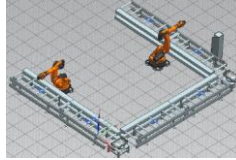


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2016-05-09

AD Getting Started



This is the AD Getting Started working doc. Actual release doc is in SIPS (soon to be migrated to XCAT).

Doc Location

- this work doc for GS release 1 and 2 (and .mp4's) at \\debonk10c19\ADNX\Teams\Documentation\10_Meetings.
- actual source for GS release 1 (GS1) is in SIPS. Will be in xCat (XML publishing tool).

Chapters

GS1 content (already in SIPS):

- ch1. Concepts
- ch2. Overview (ok'd by Reinhard)
- ch3-12 (parts 1-3). step-by-step directions. (not include ch13).

GS2 content:

- Part 4: describes future GS2.

Recent doc history

20160509: start over... search "20160509"

"11.1-3. 20160509" shows it basically working... started from 0 today and went thru most of it (except for EPLAN)

Search "201604xx" to find changes.

20160429. ch10. Ch8.

20160428. Ch7 (eplan), ch10.

20160426. Ch 11, ch 6 (mapping works).

20160425. Hacked around and somehow got "\$\$\$4/5 14.4. create ports, expressions, dynamic connection" to work ☺ lots of bugs... a mess...

20160422. Updated (much of it worked, with expressions)

- ch10 (template EPLAN)
- ch11 (template TIA)
- ch12 template (partially worked, with new dynamic expressions)

20160421 updated

- Ch6 mapping not work.
- ch7 non-template EPLAN
- ch8 non-template TIA (generated tia project is empty).

<http://proxyconf-uba.siemens.net/>

TIA SW CONFIG 20160420

somehow finally got fd4 imported. Long story >>

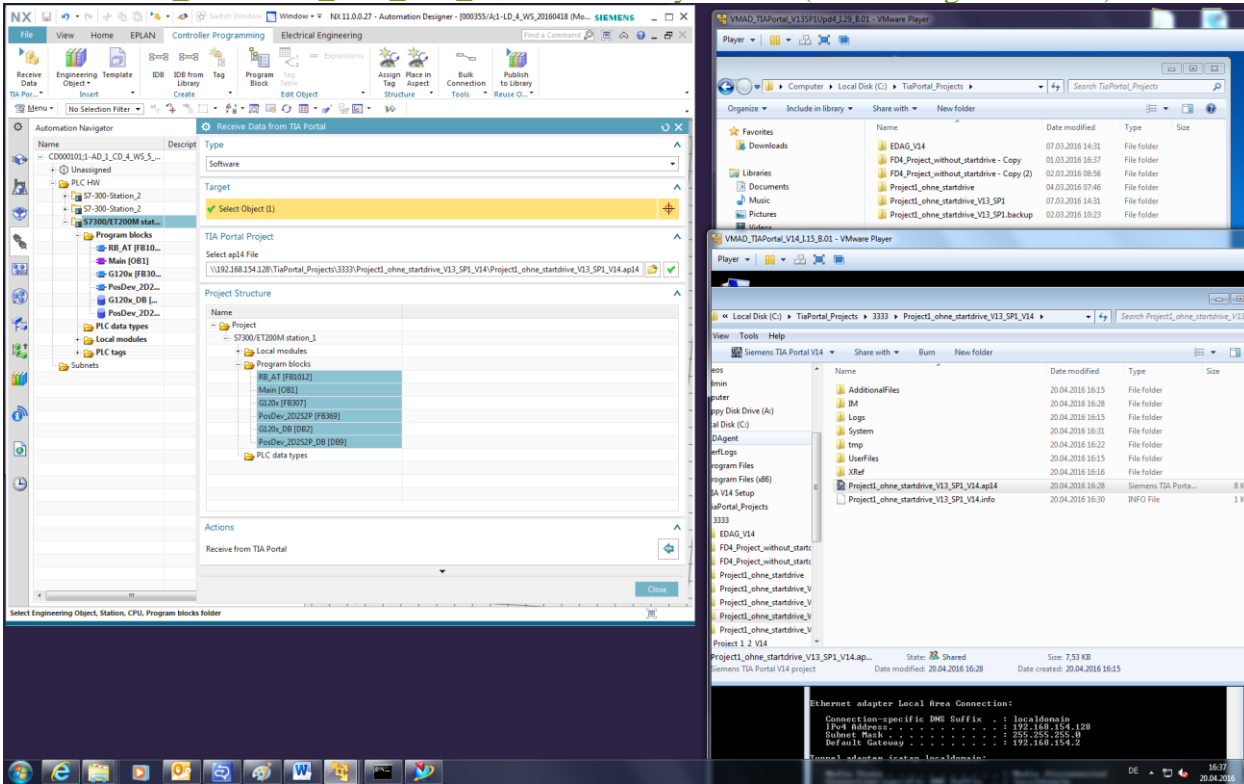
1. could not get FD4 SW (with RB_AT, etc.) from from VMAD_TIAPortal_V14_I.14_B.01 to work in VMAD_TIAPortal_V14_I.15_B.01.

tried a lot, finally talked with Stephan, this does not work.

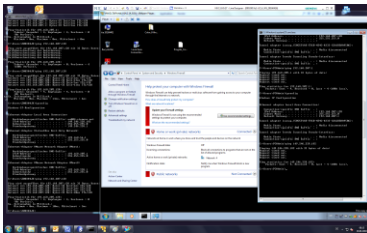
Can not go from V14-I.14 to V14_I.15 does not work.

2. went from VMAD_TIAPortal_V13SP1Upd4_I.29_B.01.

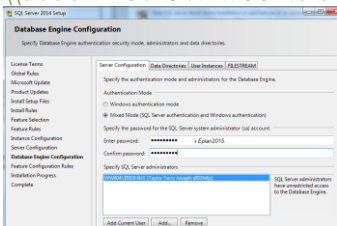
To VMAD_TIAPortal_V14_I.15_B.01. that finally worked (hours to figure this out).



EPLAN CONFIG 20160420



https://asrdwiki.siemens.com/AD/index.php?title=How_to_Install_MS-SQL_Express_for_EPLAN_\\debonk10c19.ww004.siemens.net\ADNX\Tools\EPLAN\MS_SQL_Server_Express_2014



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Comments (20160314)

This page is not part of release doc.

Doc goal

The goal of this GS is

1. Hands-on training with minimal assistance.
2. Avoid bugs (steer the reader around them).
3. Focus on main workflows (not show all functionality).

I basically took the automotive example and described how to configure it step-by-step (all screenshots and movies in this GS are from my PC). step-by-step because the most difficult part of AD is simply all the numerous steps you must perform, the various tools involved, the details.

Formatting

This GS will be migrated to SIPS, then from SIPS to xCat. So I have not bothered with standard MS_Word formatting. Cross-references and numbering have been manually added. Section numbers are sometimes out of order, because I move sections but kept the numbering the same (to avoid confusion; pic files are usually named by section #). The English grammar mistakes, punctuation, capitalization will be fixed after I am done with the content.

Graphics

I created rough draft diagrams with Adobe Illustrator. Someone can easily "clean them up" to meet Siemens standards. I put them in this ms.word doc in .emf format.

The .ai source and .eps (for xcat) files are in \\debonk10c19\ADNX\Teams\Documentation\10_Meetings\ai.

Variable names (20160216)

This chapter is not part of the released doc. Simply lists var names used in GS1 (need to standardize).

Ch 3, 4 create LD workset

Section	Type	Name
3.2	LD CD (Business object - plant design)	LD_1_CD
3.3	LD partition scheme	LD_2_PTS
3.4	LD partition	LD_3a_PTO_Line LD_3b_PTO_Station LD_3c_PTO_Zone
4.2	LD workset (Model - line designer study)	LD_4_WS
4.4	LD subset	LD_5_SS
4.5	??? TERRY: think this is auto-set you cant set it	(conveyors)

Ch 5 create ad workset

Section	Type	name
*(5.3)	AD CD	AD_1_CD_4_WS_5_SS
	AD partition scheme ?	
	AD partition ?	
5.3	AD workset	AD_1_CD_4_WS_5_SS
*(5.3)	AD subset	AD_1_CD_4_WS_5_SS
5.6		(EOs)

* AD CD and subset are autocreated when you create AD workset/project.

EODefs

EODef	Classification Root
1. EODATMname (created above)	Device / A ->1 purpose or task / AT
2. EODTLname	Device / U-Keep
3. EODGLname	Device / G-Generator / GL-Continuous flow
4. EODMAname	Device / M-Motor / MA-Electromagnetic
5. EODBGname	Device / B-Measurement / BG-Gauge,position
6. EODTFname	Device / T-Conversion / TF-Signals
7. EODKFname	Device / K-Processing / KF-Electrical signals
8. EODCHname	Devicefunction / Electrical / Input/output

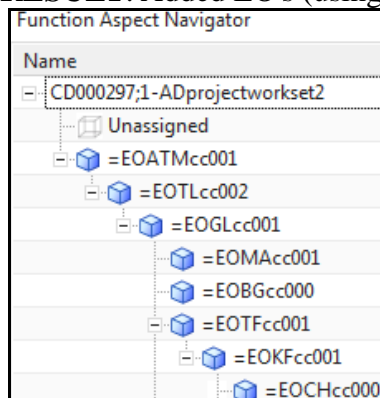
naming rules

Character code	Classification parent
1. EOATMcc (created above)	Device / A ->1 purpose or task / AT
2. EOTLcc	Device / U-Keep
3. EOGLcc	Device / G-Generator / GL-Continuous flow
4. EOMAcc	Device / M-Motor / MA-Electromagnetic
5. EOBGcc	Device / B-Measurement / BG-Gauge,position
6. EOTFcc	Device / T-Conversion / TF-Signals
7. EOKFcc	Device / K-Processing / KF-Electrical signals
8. EOCHcc	Devicefunction / Electrical / Input/output

advanced aspect naming rules

EO type	Classification	Name in aspects / Product
Conveyor	Device -> G Generator -> GL Continuous flow of solid Materials	Conveyor
Sensors	Device -> B Measurement -> BG Gauge, position, length	Sensor
Motor	Device -> M Motor -> MA Electromagnetic	Motor
G120D Power Module	Device -> T Conversion -> TF Signals	Drive_Power
G120D Control Module	Device -> K Processing -> KF Electrical Signals	Drive_Controller

RESULT: Added EO's (using default names).



Ch 7 configure non-template EPLAN

C:\Users\Z003H4JX\Desktop\AD_EPLAN_Project_Template_V25.zw9

\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\Universal Templates\EPLAN_Macros\DRIVE_G120D_PM250D_1.emp.

	Device property	Value
1	General.Description	Page.Macro.Descr250
2	KF01.Function text	KF01.function text
3	KF01.Name	KF01.name
4	MA01.Function text	MA01.function text
5	MA01.Name	MA01.name
6	TF01.Function text	TF01.function text
7	TF01.Name	TF01.name
8	WD02.Function text	WD02.function text
9	WD02.Name	WD02.name
10	Description	Description250
11	Full page name	(locked)
12	Function	Functiontext 250
13	Location	Locationtext 250
14	Page name	1

Ch 8 configure non-template TIA

\\debonk10c19\ADNX\PROJECT_SHARE_WITH_CYP\TIA_Portal_XML\FD4_Project_without_startdrive.zip Project1_ohne_startdrive.ap13

- OB1
- RB_AT
- G120x
- PosDev_2D2S2P

Tag	Properties	value
FRG_EStop	Name	FRG_EStop
	Memory Section	Input
	Data Type	Bool
	Description	FRG_EStop button
	Address	M%x.x
FRG_BS	Name	FRG_BS
	Memory Section	Input
	Data Type	Bool
	Description	FRG_BS button
	Address	M%x.x
IBN0	Name	IBN0
	Memory Section	Input
	Data Type	Bool
	Description	IBN0 button
	Address	M%x.x
Reset	Name	Reset
	Memory Section	Input
	Data Type	Bool
	Description	Reset button
	Address	M%x.x

Name	DI1
Memory Section	Input
Data Type	Boolean
Description	Sensor 1
Address	Xxx

"Symbolic Name" "Data Type" select "Value" "DI1sn".

Name	PID0
Memory Section	Input
Data Type	DWord
Description	PID0 descr
Address	2100

"Symbolic Name" "Data Type" select "Value" "PID0sn".

Category	Operational_1
Title/Alias	Fast_Speed
Data Type	String
Value	Real#20.0

The following table summarizes.

	Call param	Value	TYPE
1.	EN_ADV	ENABLE_ADV	Local variable
2.	EN_RTN	ENABLE_RTN	Local variable
3.	IL_ADV	INTERLOCK_ADV	Local variable
4.	IL_RTN	INTERLOCK_RTN	Local variable
5.	PB_ADV	PUSHBOTTOM_ADV	Local variable
6.	PB_RTN	PUSHBOTTOM_RTN	Local variable
7.	LS_ADV	DI1	Symbolic reference
8.	SW_FS_ADV	DI2	Symbolic reference
9.	SW_FS_RTN	DI3	Symbolic reference
10.	LS_RTN	DI4	Symbolic reference
11.	SEL_SLOW	RLO 0	Local variable
12.	AUTO_MODE	auto_inching	Local variable
13.	MANU_MODE	manual	Local variable
14.	MOTOR_PROT	RLO 1	Local variable
15.	MOTOR_TEMP	RLO 1	Local variable
16.	ERR_RESET	ERROR_RESET	Local variable
17.	LAMP_TEST	Lampstest	Local variable
18.	TM_OP	50	Local variable
19.	TM_LS	20	Local variable
20.	TV_STARTUP	20	Local variable
21.	Visu	Interface_Visu.Model[2]	Local variable
22.	Alarms	Interface_Alarms.Model[2]	Local variable
23.	ADV	OUT_ADV	Local variable
24.	RTN	OUT_RTN	Local variable
25.	FAST	OUT_FAST	Local variable
26.	SLOW	OUT_SLOW	Local variable
27.	MEMO_ADV	MEMO_ADV	Local variable
28.	MEMO_RTN	MEMO_RTN	Local variable
29.	POSIT_LS_ADV	POSIT_LS_ADV	Local variable
30.	POSIT_LS_RTN	POSIT_LS_RTN	Local variable
31.	LAMP_LS_ADV	LAMP_LS_ADV	Local variable
32.	LAMP_LS_RTN	LAMP_LS_RTN	Local variable
33.	TOTAL_FLT	TOTAL_FLT	Local variable

The following table summarizes.

	Call param	Value	type
1.	INPUT_ADDR	PID0	Symbolic reference
2.	I_M	PID1	Symbolic reference
3.	A_F	PID2	Symbolic reference
4.	FAST_SPEED	Real#20.0	Constant value
5.	SLOW_SPEED	Real#10.0	Constant value
6.	EN_FWD	OUT_ADV	Local variable
7.	EN_BWD	OUT_RTN	Local variable
8.	EN_FAST	OUT_FAST	Local variable
9.	EN_SLOW	OUT_SLOW	Local variable
10.	EM_STOP	ENABLE_SAFETY	Local variable
11.	ERR_RESET	ERROR_RESET	Local variable
12.	OUTPUT_ADDR	PQD0	Symbolic reference
13.	ACT_SPEED	ACT_SPEED	Local variable
14.	ACT_CURRENT	ACT_CURRENT	Local variable
15.	ACT_TORQUE	ACT_TORQUE	Local variable
16.	EN_MOTION_FWD	EN_MOTION_FWD	Local variable
17.	EN_MOTION_BWD	EN_MOTION_BWD	Local variable
18.	FAULT_ACTIVE	FAULT_ACTIVE	Local variable
19.	ALARM_ACTIVE	ALARM_ACTIVE	Local variable
20.	FAULT_MSG	FAULT_MSG	Local variable
21.	ALARM_MSG	ALARM_MSG	Local variable

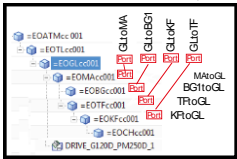
Set the absolute address of the top element GL to 2100. Enter the tag address 2100.

Ch 10 configure template ready eplan

- Function: `subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)`
- Location: `subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)`
- GLtoKF, KFtoGL
- For 250 KF01.Name: `AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)`

FINISH (OPTIONAL) =====

- GLtoMA, MAtoGL
- GLtoBG1, BG1toGL (2,3,4) (for 240)
- GLtoTF, TFtoGL
- GLtoKF, KFtoGL (created already in ch 10 for macro 250)



250 expressions (dark green completed earlier).

Device property	Value
KF01.Function text	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)</code>
KF01.Name	KF01.name
MA01.Function text	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoMA")),Function)</code>
MA01.Name	MA01.name
TF01.Function text	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoTF")),Function)</code>
TF01.Name	TF01.name
WD02.Function text	WD02.function text
WD02.Name	WD02.name
Description	Description1
Full page name	(locked)
Function	<code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)</code>
Location	<code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)</code>
Page name	1

\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\Universal Templates\EPLAN_Macros\DRIVE_G120D_CU240_IO_1.emp. 240 expressions.

Device property	Value
BG01.Name	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG1")),Function)</code>
BG02.Name	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG2")),Function)</code>
BG03.Name	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG3")),Function)</code>
BG04.Name	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG4")),Function)</code>
KF01:2.Function text	KF01:2. Functiontext
KF01:2.PLC address	E1-2
KF01:2.Symbolic address	KF01:2.SymAddr
KF01:4.Function text	KF01:4.Function text
KF01:4.PLC address	E1-4 ???
KF01:4.Symbolic address	KF01:4.SymAddr
KF01.Function text	<code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)</code>
KF01.Name	KF01.name
MB01.Name	MB01.Name
MB02.Name	MB02.Name
Description	Description1
Full page name	(locked)
Function	<code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)</code>
Location	<code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)</code>
Page name	1

Ch 11 config template ready TIA

symbolic names

RB_AT	AD_GetDesignation(AD_GetEngObject(),Function)+".RB"
RB_AT_DB	AD_GetDesignation(AD_GetEngObject(),Function)+".RBDB"
PosDev_DB	AD_GetDesignation(AD_GetEngObject(),Function)+".POSDEVDB"
G120x_DB	AD_GetDesignation(AD_GetEngObject(),Function)+".G120DB"

- Create ports BG1toCH1 and CH1toBG1
- For DI1 set the symbolic name to:
AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH1toBG1")),Function)+".CH"
- For PID0 set the symbolic name to: AD_GetDesignation(AD_GetEngObject(),Function)+".PID0"
- Create TLtoFRGStop port (in EO TL)
- In RB_AT for DI1 set the symbolic name to the following expression .
First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoFRGStop"))

FINISH (OPTIONAL) =====

Create TLtoFRGBS, TLtoIBN0, TLtoReset ports in EO TL.

TLtoFRGBS	First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoFRGBS"))
TLtoIBN0	First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoIBN0"))
TLtoReset	First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoReset"))

Category	Operational
Title/Alias	Slow_Speed
Data Type	String
Value	Real#10.0

- CH2toBG2
- CH3toBG3
- CH4toBG4
- BG2toCH2
- BG3toCH3
- BG4toCH4

Tag	Properties	Value
DI2	Name	DI2
	Memory Section	Input
	Data Type	Boolean
	Description	Sensor 2
	Address	1.3
	Symbolic name	AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH2toBG2")),Function)+".CH"
DI3	Name	DI3
	Memory Section	Input
	Data Type	Boolean
	Description	Sensor 3
	Address	1.4
	Symbolic name	AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH3toBG3")),Function)+".CH"
DI4	Name	DI4
	Memory Section	Input
	Data Type	Boolean
	Description	Sensor 4
	Address	1.5
	Symbolic name	AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH4toBG4")),Function)+".CH"

PIDs, PQD

Tag	Properties	Properties
PID1	Name	PID1
	Memory Section	Input
	Data Type	Dword
	Description	PID1 descr
	Address	2104
	Symbolic name	AD_GetDesignation(AD_GetEngObject(),Function)+".PID1"
PID2	Name	PID2
	Memory Section	Input
	Data Type	DWord
	Description	PID2 descr
	Address	2108
	Symbolic name	AD_GetDesignation(AD_GetEngObject(),Function)+".PID2"
PQD0	Name	PQD0
	Memory Section	Output
	Data Type	Dword
	Description	PQD0 descr
	Address	2112
	Symbolic name	AD_GetDesignation(AD_GetEngObject(),Function)+".PQD0"

RB_AT call to PosDev

Call param	Value	TYPE
SW_FS_ADV	DI2	Symbolic reference
SW_FS_RTN	DI3	Symbolic reference
LS_RTN	DI4	Symbolic reference

RB_AT call to G120x

Call param	Value	type
I_M	PID1	Symbolic reference
A_F	PID2	Symbolic reference
SLOW_SPEED	Real#10.0	Constant value
OUTPUT_ADDR	PQD0	Symbolic reference

Ch 12 create / instantiate template

- GL01. Click "System Design / Create Template". For "Name" enter "GL_template".
- TERRY: Andreas says in FD7 will change. Set the address of the top EO in template, and the rest have a relative address. 1. Set the absolute address of the top element GL to 1100.
- 2. modify the PID tag memory location (20151221)

0. Cover Page (20160310)

20160128 TERRY: following from operation manual.

Thank you for relying on Siemens quality and for choosing Automation Designer as your solution for electrical and automation engineering.

Automation Designer is intended for electrical engineers and automation engineers from the discrete industry who work in teams on multi-disciplinary projects. By focusing on reusability, rule-based engineering, and cross-discipline collaboration and data integration, Automation Designer improves the consistency of such projects, reduces the time and cost invested in them, and increases the productivity of the entire production engineering process.

This User Guide introduces the functionality of AD with hands-on step-by-step examples.

Chapter overview

Ch 1 "Concepts" introduces AD concepts.

Ch 2 "Overview of this Getting Started" provides an overview of each chapter.

Then there are 3 parts (130 pages total; each part has 3-4 chapters) that demo the basics.

"Part 1. Create LD/AD TC components" shows how to create the Teamcenter (TC) Line Designer (LD) and AD components. I show how the 4GD components in TC correspond to the AD and LD components (I wrote my best guess at what is going on behind the scenes).

"Part 2. Configure (non-template) LD, EPLAN, TIA" shows how to map LD-AD and generate EPLAN schematics and TIA (Total Integration Automation) SW blocks for a single conveyor without using expressions or ports. Its simply too complex for a student to introduce templates, expressions and ports before the student has gotten used to working with TC, AD, LD, EPLAN, and TIA (few students have experience working with all 5 of these tools).

"Part 3. Create/instantiate template" introduces expressions, ports and templates. Templates allow you to quickly created components.

Ch13 then shows 2 things. (1) How to complete the project. In parts 2-3 you created a project with only 1 sensor BG, 1 channel CH, etc. (to keep things simple). as a review you created the missing items. (2) How to "roundtrip" template changes (YOU CANT ROUNDTRIP NOW, SO JUST COMPLETE THE CONVEYOR AND CREATE A NEW TEMPLATE).

Part 4. Real-world examples

20160310 talked with Andreas about this.

maybe 3-4 different template demos, for different business segments.

Part 5. AD functional details

In this part try to take a lot from

1. AD_GS_v222_20160128_1522_second_half_20160302.doc
2. User guide

1. Concepts (20160217)

20160128 TERRY: this chapter not ready. Content is just my thoughts. Need a lot of review with experts (had no review yet).

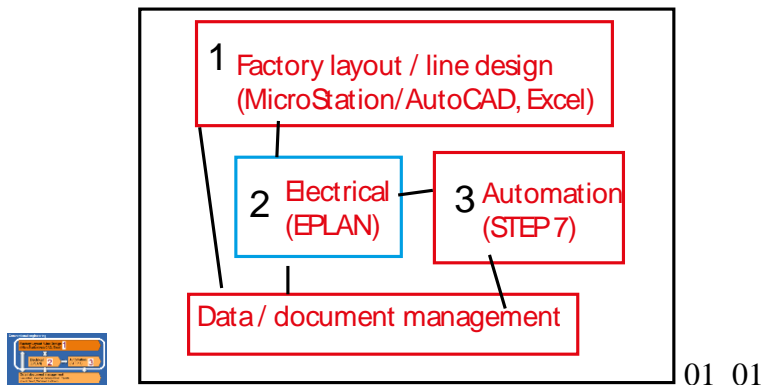
This chapter describes basic AD concepts.

- 1.1. Conventional automation/electrical engineering
- 1.2. Problems
- 1.3. Solution
- 1.4. Workflows
- 1.5. CD details

1.1. Conventional Automation/Electrical Engineering

Creation of the automation software (TIA) and electrical schematics (EPLAN) is traditionally not coupled with the factory layout (LD).

Conventional engineering



1. Factory layout and line design uses LD to design a production line.

2. Electrical engineering uses EPLAN to generate schematics for the production line.

3. Automation uses TIA to generate PLC SW and tags for specific PLC hardware.

1.2. Problems

There are 3 basic problems with the above situation:

1. The LD, EPLAN, and TIA designers must manually synchronize their configurations.
2. TIA SW and tag names have no relationship to EPLAN schematic variables.
3. EPLAN and TIA components that repeat (such as conveyors) must be created individually.

The diagram below shows the constant manual flow of information (emails, etc.) between the 3 development groups

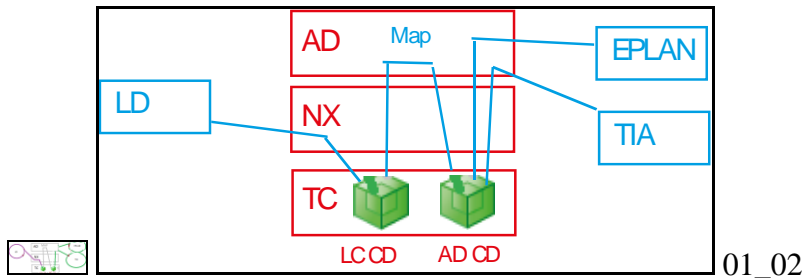


1.3. Solution

AD solves the problems above by

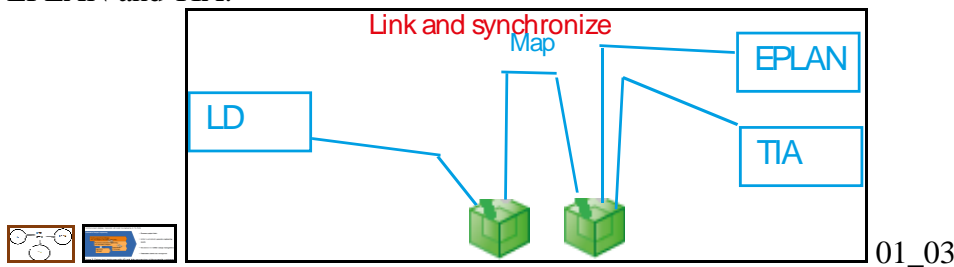
1. Enabling all 3 groups to work on a single platform (NX) as a single team.
2. Linking the LD CD with the the EPLAN/TIA CD.

The following diagram shows how AD based on NX can serve as the central development tool for the entire project lifecycle for mechanics (LD), electrical (EPLAN) and automation (TIA). The 2 TC CDs (Collaborative Design), one for LD and another for EPLAN/TIA, are the central project databases (CDs are described in the next section). You can link (map) LD CD and AD CD elements (in this GS they are conveyors).

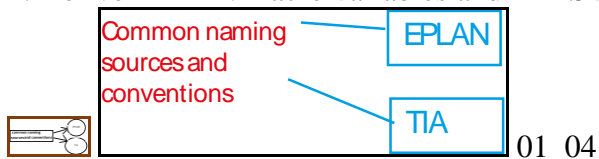


This allows you to

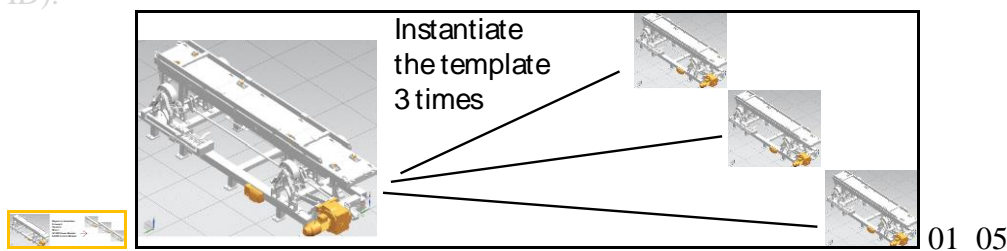
1. Easily determine when the LD configuration is not synchronized with the configuration used to generate EPLAN and TIA.



2. Derive EPLAN macro variables and TIA SW and tag names from the same source.

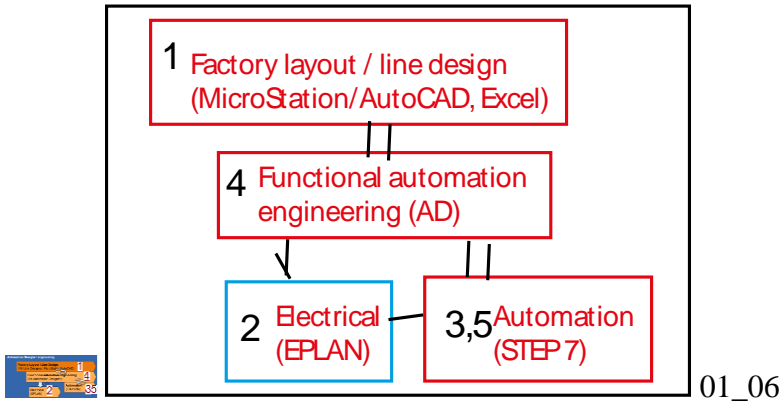


3. Use drag and drop to create components (such as conveyors) from templates for the AD CD. Create templates that can be instantiated multiple times (with the components in each instantiation having a unique ID).



1.4. Workflows (20160210)

Automation Designer engineering



The following describes the basic AD workflow with references to chapters in this GS.

1. Factory layout / line design (TC, LD)

In TC create the LD CD (ch 3).

In LD create 2 conveyors (ch 4).

2. Electrical (EPLAN)

Assemble the required macros (for import later to AD).

3. Automation (TIA)

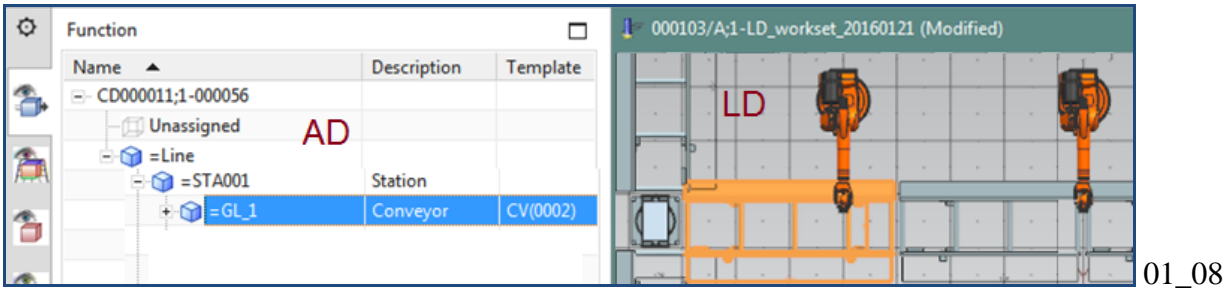
Configure the required TIA HW, SW and tags (for import later to AD).

4. Functional automation engineering (AD)

1. In AD create a model of a single conveyor (ch 5).

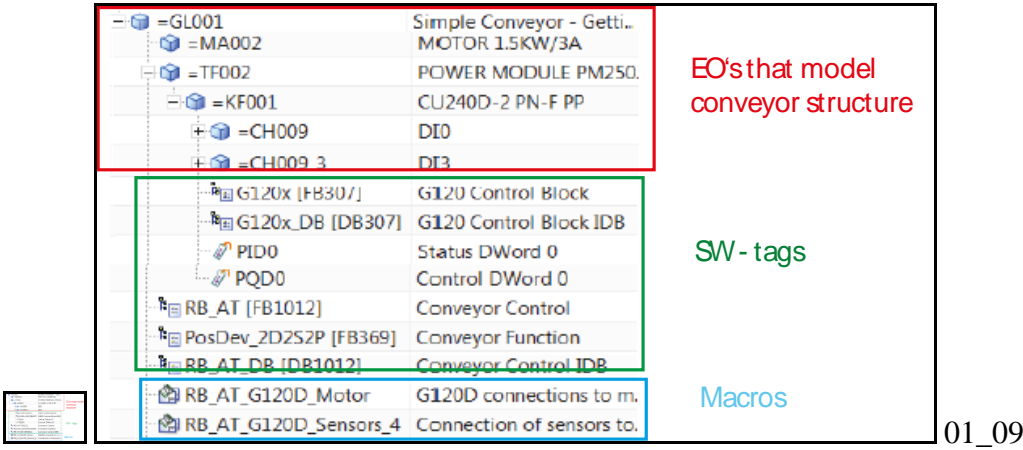


2. Map the AD conveyor to one of the LD conveyors (ch 6).



01_08

3. Add SW and EPLAN to the AD conveyor aspect tree and generate EPLAN/TIA (ch 7 and 8).



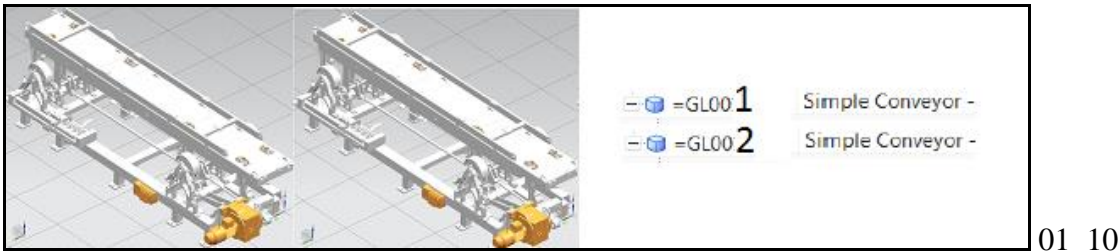
01_09

(Ch 9 is concepts chapter).

4. Configure EPLAN and TIA in the AD model for inclusion in templates (ch 10,11).

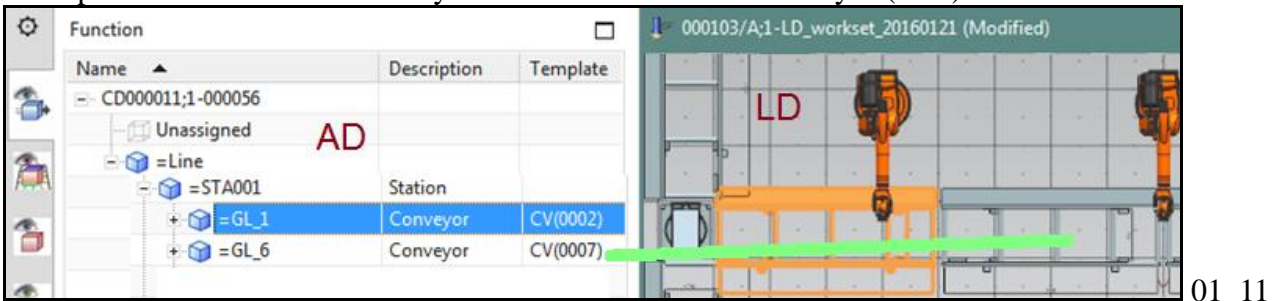
5. Create a template (12.0b).

6. Instantiate template with minimal modifications for a conveyor (12.1). You now have 2 conveyors.



01_10

7. Map the instantiated AD conveyor to the second the LD conveyor (12.3).



01_11

8. Generate EPLAN, TIA (12.4, 12.5).

xxxx5. Automation (TIA)

Test the project and download to the physical HW. (TERRY: ????)

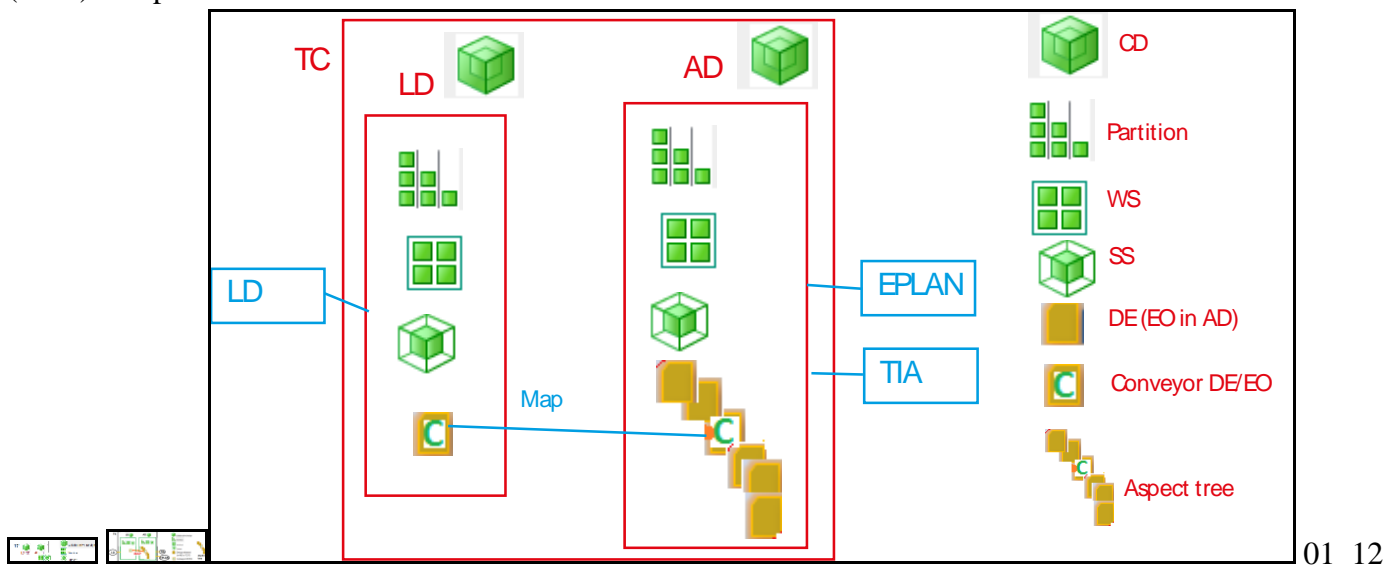
1.5. CD details

Working with AD means working with TC 4GD components. This section describes

- 1.5.1. LD/AD CD structure
- 1.5.2. 4GD component details
- 1.5.3. Creating LD CD components (ch 3-4)
- 1.5.4. Creating AD CD components (ch 5)

1.5.1. LD/AD CD components

The TC CDs for LD and AD shown in the section 1.3 are based on the following 4th Generation Design (4GD) components.



1.5.2. 4GD component details

1. CD
2. Partition scheme
3. Partition
4. Workset
5. Subset
6. Design element
- xxx7. Example

1. CD



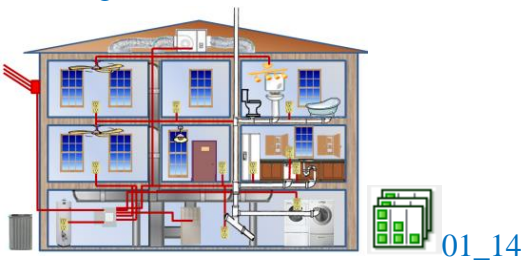
01_13

A collaborative design is a model of a project/product that is developed by a team of contributors. The elements of the model are arranged in a hierarchy that allows team members to collaborate and author common project/product information in an efficient manner.

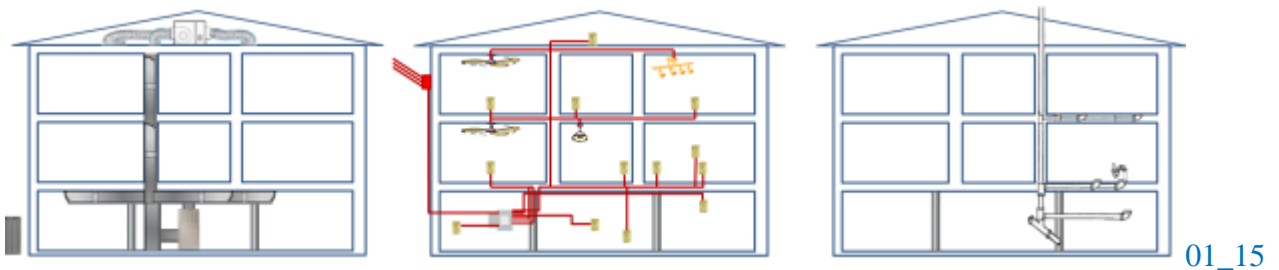
A collaborative design object is the container object in TC of all the design data that defines a product or a class of products.

2. Partition scheme

Partition schemes can be functional, spatial, or physical, by default. Partitions are created within partition schemes. For example, in a 4GD design of this house, different types of partitions can be used to organize the design elements.



- Functional: A functional partition scheme could contain partitions containing the HVAC (heating, ventilation and conditioning), electrical, and plumbing systems.



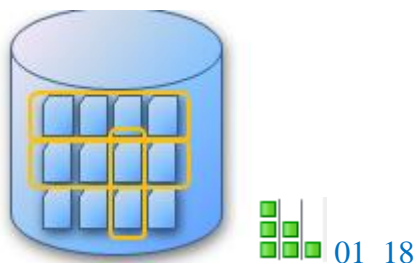
- Spatial: A spatial partition scheme could contain partitions for each floor. By default, spatial partitions are defined by a recipe so that new design elements are automatically added to the partition.



- Physical: A physical partition scheme could contain partitions organizing each individual physical room.



3. Partition

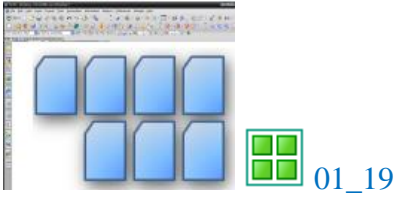


A partition object is an organizational container in the CD to help you organize and find data. Partitions can be organized in multiple ways, for example, by function, by spatial location, or by physical description.

Unlike traditional subassemblies, partitions do not control the position or any other property of a DE. DEs can be placed in multiple partitions. For example, in a CD of a house, a section of pipe might be part of a plumbing partition and part of the kitchen partition.

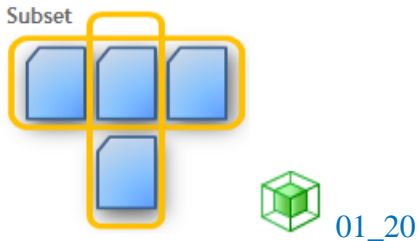
Partitions can be static, where designers must manually add DEs to them, or dynamic, where the contents of the partition are defined by search criteria.

4. Workset



A workset object is the collection of DEs in your NX session. A workset is defined by one or more subsets. There may be many DEs within the workset you work on in your NX session.

5. Subset



A subset object selects a set of design elements you want to include in your workset.

The subset may include specific design elements, or it may contain a dynamic recipe which defines partitions to search, spatial locations, and other search criteria.

The illustration here indicates that the design elements in your session may come from multiple subsets.

6. Design element



A design element object is a representation of a component in the product. It is a unique occurrence of 3D geometry in a specific location in the product design.

There are different types of DEs. A DE can reference an NX part or assembly model, or other types of geometry.

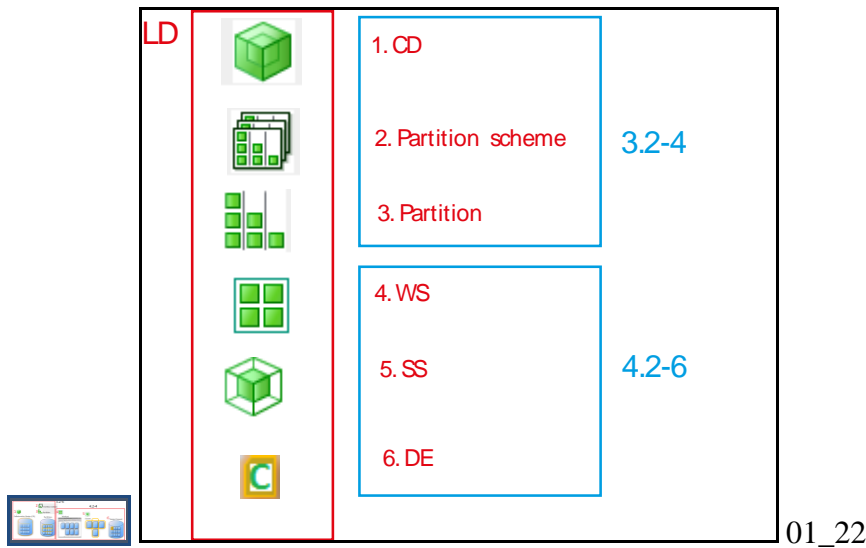
xxx7. Example

An example application would be a CD of a house in which multiple designers design the cabinets, appliances, plumbing, and wiring in the kitchen. This is the workflow:

1. CD. An administrator creates the CD object for the house design in TC.
2. Partition scheme and partition. An admin create the partition scheme and partition objects in TC. The partition schemes for the house design might include a functional partition scheme for the systems, and a physical partition scheme for the rooms. The functional PS includes partition objects for plumbing, heating and wiring. The physical PS includes partition objects for the different rooms of the house, including the kitchen.
3. Workset and subset: The project leader creates a new workset in NX. The project leader adds a subset with a recipe for selecting all DEs in the volume of the kitchen. The project leader saves the workset, and assigns it to the responsible designers.

1.5.3. Creating LD CD components (ch 3-4)

In ch 3-4 you create an LD CD, workset and DEs (conveyors).
The following diagram shows the steps.



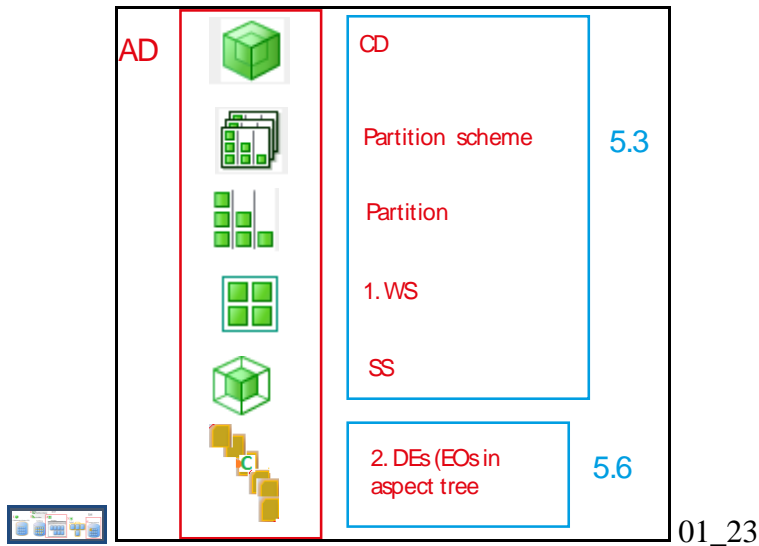
1.5.4. Creating AD CD components (ch 5)

In ch 5 you create an AD workset (which automatically creates a CD and subset) and engineering objects (EOs) in an aspect tree.



20160203 TERRY: partition scheme and partition are also automatically created?

The following diagram shows the 2 steps. In the last step you add the EOs (TC DEs) into the aspect trees (function, product and location aspects).



xxxx1.4.5. TC structures for EPLAN (ch 7) and TIA (ch 8)

Following shows when in this GS you use the data in the AD CD to create EPLAN and TIA.

1. Import into AD the EPLAN macros and TIA SW blocks and tags.
2. Configure.
3. Generate EPLAN and TIA output.





2. Overview of this Getting Started (20160217)

20160128 TERRY: proofread this chapter with Reinhard Simon. He ok'd it (with some corrections). It's a very short 6 page overview.

This chapter provides an overview of the steps described in chapters 3-13 for creating a very simple example AD project. The steps basically follow the work flow presented in the previous section "1.4. Workflows".

20160128 TERRY: don't talk about "parts" because I imagine that in xcat not possible to create this heading??

"Part 1: Create LD/AD mechatronic models" (25 pages)

Part 1 describes how to create the TC mechatronic models for LD and AD for a single conveyor.  

Ch 3 "TC: Create LD CD" describes how to create In TC the LD CD (collaborative design), partition scheme, and partition objects.

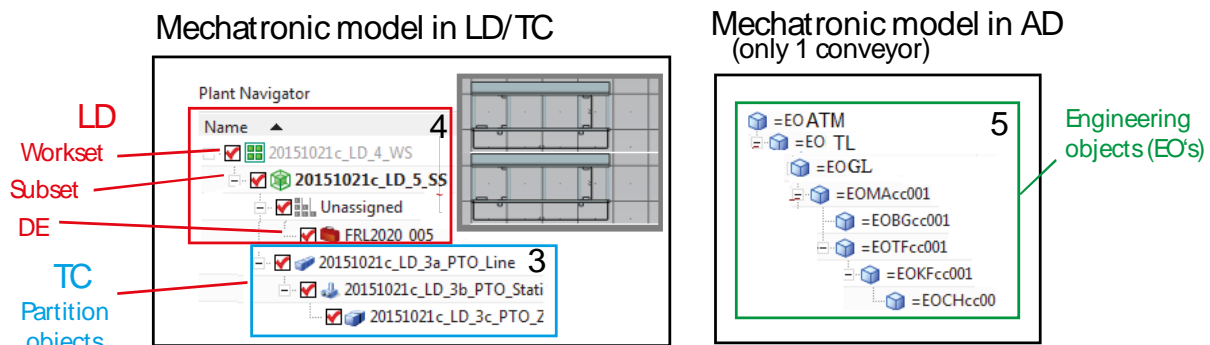
Ch 4 "LD: Create LD workset, subset + DEs" describes how to create DEs (design elements) for 2 conveyors.

Ch 5 "Create AD workset (and CD, SS) + EOs" describes how to Create an AD workset (which automatically creates the TC CD and subset) and AD engineering objects (EOs).

The following diagram shows the resulting models in LD and AD.

20160128 TERRY: talked with Reinhard about the EO names (EOMAcc001). I chose this type of name because it makes things clearer in examples (ask me for details).

Mechanical design in LD

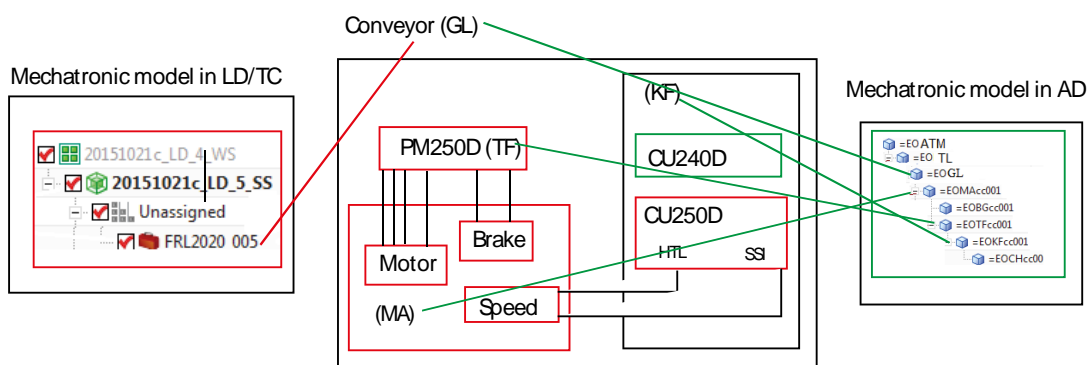


02_01

The following diagram shows how the LD DEs (design elements) correspond to the physical conveyor.   The following diagram shows how the AD EOs in aspect tree correspond to physical conveyor parts.  

The following diagram shows

1. LD DEs (left) that correspond to the conveyor (middle).
2. AD EOs (right) that correspond to conveyor components (middle).



  02_02

"Part 2: Config LD (map), EPLAN, TIA" (40 pages)

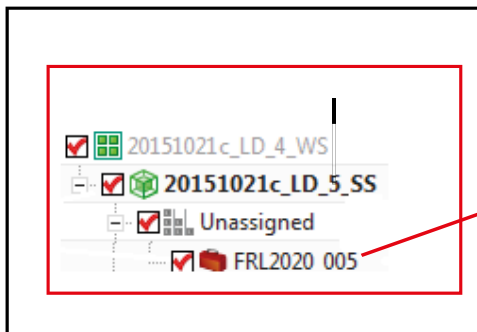
This part shows how to

1. Map the the LD and AD mechatronic models (ch 6).
2. Configure and generate EPLAN (ch 7).
3. Configure and generate TIA (totally integrated automation) (ch 8).



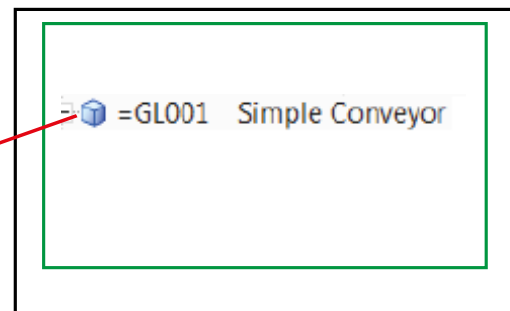
Chapter 6 "Map AD-LD" describes how to map the LD DE (for the conveyor) and AD EO GL (for the conveyor).

Mechatronic model in LD/TC



MAP

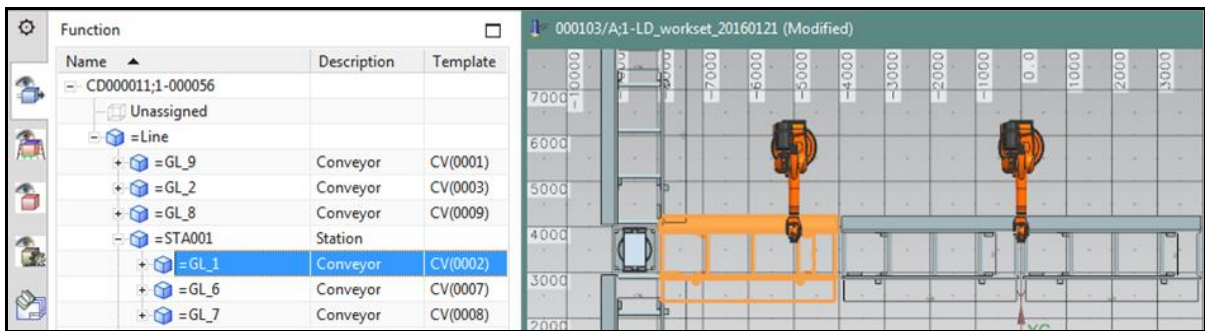
Mechatronic model in AD



02_03

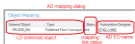
After mapping, you can select the conveyor DE in LD (left) or the EO GL in AD (right) and the both EO and DE are highlighted.

20160128 TERRY: example from Reinhard (I deleted half the pic).



02_04

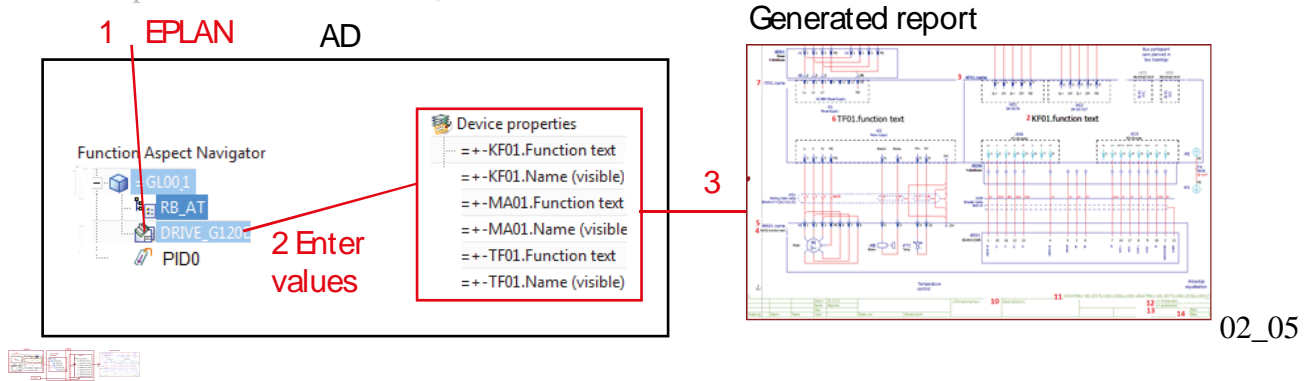
Original 



Chapter 7 "Configure EPLAN" describes how to

1. Import macros into AD.
2. Configure the macros (by setting values for the macro variables in AD).
3. Generate **schematic diagrams and** reports (BOM, etc.).

This diagram shows the actual equipment and the aspect model in AD of that equipment. you simply set the values for the macro variables in AD (in Part 3 you will learn how to use expressions/ports to use the aspect tree for macro vars).

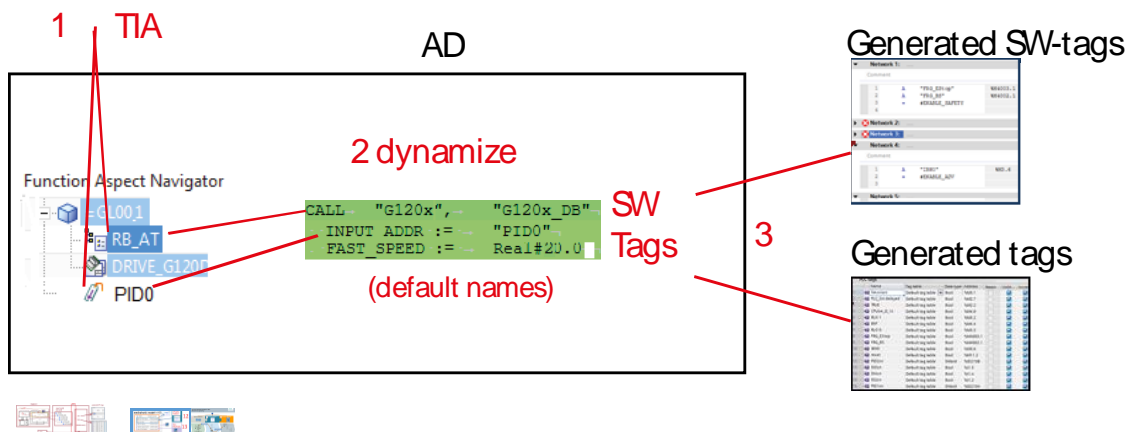


02_05

Chapter 8 "Configure (non-template) TIA" describes how to

1. Import TIA SW blocks (and tags).
2. **Dynamize** the SW (for a description of dynamization see ch 8).
3. Generate application SW for export to TIA.

This diagram also shows the actual equipment and the aspect model in AD of that equipment. The default names of the SW-tags in AD are used for output to TIA (in Part 3 you will learn how to use expressions/ports to use the aspect tree for SW-tag symbolic names).



02_06

"Part 3: Using templates" (55 pages)

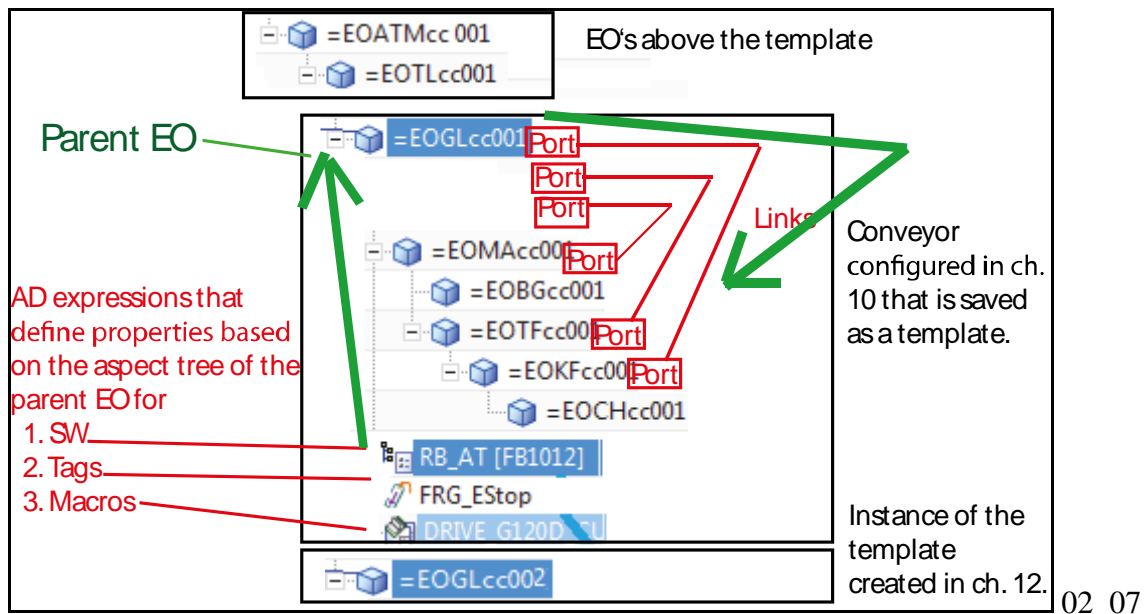
In this part you

1. modify the macros in AD as required for a template (ch 10).
2. modify the TIA SW blocks and tags in AD as required for a template (ch 11).
3. create a conveyor template in the reuse library, and then add to the project (ch 12).
4. manage template changes (ch 13).

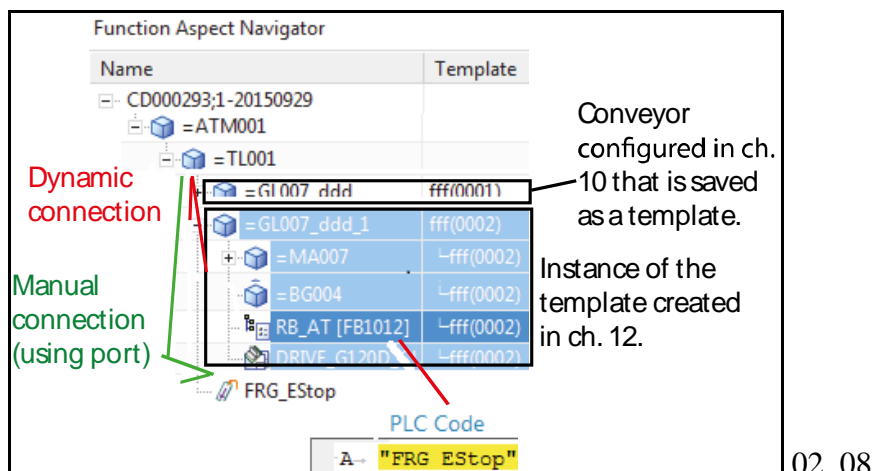


Ch 9 "Template-related concepts" describes

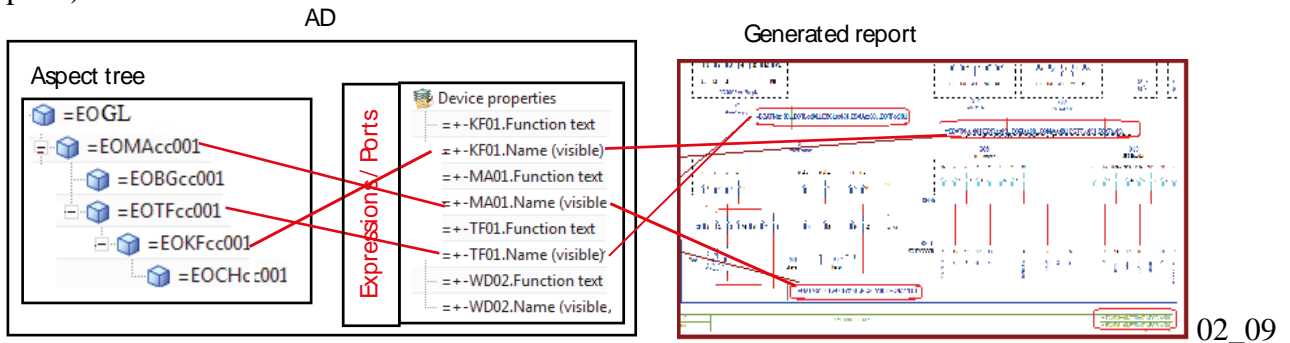
1. How macros, SW blocks and tags can access the aspect ID of an EO using expressions, ports, and links.



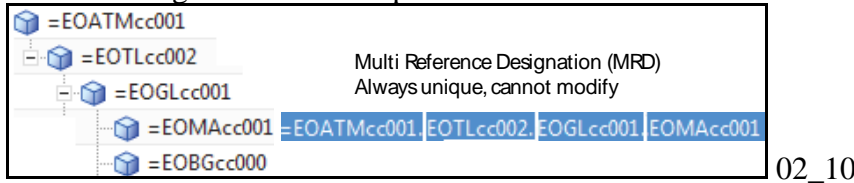
2. How dynamic connections allow an inserted template to automatically connect to tags outside the template.



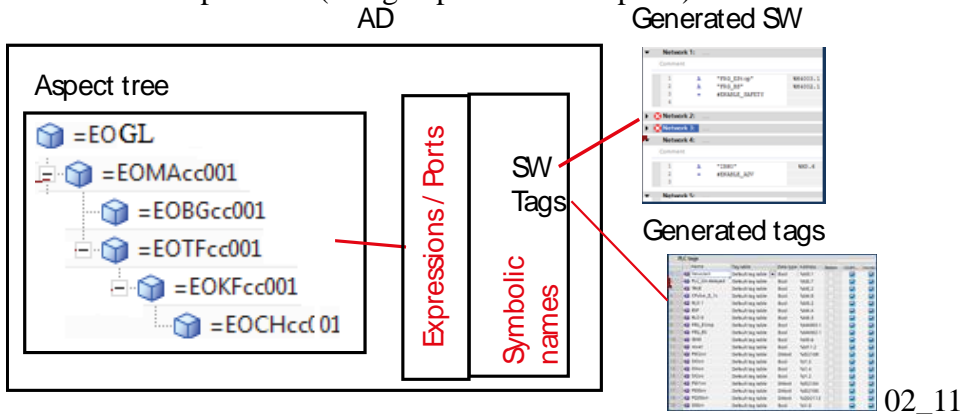
Ch 10 "Configure template-ready EPLAN" shows how to assign the value of macro variables to unique IDs (multiple reference designations, MRDs) based on the aspect tree (using expressions and ports).



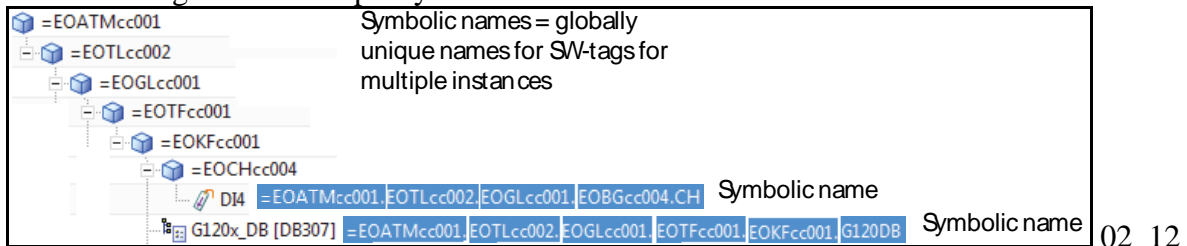
The following shows an example MRD.



Ch 11 "Configure template-ready TIA" shows how to set the SW block and tag symbolic names based on the aspect tree (using expressions and ports).

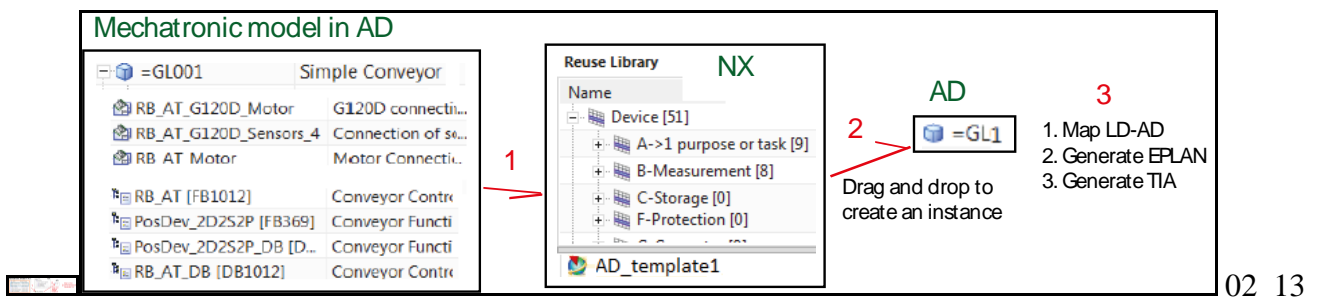


The following shows example symbolic names.



Ch 12 "Create/instantiate template" shows how to

1. Create a template and store in the reuse (solution) library.
2. Instantiate a template instance (for a conveyor).
3. Add LD mapping, **generate ECAD documents and generate PLC application SW.**



Part 1. Create LD/AD TC components

This part shows how to create the TC components for LD and AD.

3. TC: Create LD CD.

4. LD: Create LD workset + DEs.

5. AD: Create AD workset (and CD, SS) + EO's.

3. TC: Create LD CD (20160415)

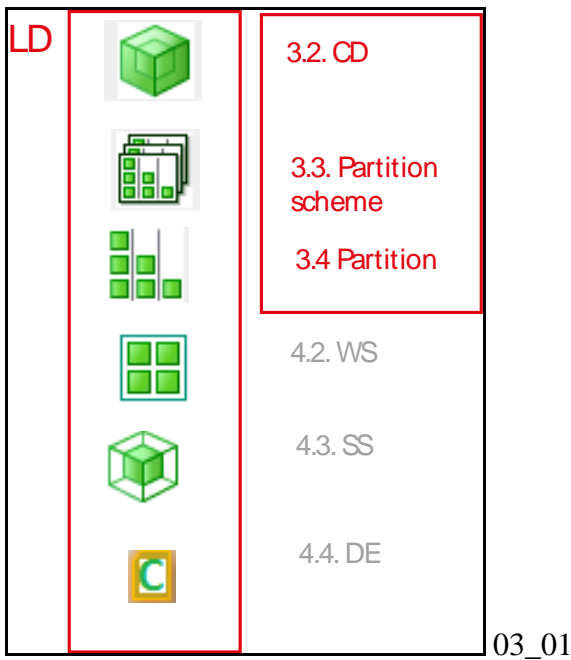
This chapter contains the following sections:

- 3.1. Workflow overview
- 3.2. Create plant design CD
- 3.3. Create partition scheme
- 3.4. Create partition objects
- xxx3.5. Result

3.1. Workflow overview



The following diagram shows the steps you perform in this chapter in TC.



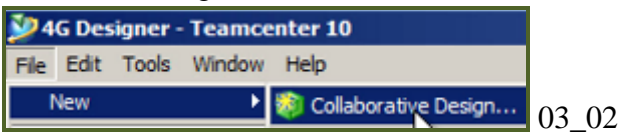
The following table shows the names you use. Such names make it easier to remember what they represent as you start adding other building blocks to your example.

Section	Type	Name
3.2	LD CD (Business object - plant design)	LD_1_CD
3.3	LD partition scheme	LD_2_PTS
3.4	LD partition	LD_3a_PTO_Line LD_3b_PTO_Station LD_3c_PTO_Zone

3.2. Create plant design CD



1. In 4GD Designer select File / New / Collaborative Design.

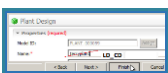


2. Select Plant Design.

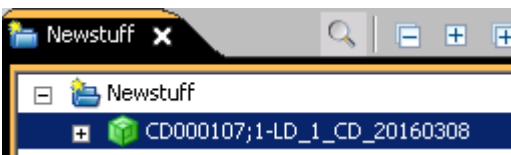


3. Create the plant with Name = "LD_1_CD".

Click assign.



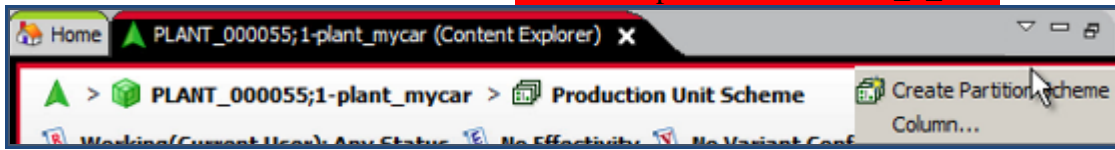
4. Click Finish. Click Close.



3.3. Create partition scheme

Partition scheme objects are organizational containers for partitions. They are created by the user and appear in the Collaborative Design Navigator in the...

1. Click on "Create Partition Scheme". Name at top should be "1-LD_1_CD"



03_05

2. Select "Production Unit Scheme".



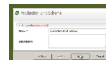
03_06

Click next

3. Set Name = "LD_2_PTS".

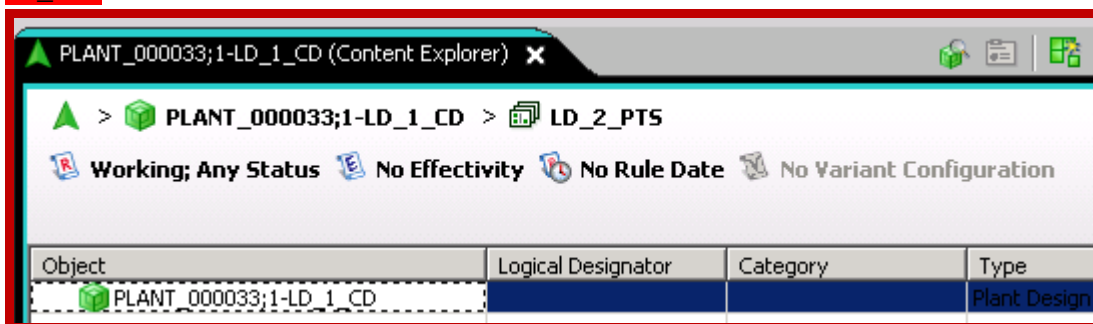


03_07



4. Click Finish. Click Close.

03_07b



3.4. Create partition objects

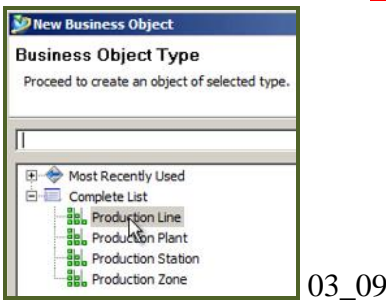
Create the partition objects (business objects) line, station and zone.



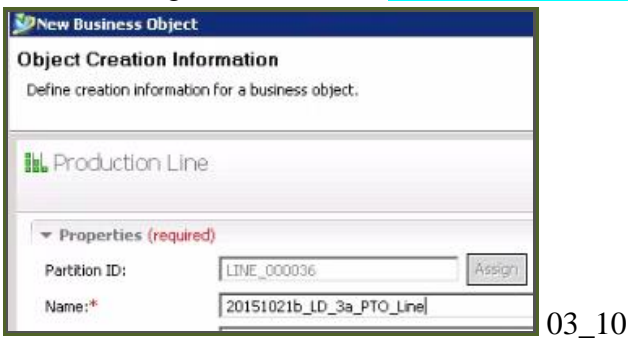
1. Click on "Create partition".



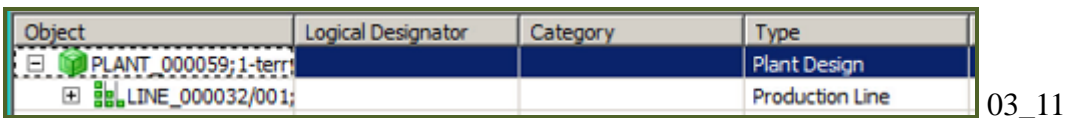
2. Select "Production Line". **Click NEXT**



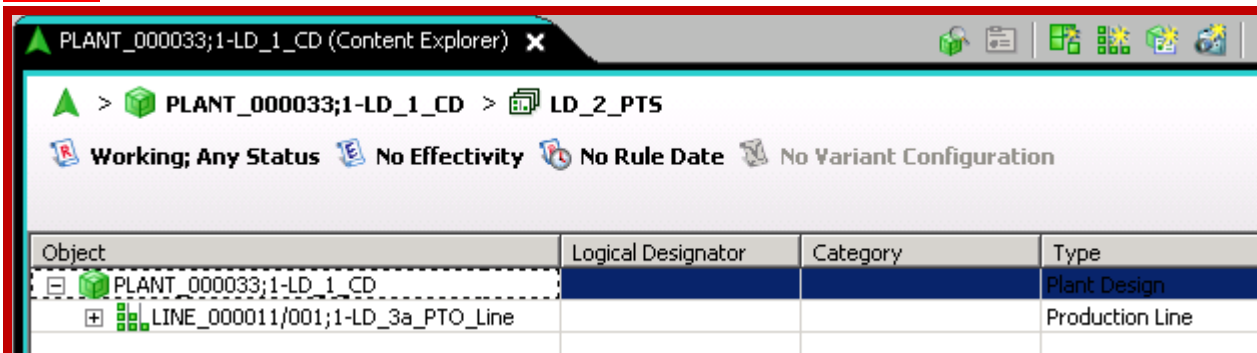
3. Click Assign. Set Name = "LD_3a_PTO_Line".



4. Click Finish. Click Close.



03_10b



5. Create a "Production Station" partition with Name = "LD_3b_PTO_Station".

20160301 TERRY. Does it matter where in the hierarchy this is?

6. Create a "Production Zone" partition with Name = "LD_3c_PTO_Zone".

Object	Logical Designator	Category	Type
PLANT_000059;1-terr			Plant Design
LINE_000032/001;			Production Line
STATION_000			Production Station
ZONE_000			Production Zone

03_12

03_12b

Object	Logical Designator	Category	Type
PLANT_000033;1-LD_1_CD			Plant Design
LINE_000011/001;1-LD_3a_PTO_Line			Production Line
STATION_000012/001;1-LD_3b_PTO_Station			Production Station
ZONE_000013/001;1-LD_3c_PTO_Zone			Production Zone

7. Send to 4GDesigner.

Object	Logical Designator	Category	Type	Effectivity Formula
PLANT_000072;1-plan			Plant Design	
LINE_000047/001;			Production Line	
STATION_000			Production Station	
ZONE_000			Production Zone	

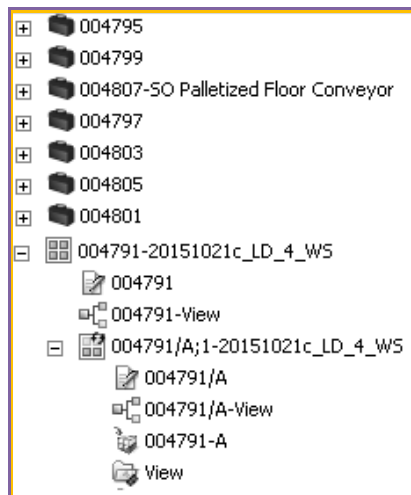
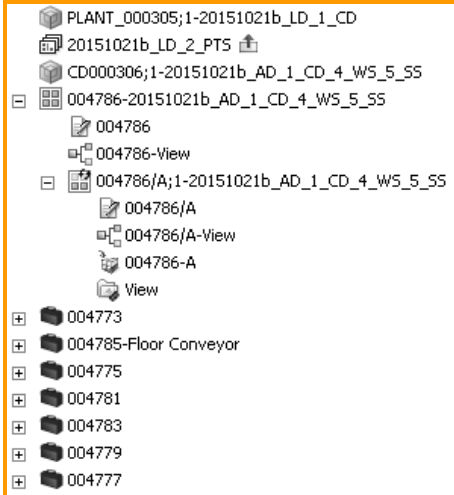
03_13

xxx3.5. Result in TC

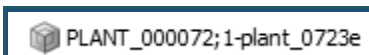
20160203 TERRY: leave this section out? Display in TC is strange, Andreas says maybe not discuss.

TERRY 20151027: on the left from a while back. On the right from 20151021. What objects should be in TC after adding LD objects? On the right where is Partition scheme? What about LD subset?

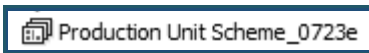
The following shows the resulting structure in TC.



1. CD.

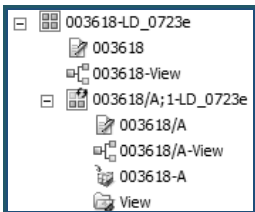


2. Partition scheme.



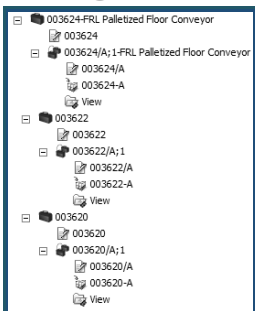
3. Partition?

4. Workset (project).



5. Subset? (this shown in LD, not TC??)

6. Design elements (conveyors).



4. LD: create LD workset, subset and DEs (20160428)

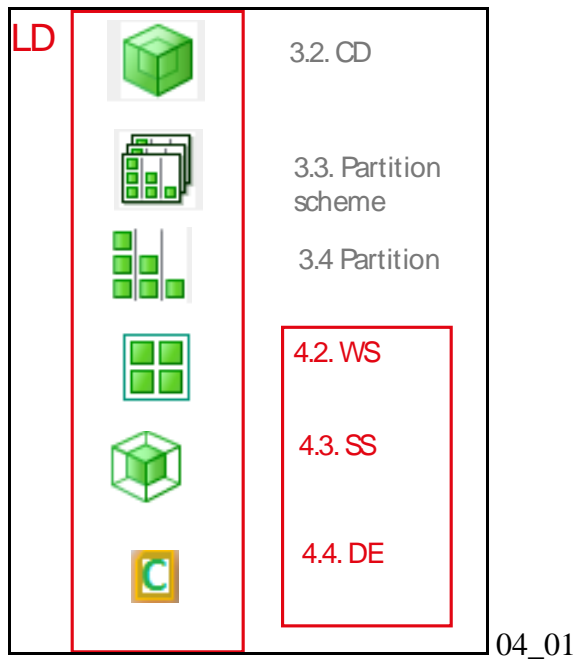
This chapter contains the following sections:

- 4.1. Workflow overview
- 4.2. Create LD workset
- 4.3. Create LD subset, add partitions (3) to recipe
- 4.4. Add 2 LD conveyors
- xxx4.5. Result

4.1. Workflow overview



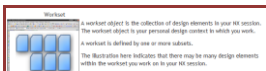
The following diagram shows the steps you perform in this chapter in LD.



The following table shows the names you use. Such names make it easier to remember what they represent as you start adding other building blocks to your example.

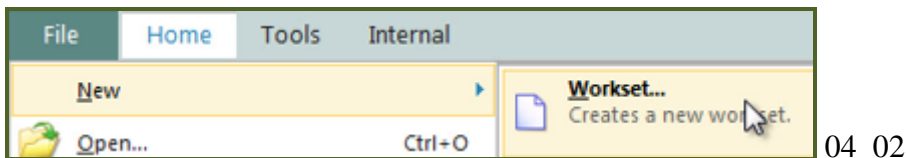
Section	Type	Name
4.2	LD workset (Model - line designer study)	LD_4_WS
4.4	LD subset	LD_5_SS
4.5		(conveyors)

4.2. Create LD workset

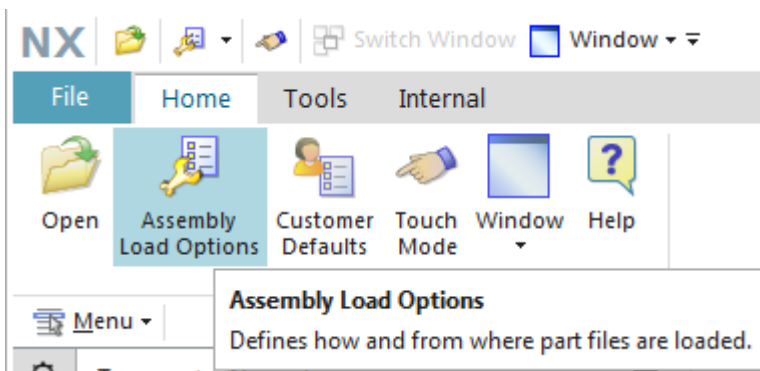
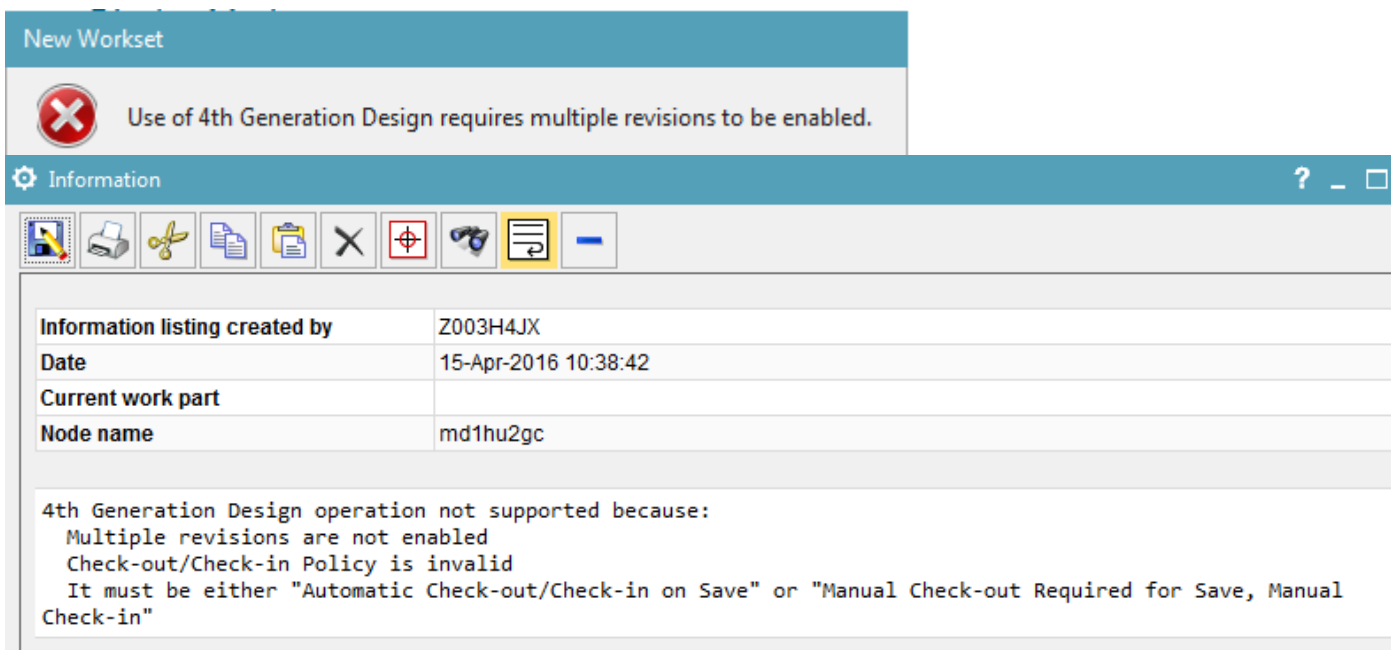


TERRY 20160301 TALK ABOUT HOW TO OPEN, SETUP NX?

1. Create a new workset.



20160415 TERRY: got this dialog.. never seen this before....



Assembly Load Options

Configuration Context

Configuration Details

Define or Load Context

Load from Teamcenter Define in NX

Revision Rule

Revision Rule Latest Working

Override Folder

Effectivity

Specify Effectivity

Variant Configuration

Variant Rule

Product Asse...	Variant Rule

Scope

Load All Components

Use Partial Loading

Use Lightweight Representations

Load Interpart Data

Load Behavior

Update Subset on Load No Update

Allow Replacement

Generate Missing Part Family Members

Cancel Load on Failure

Reference Sets

Bookmark Restore Options

Saved Load Options

OK Cancel

Revision Rule

Revision Rule Any Status; No Working

Override Folder

This did not solve it.

Try this....

File Home Tools Internal

Open Assembly Load Options Customer Defaults Touch Mode Window Help

Standard

Customer Defaults

Defaults Level: User Default Lock State: Unlocked Units System: Metric

Automation Designer

Gateway

Modeling

Sketch

Curves

Analysis

Assemblies

Drafting

PMI

Manufacturing

Simulation

Motion

XY Function

Knowledge Fusion

Teamcenter Integration

General

Part File Name Display

Clone Assembly

Import/Export Assembly

User Attributes

Miscellaneous

Sheet Metal

Sheet Metal (Forming and Flattening)

Routing

Ship Design

Ship Drafting

Vehicle Design - Body Design

Multiple Revisions Browse File New Teamcenter Navigator Projects

General Assembly Parts without NX Datasets WAVE Feature Weld Publishing

Export Associated Files

Role: ALL

Warn on Exit

Check-out/Check-in Policy

Automatic Check-out on Modify or Save; Check-in on Save

Automatic Check-out on Modify or Save; Check-in on Close

Automatic Check-out on Save; Check-in on Save

Manual Check-out Required for Save; Manual Check-in

Save As Non-master Parts Dialog Box

Display Dialog Box

Save All Non-masters

Save No Non-masters

Check Non-masters on Save

Include Parts Modified by Other Users

Save As Action: New Item Revision

OK Apply Cancel

Or this....?????????

Customer Defaults

Defaults Level: User | Default Lock State: Unlocked | Units System: Metric

Automation Designer

- Gateway
- Modeling
- Sketch
- Curves
- Analysis
- Assemblies
- Drafting
- PMI
- Manufacturing
- Simulation
- Motion
- XY Function
- Knowledge Fusion
- Teamcenter Integration
 - General
 - Part File Name Display
 - Clone Assembly
 - Import/Export Assembly
 - User Attributes
 - Miscellaneous

General | Assembly | Parts without NX Datasets | WAVE | Feature | Weld Publishing

Multiple Revisions | Browse | File New | Teamcenter Navigator | Projects

- Enable Multiple Revisions
- Check Revisions on Load
- Check Revisions on Save

Enable Multiple Revisions

Customer Defaults



Changes to customer default options do not take effect until you have restarted your NX session.

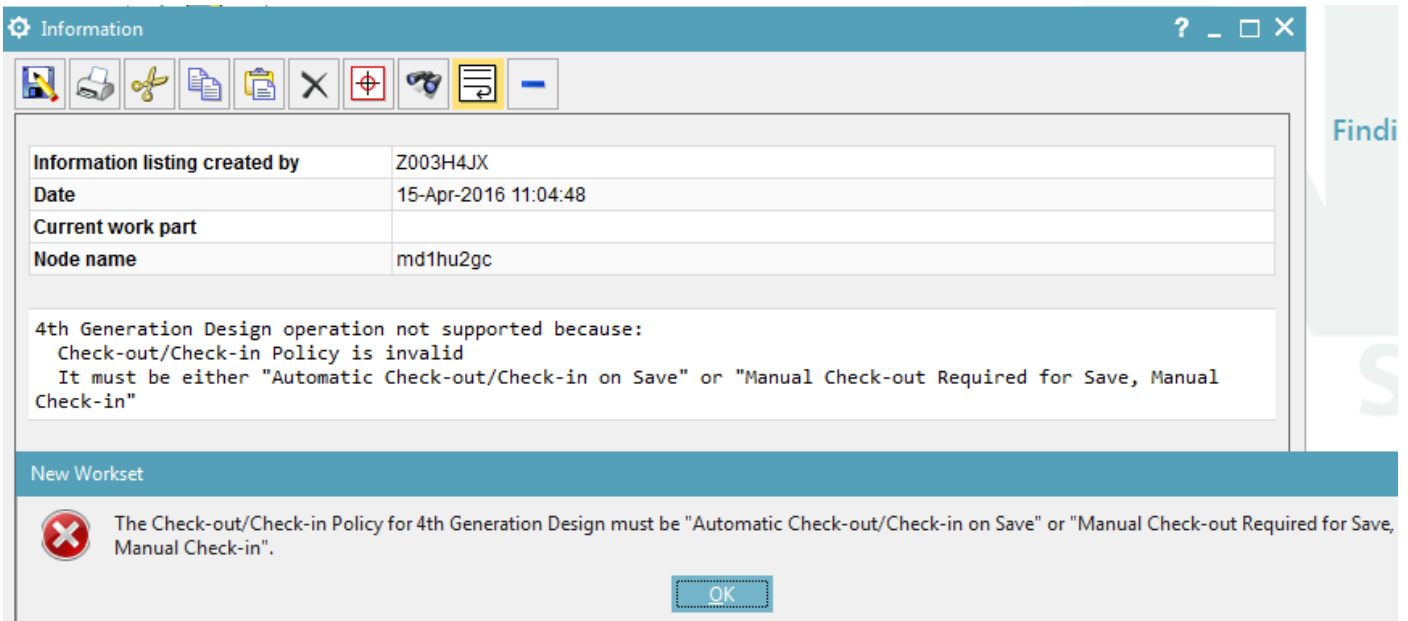
Restart...

File

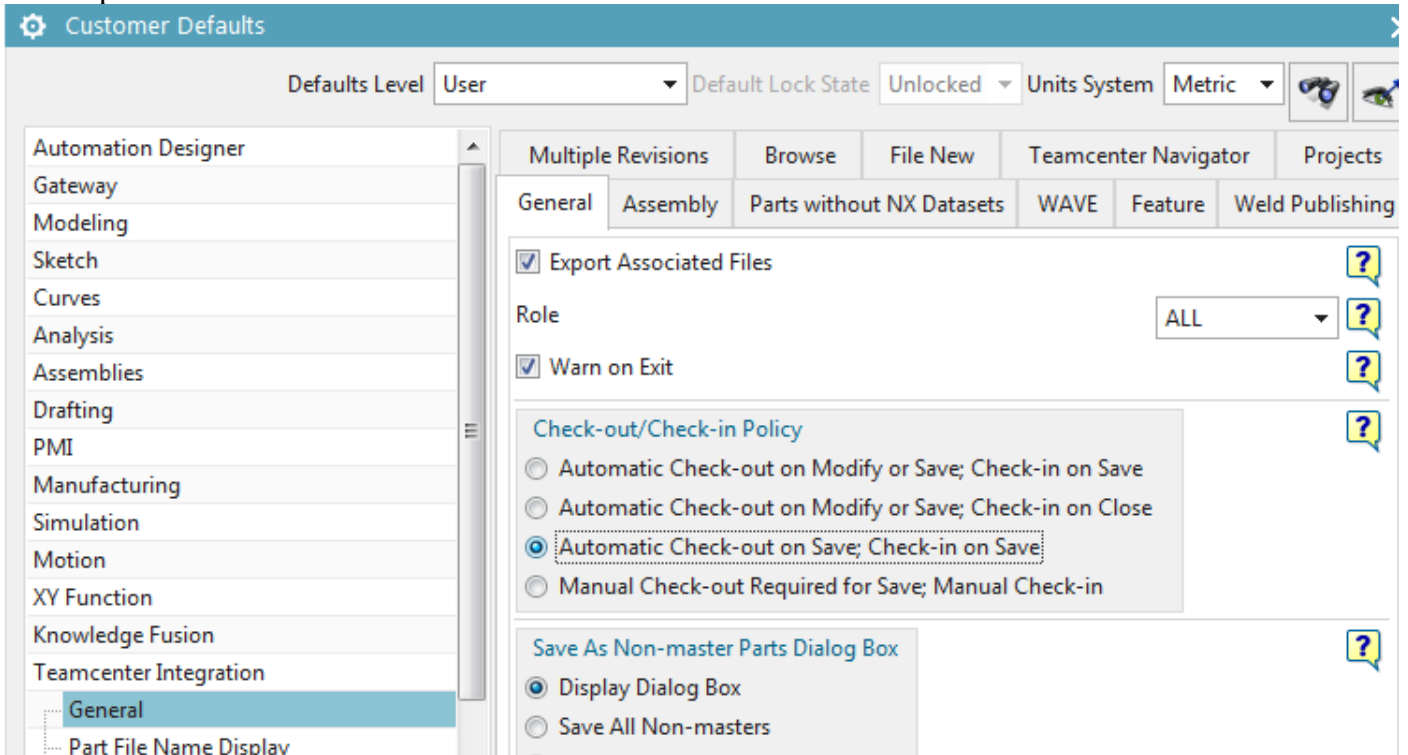
Home



Exit



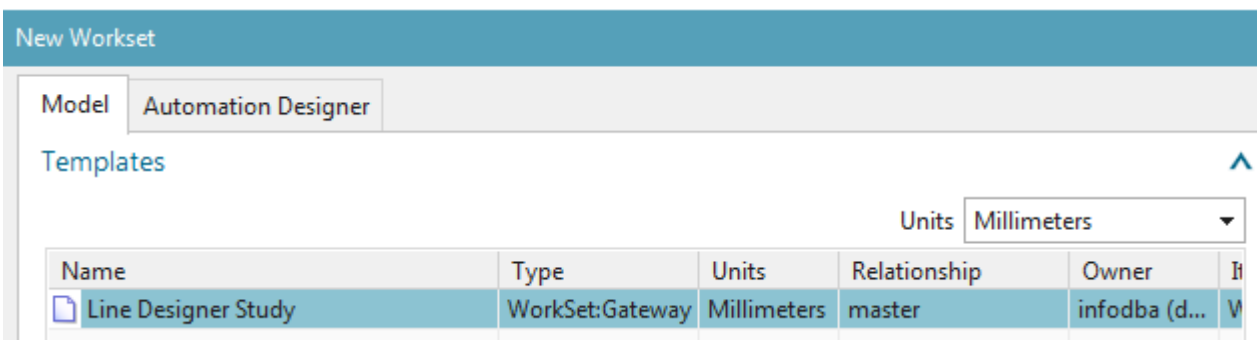
So one problem was solved.



Restart required.....

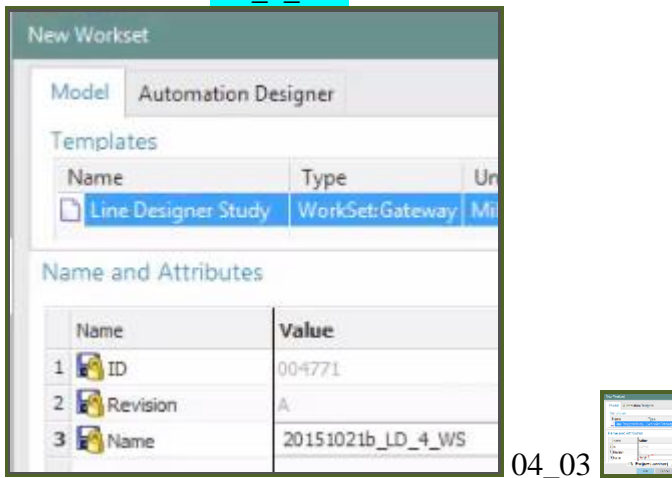


Works. 😊



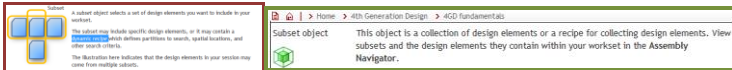
20160415 continue

2. Select Model / Line Designer Study.
3. Set Name = "LD_4_WS".



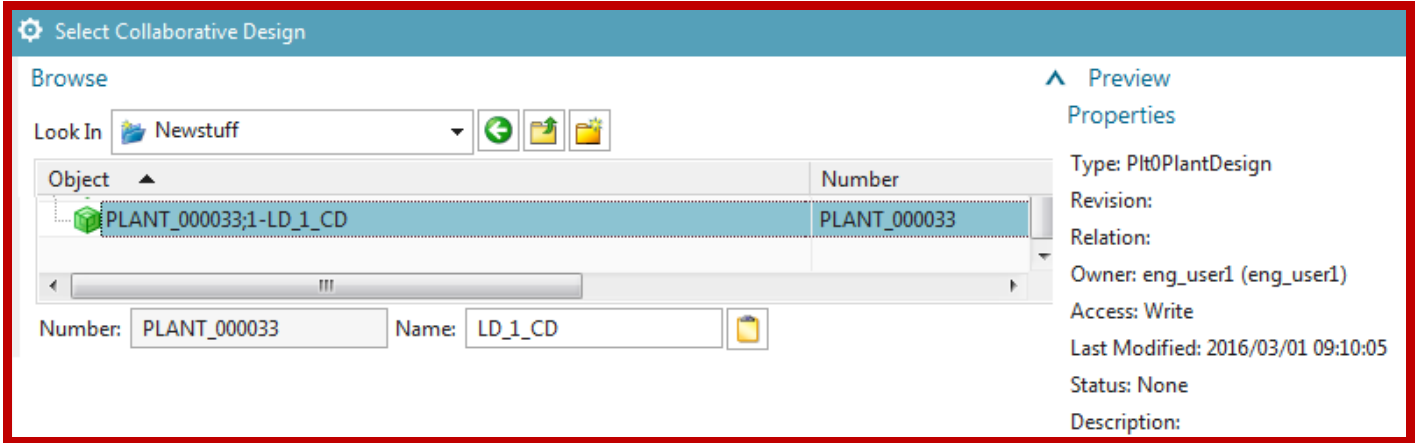
4. Click OK. The "Create Subset" dialog appears.

4.3. Create LD subset, add partitions (3) to recipe



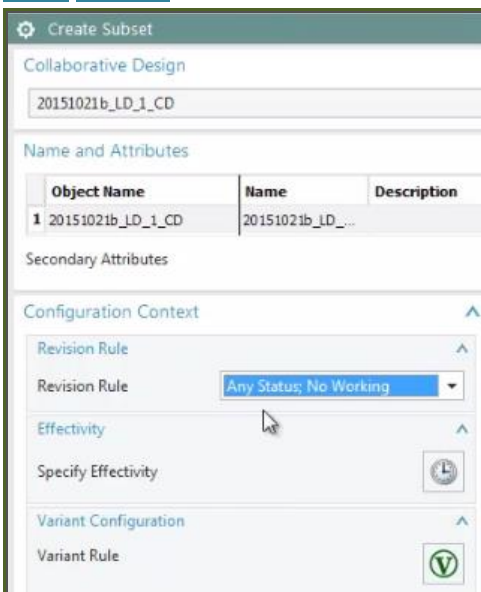
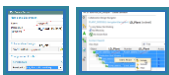
1. For "Collaborative Design" select "LD_1_CD".

04_04a



2. For "Revision Rule" select "Any Status, No Working".

TERRY Is the plant (not just partitions) included in the recipe? what does "Any Status; No Working" mean?



04_04

20160415TERRY : I changed the name to SS.

⚙️ Create Subset
✕

Collaborative Design ^

LD_1_CD_20160415
📁

Name and Attributes ^

Name	Value
1 Name	LD_1_SS_20160415
2 Description	
3 Logical Designator	
4 Include In Parts ...	False ▼
5 Report In Where...	True ▼

Secondary Attributes 📄

Configuration Context ^

Revision Rule ^

Revision Rule Any Status; No Working ▼

Effectivity ^

Specify Effectivity 🕒

Variant Configuration ^

Variant Rule Ⓜ

Content Search ^

View Style

← →

📦 CD000083

📄 Tile
📄 Tree
📄 Tile
🔍 Show Shortcuts

Collaborative Design Navigator ☐

CD000083;1-LD_1_CD_20160415:LD_1_SS_20160415 ^

Any Status; No Working

No Effectivity

No Variant Rule

Content Search ^

View Style 📄 Tree ▼

Object	Number	Access	Type	Revi...	Design Category	Name
CD000083;1-LD_1_CD_20160415	CD000083;1-LD_1_CD_20160415					CD000083;1-LD_1_CD_20160415
LD_2_PTS_20160415			Production Uni...			LD_2_PTS_20160415
LINE_000041/001;1-LD_3a_PTO_Line_20160415	LINE_000041	±	Production Line	001		LD_3a_PTO_Line_20160415
STATION_000042/001;1-LD_3b_PTO_Station_20160415	STATION_000042	±	Production Stat...	001		LD_3b_PTO_Station_20160415
ZONE_000043/001;1-LD_3c_PTO_Zone_20160415	ZONE_000043	±	Production Zone	001		LD_3c_PTO_Zone_20160415

Object	Number
CD000083;1-LD_1_CD_20160415	CD000083;1-
LD_2_PTS_20160415	
LINE_000041/001;1-LD_3a_PTO_Line_20160415	LINE_000041
STATION_000042/001;1-LD_3b_PTO_Station_20160415	STATION_00
ZONE_000043/001;1-LD_3_PTO_Zone_20160415	ZONE_00004

Add to Recipe

- Include
- Exclude
- Filter

Task Home Analysis View Tools Assemblies

Finish Cancel

Subset Properties

Target Pro

Collaborat

Subset Definitio

Subset Properties (Ctrl+Alt+P)
 Launches the Subset Properties dialog.

Subset Properties

Collaborative Design

LD_1_CD_20160415

Name and Attributes

Object Name	Name	D
1 LD_1_SS_20160...	LD_1_SS_20160415	

Secondary Attributes

Configuration Context

Secondary Attributes

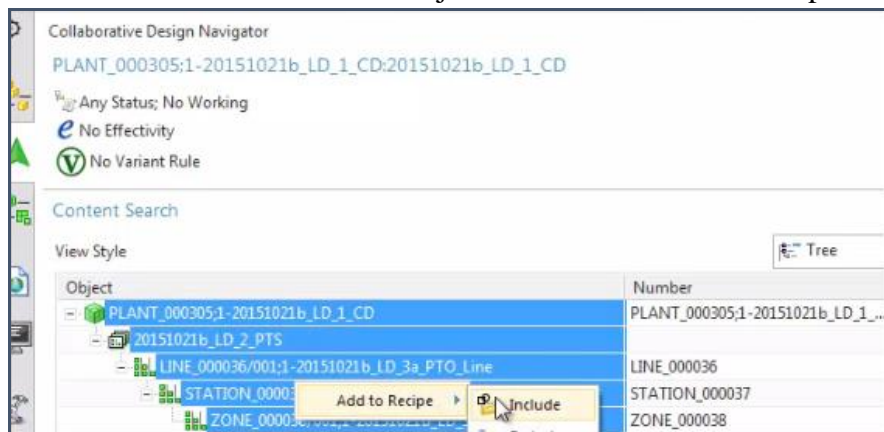
Object	Number
CD000083;1-LD_1_CD_20160415	CD000083;1-LD_1_CD_201604
LD_2_PTS_20160415	
LINE_000041/001;1-LD_3a_PTO_Line_20160415	LINE_000041
STATION_000042/001;1-LD_3b_PTO_Station_20160415	STATION_000042
ZONE_000043/001;1-LD_3_PTO_Zone_20160415	ZONE_000043

Add to Recipe ▶

📄 Include

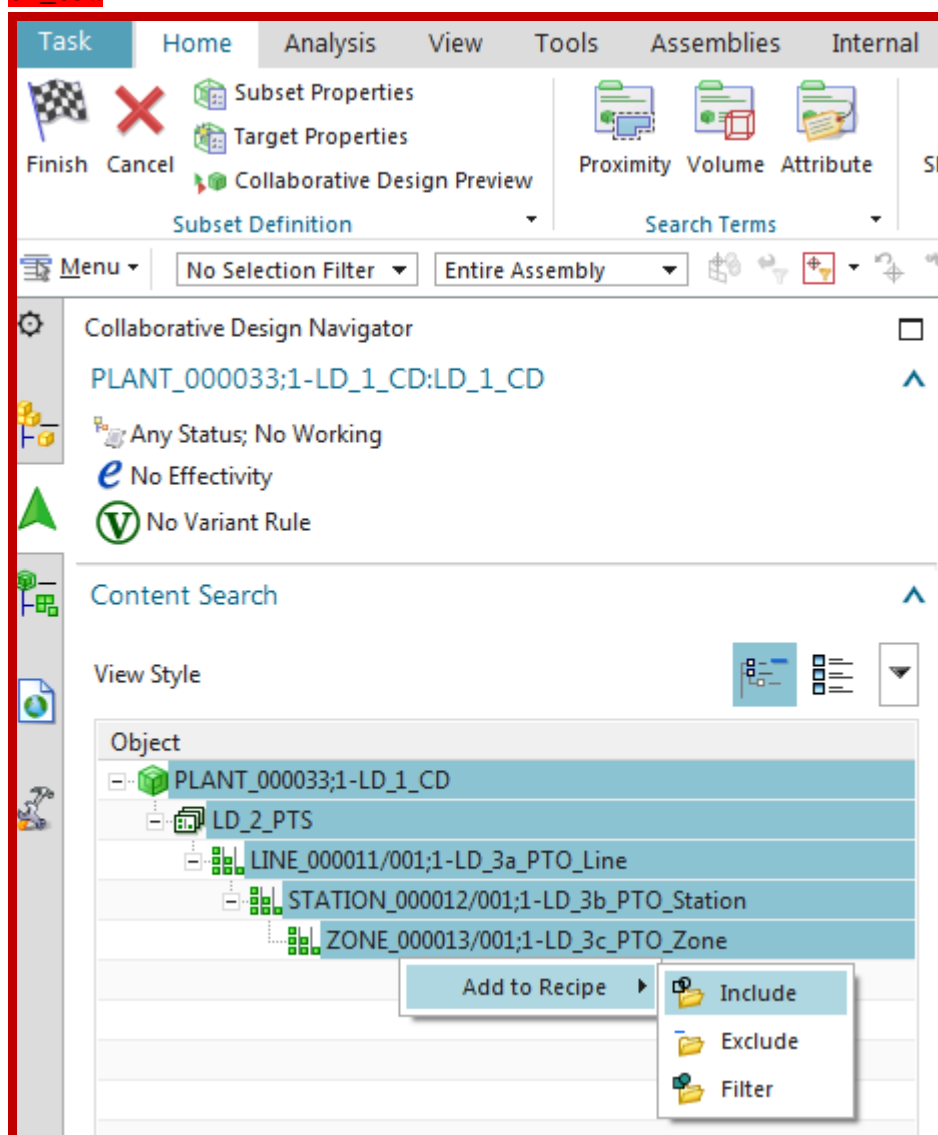
20160415 continue

3. Click OK. Select all under "Object" and select "Add to Recipe / Include".

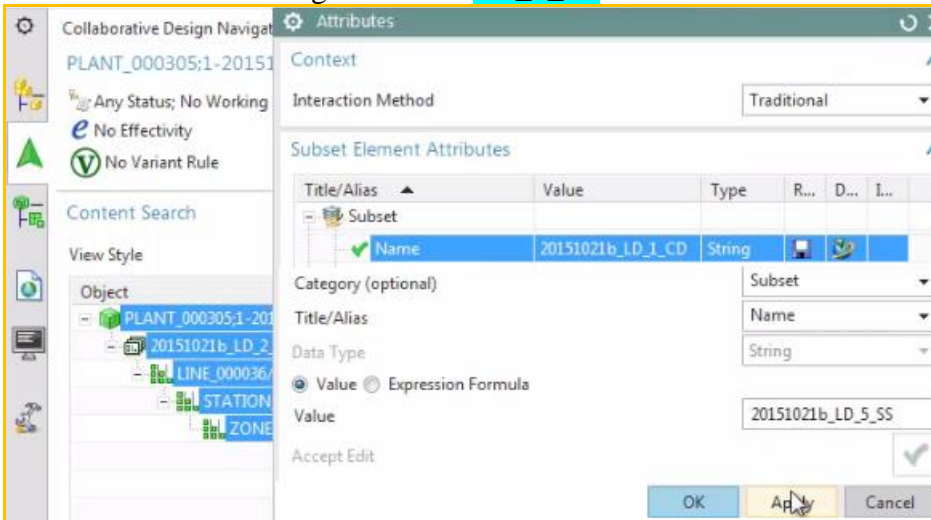


04_05

04_05a

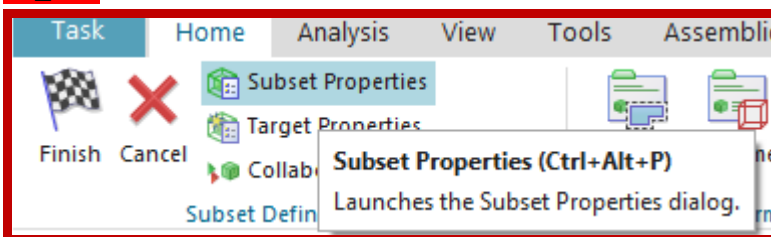


4. Recommended: Change name to "LD_5_SS".

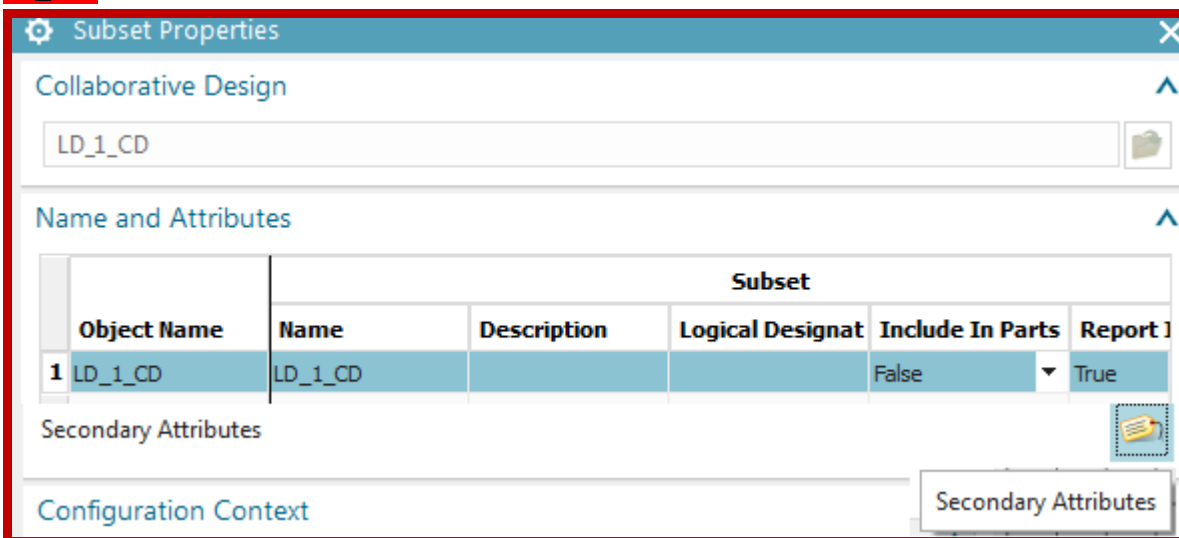


04_06

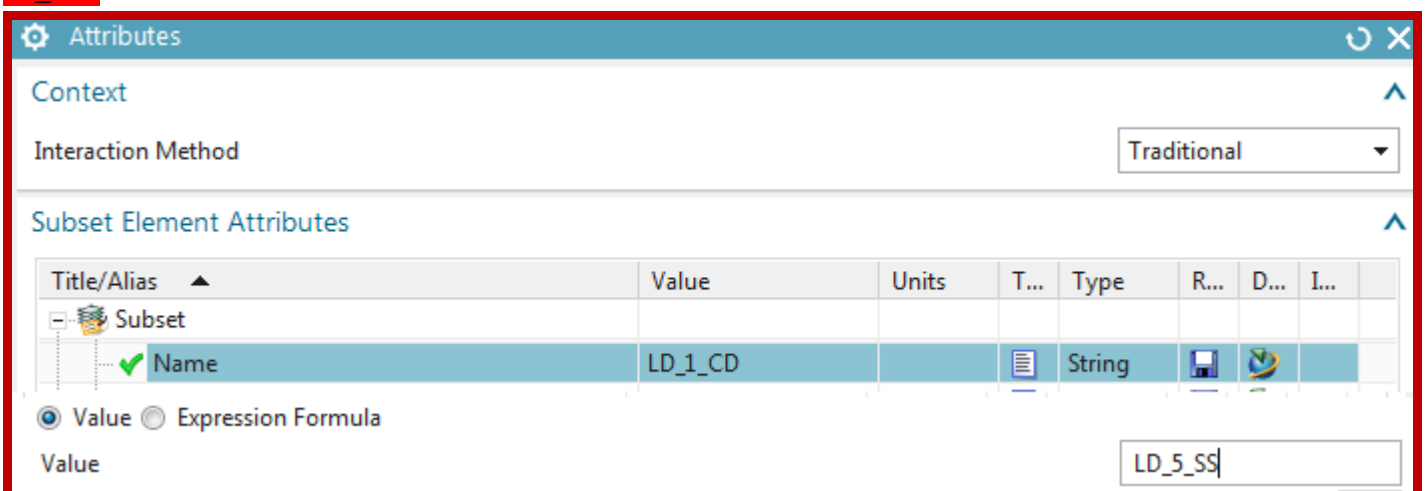
04_06b



04_06c

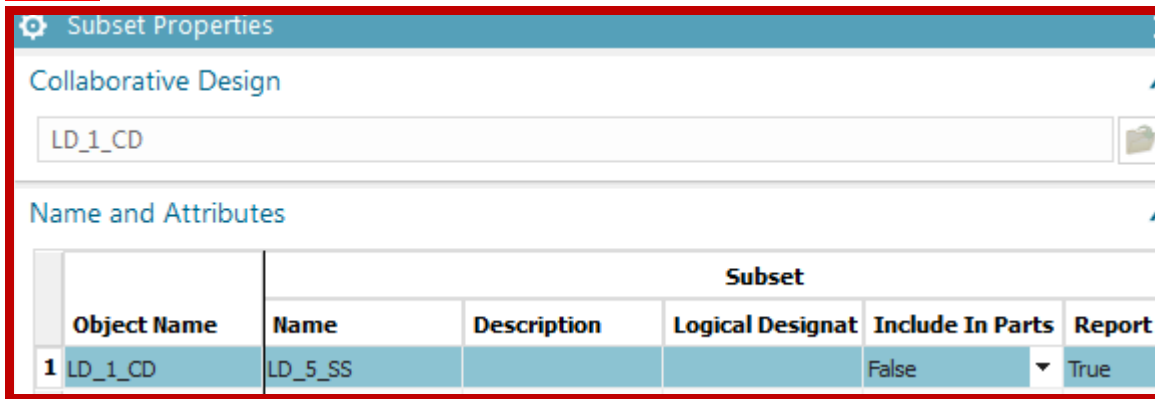


04_06d



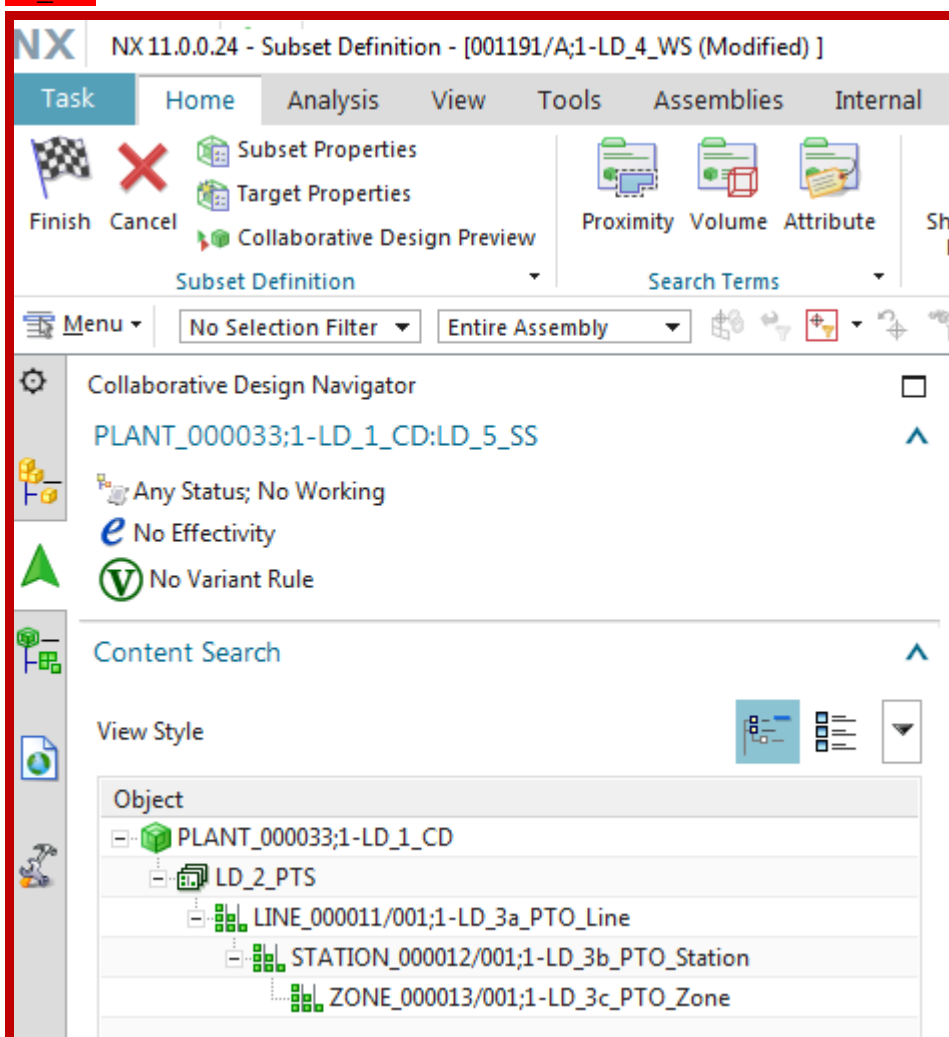
Click apply. Click ok.

04_06e



Click ok

04_06f



Collaborative Design Navigator
PLANT_000305;1-20151021b_LD_1_CD;20151021b_LD_5_SS

04_07

TERRY: below is result if I change the LD SS (subset) name manually. 20151023 I did not do this, and the SS name is the CD name (very confusing.. see pic at end of this page).


Note: If you don't change the name, then the subset name will be "LD_1_CD".

5. Click Home / Finish. The new workset is shown in the gateway.

NX 11.0.0.17 - Gateway - [004771/A;1-20151021b_LD_4_WS (Modified)]

Assembly Navigator

Object	Number
Sections	
004771/A;1-20151021b_LD_4_WS (Order: Chronological)	004771
20151021b_LD_5_SS	20151021b_LD_5_SS

04_08 

The above is with changed name.. below without

Sections

004815/A;1-20151023_LD_4_WS (Order: Chronological)
20151023_LD_CD

04_09

20160415

NX 11.0.0.27 - Gateway - [000330/A;1-LD_4_WS_20160416 (Modified)]

Assembly Navigator

Object	Number	Revision	Info	Name	Source	Type	Description	M	Partition
Sections									
000330/A;1-LD_4_...	000330	A		LD_4_WS_20160416	000330/A;1-LD_4_WS_20160416	Workset	000330		
LD_1_SS_201604...	LD_1_SS_20160415			LD_1_SS_20160415		Subset			Not Set

20160425

Assembly Navigator

Object	Number	Revision	Info	Name	Source	Type	Description	M	Partition ...	Effectivity
Sections										
000421/A;1-LD_4_WS_20160425 (Or...	000421	A		LD_4_WS_...	000421/A;...	Workset	000421			
LD_1_SS_20160425	LD_1_SS_20160425			LD_1_SS_2...		Subset			Not Set	

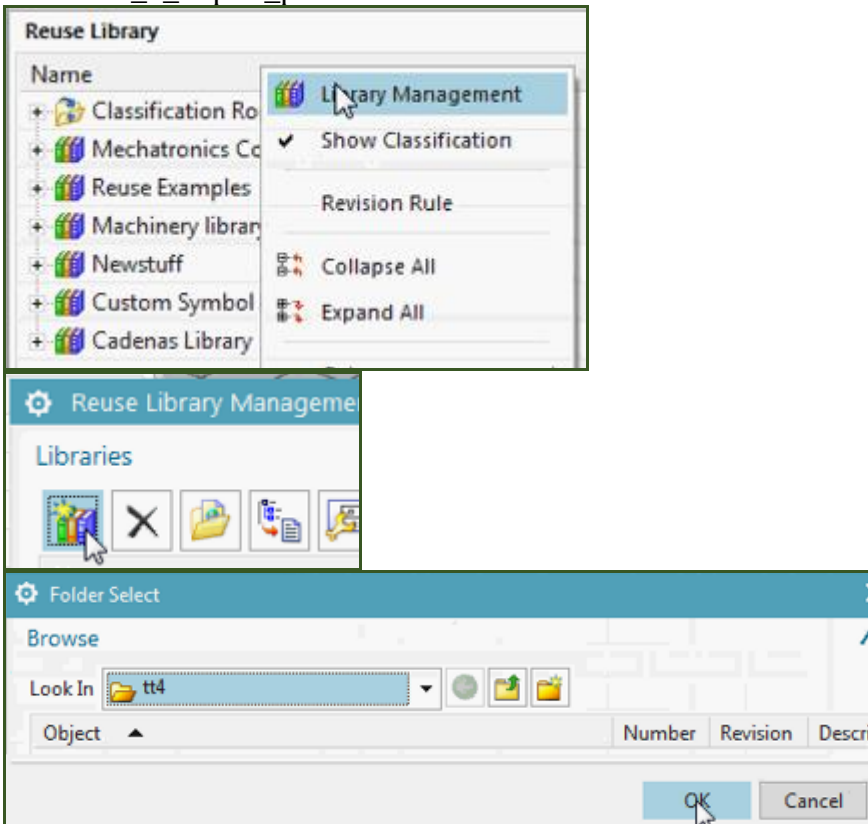
\$\$\$1/5 1.3. import roof parts (IF NOT IN RL) 20160323

1.3.1. Add dir to reuse library

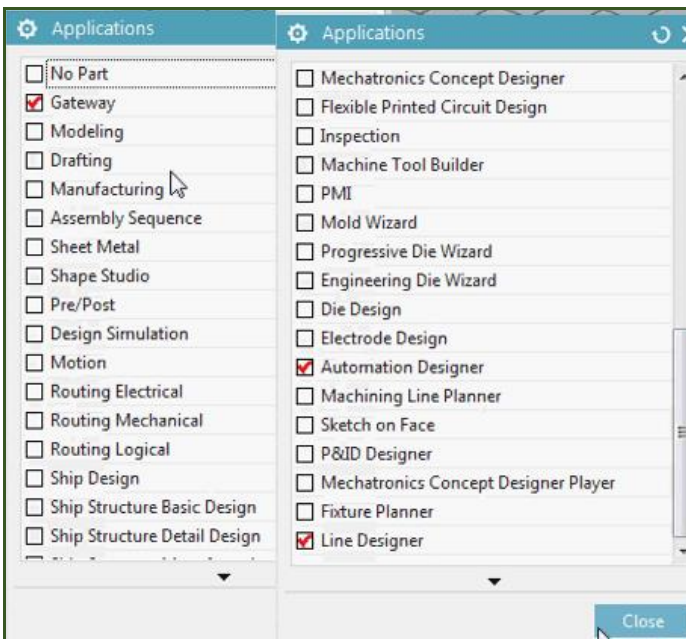
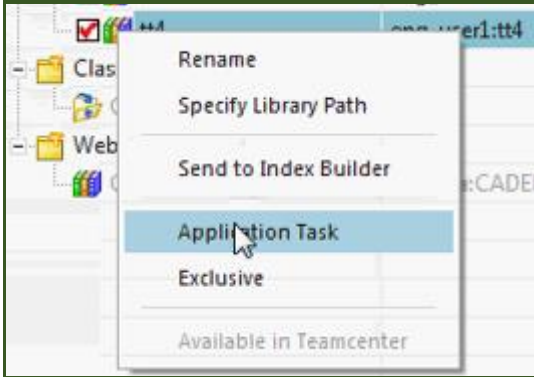
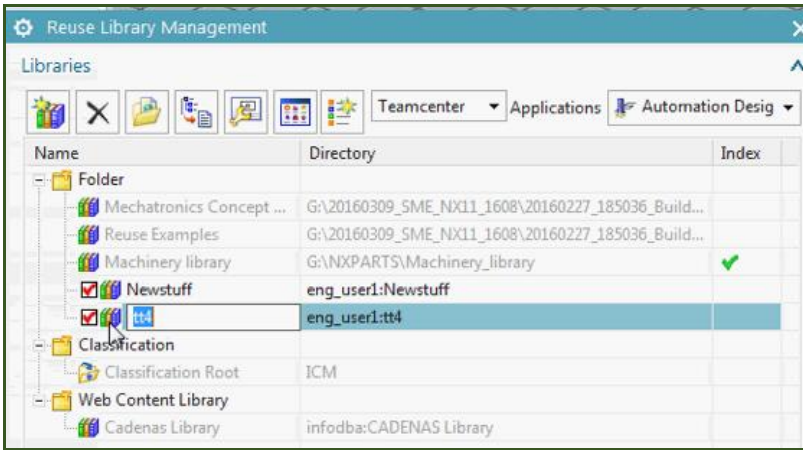
20160315_1_add_to_reuse_lib.avi

20160316_1_create_rl_dir_and_import_parts.avi

20160321_1_import_part.avi



tt14



1.3.2. Import (roof into TC) (GW) ????

20160316_1_create_rl_dir_and_import_parts.avi

20160321_1_import_part.avi

000270_A_1_bg_5088234_a1a_jt.prt

Basically doing what was already assumed in ch4... parts in the reuse library.
Into reuse library.



20160415

Import Assembly into Teamcenter

Default Settings

Item Type:

Use Type from Part file

Name and Attribute Conversion

Numbering Source:

Conversion Rule:

Prefix:

Default Name:

Default Description:

Components

Include Component Parts

Include Dependent Parts

Find Components:

Parts to Import

Select Assemblies or Parts

Select Log File to Set Up Import

Import from Folder

Adds selected assemblies or parts to the import operation.

Import Assembly into Teamcenter

Suchen in: (F:) Elements

Name	Änderungsdatum	Typ
000270_A_1_bg_5088234_a1a_jt.prt	18.08.2015 14:05	PRT-D

Dateiname:

Dateityp:

OK Abbrechen

Import Assembly into Teamcenter

Default Settings

Item Type:

Use Type from Part file

Name and Attributes for Parts to Import

Object Name	ID	Name
1 000270_A_1_bg_5088234_a1a_jt.prt	20160415_0002...	20160415_000270_A_1_bg_5088234_a1a_jt

```

Information
-----
TEAMCENTER INTEGRATION IMPORT LOG
Date - Fri Apr 15 11:45:50 2016
-----

Default Parameters
-----
&LOG Operation_Type: IMPORT_OPERATION
&LOG Default_Cloning_Action: USE_EXISTING
&LOG Default_Naming_Technique: OSFILE_NAME Default_Name_Rule_Type: APPEND_PREFIX Append_String: 20160415_
&LOG Default_Container: ":Newstuff"
&LOG Default_Use_Type_From_Part_File: No
&LOG Default_Part_Type: "Part"
&LOG Default_Part_Name: "${DB_PART_NAME}"
&LOG Default_Part_Description: "${DB_PART_DESC}"
&LOG Default_Associated_Files_Directory: ""
&LOG Default_DB_Owner: eng_user1 "Automation & Electrical Design Default Group"
&LOG Default_Validation_Mode: OFF
-----

Part Specific Information
-----
&LOG
&LOG Part: "F:\000270_A_1_bg_5088234_a1a_jt.prt"
&LOG Cloning_Action: DEFAULT_DISP
&LOG Naming_Technique: USER_NAME Clone_Name: @DB/20160415_000270_A_1_bg_5088234_a1a_jt/A
&LOG Container: ":Newstuff"
&LOG Part_Type: "Part"
&LOG Part_Name: 20160415_000270_A_1_bg_5088234_a1a_jt
&LOG Part_Description: 20160415_000270_A_1_bg_5088234_a1a_jt
&LOG Associated_Files_Directory: ""
&LOG

```

Forgot destination folder... do it agin.

Name and Attributes for Parts to Import

Defaults Override						
Object Name	Part Action	Item Type	Relation Type	Destination Fold	Associated Files Dir	Valid
1 000270_A_1_bg...	t	Part	master			Defa

Edit [?] [X]

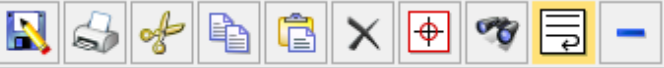
Destination Folder

OK Apply Cancel

Edit [?] [X]

Destination Folder

Information

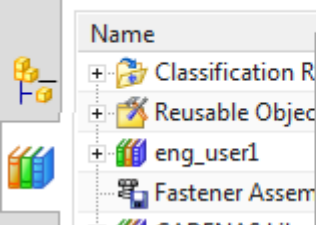


```
=====
TEAMCENTER INTEGRATION IMPORT LOG
Date - Fri Apr 15 11:50:36 2016
=====

Default Parameters
-----
&LOG Operation_Type: IMPORT_OPERATION
&LOG Default_Cloning_Action: USE_EXISTING
&LOG Default_Naming_Technique: OSFILE_NAME Default_Name_Rule_Type: APPEND_PREFIX Append_String: 20
&LOG Default_Container: ":Newstuff"
&LOG Default_Use_Type_From_Part_File: No
&LOG Default_Part_Type: "Part"
&LOG Default_Part_Name: "${DB_PART_NAME}"
&LOG Default_Part_Description: "${DB_PART_DESC}"
&LOG Default_Associated_Files_Directory: ""
&LOG Default_DB_Owner: eng_user1 "Automation & Electrical Design Default Group"
&LOG Default_Validation_Mode: OFF
-----

Part Specific Information
-----
&LOG
&LOG Part: "F:\000270_A_1_bg_5088234_a1a_jt.prt"
&LOG Naming_Technique: USER_NAME Clone_Name: @DB/20160415_000270_A_1_bg_5088234_a1a_jt/A
&LOG
```

Reuse Library




- Name
- Classification Rules
- Reusable Objects
- eng_user1
- Fastener Assemblies

Library Management

- Show Classification
- Revision Rule

Reuse Library Management

Libraries




Add Library

Folder Select

Browse

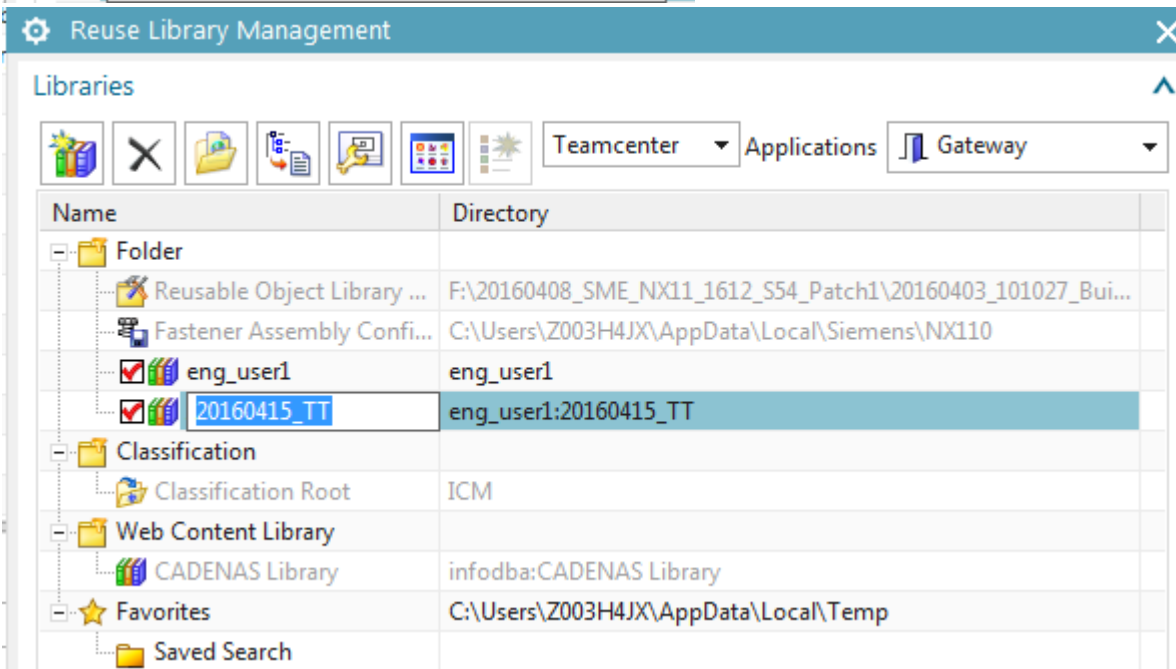
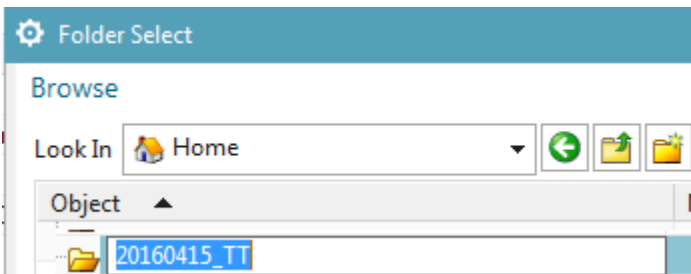
Look In: Home



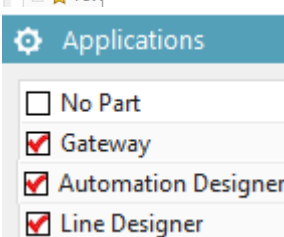
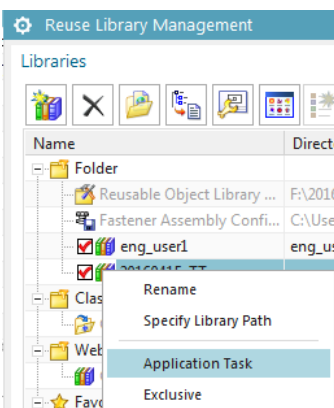
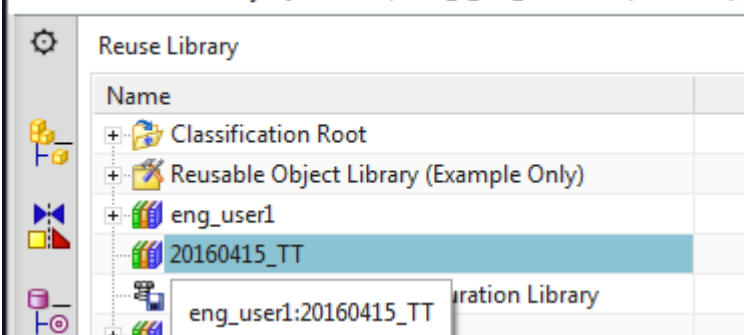
Object

- Mailbox
- My Saved Searches

Create New Folder



NX 11.0.0.27 - Gateway - [000330/A;1-LD_4_WS_20160416 (Modified)]



20160415 continue

Import Assembly into Teamcenter

Default Settings

Item Type: Part

Use Type from Part file

Name and Attribute Conversion

Numbering Source: OS Filename

Conversion Rule: With Prefix

Prefix: 20160321_4_

Default Name: BB_S{DB_PART_NAME}

Default Description: descr\${DB_PART_DESC}

Components

Include Component Parts

Include Dependent Parts

Find Components: From Folder

Parts to Import

Select Assemblies or Parts

Select Log File to Set Up Import

Import from Folder

Parts for Import

Select Top Assemblies

000270 A 1 bq 5088234 a1a jt prt

Defaults Override

pe	Destination Fold	Associated Files Dir	Validation	Projects
	Edit			
	Destination Folder			
	:tt14			
	OK	Apply	Cancel	

Name and Attributes for Parts to Import

Object Name	Part		Part Revision	Information		
	ID	Name	Revision	Part State	Reason for Inclusion	Teamcenter Inform
1 000270_A_1_bg...	20160321_4_00...	20160321_4_00...	A			?

Defaults Override						
Existing Part Action	Item Type	Relation Type	Destination Fold	Associated Files Dir	Validation	Projects
Default	Part	master	tt14		Default	

Information

06:35

```
&LOG Cloning_Action: DEFAULT_DISP
&LOG Naming_Technique: DEFAULT_NAMING Clone_Name: @0B/003425/A
&LOG Container: ":Newstuff"
&LOG Part_Type: "Part"
&LOG Part_Name: "000531_A_1_G38_ROOF_SINGLE_SHD_VS0_jt.prt"
&LOG Part_Description: 003425
```

Click around a few times until it works.

tt14

Custom Symbol Library

Search

Member Select

20160321_4_000270_A_1_bg_5088234_a1a_jt

1.3.3. Test: Add 4

tt14


Custom Symbol Library

Search

Member Select

1-1 of 1

20160321_4_000270_A_1_bg_5088234_a1a_jt



4.4. Add 2 LD conveyors 20160428

NX

NX 11.0.0.27 - Line Designer

Reuse Library

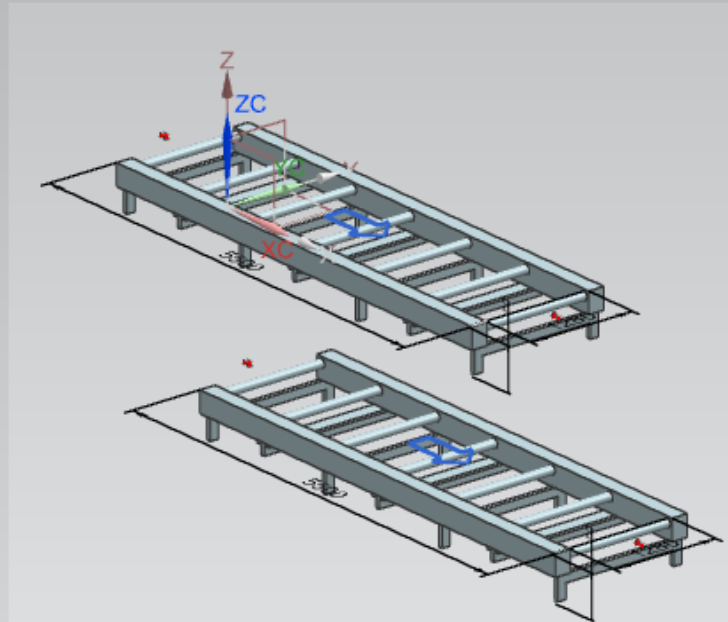
Name
Classification Root
Automation Designer
Resource Management
Factory Resources [93]
Architectural [3]
Conveyors [13]
Package Conveyors [7]
Track Conveyors [6]
Industrial [32]
Material Handling [8]
Robots [3]
Space Consumption [2]
Weld Guns [30]
Workers [2]
Fixtures
Machines and Devices
New Resources [0]
Templates
20160415_TT
Custom Symbol Library

Search

Member Select

1-7 of 7

- Palletized Floor Conveyor
- Palletized Turntable
- Power Roller Turntable
- SO Palletized Floor Conveyor
- Floor Conveyor
- Grid Box Conveyor

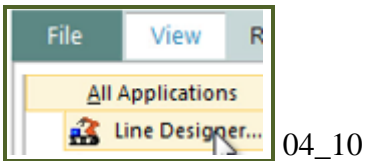


4.4. Add 2 LD conveyors

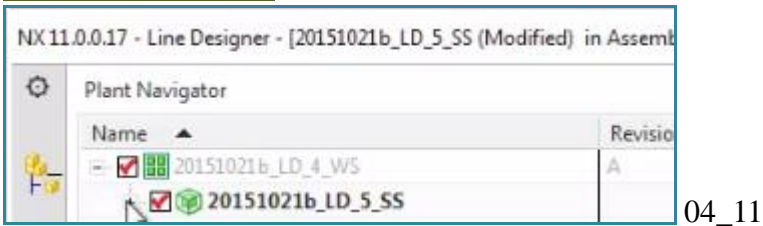
TERRY: add conveyor ... to what partition?



