Prepared for: **Siemens BT**

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Document Information

Project Name:	Revisionierung von Common Components		
Prepared by:	Kai Frantz	**Version no**:	1-0
Title:	PLM Consultant	**Version date**:	02.06.2017

Distribution List

Company	**Persons**
Siemens BT	Dirk Heuer, Claus Franz, Patrick Hepp

Change History

Ver. no.	**Date**	**Author**	**Reason**	**Description**
1-0	02.06.2017	K.frantz	Initial Version	-

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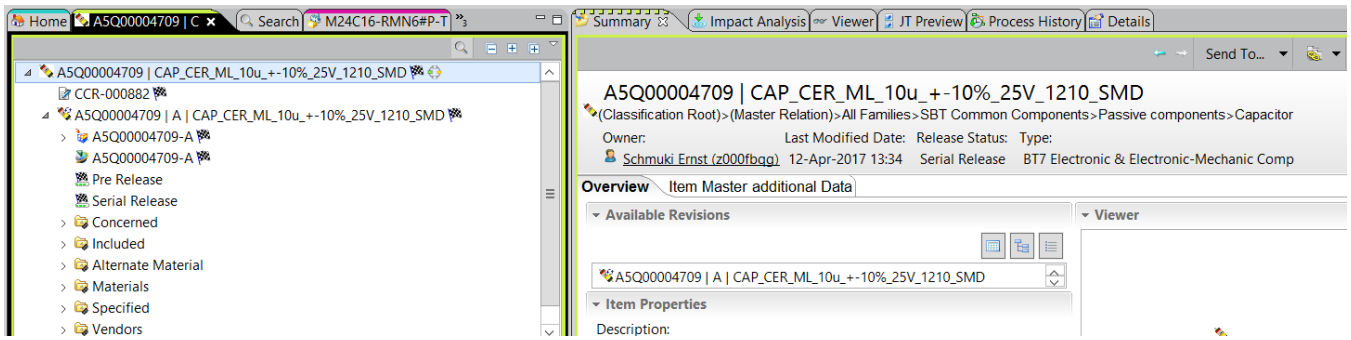
1 Initial Situation/Problems

1.1 Situation

The Teamcenter System of Siemens BT stores multiple Objects that were migrated with a wrong Object Type. There is no List of this Objects, but the Users find them at the daily work.

At the Moment these Objects are Renamed and duplicated by an shared effort from the PLM Team and the Engineers.

Because the most of the Classes have an own storage class at Siemens BT, it is not possible to change the type of Objects. In Teamcenter 8.3 a Tool was available to change the Object Type for BT6 Objects.



