

BW - BOM : Bill of Material !\ Obsolete !\



The new wiki link for this data flow is here:

[Technical Documentation - Bill of Material](#)

Please update the doc there and no longer here.



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General presentation

Objective of the application

The objective of the application is to extract from **WP1 & PF1 SAP systems** Bill of Material data and explode BOM level by level with components data.

Then data are consumed by Dynasys application by generated flat file.

Tool Leader: Meire Santos

IT leader of the application: Meire Santos (PP), Craig Wanamaker (BW)

Reporting Coordinator: Meire Santos

Usage information

Number of users: tbd

Critical period: none

Geographical perimeter: worldwide

InfoArea:

- ▼  BW Repository
 - >  [OBCT_CB] Content Browser
 - >  [OBWTCT] Technical Content
 - >  [OSCM] Supply Chain Management
 - >  [0INDUSTRIES] Industry Sectors
 - >  [NODESNOTCONNECTED] Unassigned Nodes
 - >  [0BW] Business Information Warehouse
 - >  [0CA] Cross-Application Components
 - >  [0CRM] Customer Relationship Management
 - >  [0HCM] Human Resources
 - >  [AUTHORIZATION] Infoarea for Authorization
 - >  [AREA_RHODIA] Rhodia
 - >  [0MA] Marketplace
 - >  [0PLM] Product Lifecycle Management
 - >  [0SRM] Supplier Relationship Management
 - ▼  [IA_SOLVAY] SOLVAY
 - >  [IA_IP] Integrating Planning
 - >  [IA_EHS] Environment, Health and Safety
 - >  [IA_TRNG] Training
 - >  [IA_SOLVAY_F_CO_CBS_PS] CBS - WBS Cost Analysis
 - >  [IA_FMCO] Financials Management & Controlling
 - >  [IA_PUR] Purchasing
 - >  [IA_MMIC] Inventory Management
 - >  [IA_PM] Plant Maintenance
 - ▼  [IA_PP] Production Planning
 - >  [IA_PPREM] PP - Repetitive Manufacturing
 - >  [IA_PPPI] PP - Production/process orders
 - ▼  [IA_PPBOM] PP - BOM
 - >  [IA_PPBOM_VIRTUAL] PP - BOM - Virtual
 - >  [IA_PPBOM_MD] PP - BOM - Master Data Layer
 - >  [IA_PPBOM_BUSINESS] PP - BOM - Business Layer
 - >  [IA_PPBOM_PROPAGATION] PP - BOM - Propagation Layer
 - >  [IA_PPBOM_ACQUISITION] PP - BOM - Acquisition Layer

History

This application is linked to a need of Dynasy Tool. Every month a manually extract is done of BOM Data from ERP SAP system. The goal is to extract these data from SAP to BW and generate automatically BOM data level by level by flat file and send this file to Dynasys for import.

Roles & Access

Roles and access

List of application role + menu role and explanation if we have several applications role with specials rules.

Role Code	Role Description	Explanation
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Authorization objects

List of autorisation objects mandatory for the application.

Authorization object	Explanation

Dataflow overview

Reporting documentation drive folder:

https://drive.google.com/drive/folders/18VbVRgRTsredyh89a_qSECY7E0yzSKJJ

Dataflow overview :

Functional and Technical rules on Workbench + Reporting

Rules & Explanations

Specification Document for Dynasys flat file (Sheet BOM)

BOM Master Data

BOM Number master data (C_BOMNUM) is loaded by the datasource **DTS_ZBW_V_MAST_STKO**.

The Datasource is based on SAP tables MAST (Material to BOM Link) and STKO (BOM Header) => View **ZBW_V_MAST_STKO**

In view ZBW_V_MAST_STKO, we keep only entries from STKO with BOM Status (STLST) is not equal to 2 (inactive BOM) and BOM usage (STLAN from MAST) is equal to '1' (Production).

There are 2 fields used to filter data during extraction and loading on BW :

- AEDAT (STKO)
- ANDAT (MAST)

For more explanations, see part Data Loading.