1. Switch to LD.

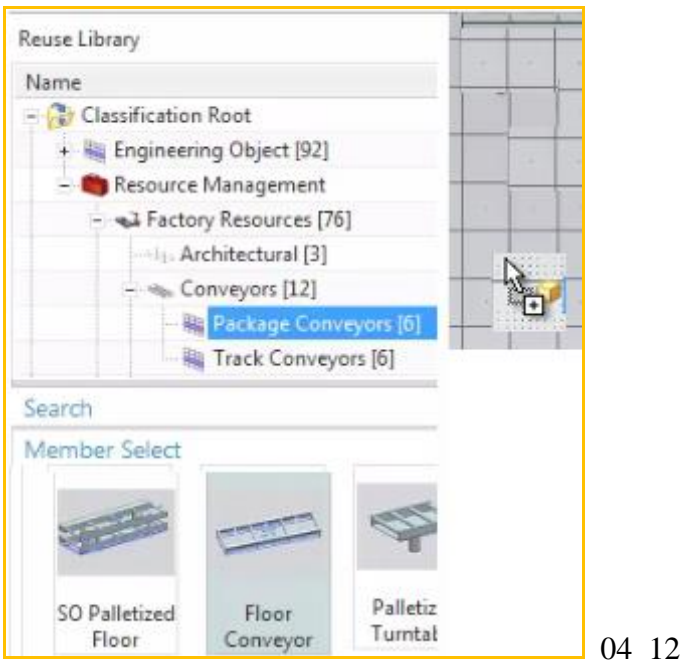


04_10



04_11

2. Add a conveyor.



04_12



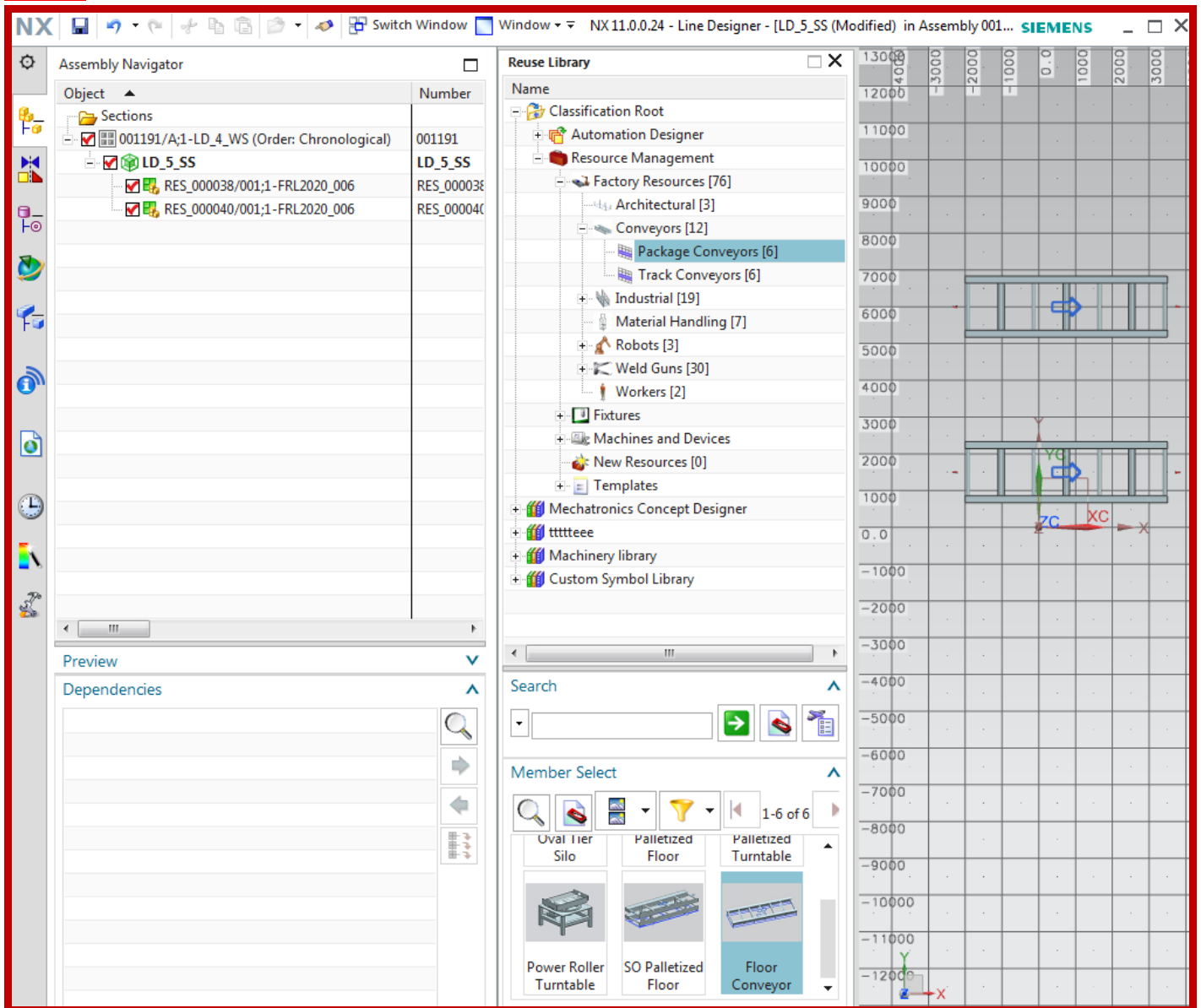
04_13



04_14

3. Add a second conveyor.

04_14b



Save the project. File/save.

20160509

Assembly Navigator

Object	Number
Sections	
000484/A;1-LD_4_WS_20160509 (Order: Chronological)	000484
LD_1_SS_20160509	LD_1_SS_20160509
frl2020_002/A;1-Palletized Floor Conveyor x 3	frl2020_002

3D CAD model showing a palletized floor conveyor system. The model is displayed on a grid with vertical lines labeled 1000, 2000, 3000, 4000, 5000 and horizontal lines labeled 0.0, 1000, 2000, 3000, 4000, 5000, 6000. The conveyor system consists of three parallel units arranged in a descending staircase pattern. The top unit is at a height of approximately 4000, the middle at 2000, and the bottom at 1000. The units are supported by vertical posts. The background is a grid with vertical lines labeled 1000 through 5000 and horizontal lines labeled 0.0 through 6000.

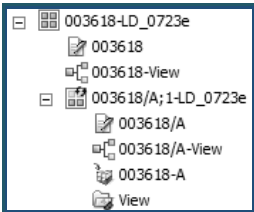
xxx4.5. Result in TC

20160203 TERRY: leave this section out? Display in TC is strange, Andreas says maybe not discuss.

The following shows the resulting structure in TC.

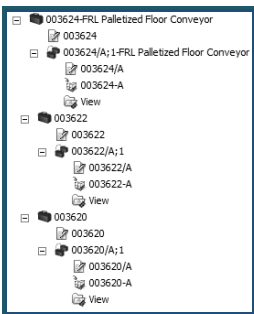
TERRY 20151027: on the left from a while back. On the right from 20151021. What objects should be in TC after adding LD objects? On the right where is Partition scheme? What about LD subset?

4. Workset (project).



5. Subset? (this shown in LD, not TC???)

6. Design elements (conveyors).



5. Create AD workset (and CD, SS) and EO's (20160428)

This chapter includes the following sections:

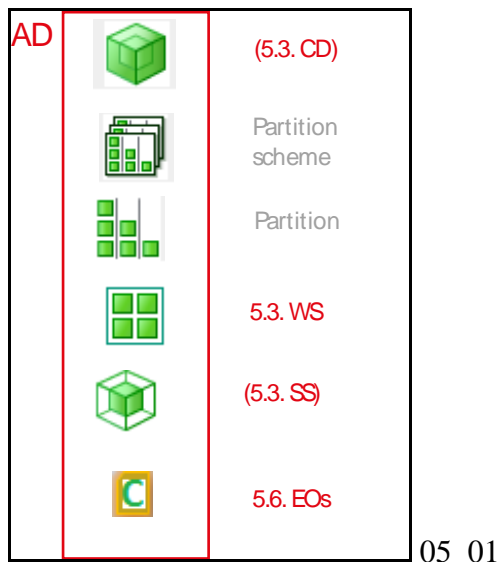
- 5.1. Workflow overview
- 5.2. Naming rules overview
- 5.3. Create project workset (and CD + subset)
- 5.4. Create EODef's
- 5.5. Create naming rules
- 5.6. Add EO's
- 5.7 Location/product aspects
- xxx5.8. Result in TC

5.1. Workflow overview

TERRY 20151022: are EOs actually DEs in TC?



The following diagram shows the steps you perform in this chapter in AD.



The following table shows the names you use. Such names make it easier to remember what they represent as you start adding other building blocks to your example.

Section	Type	name
*(5.3)	AD CD	AD_1_CD_4_WS_5_SS
	AD partition scheme ?	
	AD partition ?	
5.3	AD workset	AD_1_CD_4_WS_5_SS
*(5.3)	AD subset	AD_1_CD_4_WS_5_SS
5.6		(EOs)

* AD CD and subset are autogenerated when you create AD workset/project. Collaborative designs are prepared in Teamcenter by project administrators, AD generates one when you create a workset. Users are assigned tasks through *worksets*. A workset is conceptually similar to a user sandbox. It allows you to check out local copies of subsets and assemblies and then make updates. Only one user at a time can check out a workset and changes are not shared with other users until they are checked in. TERRY:
https://asrdwiki.siemens.com/AD/index.php?title=How_to_Setup_AD_Collaborative_Design

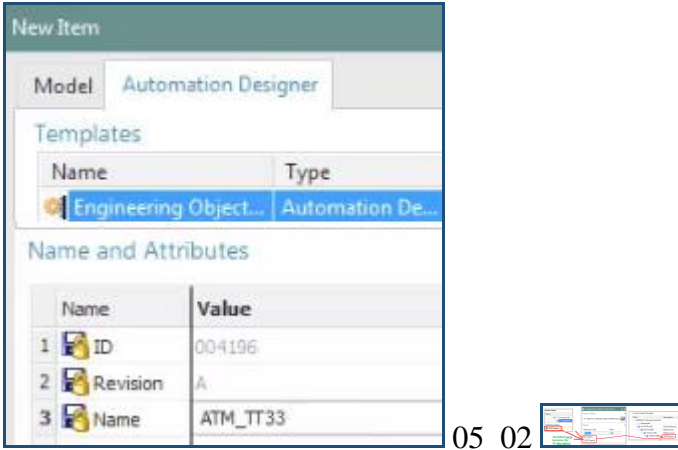
5.2. Naming rules overview

The naming rules determine the default name for an EO. For naming rules you specify:

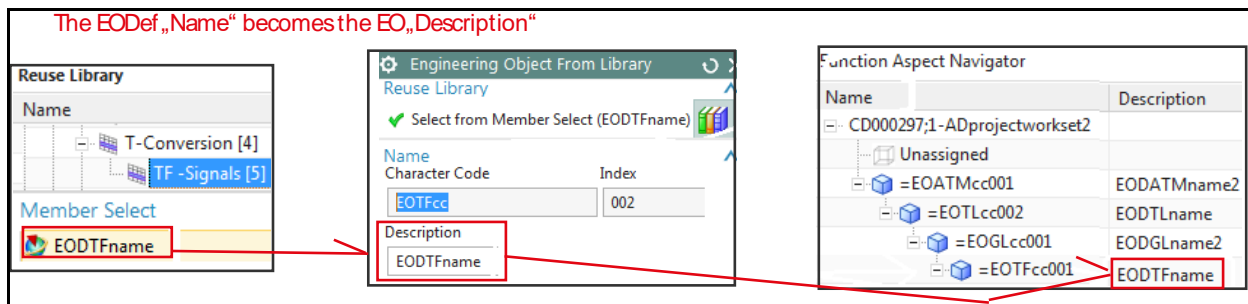
1. EODef Name (EO Description)
2. Naming Rule "Character Code" (default aspect "Name")
3. Custom Aspect Naming

1. EODef Name (EO Description)

You configure the Reuse Library "Name" in 5.4 step 3 (this will be an instantiated EO "Description").



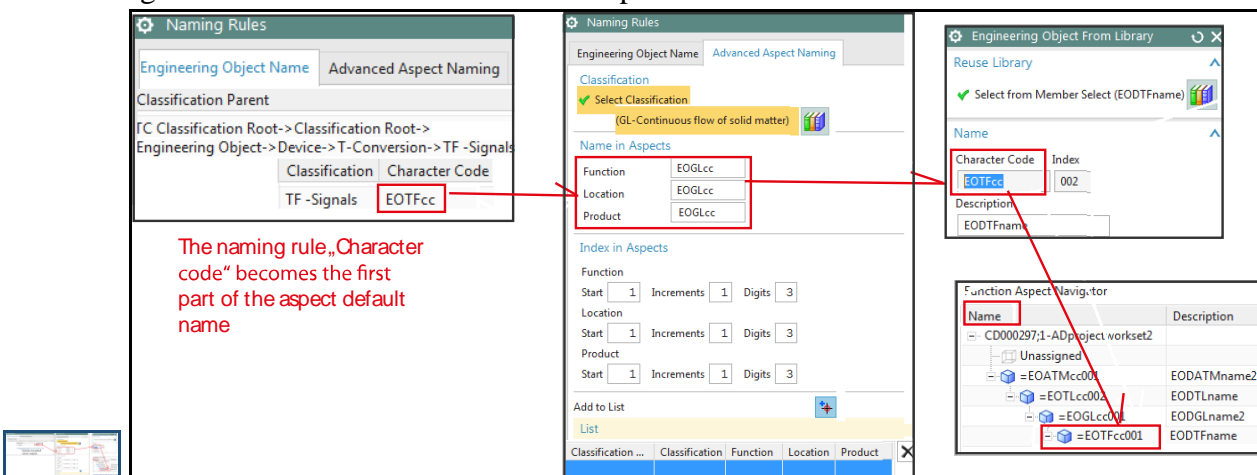
05_02



05_03

2. Naming Rule "Character Code" (default aspect "Name")

The naming rule "character code" + "index in aspects" determines the EO name.

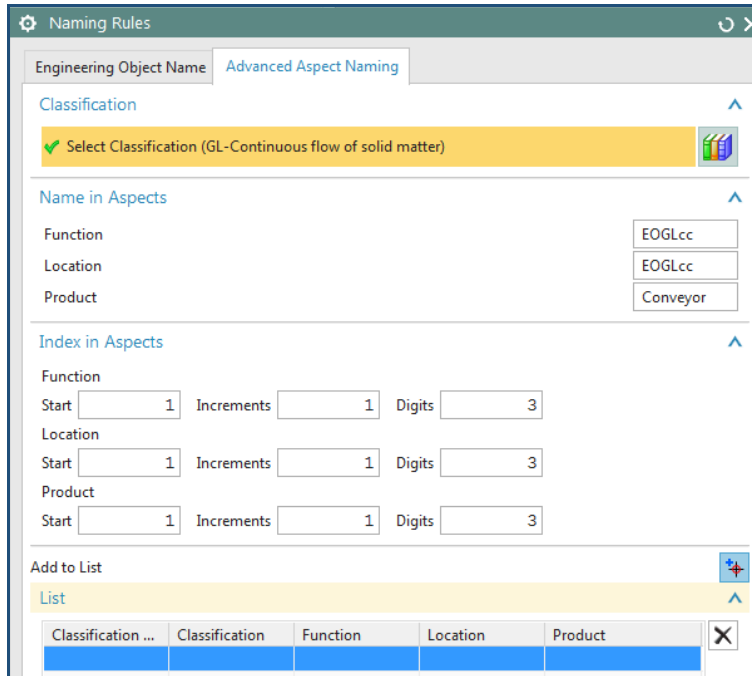


05_04

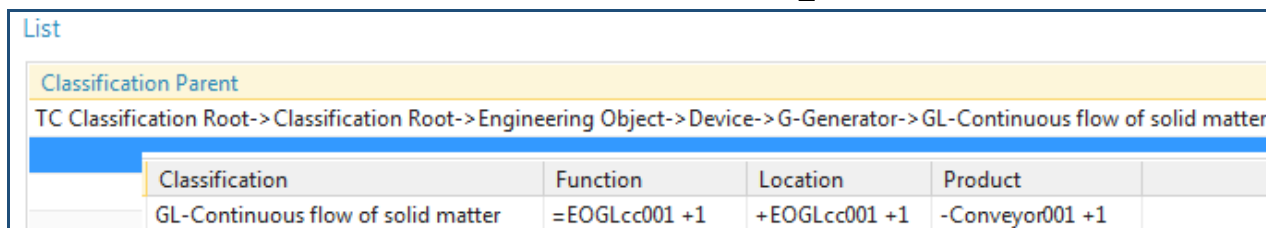
3. Advanced Aspect Naming

When an EO is created from the Reuse library a default name is proposed by NX and cannot be edited directly. This default name is stored in the Engineering Object definition. In case the default name does not match the designer requirements it is possible to create specific naming rules associated to the Engineering Object classification. Purchasers understand descriptive product names, not the IEC standard. You need to configure naming to change the name within the Product Aspect.

The following is the naming rules dialog:



05_05

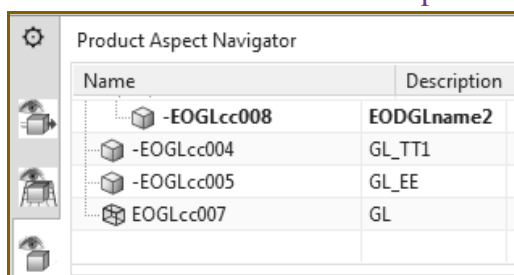


05_06

In 5.5 you create rules for the following.

EO type	Classification	Name in aspects / Product
Conveyor	Device -> Generator -> Continuous flow of solid Materials	Conveyor
Sensors	Device -> Measurement -> Gauge, position, length	Sensor
Motor	Device -> Motor -> Electromagnetic	Motor
G120D Power Module	Device -> Conversion -> Signals	Drive_Power
G120D Control Module	Device -> Processing -> Electrical Signals	Drive_Controller

TERRY 1 20151028: custom aspect naming rule error? not work for me.



05_07

5.3. Create project workset (and CD + subset)

Open the AD WS.

2. Select "File / New / Workset".

3. In tab "Automation Designer" select "New Project".

4. Create a new AD project with name "AD_1_CD_4_WS_5_SS".

Templates

Name	Type	Units	Relationship	Owner	It
Existing Project	WorkSet:Auto...	Millimeters	master	infodba (d...	V
New Project	WorkSet:Auto...	Millimeters	master	infodba (d...	V

Name and Attributes

Name	Value
1 ID	000341
2 Revision	A
3 Name	AD_1_CD_4_WS_5_SS_20160418

Other Parameters

Alternate Ids

Projects

Folder: :20160415_TT

NX 11.0.0.27 - Automation Designer - [000341/A;1-AD_1_CD_4_WS_5_SS_20160418 (Modified)]

Function Aspect Navigator

Name	Description	Templ
CD000101;1-AD_1_CD_4_WS_5_SS_20160418		
Unassigned		

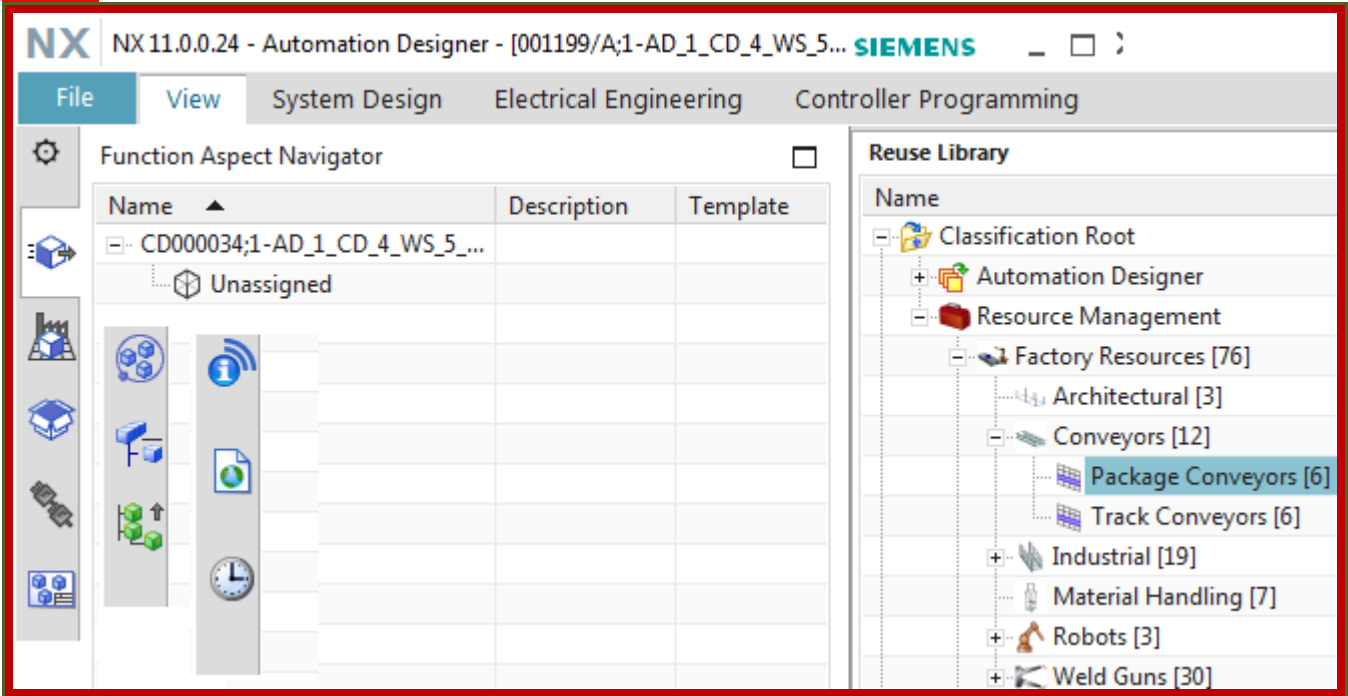
Name and Attributes

Name	Value
1 ID	004785
2 Revision	A
3 Name	20151021b_AD_1_CD_4_WS_5_SS



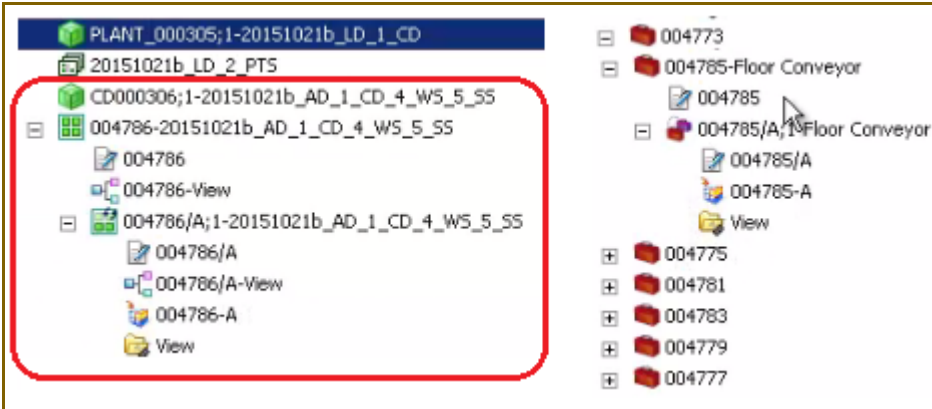
05_09

05_09b



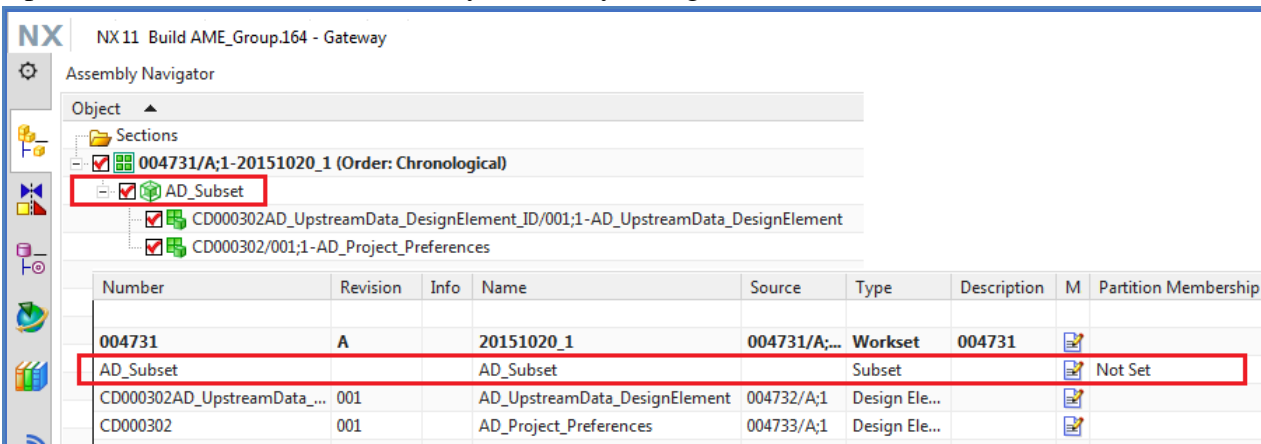
Look at results TC: Note that when you created workset you also created CD.

TERRY : where is the AD_subset in TC?



05_10xxxxx

Open the AD workset in the Gateway Assembly Navigator to see the subset.



05_11

NX NX 11.0.0.24 - Gateway - [001199/A;1-AD_1_CD_4_WS_5_SS_b (Modif... SIEMENS

Assembly Navigator

Object ▲

Sections

- 001199/A;1-AD_1_CD_4_WS_5_SS_b (Order: Chronological)
 - AD_Subset
 - CD000034AD_UpstreamData_DesignElement_ID/001;1-AD_UpstreamData_DesignElement
 - CD000034/001;1-AD_Project_Preferences

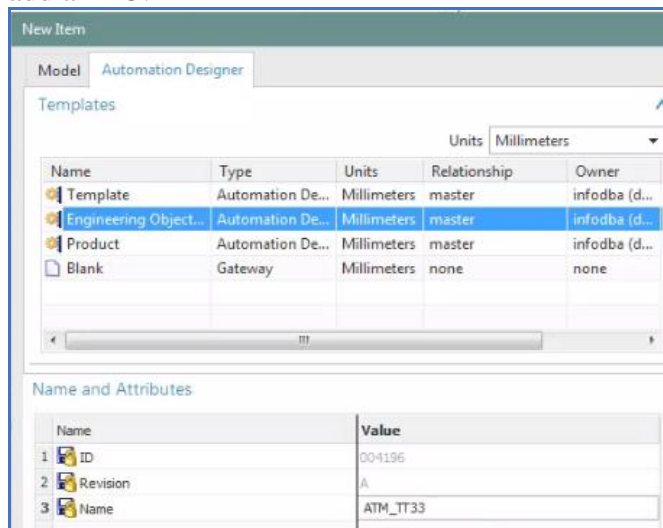
Source	Type	Description	M	Partition Membership	Effectivity	Quan...	Projects	Source St...
001199/A;1-AD_1_CD_4_WS_5_SS_b	Workset	001199						
	Subset			Not Set				
001200/A;1	Design Element							
001201/A;1	Design Element							

5.4. Create EODef's

In AD

Create the first EODef.

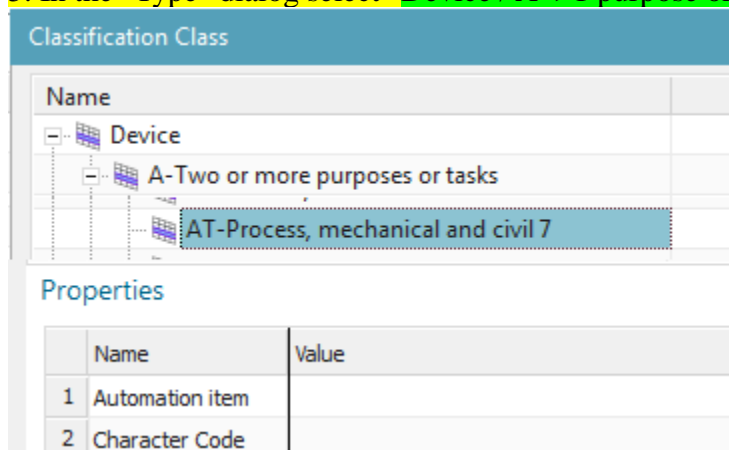
1. Select "File / New Item".
2. In tab "Automation Designer" select "Engineering Object **Definition**".
3. Enter the name "**EODATMname**". This will be locked after you set it. This is the "description" when you add an EO.



05_12

4. Click OK.

5. In the "Type" dialog select "**Device / A ->1 purpose or task / AT**".



20160418

20160509 error.....

Classification Class

Name	
AH-Information and ...	
AJ-Information and s...	
AK-Information and ...	
AL-Process, mechani...	
AM-Process, mecha...	
AN-Process, mechan...	
AQ-Process, mechan...	
AR-Process, mechan...	
AS-Process, mechani...	
AT-Process, mechan...	

Properties

Name	Value
1 Automation item	
2 Character Code	
3 Control voltage ...	
4 Control voltage ...	
5 Control voltage	

Input string out of range.

OK

Type

Name	
Aspectnode	
Connector	
Device	
A->1 purpose or task	
AA-Electrical energy 1	
AT-Process, mechan...	

05_13

6. Click OK.

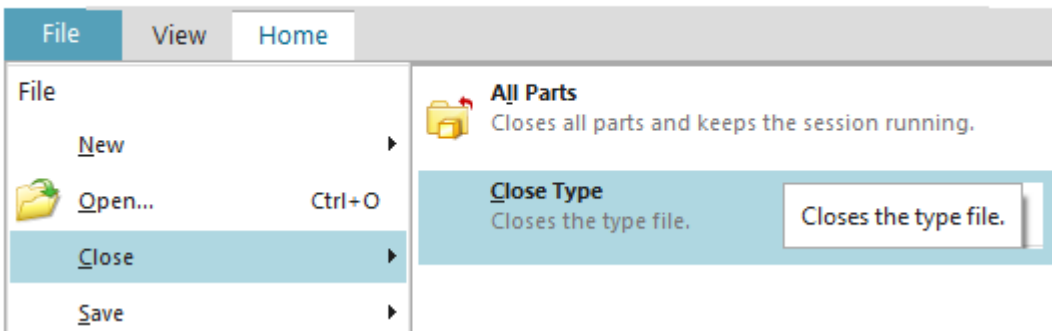
05_13b

NX 11.0.0.24 - Automation Designer - [001202/A;1-EODATMname_20160301 (Modified)]

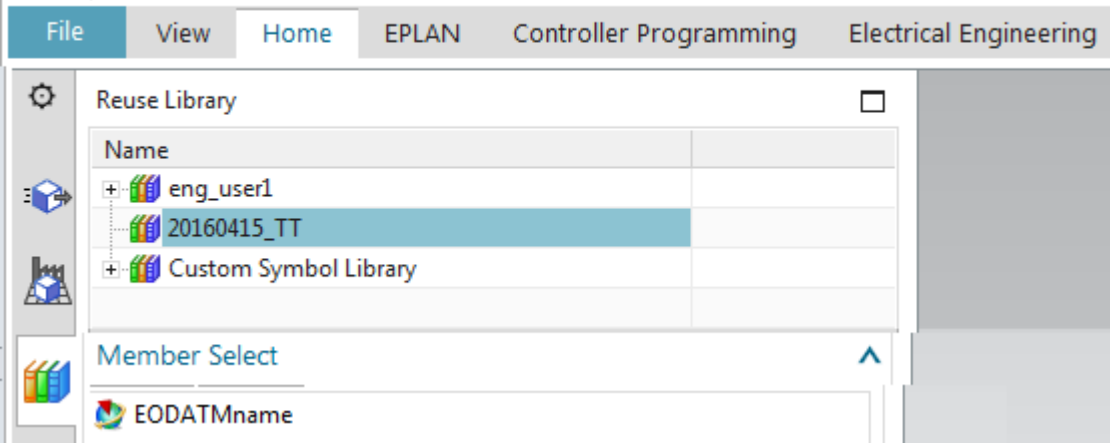
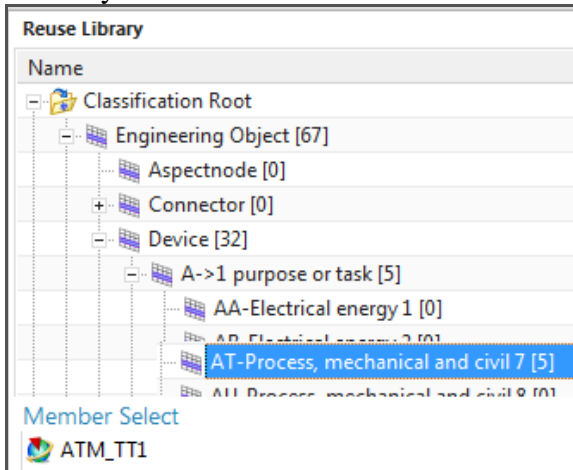
File View Engineering Object Definition

Properties Label Aspects Manage Type Mapping Port Manager Expressions Product Matching Rules Product

7. Select "File / Close / Close ~~Engineering Object~~ Definition". Click "Yes - Save and Exit".



8. Verify that the EODef is in the Reuse Library.



05_14b

Reuse Library

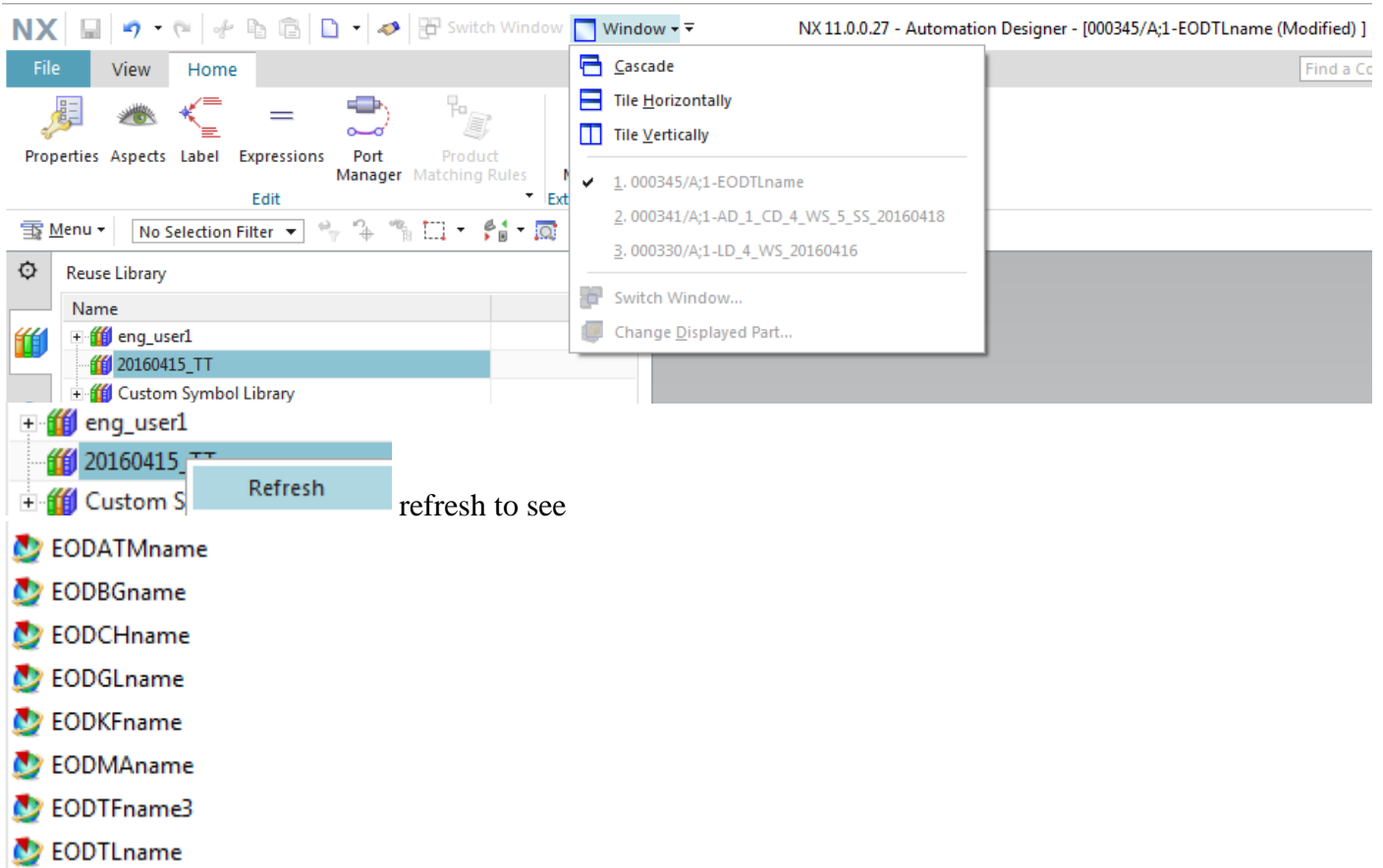
Name
[-] Classification Root
[-] Automation Designer
[-] Product Library [0]
[-] Device [0]
[-] Solution Library [1]
[-] Type Library [190]
[-] Device [159]
[-] A- >1 purpose or task [25]
[-] AT-Process, mechanical and civil 7 [1]

Member Select

- EODATMname_20160301
- AT-Process, mechanical and civil 7

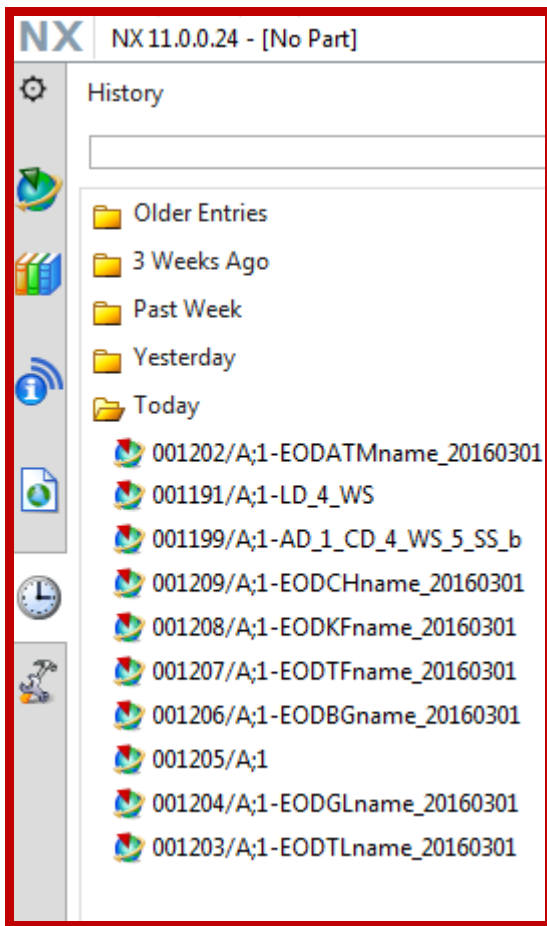
9. Create the remaining EODefs listed in the table below. Note: To avoid closing each part individually, leave all parts open after creating, then after creating all parts switch to gateway and close all parts.

20160418 TERRY ERROR: window is greyed out... cant switch to others.... New? Just create and then close each.

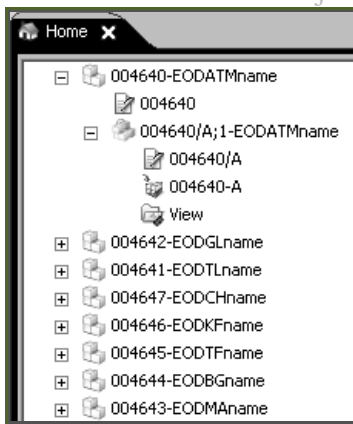


EODef	Classification Root
1. EODATMname (created above)	Device / A ->1 purpose or task / AT
2. EODTLname x	Device / U-Keep
3. EODGLname x	Device / G-Generator / GL-Continuous flow
4. EODMAName x	Device / M-Motor / MA-Electromagnetic
5. EODBGname x	Device / B-Measurement / BG-Gauge,position
6. EODTFname 3	Device / T-Conversion / TF-Signals
7. EODKFname x	Device / K-Processing / KF-Electrical signals
8. EODCHname x	Devicefunction / Electrical / Input/output

05_14c



xxxxNote the EODef objects in TC.



5.5. Create naming rules and add EO's 20160428

Engineering object name

Character code	Classification parent
1. EOATMcc (created above)	Device / A ->1 purpose or task / AT
2. EOTLcc x	Device / U-Keep
3. EOGLcc x	Device / G-Generator / GL-Continuous flow
4. EOMAcc x	Device / M-Motor / MA-Electromagnetic
5. EOBGcc x	Device / B-Measurement / BG-Gauge,position
6. EOTFcc x	Device / T-Conversion / TF-Signals
7. EOKFcc x	Device / K-Processing / KF-Electrical signals
8. EOCHcc	Devicefunction / Electrical / Input/output

Naming Rules		
Engineering Object Name	Advanced Aspect Naming	
Add to List		
List		
Classification Class Parent	Classification Class	Character Code
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->A-Two or more purposes or tasks->AT-Process, mechanical and civil 7	AT-Process, mechanical and civil 7	EOATMcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->U-Keep	U-Keep	EOTLcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->G-Generator->GL-Continuous flow of solid matter	GL-Continuous flow of solid matter	EOGLcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->M-Motor->MA-Electromagnetic	MA-Electromagnetic	EOMAcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->B-Measurement->BG-Gauge, position, length	BG-Gauge, position, length	EOBGcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->K-Processing->KF-Electrical signals	KF-Electrical signals	EOKFcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Devicefunction->Electrical->Input/output	Input/output	EOCHcc
Classification Class Parent	Classification Class	Character Code
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->A-Two or more purposes or tasks->AT-Process, mechanical and civil 7	AT-Process, mechanical and civil 7	EOATMcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->U-Keep	U-Keep	EOTLcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->G-Generator->GL-Continuous flow of solid matter	GL-Continuous flow of solid matter	EOGLcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->M-Motor->MA-Electromagnetic	MA-Electromagnetic	EOMAcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->B-Measurement->BG-Gauge, position, length	BG-Gauge, position, length	EOBGcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->K-Processing->KF-Electrical signals	KF-Electrical signals	EOKFcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Devicefunction->Electrical->Input/output	Input/output	EOCHcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->T-Conversion->TF-Signals	TF-Signals	EOTFcc

Advanced aspect naming

Naming Rules

Engineering Object Name: **Advanced Aspect Naming**

Classification

Select Classification Class (GL-Continuous flow of solid matter)

Name in Aspects

Function: Conveyor_F
 Location: Conveyor_L
 Product: Conveyor_P|

Index in Aspects

Function: Start 1 Increments 1 Digits 3
 Location: Start 1 Increments 1 Digits 3
 Product: Start 1 Increments 1 Digits 3

Add to List

Classification Class Parent	Classification Class	Function	Location	Product
TC Classification Root->Classifi...	AT-Process, mechanical an...	=ATM_F001 +1	+ATM_L001 +1	-ATM_P001 +1
TC Classification Root->Classifi...	U-Keep	=TL_F001 +1	+TL_L001 +1	-TL_P001 +1

EO type	Classification	Name in aspects / Product
ATM		ATM
TL		TL
Conveyor	Device -> G Generator -> GL Continuous flow of solid Materials	Conveyor
Sensors	Device -> B Measurement -> BG Gauge, position, length	Sensor
Motor	Device -> M Motor -> MA Electromagnetic	Motor
G120D Power Module	Device -> T Conversion -> TF Signals	Drive Power
G120D Control Module	Device -> K Processing -> KF Electrical Signals	Drive Controller

Naming Rules

Engineering Object Name: **Advanced Aspect Naming**

Add to List

Classification Class Parent	Classification Class	Function	Location	Product
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->A-Two or more purposes or tasks->AT-Process, mechanical and civil 7	AT-Process, mechanical and civil 7	=ATM_F001 +1	+ATM_L001 +1	-ATM_P001 +1
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->U-Keep	U-Keep	=TL_F001 +1	+TL_L001 +1	-TL_P001 +1
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->G-Generator->GL-Continuous flow of solid matter	GL-Continuous flow of solid matter	=Conveyor_F001 +1	+Conveyor_L001 +1	-Conveyor_P001 +1
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->B-Measurement->BG-Gauge, position, length	BG-Gauge, position, length	=Sensor_F001 +1	+Sensor_L001 +1	-Sensor_P001 +1
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->M-Motor->MA-Electromagnetic	MA-Electromagnetic	=Motor_F001 +1	+Motor_L001 +1	-Motor_P001 +1
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->T-Conversion->TF-Signals	TF-Signals	=Drive_Power_F001 +1	+Drive_Power_L001 +1	-Drive_Power_P001 +1
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->K-Processing->KF-Electrical signals	KF-Electrical signals	=Drive_Controller_F001 +1	+Drive_Controller_L001 +1	-Drive_Controller_P001 +1

This time does not work again ☹️



Function Aspect Navigator



Name ▲	Description
[-] CD000124;1-AD_1_CD_4_WS_5_SS_20160...	
[-] =EOATMcc 001	000344
[-] =EOTLCcc001	000345
[-] =EOGLcc002	000346
=EOMAcc001	000347
=EOBGcc001	000348
[-] =EOTFcc001	000351
[-] =EOKFcc001	000352
[-] =EOCHcc001	000353

5.5. Create naming rules

This section describes how to

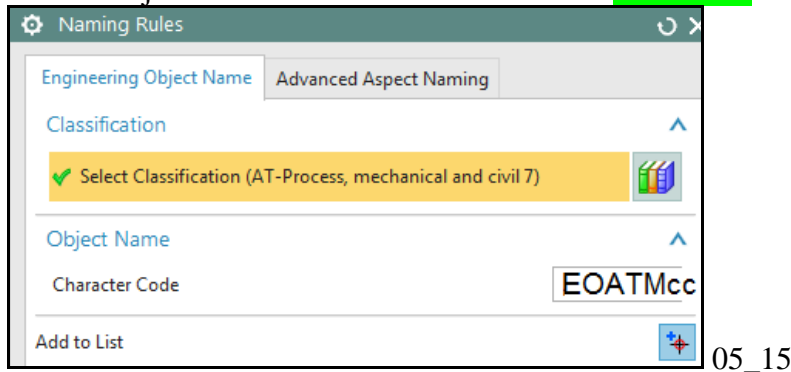
- 5.5.1. Create EO Name (character code) list
- 5.5.2. Create Advanced Aspect Naming

5.5.1. Create EO Name (character code) list

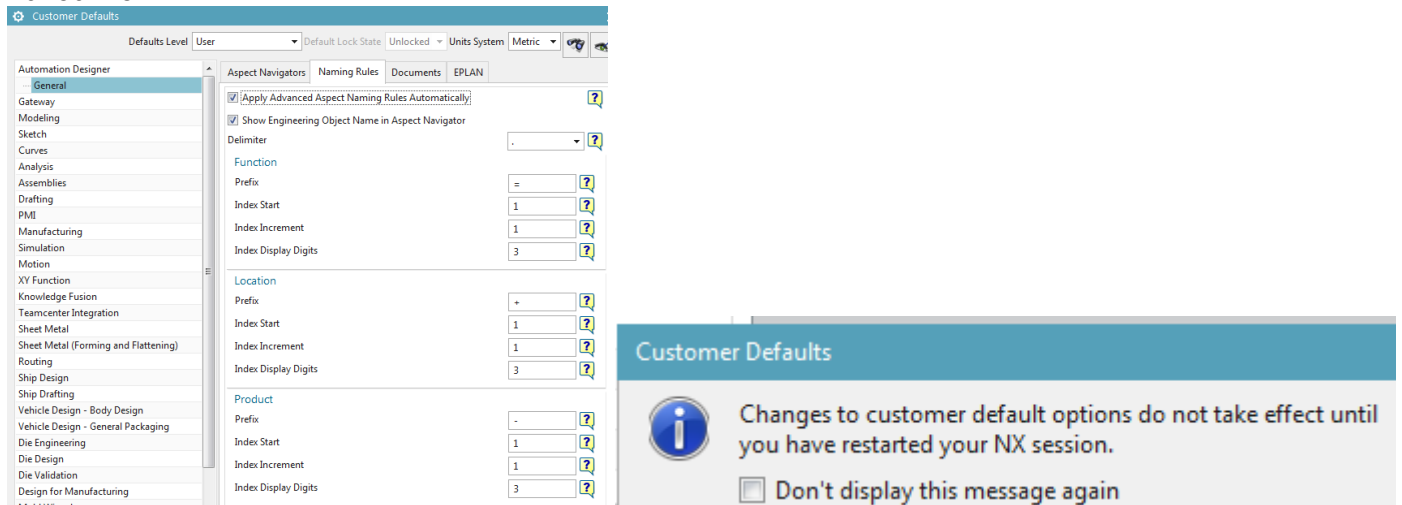
To create the first naming rule:

0. Open the AD CD.

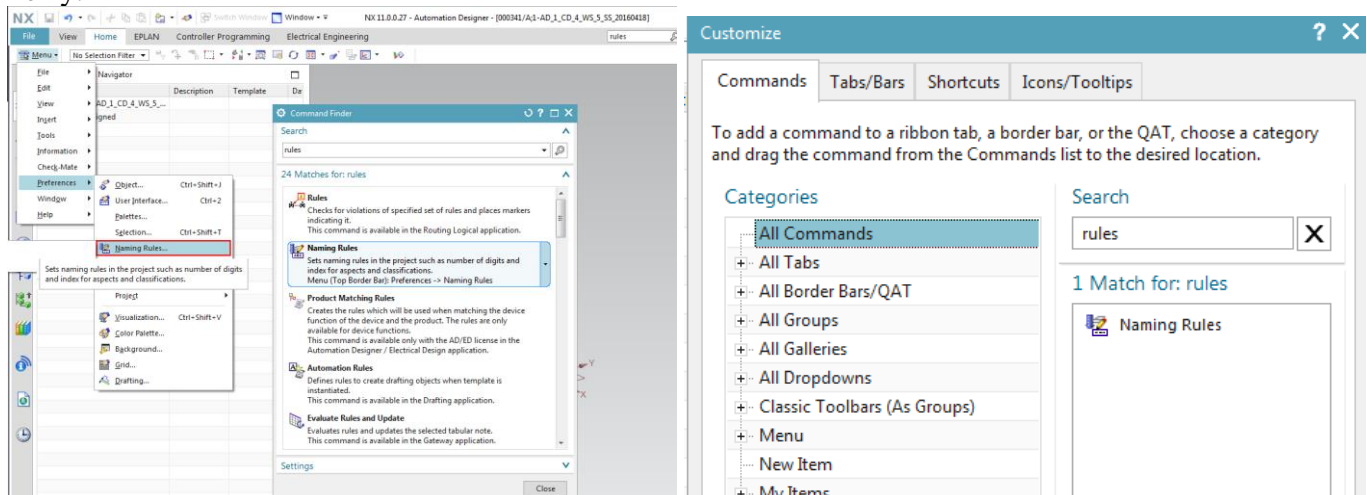
1. Select "System Design / Naming rules".
2. Select for "Classification Parent" in the classification root " Device / A ->1 purpose or task / AT ".
3. For "Object Name / Character Code " enter "EOATMcc". This is the "name" when you add EO.



20160418



Terry:



Reuse Library Management

Libraries

Teamcenter Applications All

Name	Directory
Classification	
Classification Root	ICM
TC Library	

Settings

Overwrite the current list when loading configurat

Rename
Specify Library Path
Application Task
Exclusive

Reuse Library

Name

- Classification Root
 - Automation Designer
 - Product Library [7]
 - Device [7]
 - Solution Library [6]
 - Type Library [213]
 - Device [189]
 - Devicefunction [13]
 - EPLAN Macro [2]
 - PLC [2]
 - Software [6]
 - Resource Management
 - eng_user1
 - 20160415_TT
 - Custom Symbol Library


List

Classification Class Parent	Classification Class	Character Code
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->A-Two or more purposes or tasks->AT-Process, mechanical and civil 7	AT-Process, mechanical and civil 7	EOATMcc

List

Classification Class Parent	Classification Class	Character Code
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->A-Two or more purposes or tasks->AT-Process, mechanical and civil 7	AT-Process, mechanical and civil 7	EOATMcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->U-Keep	U-Keep	EOTLcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->G-Generator->GL-Continuous flow of solid matter	GL-Continuous flow of solid matter	EOGLcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->M-Motor->MA-Electromagnetic	MA-Electromagnetic	EOMAcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->B-Measurement->BG-Gauge, position, length	BG-Gauge, position, length	EOBGcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->T-Conversion->TF-Signals	TF-Signals	EOTFcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->K-Processing->KF-Electrical signals	KF-Electrical signals	EOKFcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Devicefunction->Electrical->Input/output	Input/output	EOCHcc

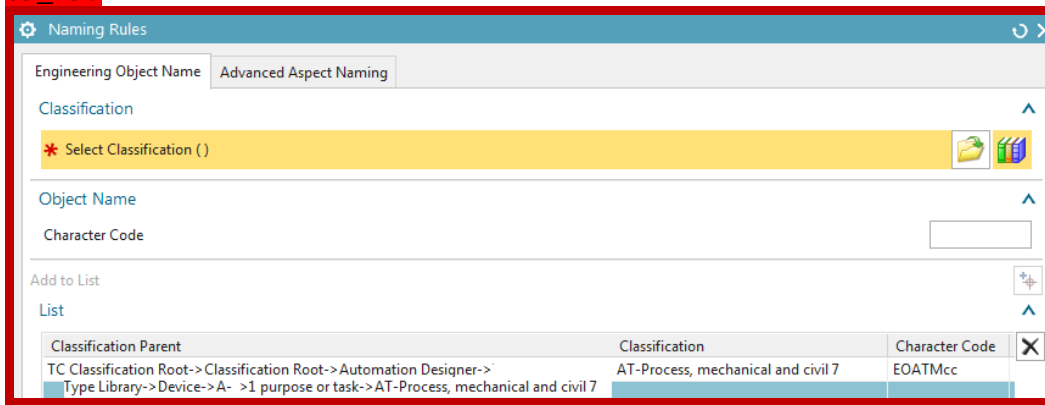
CheckOut

 One or more objects were checked out by you. To check them in save the project

Don't display this message again

4. Click "Add to List".

05_15b



5. Create the remaining naming rules listed in the table below.

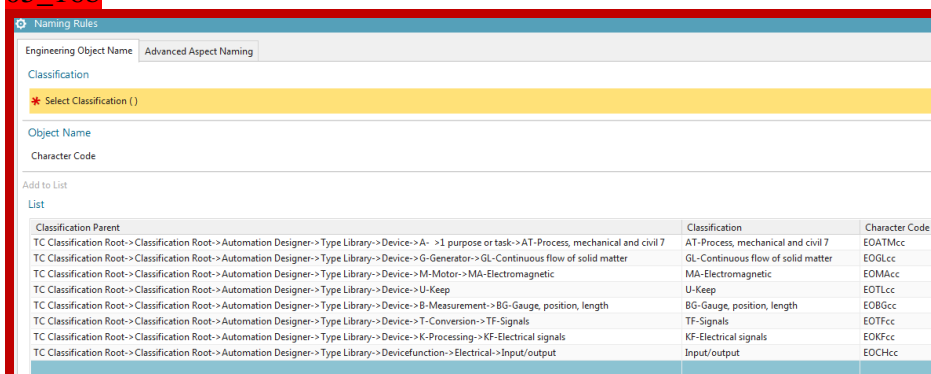
Character code	Classification parent
1. EOATMcc (created above)	Device / A ->1 purpose or task / AT
2. EOTLcc x	Device / U-Keep
3. EOGLcc x	Device / G-Generator / GL-Continuous flow
4. EOMAcc x	Device / M-Motor / MA-Electromagnetic
5. EOBGcc x	Device / B-Measurement / BG-Gauge,position
6. EOTFcc x	Device / T-Conversion / TF-Signals
7. EOKFcc x	Device / K-Processing / KF-Electrical signals
8. EOCHcc	Devicefunction / Electrical / Input/output

Result:

Classification Parent	Classification	Character Code
TC Classification Root->Classification Root->Engineering Object->Device->U-Keep	U-Keep	TL
TC Classification Root->Classification Root->Engineering Object->Device->T-Conversion->TF -Signals	TF -Signals	TF
TC Classification Root->Classification Root->Engineering Object->Device->M-Motor->MA -Electroma...	MA -Electroma...	MA
TC Classification Root->Classification Root->Engineering Object->Device->K-Processing->KF -Electrica...	KF -Electrical si...	KF
TC Classification Root->Classification Root->Engineering Object->Device->G-Generator->GL-Continuo...	GL-Continuous...	GL
TC Classification Root->Classification Root->Engineering Object->Device->B-Measurement->BG-Gaug...	BG-Gauge, posi...	BG
TC Classification Root->Classification Root->Engineering Object->Devicefunction->Electrical->Input/o...	Input/output	CH
TC Classification Root->Classification Root->Engineering Object->Device->A->1 purpose or task->AT-...	AT-Process, me...	ATM
TC Classification Root->Classification Root->Engineering Object->Device->G-Generator->GA-Electrical...	GA-Electrical e...	GA

05_16

05_16b



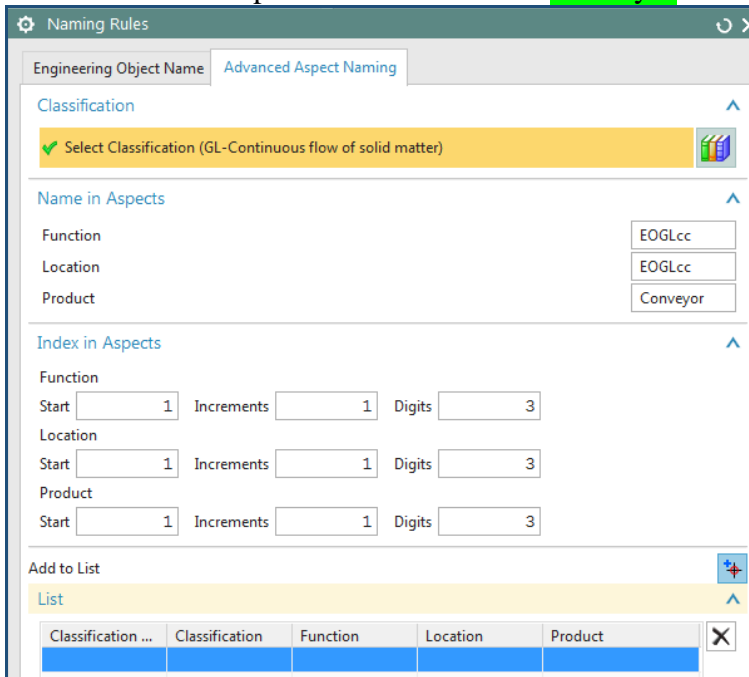
6. Click OK.

6. Click "Apply".

5.5.2. Create Advanced Aspect Naming (20150204)

To create the first rule:

1. Select "System Design / Naming rules / Advanced Aspect Naming".
2. Select for "Classification Parent" in the classification root "~~Device / A -> 1 purpose or task / AT~~" "**Device -> G Generator -> GL Continuous flow of solid Materials**".
3. For "Name in Aspects / Product" enter "**Conveyor**". This is the first part of the "Name" when you add EO.



05_17

20160418

Naming Rules

Engineering Object Name **Advanced Aspect Naming**

Classification

✓ Select Classification Class (GL-Continuous flow of solid matter)

Name in Aspects

Function ConveyorF

Location ConveyorL

Product ConveyorP|

Index in Aspects

Function
Start Increments Digits

Location
Start Increments Digits

Product
Start Increments Digits

Add to List

List

Classification ...	Classification ...	Function	Location	Product

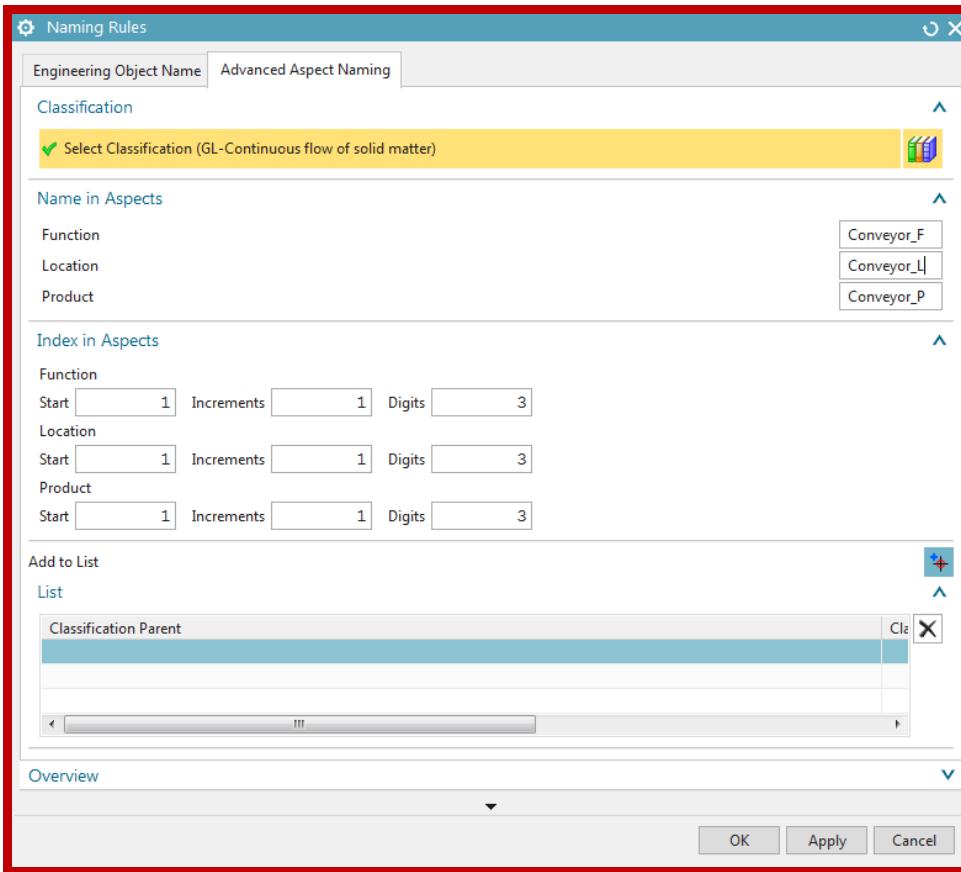
List

Classification Class Parent	Classification Class	Function	Location	Product
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->G-Generator->GL-Continuous flow of solid matter	GL-Continuous flow of solid matter	=ConveyorF001 +1	+ConveyorL001 +1	-ConveyorP001 +1

List

Classification Class Parent	Classification Class	Character Code
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->A-Two or more purposes or tasks->AT-Process, mechanical and civil 7	AT-Process, mechanical and civil 7	EOATMcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->U-Keep	U-Keep	EOTLcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->G-Generator->GL-Continuous flow of solid matter	GL-Continuous flow of solid matter	EOGLcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->M-Motor->MA-Electromagnetic	MA-Electromagnetic	EOMAcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->B-Measurement->BG-Gauge, position, length	BG-Gauge, position, length	EOBGcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->T-Conversion->TF-Signals	TF-Signals	EOTFcc
TC Classification Root->Classification Root->Automation Designer->Product Library->Device->K-Processing->KF-Electrical signals	KF-Electrical signals	EOKFcc
TC Classification Root->Classification Root->Automation Designer->Type Library->Devicefunction->Electrical->Input/output	Input/output	EOCHcc

05_17b



4. Click "Add to List".

List					
Classification Parent					
TC Classification Root->Classification Root->Engineering Object->Device->G-Generator->GL-Continuous flow of solid matter					
Classification	Function	Location	Product		
GL-Continuous flow of solid matter	=EOGLcc001 +1	+EOGLcc001 +1	-Conveyor001 +1		

05_18

05_18b

List					
Classification Parent					
TC Classification Root->Classification Root->Automation Designer->Type Library->Device->G-Generator->GL-Continuous flow of solid matter					
Classification	Function	Location	Product		
GL-Continuous flow of solid matter	=Conveyor_F001 +1	+Conveyor_L001 +1	-Conveyor_P001 +1		

5. Create the remaining advanced aspect naming rules listed in the table below.

EO type	Classification	Name in aspects / Product
Conveyor	Device -> G Generator -> GL Continuous flow of solid Materials	Conveyor
Sensors	Device -> B Measurement -> BG Gauge, position, length	Sensor
Motor	Device -> M Motor -> MA Electromagnetic	Motor
G120D Power Module	Device -> T Conversion -> TF Signals	Drive_Power
G120D Control Module	Device -> K Processing -> KF Electrical Signals	Drive_Controller

List

Classification Parent

TC Classification Root->Classification Root->Automation Designer->Type Library->Device->G-Generator->GL-Continuous flow of solid matter

TC Classification Root->Classification Root->Automation Designer->Type Library->Device->B-Measurement->BG-Gauge, position, length

TC Classification Root->Classification Root->Automation Designer->Type Library->Device->M-Motor->MA-Electromagnetic

TC Classification Root->Classification Root->Automation Designer->Type Library->Device->T-Conversion->TF-Signals

TC Classification Root->Classification Root->Automation Designer->Type Library->Device->K-Processing->KF-Electrical signals

Classification	Function	Location	Product
GL-Continuous flow of solid matter	=Conveyor_F001 +1	+Conveyor_L001 +1	-Conveyor_P001 +1
BG-Gauge, position, length	=EOBGcc001 +1	+Sensor_L001 +1	-Sensor_P001 +1
MA-Electromagnetic	=EOMAcc001 +1	+Motor_L001 +1	-Motor_P001 +1
TF-Signals	=EOTFcc001 +1	+Drive_Power_L 001 +1	-Drive_Power_P001 +1
KF-Electrical signals	=EOKFcc001 +1	+Drive_Controller_L001 +1	-Drive_Controller_P001 +1

6. Click "Apply". Click OK. Save the project.

5.6. Add EO's

You created the EODefs and the naming rules. Now you can drag&drop the EODefs to create the EOs.

20160509

Engineering Object

Reuse Library

- Select from Member Select (EODTLName)

General Properties

Object Name Prefix

EOTLcc

Description

000345

Navigators

- Select Parent (1)
- In Function
- In Location
- In Product
- In Automation

Properties

Edit Properties

OK Apply Cancel

Function Aspect Navigator

Name	Description
CD000163;1-AD_1_CD_4_WS_5_...	Unassigned

Search

Member Select

EODTLName

Reuse Library

Name
Classification Root
Automation Designer
Resource Management
eng_user1
20160415_TT
Custom Symbol Library

Member Select

000349
000350
AD_1_CD_4_WS_5_SS_20160418
EODATMname
EODBGname
EODCHname
EODGLname
EODKFname
EODMAname
EODTFname3
EODTLname

Function Aspect Navigator

Name	Description
CD000101;1-AD_1_CD_4_WS_5_...	
Unassigned	
=_001 [EODATMname]	000344

Function Aspect Navigator

Name	Description
CD000101;1-AD_1_CD_4_WS_5_...	
Unassigned	

Engineering Object

Reuse Library

Select from Member Select (EODATMname)

General Properties

Object Name Prefix

Description

Navigators

Select Parent (1)

In Function

In Location

In Product

In Automation

Properties

Edit Properties

OK Apply Cancel

Function Aspect Navigator

Name	Description
CD000101;1-AD_1_CD_4_WS_5_SS_20160418	
Unassigned	
=_001 [EODATMname]	000344
=_004 [EODTLname]	000345
= ConveyorF001 [EODGLname]	000346
= MotorF001 [EODMAname]	000347
= SensorF001 [EODBGname]	000348
= DrivePowerF001 [EODTFname3]	000351
= DriveControlF001 [EODKFname]	000352
= EOCHcc001 [EODCHname]	000353

20160509 don't see the "name in aspects"

Function Aspect Navigator

Name	Description
CD000163;1-AD_1_CD_4_WS_5_SS_20160509_2	
Unassigned	
=EOATMcc001	000344
=EOTLcc001	000345
=EOGLcc001	000346
=EOMAcc001	000347
=EOBGcc001	000348
=EOTFcc001	000351
=EOKFcc001	000352
=EOCHcc001	000353

Wow .. works in this version 😊

To create the first EO (ATM):

1. Undock the Reuse Library tab .
2. In Reuse Library select "AT-Process, mechanical and civil".

Reuse Library

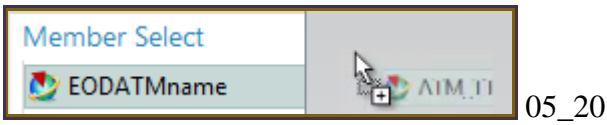
Name
Classification Root
Engineering Object [92]
Device [51]
A->1 purpose or task [9]
AT-Process, mechanical and civil 7 [9]

Search

Member Select

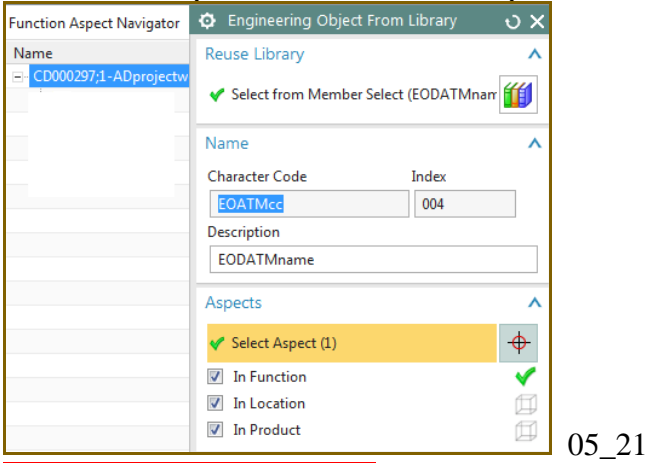
05_19

3. Under "Member Select" drag and drop "EO_ATM_name".

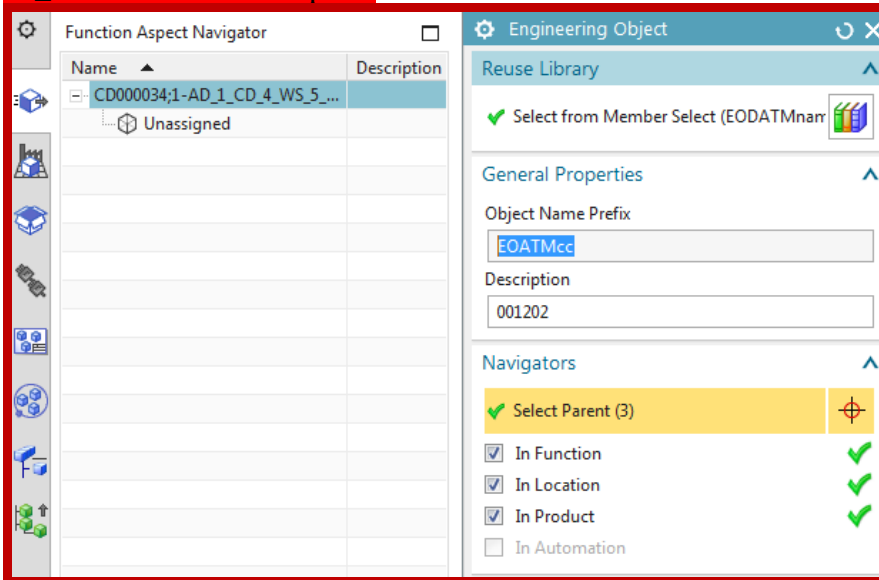


The "Engineering Object from Library" dialog appears.

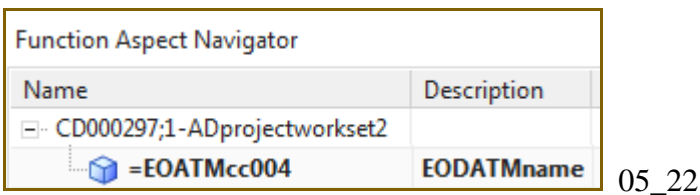
4. Select the top level in the function aspect.



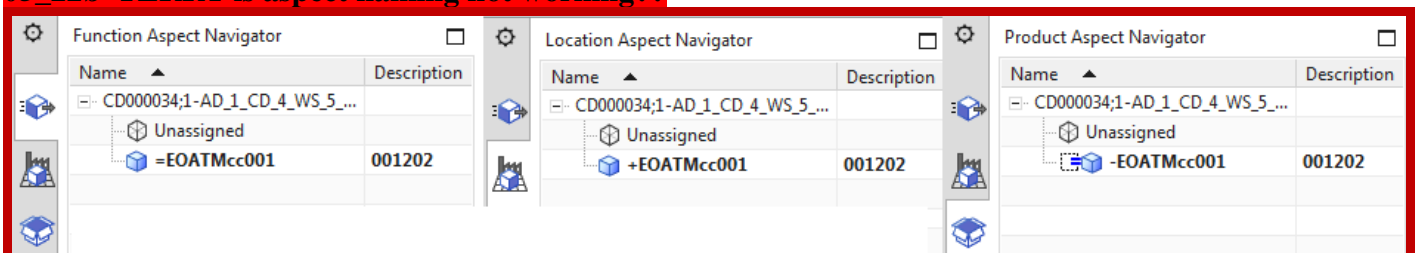
05_21b I added to all aspects



5. Click OK.

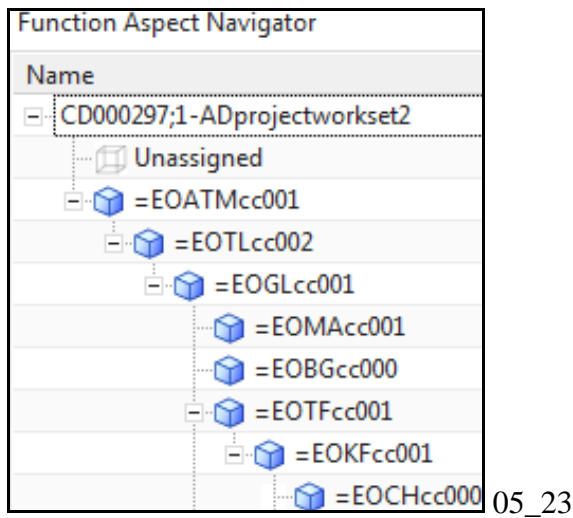


05_22b TERRY is aspect naming not working??

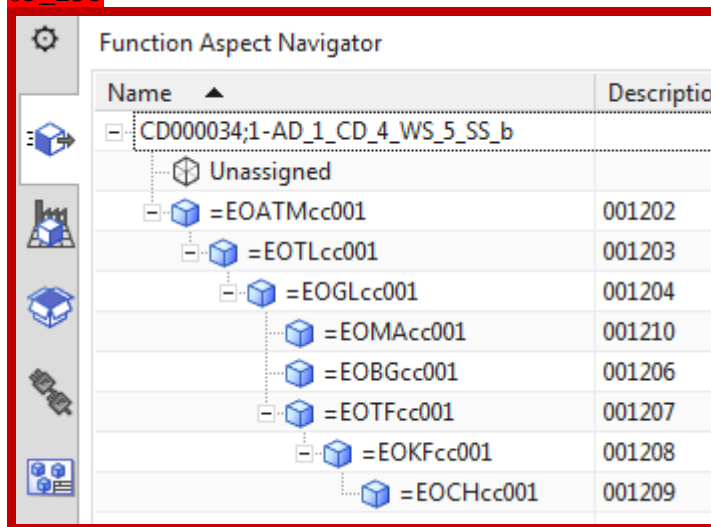


6. Add one each of the EO's listed in the table below until you have a **FUNCTION** aspect tree like that shown below.

Classification Root	EODef	Number to add
Device / A ->I purpose or task / AT	1. EODATMname (created above)	1
Device / U-Keep	2. EODTLname	1
Device / G-Generator / GL-Continuous flow	3. EODGLname	1
Device / M-Motor / MA-Electromagnetic	4. EODMAname	1
Device / B-Measurement / BG-Gauge,position	5. EODBGname	1
Device / T-Conversion / TF-Signals	6. EODTFname	1
Device / K-Processing / KF-Electrical signals	7. EODKFname	1
Devicefunction / Electrical / Electro mechanical drive	8. EODCHname	1



05_23b



7. Save the project.

TERRY 2: EOs are not shown in TC? 
 Result (EOs are type "Design Element").

NX NX 11 Build AME_Group.164 - Gateway

Assembly Navigator

Object

- Sections
 - 004648/A;1-ADprojectworkset2 (Order: Chronological)
 - AD_Subset
 - CD000297AD_UpstreamData_DesignElement_ID/001;1-AD_UpstreamData_DesignElement
 - CD000297/001;1-AD_Project_Preferences
 - CD000297EOGLcc001/001;1-EOGLcc001 x 2
 - CD000297EOMAcc001/001;1-EOMAcc001 x 2
 - CD000297EOKFcc001/001;1-EOKFcc001 x 2
 - CD000297EOATMcc001/001;1-EOATMcc001
 - CD000297EOTLcc002/001;1-EOTLcc002
 - CD000297ST001/001;1-S71500/ET200MP_station_1
 - CD000297S7001/001;1-S7001
 - CD000297RA001/001;1-RA001
 - CD000297PL001/001;1-PL001
 - CD000297EOBGcc013/001;1-EOBGcc013 x 8
 - CD000297EOCHcc010/001;1-EOCHcc010 x 8
 - CD000297EOTFcc004/001;1-EOTFcc004 x 2

Number	Revision	Info	Name	Source	Type	Description	M	Partition Membership
004648	A		ADprojectworkset2	004648/A;1-ADprojectworkset2	Workset			
AD_Subset			AD_Subset	1-ADprojectworkset2	Subset			Not Set
CD000297AD_UpstreamData_...	001		AD_UpstreamData_DesignElement	004649/A;1	Design Ele...			
CD000297	001		AD_Project_Preferences	004650/A;1	Design Ele...			
004652	001		EOGLcc001	004652/A;1-EODGLname2	Design Ele...			
004643	001		EOMAcc001	004643/A;1-EODMName	Design Ele...			
004646	001		EOKFcc001	004646/A;1-EODKName	Design Ele...			
CD000297EOATMcc001	001		EOATMcc001	004651/A;1-EODATName2	Design Ele...			
CD000297EOTLcc002	001		EOTLcc002	004641/A;1-EODTLName	Design Ele...			
CD000297ST001	001		S71500/ET200MP_station_1	004665/A;1	Design Ele...			
CD000297S7001	001		S7001	004666/A;1	Design Ele...			
CD000297RA001	001		RA001	004667/A;1	Design Ele...			
CD000297PL001	001		PL001	004668/A;1	Design Ele...			
004644	001		EOBGcc013	004644/A;1-EODBGName	Design Ele...			
004647	001		EOCHcc010	004647/A;1-EODCHName	Design Ele...			
004645	001		EOTFcc004	004645/A;1-EODTFName	Design Ele...			

05_24

5_24b

NX NX 11.0.0.24 - Gateway - [001199/A;1-AD_1_CD_4_WS_5_SS_b (Modified)]

Assembly Navigator

Object

Object	Number
Sections	
001199/A;1-AD_1_CD_4_WS_5_SS_b (Order: Chronological)	001199
AD_Subset	AD_Subset
CD000034/001;1-AD_Project_Preferences	CD000034
CD000034AD_UpstreamData_DesignElement_ID/001;1-AD_UpstreamData_DesignElement	CD000034AD_UpstreamData_DesignElement_ID
CD000034EOGLcc001/001;1-EODGLname_20160301	CD000034EOGLcc001
CD000034EOMAcc001/001;1-EOMAcc_20160301b	CD000034EOMAcc001
CD000034EOBGcc001/001;1-EODBGname_20160301	CD000034EOBGcc001
CD000034EOTFcc001/001;1-EODTFname_20160301	CD000034EOTFcc001
CD000034EOKFcc001/001;1-EODKName_20160301	CD000034EOKFcc001
CD000034EOCHcc001/001;1-EODCHname_20160301	CD000034EOCHcc001
CD000034EOATMcc001/001;1-EODATName_20160301	CD000034EOATMcc001
CD000034EOTLcc001/001;1-EODTLname_20160301	CD000034EOTLcc001

Info	Name	Source	Type	Description	M	Partition Members...	Qua...	Proj
	AD_1_CD_4_WS_5_SS_b	001199/A;1-AD_1_CD_4_WS_5_SS_b	Workset	001199				
	AD_Subset		Subset			Not Set		
	AD_Project_Preferences	001201/A;1	Design Element					
	AD_UpstreamData_DesignElement	001200/A;1	Design Element					
	EODGLname_20160301	001204/A;1-EODGLname_20160301	Design Element				1	
	EOMAcc_20160301b	001210/A;1-EOMAcc_20160301b	Design Element				1	
	EODBGname_20160301	001206/A;1-EODBGname_20160301	Design Element				1	
	EODTFname_20160301	001207/A;1-EODTFname_20160301	Design Element				1	
	EODKName_20160301	001208/A;1-EODKName_20160301	Design Element				1	
	EODCHname_20160301	001209/A;1-EODCHname_20160301	Design Element				1	
	EODATName_20160301	001202/A;1-EODATName_20160301	Design Element				1	
	EODTLname_20160301	001203/A;1-EODTLname_20160301	Design Element				1	

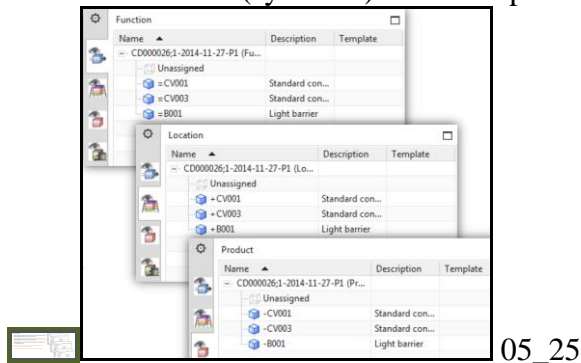
View the EOs in TC

Name	Source
ADprojectworkset2	004648/A;1-ADprojectworkset2
AD_Subset	004648/A;1-ADprojectworkset2
AD_UpstreamData_DesignElement	004649/A;1
AD_Project_Preferences	004650/A;1
EOGLcc001	004652/A;1-EODGLname2
EOMAcc001	004643/A;1-EODMName
EOKFcc001	004646/A;1-EODKName
EOATMcc001	004651/A;1-EODATName2
EOTLcc002	004641/A;1-EODTLName
S71500/ET200MP_station_1	004665/A;1
S7001	004666/A;1
RA001	004667/A;1
PL001	004668/A;1
EOBGcc013	004644/A;1-EODBGName
EOCHcc010	004647/A;1-EODCHName
EOTFcc004	004645/A;1-EODTFName

5.7. Location-Product aspects

Aspects are predefined engineering categories according to IED 81346 that specifies how to organize the different engineering objects and elements based on

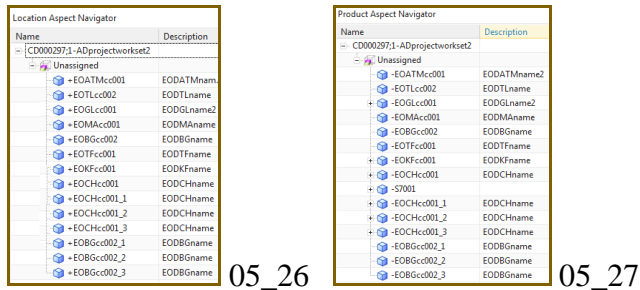
1. Function (symbol =): Functional description (main function, sub-function, etc.).
2. Location (symbol +): Physical location (hall, sector, cabinet, etc.).
3. Product (symbol -): How the parts are purchased.



05_25

In the previous sections you only organized EOs in the Function aspect. Location and product aspects are shown below.

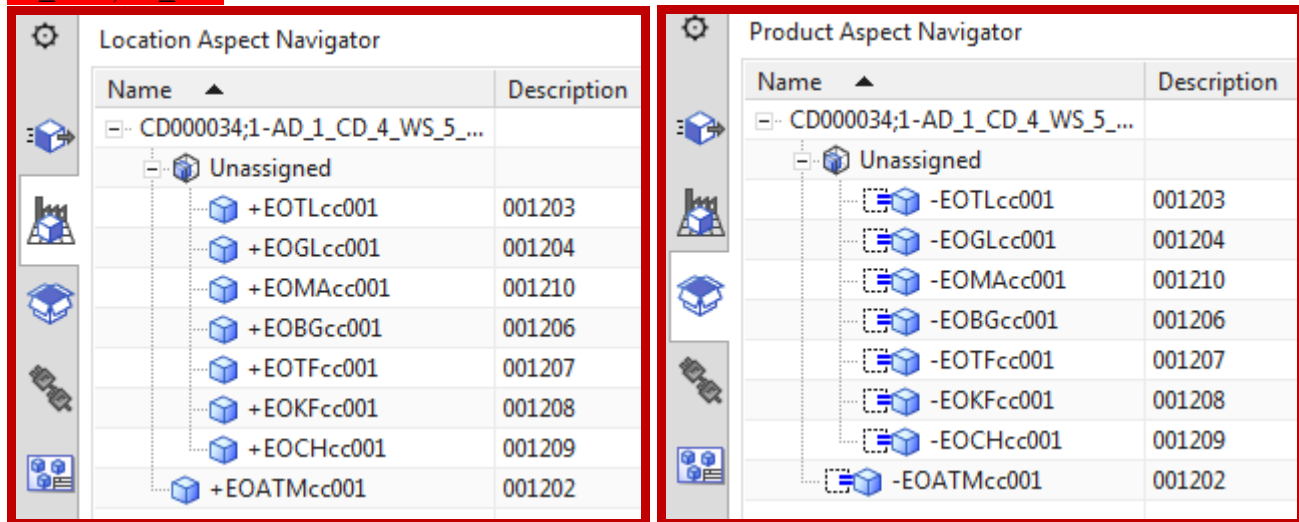
TERRY 3 20151012 where did s7001 come from?



05_26

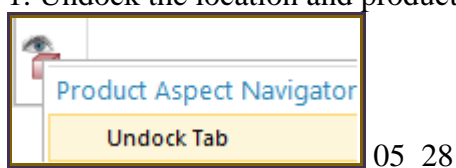
05_27

05_26b , 05_27b



Now you will configure the location and product aspects.

1. Undock the location and product aspects.



05_28

2. Organize (with drag and drop) the EOs in the Location and Product aspects.

Location Aspect Navigator	
Name	Description
CD000297;1-ADprojectworkset2	
Unassigned	
+EOATMcc001	
+EOATMcc001	EODATMname2

05_29

3. The result should be this.

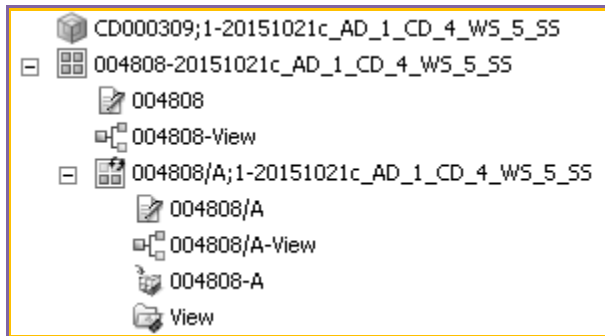
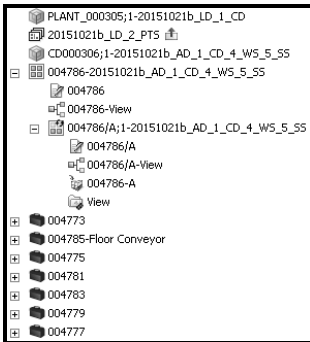
Function Aspect Navigator	Location Aspect Navigator	Product Aspect Navigator																																																																																																								
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-EOBGcc002_1	EODBGname																																																																																																									
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05_30

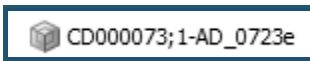
xxx5.8. Result in TC

The following shows the resulting structure in TC.

TERRY 20151021: What should this look like? On right where is partition scheme? After talking with Reinhard, there are probably too many errors in the TC display.. just leave this section out.



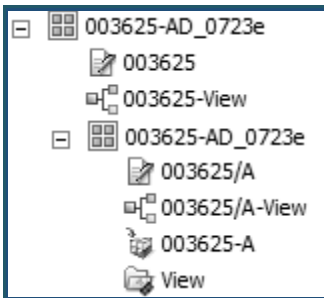
1. CD.



2. Partition scheme

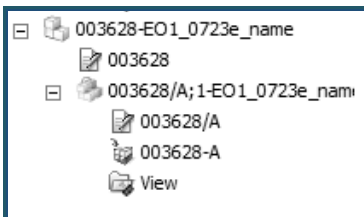
3. Partition

4. Workset.



5. Subset: Shown in AD, not in TC?

6. Design elements (EOs).



Part 2. Config (non-template) LD, EPLAN, TIA

This part shows how to create the mapping, EPLAN reports, and TIA SW for a single conveyor. You will not create a template and will not use expressions or ports until part 3 (to keep things simple).

6. AD: Map LD-AD.

7. AD: Configure EPLAN.

8. AD: Configure (non-template) TIA.

6. Map LD-AD (20160428)

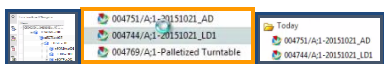
20160118 TERRY: see movie \\debonk10c19\ADNX\Teams\Documentation\10_Meetings
20160115_map_ch6_TT.mp4, demos this, minimal changes.

The LD project is structured in TC using a Plant Design. The AD project is structured in TC using a CD. To connect the two designs you need to link the Plant Design (LD) with the CD (AD) This action needs to be done only once. After this you can map the mechanical layout (LD) to AD EOs.

This chapter describes:

- 6.2. Link AD and LD CD's
- 6.3. Map
- 6.4. Result

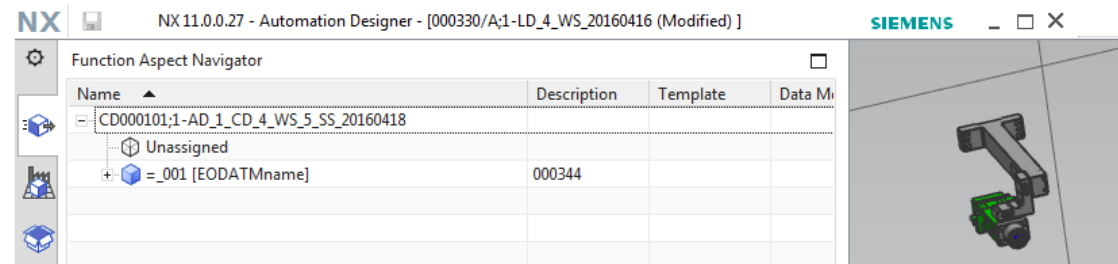
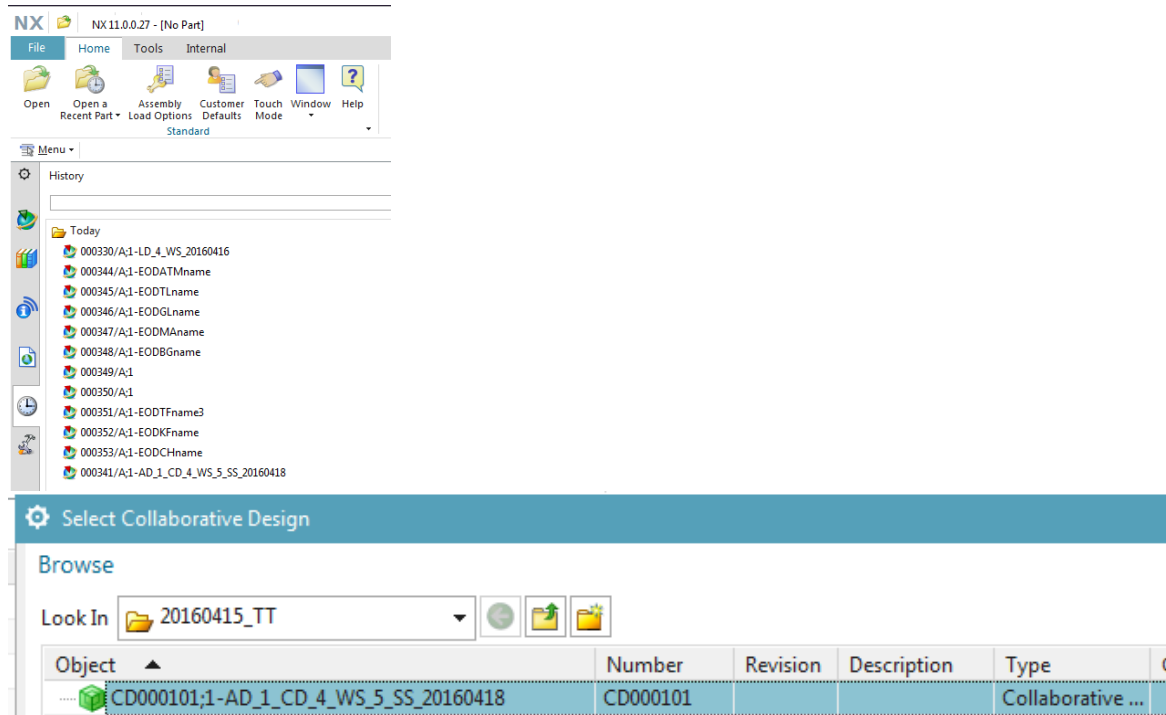
6.2. Link AD and LD CD's



To link AD and LD CDs:

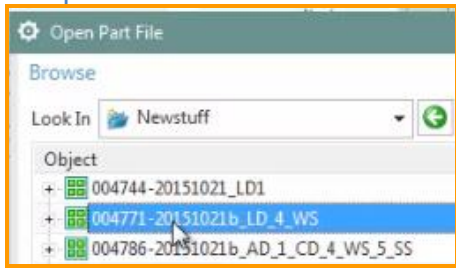
0. CLOSE AD PROJECT:

20160418



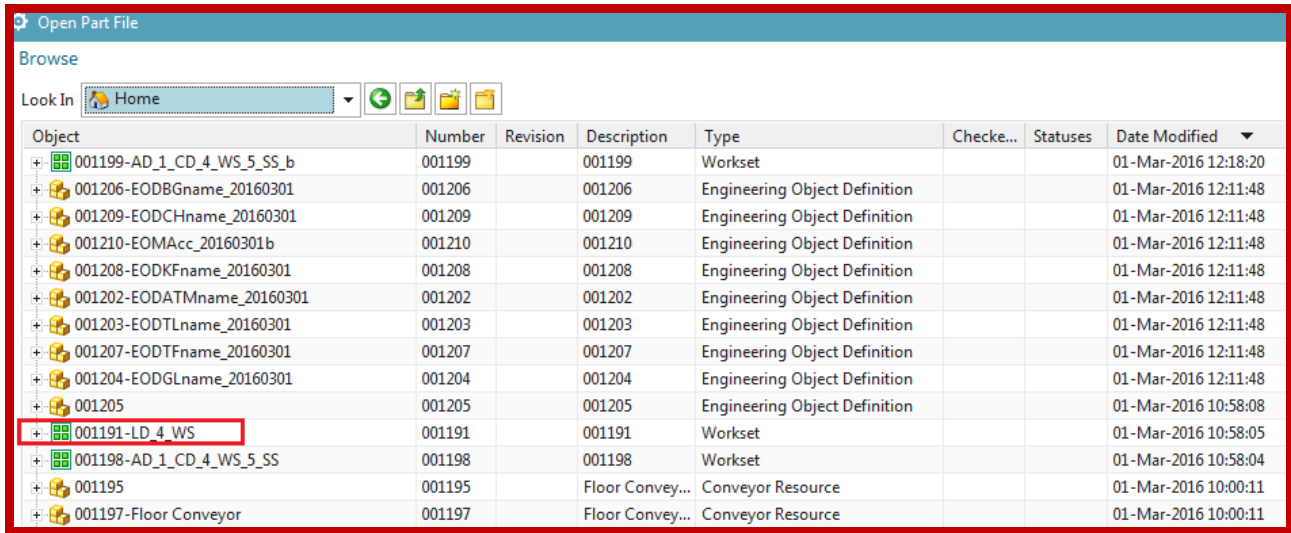
Works 😊

1. Open the LD CD.



06_01

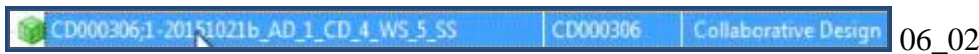
06_01b



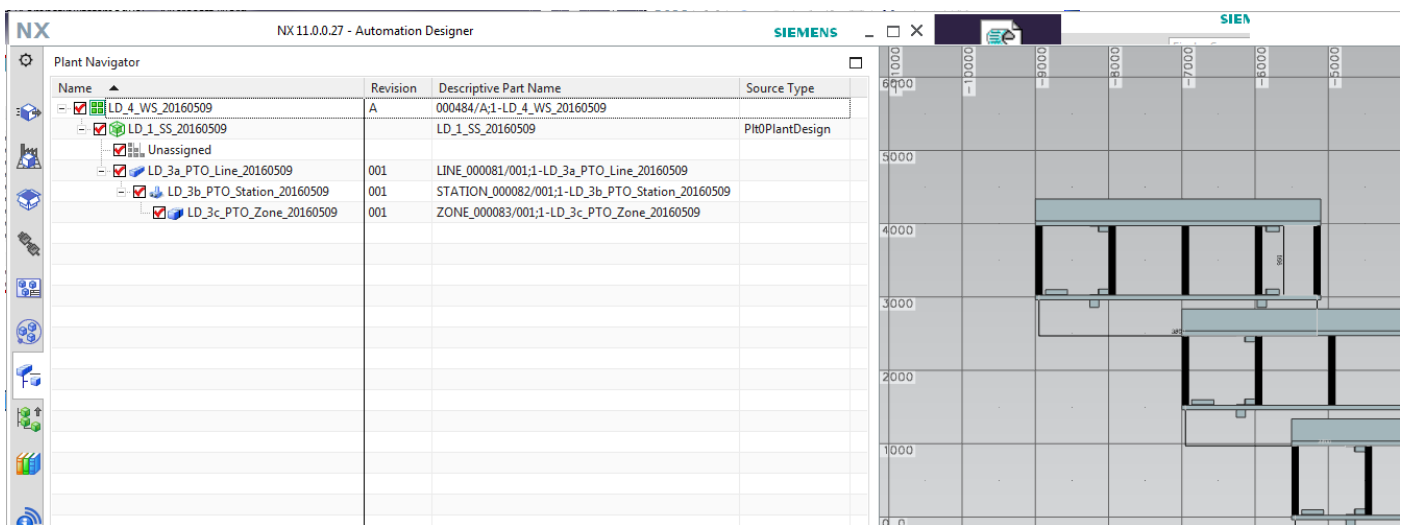
2. Switch to AD.

3. Select File → All Applications → Automation Designer.

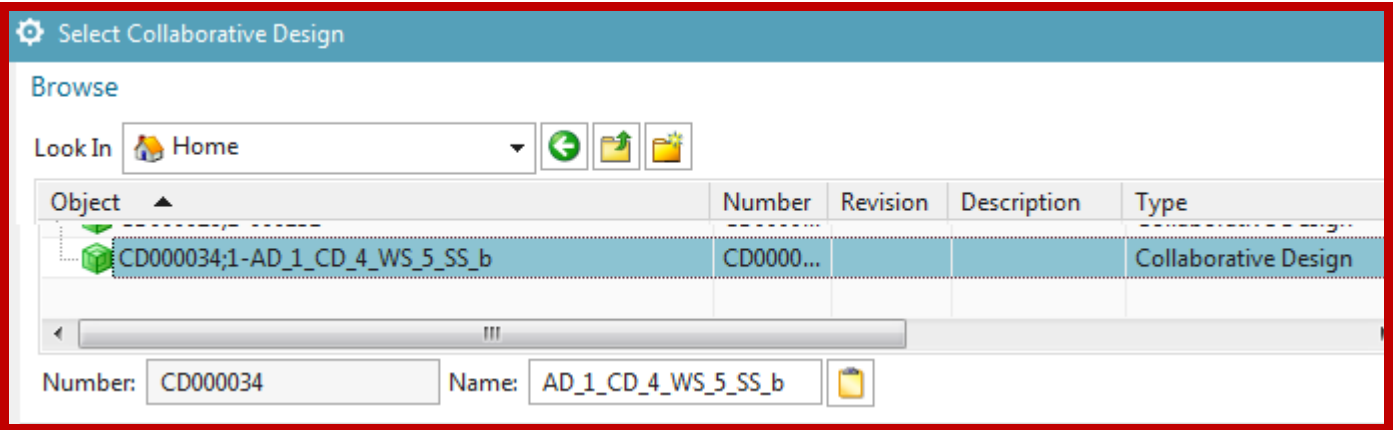
4. Select the AD Collaborative Design.



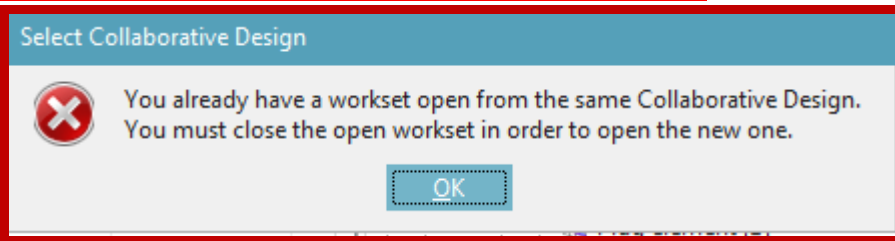
20160509



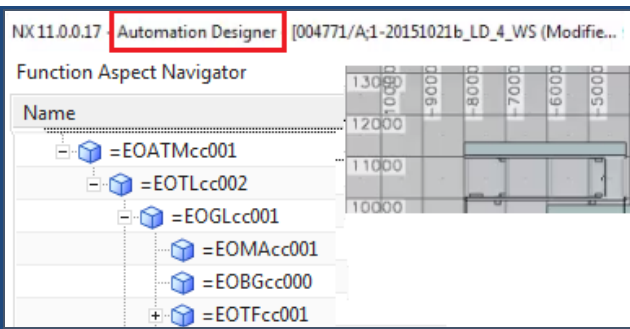
06_02b



06_02c get this if AD already open.. need to close first.

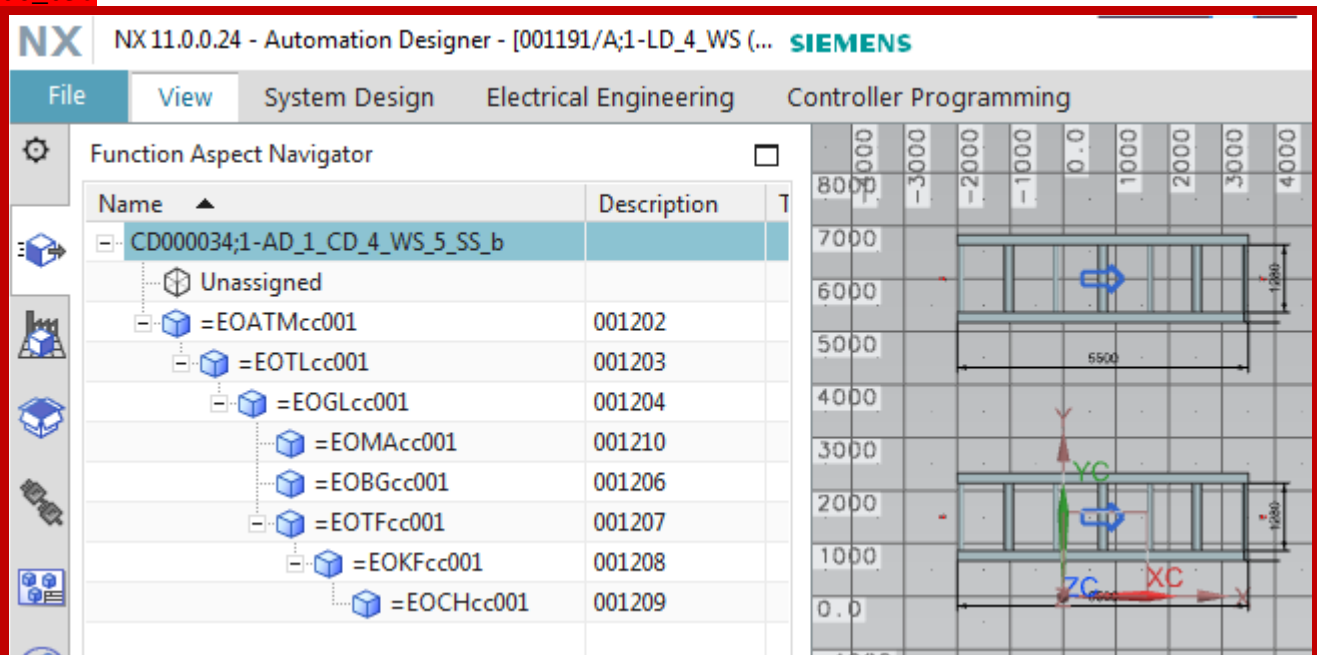


AD is on left, LD on right. They are now linked.



06_03

06_03b



\$ Manage type mapping 20160509

The image shows a software interface with a 'Manage Type Mapping' dialog box open over a 'Reuse Library' tree. The dialog box has two sections: 'Line Designer' and 'Automation Designer'. Under 'Line Designer', there is a checked item 'Select from Member Select (Palletized Floor Conveyor)'. Under 'Automation Designer', there is a red asterisk next to 'Select from Member Select'. Below these is an 'Add Mapping' section with a table:

Line Designer	Automation Designer

At the bottom of the dialog are 'OK', 'Apply', and 'Cancel' buttons. The background shows a 'Reuse Library' tree with 'Package Conveyors [7]' selected. Below the tree is a 'Search' section and a 'Member Select' panel showing a grid of 7 items:

Oval Tier Silo	Palletized Floor	Palletized Turntable	Power Roller Turntable	SO Palletized Floor	Floor Conveyor	Grid Box Conveyor

\$ Manage type mapping 20160428

The screenshot shows the 'Reuse Library' on the left and the 'Manage Type Mapping' dialog box in the foreground. The 'Reuse Library' has a tree view with categories like 'EPLAN Page Macro', 'PLC', 'Software', 'Resource Management', 'Factory Resources', 'Conveyors', 'Industrial', 'Material Handling', 'Robots', 'Space Consumption', 'Weld Guns', 'Workers', 'Fixtures', 'Machines and Devices', 'New Resources', and 'Templates'. The 'Factory Resources' category is expanded to show 'Architectural', 'Conveyors', 'Package Conveyors', and 'Track Conveyors'. The 'Package Conveyors' category is selected. Below the tree is a search bar and a 'Member Select' list showing various conveyor types, with 'Floor Conveyor' selected.

The 'Manage Type Mapping' dialog box has a title bar with a gear icon and the text 'Manage Type Mapping'. It contains two sections: 'Line Designer' and 'Automation Designer'. The 'Line Designer' section has a green checkmark and the text 'Select from Member Select (Floor Conveyor)'. The 'Automation Designer' section has a red asterisk and the text 'Select from Member Select'. Below these sections is an 'Add Mapping' section with a table:

Line Designer	Automation Designer

At the bottom of the dialog are 'OK', 'Apply', and 'Cancel' buttons.

This is a close-up of the 'Add Mapping' section of the 'Manage Type Mapping' dialog box. It shows a table with two columns: 'Line Designer' and 'Automation Designer'. The first row has 'Floor Conveyor' in the 'Line Designer' column and 'EODGLname' in the 'Automation Designer' column. The second row is empty. There is a close button (X) to the right of the table.

Line Designer	Automation Designer
Floor Conveyor	EODGLname

xxx\$ Manage object mapping 20160428 ERROR

Plant Navigator	Revision	Descriptive Part
AD_1_CD_4_WS_5_SS_20160426	A	000438/A;1-AD_

Object	Number	Revision	Info	Name	Source	Type	Descri...	M	Partition ...
000438/A;1-AD_1_CD_4_WS_5_SS_20160426 (O...	000438	A		AD_1_CD_4_WS_5_SS_20160426	000438/A;1-AD_1_CD_4_WS_5_SS_20160426	Workset	000438		
AD_Subset	AD_Subset			AD_Subset		Subset			Not Set
CD000124EODGLcc002/001;1-EODGLName x 2	000346	001		EODGLName	000346/A;1-EODGLName	Design Element			
CD000124EPLAN Page Mac005/001;1-DRIVE...	EPLAN Page Macro	001		DRIVE_G120D_PM250D_1	EPLAN Page Macro/A;1	Design Element			
CD000124EOTMcc 001/001;1-EODATMna...	000344	001		EODATMName	000344/A;1-EODATMName	Design Element			
CD000124EOTLcc001/001;1-EODTLName x 2	000345	001		EODTLName	000345/A;1-EODTLName	Design Element			
CD000124/001;1-AD_Project_Preferences	CD000124	001		AD_Project_Preferences	000440/A;1	Design Element			
CD000124DB001/001;1-DB	CD000124DB001	001		DB	DB/A;1	Design Element			
CD000124EOMAcc001/001;1-EODMName	CD000124EOMAcc001	001		EODMName	000347/A;1-EODMName	Design Element			
CD000124FB001/001;1-FB	CD000124FB001	001		FB	FB/A;1	Design Element			
CD000124EOCHcc001/001;1-EODCHName	CD000124EOCHcc001	001		EODCHName	000353/A;1-EODCHName	Design Element			
CD000124EPLAN002/001;1-EPLAN Page Ma...	CD000124EPLAN002	001		EPLAN Page Macro	000389/A;1-EPLAN_Page_Macro_2_TT	Design Element			
CD000124OB002/001;1-OB	CD000124OB002	001		OB	OB/A;1	Design Element			
CD000124ST001/001;1-CD000124ST001	CD000124ST001	001		CD000124ST001	000441/A;1	Design Element			
CD000124_004/001;1-ssssssssssssss	CD000124_004	001		ssssssssssssss	000442/A;1-ssssssssssssss	Design Element			
CD000124EOKFcc001/001;1-EODKFName	CD000124EOKFcc001	001		EODKFName	000352/A;1-EODKFName	Design Element			
CD000124EOTFcc001/001;1-EODTFName3	CD000124EOTFcc001	001		EODTFName3	000351/A;1-EODTFName3	Design Element			
CD000124AT001/001;1-AT001	CD000124AT001	001		AT001	AT-Process, mechanical and civil 7/A;1	Design Element			
CD000124EPLAN003/001;1-TypeObjName250	CD000124EPLAN003	001		TypeObjName250	000444/A;1-TypeObjName250	Design Element			
CD000124AD_UpstreamData_DesignElemen...	CD000124AD_UpstreamData_...	001		AD_UpstreamData_DesignElement	000439/A;1	Design Element			
CD000124EOBGcc001/001;1-EODBGName	CD000124EOBGcc001	001		EODBGName	000348/A;1-EODBGName	Design Element			
000445/A;1-Floor Conveyor	000445	A		Floor Conveyor	000445/A;1-Floor Conveyor	Conveyor Resource	Floor Conv...		
000447/A;1-Floor Conveyor	000447	A		Floor Conveyor	000447/A;1-Floor Conveyor	Conveyor Resource	Floor Conv...		
TTTT000270_A_1_bg_5088234_a1a_jt/A;1	TTTT000270_A_1_bg_508823...	A		TTTT000270_A_1_bg_5088234_a1a_jt	TTTT000270_A_1_bg_5088234_a1a_jt/A;1	Paragraph	TTTT00027...		

Manage Object Mapping

Actions

Map to Existing in Project
Map to New
Map to New Based on Type
Unmap

Object Mapping

Show

Unhidden
 Hidden
 Unmapped
 Mapped
 Deleted
 All

External Name	External Type	Status	RDS	Type

\$ Manage object mapping 20160509 NOT WORKING

Mapping not working again 😊

⚙️ Manage Object Mapping

Actions ▲

Map to Existing in Project Map to New Map to New Based on Type Unmap

Object Mapping ▲

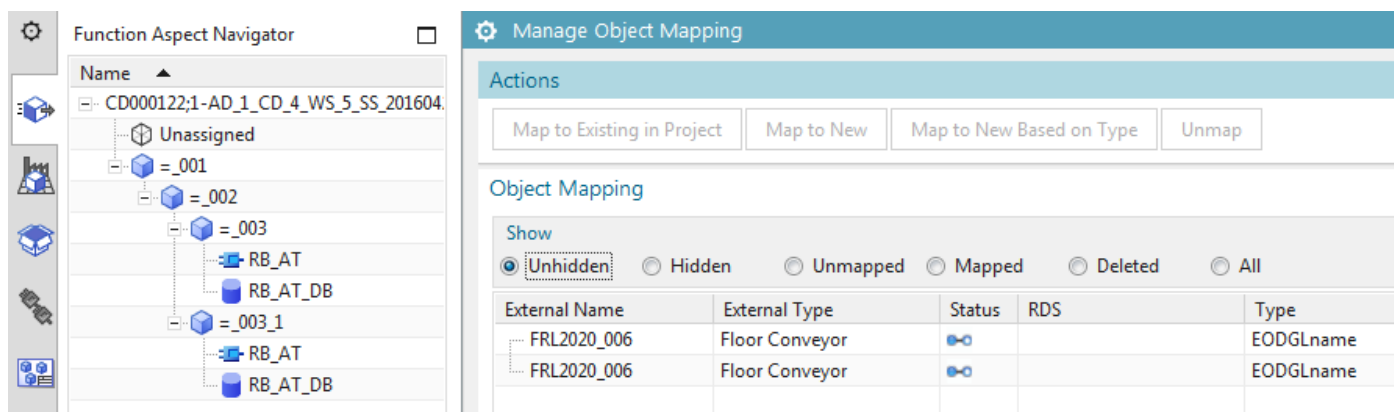
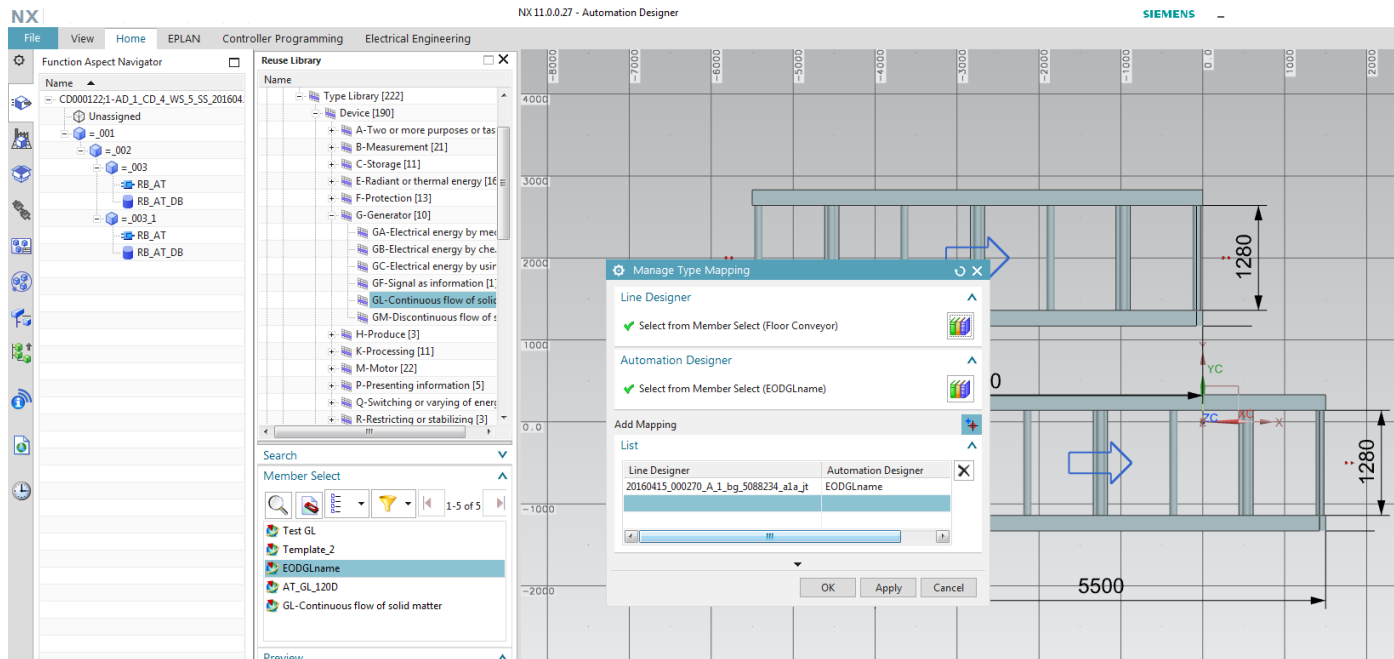
Show

Unhidden Hidden Unmapped Mapped Deleted All

External Name	External Type	Status	RDS	Type

\$ Manage object mapping 20160426 WORKS

Yesterday 25th I created new LD/AD CDs, this time mapping works. Maybe mistake I made previously.



Map to existing

Function Aspect Navigator

Name

- CD000122;1-AD_1_CD_4_WS_5_SS_201604
 - Unassigned
 - =_001
 - =_002
 - =_003
 - RB_AT
 - RB_AT_DB
 - =_003_1
 - RB_AT
 - RB_AT_DB

Manage Object Mapping

Actions

Map to Existing in Project Map to New Map to New Based on Type Unmap

Object Mapping

Show

Unhidden Hidden Unmapped Mapped Deleted All

External Name	External Type	Status	RDS	Type
FRL2020_006	Floor Conveyor			EODGLname
FRL2020_006	Floor Conveyor			EODGLname

Function Aspect Navigator

Name

- CD000122;1-AD_1_CD_4_WS_5_SS_201604
 - Unassigned
 - =_001
 - =_002
 - =_003
 - RB_AT
 - RB_AT_DB
 - =_003_1
 - RB_AT

Map to Existing Object

External Object

Select External Object (1)

Automation Designer

Select Engineering Object (1)

Map to Template

Object Mapping

Show

Unhidden Hidden Unmapped Mapped Deleted All

External Name	External Type	Status	RDS	Type
FRL2020_006	Floor Conveyor			EODGLname
FRL2020_006	Floor Conveyor		=_001_002_003/+???.003/-???.003	EODGLname

Click ok.

Map to new

Manage Object Mapping

Actions:

Object Mapping

Show: Unhidden Hidden Unmapped Mapped Deleted All

External Name	External Type	Status	RDS	Type
FRL2020_006	Floor Conveyor			EODGLName
FRL2020_006	Floor Conveyor		=_001_002_003/+???_003/-???_003	EODGLName

Have to open the reuse library KF before opening the map dialog.

Function Aspect Navigator

Name: CD000122;1-AD_1_CD_4_WS_5_SS_201604

- Unassigned
 - =_001
 - =_002
 - =_003
 - RB_AT
 - RB_AT_DB
 - =_003_1
 - RB_AT
 - RB_AT_DB

Reuse Library

Name

- A-Two or more purposes or tas
- B-Measurement [21]
- C-Storage [11]
- E-Radiant or thermal energy [16]
- F-Protection [13]
- G-Generator [10]
- GA-Electrical energy by me
- GB-Electrical energy by che
- GC-Electrical energy by usir
- GF-Signal as information [1
- GL-Continuous flow of solid
- GM-Discontinuous flow of s
- H-Produce [3]
- K-Processing [11]
- KF-Electrical signals [7]**
- KG-Optical and acoustical s
- KH-Fluid signal [1]
- KK-Variou input/output inf
- M-Motor [22]
- P-Presenting information [5]

Search: Member Select (1-7 of 7)

- EODKName
- SIMATIC S7400 SM-400 AI-400 AO-16Bit
- SIMATIC S7-300, DIGITAL INPUT SM 321
- SIMATIC S7-400, CPU 414-3 PN DP
- GenericKF-Electrical signals
- KF-Electrical signals

Engineering Object

Reuse Library: Select from Member Select (EODKName)

General Properties

Object Name Prefix: []

Description: 000352

Navigators

- Select Parent (1)
- In Function
- In Location
- In Product
- In Automation

Properties: Edit Properties

Manage Object Mapping

Actions:

Object Mapping

Show: Unhidden Hidden Unmapped Mapped Deleted All

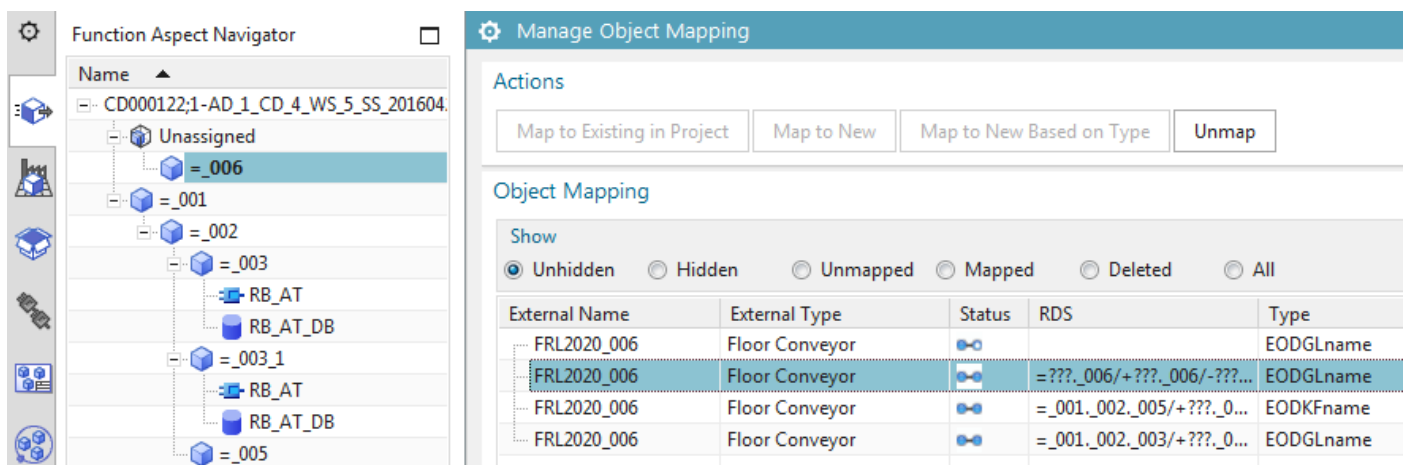
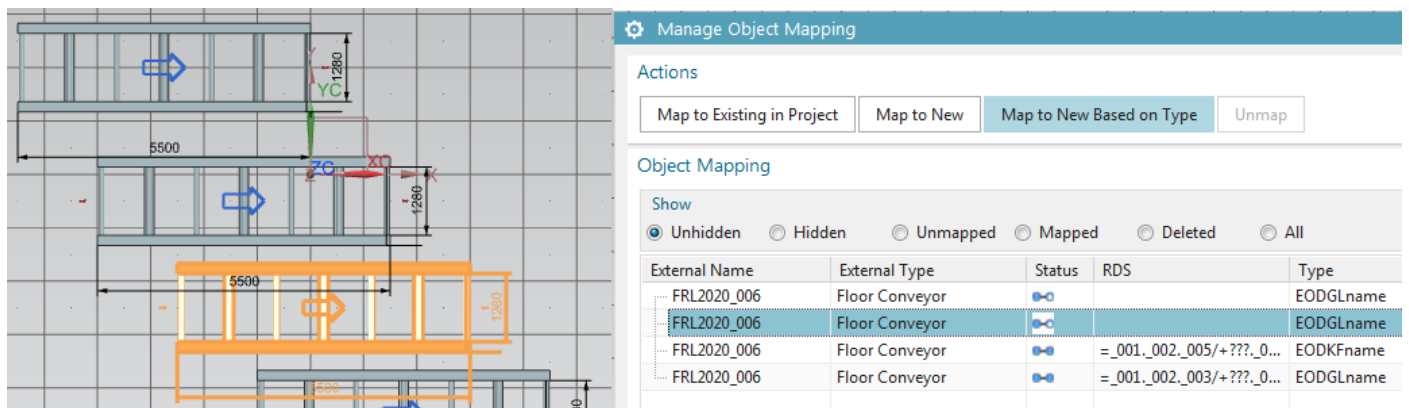
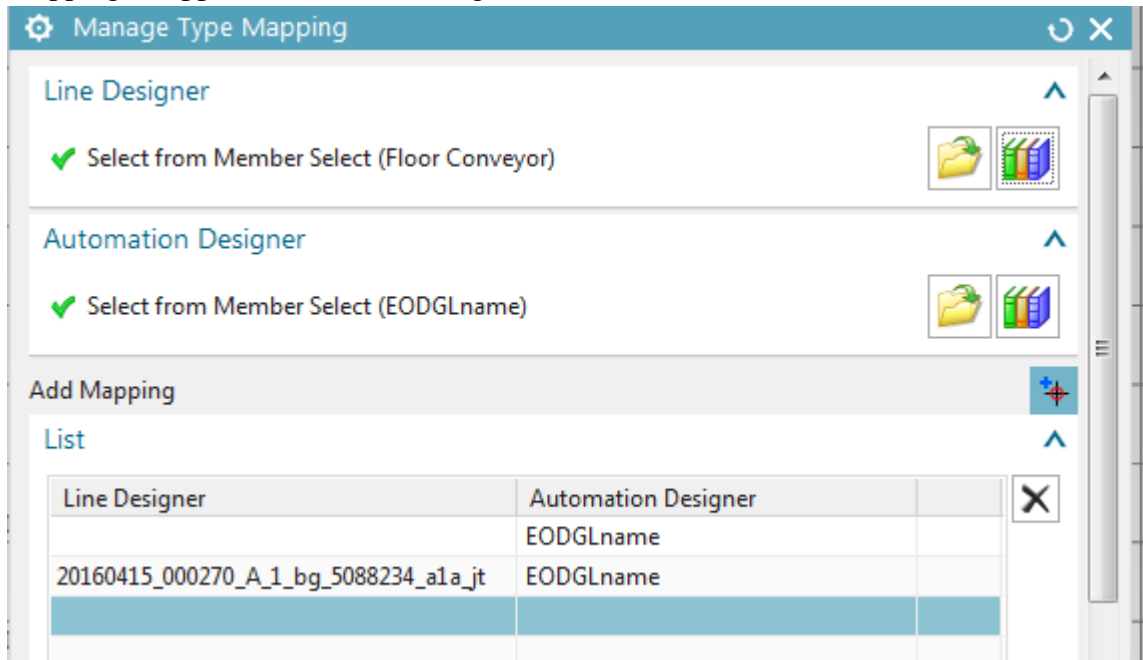
External Name	External Type	Status	RDS	Type
FRL2020_006	Floor Conveyor		=_001_002_005/+???_0...	EODKName
FRL2020_006	Floor Conveyor		=_001_002_003/+???_0...	EODGLName

Click ok.

Map to new based on type

Add another conveyor.

Mapping disappeared,, had to add again.



Generate TIA (CHECKMATE ERROR) 20160426

See what happens if take current simple example.

Function Aspect Navigator

Name	Description
CD000122;1-AD_1_CD_4_WS_5_SS_20160425	
Unassigned	
=_006	000346
=_001	000344
=_002	000345
=_003	000346
RB_AT	
RB_AT_DB	
=_003_1	000346
RB_AT	
RB_AT_DB	
=_005	000352

Automation Navigator

- CD000122;1-AD_1_CD_4_WS_5_SS_20160425
 - Unassigned
 - 001_002_003_FBm [FB1012]
 - 001_002_003_DBx [DB1012]
 - 001_002_003_FB [FB1012]
 - 001_002_003_DBz [DB1012]
 - PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - Main [OB1]
 - PLC data types
 - Local modules
 - Rail_0
 - PLC_2
 - PLC tags
 - FC_left
 - FC_right
 - Subnets

After clicking IMMEDIATELY got this

Automation Navigator

- CD000122;1-AD_1_CD_4_WS_5_SS_20160425
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - Main [OB1]
 - 001_002_003_FBm [FB1012]
 - 001_002_003_DBx [DB1012]
 - 001_002_003_FB [FB1012]
 - 001_002_003_DBz [DB1012]
 - PLC data types
 - Local modules
 - Rail_0
 - PLC_2
 - PLC tags
 - FC_left
 - FC_right
 - Subnets

Bulk Connection

Source

✓ Select Object (1)

Total Number of Objects (9)

Descendants Included: Function

Target

✓ Select Object (1)

Total Number of Objects (1)

Descendants Included: None

Port Type Filter: Control Scope

Source					Target				
Status	Port	Reference Designat	Object Type	Cor	Status	Port	Reference Designat	Object Type	Cor
1		=_001_002_00...	EODKName		1	+	Station_C	S7300/ET200M s...	000429
2	Block_C	RB_AT_DB	DB	Pro					
3		=_001_002_00...	EODGLName						
4	Block_C	RB_AT_DB	DB	Pro					
5		=_001_002/+??...	EODTLName						
6	Block_C	RB_AT	RB_AT	Pro					
7		=_001/+???_00...	EODATName						
8	Block_C	RB_AT	RB_AT	Pro					
9		=_001_002_00...	EODGName						

Source		Target	
Reference Designat	Port	Status	Reference Designat Port
RB_AT_DB	Block_C	+	S7300/ET200M s... Station_C
RB_AT_DB	Block_C	+	S7300/ET200M s... Station_C
RB_AT	Block_C	+	S7300/ET200M s... Station_C
RB_AT	Block_C	+	S7300/ET200M s... Station_C
Main	Block_C	+	S7300/ET200M s... Station_C

Object Name	Count	Category	Part	Desig...	Rem...	Profile	Result	Skipp...	Heali...
[-] Validate Object links (wrong PLC)	2		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Failed		
[-] S7300/ET200M station_1 - 001_002_003_DBz has Block Connection Error: 1 objects	1		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Failed		
[-] UserPort:R-826-2			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Failed		
[-] S7300/ET200M station_1 - 001_002_003_DBx has Block Connection Error: 1 objects	1		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Failed		
[-] UserPort:R-1674-4			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Failed		
[-] Validate Object links (Unlinked)	4		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] S7300/ET200M station_1 - 001_002_003_DBz has Block Connection Error: 1 objects	1		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] UserPort:R-826-2			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] S7300/ET200M station_1 - 001_002_003_DBx has Block Connection Error: 1 objects	1		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] UserPort:R-1674-4			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] S7300/ET200M station_1 - 001_002_003_FB has Block Connection Error: 10 objects	10		000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-860-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-899-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-828-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-886-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-858-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-856-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-921-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-930-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-852-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-831-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] S7300/ET200M station_1 - 001_002_003_FBm has Block Connection Error: 10 objects			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-869-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-922-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-857-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-1074-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-910-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-1149-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-1184-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-970-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-1226-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Port:R-1177-1			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed with Warning		
[-] Validate Unique Names			000421/A1-LD_4_WS_20160425			Validate PLC for Export	Passed		

Port:R-921-1
 The Validate Object links (Unlinked) test in profile Validate PLC for Export has raised a warning about Port:R-921-1 in part 000421/A1-LD_4_WS_20160425.
 Port:R-921-1 was on layer 0 when the test was run.

Check-Mate Result

UserPort:R-826-2

Object Name

- [-] Validate Object links (wrong PLC)
- [-] S7300/ET200M station_1 - 001_002_003_DBz has Block Connection Error: 1 objects
- [-] UserPort:R-826-2

HD3D **NX** **SIEMENS**

enabled **HD3D Check-Mate**

Check-Mate Object:
 UserPort:R-826-2 results for [Validate Object links \(wrong PLC\)](#)

Status:	Failed
Object Result Message	Block Connection Error
Parent Profile	Validate PLC for Export
Part	000421/A;1-LD_4_WS_20160425
Layer	0

▼ [More Detail...](#)

- Test was run at: 12:03 04/26/2016
- Test was run by: Z003H4JX

▼ **Test Description**

Validates that a PLC is acceptable for export to TIA.
 It checks:
 (a) ports of software blocks external references to different PLCs

▼ **Test Parameters**

Save Log in Part	FALSE
log_type	log_error
plcToCheck	"ST001"

Try anyway

The screenshot shows the Siemens TIA Portal interface. On the left is the 'Automation Navigator' tree view. The selected project is 'CD000122;1-AD_1_CD_4_WS_5_SS_20160425'. Under 'PLC HW', 'S7300/ET200M station_1' is selected. The 'Program blocks' folder contains 'Main [OB1]' and four function blocks: '001._002._003_FBm [FB1012]', '001._002._003_DBx [DB1012]', '001._002._003_FB [FB1012]', and '001._002._003_DBz [DB1012]'. Other folders include 'PLC data types', 'Local modules' (with 'Rail_0' and 'PLC_2'), 'PLC tags' (with 'FC_left' and 'FC_right'), and 'Subnets'.

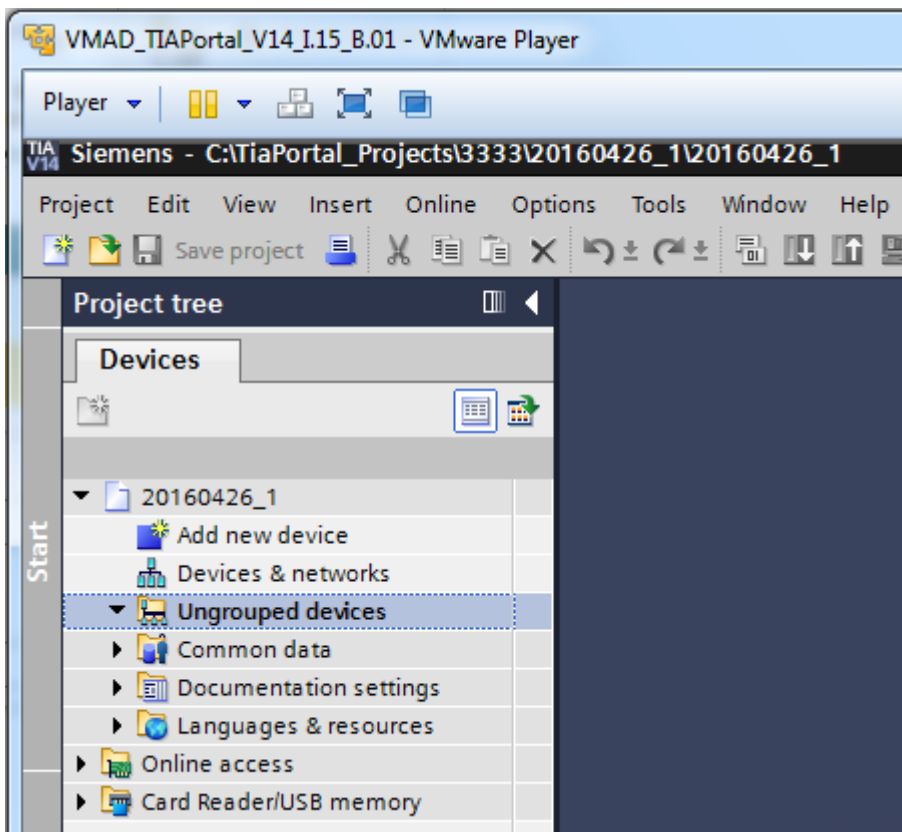
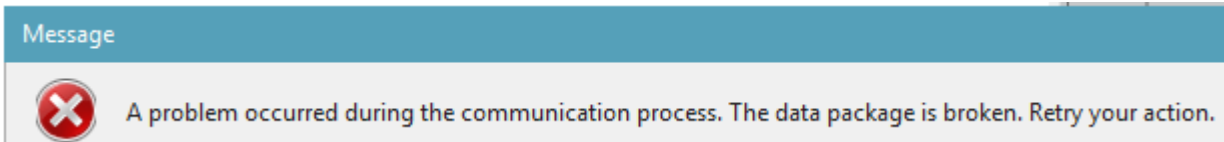
On the right is the 'Send Data to TIA Portal' dialog box. It has the following sections:

- Source:** A yellow bar with a green checkmark and the text 'Select Station (1)'. A crosshair icon is on the right.
- TIA Portal project:** A dropdown menu set to 'New Project'. Below it, the 'Name' field contains '20160426_1' and the 'Target Path' field contains '\\192.168.154.128\TiaPortal_Projects\3333'.
- Settings:** Three checkboxes: 'Send with Software and Tag' (checked), 'Open in TIA Portal' (unchecked), and 'Compile Result in TIA Portal' (unchecked).
- Actions:** Two buttons: 'Check Station' (with a green checkmark icon) and 'Send to TIA Portal' (with a blue arrow icon).

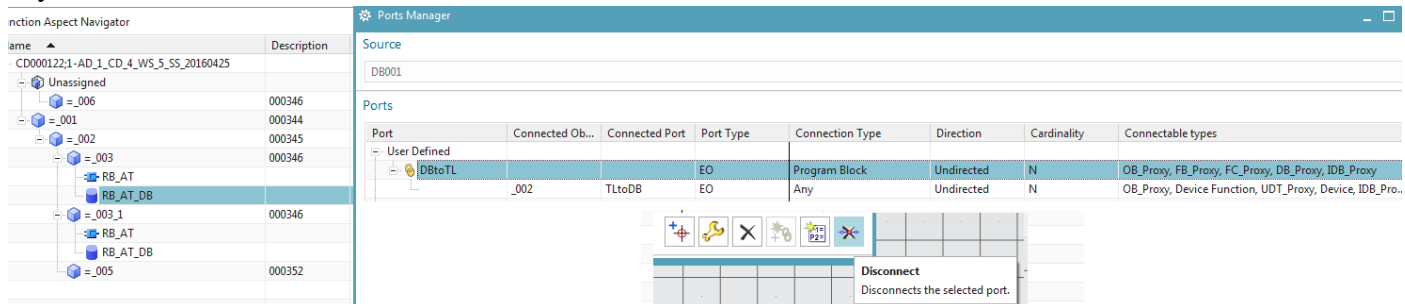
The screenshot shows a VMware Player window titled 'VMAD_TIAPortal_V14_I15_B.01 - VMware Player'. The main area displays a file explorer view of the directory 'C:\TiaPortal_Projects\3333\20160426_1'. The file list is as follows:

Name	Date modified	Type
AdditionalFiles	26.04.2016 11:54	File folder
IM	26.04.2016 11:54	File folder
System	26.04.2016 11:54	File folder
tmp	26.04.2016 11:54	File folder
20160426_1.ap14	26.04.2016 11:54	Siemens TIA Porta...
20160426_1.info	26.04.2016 11:54	INFO File

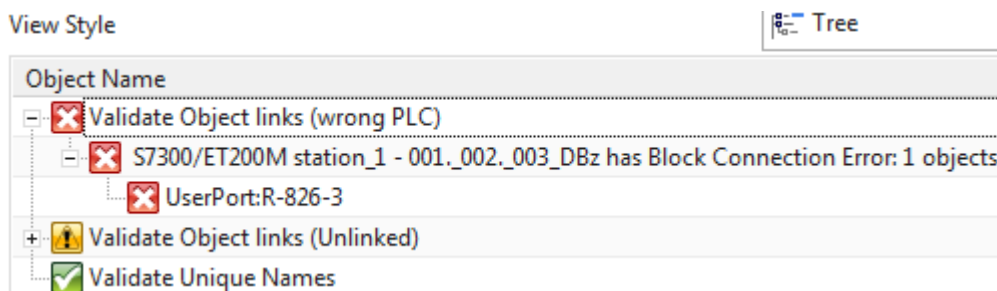
This is a close-up of the 'Send Data to TIA Portal' dialog box. It shows the 'Source' section with 'Select Station (1)' and a crosshair icon. The 'TIA Portal project' section shows a dropdown set to 'New Project', a 'Name' field with '20160426_1', and a 'Target Path' field with '\\192.168.154.128\TiaPortal_Projects\3333'. The 'Settings' section has 'Send with Software and Tag' checked, and 'Open in TIA Portal' and 'Compile Result in TIA Portal' unchecked. The 'Actions' section has 'Check Station' and 'Send to TIA Portal' buttons.



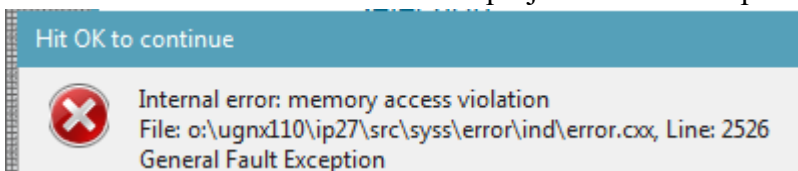
Try to fix.



That was the error.



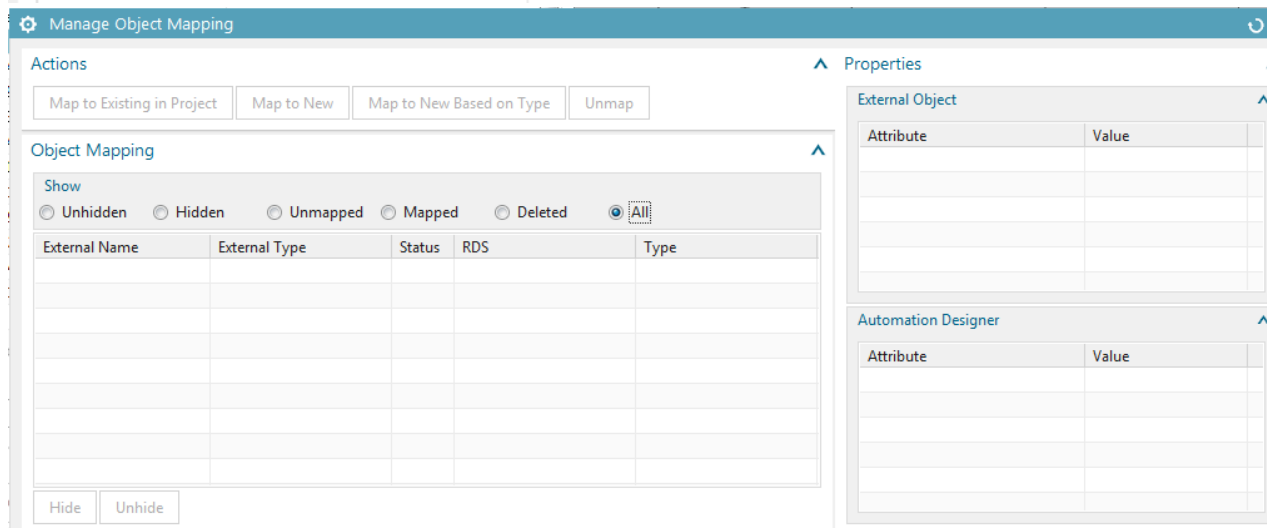
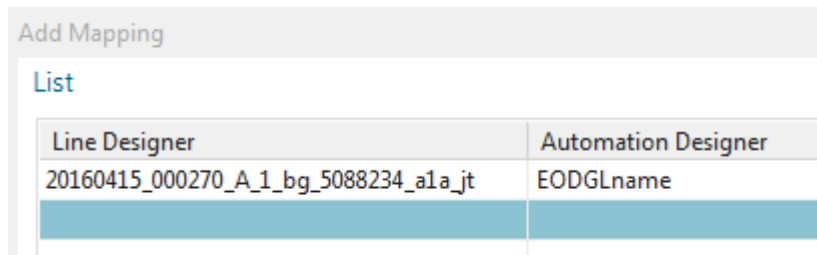
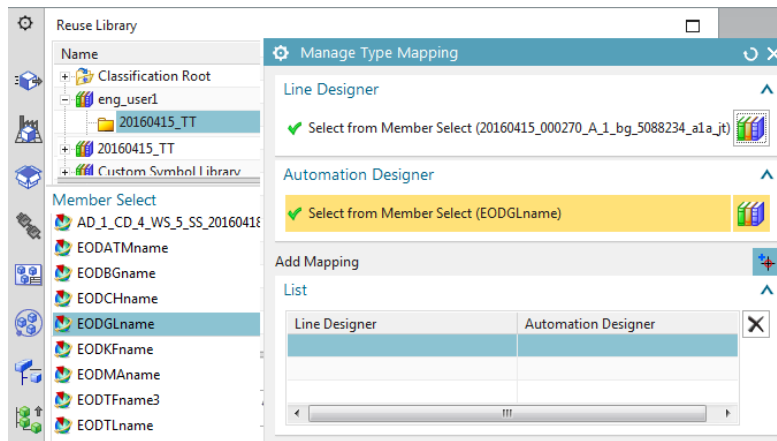
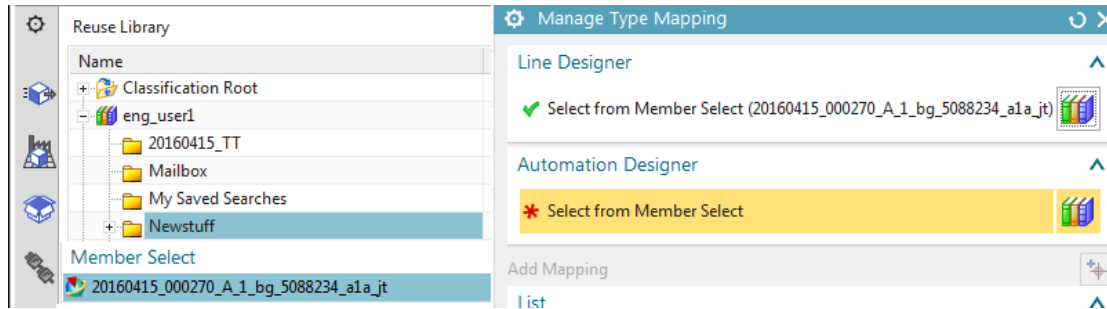
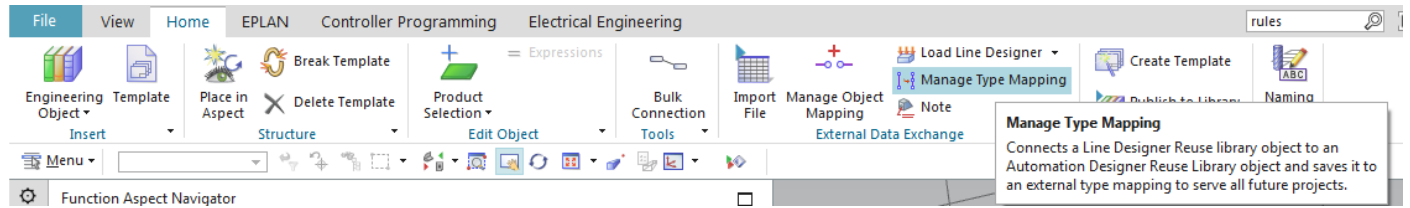
After this did an "undo" and now the project is screwed up.. restarted, etc. still same error. Great ☺



Z003H4JX27283b6b.syslog

xxx\$ Manage type mapping 20160418 ERROR

20160418



6.3. Manage object mapping

You can map LD objects to

1. Existing elements
2. New elements

Map one of the LD conveyors to the EO GL (an existing element).

