)

In projects that require a lot of integration work (for example, development in SAP HANA Cloud Platform, integration service), you have to keep data sets for application consultants and integration consultants separate. In such cases, SAP recommends that you to use an additional, independent data integration planning area for data integration activities. Ideally, this planning area should have its own master data types. With this approach,
you can proceed with development and testing of integration content without interfering with configuration tasks. Note that if you use a separate data integration planning area in the integration service, you will require additional effort to change the test integration tasks to the final tasks.

Figure 14: Best Practices: Transporting Planning Areas to Production System

14.4 Model Transport in a 2-Phase Configuration Project

As most SAP Integrated Business Planning projects are implemented in a phased approach, users may need to make configuration changes for the next phase of the configuration project while, at the same time, they are making minor maintenance-related configuration changes in the production system that is actively used by business users.

The following table gives an overview of the planning areas involved (and the names used for them in the subsequent text and graphics).

<table>
<thead>
<tr>
<th>Planning Area</th>
<th>Planning Phase</th>
<th>Example (used in text and graphics)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>1</td>
<td>P1_ACTIVE</td>
</tr>
<tr>
<td>Configuration</td>
<td>1</td>
<td>P1_CONFIG</td>
</tr>
<tr>
<td>Data Integration</td>
<td>1</td>
<td>P1_DATA_INTEGRATION</td>
</tr>
<tr>
<td>Data Integration</td>
<td>2</td>
<td>P2_DATA_INTEGRATION</td>
</tr>
<tr>
<td>Configuration</td>
<td>2</td>
<td>P2_CONFIG</td>
</tr>
<tr>
<td>Consolidation</td>
<td>2</td>
<td>P2_CONsolidATION</td>
</tr>
</tbody>
</table>
Transporting the Active Planning Area When Phase 1 is Complete

When phase 1 is complete, transport the active planning area (P1_ACTIVE) to the production system.

![Diagram showing transport of active planning area](image)

Figure 15: Transporting Active Planning Area (Phase 1) to Production System

Preparing the Test System for Phase 2

1. Using Advanced Copy, copy the active planning area from phase 1 (P1_ACTIVE) to the configuration planning area for phase 2 (P2_CONFIG). This creates the configuration planning area for phase 2 and all the related master data objects.
2. Using Copy-Replace, copy the configuration planning area for phase 2 (P2_CONFIG) to the consolidation planning area for phase 2 (P2_CONsolidation).
3. Optional step: If you require a data integration planning area (for example, for activities in SAP HANA Cloud Platform, integration service), copy the phase 1 data integration planning area (P1_DATA_INTEGRATION) to the phase 2 data integration planning area (P2_DATA_INTEGRATION) using Advanced Copy.

Making Configuration Changes in Project Phase 2

1. Make the configuration changes necessary for phase 2 of the project in the configuration planning area for phase 2 (P2_CONFIG). Changes could include creating additional attributes, master data types, or key figures.
2. Once configuration is complete and has been validated, using Copy-Replace, merge the changes into the consolidation planning area for phase 2 (P2_CONsolidation).
Making Interim Changes in the Production Instance

1. Make any minor configuration changes needed for the production instance in the configuration planning area for phase 1 \((P1\_CONFIG)\).
2. Using \textit{Copy-Replace}, merge these changes into the active planning area \((P1\_ACTIVE)\).
3. Using the \textit{Transport Model Entities} app, transport the active planning area \((P1\_ACTIVE)\) to the production system.
4. Mandatory step: Repeat the configuration changes made in the phase 1 active planning area \((P1\_ACTIVE)\) manually in the phase 2 configuration planning area \((P2\_CONFIG)\) to keep the 2 planning areas in sync.
Transporting Phase 1 Active Planning Area to Production System

Using the **Transport Model Entities** app, transport the active planning area from phase 1 (\texttt{P1\_ACTIVE}) to the production system.

![Figure 18: Transferring the Active Planning Area to the Production System](image)

Merging Phase 2 Master Data Changes to Production Planning Area

When the consolidation planning area for phase 2 is ready, proceed as follows to move this planning area to the production system:

1. Using **Copy-Replace**, merge the master data from the configuration planning area for phase 2 into the configuration planning area for phase 1. This does the following in the target planning area:
   - Adds any new attributes to existing master data types
   - Creates new master data types

![Figure 19: Merging Master Data from P2\_CONFIG into P1\_CONFIG](image)
2. Delete the configuration planning area for phase 1.
3. Using Advanced Copy, copy the configuration planning area for phase 2 to the configuration planning area for phase 1. This adds new planning levels, key figures, and scenarios.
4. Activate the configuration planning area for phase 1.
5. Using Copy-Replace, copy the phase 1 configuration planning area to the active planning area for phase 1.
6. Activate the planning area.
7. Using the Transport Model Entities app, transport the planning area to the production system.
15 Emergency Access to Production System

Manual changes to configuration in a production system and often even in a test system should be avoided to ensure the integrity of the planning area being used productively or tested. However, in exceptional circumstances you may need to configure and activate planning models in a production system. For this purpose, a special business role can be assigned to your business user that provides you with temporary access to the production system.

Note
- SAP recommends that emergency access is used only after it has been decided that the system is in an exception state (also known as a firecall state).
- Most configuration activities require model activation and may have an impact on runtime user interfaces or data integration, for example.

For information on how the emergency access is provided, see the application help at help.sap.com/ibp62 under Identity and Access Management ➤ Allow Emergency Access to Production System.
16 Miscellaneous Settings

16.1 Creating Reason Codes

Reason codes refer to a set of tags that you can use to keep track of the decisions and changes made throughout the planning process in the Excel Add-In. A user can enter a reason code when saving data in Microsoft Excel using the Save Data button.

You can create your own reason codes. Some useful reason codes are provided with SAP Integrated Business Planning.

To create a reason code, click Manage Reason Codes on the initial screen of the Configuration app.

Click New and enter an ID (for example, TXXRC) and name (for example, TXXREASONCODE) for the new reason code. Save your changes.

16.2 Managing Global Configurations

Global configuration lets you maintain application-level defaults.

The global configuration parameters are organized in parameter groups. The following groups are supplied by SAP:

Table 85

<table>
<thead>
<tr>
<th>Group</th>
<th>Area Defaults Relate To</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYTICS</td>
<td>Analytics: charts and dashboards</td>
</tr>
<tr>
<td>COLLABORATION</td>
<td>SAP Jam integration</td>
</tr>
<tr>
<td>FORECAST</td>
<td>Statistical forecasting</td>
</tr>
<tr>
<td>HOME_PAGE</td>
<td>Dashboards</td>
</tr>
<tr>
<td>INTEGRATION</td>
<td>Data integration</td>
</tr>
<tr>
<td>MASTER_DATA_OP</td>
<td>Master data</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>Microsoft Excel planning views</td>
</tr>
<tr>
<td>PLCNTRL</td>
<td>Planning controller for simulations</td>
</tr>
<tr>
<td>SCENARIO</td>
<td>Versions</td>
</tr>
<tr>
<td>TRANSPORT</td>
<td>Transport request parameters</td>
</tr>
</tbody>
</table>

 Recommendation

We recommend that you maintain the following defaults when you install your system:

• Planning area for data integration and dashboards
16.2.1 Creating a Global Configuration Parameter

Context

To create a new global configuration parameter, choose Manage Global Configurations on the initial screen of the Configuration app.