BOM Item Master Data

BOM Item master data (C_BOMITM) is loaded by the datasource **DTS_ZBW_EXTRACT_BOM_ITEM**.

The datasource is based on specific function module **ZBW_EXTRACT_BOM_ITEM**.

In this function module we call the standard function **CSAP_MAT_BOM_ITEM_SELECT** to extract each item for a given material/plant.

There are 2 fields used to filter data during extraction and loading on BW :

- AEDAT (STPO)
- ANDAT (STPO)

For more explanations, see part Data Loading.

BOM Level determination

The most important need of this dataflow is to extract (and explode) all BOM items and components for a given product.

A specific BW extractor has been developed to build the Bill of Material from SAP WP1 source system : **DTS_ZBW_MAST_BOM_LEVEL**.

There are 2 fields used to filter data during extraction and loading on BW :

- AEDAT (STPO)
- ANDAT (STPO)

For more explanations, see part Data Loading.

The extractor is based on view **ZBW_V_MAST** and in particular from **MAST** table to keep all Bill of material to explode and the class **ZDTS_ZBW_MAST_BOM_LEVEL** is used to extend the datasource adding new fields.

In view ZBW_V_MAST, we keep only entries from STKO with BOM Usage (STLTY) = M (Material) and BOM Status (STLST) is not equal to 2 (inactive BOM).

In the class, we use the standard function module '**CS_BOM_EXPL_MAT_V2**' to build the Bill of material and BOM level. The function module is used as recursive function, as long as BOM exists and have to be explode.

Today we only explode BOM at level 1 (Master material and its components at first level).

We filter records from MAST to have only data with :

- BOM usage (STLAN) is equal to '1' (Production).
- BOM deletion flag (LOEKZ) is not equal to 'X'.
- BOM valid from date (DATUV) is greater than current date.

Additional filter is done during extraction to keep **only one alternative BOM for the material exploded**.

To get this alternative BOM, we select **the first valid production version** (excluding locked production version) from MKAL table.

The equivalent to explode BOM level by level on SAP side is T-CODE **CS11**.

See below, main fields determined or calculated in the class :

- **BMEIN - Base unit of Measure of BOM** : It corresponds to the Base unit of measure of the main product exploded (MATNR) linked to the main BOM (STLNR).
- **BMENG - BOM Quantity** : BOM quantity is converted on Base Unit of Measure of product exploded. The quantity is duplicated of each component line linked to this product.
- **ZZMAT - BOM Head** : If there is only 1 Product Level, Bom Head is equal to the main Product (MATNR). If there is several Product Level, BOM Head is equal to the component exploded (from previous level)
- **ZZSTLNR - Bill of Material** : is equal to the BOM linked to the BOM Head material.
- **ZZSTLAL - Alternative BOM** : Alternative BOM linked to ZZSTLNR
- **ZZIDNRK - BOM Component** : Component of the BOM Head Material
- **ZZPOSNR - BOM Item** : BOM Item linked to BOM Component
- **ZZSTUFE - Product Level** : is equal to 1 when we are at component level of the master product exploded, we increment this level when we are at component level and for each new product (BOM Head) exploded
- **ZZMENGE - Component Quantity** : Component quantity is converted on Base Unit of Measure of the component
- **ZZMMEIN - Component Base Unit of Measure** : Base Unit of measure of the component
- **ZZFMENG - Fixed Quantity** : This field is equal to X when the component is flagged as "Fixed quantity"
- **ZZWOPRODVERS - Production Version Flag** :
 1. PE1 Rule :

For each material / plant we read the MAKL table (production version) to get the active (valid from/to have to be valid) production version (sort by alphanumeric) & the alternative BOM linked => Only one version per Material@Plant.

If no production version is found, the flag is equal to 'X' .

If the production version is found, the flag is equal to blank and only the alternative BOM linked to the production version is displayed in CSV file.