1. Select "System Design / Manage Object Mapping".

06_04a

The screenshot displays the 'Manage Object Mapping' interface. At the top, the 'Function Aspect Navigator' shows a tree structure for the project 'CD000034;1-AD_1_CD_4_WS_5_SS_b'. The tree includes an 'Unassigned' folder and several conveyor objects with their descriptions:

Name	Description
=EOATMcc001	001202
=EOTLcc001	001203
=EOGLcc001	001204
=EOMAcc001	001210
=EOBGcc001	001206
=EOTFcc001	001207
=EOKFcc001	001208
=EOCHcc001	001209

Below the navigator is the 'Manage Object Mapping' panel. It features an 'Actions' section with buttons for 'Map to Existing in Project', 'Map to New', 'Map to New Based on Type', and 'Unmap'. The 'Object Mapping' section includes a 'Show' filter with radio buttons for 'Unhidden', 'Hidden', 'Unmapped', 'Mapped', 'Deleted', and 'All'. Below the filter is a table showing the current object mappings:

External Object	Type	Status	Automation Designer	Definition
FRL2020_006	Floor Conveyor			
FRL2020_006	Floor Conveyor			

2. Select the conveyor.

06_04b

Function Aspect Navigator

Name	Description
CD000034;1-AD_1_CD_4_WS_5_SS_b	
Unassigned	
=EOATMcc001	001202
=EOTLcc001	001203
=EOGLcc001	001204
=EOMAcc001	001210
=EOBGcc001	001206
=EOTFcc001	001207
=EOKFcc001	001208
=EOCHcc001	001209

Manage Object Mapping

Actions

Map to Existing in Project | Map to New | Map to New Based on Type | Unmap

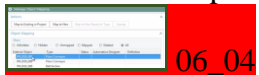
Object Mapping

Show

Unhidden | Hidden | Unmapped | Mapped | Deleted | All

External Object	Type	Status	Automation Designer	Definition
FRL2020_006	Floor Conveyor			
FRL2020_006	Floor Conveyor			

3. Click on "Map to Existing in Project".



4. Select the EO.

Function Aspect Navigator

Map to Existing Object

External Object

✓ Select External Object (1)

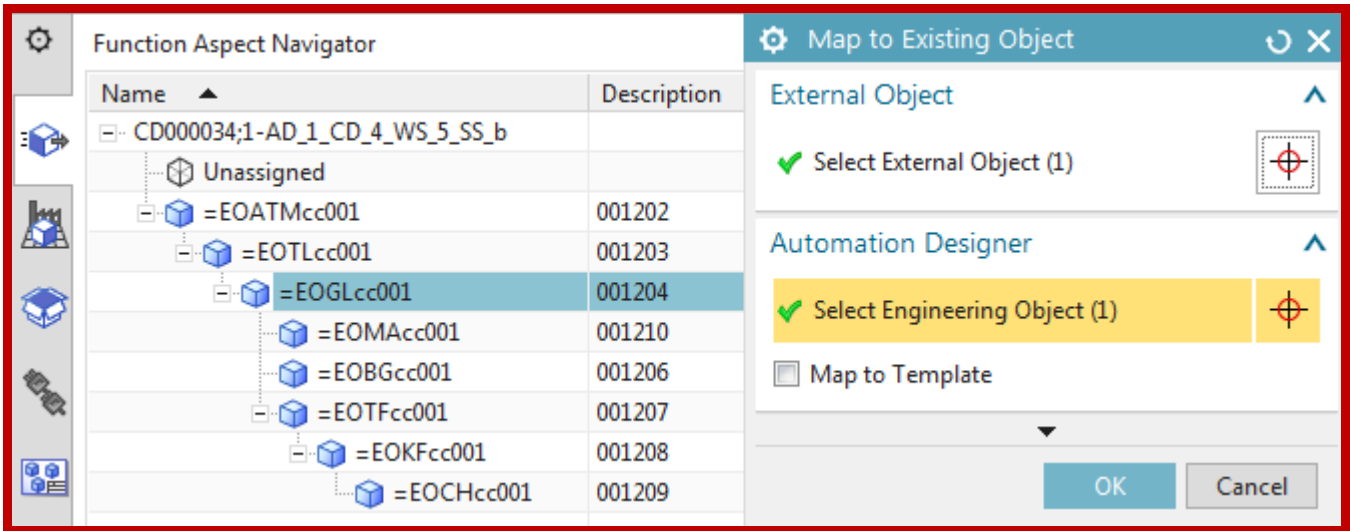
Automation Designer

✓ Select Engineering Object (1)

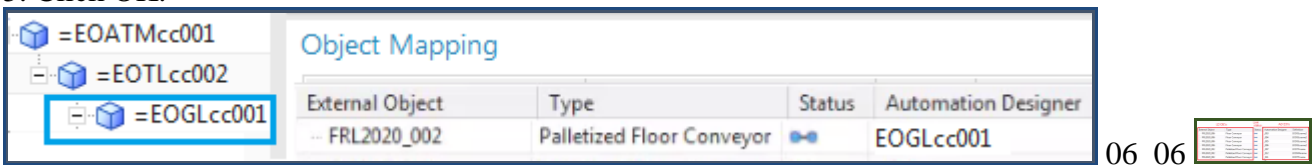
Map to Template

06_05

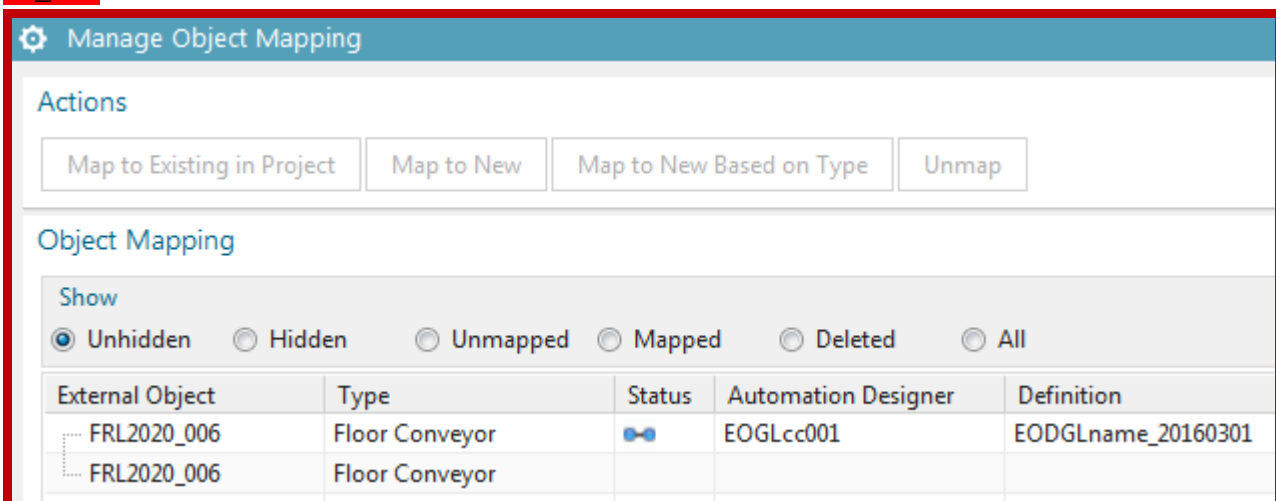
06_05b



5. Click OK.



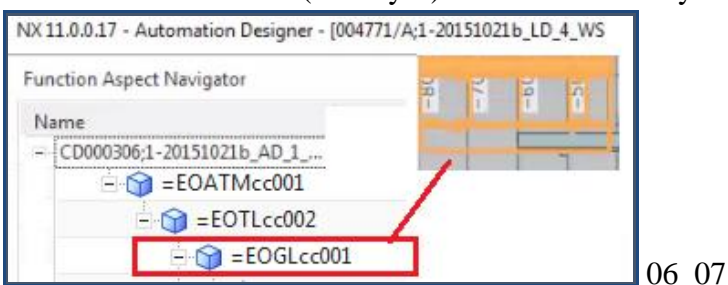
06_06b



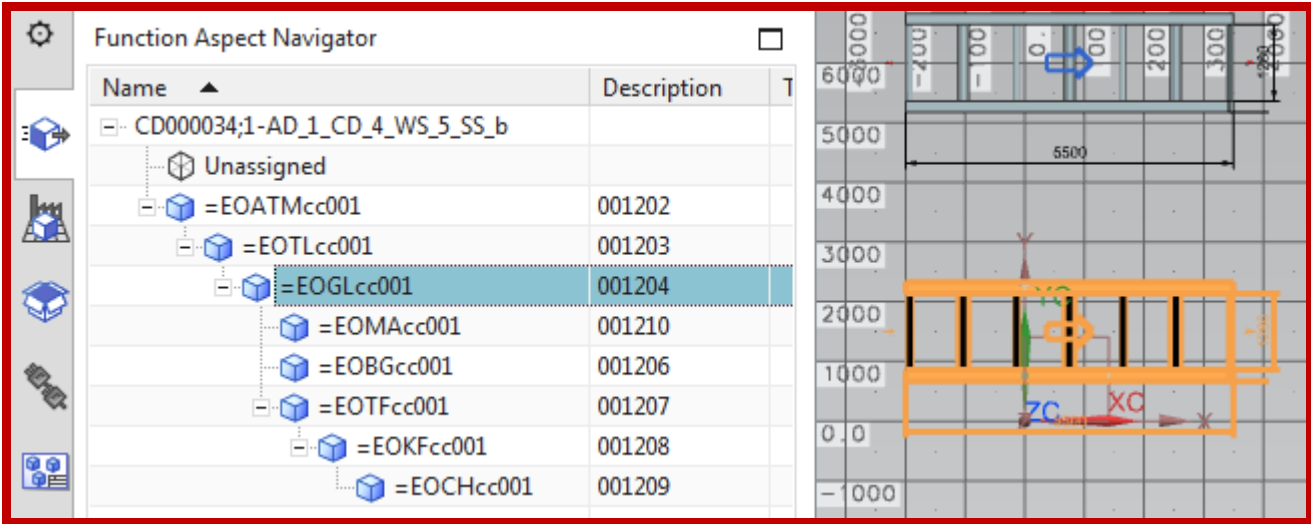
6.4. Result

Click OK.

1. Click on the AD GL (conveyor) EO and the conveyor in LD is highlighted.



06_07b

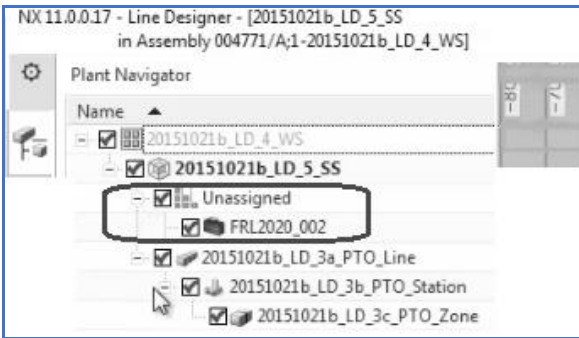


20160204 TERRY: I think the text-pics I greyed out makes no sense. My mistake.

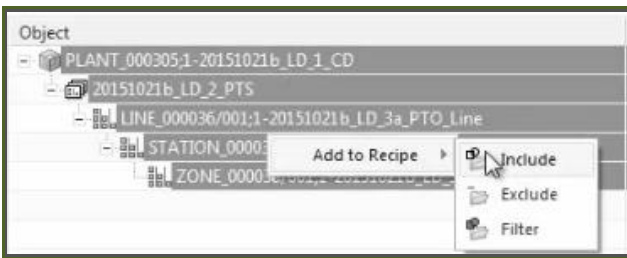
You can now view the LD workset and the LD and AD subsets.



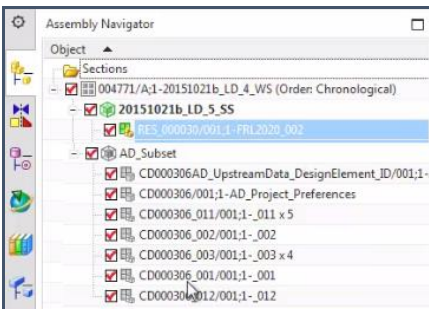
The partition object is the conveyor.



The line, station, and zone were added to subset recipe earlier.

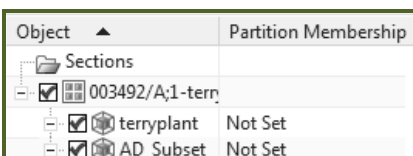


In the LD project the assembly navigator shows the LD and AD subsets.



06_08

TERRY 4 TERRY 5 20151016 what does "partition membership = not set" mean?.



7. Configure (non-template) EPLAN (20160428)

7.0. error fix

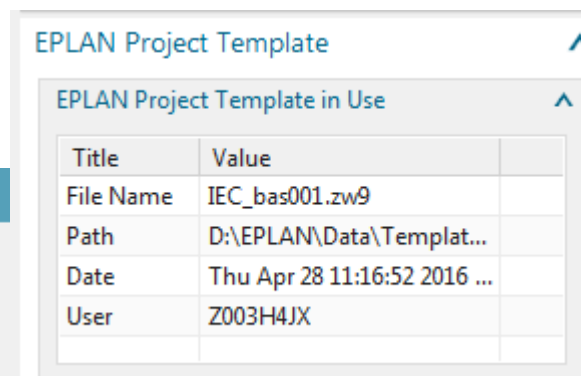
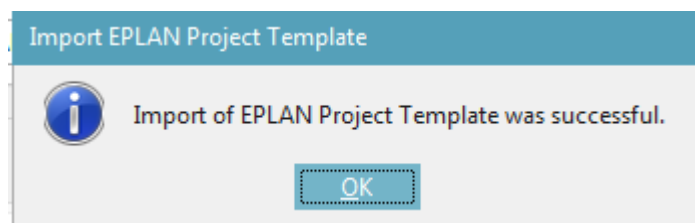
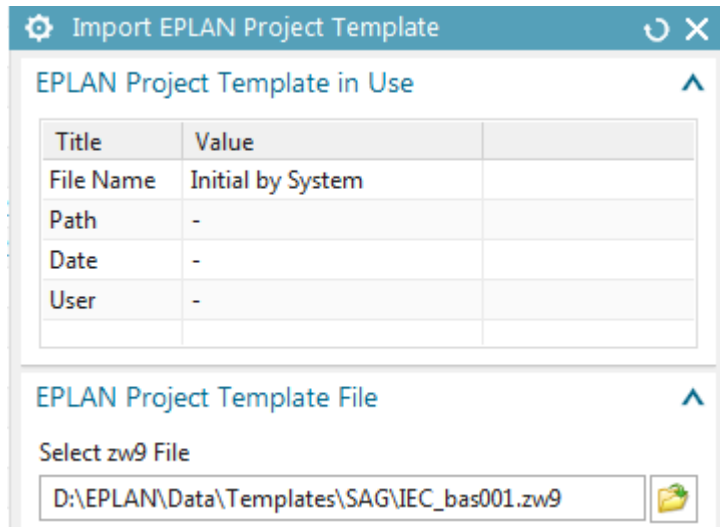
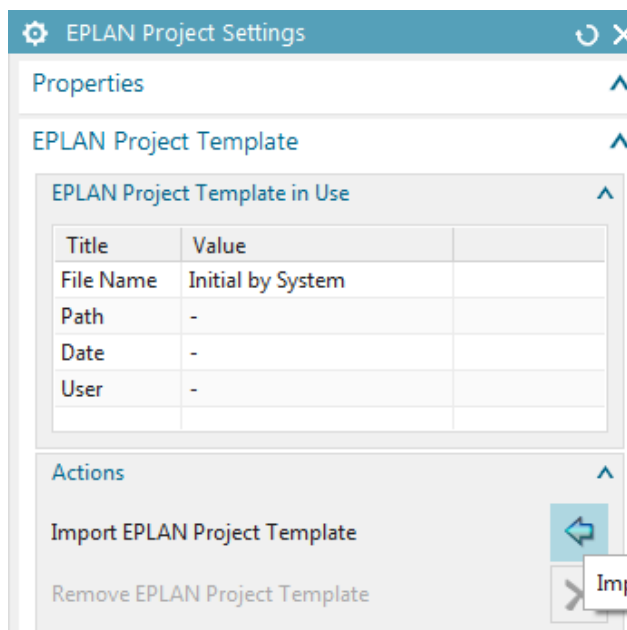
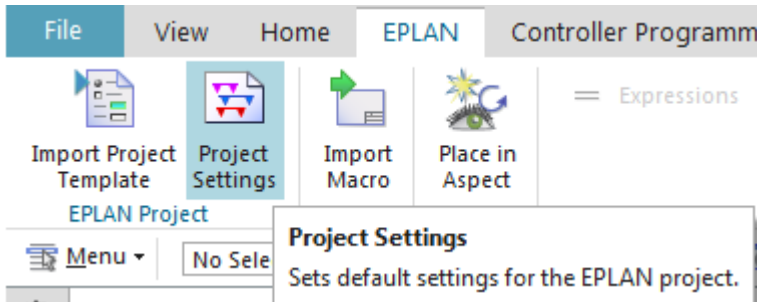
Marcus restarted

G:\20160408_SME_NX11_1612_S54_Patch1\20160403_101027_Build\automation_designer\adagent Siemens.AutomationDesigner.ADAgentUI.exe

That seemed to fix things.

Use project template D:\EPLAN\Data\Templates\SAG\IEC_bas001.zw9

7.2. Import EPLAN project template 20160428



\$EPLAN store in reuse 20160428

TypeObjName250	Description250
FPI AN Page Macro	Publish to Library...

Publish To Library [Refresh] [Close]

Object To Publish ^

✓ Select Object (1) [Target]

Name ^

Name:

Reuse Library

Name

- [-] Classification Root
 - [-] Automation Designer
 - + Product Library [8]
 - + Solution Library [14]
 - [-] Type Library [224]
 - + Device [191]
 - + Devicefunction [13]
 - [-] EPLAN Macro [5]
 - EPLAN Page Macro [4]
 - EPLAN Window Macro [1]
 - + PLC [2]
 - + Software [12]

Member Select

- EPLAN Page Macro
- EPLAN_Page_Macro_2_TT
-
- EPLAN Page Macro

7.3a. Add PM250D macro 20160428

me EPLAN Controller Programming Elec

Import Macro Place in Aspect Expressions Bulk Connection

EPLA... **Import Macro**
Imports an EPLAN macro from the file system.

Function Aspect Navigator

Name	Description
CD000124;1-AD_1_CD_4_WS_5...	
Unassigned	
=_004	000442
=_001	000344
=_002	000345
=_003	000346
RB_AT	
RB_AT_DB	
EPLAN Page Macro	Description250
TypeObjName250	Description250
=AT001	AT-Process, ...

Import EPLAN Macro

Target
Select Engineering Object (1)

EPLAN Macro File
Select Macro File
C:\Users\Z003H4JX\Desktop\EPLAN_Macros\DRIVE_G120D_PM250D_1.emp

Properties
Name: DRIVE_G120D_PM250D_1
Description:

Actions
Show EPLAN Macro Layout
Import EPLAN Macro

Properties

Input string out of range.

OK

Properties

Context
Interaction Method: Traditional

Engineering Object Attributes

Title/Alias	Value	T...	Type	R...
Aspect Function				
Designated	False		Boolean	
Designation			String	
Multi-level Reference Designation	=_001		String	
Name	DRIVE_G120D_PM250D_1		String	
Parent	_001		String	
General				
Object Name	EPLAN Page Mac005		String	
Reference Designation Set	=_001		String	
Type	EPLAN Page Macro		String	
Type				
Character Code	EPLAN		String	
Description			String	
Full page name	1		String	
Function			String	
Location			String	
Name of EPLAN Macro	DRIVE_G120D_PM250D_1		String	
Object Name	EPLAN Page Macro		String	
Page Description			String	
Page name	1		String	
Unique Identifier	EPLAN Page Macro		String	

Variable: ControlUnitFunctionText	String
Variable: ControlUnitName	String
Variable: ControlUnitPartNumber1	String
Variable: ControlUnitPartNumber2	String
Variable: MotorCableFunctionText	String
Variable: MotorCableName	String
Variable: MotorCablePartNumber1	String
Variable: MotorCablePartNumber2	String
Variable: MotorFunctionText	String
Variable: MotorName	String
Variable: MotorPartNumber1	String
Variable: MotorPartNumber2	String
Variable: PowerModuleFunctionText	String
Variable: PowerModuleName	String
Variable: PowerModulePartNumber1	String
Variable: PowerModulePartNumber2	String
Variable: PowerSupply24VName	String
Variable: PowerSupply400VName	String

6. Enter the values listed below.

7.3b. generate 20160428

EPLAN Controller Programming Electrical Engineering

Import Macro
Place in Aspect
Expressions
Bulk Connection Tools
Preview of Page Structure
Generate Project

Filter
Generate Project

Generate Project
Generates an EPLAN project with all EPLAN pages in the project and opens the new project in EPLAN.

Generate EPLAN Project

Properties

Name: 999999999

Generation Target Path: C:\Users\2003H4\X\Desktop\

EPLAN Project Template

EPLAN Project Template in Use

Title	Value
File Name	IEC_3as001.as0
Path	D:\EPLAN\Data\Templates\SAG
Date	Thu Apr 28 11:16:52 2016 Mittel-europäische Sommer...
User	2003H4\X

Actions

Import EPLAN Project Template

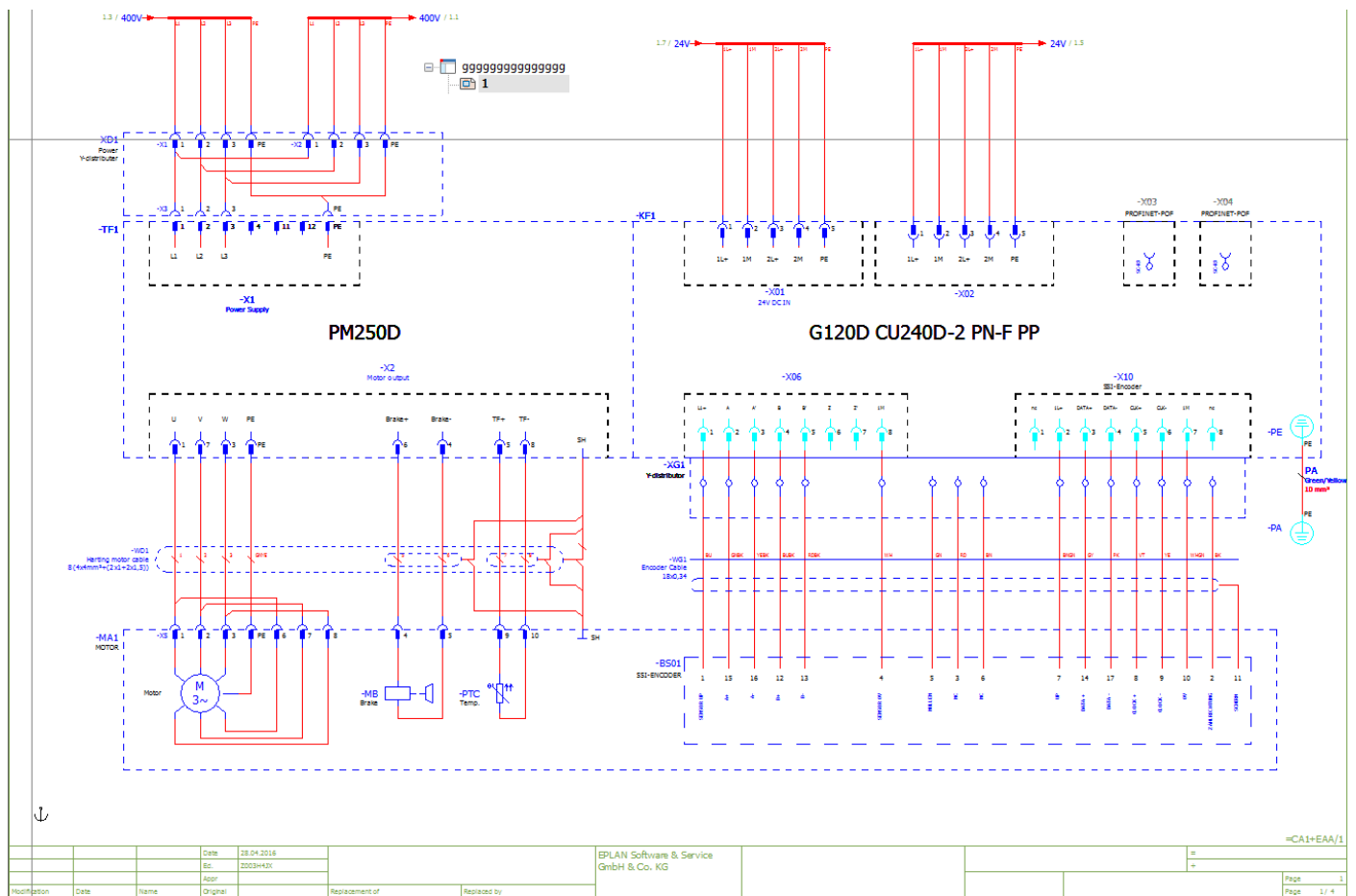
Remove EPLAN Project Template

Settings

Overwrite existing file
 Open in EPLAN
 Save Name in EPLAN Project Settings
 Save Target Path in EPLAN Project Settings

Actions

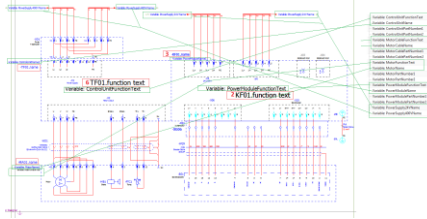
Close



Date	28.04.2016	EPLAN Software & Service GmbH & Co. KG	=	=CA1+EAA/1
Sc.	2003H4\X		+	
Appr.				
Replacement of				Page 1
Replaced by				Page 1 / 4

7.3c. Configure macro properties 20160428

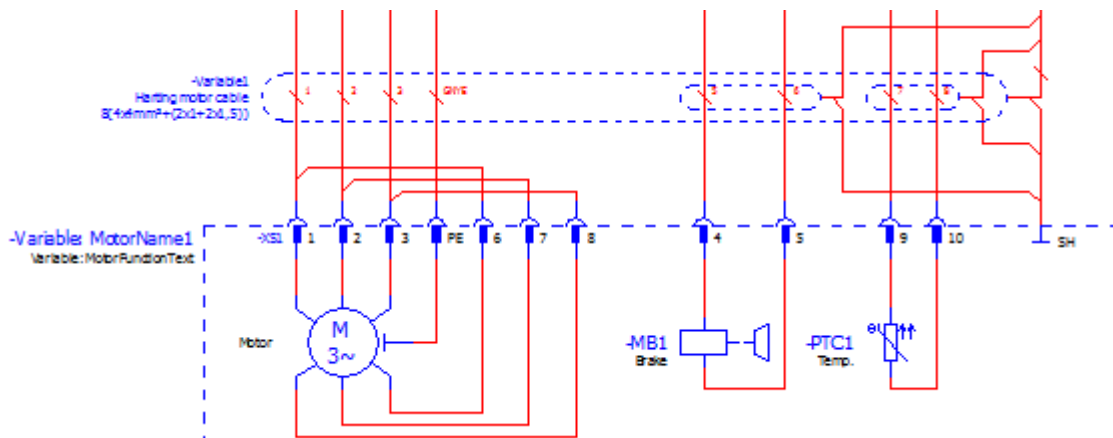
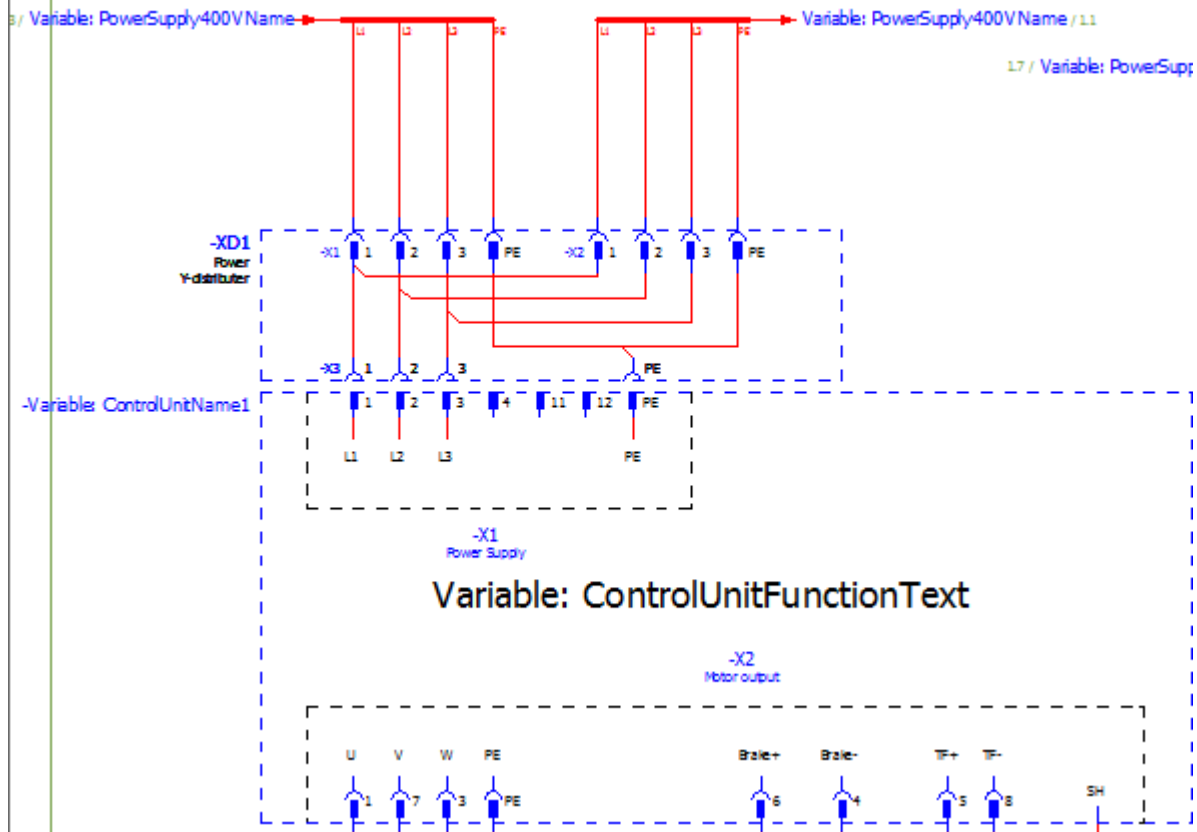
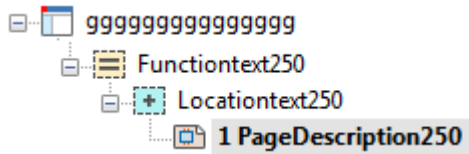
This pic shows new and old relationship



NOTE: In chapter 10 you will replace some of these values with expressions.

Device property old	Value old	Device property new	Value new
Aspect Function			
Designated			False
Designation			
Multi-level Reference Designation			=_001
Name			Name250
Parent			_001
General			
Object Name			ObjectName250
Reference Designation Set			=_001
Type			EPLAN Page Macro
Type			
Character code			EPLAN
Description	Description250		Description250
Full page name			1
Function	Functiontext 250		Function250
Location	Locationtext 250		Location250
Name of EPLAN Macro			NameOfMacro250
Object Name			TypeObjName250
Page Description			PageDescription250
Page Name	1		1
Unique Identifier			
TF01.Function text	TF01.function text	ControlUnitFunctionText	ControlUnitFunctionText
TF01.Name	TF01.name	ControlUnitName	ControlUnitName
		ControlUnitPartNumber1	ControlUnitPartNumber1
		ControlUnitPartNumber2	ControlUnitPartNumber2
WD02.Function text	WD02.function text	MotorCableFunctionText ??	MotorCableFunctionText
WD02.Name	WD02.name	MotorCableName ??	MotorCableName
		MotorCablePartNumber1	MotorCablePartNumber1
		MotorCablePartNumber2	MotorCablePartNumber2
MA01.Function text	MA01.function text	MotorFunctionText	MotorFunctionText
MA01.Name	MA01.name	MotorName	MotorName
		MotorPartNumber1	MotorPartNumber1
		MotorPartNumber2	MotorPartNumber2
KF01.Function text	KF01.function text	PowerModuleFunctionText	PowerModuleFunctionText
KF01.Name	KF01.name	PowerModuleName	PowerModuleName
		PowerModulePartNumber1	PowerModulePartNumber1
		PowerModulePartNumber2	PowerModulePartNumber2
		PowerSupply24VName	PowerSupply24VName
		PowerSupply400VName	PowerSupply400VName

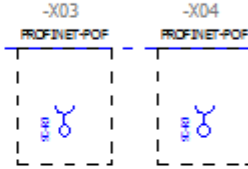
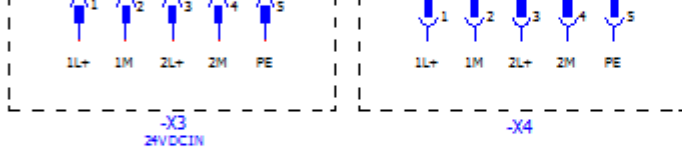
7.4. generate 20160428



L7 / Variable: PowerSupply24VName



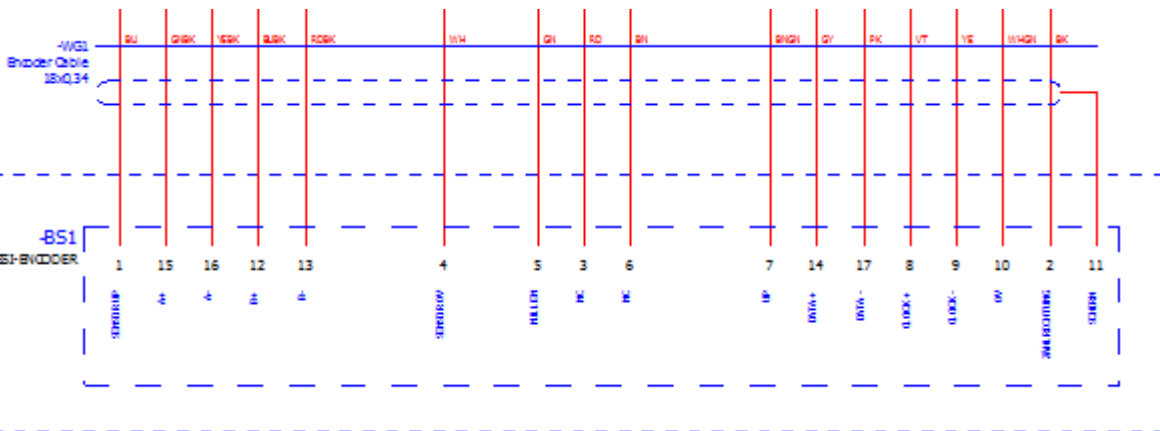
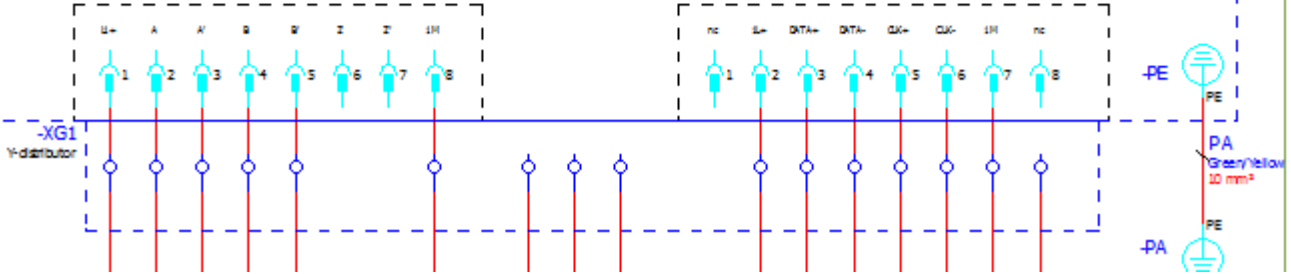
-Variable: PowerModuleName1



Variable: PowerModuleFunctionText

-X06

-X10
SSI-Header



=Function250+Location250/1

		Date	28.04.2016	
		Er.	ZDGS/HJK	
		Appr.		
Modification	Date	Name	Original	Replacement of
				Replaced by

EPLAN Software & Service GmbH & Co. KG	PageDescription250	= Fundlortext250	
		+ Locationtext250	
		Page	1
		Page	4 / 4

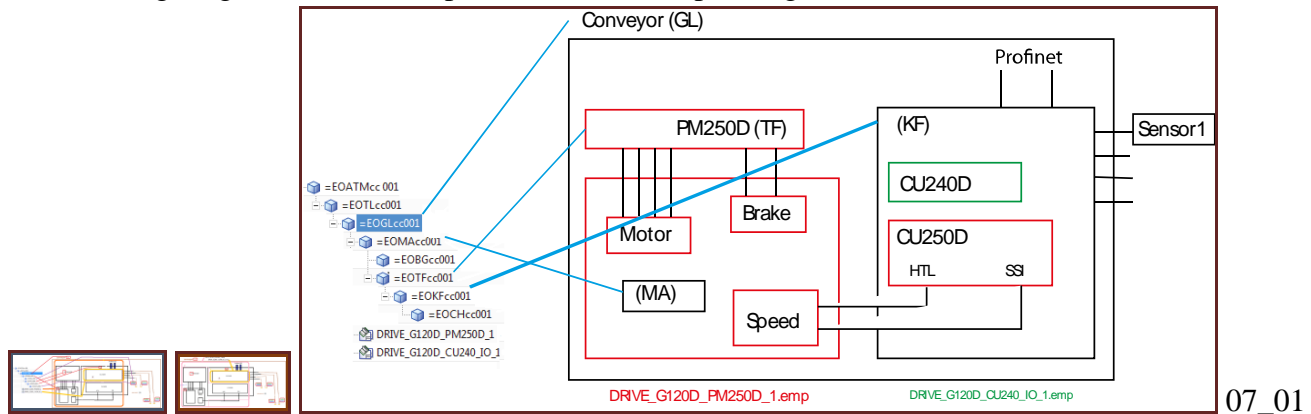
7. Configure (non-template) EPLAN (20160421)

This chapter describes how to configure 2 EPLAN macros in AD and generate EPLAN reports.

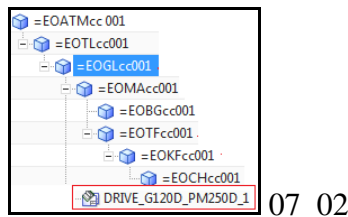
- 7.1. Macro overview
- 7.2. Import EPLAN project template
- 7.3. Add PM250D (TF + MA) macro / generate
- 7.4. Generate

7.1. Macro overview

1. Following diagram shows an aspect tree and corresponding motor elements.



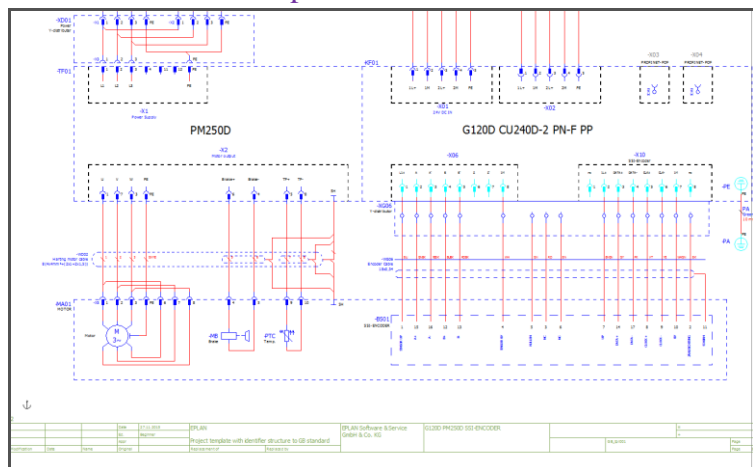
2. You add a macro to AD.



3. Below left is the AD property dialog for the PM250D macro. On the right is the macro output (default with no values set).

\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\Universal Templates\EPLAN_Macros DRIVE_G120D_PM250D_1.emp

Title/Alias	Value	Type	R...
Device properties			
-+ -KF01.Function text		String	
-+ -KF01.Name (visible)		String	
-+ -MA01.Function text		String	
-+ -MA01.Name (visible)		String	
-+ -TF01.Function text		String	
-+ -TF01.Name (visible)		String	
-+ -WD02.Function text		String	
-+ -WD02.Name (visible)		String	
Page properties			
Description		String	
Full page name	2	String	
Function		String	
Location		String	
Page name	2	String	



In this chapter you simply enter text for the property values. But later (in part 3) you use expressions and ports that use EO's in the aspect tree to determine macro propertie values.

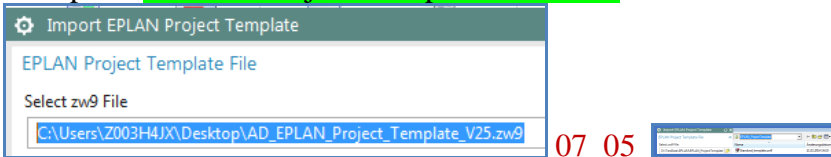
7.2. Import EPLAN project template

TERRY 20151201: new template for new eplan:

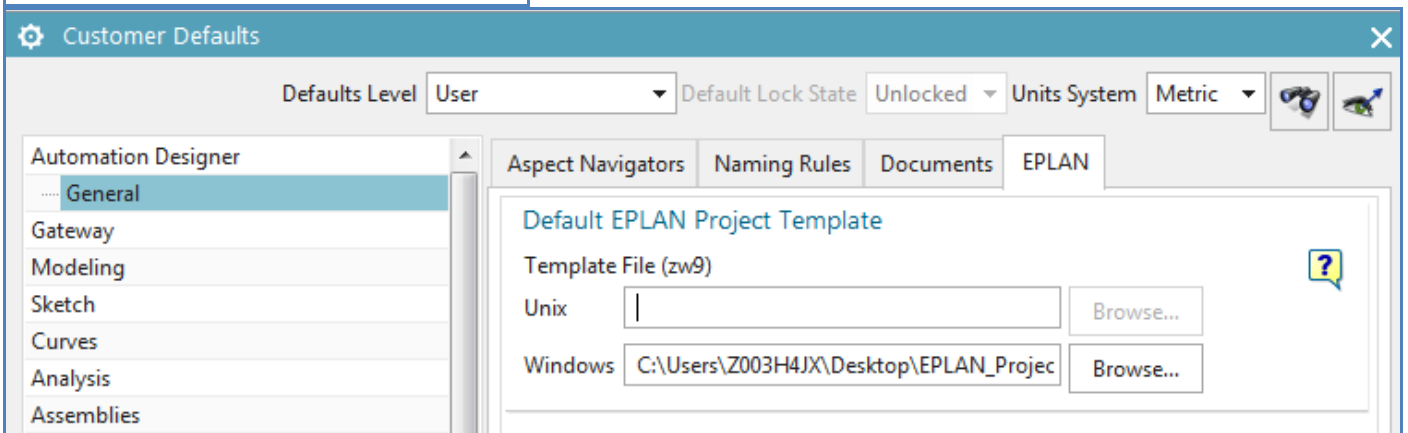
C:\Users\Z003H4JX\Desktop\AD_EPLAN_Project_Template_V25.zw9

Name	Änderungsdatum	Typ	Größe
AD_EPLAN_Project_Template_V22.zw9	03.02.2015 12:57	EPLAN data backu...	14.720 KB
AD_EPLAN_Project_Template_V25.zw9	04.09.2015 11:07	EPLAN data backu...	12.029 KB

1. Click "Electrical Engineering / Import EPLAN project template".
2. Import "EPLAN_Project_Template_V25.zw9".



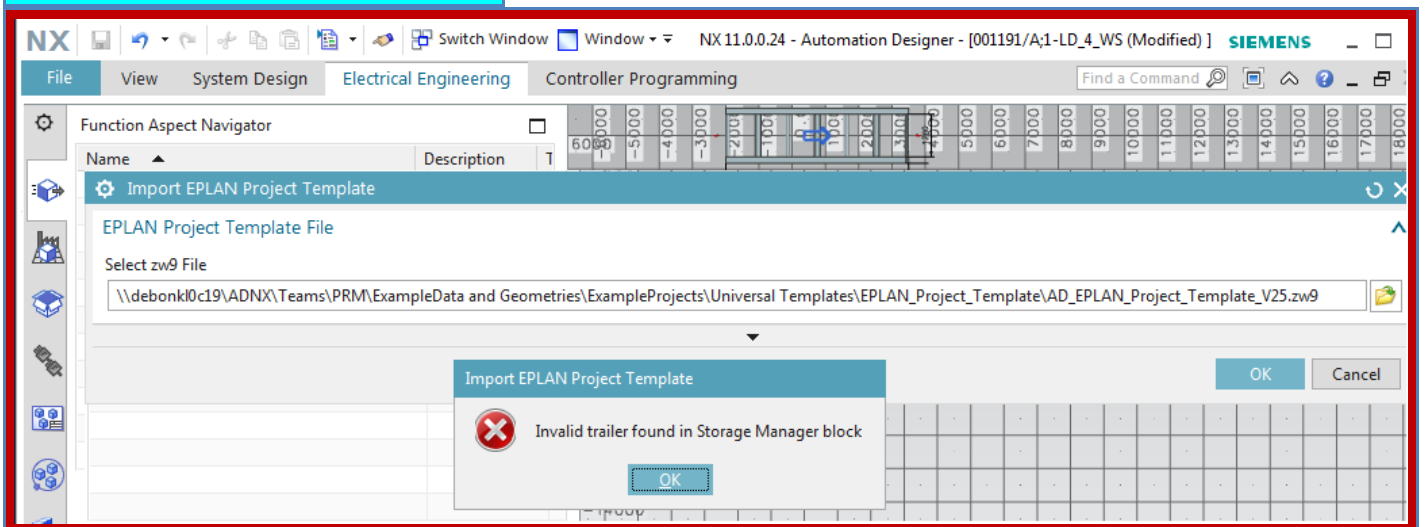
20160418 must do this first. Restart NX.



07_05b ERROR

\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\Universal Templates\EPLAN_Project_Template\AD_EPLAN_Project_Template_V25.zw9

Markus said this is fixed in latest SME



\$EPLAN store in reuse 20160421

The screenshot displays the EPLAN software interface during the process of publishing a macro to a library. The main window shows a project tree with the following structure:

- EPLAN Macro [4]
 - EPLAN Page Macro [3] (selected)
 - EPLAN Window Macro [1]
- PLC [2]
- Software [11]

The **Publish To Library** dialog is open, showing the following details:

- Object To Publish:** Select Object (1)
- Name:** EPLAN_Page_Macro_2_TT

A **Properties** panel displays an error message: **Input string out of range.**

The **Member Select** panel shows a list of objects with **EPLAN_Page_Macro_2_TT** selected. The **Preview** section shows the following attributes:

Name of EPLAN Macro	=	DRIVE_G120D_PM250D_1
Character Code	=	EPLAN
Unique Identifier	=	000389
Description	=	Description250
Object Name	=	EPLAN Page Macro

The **Edit Classified Part** dialog is also open, showing the **Attributes** section with the following values:

Object Name	EPLAN Page Macro
Description	Description250
Unique Identifier	000389
Character Code	EPLAN
Name of EPLAN Macro	DRIVE_G120D_PM250D_1

Buttons for **Inherit Classification** and **Clear Attributes** are visible at the bottom of the dialog.

Function Aspect Navigator

Name	D
CD000101;1-AD_1_CD_4_WS_5_SS_20160418	
Unassigned	
= _001	00
= _004	00
= ConveyorF001	00
= MotorF001	00
= SensorF001	00
= DrivePowerF001	00
= DriveControlF001	00
= EOCHcc001	00
EPLAN Page Macro	D
RB_AT	
RB_AT_DB	

Engineering Object

Reuse Library

✓ Select from Member Select (EPLAN Page I)

General Properties

Object Name Prefix

EPLAN Page Macro

Description

Description250

Navigators

✓ Select Parent (1)

In Function

In Location

In Product

In Automation

= _001	000344
= _004	000345
= ConveyorF001	000346
= MotorF001	000347
= SensorF001	000348
= DrivePowerF001	000351
= DriveControlF001	000352
= EOCHcc001	000353
EPLAN Page Macro	Description250
RB_AT	
RB_AT_DB	
EPLAN Page Macro	Description250

7.3. Add/configure PM250D (TF + MA) macro

7.3. Add/configure PM250D (TF + MA) macro

Name	Designation	Temp
DRIVE_G120D_CD401_1.emp	DRIF Drive	342 00
DRIVE_G120D_CD401_2.emp	Adress Anzeiger D...	42 00
DRIVE_G120D_CD401_3.emp	DRIF Drive	52 00
DRIVE_G120D_CD401_4.emp	Adress Anzeiger D...	72 00
DRIVE_G120D_CD401_5.emp	DRIF Drive	614 00
DRIVE_G120D_CD401_6.emp	Adress Anzeiger D...	55 00
DRIVE_G120D_CD401_7.emp	Motorlauf Anze...	14 00
DRIVE_G120D_CD401_8.emp	DRIF Drive	1 00

201060421

Import EPLAN Macro

Target

✓ Select Engineering Object (1)

EPLAN Macro File

Select Macro File

C:\Users\Z003H4JX\Desktop\EPLAN_Macros\DRIVE_G120D_PM250D_1.emp

Properties

DRIVE_G120D_PM250D_1

Input string out of range.

OK

Show EPLAN Macro Layout

Import EPLAN Macro

Properties

Select Object

✓ Select Object (1)

Context

Interaction Method

Traditional

Engineering Object Attributes

Title/Alias	Value	Units	T...	Type	R...
Aspect Function					
Designated	False			Boolean	
Designation				String	
Multi-level Reference Designation	=_001._004.ConveyorF001			String	
Name	DRIVE_G120D_PM250D_1			String	
Parent	ConveyorF001			String	
General					
Object Name	EPLAN Page Mac005			String	
Reference Designation Set	=_001._004.ConveyorF001			String	
Type	EPLAN Page Macro			String	
Type					
Character Code	EPLAN			String	
Description				String	
Full page name	1			String	
Function				String	
Location				String	
Name of EPLAN Macro	DRIVE_G120D_PM250D_1			String	
Object Name	EPLAN Page Macro			String	
Page Description				String	
Page name	1			String	
Unique Identifier	EPLAN Page Macro			String	
Variable: ControlUnitFunctionText				String	
Variable: ControlUnitName				String	

20160418

The screenshot shows the Siemens Automation Designer interface. On the left is the 'Function Aspect Navigator' with a table of function aspects:

Name	Description	Template
CD000101;1-AD_1_CD_4_WS_5...		
Unassigned		
=_001 [EODATMname]	000344	
=_004 [EODTLname]	000345	
=ConveyorF001 [...]	000346	

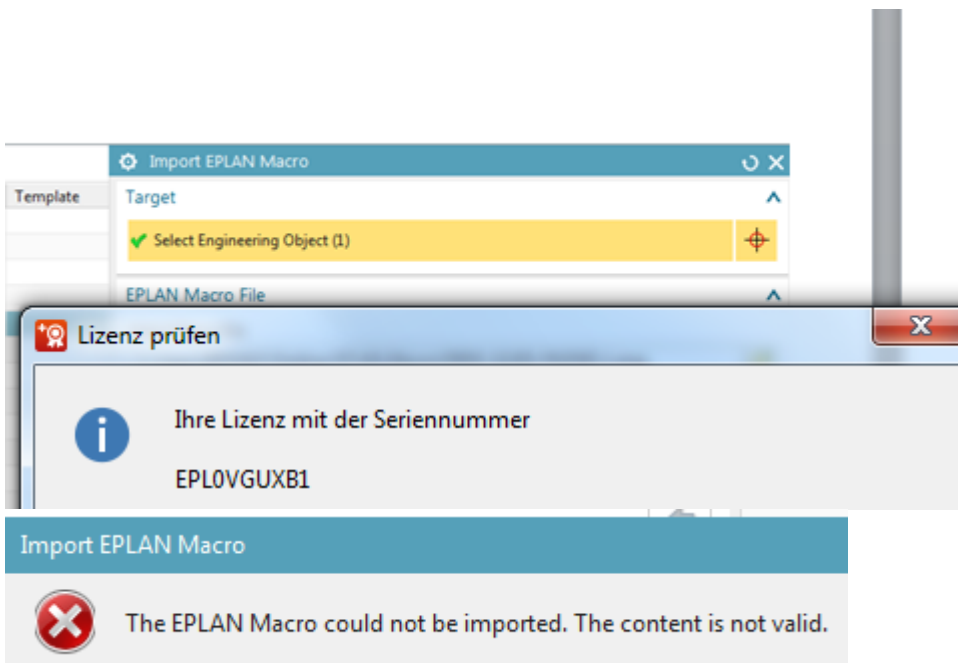
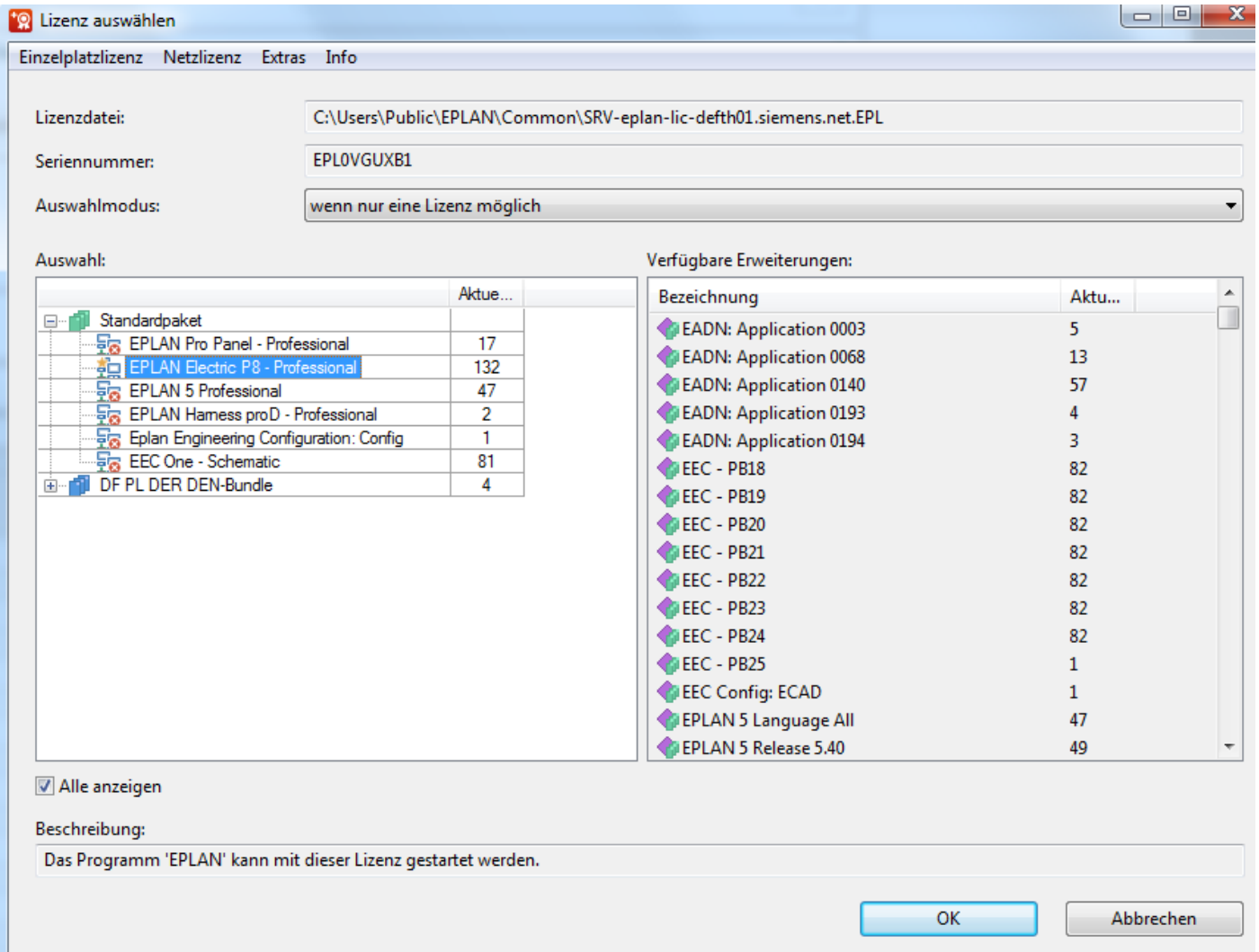
On the right is the 'Import EPLAN Macro' dialog box with the following sections:

- Target:** Select Engineering Object (1)
- EPLAN Macro File:** Select Macro File (C:\Users\Z003H4JX\Desktop\EPLAN_Macros\DRIVE_G120D_PM250D_1.emp)
- Properties:** Name (DRIVE_G120D_PM250D_1), Description
- Actions:** Show EPLAN Macro Layout, Import EPLAN Macro

The screenshot shows a Windows error dialog box titled 'Siemens.AutomationDesigner.ADAgentUI funktioniert nicht mehr'. The message reads: 'Ein Problem hat die richtige Ausführung dieses Programms verhindert. Schließen Sie das Programm.' with a 'Programm schließen' button. In the background, a 'Lizenz prüfen (MAX 10.26)' dialog box is visible with the following text: 'Die Verbindung zum License Manager konnte nicht hergestellt werden. Netzwerkadresse/Benutzer: debonmh0c09.ww004.siemens.net / WW004\Z003H4JX Fehler [DCOM 0x0x80070422]: Der angegebene Dienst kann nicht gestartet werden. Er ist deaktiviert oder nicht mit aktivierten Geräten verbunden.' and a 'Schließen' button.

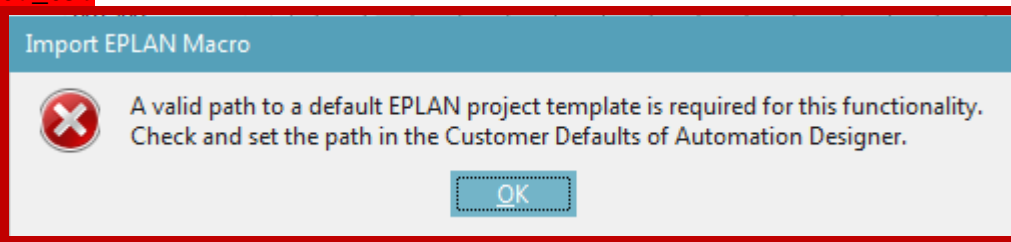
A Windows system message box with a red 'X' icon. The text reads: 'A problem occurred during the communication process. Retry your action. If this is not the first time you see this message, contact your system administrator for support.'

Click ok then...

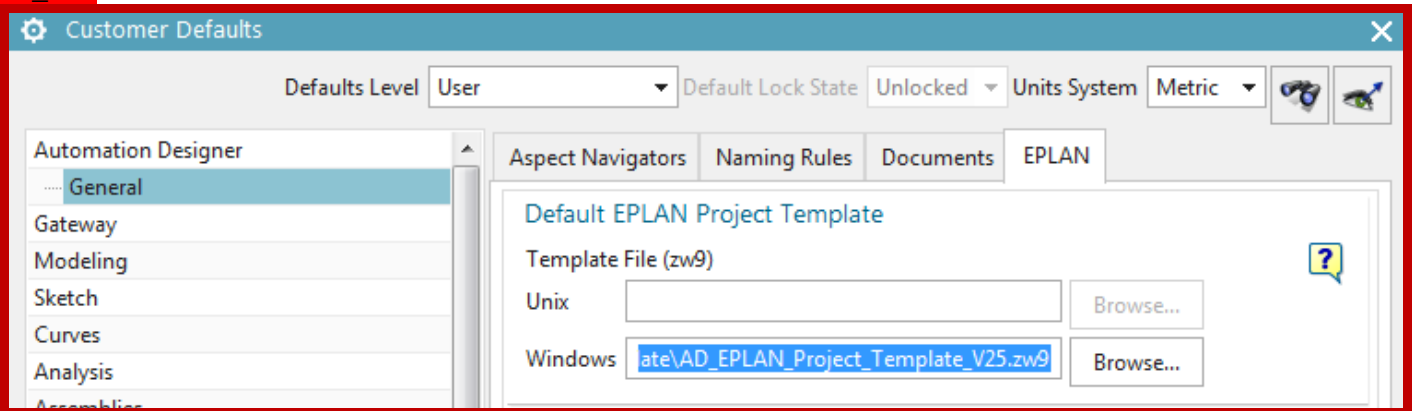


1. Click "Electrical Engineering / Import EPLAN macro".

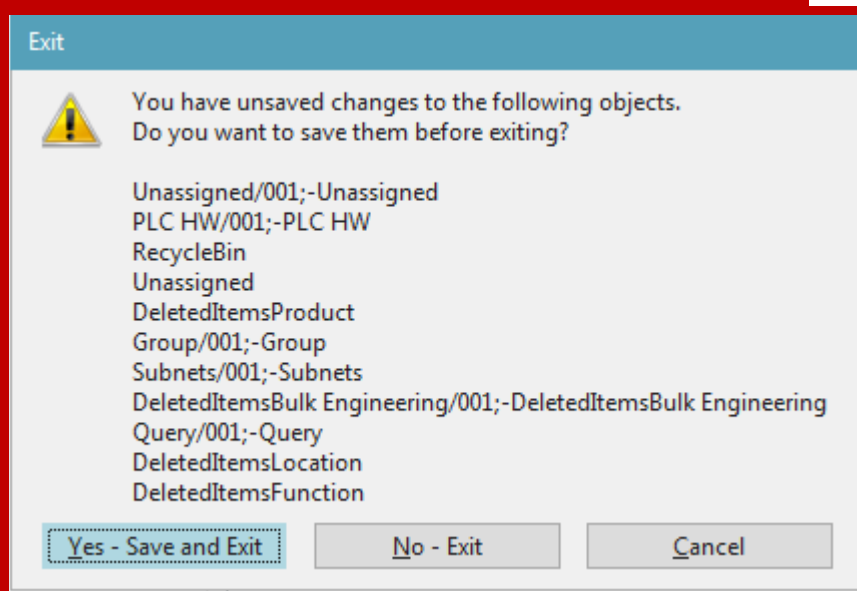
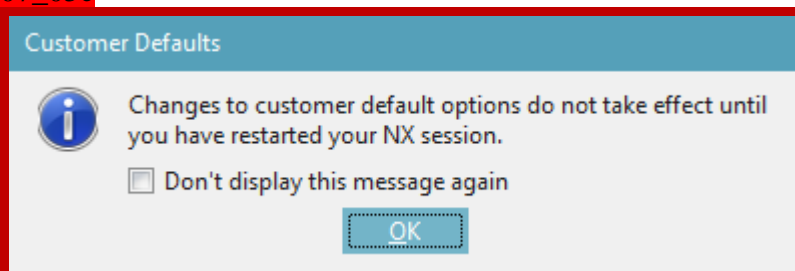
07_05c



07_05d



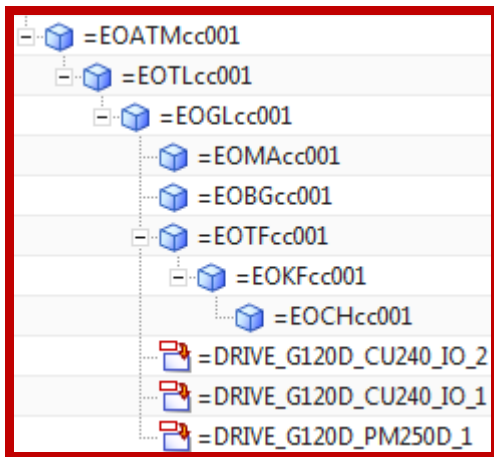
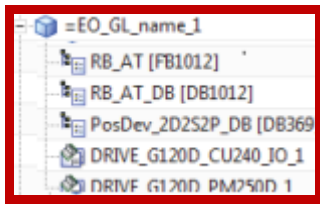
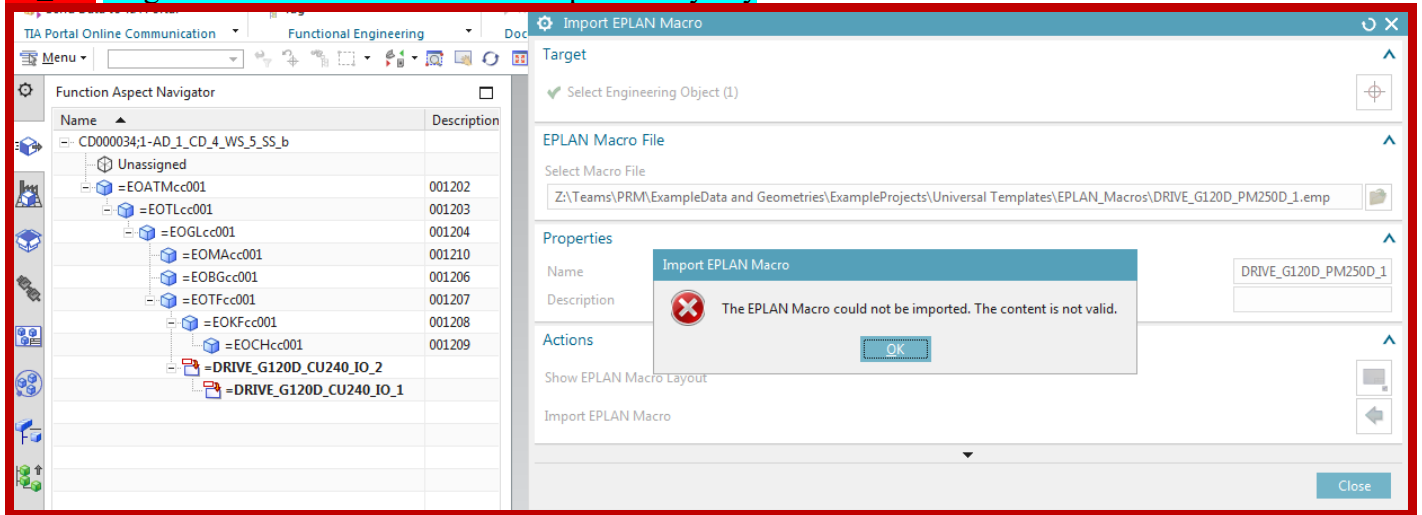
07_05e



2. Select the EO GL01 as the parent EO.

3. Select the macro file **DRIVE_G120D_PM250D_1.emp**.

07_05f ... got this error .. but macro was imported anyway.



4. Click Import. The macro appears in the aspect tree.

TERRY: if The select license dialog appears, select license. Click ok. license????????? Click close.

5. Right-click on the macro. Select "Properties".

Properties

Select Object

✓ Select Object (1)

Context

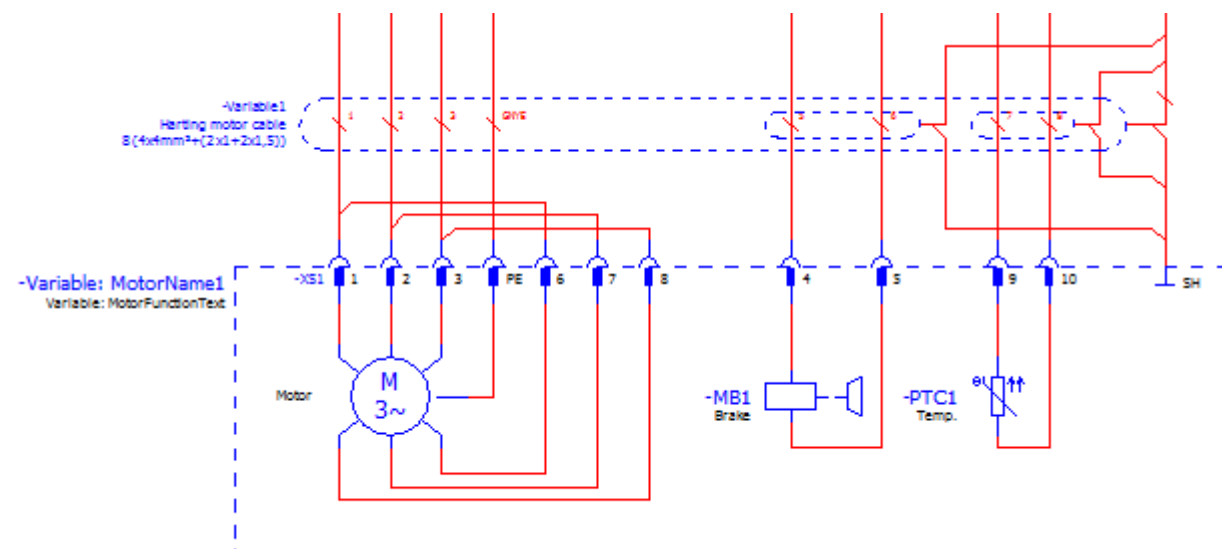
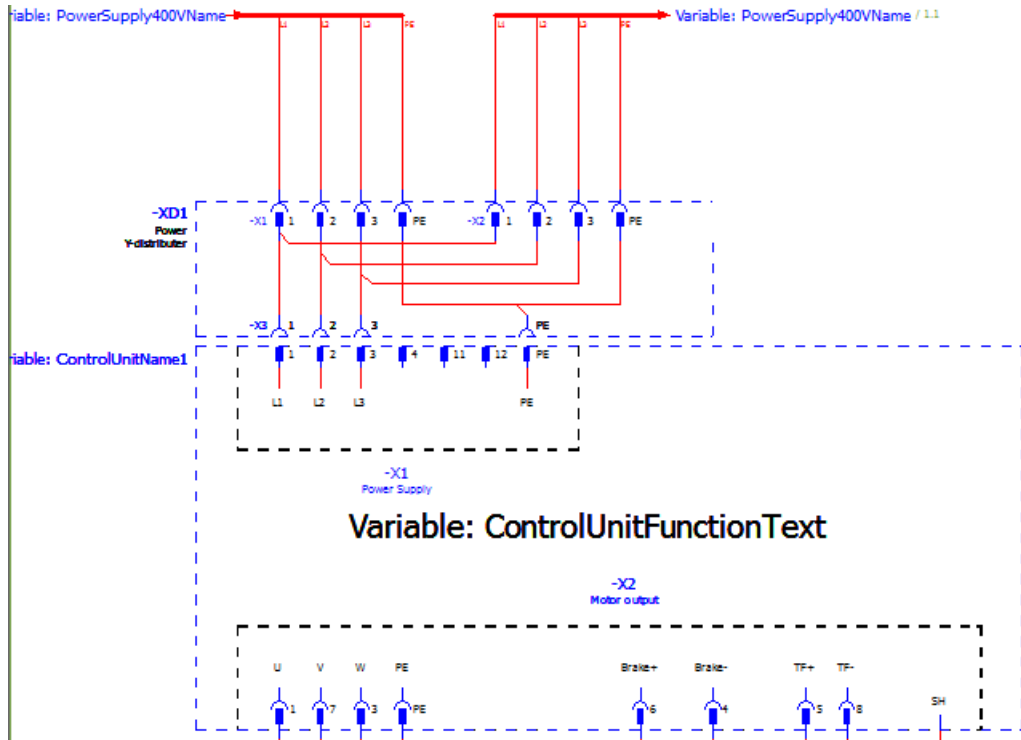
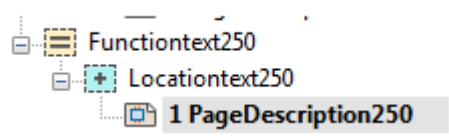
Interaction Method: Traditional

Engineering Object Attributes

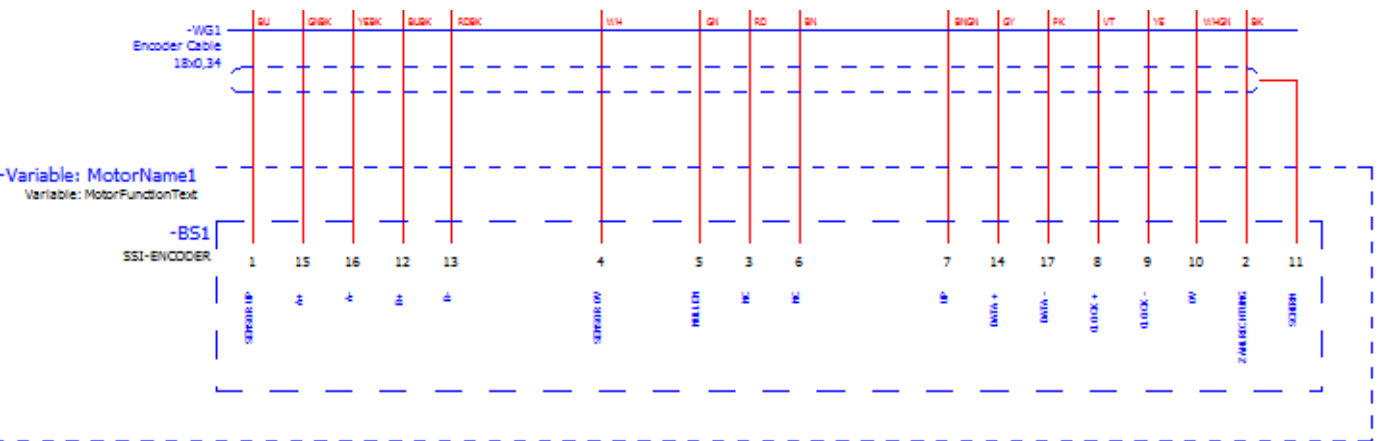
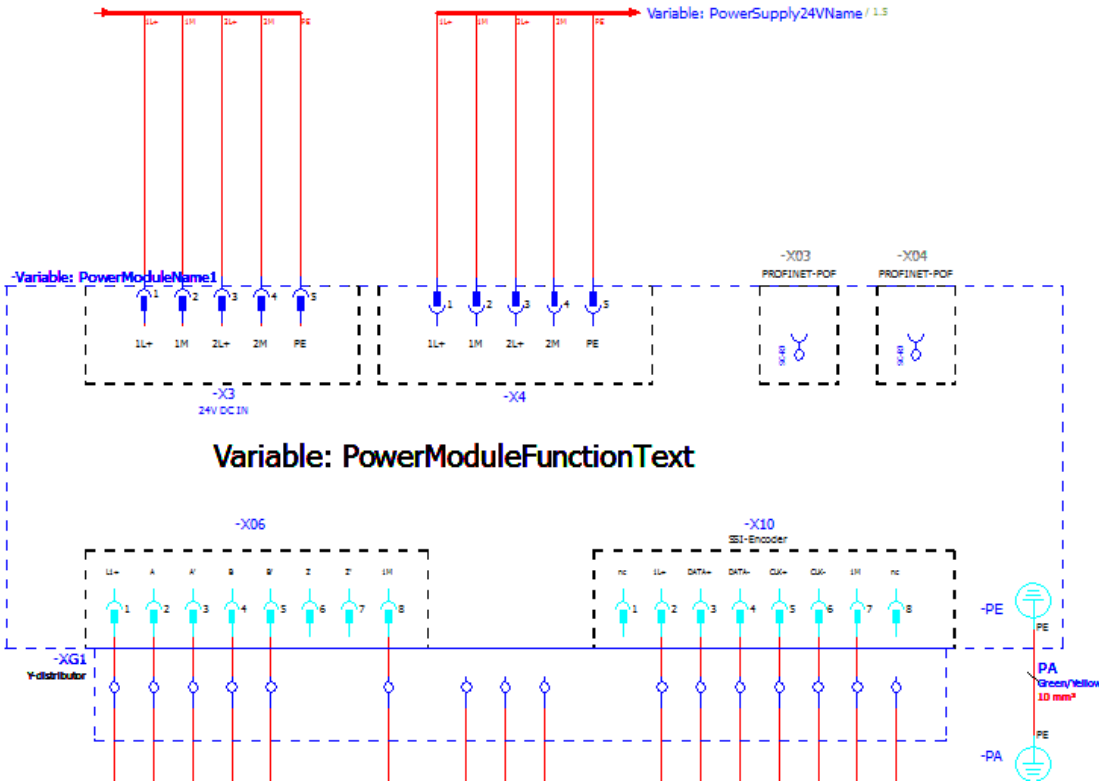
Title/Alias	Value	Units	T...	Type	R...	L...
EPLAN Page Macro Properties						
Character Code	RR			String	🔒	📄
Description				String	🔒	📄
Name of EPLAN Macro	<No Value>			String	🔒	
Object Name	DRIVE_G120D_PM250D_1			String	🔒	📄
Unique Identifier	EPLAN Page Mac003			String	🔒	📄
Function Aspect						
Designated	True			Boolean	🔒	
Designation	=DRIVE_G120D_PM250D_1			String	🔒	
Multi Reference Designation	=EOATMcc001.EOTLcc001.EOGLcc001.DRIVE_G120D_PM250D_1			String	🔒	
Name	DRIVE_G120D_PM250D_1			String	🔒	
Parent	=EOGLcc001			String	🔒	
General						
Name of EPLAN Macro	DRIVE_G120D_PM250D_1			String	🔒	
Reference Designation Set	=EOATMcc001.EOTLcc001.EOGLcc001.DRIVE_G120D_PM250D_1			String	🔒	
Page properties						
Full page name	1			String	🔒	
Function				String	🔒	📄
Location				String	🔒	📄
Page Description				String	🔒	📄
Page name	1			String	🔒	📄
All Unset						
Name of EPLAN Macro	<No Value>			String	🔒	

7. Click OK.

20160428 generate



17 / Variable: PowerSupply24VName



=Function250+Location250/1

			Date	28.04.2016		
			Ed.	Z003H4JX		
			Appr.			
Modification	Date	Name	Original		Replacement of	Replaced by

EPLAN Software & Service GmbH & Co. KG	PageDescription250	= Functiontext250	
		+ Locationtext250	
		Page	1
		Page	3 / 3

7.4. Generate

20160421

Generate EPLAN Project

Properties

Name: 20160421_01

Generation Target Path: C:\Users\Z003H4JX\Desktop\

EPLAN Project Template

EPLAN Project Template in Use

Title	Value
File Name	AD_EPLAN_Project_Template_V25.zw9
Path	C:\Users\Z003H4JX\Desktop\EPLAN_Project_Template
Date	Mon Apr 18 15:18:28 2016 Mitteleuropäische Sommerzeit
User	Z003H4JX

Actions

Import EPLAN Project Template

Remove EPLAN Project Template

Settings

Overwrite existing file

Open in EPLAN

Save Name in EPLAN Project Settings


Save Target Path in EPLAN Project Settings

Actions

Preview of EPLAN Page Structure

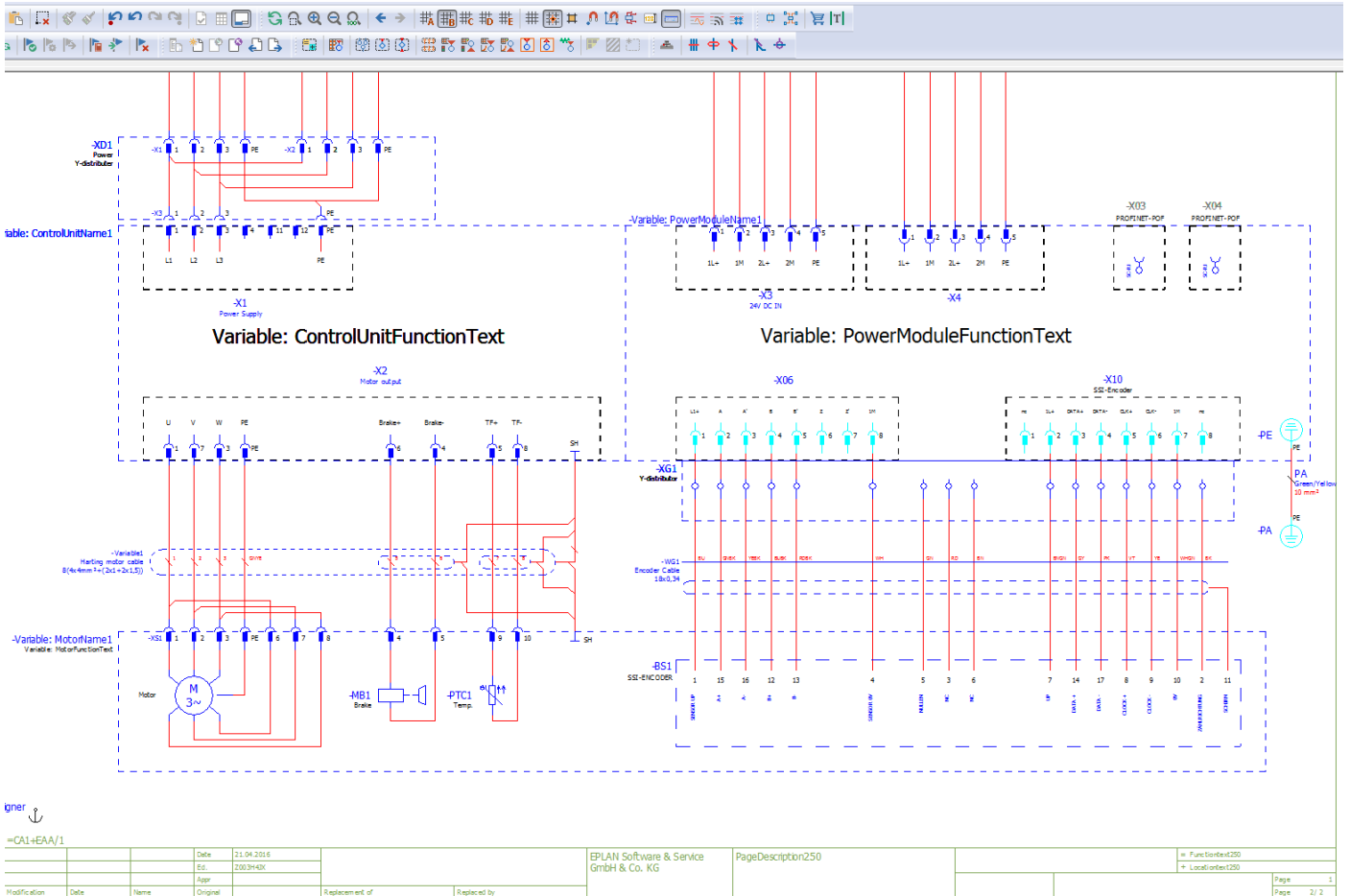
Generate EPLAN Project

Generate EPLAN Project

 Creating the project was not successful.

Most common reasons:

- The project template may be corrupt
- If the project already exists, it may be in use or write protected
- The target directory may be out of disc space.



Properties (components): Placeholder object

Placeholder object | Display | Symbol data

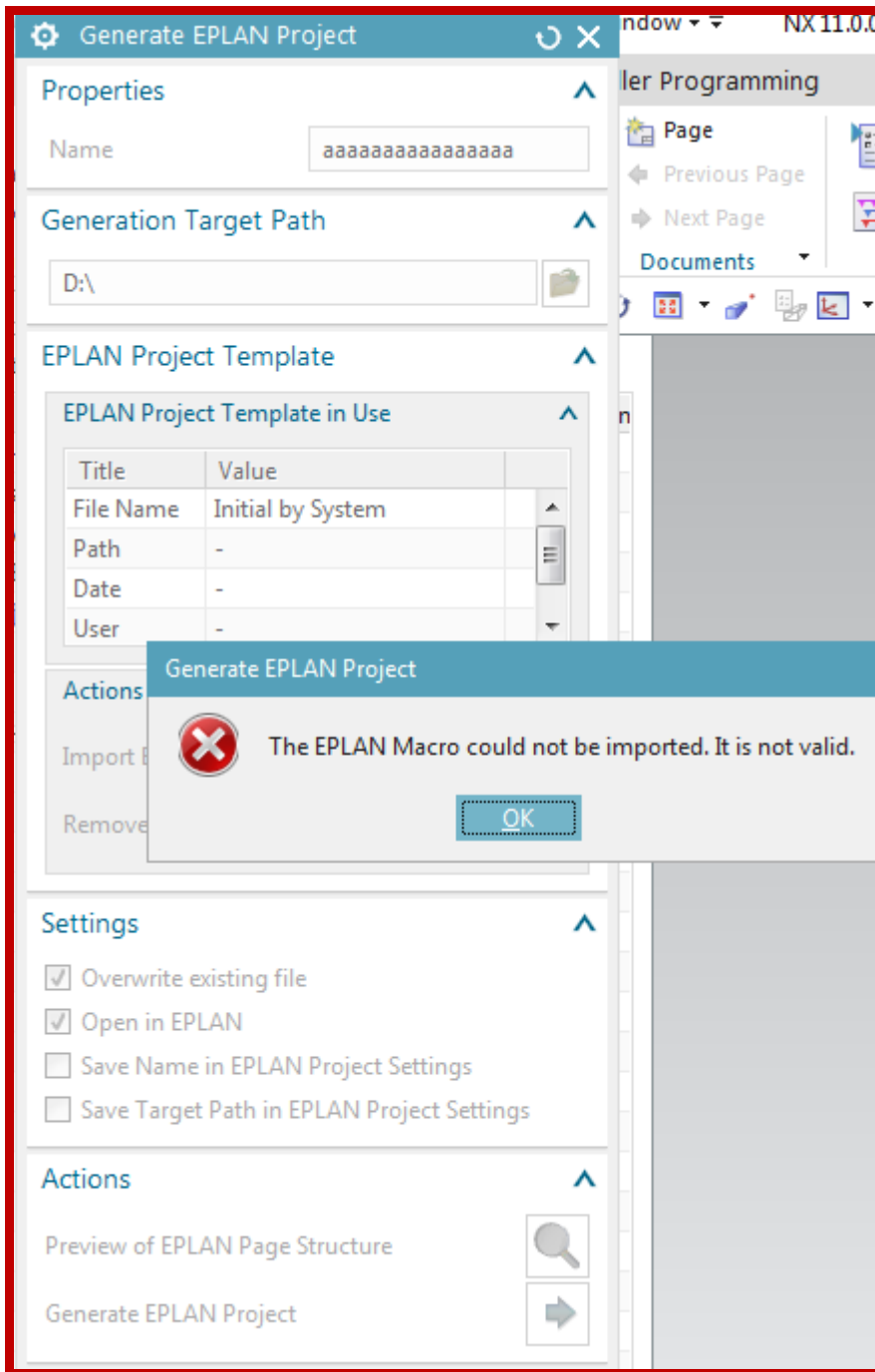
Name:

Assignment | Values

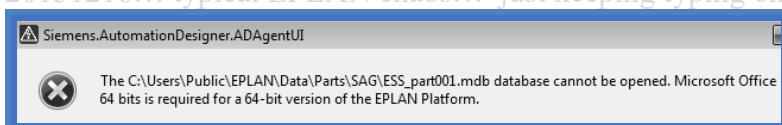
Category: All categories

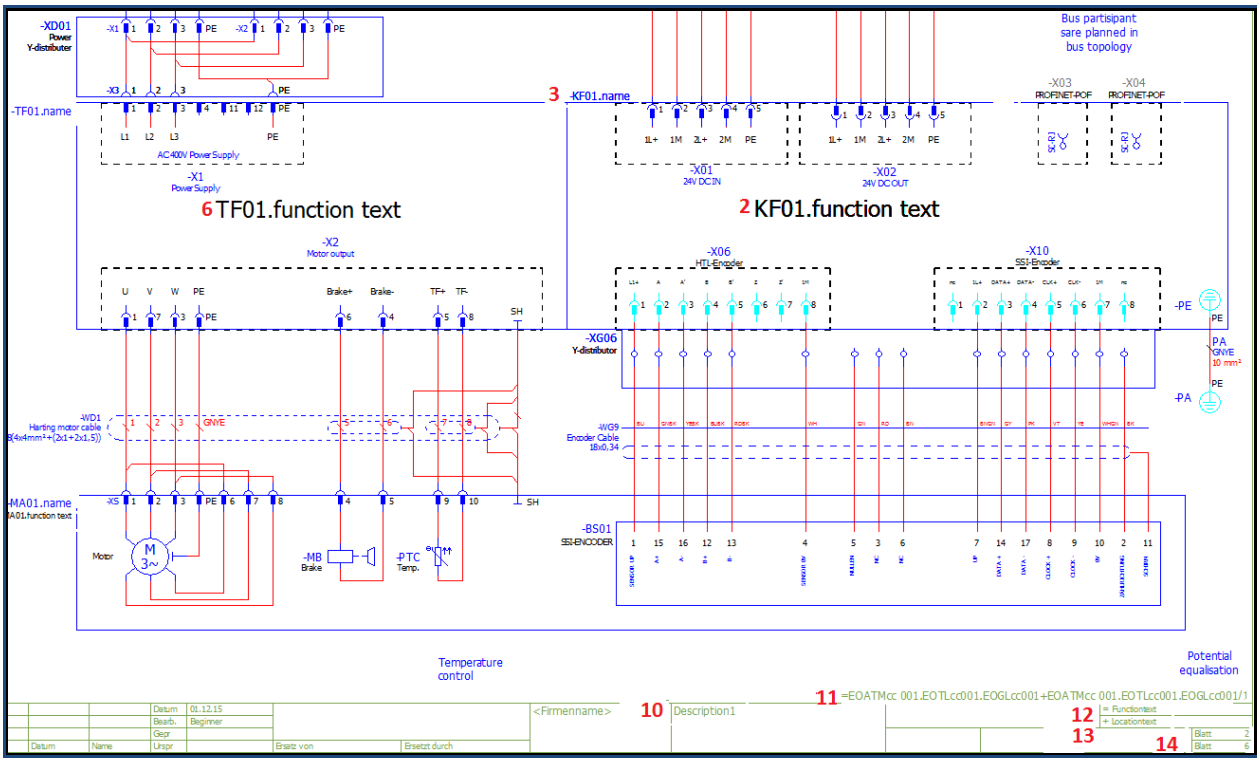
Row	Property	Current value	Variable
1	Interruption point		
2	=Functiontext250+Locationtext250-Variable: PowerSupply400VName		
3	=Functiontext250+Locationtext250-Variable: PowerSupply400VName		
4	=Functiontext250+Locationtext250-Variable: PowerSupply24VName		
5	=Functiontext250+Locationtext250-Variable: PowerSupply24VName		
6	Black box		
7	=Functiontext250+Locationtext250-Variable: ControlUnitName1		
8	<10152> Revision marker (from property comparison)		
9	<10153> Revision change marker (from property comparison)		
10	<19030> Revision marker (change tracking)		
11	<19031> Revision marker format (change tracking)		
12	<19033> Creator (change tracking)		
13	<19307> Property arrangement	User-defined	
14	<20001> Name (full)	=Functiontext250+Locationtext250-Variable: ControlUnitName1	
15	<20002> Name (visible)	-Variable: ControlUnitName1	-<ControlUnitName>
16	<20011> Function text	Variable: ControlUnitFunctionText	<ControlUnitFunctionText>
17	<20021> Cross-reference display		
18	<20024> Mounting site (describing)		

1. Click on "Electrical Engineering / Generate EPLAN".
2. Enter the name.
3. Select the path.
4. Check "Open in EPLAN".
5. Click "Generate EPLAN Project". EPLAN opens with the macro page shown below.



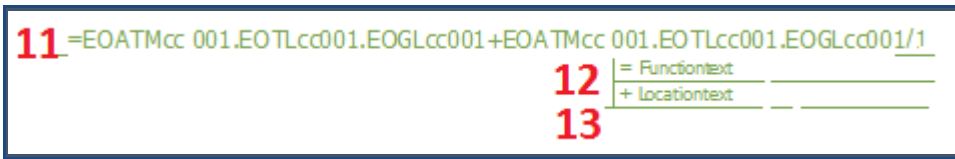
20151216... typical EPLAN chaos... just keeping typing ok until it opens...





07_06

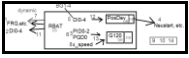
Note that the aspect chain was automatically added to "Full page name" instead of "Function text" + "LocationText".



07_07

8. Configure (non-template) TIA (20160429)

20160209 TERRY: This chapter assumes that the TIA project (HW, SW, tags) has been configured as described in the TEST_INSTALLATION_v221_20160128_0847b.doc.



20160118_ch8_terry.mp4

This chapter describes how to configure the project for generating TIA.

8.1. Receive HW/SW. Receive HW, SW and tags from TIA.

8.1b. Move RB_AT, create IDB's.

1. Move RB_AT to the conveyor part of the aspect tree (what will become the template).
2. Create the RB_AT IDB.
3. Create IDB's for PosDev and G120x in the conveyor part of the aspect tree.
4. View the ports between the FBs and IDBs.

8.2. Add/delete tags.

1. Verify the 4 RB_AT (FRG, etc.) tags were imported, the connections are OK, and the addresses are correct.
2. Verify the 7 Pos_Devev (Newstart, etc.) tags.
Delete the Pos_front_left, etc. tags and
3. Add boolean tag DI1 (under EO CH1).
4. Add DWord tag tag PID0 (under EO KF).

8.3. Create TL constant value. The constant values in the top aspect EO TL allows you to reference in sub-EOs and thus easily make global changes.

8.4. Dynamize SW. Fix the calls (OB1, RB_AT) and tag references (RB_AT, PosDev) in the imported SW blocks.

8.5. Assign SW to HW.

1. Set absolute tag address (future).
2. Modify PID0 tag memory location.
3. Modify DI1 tag HW connection.
4. Connect SW.

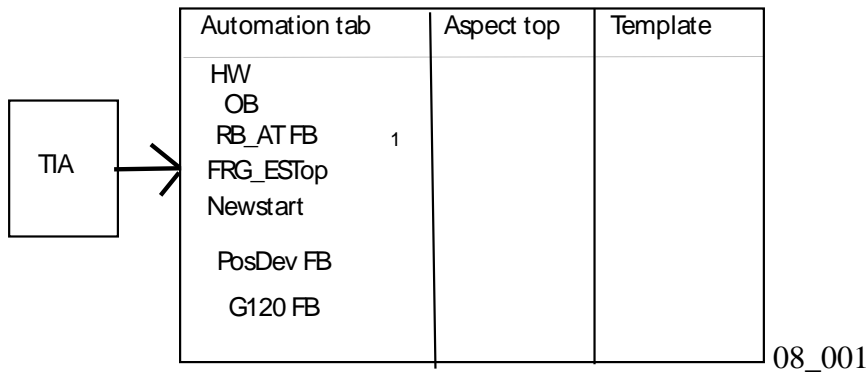
8.6. Generate TIA. Send the SW to TIA.

8.1. Receive HW, SW

8.1.1. Overview of HW/SW/tags to import

8.1.2. Receive HW

8.1.3. Import SW-tags (OB1, G120x, PosDev, RB_AT)



8.1.1a. Overview of HW/SW/tags to import (20160118)

20160209 TERRY: for explanation of how to setup the tia sw see TEST_INSTALLATION_v221_20160128_0847b.doc

08_002

	Name	Data type	Address	
1	slow_back	Bool	%M0.0	D11 D12-4 (later chapter)
2	Pos_front_left	Bool	%M0.1	
3	slow_forw	Bool	%M0.2	
4	pos_back_left	Bool	%M0.3	
5	FRG_EStop	Bool	%M0.4	RB_AT Automation tab tags (FRG, ...)
6	IBNO	Bool	%M0.5	
8	FRG_BS	Bool	%M0.7	
9	reset	Bool	%M1.0	PosDev Automation tag tags (Newstart, ...)
10	Blif	Bool	%M1.1	
11	TRUE	Bool	%M1.2	
7	Ri O n	Bool	%M0.6	
12	RLO 1	Bool	%M1.3	
13	CPulse_0_1s	Bool	%M1.4	
14	Newstart	Bool	%M1.5	PID0 PID1-2, PQD0 (later chapter)
15	PLC_On delayed	Bool	%M1.6	
19	PID0	DWord	%MD4	
20	PID1	DWord	%MD8	
21	PID2	DWord	%MD12	
22	PQD0	DWord	%MD16	

18	17	16
Lampstest	manual	auto_inching
Bool	Bool	Bool
%M2.1	%M2.0	%M1.7

08_003

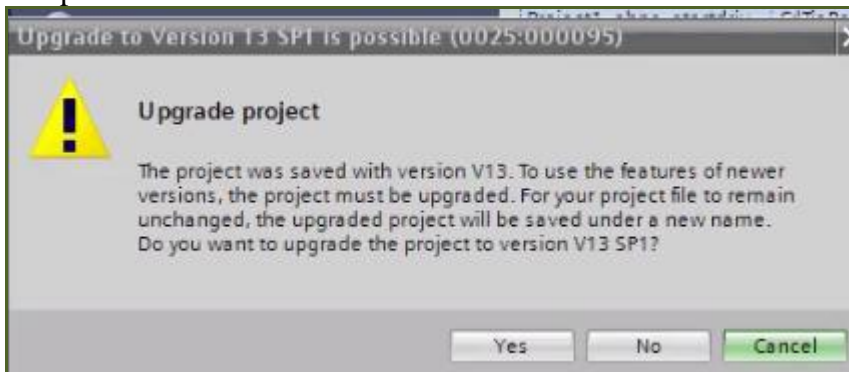
8.1.1b. config TIA SW (20160304 from TEST_INSTALLATION.doc)

1. upgrade

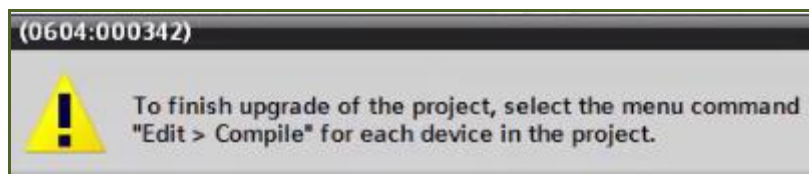
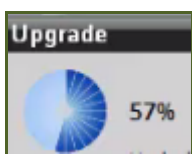
\\debonk10c19\ADNX\[PROJECT_SHARE_WITH_CYP]
\TIA_Portal_XML\FD4_Project_without_startdrive.zip

1. unpack

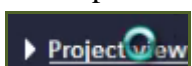
2. Open.



3. Click Yes.

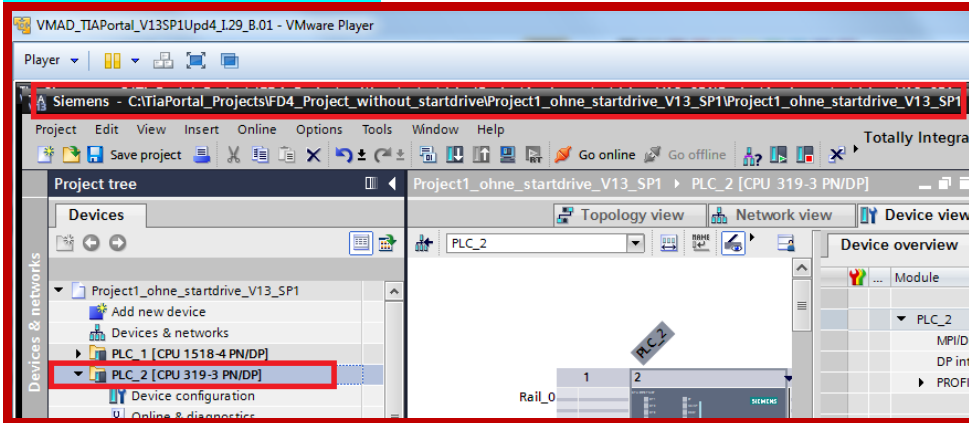


4. compile.

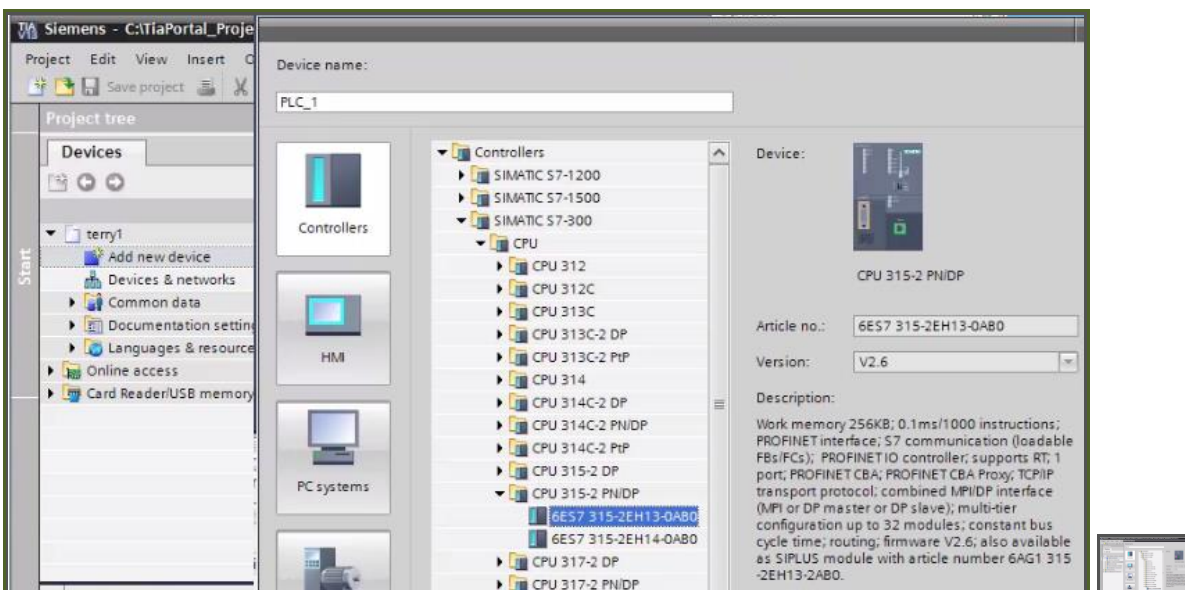


2. Add S300 CPU

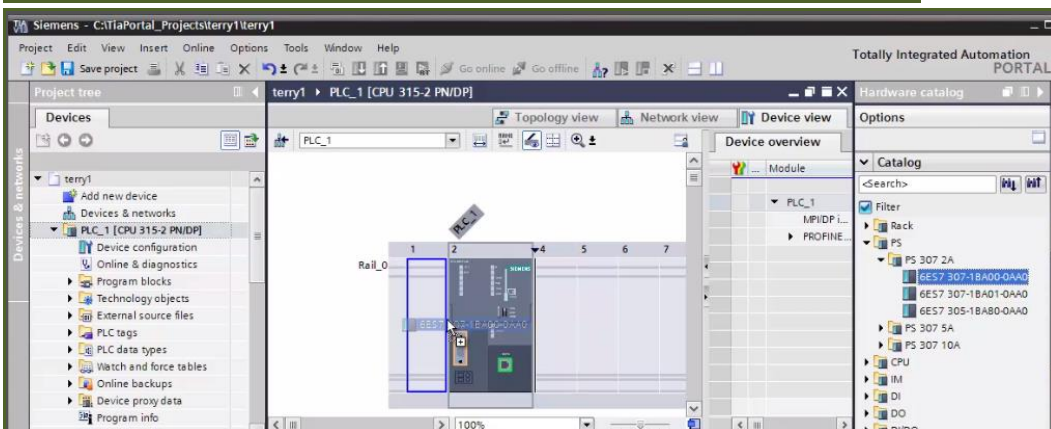
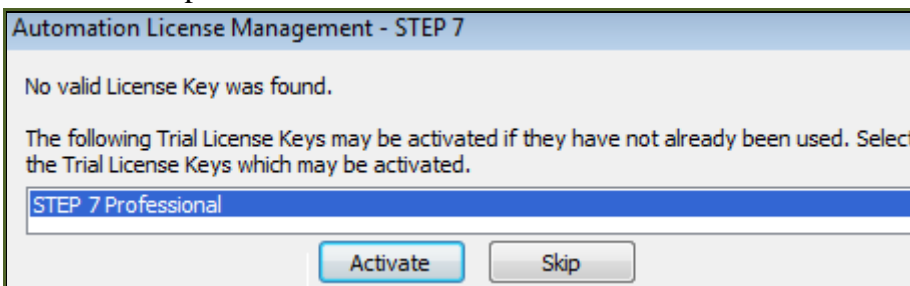
20160303 Must add s300 hw.



1. Add new S300 HW.



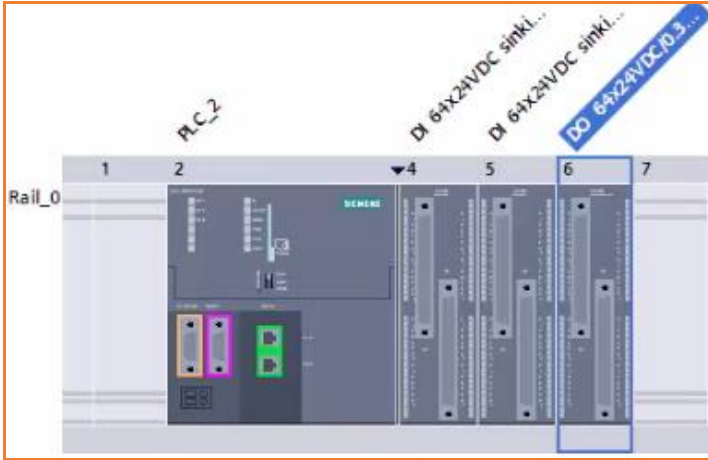
2. Activate step7.



xxx 3. Add I/O modules

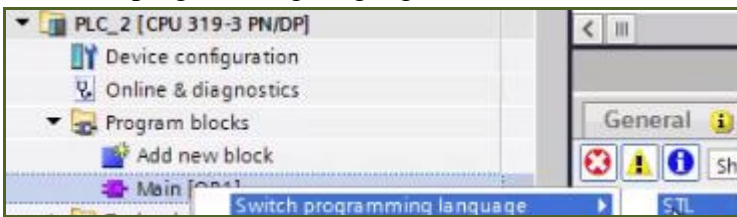
20160304 did not do this but should have.. did not cause problems.

Add 1 DI and 1 DO.



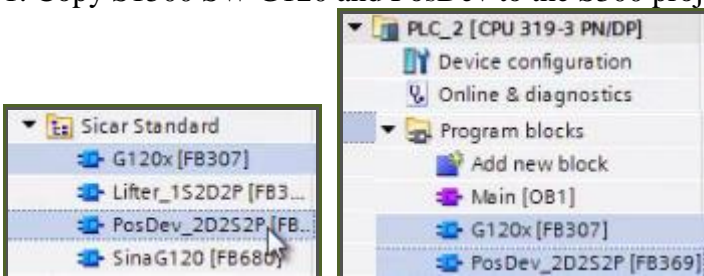
4. Change OB1 to STL

1. Switch programming language.



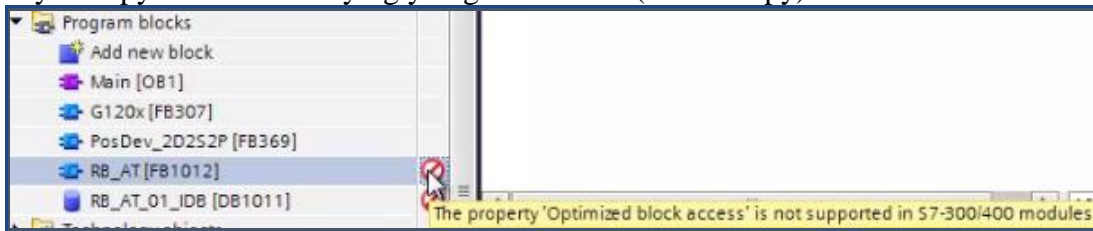
5. Copy S1500 PosDev, G120

1. Copy S1500 SW G120 and PosDev to the S300 project.

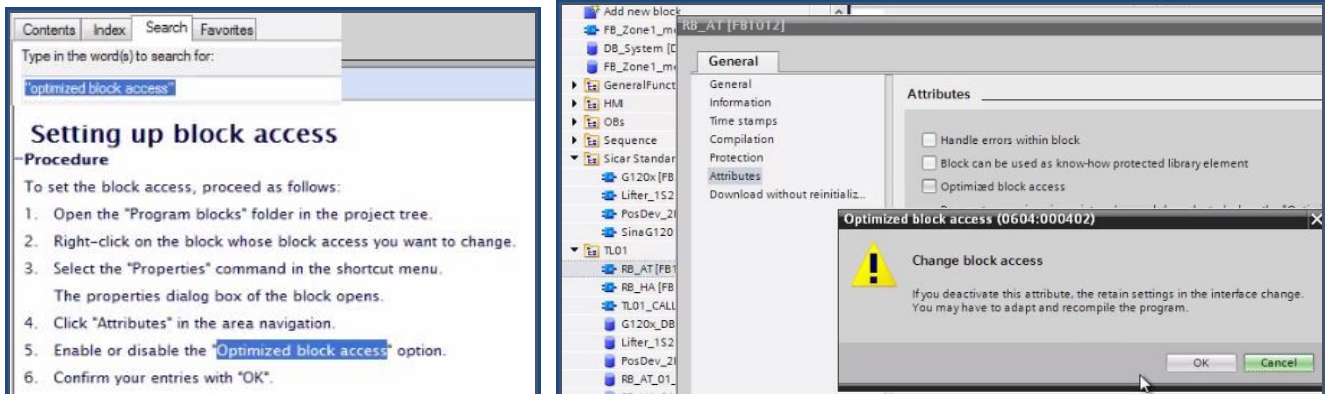


6. Modify S1500 RB_AT and copy

If you copy without modifying you get this error (do not copy).



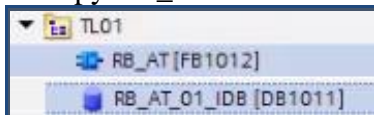
1. Change the S1500 RB_AT properties.



2. Compile.



3. Copy RB_AT to S300.

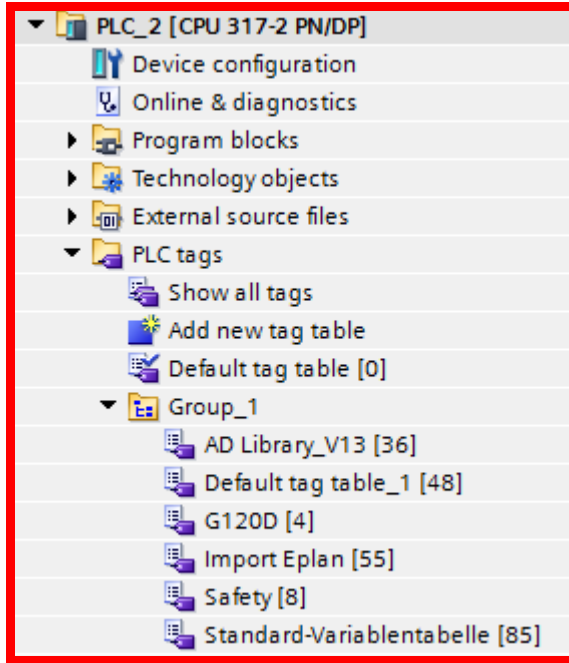
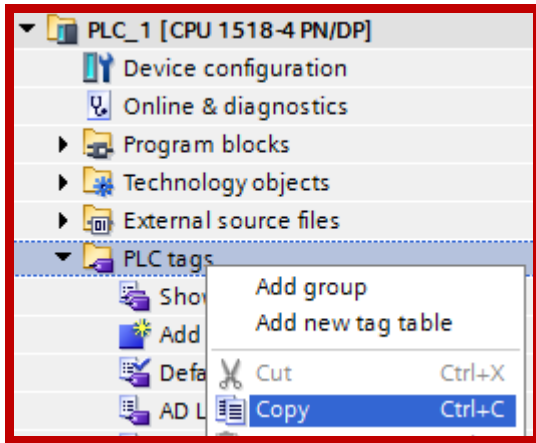


4. Compile.



7. Copy all tags

20160302_0921 I tried to just copy all tagss



8a.NEW: fix sw errors (since did not copy all blocks)

General Cross-references **Compile**

Show all messages

Compiling completed (errors: 3; warnings: 1)

!	Path	Description	Go
	Program blocks		
	RB_AT (FB1012)		
	Network 2	Tag "RB_AT_01_IDB".LIFTER_HOMEPOSITION not defined.	
	Network 3	Tag "RB_AT_01_IDB".LIFTER_HOMEPOSITION not defined.	
	Network 9	Block call was invalid because interface was changed in the me	
	General warnings		
		Inputs or outputs are used that do not exist in the configured h..	
	Hardware configuration		
		Hardware was not compiled. The configuration is up-to-date.	
		Compiling completed (errors: 3; warnings: 1)	

Network 2:

Comment

```
1      A      #ENABLE_SAFETY
2  //  A      "RB_AT_01_IDB".LIFTER_HOMEPOSITION
3      =      #INTERLOCK_ADV
4
```

Network 3:

Comment

```
1      A      #ENABLE_SAFETY
2  //  A      "RB_AT_01_IDB".LIFTER_HOMEPOSITION
3      =      #INTERLO Temp: Bool
4
```

1 CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB" §FR369, §DE

2 ✘ Block call was invalid because interface was changed in the meantime. ✘ ADV

3 RTN

4 CK_ADV

5 IL_RTN :=#INTERLOCK_RTN

6 PB_ADV :=#PUSHBOTTOM_ADV

7 PB_RTN :=#PUSHBOTTOM_RTN

8 LS_ADV :="Pos_front_left"

9 SW_FS_ADV :="slow_forw"

10 SW_FS_RTN :="slow_back"

11 LS_RTN :="pos_back_left"

12 SEL_SLOW :="RLO 0"

13 AUTO_MODE :="auto_inching"

14 MANU_MODE :="manual"

15 MOTOR_PROT :="RLO 1"

16 MOTOR_TEMP :="RLO 1"

17 ERR_RESET :=#ERROR_RESET

18 LAMP_TEST :="Lampstest" §M5.2

19 TM_OP :=50 50

20 TM_LS :=20 20

21 TV_STARTUP :=20 20

22 Visu :="Interface_Visu".Model[2]

Open
Open and monitor
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Delete Del I2130.4
Go to I2130.2
I2130.0
Cross-reference information Shift+F11 I2130.3
Create instance... §M3.3
Update block call §M11.1
§M11.0
Insert network Ctrl+R §M3.2
Properties Alt+Enter §M3.2

General ⓘ Cross-references Compile Syntax ⓘ

Show all messages

Compiling completed (errors: 1; warnings: 1)

!	Path	Description	Go to
✘	PLC_2		
✘	Program blocks		
✘	RB_AT (FB1012)		
✘	Network 9	Block call was invalid because interface was changed in the meantime.	
⚠	General warnings		
⚠		Inputs or outputs are used that do not exist in the configured hardware.	
ℹ	Hardware configuration		
ℹ		Hardware was not compiled. The configuration is up-to-date.	
✘		Compiling completed (errors: 1; warnings: 1)	

```

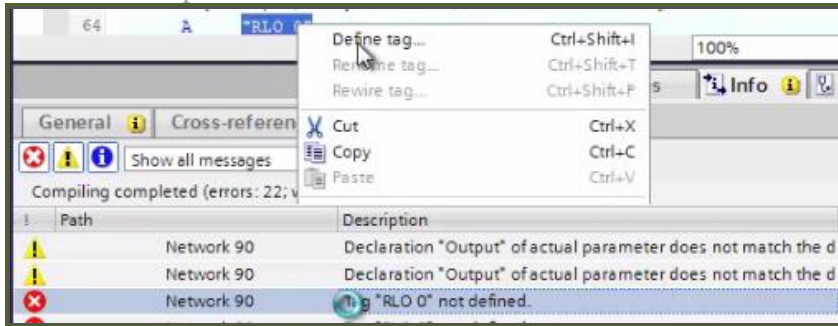
TV_STARTUP :=20
Visu := // "Interface_Visu".Model[2]
Alarms := // "Interface_Alarms".Model[2]
ADV := ⓘ Output: Word ✘

```

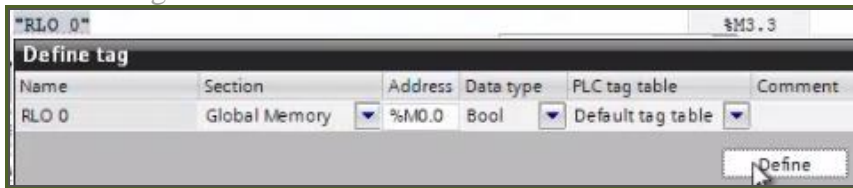
Fix errors until compile ok.
Save and close.

8b. OLD (6). Fix tags

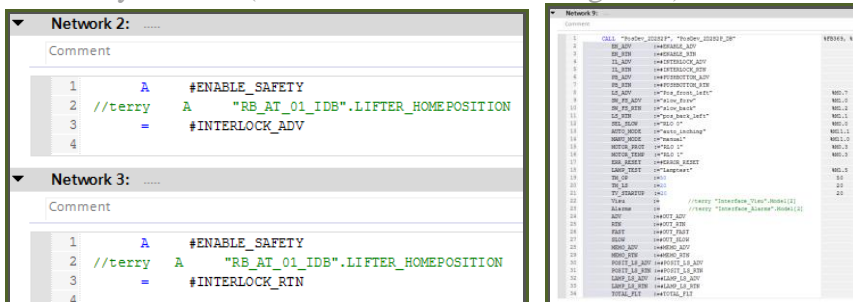
After the compile there are about 20 errors.



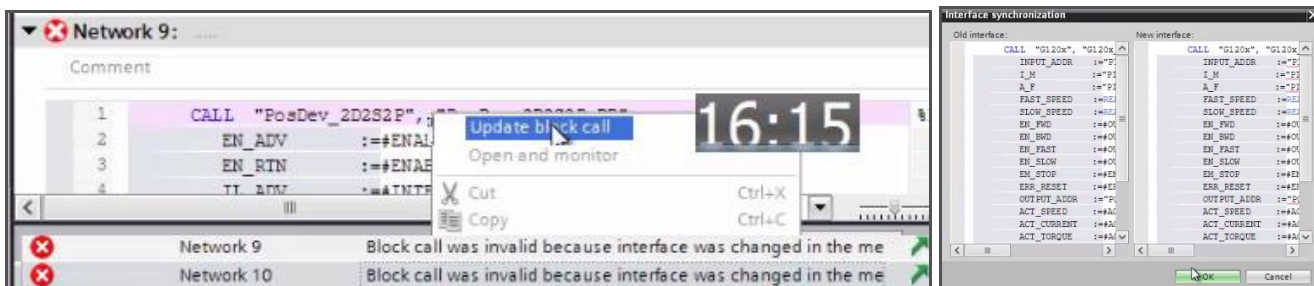
1. Fix all tags.



2. Modify RB_AT (comment out the following lines).



3. Fix the block call error.



4. Compile and save. You now have SW ready for S300.

9. delete s1500??

20160303... could not get s300's listed in ad... Igor said 2 problems.

1. this sme only recieves top of list , so s1500.

2. need to restart the agent, because its caching..

Anyway, strange problems... but after trying 3rd time got all items.

In any case, best to delete s1500 after getting sw.. have only 1 plc.

This time did nto have to delete the s1500

The screenshot displays the Siemens TIA Portal software interface. The main window is titled "Automation" and shows a project tree structure. The tree is expanded to show the "S7300/ET200M station_1" folder, which contains subfolders for "Program blocks", "PLC data types", "Local modules", "Rail_0", "PLC_2", and "Subnets". The "PLC_2" folder is further expanded to show "MPI/DP interface_1".

On the right side, the "Receive Data from TIA Portal" dialog box is open. It shows the following settings:

- Type: Software
- Target: Select Object (1)
- TIA Portal Project: Select ap13 File: \\192.168.186.133\TiaPortal_Projects\Project1_ohne_startdrive_V13_SP1\Project1_ohne_startdrive_V13_SP1.ap13
- Project Structure: A tree view showing the project structure, including "S71500/ET200MP station_1" and "S7300/ET200M station_1". The "Program blocks" folder is expanded, showing "Main [OB1]", "G120x [FB307]", "PosDev_2D2S2P [FB369]", "RB_AT [FB1012]", "G120x_DB [DB2]", and "PosDev_2D2S2P_DB [DB9]".
- Actions: Receive from TIA Portal

At the bottom of the interface, there is a status bar with the text "Select Engineering Object, Station, CPU, Program blocks folder" and "Siemens TIA Portal v13 project".

10. fix main??

20160303 had problems with main.. following discusses....

The screenshot shows the 'Properties' dialog for a 'Main' object. The 'Language' attribute is set to 'LAD_CLASSIC'. The 'Value' field is 'LAD_CLASSIC'. The 'Alerts' dialog box is open, displaying the error: 'This attribute cannot be set/modified on this object, as it is locked'.

Or was it because was ladder? Try this first.

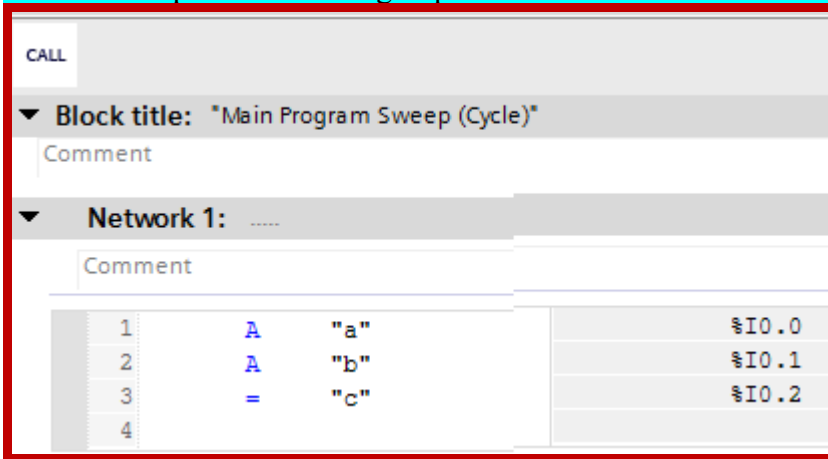


switch language... with no code?

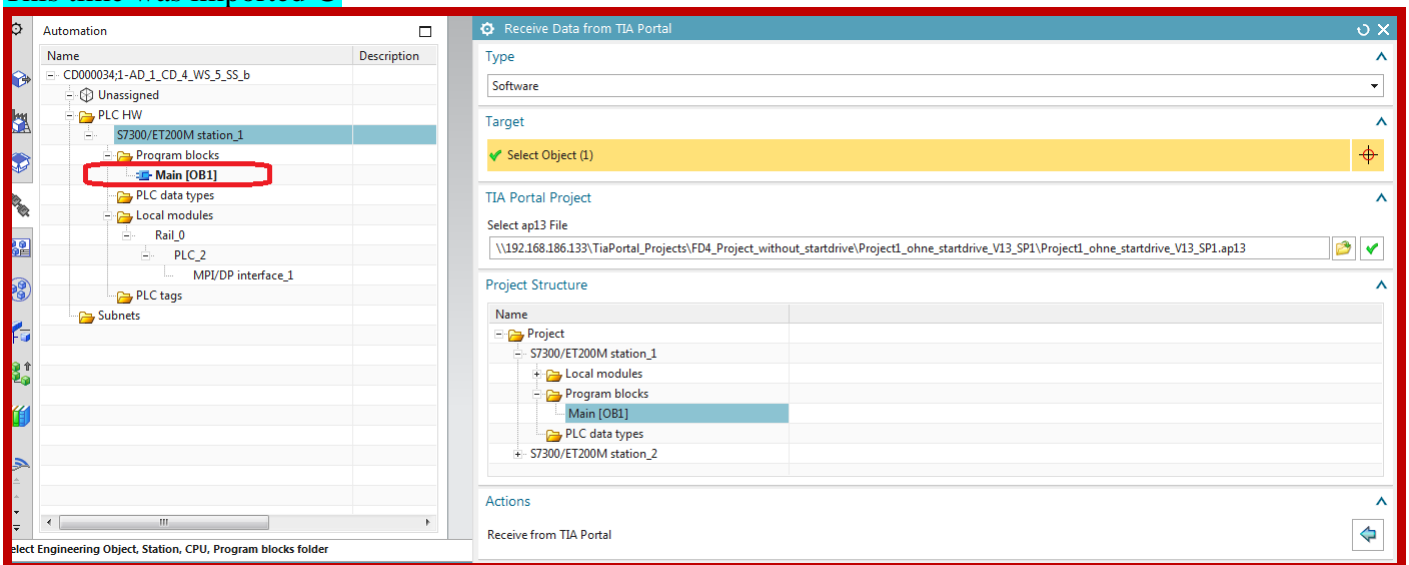
The screenshot shows the context menu for the 'Main [OB1]' block. The 'Switch programming language' option is highlighted, and the 'STL' language is selected.

Compile, save, exit.

20160303 imported... nothing imported. Added code. Not sure if required..



This time was imported ☺



11. close TIA project in VM

Importan last step.

Cant open in ad if open in vm.

8.1.1c. config of VM (20160304 from TEST_INSTALLATION.doc)

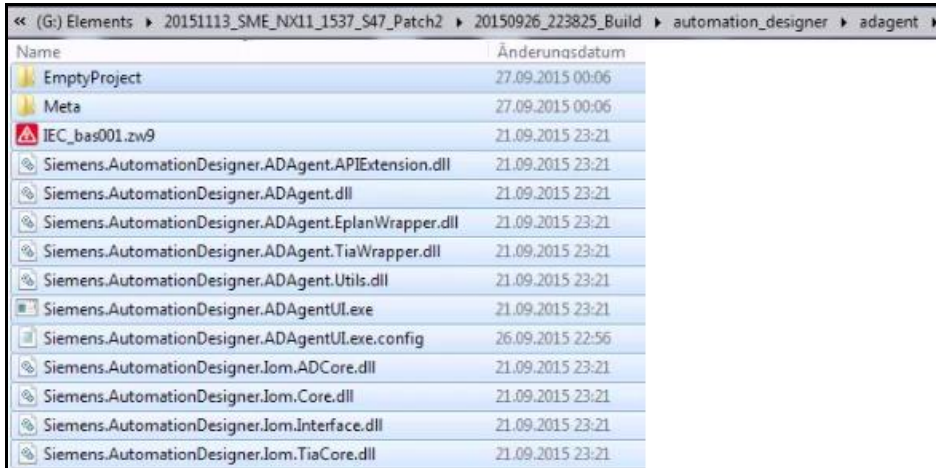
20160301-2 TERRY: just set this up on desktop according to test_installation doc.. worked ☺

But... many new problems, especially with cache.. complex

1 (2.5). start Adagent in VM

On the Host:

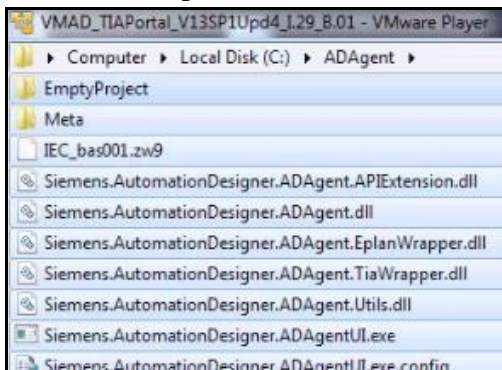
1. Open the SME folder (where the start scripts are located).
2. Navigate into the Build folder of the SME: <Date>_SME_Build.
3. Copy content of folder 'automation designer / adagent'.



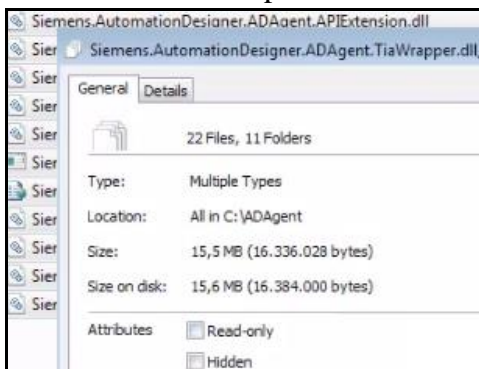
Name	Änderungsdatum
EmptyProject	27.09.2015 00:06
Meta	27.09.2015 00:06
IEC_bas001.zw9	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgent.APIExtension.dll	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgent.dll	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgent.EplanWrapper.dll	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgent.TiaWrapper.dll	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgent.Utils.dll	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgentUL.exe	21.09.2015 23:21
Siemens.AutomationDesigner.ADAgentUL.exe.config	26.09.2015 22:56
Siemens.AutomationDesigner.Iom.ADCore.dll	21.09.2015 23:21
Siemens.AutomationDesigner.Iom.Core.dll	21.09.2015 23:21
Siemens.AutomationDesigner.Iom.Interface.dll	21.09.2015 23:21
Siemens.AutomationDesigner.Iom.TiaCore.dll	21.09.2015 23:21

In the VM:

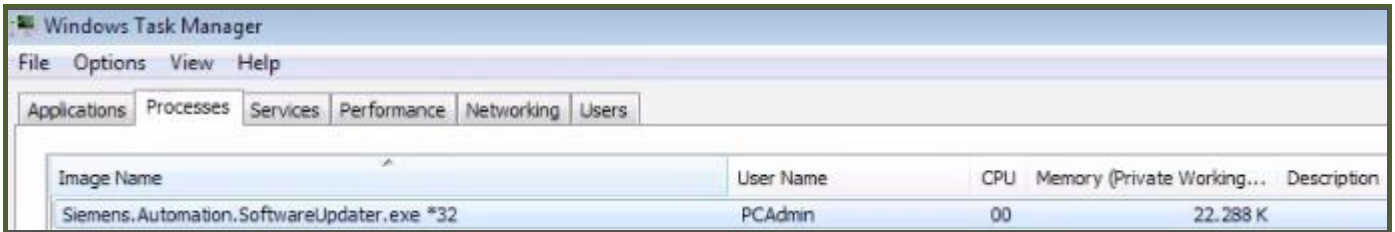
1. Create C:\ADAgent folder.
2. Paste the copied content into the folder (overwriting).



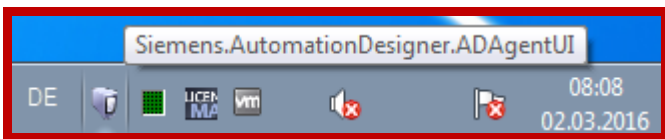
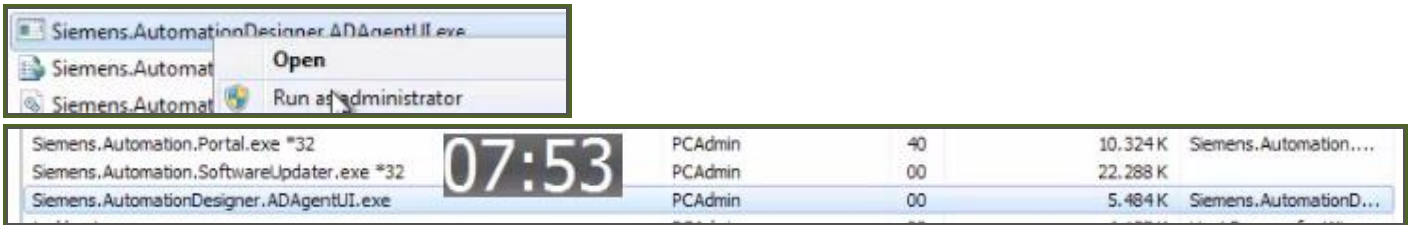
3. Remove the write protection of the files.



