

# CSK - CAD Systeme Kluwetasch

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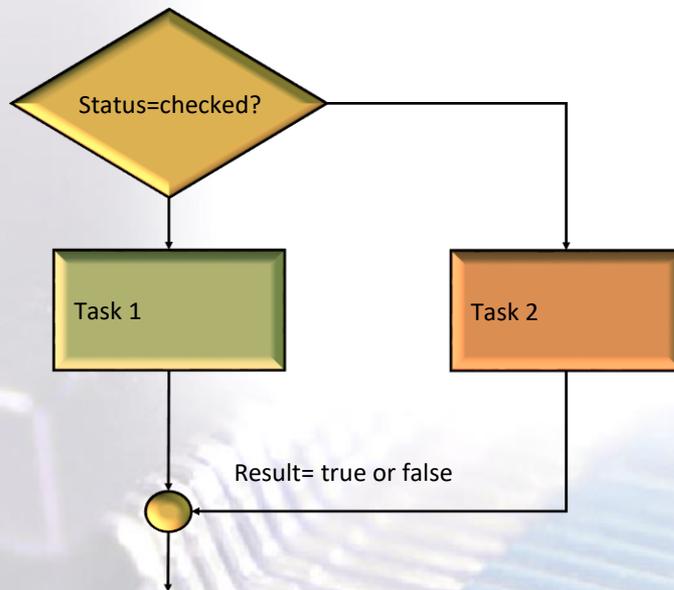


MRP-Link Constraint Functions

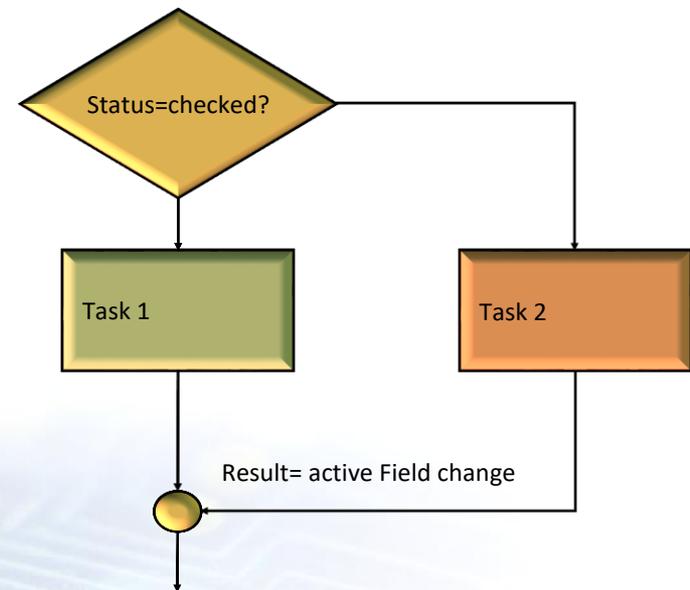
The MRP-Link use two different types of constraints.



...will be used to control the workflow based on existing values.

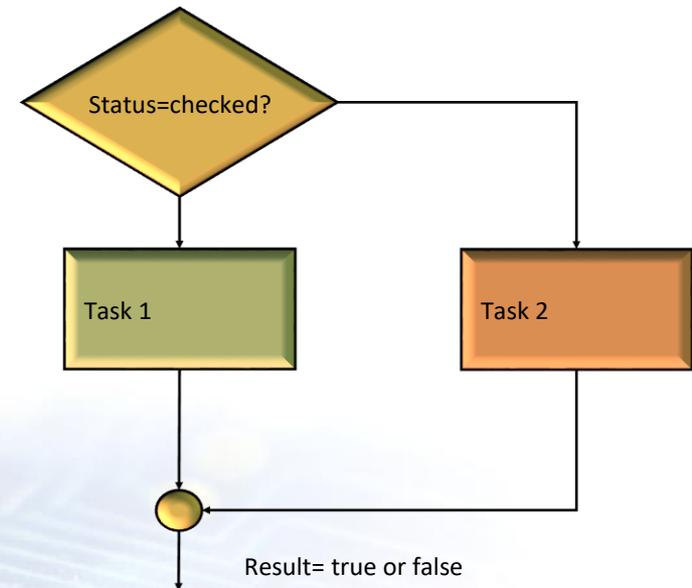
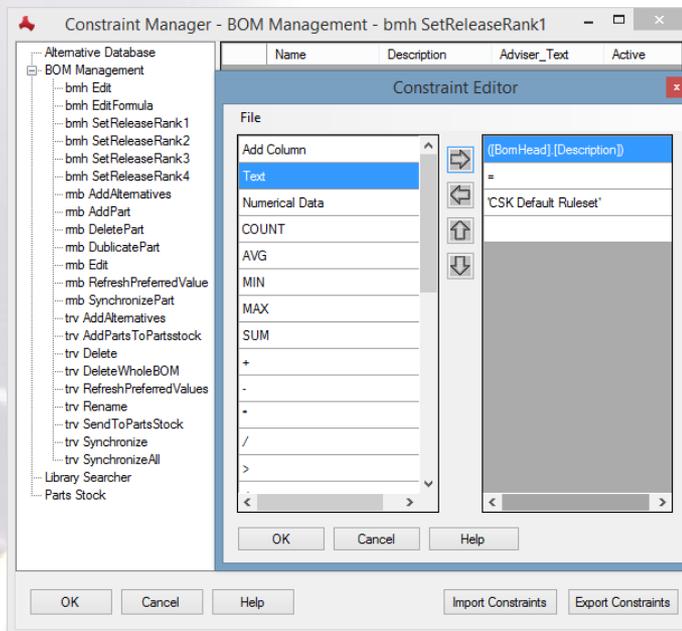


...will be used to change the field content based on conditions.