2. WP1 Rule :

We get from MKAL table (production version), for a material@plant **only one production version**. This version is determined by :

- Valid date from/to
- Sort production version (VERID) by alphanumeric to keep the first one.

Finally we have one production version with material@plant@alternativeBOM got from MKAL table.

- **Case 1** : A production version is existing for the record treated, Alternative BOM in the record is the same as the alternative BOM of production version => **record is treated and displayed in the file.**
 - **Case 2** : If a production version is existing but the alternative BOM is not the same between the record treated and MKAL table or there is a prod version but it is not valid anymore **we delete the record.**
 - **Case 3** : If no production version is existing in MKAL table, **we flag the record with the field without prod version = 'X'.**
=> **Rule to determine co-packing product.**
- **ZZALPGR** : Alternative Item Group
- **ZZEWAHR** : Usage Probability in %

Specific rule concerning Alternative Item Group and Usage Probability

On BW side, there is a specific rule applied when the **Alternative Item Group (C_ALPGR infobject)** is <> **blank** (and only when it's <> blank) :

- We multiply the **component quantity** (K_COMPQTY) **by the Usage probability percentage** (C_EWAHR)
- We delete the record when the **usage probability is null.**

The rule is applied between propagation and business layer on the end routine of following transformation :

- TRSF : APPPBO02 (RCS) -> ABPPBO01 (0E0KX8DHAKOIXBHTP59SMNKBORF14JOA)
- TRSF : APPPBO01 (SLV) -> ABPPBO01 (09G34K05T7K26VVND2NH68K0H7J5SFS0)

Quantities conversion and recalculation

BOM quantities and component quantities are converted in KG between propagation and business layer.

Moreover, quantities are recalculated in order to have a **BOM Base quantity equal to 1000 KG (1 TO)**, Component quantities are updated accordingly.

Fields with system extension

There are 3 fields stored in BOM Propagation and Business ADSO with a system extension :

- **C_DYN_001** : Plant with System Extension
- **C_DYN_005** : Material with System Extension
- **C_DYN_052** : Component with System Extension

For more explanations see : [BW OTC - Supply Chain- DPS \(WBP\) /\ Obsolete /\#SupplyChain-DPS\(WBP\)-FieldwithextensionC_DYN_***](#)

Dependencies with other applications

BOM data are used by Dynasys tool (consumed by generated flat file).

ADSO ABDPDY50 is loaded by composite provider CPPPBO01.

Dynasys flat file is generated by reading ABDPDY50 data.

Data loadings

Info providers and objects loaded

Scope of data loaded

Both master data and acquisition layer ADSO AAPPBO02 are loaded by 2 FULL DTPs.

The first one is based on creation date and the second on modification date of BOM.

We load for each of them from current date to current date - 7.

Note that DTP are different for each objects.

Master Data process chain

BOM Master Data are loaded by process chain **PC_PP_BOM_01**

▼ 146 - PROJECT - PP	COMP_PP	Change
▼ 146 - PP - BOM	COMP_PP_BOM	Change
> 146 - PP - BOM - Business Layer	COMP_PP_BOM_BUSINESS	Change
> 146 - PP - BOM - Propagation Layer	COMP_PP_BOM_PROPAGATION	Change
> 146 - PP - BOM - Acquisition Layer	COMP_PP_BOM_ACQUISITION	Change
▼ 146 - PP - BOM - Master Data	COMP_PP_BOM_MD	Change
• PP - BOM : MD - D - Masterdata Attributs	PC_PP_BOM_01	= Change
> PP - BOM : META - D - Master Chain	PC_PP_BOM_05	= Change

BOM Level data process chain

BOM Master Data are loaded by following process chain :

- Acquisition layer : PC_PP_BOM_02
- Propagation layer : PC_PP_BOM_03
- Business layer : PC_PP_BOM_04