4. Double-click on Siemens.AutomationDesigner.ADAgentUI.exe.



5. TERRY: I had to right-click and run as admin.

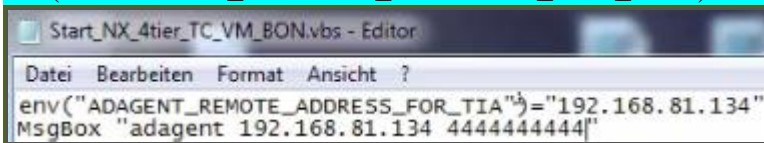


2 (4). Set ADAGENT_REMOTE_ADDRESS_FOR_TIA in VBS file

1. On the host set the TIA VM address.

20160301,04:

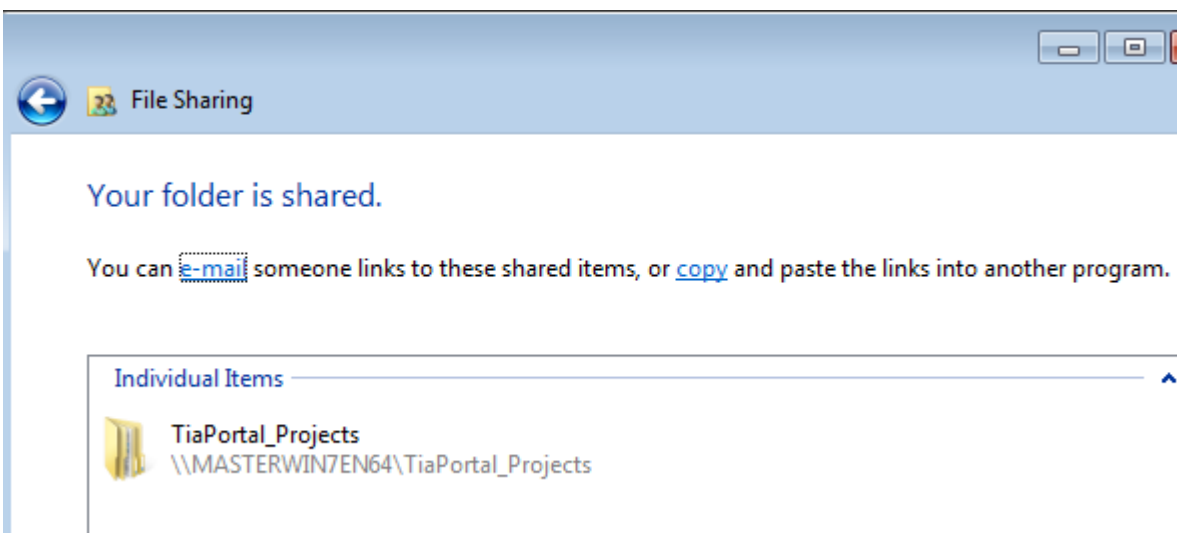
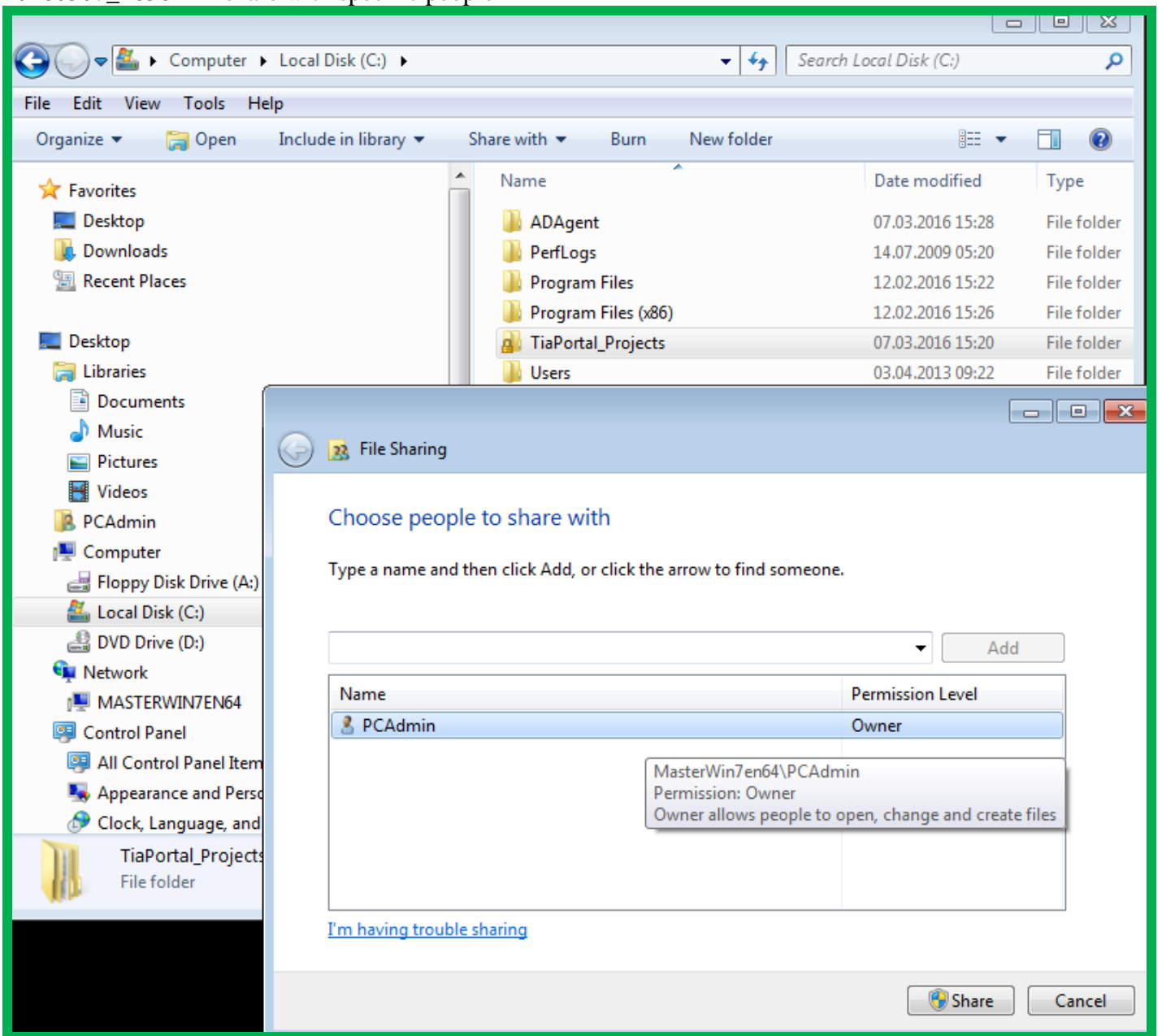
```
env("ADAGENT_REMOTE_ADDRESS_FOR_TIA")="192.168.186.133"
```



2. Save the file.

3 (5). map drive

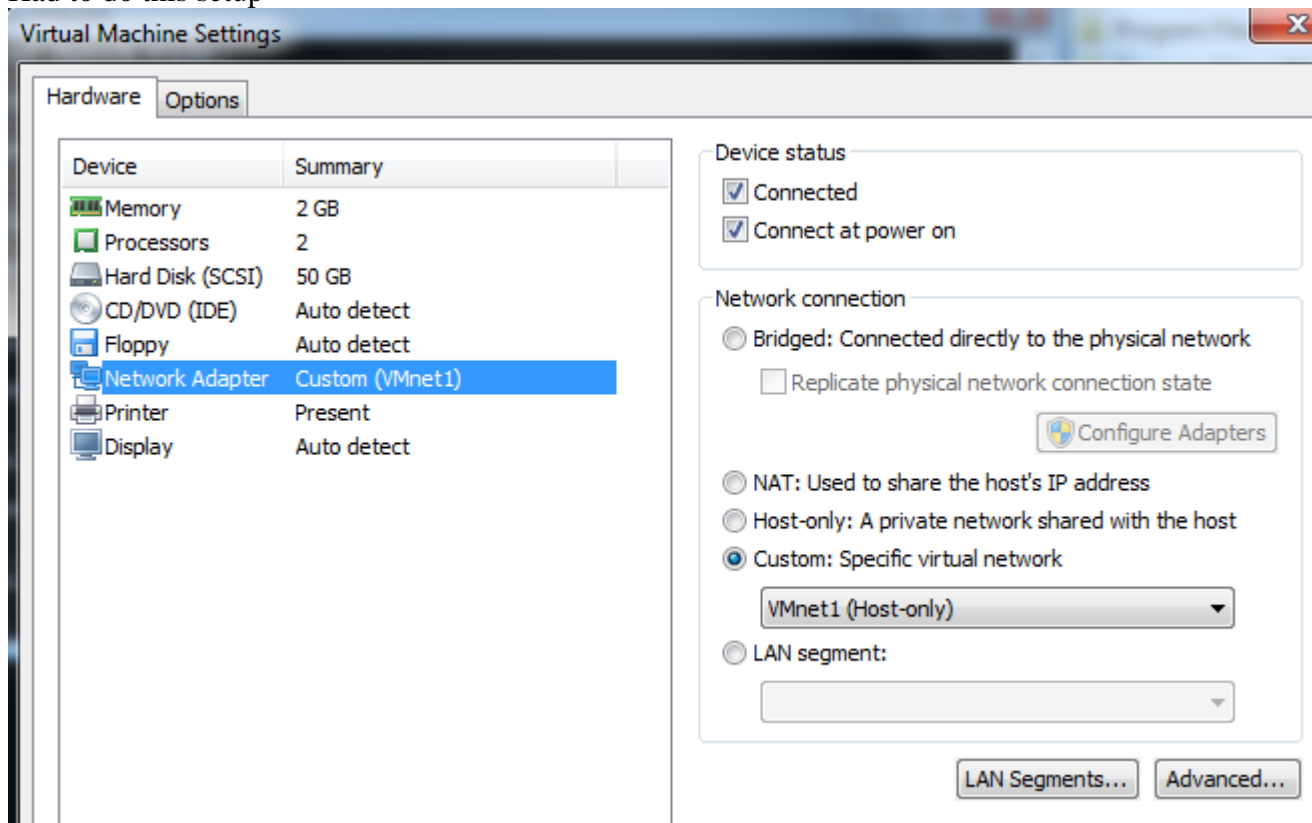
20160307_1636 share with specific people



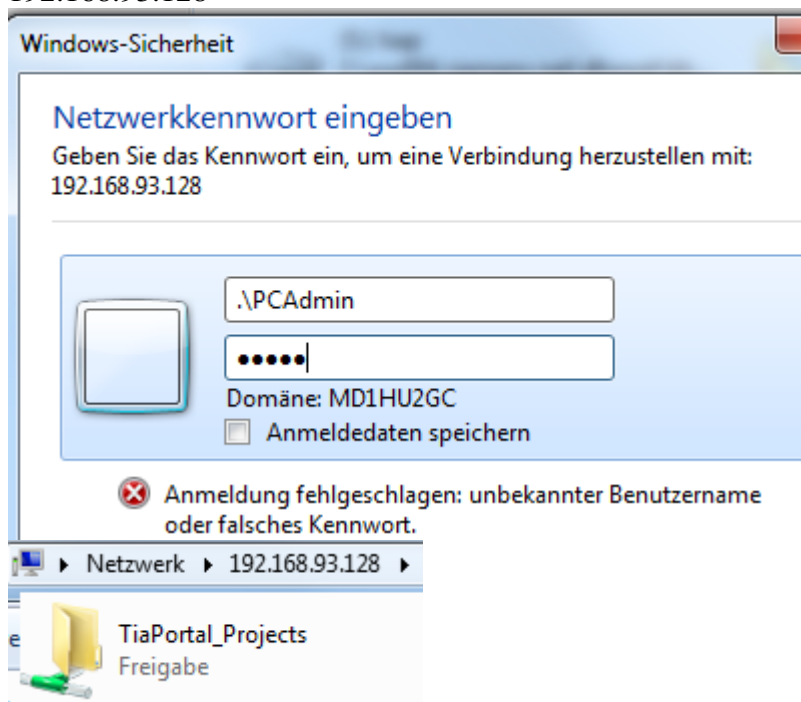
20160419

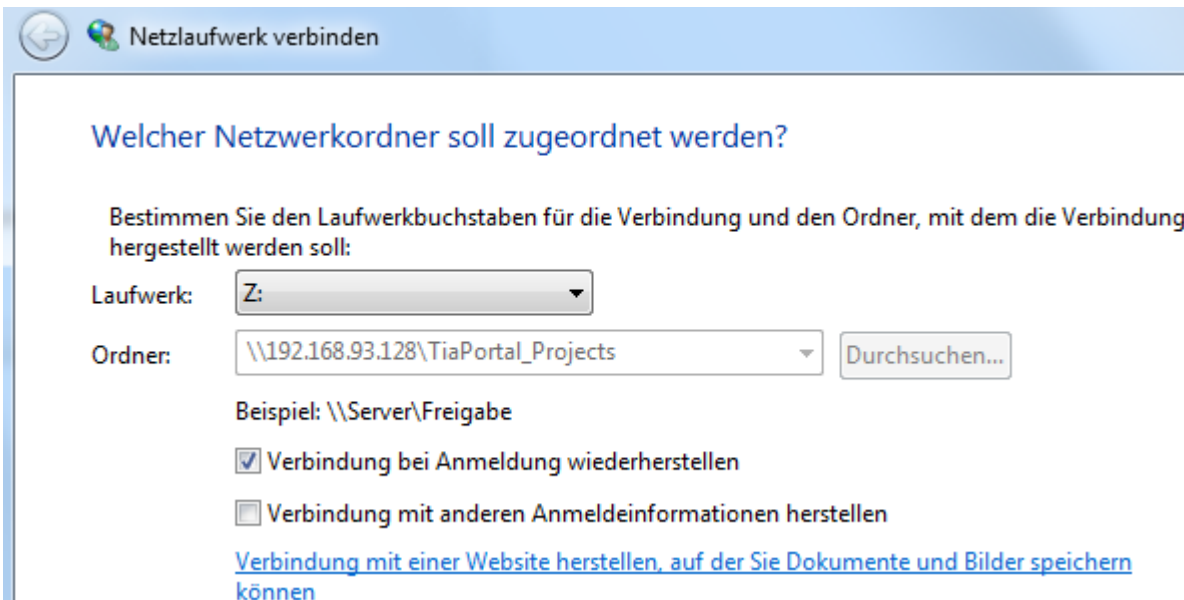
Steven pc

Had to do this setup

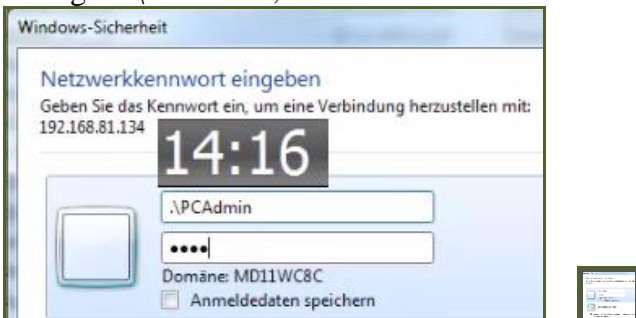


192.168.93.128

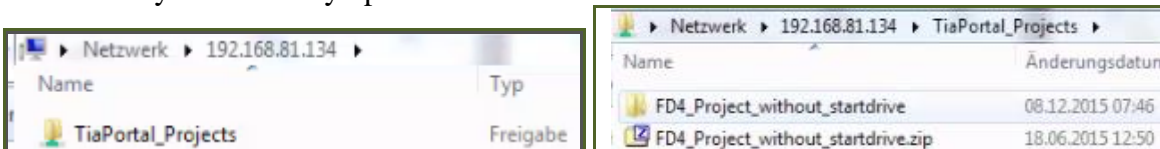




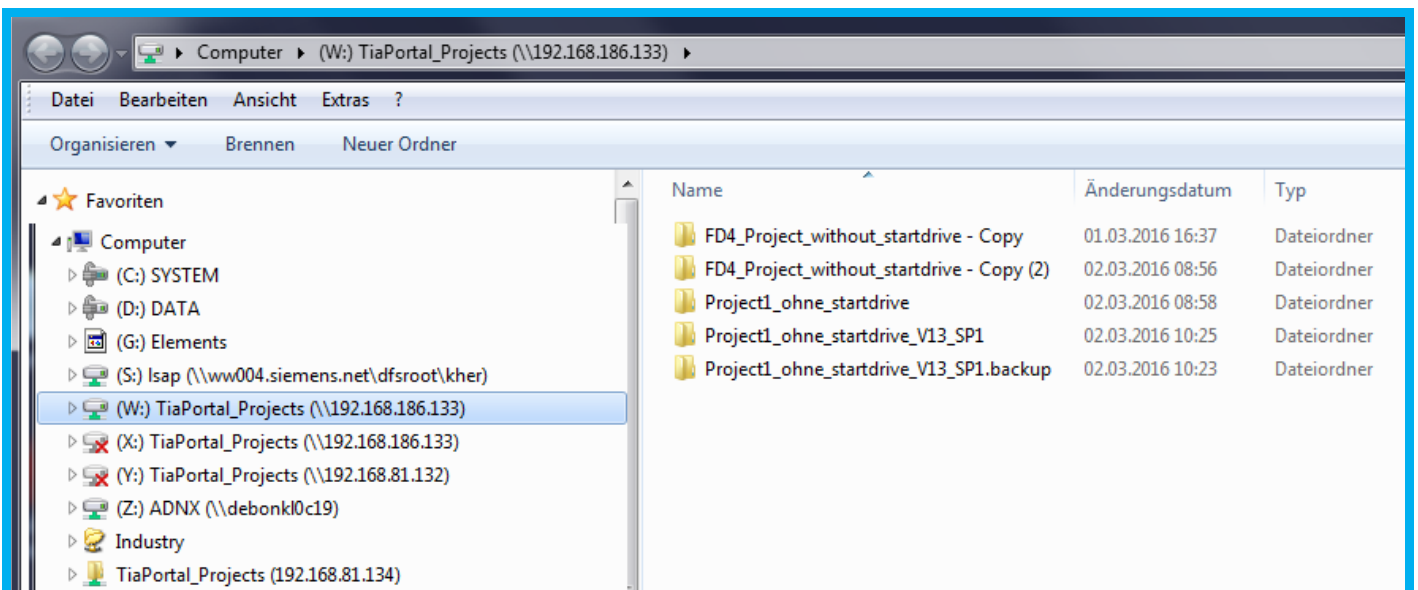
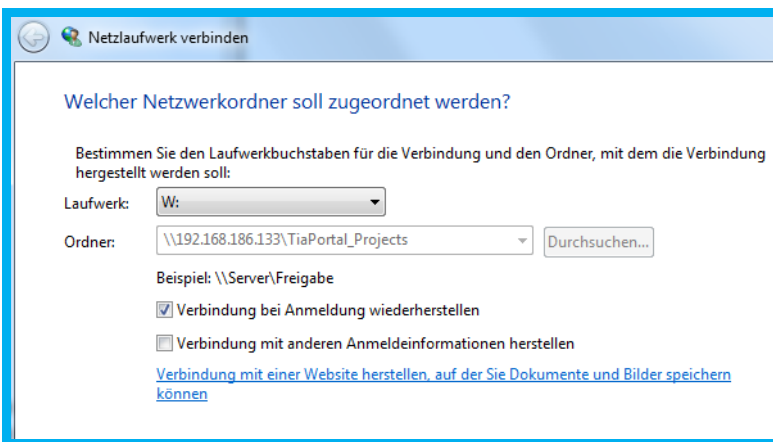
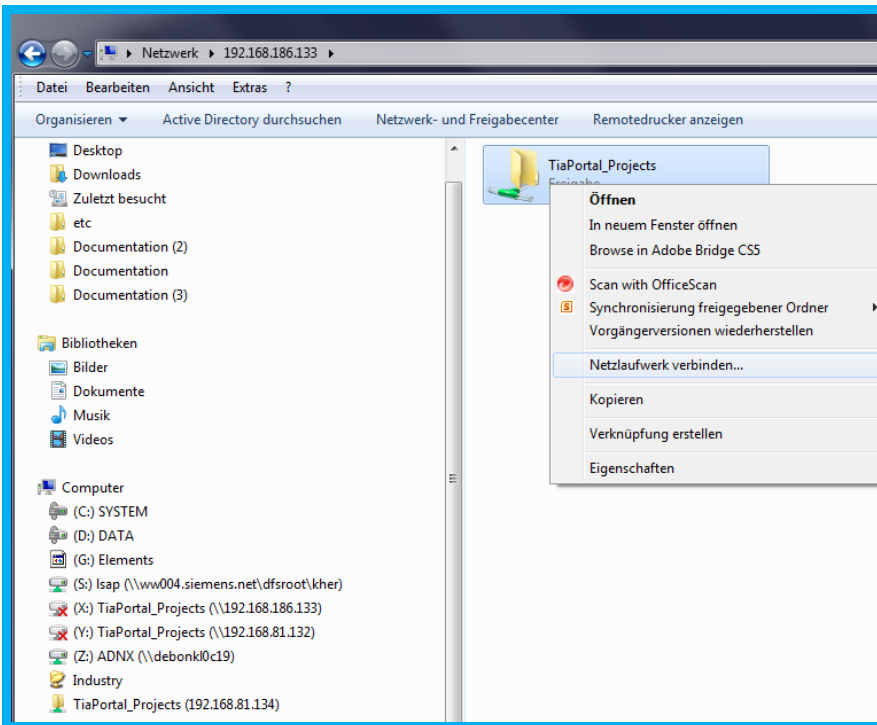
1. On host open VM address [\\192.168.186.133](http://192.168.186.133).
2. Login. .\PCAdmin, comos.



After a delay the directory opens.



Map.



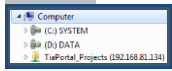
In TIA VM

C:\TiaPortal_Projects\FD4_Project_without_startdrive\Project1_ohne_startdrive_V13_SP1

Map this

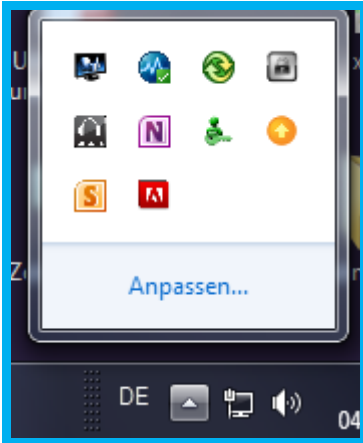


Result.



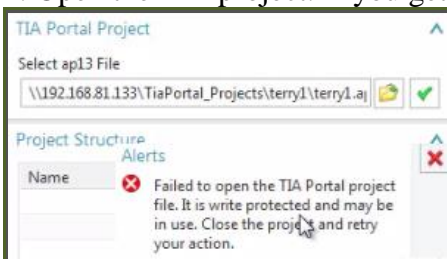
4 (2.4.4). start NX and agent

TEST_INSTALLATION_20151208_2.4.3-2.4.4.mp4

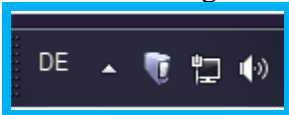


3. Start NX.

4. Open the TIA project. If you get this error, then close project in vm.



After start the agent is active.

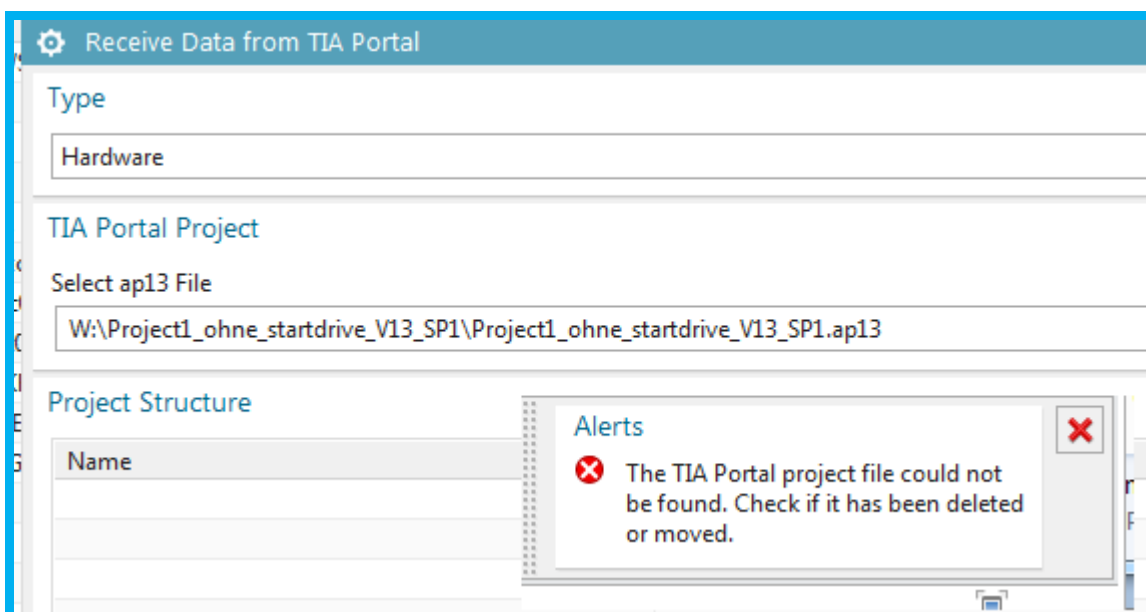
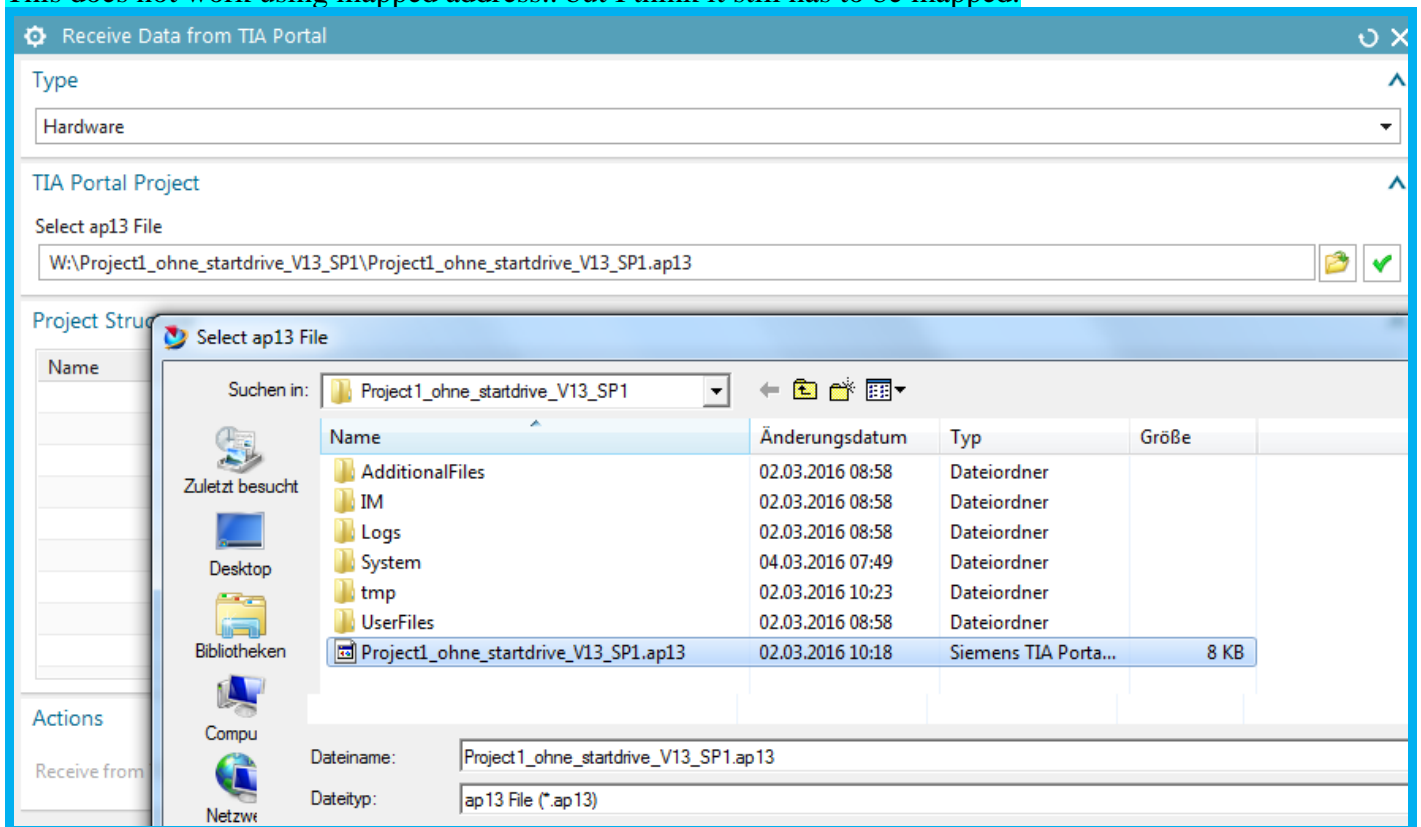


5. Import HW. OLD XXXX



6 (2.4.4). connect AD to TIA ap13

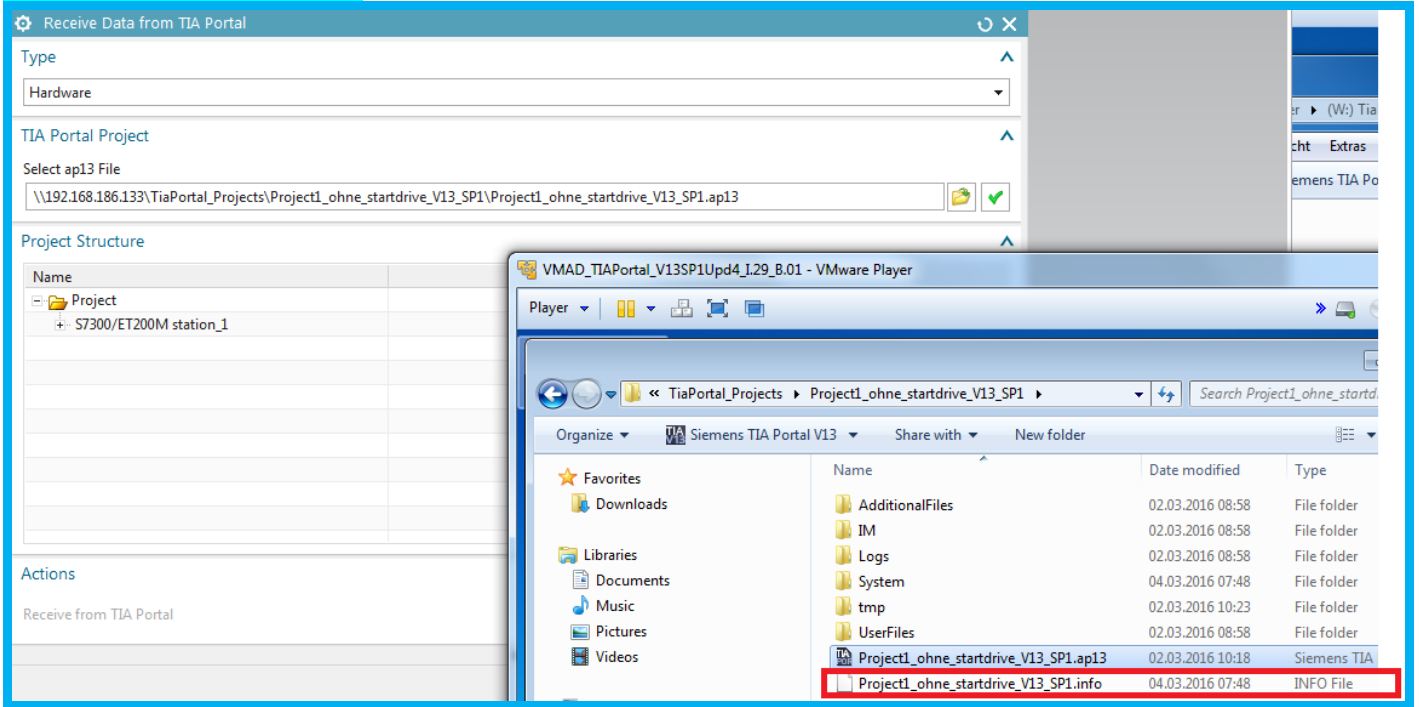
This does not work using mapped address.. but I think it still has to be mapped.



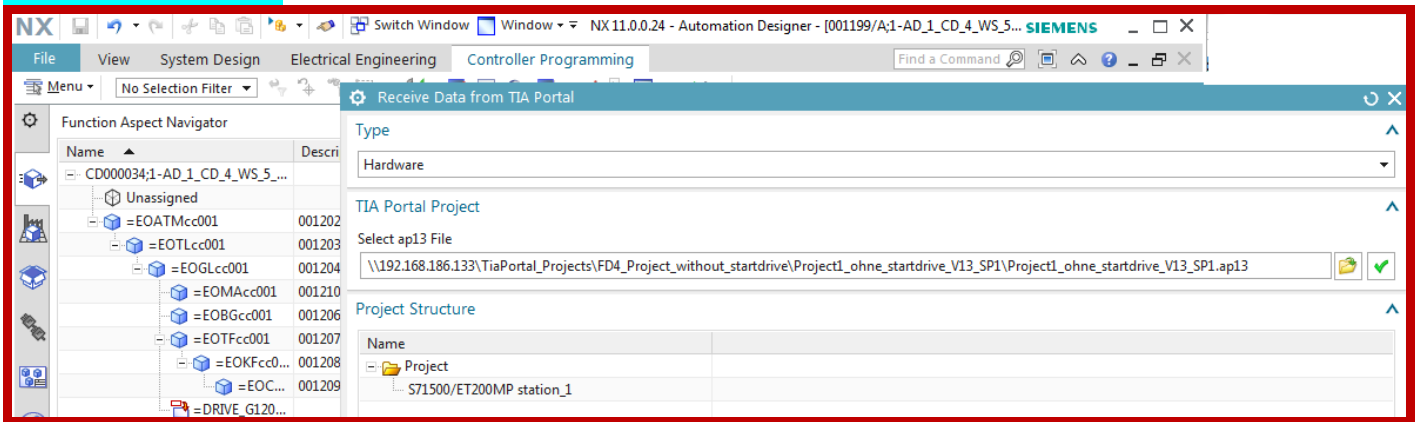
Have to enter address manually with TiaPortal_Projects also included.

\\192.168.186.133\TiaPortal_Projects\Project1_ohne_startdrive_V13_SP1\Project1_ohne_startdrive_V13_SP1.ap13

This works 20160304_0752



This works 20160301



8.1.2a. NEW Receive HW 20160509

The screenshot displays the Siemens TIA Portal interface for configuring hardware. It is divided into three main sections:

- Function Aspect Navigator (Top Left):** A table listing various function blocks with their names and descriptions.

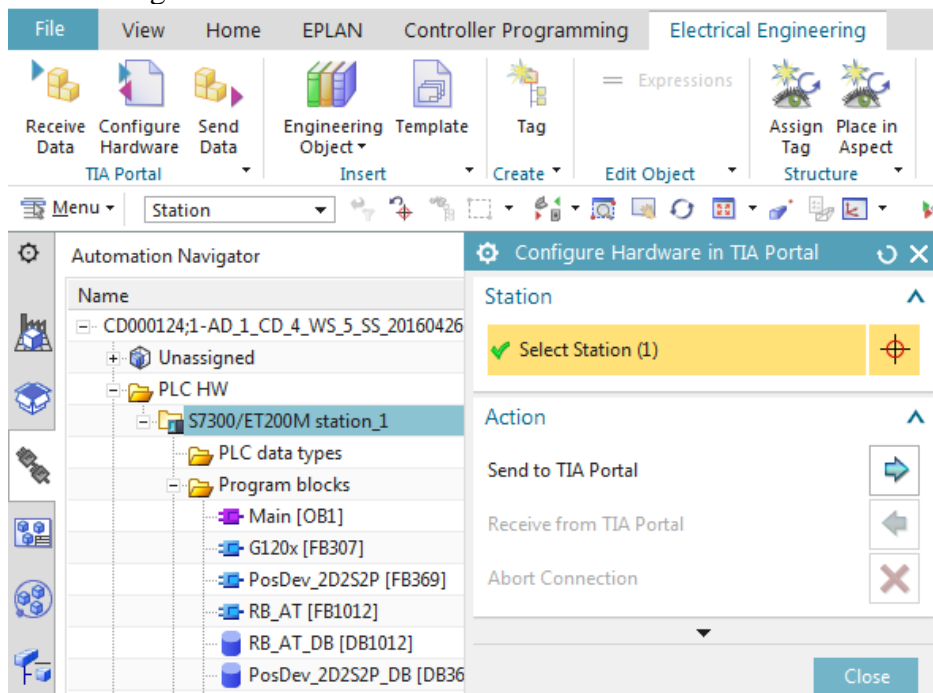
Name	Description
CD000163;1-AD_1_CD_4_WS_5...	
Unassigned	
=EOATMcc001	000344
=EOTLcc001	000345
=EOGLcc001	000346
=EOMAcc001	000347
=EOBGcc001	000348
=EOTFcc001	000351
=EOKFcc...	000352
=EOC...	000353
- Receive Data from TIA Portal (Top Right):** A dialog box for receiving hardware data.
 - Type: Hardware
 - TIA Portal Project: TIA Portal Project
 - Select ap14 File: \\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14
- Project Structure (Bottom Right):** A tree view showing the project hierarchy.
 - Project
 - S7300/ET200M station_1
 - Local modules
 - Rail_0
 - PS 307 10A_1
 - PLC_2
 - DI 16/DO 16x24VDC/0.5A_1
 - AI 4/AO 4x14/12BIT_1
 - Program blocks
 - PLC data types

- PLC HW (Bottom Left):** A detailed view of the hardware configuration for the S7300/ET200M station_1.
- PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - PLC data types
 - Local modules
 - Rail_0
 - PS 307 10A_1
 - PLC_2
 - DI 16/DO 16x24VDC/0.5A_1
 - AI 4/AO 4x14/12BIT_1
 - PLC tags
 - RB_HA_01_POSIT_LS_DN
 - Subnets

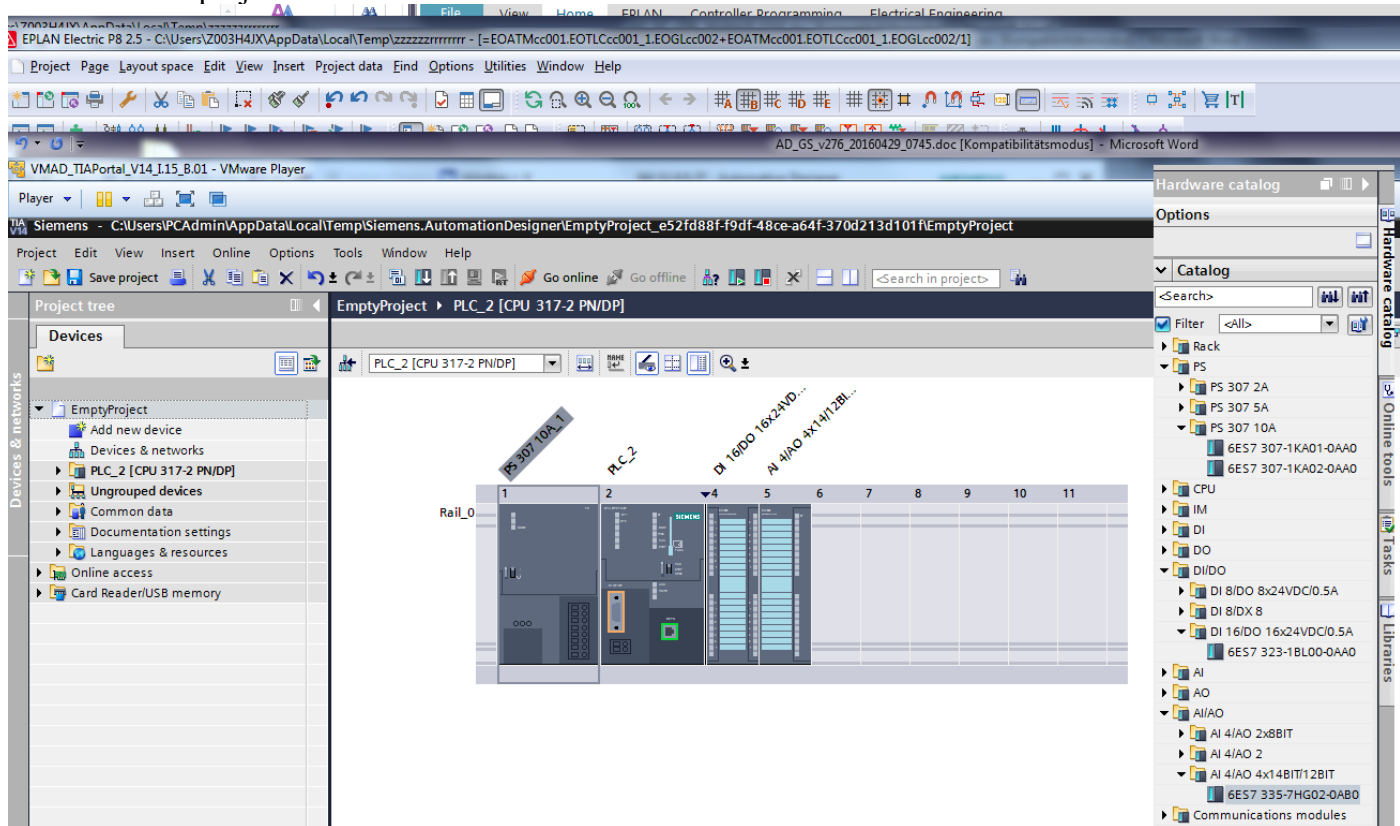
8.1.2a. Receive HW 20160429

Talking with igor. I need to update hardware. No io.

Tried configure hardware.

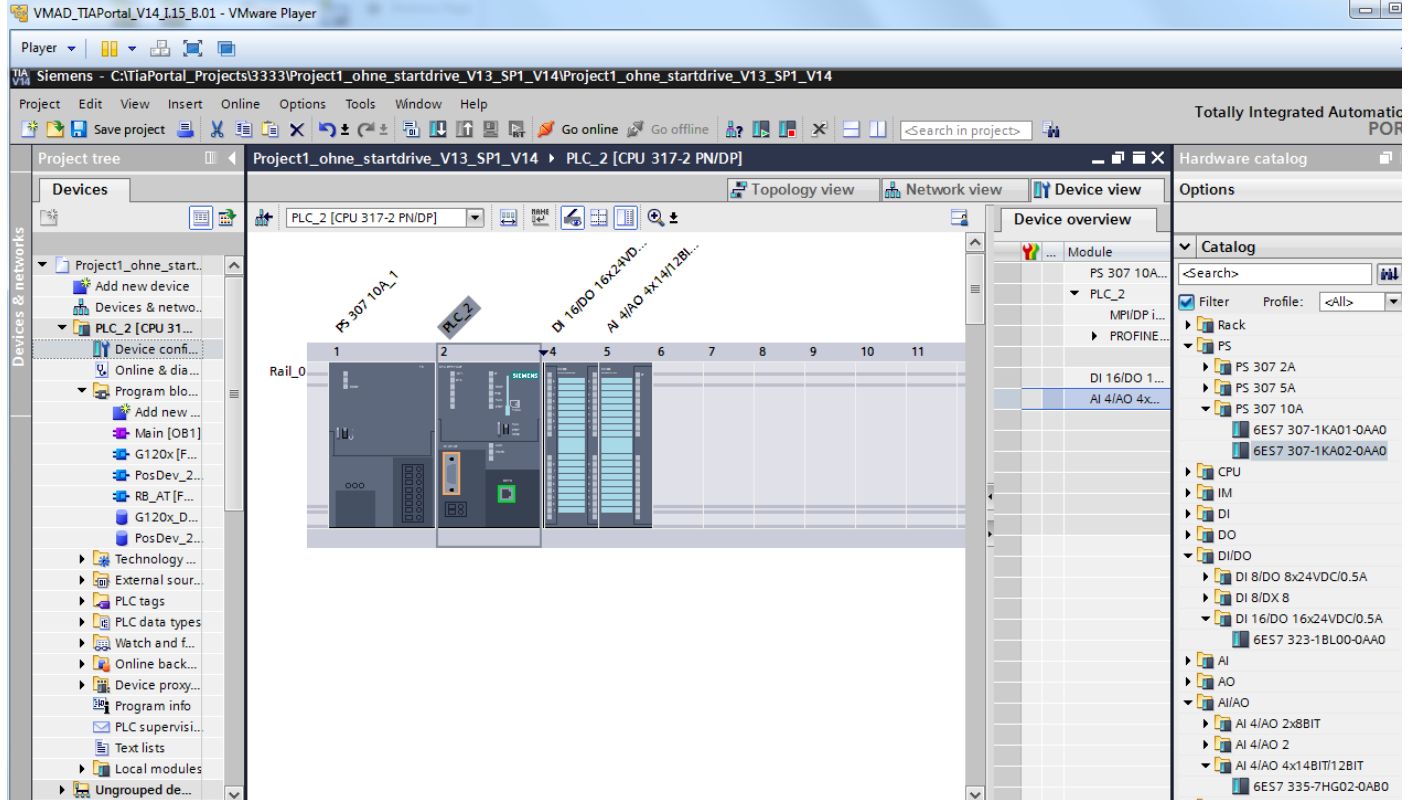


Created a new project in TIA... then should have received. But communication failed.



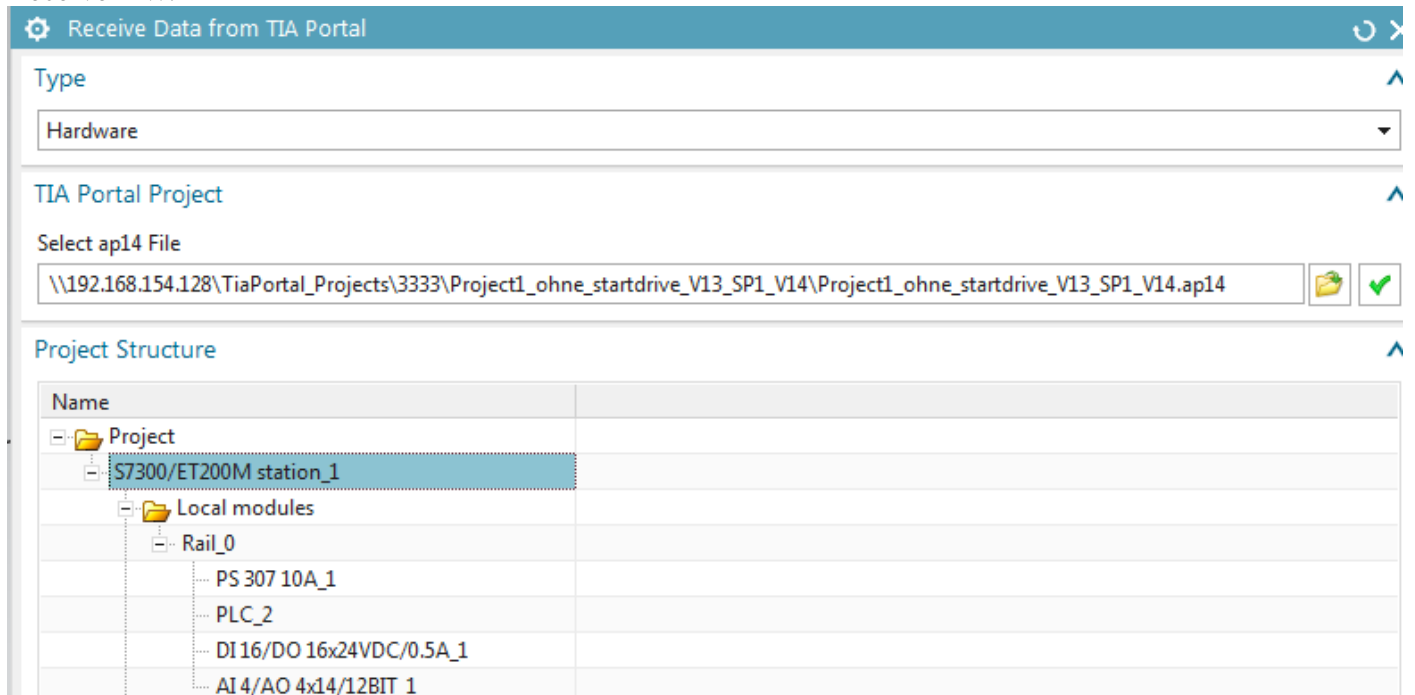
I closed the “config hardware” dialog above... and the temp project disappeared in tia. Nice 😊

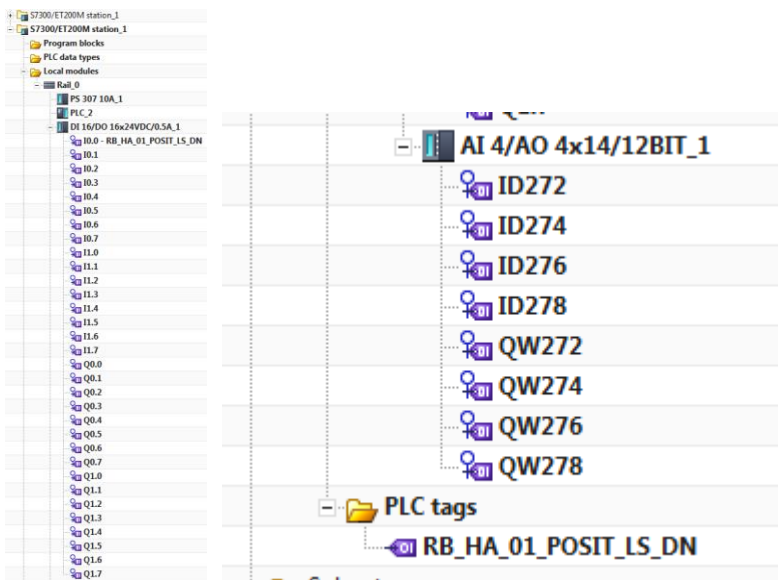
So.. start over.... This time, just modify the TIA project, then import to new HW in AD.



Compile and save.
Close.

Receive HW.





Don't import the IDBs.

The top screenshot shows the "Receive Data from TIA Portal" dialog box. The "Type" is set to "Software". The "Target" is "Select Object (1)". The "TIA Portal Project" section shows the file path: \\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14. The "Project Structure" pane shows the following hierarchy:

- Project
 - S7300/ET200M station_1
 - Local modules
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - G120x_DB [DB2]
 - PosDev_2D2S2P_DB [DB9]
 - PLC data types
 - PLC tags

The bottom screenshot shows the "Automation Navigator" pane. The "PLC tags" folder is expanded, showing the following tags:

- RB_HA_01_POSIT_LS_DN
- Newstart
- PLC_On delayed
- TRUE
- CPulse_0_1s
- RLO 1
- BliIF
- RLO 0
- FC_left
- FC_right
- FRG_EStop
- FRG_BS
- IBNO
- reset
- Pos_front_left
- slow_forw
- pos_back_left
- slow_back

Then add to aspects and create IDBs.

Automation Navigator



Function Aspect Navigator

Name
[-] CD000124;1-AD_1_CD_4_WS_5_SS_20160426
+ [-] Unassigned
+ [-] PLC HW
+ [-] S7300/ET200M station_1
+ [-] S7300/ET200M station_1
+ [-] Program blocks
+ [-] RB_AT [FB1012]
+ [-] Main [OB1]
+ [-] G120x [FB307]
+ [-] PosDev_2D2S2P [FB369]
+ [-] RB_AT_DB [DB1012]
+ [-] G120x_DB [DB307]
+ [-] PosDev_2D2S2P_DB [DB369]
+ [-] PLC data types
+ [-] Local modules
+ [-] PLC tags
+ [-] RB_HA_01_POSIT_LS_DN

Name ▲
[-] CD000124;1-AD_1_CD_4_WS_5_SS_20160426
+ [-] Unassigned
+ [-] =_001
+ [-] =EOATMcc 001
+ [-] =EOATMcc001
+ [-] =EOTLCcc001_1
+ [-] =EOGLcc002
+ [-] TypeObjName250
+ [-] =EOMAcc001
+ [-] =EOBGcc001
+ [-] =EOTFcc001
+ [-] =EOKFcc001
+ [-] =EOCHcc001
+ [-] G120x_DB
+ [-] RB_AT
+ [-] RB_AT_DB
+ [-] PosDev_2D2S2P_DB

8.1.2a. Receive HW (20160421)

The screenshot shows the 'Receive Data from TIA Portal' dialog box. It has a title bar with a gear icon, the text 'Receive Data from TIA Portal', and standard window controls. The dialog is divided into several sections:

- Type:** A dropdown menu with 'Hardware' selected.
- TIA Portal Project:** A section with a sub-label 'Select ap14 File' and a text input field containing the path: \\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14. To the right of the text field are a folder icon and a green checkmark icon.
- TIA Portal Project:** A second, identical section to the one above.
- Project Structure:** A table with a 'Name' column. The table content is as follows:

Name
Project
S7300/ET200M station_1
Local modules
Program blocks
PLC data types
- Actions:** A section with a sub-label 'Receive from TIA Portal' and a blue arrow icon pointing left.

The screenshot shows the 'Automation Navigator' window. It has a title bar with a gear icon and the text 'Automation Navigator'. On the left side, there is a vertical toolbar with icons for project, hardware, and other functions. The main area is a tree view with a 'Name' column. The tree structure is as follows:

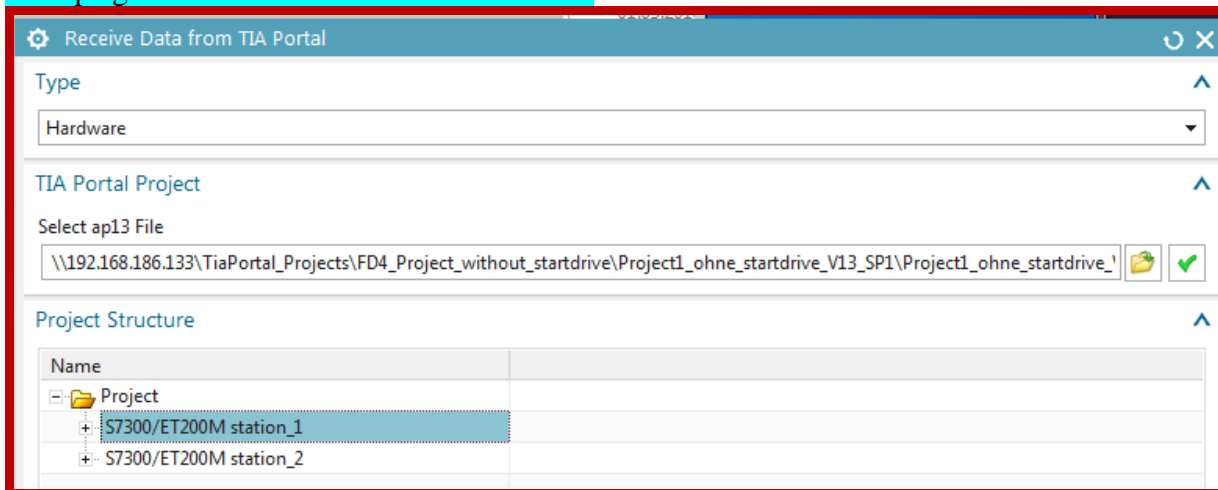
- CD000101;1-AD_1_CD_4_WS_5_SS_20160418
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - PLC data types
 - Local modules
 - Rail_0
 - PLC_2
 - PLC tags
 - Subnets

8.1.2b. Receive HW (20160304)

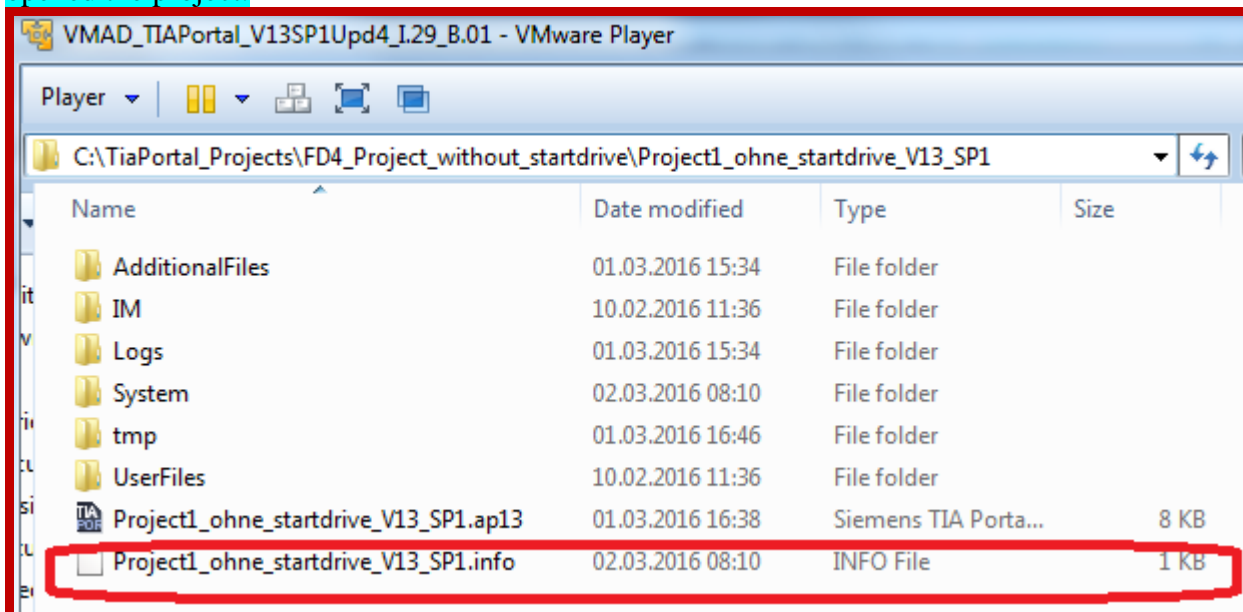
Not work.why?

Other problem as explained by Igor.

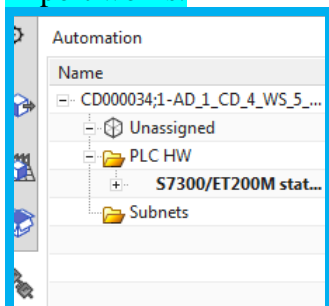
1. s1500 cant be in the project or wont import.
2. this sme only recognized s300.
3. I delete s1500. But still in cache.
4. stop agent. Restart. Then can see the s300s.



Note: after you click the green arrow you should see a temp file opened in the vm showing that nx has opened the project.



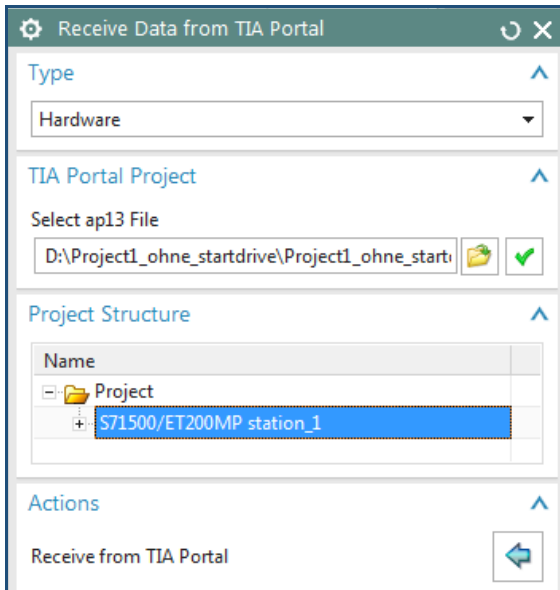
Import works.



Save project.

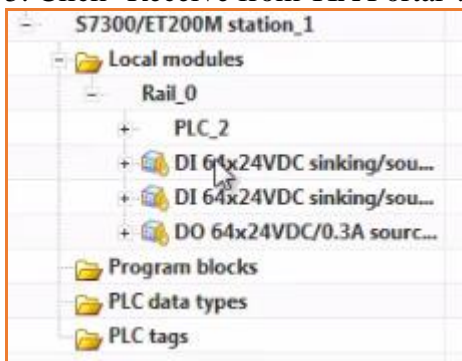
8.1.2c. Receive HW (20151221)

1. Click "Electrical Engineering / Receive Data from TIA Portal".
2. For "Type" select "Hardware".
3. Select the Project1_ohne_startdrive.ap13 file and click the green arrow.
4. Select the station.



08_004

5. Click "Receive from TIA Portal".

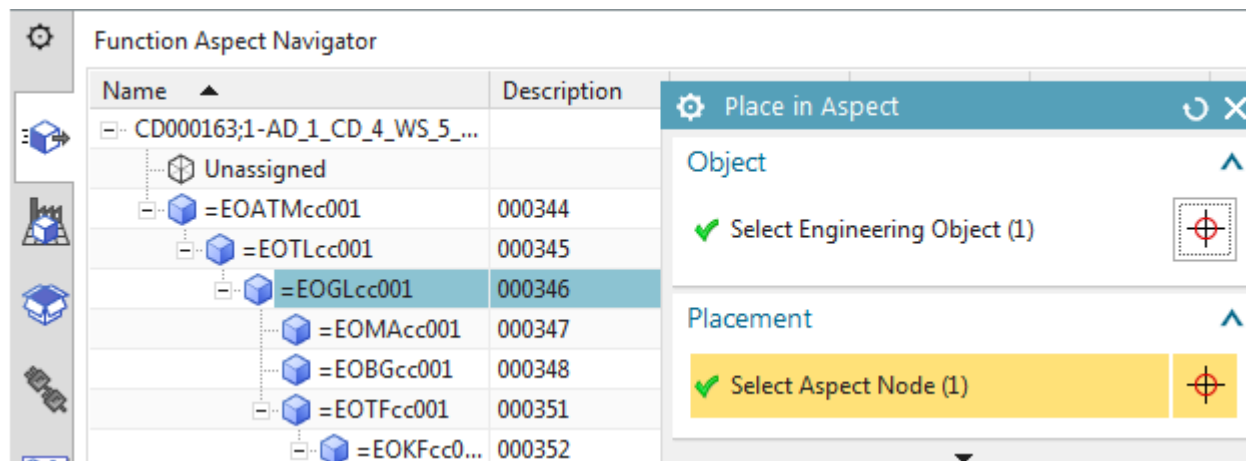
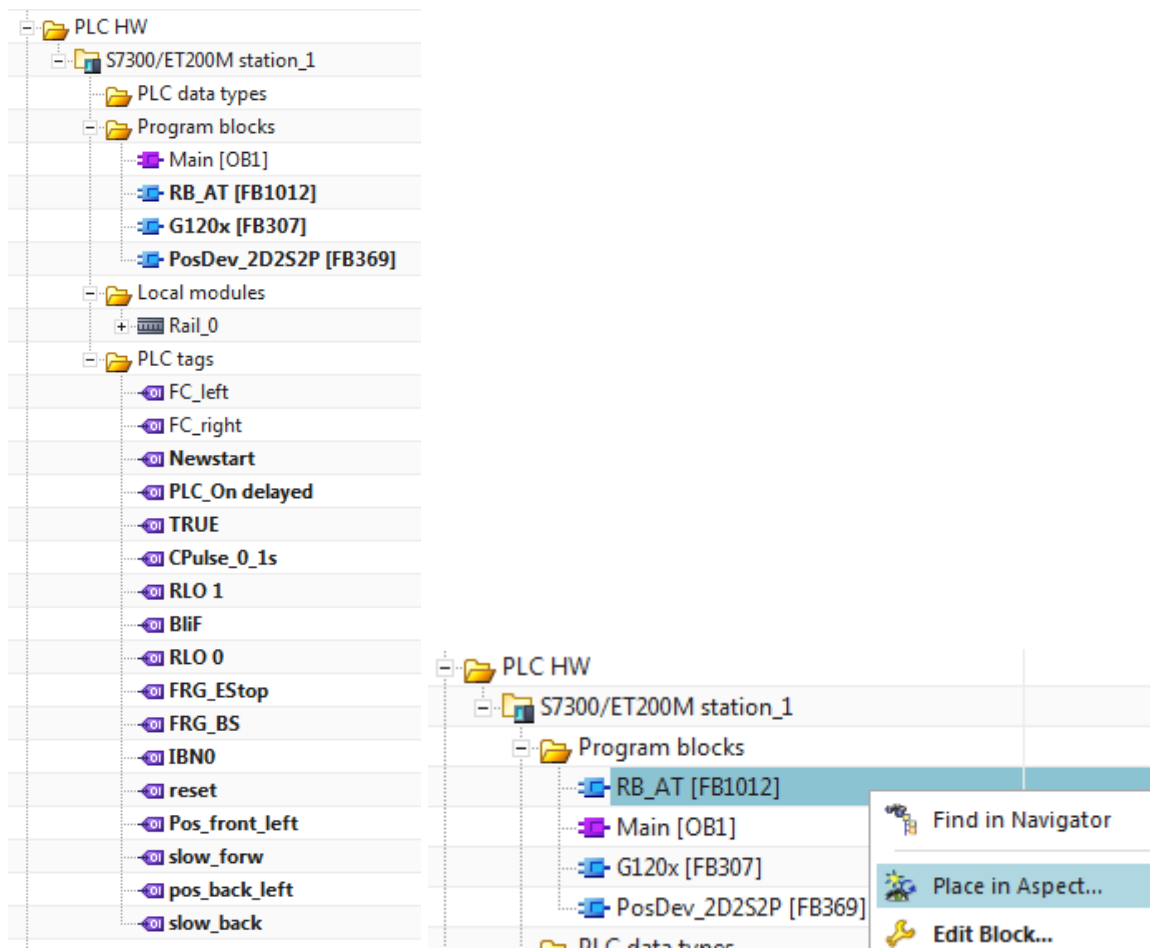


08_005



8.1.3a. Import SW-tags (OB1, G120x, PosDev, RB_AT) 20160509

maybe this way.....



=EOATMcc001	000344
=EOTLcc001	000345
=EOGLcc001	000346
=EOMAcc001	000347
=EOBGcc001	000348
=EOTFcc001	000351
=EOKFcc001	000352
=EOC...	000353
RB_AT	

Create IDB

Type: Global IDB

Source: Selection Function Block (1)

Parent: Select Engineering Object (1)

Automation Navigator

- CD000163;1-AD_1_CD_4_WS_5_SS_20160509_2
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT_DB [DB1012]
 - PLC data types
 - Local modules
 - Rail_0

Function Aspect Navigator

Name	Description
CD000163;1-AD_1_CD_4_WS_5...	
Unassigned	
=EOATMcc001	000344
=EOTLcc001	000345
=EOGLcc001	000346
=EOMAcc001	000347
=EOBGcc001	000348
=EOTFcc001	000351
=EOKFcc001	000352
=EOC...	000353
RB_AT	
RB_AT_DB	

Create the remaining IDBs.

Automation Navigator

- CD000163;1-AD_1_CD_4_WS_5_SS_20160509_2
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT_DB [DB1012]
 - G120x_DB [DB307]
 - PosDev_2D2S2P_DB [DB369]
 - PLC data types
 - Local modules

Function Aspect Navigator

Name	Description
CD000163;1-AD_1_CD_4_WS_5_SS_2016...	
Unassigned	
=EOATMcc001	000344
=EOTLcc001	000345
=EOGLcc001	000346
=EOMAcc001	000347
=EOBGcc001	000348
=EOTFcc001	000351
=EOKFcc001	000352
=EOCHcc001	000353
G120x_DB	
RB_AT	
RB_AT_DB	
PosDev_2D2S2P_DB	

8.1.3a. Import SW-tags (OB1, G120x, PosDev, RB_AT) 20160429

The screenshot shows the TIA Portal interface. On the left is the 'Function Aspect Navigator' showing a project tree for 'CD000124;1-AD_1_CD_4_WS_SS_20160426'. The tree includes various components like 'Unassigned', 'RB_AT', 'RB_AT_DB', 'EOATMcc001', 'EOTLcc001_1', 'EOGLcc002', 'TypeObjName250', 'EOMAcc001', 'EOBGcc001', 'EOTFcc001', 'EOKFcc001', and 'EOCHcc001'. On the right is the 'Receive Data from TIA Portal' dialog. The 'Type' is set to 'Software'. The 'Target' is 'Select Object (1)'. The 'TIA Portal Project' section shows the 'Select ap14 File' path: '\\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14'. The 'Project Structure' table is as follows:

Name	
Project	
S7300/ET200M station_1	
Local modules	
Program blocks	
RB_AT [FB1012]	
Main [OB1]	
G120x [FB307]	
PosDev_2D2S2P [FB369]	
G120x_DB [DB2]	
PosDev_2D2S2P_DB [DB9]	
PLC data types	

This view shows a detailed hierarchy of function blocks. At the top is '=EOATMcc001', which contains '=EOTLcc001_1'. This block contains '=EOGLcc002', which in turn contains 'TypeObjName250', '=EOMAcc001', '=EOBGcc001', '=EOTFcc001', '=EOKFcc001', and '=EOCHcc001'. Below this hierarchy are three additional blocks: 'RB_AT', 'G120x', and 'PosDev_2D2S2P'.

A context menu is shown over the 'RB_AT', 'G120x', and 'PosDev_2D2S2P' blocks. The menu includes the option 'Create IDB...'. The 'RB_AT' block is currently selected.

The 'Create IDB' dialog box is shown. The 'Type' is set to 'Global IDB'. The 'Source' is 'Selection Function Block (1)'. The 'Parent' is 'Select Engineering Object (1)'. The dialog has a blue header and a white body with blue accents.

- RB_AT
- G120x
- PosDev_2D2S2P
- RB_AT_DB

Create PosDev IDB.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Not not that way.. maybe this way.....

The screenshot shows the project tree structure:

- PLC HW
 - S7300/ET200M station_1
 - PLC data types
 - Program blocks
 - Main [OB1]
 - RB_AT [FB1012]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - Local modules
 - Rail_0
 - PLC tags
 - FC_left
 - FC_right
 - Newstart
 - PLC_On delayed
 - TRUE
 - CPulse_0_1s
 - RLO 1
 - Blif
 - RLO 0
 - FRG_EStop
 - FRG_BS
 - IBNO
 - reset
 - Pos_front_left
 - slow_forw
 - pos_back_left
 - slow_back

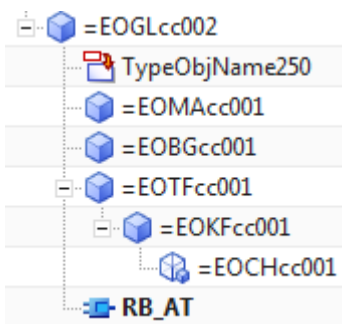
The dialog box shows the 'Place in Aspect...' option selected in the context menu.

The screenshot shows the project tree structure for Local modules:

- Local modules
 - =EUA1MCC001
 - =EOATMcc001
 - =EOTLCcc001_1
 - =EOGLcc002
 - TypeObjName250
 - =EOMAcc001
 - =EOBGcc001
 - =EOTFcc001
 - =EOKFcc001

The dialog box shows the 'Place in Aspect' configuration:

- Object
 - Select Engineering Object (1)
- Placement
 - Select Aspect Node (1)



Create IDB

Type
Global IDB

Source
Selection Function Block (1)

Parent
Select Engineering Object (1)

Automation Navigator

Name	Description
CD000124;1-AD_1_CD_4_WS_5_SS_20160426	
Unassigned	
PLC HW	
S7300/ET200M station_1	
PLC data types	
Program blocks	
Main [OB1]	
G120x [FB307]	
PosDev_2D2S2P [FB369]	
RB_AT [FB1012]	
RB_AT_DB [DB1012]	
Local modules	
Rail_0	
PLC tags	
FC_left	

Function Aspect Navigator

Name
CD000124;1-AD_1_CD_4_WS_5_SS_20160426
Unassigned
=_001
=EOATMcc 001
=EOATMcc001
=EOTLCcc001_1
=EOGLcc002
TypeObjName250
=EOMAcc001
=EOBGcc001
=EOTFcc001
=EOKFcc001
=EOCHcc001
RB_AT
RB_AT_DB

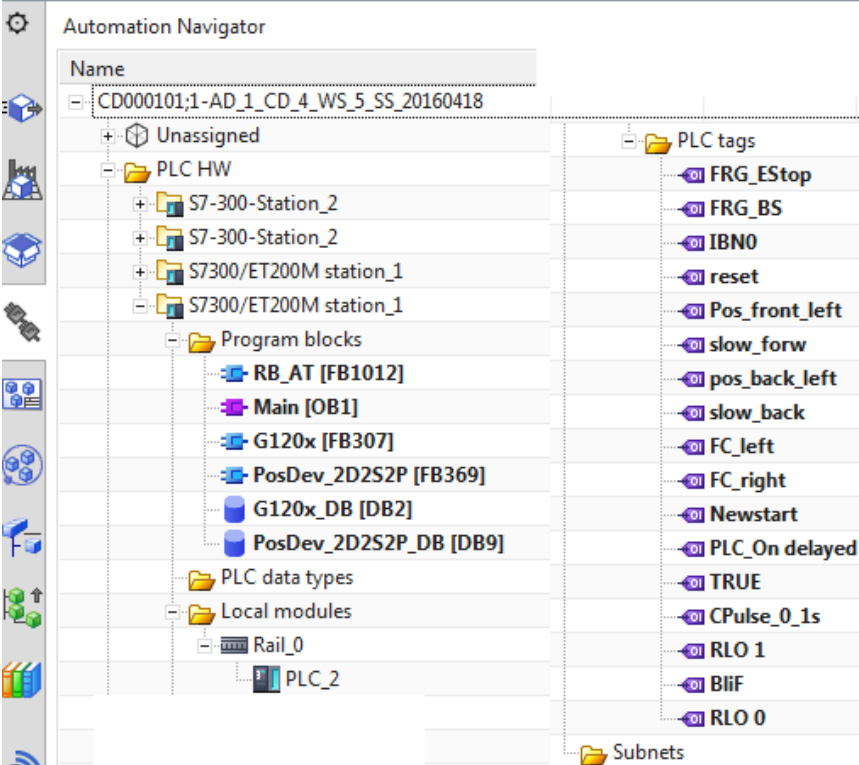
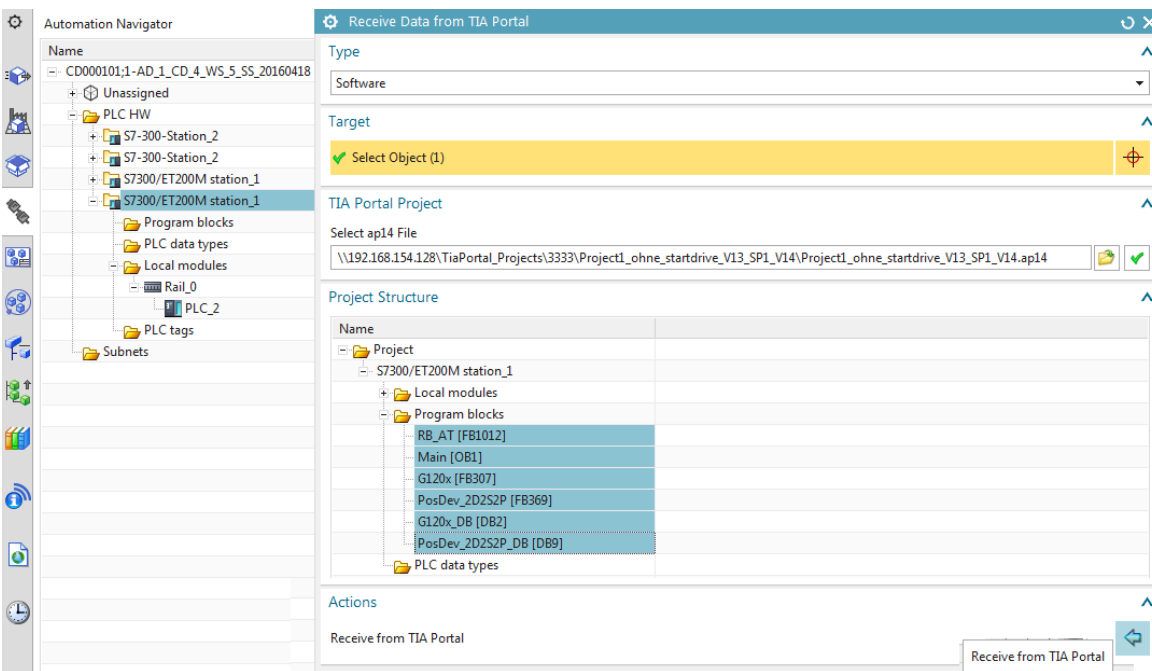
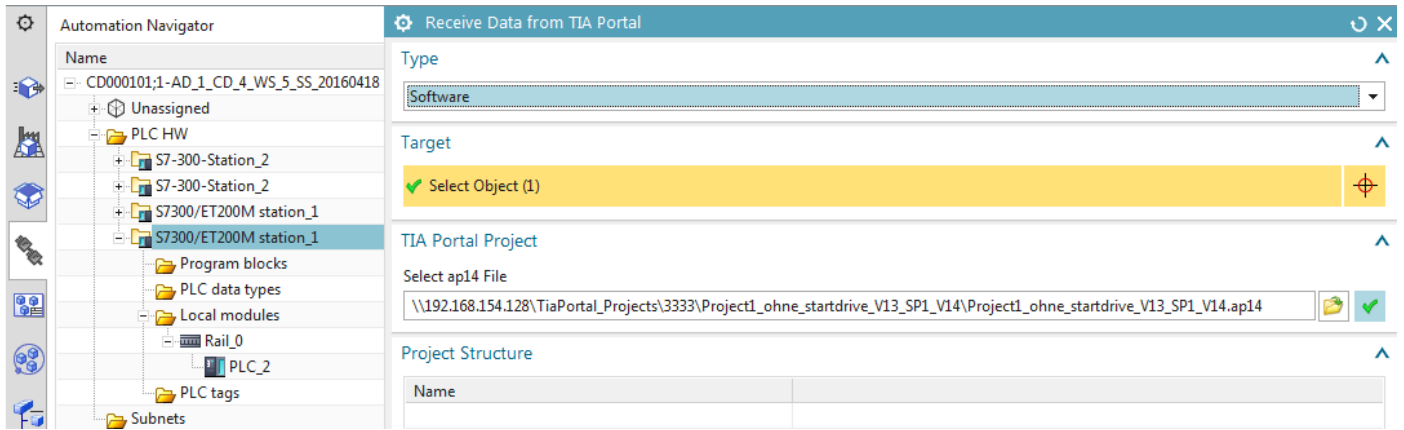
Create the remaining IDBs.

The image displays two side-by-side windows from the Siemens SIMATIC Manager software. The left window is the 'Automation Navigator' and the right is the 'Function Aspect Navigator'. Both windows show a hierarchical tree structure for a project identified by the name 'CD000124;1-AD_1_CD_4_WS_5_SS_20160426'.

Automation Navigator:

- CD000124;1-AD_1_CD_4_WS_5_SS_20160426
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - PLC data types
 - Program blocks
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT [FB1012]
 - RB_AT_DB [DB1012]
 - PosDev_2D2S2P_DB [DB369]
 - G120x_DB [DB307]
 - Local modules
 - Rail_0
 - PLC tags
 - FC left

8.1.3a. Import SW-tags (OB1, G120x, PosDev, RB_AT) (20160421)



8.1.3b. Import SW-tags (OB1, G120x, PosDev, RB_AT) (20160304)



20160303

Long long story... endless attempt to import a changed Main that had the wrong programming language... finally got it right.. ask me for details. The new cache feature is a real tricky issue.

The screenshot shows the SIMATIC Manager interface. On the left, the project tree is expanded to show the 'PLC HW' folder for 'S7300/ET200M station_1'. Under 'Program blocks', the 'Main [OB1]' block is selected. On the right, the 'PLC Code' editor shows a ladder logic network with five rungs. Rung 2 contains a normally open contact labeled 'FC_left' and rung 3 contains a normally open contact labeled 'FC_right'. Both labels are highlighted in green.

The screenshot shows the 'PLC tags' list in the SIMATIC Manager. The list contains the following tags: Newstart, PLC_On delayed, TRUE, CPulse_0_1s, RLO 1, BliF, RLO 0, FRG_EStop, FRG_BS, IBNO, reset, Pos_front_left, slow_forw, pos_back_left, slow_back, FC_left, and FC_right. The 'FC_left' and 'FC_right' tags are highlighted in blue, corresponding to the labels in the PLC code editor above.

20160304

The screenshot shows the Siemens TIA Portal interface. On the left, the 'Automation' tree view displays a project structure for 'S7300/ET200M station_1', including folders for 'Program blocks', 'PLC data types', 'Local modules', 'Rail_0', and 'PLC tags'. The 'Main [OB1]' object is selected. On the right, the 'Receive Data from TIA Portal' dialog is open. It shows the 'Type' set to 'Software', the 'Target' as 'Select Object (1)', and the 'TIA Portal Project' path as '\\192.168.186.133\TiaPortal_Projects\Project1_ohne_startdrive_V13_SP1\Project1_ohne_startdrive_V13_SP1.ap13'. The 'Project Structure' section shows a tree view with 'Main [OB1]' selected. The 'Actions' section contains a 'Receive from TIA Portal' button.

0827 Crashed.

An error dialog box titled 'Receive Data from TIA Portal' is displayed. It features a red 'X' icon and the text 'Invalid selection. Select an Engineering Object.' Below the message is an 'OK' button.

Hw lost ... have to Reimport hw if not save project.

\\192.168.186.133\TiaPortal_Projects\Project1_ohne_startdrive_V13_SP1\Project1_ohne_startdrive_V13_S
P1.ap13

Imported without IDBs ok.

The screenshot shows the SIMATIC Manager interface. On the left, the 'Automation' tree view displays a project structure for 'S7300/ET200M station_1'. The 'Program blocks' folder is expanded, showing 'G120x [FB307]', 'PosDev_2D2S2P [FB369]', 'RB_AT [FB1012]', and 'Main [OB1]'. On the right, the 'Receive Data from TIA Portal' dialog box is open. The 'Type' is set to 'Software'. The 'Target' is 'Select Object (1)'. The 'TIA Portal Project' path is '\\192.168.186.133\TiaPortal_Projects\Project1_ohne_startdrive_V1...'. The 'Project Structure' on the right shows the same project structure as the left, with 'Main [OB1]' selected.

20160304_0839 trying to import IDBs causes error.

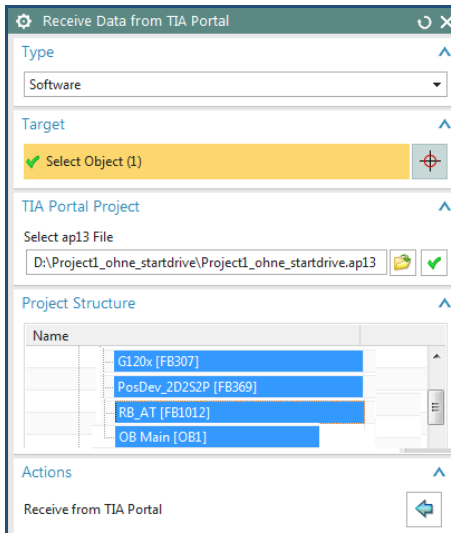
The screenshot shows the SIMATIC Manager interface with the 'Automation' tree view. The 'Program blocks' folder is expanded, showing 'G120x [FB307]', 'PosDev_2D2S2P [FB369]', 'RB_AT [FB1012]', 'G120x_DB [DB2]', 'PosDev_2D2S2P_DB [DB9]', and 'Main [OB1]'. An error dialog box is open, titled 'Receive Data from TIA Portal'. The message reads: 'Invalid selection. Select an Engineering Object.' with an 'OK' button.

Import without IDB. But cant create IDB either. strange error, did not have yesterday.

The screenshot shows the SIMATIC Manager interface. The 'Automation' tree view is expanded to show 'PLC tags'. The 'PLC tags' folder is expanded, showing a list of tags: 'Newstart', 'PLC_On delayed', 'TRUE', 'CPulse_0_1s', 'RLO 1', 'BlIF', 'RLO 0', 'FRG_EStop', 'FRG_BS', 'IBN0', 'reset', 'Pos_front_left', 'slow_forw', 'pos_back_left', 'slow_back', 'FC_left', and 'FC_right'. The 'Subnets' folder is also visible at the bottom.

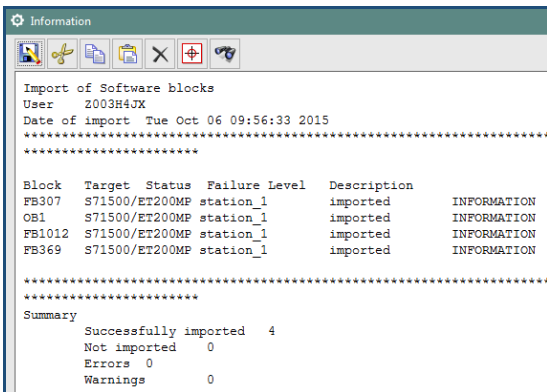
8.1.3c. Import SW-tags (OB1, G120x, PosDev, RB_AT) (20151221)

1. For "Type" select "Software".
2. For "Target" select the station you just imported.
3. Select the Project1_ohne_startdrive.ap13 file and click the green arrow.
4. Select the following SW blocks (use CTRL + left-click to select multiple):
 - OB1
 - RB_AT
 - G120x
 - PosDev_2D2S2P



08_006

5. Select "Receive from TIA Portal".



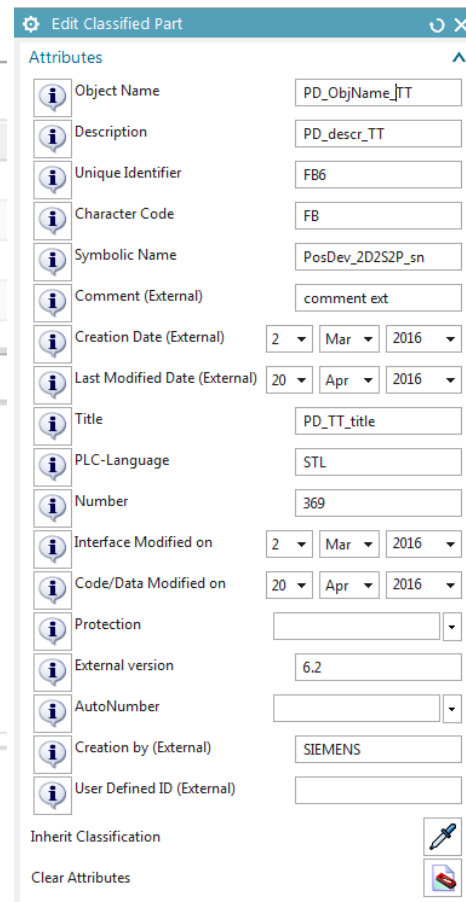
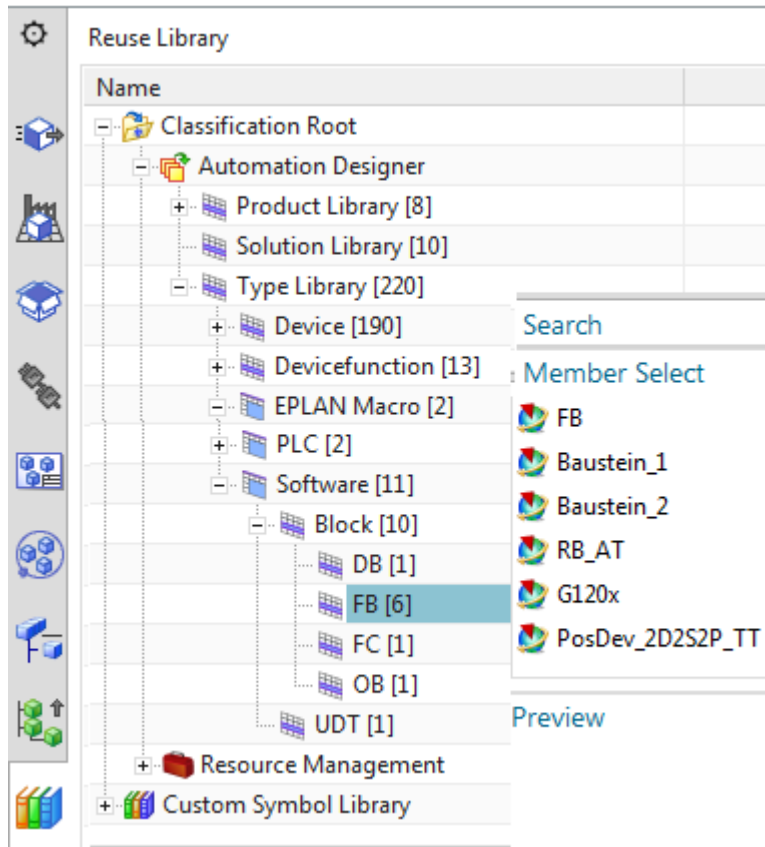
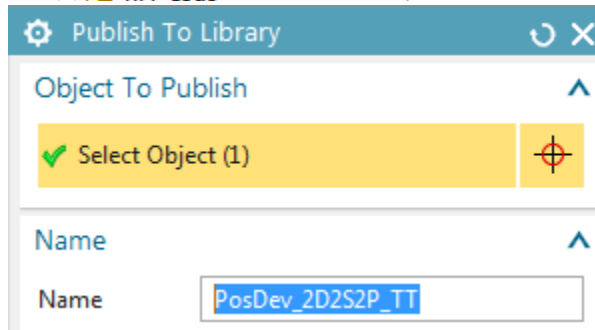
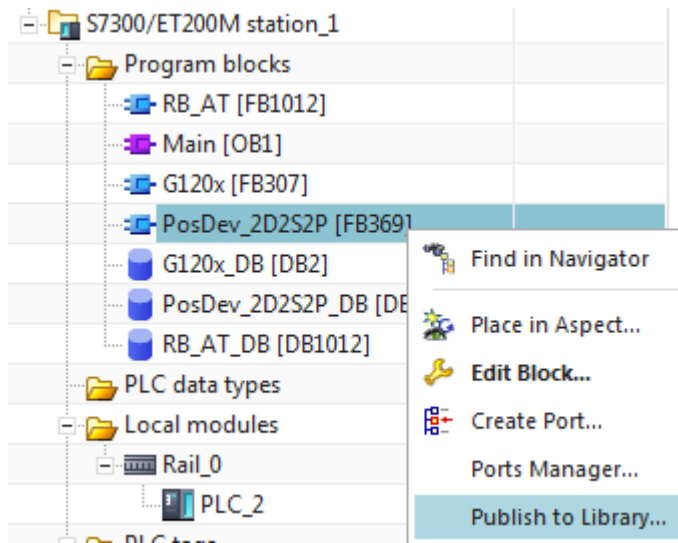
08_007

6. Click Close. The following shows the imported SW/tags. (pic from 8.2.3)

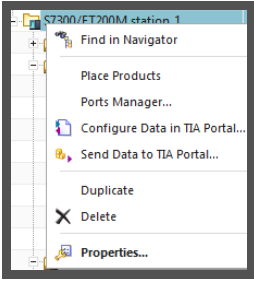
		<p>Tags referenced by PosDev outside the template (PosDev_FB is not inside template).</p>
		<p>Automation tags referenced by RB_AT from within template.</p>
		<p>RB_AT tags for sensor input used in call to PosDev (will be replaced by template-internal tags).</p>

08_007b

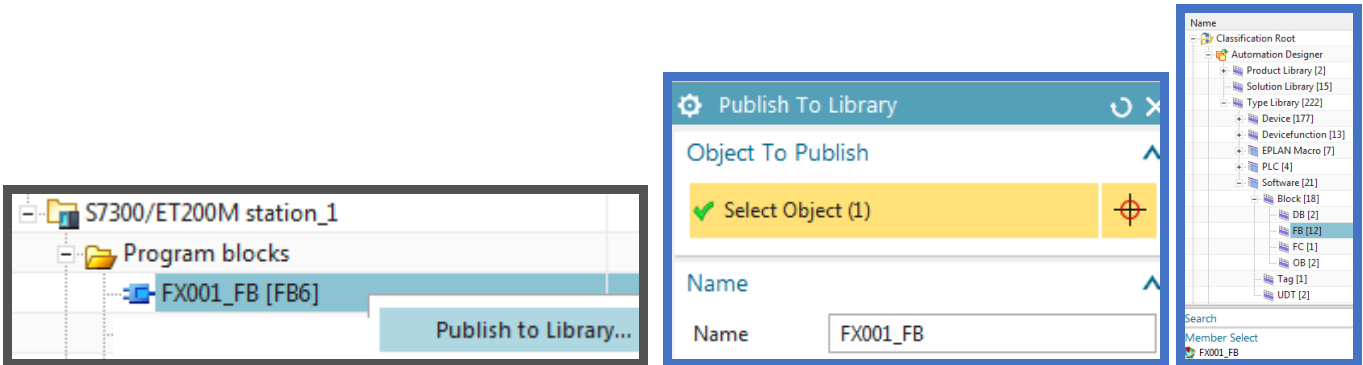
\$\$\$3/5 4.2. TIA store in reuse 20160421



>> HW? NO? but "PLC" is in classification root

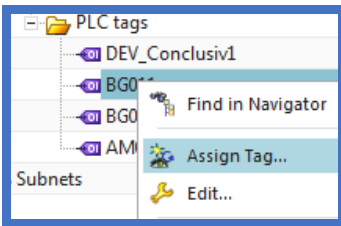


SW-FB, yes



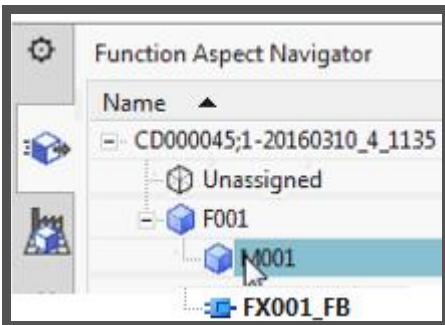
SW-DB?

SW-tags? NO?



4.3. TEST: import from reuse

Verify can add.



8.1b. Move RB_AT, create IDB's (RB_AT, G120x, PosDev)

In this section you

1. Move RB_AT
2. RB_AT_DB
3. G120x_DB
4. PosDev_DB
5. View the IDB-FB ports (3)

Automation tab	Aspect top	Template
OB		RB_AT_DB /
		RB_AT FB
PosDev FB		PosDev_DB
G120 FB		G120_DB

08_008

1a. Move RB_AT 20160421

20160421

Function Aspect Navigator

Name	Description
CD000101;1-AD_1_CD_4_WS_5_SS_20160418	
Unassigned	
=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
EPLAN Page Macro	Description250
RB_AT	

Place in Aspect

Object

Select Engineering Object (1)

Placement

Select Aspect Node (1)

From reuse library.

Reuse Library

Engineering Object

Select from Member Select (RB_AT)

General Properties

Object Name Prefix: RB_AT

Description:

Navigators

Select Parent (1)

In Function:

In Location:

In Product:

In Automation:

Properties

Edit Properties

OK Apply Cancel

Engineering Object

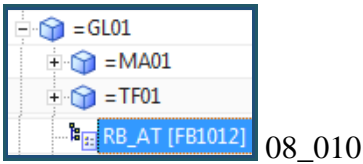
An identical reference designation set already exists. Choose a different name for the aspect.

Cant put in same

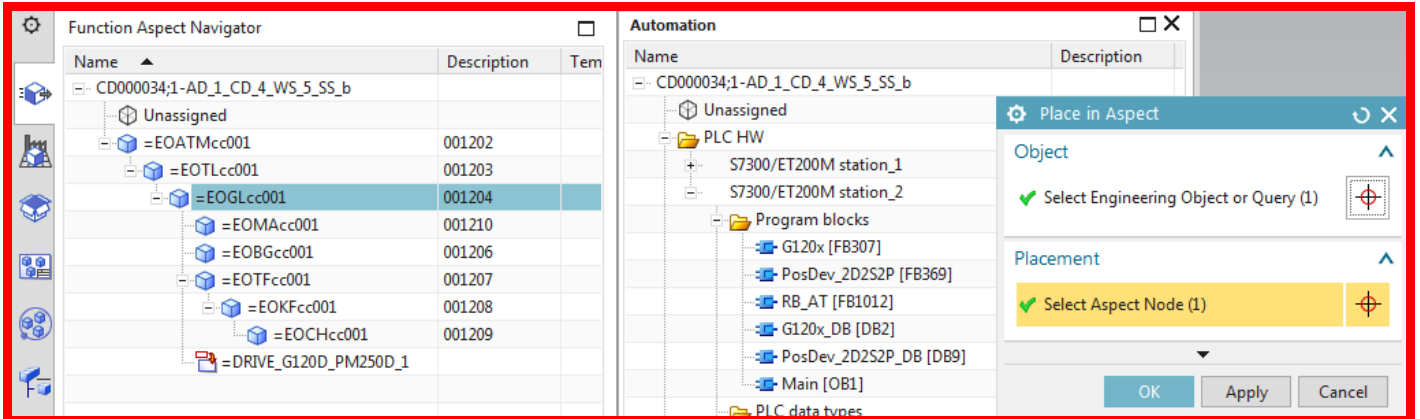
Name	Description
=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
EPLAN Page Macro	Description250
RB_AT	

1b. Move RB_AT

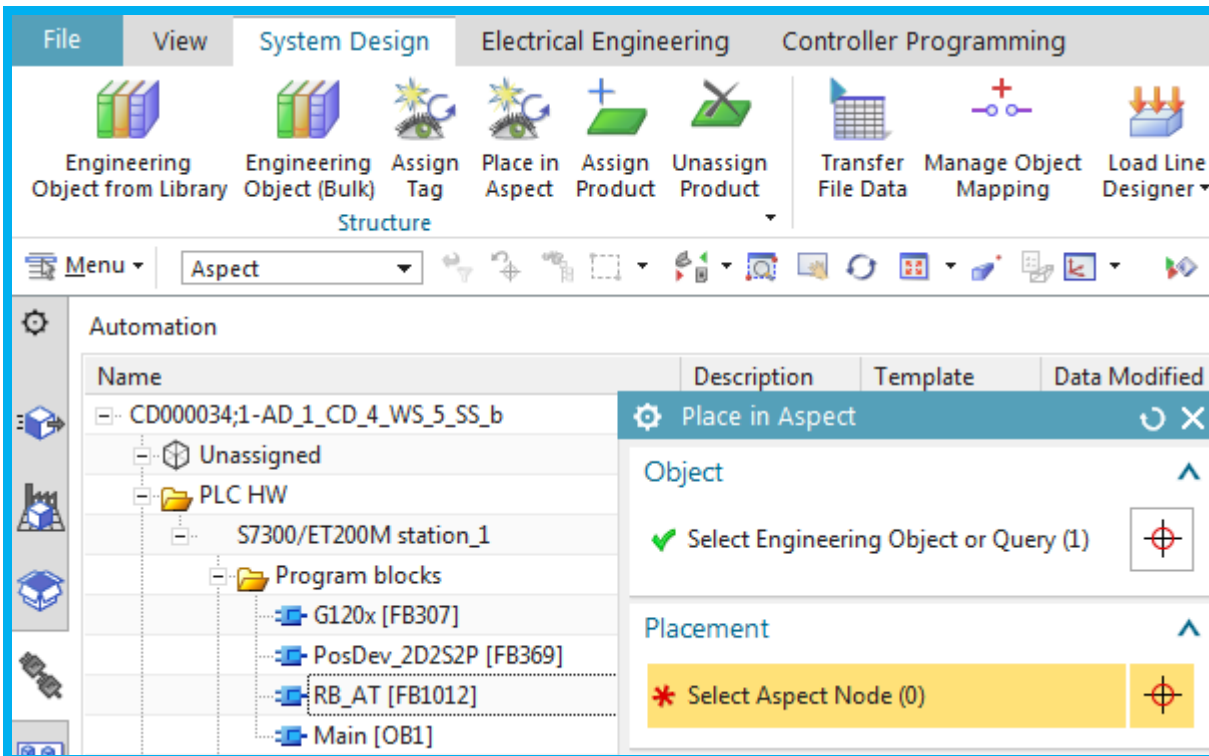
1. Move RB_AT: Right-click on RB_AT and select "Cut".
2. In the Function aspect, right-click on GL01 and select "Paste".



This copies, not move.



20160304



Function Aspect Navigator

Name	Description	Template	Data Modified	Data Checke...
CD000034;1-AD_1_CD_4_WS_5_...				
Unassigned				
=EOATMcc001	001202			
=EOTLcc001	001203			
=EOGLcc001	001204			
=EOMAcc001	001210			
=EOBGcc001	001206			
=EOTFcc001	001207			
=EOKFcc0...	001208			

Place in Aspect

Object

✓ Select Engineering Object or Query (1)

Placement

✓ Select Aspect Node (1)

Function Aspect Navigator

Name	Description
CD000034;1-AD_1_CD_4_WS_5_...	
Unassigned	
=EOATMcc001	001202
=EOTLcc001	001203
=EOGLcc001	001204
=EOMAcc001	001210
=EOBGcc001	001206
=EOTFcc001	001207
=EOKFcc...	001208
=EOC...	001209
=DRIVE_G120...	
=RB_AT	

Automation

Name
CD000034;1-AD_1_CD_4_WS_5_SS_b
Unassigned
PLC HW
S7300/ET200M station_1
Program blocks
G120x [FB307]
PosDev_2D2S2P [FB369]
RB_AT [FB1012]
Main [OB1]

2a. RB_AT_DB 20160421

=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
EPLAN Page Macro	Description250
RB_AT	
RB_AT_DB	

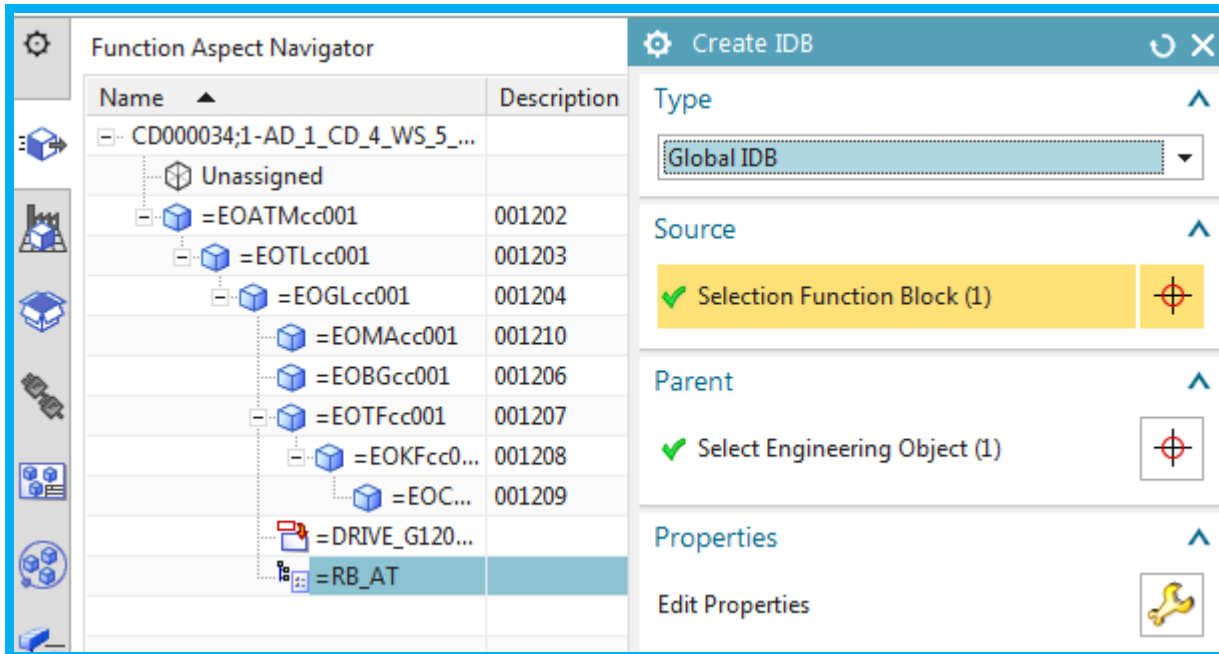
NO DON'T DELETE?

S7300/ET200M station_1

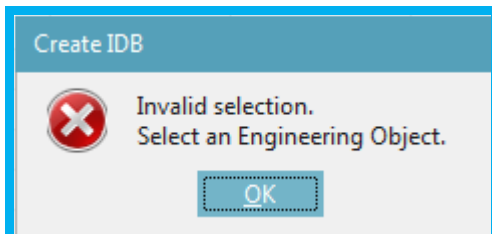
- Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - G120x_DB [DB2]
 - PosDev_2D2S2P_DB [DB9]
 - RB_AT_DB [DB] Delete
- PLC data types

2b. RB_AT_DB

1. Right-click on RB_AT and select "Create IDB".
2. For "Type" select "Global IDB".
3. For "Parent" select GL01.
4. Click OK. The IDB is created.



20160304_0916: for some reason cant create idb.



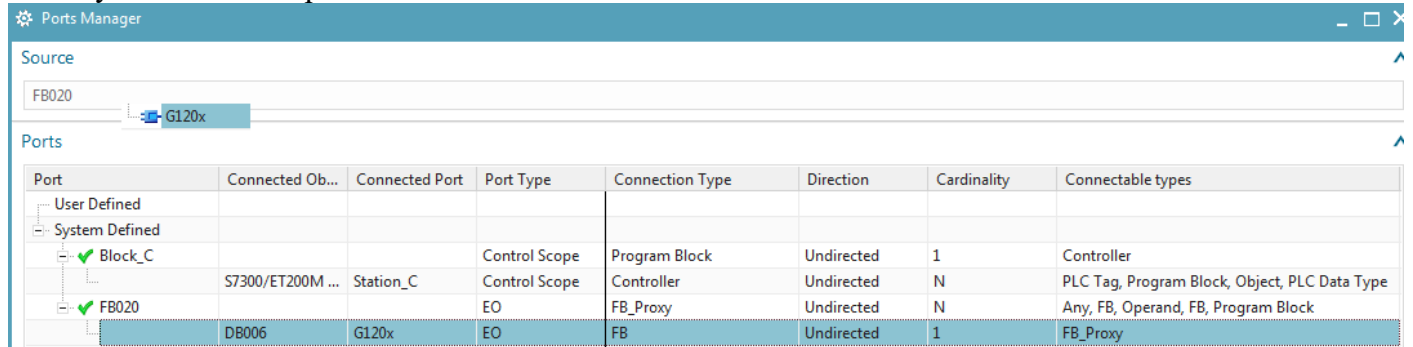
3a. Move G120x 20160421

The screenshot displays the EPLAN software interface. At the top, a tree view shows the project structure under 'S7300/ET200M station_1', including 'Program blocks' and various function blocks like 'RB_AT [FB1012]', 'Main [OB1]', 'G120x [FB307]', 'PosDev_2D2S2P [FB306]', 'G120x_DB [DB2]', and 'PosDev_2D2S2P_DB [DB1]'. A context menu is open over 'G120x [FB307]' with options 'Find in Navigator' and 'Place in Aspect...'. Below this is the 'Function Aspect Navigator' window, which contains a table of function blocks. The table has columns for 'Name', 'Description', and 'Template'. The entry '=DriveControlF001' is highlighted in blue. To the right, the 'Place in Aspect' dialog is open, showing the 'Object' section with 'Select Engineering Object (1)' and the 'Placement' section with 'Select Aspect Node (1)'. Below the Function Aspect Navigator, a detailed view of the selected '=DriveControlF001' block is shown, listing its sub-components: '=ConveyorF001' (000346), '=MotorF001' (000347), '=SensorF001' (000348), '=DrivePowerF001' (000351), '=DriveControlF001' (000352), and '=EOCHcc001' (000353). At the bottom, other project elements like 'EPLAN Page Macro', 'RB_AT', and 'RB_AT_DB' are visible.

Name	Description	Template
CD000101;1-AD_1_CD_4_WS_5_SS_20160418		
Unassigned		
=_001	000344	
=_004	000345	
=ConveyorF001	000346	
=MotorF001	000347	
=SensorF001	000348	
=DrivePowerF001	000351	
=DriveControlF001	000352	
=EOCHcc001	000353	
=ConveyorF001	000346	
=MotorF001	000347	
=SensorF001	000348	
=DrivePowerF001	000351	
=DriveControlF001	000352	
=EOCHcc001	000353	
G120x		
EPLAN Page Macro	Description250	
RB_AT		
RB_AT_DB		

3b. G120x_DB 20160421

Already there... check ports?



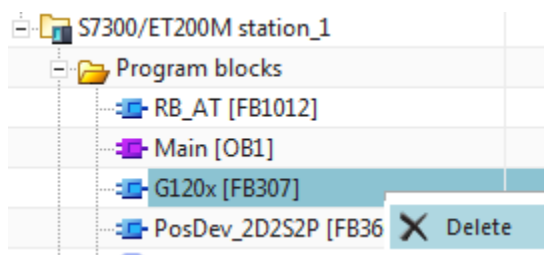
The screenshot shows the 'Ports Manager' window with the following table:

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
User Defined							
System Defined							
Block_C			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
FB020			EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
	DB006	G120x	EO	FB	Undirected	1	FB_Proxy

DB006 is the IDB.

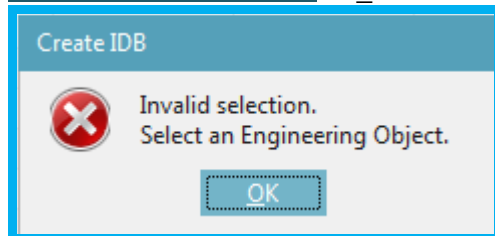
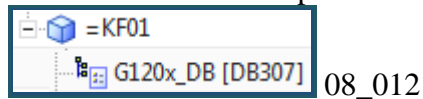
NO DON'T DELETE?

Deleting deletes also in aspect tree.



3b. G120x_DB

1. Create an IDB with parent KF01.



4a. PosDev_DB 20160421

S7300/ET200M station_1

- Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - G120x_DB [DB2]
 - PosDev_2D2S2P_DB [DB9]
 - RB_AT_DB [DB1012]

Find in Navigator
Place in Aspect...

Function Aspect Navigator

Name	Description	Template
CD000101;1-AD_1_CD_4_WS_5_SS_20160418		
Unassigned		
=_001	000344	
=_004	000345	
=ConveyorF001	000346	
=MotorF001	000347	
=SensorF001	000348	
=DrivePowerF001	000351	
=DriveControlF001	000352	
=EOCHcc001	000353	

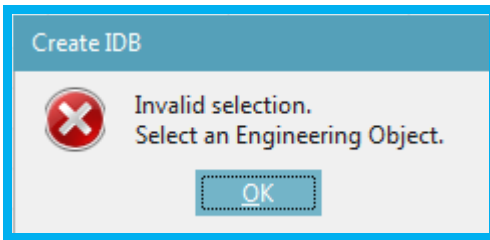
Place in Aspect

Object
 ✓ Select Engineering Object (1)

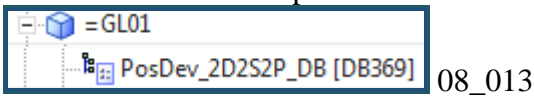
Placement
 ✓ Select Aspect Node (1)

=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
G120x	
EPLAN Page Macro	Description250
RB_AT	
PosDev_2D2S2P	
RB_AT_DB	

4b. PosDev_DB



1. Create an IDB with parent GL01.



The screenshot shows the SIMATIC Manager interface with two main panes:

- Function Aspect Navigator:** A table listing various engineering objects under the parent "CD000034;1-AD_1_CD_4_WS_5_SS_b".
- Automation:** A tree view showing the project structure, including PLC HW, Program blocks, and PLC data types.

Name	Description	Tem
CD000034;1-AD_1_CD_4_WS_5_SS_b		
Unassigned		
=EOATMcc001	001202	
=EOTLcc001	001203	
=EOGLcc001	001204	
=EOMAcc001	001210	
=EOBGcc001	001206	
=EOTFcc001	001207	
=EOKFcc001	001208	
=EOCHcc001	001209	
G120x_DB		
=DRIVE_G120D_PM250D_1		
=RB_AT		
RB_AT_DB		
PosDev_2D2S2P_DB		

The Automation pane shows the following structure:

- CD000034;1-AD_1_CD_4_WS_5_SS_b
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - S7300/ET200M station_2
 - Program blocks
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT [FB1012]
 - Main [OB1]
 - RB_AT_DB [DB1012]
 - G120x_DB [DB307]
 - PosDev_2D2S2P_DB [DB369]
 - PLC data types
 - Local modules
 - Rail 0

5a. View the IDB-FB ports (3) 20160421

1. Right-click on RB_AT. Select "Ports Manager". RB_AT ("Source") has a port "RB_AT" (table column 1 "Port") that is linked to the port RB_AT (column 3 "Connected Port") of IDB RB_AT_DB (column 2 "Connected Object")

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
Block_C			Control Scope	Program Block	Undirected	1	Controller
FRG_EStop	S7300/ET200M station...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Da...
FRG_BS	FRG_EStop	FRG_EStop	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
IBN0	FRG_BS	FRG_BS	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
reset	IBN0	IBN0	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
Pos_front_left	reset	reset	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
slow_forw	Pos_front_left	Pos_front_left	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
pos_back_left	slow_forw	slow_forw	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
slow_back	pos_back_left	pos_back_left	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
PosDev_2D2S2...	slow_back	slow_back	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
G120x_DB	DB007	DB007	EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy
FB019	DB006	DB006	EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
RB_AT	DB010	RB_AT	EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy
	DB006	DB006	EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
	DB010	RB_AT	EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
			EO	FB	Undirected	1	FB_Proxy

2. Open the ports manager for RB_AT_DB. The table is a mirror image of the above table.

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
Block_C			Control Scope	Program Block	Undirected	1	Controller
RB_AT	S7300/ET200M stati...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data...
DB010	FB019	FB019	EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
	OB004	Caller_1	EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
			EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy

3. View the G120x ports.

Ports Manager

Source: FB020

Ports: G120x

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
System Defined							
Block_C			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
FB020			EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
	DB006	G120x	EO	FB	Undirected	1	FB_Proxy

Ports Manager

Source: DB006

Ports: G120x_DB [DB2]

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
System Defined							
Block_C			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
G120x			EO	FB	Undirected	1	FB_Proxy
	FB020	FB020	EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
DB006			EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
	FB019	G120x_DB	EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy

4. View the PosDev ports.

Ports Manager

Source: FB021

Ports: PosDev_2D2S2P

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
System Defined							
Block_C			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
Newstart			EO	Tag	Undirected	1	Tag_Proxy
	Newstart	Newstart	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
PLC_On delayed			EO	Tag	Undirected	1	Tag_Proxy
	PLC_On delayed	PLC_On delayed	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
TRUE			EO	Tag	Undirected	1	Tag_Proxy
	TRUE	TRUE	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
CPulse_0_1s			EO	Tag	Undirected	1	Tag_Proxy
	CPulse_0_1s	CPulse_0_1s	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
RLO 1			EO	Tag	Undirected	1	Tag_Proxy
	RLO 1	RLO 1	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
Blif			EO	Tag	Undirected	1	Tag_Proxy
	Blif	Blif	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
RLO 0			EO	Tag	Undirected	1	Tag_Proxy
	RLO 0	RLO 0	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
FB021			EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
	DB007	PosDev_2D2S2P	EO	FB	Undirected	1	FB_Proxy

Ports Manager

Source: DB007

Ports: PosDev_2D2S2P_DB [DB9]

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
System Defined							
Block_C			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
PosDev_2D2S2P			EO	FB	Undirected	1	FB_Proxy
	FB021	FB021	EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
DB007			EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
	FB019	PosDev_2D2S2P...	EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy

5b. View the IDB-FB ports (3)

When you created the IDB's, AD created an FB port, an IDB port, and a link between them. These are the first ports you have created, and its important to understand how ports work. The FB, IDB, and ports often have the same name, so its important to understand the information in the ports manager.



1. Right-click on RB_AT. Select "Ports Manager". RB_AT ("Source") has a port "RB_AT" (table column 1 "Port") that is linked to the port RB_AT (column 3 "Connected Port") of IDB RB_AT_DB (column 2 "Connected Object")

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardi...	Man...	Connectable types
RB_AT			EO	FB	Undefined	N		PLC_SOFTWARE_FUNCTION_BLO...
	RB_AT_DB	RB_AT	INTERNAL	PLC_SOFTWARE_FUNCTION_BLOCK_PORT	Undefined	ONE		FB
	S71500/ET200MP stati...	S71500/ET200M...	INTERNAL	PLC_SOFTWARE_FOLDER	Undefined	N		OB, FB, FC, DB, IDB

08_014

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction
User Defined					
System Defined					
Block_C			Control Scope	Program Block	Undirected
FRG_EStop	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected
FRG_BS	FRG_EStop	FRG_EStop	EO	TAG	Undirected
IBNO	FRG_BS	FRG_BS	EO	TAG	Undirected
reset	FRG_BS	FRG_BS	EO	TAG	Undirected
Pos_front_left	IBNO	IBNO	EO	TAG	Undirected
slow_forw	reset	reset	EO	TAG	Undirected
pos_back_left	Pos_front_left	Pos_front_left	EO	TAG	Undirected
slow_back	slow_forw	slow_forw	EO	TAG	Undirected
PosDev_2D2S2P_DB	pos_back_left	pos_back_left	EO	TAG	Undirected
G120x_DB	slow_back	slow_back	EO	TAG	Undirected
FB006	DB007	DB007	EO	IDB	Undirected
	DB006	DB006	EO	IDB	Undirected
	DB005	RB_AT	INTERNAL	PLC_SOFTWARE_FUNCTI...	Undirected

2. Open the ports manager for RB_AT_DB. The table is a mirror image of the above table.

Source

RB_AT_DB

Ports

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardi...	Man...	Connectable types
User Defined								
System Defined								
RB_AT	RB_AT	RB_AT	INTERNAL	PLC_SOFTWARE_FUNCTION_BLOCK_PORT	Undefined	ONE		FB
			EO	FB	Undefined	N		PLC_SOFTWARE_FUNCTION_BLO...

08_015

Source

DB005

RB_AT_DB

Ports

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types	
User Defined								
System Defined								
Block_C				Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M station_2	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Blo...	
RB_AT			INTERNAL	PLC_SOFTWARE_FUNCTI...	Undirected	1	FB	
	FB006	FB006	EO	FB	Undirected	N	FB, PLC_SOFTWARE_F...	
DB005			EO	IDB	Undirected	N	EOAny, Callee, IDB, S...	

3. View the G120x ports.

Source

G120x

Ports

Port	Connected Ob...	Connected Port	Port Type
User Defined			
System Defined			
G120x			EO
	G120x_DB	G120x	INTERNAL

08_016

Source

G120x_DB

Ports

Port	Connected Obj...	Connected Port	Port Type
User Defined			
System Defined			
G120x			INTERNAL
	G120x	G120x	EO

08_017

Source

DB006

G120x_DB

Ports

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types	
User Defined								
System Defined								
Block_C				Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M station_2	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Blo...	
G120x			INTERNAL	PLC_SOFTWARE_FUNCTI...	Undirected	1	FB	
	FB004	FB004	EO	FB	Undirected	N	FB, PLC_SOFTWARE_F...	
DB006			EO	IDB	Undirected	N	EOAny, Callee, IDB, S...	
	FB006	G120x_DB	EO	Callee	Undirected	N	IDB, FC	

4. View the PosDev ports.

Source

PosDev_2D2S2P

Ports

Port	Connected Object	Connected Port	Port Type
System Defined			
PosDev_2D2S2P			EO
	PosDev_2D2S2P_DB	PosDev_2D2S2P	INTERNAL

08_018

Source

PosDev_2D2S2P_DB

Ports

Port	Connected Object	Connected Port	Port Type
User Defined			
System Defined			
PosDev_2D2S2P			INTERNAL
	PosDev_2D2S2P	PosDev_2D2S2P	EO

08_019

8.2. Add/delete tags

8.2.1. Verify the 4 RB_AT (FRG, etc.) tags were imported, the connections are OK, and the addresses are correct.

8.2.2. Verify the 7 PosDev (Newstart, etc.) tags.

8.2.3. Add boolean tag DI1 (under EO CH1).





8.2.4. Add DWord tag tag PID0 (under EO KF).

Automation tab	Aspect top	Template
FRG_EStop 2 Newstart 2		DI1 2 PID1 2

08_020

8.2.1. Verify 4 RB_AT tag (FRG_EStop,FRG_BS,IBNO,Reset)

Verify that the following 4 tags were imported correctly.

5		FRG_EStop	Bool	%M0.4	RB_AT Automation tab tags (FRG, ...)
6		IBNO	Bool	%M0.5	
8		FRG_BS	Bool	%M0.7	
9		reset	Bool	%M1.0	

08_021

TERRY 20151008 Andreas: these tags can be put in the automation aspect.. then instead of "Function" in expression use "Automation".

AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH2p")),Automation)+"_CH".
The automation tab tags are input to RB_AT.



TERRY 20160210: is this table really needed?

1. Verify the following for the tags:

Tag	Properties	value
FRG_EStop	Name	FRG_EStop
	Memory Section	Input
	Data Type	Bool
	Description	FRG_EStop button
	Address	%M0.4
FRG_BS	Name	FRG_BS
	Memory Section	Input
	Data Type	Bool
	Description	FRG_BS button
	Address	%M0.5
IBNO	Name	IBNO
	Memory Section	Input
	Data Type	Bool
	Description	IBNO button
	Address	%M0.7
Reset	Name	Reset
	Memory Section	Input
	Data Type	Bool
	Description	Reset button
	Address	%M1.0

8.2.2. Verify 7 PosDev tags (Newstart, etc.)

Verify that the following 7 tags were imported correctly.

10	BLIF	Bool	%M1.1	
11	TRUE	Bool	%M1.2	
7	RLO 0	Bool	%M0.6	PosDev Automation tag tags (Newstart, ...)
12	RLO 1	Bool	%M1.3	
13	CPulse_0_1s	Bool	%M1.4	
14	Newstart	Bool	%M1.5	
15	PLC_On delayed	Bool	%M1.6	

08_022

8.2.3a. Add 1 sensor tag (DI1) and PID0 20160509

The screenshot displays the Siemens SIMATIC Manager interface during the configuration of a new tag. The **Automation Navigator** on the left shows the project structure, with the **Rail_0** local module selected. The **Function Aspect Navigator** in the center shows the tag hierarchy, including various control tags like **=EOATMcc001** through **=EOKFcc001**. The **Tag** properties window on the right is open, showing the configuration for a new tag named **DI1**. The tag is assigned to the **Input** memory section, has a **Bool** data type, and is located at address **0.1**. The **Hardware Connection** table below the properties window shows that the tag is assigned to **I0.1** of the **IB0** device, which is currently in a **Free** status.

I/O Device Structure	Status	Tag Name	Tag Data Type
IB0	Partial...		
...I0.0	Used	*RB_HA_01...	*Bool
...I0.1	Free		
...I0.2	Free		
...I0.3	Free		
...I0.4	Free		
...I0.5	Free		
...I0.6	Free		
...I0.7	Free		
IB1	Free		

This close-up view of the **Automation Navigator** shows the **Local modules** section. The **Rail_0** module is expanded to show the **PLC_2** and **DI16/DO16x24VDC/0.5A_1** components. Under the **DI16/DO16x24VDC/0.5A_1** component, the tag **DI1** is visible, assigned to address **I0.1**.

This close-up view of the **Function Aspect Navigator** shows the tag hierarchy. The tag **=EOKFcc001** is selected, and its properties are shown. The tag **=EOKFcc001** is assigned to address **000352**. Below it, the tag **=EOKHcc001** is assigned to address **000353**. The tag **DI1** is also visible, assigned to address **000353**.

Automation Navigator

CD000163;1-AD_1_CD_4_WS_5_SS_20160509_2

- Unassigned
- PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT_DB [DB1012]
 - G120x_DB [DB307]
 - PosDev_2D2S2P_DB [DB369]
 - PLC data types
 - Local modules
 - Rail_0
 - PS 307 10A_1
 - PLC_2
 - DI 16/DO 16x24VDC/0.5A_1
 - AI 4/AO 4x14/12BIT_1
 - ID272
 - ID274
 - ID276
 - ID278
 - QW272
 - QW274
 - QW276
 - QW278
 - PLC tags
 - RB_HA_01_POSIT_LS_DN
 - Newstart

Function Aspect Navigator

CD000163;1-AD_1_CD_4_WS_5_SS_2016...

- Unassigned
 - =EOATMcc001 000344
 - =EOTLcc001 000345
 - =EOGLcc001 000346
 - =EOMAcc001 000347
 - =EOBGcc001 000348
 - =EOTFcc001 000351
 - =EOKFcc001 000352
 - =EOCHcc001 000353
 - DI1
 - G120x_DB
 - RB_AT
 - RB_AT_DB
 - PosDev_2D2S2P_DB

Tag

Parent: Select Object (1)

Name: <Fcc001/-???.EOKFcc001

Properties

Name: PID0

Memory Section: Input

Data Type: DWord

Description:

Address Offset Byte: 0

Address Offset Bit: 0

Address: 272

Hardware Connection

Select I/O Device (1)

I/O Device Structure	Status	Tag Name	Tag Data Type
ID272	Free		
IB272	Free		
I272.0	Free		
I272.1	Free		
I272.2	Free		
I272.3	Free		
I272.4	Free		
I272.5	Free		
I272.6	Free		
I272.7	Free		
IB273	Free		

- PosDev_2D2S2P [FB369]
- RB_AT_DB [DB1012]
- G120x_DB [DB307]
- PosDev_2D2S2P_DB [DB369]
- PLC data types
- Local modules
 - Rail_0
 - PS 307 10A_1
 - PLC_2
 - DI 16/DO 16x24VDC/0.5A_1
 - AI 4/AO 4x14/12BIT_1
 - ID272 - PID0
 - ID274

- =EOKFcc001 000352
 - =EOCHcc001 000353
 - DI1
 - G120x_DB
 - PID0
 - RB_AT
 - RB_AT_DB
 - PosDev_2D2S2P_DB

8.2.3a. Add 1 sensor tag (DI1) and PID0 20160429

The screenshot displays the Siemens SIMATIC Manager interface during the configuration of a new sensor tag. The Automation Navigator on the left shows the project hierarchy, with the PLC hardware configuration expanded to show the DI16/DO 16x24VDC/0.5A_1 module. The Function Aspect Navigator in the center shows the tag's parent structure, including the parent object, the tag name, and the data type. The Tag Properties dialog on the right shows the tag name, data type (Bool), and address (0.1). The Hardware Connection table at the bottom shows the tag is assigned to I0.1 of the IB0 device.

Automation Navigator

Function Aspect Navigator

Tag Properties

Hardware Connection

I/O Device Structure	Status	Tag Name	Tag Data Type
IB0	Partial...		
10.0	Used	*RB_HA_01...	*Bool
10.1	Free		
10.2	Free		
10.3	Free		
10.4	Free		
10.5	Free		
10.6	Free		
10.7	Free		
IB1	Free		

Tag Properties

Parent

Select Object (1)

Name: Hcc001/-???EOCHcc001

Properties

Name: DI1

Memory Section: Input

Data Type: Bool

Description:

Address Offset Byte: 0

Address Offset Bit: 0

Address: 0.1

Hardware Connection

Select I/O Device (1)

PIDO

Automation Navigator

- S7300/ET200M station_2
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT_DB [DB1012]
 - G120x_DB [DB307]
 - PosDev_2D2S2P_DB [DB369]
 - PLC data types
 - Local modules
 - Rail_0
 - PS 307 10A_1
 - PLC_2
 - DI 16/DO 16x24VDC/0.5A_1
 - AI 4/AO 4x14/12BIT_1
 - ID272
 - ID274
 - ID276
 - ID278
 - QW272
 - QW274
 - QW276
 - QW278
 - PLC tags
 - RB_HA_01_POSIT_LS_DN
 - Newstart
 - PLC_On delayed
 - TRUE
 - CPulse_0_1s
 - RLO 1
 - BlIF

Function Aspect Navigator

- CD000124;1-AD_1_CD_4_WS_5_SS_20160426
 - Unassigned
 - =_001
 - =EOATMcc 001
 - =EOATMcc001
 - =EOTLcCcc001_1
 - =EOGLcc002
 - TypeObjName250
 - =EOMAcc001
 - =EOBGcc001
 - =EOTFcc001
 - =EOKFcc001
 - =EOCHcc001
 - DI1 ta
 - G120x_DB
 - RB_AT
 - RB_AT_DB
 - PosDev_2D2S2P_DB

Tag Properties

Name: PID0
 Memory Section: Input
 Data Type: DWord
 Description: PID0 descr
 Address Offset Byte: 0
 Address Offset Bit: 0
 Address: 272

Hardware Connection

I/O Device Structure	Status	Tag Name	Tag Data Type
IB272	Free		
I272.0	Free		
I272.1	Free		
I272.2	Free		
I272.3	Free		
I272.4	Free		
I272.5	Free		
I272.6	Free		
I272.7	Free		
IB273	Free		
IB274	Free		
IB275	Free		

Local modules

- Rail_0
 - PS 307 10A_1
 - PLC_2
 - DI 16/DO 16x24VDC/0.5A_1
 - AI 4/AO 4x14/12BIT_1
 - ID272 - PID0
 - ID274

Tag Properties (Detailed)

=EOKFcc001	000352		
=EOCHcc001	000353		
DI1		DI1 tag descr	
G120x_DB			
PIDO		PIDO descr	
RB_AT			
RB_AT_DB			

Edit dialog

Tag Properties

Name: PID0
 Memory Section: Input
 Data Type: DWord
 Description: PID0 descr
 Address Offset Byte: 0
 Address Offset Bit: 0
 Address: 0

Hardware Connection

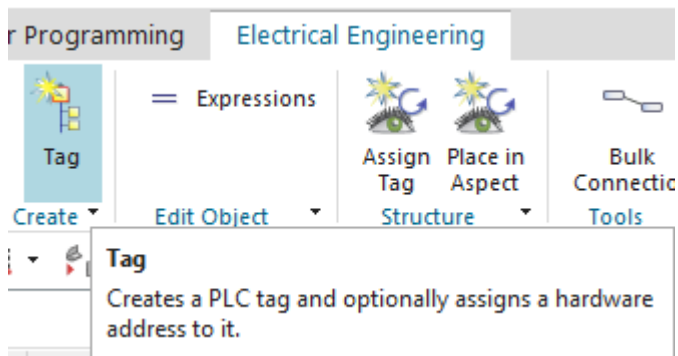
Select I/O Device (0)

I/O Device Structure	Status	Tag Name	Tag Data Type

??

8.2.3a. Add 1 sensor tag (DI1) 20160421

Select =EOCHcc001



=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001.EOCHcc001/+???.EOCHcc001/-
 ???EOCHcc001

Forgot to put modules in imported... just use from other PLC for now.

The screenshot shows the Automation Navigator on the left and the Tag configuration window on the right. The Automation Navigator tree includes:

- CD000101;1-AD_1_CD_4_WS_5_20160418
 - Unassigned
 - PLC HW
 - S7-300-Station_2
 - S7-300-Station_2
 - Program blocks
 - PLC data types
 - Local modules
 - Profilschiene_0
 - PS 307 10A_1
 - PLC_0_317
 - DI16/DO16 x 24V / 0,5A_1
 - DI16/DO16 x 24V / 0,5A_2
 - DI16/DO16 x 24V / 0,5A_3
 - DI16/DO16 x 24V / 0,5A_4
 - DI16/DO16 x 24V / 0,5A_5
 - DI16/DO16 x 24V / 0,5A_6
 - AI4/AO4 x 14Bit/12Bit_1
 - AI4/AO4 x 14Bit/12Bit_2
 - PLC tags
 - S7300/ET200M station_1
 - S7300/ET200M station_1
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - G120x_DB [DB2]
 - PosDev_2D2S2P_DB [DB9]
 - RB_AT_DB [DB1012]
 - PLC data types
 - Local modules
 - Rail_0
 - PLC_2
 - PLC tags

The Tag configuration window shows:

- Parent: Select Object (1)
- Name: =_001._004.ConveyorF001
- Properties:
 - Name: DI1
 - Memory Section: Input
 - Data Type: Bool
 - Description: Sensor1
 - Address Offset Byte: 0
 - Address Offset Bit: 0
 - Address: 12.0
- Hardware Connection:
 - Select I/O Device (1)
 - I/O Device Structure Table:

I/O Device Structure	Status	Tag Name	Tag Data Type
- IB12	Used		
I12.0	Used	*03BI0A	*Bool
I12.1	Used	*03BI0B	*Bool
I12.2	Used	*03BI1A	*Bool
I12.3	Used	*03BI1B	*Bool
I12.4	Used	*03BI2A	*Bool
I12.5	Used	*03BI2B	*Bool
I12.6	Used	*03BI3A	*Bool
I12.7	Used	*03BI3B	*Bool
+ IB13	Used		

6. For "Interaction Method" select "Traditional".
7. Select "Symbolic Name".
8. For "Data Type" select "Value".
9. For "Value" enter "DI1sn" (DI1 symbolic name).

The screenshot displays two panels from a software application. On the left is the 'Function Aspect Navigator' showing a hierarchical tree of components. The selected component is 'DI1', which is a 'Sensor1' with ID 'EOCHcc001.Tag1'. On the right is the 'Properties' window, which is currently showing the 'PLC Tag Attributes' for the selected component. The 'Interaction Method' is set to 'Traditional'. The 'PLC Tag Attributes' table is as follows:

Title/Alias	Value	Units	T...	Type	R...	D...	I...
Address	0.0			String	🔒		
AddressOffsetBit	0			Integer	🔒		📄
AddressOffsetByte	0			Integer	🔒		📄
Data Type	Bool			String	🔒		
Memory Section	Input			String	🔒		
General							
Description	Sensor1			String	🔒		📄
ID	EOCHcc001.Tag1			String	🔒		
Name	DI1			String	🔒		📄
Symbolic Name	DI1sn			String	🔒		📄

8.2.3b. Add 1 sensor tag (DI1)

1. Verify that the 4 tags were imported.

1		slow_back	Bool	%M0.0	DI1 DI2-4 (later chapter)
2		Pos_front_left	Bool	%M0.1	
3		slow_forw	Bool	%M0.2	
4		pos_back_left	Bool	%M0.3	

08_023



1. Delete Pos_front_left, slow_forw, pos_back_left, slow_back. These tags will be replaced by template instance vars DI0,2-4.

Add the tag DI1 for the boolean sensor data.

1. Click "Electrical Engineering / Add Tag".
2. Select EO CH1.
3. Enter the following:

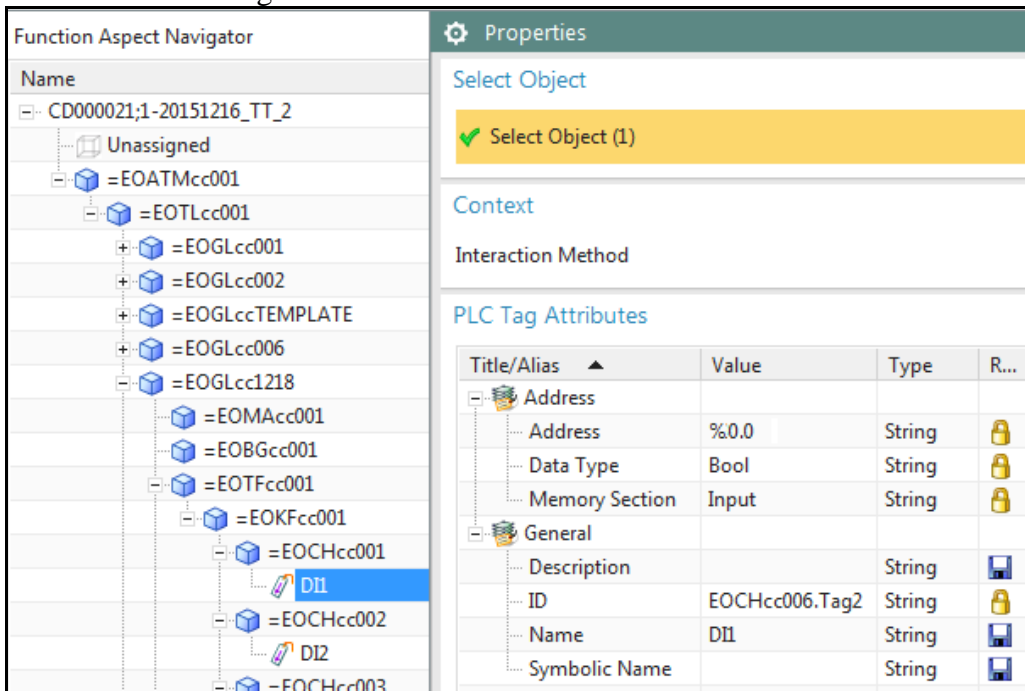
Name	DI1
Memory Section	Input
Data Type	Boolean
Description	Sensor 1
Address	0.0

Tag Configuration Window:

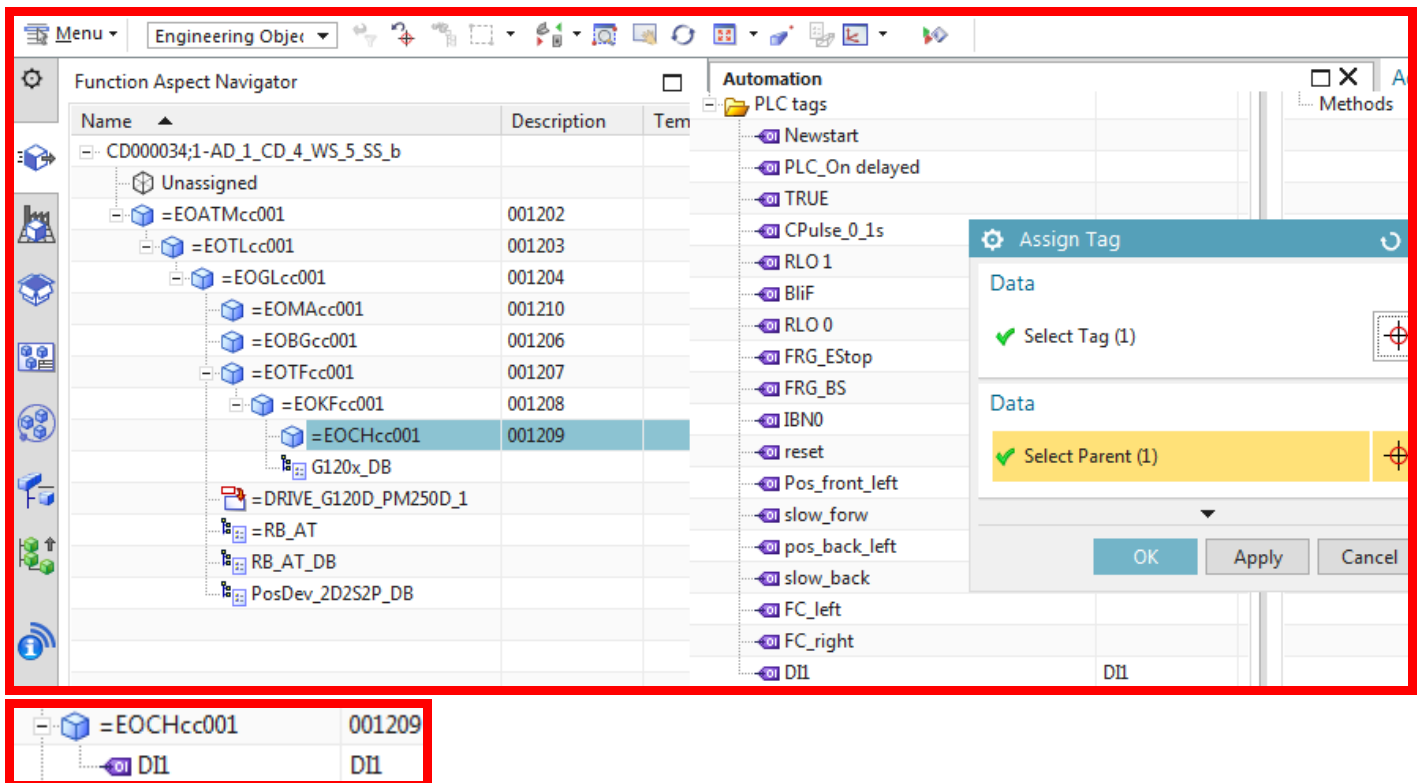
- Parent: Select Object (1)
- Name: =ATM01.TL01.GL01.TF01
- Properties:
 - Name: DI1
 - Memory Section: Input
 - Data Type: Bool
 - Description: Sensor 0
 - Address: 0.0
- Hardware Connection: Select I/O Device (0)

08_024

4. Click OK. The tag is added.



08_025



5. Right-click on DI1 and select "Properties".

6. For "Interaction Method" select "Traditional".

7. Select "Symbolic Name".

8. For "Data Type" select "Value".

9. For "Value" enter "DI1sn" (DI1 symbolic name).

Context

Interaction Method Traditional

PLC Tag Attributes

Title/Alias ▲	Value	Type	R...
Description	DI1tag	String	
ID	CH103.Tag	String	
Name	DI000	String	
Symbolic Name	DI1_sn	String	

Category (optional) General

Title/Alias Symbolic Name

Data Type String

Value Expression Formula

Value DI1_sn

Accept Edit

08_026

10. Click on the green arrow and click OK.

8.2.4a. Add 1 DWord tag (PID0) 20160421

=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001/+???.DriveControlL001/-
 ???DriveControlP001

Automation Navigator

- CD000101;1-AD_1_CD_4_WS_5_SS_20160418
 - Unassigned
 - PLC HW
 - S7-300-Station_2
 - S7-300-Station_2
 - Program blocks
 - PLC data types
 - Local modules
 - Profilschiene_0
 - PS 307 10A_1
 - PLC_0_317
 - DI16/DO16 x 24V / 0,5A_1
 - DI16/DO16 x 24V / 0,5A_2
 - DI16/DO16 x 24V / 0,5A_3
 - DI16/DO16 x 24V / 0,5A_4
 - DI16/DO16 x 24V / 0,5A_5
 - DI16/DO16 x 24V / 0,5A_6
 - AI4/AO4 x 14Bit/12Bit_1
 - AI4/AO4 x 14Bit/12Bit_2
 - PLC tags
 - S7300/ET200M station_1
 - S7300/ET200M station_1
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - G120x_DB [DB2]
 - PosDev_2D2S2P_DB [DB9]
 - RB_AT_DB [DB1012]

Tag Properties

Parent: Select Object (1)

Name: = _001._004.ConveyorF001:PID0

Properties:

- Name: PID0
- Memory Section: Input
- Data Type: DWord
- Description: PID0 description
- Address Offset Byte: 0
- Address Offset Bit: 0
- Address: [Empty]

Hardware Connection

Select I/O Device (1)

I/O Device Structure	Status	Tag Name	Tag Data Type
IB10	Used		
I10.0	Used	*01B10A	*Bool
I10.1	Used	*01B10B	*Bool
I10.2	Used	*01B10C	*Bool
I10.3	Used	*01B10D	*Bool
I10.4	Used	*01B10E	*Bool
I10.5	Used	*01B10F	*Bool
I10.6	Used	*01B10G	*Bool
I10.7	Used	*01B10H	*Bool
IB11	Used		

Alerts

It is not possible to assign a tag to a single bit when the tag is not of data type 'bool'.

Function Aspect Navigator

Name	Description	T
CD000101;1-AD_1_CD_4_WS_5_SS_20160418		
Unassigned		
= _001	000344	
= _004	000345	
= ConveyorF001	000346	
= MotorF001	000347	
= SensorF001	000348	
= DrivePowerF001	000351	
= DriveControlF001	000352	
= EOCHcc001	000353	
D11	Sensor1	
G120x		
PID0	PID0 description	
Description250	Description250	
EPLAN Page Macro		
RB_AT		
PosDev_2D2S2P		
RB_AT_DB		

Properties

Select Object: Select Object (1)

Context: Interaction Method: Traditional

PLC Tag Attributes

Title/Alias	Value	Units	T...	Type	R...	D...	L...
Address							
Address	0			String	🔒		
AddressOffsetBit	0			Integer	🔒		
AddressOffsetByte	0			Integer	🔒		
Data Type	DWord			String	🔒		
Memory Section	Input			String	🔒		
General							
Description	PID0 description			String	🔒		
ID	_009.Tag1			String	🔒		
Name	PID0			String	🔒		
Symbolic Name	PID0sn			String	🔒		

8.2.4b. Add 1 DWord tag (PID0)

19		PID0	DWord	%MD4	PID0 PID1-2, PQD0 (later chapter)
20		PID1	DWord	%MD8	
21		PID2	DWord	%MD12	
22		PQD0	DWord	%MD16	

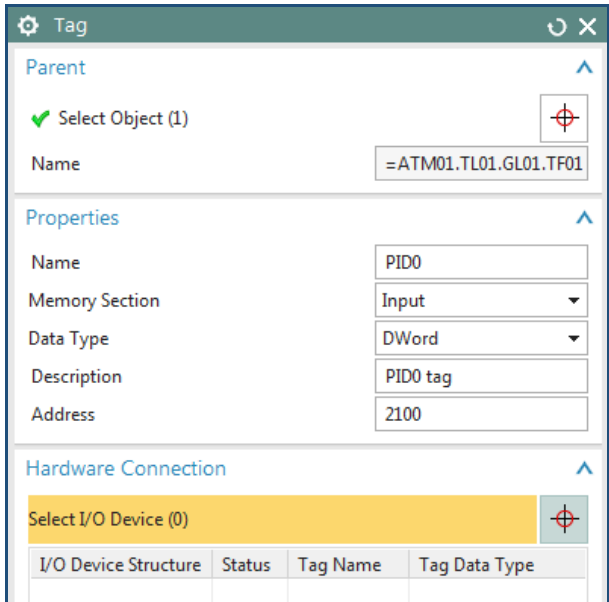
08_027

Add the DWord tags that are input-output for the motor starter sent over the bus.



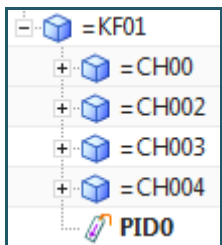
1. Click "Electrical Engineering / Add Tag".
2. Select the KF01 EO.
- TERRY: what are (relative) addresses for PID,PQD tags?
3. Enter the following:

Name	PID0
Memory Section	Input
Data Type	DWord
Description	PID0 descr
Address	2100



08_028

4. Click OK. The tag is added.



08_029

5. Right-click on PID0 and select "Properties".
6. For "Interaction Method" select "Traditional".
7. Select "Symbolic Name".
8. For "Data Type" select "Value".
9. For "Value" enter "PID0sn".

Context

Interaction Method: Traditional

PLC Tag Attributes

Title/Alias ▲	Value	Type	R...
Description	PID0 tag	String	
ID	KF031.Tag3	String	
Name	PID0	String	
Symbolic Name		String	

Category (optional): General

Title/Alias: Symbolic Name

Data Type: String

Value Expression Formula

Value: PID0sn

Override Attribute: ✓

08_030

10. Click on the green arrow and click OK.

8.3a. Create TL constant value 20160429

Engineering Object Attributes ▲

Title/Alias ▲	Value	Units	T...	Type	R...	D...	I...
Category (optional)					Operational_1 ▼		
Title/Alias					FastSpeed ▼		
Data Type					String ▼		
<input checked="" type="radio"/> Value <input type="radio"/> Expression Formula							
Value					Real#90.0		
Add New Attribute							

Export ▼

Operational_1										
FastSpeed		Real#90.0		String				OK	Apply	Cancel

8.3a. Create TL constant value 20160421

The screenshot shows a software interface with a 'Properties' dialog box open. The dialog has several sections:

- Select Object:** A yellow bar with a checkmark and the text 'Select Object (1)'.
- Context:** 'Interaction Method' is set to 'Traditional'.
- Engineering Object Attributes:** A table with columns: Title/Alias, Value, Units, T..., Type, R..., D..., I... The table is mostly empty.
- Category (optional):** A dropdown menu set to 'Operational_1'.
- Title/Alias:** A dropdown menu set to 'FastSpeed'.
- Data Type:** A dropdown menu set to 'String'.
- Value:** A text field containing 'Real#20.0'.
- Value Type:** Radio buttons for 'Value' (selected) and 'Expression Formula'.
- Add New Attribute:** A green checkmark button.

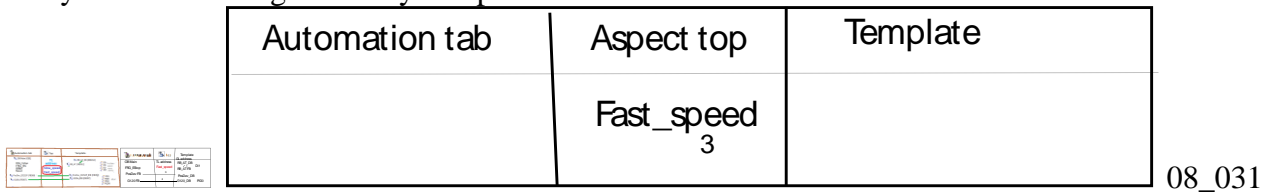
Below the dialog, the 'Engineering Object Attributes' table is shown again, but now with a new entry:

Title/Alias	Value	Units	T...	Type	R...	D...	I...
Aspect Function							
Aspect Location							
Aspect Product							
General							
Operational_1							
FastSpeed	Real#20.0			String			
Type							
All Unset							

8.3b. Create TL constant value

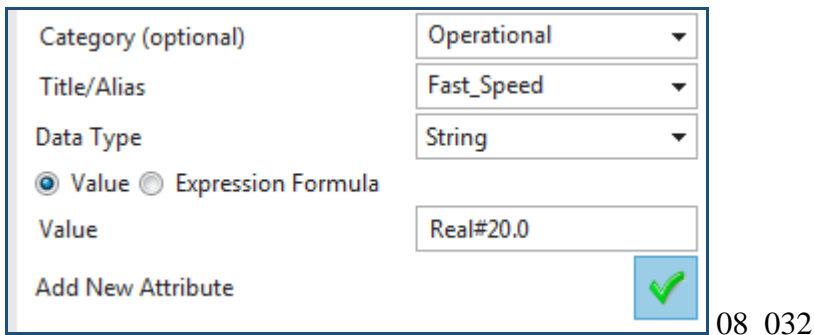
Create TL constant value Fast_Speed. This value can be referenced by SW calls, allowing them to be used to many times but changed in only one place.

Automation tab	Aspect top	Template
	Fast_speed 3	

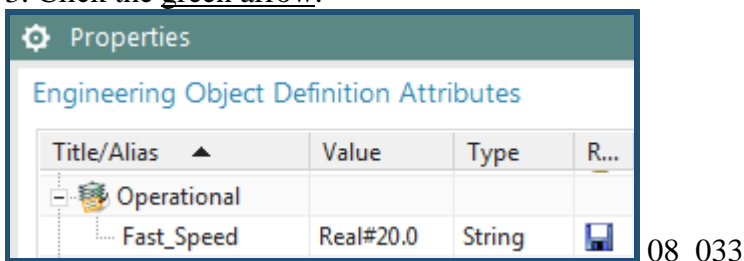


1. Right-click on TL01 and select "Edit Definition".
2. Click "Engineering Object Definition / Properties". Enter the following:

Category	Operational_1
Title/Alias	Fast_Speed
Data Type	String
Value	Real#20.0



3. Click the green arrow.



Title/Alias	Value	Type	R...
Operational			
Fast_Speed	Real#20.0	String	

8.4. Dynamize SW

The SW blocks imported previously now need to be dynamized (reconnected).

- 8.4.1. Overview of calls/tags to be dynamized
- 8.4.2. RB_AT manual OB1 replace by call
- 8.4.4. RB_AT manual connect to RB_AT automation tags
- 8.4.5. RB_AT manual connect to CH DI tags
- 8.4.6. RB_AT->PosDev replace by call
- 8.4.7. RB_AT->G120x replace by call
- 8.4.8. PosDev manual connecto to AUTOMATION tags

8.4.1. Overview of calls/tags to be dynamized



The conveyor is a 2-position, 2-speed, 2-direction conveyor. The software to control the conveyor is based on a typical Siemens automotive standard. The following describes the function of the SW blocks.

RB_AT - Conveyor controller

- Provide interlocks for interaction with other conveyors.
- Calls the underlying functional blocks for real operation (PosDev_2D2S2P, G120x).

PosDev_2D2S2P

- Controls conveyor.
- 2 directions, 2 speeds, 2 positions.
- Generates conveyor specific error and fault messaging.

G120x

- Operates G120 drive.
- Includes alarm functionality and fault messages.
- Controls speed.

The following describes how these SW blocks will be modified in the next sections.

