IBP Planning Calendars

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help.sap.com on planning calendar
Introduction & Background

Factory Calendar Integration & Planning Calendar Generation

Planning Calendar Maintenance

Planning Calendar Model

Planning Calendar in Time Series

Planning Calendar in Order-Based Planning

Planning Calendar in Time-Series-Based Supply

Time Profile, Time Zone, Calendar
Planning calendars are based on dates and define working and non-working days.

Planning calendars are built on top of factory calendars and take over their working and non-working days as basis.

Planning calendars are independent of time zones, time profiles, period definitions, locations, regions, and users.

One object for both order based and time-series based planning.

Planning calendars are not part of export of model configuration.
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Factory Calendar Integration

Factory calendars are basis for planning calendars → you need to have factory calendars!

- via SAP HANA **Smart Data Integration**
  (application job “Data Integration using SAP HANA SDI (Calendar, UoM, Currency)” see [ABAP Adapter](#) or [File Adapter](#))

- via **SAP_COM_0550** communication arrangement

- via **delivered** factory calendar list

- in future: Fiori App for factory calendar maintenance (possibly IBP 2102)
Planning Calendar Generation

For every factory calendar in the system → you automatically get a planning calendar with the same ID

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Description</th>
<th>Generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR</td>
<td>AR</td>
<td>Argentina</td>
<td>Yes</td>
</tr>
<tr>
<td>AT</td>
<td>AT</td>
<td>Austria</td>
<td>Yes</td>
</tr>
<tr>
<td>AU</td>
<td>AU</td>
<td>Australia</td>
<td>Yes</td>
</tr>
<tr>
<td>BE</td>
<td>BE</td>
<td>Belgium</td>
<td>Yes</td>
</tr>
<tr>
<td>BG</td>
<td>BG</td>
<td>Bulgaria</td>
<td>Yes</td>
</tr>
</tbody>
</table>

This is especially important for Order-Based Planning where you might want to reference your factory calendars from ECC / S4 in the master data. The calendar referencing attributes in IBP data model are planning calendars, but as the IDs are the same, you can keep the content!
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- Generated from factory calendar
- Exceptions from factory calendar definition
- Status for pending deletion
Planning Calendar Maintenance – Deletion

If a planning calendar is referenced by master data, it cannot be deleted. That’s the reason for the “marked for deletion” functionality.

Planning calendars which are marked for deletion and which are NOT referenced by master data will be removed once the next cleanup takes place. Cleanup is currently scheduled monthly.

If a factory calendar is deleted and then the deletion is integrated, the planning calendars referencing it are shown with “factory calendar deleted”, but they are still usable as before the deletion of the factory calendar.
Planning Calendar Maintenance – Exceptional Days

Planning Calendars define working and non-working days. They take this info over from the referenced factory calendar.

Creating exceptions to the factory calendar is simply done by adding “exceptional dates”. Exceptional dates can be working or non-working days.

<table>
<thead>
<tr>
<th>Date</th>
<th>Working Day</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>28.01.2020</td>
<td>✔</td>
<td>inventory check</td>
</tr>
<tr>
<td>03.08.2020</td>
<td></td>
<td>50 years anniversary of area S2</td>
</tr>
</tbody>
</table>
Planning Calendar Maintenance – Public Service

SAP API Business Hub

IBP 2008: only read, in future also create, change, delete
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Create calendar referencing attribute in model configuration app for attributes (or get it through copying sample data)

The attribute value is the ID of a planning calendar.

Remember: IBP data integration does a validity check to make sure only existing planning calendars are referenced.
Planning Calendar Model

You can model the referencing calendar attribute being part of any master data type
- most obvious: location dependent

<table>
<thead>
<tr>
<th>Assigned Attributes</th>
<th>Attribute Checks (OFF)</th>
<th>Administrative Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assigned Attributes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ID</td>
<td>Name</td>
<td>Key</td>
</tr>
<tr>
<td>LOCID</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>DPCALREF</td>
<td>Demand Planning Calendar</td>
<td></td>
</tr>
<tr>
<td>DSCALREF</td>
<td>Demand Sensing Calendar</td>
<td></td>
</tr>
<tr>
<td>GEOLATITUDE</td>
<td>Geo Latitude</td>
<td></td>
</tr>
<tr>
<td>GEOLONGITUDE</td>
<td>Geo Longitude</td>
<td></td>
</tr>
</tbody>
</table>

- but also location-product, location-product-customer, etc.