## Key functions:

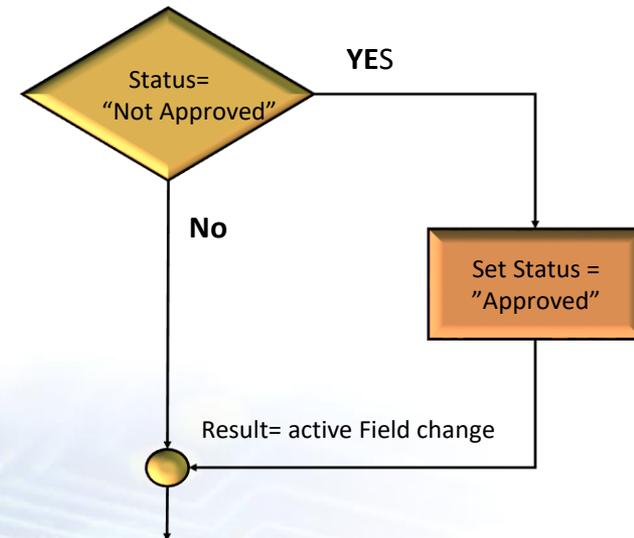
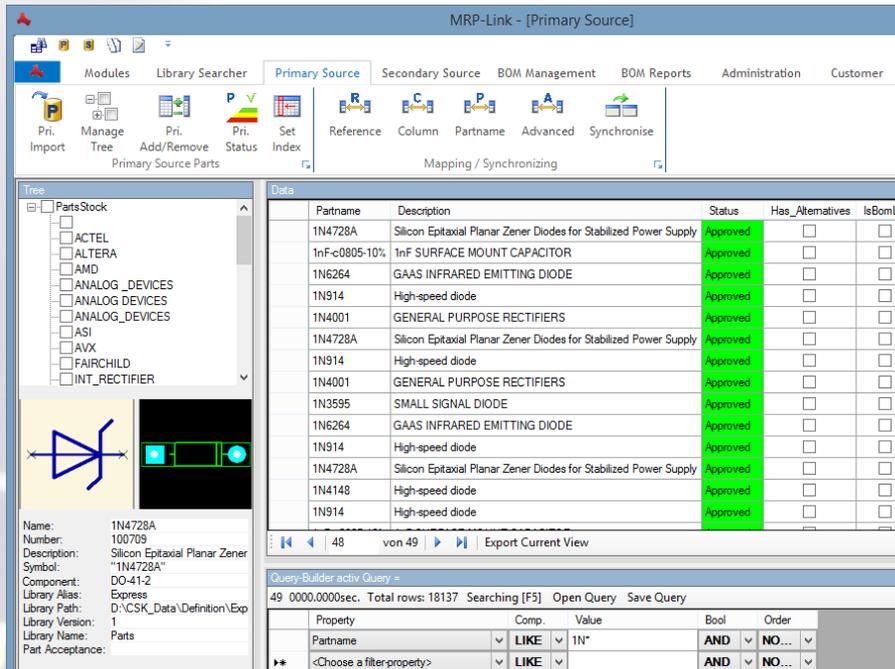
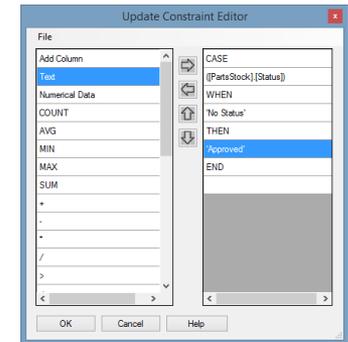
- Assign company workflows into MRP-Link
- Define individual rules based on companies requirements
- Add rules to user actions
- Easy adapting of rules when workflows have to be altered



# Update Constraints

Key functions:

- Assign company workflows into MRP-Link
- Define individual rules based on company requirements
- Update rule based columns with calculated values