1. OB1 (8.4.2)
2. RB_AT (8.4.4-7)
3. PosDev (8.4.8)
4. G120x (no changes)

1. OB1 (8.4.2)

In 8.4.2 replace calls with a call rule call to RB_AT.



Original:

Block title: "Main Program Sweep (Cycle)"		
Network 1:		
1	CALL	"FC_Init_FB", "FC_Init_FB_DB" %FB982, %DB982
Network 2:		
1	CALL	"Call Operation modes_FB", "Call Operation modes_FB_DB" %FB983, %DB983
Network 3:		
1	CALL	"FB_Zone1_messages", "FB_Zone1_messages_IDB" %FB1001, %DB1001
Network 4:		
1	CALL	"Call_user_blocks_FB", "Call_user_blocks_FB_DB" %FB984, %DB984

08_034

Dynamized:

```

Network 1: RB_AT_DB
//
CALL "RB_AT", "RB_AT_DB"
    
```

08_035

2. RB_AT (8.4.4-7)

In 8.4.4 create a manual connection to the automation tab tags (probably already connected).

Configurations			Interface	
Name	Value	Type	PLC Code	
Global Symbols			1 Network 1:--	
Tags			2 A- "FRG_EStop_1b"~	
FRG_EStop	FRG_EStop_1b	Bool	3 A- "FRG_BS"~	
FRG_BS		Bool	4 => #ENABLE_SAFETY~	
			5	

08_036

Note: The colors indicate:

- Green: Connected tag
- Yellow: Unconnected tag
- Red: Wrongly connected tag

In 8.4.5 create a manual connection to the sensor (CH DI) tags.

Configurations			Interface	
Name	Value	Type	PLC Code	
Global Symbols			51 Network 11:--	
Tags			52 A(-	
Pos_front_left	DI1	Bool	53 A- "DI1"~	
slow_forw		Bool	54 A- "slow_forw"~	
			55 O-	

08_037

In 8.4.6 dynamize the call to PosDev_DB.

Original:

```

Network 9:--
CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
EN_ADV := #ENABLE_ADV
EN_RTN := #ENABLE_RTN
IL_ADV := #INTERLOCK_ADV
IL_RTN := #INTERLOCK_RTN
PB_ADV := #PUSHBOTTOM_ADV
PB_RTN := #PUSHBOTTOM_RTN
LS_ADV := "Pos_front_left"
SW_FS_ADV := "slow_forw"
SW_FS_RTN := "slow_back"
LS_RTN := "pos_back_left"
SEL_SLOW := "RLO 0"
AUTO_MODE := "auto_inching"
MANU_MODE := "manual"
MOTOR_PROT := "RLO 1"
MOTOR_TEMP := "RLO 1"
ERR_RESET := #ERROR_RESET
LAMP_TEST := "Lampstest"
TM_OF := 50
TM_LS := 20
TV_STARTUP := 20
Visu := "Interface_Visu".Model[2]
Alarms := "Interface_Alarms".Model[2]
ADV := #OUT_ADV
RTN := #OUT_RTN
FAST := #OUT_FAST
SLOW := #OUT_SLOW
MEMO_ADV := #MEMO_ADV
MEMO_RTN := #MEMO_RTN
POSIT_LS_ADV := #POSIT_LS_ADV
POSIT_LS_RTN := #POSIT_LS_RTN
LAMP_LS_ADV := #LAMP_LS_ADV
LAMP_LS_RTN := #LAMP_LS_RTN
TOTAL_FLT := #TOTAL_FLT
    
```

08_038

Dynamized:

```

CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
LS_ADV := "DI1"
    
```

08_039

In 8.4.7 dynamize the call to G120x_DB.

Original:

```
Network 10:--  
CALL "G120x", "G120x_DB"  
  INPUT_ADDR := "PID0"  
  I_M := "PID1"  
  A_F := "PID2"  
  FAST_SPEED := REAL#100.0  
  SLOW_SPEED := REAL#20.0  
  EN_FWD := #OUT_ADV  
  EN_BWD := #OUT_RTN  
  EN_FAST := #OUT_FAST  
  EN_SLOW := #OUT_SLOW  
  EM_STOP := #ENABLE SAFETY  
  ERR_RESET := #ERROR_RESET  
  OUTPUT_ADDR := "POD0"  
  ACT_SPEED := #ACT_SPEED  
  ACT_CURRENT := #ACT_CURRENT  
  ACT_TORQUE := #ACT_TORQUE  
  EN_MOTION_FWD := #EN_MOTION_FWD  
  EN_MOTION_BWD := #EN_MOTION_BWD  
  FAULT_ACTIVE := #FAULT_ACTIVE  
  ALARM_ACTIVE := #ALARM_ACTIVE  
  FAULT_MSG := #FAULT_MSG  
  ALARM_MSG := #ALARM_MSG
```

08_040

Dynamized:

```
CALL "G120x", "G120x_DB"  
  INPUT_ADDR := "PID0"  
  FAST_SPEED := Real#20.0
```

08_041

3. PosDev (8.4.8)

In 8.4.8. connect tags (probably already connected).

```
5 Network 2:--  
6 ---- A "Newstart"  
7 ---- R #TM_STARTUP  
8 ---- R #EN_FAST  
9 --  
10 Network 3:--  
11 ---- A #ERR_RESET  
12 ---- FP #Err_Reset P  
13 ---- ON "PLC_On delayed"
```

08_042

4. G120x (no changes)

No changes required.

8.4.2a. OB1->RB_AT_DB replace by call 20160421

Automation Navigator

- CD000101:1-AD_1_CD_4_WS_5_SS_201604
- Unassigned
 - PLC HW
 - S7-300-Station_2
 - S7-300-Station_2
 - S7300/ET200M station_1
 - S7300/ET200M station_1
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - G120x_DB [DB2]
 - PosDev 2D2S2P DB [DB]

Actions

Configurations

Name	Value
Global Sym...	
Tags	
FC_left	FC_left
FC_ri...	FC_right
FB/IDB	
FC	
DB	
Ports	
Caller P...	
Operand...	

Interface

Name	Defa...	Data ...	Comments
Temp			
OB1_EV_CLASS		Byte	Bits 0-3 = 1 (Con
OB1_SCAN_1		Byte	1 (Cold restart sc
OB1_PRIORITY		Byte	Priority of OB Ex

PLC Code

```

1 Network 1:--
2 ..... A- "FC_left"
3 ..... => "FC_right"
4 .....
5

```

A- "FC_left"
=> "FC_right"

- Replace by Method
- Replace by Call
- Create Method

Function Aspect Navigator

- CD000101:1-AD_1_CD_4_WS_5_SS_20160418
- Unassigned
 - =_001
 - =_004
 - =ConveyorF001
 - =MotorF001
 - =SensorF001
 - =DrivePowerF001
 - =DriveControlF001
 - =EOCHcc001
 - EPLAN Page Macro
 - RB_AT
 - RB_AT_DB

Replace by Call

Properties

Name: Rule_1

Selection

Object Selection: Select Program Block (1)

Expression

Return Value

Break Expression

Define Parameters

Parameter	Value	Type

Replace Parameter by

Symbolic Reference: Object Selection

* Select Object (0)

Expression

Return Value

Break Expression

Reset to Default

Reset Parameter

Condition

Define Condition

Remove Condition

Result

```

1 Network 1:--
2 ..... CALL "RB_AT", "RB_AT_DB"
3 .....
4

```

Source

OB004

Main [OB1]

Ports

Port	Connected Ob...	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
<ul style="list-style-type: none"> User Defined <ul style="list-style-type: none"> Caller_1 			EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy
	DB010	DB010	EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
<ul style="list-style-type: none"> System Defined <ul style="list-style-type: none"> Block_C 			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M ...	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
<ul style="list-style-type: none"> <ul style="list-style-type: none"> FC_left 			EO	Tag	Undirected	1	Tag_Proxy
	FC_left	FC_left	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> FC_right 			EO	Tag	Undirected	1	Tag_Proxy
	FC_right	FC_right	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
OB004			EO	OB_Proxy	Undirected	N	Operand, Any, Program Block, OB

Source

DB010

RB_AT_DB

Ports

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
<ul style="list-style-type: none"> User Defined System Defined <ul style="list-style-type: none"> Block_C 			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M station_1	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
<ul style="list-style-type: none"> <ul style="list-style-type: none"> RB_AT 			EO	FB	Undirected	1	FB_Proxy
	FB019	FB019	EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
<ul style="list-style-type: none"> <ul style="list-style-type: none"> DB010 			EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
	OB004	Caller_1	EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy

Source

FB019

RB_AT

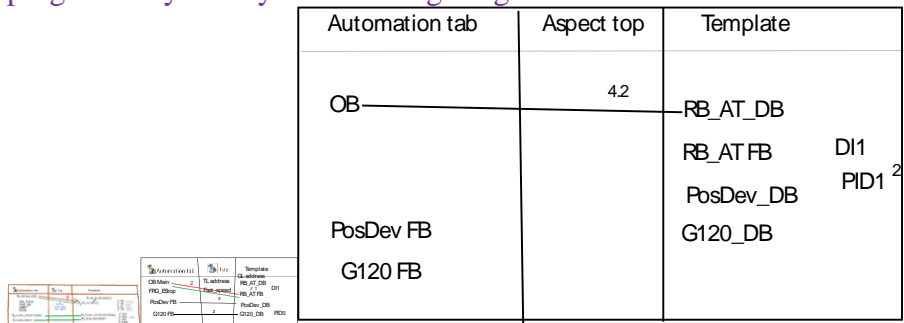
Ports

Port	Connected Object	Connected Port	Port Type	Connection Type	Direction	Cardinality	Connectable types
<ul style="list-style-type: none"> User Defined System Defined <ul style="list-style-type: none"> Block_C 			Control Scope	Program Block	Undirected	1	Controller
	S7300/ET200M station_1	Station_C	Control Scope	Controller	Undirected	N	PLC Tag, Program Block, Object, PLC Data Type
<ul style="list-style-type: none"> <ul style="list-style-type: none"> FRG_EStop 			EO	Tag	Undirected	1	Tag_Proxy
	FRG_EStop	FRG_EStop	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> FRG_BS 			EO	Tag	Undirected	1	Tag_Proxy
	FRG_BS	FRG_BS	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> IBN0 			EO	Tag	Undirected	1	Tag_Proxy
	IBN0	IBN0	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> reset 			EO	Tag	Undirected	1	Tag_Proxy
	reset	reset	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> Pos_front_left 			EO	Tag	Undirected	1	Tag_Proxy
	Pos_front_left	Pos_front_left	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> slow_forw 			EO	Tag	Undirected	1	Tag_Proxy
	slow_forw	slow_forw	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> pos_back_left 			EO	Tag	Undirected	1	Tag_Proxy
	pos_back_left	pos_back_left	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> slow_back 			EO	Tag	Undirected	1	Tag_Proxy
	slow_back	slow_back	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
<ul style="list-style-type: none"> <ul style="list-style-type: none"> PosDev_2D2S2P_DB 			EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy
	DB007	DB007	EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
<ul style="list-style-type: none"> <ul style="list-style-type: none"> G120x_DB 			EO	Caller	Undirected	N	IDB_Proxy, FC_Proxy
	DB006	DB006	EO	IDB_Proxy	Undirected	N	Any, Caller, Operand, Program Block, IDB
<ul style="list-style-type: none"> <ul style="list-style-type: none"> FB019 			EO	FB_Proxy	Undirected	N	Any, FB, Operand, FB, Program Block
	DB010	RB_AT	EO	FB	Undirected	1	FB_Proxy

8.4.2b. OB1->RB_AT_DB replace by call , 20160429

Replace the OB calls with a single call rule.

20160208 TERRY: at the beginning of the next 6 sections is a diagram like this... idea is to show progressively what you are configuring.

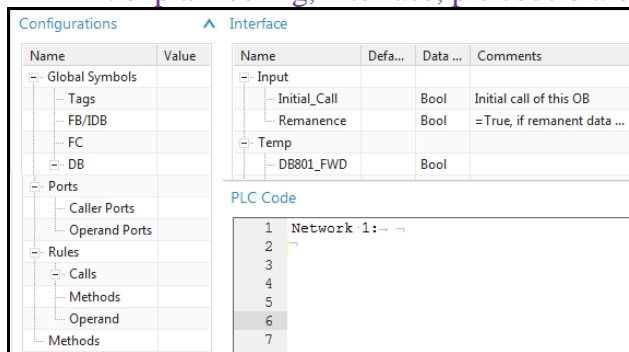


08_043

1. Double-click on OB1. The "Configurations", "Interface" and "PLC code" is shown for OB1.

TERRY: Error, was not imported correctly.

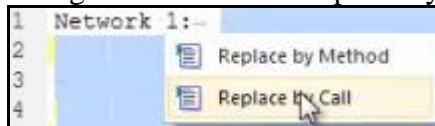
TERRY: explain config, interface, plc code dialog.



08_044

2. Select every line of OB1 (its probably empty).

3. Right-click. Select "Replace by Call".

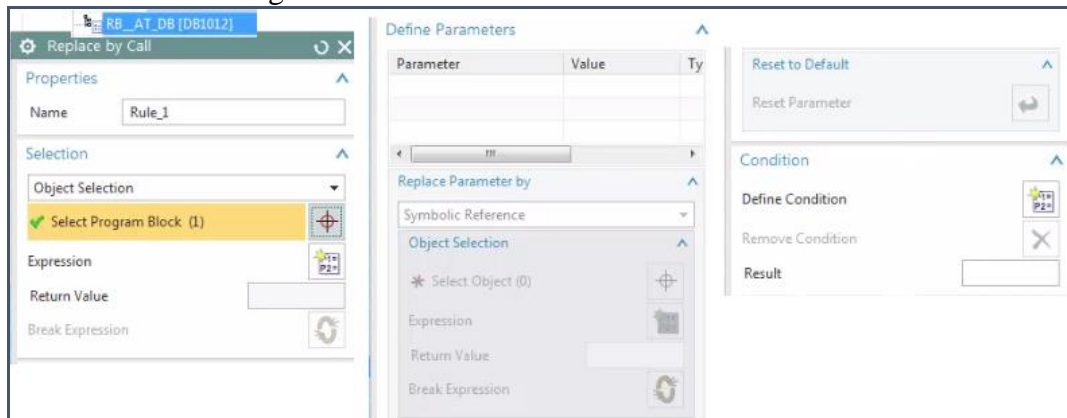


08_045

4. For "Selection" select "Object selection".

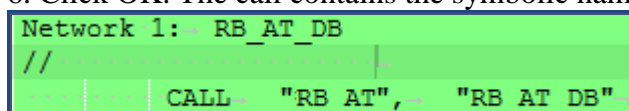
5. For the program block select the RB_AT_DB (IDB, not the FB) in the function aspect.

Note: You will configure "Define Parameters" later.



08_046

6. Click OK. The call contains the symbolic names of the FB and IDB.



08_047

8.4.4a. RB_AT manual connect to RB_AT AUTOMATION tags (FRG) 20160421, 20160429

Already connected.

⚙️ RB_AT [FB1012]

Actions

Configurations

Name	Value
Global Symbols	
Tags	
FRG_EStop	FRG_EStop
FRG_BS	FRG_BS
IBN0	IBN0
reset	reset
Pos_front_left	Pos_front_left
slow_forw	slow_forw
pos_back_left	pos_back_left
slow_back	slow_back
FB/IDB	
PosDev_2D2S2P_DB	PosDev_2D2S2P..
G120x_DB	G120x_DB
FC	
DB	
Ports	
Caller Ports	
Operand Ports	
Rules	
Calls	
Methods	
Operand	
Methods	

Interface

Name	Defa...	Data ...	Comments
Input			
Output			
InOut			
Static			
MEMO_ADV		Bool	Direction flag return
MEMO_RTN		Bool	Limit pos. advance
POSIT_LS_ADV		Bool	Limit pos. return
POSIT_LS_RTN		Bool	Lamp output limit adva...
LAMP_LS_ADV		Bool	Lamp output limit return

PLC Code

```

1 Network 1:→
2   A→ "FRG_EStop"
3   A→ "FRG_BS"
4   => #ENABLE_SAFETY
5
6
7 Network 2:→
8   A→ #ENABLE_SAFETY
9   // A "RB_AT_01_IDB".LIFTER_HOMEPOSITION
10  => #INTERLOCK_ADV
11
12
13 Network 3:→
14  A→ #ENABLE_SAFETY
15  // A "RB_AT_01_IDB".LIFTER_HOMEPOSITION
16  => #INTERLOCK_RTN
17
18
19 Network 4:→
20  A→ "IBN0"

```

Try yourself.

Manual Connection

Source: FRG_EStop

Target: Select Object (1)

Port	Connected Object	Connected Port	Port Type	Connection Ty...	Direc...
FRG_ES...			EO	Tag_Proxy	Undir...

```

1 Network 1:
2 ..... A "FRG_EStop"
3 ..... A "FRG_BS"
4 ..... => #ENABLE_SAFETY

```

✓ FRG_EStop			EO	Tag	Undirected	1	Tag_Proxy
	FRG_EStop	FRG_EStop	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand
✓ FRG_BS			EO	Tag	Undirected	1	Tag_Proxy
	FRG_BS	FRG_BS	EO	Tag_Proxy	Undirected	N	Tag, Any, Operand

8.4.4b. RB_AT manual connect to RB_AT AUTOMATION tags (FRG)

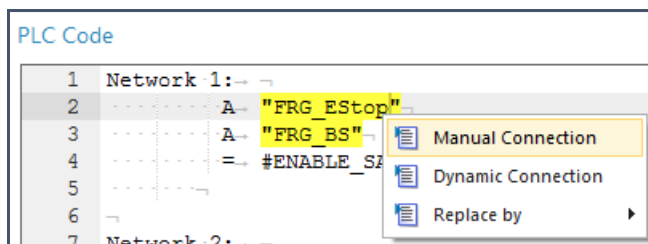
This section describes how to connect RB_AT to the FRG_EStop, etc. tags.

Automation tab	Aspect top	Template
OB	4.4	RB_AT_DB
FRG		RB_AT FB DI1 PID1
PosDev FB		PosDev_DB
G120 FB		G120_DB

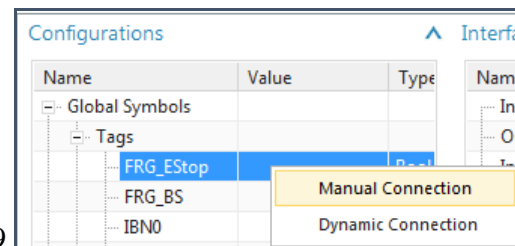
08_048

Note: In this GS the tags are probably autoconnected. So you do not need to do the following, but its explained anyway.

1. Double-click on RB_AT.
2. Right-click on line 2 "A "FRG_EStop" in "PLC Code" OR right-click on the tag in "Configurations". Select "Manual Connection" .



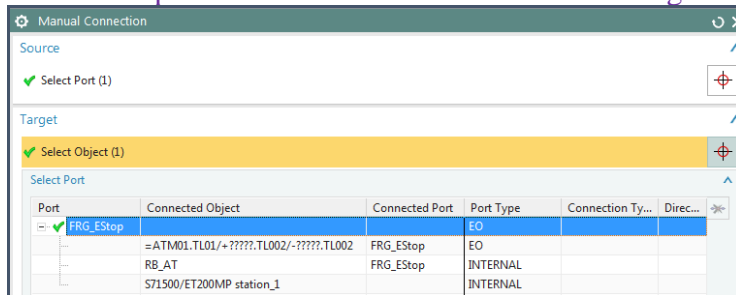
08_049



08_050

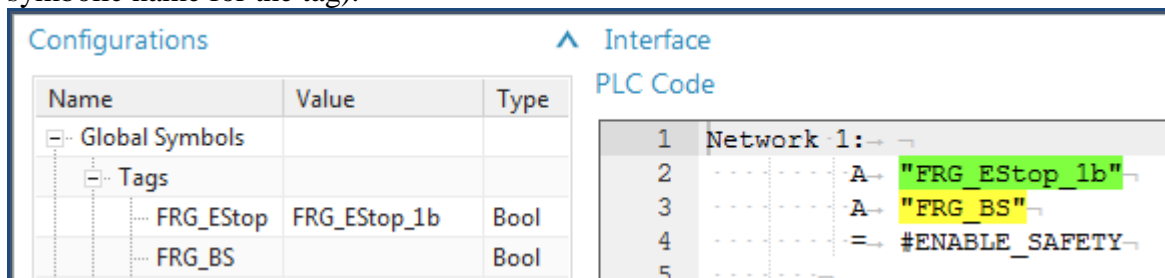
3. Select FRG_EStop.

TERRY: explain details of manual connection dialog.



08_051

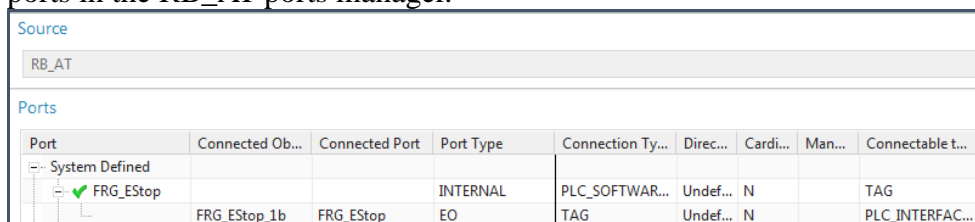
4. Click OK. The RB_AT tag reference has been connected to the FRG_EStop tag ("FRG_EStop_1b" is the symbolic name for the tag).



08_052

5. Manually connect the tags FRG_BS, IBNO, and reset.

6. RB_AT and FRG_EStop were connected using ports. The following shows the RB_AT and FRG_EStop ports in the RB_AT ports manager.



08_053

8.4.5a. RB_AT manual connect to CH DI tags 20160421

Network 11:

```

A(
  A "Pos_front_left"
  A "slow_forw"
  O
  A "pos_back_left"
  A "slow_back"

```

Network 11:

```

A(
  A "Pos_front_left"
  A "slow_forw"
  O
  A "pos_back_left"
  A "slow_back"

```

Function Aspect Navigator

Name	Description
CD000101;1-AD_1_CD_4_WS_5_SS_20160418	
Unassigned	
=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
DI1	Sensor1
G120x	

Manual Connection

Source: Pos_front_left

Target: Select Object (1)

Select Port

Port	Connected Object	Connected Port	Port Type	Connection Ty...	Direc...
DI1			EO	Tag_Proxy	Undir...
	S7-300-Station_2		INTERNAL		
	I12.0	I12.0	INTERNAL		

Network 11:

```

A(
  A "DI1sn"
  A "slow_forw"
  O
  A "pos_back_left"
  A "slow_back"

```

Object	Parent	Port	Port Type	Connection Ty...	Direc...	Tag	Tag Type
Pos_front_left		DI1sn	EO	Tag_Proxy	Undirected	1	Tag_Proxy
slow_forw		slow_forw	EO	Tag_Proxy	Undirected	1	Tag_Proxy
pos_back_left		pos_back_left	EO	Tag_Proxy	Undirected	1	Tag_Proxy
slow_back		slow_back	EO	Tag_Proxy	Undirected	1	Tag_Proxy

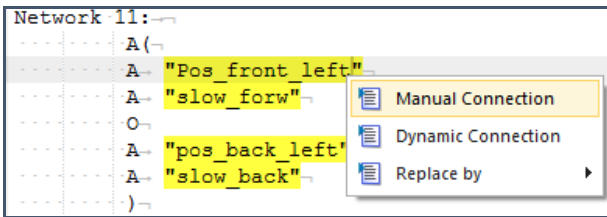
8.4.5b. RB_AT manual connect to CH DI tags

This section describes how to connect RB_AT to the CH DI tags.

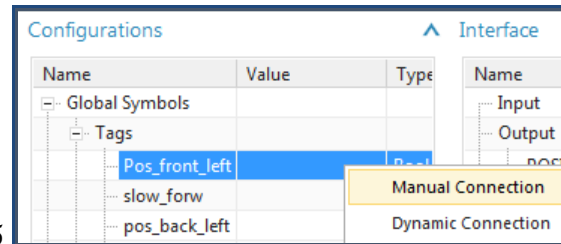
Automation tab	Aspect top	Template
OB		RB_AT_DB
FRG		RB_AT FB ^{4.5} DI1
PosDev FB		PosDev_DB PID1
G120 FB		G120_DB

08_054

2. Right-click on "Pos_front_left" and select "Manual Connection".

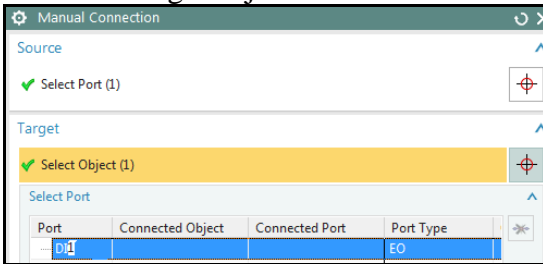


08_055



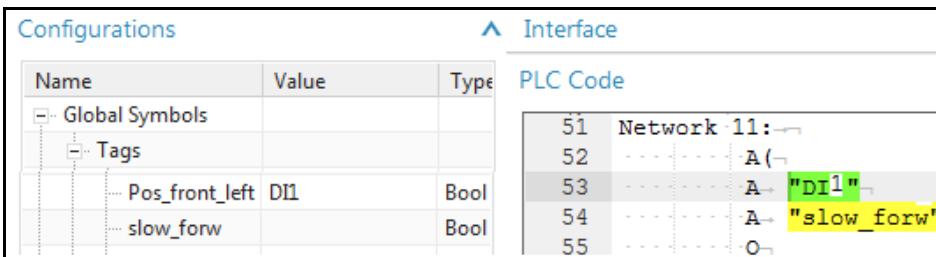
08_056

3. For the target object select DI1.



08_057

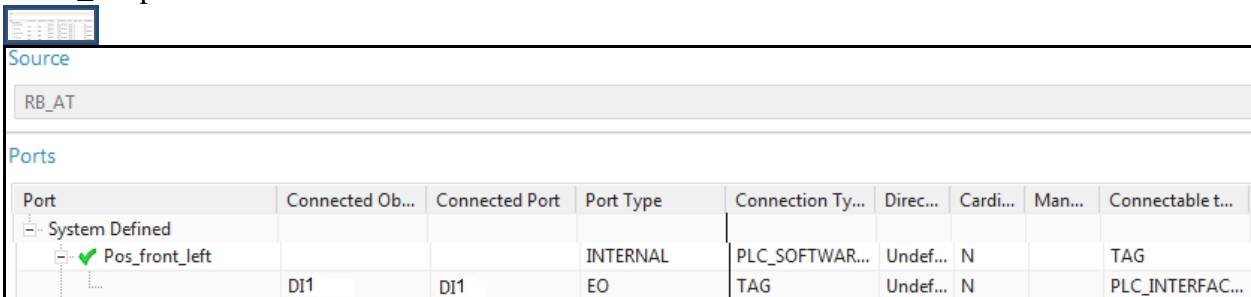
4. Click OK.



08_058

5. Connect the other 3 tags.

5. RB_AT ports should look like this.



08_059

8.4.6a. RB_AT->PosDev replace by call (20160421), 20160429

Configurations

Name	Value	Type
FRG_...	FRG_EStop	Bool
FRG_...	FRG_BS	Bool
IBNO	IBNO	Bool
reset	reset	Bool
Pos_...	Dllsn	Bool
slow_...	slow_forw	Bool
pos_...	pos_back_left	Bool
slow_...	slow_back	Bool

Interface

Name	Defa...	Data ...	Comments
MEMO_ADV		Bool	Direction flag return
MEMO_RTN		Bool	Limit pos. advance
POSIT_LS_ADV		Bool	Limit pos. return
POSIT_LS_RTN		Bool	Lamp output limit adva...
LAMP_LS_ADV		Bool	Lamp output limit return

PLC Code

```

41 ..... = #ERROR_RESET
42 .....
43
44 Network 9:
45 CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
46 LS_ADV := "Pos_front_left"
47 SW_FS_ADV := "slow_forw"
48 SW_FS_RTN := "slow_back"
49 LS_RTN := "pos_back_left"
50 SEL_SLOW := "RLO 0"
51 MOTOR_PROT := "RLO 1"
52 MOTOR_TEMP := "RLO 1"
53 TM_OP := 50
54 TM_LS := 20
55 TV_STARTUP := 20
56
57 Network 10:
58 CALL "G120x", "G120x_DB"
59 FAST_SPEED := REAL#100.0
60 SLOW_SPEED := REAL#20.0
61
62
63 Network 11:
64 ..... A(

```

Replace by Call

Name: PosDev_2D2S2P_DB

Selection: Select Port (1)

Define Parameters

Parameter	Value	Type
EN_ADV		Bool
EN_RTN		Bool
IL_ADV		Bool
IL_RTN		Bool
PB_ADV		Bool
PB_RTN		Bool
LS_ADV	"Pos_front_left"	Bool
SW_FS_ADV	"slow_forw"	Bool
SW_FS_RTN	"slow_back"	Bool
LS_RTN	"pos_back_left"	Bool
SEL_SLOW	"RLO 0"	Bool
AUTO_MODE		Bool
MANU_MODE		Bool
MOTOR_PROT	"RLO 1"	Bool
MOTOR_TEMP	"RLO 1"	Bool
ERR_RESET		Bool
LAMP_TEST		Bool
TM_OP	50	Int
TM_LS	20	Int
TV_STARTUP	20	Int

Replace Parameter by:
 Reset to Default

Define Parameters

Parameter	Value	Type
PosDev_2D2S2P_DB		
+ Input		
- Output		
Visu		DWord
Alarms		Word
ADV		Bool
RTN		Bool
FAST		Bool
SLOW		Bool
MEMO_ADV		Bool
MEMO_RTN		Bool
POSIT_LS_ADV		Bool
POSIT_LS_RTN		Bool
LAMP_LS_ADV		Bool
LAMP_LS_RTN		Bool
TOTAL_FLT		Bool

Menu | No Selection Filter

Function Aspect Navigator

Name	Description
CD000101:1-AD_1_CD_4_WS_5_SS_20160418	
Unassigned	
=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
DI1	Sensor1
G120x	
PID0	PID0 description
EPLAN Page Macro	Description250
RB_AT	
PosDev_2D2S2P	
RB_AT_DB	

Replace by Call

Properties

Name: PosDev_2D2S2P_DB

Selection

Port Selection

✓ Select Port (1)

Define Parameters

Parameter	Value	Type
PosDev_2D2S2P_DB		
Input		
EN_ADV		Bool
EN_RTN		Bool
IL_ADV		Bool
IL_RTN		Bool
PB_ADV		Bool
PB_RTN		Bool
LS_ADV	DI1sn	Bool
SW_FS_ADV	"slow_forw"	Bool
SW_FS_RTN	"slow_back"	Bool
LS_RTN	"pos_back_left"	Bool
SEL_SLOW	"RLO 0"	Bool
AUTO_MODE		Bool
MANU_MODE		Bool
MOTOR_PROT	"RLO 1"	Bool
MOTOR_TEMP	"RLO 1"	Bool

Replace Parameter by

Symbolic Reference

Object Selection

✓ Select Object (1)

Expression

Return Value

Break Expression

Configurations

Name	Value	Typ
Global Symbols		
Tags		
FRG_EStop	FRG_EStop	Bool
FRG_BS	FRG_BS	Bool
IBNO	IBNO	Bool
reset	reset	Bool
Pos_front_left	DI1sn	Bool
slow_forw	slow_forw	Bool
pos_back_left	pos_back_left	Bool
slow_back	slow_back	Bool
FB/IDB		
PosDev_2D2...	PosDev_2D2S2P...	
G120x_DB	G120x_DB	
FC		
DB		
Ports		
Caller Ports		
Operand Ports		
Rules		
Calls		
Methods		
Operand		
Methods		

Interface

PLC Code

```

41 ..... => #ERROR_RESET
42 .....
43
44 Network 9:
45 CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
46 LS_ADV := "DI1sn"
47 SW_FS_ADV := "slow_forw"
48 SW_FS_RTN := "slow_back"
49 LS_RTN := "pos_back_left"
50 SEL_SLOW := "RLO 0"
51 MOTOR_PROT := "RLO 1"
52 MOTOR_TEMP := "RLO 1"
53 TM_OP := 50
54 TM_LS := 20
55 TV_STARTUP := 20
56
57 Network 10:
58 CALL "G120x", "G120x_DB"
59 FAST_SPEED := REAL#100.0
60 SLOW_SPEED := REAL#20.0
61
62
63 Network 11:
64 A(
65 A "DI1sn"
66 A "slow_forw"
67 O

```

8.4.6b. RB_AT->PosDev replace by call (20160209)

This section describes how to "dynamize" (fix) the RB_AT call to PosDev.

Automation tab	Aspect top	Template
OB		RB_AT_DB
FRG		RB_AT FB DI1 \ 4.6 PID1 PosDev_DB
PosDev FB		G120_DB
G120 FB		

08_060

Original in TIA (shows addresses).

1	CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"	%FB369, %DB9	18	LAMP_TEST := "Lampstest"	%M5.2
2	EN_ADV := #ENABLE_ADV		19	TM_OP := 50	50
3	EN_RTN := #ENABLE_RTN		20	TM_LS := 20	20
4	IL_ADV := #INTERLOCK_ADV		21	TV_STARTUP := 20	20
5	IL_RTN := #INTERLOCK_RTN		22	Visu := "Interface_Visu".Model[2]	
6	PB_ADV := #PUSHBOTTOM_ADV		23	Alarms := "Interface_Alarms".Model[2]	
7	PB_RTN := #PUSHBOTTOM_RTN		24	ADV := #OUT_ADV	
8	LS_ADV := "Pos_front_left"	%I2130.4	25	RTN := #OUT_RTN	
9	SW_FS_ADV := "slow_forw"	%I2130.2	26	FAST := #OUT_FAST	
10	SW_FS_RTN := "slow_back"	%I2130.0	27	SLOW := #OUT_SLOW	
11	LS_RTN := "pos_back_left"	%I2130.3	28	MEMO_ADV := #MEMO_ADV	
12	SEL_SLOW := "RLO 0"	%M3.3	29	MEMO_RTN := #MEMO_RTN	
13	AUTO_MODE := "auto_inching"	%M11.1	30	POSIT_LS_ADV := #POSIT_LS_ADV	
14	MANU_MODE := "manual"	%M11.0	31	POSIT_LS_RTN := #POSIT_LS_RTN	
15	MOTOR_PROT := "RLO 1"	%M3.2	32	LAMP_LS_ADV := #LAMP_LS_ADV	
16	MOTOR_TEMP := "RLO 1"	%M3.2	33	LAMP_LS_RTN := #LAMP_LS_RTN	
17	ERR_RESET := #ERROR_RESET		34	TOTAL_FLT := #TOTAL_FLT	

08_061

Original in AD. When you replace the call, you must manually replace all the call parameter references.

Network 9:--	
CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"	ADV := #OUT_ADV
EN_ADV := #ENABLE_ADV	RTN := #OUT_RTN
EN_RTN := #ENABLE_RTN	FAST := #OUT_FAST
IL_ADV := #INTERLOCK_ADV	SLOW := #OUT_SLOW
IL_RTN := #INTERLOCK_RTN	MEMO_ADV := #MEMO_ADV
PB_ADV := #PUSHBOTTOM_ADV	MEMO_RTN := #MEMO_RTN
PB_RTN := #PUSHBOTTOM_RTN	POSIT_LS_ADV := #POSIT_LS_ADV
LS_ADV := "Pos_front_left"	POSIT_LS_RTN := #POSIT_LS_RTN
SW_FS_ADV := "slow_forw"	LAMP_LS_ADV := #LAMP_LS_ADV
SW_FS_RTN := "slow_back"	LAMP_LS_RTN := #LAMP_LS_RTN
LS_RTN := "pos_back_left"	TOTAL_FLT := #TOTAL_FLT
ERR_RESET := #ERROR_RESET	
LAMP_TEST := "Lampstest"	
TM_OP := 50	
TM_LS := 20	
TV_STARTUP := 20	
Visu := "Interface_Visu".Model[2]	
Alarms := "Interface_Alarms".Model[2]	

08_062

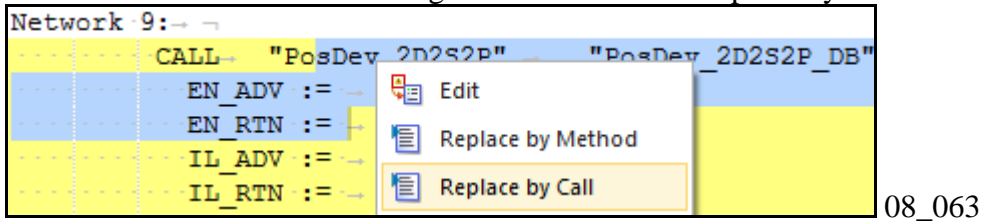
The following table summarizes.

	Call param	Value	TYPE
1.	EN_ADV	ENABLE_ADV	Local variable
2.	EN_RTN	ENABLE_RTN	Local variable
3.	IL_ADV	INTERLOCK_ADV	Local variable
4.	IL_RTN	INTERLOCK_RTN	Local variable
5.	PB_ADV	PUSHBOTTOM_ADV	Local variable
6.	PB_RTN	PUSHBOTTOM_RTN	Local variable
7.	LS_ADV	DI1	Symbolic reference
8.	SW_FS_ADV	DI2	Symbolic reference
9.	SW_FS_RTN	DI3	Symbolic reference
10.	LS_RTN	DI4	Symbolic reference
11.	SEL_SLOW	RLO 0	Local variable
12.	AUTO_MODE	auto_inching	Local variable
13.	MANU_MODE	manual	Local variable
14.	MOTOR_PROT	RLO 1	Local variable
15.	MOTOR_TEMP	RLO 1	Local variable
16.	ERR_RESET	ERROR_RESET	Local variable
17.	LAMP_TEST	Lampstest	Local variable
18.	TM_OP	50	Local variable
19.	TM_LS	20	Local variable
20.	TV_STARTUP	20	Local variable
21.	Visu	Interface_Visu.Model[2]	Local variable
22.	Alarms	Interface_Alarms.Model[2]	Local variable
23.	ADV	OUT_ADV	Local variable
24.	RTN	OUT_RTN	Local variable
25.	FAST	OUT_FAST	Local variable
26.	SLOW	OUT_SLOW	Local variable
27.	MEMO_ADV	MEMO_ADV	Local variable
28.	MEMO_RTN	MEMO_RTN	Local variable
29.	POSIT_LS_ADV	POSIT_LS_ADV	Local variable
30.	POSIT_LS_RTN	POSIT_LS_RTN	Local variable
31.	LAMP_LS_ADV	LAMP_LS_ADV	Local variable
32.	LAMP_LS_RTN	LAMP_LS_RTN	Local variable
33.	TOTAL_FLT	TOTAL_FLT	Local variable

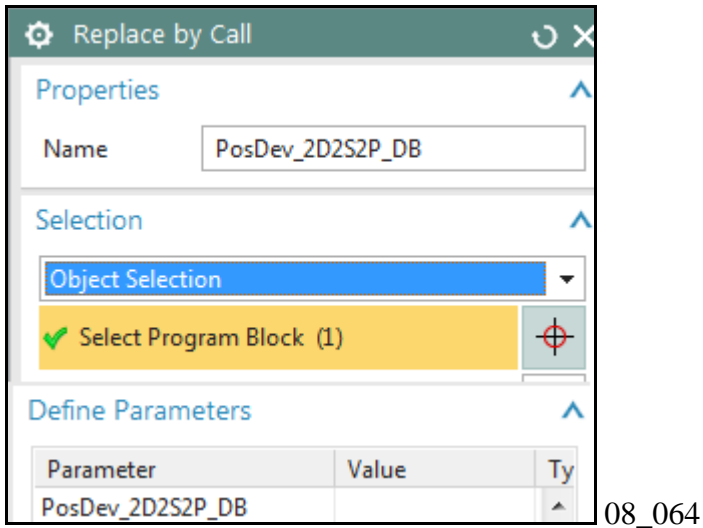
However, for now (to keep things simple) you will only replace variable

- LS_ADV
- (optional) SW_FS_ADV, SW_FS_RTN, LS_RTN.

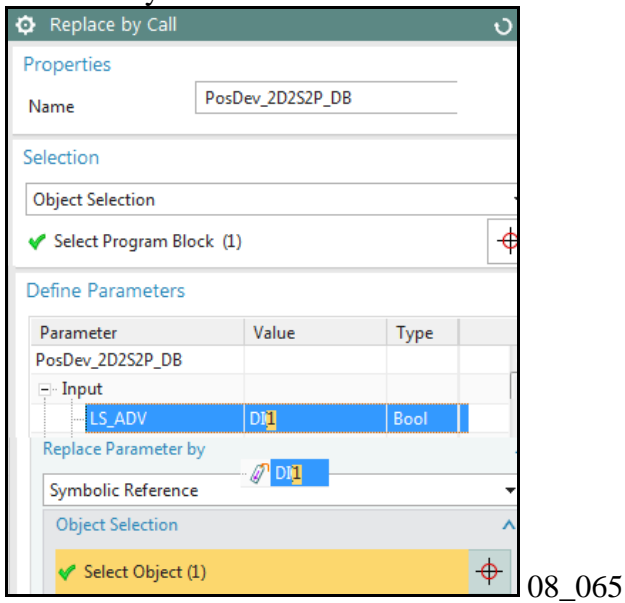
1. Select some of the call text. Right click and select "Replace by Call".



2. Select the PosDev IDB.

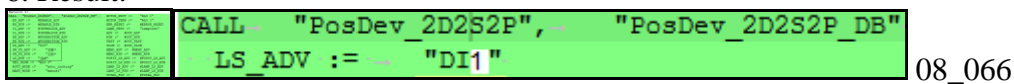


3. Define symbolic references for DI1.



5. Define Local Variables as listed in table above (if required).

6. Result.



8.4.7a. RB_AT->G120x replace by call (20160421), 20160429

20160429

```
44 Network 9:→ ↵
45 CALL "PosDev_2D2S2P", → "PosDev_2D2S2P_DB" ↵
46 LS_ADV := → "DI1" ↵
47 SW_FS_ADV := → "slow_forw" ↵
48 SW_FS_RTN := → "slow_back" ↵
49 LS_RTN := → "pos_back_left" ↵
50 SEL_SLOW := → "RLO 0" ↵
51 MOTOR_PROT := → "RLO 1" ↵
52 MOTOR_TEMP := → "RLO 1" ↵
53 TM_OP := → 50 ↵
54 TM_LS := → 20 ↵
55 TV_STARTUP := → 20 ↵
56 ↵
57 Network 10:→ ↵
58 CALL "G120x", → "G120x_DB" ↵
59 INPUT_ADDR := → "PID0" ↵
60 FAST_SPEED := → Real#90.0 ↵
61 SLOW_SPEED := → REAL#20.0 ↵
```

20160421

FB/IDB		
PosDev_2D2...	PosDev_2D2S2P...	
G120x_DB	G120x_DB	
FC		
DB		

PLC Code

```
57 Network 10:--  
58 CALL "G120x", "G120x_DB"  
59 FAST_SPEED := REAL#100.0  
60 SLOW_SPEED := REAL#20.0
```

Replace by Call

Properties

Name

Selection

Port Selection

Select Port (1)

Define Parameters

Parameter	Value	Type
G120x_DB		
Input		
INPUT_ADDR		DWord
I_M		DWord
A_F		DWord
FAST_SPEED	REAL#100.0	Real
SLOW_SPEED	REAL#20.0	Real
EN_FWD		Bool
EN_BWD		Bool
EN_FAST		Bool
EN_SLOW		Bool
EM_STOP		Bool
ERR_RESET		Bool
Output		
OUTPUT_ADDR		DWord
ACT_SPEED		Real
ACT_CURRENT		Real
ACT_TORQUE		Real
EN_MOTION_FWD		Bool
EN_MOTION_BWD		Bool
FAULT_ACTIVE		Bool
ALARM_ACTIVE		Bool
FAULT_MSG		Int
ALARM_MSG		Int

Replace Parameter by

Reset to Default

Condition


Properties ⌵

Name PID0 PID0 descriptio G120x_DB

Selection ⌵

Object Selection ⌵

Select Program Block (1) 

Expression 

Return Value

Break Expression 

Define Parameters ⌵

Parameter	Value	Type
G120x_DB		
[-] Input		
... INPUT_ADDR	PID0sn	DWord
... I_M		DWord
... A_F		DWord
... FAST_SPEED	REAL#100.0	Real
... SLOW_SPEED	REAL#20.0	Real
... EN_FWD		Bool
... EN_BWD		Bool
... EN_FAST		Bool
... EN_SLOW		Bool
... EM_STOP		Bool
... ERR_RESET		Bool
[-] Output		
... OUTPUT_ADDR		DWord
... ACT_SPEED		Real
... ACT_CURRENT		Real
... ACT_TORQUE		Real
... EN_MOTION_FWD		Bool
... EN_MOTION_BWD		Bool
... FAULT_ACTIVE		Bool
... ALARM_ACTIVE		Bool
... FAULT_MSG		Int
... ALARM MSG		Int

Replace Parameter by ⌵

Symbolic Reference ⌵

Object Selection ⌵

Select Object (1) 

Expression 

Return Value

Break Expression 

[Reset to Default](#) ⌵

Condition ⌵

Properties

Name:

Selection

Object Selection

Select Program Block (1)

Expression

Return Value

Break Expression

Define Parameters

Parameter	Value	Type
G120x_DB		
Input		
... INPUT_ADDR	PID0sn	DWord
... I_M		DWord
... A_F		DWord
... FAST_SPEED	Real#20.0	Real
... SLOW_SPEED	REAL#20.0	Real
... EN_FWD		Bool
... EN_BWD		Bool
... EN_FAST		Bool
... EN_SLOW		Bool
... EM_STOP		Bool
... ERR_RESET		Bool
Output		
... OUTPUT_ADDR		DWord
... ACT_SPEED		Real
... ACT_CURRENT		Real
... ACT_TORQUE		Real
... EN_MOTION_FWD		Bool
... EN_MOTION_BWD		Bool
... FAULT_ACTIVE		Bool

Replace Parameter by

Constant Value

Object Selection

Select Object (1)

Expression

Return Value

Break Expression

Property Selection

Property:

Reset to Default

Condition

```

Network 10:
CALL "G120x", "G120x_DB"
INPUT_ADDR := "PID0sn"
FAST_SPEED := Real#20.0
SLOW_SPEED := REAL#20.0
    
```

8.4.7b. RB_AT->G120x replace by call (20160209)

This section describes how to replace the RB_AT call to G120x.

Automation tab	Aspect top	Template
OB		RB_AT_DB
FRG		RB_ATFB DI1 PosDev_DB PID1
PosDev FB		G120_DB
G120 FB		

08_067

Original in TIA (shows addresses).

1	CALL "G120x", "G120x_DB"	%FB307, %DB2	12	ERR_RESET :=#ERROR_RESET	
2	INPUT_ADDR := "PID0"	%ID2100	13	OUTPUT_ADDR := "PQD0"	%QD2100
3	I_M := "PID1"	%ID2104	14	ACT_SPEED :=#ACT_SPEED	
4	A_F := "PID2"	%ID2108	15	ACT_CURRENT :=#ACT_CURRENT	
5	FAST_SPEED :=REAL#100.0	REAL#100.0	16	ACT_TORQUE :=#ACT_TORQUE	
6	SLOW_SPEED :=REAL#20.0	REAL#20.0	17	EN_MOTION_FWD :=#EN_MOTION_FWD	
7	EN_FWD :=#OUT_ADV		18	EN_MOTION_BWD :=#EN_MOTION_BWD	
8	EN_BWD :=#OUT_RTN		19	FAULT_ACTIVE :=#FAULT_ACTIVE	
9	EN_FAST :=#OUT_FAST		20	ALARM_ACTIVE :=#ALARM_ACTIVE	
10	EN_SLOW :=#OUT_SLOW		21	FAULT_MSG :=#FAULT_MSG	
11	EM_STOP :=#ENABLE_SAFETY		22	ALARM_MSG :=#ALARM_MSG	

08_068

Original in AD. When you replace the call, you must manually replace all the call parameter references.

Network 10:	
CALL "G120x", "G120x_DB"	
INPUT_ADDR := "PID0"	OUTPUT_ADDR := "PQD0"
I_M := "PID1"	ACT_SPEED := #ACT_SPEED
A_F := "PID2"	ACT_CURRENT := #ACT_CURRENT
FAST_SPEED := REAL#100.0	ACT_TORQUE := #ACT_TORQUE
SLOW_SPEED := REAL#20.0	EN_MOTION_FWD := #EN_MOTION_FWD
EN_FWD := #OUT_ADV	EN_MOTION_BWD := #EN_MOTION_BWD
EN_BWD := #OUT_RTN	FAULT_ACTIVE := #FAULT_ACTIVE
EN_FAST := #OUT_FAST	ALARM_ACTIVE := #ALARM_ACTIVE
EN_SLOW := #OUT_SLOW	FAULT_MSG := #FAULT_MSG
EM_STOP := #ENABLE_SAFETY	ALARM_MSG := #ALARM_MSG
ERR_RESET := #ERROR_RESET	

08_069

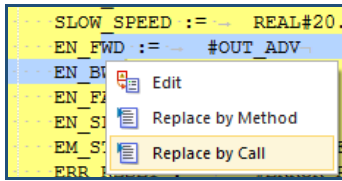
The following table summarizes.

	Call param	Value	type
3.	INPUT_ADDR	PID0	Symbolic reference
4.	I_M	PID1	Symbolic reference
5.	A_F	PID2	Symbolic reference
6.	FAST_SPEED	Real#20.0	Constant value
7.	SLOW_SPEED	Real#10.0	Constant value
8.	EN_FWD	OUT_ADV	Local variable
9.	EN_BWD	OUT_RTN	Local variable
10.	EN_FAST	OUT_FAST	Local variable
11.	EN_SLOW	OUT_SLOW	Local variable
12.	EM_STOP	ENABLE_SAFETY	Local variable
13.	ERR_RESET	ERROR_RESET	Local variable
14.	OUTPUT_ADDR	PQD0	Symbolic reference
15.	ACT_SPEED	ACT_SPEED	Local variable
16.	ACT_CURRENT	ACT_CURRENT	Local variable
17.	ACT_TORQUE	ACT_TORQUE	Local variable
18.	EN_MOTION_FWD	EN_MOTION_FWD	Local variable
19.	EN_MOTION_BWD	EN_MOTION_BWD	Local variable
20.	FAULT_ACTIVE	FAULT_ACTIVE	Local variable
21.	ALARM_ACTIVE	ALARM_ACTIVE	Local variable
22.	FAULT_MSG	FAULT_MSG	Local variable
23.	ALARM_MSG	ALARM_MSG	Local variable

However, for now (to keep things simple) you will only replace variables

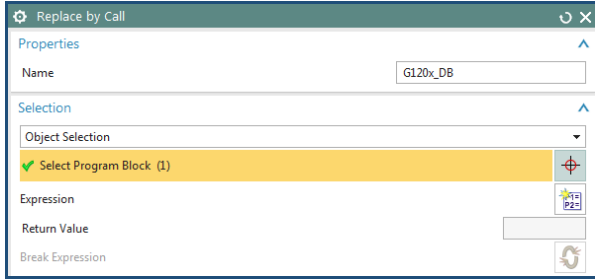
- INPUT_ADDR
- FAST_SPEED

1. Select some of the call text. Right click and select "Replace by Call".



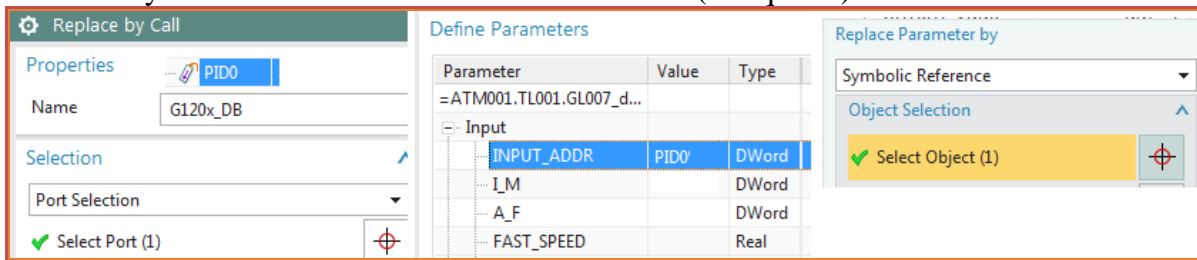
08_070

2. Select the G120x IDB.



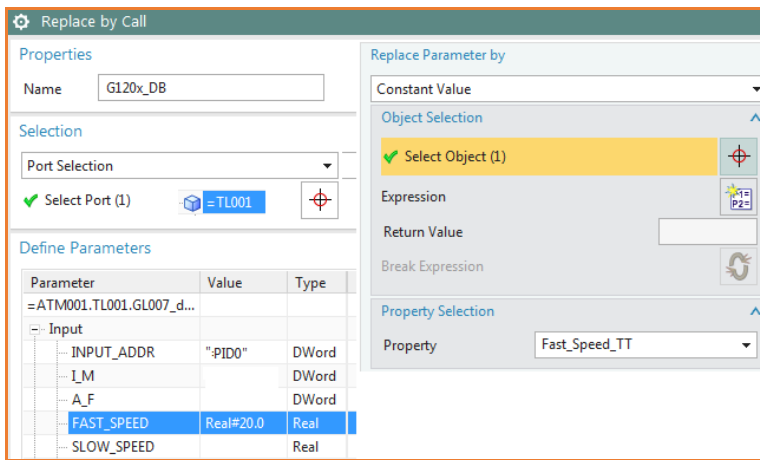
08_071

3. Define symbolic references as listed in table above (if required).



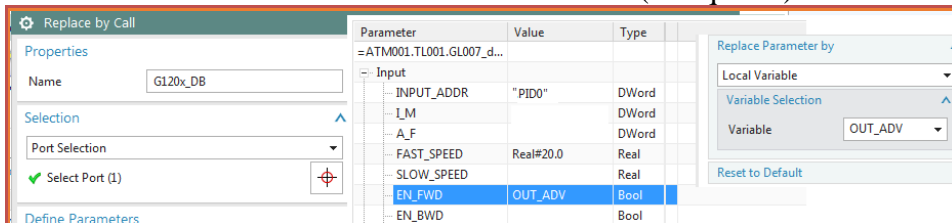
08_072

4. Define Constant Values as listed in table above.



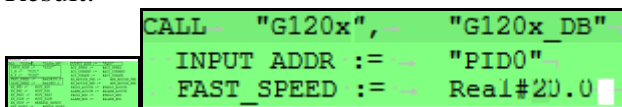
08_073

5. Define Local Variables as listed in table above (if required).



08_074

Result.



08_075

8.4.8a. PosDev manual connect to AUTOMATION tags (20160421), 20160429

Function Aspect Navigator

Name	Description
CD000101;1-AD_1_CD_4_WS_5_SS_20160418	
Unassigned	
=_001	000344
=_004	000345
=ConveyorF001	000346
=MotorF001	000347
=SensorF001	000348
=DrivePowerF001	000351
=DriveControlF001	000352
=EOCHcc001	000353
DII	Sensor1
G120x	
PID0	PID0 description
EPLAN Page Macro	Description250
RB_AT	
PosDev_2D2S2P	
RB_AT_DB	

Actions

Configurations

Name	Value	Type
Global Symbols		
Tags		
Newstart	Newstart	Boo
PLC_On dela...	PLC_On delayed	Boo
TRUE	TRUE	Boo
CPulse_0_1s	CPulse_0_1s	Boo
RLO 1	RLO 1	Boo
BliF	BliF	Boo
RLO 0	RLO 0	Boo
Ports		
Rules		

Interface

PLC Code

```


1 Network 1:--
2 .....TAR1-- #SAVE_AR1--
3 .....TAR2-- #SAVE_AR2--
4
5 Network 2:--
6 .....A-- "Newstart"--
7 .....R-- #TM_STARTUP--
8 .....R-- #EN_FAST--
9
10 Network 3:--
11 .....A-- #ERR_RESET--
12 .....FP-- #Err_Reset P--
13 .....ON-- "PLC_On delayed"--
14 .....JCN www--
15
16 Network 4:--
17 .....A-- "TRUE"--
18 .....R-- #F_EN_FLT--
19 .....R-- #F_MOTOR_PROT--
20 .....R-- #F_MOTOR_TEMP--
21 .....R-- #F_LS_CHK--

```

8.4.8b. PosDev manual connect to AUTOMATION tags (20160209)

This section describes how to connect the PosDev automation tags.

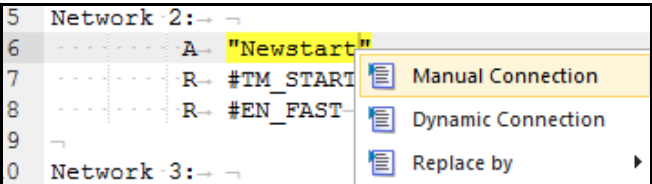
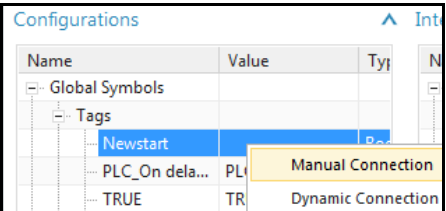
Automation tab	Aspect top	Template
OB		RB_AT_DB
FRG		RB_AT_FB DI1
Newstart ^{4.8}		PosDev_DB PID1
PosDev FB		G120_DB
G120 FB		



08_076

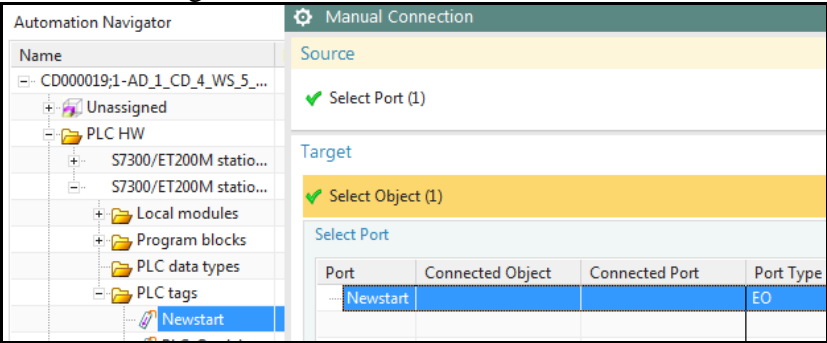
Note: In this GS the tags are probably autoconnected. So you do not need to do the following.

1. Double-click on PosDev.
2. Right-click on line 6 in "PLC Code" OR right-click on the tag in "Configurations". Select "Manual Connection".

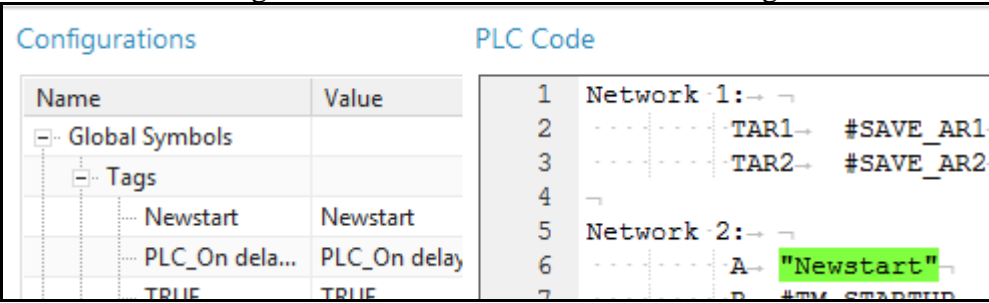
08_078

3. Select the tag.



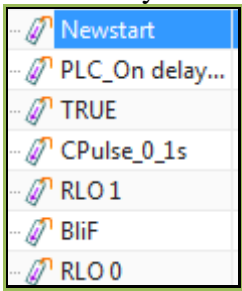
08_079

4. Click OK. The tag reference has been connected to the tag.



08_080

5. Manually connect the remaining tags.



08_081

6. The following shows the ports in the ports manager.

Source								
PosDev_2D2S2P								
Ports								
Port	Connected Object	Connected Port	Port Type	Connection Ty...	Direc...	Cardi...	Man...	Connectable t...
[-] User Defined								
[-] System Defined								
[-] ✓ Newstart	Newstart	Newstart	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ PLC_On delayed	PLC_On delayed	PLC_On delayed	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ TRUE	TRUE	TRUE	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ CPulse_0_1s	CPulse_0_1s	CPulse_0_1s	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ RLO 1	RLO 1	RLO 1	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ BliF	BliF	BliF	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ RLO 0	RLO 0	RLO 0	INTERNAL	PLC_SOFTWARE...	Undef...	N		TAG
[-] ✓ PosDev_2D2S2P	PosDev_2D2S2P_DB	PosDev_2D2S2P	INTERNAL	PLC_SOFTWARE...	Undef...	ONE		FB
	S7300/ET200M station_1	S7300/ET200M station_1	INTERNAL	PLC_SOFTWARE...	Undef...	N		OB, FB, FC, DB, ...

08_082

8.5. Assign SW to HW (set tag Addrs, connect SW) 20160229

The screenshot shows the Automation Navigator on the left and the Function Aspect Navigator on the right. The Automation Navigator displays the project hierarchy for 'CD000124;1-AD_1_CD_4_WS_5_SS_20160426', including PLC HW, Program blocks, PLC data types, Local modules, and PLC tags. The Function Aspect Navigator shows a tree view of function blocks, including 'Unassigned', '=EOTLCcc001_1', '=EOGLcc002', and various control objects like '=EOMAcc001', '=EOBGcc001', and '=EOTFcc001'.

The Bulk Connection dialog box is shown, allowing for the selection of source and target objects. The Source side has 1 object selected, and the Target side has 0 objects selected. The Port Type Filter is set to 'Control Scope'. The dialog includes two tables for Source and Target objects, and a Connections table at the bottom.

Source					Target			
Status	Port	Reference Design	Objec		Status	Port	Reference Designal	Object Type
1	Block_C	RB_AT	FB					
2	Block_C	PosDev_2D2S2P...	DB					
3	Block_C	RB_AT_DB	DB					
4	Block_C	G120x_DB	DB					
5		=EOTLCcc001_1	EODKF					
6		=EOTLCcc001_1	EODM					
7		=EOTLCcc001_1	EODCH					
8		=EOTLCcc001_1	EODT					

Source		Target	
Reference Designal	Port	Status	Status
1	RB_AT	Block_C	Block_C
2	PosDev_2D2S2P...	Block_C	Block_C
3	RB_AT_DB	Block_C	Block_C
4	G120x_DB	Block_C	Block_C

File View Home EPLAN Controller Programming Electrical Engineering

Receive Data Engineering Object Template IDB IDB from Library Tag Program Block Tag Table Expressions Assign Tag Place in Aspect Structure Bulk Connection Tools Publish to Library Reuse O...

Automation Navigator

- CD000124:1-AD_1_CD_4_WS_5_SS_20160426
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - S7300/ET200M station_2
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT_DB [DB1012]
 - G120x_DB [DB307]
 - PosDev_2D2S2P_DB [DB369]
 - PLC data types
 - Local modules
 - PLC tags
 - RB_HA_01_POSIT_LS_DN
 - Newstart
 - PLC_On delayed
 - TRUE
 - CPulse_0_1s
 - RLO 1
 - Blif
 - RLO 0
 - FC_left
 - FC_right
 - FRG_EStop
 - FRG_BS
 - IBNO
 - reset
 - Pos_front_left
 - slow_forw
 - pos_back_left
 - slow_back
 - Subnets

Bulk Connection

Source: Select Object (1) Total Number of Objects (15) Descendants Included: Function

Target: Select Object (1) Total Number of Objects (1) Descendants Included: None

Port Type Filter: Control Scope

Ports

Source				Target			
Status	Port	Reference Desig	Objec	Status	Port	Reference Desig	Object Ty
1	Block_C	RB_AT	FB	1	Station_C	S7300/ET200M s...	000+48
2	Block_C	PosDev_2D2S2P...	DB				
3	Block_C	RB_AT_DB	DB				
4	Block_C	G120x_DB	DB				
5		=EOATMcc001.E...	EODKF				
6		=EOATMcc001.E...	EODM				
7		=EOATMcc001.E...	EODBG				
8		=EOATMcc001.E...	EODCF				
9		=EOATMcc001.E...	EODM				

Connections

Source			Target		
Reference Designat	Port	Status	Status	Reference Designat	Port
1 RB_AT	Block_C	+	+	S7300/ET200M s...	Station_C
2 PosDev_2D2S2P...	Block_C	+	+	S7300/ET200M s...	Station_C
3 RB_AT_DB	Block_C	+	+	S7300/ET200M s...	Station_C
4 G120x_DB	Block_C	+	+	S7300/ET200M s...	Station_C
5 G120x	Block_C	+	+	S7300/ET200M s...	Station_C
6 PosDev_2D2S2P	Block_C	+	+	S7300/ET200M s...	Station_C
7 PosDev_2D2S2P...	Block_C	+	+	S7300/ET200M s...	Station_C
8 Main	Block_C	+	+	S7300/ET200M s...	Station_C

Bulk Connection

At least one port of cardinality = 1 is already connected to another port. Do you want to overwrite already existing connections?

Yes No Cancel

File View Home EPLAN Controller Programming Electrical Engineering

Receive Data Engineering Object Template IDB IDB from Library Tag Program Block Tag Table Expressions Assign Tag Place in Aspect Structure Bulk Connection Tools Publish to Library Reuse O...

Automation Navigator

- CD000124:1-AD_1_CD_4_WS_5_SS_20160426
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - S7300/ET200M station_2
 - Program blocks
 - RB_AT [FB1012]
 - Main [OB1]
 - G120x [FB307]
 - PosDev_2D2S2P [FB369]
 - RB_AT_DB [DB1012]
 - G120x_DB [DB307]
 - PosDev_2D2S2P_DB [DB369]
 - PLC data types
 - Local modules
 - PLC tags
 - RB_HA_01_POSIT_LS_DN
 - Newstart
 - PLC_On delayed
 - TRUE
 - CPulse_0_1s
 - RLO 1
 - Blif
 - RLO 0
 - FC_left
 - FC_right
 - FRG_EStop
 - FRG_BS
 - IBNO
 - reset
 - Pos_front_left
 - slow_forw
 - pos_back_left
 - slow_back
 - PIDO
 - DII
 - Subnets

8.5. Assign SW to HW (set tag Addr, connect SW) (20160210)



TERRY: seems like this chapter should be about all the details of assigning SW to specific HW. And that includes

1. Set absolute tag address (FD7)
2. Modify the PID tag memory location
3. Modify the DI tag HW connection
4. Connect SW

1. Set absolute tag address (FD7)

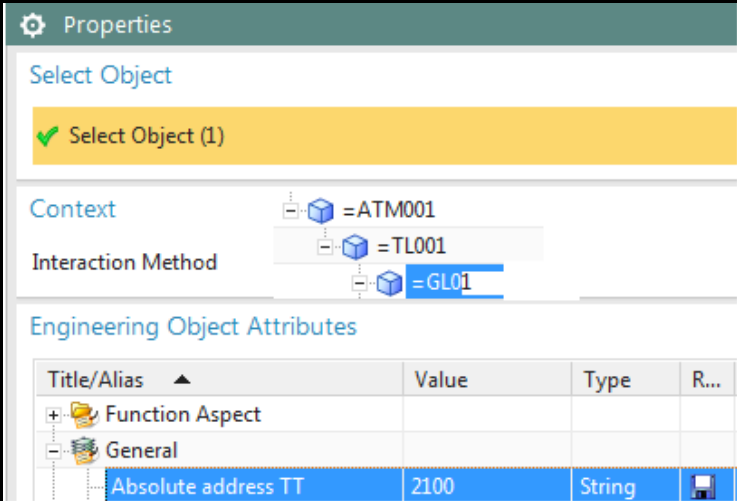
TERRY: Andreas says in FD7 will change. Set the address of the top EO in template, and the rest have a relative address.

You need to set the starting address of the GL address block.

		Automation tab	Aspect top	Template
				GL address 5.1

08_083

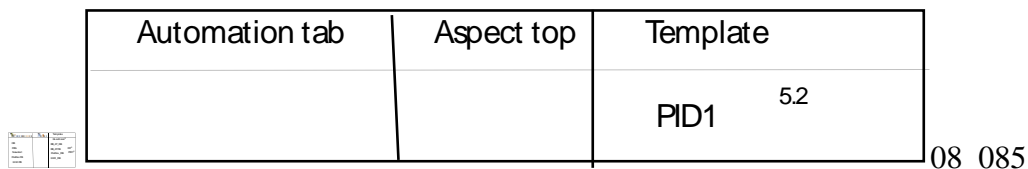
1. Set the absolute address of GL to 2100.



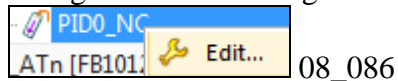
Title/Alias	Value	Type	R...
Function Aspect			
General			
Absolute address TT	2100	String	

08_084

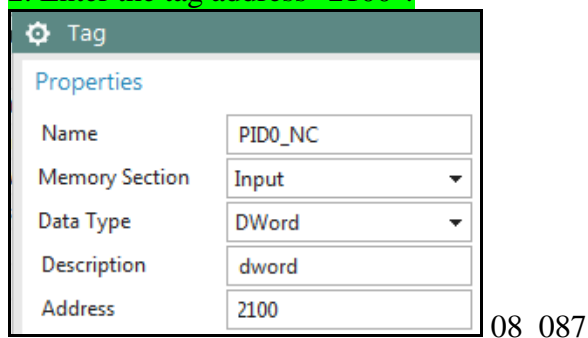
2. Modify the PID tag memory location (20160119)



1. Right-click on the tag. Select edit.

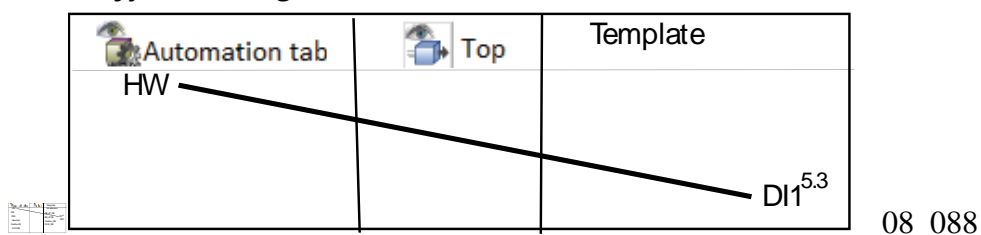


2. Enter the tag address "2100".

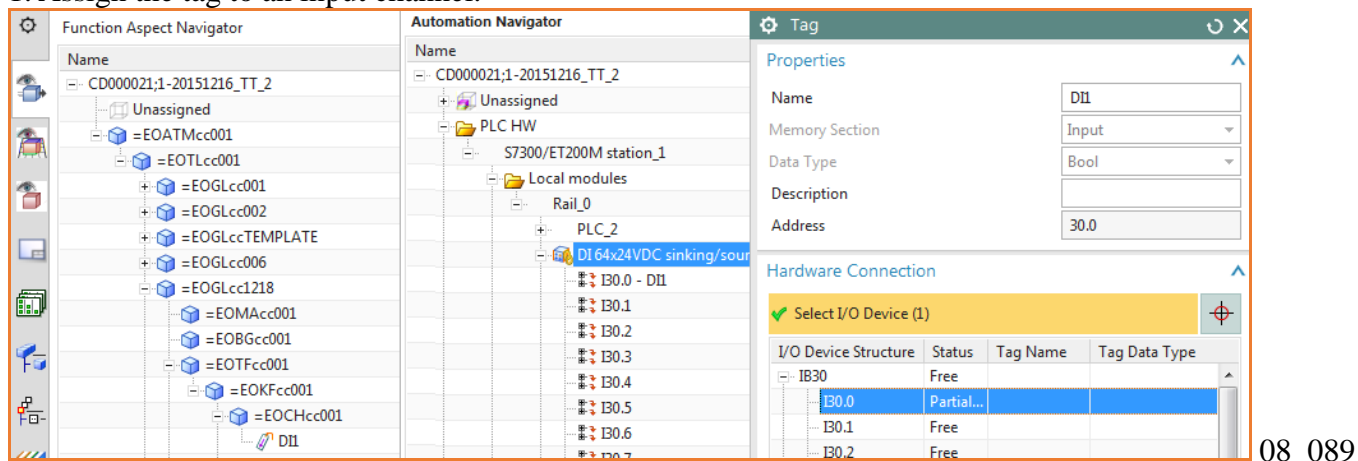


Error:  Must enter in this format

3. Modify the DI tag HW connection



1. Assign the tag to an input channel.



4a. Connect SW 20160421

Select on the left “1” then CTRL-A.

Bulk Connection ↻ ✕

Source ^ Target ^

✔ Select Object (1)

Total Number of Objects (13) ✔ Select Object (1)

Descendants Included Total Number of Objects (1)

Function Descendants Included None

Port Type Filter ^

Control Scope v

Ports ^

Source				Target					
	Status	Port	Reference Desig	Objec		Status	Port	Reference Desig	Object Ty
1		Block_C	PosDev_2D2S2P	FB	1		Station_C	S7300/ET200M s...	000387
2		Block_C	RB_AT	FB					
3			=_001._004.Con...	EODGL					
4									
5									
6									
7									
8									
9		Block...							

Bulk Connection

At least one port of cardinality = 1 is already connected to another port. Do you want to overwrite already existing connections?

Connections ^

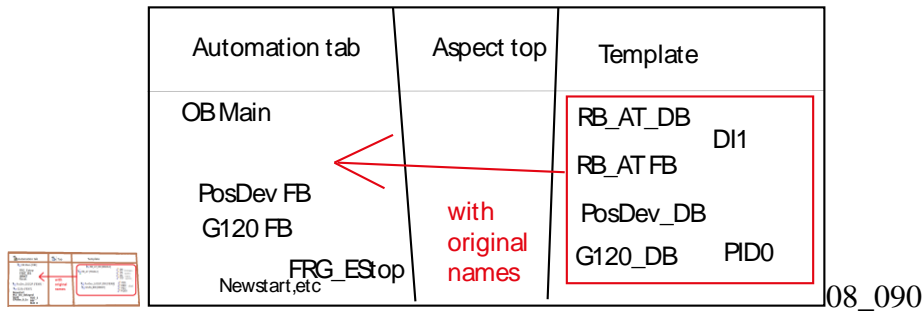
	Source			Target		
	Reference Designat	Port	Status	Status	Reference Designat	Port
1	PosDev_2D2S2P	Block_C			S7300/ET200M s...	Station_C
2	RB_AT	Block_C			S7300/ET200M s...	Station_C
3	G120x	Block_C			S7300/ET200M s...	Station_C
4	RB_AT_DB	Block_C			S7300/ET200M s...	Station_C
5	PID0	PLCTAG_C			S7300/ET200M s...	Station_C
6	DI1	PLCTAG_C			S7300/ET200M s...	Station_C
7	Main	Block_C			S7300/ET200M s...	Station_C
8	G120x_DB	Block_C			S7300/ET200M s...	Station_C
9	PosDev_2D2S2P...	Block_C			S7300/ET200M s...	Station_C

Automation Navigator

Name	
[-]	CD000101;1-AD_1_CD_4_WS_5_SS_20160418
[+]	Unassigned
[-]	PLC HW
[+]	S7-300-Station_2
[+]	S7-300-Station_2
[+]	S7300/ET200M station_1
[-]	S7300/ET200M station_1
[-]	Program blocks
[+]	RB_AT [FB1012]
[+]	Main [OB1]
[+]	G120x [FB307]
[+]	PosDev_2D2S2P [FB369]
[+]	G120x_DB [DB2]
[+]	PosDev_2D2S2P_DB [DB9]
[+]	RB_AT_DB [DB1012]
[+]	PLC data types
[-]	Local modules
[-]	Rail_0
[+]	PLC_2
[+]	PLC tags
[+]	Subnets

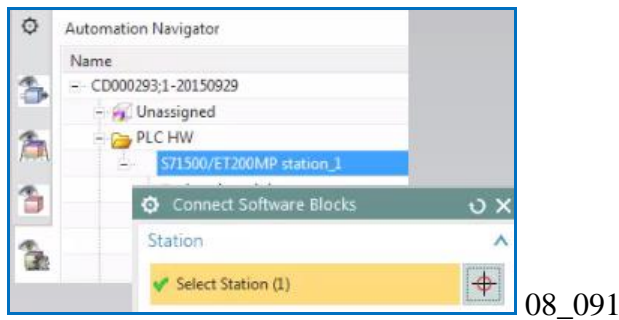
4b. Connect SW

Connect the SW to the HW, creating the SW blocks and tags that will be exported to TIA.

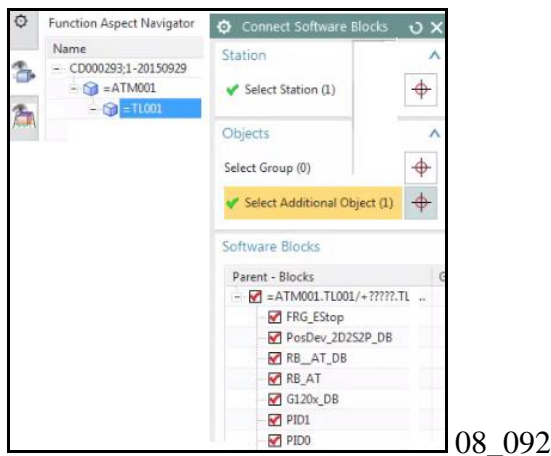


TERRY: need to discuss all the quirks about connecting sw. see 20151008_0andreas.mp4.

1. Click "System Design / Connect SW blocks".
2. Select the station.

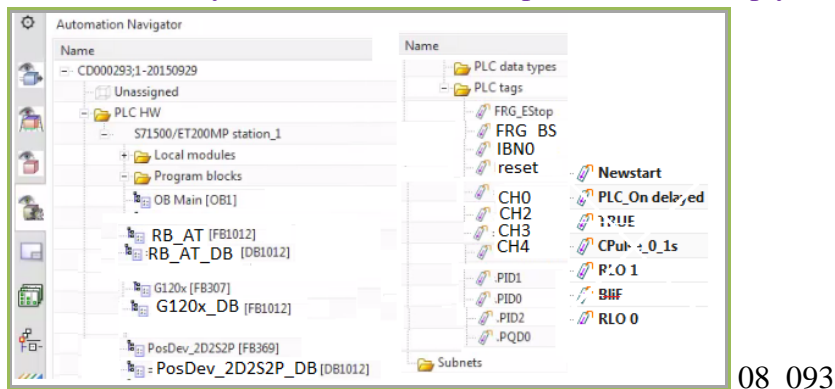


3. Select all SW.



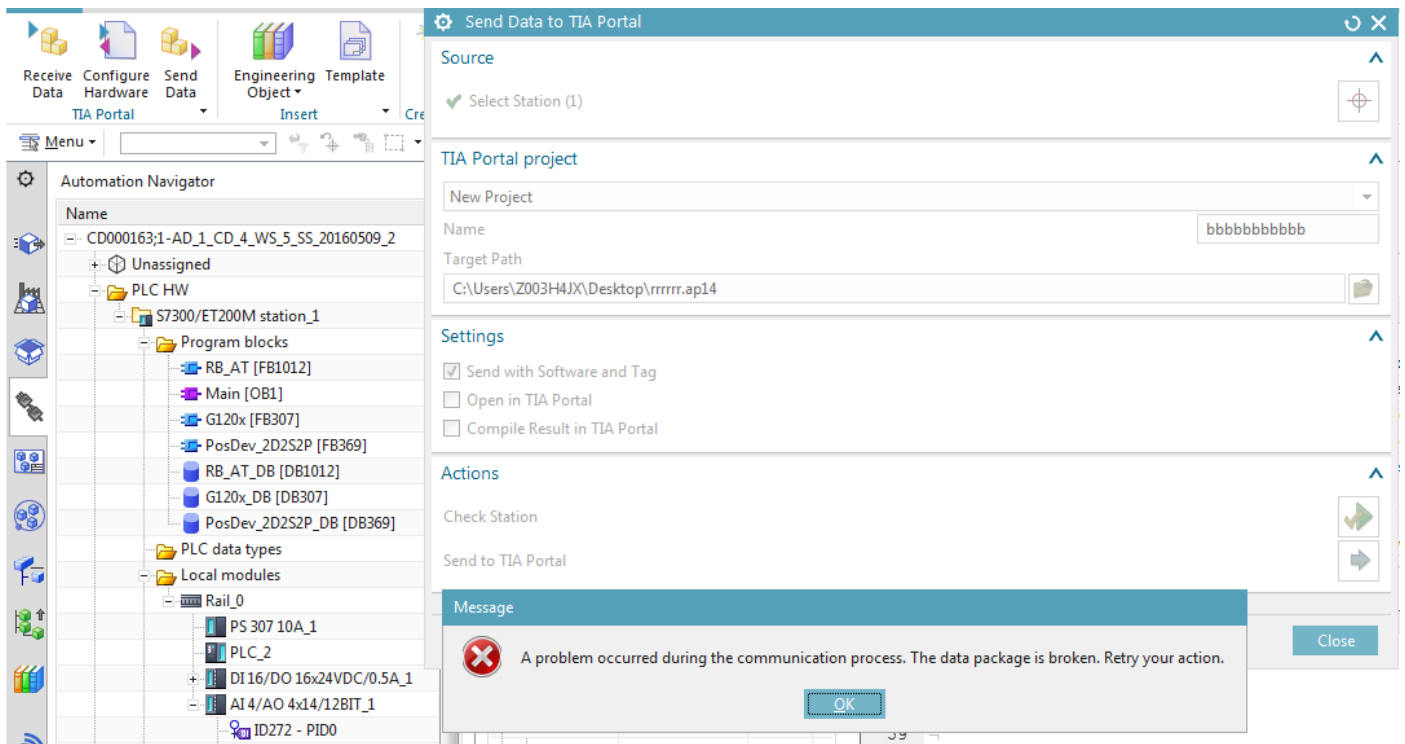
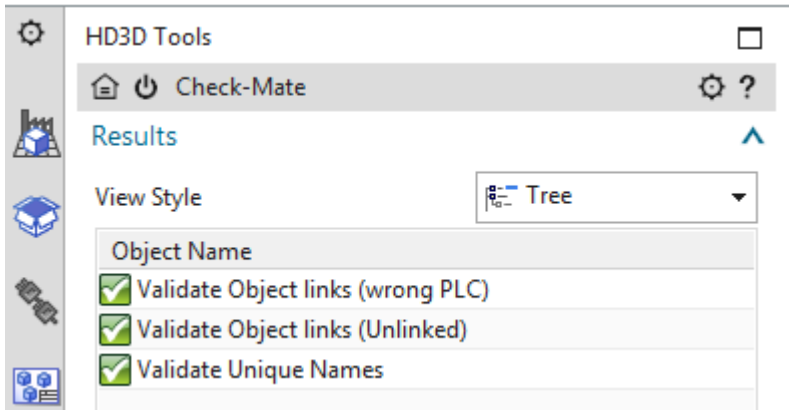
4. Click OK. The connected SW is now in the automation navigator.

TERRY: if the symbolic names are not specified, then simply the names are used, right?

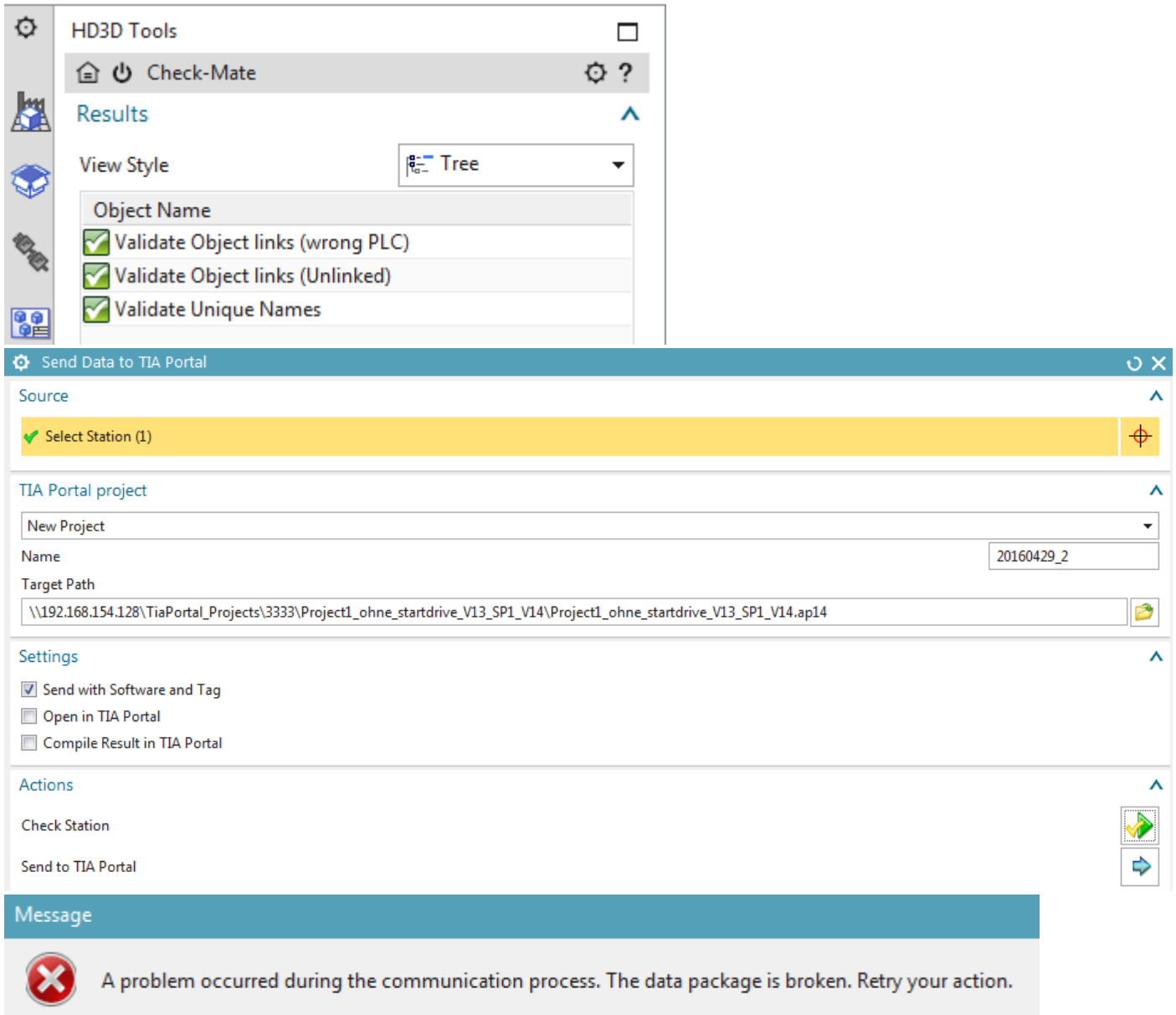


8.6a. Generate TIA 20160509 ERROR

\\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14



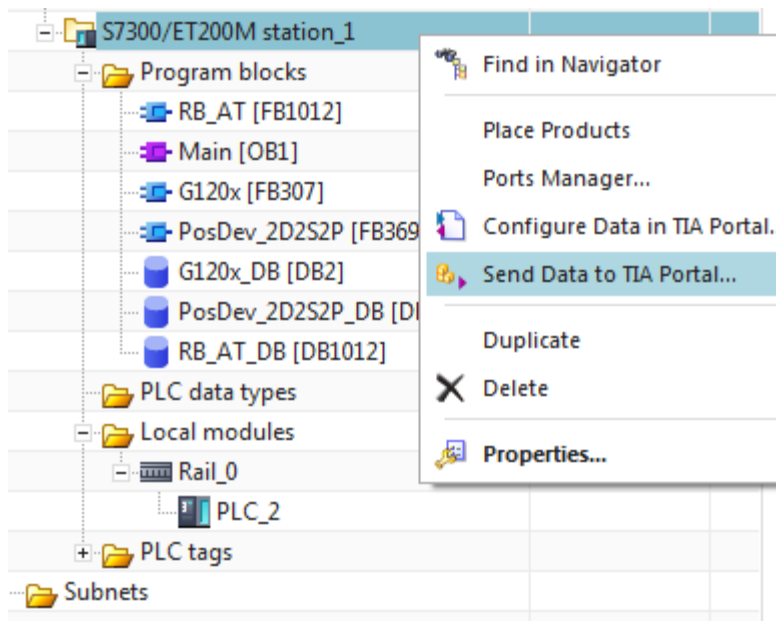
8.6a. Generate TIA 20160429 ERROR



The screenshot shows the 'Send Data to TIA Portal' dialog box in Siemens TIA Portal. The 'Source' section is set to 'Select Station (1)'. The 'TIA Portal project' section shows 'New Project' selected, with 'Name' set to '20160429_2' and 'Target Path' set to '\\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14'. The 'Settings' section has 'Send with Software and Tag' checked, and 'Open in TIA Portal' and 'Compile Result in TIA Portal' unchecked. The 'Actions' section includes 'Check Station' and 'Send to TIA Portal'. A message bar at the bottom shows an error icon and the text: 'A problem occurred during the communication process. The data package is broken. Retry your action.'

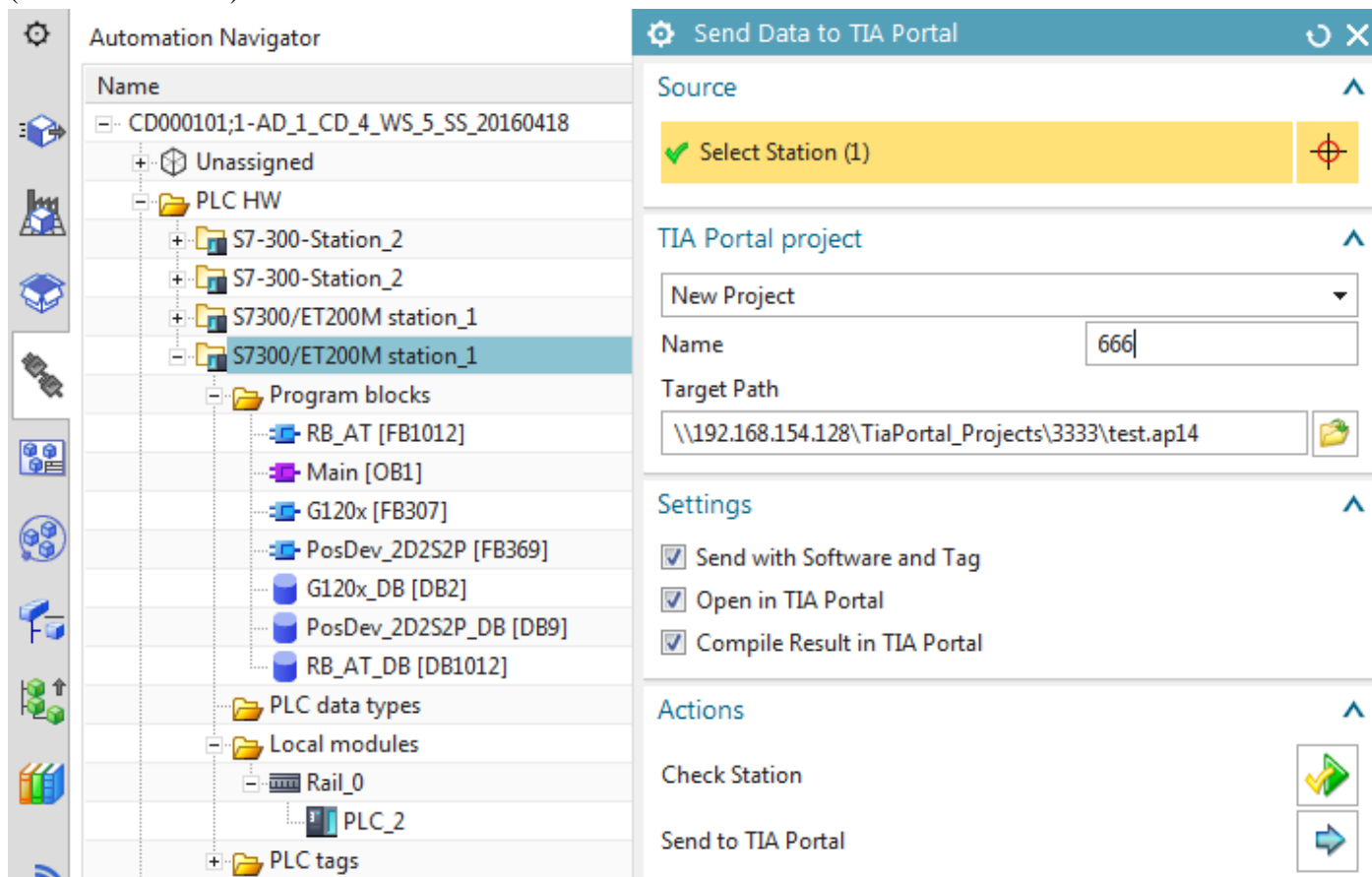
I can import hw, sw, no problem, but send never works, even when restarting adagent on both ends.

8.6a. Generate TIA 20160421 (ERROR)



\\192.168.154.128\TiaPortal_Projects\3333\Project1_ohne_startdrive_V13_SP1_V14\Project1_ohne_startdrive_V13_SP1_V14.ap14

\\192.168.154.128\TiaPortal_Projects\3333\test.ap14
(folder must exist)



HD3D Tools

Check-Mate

Results

View Style: Tree

Object Name	Count	Category	Part	Desig...	Rem...	Profile	Result	Skipp...	Hez
✓ Validate Object links (wrong PLC)			000355/A;1-LD_4_WS_20160418			Validate PLC for Export	Passed		
✓ Validate Object links (Unlinked)			000355/A;1-LD_4_WS_20160418			Validate PLC for Export	Passed		
✓ Validate Unique Names			000355/A;1-LD_4_WS_20160418			Validate PLC for Export	Passed		

Computer > Local Disk (C:) > TiaPortal_Projects > 3333 > test.ap14 > 666

Name	Date modified	Type	Size
AdditionalFiles	21.04.2016 14:07	File folder	
IM	21.04.2016 14:07	File folder	
System	21.04.2016 14:07	File folder	
tmp	21.04.2016 14:07	File folder	
666.ap14	21.04.2016 14:07	Siemens TIA Porta...	8 KB
666.info	21.04.2016 14:07	INFO File	1 KB

```

Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix  . : localdomain
IPv4 Address. . . . .             : 192.168.154.128
Subnet Mask . . . . .            : 255.255.255.0
Default Gateway . . . . .        : 192.168.154.2

Tunnel adapter isatap.localdomain:

```

Created project.. but empty.

Siemens - C:\TiaPortal_Projects\3333\test.ap14\666\666

Project Edit View Insert Online Options Tools Window Help

Save project

Project tree: 666 > Devices & networks

Devices & networks

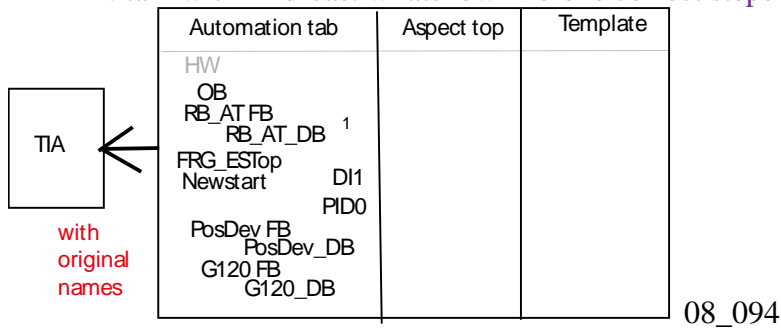
- 666
 - Add new device
 - Devices & networks
 - Ungrouped devices
 - Common data
 - Alarm classes
 - System diagnostic settings
 - Supervision settings
 - Logs
 - Instruction profiles
 - Documentation settings
 - Document information
 - Frames
 - Cover pages
 - Languages & resources
 - Project languages
 - Project texts
 - Online access
 - Card Reader/USB memory

Network Connections HMI con

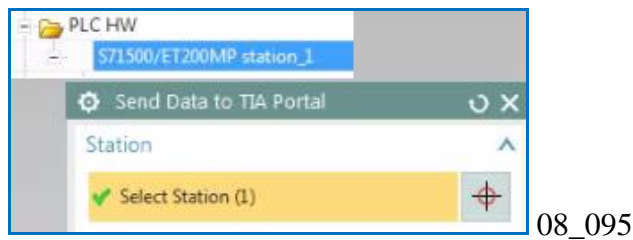
8.6b. Generate TIA (20160210) (ERROR)

Send the SW blocks and tags to TIA.

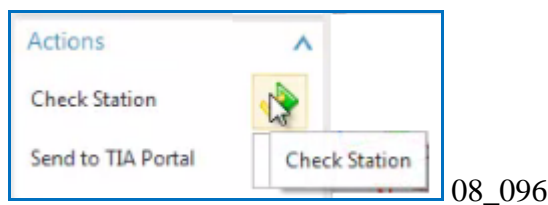
TERRY: talk with Andreas: whatshown here is correct steps (except Inot have TIA license). Problem is TIA.



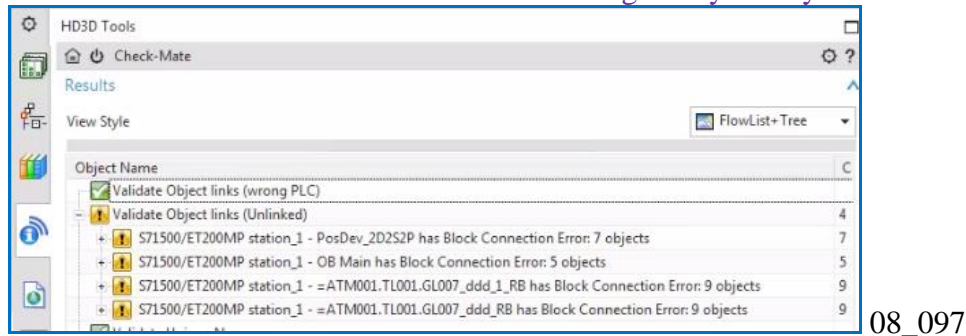
1. Select the station.



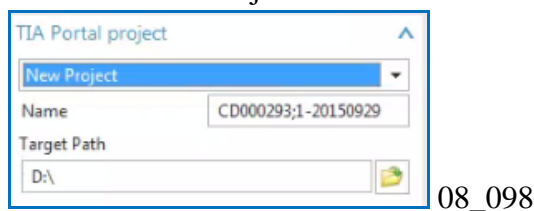
2. Click "Check Station".



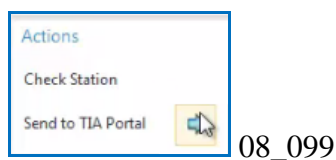
TERRY: need to describe the checkmate warnings. Maybe why SW not being sent to TIA.



3. Select "New Project". Enter the "Name" and "Target path".



4. Click "Send to TIA Portal".



The following shows the result.

TERRY: **missing software**. Andreas said this is an AD error, not mine. checkmate warnings are Maybe why SW not being sent to TIA.

OB Main

Network 1:

Comment

1	CALL	"RB_AT", "RB_AT_DB"	§FB1012, §DB1012
---	------	---------------------	------------------

08_100

Network 1:

1	A	"FRG_EStop"	§M4003.1
2	A	"FRG_BS"	§M4002.1
3	=	#ENABLE_SAFETY	

Network 2: (Error)

Network 3: (Error)

Network 4:

1	A	"IBNO"	§M3.6
2	=	#ENABLE_ADV	

Network 5:

1	A	"IBNO"	§M3.6
2	=	#ENABLE_RTN	

Network 6:

1	A	"IBNO"	§M3.6
2	=	#PUSHBOTTOM_ADV	

Network 7:

1	A	"IBNO"	§M3.6
2	=	#PUSHBOTTOM_RTN	

08_101

Network 8:

1	A	"reset"	§M11.2
2	=	#ERROR RESET	

Network 9: (Error)

1 CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"

Network 10: (Error)

1 CALL "G120x", "G120x_DB"

Network 11:

1	A	"DI1sn"	§I1.0
2	A	"slow_forw"	§I1.2
3	A	"slow_back"	§I1.3
4	O	"pos_back_left"	§I1.4
5	A	"pos_back_left"	§I1.4
6	A	"pos_back_left"	§I1.4
7	\		

Network 12:

1	AN	"DI1sn"	§I1.0
2	AN	"slow_forw"	§I1.2
3	AN	"slow_back"	§I1.3
4	AN	"pos back left"	§I1.4
5	AN	"pos back left"	§I1.4

08_102

PLC tags			
	Name	Data type	Address
1	Newstart	Bool	%M3.1
2	PLC_On delayed	Bool	%M2.7
3	TRUE	Bool	%M2.2
4	CPulse_0_1s	Bool	%M4.0
5	RLO 1	Bool	%M3.2
6	BlIF	Bool	%M4.4
7	RLO 0	Bool	%M3.3
8	FRG_EStop	Bool	%M4003.1
9	FRG_BS	Bool	%M4002.1
10	IBNO	Bool	%M3.6
11	reset	Bool	%M11.2
17	PID1sn	DWord	%ID2100
19	DI1sn	Bool	%I1.0

08_103

Part 3. Create/instantiate template

You created the aspect chain in part 1 ch 5, but in part 2 you only used the aspect chain in ch 6 "LD-AD mapping" (not in ch 7 EPLAN or in ch 8 TIA). The reason for this is you must use expressions-ports to add the aspect chains to macros, SW and tags, and it was best to avoid this complexity until now. Another reason is that this will normally be configured by template designer, so only he needs to know how to do this.

This part describes the following:

9. Template-related concepts. Describes primarily how to get and modify the aspect chain ID using expressions and ports.

10. AD: Configure template-ready EPLAN. Shows how to use aspect chain info in macro variables.

11. AD: Configure template-ready TIA. Shows how to add use aspect chain info to rename SW blocks and tags.

12. AD: Create/instantiate template. How to create, insert, and modify templates.

9. Template-related concepts (20160210)

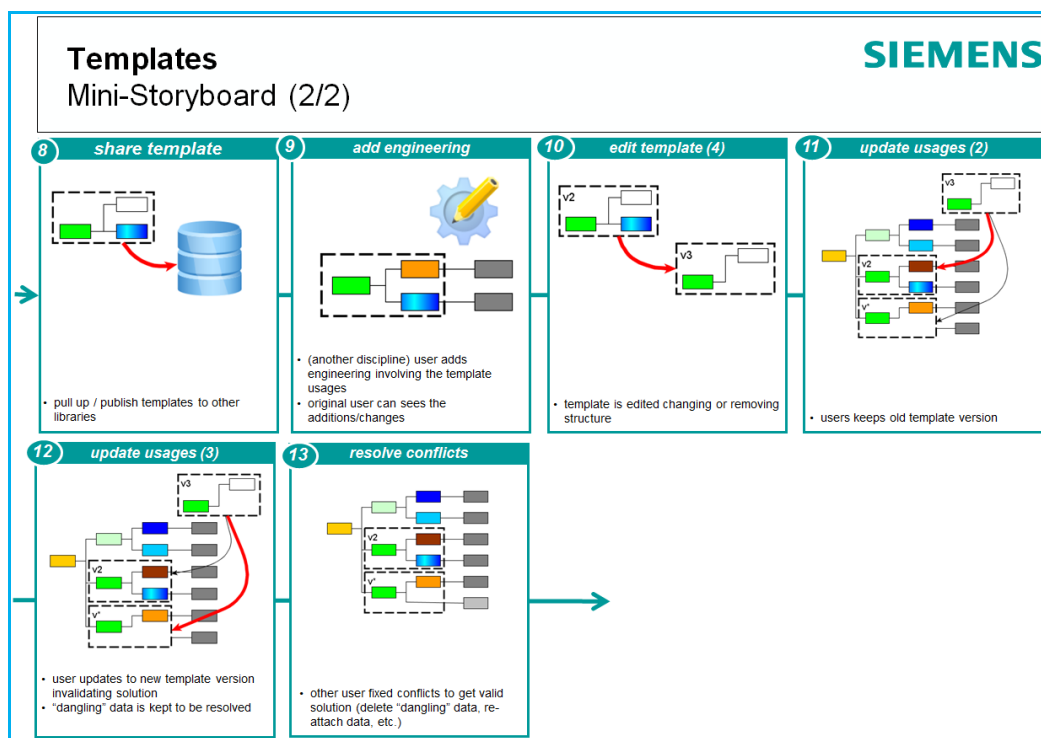
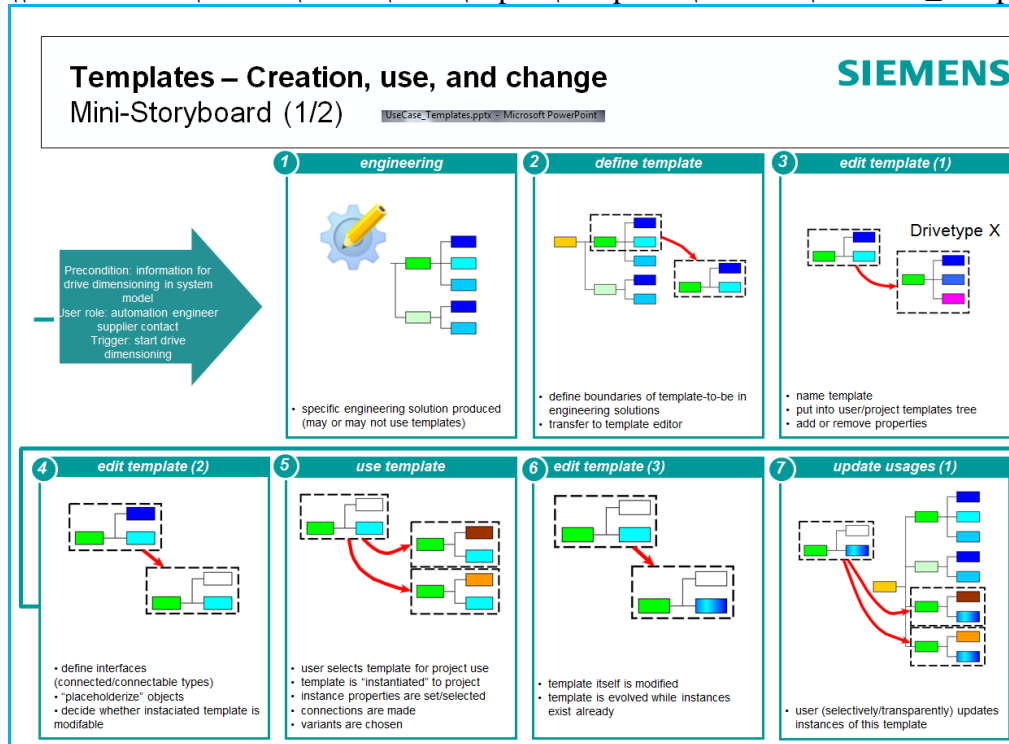
The template concept was introduced in Ch 1 "Concepts" section 1.3 "AD Solution". This chapter describes basic template concepts:

- 9.1. Getting aspect chain of parent EO using expressions
- 9.2. Getting aspect chain ID of non-parent EO: 2 Ports + link
- 9.3. Getting aspect chain ID outside template: Dynamic (SW only)
- 9.4. Automatic generation of calls for inserted SW

See ReqSpec_AD@NX_Templates.docx

20160311

\\debonk10c19\ADNX\Teams\PRM\Topics\Templates\Material\UseCase_Templates.pptx

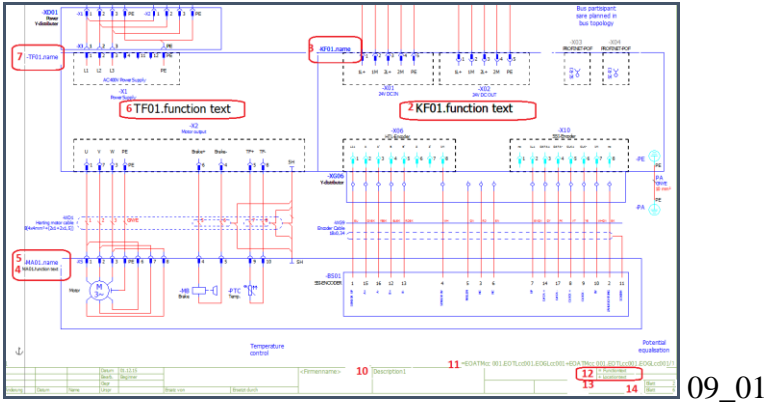


9.1. Getting aspect chain ID of parent EO using expressions

9.1.1. Problem

1. EPLAN

In 7.3." Add PM250D (TF+MA) macro" you simply entered text for the names of macro device properties.

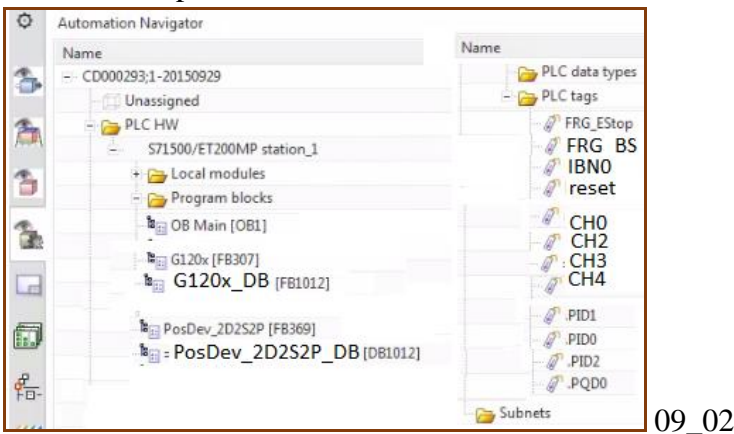


Entering the values manually is not a good idea because if you

1. Move the parent EO then the aspect would no longer be valid.
 2. Add or copy a conveyor with same values, then you will have EPLAN reports with duplicate names.
- With templates, you can drag and drop to create a template, and you also want a quick way to specify the macro variables.

2. TIA (SW blocks and tags)

In chapter 8 you created only one conveyor, so all SW block and tag names were globally unique. You did not use the aspect chain.



But if you add or copy a conveyor with same values, the ID (name) of SW blocks and tags will be repeated (which will generate an error in TIA). You would have to manually change (to avoid duplicate names).

9.1.2. Solution

The solution is to use the aspect chain of parent to define the unique names for macro properties and SW-tag symbolic names. For SW-tags, if you specify a symname expression that uses the aspect chain ID of the parent, then the symname is automatically used as ID of the SW tag (instead of property "Name").

In this GS you use 2 types of expressions

(1)

`subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)`

The above expression elements are:

Expression	Returns
AD_GetEngObject()	Parent EO
AD_GetAttributeValue(xxx, "Multi Reference Designation", Function)	MRD (ID) of parent EO in function aspect
subString(yyy),2,1000000	Modified aspect chain name (starts at character 2)

(2)

`AD_GetDesignation(AD_GetEngObject(),Function)+".RB"`

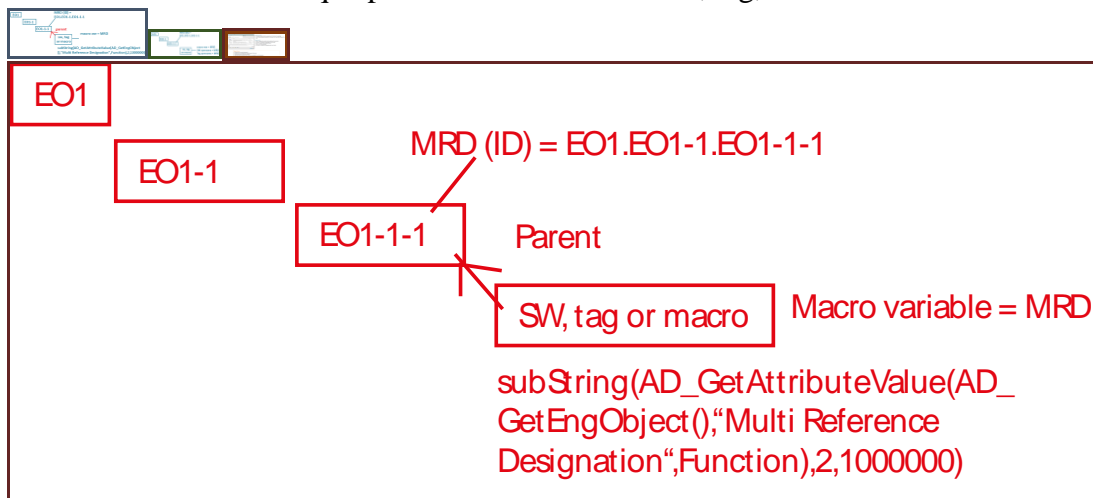
The above expression elements are:

Expression	Returns
AD_GetEngObject()	parent EO
AD_GetDesignation(xxx,Function)	MRD (ID) of parent EO in function aspect

If you use expressions, then:

1. Moving or copying EOs that has children macros, SW or tags is no problem.
2. Names are more descriptive (including the entire aspect ID chain which can also be modified with subString() and simple text commands like +).

The following diagram illustrates this. The expression would return the result "EO1.EO1-1.EO1-1-1", which could be used as the unique part of an ID in SW block, tag, or macro.



1. EPLAN (10.5)

In 10.5 for function and location you use the expressions shown below.

Device property	Value
Function	<code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)</code>
Location	<code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)</code>

You enter the expressions in these dialogs

The screenshot shows the 'Properties' dialog in EPLAN. The 'EPLAN Page Attributes' section is expanded, showing a table with columns 'Title/Alias' and 'Value'. The 'Function' and 'Location' rows are highlighted in blue. Below the table, the 'Expression Formula' section is active, showing a formula editor with the text 'EOATMcc001.EOTLcc001 =' and a 'Formula...' button.

09_04

Name	Formula	Value
1 p20	eee	"EOATMcc001.EOTLcc001.EOGLcc001"
5 eee	subString(AD_GetAttributeValue(AD_GetEngObject()),"Multi Reference Designation",Function),2,1000000)	"EOATMcc001.EOTLcc001.EOGLcc001"

09_05

The expression result is show in the macro output.

The macro output shows two lines of text: `= EOATMcc001.EOTLcc001.EOGLcc001` and `+ EOATMcc001.EOTLcc001.EOGLcc001`.

09_06

However, its not that simple for all of the macro device properties, because some are not from the macro parent EO. You have to use ports (described in 9.2).

2. SW (11.1.1)

In 11.1.1. "SW blocks (4)" you set the symbolic names for the following SW blocks / IDB's whose parent EO is GL.

RB_AT	AD_GetDesignation(AD_GetEngObject(),Function)+".RB"
RB_AT_DB	AD_GetDesignation(AD_GetEngObject(),Function)+".RBDB"
PosDev_DB	AD_GetDesignation(AD_GetEngObject(),Function)+".POSDEVDB"
G120x_DB	AD_GetDesignation(AD_GetEngObject(),Function)+".G120DB"

You enter the expressions in these dialogs (for RB_AT as example).

09_07

Name	Formula	Value	Type
1 p46	rrrrr	"=EOATMcc001.EOTLcc001.EOGLcc001.RB"	String
26 rrrrr	AD_GetDesignation(AD_GetEngObject(),Function)+".RB"	"=EOATMcc001.EOTLcc001.EOGLcc001.RB"	String

09_08

The SW block names are specified by the expressions.

09_09

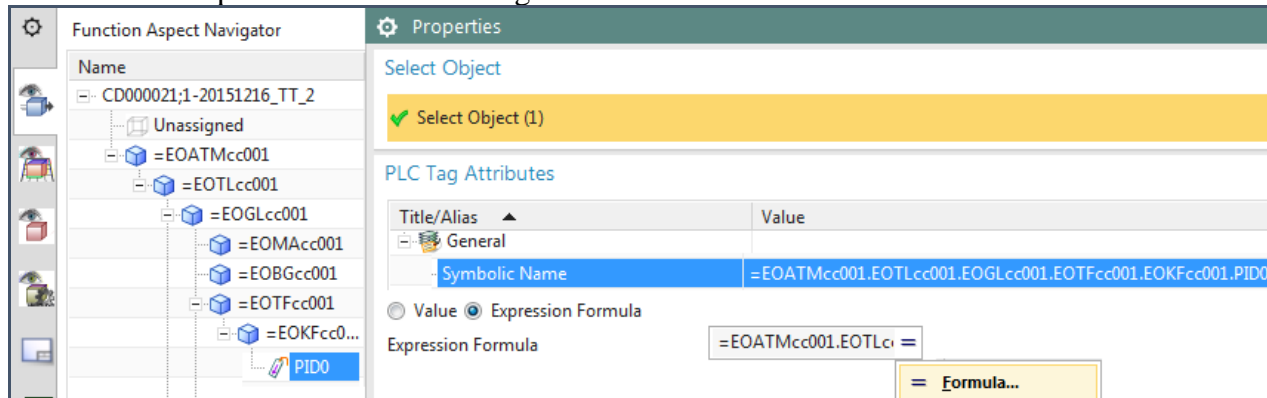
3. Tags (11.1.2,4)

11.1.2 and 11.1.4 you set the symbolic names of tags using expressions.

For example, in 11.1.4 you set the symbolic name for the PID0 tag whose parent is KF.

PID0 | **AD_GetDesignation(AD_GetEngObject(),Function)+".PID0"**

You enter the expressions in these dialogs.

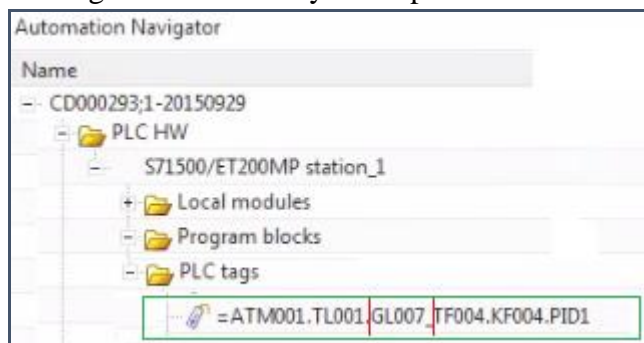


09_10

Expressions			
Name	Formula	Value	Type
1 p9	ddd	"=EOATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.PID0"	String
3 ddd	AD_GetDesignation(AD_GetEngObject(),Function)+".PID0"	"=EOATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.PID0"	String

09_11

The tag names are set by the expressions.



09_12

However, its not that simple for all of the tags, because some use MRD not from the tag parent EO. You have to use ports (described in 9.2).

9.2. Getting aspect chain ID of non-parent: 2 Ports + link

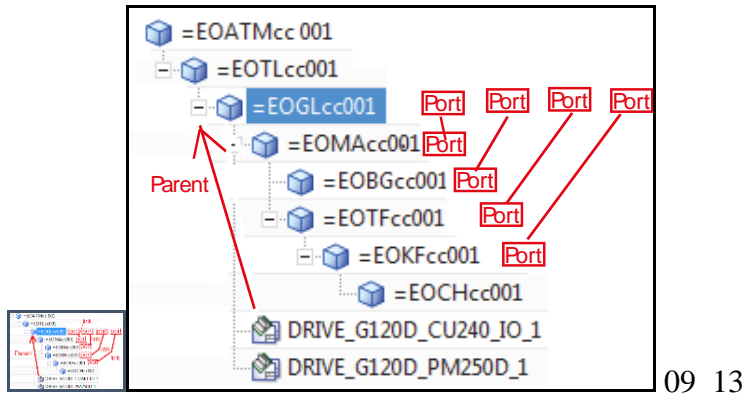
9.2.1. Problem: Can only get immediate parent

AD_GetEngObject() can only get the immediate parent EO. What can you do if you want to link to other EO's to use their aspect chain ID?

Note: "nth" is discussed in 9.3. can be used to get EO's higher up tree, but used only for templates. you still cant use only expressions to access "neighbor" EOs.

9.2.2. Solution: 2 ports and link

The solution is shown in the following diagram. The macros access "neighbor" EOs MA, BG, TF, and KF using a link between GL (parent) ports and MA, BG, TF, and KF ports.

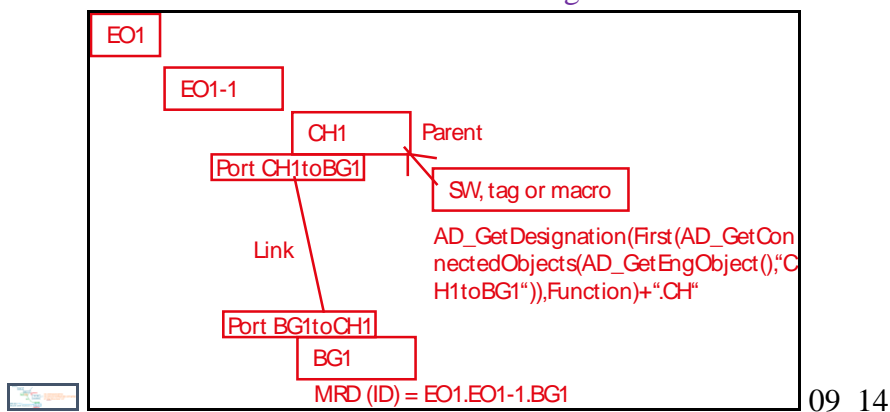


To use the aspect chain of a non-parent:

1. Create port for parent EO1.
2. Create port for target EO2.
3. Link the ports.
4. Reference the parent EO port name in a property expression.

The following diagram illustrates the general concepts. The expression would return the result "EO1.EO1-1.BG1.CH", which could be used as the unique part of an ID in SW block, tag, or macro.

TERRY: need to rename the EOs in this diagram.



The following describes example from this GS

1. EPLAN example (10.2)
2. SW Port example (none)
3. Tag port example (11.1.2)

1. EPLAN example (10.2)

In 7.3" Add PM250 (TF+MA) macro" you simply entered text for device names. Since the EOs representing the devices are not the parent EOs of the macro, you do not have a link to the EOs to retrieve their MRD.

Device property	Value
3 KF01.Name	KF01.name

In 10.2 you use expressions and ports to get the aspect ID of KF. The steps are

1. Create GL (macro parent EO) port **GLtoKF** and KF port **KFtoGL**.

2. Connect ports.

Source			
=EOATMcc001.EOTLcc001.EOGLcc001/+EOGLcc001/-EOGLcc001			
Ports			
Port	Connected Object	Connected Port	Port Type
User Defined			
GLtoKF			EO
	=EOATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001/+EOKFcc001/-EOKFcc001	KFtoGL	EO

09_15

3. In macro for 250 set KF01.Name to

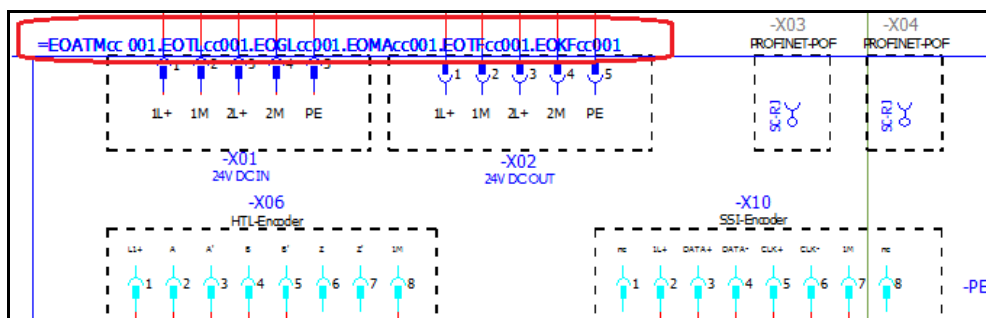
AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)

09_16

Name	Formula	Value	Type
1 p5	aaa	"=EOATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001"	String
2 aaa	AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)	"=EOATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001"	String

09_17

The result is the aspect ID of KF is used in the macro.



09_18

2. SW Port example (none)

In this GS you don't have an example where a SW block uses a port to access the aspect ID of a non-parent EO to use as the symname. **Normally you would not do this.**

3. Tag port example (11.1.2)

In 11.1.2 you have a DI input tag for the boolean data from the light sensors. You want to use the aspect chain ID of the physical sensor (the BG EO) as the symbolic name of the tag (CH). The steps are

1. Create BG port **BG1toCH1** and CH port **CH1toBG1**.

2. Connect the ports.

Source			
=EOATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.EOCHcc001/+EOCHcc001/-EOCHcc001			
Ports			
Port	Connected Object	Connected Port	Port Type
User Defined			
CH0toBG0			EO
CH1toBG1	=EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001/+EOBGcc001/-EOBGcc001	BG0toCH0	EO

09_19

3. Change DI0 symbolic name to use **CH1toBG1**.

AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH1toBG1")),Function)+".CH"

09_20

Expressions			
Name	Formula	Value	Type
p4	ggg	=EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001.CH	String
2	AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH0toBG0")),Function)+".CH"	=EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001.CH	String

09_21

The above expression elements are:

Expression	Returns
AD_GetEngObject()	Parent EO
AD_GetConnectedObjects(XXX," CH1toBG1 ")	List of objects (neighbors) connected to parent port CH1toBG1
AD_GetDesignation(First(yyy),Function)	Returns function MRD (aspect chain ID) of neighbor

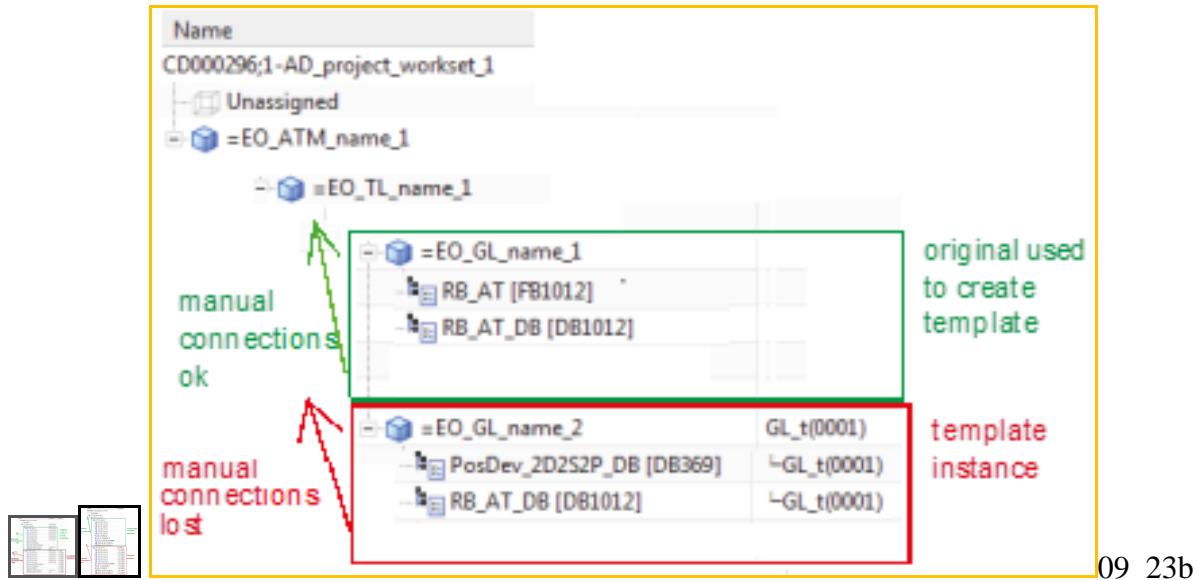
The result is the aspect ID of the sensor BG1 is used as the symbolic name for tag CH1.

09_22

9.3. Getting aspect chain ID outside template: Dynamic

9.3.1. Problem

Following shows the EO's added to the aspect chain for a conveyor (top). These EO's were then used to create a template. The template was then instantiated to create the aspect chain for a second conveyor (bottom).



XXXXXXXXXXXXXXXXXXXX

The problem is if a SW block (or tag) in the aspect chain of the first conveyor had a link to an EO outside of the conveyor aspect chain, then this link information would not be valid if you instantiated the template (the instantiated conveyor could be under a different parent EO than the first conveyor). The link in the template needs to be defined with expressions that specify the relative location of the parent outside of the template.

Note: This is also true for macros, but macros don't usually need access to an EO outside of the conveyor aspect chain.

9.3.2. Solution

With a dynamic expression (red arrow to TL01) the template instance automatically locates the required parent EO TL01.

The screenshot shows the Function Aspect Navigator with the following structure:

- CD000293;1-20150929
 - Unassigned
 - =ATM001
 - =TL001 (source of template)
 - =GL007_ddd (template)
 - =GL007_ddd_1 (fff(0001))
 - =MA007 (fff(0002))
 - =BG000 xxx (fff(0002))
 - =TF004 (fff(0002))
 - =BG002 (fff(0002))
 - =BG003 (fff(0002))
 - =BG004 (fff(0002))
 - RB_AT [FB1012] (fff(0002))
 - RB_AT_DB [DB1012] (fff(0002))
 - PosDev_2D2S2P_DB [DB369] (fff(0002))
 - DRIVE_G120D_CU240_IO_1 (fff(0002))
 - FRG_EStop

PLCcode snippet:

```

1 Network 1:--
2 ..... A- "FRG_EStop"
    
```

For example, in 11.2 in RB_AT properties you set the value of the FRG_EStop tag to:

```
First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)), "FRG_Estop"))
```

The following describes how the expression is evaluated:

TERRY 20160205: should be nth 2 or nth 1??

| Expression | returns |
|--|---|
| AD_GetEngObject(), Function | GL001 (parent of RB_AT) |
| nth(2, AD_GetAncestors(xxx)) | TL001 (GL001 ancestor) |
| AD_GetConnectedObjects(yyy), "FRG_Estop" | All objects connected to port FRG_EStop |
| First(zzz) | First object in list (FRG_EStop tag) |

xxx 9.4. Automatic generation of calls for inserted SW

TERRY 6 20151126: not sure about this... just think should describe how when you instantiate a template then OB1, for example, will auto-add a call to the template.

10. Configure template-ready EPLAN (20160429)

This chapter includes the following sections.

- 10.1. Overview
- 10.5. Function-Location expressions
- 10.2. KF01.name ports, link, and expression
- 10.6. Test
- 10.7. FINISH (optional)

10.1. Overview (NEW)

The following gives an overview of this chapter.

10.5. Function/Location expressions

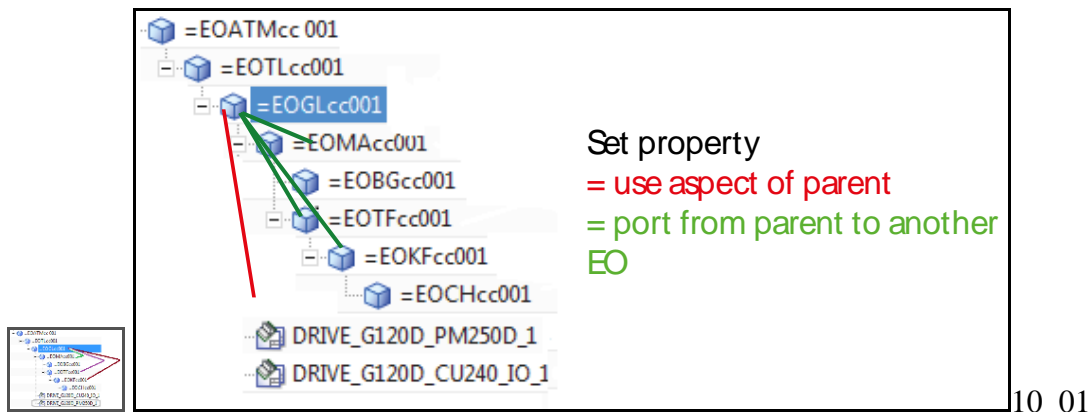
The values for Function and Location are taken from the parent EO, so no expressions or links required.

| Device property | Value |
|-----------------|---|
| Function | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000) |
| Location | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000) |

10.2. KF01.name ports, link, and expression

The values for KF01.Function text are taken from the corresponding EOs (which are not the parent EO). Therefore you will need the following ports (and the link between them):

- GLtoKF, KFtoGL



The following are the required expression.

| Device property | Value |
|--------------------|---|
| KF01.Function text | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function) |
| KF01.Name | KF01.name |

10.6. test

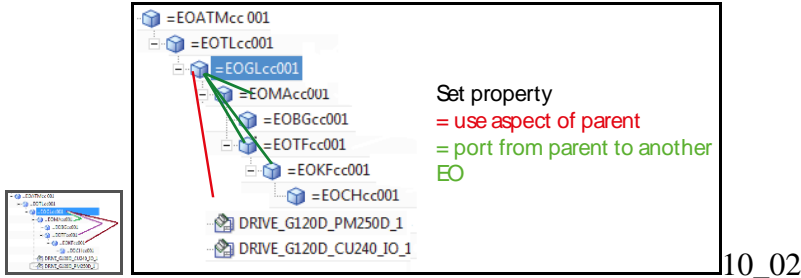
Generate EPLAN to test.

10.7. finish (optional)

This section shows how to complete the macros for the example, but does not introduce any new concepts.

1. The values for MA01.Function text and TF01.Function text are taken from the corresponding EOs (which are not the parent EO). Therefore you will need the following ports (and the link between them):

- GLtoMA,MAtoGL
- GLtoMA, MatoGL



The following are the required expression.

| Device property | Value |
|--------------------|--|
| MA01.Function text | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoMA")),Function)</code> |
| MA01.Name | MA01.name |
| TF01.Function text | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoTF")),Function)</code> |
| TF01.Name | TF01.name |

2. add 240 macro.

Copy BG1 to BG2-4, create ports and link.

Add macro

BG2-4 expressions,link.

| | |
|-----------|---|
| BG01.Name | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG1")),Function)</code> |
| BG02.Name | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG2")),Function)</code> |
| BG03.Name | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG3")),Function)</code> |
| BG04.Name | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG4")),Function)</code> |

Other (:4, etc.)

Just set manually??

| | |
|-------------------------|----------------------|
| KF01:2.Function text | KF01:2. Functiontext |
| KF01:2.PLC address | E1-2 |
| KF01:2.Symbolic address | KF01:2.SymAddr |
| KF01:4.Function text | KF01:4.Function text |
| KF01:4.PLC address | E1-4 ??? |
| KF01:4.Symbolic address | KF01:4.SymAddr |

KF01.Function text

`AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)`

Function

`subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)`

location

`subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)`

10.5a. Function / Location expressions 20160428 (WORKS)

| | ↑ Name | Formula | Value | Units |
|---|--------|---------|-------------------------------------|-------|
| 1 | p0 | p2 | "=EOATMcc 001.EOTLCcc001.EOGLcc002" | |
| 2 | | | | mm |

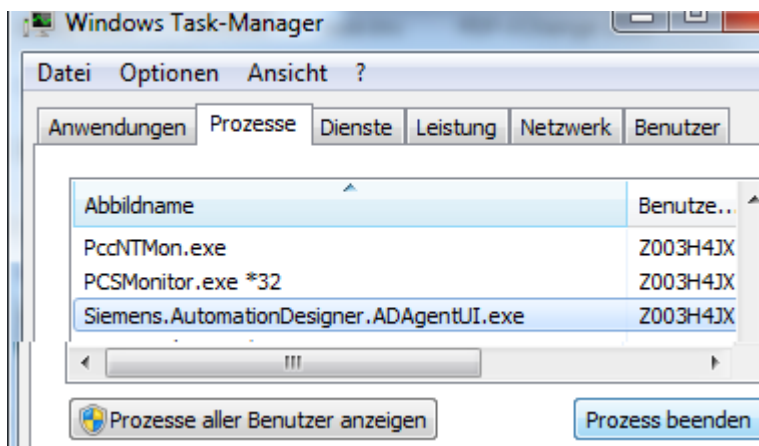
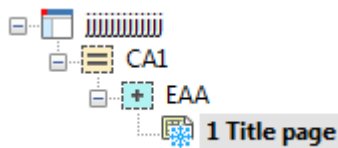
| | |
|----------|-----------------------------------|
| Function | =EOATMcc 001.EOTLCcc001.EOGLcc002 |
| Location | Location250 |

Generate EPLAN Project



A problem occurred during the communication process. Retry your action.

If this is not the first time you see this message, contact your system administrator for support.



No luck.... Restart...

NO “=” !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

| | ↑ Name | Formula | Value |
|---|--------|----------------------|------------------------------------|
| 1 | p0 | subString(p2,2,1000) | "EOATMcc 001.EOTLCcc001.EOGLcc002" |
| 2 | | | |

Note the extra space... its was in the naming rules.

Change rule, replace EO. Then ok,

| | |
|----------|-----------------------------------|
| Function | EOATMcc001.EOTLCcc001_1.EOGLcc002 |
| Location | EOATMcc001.EOTLCcc001_1.EOGLcc002 |

| |
|-------------------------------------|
| = EOATMcc001.EOTLCcc001_1.EOGLcc002 |
| + EOATMcc001.EOTLCcc001_1.EOGLcc002 |
| Page 1 |
| Page 2 / 2 |

10.5b. Function / Location expressions 20160421

1. Add the expression for Function.

| Type | Value | String | String | String | String | String | String |
|-----------------------------------|-----------------------------------|--------|--------|--------|--------|--------|--------|
| Character Code | EPLAN | String | String | String | String | String | String |
| Description | Description250 | String | String | String | String | String | String |
| Full page name | 1 | String | String | String | String | String | String |
| Function | xxxxxxx | String | String | String | String | String | String |
| Location | Locationtext250 | String | String | String | String | String | String |
| Name of EPLAN Macro | DRIVE_G120D_PM250D_1 | String | String | String | String | String | String |
| Object Name | EPLAN Page Macro | String | String | String | String | String | String |
| Page Description | PageDescription250 | String | String | String | String | String | String |
| Page name | 1 | String | String | String | String | String | String |
| Unique Identifier | EPLAN Page Macro | String | String | String | String | String | String |
| Variable: ControlUnitFunctionText | Variable: ControlUnitFunctionText | String | String | String | String | String | String |

Category (optional)

Title/Alias

Data Type

Value Expression Formula

Expression Formula

Accept Edit

Export

Apply Cancel

Formula...
 f(x) Function...
 Extended Text...
 Reference
 Make_Constant

| ↑ Name | Formula | Value |
|--------|---------|---------------------------|
| 1 p5 | "" | "" |
| 2 aaa | | |
| 3 rrrr | subS | "_001._004.ConveyorF001" |
| 4 ssss | p2 | "=_001._004.ConveyorF001" |
| 5 tttt | p4 | "ConveyorF001" |

Apply New Expression
 New Expression
 Edit...
 Copy (Ctrl+C)

Edit

Formula

Reference Object Attribute

Function Aspect Navigator

| Name | Description |
|----------------|----------------|
| Unassigned | |
| =_001 | 000344 |
| =_004 | 000345 |
| =ConveyorF001 | 000346 |
| =MotorF001 | 000347 |
| =SensorF001 | 000348 |
| =DrivePower... | 000351 |
| =DriveCo... | 000352 |
| =EOC... | 000353 |
| DI1 | Sensor1 |
| G120x | |
| PID0 | PID0 descri... |
| EPLAN Page ... | Description250 |
| RB_AT | |
| PosDev_2D2S... | |

Reference Attribute

Referenced Object

Select Object

Select Object

Select Engineering Object (1)

Engineering Object Attributes

| Title/Alias | Value | Units | T... | Type | R... |
|-----------------------------------|-------------------------|-------|------|---------|------|
| Aspect Function | | | | | |
| Designated | True | | | Boolean | |
| Designation | ConveyorF001 | | | String | |
| Multi-level Reference Designation | =_001._004.ConveyorF... | | | String | |
| Name | ConveyorF001 | | | String | |
| Parent | _004 | | | String | |

Edit

Formula

p7

| | Name | Formula | Value | Units | Dimensionality | Type |
|---|------|---------------------------|---------------------------|-------|----------------|--------|
| 1 | p5 | bbb | "001._004.ConveyorF001" | | | String |
| 2 | | | | mm | Length | Number |
| 3 | aaa | p7 | "=_001._004.ConveyorF001" | | | String |
| 4 | bbb | subString(aaa,3,1000000) | "001._004.ConveyorF001" | | | String |
| 5 | rrrr | subString(ssss,2,1000000) | "_001._004.ConveyorF001" | | | String |
| 6 | ssss | p2 | "=_001._004.ConveyorF001" | | | String |
| 7 | tttt | p4 | "ConveyorF001" | | | String |

Function Aspect Navigator

| Name | Description | Template |
|----------------|----------------|----------|
| Unassigned | | |
| =_001 | 000344 | |
| =_004 | 000345 | |
| =ConveyorF001 | 000346 | |
| =MotorF001 | 000347 | |
| =SensorF001 | 000348 | |
| =DrivePower... | 000351 | |
| =DriveCo... | 000352 | |
| =EOC... | 000353 | |
| DI1 | Sensor1 | |
| G120x | | |
| PID0 | PID0 descri... | |
| EPLAN Page ... | Description250 | |
| RB_AT | | |
| PosDev_2D2S... | | |
| RB_AT_DB | | |

Properties

Select Object

Select Object (1)

Context

Interaction Method

Engineering Object Attributes

| Title/Alias | Value | Units | T... | Type | R... | D... | I... |
|---------------------|-----------------------|-------|------|--------|------|------|------|
| Type | EPLAN Page Macro | | | String | | | |
| Type | | | | | | | |
| Character Code | EPLAN | | | String | | | |
| Description | Description250 | | | String | | | |
| Full page name | 1 | | | String | | | |
| Function | 001._004.ConveyorF001 | | | String | | | |
| Location | Locationtext250 | | | String | | | |
| Name of EPLAN Macro | DRIVE_G120D_PM250D_1 | | | String | | | |
| Object Name | EPLAN Page Macro | | | String | | | |

Category (optional)

Title/Alias

Data Type

Value Expression Formula

Expression Formula: p5

Break Expression Link

Accept Edit

Page properties

Function

String

001._004.ConveyorF001 =

This error out of nowhere... tried many things, cant solve it....

Generate EPLAN Project



Creating the project was not successful.

Most common reasons:

- The project template may be corrupt
- If the project already exists, it may be in use or write protected
- The target directory may be out of disc space.

10.5c. Function / Location expressions

The values for Function and Location are taken from the parent EO, so no expressions or links required.