But remember to check the usage of the calendar attribute. The applications in IBP have different requirements on where a calendar can be consumed (OBP, TS Supply)
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Time Profile, Time Zone, Calendar
Use Case: Calculate a key figure using the information from the planning calendar about working and non-working days.

- Working and non-working days have to be distinguished on detail level. Example: “quantity” is zero on weekends.
- The number of working days or the number of non-working days have to be counted on aggregated level. Example: weekly “quantity” is dependent on the number of working days in the week

Prerequisite

- Planning Calendar Attribute in Planning Level (root or non-root)
- Simplified key figure IBPCALENDAR
- Optional: simplified key figure IBPGENERATEMISSING_TP (see following slides)

No prerequisite on which level the attribute is specified. You are free to define it on product, product-location, customer-location, brand, region, etc. level!

IBPCALENDAR

- Result: Number of working days (if calendar attribute is empty or n/a, all days are working days)
- Aggregation: Sum across all dimensions
- Parameters
  - Input key figure, mainly to define the planning level (the actual value of this key figure is not used)
  - Planning calendar referencing attribute
Planning Calendar in Time Series – Simple Example

Aggregation over dimensions has to be carefully observed, by default it’s simply “SUM”, but of course all aggregation mechanisms are possible via specific calculations.

Make sure you maintain the calculations which are required by the users. Maybe a long list of possible aggregations are actually not used at all.
### Planning Calendar in Time Series – Gaps in Time Profile

<table>
<thead>
<tr>
<th></th>
<th>30th Dec</th>
<th>31st Dec</th>
<th>1st Jan</th>
<th>2nd Jan</th>
<th>3rd Jan</th>
<th>4th Jan</th>
<th>5th Jan</th>
<th>Week 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loc1-Prod1-Cust1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helper key figure</td>
<td>50</td>
<td>50</td>
<td>100</td>
<td>200</td>
<td>300</td>
<td>400</td>
<td>500</td>
<td>1600</td>
</tr>
<tr>
<td>Calendar key figure</td>
<td>1</td>
<td>0</td>
<td>0 public holiday</td>
<td>1</td>
<td>1</td>
<td>0 Saturday</td>
<td>0 Sunday</td>
<td>3</td>
</tr>
<tr>
<td><strong>Loc2-Prod1-Cust1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helper key figure</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>600</td>
<td>n/a</td>
<td>700</td>
<td>n/a</td>
<td>1300</td>
</tr>
<tr>
<td>Calendar key figure</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>1</td>
<td>n/a</td>
<td>0</td>
<td>n/a</td>
<td>3</td>
</tr>
</tbody>
</table>

**CALENDARHELPERCPLCD@REQUEST = SUM("CALENDARHELPERCPLCD@LOCPRODCUSTOMDAILY")**

**CALENDARHELPERCPLCD@LOCPRODCUSTOMDAILY = IBP_GENERATE_MISSING_TP("SENSEDDEMANDQTY@LOCPRODCUSTOMDAILY", -190, 190)**

By using the IBP_GENERATE_MISSING_TP, the system will generate or “fill” empty periods on the fly during execution of the query. This is not limited to the calendar key figure, but generally available.

This might also replace some of the use-cases for attribute-as-key-figure.
Planning Calendar in Time Series – Gaps in Time Profile
IBP_GENERATE_MISSING_TP

Make sure you choose wisely what the horizon is.

- The horizon definition is used before the query filters are applied.
  - Choosing the horizon too big can blow the allowed memory consumption of the query.
  - Choosing the horizon too small can lead to gaps not covered.
  - You cannot monitor how many combinations are generated (we are working on a solution)
- Choose a horizon which supports the queries your consumers are executing.

Similar to all other simplified key figures, a planning object is required and at least a single value within the planning area planning horizon.

It is important that you test the IBP_GENERATE_MISSING_TP with good test data to understand the impact on the query runtimes.

You must not use it in key figures which can be stored. This leads to activation errors.

You must not use it in key figures which are stored by disaggregation / copy operator! This would generate lots of data and could blow you system!
Planning Calendar in Time Series – Simplified Calendar Key Figure IBP_CALENDAR

Similar to all other simplified key figures, a planning object is required and at least a single value within the planning area planning horizon.

Aggregates via SUM by default.