Steps

1. To create a global configuration parameter, click New.
2. Select a parameter group and a parameter name and enter a value of your choice. The following example shows sample entries for a global configuration:

```
<table>
<thead>
<tr>
<th>Parameter Group</th>
<th>Parameter Name</th>
<th>Default Value</th>
<th>Parameter Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOME_PAGE</td>
<td>DEFAULT_PLAN_AREA</td>
<td>500</td>
<td></td>
</tr>
</tbody>
</table>
```

3. Save your changes.

More Information

Global Configuration Parameters [page 124]

16.2.2 Global Configuration Parameters

The following table lists the possible parameters and values for the Global Configuration table.

```
<table>
<thead>
<tr>
<th>Parameter Group</th>
<th>Parameter Name</th>
<th>Default Value</th>
<th>Parameter Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYTICS</td>
<td>CHARTS_PUBLIC</td>
<td>TRUE</td>
<td>All charts are public by default. If set to FALSE, charts are private.</td>
</tr>
</tbody>
</table>
```
<table>
<thead>
<tr>
<th>Parameter Group</th>
<th>Parameter Name</th>
<th>Default Value</th>
<th>Parameter Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANALYTICS</td>
<td>DASHBOARDS_PUBLIC</td>
<td>TRUE</td>
<td>All dashboards are public by default. If set to FALSE, dashboards are private. Adamdashboards are public by default. If set to FALSE, dashboards are private.</td>
</tr>
<tr>
<td>ANALYTICS</td>
<td>MAX_ATTR_VALUES</td>
<td>2000</td>
<td>Represents the maximum number of records displayed in the drill-down lists for alerts. For example, if you select a time period on a daily level, you get 365 lines for each year of data.</td>
</tr>
<tr>
<td>ANALYTICS</td>
<td>MAX_RECORDS</td>
<td>2000</td>
<td>Limits the number of records retracted from the SAP HANA database when alerts generate an SQL string. Unlike the parameter MAX_ALERT_PER_SUBSCRIPTION, this parameter controls the number of records coming from the SAP HANA DBs and not just the records displayed on the UI.</td>
</tr>
<tr>
<td>ANALYTICS</td>
<td>MAX_ALERTS_PER_SUBSCRIPTION</td>
<td>100</td>
<td>Limits the number of alerts that are displayed in the custom alerts monitor. If an alert is not defined correctly, it could generate a large number of alerts (one subscription can lead to millions of alerts). This parameter limits the number of alerts retrieved for each subscription and therefore prevents performance problems. This parameter does not limit the number of records retracted from SAP HANA.</td>
</tr>
<tr>
<td>COLLABORATION</td>
<td>COLLABORATION_ENABLE</td>
<td>False</td>
<td>Flag that enables/disables collaboration in Sales and Operations Planning.</td>
</tr>
<tr>
<td>FORECAST</td>
<td>FORECAST_ESCAPENUM null</td>
<td>1</td>
<td>Adds and initializes the value of the forecast input key figure to a small value when historical data is missing for...</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------</td>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FORECAST</td>
<td>PARAM_OPTIMIZATION_MAX_TIME</td>
<td>10</td>
<td>Time limit for the optimization process performed when the automated exponential smoothing algorithm is selected in a forecast model. The time unit is second and the value should be larger than zero.</td>
</tr>
<tr>
<td>FORECAST</td>
<td>HISTORY_MIN_VALUE</td>
<td>0.001</td>
<td>You have to enter a value for HISTORY_MIN_VALUE if the history data is NULL, that is, unavailable or if it is less than 0.001. If no entry is made for this parameter, the default 0.001 is used. This parameter is used only if FORECAST_ESCAPENULL has a value other than &quot;0&quot;. You have to enter this parameter as a numerical value with integer or decimal format.</td>
</tr>
<tr>
<td>FORECAST</td>
<td>MIN_FORECAST</td>
<td>-9999999</td>
<td>If you are using the double or triple exponential smoothing method, forecast values may sometimes be negative. If required, you can prevent such negative values from being returned by setting this parameter, for example, to &quot;0&quot;. Any negative values are then changed to the value entered for this parameter. If you do not specify this parameter, negative values are returned, the lowest possible value being the default value -9999999.</td>
</tr>
<tr>
<td>FORECAST</td>
<td>MOVING_AVG_MODE</td>
<td>0</td>
<td>An integer value that controls the behavior of the statistical forecast method MOVING_AVERAGE. If the...</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>FORECAST</td>
<td>FCSTASSIGN_SUPPR_RC_COMMENT</td>
<td>None</td>
<td>Controls whether a user can select a reason code and make a comment when changing a forecast model assignment. If the value is <strong>TRUE</strong>, the list of available reason codes and the comment field are not displayed on the UI.</td>
</tr>
<tr>
<td>HOME_PAGE</td>
<td>DEFAULT_PLAN_AREA</td>
<td>NULL</td>
<td>Indicates the default planning area to view on the SAP Integrated Business Planning dashboards. This parameter also represents the default planning area for the user interface of SAP Integrated Business Planning add-in for Microsoft Excel.</td>
</tr>
<tr>
<td>INTEGRATION</td>
<td>DEFPLANAREA</td>
<td>SAP1</td>
<td>Default planning area for integration.</td>
</tr>
<tr>
<td>INTEGRATION</td>
<td>ENABLE_SNAPSHOT_KFS</td>
<td>NULL</td>
<td>By default, snapshot key figures of type <em>Original</em> are not available for upload using data integration. Using this parameter, you can determine whether values for snapshot key figures can be maintained in a given planning area using the data integration process. You enter the parameter value as a list of planning areas, separated by commas. For example, if the parameter value is <em>PLAN_AREA1</em>,...</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td><strong>INTEGRATION</strong></td>
<td>KF_UPLOAD_EXT_AT_BASE_LEVEL_ONLY</td>
<td></td>
<td>Controls whether you can upload key figure data at an aggregated time level from an external source, such as SAP HANA Cloud Platform, integration service. Enter x or X as the value to restrict the upload of key figure data to uploading at the base planning level only, and with that, disable time disaggregation.</td>
</tr>
<tr>
<td><strong>INTEGRATION</strong></td>
<td>KF_UPLOAD_INT_AT_BASE_LEVEL_ONLY</td>
<td></td>
<td>Controls whether you can upload key figure data at an aggregated time level in the Data Integration app. Enter x or X as the value to restrict the upload of key figure data to uploading at the base planning level only, and with that, disable time disaggregation.</td>
</tr>
<tr>
<td><strong>INTEGRATION</strong></td>
<td>LOGGING</td>
<td>DEBUG</td>
<td>Controls whether data integration runs in debug or non-debug mode. By default, data integration runs in non-debug mode. While troubleshooting data integration related issues, run data integration in debug mode where the system will do some extra logging that can be helpful. Typically, data integration runs in non-debug mode, which means there should be no configuration entry maintained for</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-----------------------</td>
</tr>
</tbody>
</table>
| INTEGRATION     |                |               | **INTEGRATION** parameter **LOGGING**. When you want to run data integration in debug mode, maintain the following entry:  
  - **Parameter Group**: Integration  
  - **Parameter**: LOGGING  
  - **Parameter Value**: Debug  
  This parameter is only used by SAP support while troubleshooting data integration issues. After completing the troubleshooting process, SAP support should remove this configuration setting. |
| INTEGRATION     | STAGCLEANUP    | 7             | Controls the duration after which data import batches will be purged from your system. Your system comes with a default duration of 7 days. You can overwrite the default by creating the following entry in Global Configuration:  
  - **Parameter Group**: Integration  
  - **Parameter**: STAGCLEANUP  
  - **Parameter Value**: 3  
  The parameter value is always a positive integer. After data import batches are purged, they are permanently removed from your system. Afterwards, data import reporting is not available for the purged batches. Production systems typically set this to 2 days. If you are importing very large volumes of data every day, then you should not set this duration to more than 1 day, otherwise you will accumulate data in |