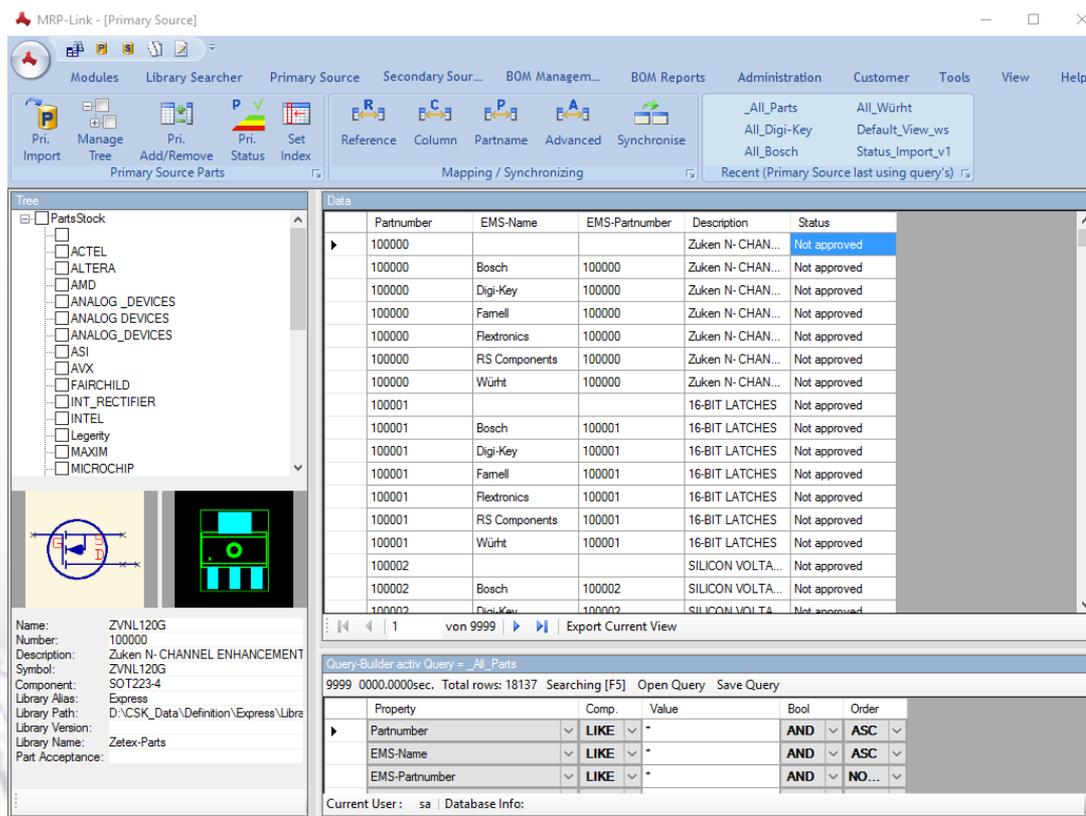


# Constraints Practice

Example to show the functionality of the MRP-Link Decision – and Update Constraints in a real environment.



Step on the Update Constraints



The screenshot shows the MRP-Link software interface. The main window displays a list of parts with columns for Partnumber, EMS-Name, EMS-Partnumber, Description, and Status. The status for all parts is 'Not approved'. A query builder at the bottom shows a query with the following conditions:

Property	Comp.	Value	Bool	Order
Partnumber	LIKE	*	AND	ASC
EMS-Name	LIKE	*	AND	ASC
EMS-Partnumber	LIKE	*	AND	NO...

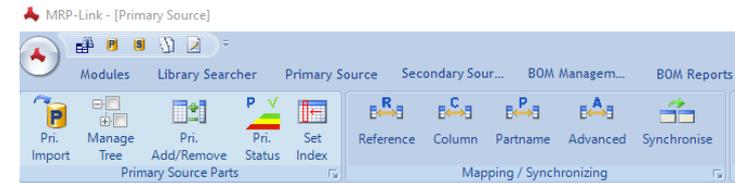
The query results show 9999 rows. The current user is 'sa' and the database info is visible at the bottom.

# Status Setup

To work with a status for any Part or BOM the system needs a setup about all available Status Values in your workflow.

The Part Status is set in the Primary Source.

	Code	Description	Color
▶	Internal use only	Part is to be used...	-986896
*			



In addition to the default common Status Code.

Is it possible to add own codes to represent a special status. Each status could have a own colour.



Different Status Information will be used for Parts, BOM's and Secondary source relations ships.

# Update Constraints Setup

With the Update Constraint Manager window it will be possible to manage all the different Update Constraints for certain fields in your database.

The screenshot shows the 'Update Constraint Manager - PartsStock - Status' window. On the left is a tree view of the database schema, with 'Status' selected under 'PartsStock'. The main area is a table with the following data:

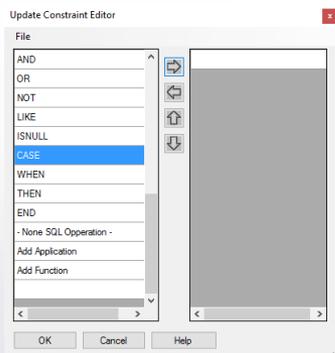
Name	Description	Location	Column	AdviserText	Active	Update Orientation	Executable	ExecutableDescription	ExecutableOrder
Set Status = Approved		PartsStock	Status	Set all Parts to Status "Approved"	<input checked="" type="checkbox"/>	Column			2
Set Status = Not Approved	Set Parts Stock ...	PartsStock	Status	Set all Parts to Status "Not approved"	<input checked="" type="checkbox"/>	Column			1

Below the table are buttons for 'New Update Constraint', 'Edit Update Constraint', 'Rename Update Constraint', and 'Delete Update Constraint'. At the bottom right are 'Import Update Constraints' and 'Export Update Constraints' buttons. The window also has 'OK', 'Cancel', and 'Help' buttons at the bottom left.

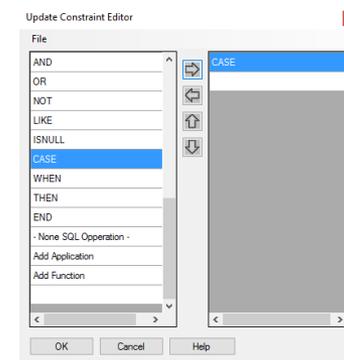
Update Constraints are available for the BOM Management and for the Primacy source. This changes will be passed via synchronisation to other areas for the database.

# Update Constraints Creation

A new Update Constraint can be clicked together quickly in the editor.



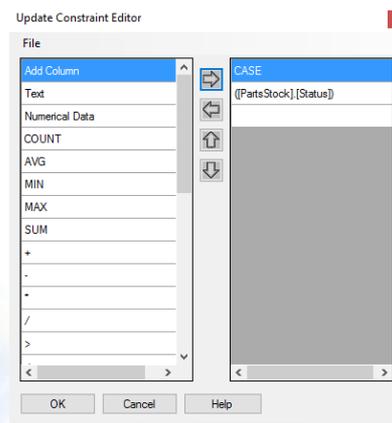
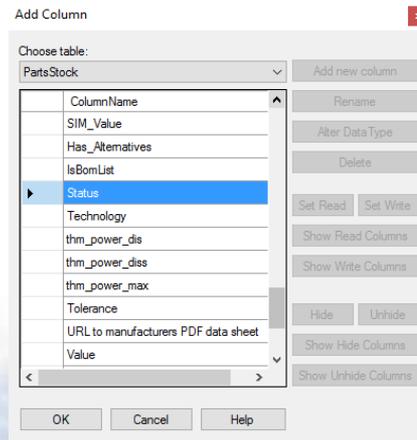
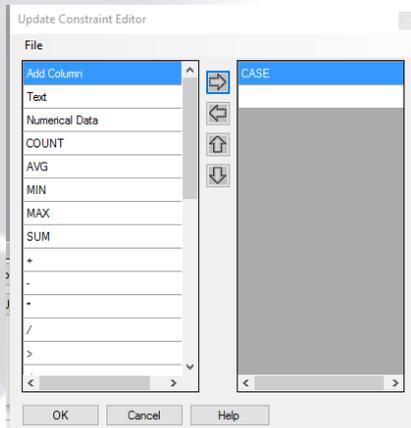
For syntax reason start with a CASE command. Select at the left side your command, click at the right arrow and transfer the command in your working area.