1. Add the expression for Function.

```
subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)
```

| Name | Formula |
|-------|---|
| 1 p9 | sss |
| 8 sss | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000) |
| 9 | |

| Value | Type |
|-----------------------------------|--------|
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |

| Title/Alias | Value | Type | R... |
|---------------------|------------------------------------|--------|------|
| + Device properties | | | |
| - Page properties | | | |
| Description | | String | |
| Full page name | =EOATMcc 001.EOTLcc001.EOGLcc001/2 | String | |
| Function | EOATMcc 001.EOTLcc001.EOGLcc001 | String | |
| Location | | String | |
| Page name | 2 | String | |

2. Add the expression for Location.

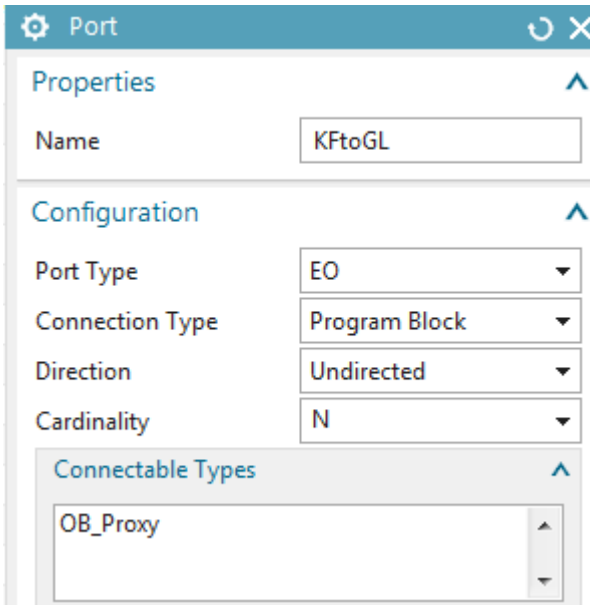
```
subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)
```

| Name | Formula |
|--------|---|
| 1 p10 | ttt |
| 10 ttt | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000) |
| 11 | |

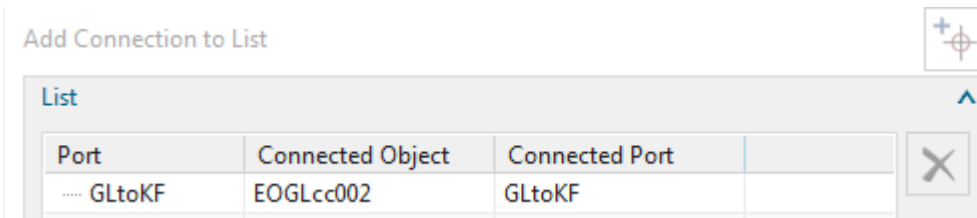
| Value | Type |
|-----------------------------------|--------|
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |
| | Number |

| | |
|-------------------|--|
| - Page properties | |
| Description | |
| Full page name | =EOATMcc 001.EOTLcc001.EOGLcc001+EOATMcc 001.EOTLcc001.EOGLcc001/2 |
| Function | EOATMcc 001.EOTLcc001.EOGLcc001 |
| Location | EOATMcc 001.EOTLcc001.EOGLcc001 |
| Page name | 2 |

10.2a. KF01.name ports, link, and expression 20160429 (WORKS)

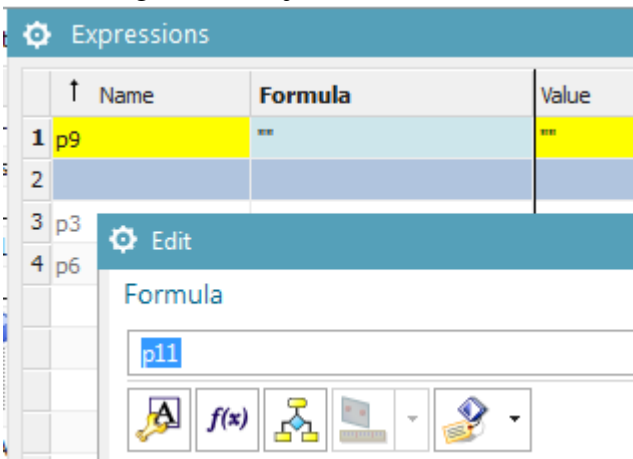


Click add connection to list.



For interaction method choose "Traditional".

P11 = GL general / object name.



`subString(GetMRD(GetListElementAt(GetConnectedObjects(p11,"GLtoKF"),1),Function),3,1000)`

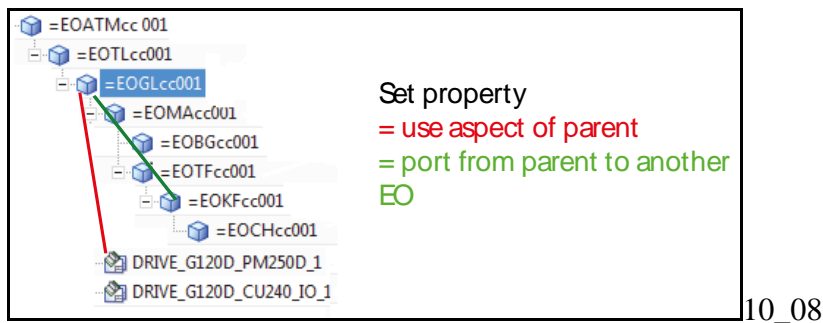
| ↑ Name | Formula | Value | Type |
|--------|---|--|--------|
| 1 p9 | <code>subString(GetMRD(GetListElementAt(GetConnectedObjects(p11,"GLtoKF"),1),Function),3,1000)</code> | "OATMcc001.EOTLCcc001_1.EOGLcc002.EOTFcc001.EOKFcc001" | String |
| 2 | | | |

10.2b. KF01.name ports, link, and expression 20160422

Terry: this is very confusing and complicated.

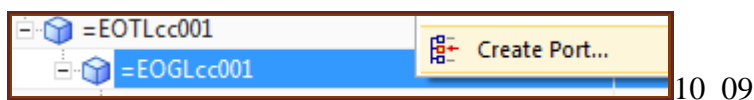
The value for KF01.Function text is taken from the corresponding EO KF (not the parent EO). Therefore you will need ports for the parent EO and EO KF and the link between them.

1. Ports
2. Connection (link)
3. Expression

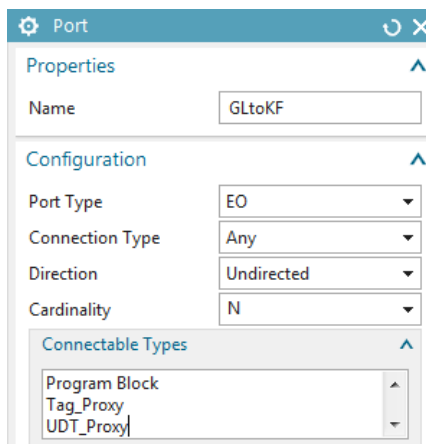


1. Ports

1. Right-click on EO GL and select "Create Port..."

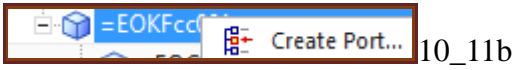


2. Enter the following information.



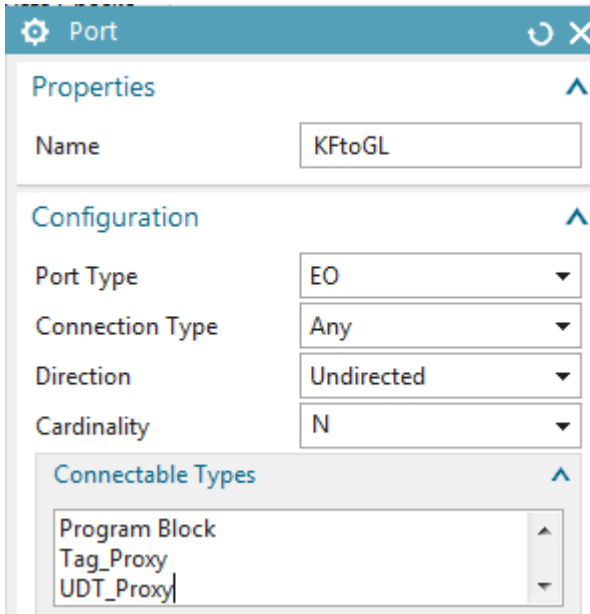
3. Click OK.
4. Right-click on EO GL and select "Ports manager..."

5. Right-click on EO KF and select "Create Port...".



6. Enter the following information.

NOT "ANY" ... use "PROGRAM BLOCK"



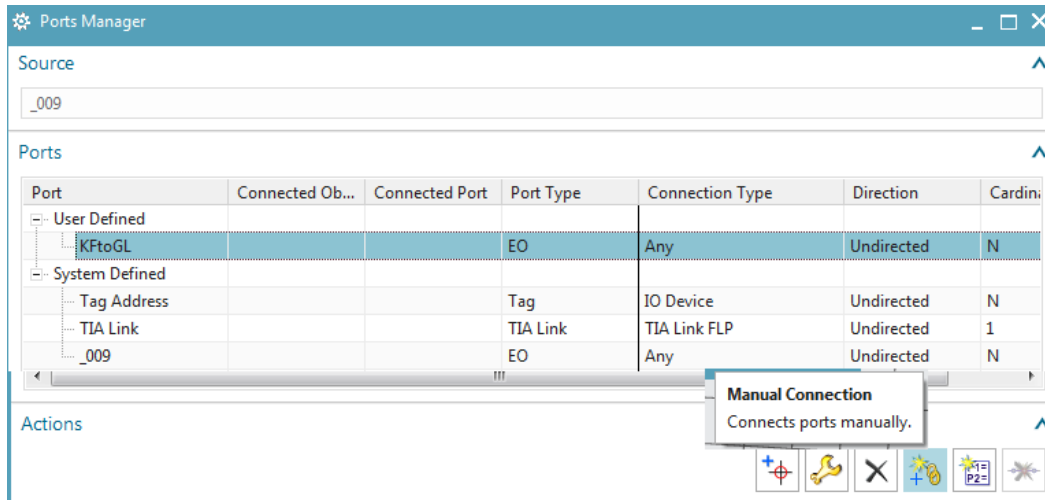
7. Click OK.

8. Right-click on EO KF and select "Ports manager...".

2. Connection (link)

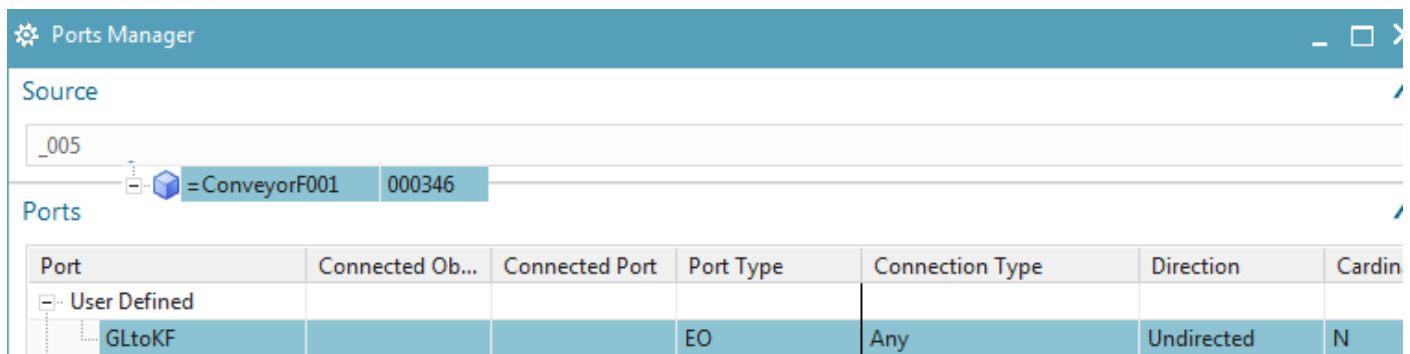
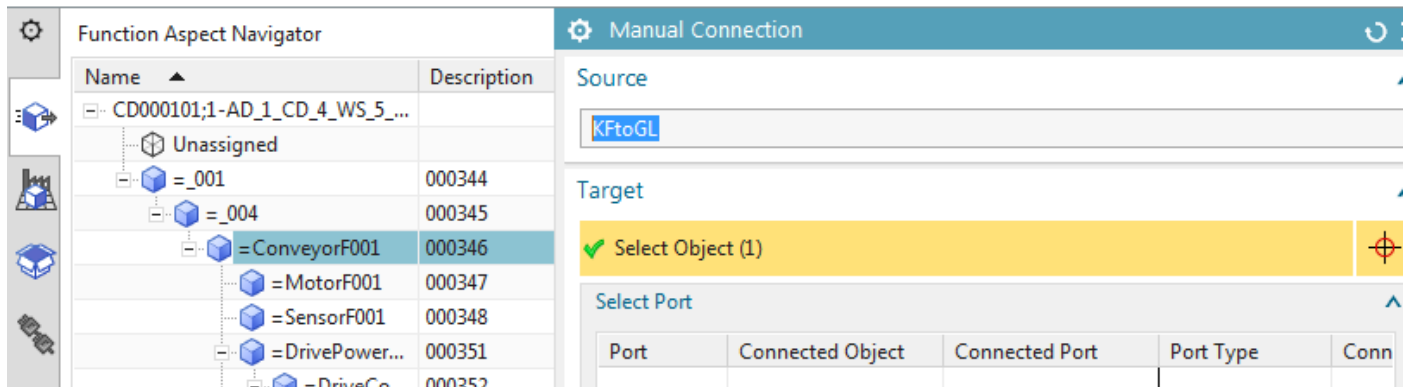
You now need to link the 2 ports. The link can be created starting from either EO.

1. In the ports manager for KF, right-click on the port and select "Manual connection".



2. Select the target EO GL.
3. Select the port GLtoKF.

Port not there.



Igor showed me... have to chose the connection types that can connect together...now “Any” cant connect with “Any” (its designed this way... why? and we wonder why working with this is such a challenge 😊). Below “connection type” changed to “program block”. Not sure if should do it this way, but it works.

The screenshot shows the SIMATIC Manager interface. On the left is a project tree with components like 'ConveyorF001', 'MotorF001', 'SensorF001', 'DrivePower...', 'DriveCo...', 'EOC...', 'DII', 'Sensor1', 'PID0', 'EPLAN Page...', 'RB_AT', 'PosDev_2D25...', and 'RB_AT_DB'. In the center, a 'Manual Connection' dialog box is open, showing 'Source' as 'KFtoGL' and 'Target' as 'Select Object (1)'. Below the dialog is a table for selecting ports:

| Port | Connected Object | Connected Port | Port Type | Conn |
|--------|------------------|----------------|-----------|------|
| GLtoKF | | | EO | Any |
| 005 | | | EO | Any |
| | | | INTERNAL | |
| | | | INTERNAL | |
| | | | INTERNAL | |

On the right, a larger table lists connection types and their properties:

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|------|-----------------|----------------|-----------|-----------------|------------|-------------|---|
| | User Defined | | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, FC_Proxy, DB_Proxy, IDB_Proxy |
| | System Defined | | Tag | IO Device | Undirected | N | Tag Address |
| | Tag Address | | TIA Link | TIA Link FLP | Undirected | 1 | TIA Link A |
| | TIA Link | | EO | Any | Undirected | N | OB_Proxy, Device Function, UDT_Proxy, Device, IDB_Proxy, Tag_Proxy, EO_Prox |

4. Click OK. The ports are linked.

>> 3. Expression

Terry: expressions dialog is very confusing... be careful of each little step.

1. Open the properties for the EPLAN macro.
2. For "Apply to" select "EPLAN page".

TERRY: I am still not sure which attribute is now "KF01.Function text".. just choose first one.

3. Click on "Variable: ControlUnitFunctionText".
4. Click "Expression Formula".
5. Click on the arrow for "Expression Formula". A drop-down list appears.

| Title/Alias | Value | Units | T... | Type | R... | D... | I... |
|-----------------------------------|-----------------------------------|-------|------|--------|------|------|------|
| Variable: ControlUnitFunctionText | Variable: ControlUnitFunctionText | | | String | | | |
| Variable: ControlUnitName | Variable: ControlUnitName | | | String | | | |
| Variable: ControlUnitPartNumber1 | Variable: ControlUnitPartNumber1 | | | String | | | |
| Variable: ControlUnitPartNumber2 | Variable: ControlUnitPartNumber2 | | | String | | | |
| Variable: MotorCableFunctionText | Variable: MotorCableFunctionText | | | String | | | |
| Variable: MotorCableName | Variable: MotorCableName | | | String | | | |
| Variable: MotorCablePartNumber1 | Variable: MotorCablePartNumber1 | | | String | | | |
| Variable: MotorCablePartNumber2 | Variable: MotorCablePartNumber2 | | | String | | | |
| Variable: MotorFunctionText | Variable: MotorFunctionText | | | String | | | |
| Variable: MotorName | Variable: MotorName | | | String | | | |

6. Click "Formula". The Expressions dialog appears.
7. In the first empty row under "Name" enter "hhh".
8. Under "Formula" right-click and select "Edit".
9. enter the following.

Formula

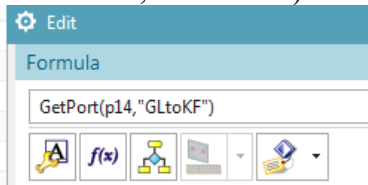
GetPort(

10. Click on the icon.
11. Select the conveyor "Object name".

| Port | Connected Ob... | Connected Port |
|----------------|-----------------|----------------|
| User Defined | | |
| GLtoKF | | |
| System Defined | | |
| Tag Address | | |
| TIA Link | | |
| ✓ _005 | | |

| Title/Alias | Value | Units | T... | Type | R... | D... |
|---------------------------|----------------------|-------|------|--------|------|------|
| Aspect Function | | | | | | |
| Aspect Location | | | | | | |
| Aspect Product | | | | | | |
| General | | | | | | |
| Object Name | _005 | | | String | | |
| Reference Designation Set | =_001_004.Convey... | | | String | | |
| Type | GL-Continuous flo... | | | String | | |
| Type | | | | | | |

12. add “, “GLtoKF”) “.



13. click OK.

| | ↑ Name | Formula | Value | Units | Dimensionality | Type |
|---|--------|-------------------------------------|------------|-------|----------------|------|
| 8 | hhh | GetConnectedObjects(p10,\"GLtoKF\") | {\"_009\"} | | | List |

14. enter eee

| | ↑ Name | Formula | Value | Ur | Dir | Type |
|---|--------|-------------------------------------|------------|----|-----|--------|
| 5 | eee | GetListElementAt(hhh,1) | \"_009\" | | | String |
| 8 | hhh | GetConnectedObjects(p10,\"GLtoKF\") | {\"_009\"} | | | List |

15. enter fff

| | | | | | | |
|---|-----|-------------------------------------|---|--|--|--------|
| 6 | fff | GetMRD(eee,Function) | \"=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001\" | | | String |
| 5 | eee | GetListElementAt(hhh,1) | \"_009\" | | | String |
| 8 | hhh | GetConnectedObjects(p10,\"GLtoKF\") | {\"_009\"} | | | List |

16. enter iii

| | | | | | | |
|---|-----|-------------------------------------|---|--|--|--------|
| 9 | iii | subString(fff, 3, 1000000) | \"001._004.ConveyorF001.DrivePowerF001.DriveControlF001\" | | | String |
| 6 | fff | GetMRD(eee,Function) | \"=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001\" | | | String |
| 5 | eee | GetListElementAt(hhh,1) | \"_009\" | | | String |
| 8 | hhh | GetConnectedObjects(p10,\"GLtoKF\") | {\"_009\"} | | | List |

17. assign p12

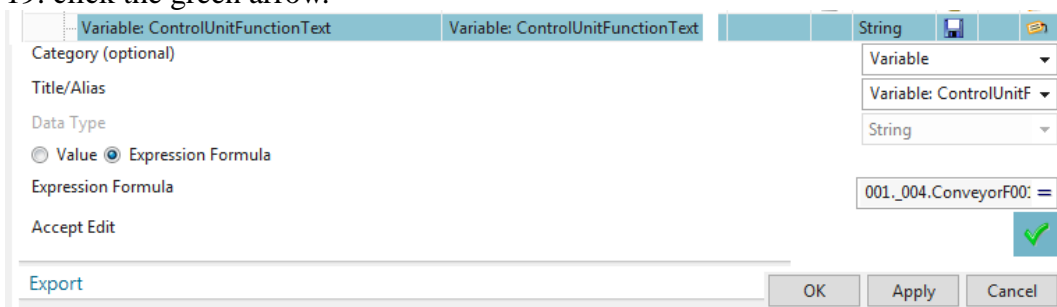
| | ↑ Name | Formula | Value | Ur | Dir | Type |
|---|--------|-------------------------------------|---|----|-----|--------|
| 1 | p12 | iii | \"001._004.ConveyorF001.DrivePowerF001.DriveControlF001\" | | | String |
| 9 | iii | subString(fff, 3, 1000000) | \"001._004.ConveyorF001.DrivePowerF001.DriveControlF001\" | | | String |
| 6 | fff | GetMRD(eee,Function) | \"=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001\" | | | String |
| 5 | eee | GetListElementAt(hhh,1) | \"_009\" | | | String |
| 8 | hhh | GetConnectedObjects(p10,\"GLtoKF\") | {\"_009\"} | | | List |

P12 details....

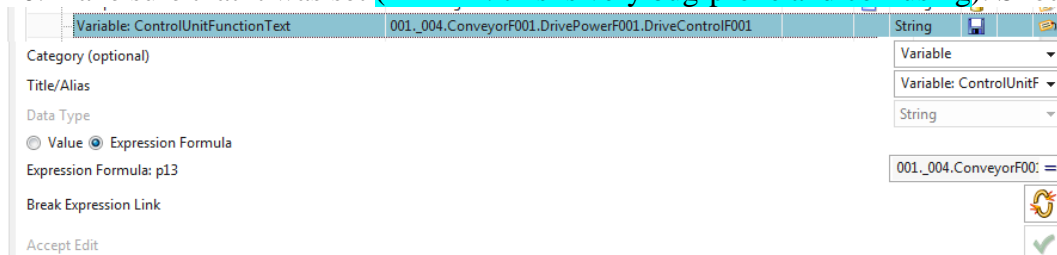
| ↑ Name | Formula | Value | Ur | Dir | Type | Source | Status | Comment | Checks |
|--------|---------|-------|----|-----|--------|--|--------|---------|--------|
| 1 | p12 | iii | | | String | (EPLAN Page Mac005::Type Attribute: Variable: ControlUnitFunctionText) | | | |

18. select p12 row. Click ok.

19. click the green arrow.



20. make sure that it was set (TERRY: this is very bug-prone and confusing). Should be like this:

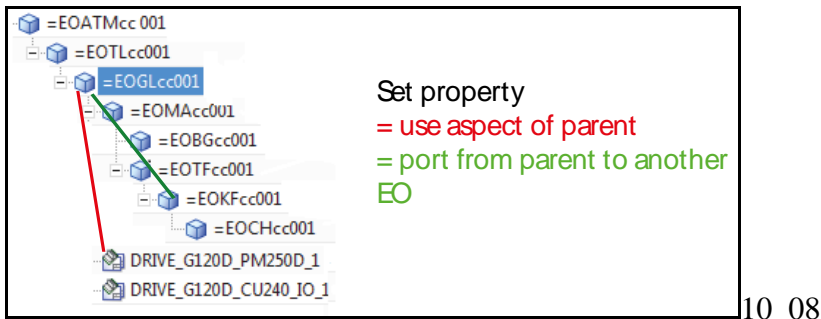


22. Click ok. Save project.

10.2c. KF01.name ports, link, and expression

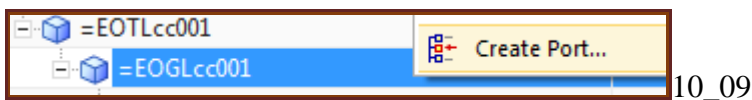
The value for KF01.Function text is taken from the corresponding EO KF (not the parent EO). Therefore you will need ports for the parent EO and EO KF and the link between them.

1. Ports
2. Connection (link)
3. Expression



1. Ports

1. Right-click on EO GL and select "Create Port..."



2. Enter the following information.

10_10

3. Click OK.
4. Right-click on EO GL and select "Ports manager..."

Source

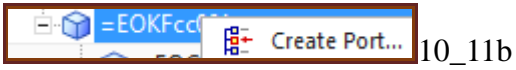
=EOATMcc001.EOTLcc001.EOGLcc001/+EOGLcc001/-EOGLcc001

Ports

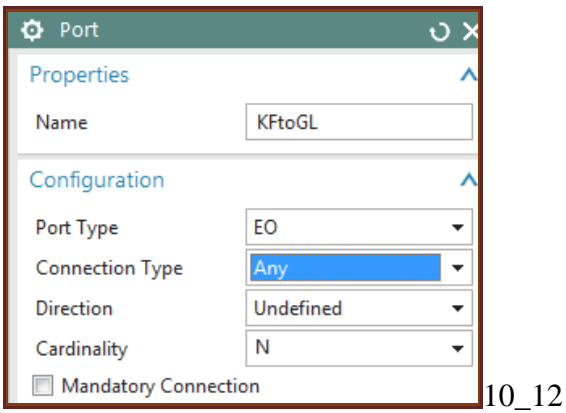
| Port | Connected Ob... | Connected Port | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
|--------------|-----------------|----------------|-----------|------------------|----------|----------|--------|-------------------|
| User Defined | | | | | | | | |
| GLtoKF | | | EO | Any | Undef... | N | | Device Functio... |

10_11

5. Right-click on EO KF and select "Create Port...".

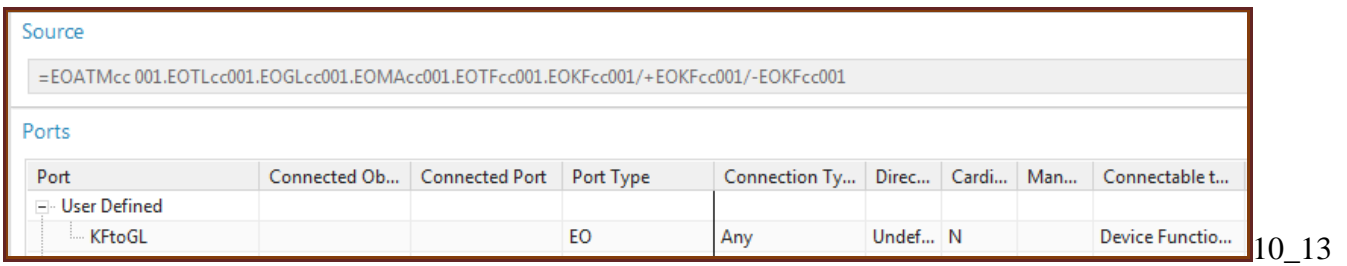


6. Enter the following information.



7. Click OK.

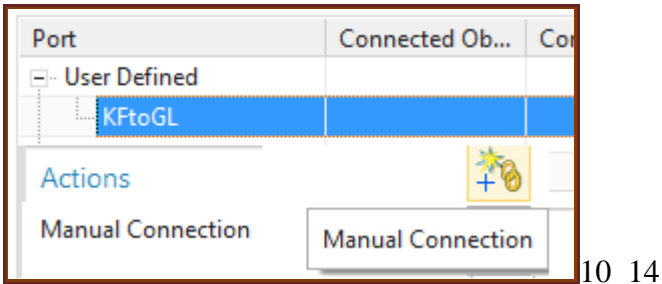
8. Right-click on EO KF and select "Ports manager...".



2. Connection (link)

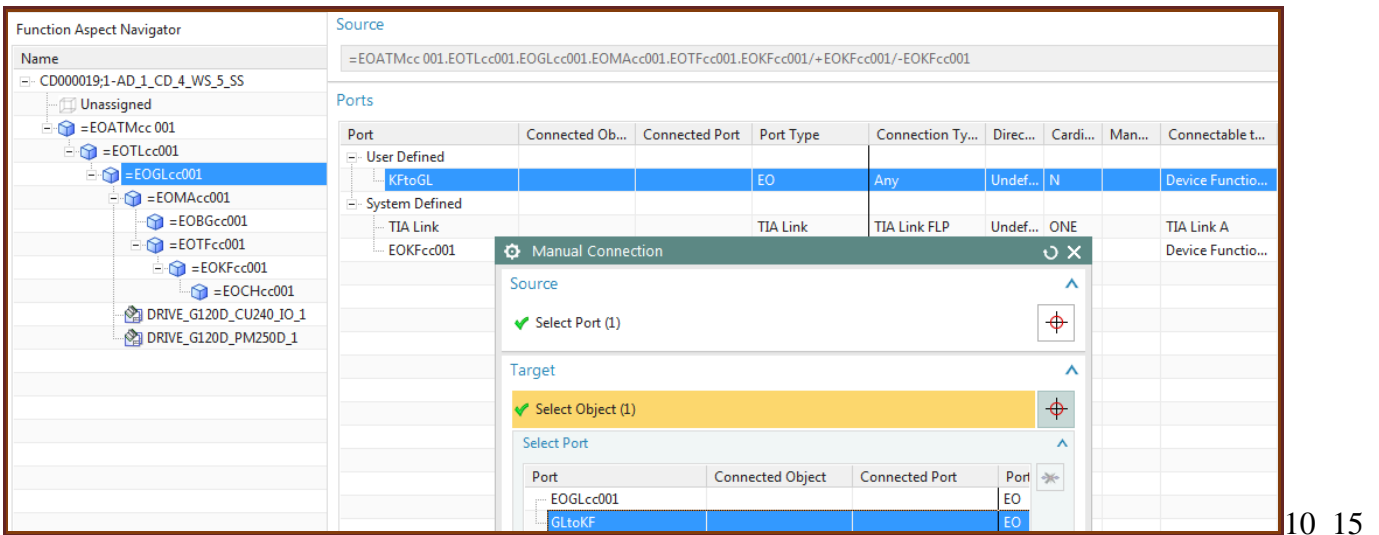
You now need to link the 2 ports. The link can be created starting from either EO.

1. In the ports manager for KF, right-click on the port and select "Manual connection".

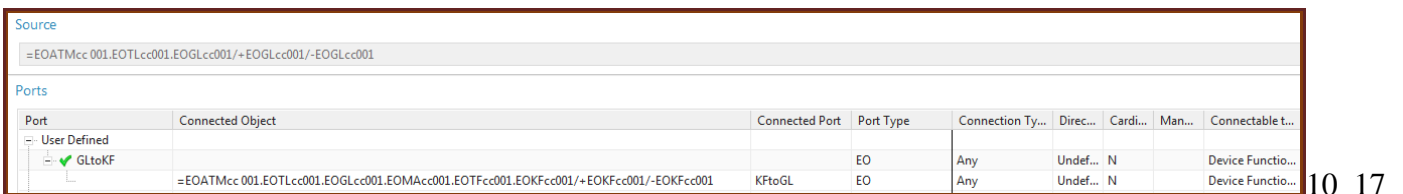
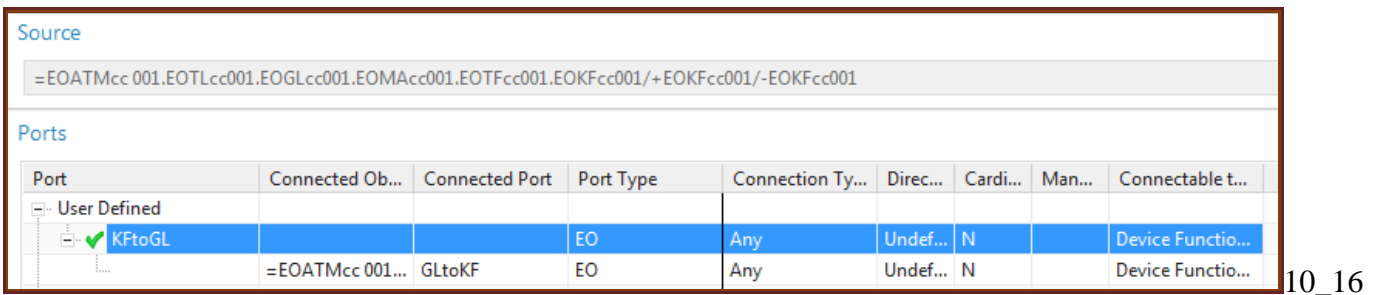


2. Select the target EO GL.

3. Select the port GLtoKF.

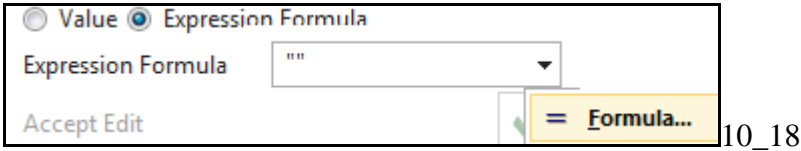


4. Click OK. The ports are linked.



3. Expression

1. Open the properties for the EPLAN macro.
2. For "Apply to" select "EPLAN page".
3. Click on "KF01.Function text".
4. Click "Expression Formula".
5. Click on the arrow for "Expression Formula". A drop-down list appears.



6. Click "Formula". The Expressions dialog appears.
7. In the first empty row under "Name" enter a short name.
8. Under "Formula" enter the following.

`AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)`

9. Change the focus. The resulting value should be displayed.

| Name | Formula |
|-------|---|
| 1 p4 | "" |
| 6 eee | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function) |

| Value | Type | Dimensio |
|--|--------|----------|
| "" | String | |
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001" | String | |

10. Click OK.
11. Open the formula dialog again. The row that defines the select property variable is highlighted. In this row in column "Formula" enter the name you entered in (7) above.
12. Change the focus to see the value.

| Name | Formula |
|-------|---|
| 1 p4 | eee |
| 2 eee | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function) |

| Value | Type |
|--|--------|
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001" | String |
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001" | String |
| FALSE | |

13. Click OK. The aspect chain for EO KF is assigned to KF01.Name.

| Title/Alias | Value | Type | R... |
|----------------------------|--|--------|------|
| Device properties | | | |
| ... ++-KF01.Function text | | String | |
| ... ++-KF01.Name (visible) | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001 | String | |

10.6a. Test 20164022

This is getting old.....

Generate EPLAN Project

Creating the project was not successful.

Most common reasons:

- The project template may be corrupt
- If the project already exists, it may be in use or write protected
- The target directory may be out of disc space.

Problem was: have to use the default template (other has error).

Click "remove EPLAN project template"

EPLAN Project Template

EPLAN Project Template in Use

| Title | Value |
|-----------|-------------------|
| File Name | Initial by System |
| Path | - |
| Date | - |
| User | - |

Actions

Import EPLAN Project Template
Remove EPLAN Project Template

Click generate. created

| | | | | |
|-------------------|------|------------|--|--|
| =CA1+EAA/1 | | | | |
| | Date | 22.04.2016 | EPLAN Software & Service GmbH & Co. KG | PageDescription250 = 001..._004.ConveyorF001 + Locationtext250 |
| | Ed. | Z003H4JX | | |
| Modification | Date | Name | Original | Repl. |
| | | | | Page 1 |
| | | | | Page 2 / 2 |

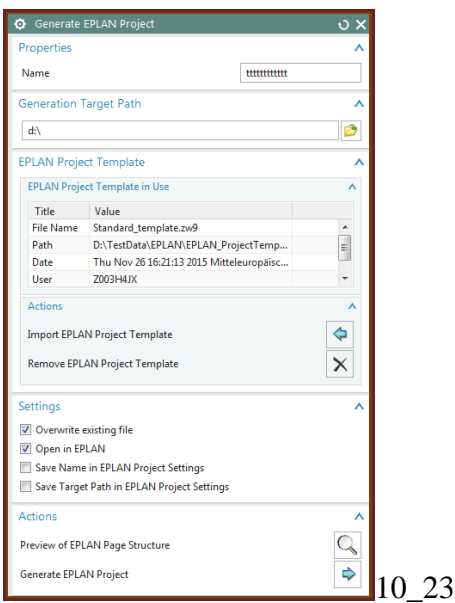
10.6b. Test

Now test what you have created so far.

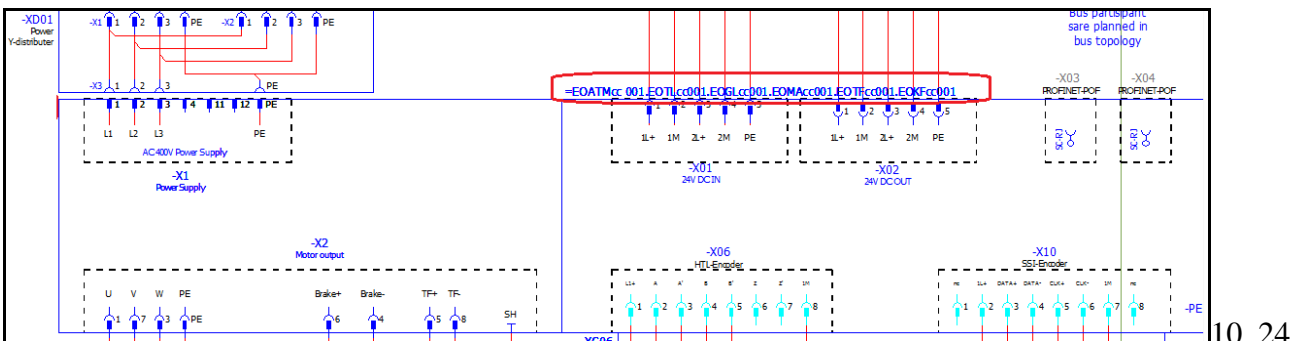
1. Click on "Electrical Engineering / Generate EPLAN".



2. Enter the name.
3. Select path.
4. Check "Open in EPLAN".



5. Click "Generate EPLAN Project". EPLAN opens. Note the value for KF.



10.7. FINISH (optional)

this section show how to complete the EPLAN example. You can skip if you want, there are no new concepts introduced in this section.

10.7.1. Finish 250 macro

10.7.2. Add 240 macro

10.7.3. TEST xxx

10.7.1. Finish 250 macro

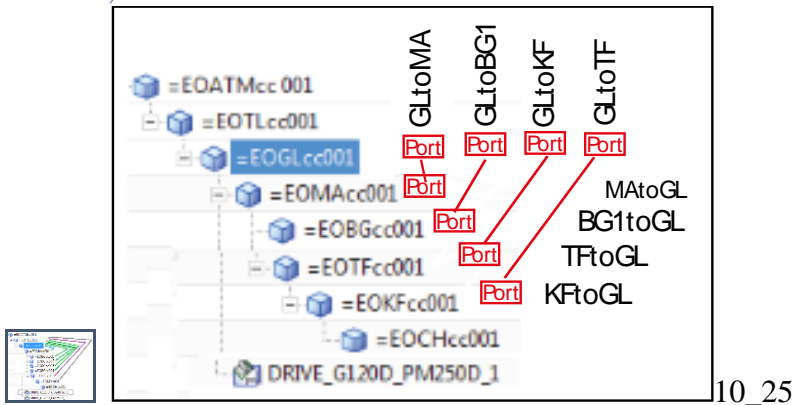
13.2.1.1. MA01.Name

13.2.1.2. TF01.Name

You need following ports:

[GLtoMA](#), [MAtoGL](#)

[GLtoTF](#), [TFtoGL](#)



10_25

250 expressions (dark green completed earlier).

| Device property | Value |
|--------------------|--|
| KF01.Function text | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function)</code> |
| KF01.Name | KF01.name |
| MA01.Function text | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoMA")),Function)</code> |
| MA01.Name | MA01.name |
| TF01.Function text | <code>AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoTF")),Function)</code> |
| TF01.Name | TF01.name |
| WD02.Function text | WD02.function text |
| WD02.Name | WD02.name |
| Description | Description1 |
| Full page name | (locked) |
| Function | <code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)</code> |
| Location | <code>subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)</code> |
| Page name | 1 |

13.2.1.1. MA01.Name

1. Ports

GLtoMA

MAtoGL

2. Connection

| Source | | | | | | | | |
|--|--|----------------|-----------|------------------|----------|----------|--------|-------------------|
| =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001/+EOMAcc001/-EOMAcc001 | | | | | | | | |
| Ports | | | | | | | | |
| Port | Connected Object | Connected Port | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
| [-] User Defined | | | | | | | | |
| [-] MAtoGL | =EOATMcc 001.EOTLcc001.EOGLcc001/+EOGLcc001/-EOGLcc001 | GLtoMA | EO | Any | Undef... | N | | Device Functio... |
| | | | | Any | Undef... | N | | Device Functio... |

10_26

| Source | | | | | | | | |
|--|---|--------------|-----------|------------------|----------|----------|--------|-------------------|
| =EOATMcc 001.EOTLcc001.EOGLcc001/+EOGLcc001/-EOGLcc001 | | | | | | | | |
| Ports | | | | | | | | |
| Port | Connected Object | Connected... | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
| [-] User Defined | | | | | | | | |
| [-] GLtoKF | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001/+EO... | KFtoGL | EO | Any | Undef... | N | | Device Functio... |
| [-] GLtoMA | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001/+EOMAcc001/-EOMAcc001 | MAtoGL | EO | Any | Undef... | N | | Device Functio... |
| | | | | Any | Undef... | N | | Device Functio... |

10_27

3. Expression

AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoMA")),Function)

| | Name | Formula |
|----|------|---|
| 11 | p15 | fff |
| 3 | fff | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoMA")),Function) |

| Value | Type |
|--|--------|
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001" | String |
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001" | String |

10_28

| EPLAN Page Attributes | |
|----------------------------|--|
| Title/Alias | Value |
| [-] Device properties | |
| [-] +=-KF01.Function text | |
| [-] +=-KF01.Name (visible) | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001 |
| [-] +=-MA01.Function text | |
| [-] +=-MA01.Name (visible) | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001 |
| [-] +=-TF01.Function text | |
| [-] +=-TF01.Name (visible) | |
| [-] +=-WD02.Function text | |
| [-] +=-WD02.Name (visible) | |

10_29

13.2.1.2. TF01.Name

1. Ports

GLtoTF

TFtoGL

2. Connection

| Source | | | | | | | | |
|--|--|--------------|-----------|------------------|----------|----------|--------|-------------------|
| =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001/+EOTFcc001/-EOTFcc001 | | | | | | | | |
| Ports | | | | | | | | |
| Port | Connected Object | Connected... | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
| [-] User Defined | | | | | | | | |
| [-] TFtoGL | | | EO | Any | Undef... | N | | Device Functio... |
| | =EOATMcc 001.EOTLcc001.EOGLcc001/+EOGLcc001/-EOGLcc001 | GLtoTF | EO | Any | Undef... | N | | Device Functio... |

10_30

| Source | | | | | | | | |
|--|---|--------------|-----------|------------------|----------|----------|--------|-------------------|
| =EOATMcc 001.EOTLcc001.EOGLcc001/+EOGLcc001/-EOGLcc001 | | | | | | | | |
| Ports | | | | | | | | |
| Port | Connected Object | Connected... | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
| [-] User Defined | | | | | | | | |
| [-] GLtoKF | | | EO | Any | Undef... | N | | Device Functio... |
| | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001/+EO... | KFtoGL | EO | Any | Undef... | N | | Device Functio... |
| [-] GLtoMA | | | EO | Any | Undef... | N | | Device Functio... |
| | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001/+EOMAcc001/-EOMAcc001 | MAtoGL | EO | Any | Undef... | N | | Device Functio... |
| [-] GLtoTF | | | EO | Any | Undef... | N | | Device Functio... |
| | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001/+EOTFcc001/-E... | TFtoGL | EO | Any | Undef... | N | | Device Functio... |

10_31

3. Expression

AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoTF")),Function)

| Name | Formula |
|-------|---|
| 1 p23 | ggg |
| 4 ggg | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoTF")),Function) |

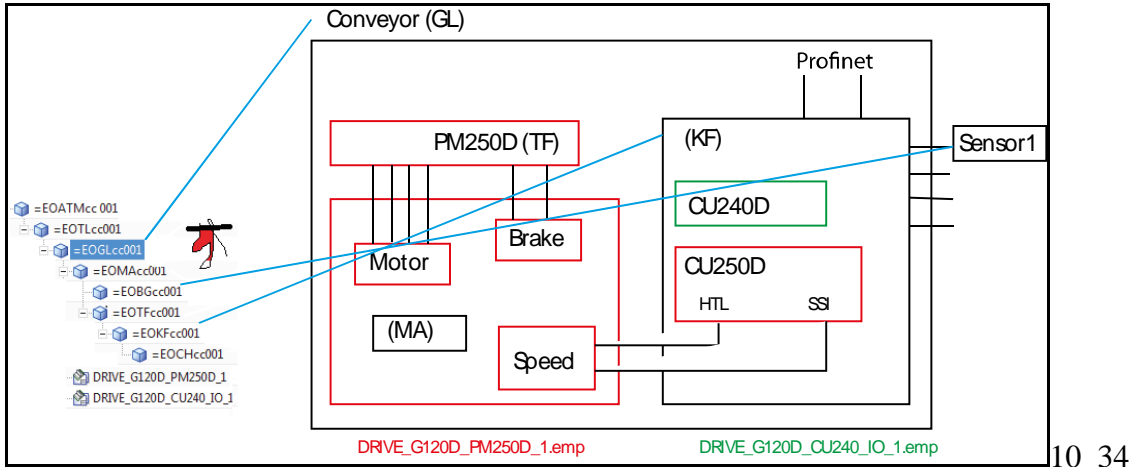
| Value | Type |
|--|--------|
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001" | String |
| "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001" | String |

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| Title/Alias | Value |
|----------------------------|--|
| [-] Device properties | |
| ... =+-KF01.Function text | |
| ... =+-KF01.Name (visible) | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001 |
| ... =+-MA01.Function text | |
| ... =+-MA01.Name (visible) | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001 |
| ... =+-TF01.Function text | |
| ... =+-TF01.Name (visible) | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001 |
| ... =+-WD02.Function text | |
| ... =+-WD02.Name (visible) | |

10_33

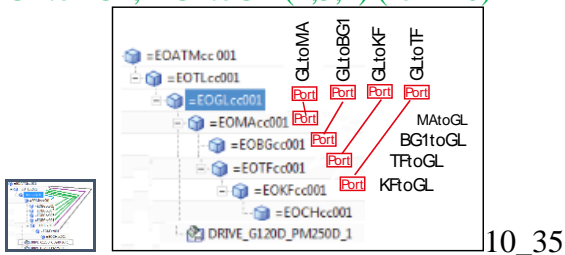
10.7.2. Add 240 macro



- 13.2.2.2. copy BG1 to BG2-4 (if needed), create GL ports, link
- 13.2.2.3. Add CU240D (KF) macro
- 13.2.2.4. BG01-4 expressions
- 13.2.2.5. :4, :2 PLC ADDRESS, symbolic address???
- 13.2.2.6. KF01.Function text (not name???)
- 13.2.2.7. Function
- 13.2.2.8. Location

You need following ports:

GLtoBG1, BG1toGL (2,3,4) (for 240)



240 expressions.

| Device property | Value |
|-------------------------|---|
| BG01.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG1")),Function) |
| BG02.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG2")),Function) |
| BG03.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG3")),Function) |
| BG04.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG4")),Function) |
| KF01:2.Function text | KF01:2. Functiontext |
| KF01:2.PLC address | E1-2 |
| KF01:2.Symbolic address | KF01:2.SymAddr |
| KF01:4.Function text | KF01:4.Function text |
| KF01:4.PLC address | E1-4 ??? |
| KF01:4.Symbolic address | KF01:4.SymAddr |
| KF01.Function text | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoKF")),Function) |
| KF01.Name | KF01.name |
| MB01.Name | MB01.Name |
| MB02.Name | MB02.Name |
| Description | Description1 |
| Full page name | (locked) |
| Function | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000) |
| Location | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000) |
| Page name | 1 |

13.2.2.2. copy BG1 to BG2-4 (if needed), create GL ports, link

1. Copy BG1 3 times.
2. Rename to BG2-4.
3. rename BG1toGL ports.

Source

=EOATMccc001.EOTLcc001.EOGLcc001.EOBG2

Ports

| Port | Connected Ob... | Connected Port | Port Type |
|--------------|-----------------|----------------|-----------|
| User Defined | | | |
| BG1toGL | | | EO |
| BG1toCH1 | | | EO |

10_36

4. for GL create GLtoBG# ports and connect.

13.2.2.3. Add CU240D (KF) macro

1. Click "Electrical Engineering / Import EPLAN macro".
2. Select the EO GL01.
3. Select the macro file **DRIVE_G120D_CU240_IO_1.emp**.
4. Click Import. The macro appears in the aspect tree.

13.2.2.4. BG01-4 expressions

5. Right-click on the macro. Select "Properties".

| | |
|-----------|--|
| BG01.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG1")),Function) |
| BG02.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG2")),Function) |
| BG03.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG3")),Function) |
| BG04.Name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"GLtoBG4")),Function) |

13.2.2.5. :4, :2 PLC ADDRESS, symbolic address????????????????

Just set manually??

| | |
|-------------------------|----------------------|
| KF01:2.Function text | KF01:2. Functiontext |
| KF01:2.PLC address | E1-2 |
| KF01:2.Symbolic address | KF01:2.SymAddr |
| KF01:4.Function text | KF01:4.Function text |
| KF01:4.PLC address | E1-4 ??? |
| KF01:4.Symbolic address | KF01:4.SymAddr |

13.2.2.6. KF01.Function text (not name???)

1. Ports

Already created. YES??

GLtoKF

KFtoGL

2. connection

Already created

3. expression

`AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(), "GLtoKF")),Function)`

| | Name | Formula | | |
|---|------|--|--|--------|
| 1 | p28 | ccc | | |
| 2 | ccc | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(), "GLtoKF")),Function) | | |
| | | | Value | |
| | | | "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001" | String |
| | | | "=EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001" | String |

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| EPLAN Page Attributes | | | |
|------------------------------|--|--------|------|
| Title/Alias | Value | Type | R... |
| Device properties | | | |
| ...+-BG01.Name (visible) | | String | |
| ...+-BG02.Name (visible) | | String | |
| ...+-BG03.Name (visible) | | String | |
| ...+-BG04.Name (visible) | | String | |
| ...+-BG05.Name (visible) | | String | |
| ...+-BG06.Name (visible) | | String | |
| ...+-KF01:2.Function text | | String | |
| ...+-KF01:2.PLC address | | String | |
| ...+-KF01:2.Symbolic address | | String | |
| ...+-KF01:4.Function text | | String | |
| ...+-KF01:4.PLC address | | String | |
| ...+-KF01:4.Symbolic address | | String | |
| ...+-KF01.Function text | =EOATMcc 001.EOTLcc001.EOGLcc001.EOMAcc001.EOTFcc001.EOKFcc001 | String | |
| ...+-KF01.Name (visible) | | String | |
| ...+-MB01.Name (visible) | | String | |
| ...+-MB02.Name (visible) | | String | |

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13.2.2.7. Function

No port or connection. Use parent.

3. Expression

subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000)

| Name | Formula |
|-------|---|
| 1 p38 | aaa |
| 2 aaa | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Function),2,1000000) |

| Value | Type |
|-----------------------------------|--------|
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |

10_39

| Page properties | | | |
|-----------------|------------------------------------|--------|--|
| Description | | String | |
| Full page name | =EOATMcc 001.EOTLcc001.EOGLcc001/1 | String | |
| Function | EOATMcc 001.EOTLcc001.EOGLcc001 | String | |
| Location | | String | |
| Page name | 1 | String | |

10_40

13.2.2.8. Location

No port or connection. Use parent.

3. Expression

subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000)

| Name | Formula |
|-------|---|
| 1 p43 | bbb |
| 3 bbb | subString(AD_GetAttributeValue(AD_GetEngObject(),"Multi Reference Designation",Location),2,1000000) |

| Value | Type |
|-----------------------------------|--------|
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |
| "EOATMcc 001.EOTLcc001.EOGLcc001" | String |

10_41

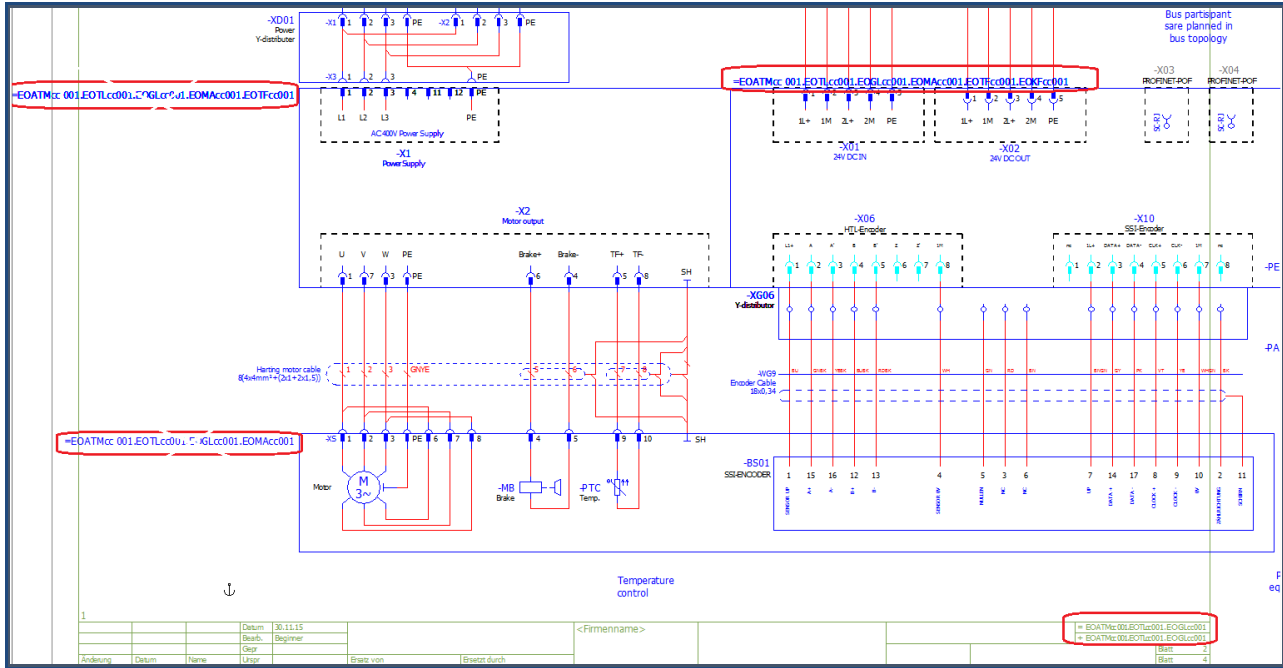
| Page properties | | | |
|-----------------|--|--------|--|
| Description | | String | |
| Full page name | =EOATMcc 001.EOTLcc001.EOGLcc001+EOATMcc 001.EOTLcc001.EOGLcc001/1 | String | |
| Function | EOATMcc 001.EOTLcc001.EOGLcc001 | String | |
| Location | EOATMcc 001.EOTLcc001.EOGLcc001 | String | |
| Page name | 1 | String | |

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10.7.3. Test (20160209_1252)

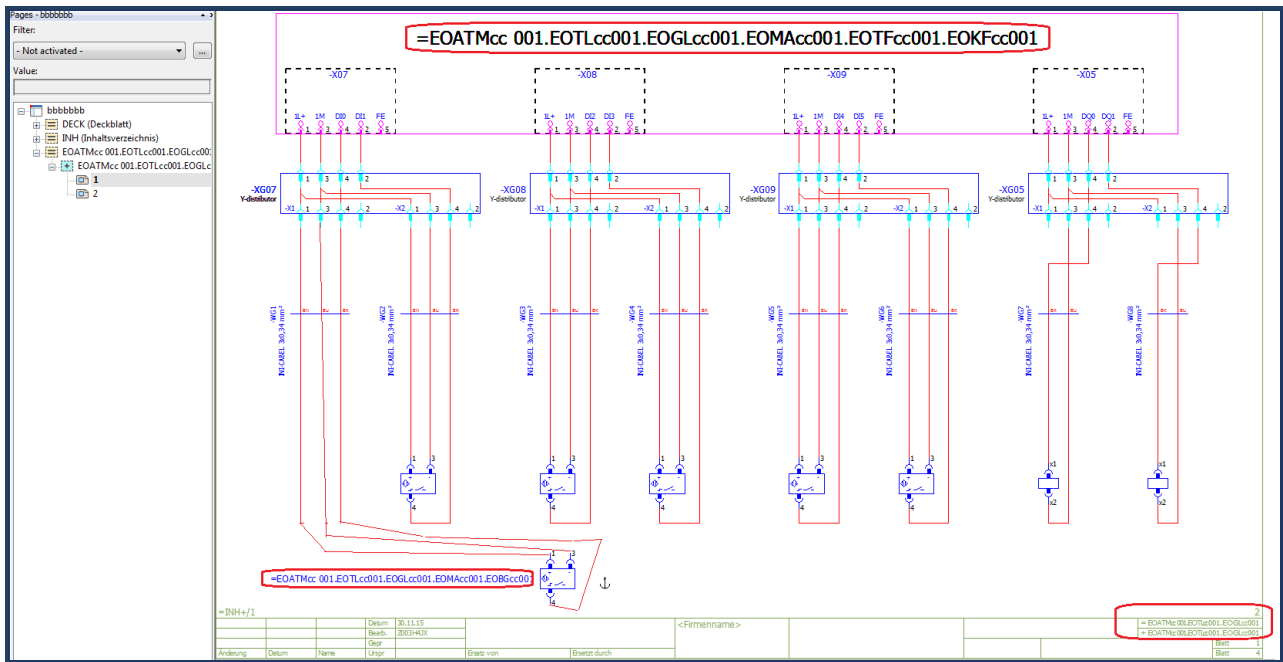
1. Click on "Electrical Engineering / Generate EPLAN".
2. Enter the name.
3. Select path.
4. Check "Open in EPLAN".
5. Click "Generate EPLAN Project". EPLAN opens with 2 macro pages.

250



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240



10_44

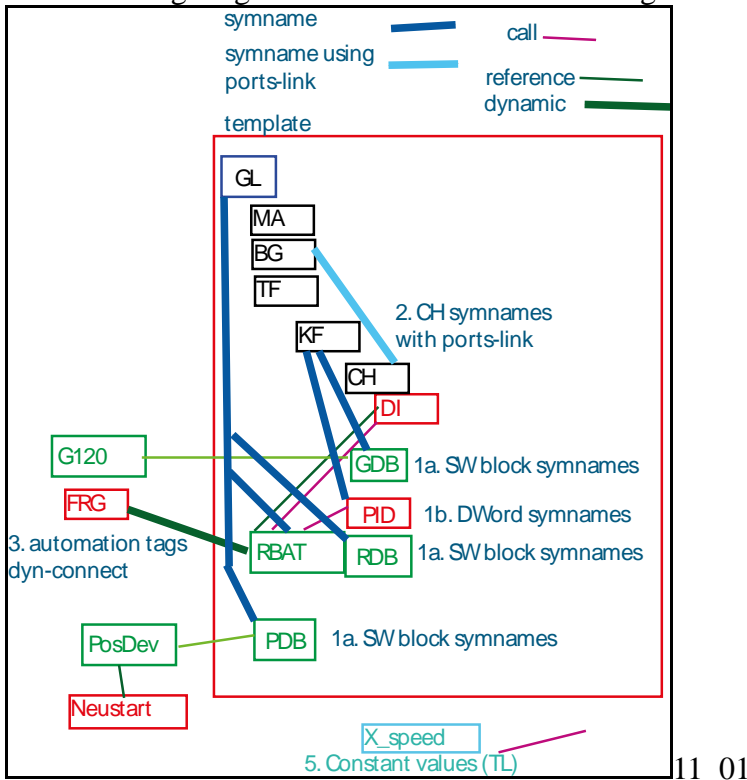
11. Configure template-ready TIA (20160426)

This chapter includes the following sections.

- 11.0. Overview (NEW)
- 11.1. Create symbolic names with expressions (SW blocks, tags (PID0))
- 11.2. Create symbolic names with ports/links (CH0)
- 11.3. Create automation-tags dynamic connections (FRG_EStop)
- 11.4. Test
- 11.5. FINISH (optional)

11.0. Overview (20160208)

The following diagram shows what must be configured.



11.1a. create symbolic names for SW. Set the symbolic names for the following SW blocks / IDB's.

| | |
|-----------|---|
| RB_AT | AD_GetDesignation(AD_GetEngObject(),Function)+".RB" |
| RB_AT_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".RBDB" |
| PosDev_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".POSDEVDB" |
| G120x_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".G120DB" |

11.1b. For PID0 set the symbolic name to:

AD_GetDesignation(AD_GetEngObject(),Function)+".PID0"

11.2. create ports-link BG1toCH1 and CH1toBG1. For DI0 set the symbolic name to:

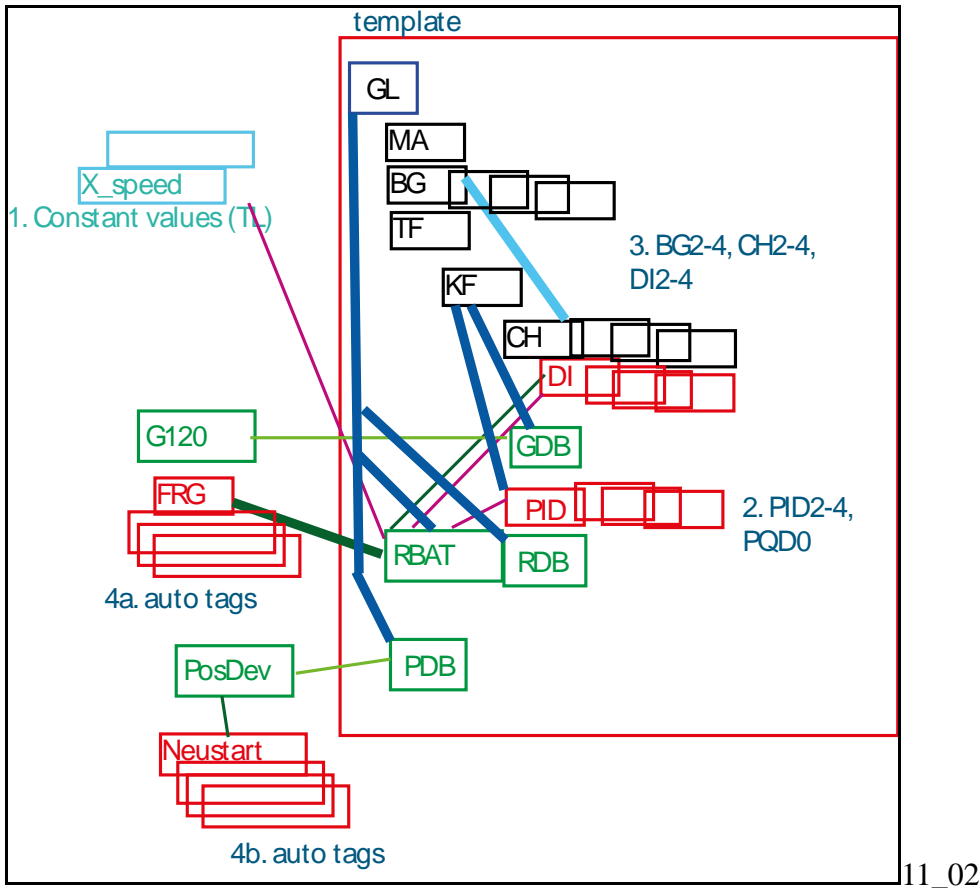
AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH1toBG1")),Function)+".CH"

11.3. create dynamic connection to automation tag. Enter the following expression.

First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoFRGStop"))

11.4 test.

11.5. finish. (optional). Add the extras shown below.



TL constant value

| | |
|-------------|-------------|
| Category | Operational |
| Title/Alias | Slow_Speed |
| Data Type | String |
| Value | Real#10.0 |

PID1, PID2, PQD0.

| Tag | Properties | Properties |
|------|----------------|---|
| PID1 | Name | PID1 |
| | Memory Section | Input |
| | Data Type | Dword |
| | Description | PID1 descr |
| | Address | 2104 |
| | Symbolic name | AD_GetDesignation(AD_GetEngObject(),Function)+".PID1" |
| PID2 | Name | PID2 |
| | Memory Section | Input |
| | Data Type | DWord |
| | Description | PID2 descr |
| | Address | 2108 |
| | Symbolic name | AD_GetDesignation(AD_GetEngObject(),Function)+".PID2" |
| PQD0 | Name | PQD0 |
| | Memory Section | Output |
| | Data Type | Dword |
| | Description | PQD0 descr |
| | Address | 2112 |
| | Symbolic name | AD_GetDesignation(AD_GetEngObject(),Function)+".PQD0" |

CH2-4, BG 2-4 ports.

CH2toBG2
 CH3toBG3
 CH4toBG4
 BG2toCH2
 BG3toCH3
 BG4toCH4

DI2-4 properties.

| Tag | Properties | Value |
|-----|----------------|---|
| DI2 | Name | DI2 |
| | Memory Section | Input |
| | Data Type | Boolean |
| | Description | Sensor 2 |
| | Address | 1.3 |
| | Symbolic name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH2toBG2")),Function)+".CH" |
| DI3 | Name | DI3 |
| | Memory Section | Input |
| | Data Type | Boolean |
| | Description | Sensor 3 |
| | Address | 1.4 |
| | Symbolic name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH3toBG3")),Function)+".CH" |
| DI4 | Name | DI4 |
| | Memory Section | Input |
| | Data Type | Boolean |
| | Description | Sensor 4 |
| | Address | 1.5 |
| | Symbolic name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH4toBG4")),Function)+".CH" |

RB_AT call to PosDev values:

| Call param | Value | TYPE |
|------------|-------|--------------------|
| SW_FS_ADV | DI2 | Symbolic reference |
| SW_FS_RTN | DI3 | Symbolic reference |
| LS_RTN | DI4 | Symbolic reference |

Ports/links for 3 automation tags.

1. Create TLtoFRGBS, TLtoIBN0, TLtoReset ports in EO TL.
2. Manual connect the 3 ports to the tags (tags do not need a port).
3. Create dynamic connections from RB_AT to 3 tags.

| | |
|-----------|---|
| TLtoFRGBS | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoFRGBS")) |
| TLtoIBN0 | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoIBN0")) |
| TLtoReset | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)),"TLtoReset")) |

Test.

11.1-3. 20160509

RB_AT

P4 = GL Fuction MRD

| | ↑ Name | Formula | Value |
|---|--------|----------------------------|------------------------------------|
| 1 | p0 | subString(p4,3,1000)+"_RB" | "OATMcc001.EOTLcc001.EOGLcc001_RB" |

```
CALL "OATMcc001.EOTLcc001.EOGLcc001_RB", "GLcc001_RBDB"
```

RB_AT_DB

| | ↑ Name | Formula | Value |
|---|--------|------------------------------|--------------------------------------|
| 1 | p0 | subString(p4,3,1000)+"_RBDB" | "OATMcc001.EOTLcc001.EOGLcc001_RBDB" |

```
CALL "OATMcc001.EOTLcc001.EOGLcc001_RB", "OATMcc001.EOTLcc001.EOGLcc001_RBDB"
```

PD_DB

| | | | |
|---|----|-------------------------------|---------------------------------------|
| 1 | p0 | subString(p2,3,1000)+"_PD_DB" | "OATMcc001.EOTLcc001.EOGLcc001_PD_DB" |
|---|----|-------------------------------|---------------------------------------|

Network 9: → RB_AT

```
CALL "PosDev_2D2S2P", "OATMcc001.EOTLcc001.EOGLcc001_PD_DB"  
LS ADV := "DI1"
```

G120 db

| | | | |
|---|----|-----------------------------|---|
| 1 | p0 | subString(p2,3,1000)+"_GDB" | "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001_GDB" |
|---|----|-----------------------------|---|

Network 10: →

```
CALL "G120x", "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001_GDB"  
INVT ADD := "DI1"
```

PID0

```
p0 subString(p2,3,1000)+"_PID0" "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.EOKFcc001_PID0"
CALL "G120x", "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001_GDB"
INPUT_ADDR := "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001_PID0"
FAST_SPEED := Real#89.9
SLOW_SPEED := REAL#20.0
```

DI1 (just do simple way)

```
1 p0 subString(p2,3,1000)+"_DI1" "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.EOCHcc001_DI1"
44 Network 9:
45 CALL "PosDev_2D2S2P", "OATMcc001.EOTLcc001.EOGLcc001_PD_DB"
46 LS_ADV := "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.EOCHcc001_DI1"
47 SW_FS_ADV := "slow_forw"
48 SW_FS_RTN := "slow_back"
49 LS_RTN := "pos_back_left"
50 SEL_SLOW := "RLO 0"
51 MOTOR_PROT := "RLO 1"
52 MOTOR_TEMP := "RLO 1"
53 TM_OP := 50
54 TM_LS := 20
55 TV_STARTUP := 20
56
57 Network 10:
58 CALL "G120x", "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001_GDB"
59 INPUT_ADDR := "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001_PID0"
60 FAST_SPEED := Real#89.9
61 SLOW_SPEED := REAL#20.0
62
63
64 Network 11:
65 A
66 A "OATMcc001.EOTLcc001.EOGLcc001.EOTFcc001.EOKFcc001.EOCHcc001_DI1"
67 A "slow_forw"
68 O
69 A "pos_back_left"
70 A "slow_back"
```

New,.....xxxxxxxxxxx

P6 is RB_AT FB self.

| | ↑ Name | Formula | Value |
|---|--------|----------------------------|--|
| 1 | eee2 | nth(3,ddd) | "EOTLcc001" |
| 2 | | "" | "" |
| 3 | ddd | GetAncestors(p6,Function) | {"FB001","EOGLcc001","EOTLcc001","EOATMcc001"} |
| 4 | p0 | subString(p4,3,1000)+"_RB" | "OATMcc001.EOTLcc001.EOGLcc001_RB" |

Port

Properties

Name: TLtoFRGStop

Configuration

Port Type: EO

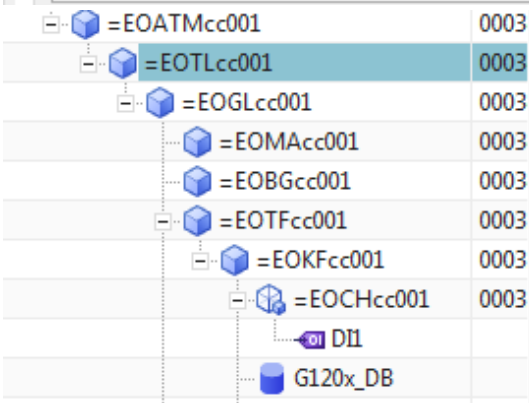
Connection Type: Any

Direction: Undirected

Cardinality: N

Connectable Types

- Program Block
- Tag_Proxy
- UDT_Proxy



| Port | Connected Ob... | Connected Port | Port Type |
|----------------|-----------------|----------------|-----------|
| User Defined | | | |
| TLtoFRGStop | | | EO |
| Port_1 | | | |
| System Defined | | | |
| Tag Address | | | |
| TIA Link | | | |
| EOTLcc001 | | | |
| FE | | | |

Manual Connection
Connects ports manually.

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable typ... |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|---------------------|
| User Defined | | | | | | | |
| TLtoFRGStop | | | EO | Any | Undirected | N | OB_Proxy, Device... |
| FRG_ES... | FRG_EStop | FRG_EStop | EO | Tag_Proxy | Undirected | N | Tag, Any, Operand |

Stupid eee and eee2 are there, but not displayed....

| | ↑ Name | Formula | Value | Units | Dimensionality | Type | Source |
|---|--------|---|--|-------|----------------|--------|------------------------|
| 1 | ggg | First(fff2) | "ST001.Tag65" | | | String | |
| 2 | ddd | GetAncestors(p6,Function) | {"FB001","EOGLcc001","EOTLcc001","EOATMcc001"} | | | List | |
| 3 | fff | GetConnectedObjects(eee2,"TLtoFRGStop") | {"ST001.Tag65"} | | | List | |
| 4 | fff2 | GetConnectedObjects(eee2,"TLtoFRGStop") | {"ST001.Tag65"} | | | List | |
| 5 | p0 | subString(p4,3,1000)+"_RB" | "OATMcc001.EOTLcc001.EOGLcc001_RB" | | | String | (FB001::Type Attribute |

```

-- A- "FRG_EStop"
-- A- "FRG_BS"
-- => #ENABLE_SAFETY

```


DB006

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|------------------|---------------|-----------------|------------|-------------|--|
| User Defined | | | | | | | |
| System Defined | | | | | | | |
| Block_C | | | Control Scope | Program Block | Undirected | 1 | Controller |
| PosDev_2D2S2P | | | EO | FB | Undirected | 1 | FB_Proxy |
| | FB003 | FB003 | EO | FB_Proxy | Undirected | N | Any, FB, Operand, FB, Program Block |
| DB006 | | | EO | IDB_Proxy | Undirected | N | Any, Caller, Operand, Program Block, IDB |
| | FB004 | PosDev_2D2S2P_DB | EO | Caller | Undirected | N | IDB_Proxy, FC_Proxy |

Network 9:--

```
CALL "PosDev_2D2S2P", "OATMcc001.EOTLcc001.EOGLcc001_1_PD_DB"  
LS_ADV := "OATMcc001.EOTLcc001.EOGLcc001_1.EOTFcc001.EOKFcc001.EOCHcc001_DI1"  
TM_OP := 50  
TM_LS := 20  
TV_STARTUP := 20
```

Network 10:--

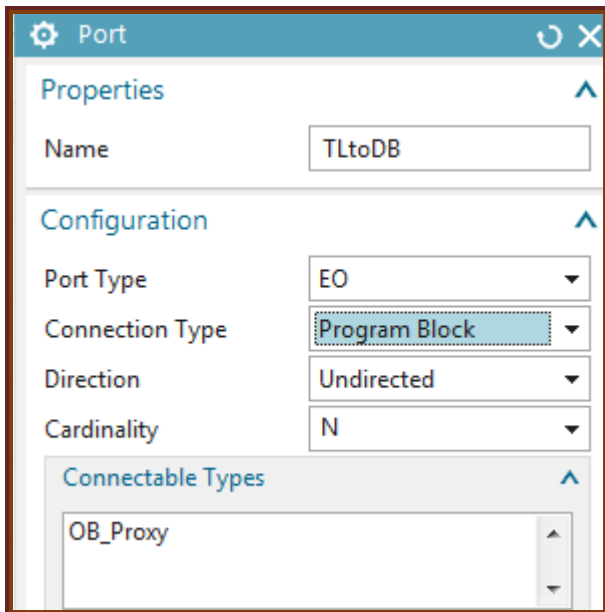
```
//At least one called IDB is not connected to a valid FB.
```

Fix G120 the same...

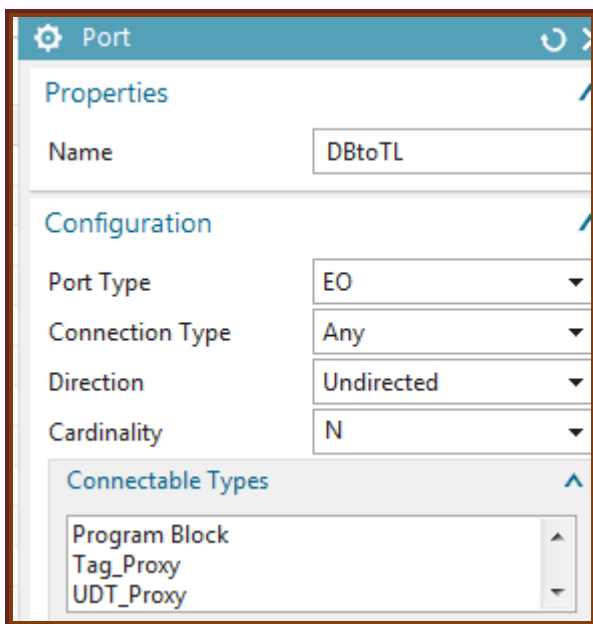
Aaaaaaaaaaaaaaaaaaaaaaaaaaaaaa

3. TLtoDB (TL is _002)

Connection type = program block.
Or DBtoTL is program block.
Cant have both as Any.



4. DBtoTL



5. dynamic connection , getPort

The screenshot shows the Function Aspect Navigator on the left with a tree view containing 'CD000122;1-AD_1_CD_4_WS_5_SS_201604', 'Unassigned', and three ports: '=_001', '=_002', and '=_003'. The 'Source' window on the right shows 'DB001' and a 'Ports' table with one entry: 'DBtoTL' (User Defined) connected to 'Program Block' (Undirected, N). A 'Dynamic Connection' tooltip is visible, stating 'Connects ports dynamically by using expressions.'

For DB P4 = conveyor object name.

| | ↑ Name | Formula | Value |
|---|--------|---|--------------------|
| 1 | | == | == |
| 2 | aaa | GetPort(GetParent(p4,Function), "TLtoDB") | "TLtoDB" |
| 3 | p0 | subString(GetMRD(GetParent(p2,Function),Function),3,1000)+"_DB" | "001._002._003_DB" |

The screenshot shows the 'Source' window for 'DB001'. The 'Ports' table has two entries: 'DBtoTL' (User Defined) connected to 'Program Block' (Undirected, N), and another entry connected to '_002' (TLtoDB, EO) with 'Any' connection type (Undirected, N).

| | ↑ Name | Formula | Value | Units | Dimensionality | Type |
|---|--------|------------------------------|--------------------------------------|-------|----------------|--------|
| 1 | ddd | GetPort(bbb,"TLtoDB") | "EOTLcc001.Port3" | | | String |
| 2 | bbb | GetParent(p8,Function) | "EOTLcc001" | | | String |
| 3 | p0 | subString(p4,3,1000)+"_RBDB" | "OATMcc001.EOTLcc001.EOGLcc001_RBDB" | | | String |

The screenshot shows the 'Source' window for 'DB001'. The 'Ports' table has two entries: 'DBtoTL' (User Defined) connected to 'Any' (Undirected, N), and another entry connected to 'EOTLcc001' (TLtoDB, EO) with 'Program Block' connection type (Undirected, N).

6. change main -> RBAT DB call port

P1=TL

| | ↑ Name | Formula | Value | Units | Dimensionality | Type |
|---|--------|----------------------------------|---------|-------|----------------|--------|
| 1 | | ** | ** | | | String |
| 2 | bbb | GetConnectedObjects(p1,"TLtoDB") | {DB001} | | | List |

| Ports | Value | Type | Description |
|-------------|-----------------|------|-------------|
| Caller P... | | | |
| Call... | OATMcc001.EO... | | |
| Operand... | | | |

| Rules | Value | Type | Description |
|--------|-------|------|-------------|
| Rule 1 | | | |

| PLC Code |
|---|
| 1 Network 1:-- |
| 2 CALL "OATMcc001.EOTLcc001.EOGLcc001_RB", "OATMcc001.EOTLcc001.EOGLcc001_RBDB" |
| 3 |

| Name | Description | Template |
|--------------------------------------|-------------|----------|
| CD000163;1-AD_1_CD_4_WS_5_SS_2016... | | |
| ↳ Unassigned | | |
| ↳ =EOATMcc001 | 000344 | |
| ↳ =EOTLcc001 | 000345 | |
| ↳ =EOGLcc001 | 000346 | |
| ↳ =EOMAcc001 | 000347 | |
| ↳ =EOBGcc001 | 000348 | |
| ↳ =EOTFcc001 | 000351 | |
| ↳ =EOKFcc001 | 000352 | |
| ↳ =EOCHcc001 | 000353 | |
| ↳ DI1 | | |
| ↳ G120x_DB | | |
| ↳ PID0 | | |
| ↳ RB_AT | | |
| ↳ RB_AT_DB | | |
| ↳ PosDev_2D2S2P_DB | | |
| ↳ =EOGLcc001_1 | 000346 | |
| ↳ =EOGLcc001_2 | 000346 | |

| Configurations | Value | Type |
|----------------|-----------------|------|
| Global Sym... | | |
| ↳ Tags | | |
| ↳ FC_left | FC_left | Bool |
| ↳ FC_right | FC_right | Bool |
| ↳ FB/IDB | | |
| ↳ FC | | |
| ↳ DB | | |
| Ports | | |
| ↳ Caller P... | | |
| ↳ Call... | OATMcc001.EO... | |
| Operand... | | |
| Rules | | |
| ↳ Rule_1 | | |
| Methods | | |

| Interface | | |
|------------------|------|-------------------------------|
| Temp | | |
| ↳ OBI_EV_CLASS | Byte | Bits 0-3 = 1 (Coming eve... |
| ↳ OBI_SCAN_1 | Byte | 1 (Cold restart scan 1 of ... |
| ↳ OBI_PRIORITY | Byte | Priority of OB Execution |
| ↳ OBI_NUMBR | Byte | 1 (Organization block 1, ... |
| ↳ OBI_RESERVED_1 | Byte | Reserved for system |
| ↳ OBI_RESERVED_2 | Byte | Reserved for system |
| ↳ OBI_PREV_CYCLE | Int | Cycle time of previous O... |
| ↳ OBI_MIN_CYCLE | Int | Minimum cycle time of ... |

| PLC Code |
|---|
| 1 Network 1:-- |
| 2 CALL "OATMcc001.EOTLcc001.EOGLcc001_RB", "OATMcc001.EOTLcc001.EOGLcc001_2_RBDB" |
| 3 CALL "OATMcc001.EOTLcc001.EOGLcc001_RB", "OATMcc001.EOTLcc001.EOGLcc001_RBDB" |
| 4 |

IT WORKED !!! (kind of)

11.1-3. 20160429

P4 is SELF.

| | | | | |
|---|------|---|-------------------------------------|--------|
| 7 | fff | GetConnectedObjects(eee2,"TLtoFRGESstop") | { "ST004.Tag10" } | List |
| 6 | eee2 | nth(3,ddd) | "_004" | String |
| 4 | ddd | GetAncestors(p4,Function) | { "FB019", "_005", "_004", "_001" } | List |

| | ↑ Name | Formula | Value |
|---|--------|---|--|
| 1 | p0 | subString(GetMRD(GetParent(p2,Function),Function),2,1000)+"_BOOL" | "EOATMcc001.EOTLCcc001_1.EOGLcc002.EOTFcc001.EOKFcc001_BOOL" |
| 2 | | | |
| 3 | aaa | GetAncestors(p2,Function) | { "EOCHcc001", "EOKFcc001", "EOTFcc001", "EOGLcc002", "EOTLCcc001", "EOATMcc001" } |

Just do it simply.. this work?

| | ↑ Name | Formula | Value |
|---|--------|---|--|
| 1 | p0 | subString(GetMRD(p4,Function),2,1000)+"_BOOL" | "EOATMcc001.EOTLCcc001_1.EOGLcc002.EOBGcc001_BOOL" |
| 2 | | | |

No.

Probably do get ancestors

For CH1 tag

| | | | |
|---|------|---|--|
| 1 | p0 | subString(GetMRD(p4,Function),2,1000)+"_BOOL" | "EOATMcc001.EOTLCcc001_1.EOGLcc002.EOBGcc001_BOOL" |
| 2 | | | |
| 3 | cccc | GetParent(p2,Function) | "EOKFcc001" |
| 4 | bbb | GetConnectedObjects(p2,"CH1toBG1") | { "EOBGcc001" } |
| 5 | aaa | GetAncestors(p2,Function) | { "EOCHcc001", "EOKFcc001", "EOTFcc001", "EOGLcc002", "EOTLCcc001", "EOATMcc001" } |

THIS IS RIGHT

P is self.

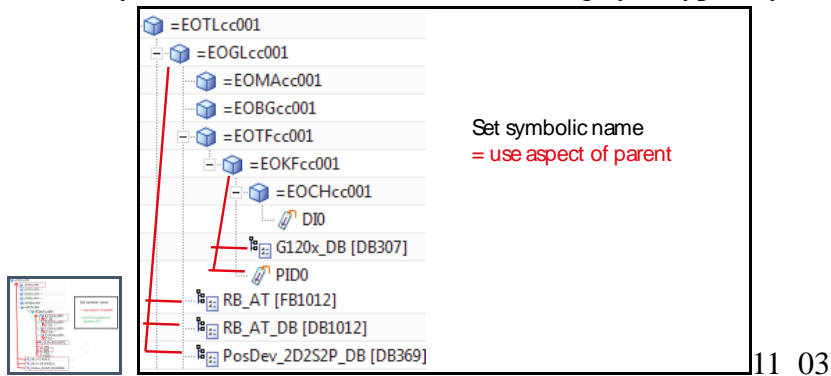
| | | | | | | |
|---|------|---|--|----|--------|--------|
| 1 | p0 | subString(GetMRD(First(bbb),Function),2,1000)+"_CH" | "EOATMcc001.EOTLCcc001_1.EOGLcc002.EOBGcc001_CH" | | | String |
| 2 | | | | mm | Length | Number |
| 3 | aaa | GetAncestors(p2,Function) | { "EOCHcc001", "EOKFcc001", "EOTFcc001", "EOGLcc002", "EOTLCcc001", "EOATMcc001" } | | | List |
| 4 | bbb | GetConnectedObjects(p2,"CH1toBG1") | { "EOBGcc001" } | | | List |
| 5 | cccc | GetParent(p2,Function) | "EOKFcc001" | | | String |

| | |
|---------------|--|
| Symbolic Name | EOATMcc001.EOTLCcc001_1.EOGLcc002.EOBGcc001_CH |
|---------------|--|

No.. doing something wrong... ask andreas 9 may.

11.1a. Create symbolic names with expressions (SW blocks, tags (PID0) 20160422

For the symbolic names of SW blocks and tags you typically use the aspect chain of the parent EO.



Set symbolic names using expressions (no ports) for

11.1.1. SW blocks (4)

11.1.2. PID0

11.1. SW blocks (4)

aaa

Function Aspect Navigator

| Title/Alias | Value | Units | T... | Type | R... |
|-----------------------------------|-------------------------|-------|------|---------|------|
| Aspect Function | | | | | |
| Designated | True | | | Boolean | |
| Designation | ConveyorF001 | | | String | |
| Multi-level Reference Designation | =_001._004.ConveyorF001 | | | String | |
| Name | ConveyorF001 | | | String | |
| Parent | _004 | | | String | |
| Aspect Location | | | | | |

| | ↑ Name | Formula | Value | Type |
|---|--------|------------------------------|---------------------------|--------|
| 1 | p0 | bbb | "001._004.ConveyorF001" | String |
| 4 | bbb | subString(aaa, 3, 1000000) | "001._004.ConveyorF001" | String |
| 3 | aaa | p2 | "=_001._004.ConveyorF001" | String |

Symbolic Name: RB_AT Type: String


Category (optional): Type

Title/Alias: Symbolic Name

Data Type: String

Value Expression Formula

Expression Formula: 001._004.ConveyorF00: =

Accept Edit 

Symbolic Name: 001._004.ConveyorF001 Type: String


Category (optional): Type


Title/Alias: Symbolic Name

Data Type: String

Value Expression Formula

Expression Formula: p0


Break Expression Link 


Accept Edit 


I forgot to add the “.RB”.


So tried to edit.. cant.

| | ↑ Name | Formula | Value |
|---|--------|------------------------------|---------------------------|
| 1 | p0 | bbb | "001._004.ConveyorF001" |
| 2 | | | |
| 3 | aaa | p2 | "=_001._004.ConveyorF001" |
| 4 | bbb | subString(aaa, 3, 1000000) | "001._004.ConveyorF001" |

 New Expression

 Edit...

 Copy (Ctrl+C)

 List References

Just edit p0.

| | ↑ Name | Formula | Value |
|---|--------|------------------------------|----------------------------|
| 1 | p0 | bbb+"_RB" | "001._004.ConveyorF001_RB" |
| 2 | | | |
| 3 | aaa | p2 | "=_001._004.ConveyorF001" |
| 4 | bbb | subString(aaa, 3, 1000000) | "001._004.ConveyorF001" |

Symbolic Name: 001._004.ConveyorF001_RB

Automation Navigator

Actions

Configurations

Interface

PLC Code

| Name | Value | Name | Defa... | Data ... | Comments |
|---------------|----------|----------------|---------|----------|-------------------------------|
| Global Sym... | | Temp | | | |
| Tags | | OB1_EV_CLASS | | Byte | Bits 0-3 = 1 (Coming eve... |
| FC_left | FC_left | OB1_SCAN_1 | | Byte | 1 (Cold restart scan 1 of ... |
| FC_right | FC_right | OB1_PRIORITY | | Byte | Priority of OB Execution |
| FB/IDB | | OB1_OB_NUMBR | | Byte | 1 (Organization block1, ... |
| FC | | OB1_RESERVED_1 | | Byte | Reserved for system |
| DB | | OB1_RESERVED_2 | | Byte | Reserved for system |
| Ports | | OB1_PREV_CYCLE | | Int | Cycle time of previous O... |
| Caller P... | | OB1_MIN_CYCLE | | Int | Minimum cycle time of ... |
| Calles... | RB_AT_DB | | | | |
| Operand... | | | | | |
| Rules | | | | | |
| Calls | | | | | |
| Rule_1 | | | | | |
| Methods | | | | | |
| Operand | | | | | |

```

1 Network 1:→
2 CALL "001_004.ConveyorF001_RB", "RB_AT_DB"
3
4

```

Need to do for the rest. Set the symbolic names for the following SW blocks / IDB's.

| | |
|-----------|---|
| RB_AT | AD_GetDesignation(AD_GetEngObject(),Function)+".RB" |
| RB_AT_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".RBDB" |
| PosDev_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".POSDEVDB" |
| G120x_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".G120DB" |

11.2. DWord tag (PID0)

For PID0 set the symbolic name to:

The screenshot shows the 'Properties' dialog for a PLC Tag. The 'PLC Tag Attributes' table is as follows:

| Title/Alias | Value | Units | T... | Type | R... | D... | I... |
|-------------------|------------------|-------|------|---------|------|------|------|
| Address | 0 | | | String | | | |
| AddressOffsetBit | 0 | | | Integer | | | |
| AddressOffsetByte | 0 | | | Integer | | | |
| Data Type | DWord | | | String | | | |
| Memory Section | Input | | | String | | | |
| General | | | | | | | |
| Description | PID0 description | | | String | | | |
| ID | _009.Tag1 | | | String | | | |
| Name | PID0 | | | String | | | |
| Symbolic Name | PID0sn | | | String | | | |

A context menu is open over the 'Symbolic Name' field, showing options: Formula..., Function..., Extended Text..., Reference, bbb+ "_RB", bbb, GetListElementAt(hhh,1), iii, Make Constant.

The screenshot shows the 'Reference Attribute' dialog. The 'Engineering Object Attributes' table is as follows:

| Title/Alias | Value |
|-----------------------------------|--|
| Aspect Function | |
| Designated | True |
| Designation | DriveControlF001 |
| Multi-level Reference Designation | =_001_004.ConveyorF001.DrivePowerF001.DriveControlF001 |
| Name | DriveControlF001 |
| Parent | DrivePowerF001 |

| Expressions | | | | | | |
|-------------|--------|---------|--|-------|----------------|--------|
| | ↑ Name | Formula | Value | Units | Dimensionality | Type |
| 1 | p0 | "" | "" | | | String |
| 2 | | | | mm | Length | Number |
| 3 | ggg | p2 | "=_001_004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |

Expressions

| Name | Formula | Value | Units | Dimens |
|------|----------------------------|---|-------|--------|
| p0 | subString("ggg", 3, 100) | "g" | | |
| | | | mm | Length |
| ggg | p2 | "=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | |

Edit

Formula

Function: subString

str: Specify a string source for the substring

ilow: Specify the low end character

ihigh: Specify the high end character

OK Apply Cancel

Change to this **STILL SHOWS AN ERROR FOR p0!!!**

Expressions

| Name | Formula | Value |
|------|----------------------------|---|
| p0 | subString("ggg", 3, 100) | "g" |
| ggg | p2 | "=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001" |

Edit

Formula

Click ok and get this.....

| Symbolic Name | PID0sn | String |
|---------------|--------|--------|
| | | |

Category (optional)

Title/Alias

Data Type

Value Expression Formula

Expression Formula

Accept Edit

Click the green arrow and ok. **Absolute chaos.**

| Symbolic Name | 001._004.ConveyorF001.DrivePowerF001.DriveControlF001_PID0 | String |
|---------------|--|--------|
| | | |

Category (optional)

Title/Alias

Data Type

Value Expression Formula

Expression Formula: p0

Break Expression Link

Accept Edit

Network -10:

CALL "G120x", "G120x_DB",
 INPUT_ADDR := "001._004.ConveyorF001.DrivePowerF001.DriveControlF001_PID0",
 FAST_SPEED := Real#20.0,
 SLOW_SPEED := REAL#20.0

11.1b. Create symbolic names with expressions (SW blocks, tags (PID0))

For the symbolic names of SW blocks and tags you typically use the aspect chain of the parent EO.

Set symbolic name
= use aspect of parent

11_03

Set symbolic names using expressions (no ports) for

11.1.1. SW blocks (4)

11.1.2. PID0

11.1. SW blocks (4) >>> FIX CALL??

Set the symbolic names for the following SW blocks / IDB's.

| | |
|-----------|---|
| RB_AT | AD_GetDesignation(AD_GetEngObject(),Function)+".RB" |
| RB_AT_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".RBDB" |
| PosDev_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".POSDEVDB" |
| G120x_DB | AD_GetDesignation(AD_GetEngObject(),Function)+".G120DB" |

11_04

| Name | Formula | Value | Type |
|-------|---|--------------------------------------|--------|
| p46 | rrrrr | "=EOATMcc001.EOTLcc001.EOGLcc001.RB" | String |
| rrrrr | AD_GetDesignation(AD_GetEngObject(),Function)+".RB" | "=EOATMcc001.EOTLcc001.EOGLcc001.RB" | String |

11_05

11.2. DWord tag (PID0) >>> FIX CALL??

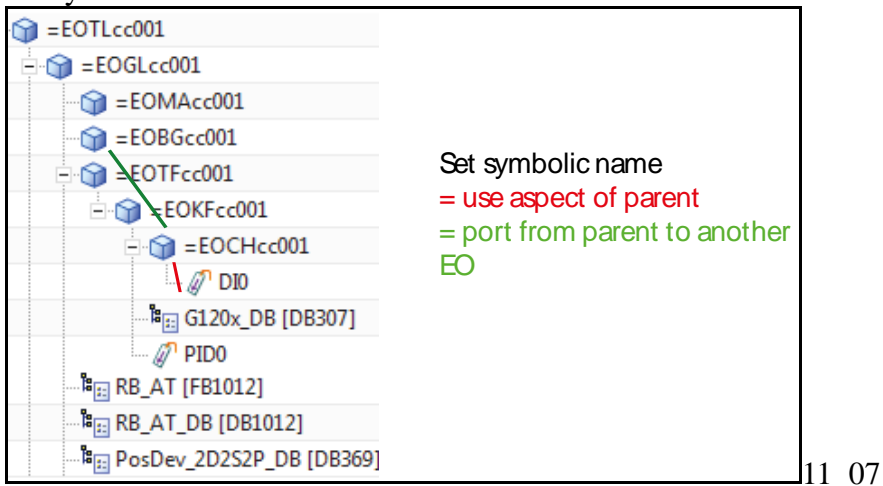
For PID0 set the symbolic name to:

AD_GetDesignation(AD_GetEngObject(),Function)+".PID0"

11_06

11.2a. Create symbolic names with ports/links (CH0) 20160422

CH refers to the data channel. BG is the name of the physical sensor. You want to use the BG aspect chain as the symbolic name for CH.

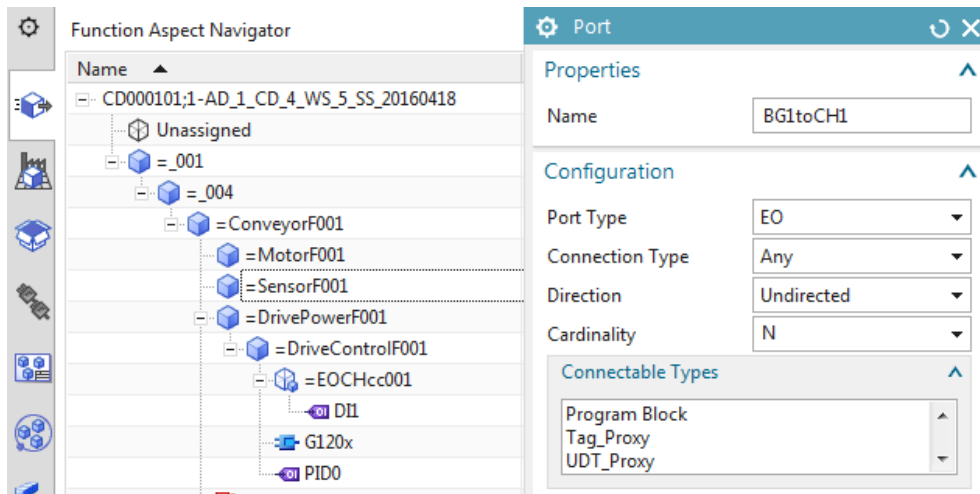


In this section you:

1. Create ports BG1toCH1 and CH1toBG1
2. Link the ports.
3. Change DI1 symbolic name.

1. Create ports BG1toCH1 and CH1toBG1

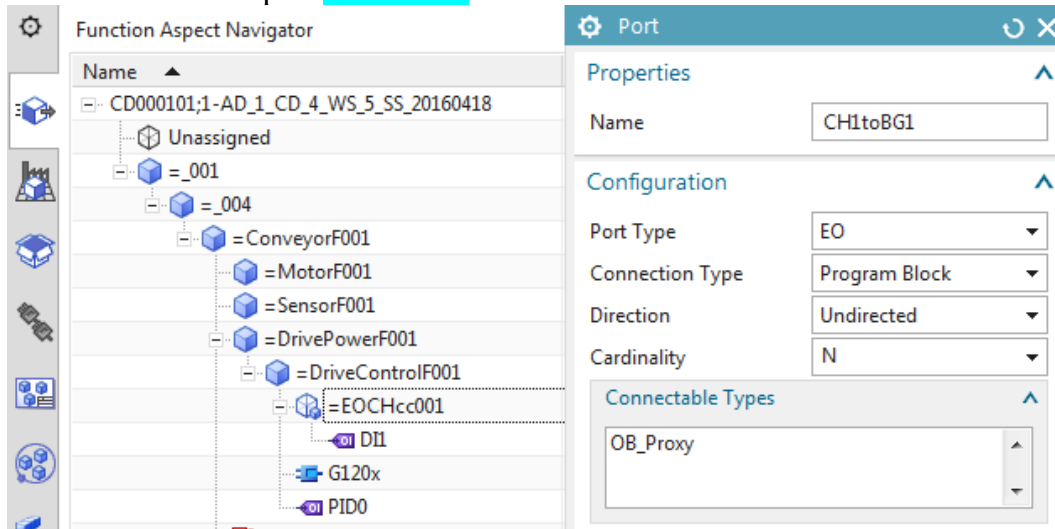
For EO BG1 create port **BG1toCH1**.



The Ports Manager window shows the configuration for port BG1toCH1. The 'Source' field is set to '_007'. The 'Ports' table lists the following details:

| Port | Co... | C... | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-------|------|-----------|-----------------|------------|-------------|---|
| User Defined | | | | | | | |
| BG1toCH1 | | | EO | Any | Undirected | N | OB_Proxy, Device Function, UDT_Proxy, Device, IDB_Proxy, Tag_Proxy, EO_Proxy, FB_Proxy, FC_Proxy, DB_Proxy, Program Block |
| System Defined | | | | | | | |
| Tag Address | | | Tag | IO Device | Undirected | N | Tag Address |
| TIA Link | | | TIA Link | TIA Link FLP | Undirected | 1 | TIA Link A |
| _007 | | | EO | Any | Undirected | N | OB_Proxy, Device Function, UDT_Proxy, Device, IDB_Proxy, Tag_Proxy, EO_Proxy, FB_Proxy, FC_Proxy, D... |

For EO CH1 create port **CH1toBG1**.



The Ports Manager window shows the configuration for port CH1toBG1. The 'Source' field is set to 'EOCHcc001'. The 'Ports' table lists the following details:

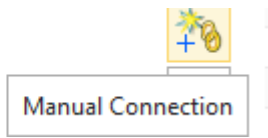
| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|----------------|-----------|-----------------|------------|-------------|---|
| User Defined | | | | | | | |
| CH1toBG1 | | | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, FC_Proxy, DB_Proxy, IDB_Proxy |
| System Defined | | | | | | | |
| TIA Link | | | TIA Link | TIA Link FLP | Undirected | 1 | TIA Link A |
| EOCHcc001 | | | EO | Any | Undirected | N | OB_Proxy, Device Fu... |

2. Connect ports

1. Connect the ports.

Manual Connection

Dynamic Connection



The screenshot shows the "Manual Connection" dialog box. The "Source" field contains "CH1toBG1". The "Target" field is set to "Select Object (1)". Below this is a "Select Port" table with columns: Port, Connected Object, Connected Port, and Port Type. The table contains one row: BG1toCH1, (empty), (empty), EO. Below the table is an "Add Connection to List" button and a "List" table with columns: Port, Connected Object, Connected Port, and Port Type. The "List" table is currently empty.

The screenshot shows the "Ports Manager" window. The "Source" field contains "EOCHcc001". Below it is a "Ports" table with columns: Port, Connected Ob..., Connected Port, Port Type, Connection Type, Direction, and Cardinality. The table contains two rows under "User Defined":

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality |
|----------|-----------------|----------------|-----------|-----------------|------------|-------------|
| CH1toBG1 | | | EO | Program Block | Undirected | N |
| _007 | | BG1toCH1 | EO | Any | Undirected | N |

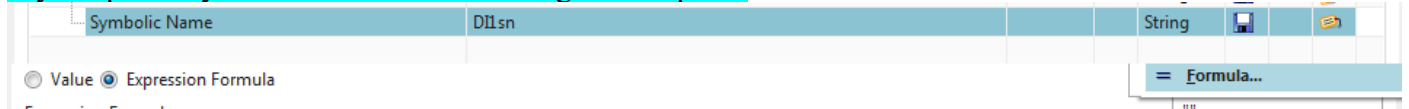
3. Change DI1 symbolic name

For DI1 set the symbolic name to name of BG1 + CH:

I will not do it this way....

| ↑ | Name | Formula | Value | Ur | Dir | Type |
|---|------|-----------------------------------|---|----|-----|--------|
| 1 | p12 | iii | "001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |
| 9 | iii | subString(fff, 3, 1000000) | "001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |
| 6 | fff | GetMRD(eee,Function) | "=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |
| 5 | eee | GetListElementAt(hhh,1) | "_009" | | | String |
| 8 | hhh | GetConnectedObjects(p10,"GLtoKF") | {"_009"} | | | List |

Try simpler way... not sure will work though in template. start



Function Aspect Navigator

- CD000101:1-AD_1_CD_4_WS_5_SS_20160418
 - Unassigned
 - =_001
 - =_004
 - =ConveyorF001
 - =MotorF001
 - =SensorF001
 - =DrivePowerF001
 - =DriveControlF001
 - DI1
 - G120x
 - PID0
 - EPLAN Page Macro
 - RB AT

Reference Attribute

Referenced Object

Select Object

Select Engineering Object (1)

Engineering Object Attributes

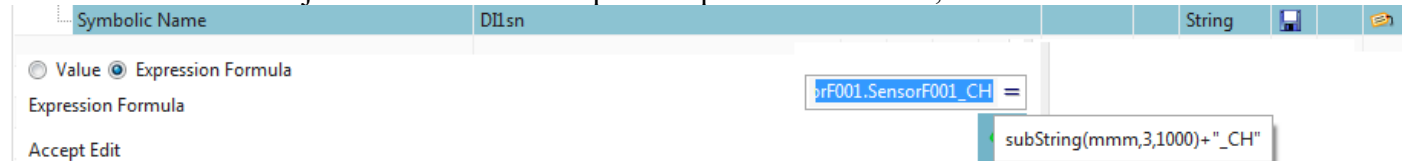
| Title/Alias | Value | Units |
|-----------------------------------|------------------------------------|-------|
| Designated | True | |
| Designation | SensorF001 | |
| Multi-level Reference Designation | =_001._004.ConveyorF001.SensorF001 | |
| Name | SensorF001 | |
| Parent | ConveyorF001 | |

Expressions

| ↑ | Name | Formula | Value |
|---|------|---------|--------------------------------------|
| 1 | p2 | "" | "" |
| 2 | | | |
| 3 | mmm | p6 | "=_001._004.ConveyorF001.SensorF001" |

| ↑ | Name | Formula | Value | Units | Dimensionality | Type |
|---|------|-----------------------------|--------------------------------------|-------|----------------|--------|
| 1 | p2 | subString(mmm,3,1000)+"_CH" | "" | | | String |
| 2 | | | | mm | Length | Number |
| 3 | mmm | p6 | "=_001._004.ConveyorF001.SensorF001" | | | String |

So error above? NO... just click OK and accepted. Expression are chaos, absolute chaos....



Click green arrow.

Symbolic Name: 001._004.ConveyorF001.SensorF001_CH

Category (optional): General

Title/Alias: Symbolic Name

Data Type: String

Value / Expression Formula: 001._004.ConveyorF001: =

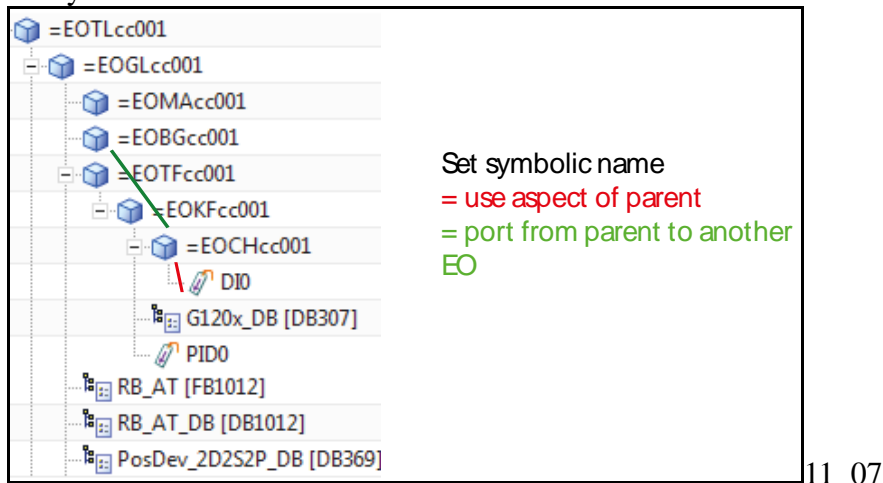
Break Expression Link: [Icon]

Accept Edit: [Green Arrow]

```
Network 9: → → [RB_AT]
CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
LS_ADV := "001._004.ConveyorF001.SensorF001_CH"
SW_FS_ADV := "slow_for"
```

11.2b. Create symbolic names with ports/links (CH0)

CH refers to the data channel. BG is the name of the physical sensor. You want to use the BG aspect chain as the symbolic name for CH.

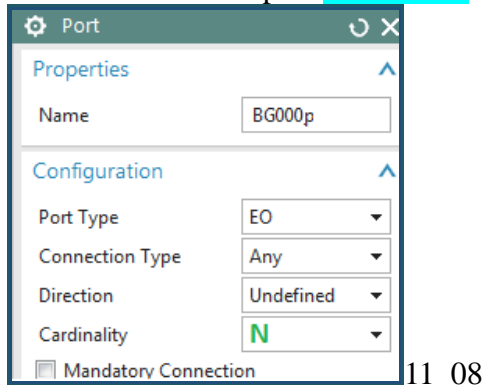


In this section you:

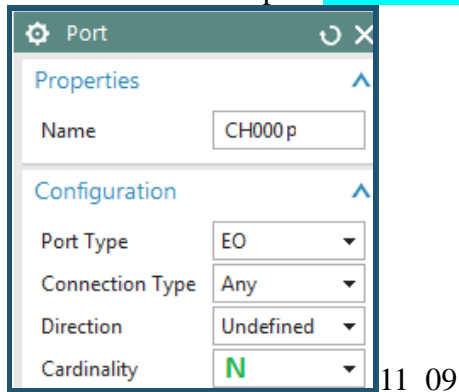
1. Create ports BG1toCH1 and CH1toBG1
2. Link the ports.
3. Change DI1 symbolic name.

1. Create ports BG1toCH1 and CH1toBG1

For EO BG1 create port BG1toCH1.



For EO CH1 create port CH1toBG1.



2. Connect ports

1. Connect the ports.

Source
=ATM01.TL01.GL01.TF01.KF01.CH000/+?????.CH099/-?????.CH099

Ports

| Port | Connected Object | Connected Port | Port Type |
|--------------|------------------|----------------|-----------|
| User Defined | | | |
| CH000p | | | |

Actions

Manual Connection

Dynamic Connection

Manual Connection

11_10

Manual Connection

Source =BG00

Select Port (1)

Target

Select Object (1)

Select Port

| Port | Connected Object | Connected Port | Port Type |
|--------|------------------|----------------|-----------|
| BG102 | | | EO |
| BG000p | | | EO |

11_11

Result.

Source
=ATM01.TL01.GL01.TF01.KF01.CH000/+?????.CH099/-?????.CH099

Ports

| Port | Connected Object | Connected Port | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
|--------------|---|----------------|-----------|------------------|----------|----------|--------|-------------------|
| User Defined | | | | | | | | |
| CH000p | | | EO | Any | Undef... | N | | Device Functio... |
| | =ATM01.TL01.GL01.BG00/+?????.BG098/-?????.BG098 | BG000p | EO | Any | Undef... | N | | Device Functio... |

11_12

Source
=ATM01.TL01.GL01.BG00/+?????.BG098/-?????.BG098

Ports

| Port | Connected Object | Connected Port | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Connectable t... |
|--------------|--|----------------|-----------|------------------|----------|----------|--------|-------------------|
| User Defined | | | | | | | | |
| BG000p | | | EO | Any | Undef... | N | | Device Functio... |
| | =ATM01.TL01.GL01.TF01.KF01.CH000/+?????.CH099/-?????.CH099 | CH000p | EO | Any | Undef... | N | | Device Functio... |

11_13

3. Change DI1 symbolic name >>> FIX CALL??

For DI1 set the symbolic name to:

`AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH1toBG1")),Function)+".CH"`

| Name | Formula |
|---------|---|
| 1 p4 | CH000 |
| 2 CH000 | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH000p")),Function)+".CH" |

| Value | Type |
|----------------------------|--------|
| "=ATM01.TL01.GL01.BG00_CH" | String |
| "=ATM01.TL01.GL01.BG00_CH" | String |

11_14

PLC Tag Attributes

| Title/Alias | Value | Type | R... |
|---------------|--------------------------|--------|------|
| Symbolic Name | =ATM01.TL01.GL01.BG00_CH | String | |

11_15

11.3a. Create dynamic connection for automation-tag (FRG_EStop) 20160422

You need to create a dynamic connection from RB_AT to the referenced tag.

The screenshot shows the Function Aspect Navigator interface. The tree view on the left shows the hierarchy: CD000293;1-20150929 > Unassigned > =ATM001 > =TL001 > =GI007_ddd. A red box highlights the 'Port' label next to =TL001. A red arrow points from this port to the FRG_EStop component at the bottom. A blue arrow points from the RB_AT [FB1012] component to the FRG_EStop component, labeled 'dynamic connection (using port)'. A red arrow points from the RB_AT component to the 'no port (for tag)' label. A red box highlights the RB_AT [FB1012] component. A green box highlights the FRG_EStop component. A red box highlights the =GI007_ddd component and its sub-components, labeled 'template1' and 'template2'. A table below the tree view shows the connection details:

| Name | Template |
|--------------------------|-----------|
| =GI007_ddd | fff(0001) |
| =GI007_ddd_1 | fff(0002) |
| =MA007 | fff(0002) |
| =BG000 xxx | fff(0002) |
| =TF004 | fff(0002) |
| =BG002 | fff(0002) |
| =BG003 | fff(0002) |
| =BG004 | fff(0002) |
| RB_AT [FB1012] | fff(0002) |
| RB_AT_DB [DB1012] | fff(0002) |
| PosDev_2D2S2P_DB [DB369] | fff(0002) |
| DRIVE_G120D_CU240_IO_1 | fff(0002) |

Below the table, the PLC code is shown:

```

1 Network 1:-->
2 ..... A-> "FRG_EStop"
    
```

In this section you:

1. Create port **TLtoFRG_EStop** port (in EO TL).
2. Manual connect TL01 to FRG_EStop using the port.
3. Create RB_AT to FRG_EStop dynamic connection.

1. Create port **TLtoFRGStop** (in EO TL)

Ports Manager

Source:

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|--|-----------------|----------------|-----------|------------------------|------------|-------------|---|
| <ul style="list-style-type: none"> User Defined <ul style="list-style-type: none"> TLtoFRGStop System Defined <ul style="list-style-type: none"> Tag Address TIA Link <ul style="list-style-type: none"> ✓ _004 | | | EO | Any | Undirected | N | OB_Proxy, Device Function, UDT_Proxy, Device, IDB_Prox... |
| | | | Tag | IO Device | Undirected | N | Tag Address |
| | | | TIA Link | TIA Link FLP | Undirected | 1 | TIA Link A |
| | | | EO | Any | Undirected | N | OB_Proxy, Device Function, UDT_Proxy, Device, IDB_Prox... |
| | FB019 | FAST_SPEED | INTERNAL | PLC_EXPRESSION_PARA... | Undirected | 1 | OB_Proxy, Device Function, Any, Operand, UDT_Proxy, ID... |

2. Manual connect TL01 to FRG_Estop using the port

Automation Navigator

- CD000101;1-AD_1_CD_4_WS_5_SS_20160418
 - Unassigned
 - PLC HW
 - S7-300-Station_2
 - S7-300-Station_2
 - S7300/ET200M station_1
 - S7300/ET200M station_1
 - PLC data types
 - Program blocks
 - G120x_DB [DB2]
 - 001_004.ConveyorF001_R
 - G120x [FB307]
 - PosDev_2D2S2P_DB [DB9]
 - PosDev_2D2S2P [FB369]
 - Main [OB1]
 - Local modules
 - Rail_0
 - PLC_2
 - PLC tags
 - FRG_EStop
 - FRG_BS

Manual Connection

Source: TLtoFRG_EStop

Target: Select Object (1)

Select Port

| Port | Connected Object | Connected Port | Port Type | Conn |
|--------|------------------|----------------|-----------|-------|
| FRG... | | | EO | Tag_P |
| | FB019 | FRG_EStop | EO | |

Add Connection to List

List

| Port | Connected Object | Connected Port | | |
|------|------------------|----------------|--|--|
| | | | | |

Ports Manager

Source: _004

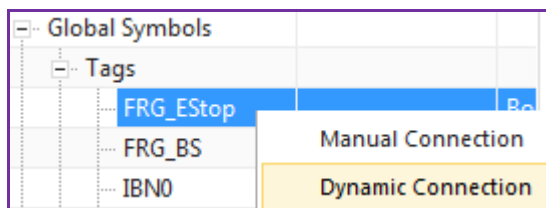
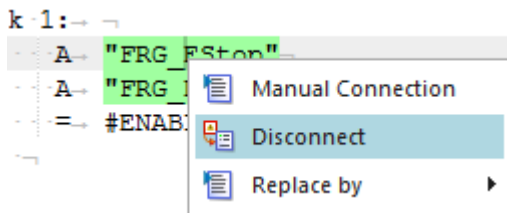
Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|---------------|-----------------|----------------|-----------|-----------------|------------|-------------|---|
| User Defined | | | | | | | |
| TLtoFRG_EStop | FRG_EStop | FRG_EStop | EO | Any | Undirected | N | OB_Proxy, Device Function, UDT_Proxy, Device, IDB_Prox... |
| | | | | Tag_Proxy | Undirected | N | Tag, Any, Operand |

3. Create RB_AT to FRG_EStop dynamic connection

20160209 TERRY: you have to create dynamic connection here.. you cant in template editor. **Do not have to assign secondary expression.**

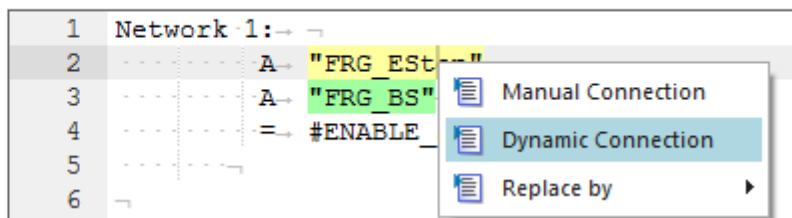
1. In the row for FRG_EStop right click and select "Dynamic Connection" or right-click on the tag in the code window. **Note: If you do not see the popup "Dynamic connection", then disconnect first.**



11_21

| Name | Value | Type |
|---------------|--------|------|
| Global Sym... | | |
| Tags | | |
| FRG_... | | Bool |
| FRG_... | FRG_BS | Bool |
| IBNO | IBNO | Bool |
| reset | reset | Bool |

PLC Code



Stuff Already there.....

| Expressions | | | |
|-------------|--------|------------------------------|----------------------------|
| | ↑ Name | Formula | Value |
| 1 | | ** | ** |
| 2 | aaa | p2 | "=_001._004.ConveyorF001" |
| 3 | bbb | subString(aaa, 3, 1000000) | "001._004.ConveyorF001" |
| 4 | p0 | bbb+"_RB" | "001._004.ConveyorF001_RB" |

Do soemthing like this? NO

| | ↑ Name | Formula | Value | Ur | Dir | Type |
|---|--------|-----------------------------------|---|----|-----|--------|
| 1 | p12 | iii | "001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |
| 9 | iii | subString(fff, 3, 1000000) | "001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |
| 6 | fff | GetMRD(eee,Function) | "=_001._004.ConveyorF001.DrivePowerF001.DriveControlF001" | | | String |
| 5 | eee | GetListElementAt(hhh,1) | "_009" | | | String |
| 8 | hhh | GetConnectedObjects(p10,"GLtoKF") | {"_009"} | | | List |

P4 is SELF.

| | | | |
|---|-----|---------------------------|--------------------------------|
| 2 | ddd | GetAncestors(p4,Function) | {"FB019","_005","_004","_001"} |
|---|-----|---------------------------|--------------------------------|

| | | | | | | |
|---|-----|------------|--------|--|--|--------|
| 1 | eee | nth(2,ddd) | "_005" | | | String |
|---|-----|------------|--------|--|--|--------|

Should be one higher...

| | | | | | | |
|---|-----|------------|--------|--|--|--------|
| 7 | eee | nth(3,ddd) | "_004" | | | String |
|---|-----|------------|--------|--|--|--------|

| | | | | | | |
|---|-----|--|-------------|--|--|------|
| 6 | fff | GetConnectedObjects(eee,"TLtoFRGStop") | {"\$REF\$"} | | | List |
|---|-----|--|-------------|--|--|------|

This????????????????????????????

| | | | | | | |
|---|------|-----------------------------|--------------|--|--|--------|
| 1 | eee2 | nth(3,ddd) | "_004" | | | String |
| 2 | fff3 | GetPort(eee2,"TLtoFRGStop") | "_004.Port1" | | | String |

MAYBE THIS, just playing around this happened. Seems what I want?

| | | | | | | |
|---|------|---|--------------------------------|--|--|--------|
| 7 | fff | GetConnectedObjects(eee2,"TLtoFRGStop") | {"ST004.Tag10"} | | | List |
| 6 | eee2 | nth(3,ddd) | "_004" | | | String |
| 4 | ddd | GetAncestors(p4,Function) | {"FB019","_005","_004","_001"} | | | List |

Wow... seems like maybe works?

Configurations

Interface

| Name | Value | Type |
|---------------|-----------|------|
| Global Sym... | | |
| Tags | | |
| FRG_... | FRG_EStop | Bool |
| FRG_... | FRG_BS | Bool |
| IBN0 | IBN0 | Bool |

| PLC Code | |
|----------|------------------------|
| 1 | Network 1: → |
| 2 | ... A → "FRG_EStop" → |
| 3 | ... A → "FRG_BS" → |
| 4 | ... ⇒ #ENABLE_SAFETY → |
| 5 | ... → |

Now need to try in template. All of these expressions.

11.3b. Create dynamic connection for automation-tag (FRG_EStop)

You need to create a dynamic connection from RB_AT to the referenced tag.

The screenshot shows the Function Aspect Navigator with the following structure:

| Name | Template |
|--------------------------|----------------------------|
| CD000293;1-20150929 | |
| Unassigned | |
| =ATM001 | |
| =TL001 | |
| =GI 007_ddd | fff(0001) <i>template1</i> |
| =GI007_ddd_1 | fff(0002) |
| =MA007 | fff(0002) |
| =BG000 xxx | fff(0002) |
| =TF004 | fff(0002) |
| =BG002 | fff(0002) |
| =BG003 | fff(0002) |
| =BG004 | fff(0002) |
| RB_AT [FB1012] | fff(0002) |
| RB_AT_DB [DB1012] | fff(0002) |
| PosDev_2D2S2P_DB [DB369] | fff(0002) |
| DRIVE_G120D_CU240_IO_1 | fff(0002) |

PLCcode

```

1 Network 1:-->
2 .....A-> "FRG_EStop"
    
```

In this section you:

1. Create port **TLtoFRG_EStop** port (in EO TL).
2. Manual connect TL01 to FRG_EStop using the port.
3. Create RB_AT to FRG_EStop dynamic connection.

1. Create port **TLtoFRG_EStop** (in EO TL)

Port Configuration:

- Name: TLtoFRG_EStop
- Port Type: EO
- Connection Type: Any
- Direction: Undefined
- Cardinality: N
- Mandatory Connection:

2. Manual connect TL01 to FRG_Estop using the port

| Port | Connected Object | Connected Port |
|--------------|------------------|----------------|
| User Defined | | |
| FRG_EStop | | |

11_18

11_19

| Port | Connected Ob... | Connected Port | Port Type | Connection Ty... | Dirac... | Cardi... | Man... | Connectable t... |
|--------------|-----------------|----------------|-----------|------------------|----------|----------|--------|-------------------|
| User Defined | | | | | | | | |
| TLtoFRGEStop | FRG_EStop_sn | FRG_EStop | EO | Any | Undef... | N | | Device Functio... |
| | FRG_EStop_sn | FRG_EStop | EO | TAG | Undef... | N | | PLC_INTERFAC... |

11_20

3. Create RB_AT to FRG_EStop dynamic connection

20160209 TERRY: you have to create dynamic connection here.. you cant in template editor. **Do not have to assign secondary expression.**

1. In the row for FRG_EStop right click and select "Dynamic Connection" or right-click on the tag in the code window. Note: If you do not see the popup "Dynamic connection", hten unconnect first.

11_21

11_22

2. Enter the following expression.

`First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)), "TLtoFRGEStop"))`

| Name | Formula |
|-------|---|
| 7 aaa | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)), "FRG_EStopp")) |

11_23

| Name | Value | Ty |
|----------------|--------------|----|
| Global Symbols | | |
| Tags | | |
| FRG_EStop | FRG_EStop_sn | Bo |
| FRG_BS | | Bo |

```

1 Network 1:--
2 ..... A- "FRG_EStop_sn"--
3 ..... A- "FRG_BS"--
4 ..... => #ENABLE_SAFETY--
    
```

11_24

>>FBm \$\$\$4/5 14.4. create ports, expressions, dynamic connection 20160429

2, not 3

| ↑ Name | Formula | Value |
|---|---|--|
| 1 p0 | subString(GetMRD(GetParent(p2,Function),Function),3,1000)+"_FB" | "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB" |
| Symbolic Name | | EOATMcc001.EOTLCcc001_1.EOGLcc002_FB |
| p0 | subString(GetMRD(GetParent(p2,Function),Function),2,1000)+"_DB" | "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB" |
| DB of | | EOATMcc001.EOTLCcc001_1.EOGLcc002_FB |
| Symbolic Name | | EOATMcc001.EOTLCcc001_1.EOGLcc002_DB |
| CALL "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB", "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB" | | |

| ↑ Name | Formula | Value |
|--------|---|--|
| 1 | "" | "" |
| 2 aaa | GetPort(GetParent(p4,Function),"TLtoDB") | "TLtoDB" |
| 3 p0 | subString(GetMRD(GetParent(p2,Function),Function),2,1000)+"_DB" | "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB" |

Source

DB026

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type |
|--------------|-----------------|----------------|-----------|-----------------|
| User Defined | | | | |
| DBtoTL | | | EO | Any |
| | EOTLCcc001 | TLtoDB | EO | Program Block |

| ↑ Name | Formula | Value |
|--------|----------------------------------|-----------|
| 1 | "" | "" |
| 2 bbb | GetConnectedObjects(p1,"TLtoDB") | {"DB026"} |

Caller P... OBI_MIN_CYCLE Int Minimum cycle time of ...

Call... EOATMcc001.EOTLCcc001_1.EOGLcc002_DB

Operand... PLC Code

Rules

1 Network 1:--

2 CALL "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB", "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB"

3

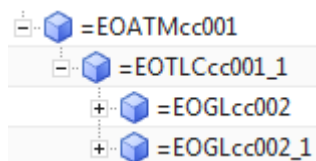
Copy. Result.

```
CALL "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB", "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB"
CALL "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB", "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB"
```

Change original and copied DB symname to 1,2. Result.

```
CALL "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB", "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB2"
CALL "EOATMcc001.EOTLCcc001_1.EOGLcc002_FB", "EOATMcc001.EOTLCcc001_1.EOGLcc002_DB1"
```

Seems error somewhere... aspect name is not appearing above.

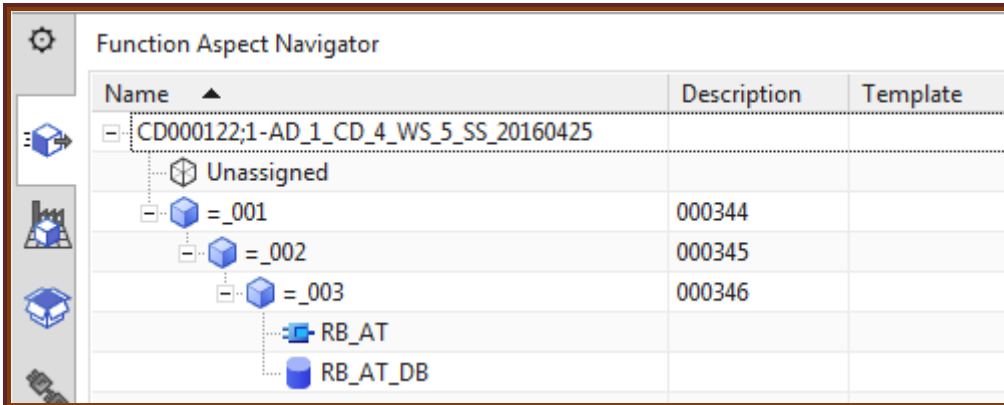


Maybe its my mistake.. but the correct way to do things is something like that above.

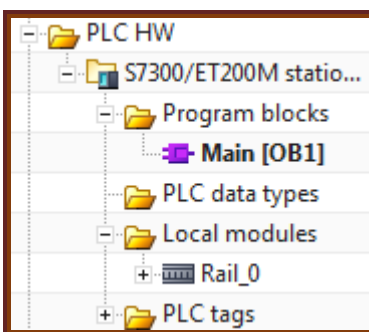
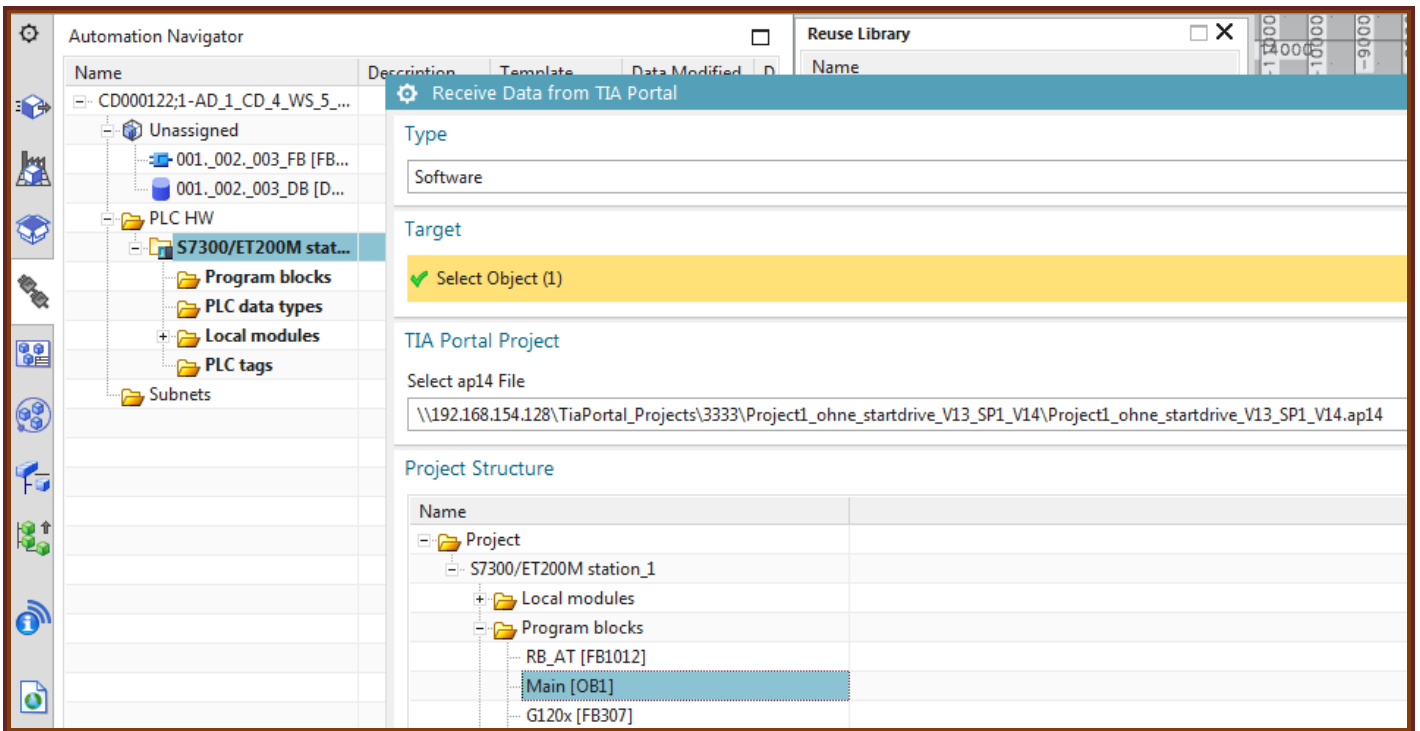
FBm \$\$\$4/5 14.4. create ports, expressions, dynamic connection 20160426 #1

Lets try this again.. need to figure out how this works, this time with simpler example.

Drag and drop



Or import.....



1. RBAT FB, DB symnames

FB

| ↑ | Name | Formula | Value |
|---|------|---|--------------------|
| 1 | p0 | subString(GetMRD(GetParent(p2,Function),Function),3,1000)+"_FB" | "001._002._003_FB" |

p2 = RBAT_FB

Reference Attribute

Referenced Object

← Current Object

Engineering Object Attributes

| Title/Alias | Value |
|---------------------------|-----------------|
| Aspect Function | |
| General | |
| Object Name | FB001 |
| Reference Designation Set | =_001._002._003 |
| Type | FB |
| Type | |

Symbolic Name: 001._002._003_FB | String

Category (optional): Type

Title/Alias: Symbolic Name

Data Type: String

Value Expression Formula

Expression Formula: p0

Break Expression Link

Accept Edit

DB

| ↑ | Name | Formula | Value |
|---|------|---|--------------------|
| 1 | p0 | subString(GetMRD(GetParent(p2,Function),Function),3,1000)+"_DB" | "001._002._003_DB" |

Symbolic Name: 001._002._003_DB | String

Category (optional): Type

Title/Alias: Symbolic Name

Data Type: String

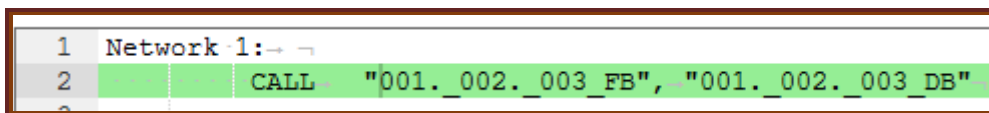
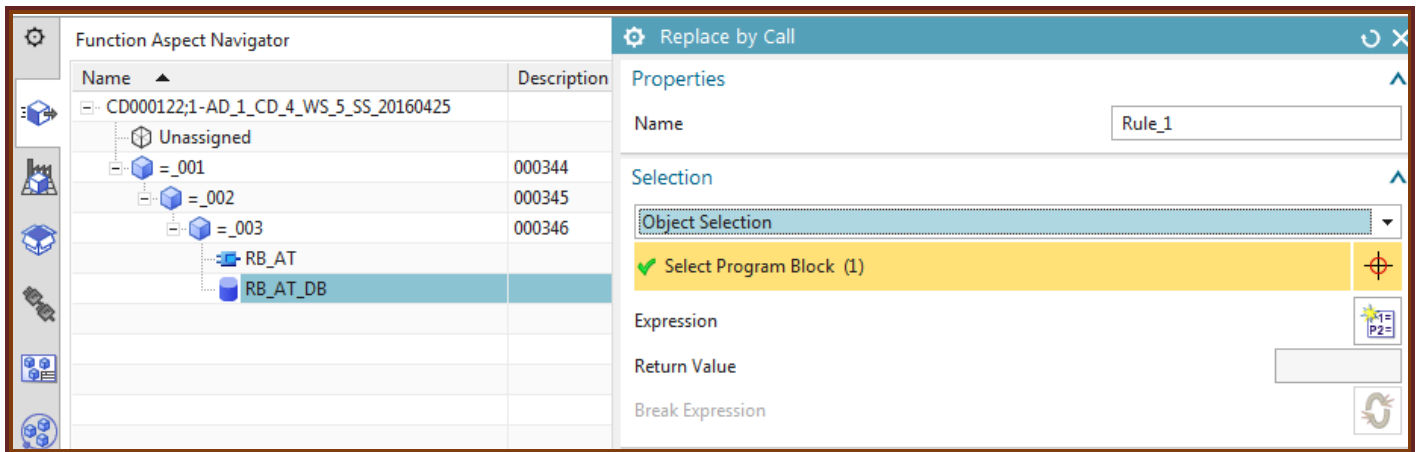
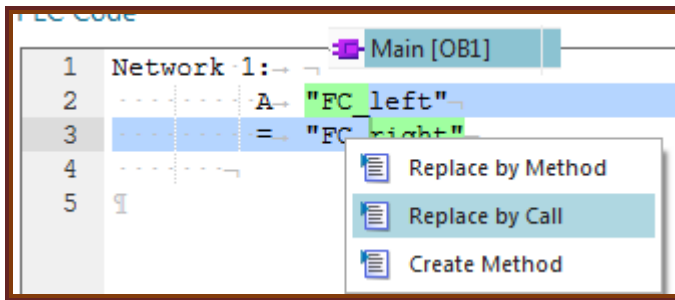
Value Expression Formula

Expression Formula: p0

Break Expression Link

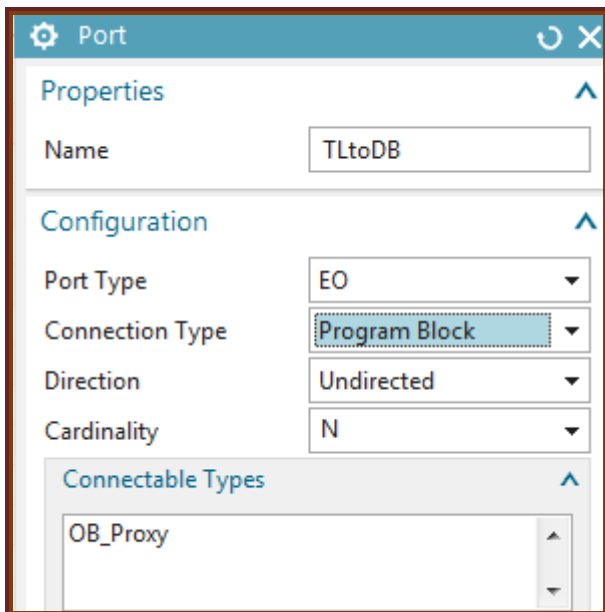
Accept Edit

2. main -> RBAT DB call port

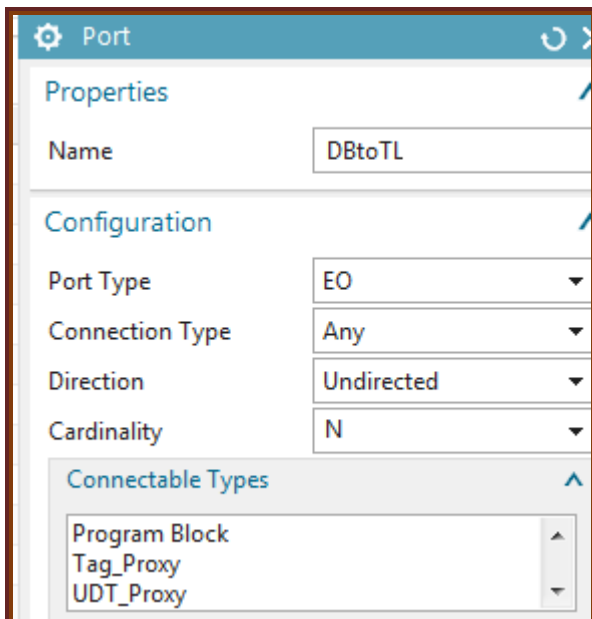


3. TLtoDB (TL is _002)

Connection type = program block.
Or DBtoTL is program block.
Cant have both as Any.



4. DBtoTL



5. dynamic connection , getPort

Function Aspect Navigator

Source: DB001

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectabl... |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|----------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Program Block | Undirected | N | OB_Proxy, F... |

Dynamic Connection
Connects ports dynamically by using expressions.

For DB P4 = conveyor object name.

| | Name | Formula | Value |
|---|------|---|--------------------|
| 1 | | == | == |
| 2 | aaa | GetPort(GetParent(p4,Function),"TLtoDB") | "TLtoDB" |
| 3 | p0 | subString(GetMRD(GetParent(p2,Function),Function),3,1000)+"_DB" | "001._002._003_DB" |

Source: DB001

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectabl... |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|----------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Program Block | Undirected | N | OB_Proxy, F... |
| | _002 | TLtoDB | EO | Any | Undirected | N | OB_Proxy, D... |

6. change main -> RBAT DB call port

The screenshot shows the SIMATIC Manager interface. On the left, the Automation Navigator displays the project structure for 'CD000101:1-AD_1_CD_4_WS_5_SS_20160418'. The 'Main [OB1]' object is selected. The main window shows the 'Interface' configuration for 'Main [OB1]'. The 'Ports' section lists 'Caller P...' with a value of '001_004.ConveyorF0...'. The 'PLC Code' section shows a ladder logic network with a call instruction: `CALL "001_004.ConveyorF001_FB2", "001_004.ConveyorF001_DB2"`.

This close-up shows the 'Ports' table with a context menu open over the 'Caller P...' entry. The menu options are 'Manual Connection' and 'Disconnect'.

| Port | Value | Type |
|-------------|--------------|------|
| Caller P... | 001_004.C... | |

The screenshot shows the 'PLC Code' editor with a red error message: `////Caller on the position [Rule_1] is not connected with a`. The error message is highlighted in red.

This close-up shows the 'Ports' table with a context menu open over the 'Caller P...' entry. The menu options are 'Manual Connection' and 'Dynamic Connection'.

| Port | Value | Type |
|-------------|--------------|------|
| Caller P... | 001_004.C... | |

P1=TL

| | Name | Formula | Value |
|---|------|----------------------------------|---------|
| 1 | | *** | *** |
| 2 | bbb | GetConnectedObjects(p1,"TLtoDB") | {DB001} |

The screenshot shows the 'Ports' table with 'Caller P...' and 'Calle...' (value: '001_002_003_DB'). The 'PLC Code' editor shows a call instruction: `CALL "001_002_003_FB", "001_002_003_DB"`.

The screenshot shows the 'Source' table with 'OB001' and the 'Ports' table with 'Caller_1' connected to 'DB001'.

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectabl... |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|------------------|
| User Defined | | | | | | | |
| Caller_1 | DB001 | DB001 | EO | Caller | Undirected | N | IDB_Proxy, F... |
| | | | | IDB_Proxy | Undirected | N | Any, Caller, ... |

7. test, copy, change names

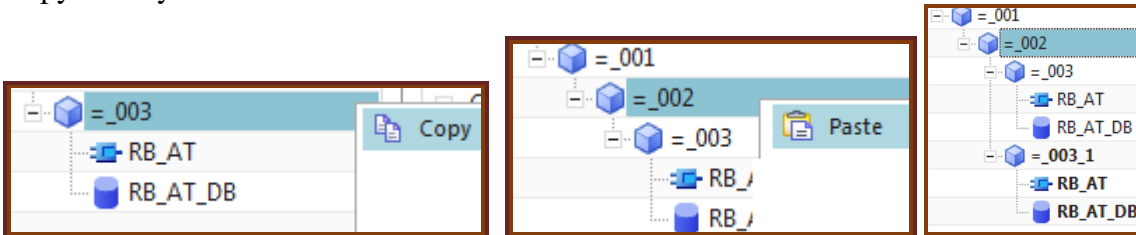
Change DB symname.

| | ↑ Name | Formula | Value |
|---|--------|--|---------------------|
| 1 | p0 | subString(GetMRD(GetParent(p2,Function),Function),3,1000)+"_DBx" | "001._002._003_DBx" |

immediate

```
CALL - "001._002._003_FB", -"001._002._003_DBx"
```

Copy conveyor.



Result. Names are same, but the links are correct (see below).

```
CALL - "001._002._003_FB", -"001._002._003_DBx"
CALL - "001._002._003_FB", -"001._002._003_DBx"
```

Change 003_1 DB to "...y".

| | |
|---------------|-------------------|
| RB_AT_DB | |
| Symbolic Name | 001._002._003_DBy |

No change.

Change symbolic name of 003_1 DB to "...z" and immediately after pressing OK key in properties dialog:

```
CALL - "001._002._003_FB", -"001._002._003_DBz"
CALL - "001._002._003_FB", -"001._002._003_DBx"
```

But where is "003_1"?

Change _003 RB_AT symname.

Immediately after pressing ok key in properties dialog:

```
CALL - "001._002._003_FB", -"001._002._003_DBz"
CALL - "001._002._003_FBm", -"001._002._003_DBx"
```

So it works... kind of.

\$\$\$4/5 14.4. create ports, expressions, dynamic connection 20160425 #2

1. RBAT, DB symnames

2. main -> RBAT DB call port

3. TLtoDB

4. DBtoTL

5. dynamic connection , getPort

For DB P8 = conveyor.

| Expressions | | | |
|-------------|--------|--|-----------------------------|
| | ↑ Name | Formula | Value |
| 1 | | getPort(xxx,"TLtoDB3") | "" |
| 2 | xxx | GetParent(p8,Function) | "_004" |
| 3 | aaa | GetParent(p3,Function) | "_004" |
| 4 | eee | GetParent(p5,Function) | "_004" |
| 5 | p2 | subString(GetMRD(GetParent(p6,Function),Function), 3, 1000)+"_DB2" | "001._004.ConveyorF001_DB2" |

| Ports Manager | | | | | | |
|------------------|-----------------|----------------|-----------|-----------------|------------|-------|
| Source | | | | | | |
| DB023 | | | | | | |
| Ports | | | | | | |
| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardi |
| [-] User Defined | | | | | | |
| [-] DBtoTL | | | EO | Any | Undirected | N |
| | _004 | TLtoDB | EO | Program Block | Undirected | N |
| [-] DBtoTL2 | | | EO | Any | Undirected | N |
| | _004 | TLtoDB2 | EO | Program Block | Undirected | N |
| [-] DBtoTL3 | | | EO | Program Block | Undirected | N |
| | _004 | TLtoDB3 | EO | Any | Undirected | N |

| Expressions | | | |
|-------------|--------|--|-----------------------------|
| | ↑ Name | Formula | Value |
| 1 | | "" | "" |
| 2 | aaa | GetParent(p3,Function) | "_004" |
| 3 | eee | GetParent(p5,Function) | "_004" |
| 4 | p2 | subString(GetMRD(GetParent(p6,Function),Function), 3, 1000)+"_DB2" | "001._004.ConveyorF001_DB2" |
| 5 | xxx | GetParent(p8,Function) | "_004" |

6. change main -> RBAT DB call port

The screenshot shows the Automation Navigator on the left with a tree view of the project. The main window displays the 'Main [OB1]' editor. The 'Interface' tab is active, showing a table of variables:

| Name | Value | Type |
|----------|----------|------|
| FC_left | FC_left | Bool |
| FC_right | FC_right | Bool |
| FB/IDB | | |
| FC | | |
| DB | | |

The 'PLC Code' tab shows the following network:

```

1 Network 1:--
2 CALL "001._004.ConveyorF001_FB2", "001._004.ConveyorF001_DB2"
3
4

```

This screenshot shows a dialog box with the title 'Manual Connection'. The 'Operand...' field is selected, and the 'Disconnect' button is highlighted.