<table>
<thead>
<tr>
<th>Parameter Group</th>
<th>Parameter Name</th>
<th>Default Value</th>
<th>Parameter Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>your system. After a data import batch has processed, it has fulfilled its purpose. The only reason you may want to retain that data for 1 or 2 days is purely for data import reporting purposes. This data does not participate in any other system function; it just occupies space. The sooner you purge it, the better it is for your system.</td>
</tr>
<tr>
<td>INTEGRATION</td>
<td>JOB_THREAD_COUNT</td>
<td>1</td>
<td>Controls how many import jobs or batches can be processed concurrently. You can override the default value of 1 with a value that fits your requirements and then test it to verify that your imports run smoothly.</td>
</tr>
<tr>
<td>MASTER_DATA_OP</td>
<td>MAX_BATCH_SIZE</td>
<td>10,000</td>
<td>The maximum number of records that a user can download or upload using the mass management of master data function in the IBP Excel add-in.</td>
</tr>
<tr>
<td>MASTER_DATA_OP</td>
<td>SORT_REQFIELD_FIRST</td>
<td>YES</td>
<td>Controls the order of the columns in the mass management of master data in the IBP Excel add-in. If the value of the parameter is <strong>YES</strong>, the columns of the required attributes follow the columns of the key attributes. Otherwise, the system puts the columns of the key attributes first, and displays the columns of the remaining attributes in alphabetical order.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>ALLOW_SAVE_DURING_COPY</td>
<td>YES</td>
<td>Allows saving data in Excel during the run of a copy operator for same planning area.</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------</td>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>ALLOW_SAVE_DURING_DATA_LOAD</td>
<td>YES</td>
<td>Allows the key figure values from a planning view in Excel to be saved while a data integration job is running for the same planning area.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>ALLOW_SAVE_DURING_SNAPSHOT</td>
<td>YES</td>
<td>Allows saving data in Excel during the run of a snapshot for the same planning area.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>ALLOW_SAVE_DURING_VERSION_COPY</td>
<td>YES</td>
<td>Allows saving data in Excel during the run of a version copy for the same planning area.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>DEL_COMB_KF_CHECK_FOR_NULL</td>
<td>YES</td>
<td>Deletes time series data of new objects on pressing the button Delete New Object only if all key figures of these time series have the value NULL.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>HOME_PAGE</td>
<td>/sap/bc/ui5_ui5/ui2/ushell/shells/abap/FioriLaunchpad.html</td>
<td>This parameter indicates the default path for constructing the SAP Fiori Launchpad.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>MAX_DIM_MEMBERS</td>
<td>10000</td>
<td>Maximum number of attribute values per attribute that are read for the user interface of the IBP Excel add-in. If a particular attribute has more than the specified number of values, it is excluded from the SAP Integrated Business Planning add-in for Microsoft Excel with regard to planning view definition and filtering.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>MAX_RESULT_ROW_SIZE</td>
<td>2000</td>
<td>The global configuration parameter MAX_RESULT_ROW_SIZE and the number of time periods selected in the planning view are used to restrict the maximum number of cells that can be retrieved from the database for a key figure. The default value for the parameter MAX_RESULT_ROW_SIZE is 2000. Maximum number of</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------</td>
<td>---------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cells retrieved for each key figure = MAX_RESULT_ROW_SIZE * Number of time periods. The data retrieved for all key figures at chosen planning levels is then plotted in the planning view according to the selected layout. If the results are restricted and the last row is incomplete, then the last row will not be displayed in the planning view.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>MINIMUM_ADDIN_VERSION</td>
<td></td>
<td>If you provide a version here, then, upon logon to SAP Integrated Business Planning in the IBP Excel add-in, the system checks the version of the IBP Excel add-in. In case the version is lower than the one defined in the parameter, the system displays a warning message.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>SUPPRESS_RC_COMMENT</td>
<td>X</td>
<td>Having an entry with this parameter (regardless of the value) suppresses the dialog where the user is asked to provide a reason code or comment, and where they can share the changes on SAP Jam. Applying this parameter suppresses the dialog for reason codes, comments, and sharing throughout the SAP Integrated Business Planning (such as when saving data of a planning view, or changing a master data). To re-enable the dialog for reason codes and comments, delete the entry for this parameter.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>VALID_NULL_VALUES_NON_ROOT_ATTR</td>
<td>Yes</td>
<td>Determines, whether lines containing null values for a non-root attribute should be displayed in the planning view.</td>
</tr>
<tr>
<td>Parameter Group</td>
<td>Parameter Name</td>
<td>Default Value</td>
<td>Parameter Description</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>PV_COUNT_MAX</td>
<td>5</td>
<td>The maximum number of open Microsoft Excel workbooks that contain planning views.</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>SESSION_PRELOAD_CS</td>
<td>5</td>
<td>The number of calculation scenarios created in advance during session preload in Excel planning</td>
</tr>
<tr>
<td>PLAN_VIEW</td>
<td>SESSION_PRELOADCS_WAIT</td>
<td>30</td>
<td>The time in seconds an Excel query waits until session preload has finished before creating calculation scenario on its own.</td>
</tr>
<tr>
<td>PLCNTRL</td>
<td>SCM_LOCAL_MODE</td>
<td>Yes</td>
<td>When set to NO, disables local mode for the supply planning (SCM) operator type to improve performance.</td>
</tr>
<tr>
<td>PLCNTRL</td>
<td>SESSION_TIMEOUT</td>
<td>7200</td>
<td>The number of seconds before an SAP Integrated Business Planning session times out and requires you to log back in.</td>
</tr>
<tr>
<td>PROMOTION</td>
<td>PROMO_COUNT_MAX</td>
<td>500</td>
<td>The maximum number of promotions that are loaded in the overview table.</td>
</tr>
<tr>
<td>SCENARIO</td>
<td>SCN_COUNT_MAX</td>
<td>3</td>
<td>The maximum number of versions allowed in an SAP Integrated Business Planning system.</td>
</tr>
</tbody>
</table>
### Parameter Group

<table>
<thead>
<tr>
<th>Parameter Group</th>
<th>Parameter Name</th>
<th>Default Value</th>
<th>Parameter Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRACE</td>
<td>TRACELEVEL</td>
<td>E</td>
<td>Controls the range of events to be included in the log during runtime.</td>
</tr>
<tr>
<td>SETTINGS</td>
<td>DEFAULT_LANGUAGE</td>
<td>en</td>
<td>Supported languages: de, en, fr, ja, es, pt, ru, zh-CN Provided no preferred language has been specified on the User Settings UI, the language selected using this global configuration parameter is used as the default language for this application. If neither a preferred language has been specified nor a language entered in the global configuration table, then the default language for the browser is used for the application.</td>
</tr>
</tbody>
</table>

### 16.3 Configuration History

You can download a history of changes made to the model configuration for a selected date range. You can also filter the download by planning area and user. The history captures changes to attributes, master data types, time profiles, and certain aspects of planning areas (that is, attributes, planning levels, key figures, and versions). The data is downloaded to a comma-separated values (CSV) file that shows all changes caused by a user inserting, updating, or deleting data.