To refer to a content of a database field select "Add Column".

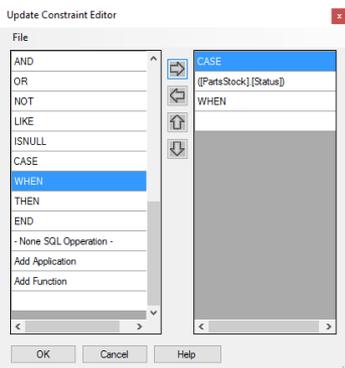
In this example we will select from the PartsStock the "Status" field.

Click at the right arrow and transfer the "Status" field to get access to the content.

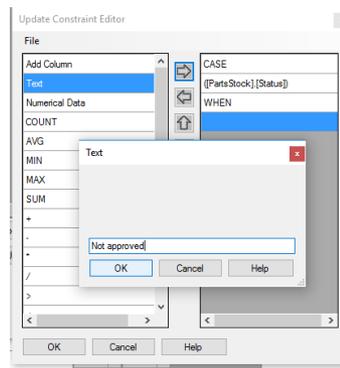


# Update Constraint creation

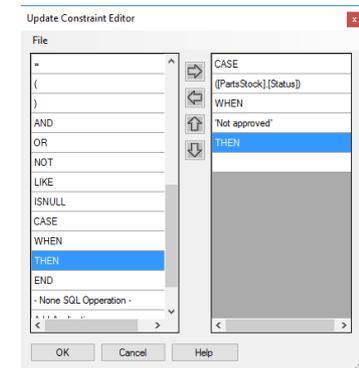
With the same technic all other elements will be selected to setup the necessary function.



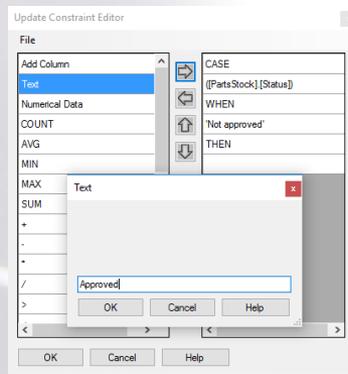
Conditional element  
"When"



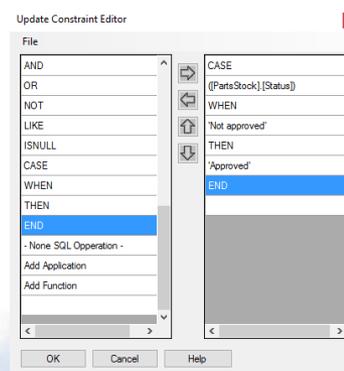
Text field element with free  
content complement with  
"Not approved"



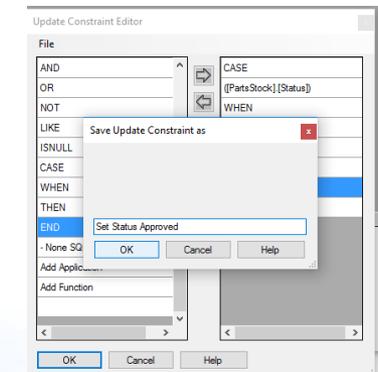
Conditional element  
"Then"



Text field element with free  
content complement with  
"Approved"



Conditional element  
"End"



The new update constraint  
must get a name before  
use.

# Update Constraint Manager

This view shows us two different Update Constraints for the field “Status”.

Update Constraint Manager - PartsStock - Status

Name	Description	Location	Column	AdviserText	Active
Set Status = Approved		PartsStock	Status		<input type="checkbox"/>
Set Status = Not Approved	Set Parts Stock ...	PartsStock	Status		<input checked="" type="checkbox"/>

Name
Set Status = Approved
Set Status = Not Approved

A short simple Name to identify the constraint in the RMB Menu.

AdviserText
Set all Parts to Status "Approved"
Set all Parts to Status "Not approved"

Adviser Text as remark.

Description
Set Parts Stock ...

A preview to the code of the constraint.

Executable

Executable  
(MRP-Link checks this Update Constraint if you export and import to a new Database – Only simple column check).

Location
PartsStock
PartsStock

The information about the used table.

ExecutableDescription

Executable Description  
(Added by system after import to another Database).

Column
Status
Status

The reference about the reference field.

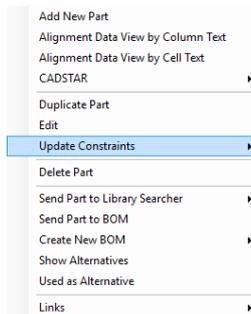
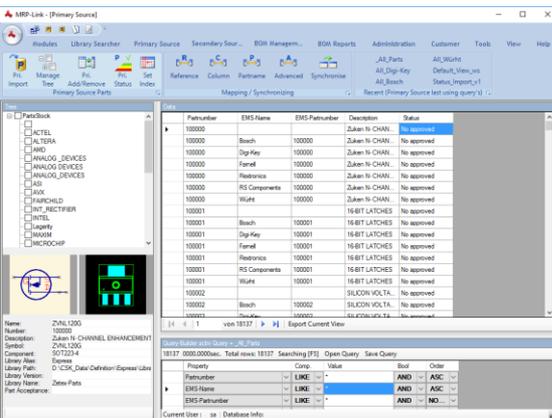
ExecutableOrder
2
1

The order in the RMA Menu.