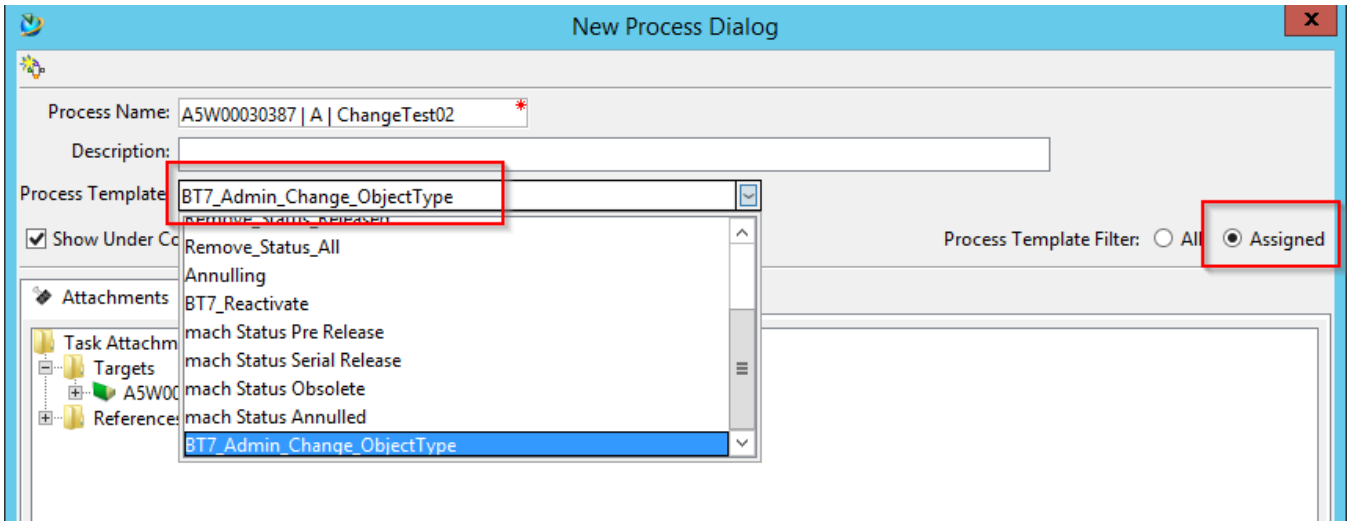
1.2 Goals

It should be possible to automate the Change Object Type in a Workflow, so that the effort for the PLM Team and the Engineers are reduced significantly. At the Start the transfer from Documents to Components and Components to Documents should be available.

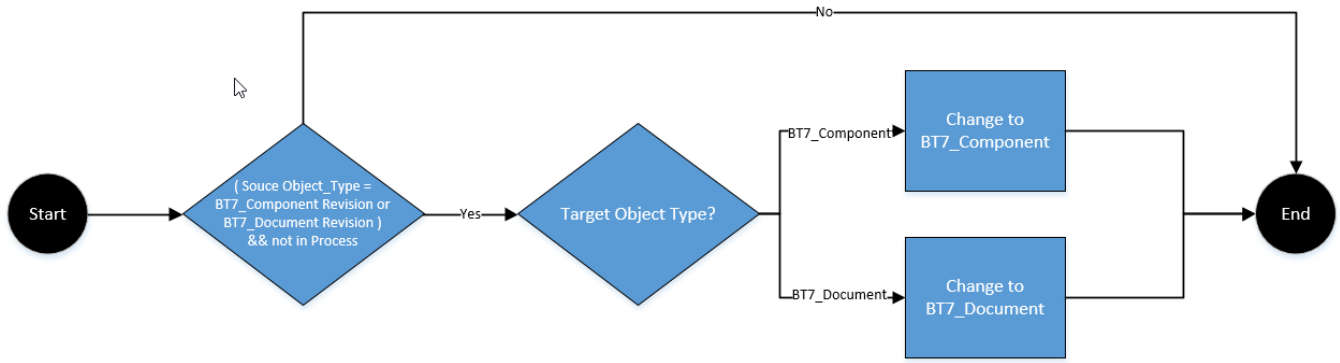
2 Solution

A new Workflow was designed to change the Object Types. The Workflow is only available for the PLM Team. The Name is: “BT7_Admin_Change_Object_Type”

This Workflow is available for the Group “100_Admin” can be performed by the Groups “dba” and “100_Admin”. The Workflow will start on one BT7_DocumentRevision or BT7_ComponentRevision.



2.1 Workflow



The workflow starts with a test if the object type is a BT7_ComponentRevision o BT7_DocumentRevision. Also, the attached Revision should not be in another active process. If all conditions are met, the workflow initiator can go to “My Worklist” and find the Workflow under “Tasks to perform” of his personal inbox. The user has to decide in which Object Type the Item should be converted.

After this decision, the Workflow is renaming the old Object to:

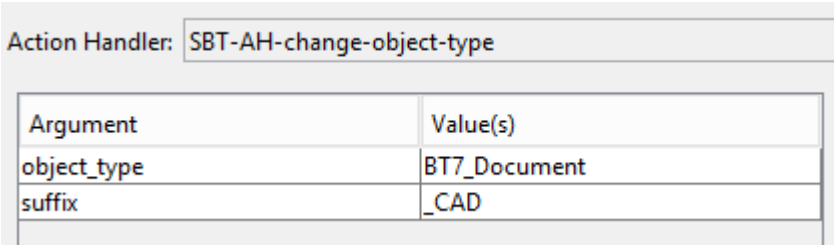
- “*_CAD” if the Object was a Component
- “*_DOC” if the Object was a Document

If the source object type is identical with the target object type the Workflow will abort with an error massage.

The manual user step is necessary, because the workflow should work with additional source and target object types later on.

2.2 Handler Change_Object_Type

The Custom Handler Change Object Type changes the item type of the first attached revision of the workflow to the new item type specified in the handler argument “object_type” and adds an suffix to the ID of the old item specified through the “suffix” Argument.