### Steps

To download the configuration history, go to *Miscellaneous Settings* and choose *Configuration History Download*. Enter your selection criteria and choose *OK*. The system downloads the data and you can save the file.

The information in the CSV file includes the following:

- User who made the change
- Time of the change
- Type of change (insert, update, or delete)

  Note that for an update from the UI, the record on the database is deleted and then inserted. In this case, the file therefore contains one row with the action **DELETE** and one row with the action **INSERT**.

- Name of the table affected (for example, `SOPDM_PLANLEVELATTR` is the table that is affected by changes to planning level attributes).
• Change ID and change item ID

For changes on the UI that a user saves together (that is, by choosing Save once on the UI), the following applies:
  ○ All changes share the same change ID in the history even if the changes are stored in different database tables.
  ○ For changes to the same database tables, the change item ID increases incrementally by 1 for each change.

• The following fields for the attributes:
  ○ ATTRIBUTE_ID: Contains a comma-separated list of all table column names affected by the change.
  ○ ATTRIBUTE_OLD_VALUE: Contains a comma-separated list of old values from the table columns.
  ○ ATTRIBUTE_NEW_VALUE: Contains a comma-separated list of new values from the table columns.

Example

You create a new key figure TOTALRECEIPTS. You enter the following values:
  ● Name: TOTALRECEIPTS
  ● Description: TOTALRECEIPTS
  ● Base Planning Level: PERPRODLOC
  ● Aggregation Mode: Sum
  ● Stored: Selected
  ● Edit Allowed: Not Editable

You also enter a calculation definition.

All entries are saved together. Since you have created a new key figure, the relevant action shown in the table is INSERT, with entries for the database tables used for key figures, key figure texts, key figure calculations, and key figure calculation inputs.

The following is a simplified extract from the configuration history for the above example:

<table>
<thead>
<tr>
<th>CHANGE_USER</th>
<th>CHANGE_ID</th>
<th>CHANGE_ITEM_ID</th>
<th>TABLENAME</th>
<th>ACTION</th>
<th>ATTRIBUTE</th>
<th>ATTRIBUTE_NEW_VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILLER</td>
<td>384</td>
<td>1</td>
<td>SOPDM_KEYFIGURE</td>
<td>INSERT</td>
<td>LASTMODIFIEDATE; CONV_KFID;</td>
<td>2015-05-18 14:20:57; NULL;</td>
</tr>
<tr>
<td>MILLER</td>
<td>384</td>
<td>1</td>
<td>SOPDM_KEYFIGURE_T</td>
<td>INSERT</td>
<td>DESCRIPT; KFNAME</td>
<td>Total Receipts; Total Receipts;</td>
</tr>
<tr>
<td>MILLER</td>
<td>384</td>
<td>1</td>
<td>SOPCM_KEYFIGCALC</td>
<td>INSERT</td>
<td>CODEID; CREATEDBY; CREATEDDATE;</td>
<td>NULL; MILLER; 2015-05-18 14:20:57</td>
</tr>
<tr>
<td>MILLER</td>
<td>384</td>
<td>1</td>
<td>SOPCM_KEYFIGCALC _INPUT</td>
<td>INSERT</td>
<td>CREATEDBY; CREATEDDATE; INPUTTYPE</td>
<td>MILLER: 2015-05-18 14:20:57.0</td>
</tr>
</tbody>
</table>
Other fields in the configuration history include planning area, key figure ID, calculation ID, planning level, attribute ID, LCODE, scenario, and active status. In the above example, the following additional information would be provided:

- **KEYFIGURE_ID**: TOTALRECEIPTS
- **CALCULATION_ID**: 209318
- **ACTIVE**: 1
17 Advanced Modeling Topics

17.1 Aggregation and Disaggregation of Data Across Different Time Levels

Several applications of SAP Integrated Business Planning, which work with different time profile levels and time horizons, may use the same planning area. With that, the values of the common key figures must be aggregated and disaggregated across different time levels.

This can be realized by a specific modeling concept, which is built on the modeling of time profile levels with multiple parents and that of intermediate levels without parents. If you apply the modeling concept described below (also referred to as week-to-months split after the specific case of the aggregation between weeks and months), you will be able to aggregate and disaggregate key figure values across different time levels.

The modeling concept consists of the following elements:

1. Definition of the period weighting factor attribute
2. Definition of a time profile that also includes technical weeks as a time profile level
3. Uploading time periods with their period weighting factor
4. Assigning the period weighting factor to the relevant planning levels and key figures

Note

You can apply this modeling concept for aggregation and disaggregation not only between weeks and months, but between custom overlapping periods.

To do so, use the custom (empty value) period type when defining the time profile. Pay special attention to the correct modeling of the parent-child relations between the time profile levels.

Defining the Period Weighting Factor Attribute

In the Configuration app, on the Attributes screen, define one or more attribute that represents the period weighting factor. Typically, the number of workdays or calendar days is used as the period weight.

Specify INTEGER as the data type of the attribute.

Defining a Time Profile

In the Configuration app, on the Time Profiles screen, define a time profile.

The time profile must include a time profile level that has the “technical week” period type. This time profile level must be the base level of the week and month time profile levels.

Example

The time profile can look like this:
Table 89

<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Base Level</th>
<th>Period Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daily</td>
<td>1</td>
<td>Day</td>
</tr>
<tr>
<td>2</td>
<td>Weekly (technical)</td>
<td>1</td>
<td>Technical week</td>
</tr>
<tr>
<td>3</td>
<td>Weekly (calendar)</td>
<td>2</td>
<td>Week</td>
</tr>
<tr>
<td>4</td>
<td>Monthly</td>
<td>2</td>
<td>Month</td>
</tr>
<tr>
<td>5</td>
<td>Quarterly</td>
<td>4</td>
<td>Quarter</td>
</tr>
<tr>
<td>6</td>
<td>Yearly</td>
<td>5</td>
<td>Year</td>
</tr>
</tbody>
</table>

Figure 21: Example: Time Periods for a Time Profile with 6 Time Levels

Assign the attribute you defined for the period weighting factor to the technical week level of the time profile.

Uploading Time Periods with Their Period Weighting Factors

Use the Data Integration app to get a CSV file template for the time profile. Fill out the template with the data of the time periods, including the period weighting factors, then upload the file to create the time periods.

For more information, see the Data Integration chapter in the application help.

You can also use SAP HANA Cloud Integration to upload the time periods.

**Note**

If you apply the week-to-months split modeling concept, you have to use either the Data Integration app or SAP HANA Cloud Integration to create the time periods. If you create the time periods by scheduling an application job to create them, they will lack the period weighting factors. This can result in inaccurate aggregation and disaggregation between different time levels.
Assigning the Period Weight Factor Attribute to the Relevant Planning Levels and Key Figures

If you want to read and write key figure values in both (calendar) weeks and months, select the technical week time profile level as the root in the base planning levels used in the given key figures. Also assign the period weight factor to the base planning level of the key figure. You do this on the Planning Levels screen in the Configuration app.