This screenshot shows a dialog box with the title 'Dynamic Connection'. The 'Operand...' field is selected, and the 'Dynamic Connection' button is highlighted.

| | Name | Formula | Value |
|---|---------|------------------------------------|---------|
| 1 | | == | == |
| 2 | ffffggg | GetConnectedObjects(p1, "TLtoDB3") | {DB023} |

P1=TL

The screenshot shows the 'Ports' tab with the following table:

| Name | Value | Type | Comments |
|----------------|-------|------|-----------------------------|
| OBI_PREV_CYCLE | | Int | Cycle time of previous O... |
| OBI_MIN_CYCLE | | Int | Minimum cycle time of ... |

The 'PLC Code' tab shows the following network:

```

1 Network 1:--
2 CALL "001._004.ConveyorF001_FB2", "001._004.ConveyorF001_DB2"
3

```

7. test, copy, change names

The screenshot shows the Automation Navigator on the left with a tree view of the project. The main window displays the 'PLC Code' editor. The 'PLC Code' tab is active, showing the following network:

```

1 Network 1:--
2 CALL "001._004.ConveyorF001_FB2", "001._004.ConveyorF001_DB2b"
3 CALL "001._004.ConveyorF001_FB2", "001._004.ConveyorF001_DB2b"
4
5

```

Its only bring up the original.. maybe a bug? I give up.

Previously..... did what shown below. Is that what I had to do????????????????????????????????????

```
1 Network 1:→ ↵
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
4 ↵
```

Names are wrong...

Modify the symbolic names The problem is the names are not being properly created.??.

Expressions

| ↑ | Name | Formula | Value |
|---|------|--|-------------------------|
| 1 | p6 | subString(GetMRD(GetParent(p8,Function),Function), 3, 1000)+"_DB" | "001._004.ConveyorF001" |

```
1 Network 1:→ ↵
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConveyorF001_RB", "001._004.ConveyorF001_DB"
4 ↵
```

Expressions

| ↑ | Name | Formula | Value |
|---|------|-------------|----------------------------|
| 1 | p0 | bbb+"_RBxx" | "001._004.ConveyorF001_RB" |

Expressions

| ↑ | Name | Formula | Value |
|---|------|--------------|------------------------------|
| 1 | p0 | bbb+"_RByyy" | "001._004.ConveyorF001_4_RB" |

```
1 Network 1:→ ↵
2 CALL "001._004.ConveyorF001_4_RByyy", "RB_AT_DBxx"
3 CALL "001._004.ConveyorF001_RBxx", "001._004.ConveyorF001_DB"
4 ↵
```

ANOTHER BUG.

The proper symname was not updated until I changed them. !!!

\$\$\$4/5 14.4. create ports, expressions, dynamic connection 20160425 #1

20160425: terry this is a chaotic buggy mess, following tries to sort it out.. but works somehow.

14.4.1. Create TL port "TLtoDB2"

The image shows two screenshots from the Siemens SIMATIC Manager software. The top screenshot shows the 'Ports Manager' dialog box with the 'Source' field set to '_004'. A 'Create Port' tooltip is visible over the 'Add' button. The bottom screenshot shows the 'Port' configuration dialog for 'TLtoDB2'.

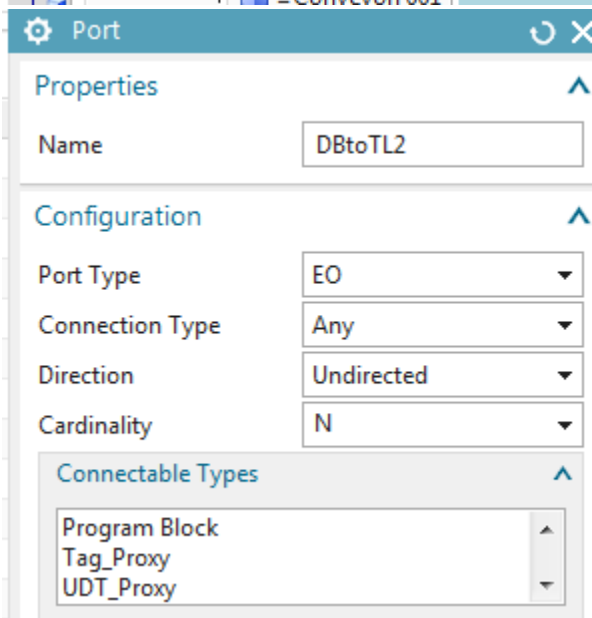
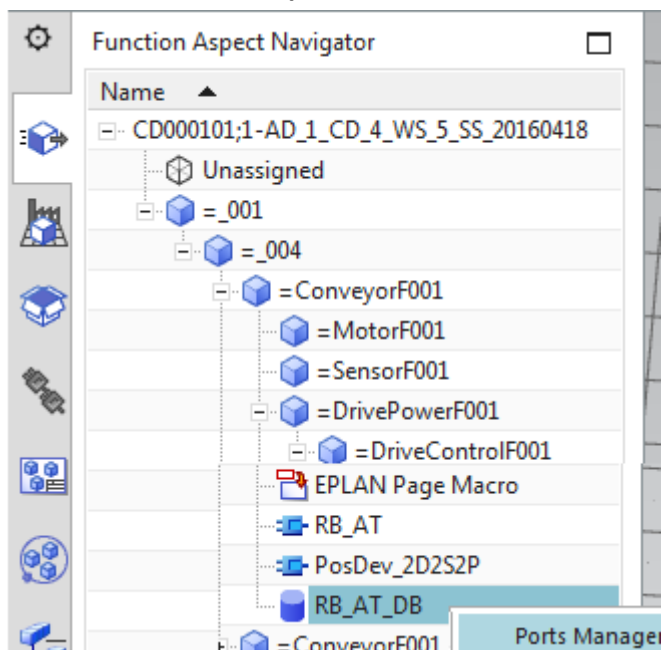
Port Configuration:

- Name: TLtoDB2
- Port Type: EO
- Connection Type: Program Block
- Direction: Undirected
- Cardinality: N
- Connectable Types: OB_Proxy

Ports Manager Table:

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|-----------------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------|
| User Defined | | | | | | | |
| TLtoFRGStop | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | FRG_EStop | FRG_EStop | EO | Tag_Proxy | Undirected | N | Tag, Any, Operand |
| TLtoDB | | | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| | DB022 | DBtoTL | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | DB021 | DBtoTL | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | DB010 | DBtoTL | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| TLtoDB2 | | | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| System Defined | | | | | | | |

14.4.2. Create RBAT DB port “DBtoTL2”



Ports Manager

Source: DB010

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| DBtoTL | _004 | TLtoDB | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| DBtoTL2 | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |

14.4.3. Create RBAT DB getPort to TL

Ports Manager

Source: DB010

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Any | Undirected | N | OB_Proxy, Device Func.. |
| | _004 | TLtoDB | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| DBtoTL2 | | | EO | Any | Undirected | N | OB_Proxy, Device Func.. |

Right click on DBtoTL (what I created earlier). The bbb expression does not display, but its there. These constant bugs make this quite complicated.

Expressions

| | Name | Formula | Value |
|---|------|------------------------|--------|
| 1 | bbb | "" | "" |
| 2 | aaa | GetParent(p3,Function) | "_004" |

Alerts

⚠ bbb: The expression name is invalid. The specified expression variable already exists.

Create dynamic connect on DBtoTL2. Create expressions on RBAT DB that auto-connect (getPort) to TL.

Ports Manager

Source: DB010

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | _004 | TLtoDB | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| DBtoTL2 | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| System Defined | | | | | | | |

Dynamic Connection
Connects ports dynamically by using expressions.

Expressions

| | Name | Formula | Value |
|---|------|------------------------|--------|
| 1 | eee | "" | "" |
| 2 | aaa | GetParent(p3,Function) | "_004" |

Edit

Formula

GetParent(

Reference Object Attribute

Function Aspect Navigator

- CD000101;1-AD_1_CD_4_WS_5_SS_2016041
- Unassigned
- =_001
 - =_004
 - =ConveyorF001
 - =MotorF001
 - =SensorF001
 - =DrivePowerF001
 - =DriveControlF001
 - =EOCHcc001
 - D11
 - G120x
 - PID0

- EPLAN Page Macro
- RB_AT
- PosDev_2D2S2P
- RB_AT_DB

Reference Attribute

Referenced Object

Select Object

Select Object

Select Engineering Object (1)

Engineering Object Attributes

| Title/Alias | Value | Units | T... | Type | R... | D. |
|---------------------------|----------------------|-------|------|--------|------|----|
| Aspect Function | | | | | | |
| Aspect Location | | | | | | |
| Aspect Product | | | | | | |
| General | | | | | | |
| Object Name | _005 | | | String | | |
| Reference Designation Set | =_001._004.Convey... | | | String | | |
| Type | GL-Continuous flo... | | | String | | |
| Type | | | | | | |

Edit

Formula

GetParent(p5)

Expressions

| | ↑ Name | Formula | Value | Units | Dimensionality | Type |
|---|--------|------------------------|--------|-------|----------------|--------|
| 1 | | "" | "" | | | String |
| 2 | eee | GetParent(p5,Function) | "_004" | | | String |
| 3 | aaa | GetParent(p3,Function) | "_004" | | | String |

The "getPort" command establishes the connection.

Expressions

| | ↑ Name | Formula | Value |
|---|--------|------------------------|--------|
| 1 | fff | GetPort(eee,"TLtoDB2") | "" |
| 2 | eee | GetParent(p5,Function) | "_004" |
| 3 | aaa | GetParent(p3,Function) | "_004" |

??????????????

This was for TLtoDB

| | ↑ Name | Formula | Value |
|---|--------|------------------------|----------|
| 1 | bbb | getPort(aaa,"TLtoDB") | "TLtoDB" |
| 2 | aaa | GetParent(p3,Function) | "_004" |

It connected anyway... bugs bugs bugs....

Ports Manager

Source: DB010

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | _004 | TLtoDB | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| DBtoTL2 | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | _004 | TLtoDB2 | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |

This was previous.....

Ports Manager

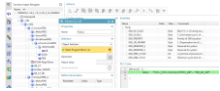
Source: DB010

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------|
| User Defined | | | | | | | |
| DBtoTL | | | EO | Any | Undirected | N | OB_Proxy, Device Func... |
| | _004 | TLtoDB | EO | Program Block | Undirected | N | OB_Proxy, FB_Proxy, F... |
| System Defined | | | | | | | |

14.4.4. create OB call to objects connected to the TL port

THIS WAY DOES NOT WORK NOW... FOR SOME REASON.....DID AT FIRST



Second caller port 2 was added.

Main [OB1]

Actions

Configurations

| Name | Value | Type |
|---------------|------------------|------|
| Global Sym... | | |
| Tags | | |
| FC_left | FC_left | Bool |
| FC_right | FC_right | Bool |
| FB/IDB | | |
| FC | | |
| DB | | |
| Ports | | |
| Caller P... | | |
| Calle... | | |
| Calle... | | |
| Calle... | RB_AT_DB, RB_... | |
| Calle... | RB_AT_DB, RB_... | |
| Operand... | | |

Interface

| Name | Defa... | Data ... | Comments |
|--------------|---------|----------|-------------------------------|
| Temp | | | |
| OB1_EV_CLASS | | Byte | Bits 0-3 = 1 (Coming eve... |
| OB1_SCAN_1 | | Byte | 1 (Cold restart scan 1 of ... |
| OB1_PRIORITY | | Byte | Priority of OB Execution |
| OB1_OB_NUMBR | | Byte | 1 (Organization block 1, ... |

PLC Code Main [OB1]

```

1 Network 1:→ →
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
4 CALL "001._004.      RB", "RB_AT_DB"
5
6

```

Lets switch to 2nd port.

Properties

Name Rule_1

Selection

Object Selection

Select Program Block (0)

Expression

Return Value {"DB022","DB022"}

Break Expression

Define Parameters

| Parameter | Value | Type |
|-----------|-------|------|
| | | |
| | | |
| | | |

Replace Parameter by

Symbolic Reference

Object Selection

Select Object (0)

Expression

Return Value

Break Expression

Click on exprssion, EMPTY. Bug.

| Expressions | | | |
|-------------|------|---------|-------|
| | Name | Formula | Value |
| 1 | | "" | "" |

| Expressions | | |
|-------------|------|---------|
| | Name | Formula |
| 1 | cccc | "" |

Alerts

⚠ cccc: The expression name is invalid. The specified expression variable already exists.

Break.

Select block... nothing happens.... Object selection I used for #1 earlier, but now cant.

Replace by Call

Name: Rule_1

Selection: Object Selection

Select Program Block (0)

Expression: [Symbolic Reference]

Return Value: ["DB022";"DB"]

Break Expression: [Refresh]

Properties

Name: Rule_1

Selection: Object Selection

* Select Program Block (0)

Expression: [Symbolic Reference]

Return Value: [Text Box]

Break Expression: [Refresh]

Cant save.

Just delte.

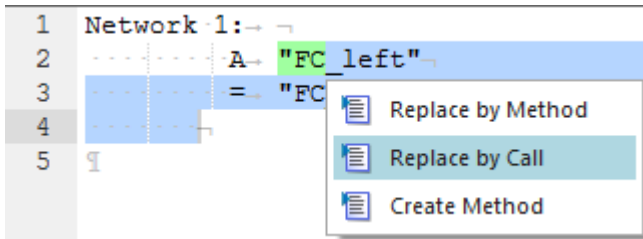
```

1 Network 1:→
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB
3 CALL "001._004.ConveyorF001_RB", "RB_AT_DB
4 CALL "001._004. RB", "RB_AT_DB
5
6

```

Edit

Delete



Main [OB1]

Actions

Configurations

| Name | Value | Type |
|---------------|------------------|------|
| Global Sym... | | |
| Tags | | |
| FC_left | FC_left | Bool |
| FC_ri... | FC_right | Bool |
| FB/IDB | | |
| FC | | |
| DB | | |
| Ports | | |
| Caller P... | | |
| Calle... | | |
| Calle... | | |
| Calle... | RB_AT_DB, RB_... | |
| Calle... | RB_AT_DB, RB_... | |
| Operand... | | |
| Rules | | |

Replace by Call

Properties

Name Rule_1

Selection

Port Selection

✓ Select Port (1)

Define Parameters

| Parameter | Value | Type |
|-----------|-------|------|
| | | |
| | | |
| | | |

Replace Parameter by

Symbolic Reference

Object Selection

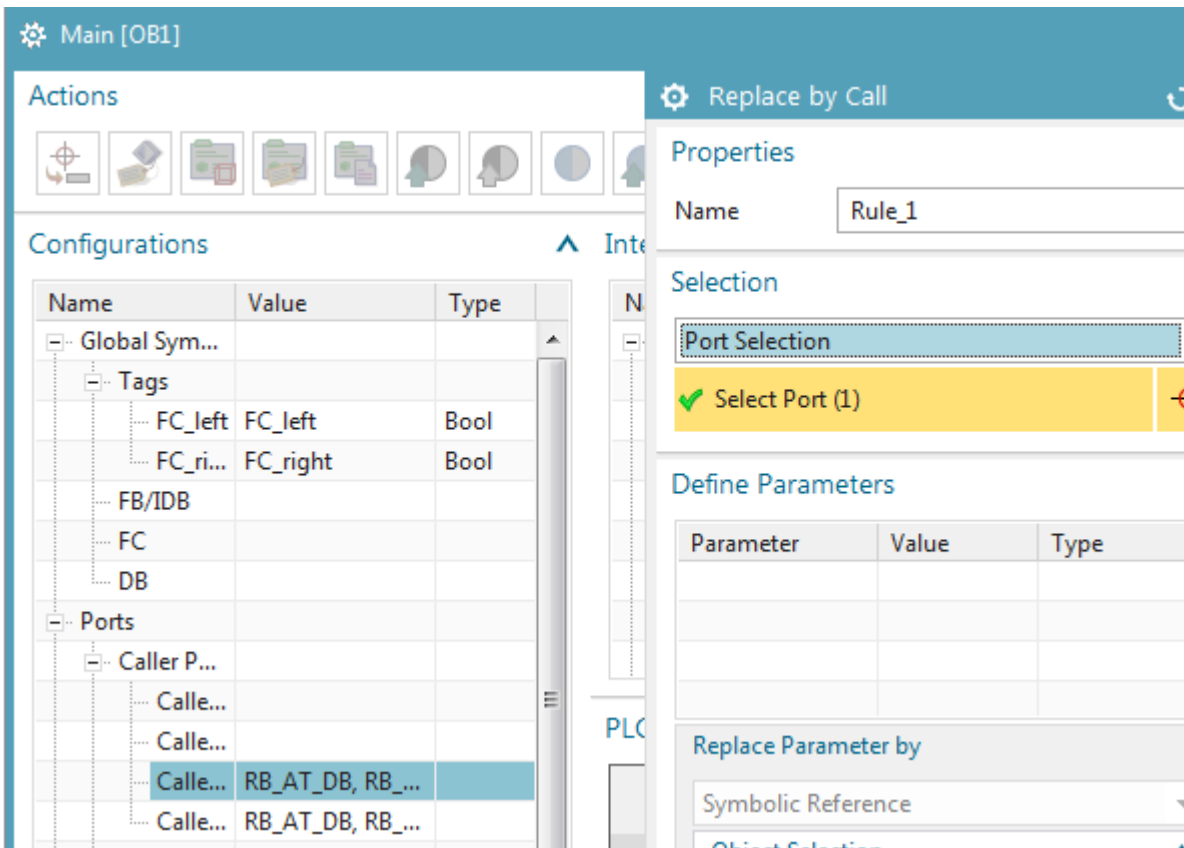
* Select Object (0)

PLC Code

```

1 Network 1:→ →
2 CALL "001._004.ConvveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConvveyorF001_RB", "RB_AT_DB"
4 CALL "001._004.ConvveyorF001_RB", "RB_AT_DB"
5 |

```

Change first to this

| | Name | Formula | Value |
|---|------|------------------------------------|---------|
| 1 | | | |
| 2 | vvv | GetConnectedObjects(p3, "TLtoDB2") | {DB010} |

Select first port no change. Even after bulk connect.

```

1 Network 1:→
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
4 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
5

```

CONNECT DIFFERENTLY.....XXXXXXXXXXXXXXXXXXXX

Go back select again

| | Name | Formula | Value |
|---|------|------------------------------------|---------|
| 1 | | | |
| 2 | vvv | GetConnectedObjects(p3, "TLtoDB2") | {DB010} |

This time connects correctly.

PLC Code

```
1 Network 1:-->
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3
```

Selected second.

Replace by Call

Properties

Name: Rule_1

Selection

Port Selection: Select Port (1)

Define Parameters

| Parameter | Value | Type |
|-----------|-------|------|
| | | |
| | | |
| | | |

Replace Parameter by

Object Selection

Now correct. Wait names are wrong!!!

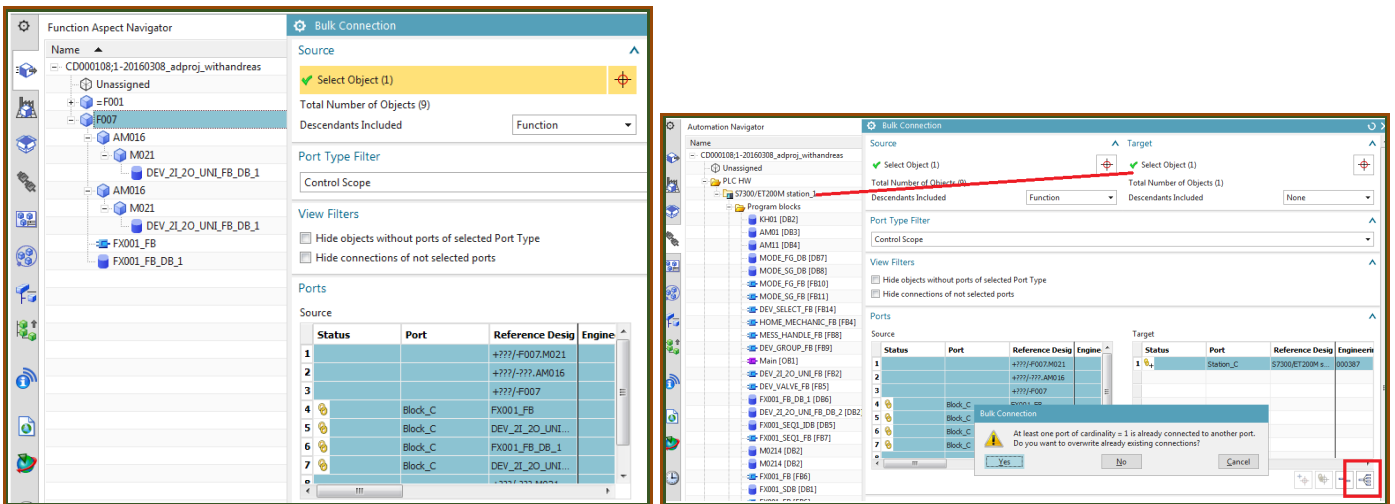
```
1 Network 1:-->
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
4 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
5
```

An absolute chaotic mess.

14.5.2. TEST: copy conveyor, should auto update OB call #1

Copy and paste.
Nothing.

Then bulk connect



Result.

Main [OB1]

Actions

Configurations

Interface

| Name | Value | Type |
|---------------|-----------------|------|
| Global Sym... | | |
| Tags | | |
| FC_left | FC_left | Bool |
| FC_right | FC_right | Bool |
| FB/IDB | | |
| FC | | |
| DB | | |
| Ports | | |
| Caller P... | | |
| Call... | RB_AT_DB | |
| Call... | RB_AT_DB | |
| Call... | RB_AT_DB, RB... | |
| Operand... | | |
| Rules | | |
| Calls | | |
| Rule 1 | | |

| Name | Defa... | Data ... | Comments |
|----------------|---------|----------|-------------------------------|
| Temp | | | |
| OB1_EV_CLASS | | Byte | Bits 0-3 = 1 (Coming eve... |
| OB1_SCAN_1 | | Byte | 1 (Cold restart scan 1 of ... |
| OB1_PRIORITY | | Byte | Priority of OB Execution |
| OB1_OB_NUMBR | | Byte | 1 (Organization block 1, ... |
| OB1_RESERVED_1 | | Byte | Reserved for system |
| OB1_RESERVED_2 | | Byte | Reserved for system |
| OB1_PREV_CYCLE | | Int | Cycle time of previous O... |
| OB1_MIN_CYCLE | | Int | Minimum cycle time of ... |

PLC Code

```
1 Network 1:--
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
4 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
5
```

Wow... somehow it worked! 😊

But... names are same.....

| Expressions | | | |
|-------------|--------|-------------|----------------------------|
| | ↑ Name | Formula | Value |
| 1 | p0 | bbb+"_RBxx" | "001._004.ConveyorF001_RB" |

| Expressions | | | |
|-------------|--------|--------------|------------------------------|
| | ↑ Name | Formula | Value |
| 1 | p0 | bbb+"_RByyy" | "001._004.ConveyorF001_4_RB" |

SUCCESS

```

1 Network 1:→ ↵
2 CALL "001._004.ConveyorF001_4_RByyy", "RB_AT_DBxx"
3 CALL "001._004.ConveyorF001_RBxx", "001._004.ConveyorF001_DB"
4

```

ANOTHER BUG.

The proper symname was not updated until I changed them. !!!

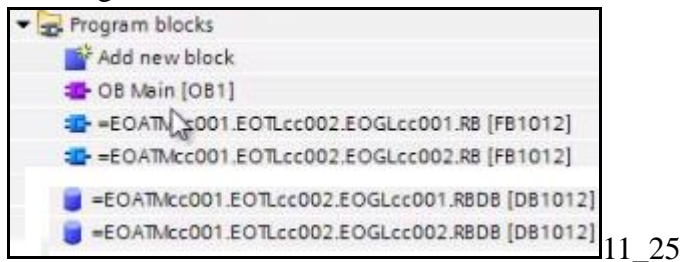
11.4. Test 20160422 ERROR

TERRY: This will not work... TIA export not working. But previously chapters show that basically dynamization works.. have to figure out tia error later.

11.4b. Test

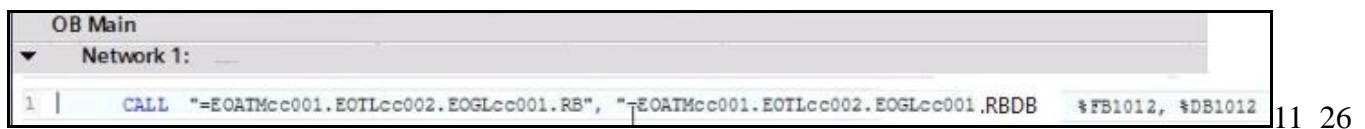
1. Connect the SW. Send to TIA.
2. Verify the following:

2a. Program blocks.



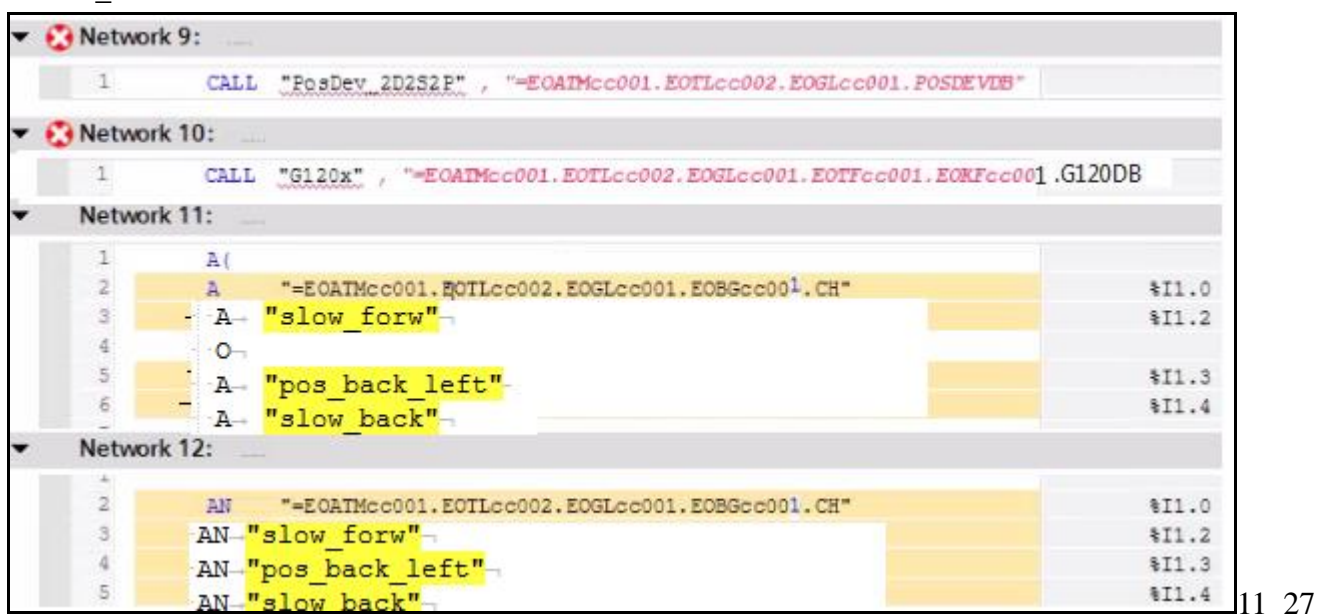
11_25

2b. OB Main call.



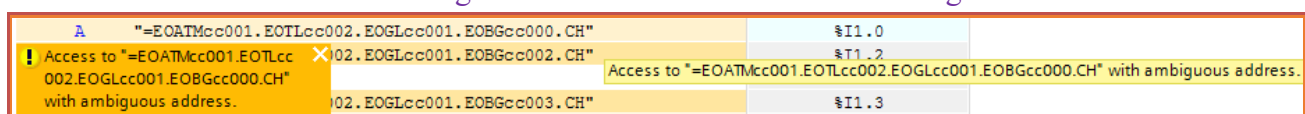
11_26

2c. RB_AT code.



11_27

20160209 TERRY ERROR: Ambiguous address... same address for 2 tags?



2d. PosDev (ERROR, not sent to TIA).

```

1 Network 1:-
2   ..... TAR1- #SAVE_AR1-
3   ..... TAR2- #SAVE_AR2-
4
5 Network 2:-
6   ..... A- "Newstart"-
7   ..... R- #TM_STARTUP-
8   ..... R- #EN_FAST-
9
10 Network 3:-
11  ..... A- #ERR_RESET-
12  ..... FP- #Err_Reset P-
13  ..... ON- "PLC_On delayed"-
14  ..... JCN www-
15
16 Network 4:-
17  ..... A- "TRUE"-
    
```

11_28

2e. G120x (contains no dynamized SW or tags) (ERROR, not sent to TIA).

```

1 Network 1:-
2   ..... TAR1- #SAVE_AR1- // Save address register 1-
3   ..... TAR2- #SAVE_AR2- // Save address register 2-
4
5
6 Network 2:-
7   ..... LAR1- #STW-
8   ..... TAR2- // Offset as absolute value of address x
9   ..... +AR1-
10  ..... L- #INPUT_ADDR-
11  ..... T- DI-
12
13 Network 3:-
14  ..... A- #EM_STOP- // SiFa-
15  ..... =- #En_OK- // Control voltage On-
    
```

11_29

2f. Tags.

20160209 TERRY: make sure not using same address space.

| PLC tags | | | |
|----------|--|-----------|----------|
| | Name | Data type | Address |
| 1 | Newstart | Bool | %M3.1 |
| 2 | PLC_On delayed | Bool | %M2.7 |
| 3 | TRUE | Bool | %M2.2 |
| 4 | CPulse_0_1s | Bool | %M4.0 |
| 5 | RLO 1 | Bool | %M3.2 |
| 6 | Blif | Bool | %M4.4 |
| 7 | RLO 0 | Bool | %M3.3 |
| 8 | FRG_EStop | Bool | %M4003.1 |
| 9 | FRG_B5 | Bool | %M4002.1 |
| 10 | IBN0 | Bool | %M3.6 |
| 11 | reset | Bool | %M11.2 |
| 17 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc001 ¹ .CH | Bool | %I1.0 |
| 15 | "slow_forw" | Bool | %I1.1 |
| 12 | "pos_back_left" | Bool | %I1.2 |
| 13 | "slow back" | Bool | %I1.3 |
| 24 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID0 | DWord | %ID2100 |
| 25 | =PID1 | DWord | %ID2104 |
| 26 | =PID2 | DWord | %ID2108 |
| 27 | =PQDC | DWord | %QD2112 |

11_30

11.5. FINISH (optional)

11.5.1. create TL constant value

11.5.2. PID, PQD tags

11.5.3. CH2-4 (3) (and DI2-4), BG2-4

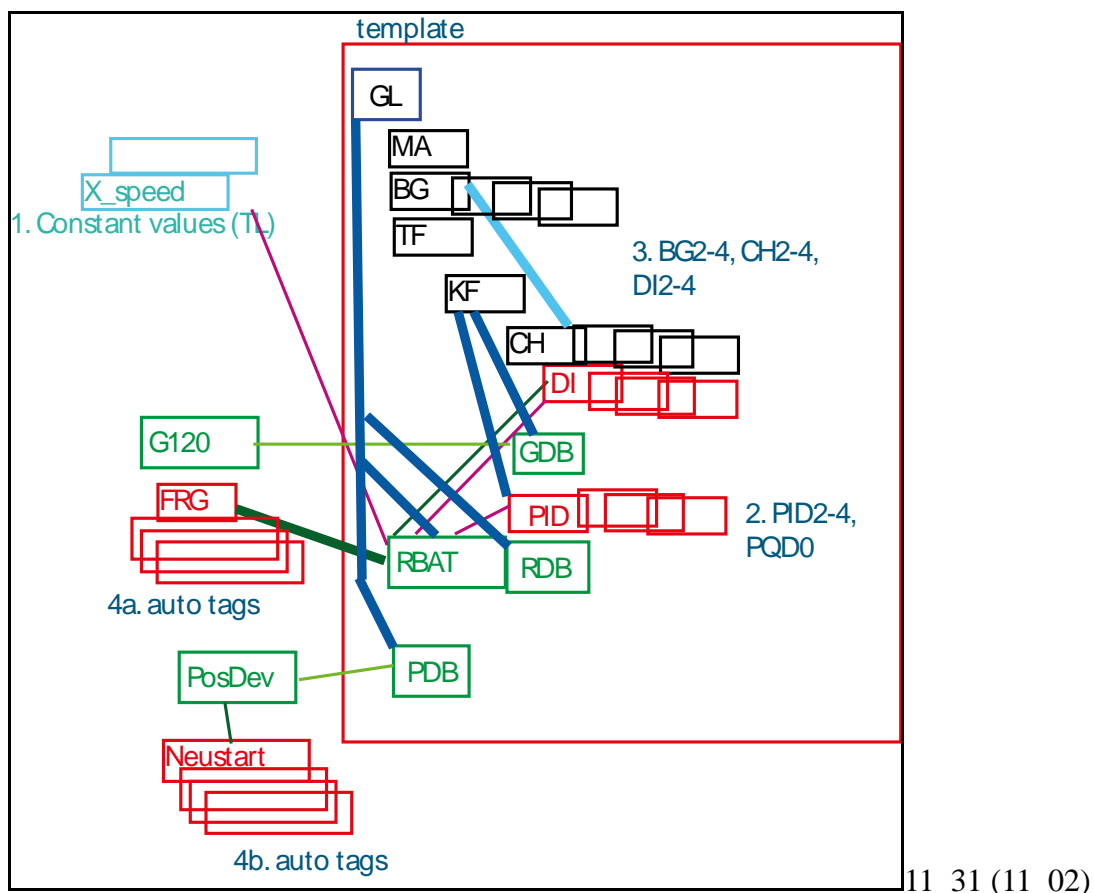
11.5.4. automation tags 3 dynamic connections

11.5.5. Newstart, etc.

11.5.6. TEST xxx



Add the extras shown below.



11.4.1. Create TL constant value (1) >>> FIX CALL??

In "8.3. Create TL constant values" you created Fast_Speed. Now create Slow_speed.

1. Define constant value for TL.

| | |
|-------------|-------------|
| Category | Operational |
| Title/Alias | Slow_Speed |
| Data Type | String |
| Value | Real#10.0 |

2. Add the constant to the RB_AT call.

11_32

Result.

```

Network 10:--
CALL "G120x", -- "G120x DB"
FAST_SPEED := Real#20.0
SLOW_SPEED := Real#10.0
    
```

11_33

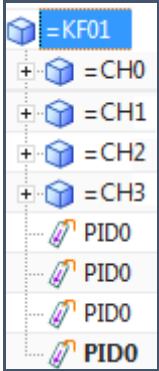
11.4.2. PID,PQD tags >>> FIX CALL??

13.3.1.7. RB_AT->G120x replace by call PID,PQD tags, SLOW_SPEED

13.3.1.4. Add 3 Profibus tags (PID1-2, PQD0)

Add the 3 remaining DWord tags that are input-output for the motor starter.

1. Right-click on PID0 and select "Copy".
2. Right-click on KF01 and select "Paste" 3 times.



11_34

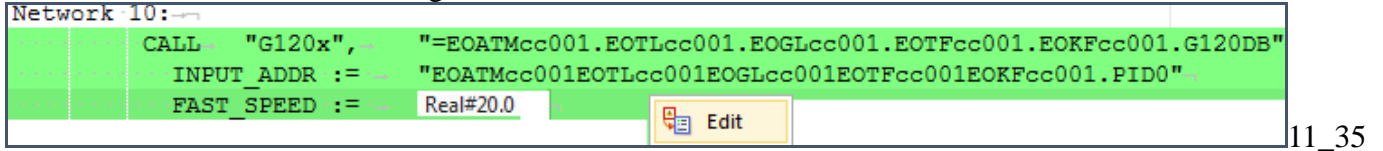
3. Set the following for the 3 tags.

| Tag | Properties | Properties |
|------|----------------|---|
| PID1 | Name | PID1 |
| | Memory Section | Input |
| | Data Type | Dword |
| | Description | PID1 descr |
| | Address | 2104 |
| | Symbolic name | AD_GetDesignation(AD_GetEngObject(),Function)+".PID1" |
| PID2 | Name | PID2 |
| | Memory Section | Input |
| | Data Type | DWord |
| | Description | PID2 descr |
| | Address | 2108 |
| | Symbolic name | AD_GetDesignation(AD_GetEngObject(),Function)+".PID2" |
| PQD0 | Name | PQD0 |
| | Memory Section | Output |
| | Data Type | Dword |
| | Description | PQD0 descr |
| | Address | 2112 |
| | Symbolic name | AD_GetDesignation(AD_GetEngObject(),Function)+".PQD0" |

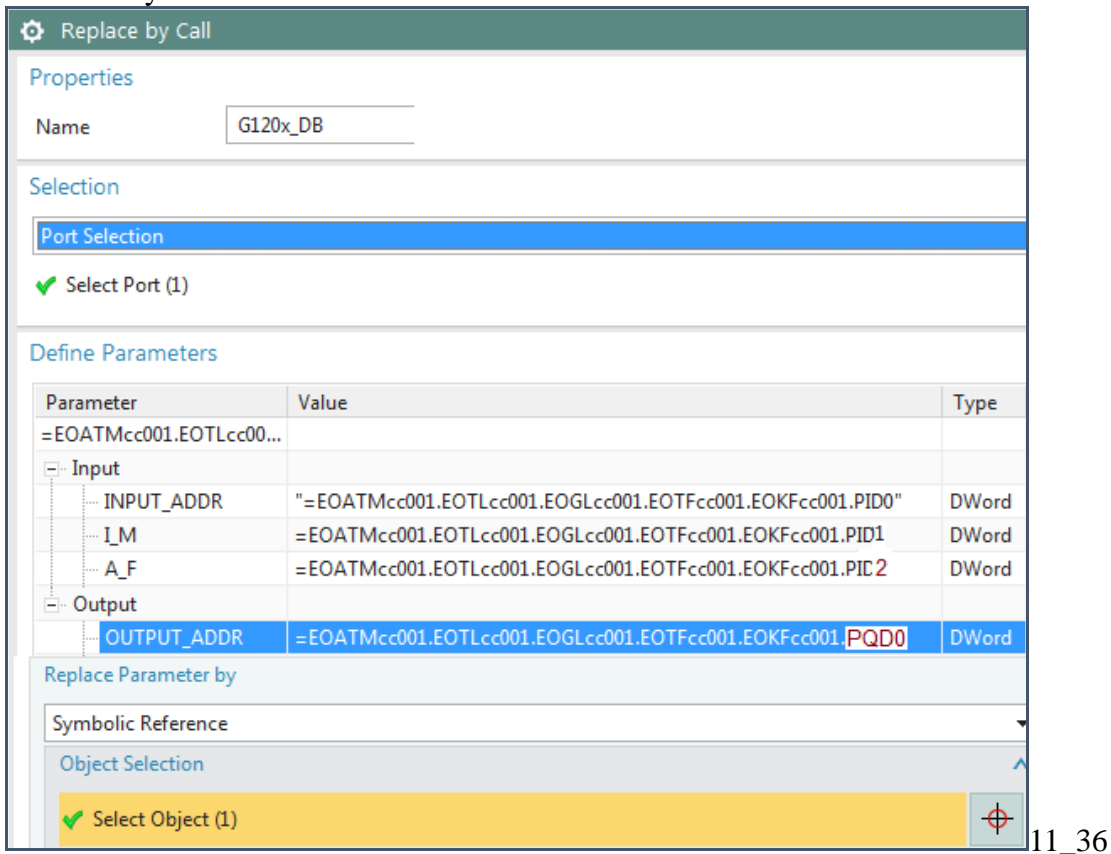
You need to for the RB_AT call to G120x replace the following:

| Call param | Value | type |
|-------------|-------|--------------------|
| I_M | PID1 | Symbolic reference |
| A_F | PID2 | Symbolic reference |
| OUTPUT_ADDR | PQD0 | Symbolic reference |

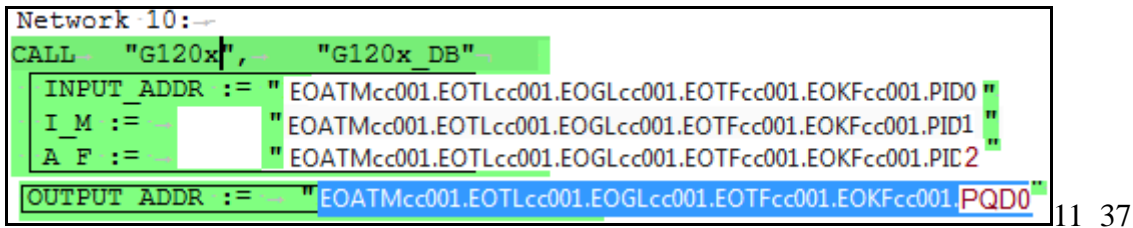
1. Select some of the call text. Right click and select "Edit".



2. Define symbolic references as listed in table above.



Result.



11.4.3. CH2-4 (3) (and DI2-4), BG 2-4

Add CH2-4 (3) (and DI2-4), BG 2-4, connect ports, set property values.

1. Copy CH1 (and DI1) to CH2-4 (and DI2-4), rename ports

1. Copy CH1 3 times.
2. Rename EOs to CH2-4.
3. Rename tags to DI2-4.
4. rename CH2-4 ports to

CH2toBG2

CH3toBG3

CH4toBG4

2. Rename BG2-4 ports

1. If you did not copy BG 3 times and rename in 10.7.2, then do so now.
2. Rename BG2-4 ports.

BG2toCH2

BG3toCH3

BG4toCH4

3. Connect ports

1. Connect the ports (BG2toCH2 connect with CH2toBG2, etc.).

4. Set tag DI2-4 property values

1. For DI2-4 set the following

| Tag | Properties | Value |
|-----|----------------|---|
| DI2 | Name | DI2 |
| | Memory Section | Input |
| | Data Type | Boolean |
| | Description | Sensor 2 |
| | Address | 1.3 |
| | Symbolic name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH2toBG2")),Function)+".CH" |
| DI3 | Name | DI3 |
| | Memory Section | Input |
| | Data Type | Boolean |
| | Description | Sensor 3 |
| | Address | 1.4 |
| | Symbolic name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH3toBG3")),Function)+".CH" |
| DI4 | Name | DI4 |
| | Memory Section | Input |
| | Data Type | Boolean |
| | Description | Sensor 4 |
| | Address | 1.5 |
| | Symbolic name | AD_GetDesignation(First(AD_GetConnectedObjects(AD_GetEngObject(),"CH4toBG4")),Function)+".CH" |

5. RB_AT manual connect to DI tags (3)

1. Connect to DI2-4.

```

51 Network 11:--
52 -----A--
53 -----A-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001.CH"
54 -----A-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc002.CH"
55 -----O--
56 -----A-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc003.CH"
57 -----A-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc004.CH"
58 -----)--
59 -----AN-- #OUT_ADV--
60 -----AN-- #OUT_RTN--
61 -----== #CONVEYOR_OCCUPIED--

62 |
63 Network 12:--
64 -----
65 -----AN-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001.CH"
66 -----AN-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc002.CH"
67 -----AN-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc003.CH"
68 -----AN-- "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc004.CH"
69 -----AN-- #OUT_ADV--
70 -----AN-- #OUT_RTN--
71 -----== #CONVEYOR_FREE--
    
```

11_38

6. RB_AT->PosDev replace by call DI tags (3) >>> FIX CALL??

For the RB_AT call to PosDev replace the following:

| Call param | Value | TYPE |
|------------|-------|--------------------|
| SW_FS_ADV | DI2 | Symbolic reference |
| SW_FS_RTN | DI3 | Symbolic reference |
| LS_RTN | DI4 | Symbolic reference |

1. Select some of the call text. Right click and select "Edit".

```

Network 9:--
CALL "PosDev_2D2S2P", "=EOATMcc001.EOTLcc001.EOGLcc001.POSDEVDB"
LS_ADV := "=EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001.CH"
    
```

11_39

2. Define symbolic references as listed in table above.

11_40

3. Result.

```

Network 9:--
CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
LS_ADV := "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc001.CH"
SW_FS_ADV := "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc002.CH"
SW_FS_RTN := "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc003.CH"
LS_RTN := "EOATMcc001.EOTLcc001.EOGLcc001.EOBGcc004.CH"
    
```

11_41

11.4.4. Automation tags 3 dynamic connections

Create TL to automation-tags dynamic connections for remaining 3 tags (IBN,etc.)

1. Create **TLtoFRGBS, TLtoIBN0, TLtoReset** ports in EO TL. (tags do not need a port)
2. Manual connect the 3 ports to the tags.
3. Create **RB_AT** to 3 tags dynamic connections.

| | |
|------------------|---|
| TLtoFRGBS | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)), "TLtoFRGBS")) |
| TLtoIBN0 | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)), "TLtoIBN0")) |
| TLtoReset | First(AD_GetConnectedObjects(nth(2,AD_GetAncestors(AD_GetEngObject(),Function)), "TLtoReset")) |

Source
=ATM001.TL001/+?????.TL001/-?????.TL001

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Ty... | Direc... | Cardi... | Man... | Conne |
|------------------|-----------------|----------------|-----------|------------------|----------|----------|--------|--------|
| [-] User Defined | | | | | | | | |
| [-] ✓ FRG... | | | EO | Any | Undef... | ONE | | Device |
| | FRG_EStop | FRG_EStop | EO | TAG | Undef... | N | | PLC_IN |
| [-] ✓ FRB_BS | | | EO | Any | Undef... | N | | Device |
| | FRG_BS | FRG_BS | EO | TAG | Undef... | N | | PLC_IN |
| [-] ✓ IBN0 | | | EO | Any | Undef... | ONE | | Device |
| | IBN0 | IBN0 | EO | TAG | Undef... | N | | PLC_IN |
| [-] ✓ Reset | | | EO | Any | Undef... | ONE | | Device |
| | Reset | Reset | EO | TAG | Undef... | N | | PLC_IN |

11_42

11.4.5. Newstart, etc tags (3) ??

In PosDev make sure that tags are connected (should be already).

```

1 Network 1:-->
2 ..... TAR1-> #SAVE_AR1
3 ..... TAR2-> #SAVE_AR2
4
5 Network 2:-->
6 ..... A-> "Newstart"
7 ..... R-> #TM_STARTUP
8 ..... R-> #EN_FAST
9
10 Network 3:-->
11 ..... A-> #ERR_RESET
12 ..... FP-> #Err Reset P
13 ..... ON-> "PLC_On delayed"
14 ..... JCN-> www
15
16 Network 4:-->
17 ..... A-> "TRUE"

```

11_43

11.4.6. Test

20160209 TERRY: not work yet, so I modified pics (to show how things should be).

1. Click "Send to TIA Portal".
2. Open the project in TIA portal. Verify the following:
 - 2a. Program blocks (same as in 11.4).
 - 2b. OB Main call (same as in 11.4).
 - 2c. RB_AT code.

The screenshot displays four networks of a PLC program:

- Network 9:** Contains a CALL instruction: CALL "PosDev_2D2S2P", "=EOATMcc001.EOTLcc002.EOGLcc001.POSDEVDB"
- Network 10:** Contains a CALL instruction: CALL "G120x", "=EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.G120DB"
- Network 11:** Contains a sequence of instructions:

| | | | |
|---|----|--|-------|
| 1 | A(| | |
| 2 | A | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc001.CH" | %I1.0 |
| 3 | A | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc002.CH" | %I1.2 |
| 4 | O | | |
| 5 | A | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc003.CH" | %I1.3 |
| 6 | A | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc004.CH" | %I1.4 |
- Network 12:** Contains a sequence of AN instructions:

| | | | |
|---|----|--|-------|
| 2 | AN | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc001.CH" | %I1.0 |
| 3 | AN | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc002.CH" | %I1.2 |
| 4 | AN | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc003.CH" | %I1.3 |
| 5 | AN | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc004.CH" | %I1.4 |

11_44

20160209 TERRY ERROR: Ambiguous address... same address for 2 tags?

The error message highlights a conflict in tag addresses:

| | | |
|---|--|-------|
| A | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc000.CH" | %I1.0 |
| ! | Access to "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc000.CH" with ambiguous address. | %I1.2 |
| X | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc002.CH" | %I1.2 |
| | Access to "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc000.CH" with ambiguous address. | %I1.3 |
| | "=EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc003.CH" | %I1.3 |

2d. PosDev (ERROR, not sent to TIA).

```

1 Network 1:-
2 ..... TAR1- #SAVE_AR1-
3 ..... TAR2- #SAVE_AR2-
4 .....
5 Network 2:-
6 ..... A- "Newstart"-
7 ..... R- #TM_STARTUP-
8 ..... R- #EN_FAST-
9 .....
10 Network 3:-
11 ..... A- #ERR_RESET-
12 ..... FP- #Err_Reset_P-
13 ..... ON- "PLC_On delayed"-
14 ..... JCN www-
15 .....
16 Network 4:-
17 ..... A- "TRUE"-
    
```

11_45

2e. G120x (contains no dynamized SW or tags) (ERROR, not sent to TIA).

```

1 Network 1:-
2 ..... TAR1- #SAVE_AR1- // Save address register 1-
3 ..... TAR2- #SAVE_AR2- // Save address register 2-
4 .....
5 .....
6 Network 2:-
7 ..... LAR1- #STW-
8 ..... TAR2- // Offset as absolute value of address x
9 ..... +AR1-
10 ..... L- #INPUT_ADDR-
11 ..... T- DI-
12 .....
13 Network 3:-
14 ..... A- #EM_STOP- // SiFa-
15 ..... =- #En_OK- // Control voltage On-
16 .....
    
```

11_46

2f. Tags.

20160209 TERRY: make sure not using same address space.

| PLC tags | | | |
|----------|--|-----------|----------|
| | Name | Data type | Address |
| 1 | Newstart | Bool | %M3.1 |
| 2 | PLC_On delayed | Bool | %M2.7 |
| 3 | TRUE | Bool | %M2.2 |
| 4 | CPulse_0_1s | Bool | %M4.0 |
| 5 | RLO 1 | Bool | %M3.2 |
| 6 | Blif | Bool | %M4.4 |
| 7 | RLO 0 | Bool | %M3.3 |
| 8 | FRG_EStop | Bool | %M4003.1 |
| 9 | FRG_B5 | Bool | %M4002.1 |
| 10 | IBNO | Bool | %M3.6 |
| 11 | reset | Bool | %M11.2 |
| 17 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc001.CH | Bool | %I1.0 |
| 15 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc002.CH | Bool | %I1.1 |
| 12 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc003.CH | Bool | %I1.2 |
| 13 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc004.CH | Bool | %I1.3 |
| 24 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID0 | DWord | %ID2100 |
| 25 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID1 | DWord | %ID2104 |
| 26 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID2 | DWord | %ID2108 |
| 27 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PQD0 | DWord | %QD2112 |

11_47

12. Create/instantiate template (20160422)

This chapter shows you how to create and instantiate a template.



This chapter describes:

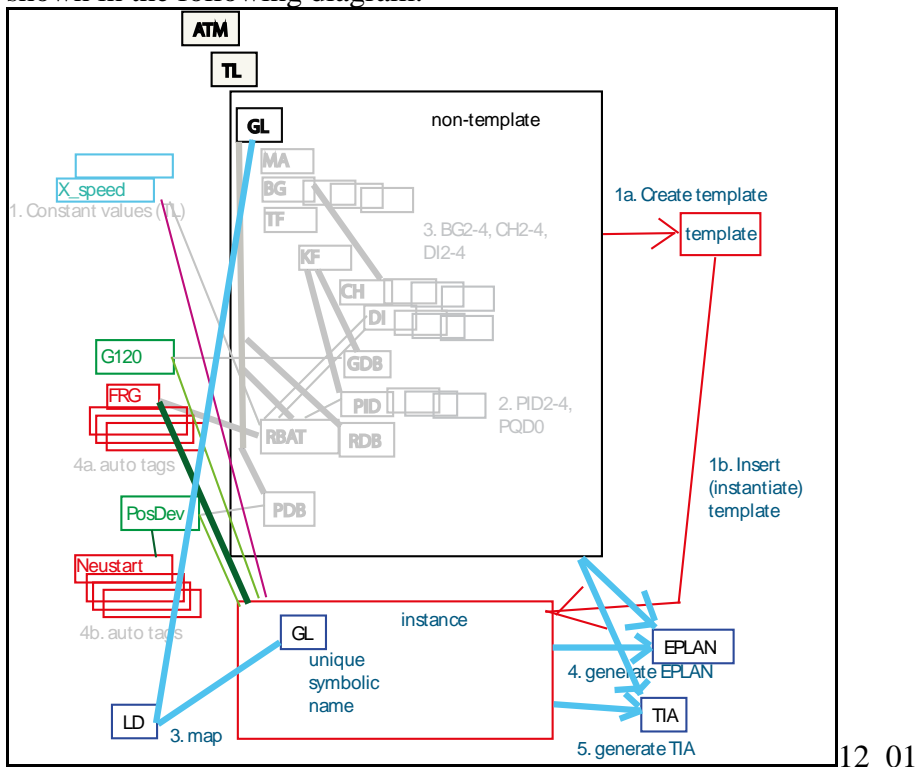
- 12.1. Overview (NEW)
- 12.2. Create template
- 12.3. Insert template
- 12.4. Map LD
- 12.5. Generate EPLAN
- 12.6. Generate TIA

12.1. Overview (NEW)

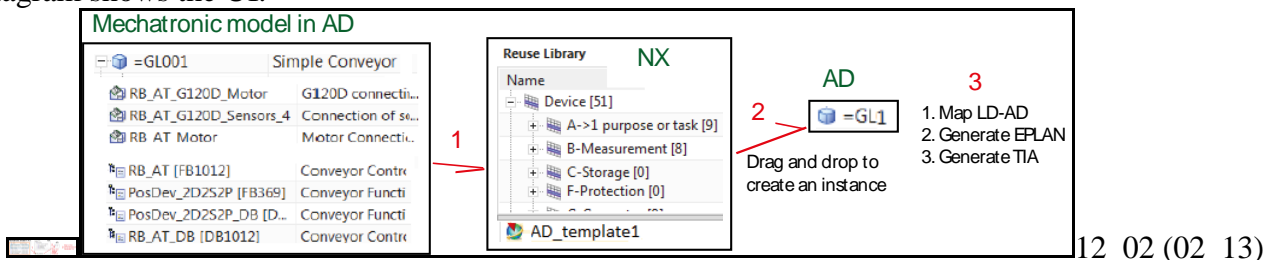
This chapter shows how to

1. Create a template and store in the reuse (solution) library.
2. Instantiate a template instance (for a conveyor).
3. Map the GL EO of the instantiated conveyor to the LD conveyor DE.
4. Generate ECAD documents.
5. Generate PLC application SW.

This is shown in the following diagram.

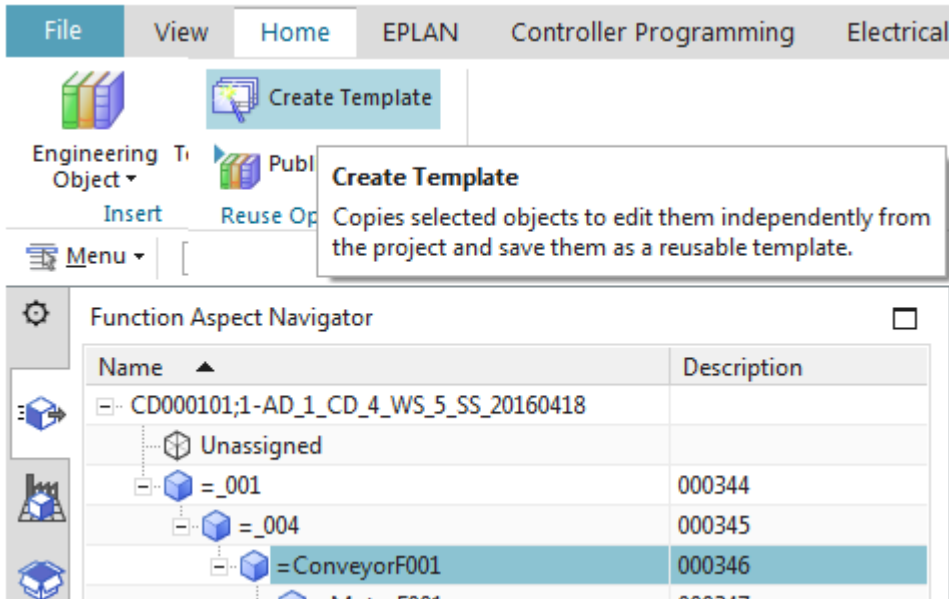


This diagram shows the UI.

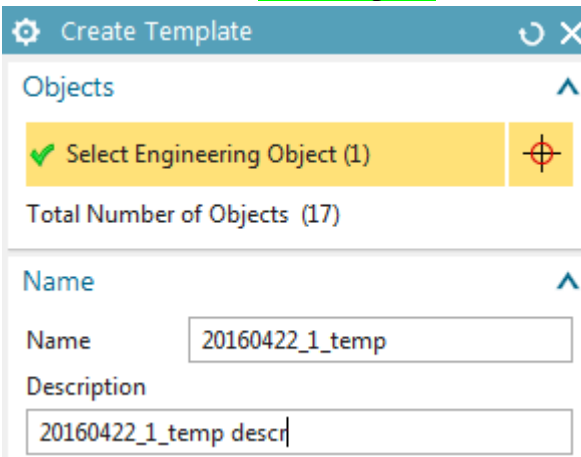


12.2a. Create template 20160422

1. Select GL01. Click "System Design / Create Template".

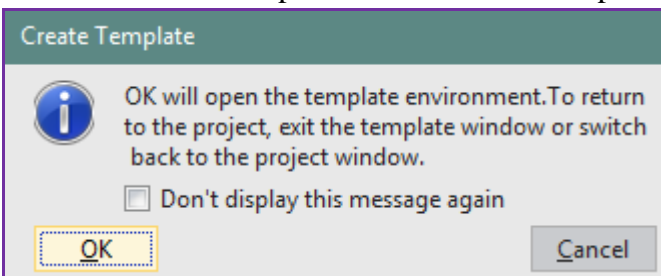


For "Name" enter "GL_Template".



20160209 TERRY: What is fragment?

2. Click OK. The template is shown in the template editor.



12_04

Don't see classification for templates....

5. For "Classification" select "Classification Root / Engineering Object / Template". ??????

The image shows two parts of a software interface. The top part is a tree view titled "Classification Class" with a blue header. It lists several categories: Device, Devicefunction, EPLAN Macro, PLC, Software, and Block. The "Block" category is expanded, showing sub-items: DB, FB, FC, and OB. The "Block" item is highlighted with a blue selection bar. Below this is a "Properties" section with a table:

| Name | Value |
|------------------|-------|
| 1 AutoNumber | |
| 2 Character Code | |

The bottom part of the image shows the "Function Aspect Navigator" with a table:

| Name | Description |
|------------------|----------------|
| 20160422_1_temp | |
| Unassigned | |
| =ConveyorF001 | 000346 |
| =MotorF001 | 000347 |
| =SensorF001 | 000348 |
| =DrivePowerF001 | 000351 |
| EPLAN Page Macro | Description250 |
| RB_AT | |
| PosDev_2D2S2P | |
| RB_AT_DB | |

3. Select "File / Close / Close template".

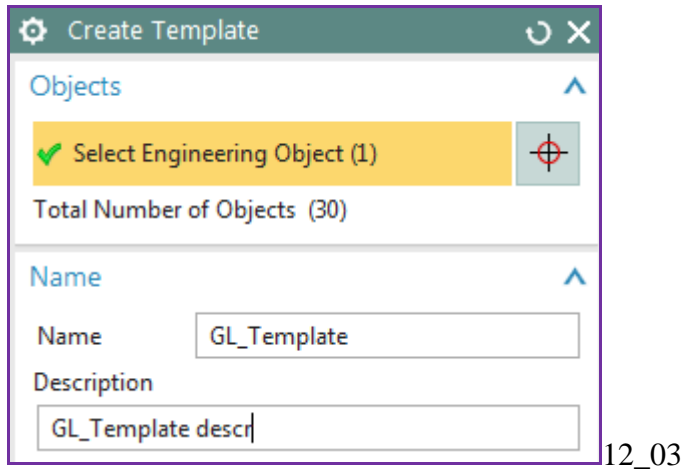
The image shows a software interface with a menu bar: File, View, Home, EPLAN, Controller Programming, Electrical Engineering. The "File" menu is open, showing options: New, Open... (Ctrl+O), Close, and Save. The "Close" option is selected, and a sub-menu is visible with "All Parts" (Closes all parts and keeps the session running.) and "Close Template" (Closes the template file.). A tooltip for "Close Template" says "Closes the template file." Below the menu is a warning message box:

Warning: The Template includes objects in the Unassigned folder. When inserted into the Project, the objects will always be inserted into the Unassigned folder in the relevant Aspect.

Don't display this message again

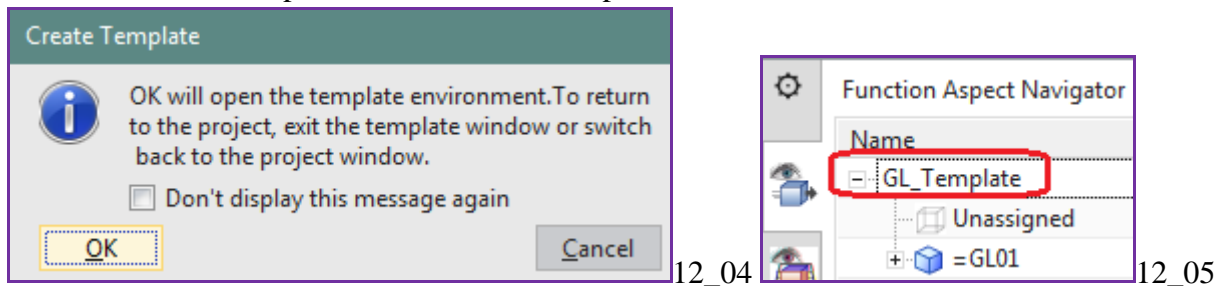
12.2b. Create template

1. Select GL01. Click "System Design / Create Template". For "Name" enter "GL_Template".



20160209 TERRY: What is fragment?

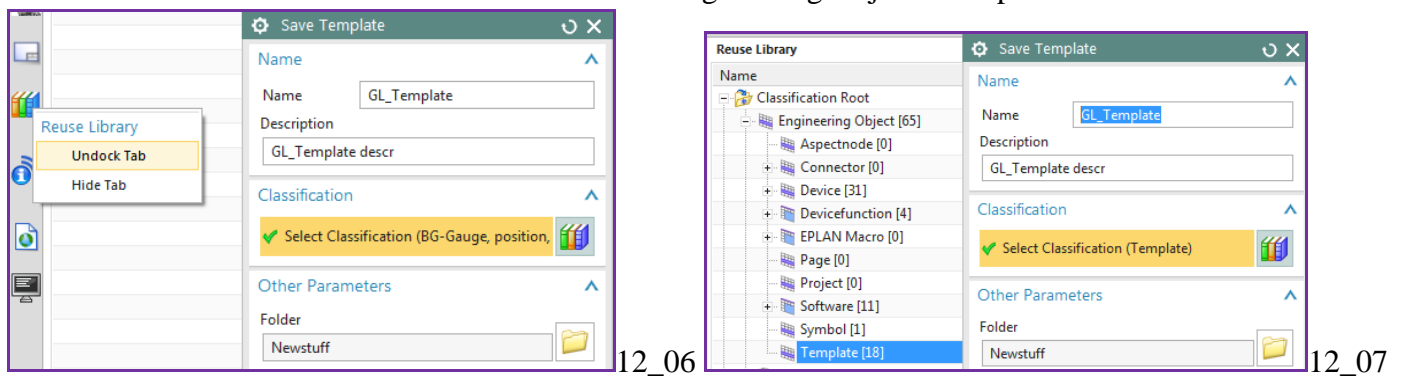
2. Click OK. The template is shown in the template editor.



3. Select "File / Close / Close template".

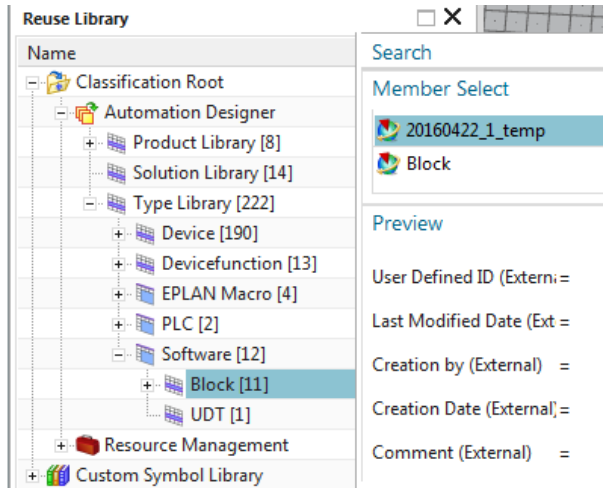
4. Click "Yes, save and close".

5. For "Classification" select "Classification Root / Engineering Object / Template".

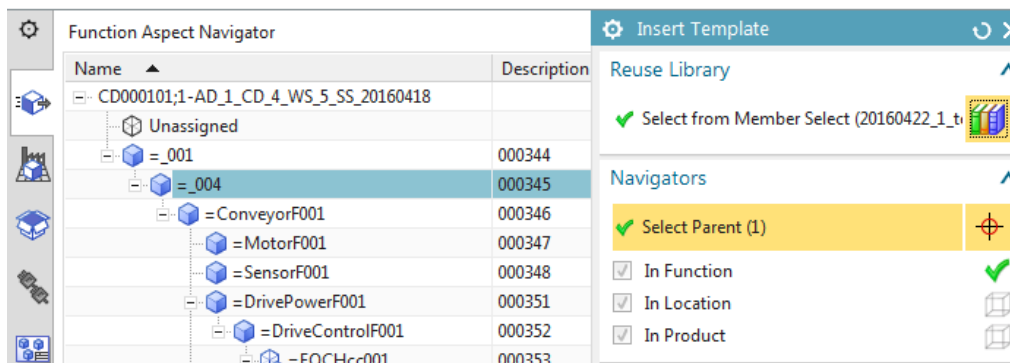


6. Click OK.

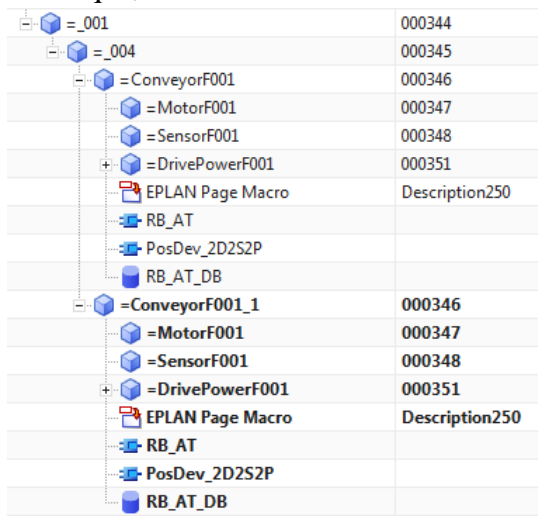
12.3a. Insert template 20160422



1. Undock the Reuse Library.
2. In the Reuse Library select "Classification Root / Engineering Object / Template".
3. Drag & drop the template from the member select. The "Insert Template" dialog appears.
4. Click on "Select Aspect".
5. Click on TL01.



6. Click OK. The template instance is added. Change the name of the GL EO in the instance (this name must be unique, but the names of sub-EOs match those in the other conveyor).



Wow... some of it worked 😊

Configurations

Interface

| Name | Value | Name | Value |
|----------------|--|--------------|-------------------|
| Global Symbols | | Input | =ConveyorF001_1 |
| Tags | | Output | =MotorF001 |
| FRG_EStop | FRG_EStop | InOut | =SensorF001 |
| FRG_BS | | Static | + =DrivePowerF001 |
| IBNO | | MEMO_ADV | EPLAN Page Macro |
| reset | | MEMO_RTN | RB_AT |
| Pos_front_left | 001_004.ConveyorF001_1.SensorF001_CH S_ADV | POSIT_LS_RTN | PosDev_2D2S2P |
| slow_forw | | LAMP_LS_ADV | RB_AT_DB |
| pos_back_left | | | |
| slow_back | | | |
| FB/IDB | | | |
| PosDev_2D2S... | | | |
| G120x_DB | | | |
| FC | | | |
| DB | | | |

| PLC Code | |
|----------|-------------------------|
| 1 | Network 1:→ |
| 2 | ----- A→ "FRG_EStop"→ |
| 3 | ----- A→ "FRG_BS"→ |
| 4 | ----- ⇒ #ENABLE_SAFETY→ |

```

Network 9:→
----- CALL→ "PosDev_2D2S2P",→ "PosDev_2D2S2P_DB"→
----- EN_ADV := → #ENABLE_ADV→
----- EN_RTN := → #ENABLE_RTN→
-----

```

```

80 Network 10:→
81 /////  

82  

83

```

```

84 Network 11:→
85 ----- A(→
86 ----- A→ "001_004.ConveyorF001_1.SensorF001_CH"→
87 ----- A→ "slow_forw"→
88 ----- O→
89 ----- A→ "pos_back_left"→
90 ----- A→ "slow_back"→
91 ----- )→
92 ----- AN #OUT_ADV→
93 ----- AN #OUT_RTN→
94 ----- ⇒ #CONVEYOR_OCCUPIED→
95

```

RBAT ports

Source

FB033

Ports

| Port | Connected Object | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|------------------|--------------------------------------|----------------|---------------|-----------------|------------|-------------|-------------------------------------|
| User Defined | | | | | | | |
| Caller_1 | | | EO | Caller | Undirected | N | IDB_Proxy, FC_Proxy |
| System Defined | | | | | | | |
| Block_C | | | Control Scope | Program Block | Undirected | 1 | Controller |
| FRG_EStop | FRG_EStop | FRG_EStop | EO | Tag_Proxy | Undirected | 1 | Tag_Proxy |
| FRG_BS | | | EO | Tag_Proxy | Undirected | N | Tag, Any, Operand |
| IBNO | | | EO | Tag_Proxy | Undirected | 1 | Tag_Proxy |
| reset | | | EO | Tag_Proxy | Undirected | 1 | Tag_Proxy |
| Pos_front_left | 001_004.ConveyorF001_1.SensorF001_CH | D11 | EO | Tag_Proxy | Undirected | 1 | Tag_Proxy |
| slow_forw | | | EO | Tag_Proxy | Undirected | N | Tag, Any, Operand |
| pos_back_left | | | EO | Tag_Proxy | Undirected | 1 | Tag_Proxy |
| slow_back | | | EO | Tag_Proxy | Undirected | 1 | Tag_Proxy |
| PosDev_2D2S2P_DB | | | EO | Caller | Undirected | N | IDB_Proxy, FC_Proxy |
| G120x_DB | | | EO | Caller | Undirected | N | IDB_Proxy, FC_Proxy |
| FB033 | DB012 | RB_AT | EO | FB_Proxy | Undirected | N | Any, FB, Operand, FB, Program Block |
| DB012 | | | EO | FB | Undirected | 1 | FB_Proxy |

Try to fix

CD000101;1-AD_1_CD_4_WS_5_SS_20160418

Ports Manager

Source: FB034

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|---------|-----------------|----------------|---------------|-----------------|------------|-------------|-------------------------------------|
| Block_C | | | Control Scope | Program Block | Undirected | 1 | Controller |
| FB034 | | | EO | FB_Proxy | Undirected | N | Any, FB, Operand, FB, Program Block |

Manual Connection
Connects ports manually.

PLC HW

- S7-300-Station_2
- S7-300-Station_2
- S7300/ET200M station_1
- S7300/ET200M station_1
- PLC data types
- Program blocks
 - G120x_DB [DB2]
 - PosDev_2D2S2P_DB [DB9]
 - Main [OB1]
 - PosDev_2D2S2P [FB369]
 - 001_004.ConveyorF001_RB [FB1012]
 - RB_AT_DB [DB1012]
 - G120x [FB307]
- Local modules
 - Rail_0
 - PLC_2
- PLC tags

Manual Connection

Source: FB034

Target: Select Object (1)

| Port | Connected Object | Connected Port | Port Type | Conn |
|-------|------------------|----------------|-----------|------|
| G120x | | | EO | FB |
| | FB020 | FB020 | EO | |

Manual Connection

The target port has cardinality = 1 and it is already connected. Do you want to overwrite the connection?

So that's the problem?

Ports Manager

Source: DB006

Ports: G120x_DB [DB2]

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|---------|------------------|----------------|---------------|-----------------|------------|-------------|---|
| Block_C | | | Control Scope | Program Block | Undirected | 1 | Controller |
| G120x | S7300/ET200M ... | Station_C | Control Scope | Controller | Undirected | N | PLC Tag, Program Block, Object, PLC Data Type |
| G120x | | | EO | FB | Undirected | 1 | FB_Proxy |
| DB006 | | | EO | FB_Proxy | Undirected | N | Any, FB, Operand, FB, Program Block |
| | | | EO | IDB_Proxy | Undirected | N | Any, Caller, Operand, Program Block, IDB |
| | | | EO | Caller | Undirected | N | IDB_Proxy, FC_Proxy |
| | | | EO | Caller | Undirected | N | IDB_Proxy, FC_Proxy |

Lets try with posdev

The screenshot shows the SIMATIC Manager interface. On the left is the Automation Navigator tree with a project structure including PLC HW, PLC data types, Program blocks, Local modules, and PLC tags. In the center is the Ports Manager dialog, showing a list of ports with 'FB035' selected. On the right is the Manual Connection dialog, where 'FB035' is entered in the Source field and 'Pos...' is selected in the Target field. Below the Manual Connection dialog is a table of connectable types.

| Connectable types |
|----------------------|
| Controller |
| Tag_Proxy |
| Tag_Proxy |
| Tag_Proxy |
| Tag_Proxy |
| Tag_Proxy |
| Tag_Proxy |
| Tag_Proxy |
| Tag_Proxy |
| Any, FB, Operand, FE |

| Object | Symbol | Address | Port | Object Type | Direction | Number | Connectable types |
|--------|--------|---------------|------|-------------|------------|--------|-------------------------------------|
| FB035 | DB007 | PosDev_2D2S2P | EO | FB_Proxy | Undirected | N | Any, FB, Operand, FB, Program Block |
| | | | EO | FB | Undirected | 1 | FB_Proxy |

The screenshot shows the SIMATIC Manager interface with the PLC code editor open. The code includes several networks, with Network 9 highlighted. A 'Replace by Call' dialog box is open, showing the 'PosDev_2D2S2P_DB' parameter being replaced. The dialog includes a 'Define Parameters' section with a table of parameters.

| Parameter | Value | Type |
|-----------|-------|------|
| EN_ADV | | Bool |
| EN_RTN | | Bool |
| IL_ADV | | Bool |
| IL_RTN | | Bool |
| PB_ADV | | Bool |
| PB_RTN | | Bool |

Do for g120x also.

```

44 Network 9:
45 CALL "PosDev_2D2S2P", "PosDev_2D2S2P_DB"
46
47 Network 10:
48 CALL "G120x", "G120x_DB"
49

```

In non-template connections remain, so kind of a mess... figure out next week.

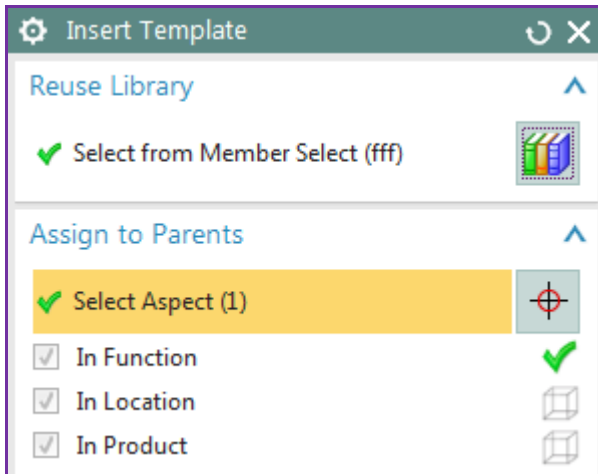
```

1 Network 1:
2 CALL "001_004.ConveyorF001_RB", "RB_AT_DB"
3
4 Main [OB1]

```


12.3b. Insert template

1. Undock the Reuse Library.
2. In the Reuse Library select "Classification Root / Engineering Object / Template".
3. Drag & drop the template from the member select. The "Insert Template" dialog appears.
4. Click on "Select Aspect".
5. Click on TL01.



12_08

6. Click OK. The template instance is added. Change the name of the GL EO in the instance (this name must be unique, but the names of sub-EOs match those in the other conveyor).

| Function Aspect Navigator | | |
|----------------------------------|-------------|--------------|
| Name | Description | Template |
| [-] CD000297;1-ADprojectworkset2 | | |
| [-] Unassigned | | |
| [-] =EOATMcc001 | EODATMname2 | |
| [-] =EOTLcc002 | EODTLname | |
| [-] =EOGLcc001 | EODGLname2 | |
| [-] =EOMAcc001 | EODMAname | |
| [-] =EOBGcc000 | EODBGname | |
| [-] =EOTFcc001 | EODTFname | |
| [-] =EOBGcc002 | EODBGname | |
| [-] =EOBGcc003 | EODBGname | |
| [-] =EOBGcc004 | EODBGname | |
| [-] RB_AT [FB1012] | | |
| [-] RB_AT_DB [DB1012] | | |
| [-] PosDev_2D2S2P_DB [DB369] | | |
| [-] =EOGLcc002 | EODGLname2 | GL_t2(0001) |
| [-] =EOMAcc001 | EODMAname | ↳GL_t2(0001) |
| [-] =EOBGcc000 | EODBGname | ↳GL_t2(0001) |
| [-] =EOTFcc001 | EODTFname | ↳GL_t2(0001) |
| [-] =EOBGcc002 | EODBGname | ↳GL_t2(0001) |
| [-] =EOBGcc003 | EODBGname | ↳GL_t2(0001) |
| [-] =EOBGcc004 | EODBGname | ↳GL_t2(0001) |
| [-] RB_AT [FB1012] | | ↳GL_t2(0001) |
| [-] RB_AT_DB [DB1012] | | ↳GL_t2(0001) |
| [-] PosDev_2D2S2P_DB [DB369] | | ↳GL_t2(0001) |

12_09

\$\$\$5b/5 12.4a. Add LD mapping (NEW 20160415)

Manage object mapping >> 1. map to existing in project

Manage Object Mapping

Actions

Map to Existing in Project | Map to New | Map to New Based on Type | Unmap

Object Mapping

Show

Unhidden Hidden Unmapped Mapped Deleted All

| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|-----------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 0000099A001127-A-... | 0000099A001127-A-1-E... | | EOGLcc004 | |

Function Aspect Navigator

Reuse Library

Name

- CD000034;1-AD_1_CD_4_WS_5_
- Unassigned
- =EOATMcc001
- F001
 - M002
 - FX001_FB
 - FX001_FB_DB
 - M002
 - M002
 - M002

Map to Existing Object

External Object

Select External Object (1)

Automation Designer

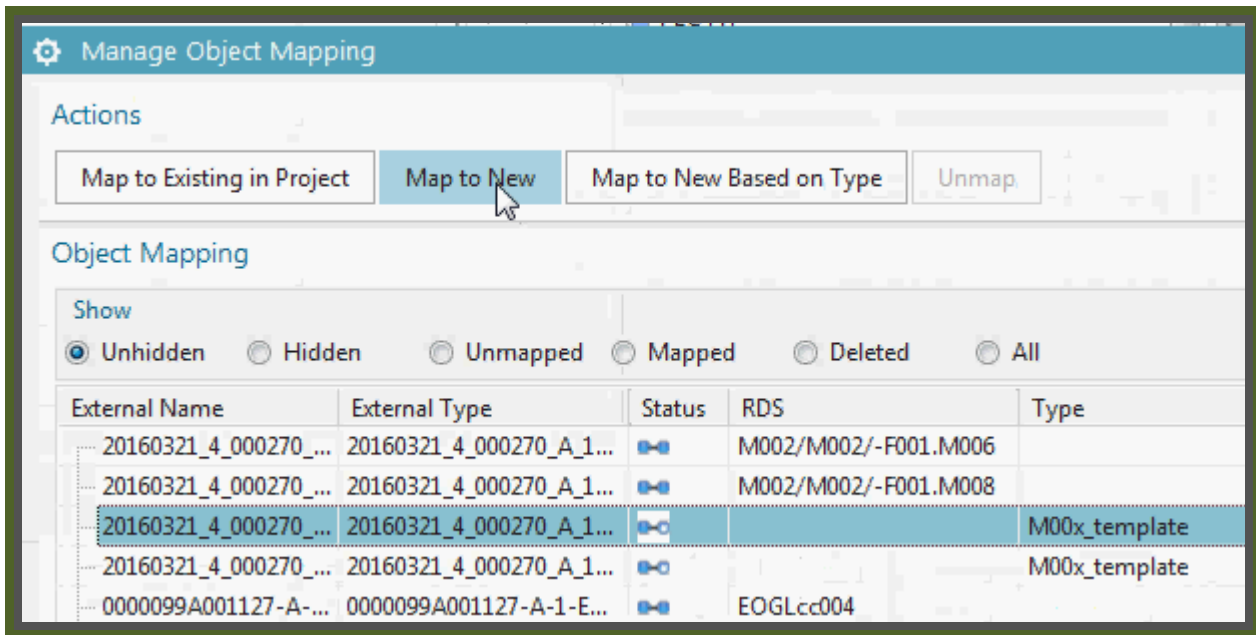
Select Engineering Object (1)

Map to Template

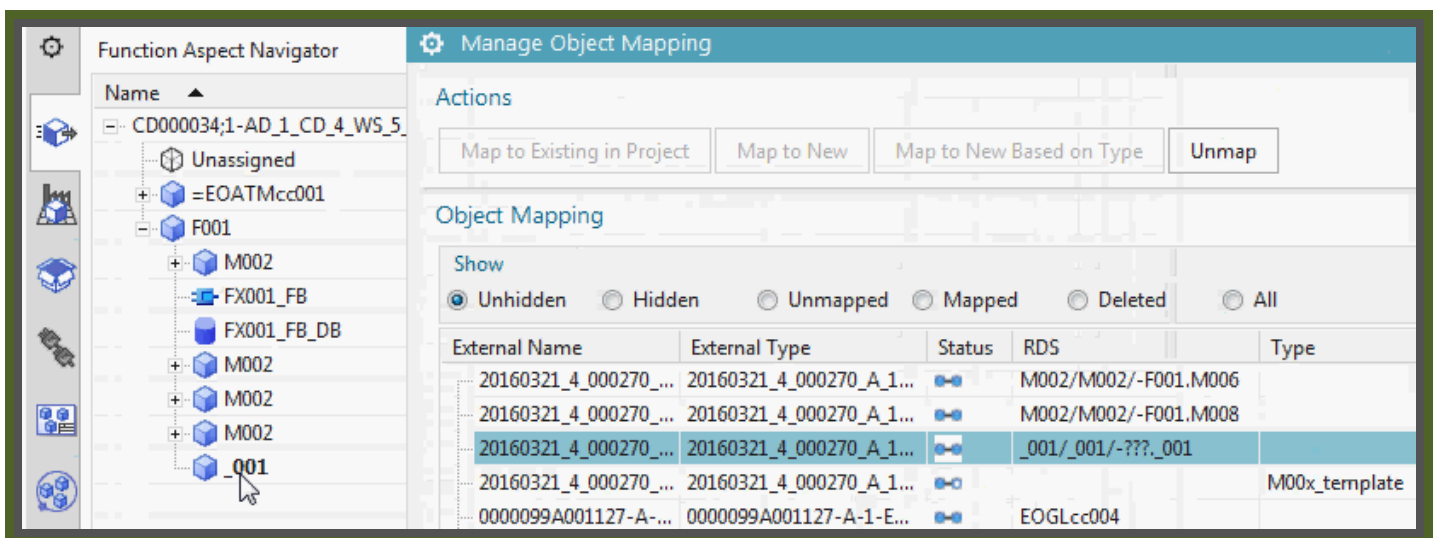
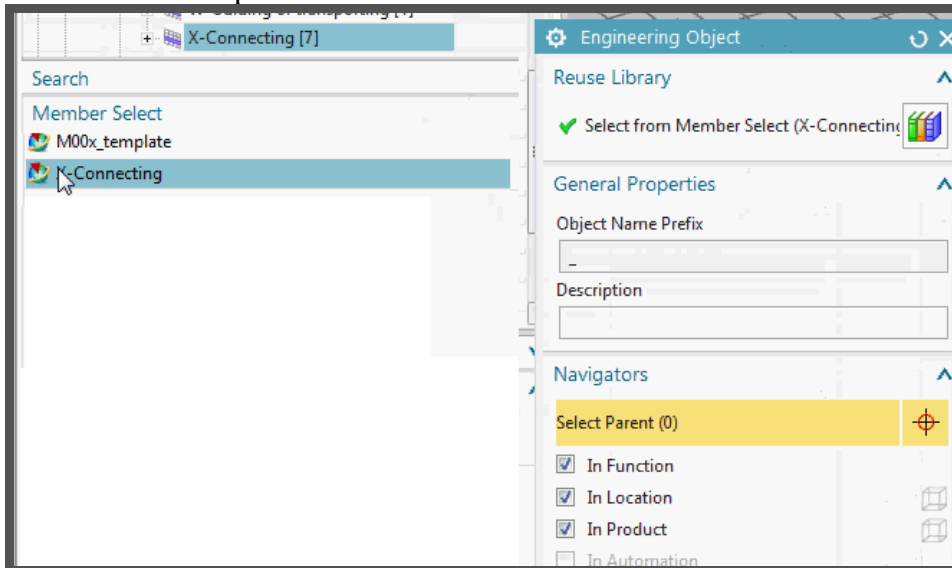
| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |

Do again to second in row.

Manage object mapping >> 2. map to new



Cannot select template.



Manage object mapping >> 3. map to new based on type

Manage Object Mapping

Actions

Map to Existing in Project Map to New **Map to New Based on Type** Unmap

Object Mapping

Show

Unhidden Hidden Unmapped Mapped Deleted All

| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M008 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | _001/_001/-???_001 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 0000099A001127-A-... | 0000099A001127-A-1-E... | | EOGLcc004 | |

| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M008 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | _001/_001/-???_001 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M00x_template(0003) | M00x_template |
| 0000099A001127-A-... | 0000099A001127-A-1-E... | | EOGLcc004 | |

CD000034;1-AD_1_CD_4_WS_5_...

- Unassigned
- M002**
- =EOATMcc001
- F001
 - M002
 - FX001_FB
 - FX001_FB_DB
 - M002
 - M002
 - M002
 - _001

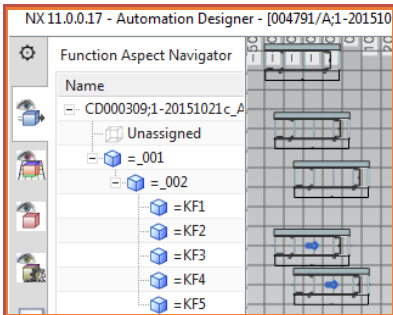
F001

- M002
- FX001_FB
- FX001_FB_DB
- M002
- M002
- M002
- _001
- M002

12.4. Add LD mapping

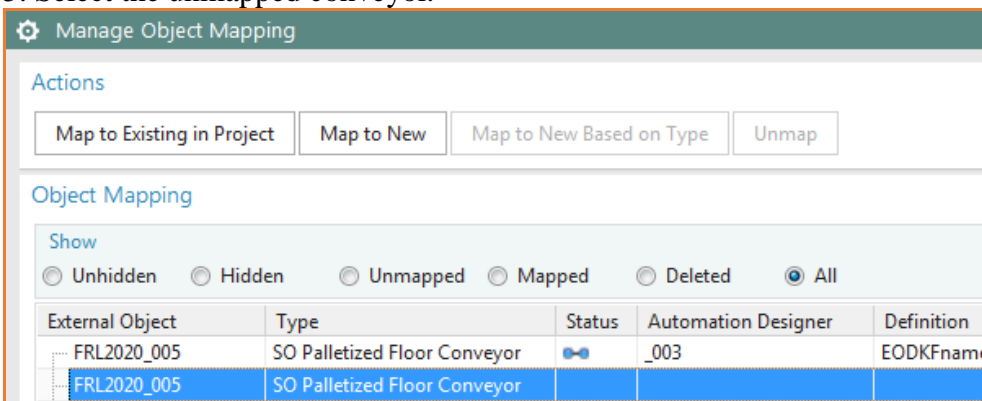
20151029 TERRY: seems like you must close everything and then open the LD CD to do the mapping?

1. Close the AD CD.
2. Open the LD CD.
3. Switch to AD.



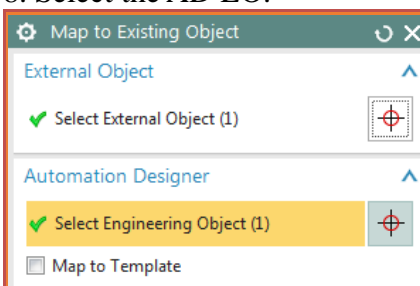
12_10

4. Click "Manage Object Mapping". The column "External Object" lists LD DE's (conveyors). The column "Automation Designer" lists AD EO's that have been mapped to an LD DE.
5. Select the unmapped conveyor.



12_11

6. Click "Map to existing".
7. Click "Select Engineering Object".
8. Select the AD EO.



12_12

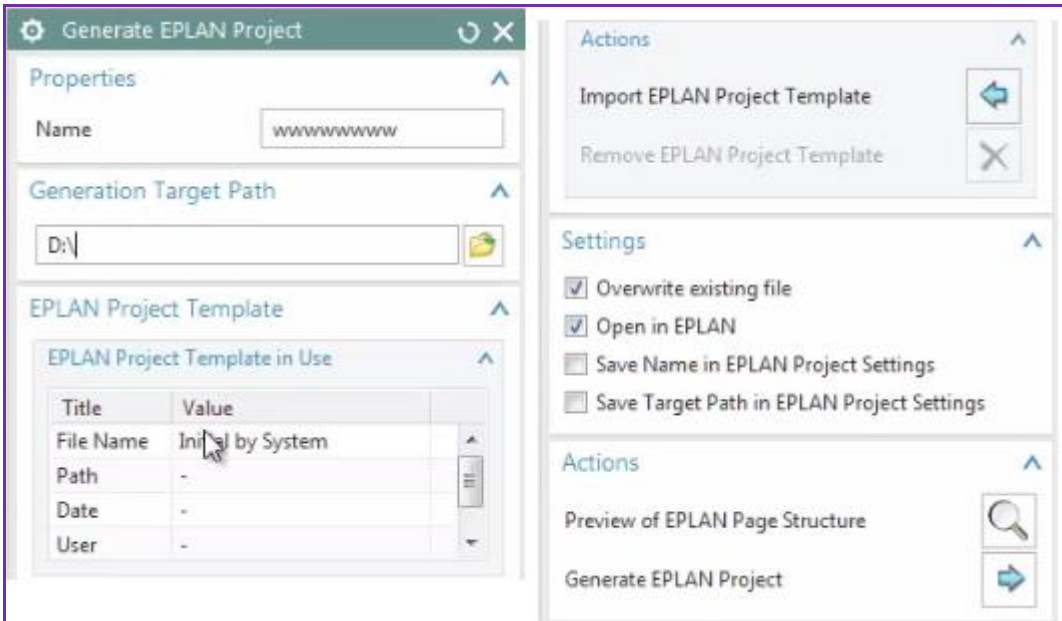
9. Click OK. The LD DE and AD EO are mapped.

| External Object | Type | Status | Automation Designer | Definition |
|-----------------|------------------------------|--------|---------------------|------------|
| FRL2020_005 | SO Palletized Floor Conveyor | Mapped | _003 | EODKfname |
| FRL2020_005 | SO Palletized Floor Conveyor | Mapped | _004 | EODKfname |

12_13

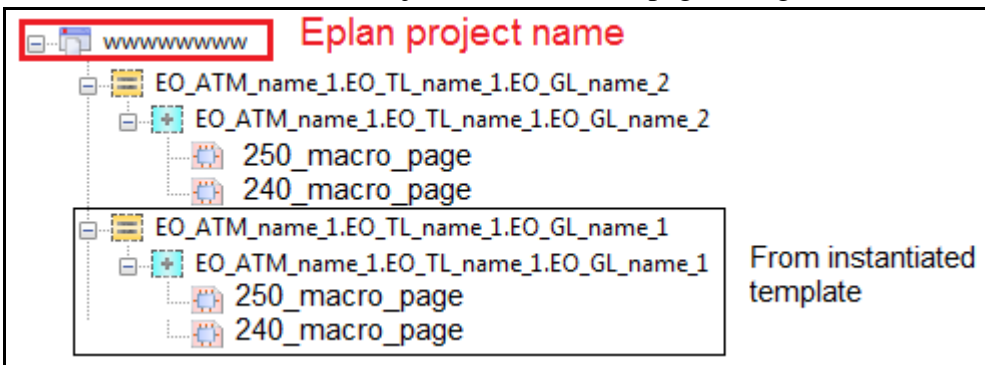
12.5. Generate EPLAN

1. Click "Electrical Engineering / Generate EPLAN Project".
2. Enter "Name" (anything) and "Generation Target Path".
3. Check "Overwrite existing file" and "Open in EPLAN".



12_14

3. Click "Generate EPLAN Project". The 2 macro pages are generated.



12_15

12.6. Generate TIA

12.5.1. FIX ERRORS in instance (TERRY internal notes)

12.6.1. Set tag addresses

12.6.2. Connect SW

12.6.4. Send to TIA

xxx 12.5.0 FIX ERRORS in instance (TERRY internal notes)

This internal section shows how to correct some errors (I imagine this will be corrected before release).

1. Fix port errors for PosDev, G120x.
2. Redo variable connections in RB_AT for G120x, PosDev.

1. Fix port errors for PosDev, G120x

1. Open RB_AT. Note the problem for the calls to PosDev and RB_AT.

```

RB_AT [FB1012]
44 Network 9:--
45      -////Caller on the position [PosDev_2D2
46
47 Network 10:--
48      -////Caller on the position [G120x_DB]
49
  
```

2. Open PosDev IDB port manager. Note that the port is not connected.

The screenshot shows the 'Ports' section of the IDB port manager. Under 'System Defined', the port 'PosDev_2D2S2P' is listed but has no 'Connected Object'.

3. Manually connect the port to the PosDev FB.

The 'Manual Connection' dialog box is open. The 'Source' is 'PosDev_2D2S2P' and the 'Target' is 'PosDev_2D2S2P_DB'. The 'Port Type' is 'INTERNAL'.

Result.

The 'System Defined' port manager now shows 'PosDev_2D2S2P' with 'PosDev_2D2S2P' as the connected object.

```

44 Network 9:--
45      CALL "PosDev_2D2S2P", "=EOATMcc0
46
47 Network 10:--
48      -////Caller on the position [G120x_DB]
49
  
```

4. Do the same for G120x.

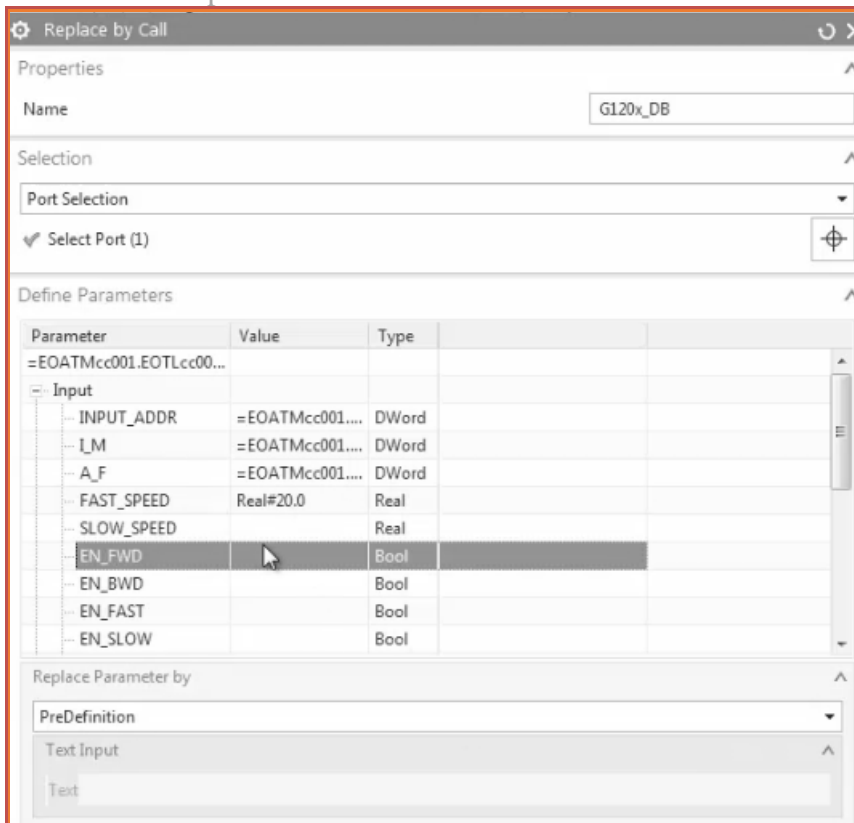
The 'System Defined' port manager now shows 'G120x' with 'G120x' as the connected object and 'INTERNAL' as the port type.

```

4 Network 9:--
5      CALL "PosDev_2D2S2P", "=EOATMcc0
6
7 Network 10:--
8      CALL "G120x", "=EOATMcc001.EOTLc
9
  
```

2. Redo variable connections in RB_AT for G120x, PosDev

1. Right-click on the call in Network 10 to G120x. Select "Edit".
2. Redefine the parameters.



Result.

```
44 Network 9:--
45     CALL "PosDev_2D2S2P", "=EOATMcc001.EOTLcc002.EOGI"
46 --
47 Network 10:--
48     CALL "G120x", "=EOATMcc001.EOTLcc002.EOGI"
49     INPUT_ADDR := "=EOATMcc001.EOTLcc002.EOGI"
50     I_M := "=EOATMcc001.EOTLcc002.EOGI"
51     A_F := "=EOATMcc001.EOTLcc002.EOGI"
52     FAST_SPEED := Real#20.0
53     OUTPUT_ADDR := "=EOATMcc001.EOTLcc002.EOGI"
```

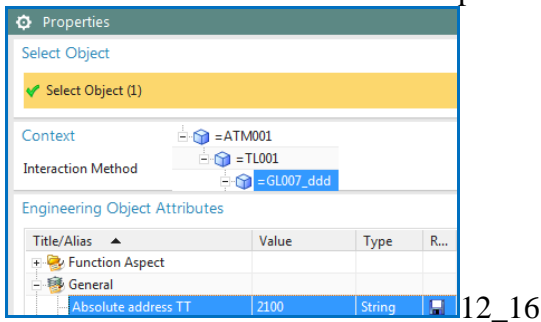

12.6.1. Set tag addresses

1. Set absolute tag address (FD7)
2. Modify DI tag HW connections
3. Modify DW tag addresses

1. Set absolute tag address (FD7)

20160209 TERRY: Andreas says in FD7 will change. Set the address of the top EO in template, and the rest have a relative address. I am not sure what to write here... just guessing.

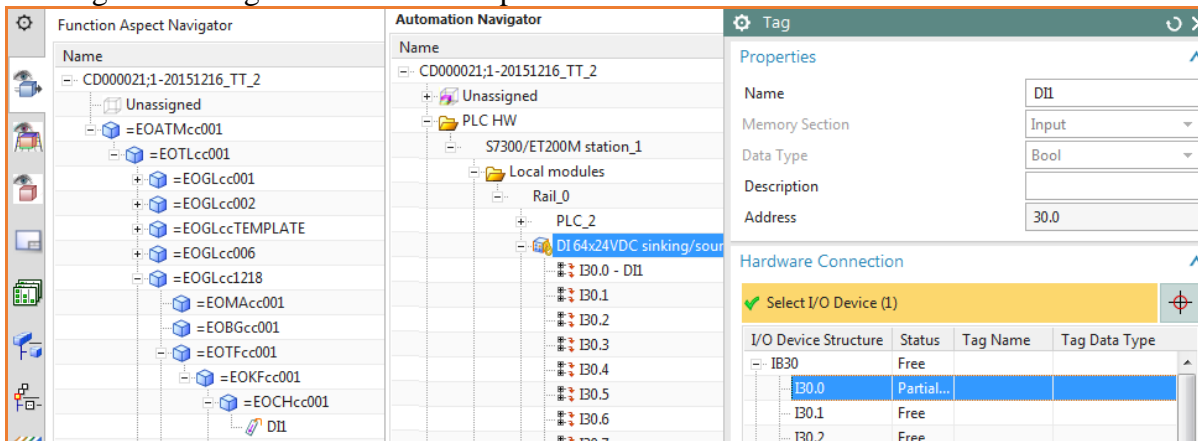
1. Set the absolute address of the top element GL to 2200 (the address of the non-template GL is 2100).



12_16

2. Modify DI tag HW connections

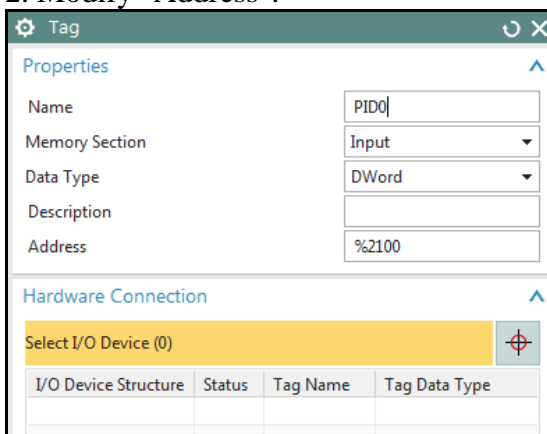
1. Assign the DI tags to an available input channel.



12_17

3. Modify DWord tag addresses

1. Right-click on the DWord tag. Select "Edit".
2. Modify "Address".



12_18

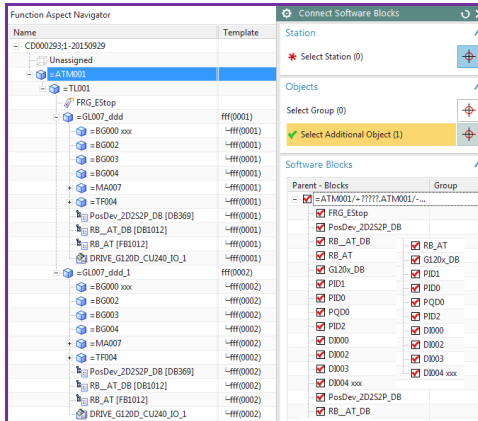
12.6.2. Connect SW

ERROR 1 20151014: missing PIDs. 002 tags missing.

11:45 Restart NX. Connect SW blocks. TO FIX ERROR restart and reconnect sw. result:

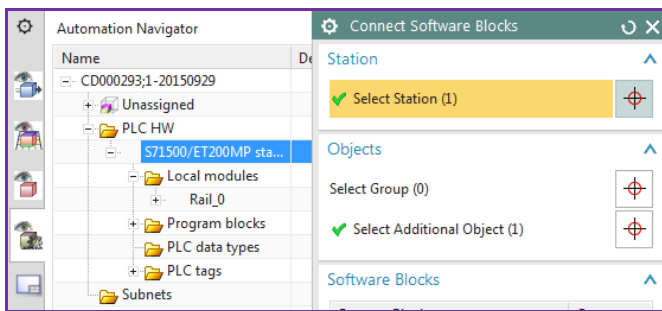
20151029

1. Click on "System Design / Connect SW Blocks".
2. Select all software blocks.



12_19

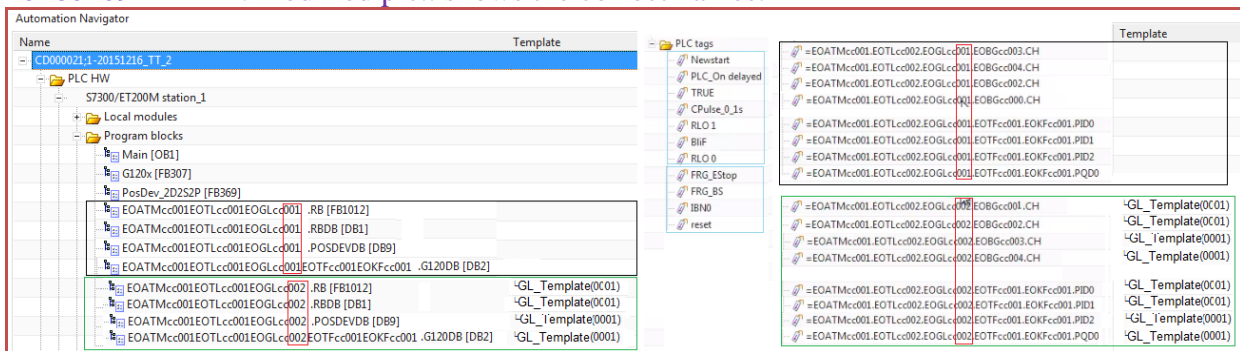
3. Select the station.



12_20

4. Click OK. The SW block and tag names are unique (because you used expressions that used the aspect EO chain to create unique SW block names).

20160209 TERRY: modified pic.. shows the correct names.



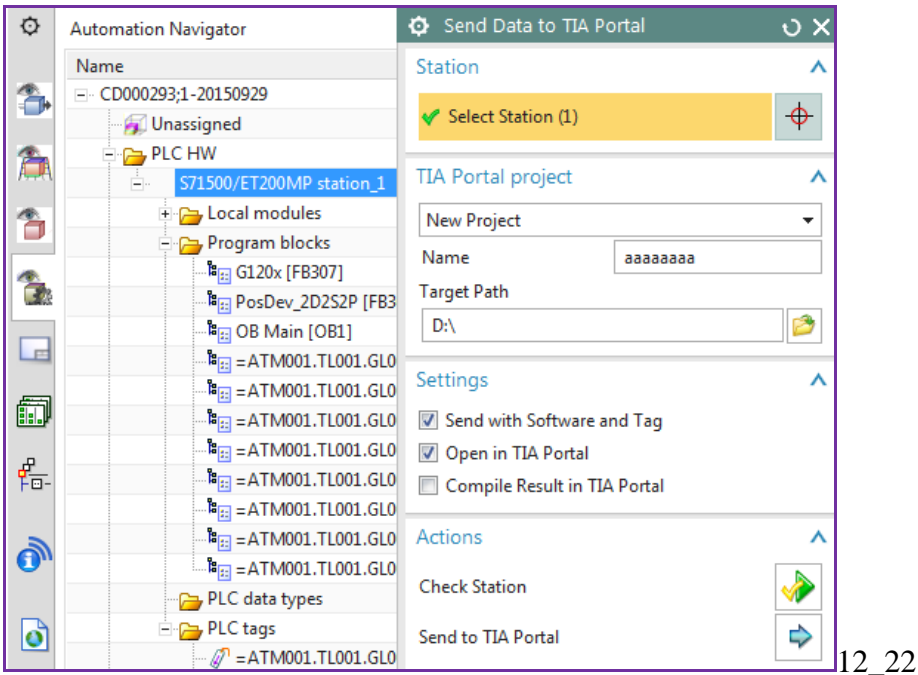
12_21

12.6.4. Send to TIA

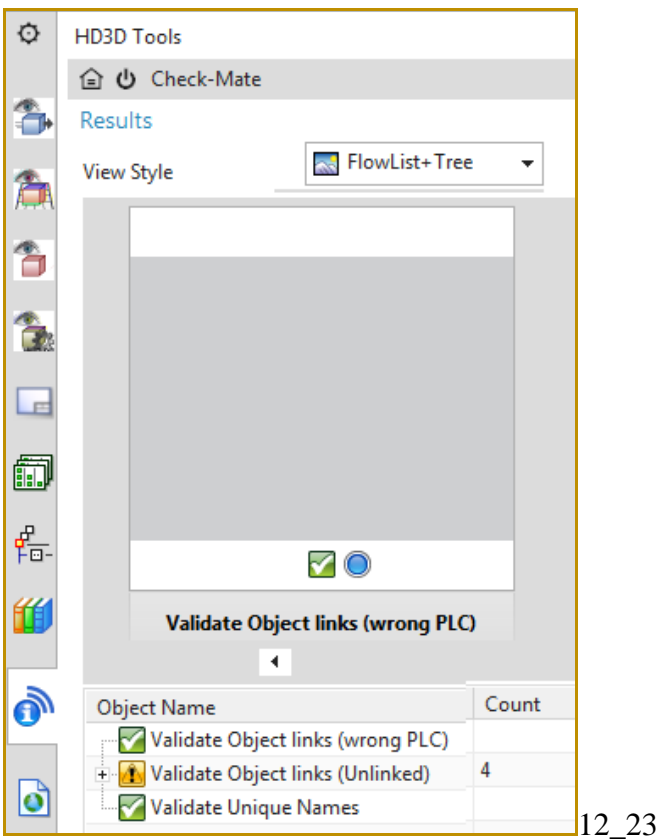
xxx12.6.3. Send Data to TIA

20150209 TERRY: serious problems with what was created in TIA.

1. Click on "Electrical Engineering / Send Data to TIA Portal".



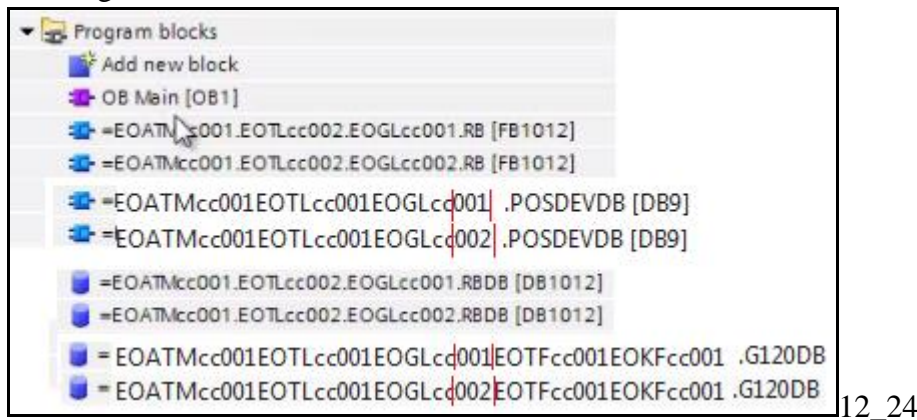
2. Click "Check Station" to check for errors.



20160209 TERRY: not work yet, so I modified pics (to show how things should be).

1. Click "Send to TIA Portal".
2. Open the project in TIA portal. Verify the following:

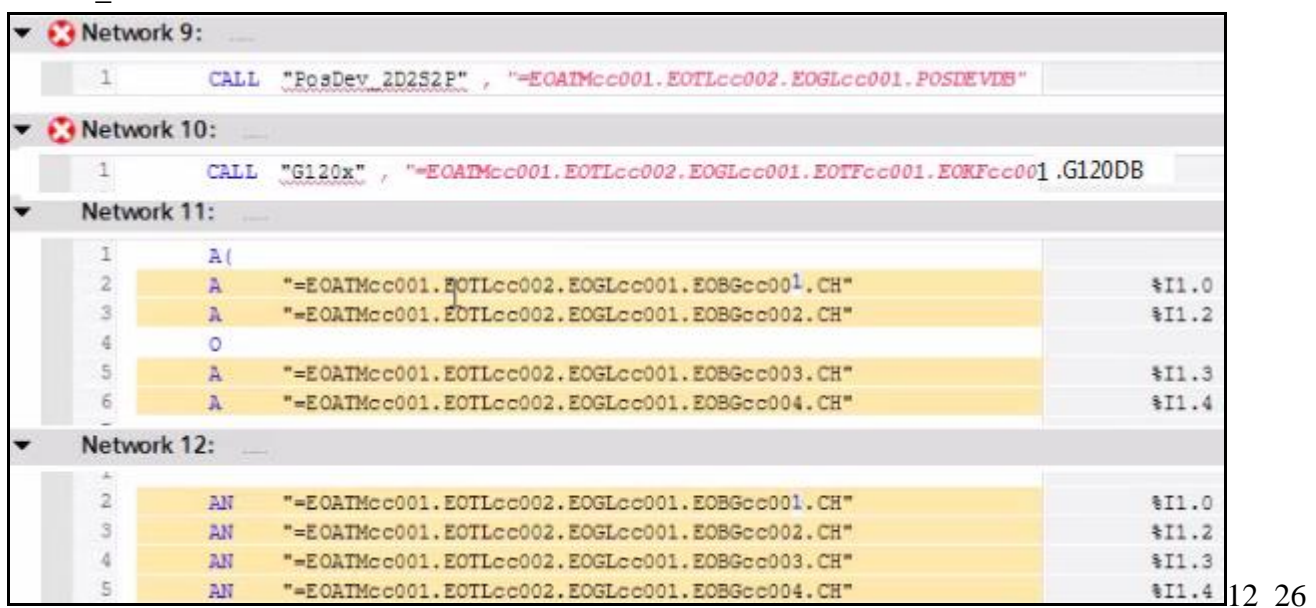
2a. Program blocks.



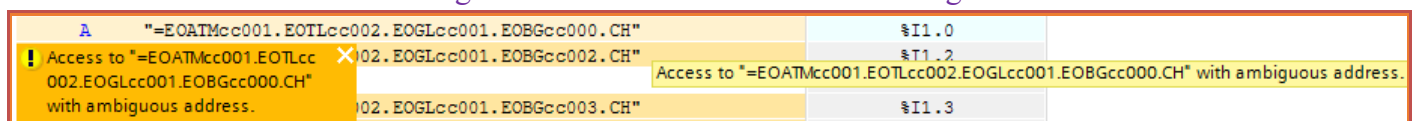
2b. OB Main call.



2c. RB_AT code.



20160209 TERRY ERROR: Ambiguous address... same address for 2 tags?



2d. PosDev (ERROR, not sent to TIA).

```

1 Network 1:-
2   ..... TAR1- #SAVE_AR1-
3   ..... TAR2- #SAVE_AR2-
4
5 Network 2:-
6   ..... A- "Newstart"-
7   ..... R- #TM_STARTUP-
8   ..... R- #EN_FAST-
9
10 Network 3:-
11  ..... A- #ERR_RESET-
12  ..... FP- #Err_Reset P-
13  ..... ON- "PLC_On delayed"-
14  ..... JCN www-
15
16 Network 4:-
17  ..... A- "TRUE"-
    
```

12_27

2e. G120x (contains no dynamized SW or tags) (ERROR, not sent to TIA).

```

1 Network 1:-
2   ..... TAR1- #SAVE_AR1- // Save address register 1-
3   ..... TAR2- #SAVE_AR2- // Save address register 2-
4
5
6 Network 2:-
7   ..... LAR1- #STW-
8   ..... TAR2- // Offset as absolute value of address x
9   ..... +AR1-
10  ..... L- #INPUT_ADDR-
11  ..... T- DI-
12
13 Network 3:-
14  ..... A- #EM_STOP- // SiFa-
15  ..... =- #En_OK- // Control voltage On-
16
17
    
```

12_28

2f. Tags.

20160209 TERRY: make sure not using same address space.

| PLC tags | | | | |
|----------|--|-----------|----------|--|
| | Name | Data type | Address | |
| 1 | Newstart | Bool | %M3.1 | |
| 2 | PLC_On delayed | Bool | %M2.7 | |
| 3 | TRUE | Bool | %M2.2 | |
| 4 | CPulse_0_1s | Bool | %M4.0 | |
| 5 | RLO 1 | Bool | %M3.2 | |
| 6 | Blif | Bool | %M4.4 | |
| 7 | RLO 0 | Bool | %M3.3 | |
| 8 | FRG_EStop | Bool | %M4003.1 | |
| 9 | FRG_BS | Bool | %M4002.1 | |
| 10 | IBNO | Bool | %M3.6 | |
| 11 | reset | Bool | %M11.2 | |
| 17 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc001.CH | Bool | %I1.0 | |
| 15 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc002.CH | Bool | %I1.1 | |
| 12 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc003.CH | Bool | %I1.2 | |
| 13 | =EOATMcc001.EOTLcc002.EOGLcc001.EOBGcc004.CH | Bool | %I1.3 | |
| 18 | =EOATMcc001.EOTLcc002.EOGLcc002.EOBGcc001.CH | Bool | %I1.4 | |
| 23 | =EOATMcc001.EOTLcc002.EOGLcc002.EOBGcc002.CH | Bool | %I1.5 | |
| 14 | =EOATMcc001.EOTLcc002.EOGLcc002.EOBGcc003.CH | Bool | %I1.6 | |
| 16 | =EOATMcc001.EOTLcc002.EOGLcc002.EOBGcc004.CH | Bool | %I1.7 | |
| 24 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID0 | DWord | %ID2100 | |
| 25 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID1 | DWord | %ID2104 | |
| 26 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PID2 | DWord | %ID2108 | |
| 27 | =EOATMcc001.EOTLcc002.EOGLcc001.EOTFcc001.EOKFcc001.PQD0 | DWord | %QD2112 | |
| 22 | =EOATMcc001.EOTLcc002.EOGLcc002.EOTFcc001.EOKFcc001.PID0 | DWord | %ID2200 | |
| 21 | =EOATMcc001.EOTLcc002.EOGLcc002.EOTFcc001.EOKFcc001.PID1 | DWord | %ID2204 | |
| 20 | =EOATMcc001.EOTLcc002.EOGLcc002.EOTFcc001.EOKFcc001.PID2 | DWord | %ID2208 | |
| 19 | =EOATMcc001.EOTLcc002.EOGLcc002.EOTFcc001.EOKFcc001.PQD0 | DWord | %QD2212 | |

12_29

\$\$\$5a/5 PART4 ch15,17 instead of Part3 ch12? (maybe in future.. not now)

20160414 TERRY: add the auto-link functionality in ch 15,17 to part1-3 example, but this would take some time.....

```
1 Network 1:→ ↵
2 CALL "001._004.ConveyorF001_RB", "RB_AT_DB"
3 ↵
4 Main [OB1]
```

Part 4. GS release 2 (20160329)

GS1 (parts 1-3) was based on a too realistic and complicated automotive example.

The GS should describe very simple, step-by-step demos that guide user through

1. complex configuration
2. complex user interface
3. bugs

And be more easily updated when have config changes (new SME, TC VM, TIA, EPLAN, etc.).

So this GS2 focuses on

1. simple examples (LD whose only part is a cylinder)
2. basic workflows
3. detailed steps for my particular setup (with many notes about errors, etc.).

I don't have much input from customers or application engineers, so guessing at many things.

GS2 describes step-by-step how to create a project with

1. single cylinder type (000270_A_1_bg_5088234_a1a_jt.prt)
2. F-protection EO
3. with multiple sub M-Motors
4. that automatically add themselves to FX001 call.
5. these components.

| | |
|-----------|---|
| TC ESX VM | 192.168.117.107 (.110 not working) |
| SME | G:\20160309_SME_NX11_1608 |
| TIA | G:\20160307_VMAD_TIAPortal_V14_I.14_B.01.7z EDAG_V14.ap14 |

Videos >>>

\\debonk10c19\ADNX\Teams\Documentation\10_Meetings

20160323_1 to _8 .mp4

(_6 is corrupt, no camtasia license, can only record in nx, nx crashed, movie corrupt, lost good video).

A future release (in SIPS or XCAT) of this complete GS2 would contain

- ch1-2 of GS1.
- this part 4.
- Real world examples (part 5). Not step-by-step, but general description.
- AD functional details (part 6).

TOC

i. workflow Overview

basic components overview

how used in real applications

what you do in this GS

A. pre-config (admin)

B. create AD template (template designer)

C. round-trips (customer; show how easy to use)

A. pre-config (LD, AD, EPLAN, TIA) (initial setup... import required parts, create CDs)

1. LD (import parts, create LD CD, create LD WS, SS).

2. AD (create AD CD, WS, SS, EO's into RL).

3. EPLAN (import into RL via AD)

4. TIA (import into RL via AD)

B. create AD template: auto-tab, aspect EO's, EPLAN/TIA, templates

7. automation tab

8. aspects (add EOs)

10. config non-template EPLAN

11. config non-template TIA

13. config template-ready EPLAN

14. config template-ready TIA

15. create / instantiate (test) templates

C. round-trips

17. LD-AD

18. AD-EPLAN

19. AD-TIA

D. dynamic connection outside of template (under construction).....

What of the above you do depends on your role:

| Role | Do |
|--|----|
| Admins | A |
| template designers | B |
| Customer (initial trainings and demos) | C |

i. workflow overview

Following diagrams I tried to create a "big picture".

basic components overview

how used in real applications

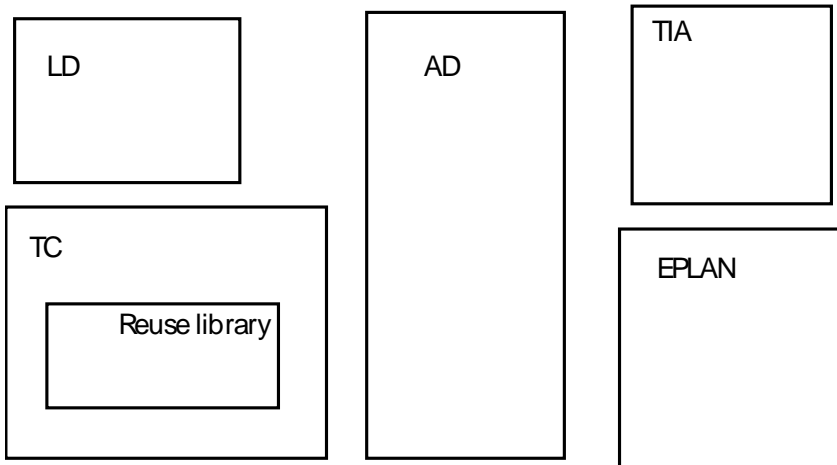
what you do in this GS

A. pre-config (admin)

B. create AD template (template designer)

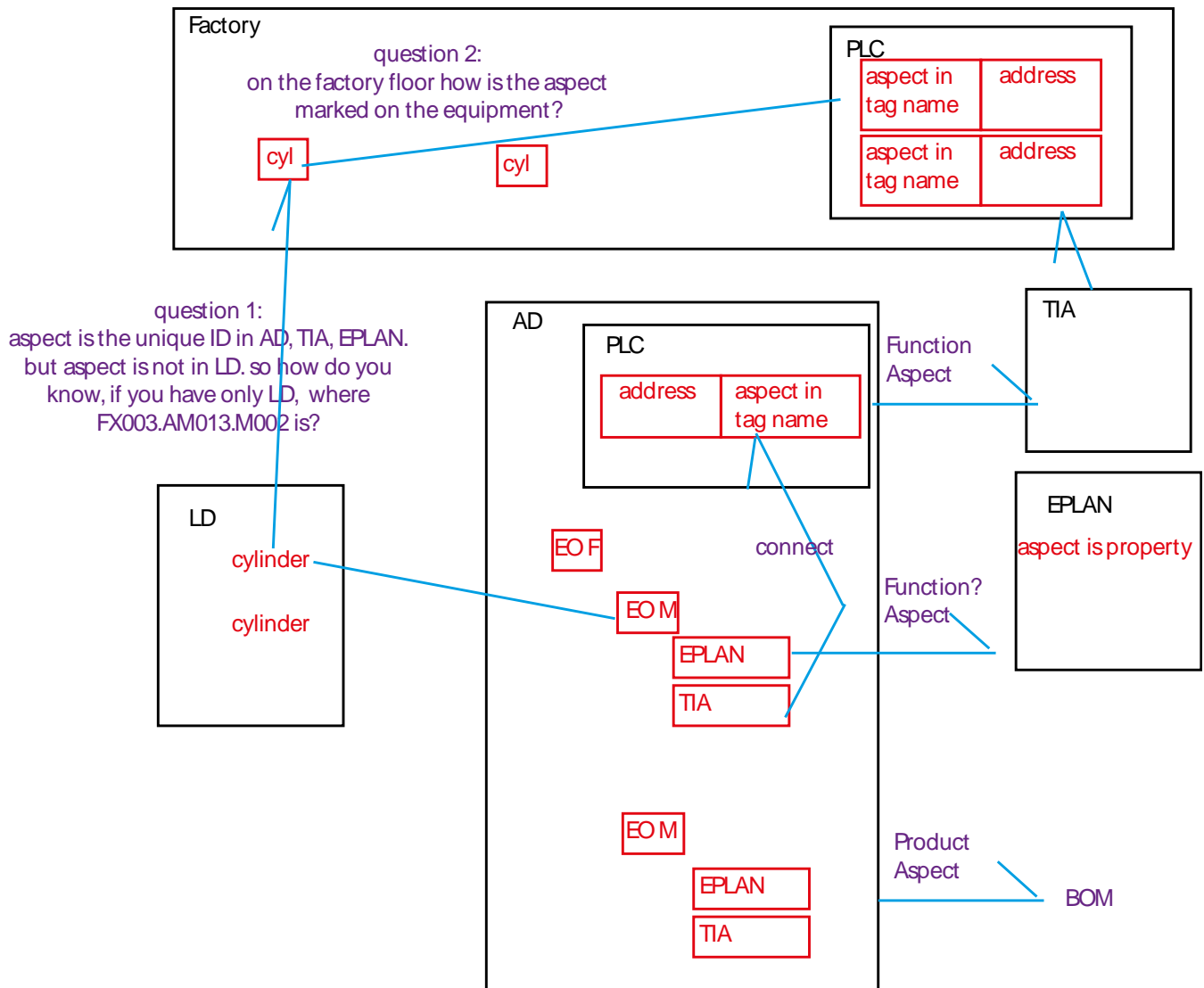
C. round-trips (customer; show how easy to use)

basic components overview



how used in real applications

TERRY: the idea here is some kind of diagram that shows how AD interacts with the factory floor. For example, how the aspects names show up on equipment, tag names, sw-blocks, etc. just my guess... don't know enough about this to complete anything.



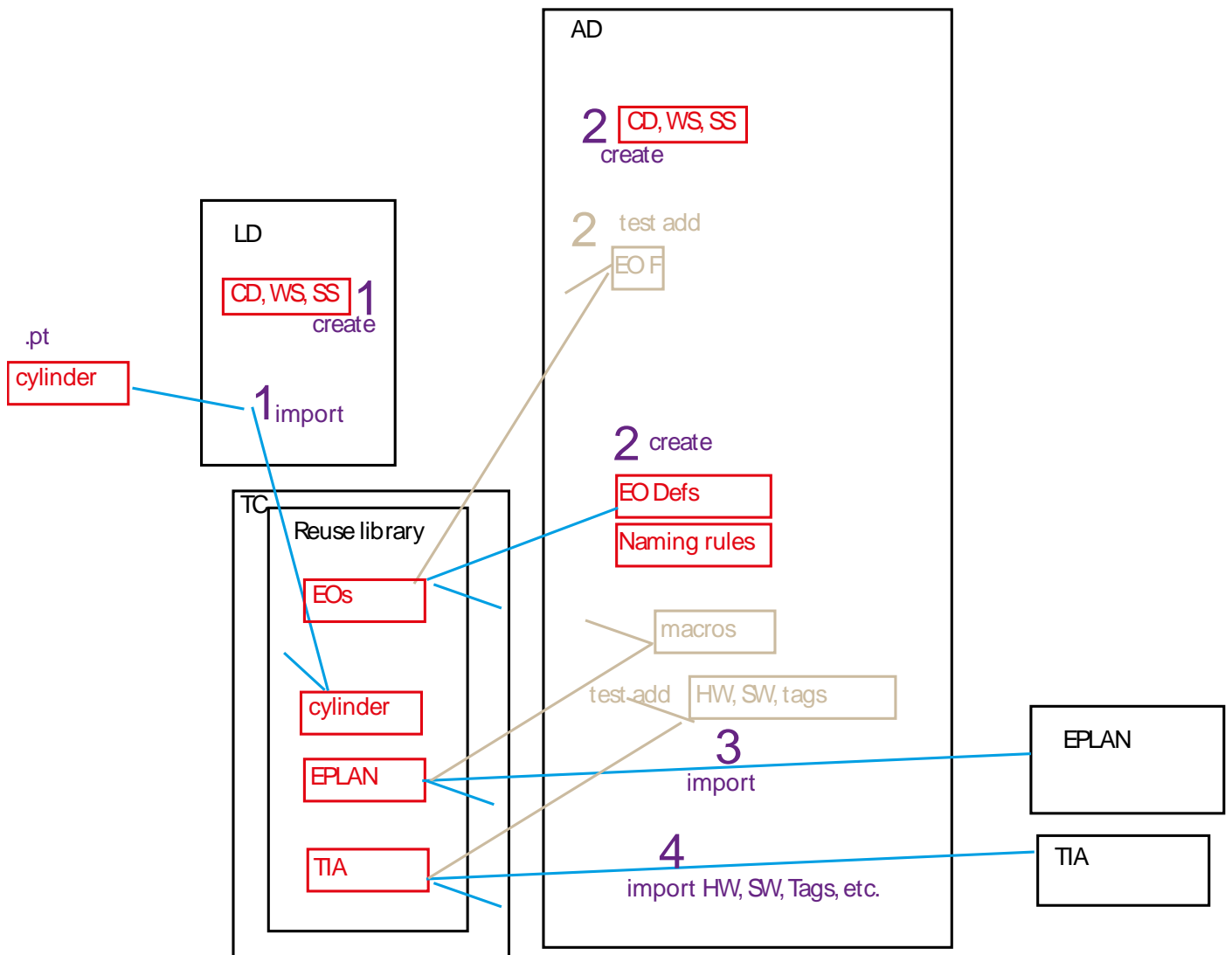
what you do in this GS

- A. pre-config (admin)
- B. create AD template (template designer)
- C. round-trips (customer; show how easy to use)

Note: the big purple numbers are chapter-section.

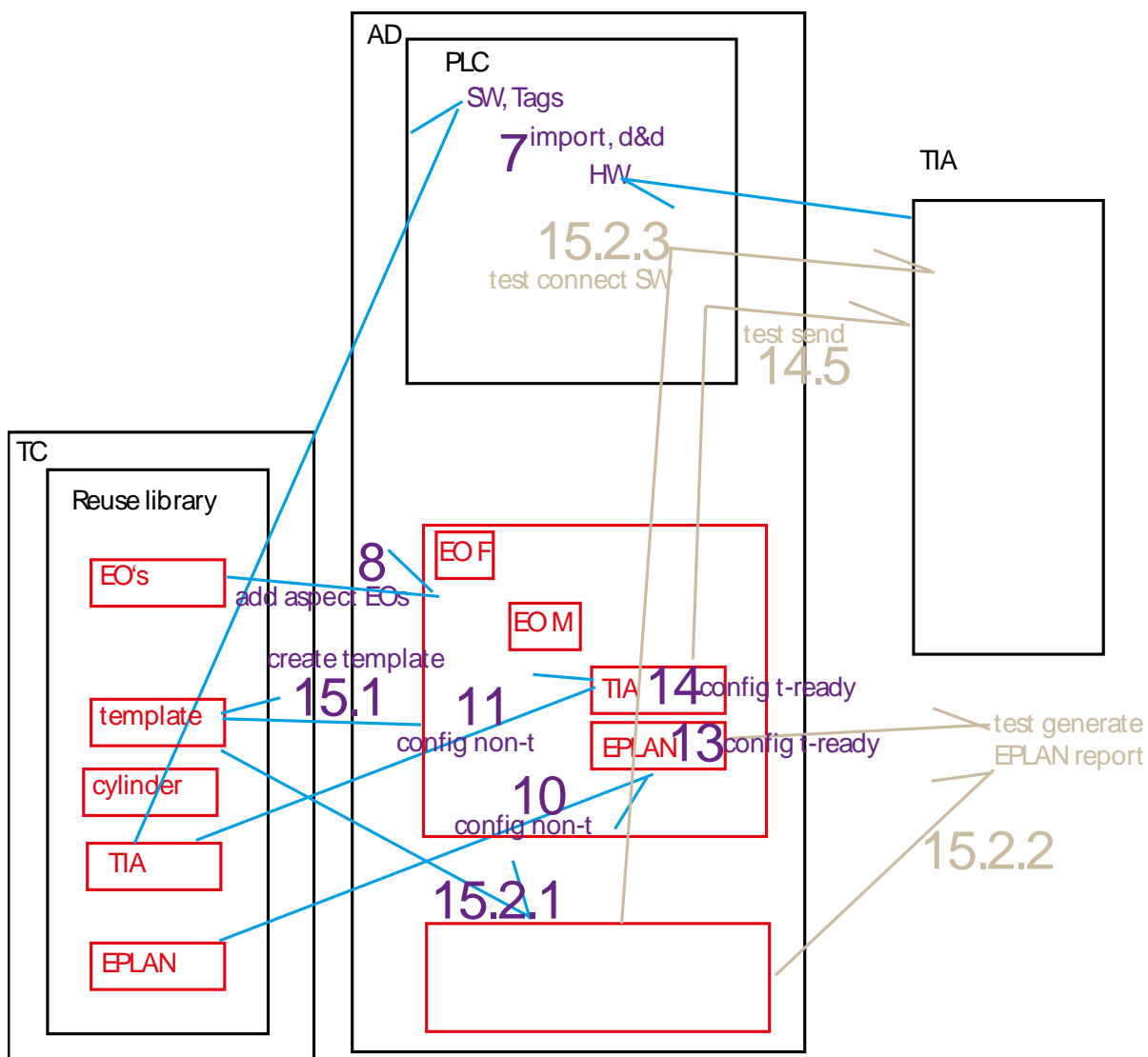
A. pre-config (admin)

As admin Setup LD/AD CDs, import EPLAN/TIA.



B. create AD template (template designer)

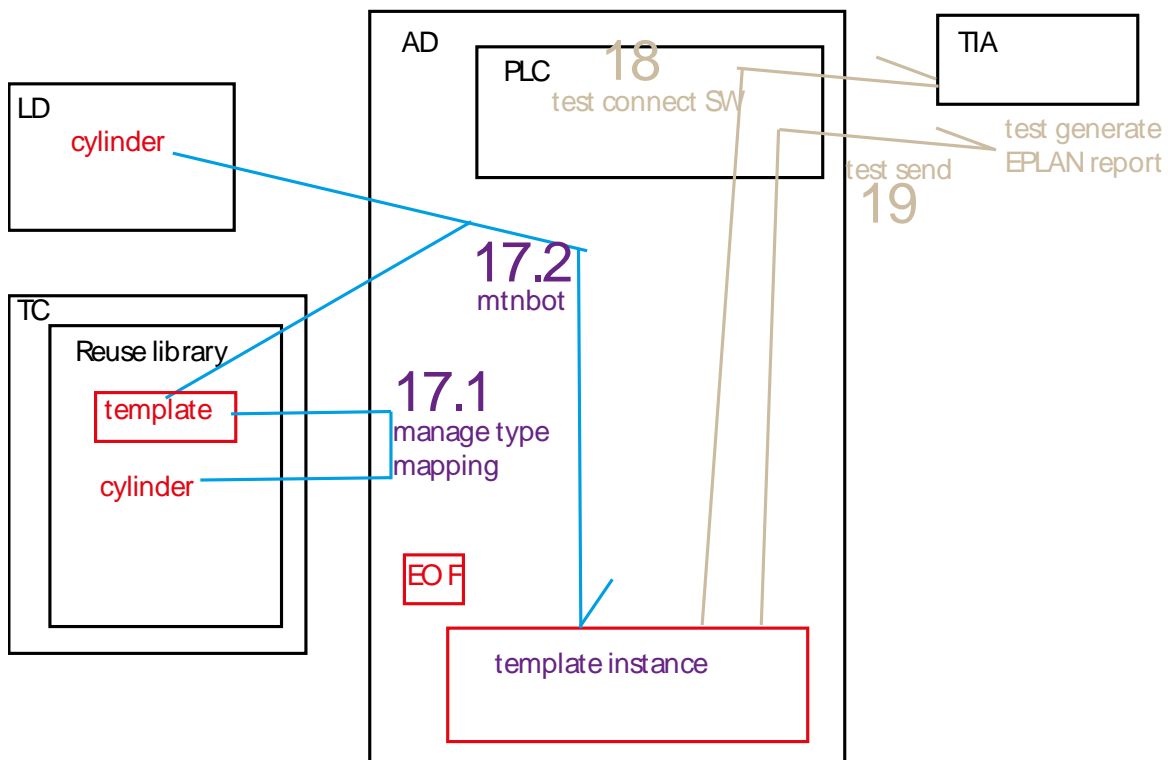
As a template designer create an AD template.



C. round-trips (customer; show how easy to use)

As an end user use templates to build a line.

Focus on the round-trip engineering between AD and LD, EPLAN, TIA (I still don't understand much about round-trips... need to add more content later).



A. pre-config (LD, AD, EPLAN, TIA)

1. (GS1-3,4) LD (create CD, WS, SS, import parts)
2. (GS1-5) AD (create CD, WS, SS, RL EO's, test add EO to aspect)
3. EPLAN (import into RL via AD) (20160322 errors)
4. TIA (import into RL via AD) (20160322 OK)

1. (GS1-3,4) LD (create CD, WS, SS, import parts)

1.1. (GS1-3) create LD CD

Same as part 1 ch 3.

1.2. (GS1-4) create LD WS, SS

Same as part 1 ch 4.

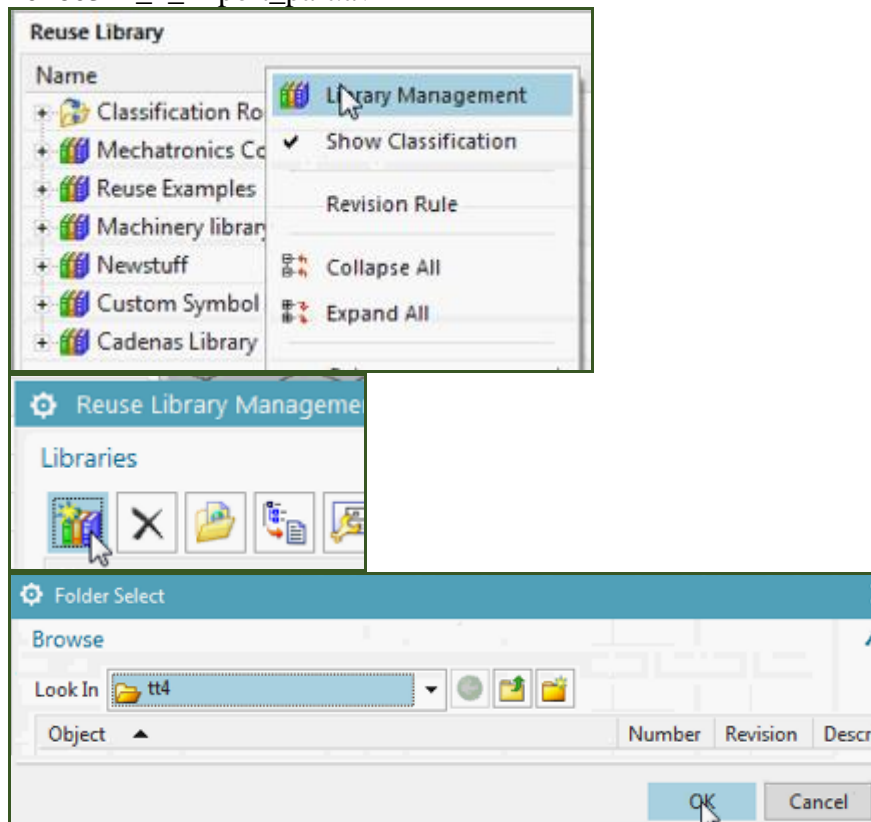
*1.3. import roof parts (IF NOT IN RL) 20160323

1.3.1. Add dir to reuse library

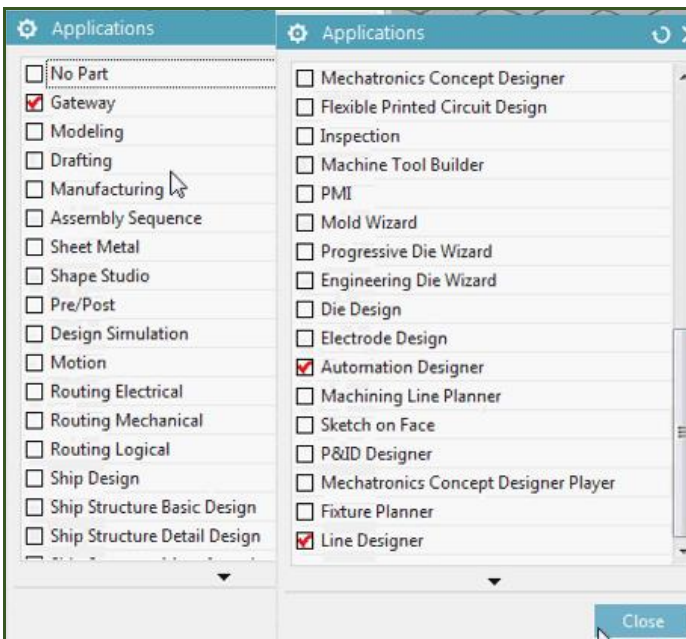
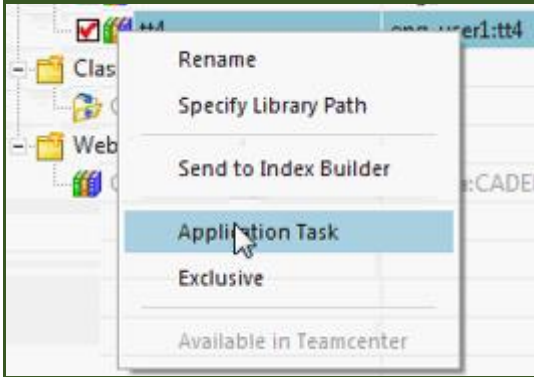
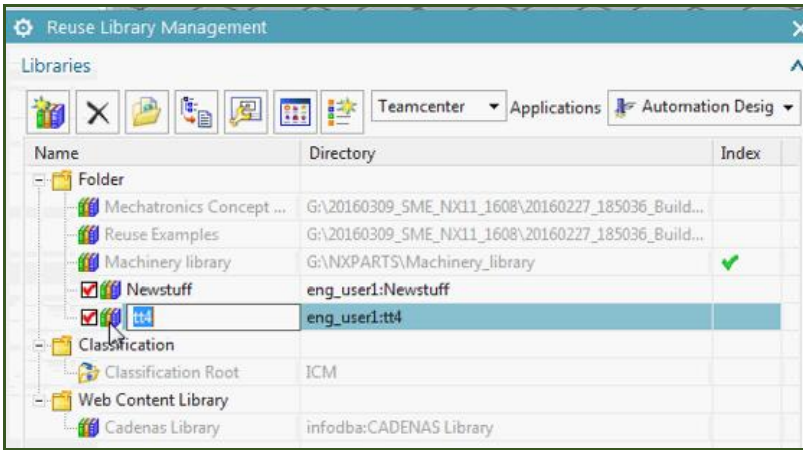
20160315_1_add_to_reuse_lib.avi

20160316_1_create_rl_dir_and_import_parts.avi

20160321_1_import_part.avi



tt14



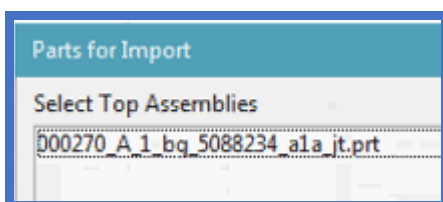
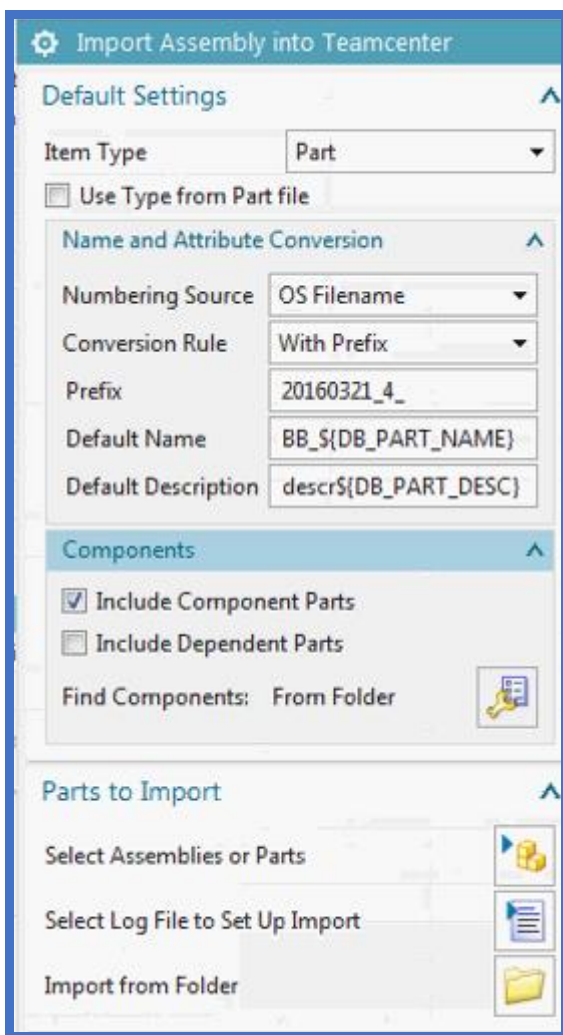
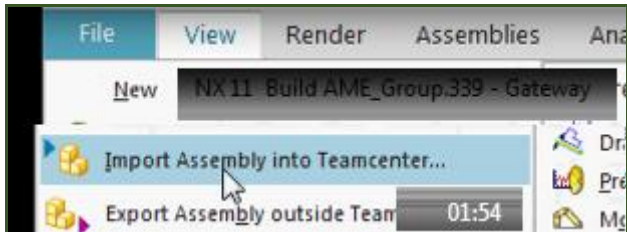
1.3.2. Import (roof into TC) (GW) ????