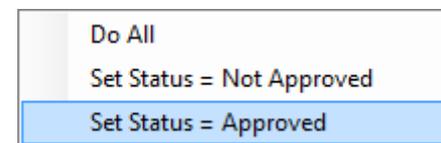
# Execute of the Update Constraint

The new added constraint was created for the “Status” field.

Therefore select the Status column and use the RMB bottom.



The “Do All” menu point will carryout both status constraints in series. Otherwise select the constraint you require



Results of the first constraint:  
Set Status to “Not approved”

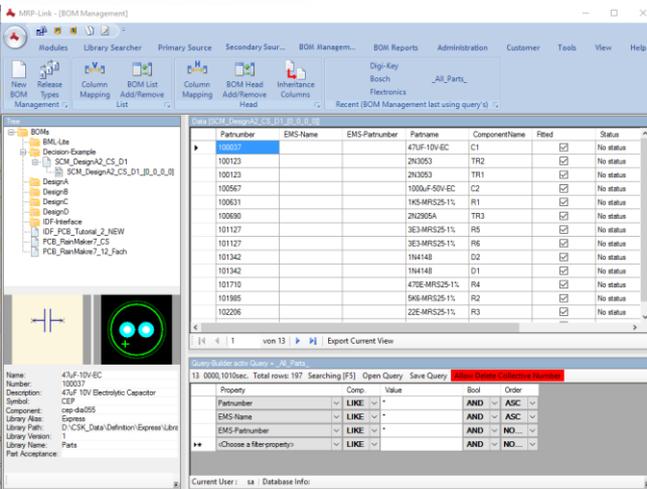
Partnumber	EMS-Name	EMS-Partnumber	Description	Status
100000			Zuken N-CHAN...	Not approved
100000	Bosch	100000	Zuken N-CHAN...	Not approved
100000	Digi-Key	100000	Zuken N-CHAN...	Not approved
100000	Famell	100000	Zuken N-CHAN...	Not approved
100000	Flextronics	100000	Zuken N-CHAN...	Not approved
100000	RS Components	100000	Zuken N-CHAN...	Not approved
100000	Würth	100000	Zuken N-CHAN...	Not approved
100001			16-BIT LATCHES	Not approved
100001	Bosch	100001	16-BIT LATCHES	Not approved
100001	Digi-Key	100001	16-BIT LATCHES	Not approved
100001	Famell	100001	16-BIT LATCHES	Not approved
100001	Flextronics	100001	16-BIT LATCHES	Not approved
100001	RS Components	100001	16-BIT LATCHES	Not approved
100001	Würth	100001	16-BIT LATCHES	Not approved
100002			SILICON VOLTA...	Not approved
100002	Bosch	100002	SILICON VOLTA...	Not approved
100002	Digi-Key	100002	SILICON VOLTA...	Not approved

Results of the second constraint:  
Set Status to “Approved”

Partnumber	EMS-Name	EMS-Partnumber	Description	Status
100000			Zuken N-CHAN...	Approved
100000	Bosch	100000	Zuken N-CHAN...	Approved
100000	Digi-Key	100000	Zuken N-CHAN...	Approved
100000	Famell	100000	Zuken N-CHAN...	Approved
100000	Flextronics	100000	Zuken N-CHAN...	Approved
100000	RS Components	100000	Zuken N-CHAN...	Approved
100000	Würth	100000	Zuken N-CHAN...	Approved
100001			16-BIT LATCHES	Approved
100001	Bosch	100001	16-BIT LATCHES	Approved
100001	Digi-Key	100001	16-BIT LATCHES	Approved
100001	Famell	100001	16-BIT LATCHES	Approved
100001	Flextronics	100001	16-BIT LATCHES	Approved
100001	RS Components	100001	16-BIT LATCHES	Approved
100001	Würth	100001	16-BIT LATCHES	Approved
100002			SILICON VOLTA...	Approved
100002	Bosch	100002	SILICON VOLTA...	Approved
100002	Digi-Key	100002	SILICON VOLTA...	Approved

# Status Synchronisation in BOM

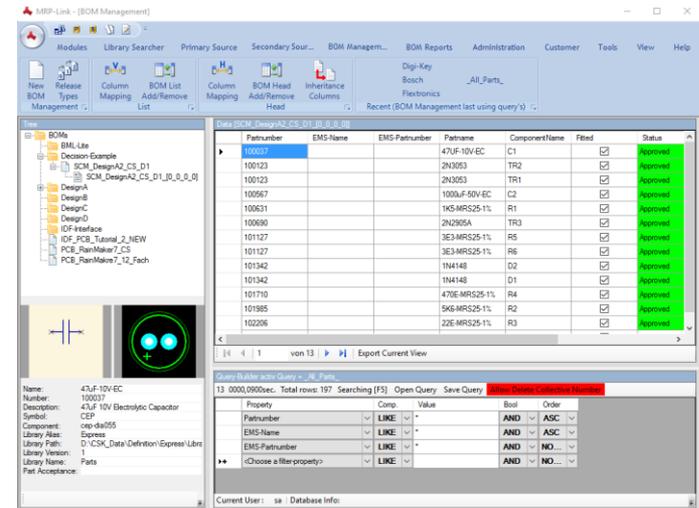
The new status information in the Primary Source can be synchronized into the BOM.  
 The individual Part Status information will be used as basis for the overall status of this BOM Version.