You must specify the period weight factor for each key figure whose values you would like to access in both weeks and months. To do this, go to the Key Figures screen in the Configuration app, and select an attribute for the period weight factor.

**Note**

You can assign a period weight factor to a key figure only if the disaggregation mode of the key figure is either Equal or Proportional if aggregated value is not zero, otherwise, equal distribution.

Only those attributes can be assigned as period weight factors that are of the INTEGER data type, and have already been assigned to the time profile, and to the base planning level of the key figure.

Special Considerations

The S&OP (SCM) operator and the Inventory Optimization operator can only be executed at the base planning level. You should not run them on key figures stored at technical week level.

You can save forecast model assignments only if planning objects exist at the forecast level. If you store key figures at technical week level, but you want to run forecast at calendar week level, then you must have at least one stored key figure at calendar week level.

If you use the PERIOD_OFFSET parameter for operators of the COPY operator type that you run at technical week level, take it into consideration that periods have different lengths.

More Information

Creating Attributes [page 15]
Creating Time Profiles [page 22]
Creating Planning Levels [page 33]
Creating Key Figures [page 38]

17.2 Extending the Length of an Attribute

Context

If you extend the length of an attribute, you must make sure that all model entities that use the attribute are updated with the new length. You must activate the relevant master data types, time profiles, and planning areas again for the changes to take effect, to keep the database consistent, and to prevent runtime errors.
Note
If you use an attribute, which is used in an SAP sample planning area, in any of your planning areas, and the length of this attribute has been changed in the SAP sample planning area, an advanced copy of the SAP sample planning area overwrites the attribute length in your planning areas. You must activate the time profiles, master data types, and planning areas that use this attribute again. After activation, the attribute will have the new length consistently for all model entities where it is used.

Steps

1. In the Configuration app, on the Attributes screen, change the length of the attribute.

Note
In a reference master data type and in a virtual master data type, the length of an attribute must be equal to or greater than the length of the reference attribute.
If you have reference master data types or virtual master data types in your model, make sure that you extend the length of the referring attribute (if needed) as well, so that it is as long as or longer than the reference attribute (the attribute you have changed).

2. Find the time profiles, master data types, and planning areas that use the attribute you have changed.
   To do this, click the numbers in the corresponding cells on the Attributes screen in the Configuration app.

3. Activate the time profiles that use the attribute you have changed.

4. Activate the master data types that use the attribute you have changed.

5. Activate the planning areas that use the attribute you have changed.

More Information

Activating Time Profiles [page 99]
Activating Master Data Types [page 100]
Activating Planning Areas [page 100]
Copy Options for Planning Models [page 109]

17.3 Example: Defining an Attribute as a Key Figure

Context

When the value of an attribute of a master data type remains the same over time (for example, the attribute Product Price of master data type Product), you can define the attribute as a key figure. When such an attribute is loaded as a key figure, it should have the same value for all time periods.
Caution

Once you have defined an attribute as a key figure, you cannot change it back. Also, you cannot change an existing key figure to Attribute as Key Figure.

Example

Unit Price is an attribute of the master data type CUSTOMERPRODUCT, that is, it has a single value for a unique customer and product combination (a planning object for a certain customer and a certain location). You can define this attribute as a key figure so that the same unit price value applies across all planning time periods that are valid for a given planning object.

To define an attribute as a key figure, choose Define Planning Area on the initial screen of the Configuration app or click Planning Area and Details in the top menu. The following example shows how to define the attribute Unit Price as a key figure.

Steps

The following procedure shows the entries for defining the attribute Unit Price as a key figure:

1. Change the table filter selection to Available Attributes.
2. Select the attribute UNITPRICE and select the Key Figure checkbox.
3. In the resulting dialog, choose the Planning Level (PERCUSTPROD).
4. Click OK.
5. To indicate the time period for which the attribute value is to be stored in the time series for the key figure, enter values relative to the current period in the Period From and Period To fields. For example, if you enter -6 for Period From and 24 for Period To and you are storing values on a monthly basis, the attribute value is stored for 6 months before and 2 years after the current period. Note the following:
   - If you make an entry in Period To and leave Period From empty, the attribute value will be stored for all past periods up to the value entered for Period To in the future.
   - If you make an entry for Period From and leave Period To empty, the attribute value will be stored from the value you entered for Period From for all future periods.

   Recommendation

   Time-dependent attributes as key figures: We recommend that you use the Period From and Period To fields to specify the time period for which you want to store attribute values. If you leave these fields blank, the attribute value is stored in the database for all time periods, which can affect performance.

6. Save your entries.
7. To define the key figure properties for the attribute that you have defined as a key figure, navigate to Key Figures in the Configuration app.
8. Edit the following Key Figure Details, and save your entries:
Table 90

<table>
<thead>
<tr>
<th>Key Figure ID</th>
<th>Name &amp; Description</th>
<th>Base Plan Level</th>
<th>Agg Mode</th>
<th>Disaggregation Mode*</th>
<th>Editable</th>
<th>Calculated</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNITPRICE</td>
<td>Unit Price</td>
<td>PERPRODCUST</td>
<td>Sum</td>
<td>Proportional if aggregated value is not zero; otherwise Copy Value To</td>
<td>Current and Future</td>
<td>No</td>
</tr>
</tbody>
</table>

17.4 Time-Independent Key Figures

Time-independent key figures are configured in a similar way to attributes as key figures, except that the key figure value is not dependent on time periods. An example of a time-independent key figure is the *Unit of Measure Conversion Factor*. Unlike an attribute as key figure, where an attribute value is copied to all time periods in the time series for the planning object, time-independent key figures have just one record in the time series for the planning object.

You can load time-independent key figures only if they have been configured as attributes as key figures. You configure them in just the same way, except that the planning level contains no time periods, for example, the base planning level for Unit of Measure Conversion Factor is PRODUOMTO.

You can view and edit time-independent key figures in the IBP Excel add-in under *Master Data Maintenance* for the master data type they are based on. You cannot, however, view these key figures in the Excel planning views. If you want to be able to view them in Excel, you have to extend the configuration. For example, you have to enter expressions such as the following:

```plaintext
Syntax
UOMCONVERSIONFACTOR@REQUEST=AVG(UOMCONVERSIONFACTOR@MTHPRODUOMTO)
UOMCONVERSIONFACTOR@MTHPRODUOMTO=UOMCONVERSIONFACTOR@PRODUOMTO(<input_key_figure@MTH >)
```

Note that the input key figure `<input_key_figure@MTH>` is not part of the expression but the input key figure of the calculation. This could be any key figure that is aggregated to monthly level and that exists for all months.

**Recommendation**

SAP recommends that you use time-independent key figures instead of attributes as key figures in cases where the key figure value does not vary over time and does not have to be maintained in Excel like a regular key figure. This type of key figure provides much better performance than an attribute as key figure, which stores the key figure value for all time periods.
17.5 Example: Configuring Currency Conversion

**Context**

SAP Integrated Business Planning can convert currency on the fly, for example, when a user of the Microsoft Excel add-in or of Analytics selects *Target Currency* at runtime for a key figure such as *Sales Forecast Revenue*. Prerequisites for currency conversion are that exchange rates exist in the system and that a currency conversion calculation has been defined for the key figure involved.