▼ 146 - PROJECT - PP	COMP_PP	Change
▼ 146 - PP - BOM	COMP_PP_BOM	Change
▼ 146 - PP - BOM - Business Layer	COMP_PP_BOM_BUSINESS	Change
• PP - BOM : TD - D - Business Layer	PC_PP_BOM_04	= Change
▼ 146 - PP - BOM - Propagation Layer	COMP_PP_BOM_PROPAGATION	Change
• PP - BOM : TD - D - Propagation Layer	PC_PP_BOM_03	= Change
▼ 146 - PP - BOM - Acquisition Layer	COMP_PP_BOM_ACQUISITION	Change
• PP - BOM : TD - D - Acquisition Layer	PC_PP_BOM_02	= Change
> 146 - PP - BOM - Master Data	COMP_PP_BOM_MD	Change
> PP - BOM : META - D - Master Chain	PC_PP_BOM_05	= Change

A Master process chain load both part : PC_PP_BOM_05

This master chain is part of a global chain with Recipe application : PC_RE_01

▼ 146 - PROJECT - PP	COMP_PP	Change
> 146 - PP - Recipe	COMP_PP_RE	Change
▼ 146 - PP - BOM	COMP_PP_BOM	Change
> 146 - PP - BOM - Business Layer	COMP_PP_BOM_BU...	Change
> 146 - PP - BOM - Propagation Layer	COMP_PP_BOM_PR...	Change
> 146 - PP - BOM - Acquisition Layer	COMP_PP_BOM_AC...	Change
> 146 - PP - BOM - Master Data	COMP_PP_BOM_MD	Change
> PP - BOM : META - D - Master Chain	PC_PP_BOM_05	= Change
▼ PP - Production Planning : META - D - Master Chain	PC_RE_01	= Change
> PP - BOM : META - D - Master Chain	PC_PP_BOM_05	= Change
> PP - Recipe : META - D - Master Chain	PC_PP_RE_04	= Change
> 147 - PROJECT - ECO2	DICO_PC_ECO2	Change

Today the process chain PC_RE_01 is scheduled at 00:30 (CET).

Loading frequency

Daily loading.

Average performance

See below init data loading performed end of March 2020 :

BOM Level	ADSO AAPPBO02		
Creation Date		Records	Time
FROM	TO		
19000101	20021231	22 198	1m 46 s
20030101	20031231	22 123	2m 30 s
20040101	20041231	56 382	7 min
20050101	20050630	57 635	6 min
20050701	20051231	97 342	10 min
20060101	20060630	55 422	5 min
20060701	20061231	67 986	6 min
20070101	20071231	55 522	5 min
20080101	20081231	97 055	9 min
20090101	20091231	38 092	4 min
20100101	20101231	42 897	4min 30
20110101	20111231	35 829	4 min
20120101	20121231	39 986	4min 30
20130101	20131231	38 968	4 min
20140101	20141231	32 781	4min
20150101	20151231	44 399	5min
20160101	20161231	45 877	4min
20170101	20171231	81 522	7min
20180101	20181231	56 842	5min
20190101	20191231	77 769	7min
20200101	20201231	77	10s

BOM Level	ADSO AAPPBO01		
Creation date		Records	Time
FROM	TO		
01.01.1900	31.12.2002	9.305	1m 11s
01.01.2003	31.12.2003	8.400	4m 24s
01.01.2004	31.12.2005	36.190	2m 29s
01.01.2006	31.12.2007	24.327	1m 26s
01.01.2008	31.12.2009	43.148	2m 8s
01.01.2010	31.12.2011	49.418	2m 44s
01.01.2012	31.12.2013	40.552	1m 52s
01.01.2014	31.12.2015	30.683	1m 51s
01.01.2016	31.12.2017	25.483	1m 23s
01.01.2018	31.12.2019	19.326	1m 12s
01.01.2020	31.12.2020	913	32s

Record Keeping

Reporting

Queries End User Documentation

Main queries

There is actually no queries based on this BW dataflow.

Main functionalities

Broadcast

Maintenance

Known bugs

Recurring procedure

Planned Evolution

N/A.