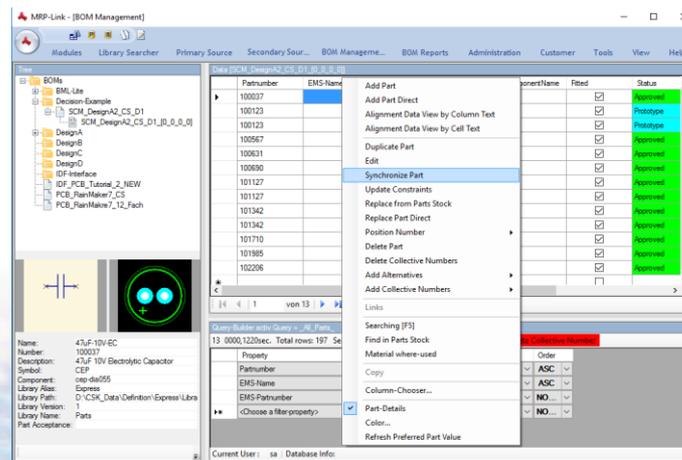
After  
 "Synchronize all"



From  
 "Not approved"  
 to  
 "Approved"

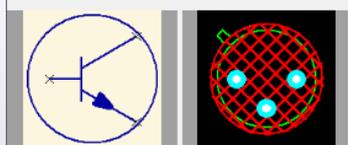


After  
 synchronisation.  
 Only one Part  
 to Prototype



# Status Update for Parts

Our task is to create a Decision Constraint to calculate automatic based on the existing date the status of the complete BOM.



Name: 2N3053  
 Number: 100123  
 Description: MED.POWER SIL.NPN PLAN.TRANS  
 Symbol: S\_NPN  
 Component: to39  
 Library Alias: Express  
 Library Path: D:\CSK\_Data\Definition\Express\Libr  
 Library Version: 1  
 Library Name: Parts  
 Part Acceptance:

Partnumber	EMS-Name	EMS-Partnumber	Description	Status
100123			MED.POWER SI...	Approved



Please select the new value:

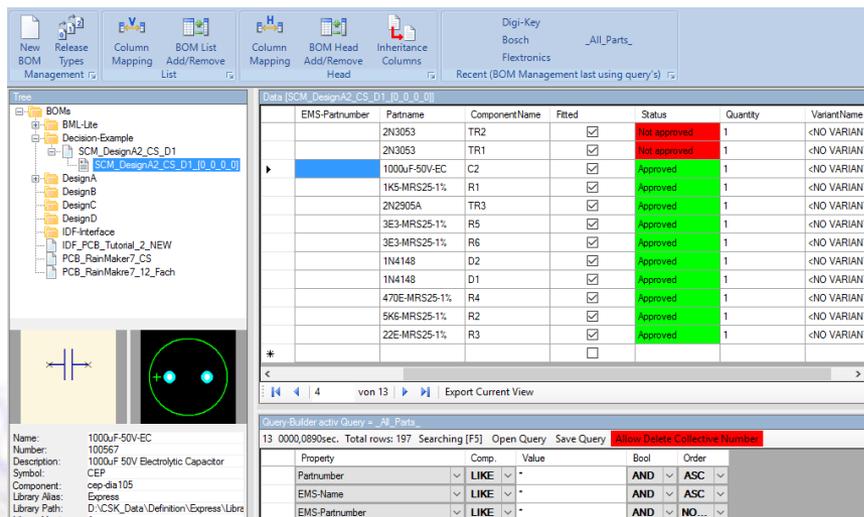
- Approved
- Prototype
- No new developments
- Not approved
- Int [Integer column]

OK Cancel Help

Partnumber	EMS-Name	EMS-Partnumber	Description	Status
100123			MED.POWER SI...	Not approved

To check out the Decision Constraints we will first setup the status of one component in our BOM to “Not approved”.

So we have the situation that the result “Not approved” should appear at least once .



EMS-Partnumber	Patname	ComponentName	Fitted	Status	Quantity	VariantName
2N3053	TR2		<input checked="" type="checkbox"/>	Not approved	1	<NO VARIAN
2N3053	TR1		<input checked="" type="checkbox"/>	Not approved	1	<NO VARIAN
1000uF-50V-EC	C2		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
1K5-MRS25-1%	R1		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
2N2905A	TR3		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
3E3-MRS25-1%	R5		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
3E3-MRS25-1%	R6		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
3E3-MRS25-1%	R2		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
1N4148	D2		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
1N4148	D1		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
470E-MRS25-1%	R4		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
5K6-MRS25-1%	R2		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN
22E-MRS25-1%	R3		<input checked="" type="checkbox"/>	Approved	1	<NO VARIAN

After synchronizing the BOM with the Primary PartsStock we have the result of two “Not approved” components in our BOM.

# Management of Decision Constraints

In the Decision Constraints control panel there are a lot of internal functions to control the work flow concerning the generation of BOM (based on one or more Decision Constraints).



Constraint Manager - BOM Management - bmh SetReleaseRank4

Name	Description	Adviser_Text	Active	Horizontal
Check Parts Approved	Description Approved	Adviser Text App...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Check Parts No new developme...	Description No new develo...	Adviser Text No ...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts Not approved	Description Not approved	Adviser Text Not ...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts Prototype	Description Prototype	Adviser Text Prot...	<input type="checkbox"/>	<input type="checkbox"/>
Set Default Ruleset	Description	Adviser Text	<input type="checkbox"/>	<input type="checkbox"/>

BOM Management

- Toggle fitted part
- Send new parts to Parts Stock (automatically during import)
- Allow Delete Extern Part
- Fill Empty "PartParentBomRef" Columns
- Allow Add/Replace with not existing Parts
- Allow Parts Stock None-Strict Searching  
(Allow to use Strict or None-Strict Index for Parts Stock Searching)
- Delete duplicate collective-numbers (Only for Multi-Index)  
(Allow to delete duplicate collective-numbers with empty index columns after searching)

OK Cancel Help Import Constraints Export Constraints

For this example we will just have a look to “Set Release Rank1, 2, 3 and 4”. The meaning of the rank or status depends on the user and the Decision Constraints he generates.