Using objects from the SAP2 model, the following example illustrates the configuration steps for currency conversion.

**Steps**

1. Define the attributes `S2CURRID`, `S2CURRTOID`, `S2CURRDESCR`, `S2CURRTODESCR`, `S2EXCHGRATE`.


   For an example of what the entries for *CurrencyTo*, see the entries for the master data type `S2CURRENCYTO` from the SAP2 model:

   **Table 91: Basic Data**

<table>
<thead>
<tr>
<th>Field Label</th>
<th>Entry/Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name*</td>
<td>Currency To</td>
</tr>
<tr>
<td>Description</td>
<td>Currency To</td>
</tr>
<tr>
<td>Master Data Type</td>
<td>Reference</td>
</tr>
<tr>
<td>Reference Master Data Type</td>
<td>S2 Currency</td>
</tr>
</tbody>
</table>

   **Table 92**

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Description</th>
<th>Key</th>
<th>Req.</th>
<th>Parent</th>
<th>Ref. Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2CURRTOID</td>
<td>Currency</td>
<td>yes</td>
<td>yes</td>
<td>S2CURRID</td>
<td></td>
</tr>
<tr>
<td>S2CURRTODESC</td>
<td>Desc</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Under *Planning Area and Details*, assign the following to the planning area:

   - The currency attributes (in the SAP2 model `S2CURRENCY` and `S2CURRENCYTO`)
   - The “Exchange Rate” attribute as key figure (in the SAP2 model `S2EXCHANGERATE`)

4. Under *Planning Levels*, create currency planning levels. Select the *Conversion Source* and *Conversion Target*.

5. Under *Key Figures*, add the conversion expression to the target key figures for currency conversion. For example, in the SAP2 model, under key figure `TARGETREV`, you would enter `S2EXCHANGE rate for Convert Using`
17.6 Example: Configuring Unit of Measure Conversion

Context

Model configuration for SAP Integrated Business Planning (IBP) supports unit of measure (UoM) conversion, that is, conversion of key figures from the base unit of measure to a target unit of measure using a configured conversion factor. The configuration steps necessary for unit of measure conversion are similar to those for currency conversion. However, there are some differences:

- Units of measure are not usually time-dependent.
- Unit of measure is an attribute of a master data type such as Product.

The planning views and Analytics provide the user with the option to select the target unit of measure. The conversion is handled by SAP Integrated Business Planning.

Using objects from the SAP2 model, the following example illustrates the configuration steps for unit of measure conversion:

Steps

1. Choose Manage Attributes on the initial screen of the Configuration app or click Attributes in the top menu.
2. Define the attributes S2UOMID, S2UOMDESCR, S2UOMTOID, S2UOMTODESCR, and S2UOMCONVFACtor.
3. Under Master Data Types, define the master data types S2UOMTO and S2UOMCONVERSION.
4. Under Planning Areas and Details, assign the unit of measurement attributes to your planning area and assign the attribute S2UOMCONVERSIONFACTOR as key figure.
5. Under Planning Levels, create unit of measure planning levels. Select the Conversion Source and Conversion Target.
6. Under Key Figures, add the conversion expression to quantity key figures for unit of measure conversion. For example, in the SAP2 model, under key figure TARGETQTY, you would enter S2UOMCONVFACtor for Convert Using.

17.7 Example: Attribute Transformations

Context

SAP Integrated Business Planning supports a special type of transformation that allows you to transform the value of an attribute based on a calculation expression.

Example

- Time Period Offset: The attribute PERIODID is transformed with the value for the number of time periods offset.
- Alert Flag, where an attribute can be set to 1 when there is an alert on a key figure. This is used to filter for alerts.
The calculation expressions in the attribute transformation can be simple as \( \text{ATTR1} + \text{ATTR2} \) or can include key figures or a combination of attributes and key figures. All attribute transformations require an input key figure that has the same planning level as the attribute.

To create an attribute transformation, navigate to Key Figures in the Configuration app and select the Attribute Transformation radio button.

The following example of attribute transformation shows how to offset Actuals Qty by 12 months.

Steps

1. Create a new planning level \( \text{ACTUALSQTY@MTHPRODCUST} \). (From the time dimension, this planning level has only Month as a root attribute.)
2. Add a calculation that drops all the non-root time dimension attributes:
\[
\text{ACTUALSQTY@MTHPRODCUST} = \text{SUM(\text{ACTUALSQTY@MTHQTRYEARPRODCUST})}
\]
3. Add a calculation that offsets the actuals quantity by a lead time value of 12 periods (here 12 months):
\[
\text{PERIODID0@MTHPRODCUST1} = \text{PERIODID0} + 12
\]
   (The input key figure is \( \text{ACTUALSQTY@MTHPRODCUST} \), that is, the output from step 2.)
4. Add a calculation that assigns the shifted key figure values from Actuals Quantity to Actuals Quantity 1 Year Offset:
\[
\text{ACTUALSQTY1YROFFSET@MTHPRODCUST1} = \text{ACTUALSQTY@MTHPRODCUST1}
\]
5. Add a calculation to reinclude the other key figure time dimensions. (The input key figures are \( \text{ACTUALSQTY1YROFFSET@MTHQTRYEARPRODCUST} \) and another key figure \( \text{K3@MTHQTRYEARPRODCUST} \).):
\[
\text{ACTUALSQTY1YROFFSET@MTHQTRYEARPRODCUST} = \text{ACTUALSQTY1YROFFSET@MTHPRODCUST1}
\]
   (For this calculation to work, \( \text{K3@MTHQTRYEARPRODCUST} \) must have some values in future shifted months.)

6. Save the calculation.
7. Activate your planning area.

More Information

Creating Time Profiles [page 22]

17.8 Example: Weighted Average Calculation

Context

This example shows how to use request level calculations to achieve weighted averages.

This example for weighted average calculation is based on the calculation for consensus demand revenue:
**Consensus Demand Revenue** = Consensus Demand Qty * Unit Price

Weighted average calculation is an example of a calculation at request level. *Unit Price* is a weighted average of *Revenue* and Qty. *Unit Price* is both a stored and an editable key figure.

![Weighted Average Calculation of Unit Price](image)

**Figure 22: Weighted Average Calculation of Unit Price**

### Calculation of Sales Forecast Price

In this example, we use weighted average to calculate the sales forecast price. To do so, we define a new key figure, for example, SALESFORECASTPRICE (such as exists in the supplied model SAP2), which is a stored key figure and use a weighted average calculation at the request level.

**Steps**

1. To change the calculation to a request level calculation, replace the calculation SALESFORECASTPRICE@REQUEST with the following: IF(ISNULL("SALESFORECASTQTY@REQUEST") OR "SALESFORECASTQTY@REQUEST" = 0, 0, "SALESFORECASTREV@REQUEST"/"SALESFORECASTQTY@REQUEST")
2. Validate the expression and save.

### Calculation of Sales Forecast Revenue

Define a key figure SALESFORECASTREVENUE (such as exists in the supplied model SAP2) as a calculated key figure.

**Steps**

1. Verify the calculation at REQUEST level:
   
   \[ SALESFCSTREV@REQUEST = \text{SUM("SALESFCSTREV@PERPRODCUST")} \]

2. Select the input key figures and define the input key figures as shown in the table below:
Table 93

<table>
<thead>
<tr>
<th>Input Key Figures</th>
<th>Stored</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALESFCSTREV@PERPRODCUST</td>
<td></td>
</tr>
</tbody>
</table>

As the input is selected as calculated and not stored, you need to complete the calculation by defining the calculation at the base planning level.