The Workflow will do the following steps:

- Rename old item id with suffix
- Create new item and new item revision with old item ID
- Create new Dataset for every attached dataset under the old revisions
- Copy Attributes (owning_user, owningGroup, ECO-No., Change Description)
- Add new revisions to all projects where the old revisions are linked
- Search for where used on old revisions and replace the old revisions with the new revision in all BOMs
- Duplicate all standard relations below the old revisions
- Move old BOM View from old revision to new revision
- Search for where referenced on old revisions and replace them with new revisions
- Duplicate all Status on all revisions and datasets
- Set Status annulled to old revisions and item

3 Deployment

3.1 Workflow

The Workflow is stored in the BT7_Admin_Change_Object_Type.xml File and can be imported via OOTB Tools.

3.2 Group Preference

The Group Preference is stored in 100_Admin.xml File and can be imported via OOTB Tools.

3.3 Code Changes

On new Handler int SBT_AH_change_object_type(EPM_action_message_t msg) was created. This changes affects the SBT_Workflow.dll in the following Files:

- SBT_Workflow_Exit_Handlers.cpp
- SBT_Workflow_grouphandler.h
- SBT_Workflow_register_handler.cpp

Two new Utilities Function was created:

- int createDataset(tag_t task, tag_t txtFile, const char *name).
- int replace_bom_child(tag_t tParentRevision, tag_t revRuleTag, tag_t oldChildRev, tag_t newChildRev, tag_t bomView)

These changes affects the SBT_Workflow.dll in the following Files::

- SBT_Utilities.h
- SBT_Utilities.cpp

To assure that the new Function has access to utility functions. The following Functions were moved from SBT_Workflow_Exit_Handlers.cpp to SBT_Utilities.cpp (and SBT_Utilities.h):

- int prepareForModify(tag_t tObject)
- logical isDerivedFromClass(char *className, tag_t tObjectTag)

Also with approval of Claus Franz the handling with the “Siemens Normmodul” was changed. The Tool will no longer be triggered by the Group “100_Admin”. This changes affects the SBT_Extensions.dll in the following Files:

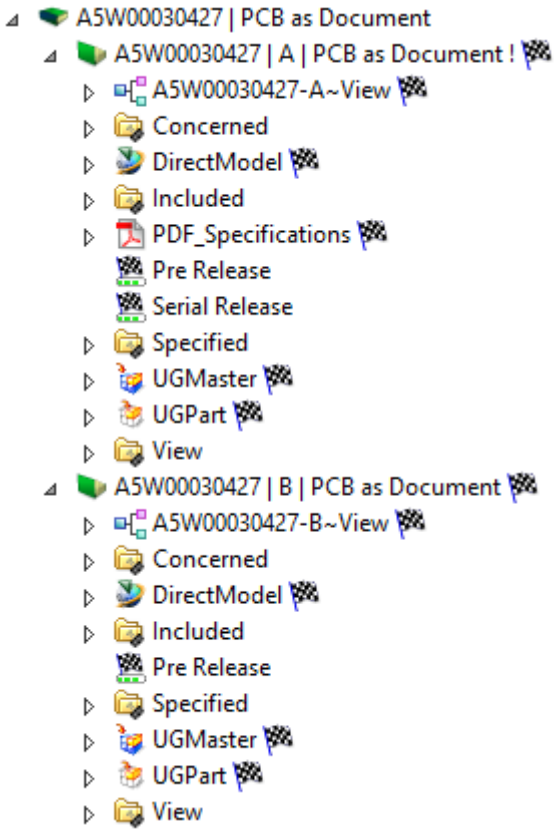
- BT7_ProductSavePreCondition.cpp
- CommonFunctions.cpp

Also in the File SBT_Workflow_Status_Handlers.cpp of the SBT_Workflow.dll most of the imports were wrong for TC 11.2.2 and were corrected.