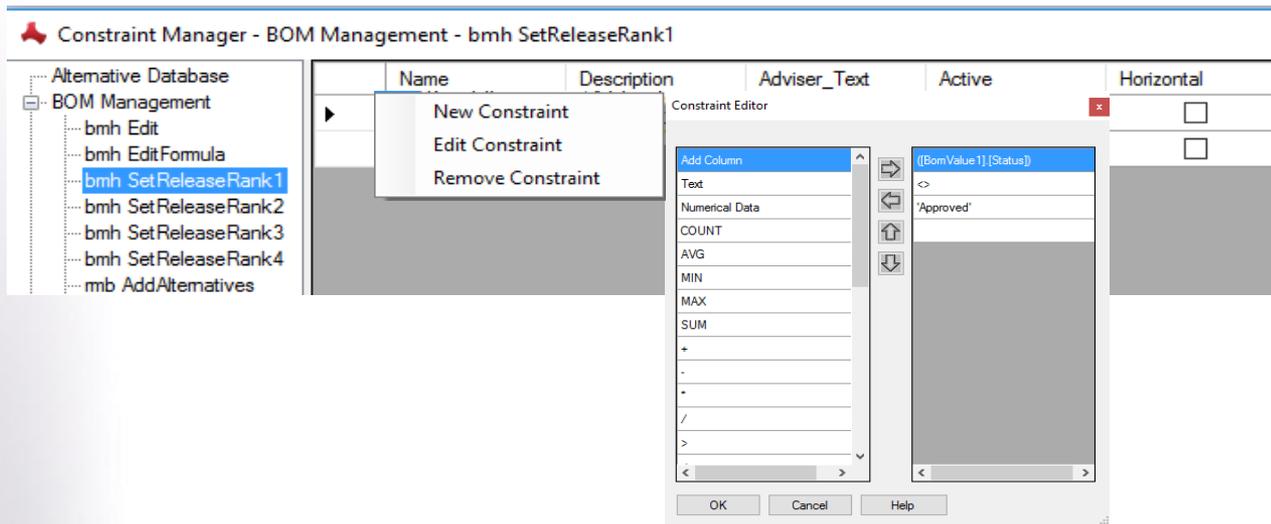
BOM Release Type Administration

Rank	Code	Description	Color
Development (Rank1)	Development	in development	Red
Rank2	FinalCandidate	FinalCandidate	Yellow
Rank3	DeveloperRelease	DeveloperRelease	Cyan
Final Release (Rank4)	FinalRelease	FinalRelease	Green

This is the list of the rank. We will start at rank 1 as indication “Development” with the status “Not approved” and end the “FinalRelease” with the status “Approved”

# Creation of Decision Constraints

With the usually Formula Editor the Decision Constraints could be simple clicked together. For example the “Set Release Rank” function for a complete BOM.



In this case the function should check the column “Status” in the BOM.

If the function find only one Part with the status “Not approved” the whole BOM could no have the Status “Approved”.

If this rule or Decision Constraints is not active, it is possible to set the Status to any Value you want.

# Decision Example Constraint Overview

Constraint Manager - BOM Management - bmh SetReleaseRank1

Name	Description	Adviser_Text	Active	Horizontal
Check Parts Approved	Description Approved	Adviser Text App...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts No new developme...	Decription No new develo...	Adviser Text No ...	<input type="checkbox"/>	<input type="checkbox"/>
▶ Check Parts Not approved	Decription Not approved	Adviser Text Not ...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Check Parts Protoype	Decription Protoype	Adviser Text Prot...	<input type="checkbox"/>	<input type="checkbox"/>
Set Default Ruleset	Description	Adviser Text	<input type="checkbox"/>	<input type="checkbox"/>

Ranking of BOM Status

1 = Not approved

Constraint Manager - BOM Management - bmh SetReleaseRank2

Name	Description	Adviser_Text	Active	Horizontal
Check Parts Approved	Description Approved	Adviser Text App...	<input type="checkbox"/>	<input type="checkbox"/>
▶ Check Parts No new developme...	Decription No new develo...	Adviser Text No ...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Check Parts Not approved	Decription Not approved	Adviser Text Not ...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts Protoype	Decription Protoype	Adviser Text Prot...	<input type="checkbox"/>	<input type="checkbox"/>
Set Default Ruleset	Description	Adviser Text	<input type="checkbox"/>	<input type="checkbox"/>

2 = No new developments

Constraint Manager - BOM Management - bmh SetReleaseRank3

Name	Description	Adviser_Text	Active	Horizontal
Check Parts Approved	Description Approved	Adviser Text App...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts No new developme...	Decription No new develo...	Adviser Text No ...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts Not approved	Decription Not approved	Adviser Text Not ...	<input type="checkbox"/>	<input type="checkbox"/>
▶ Check Parts Protoype	Decription Protoype	Adviser Text Prot...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Set Default Ruleset	Description	Adviser Text	<input type="checkbox"/>	<input type="checkbox"/>

3 = Prototype

Constraint Manager - BOM Management - bmh SetReleaseRank4

Name	Description	Adviser_Text	Active	Horizontal
▶ Check Parts Approved	Description Approved	Adviser Text App...	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Check Parts No new developme...	Decription No new develo...	Adviser Text No ...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts Not approved	Decription Not approved	Adviser Text Not ...	<input type="checkbox"/>	<input type="checkbox"/>
Check Parts Protoype	Decription Protoype	Adviser Text Prot...	<input type="checkbox"/>	<input type="checkbox"/>
Set Default Ruleset	Description	Adviser Text	<input type="checkbox"/>	<input type="checkbox"/>

4 = Approved

# Controlling with the Decision Constraints

With this Decision Setup it's not possible to increase the status of the complete BOM higher than Prototype. Because this is the lowest status currently.