3. Click **Add Calculation**. A calculation is created with SALESFCSTREV@PERPRODCUST on the left-hand side.

4. Add the calculation to the right-hand side of the equation as follows:

   \[ \text{SALESFCSTPRICE}@\text{PERPRODCUST} \times \text{SALESFCSTQTY}@\text{PERPRODCUST} \]

5. Click **Validate Calculation**. If the calculation expression contains no errors, the **Input Key Figures** dialog is opened. Verify the **Input Key Figures** correspond to the entries in the table below.

Table 94

<table>
<thead>
<tr>
<th>Input Key Figures</th>
<th>Stored</th>
</tr>
</thead>
<tbody>
<tr>
<td>SALESFCSTPRICE@PERPRODCUST</td>
<td>X</td>
</tr>
<tr>
<td>SALESFCSTQTY@PERPRODCUS</td>
<td></td>
</tr>
</tbody>
</table>

As SALESFCSTQTY@PERPRODCUS is calculated at that planning level, it is not stored.

6. Save your entries.

### 17.9 Configuring Price and Cost for Currency and UoM Conversions

Key figures such as Price and Cost are expressed as currency / unit of measure, for example, 10 USD / case. When a user selects the target unit of measure or target currency, the value for the Price key figure changes to correspond to the user’s selection. Price can be configured as follows in IBP:

- Stored key figure that can be maintained in IBP
- Calculated key figure based on Revenue and Quantity, both of which are stored

For both of the above options, the following aggregations are possible:

- Average
- Weighted average based on Revenue and Quantity, both of which have currency and unit of measure conversions.

The base planning level for a Price key figure, for example, PERPRODCUSTCURR includes the base currency and the base unit of measure from the Product master data type.

#### Sample Configuration for Price Key Figure with Conversions

The following table shows the Price key figure:

Table 95

<table>
<thead>
<tr>
<th>Key Figure Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Figure ID</td>
<td>PRICE</td>
</tr>
</tbody>
</table>

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Aggregation: Average Price Calculation with Conversions

Set the aggregation mode for the key figure Price to AVERAGE. If the Price key figure is stored and editable, the disaggregation mode is Proportional-Copy Value.

Calculations:
- \[
  \text{PRICE@REQUEST} = \text{AVG(PRI} \text{CE@PERPRODCUSTCURR@UOMFRTO)}
\]
- If Price is a stored key figure:
  \[
  \text{PRICE@PERPRODCUSTCURR@UOMFRTO} = \text{PRICE@PERPRODCUSTCURR (stored)} \times \text{EXCHANGERATEBYUOM@PERPRODCUSTCURR@UOMFRTO}
  \]
- If Price is a calculated key figure based on Revenue (stored) and Qty (stored):
  \[
  \text{PRICE@PERPRODCUSTCURR} = \text{REVENUE@PERPRODCUSTCURR} / \text{QTY@PERPRODCUST}
  \]
  \[
  \text{PRICE@PERPRODCUSTCURR@UOMFRTO} = \text{PRICE@PERPRODCUSTCURR (calc)} \times \text{EXCHANGERATEBYUOM@PERPRODCUSTCURR@UOMFRTO}
  \]
  Where \[
  \text{EXCHANGERATEBYUOM@PERPRODCUSTCURR@UOMFRTO} = \text{IF(UOMCONVFACTOR@PRDUOMTO} = 0 \text{ OR EXCHGRATE@MPCURR@FRTO} = 0, \text{NULL}, \text{EXCHGRATE@MPCURR@FRTO} / \text{"UOMCONVFACTOR@PRDUOMTO"})
  \]

Aggregation: Weighted Average Based on Revenue and Quantity with Conversions

Set the aggregation mode of the key figure to CUSTOM. If the Price key figure is stored and editable, the disaggregation mode is Proportional-Copy Value.

Calculations:
- \[
  \text{PRICE@REQUEST} = \text{HREVENUE@REQUEST} / \text{HQTY@REQUEST}
  \]
  Where \[
  \text{REVENUE@REQUEST} = \text{SUM(REVENUE@PERPRODCUSTCURR@UOMFRTO)}
  \]
- If Revenue is a stored key figure:
  \[
  \text{REVENUE@PERPRODCUSTCURR@UOMFRTO} = \text{REVENUE@PERPRODCUSTCURR (stored)} \times \text{EXCHANGERATE@PERCURR@FRTO}
  \]
- If Revenue is a calculated key figure based on Qty (stored) and Price (stored):
  \[
  \text{REVENUE@PERPRODCUSTCURR} = \text{QTY@PERPRODCUST (stored)} \times \text{PRICE@PERPRODCUSTCURR (stored)}
  \]
  \[
  \text{REVENUE@PERPRODCUSTCURR@UOMFRTO} = \text{REVENUE@PERPRODCUSTCURR (calc)} \times \text{EXCHANGERATE@PERCURR@FRTO}
  \]
  \[
  \text{QTY@REQUEST} = \text{SUM(QTY@PERPRODCUSTUOMTO)}
  \]
  \[
  \text{QTY@PERPRODCUSTUOMTO} = \text{QTY@PERPRODCUST} \times \text{UOMCONVFACTOR@PRODUOMTO}
  \]
  \[
  \text{HREVENUE@REQUEST} = \text{SUM(HREVENUE@PERPRODCUSTCURR@UOMFRTO)}
  \]
  \[
  \text{HREVENUE@PERPRODCUSTCURR@UOMFRTO} = \text{REVENUE@PERPRODCUSTCURR@UOMFRTO (Input : QTY@PERPRODCUSTUOMTO)}
  \]
  \[
  \text{HQTY@REQUEST} = \text{SUM(HQTY@PERPRODCUSTCURR@UOMFRTO)}
  \]
**17.10 Example: Split Factor Calculation**

You use a split factor calculation when you want to show a key figure that is defined at an aggregated level at a lower level of granularity. You do so by splitting the value for the aggregated key figure proportionally according to the value for another key figure.

In this example, the key figure `AggDemandQty`, which is defined at planning level Product/Key Customer, is to be disaggregated proportional to the `SalesQty`, which is defined at planning level Product/Customer. Using split factor configuration, `AggDemandQty`, which is defined at aggregate level is available at detailed level Product/ Customer based on a proportional split of `Sales Qty`.

Imagine that the key customer group CG1 has achieved a sales quantity of 300 for product P1:

<table>
<thead>
<tr>
<th>Product ID</th>
<th>Key Customer</th>
<th>Key Customer ID</th>
<th>Key Figure</th>
<th>Oct '14</th>
<th>Nov '14</th>
<th>Dec '14</th>
<th>Jan '15</th>
<th>Feb'15</th>
<th>March'15</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1</td>
<td>CG1</td>
<td>C1</td>
<td>AggDemandQty</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SalesQty</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td></td>
<td></td>
<td>AggDemandQty</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>400</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SalesQty</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

The following text describes how to set up this split factor calculation:

**Steps**

1. Add a helper key figure (for example, `HSALESFCSTAGG`) that aggregates `SALESFORECASTQTY` to planning level `PRODCUSTGRP`. (You need a helper key figure because you cannot use the same key figure name twice in a single calculation.)