Assignment of calendar day(s) to period is via “calendar date between period-from-timestamp and period-to-timestamp”
Planning Calendar in Time Series – MAX / SUM for Dimensions

The default SUM over all dimensions might be not desired.

→ Therefore an example with SUM over time and MAX over any other dimension.

Example with calendar attribute on location level (but can be on any other level of course)

1. Create planning level **without** time attributes as root
   Example uses product – location – customer as planning level

2. Create key figure
   ▪ use **MAX** for request level
   ▪ use **SUM** for time independent level
Planning Calendar in Time Series – MAX / SUM for Dimensions

**IBP_CALENDAR**

Planning Level

**LOCPRODCUSTNOTIME**

without time attributes as root

(some attributes have been removed to make the screenshot readable)
Planning Calendar in Time Series – MAX / SUM for Dimensions IBP_CALENDAR

Key figure with MAX over time independent planning level and SUM over time

Input key figure for IBP_CALENDAR function is either

- stored key figure with values in all cells or
- calculated key figure with IBP_GENERATE_MISSING_TP

Input key figure for IBP_CALENDAR function is either

- stored key figure with values in all cells or
- calculated key figure with IBP_GENERATE_MISSING_TP

Calculation Definitions

\[
\text{WORKINGDAYS}@\text{REQUEST} = \text{MAX}(\text{"WORKINGDAYS"}@\text{LOCPRODCUSTNOTIME"}) \\
\text{WORKINGDAYS}@\text{LOCPRODCUSTNOTIME} = \text{SUM}(\text{"WORKINGDAYS"}@\text{LOCPRODCUSTDAILY")} \\
\text{WORKINGDAYS}@\text{LOCPRODCUSTDAILY} = \text{IBP\_CALENDAR}("\text{WORKINGDAYSHelper}@\text{LOCPRODCUSTDAILY","LOC\_CALENDAR")}
\]
Planning Calendar in Time Series – Input Key Figure for IBPCALENDAR

Input for the calendar key figure is a stored key figure which specifies the planning level. If you need the value on different levels and drill-downs, think about a very special key figure for example like this:

Attribute-as-key-figure on location – day level with minimal horizon uploaded (i.e. -30 to +30, to have a small number of time series entries), planning level for the special key figure would therefore be location and day.
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Different calendars play a role

- **Shipping** (goods issue) and **receiving** (goods receipt) calendar at the location (location-material) level – maintained in SAP ERP / SAP S/4HANA transaction /IBP/ECC_LOCCAL for location level, /IBP/ECC_SAVE_MATERIAL BAdI for location-material level

- **Transportation** calendar on the level of the mode of transport or on the transportation lane/product – maintained in SAP ERP / SAP S/4HANA transaction /IBP/ECC_MOTDECISION or /IBP/ECC_TLANE

- **Production** calendar is defined in SAP ERP or in SAP S/4HANA customizing. Could be additionally maintained by BAdI /IBP/ECC_SAVE_LOCATION for location level

Planning calendars are shown in the IBP Fiori Apps

- Shipping calendars: View Location Materials
- Receiving calendars: View Location Materials
- Transportation calendars: View Transportation Lanes
- Production calendars (only maintained in SAP ERP / SAP S4HANA): View Locations and View Location Materials

See also Defining Calendars and Durations and How Scheduling Works in Detail
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**Forecast Consumption Calendars**
- Assign which attribute is used to specify the planning calendar in the forecast consumption profile

**Production Calendars**
- Production source dependent.

**Transportation Calendars**
- Location source (LOCID, PRDID, and LOCFR) or mode of transport (additionally MOTID) dependent. Only either transportation calendar or inbound calendar.

**Inbound Calendars**
- Location source (LOCID, PRDID, and LOCFR) or mode of transport (additionally MOTID) dependent. Only either transportation calendar or inbound calendar.
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Time Profile, Time Zone, Calendar
Time Profile, Time Zone, Calendar

Time Profile
▪ used solely to define the time series planning buckets
▪ do not mix with calendar information
▪ always use 00:00:00 – 23:59:59 for the from- and to-timestamp

Time Zone
▪ use, if you do not want to stick with UTC
▪ choose a fixed time zone, if time series planning is done in “headquarter time zone”
▪ choose business user time zone, if you have local planning (with IBP 2011)

Calendar
▪ integrate factory calendars from a central ECC or BW
▪ specify deviations on top of factory calendars via manually created planning calendars
Thank you.

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