Data [SCM_DesignA2_CS_D1_0_0_0_0]					
	Partnumber	Partname	ComponentName	Fitted	Status
		2N3053	TR2	<input checked="" type="checkbox"/>	Prototype
▶		2N3053	TR1	<input checked="" type="checkbox"/>	Prototype
		1000uF-50V-EC	C2	<input checked="" type="checkbox"/>	Approved
		1K5-MRS25-1%	R1	<input checked="" type="checkbox"/>	Approved
		2N2905A	TR3	<input checked="" type="checkbox"/>	Approved
		3E3-MRS25-1%	R5	<input checked="" type="checkbox"/>	Approved
		3E3-MRS25-1%	R6	<input checked="" type="checkbox"/>	Approved
		1N4148	D2	<input checked="" type="checkbox"/>	Approved
		1N4148	D1	<input checked="" type="checkbox"/>	Approved
		470E-MRS25-1%	R4	<input checked="" type="checkbox"/>	Approved
		5K6-MRS25-1%	R2	<input checked="" type="checkbox"/>	Approved
		22E-MRS25-1%	R3	<input checked="" type="checkbox"/>	Approved
*				<input type="checkbox"/>	



Edit

Please select a new value:

Approved

Prototype

No new developments

Not approved

OK Cancel Help



MRP-Link X

Updating status failed.

Please control all stati from B.O.M. parts.

Note: B.O.M status can't be higher than the lowest part status.

Following status would be possible for the current BOM.

General infos

Status:

Not approved

Release Type:

Please select a new value:

Approved

Prototype

No new developments

Not approved

OK Cancel Help

General infos

Status:

No new developments

Release Type:

Please select a new value:

Approved

Prototype

No new developments

Not approved

OK Cancel Help

General infos

Status:

Prototype

Release Type:

Please select a new value:

Approved

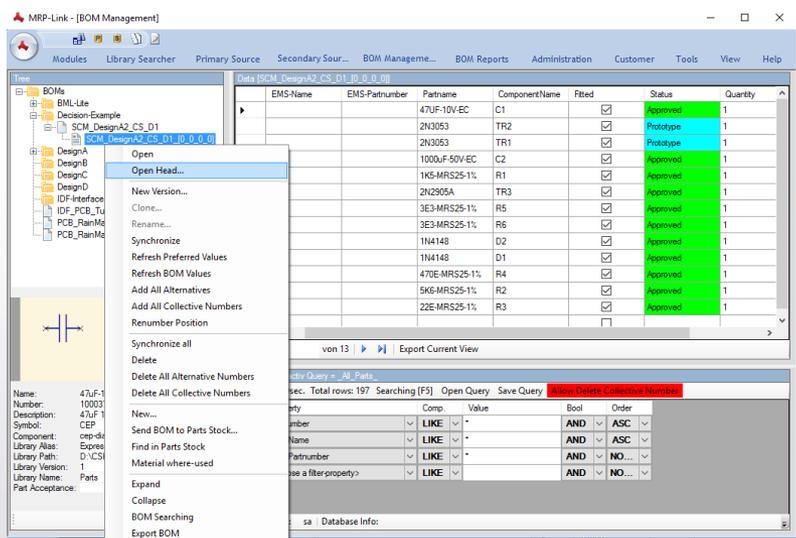
Prototype

No new developments

Not approved

OK Cancel Help

# BOM-Head Changes

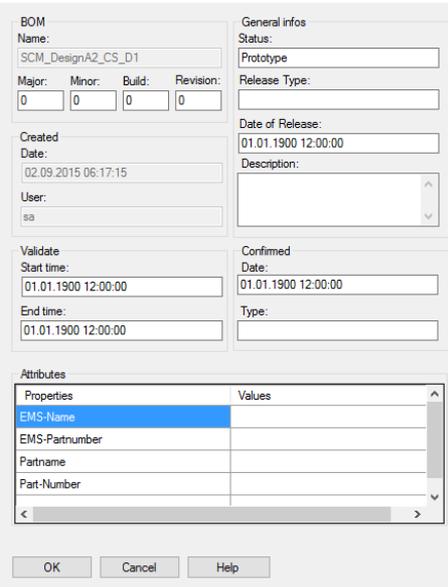


After selecting the BOM-Head, select the Release Type field and use with the RMB Bottom the Edit function for this field.

The content of the Status field is based to all Parts controlled by the Decision Constraints.

Release Type field represent the final information to the following processes which is normally not the lowest Parts Status even when a similar word meets the same.

BOM-Head [SCM\_DesignA2\_CS\_D1\_0\_0\_0\_0]



**BOM**  
Name: SCM\_DesignA2\_CS\_D1

Major: 0 Minor: 0 Build: 0 Revision: 0

Created Date: 02.09.2015 06:17:15  
User: sa

Validate Start time: 01.01.1900 12:00:00  
End time: 01.01.1900 12:00:00

**General info**  
Status: Prototype  
Release Type:

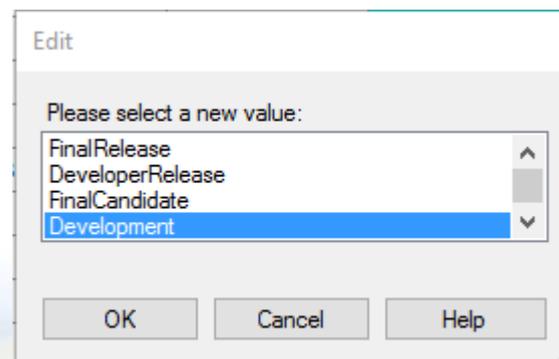
**Date of Release:**  
Date: 01.01.1900 12:00:00  
Description:

**Confirmed**  
Date: 01.01.1900 12:00:00  
Type:

**Attributes**

Properties	Values
EMS-Name	
EMS-Partnumber	
Partname	
Part-Number	

OK Cancel Help



**Edit**

Please select a new value:

- FinalRelease
- DeveloperRelease
- FinalCandidate
- Development

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Für Rückfragen und weitere Informationen  
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