   Calculation Definitions:
   - `HSALESFCSTAGG@PERPRODCUST = “SALESFORECASTQTY@PERPRODCUST”`
   - `HSALESFCSTAGG@PERPRODCUSTGRP = SUM(“HSALESFCSTAGG@PERPRODCUST”)`

2. Define the split factor:

   `HSPLITFACTORSALESQTY@PERPRODCUST = IF(ISNULL(“HSALESFCSTAGG@PERPRODCUSTGRP”),0.0,SALESFORECASTQTY@PERPRODCUST / HSALESFCSTAGG@PERPRODCUSTGRP)`. 

Note

To avoid divide by zero conditions, check for ISNULL and 0 conditions.

HQTY @PERPRODCUSTCURRUOMFRTO = QTY@PERPRODCUSTUOMTO (Input : REVENUE@PERPRODCUSTCURRFRTO)
3. \[ \text{AGGDEMANDQTY@PERPRODCUST} = \text{“AGGDEMANDQTY@PERPRODCUSTGRP”}^* \]
\[ \text{HSLITFACTORSALESQTY@PERPRODCUST} \]

4. At request level, change the planning level for the input key figure \textit{AggDemandQty} from \texttt{@PERPRODCUSTGRP} to \texttt{@PERPRODCUST}.

## 17.11 Enabling Change History for Key Figures and Planning Areas

### Context

The change history tracks changes to stored key figures and their dependent calculated key figures. For more information about its use, see Change History [external document] in the application help.

### Example

If the calculated key figure \textit{Revenue} depends on two stored key figures, \textit{Price} and \textit{Quantity}, and these stored key figures are history-enabled, then changes to \textit{Revenue} are also captured. If only one of those stored key figures is history-enabled, then any changes tracked for \textit{Revenue} are incorrect. To be able to track changes to a calculated key figure correctly, enable all stored key figure inputs to that calculated key figure for the change history.

### Note the following:

- The change history does not track changes to individual calculated key figures, and it is not supported for snapshot key figures.
- It cannot be combined with S&OP operators and inventory optimization operators.
- Before you can use the change history, the Change History business catalog must have been assigned to your user.

### Recommendation

For best performance, we recommend that you select a maximum of 3 key figures for change tracking.

### Steps: Enabling Change History for Key Figures

1. Choose \textit{Key Figures} in the Configuration app.
2. Select the key figure whose data changes you want to track.
3. Select the Change History Enabled checkbox.
4. Save your changes.

### Steps: Enabling Change History for Planning Areas

1. Choose \textit{Planning Area and Details} in the Configuration app.
2. Select the planning area whose data changes you want to track.
3. Under Change History, select the Planning Area Enabled checkbox.

---

Note

To track changes on key figures, you must enable the change history on planning area level, too.
4. Save your changes.

17.12 Enabling Change History for Master-Data-Based Key Figures

Context

**Recommendation**

We recommend not to use this setting. It tracks every change from master data updates and increases the table size, affecting performance. For most implementations, this setting is not required.

This feature tracks changes to key figure aggregates if these changes are caused by modifications in master data.

**Example**

If you assign a product to a new product group, and there is a key figure value for this product, aggregated key figures for product groups change. SAP Integrated Business Planning tracks the fact that the value now belongs to a different product group.

**Note**

Once you enable change history for master data-based key figures, we recommend that you do not revert.

**Steps**

1. Choose *Planning Area and Details* in the *Configuration* app.
2. Under *Change History*, select the *Planning Area Enabled* checkbox.
3. Select the *Changes to Master Data-Based Key Figures* checkbox.
4. Save your changes.
Reserved Names and Naming Restrictions

Reserved Names

Do not use the IDs, names, descriptions, and values listed below when configuring and using your planning model, as these elements have a special significance in SAP Integrated Business Planning.

Attribute Values

When uploading data, you cannot use the following values for the attribute:

- NONE
- ALL
- BASELINE
- REALTIME

Attribute IDs

The following attribute IDs are not allowed:

- KEY FIGURES (reserved for key figures)
- SCNID (reserved for versions, previously known as “scenarios”)
- PLUNITID (reserved for the dimension for planning units)
- PLANNING_LEVELS
- TIME.Rolling
- TIME_REALTIME
- ROWAXIS_DEFINITION
- COLUMNAXIS_DEFINITION
- FILE_EXTENSION
- XL.SHEET
- ALERTS_ONLY
- ALERT_MAPPING
- ALERTS_DEFINITION
- PLUNITID.TIME_HORIZON
- PLUNITID.TIME_RELATIVE_FROM
- PLUNITID.TIME_RELATIVE_TO
- IDX
- DUMMY
- PERIODLEVEL
- PERIODID
- GROUP
Key Figure IDs and Names
The following key figure names are not allowed:

- DUMMY

Both the key figure ID and the key figure name must be unique within a planning area.

Naming Restrictions

Attributes
When you create attributes, do not create attributes that have any of the following dependencies between their IDs:

Table 97

<table>
<thead>
<tr>
<th>ID of Attribute 1</th>
<th>ID of Attribute 2</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;ATTRIBUTEID&gt;</td>
<td>&lt;ATTRIBUTEID&gt;+A</td>
<td>BATCH and BATCHA</td>
</tr>
<tr>
<td>&lt;ATTRIBUTEID&gt;</td>
<td>&lt;ATTRIBUTEID&gt;+NUM</td>
<td>BATCH and BATCHNUM</td>
</tr>
<tr>
<td>&lt;ATTRIBUTEID&gt;+ID</td>
<td>&lt;ATTRIBUTEID&gt;+NUM</td>
<td>BATCHID and BATCHNUM</td>
</tr>
</tbody>
</table>

Attributes and Key Figures
An attribute ID must not be identical with or contain a key figure ID.
# Typographic Conventions

## Table 98

<table>
<thead>
<tr>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;Example&gt;</code></td>
<td>Angle brackets indicate that you replace these words or characters with appropriate entries to make entries in the system, for example, “Enter your <code>&lt;User Name&gt;</code>”.</td>
</tr>
<tr>
<td>Example</td>
<td>Arrows separating the parts of a navigation path, for example, menu options</td>
</tr>
<tr>
<td>Example</td>
<td>Emphasized words or expressions</td>
</tr>
<tr>
<td><a href="http://www.sap.com">www.sap.com</a></td>
<td>Textual cross-references to an internet address</td>
</tr>
<tr>
<td><code>/example</code></td>
<td>Quicklinks added to the internet address of a homepage to enable quick access to specific content on the Web</td>
</tr>
<tr>
<td>123456</td>
<td>Hyperlink to an SAP Note, for example, SAP Note 123456</td>
</tr>
</tbody>
</table>
| Example     | • Words or characters quoted from the screen. These include field labels, screen titles, pushbutton labels, menu names, and menu options.  
|             | • Cross-references to other documentation or published works                 |
| Example     | • Output on the screen following a user action, for example, messages       
|             | • Source code or syntax quoted directly from a program                      
|             | • File and directory names and their paths, names of variables and parameters, and names of installation, upgrade, and database tools |
| EXAMPLE     | Technical names of system objects. These include report names, program names, transaction codes, database table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE |
| EXAMPLE     | Keys on the keyboard                                                        |