4 Test-Cases

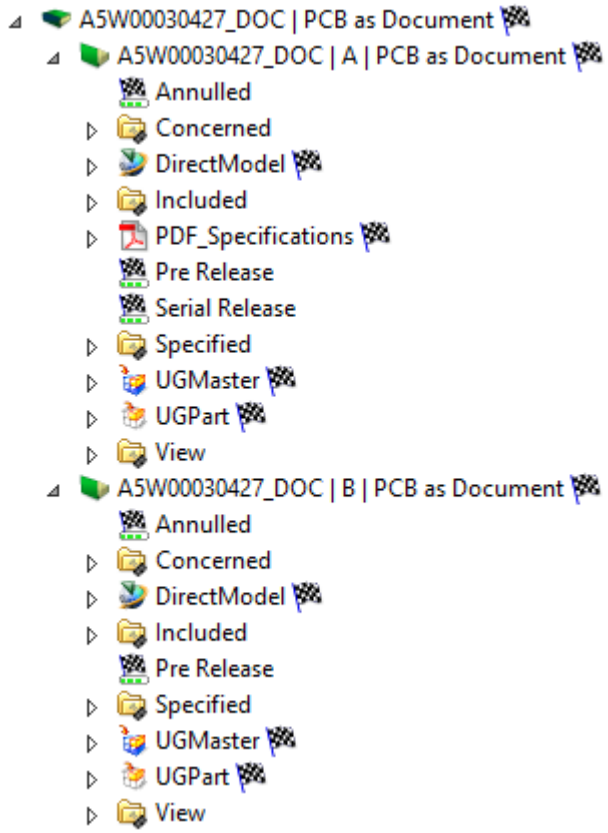
4.1 Test-Steps

1. Create 1 BT7_Document (PCB)
2. Create 2 BT7_Product (SSN)
3. Create 1 BT7_Component (Sub assembly)
4. Create 2 BT7_CommonComp (Electrical Standard Parts)
5. Create UGMaster Dataset
6. Create UGPart Dataset
7. Create DirectModel Dataset
8. Create PDF Dataset
9. Create multiple BT7_Documents
10. Attach PCB to BOM of SSNs
11. Attach Sub assembly and Electrical Standard Parts to PCB BOM
12. Attach Datasets to PCB
13. Attach Documents under standard Relations of PCB
14. Release all Objects to Pre-Released, Serial-Released
15. Attach Revision to a Project
16. Revise PCB
17. Release all Objects without Status under PCB to Pre-Released
18. Perform Workflow on first PCB Revision



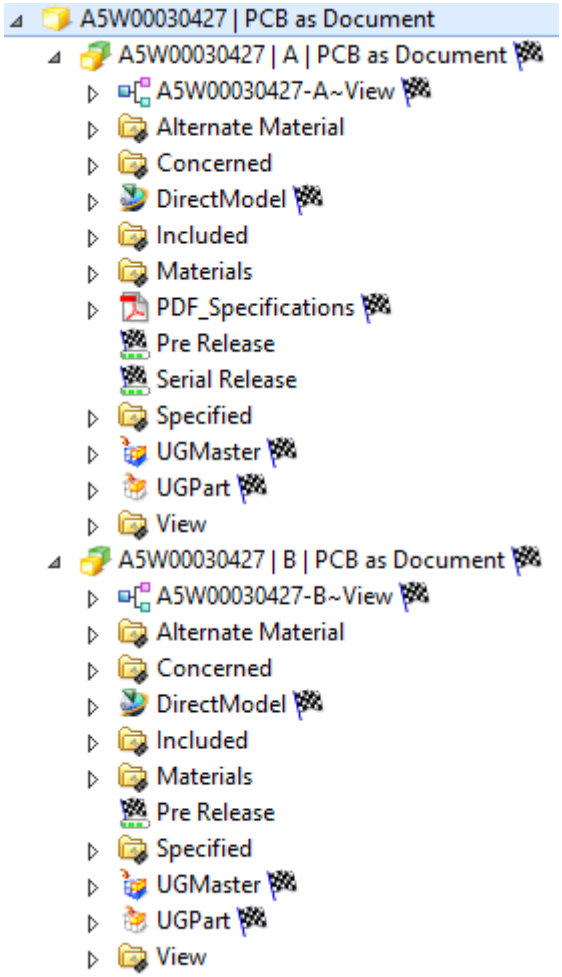
4.2 Expected Results

BT7_Document:



- The Document has no BOM View anymore and is not attached in any BOM.
- All Datasets, Revisions, Item is annulled.

BT7_Component:



- The Component is used in the two SSNs
- The first Revision of the PCB is in the assigned Projects.
- All Status from the old Objects are on the new Objects.
- All standard Relations are duplicated.
- The PCB has the right owner, owning group, release date, ECO No, Change Description