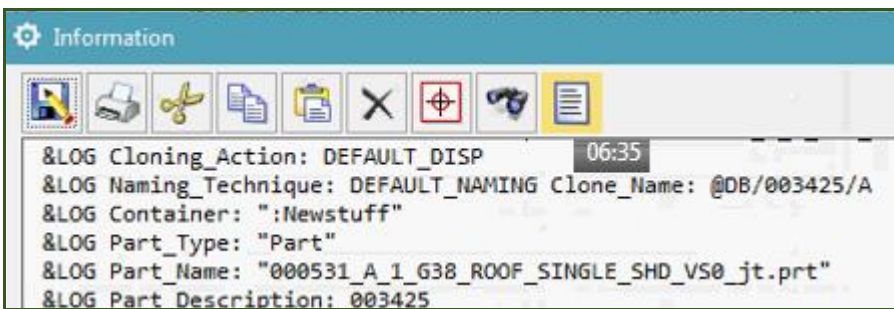
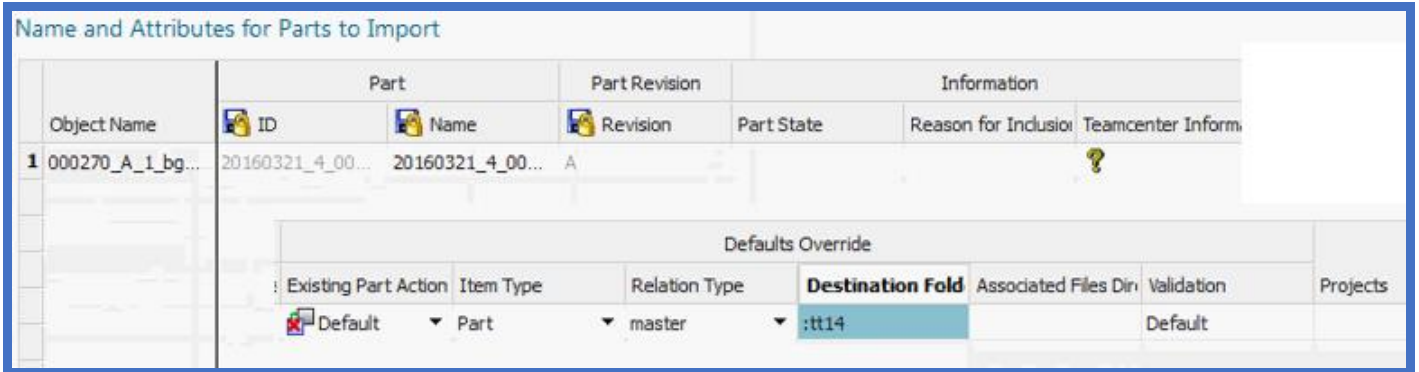
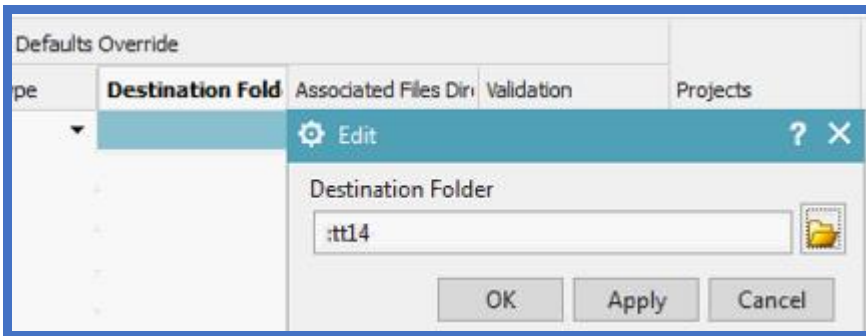
20160316_1_create_rl_dir_and_import_parts.avi

20160321_1_import_part.avi

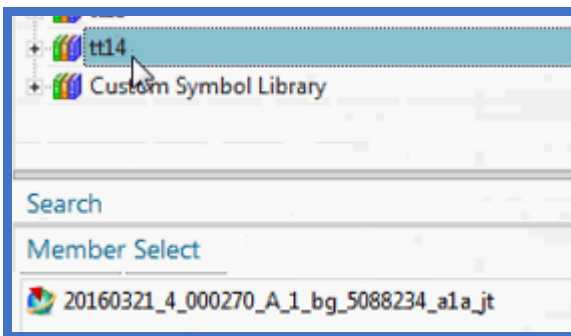
000270_A_1_bg_5088234_a1a_jt.prt

Basically doing what was already assumed in ch4... parts in the reuse library.
Into reuse library.

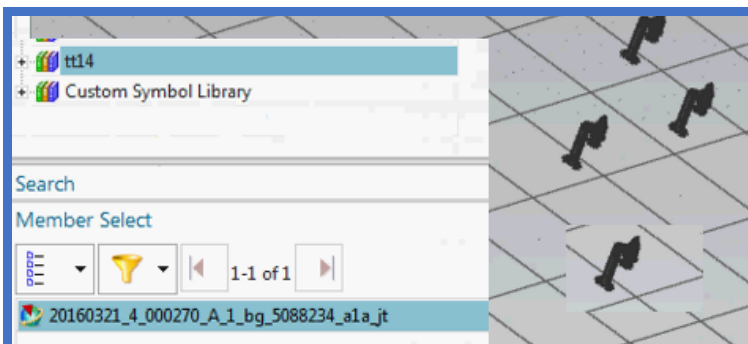




Click around a few times until it works.



1.3.3. Test: Add 4



2. (GS1-5) AD (create CD, WS, SS, RL EO's, test add EO to aspect)

20130629 TERRY: this would be similar to part 1 ch5.

2.3. Create project workset (and CD + subset)

*2.4. Create EODef's (F, G) (IF NOT IN RL)

*2.5. Create naming rules (IF NOT ALREADY)

This section describes how to

5.5.1. Create EO Name (character code) list

5.5.2. Create Advanced Aspect Naming

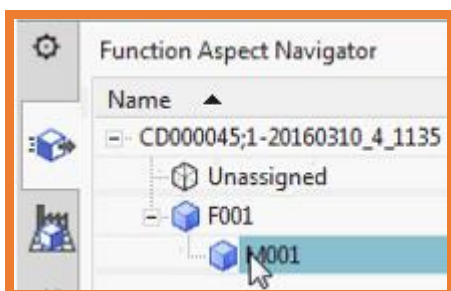
2.5.1. Create EO Name (character code) list

2.5.2. Create Advanced Aspect Naming (20150204)

2.6. TEST: Add EO's

You created the EODefs and the naming rules. Now you can drag&drop the EODefs to create the EOs.

test add to aspect. Result.



3. EPLAN (import into RL via AD) (20160322 errors)

\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\Universal Templates\EPLAN_Macros

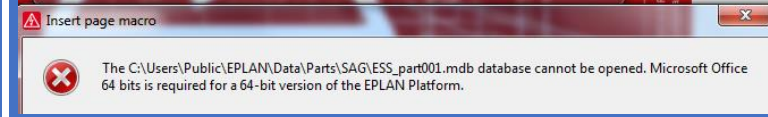
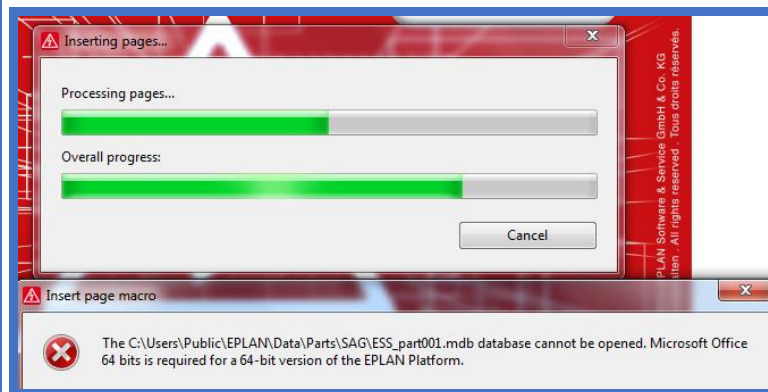
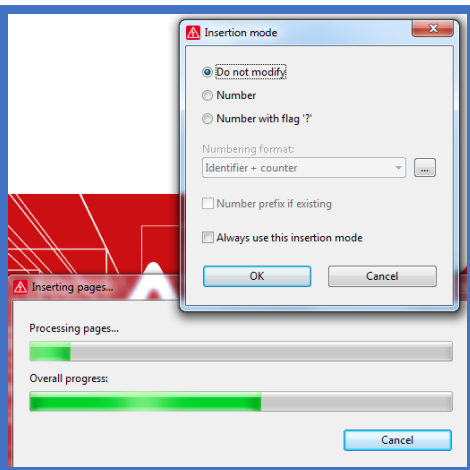
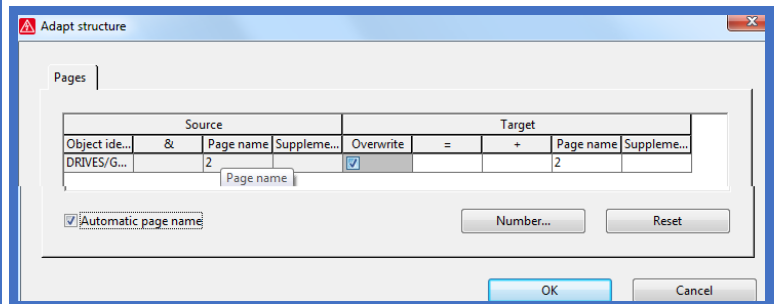
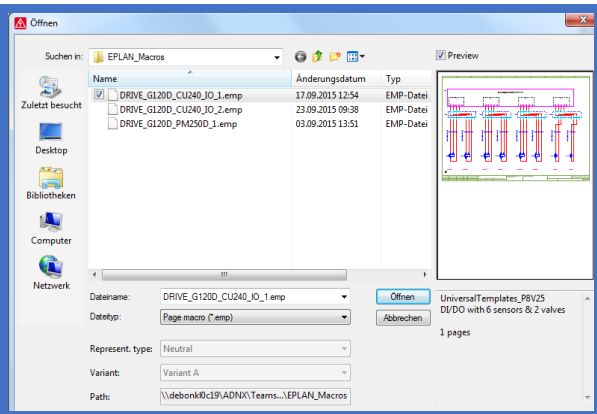
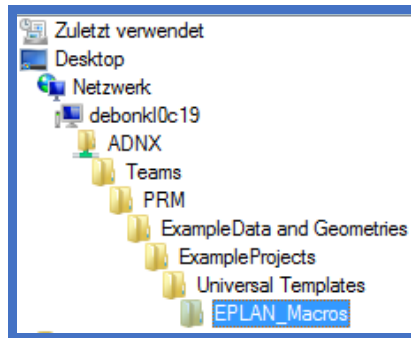
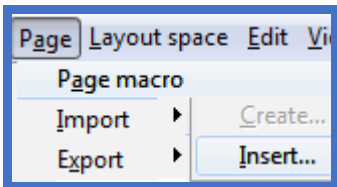
20160322 TERRY: I tried to use EPLAN, but not work. Marcel said try with new SME. Not want to mess with this now... so just documented what I tried.

3.1. Start EPLAN

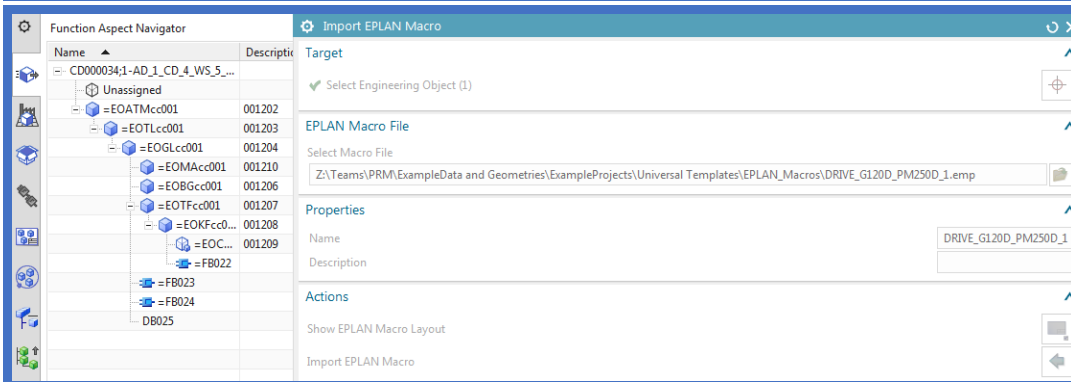
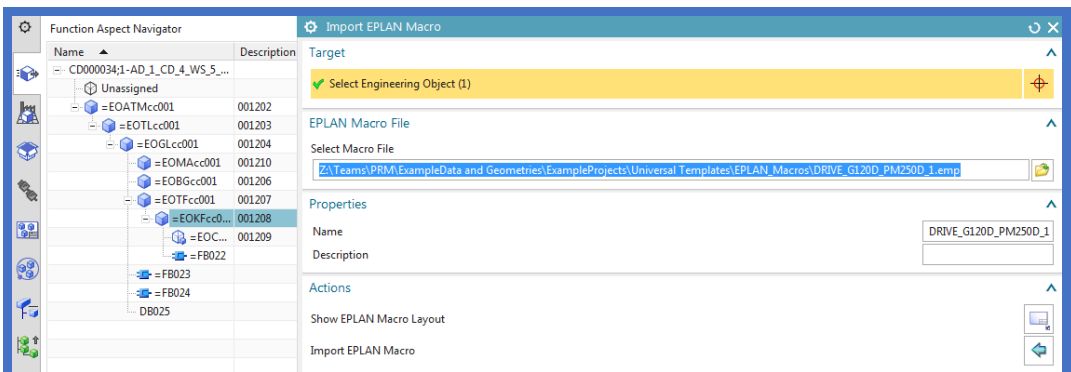
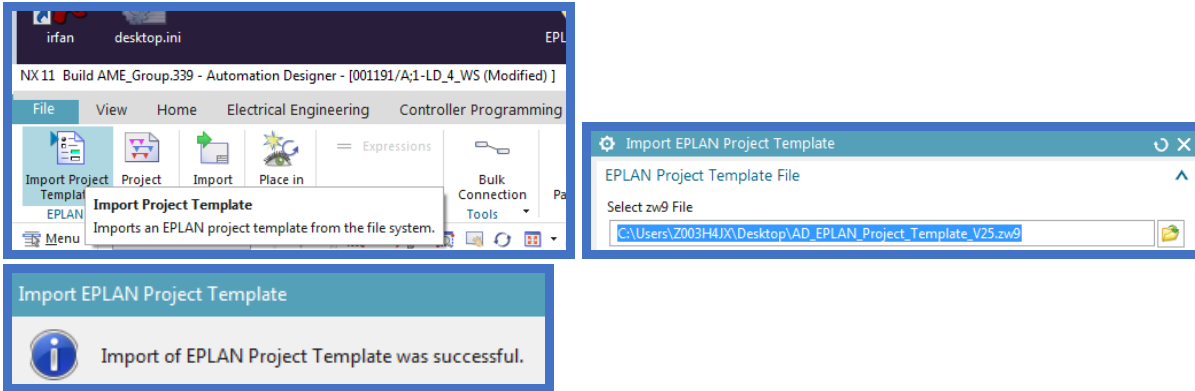
The image shows a sequence of screenshots from the EPLAN software installation and startup process:

- File Explorer:** Shows the installation directory `C:\Program Files\EPLAN\Platform\2.5.4\Bin` containing `EPLAN.exe` (Application) and `EPLAN.exe.config` (CONFIG-Datei).
- Check license dialog:** Displays an error message: "The connection to the License Manager could not be established. Network location/User: debonmh0c09.ww004.siemens.net / WW004\Z003H4JX. Error [DCOM 0x080070422]: Der angegebene Dienst kann nicht gestartet werden. Er ist deaktiviert oder nicht mit aktivierten Geräten verbunden."
- Select license dialog:** Shows the license selection interface with fields for License file, Serial number, and Selection mode. It lists available extensions such as EADN, Language, and various Modules and Releases.
- EPLAN Electric P8 2.5 main window:** Shows the software interface with a menu bar and toolbars. A dialog box titled "Open project" is open, displaying an error: "The C:\Users\Public\EPLAN\Data\Translation\SAG\Translate.mdb database cannot be opened. Microsoft Office 64 bits is required for a 64-bit version of the EPLAN Platform." The "Beginner" option is selected in the "Select scope of menu" dialog.

3.3. Insert macro



3.4. AD: import project template



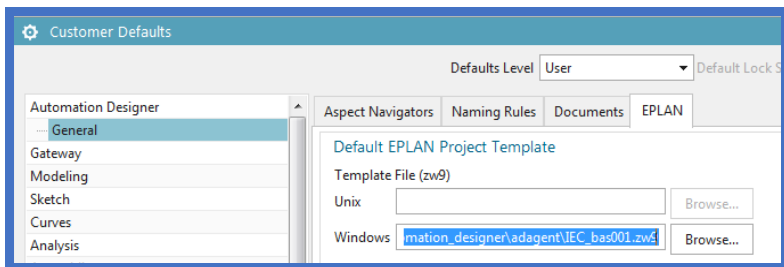
Import of EPLAN Macro started...

Never finishes. Error.

3.5. NX general settings for EPLAN

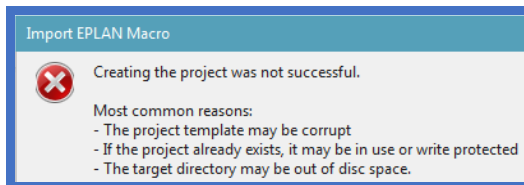
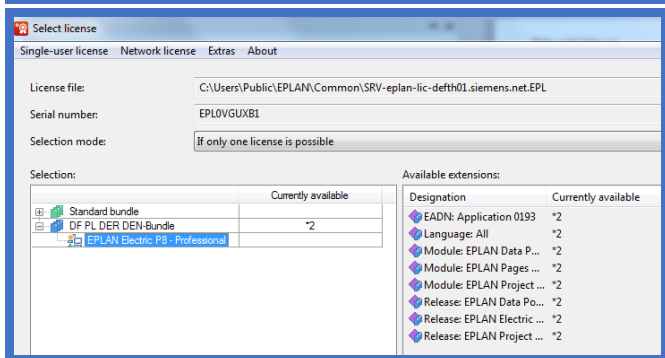
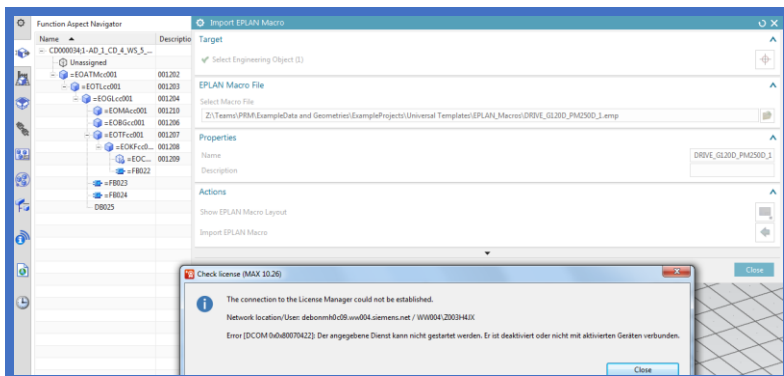
Talk with Marcel.....

Use this

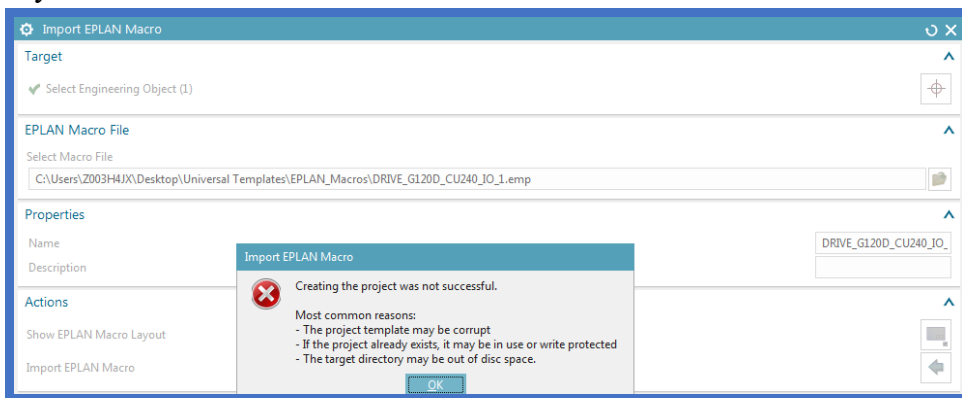


G:\20160309_SME_NX11_1608\20160227_185036_Build\automation_designer\adagent\IEC_bas001.zw9

Restart



Try with local....



20160322 TERRY Marcel recommends with more later SME. Steps above are correct.

3.6. import from EPLAN

3.7. store in reuse

3.8. TEST: import from reuse

4. TIA (import SW into RL via AD)

4.1. import HW SW from TIA

TERRY: seems cant put HW in RL? To put SW in RL, you must import HW?

HW

The screenshot shows the 'Receive Data from TIA Portal' dialog box in Siemens TIA Portal. The 'Automation Navigator' on the left shows a project structure with 'PLC HW' and 'Subnets' folders. The dialog box has the following sections:

- Type:** Hardware
- TIA Portal Project:** Select ap14 File: \\192.168.186.133\TiaPortal_Projects\EDAG_V14\EDAG_V14.ap14
- Project Structure:**

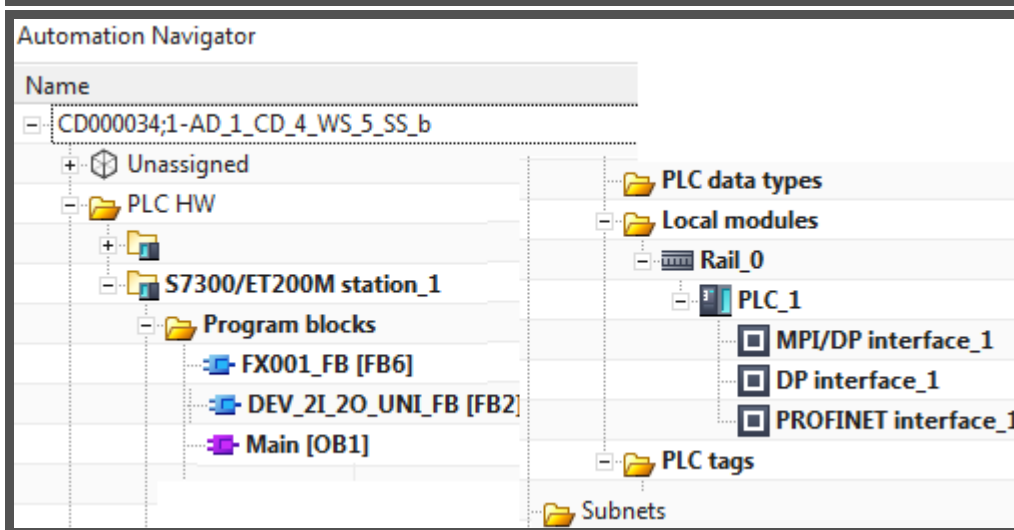
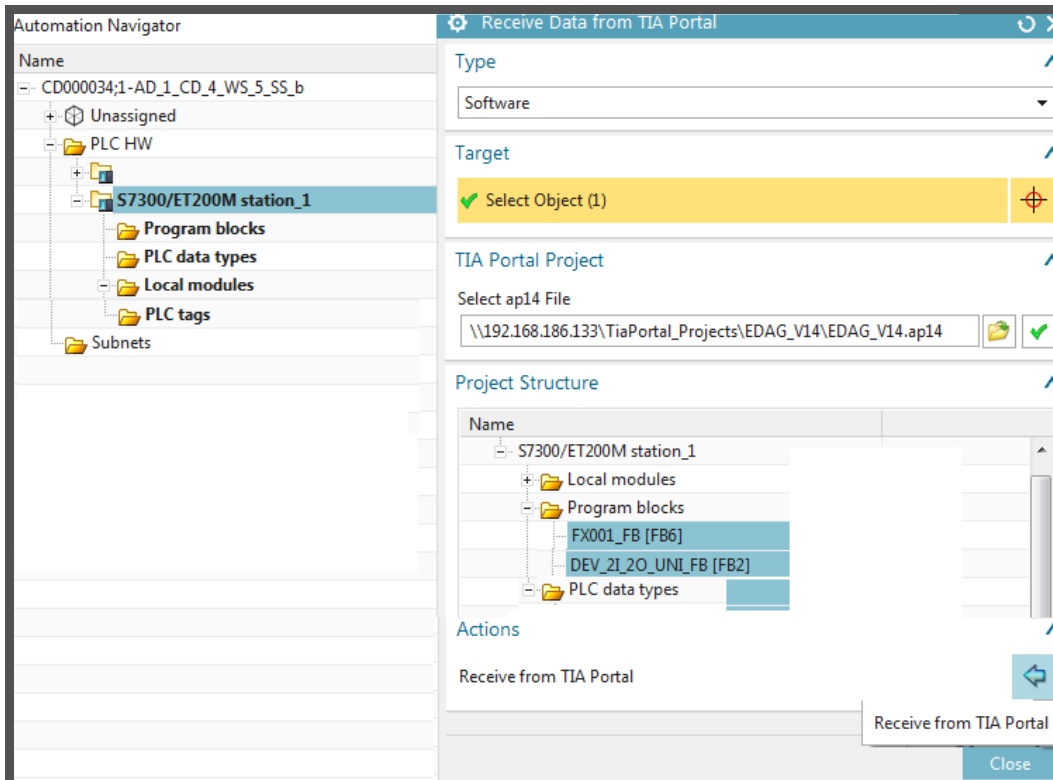
| Name |
|------------------------|
| Project |
| S7300/ET200M station_1 |
| Local modules |
| Rail_0 |
| PLC_1 |
| MPI/DP interface_1 |
| DP interface_1 |
| PROFINET interface_1 |
| Program blocks |
| PLC data types |
- Actions:** Receive from TIA Portal

The screenshot shows the 'Automation Navigator' after the hardware has been imported. The project structure is as follows:

- CD000034;1-AD_1_CD_4_WS_5_SS_b
 - Unassigned
 - PLC HW
 - S7300/ET200M station_1
 - Program blocks
 - PLC data types
 - Local modules
 - Rail_0
 - PLC_1
 - MPI/DP interface_1
 - DP interface_1
 - PROFINET interface_1
 - PLC tags
 - Subnets

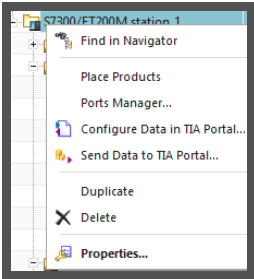
SW

Just import FX001_FB, DEV_2I_2O_UNI_FB.

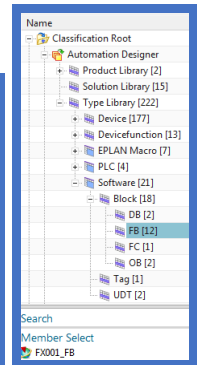
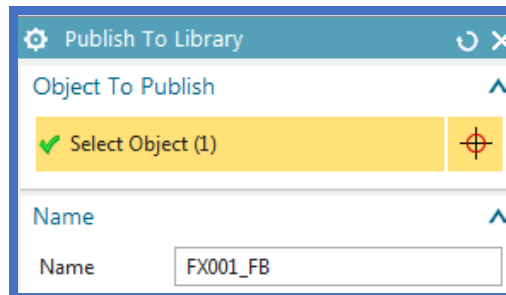
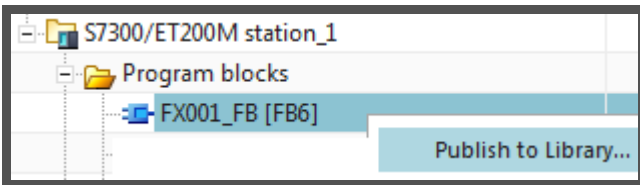


4.2. store in reuse

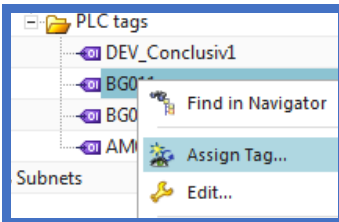
HW?



SW-FB

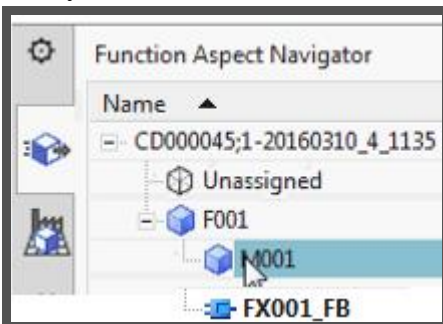


SW-tags?



4.3. TEST: import from reuse

Verify can add.



B. create AD template: auto-tab, aspect EO's, EPLAN/TIA, templates

7. automation tab (import HW, d&d SW)

8. aspects (add EOs)

10 (GS1-7). Config non-template EPLAN XXX

11 (GS1-8). Config non-template TIA

13 (GS1-10). Config template-ready EPLAN

14 (GS1-11). Config template-ready TIA

15 (GS1-12,13). Create/instantiate template

7. automation tab (import HW, d&d SW)

Automation Navigator

| Name | Descr |
|------------------------------|-------|
| CD000034;1-AD_1_CD_4_WS_5... | |
| Unassigned | |
| PLC HW | |
| PLC data types | |
| Program blocks | |
| G120x [FB307] | |
| Main [OB1] | |
| RB_AT [FB1012] | |
| PosDev_2D25... | |
| Subnets | |

Receive Data from TIA Portal

Type: Hardware

TIA Portal Project

Select ap14 File: \\192.168.186.133\TiaPortal_Projects\EDAG_V14\EDAG_V14.ap14

Project Structure

| Name |
|------------------------|
| Project |
| S7300/ET200M station_1 |
| Local modules |
| Rail_0 |
| PLC_1 |
| MPI/DP interface_1 |
| DP interface_1 |
| PROFINET interface_1 |
| Program blocks |
| PLC data types |

Actions: Receive from TIA Portal

Automation Navigator

| Name | Descr |
|--------------------------------|-------|
| CD000034;1-AD_1_CD_4_WS_5_SS_b | |
| Unassigned | |
| PLC HW | |
| S7300/ET200M station_1 | |
| Program blocks | |
| PLC data types | |
| Local modules | |
| Rail_0 | |
| PLC_1 | |
| MPI/DP interface_1 | |
| DP interface_1 | |
| PROFINET interface_1 | |
| PLC tags | |
| Subnets | |

Receive Data from TIA Portal

Type: Hardware

TIA Portal Project

Select ap14 File: \\192.168.186.133\TiaPortal_Projects\EDAG_V14\EDAG_V14.ap14

Project Structure

| Name |
|------------------------|
| Project |
| S7300/ET200M station_1 |
| Local modules |
| Rail_0 |
| PLC_1 |
| MPI/DP interface_1 |
| DP interface_1 |
| PROFINET interface_1 |
| Program blocks |
| PLC data types |

Drag and drop sw

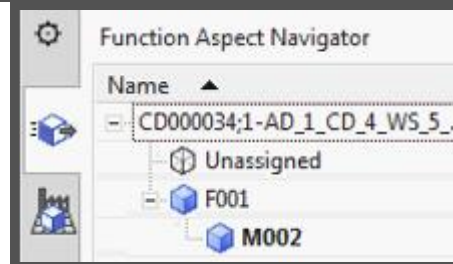
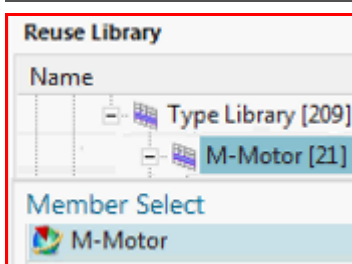
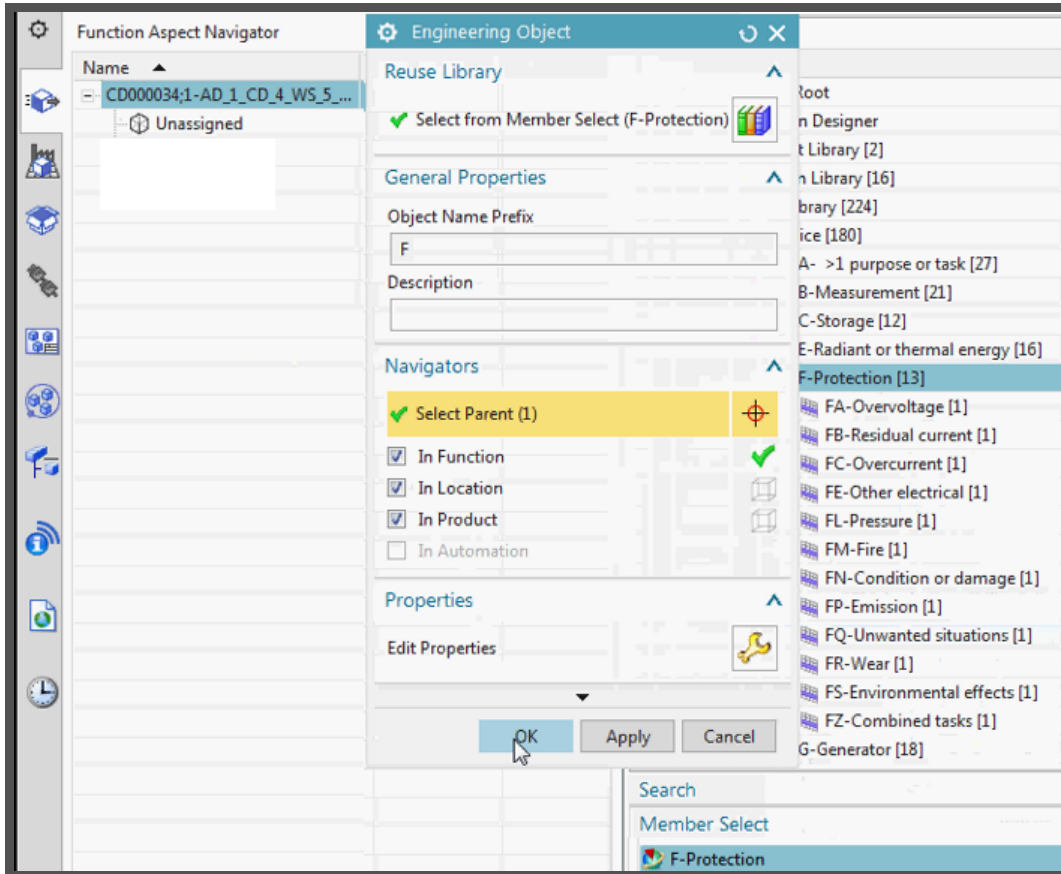
The screenshot displays the Siemens TIA Portal interface with three main panels:

- Function Aspect Navigator:** A tree view showing a hierarchy of objects. The selected object is `=EOATMcc001` (ID 001202). Other visible objects include `=EOTLcc001` (001203), `=EOGLcc001` (001204), `=EOMAcc001` (001210), `=EOBGcc001` (001206), `=EOTFcc001` (001207), `=EOKFcc0...` (001208), `=EOC...` (001209), `=FB022`, `=FB023`, `=FB024`, and `DB025`.
- Engineering Object:** Shows the properties for the selected object `FX001_FB`. It includes:
 - General Properties:** Object Name Prefix: `FX001_FB`; Description: (empty).
 - Navigators:** `Select Parent (1)` is selected. Checkboxes for `In Function`, `In Location`, `In Product`, and `In Automation` are all checked.
 - Properties:** `Edit Properties` button.
- Reuse Library:** A tree view of the library structure. The selected object `FX001_FB` is located under `Automation Designer` > `Block [19]` > `FB [13]`.

This close-up view of the Function Aspect Navigator highlights the selected object `=EOATMcc001` and its immediate children: `=EOTLcc001` and `FX001_FB`.

8. aspects (add EOs)

Add F and M.



xxx 10 (GS1-7). Config non-template EPLAN

EPLAN not working with my SME.. need to try in future.
Tried templates in RL.. not work.

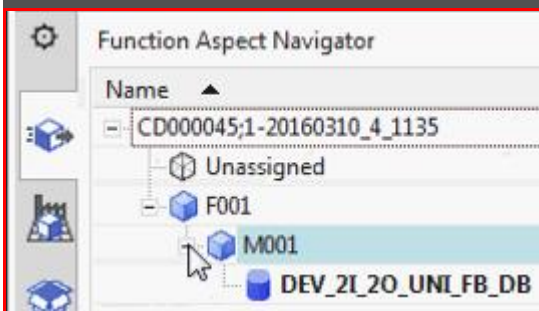
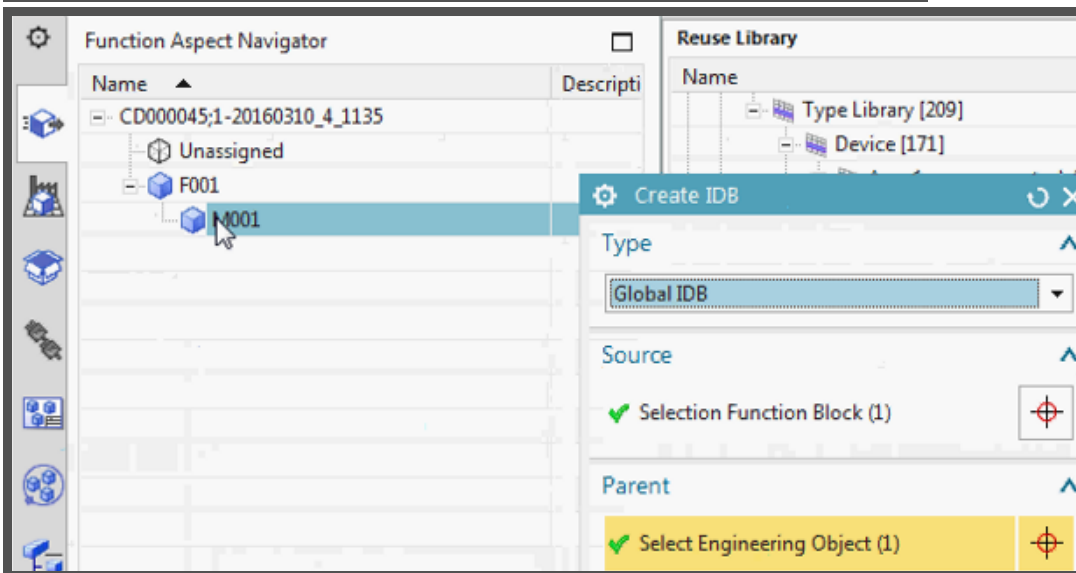
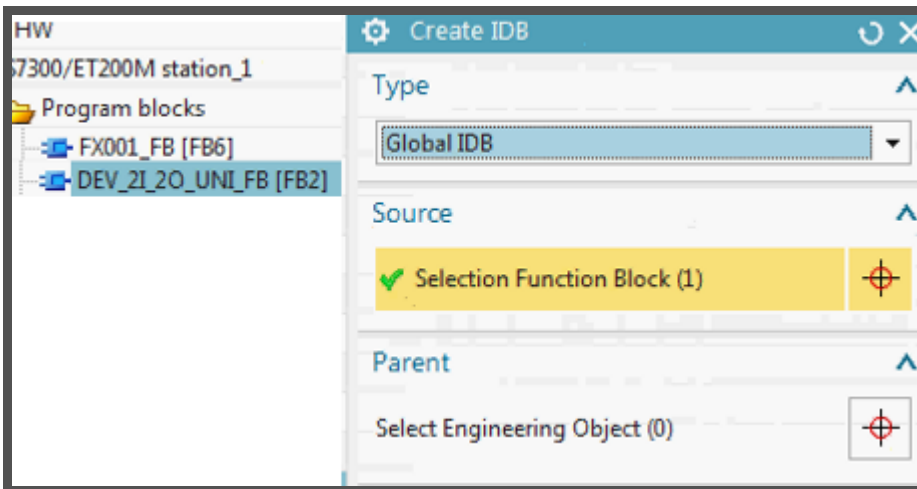
What template to use with roof demo?

Need to talk with Andreas when he returns.

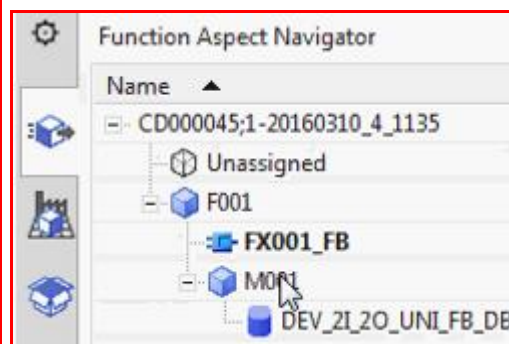
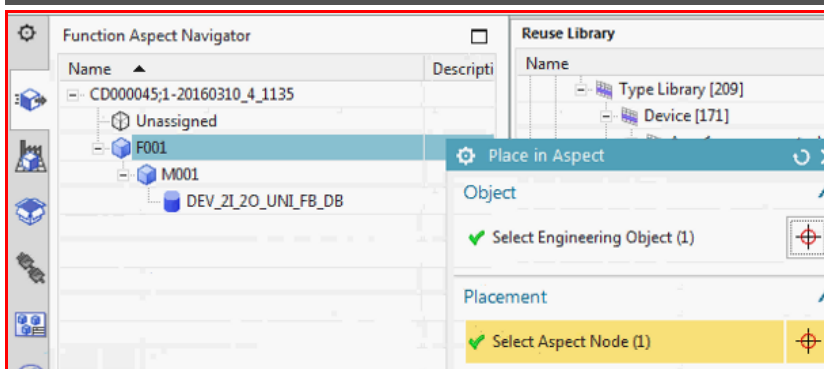
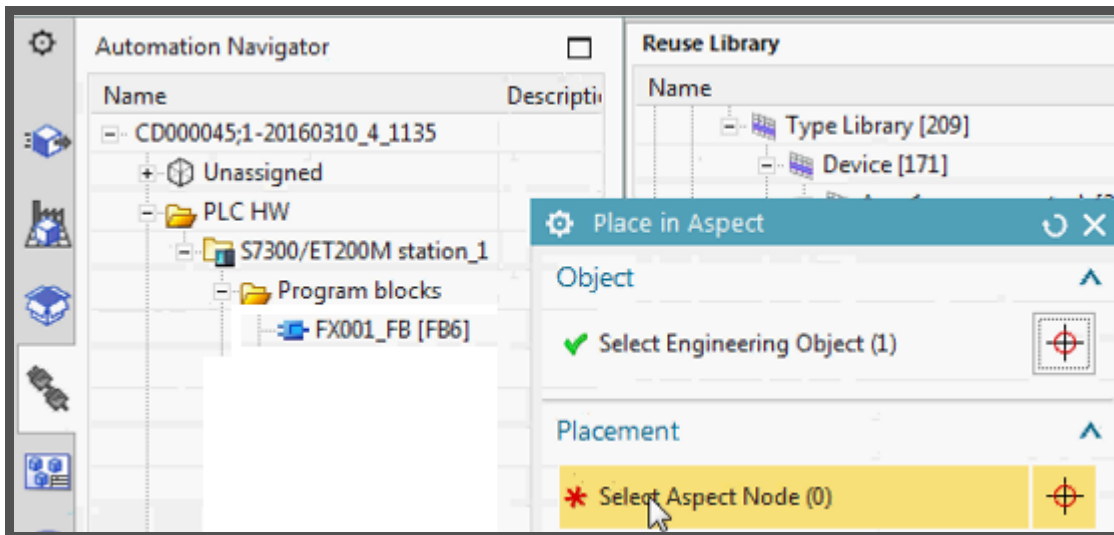
11 (GS1-8). Config non-template TIA

11.1. Add IDBs, FBs

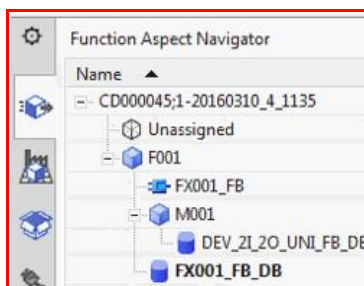
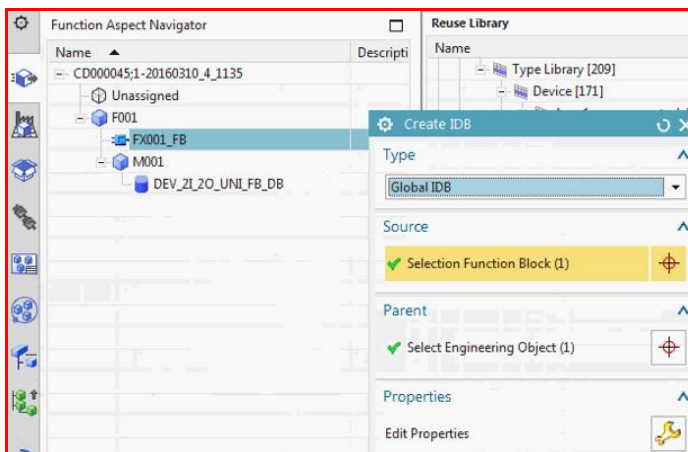
Add Dev_2I_2O IDB under M.



Add FX FB.



Add FX IDB.



11.2. fix calls

Configurations ^ Interface

| Name | Value | Type |
|---------------|-------|------|
| Global Sym... | | |
| Tags | | |
| FB/IDB | | |
| KH01 | | |
| AM01 | | |
| AM11 | | |
| FX00... | | |
| FC | | |
| DB | | |
| Ports | | |
| Caller P... | | |
| Operand... | | |
| Rules | | |
| Calls | | |
| Methods | | |
| Operand | | |

PLC Code

```

18 Network 3:--
19     ///Caller on the position [KH01] is not connected with a valid block.
20
21
22 Network 4:--
23     ///Caller on the position [AM01] is not connected with a valid block.
24
25
26
27 Network 5:--
28     ///Caller on the position [AM11] is not connected with a valid block.
29
30
31
32
33 Network 6:--
34     ///Caller on the position [FX001_SEQ1_IDB] is not connected with a valid block.
  
```

FB/IDB

- ... KH01
- ... AM01
- ... AM11
- ... FX00...

Manual Connection
Dynamic Connection

Function Aspect Navigator

- CD000034;1-AD_1_CD_4_WS_5_SS_b
 - Unassigned
 - =EOATMcc001
 - F001
 - M002
 - DEV_2I_2O_UNI_FB_DB
 - FX001_FB
 - FX001_FB_DB

Manual Connection

Source: AM01

Target: Select Object (1)

Select Port

| Port | Connected Object | Connected Port | Port Type | Conn |
|-------|------------------|----------------|-----------|------|
| DB042 | | | EO | IDB |

OK Cancel

Configurations ^ Interface

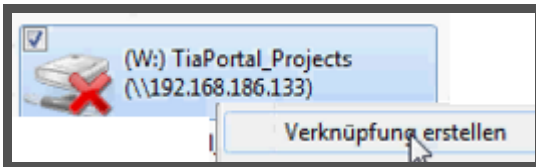
| Name | Value | Type |
|---------------|------------------|------|
| Global Sym... | | |
| Tags | | |
| FB/IDB | | |
| KH01 | DEV_2I_2O_UNI... | |
| AM01 | DEV_2I_2O_UNI... | |
| AM11 | DEV_2I_2O_UNI... | |
| FX00... | DEV_2I_2O_UNI... | |
| FC | | |
| DB | | |
| Ports | | |
| Caller P... | | |
| Operand... | | |
| Rules | | |
| Calls | | |
| Methods | | |
| Operand | | |

PLC Code

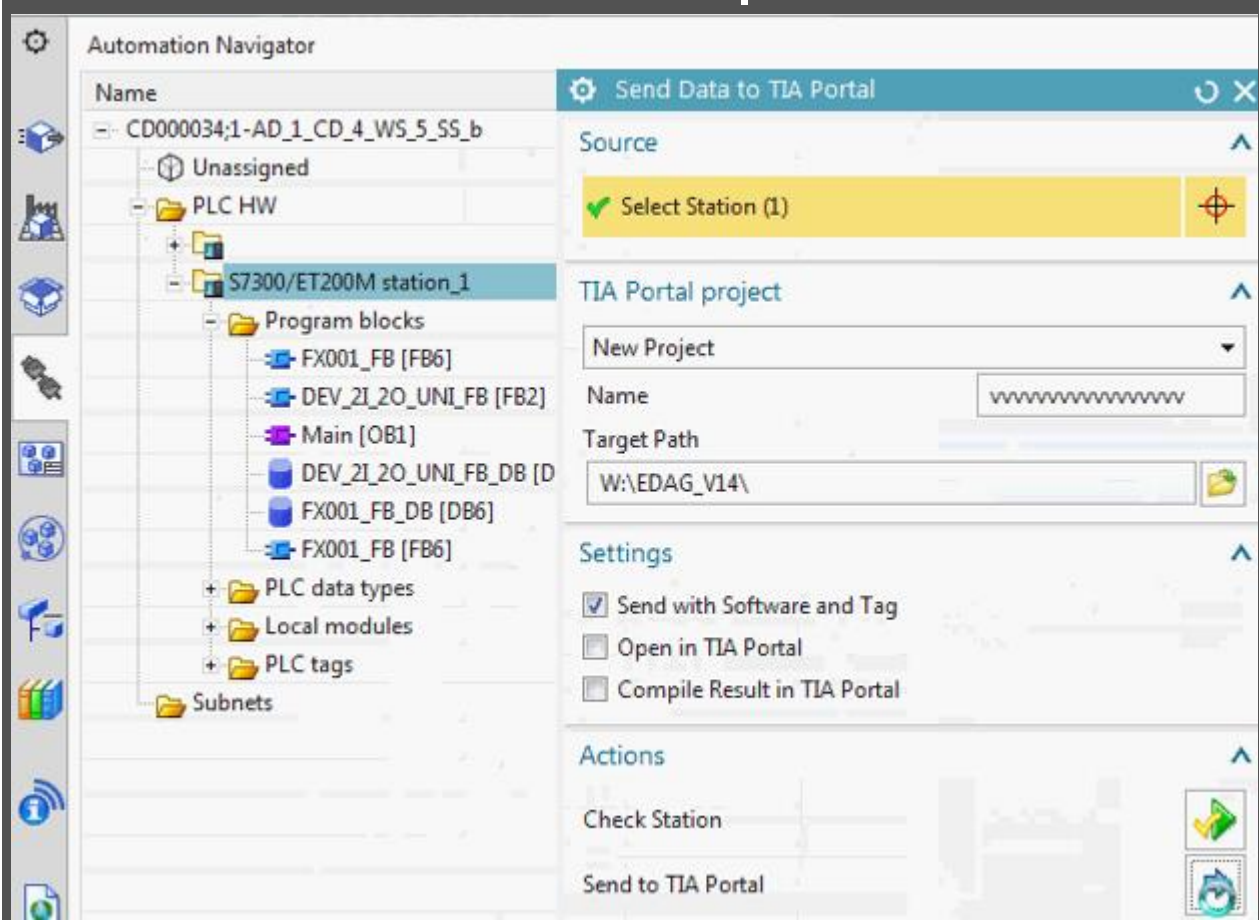
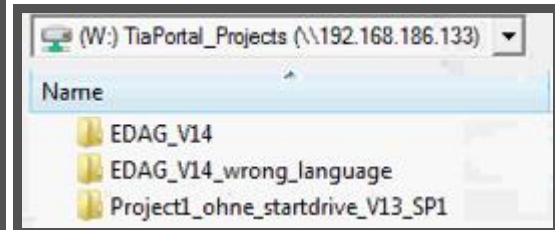
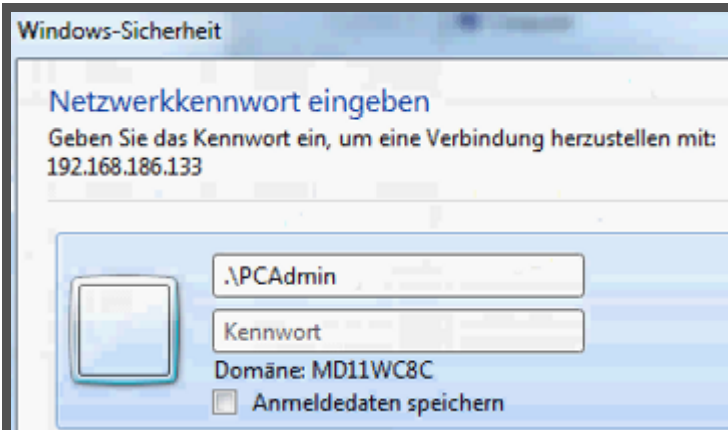
```

18 Network 3:--
19     CALL "DEV_2I_2O_UNI_FB", "DEV_2I_2O_UNI_FB_DB"
20
21
22 Network 4:--
23     CALL "DEV_2I_2O_UNI_FB", "DEV_2I_2O_UNI_FB_DB"
24
25
26
27 Network 5:--
28     CALL "DEV_2I_2O_UNI_FB", "DEV_2I_2O_UNI_FB_DB"
29
30
31
32
33 Network 6:--
34     CALL "DEV_2I_2O_UNI_FB", "DEV_2I_2O_UNI_FB_DB"
  
```

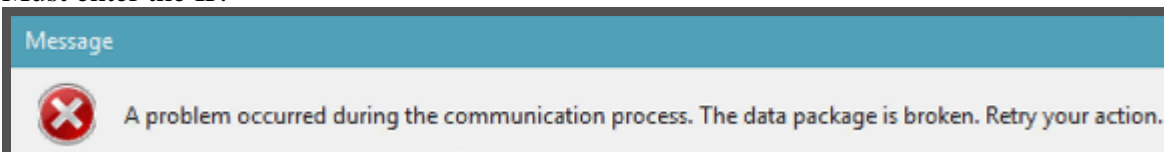

11.4. Test export to TIA



Pw: comos



Must enter the IP.



Send Data to TIA Portal

Source

Select Station (1)

TIA Portal project

New Project

Name: wwwwww

Target Path: \\192.168.186.133\TiaPortal_Projects\EDAG_V14\

Settings

- Send with Software and Tag
- Open in TIA Portal
- Compile Result in TIA Portal

Actions

Check Station

Send to TIA Portal

VMAD_TIAPortal_V14_I.14_B.01 - VMware Player

<< TiaPortal_Projects >> EDAG_V14 >> wwwwww >>

Name

wwwwww.ap14

xxx 13 (GS1-10). Config template-ready EPLAN

EPLAN not working with my SME.. need to try in future.
Tried templates in RL.. not work.

What template to use with roof demo?

Need to talk with Andreas when he returns.

14 (GS1-11). Config template-ready TIA

20160318: copied from ch 13.

14.3. Fix names

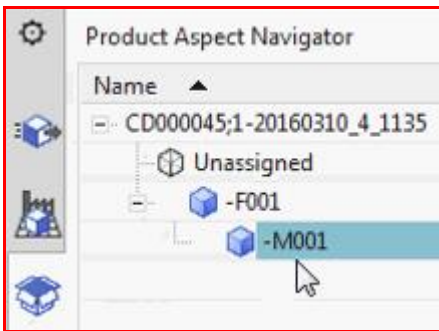
14.4. create ports, expressions, dynamic connection

14.5. test

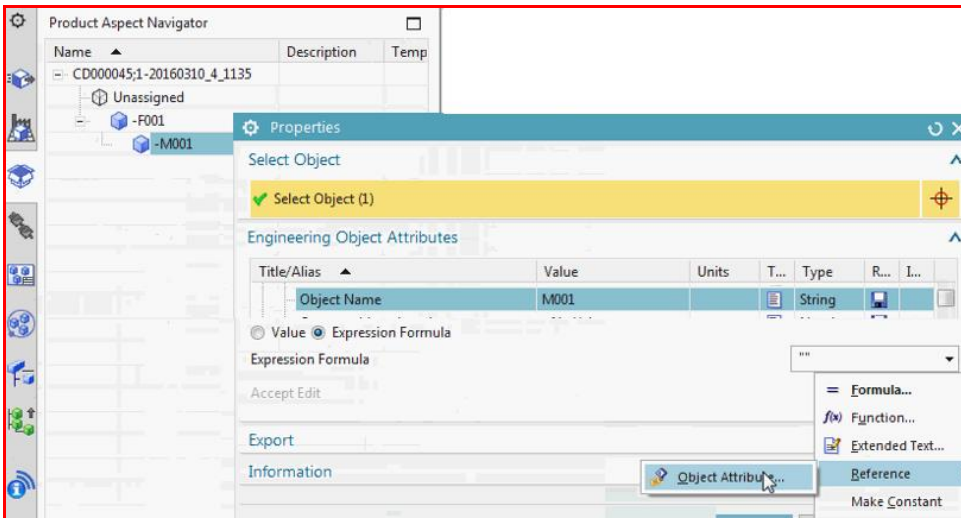
14.3. Fix names

14.3.2. M001 P-aspect "object name" expression

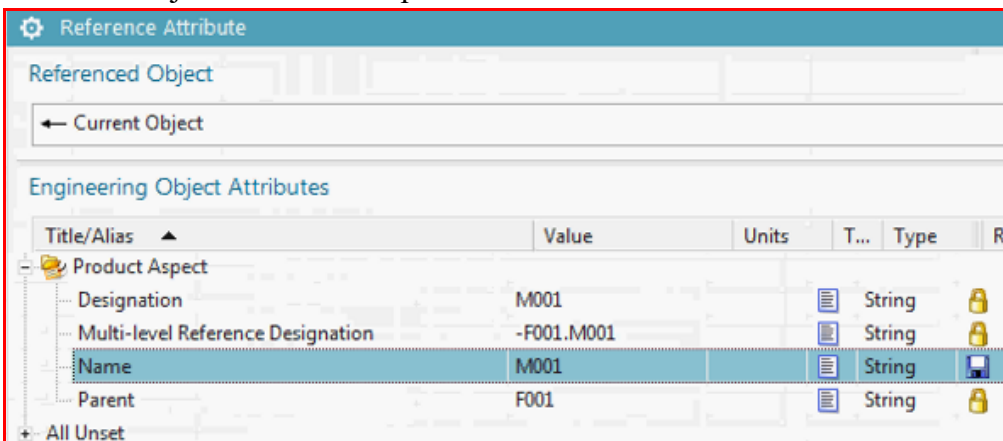
20160310_6_part1.avi 03:30



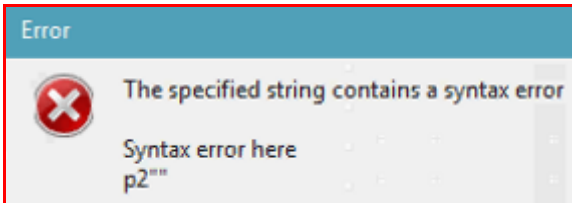
2. Reference / object attribute.



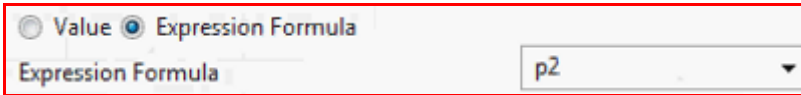
3. Current object ... Product aspect / name



4. p2 error

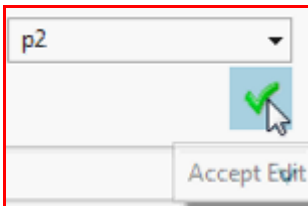


5. Change to p2



6. CLICK ENTER.

7. CLICK GREEN ARROW.

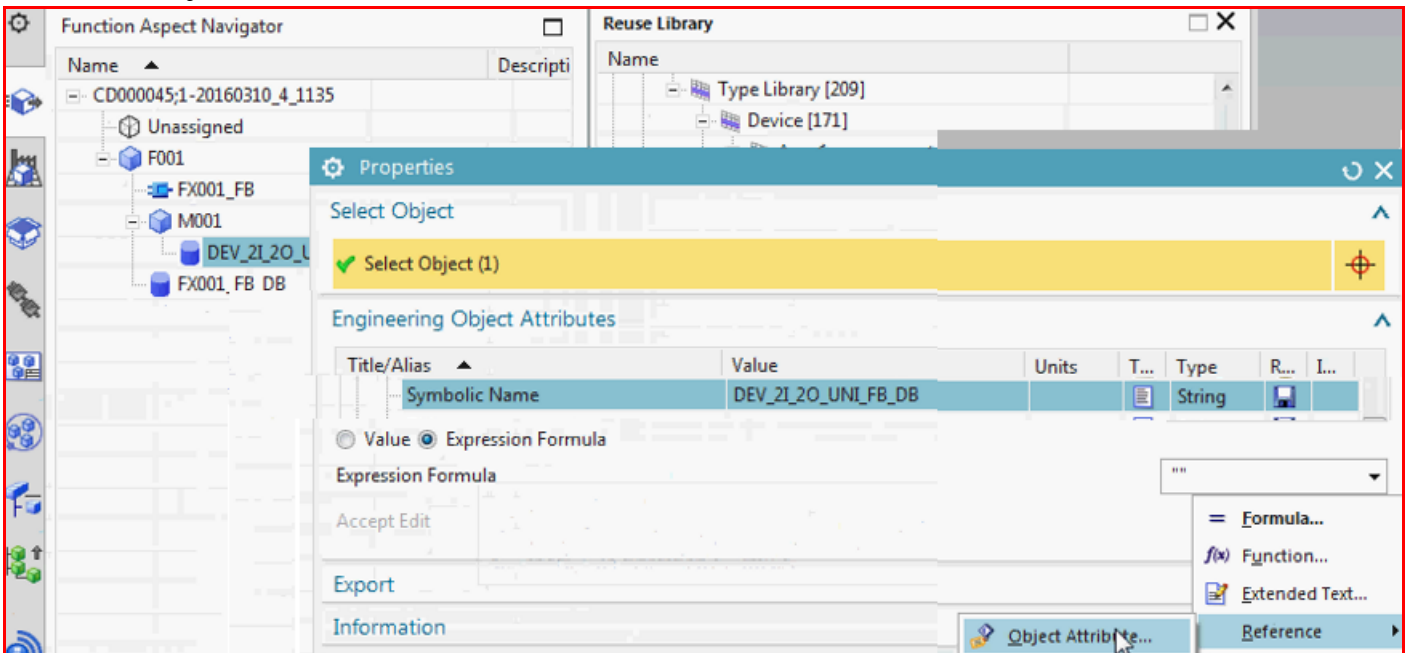


8. THEN CLICK OK.

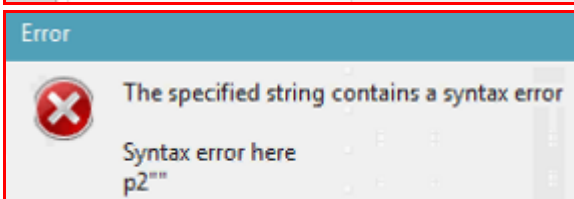
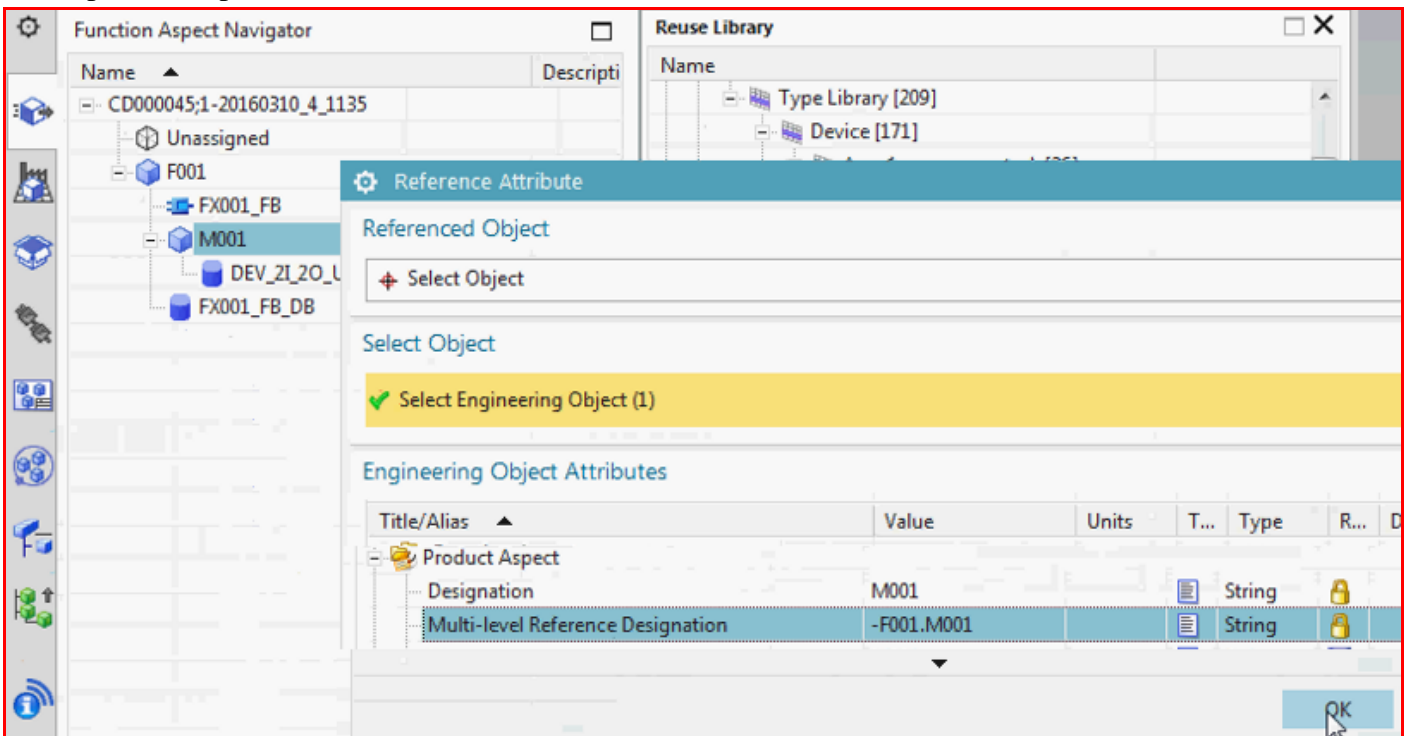


14.3.3. Set F-aspect DB symbolic name

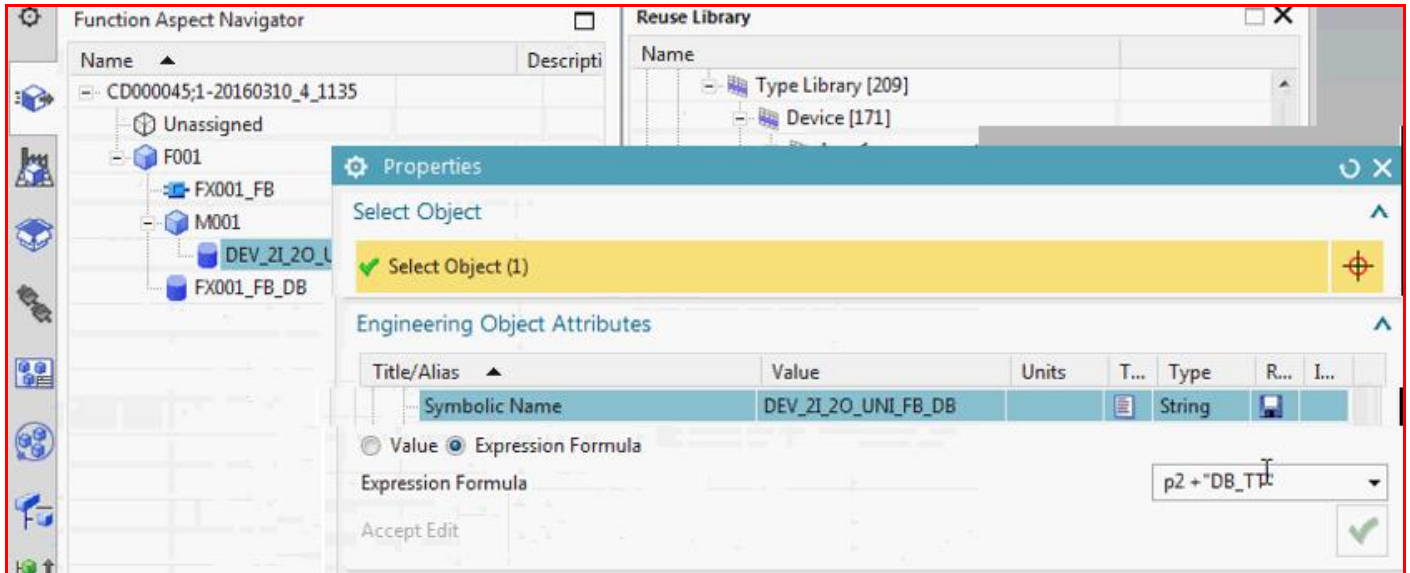
Reference / object attribute.



M001 product aspect / MRD



p4 + "_DB"



ENTER

GREEN ARROW

| | |
|---------------|-----------------|
| Symbolic Name | -F001.M001DB_TT |
|---------------|-----------------|

OK.

14.4. create ports, expressions, dynamic connection

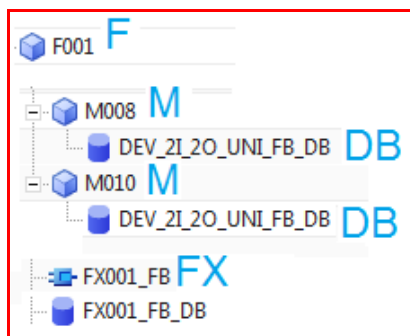
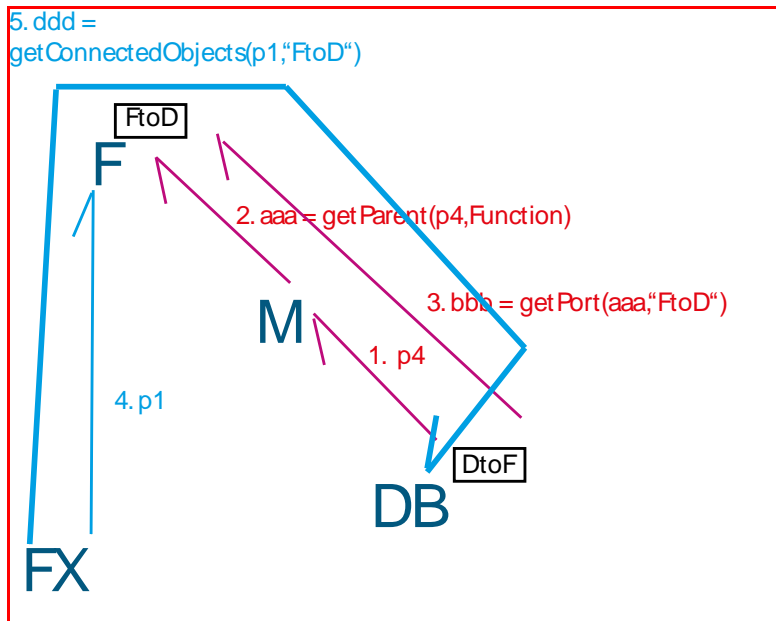
20160318_2_create_ports_expressions_dyn_connect.avi

Following Diagram shows what you do

14.4.1. create ports FtoD, DtoF.

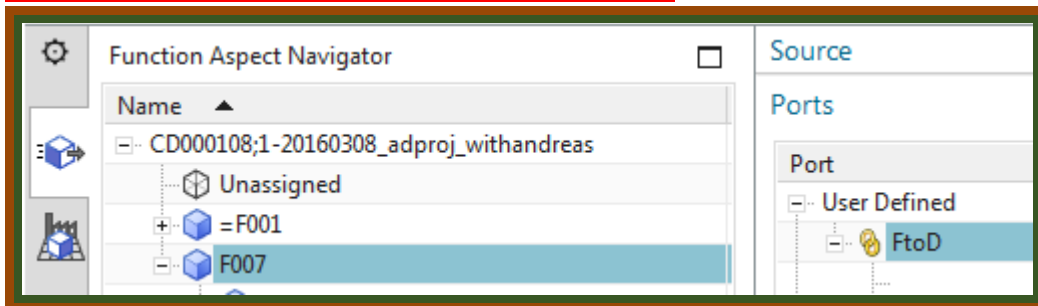
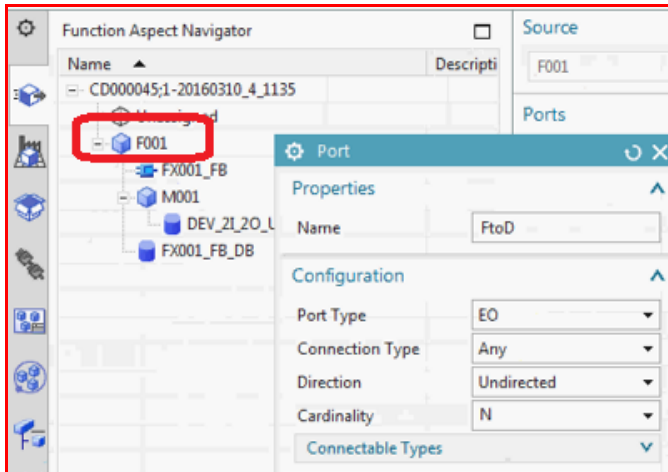
14.4.2. DB's connect themselves to F: port DtoF gets the F port FtoD.

14.4.3. FX gets the connected ports, thus getting all existing DBs.



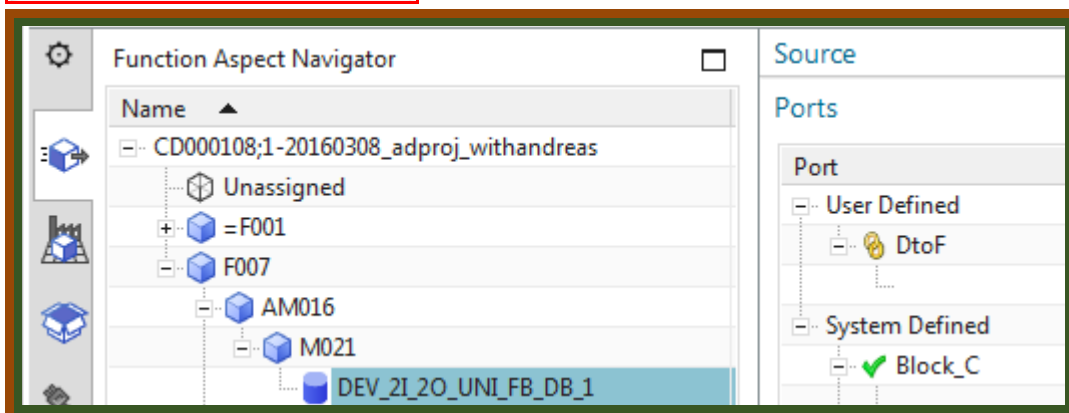
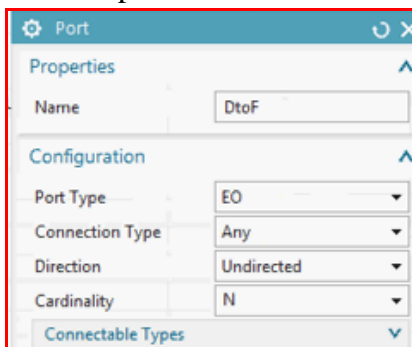
14.4.1. Create port F007 (FtoD)

Create a port on F007. F to D.



14.4.2. Create port DB (DtoF)

Create a port on DB. D to F.



14.4.3. Create DB getPort to F

Create expressions on DB that auto-connect (getPort) to F007.

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|-----------------------|
| User Defined | | | | | | | |
| DtoF | | | EO | Any | Undirected | N | Device Function, E... |

Dynamic Connection
Connects ports dynamically by using expressions

This already there

| | Name | Formula | Value | Type | Dimensionality | Units |
|---|------|--------------|-------------------|--------|----------------|-------|
| 1 | p0 | p2 + "DB_TT" | "-F001.M001DB_... | String | | |
| 2 | | ** | ** | String | | |

Create first expression.

| | Name | Formula | Value | Type |
|---|------|--------------|-------------------|--------|
| 1 | p0 | p2 + "DB_TT" | "-F001.M001DB_... | String |
| 2 | aaa | ** | ** | String |

Commit New Expression
New Expression
Edit...

| Name | Formula |
|-------|--------------|
| 1 p0 | p2 + "DB_TT" |
| 2 aaa | ** |

Edit
Formula
GetParent()

Function Aspect Navigator

Source DB008

Reference Attribute

Referenced Object

Select Object

Select Engineering Object (1)

Engineering Object Attributes

| Title/Alias | Value | Units | T... | Type | R... |
|-------------------|-------|-------|------|--------|------|
| Unique Identifier | M001 | | | String | |

Edit

Formula

GetParent(p4,Function)

| | Name | Formula | Value | Type |
|---|------|------------------------|-------------------|--------|
| 1 | aaa | GetParent(p4,Function) | "F001" | String |
| 2 | p0 | p2 + "DB_TT" | "-F001.M001DB_TT" | String |

Create second expression.

| | Name | Formula | Value | Type |
|---|------|------------------------|-------------------|--------|
| 1 | aaa | GetParent(p4,Function) | "F001" | String |
| 2 | bbb | getPort(aaa,"FtoD") | "F001.Port1" | String |
| 3 | p0 | p2 + "DB_IT" | "-F001.M001DB_IT" | String |

The "getPort" command establishes the connection.

Not sure if important to select before clicking ok.

| | Name | Formula | Value | Type |
|---|------|------------------------|-------------------|--------|
| 1 | aaa | GetParent(p4,Function) | "F001" | String |
| 2 | bbb | getPort(aaa,"FtoD") | "F001.Port1" | String |
| 3 | p0 | p2 + "DB_IT" | "-F001.M001DB_IT" | String |
| 4 | | " | " | String |

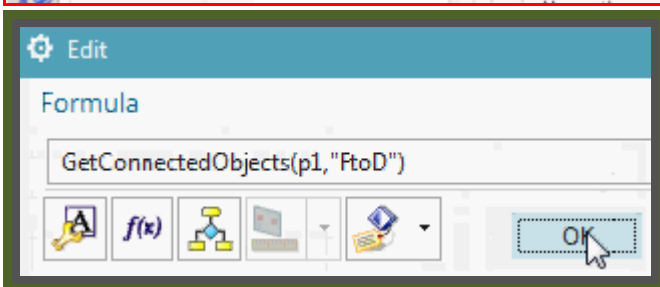
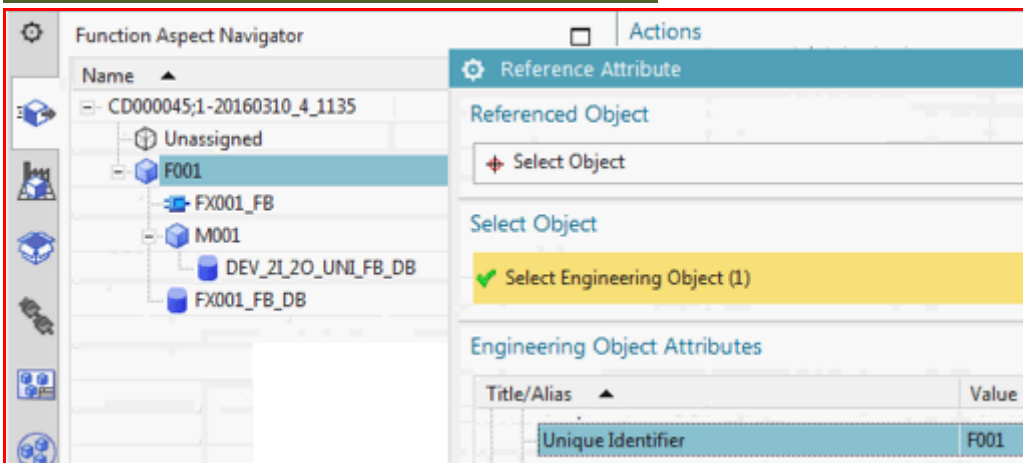
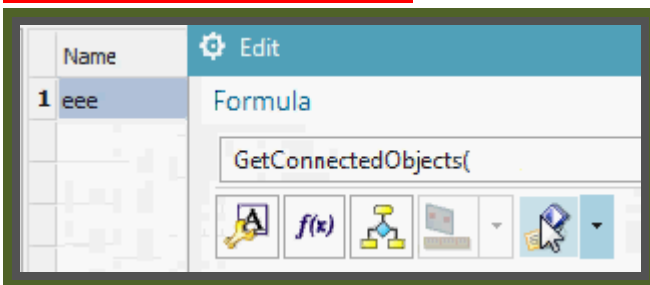
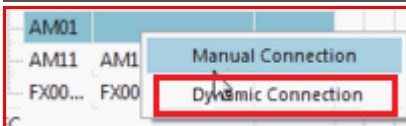
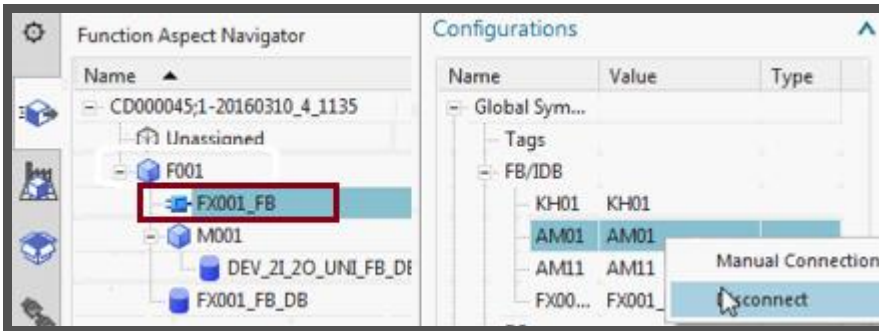
OK Cancel

Result.

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|--------------|-----------------|----------------|-----------|-----------------|------------|-------------|-----------------------|
| User Defined | | | | | | | |
| DtoF | | | EO | Any | Undirected | N | Device Function, E... |
| | F001 | FtoD | EO | Any | Undirected | N | Device Function, E... |

14.4.4. create F call GetConnectedObjects to FtoD port

create a connection in FB to the F007 FtoD port.



| Name | Formula | Value | Type |
|-------|---------------------------------|-----------|--------|
| 1 ddd | GetConnectedObjects(p1, "FtoD") | {'D6008'} | List |
| 2 | "" | "" | String |

Result.

```
Network 4:--
CALL "DEV 2I 2O UNI FB", "-F001.M001DB TT"
```

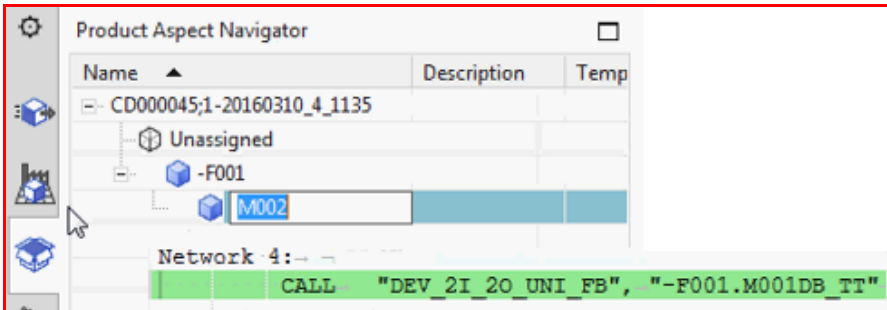


14.5. test

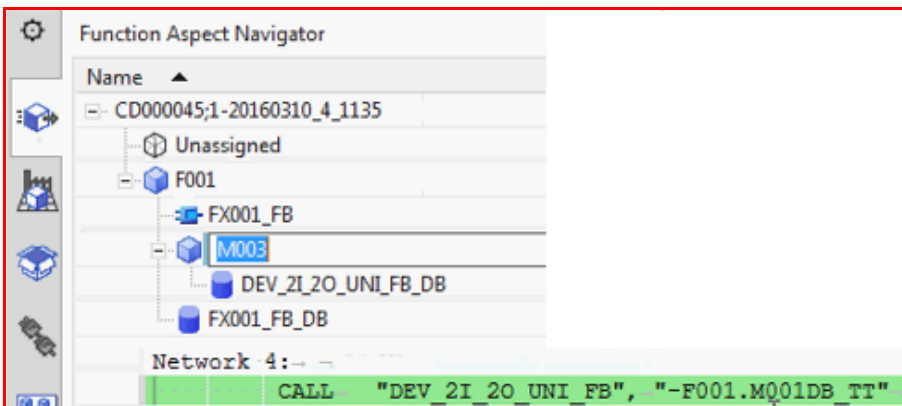
14.5.1. change M00x name... one step behind (movie 2)

product aspect change name is always one step behind.

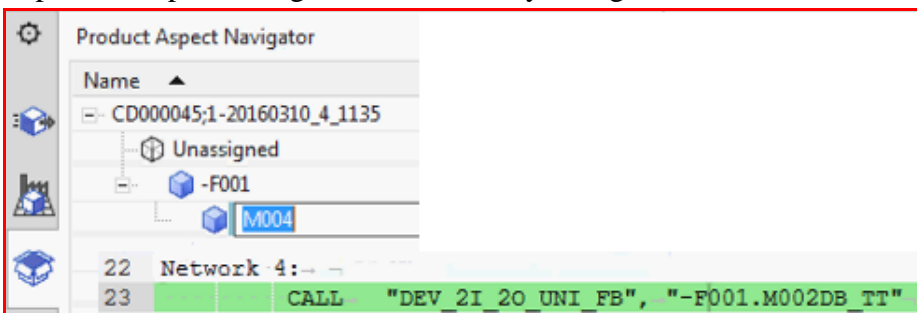
in product aspect change to m002. No change.



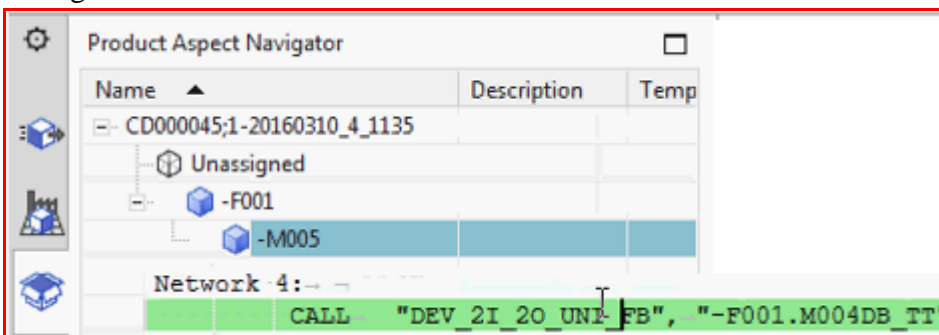
In function aspect change to m003. No change. Change only shown in function aspect when you click on (ui errors).



in product aspect change to m004.. finally changes to m002.



Change to m005

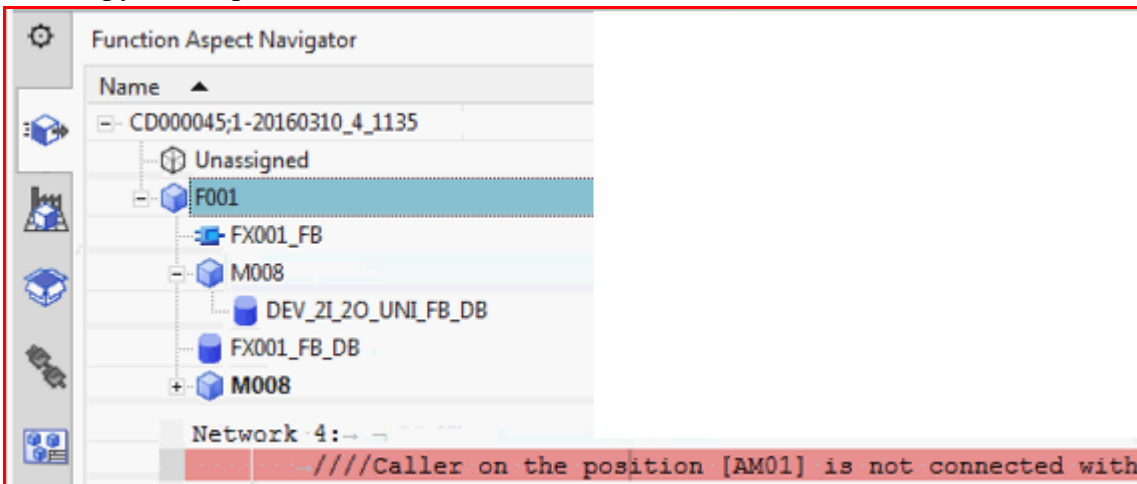


Always one behind, only behind changes made in product aspect.

14.5.2. TEST: copy the Mxxx, should auto update FB call

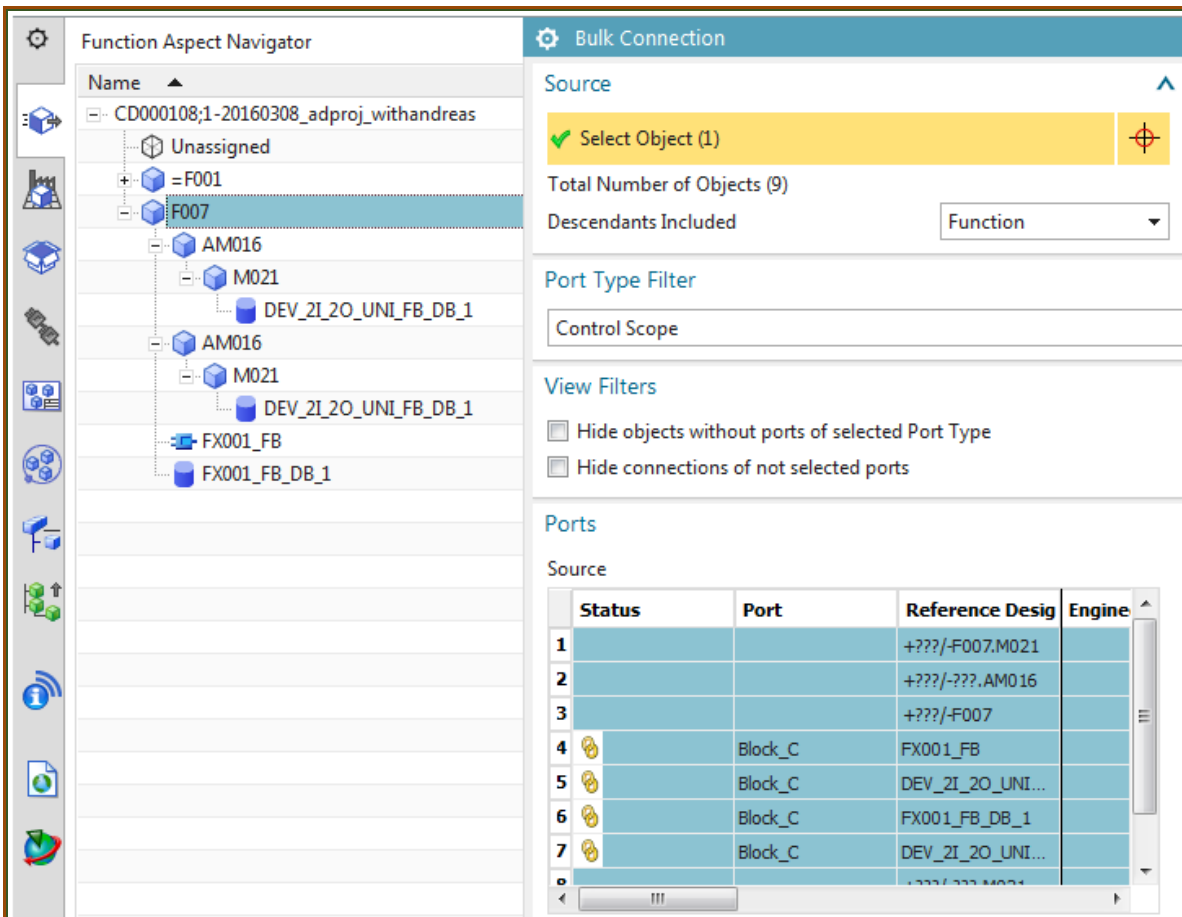
20160318_3_copy_M_rename.avi

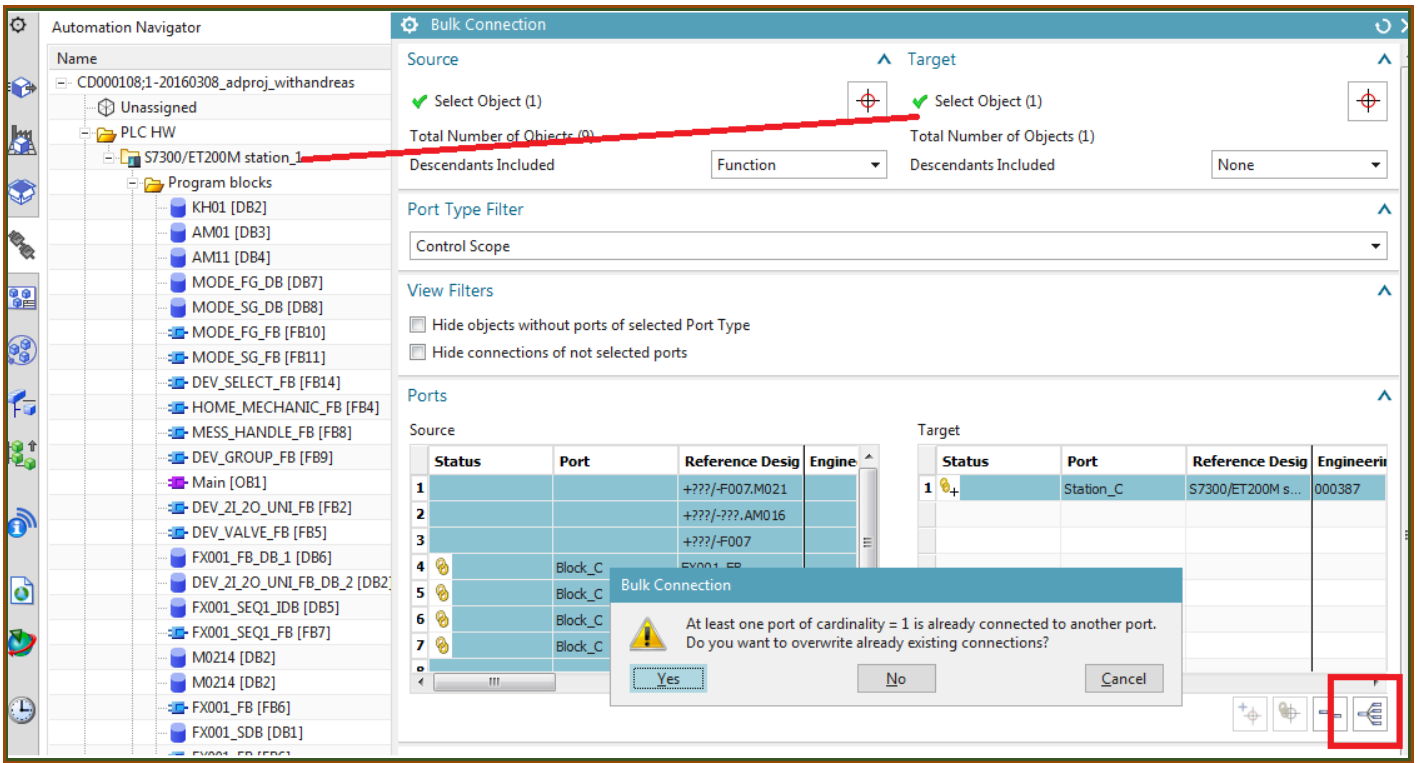
Now copy m001, paste to F001. Note same names.



Error in call

bulk connect to register change (several bugs to battle with).





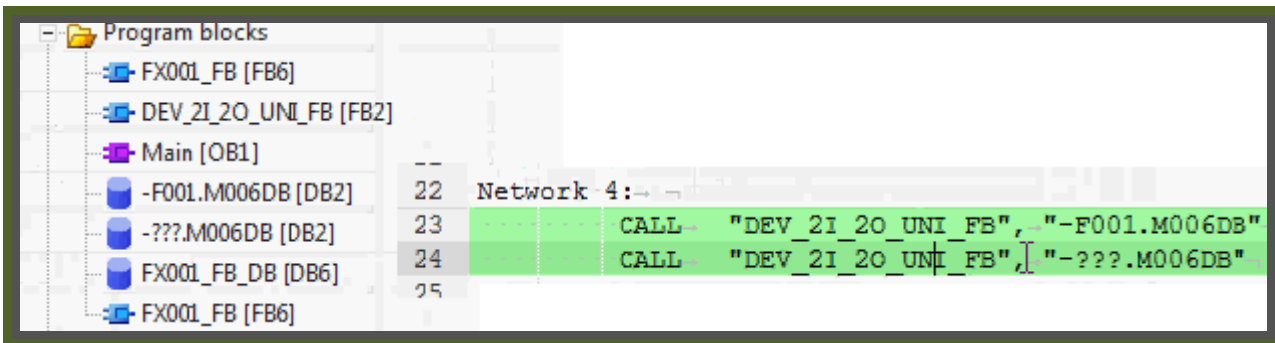
Result.

```

KH01 KH01
AM01 -F001.M008DB...
Network 4:
CALL "DEV_2I_2O_UNI_FB", "-F001.M008DB TT"
CALL "DEV_2I_2O_UNI_FB", "-???M008DB TT"

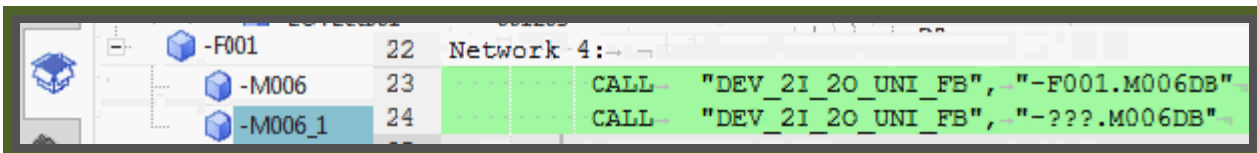
```

20130623

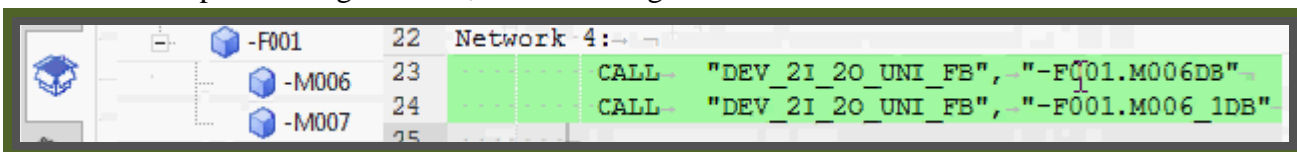


Move the second M in product aspect.

20160323



Rename in P aspect. Change in code, but one change behind.



But it worked 😊

14.5.3. TEST: export to TIA xxxxxxxxxxxxxxxxxxxxxxxxxxxx

15 (GS1-12,13). Create/instantiate template

20160318: copied from ch 13.

20160318_4_create_instantiate_template.avi

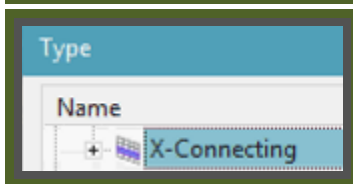
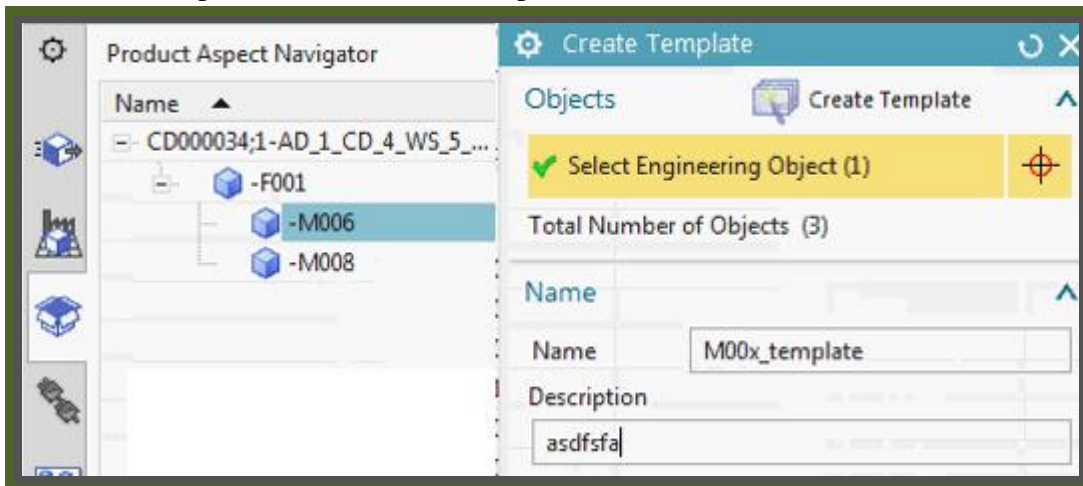
*** 13.7. Create template; insert template; modify (20160311)

20160311_1_0824_insert_template_delete_motor.avi

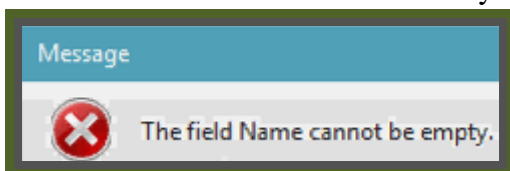
15.1. Create template 20160323

20160323_4_ch15_create_instant_template_errors.avi

1. Create a template of M00x. from P aspect??



Ran into this error several times today.. not sure why.

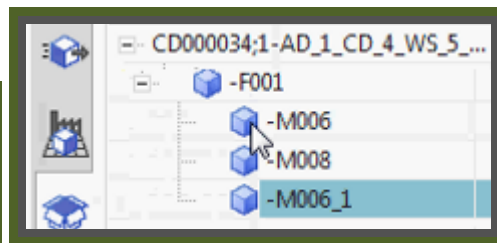
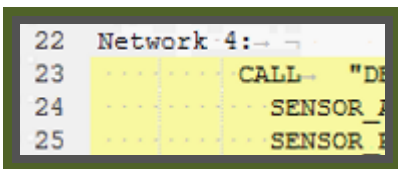
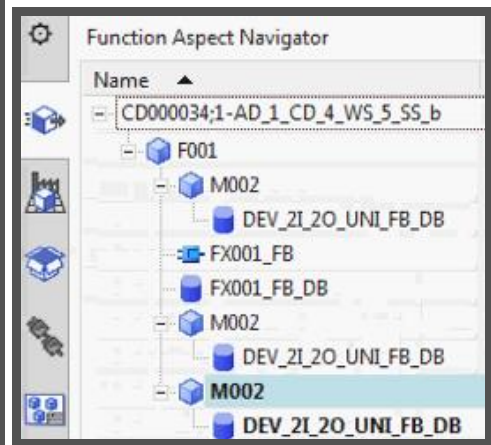
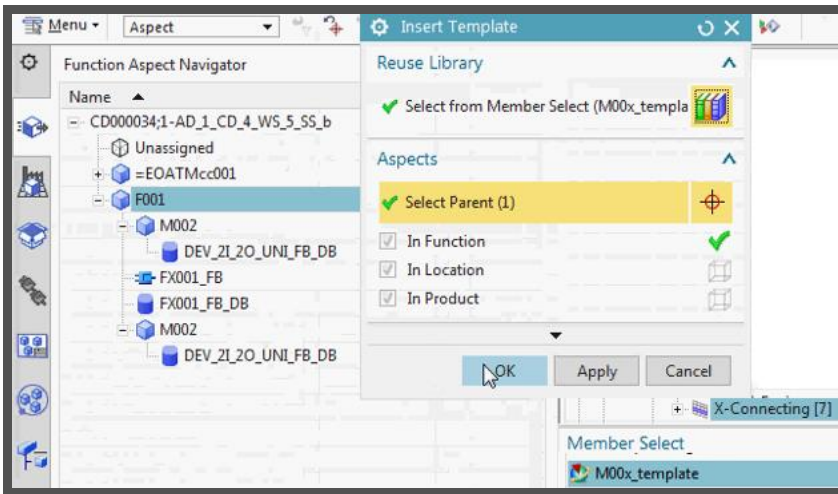


Close template

15.2a. test NEW 20160323

20160323_4_ch15_create_instant_template_errors.avi

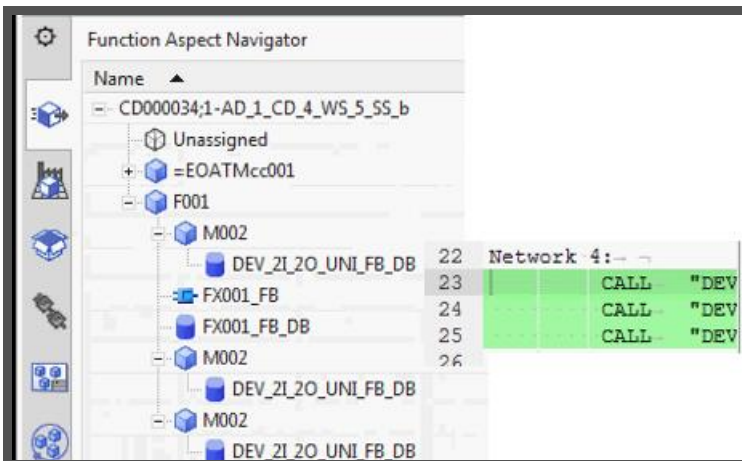
1. insert template (not mtnbot)



Bulk connect. Not fixed.

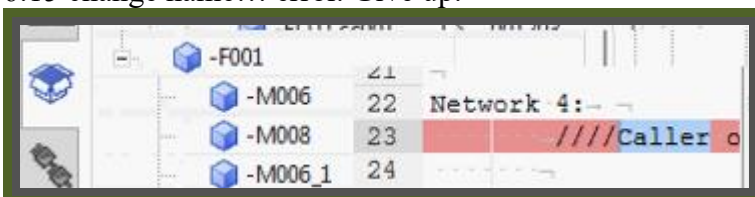
4:00 redo dynamic connection.

5:20 fixed.



5:40 add again. No change.

6:15 change name... error. Give up.

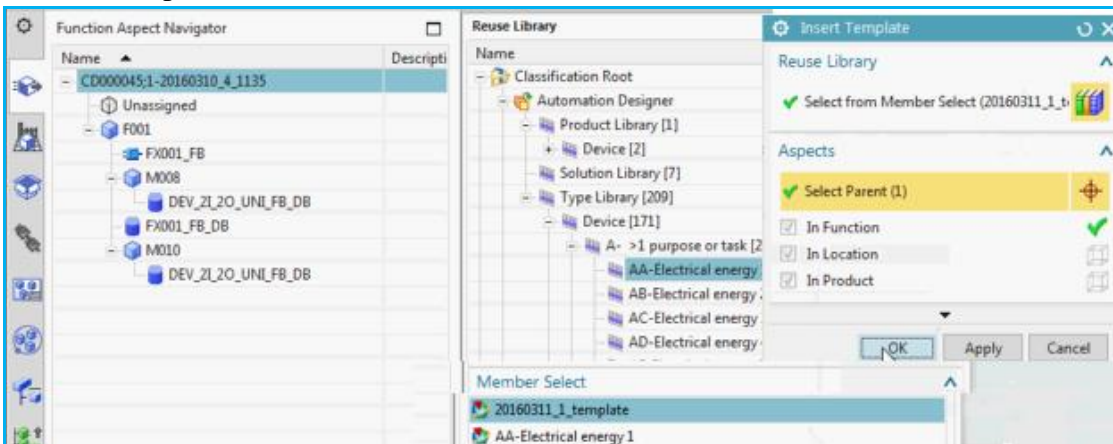


In 20160323_5_ch15_reconnect.avi reconnect.

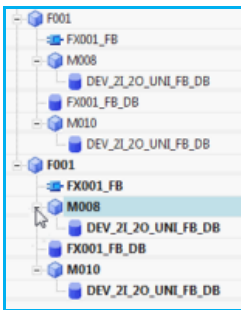
15.2b. test (old)

1. insert template (not mtnbot)

2. Insert template.

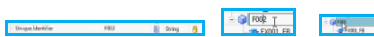


Result.

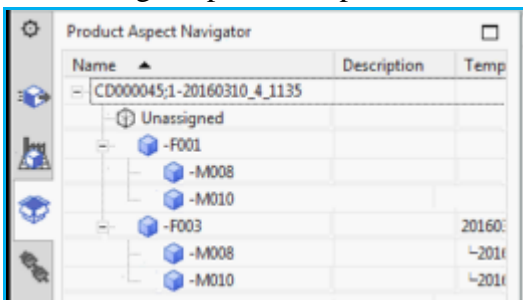


xxxxxxxxxxxxxxxxxxxxxxxx3. Change name to F002. no effect.

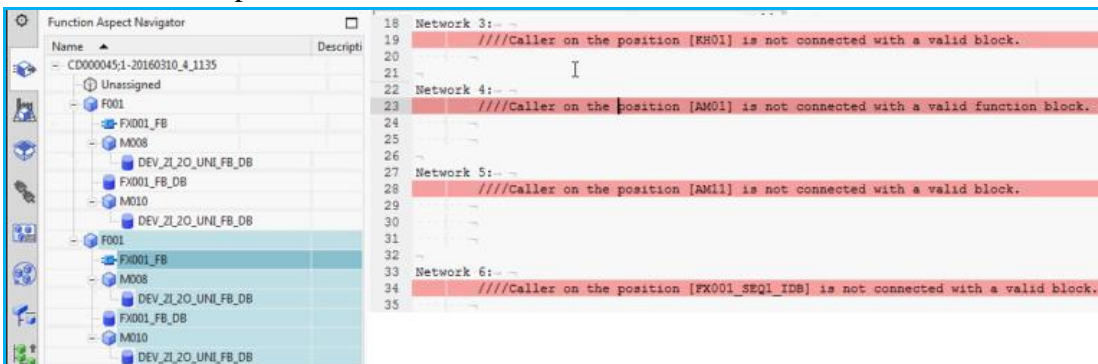
Change and no effect?



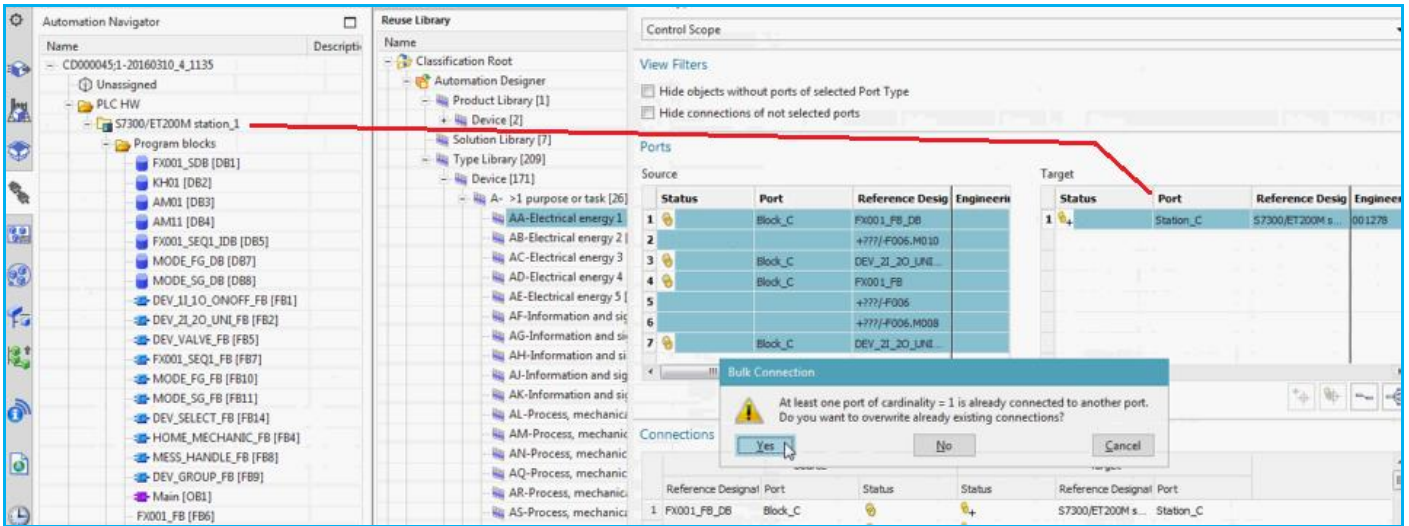
4. Rearrange in product aspect.



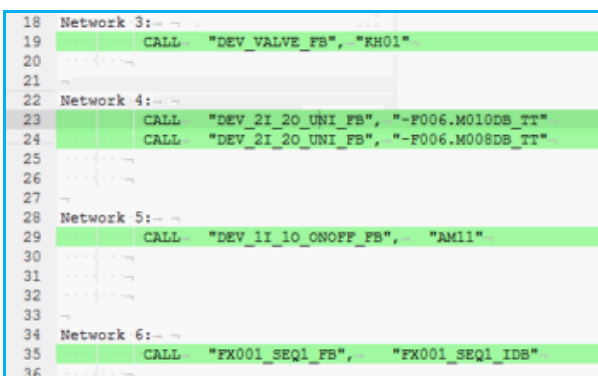
calls are messed up. 06:20



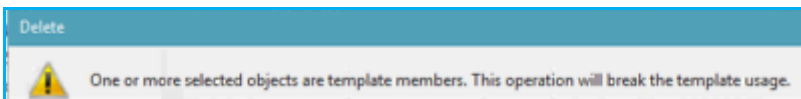
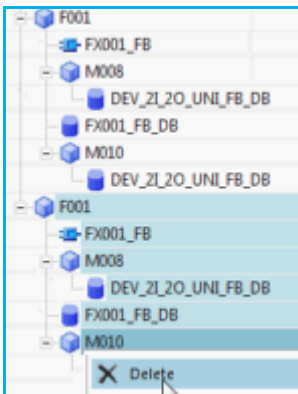
5. Connect



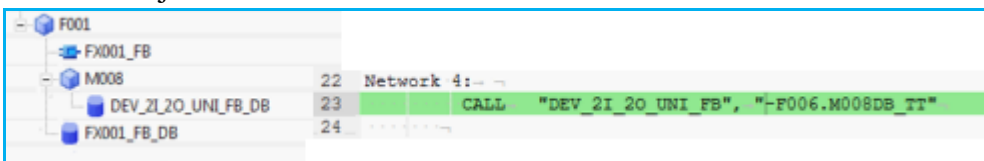
OK now.



6. Delete a motor.



Call auto-adjusted. ☺



xxx2. generate EPLAN

3. generate TIA xxx

C. round-trips

17 (NEW). LD-AD round-trips 20160323-24

17 (OLD). LD-AD round-trips

18. AD-EPLAN round-trips

19. AD-TIA round-trips

17 (NEW). LD-AD round-trips 20160323-24

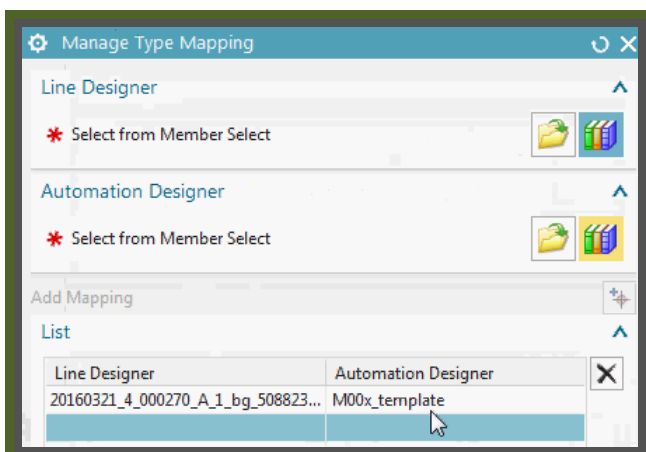
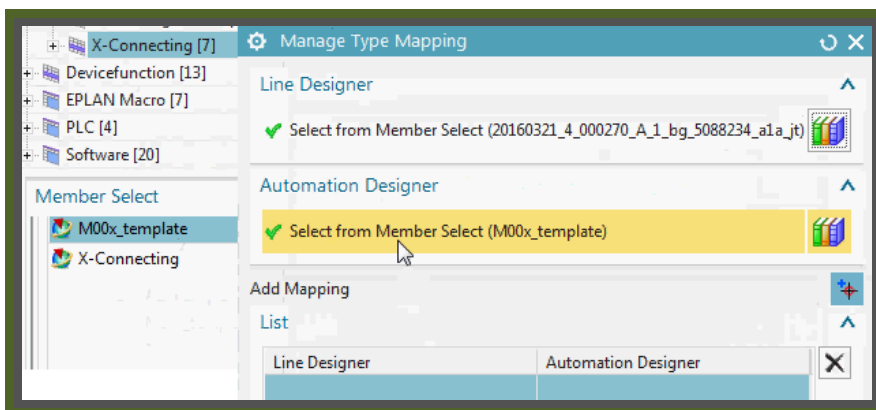
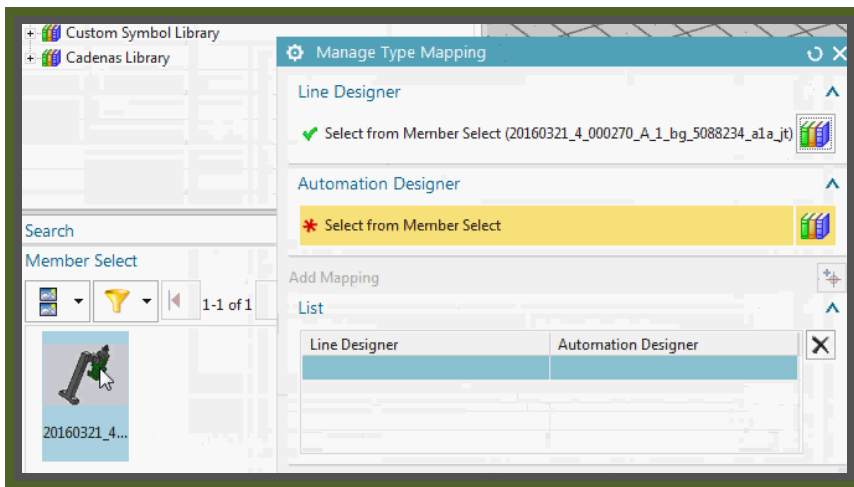
20160323_6_ch17_CORRUPT.avi

In this moview I think I added 4 parts.. not sure, nx crashed and movie with it.. but in next movie there are 4 more unmapped parts.

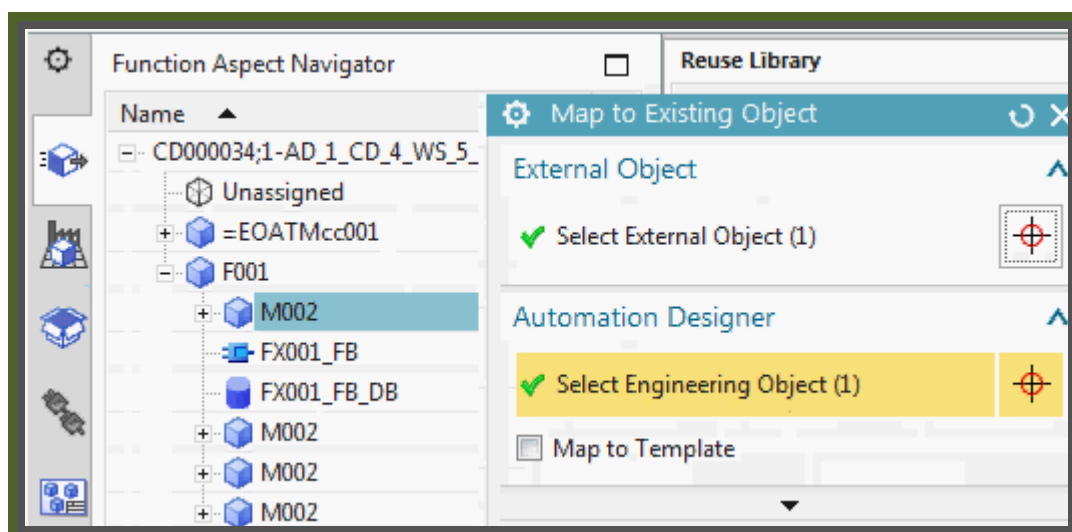
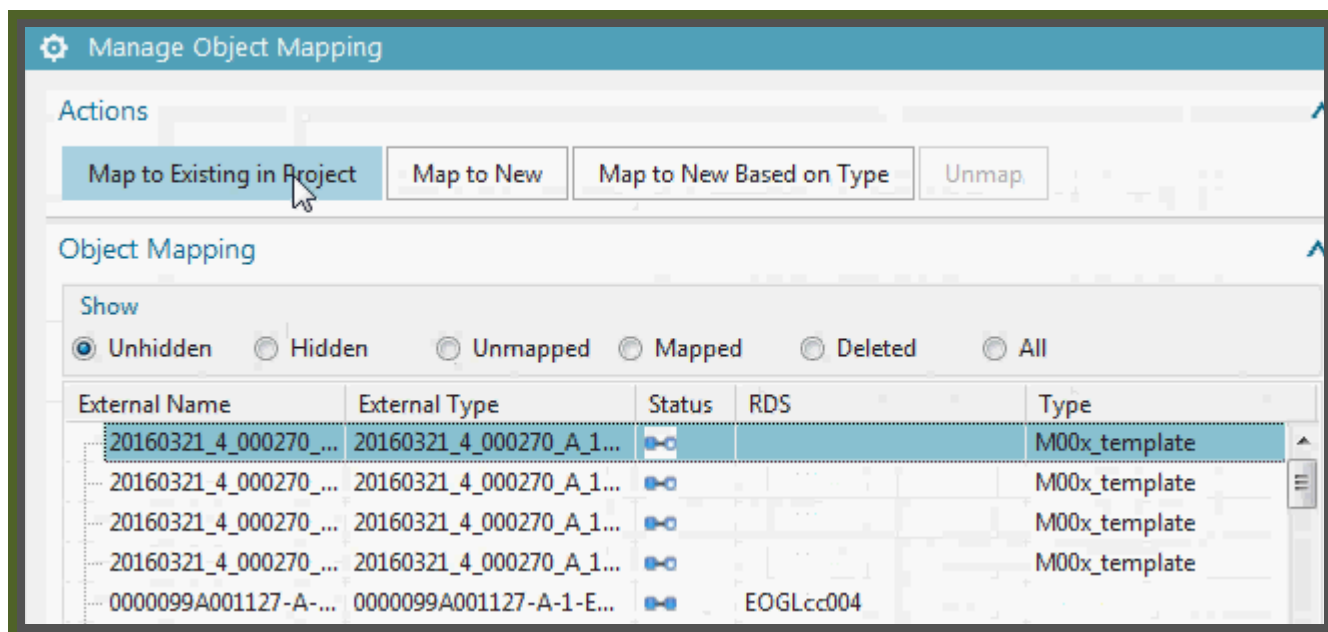
WAIT.. maybe not.. I think those 4 were from the beginning. I just never mapped them yet.

20160323_7_ch17_map.avi

Manage type mapping



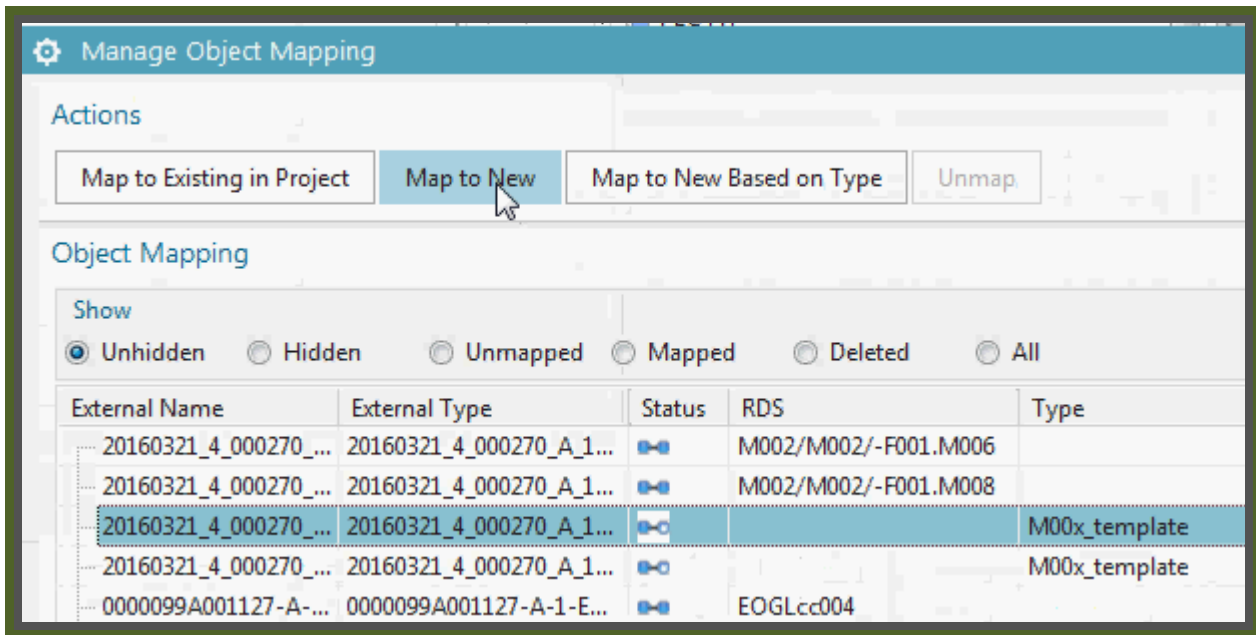
Manage object mapping >> 1. map to existing in project



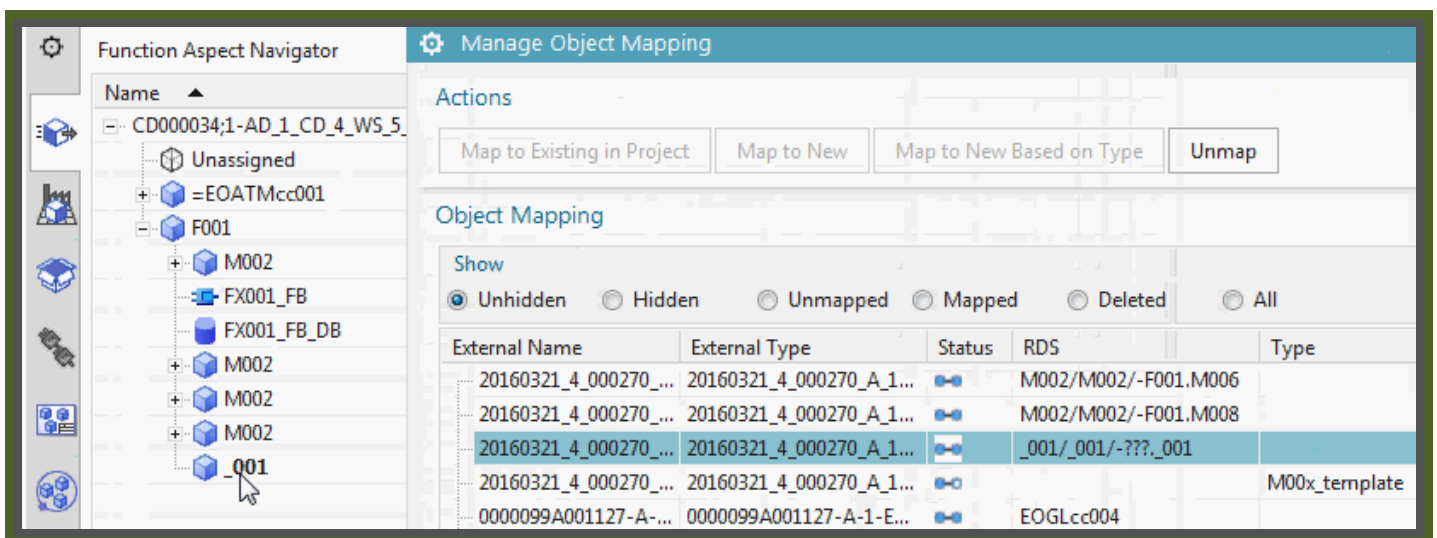
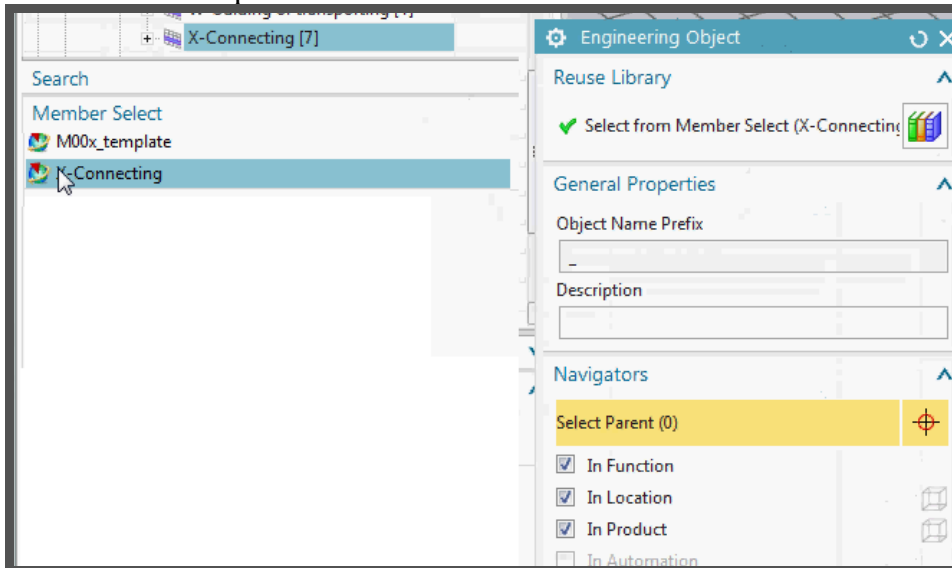
| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |

Do again to second in row.

Manage object mapping >> 2. map to new



Cannot select template.



Manage Object Mapping

Actions

Map to Existing in Project | Map to New | Map to New Based on Type | Unmap

Object Mapping

Show

Unhidden Hidden Unmapped Mapped Deleted All

| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | M002/M002/-F001.M008 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | _001/_001/-???_001 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | | M00x_template |
| 0000099A001127-A-... | 0000099A001127-A-1-E... | ↔ | EOGLcc004 | |

Manage object mapping >> 3. map to new based on type

Manage Object Mapping

Actions

Map to Existing in Project Map to New **Map to New Based on Type** Unmap

Object Mapping

Show

Unhidden Hidden Unmapped Mapped Deleted All

| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M008 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | _001/_001/-???_001 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | | M00x_template |
| 0000099A001127-A-... | 0000099A001127-A-1-E... | | EOGLcc004 | |

| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M006 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M002/M002/-F001.M008 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | _001/_001/-???_001 | |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | | M00x_template(0003) | M00x_template |
| 0000099A001127-A-... | 0000099A001127-A-1-E... | | EOGLcc004 | |

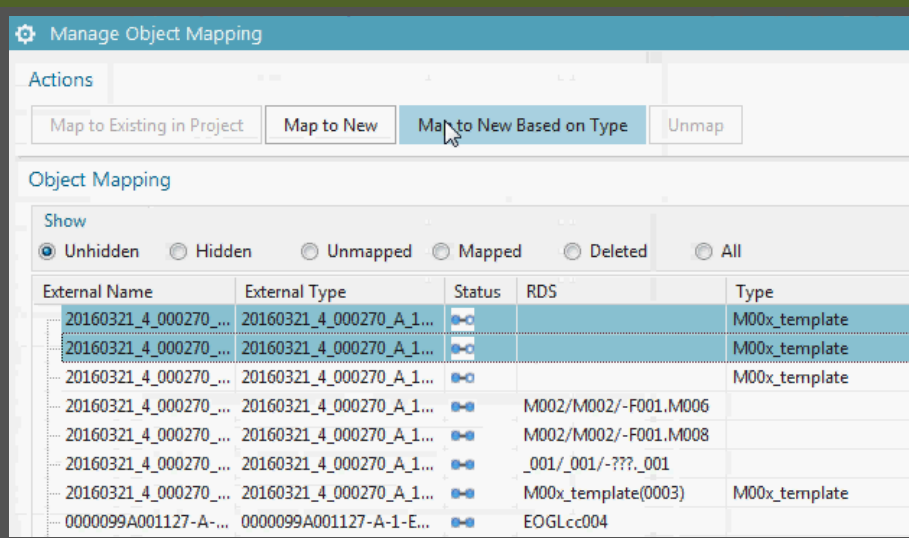
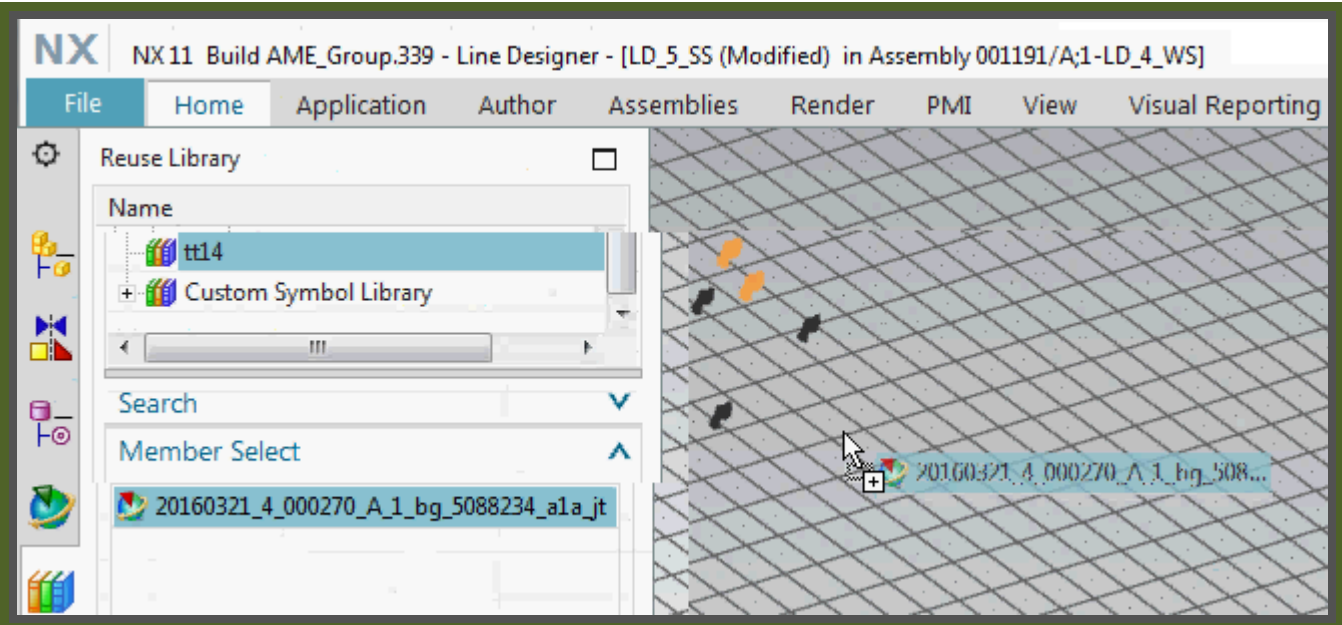
CD000034;1-AD_1_CD_4_WS_5_...

- Unassigned
- M002**
- =EOATMcc001
- F001
 - M002
 - FX001_FB
 - FX001_FB_DB
 - M002
 - M002
 - M002
 - _001

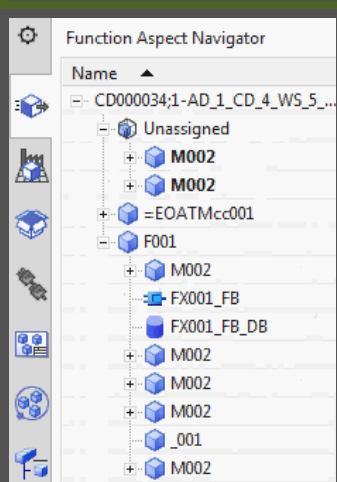
F001

- M002
- FX001_FB
- FX001_FB_DB
- M002
- M002
- M002
- _001
- M002

20160323_8_ch17_add_part_map.avi

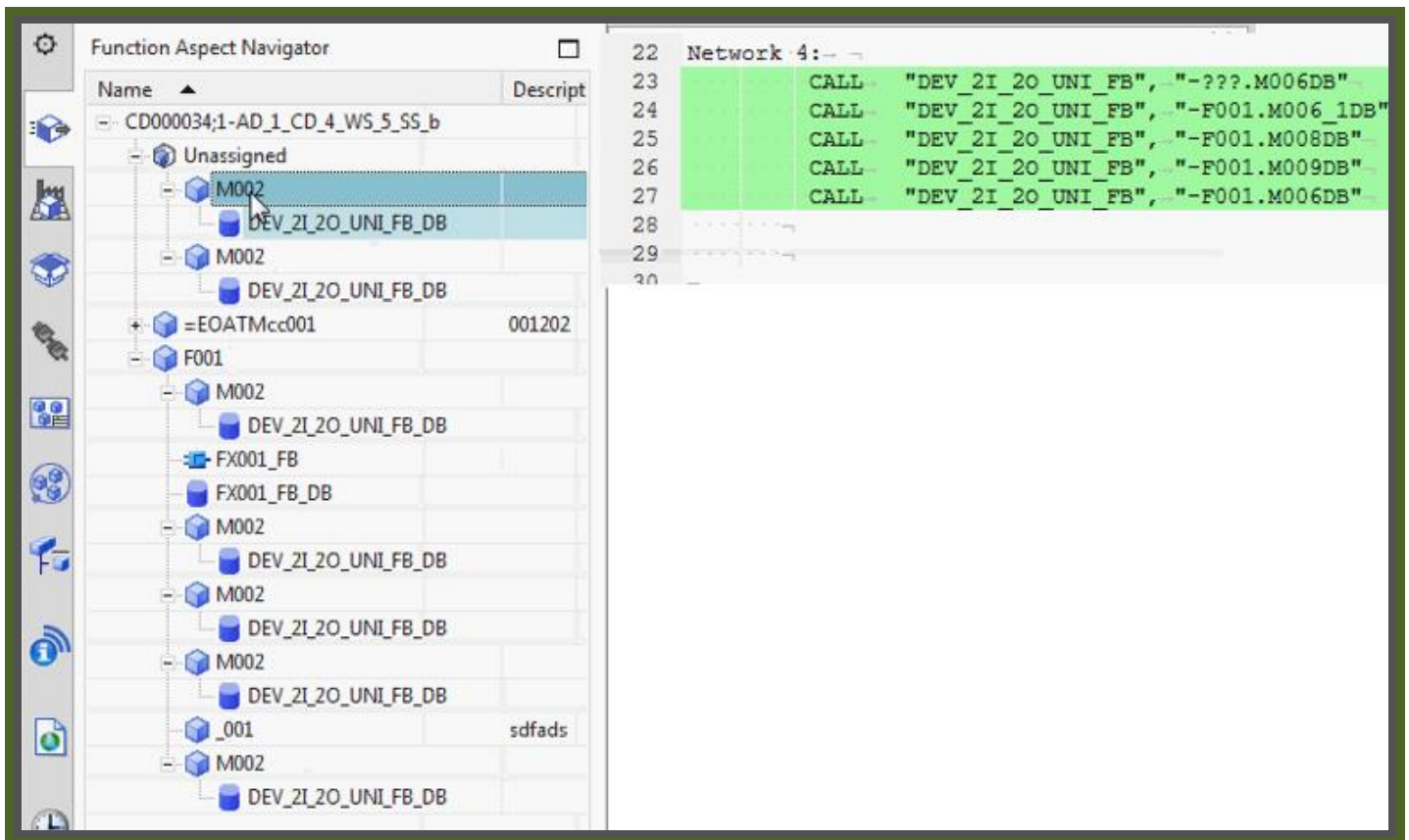


| External Name | External Type | Status | RDS | Type |
|-----------------------|--------------------------|--------|----------------------|---------------|
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | M00x_template(0004) | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | M00x_template(0005) | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | | M00x_template |
| 20160321_4_000270_... | 20160321_4_000270_A_1... | ↔ | M002/M002/-F001.M006 | |



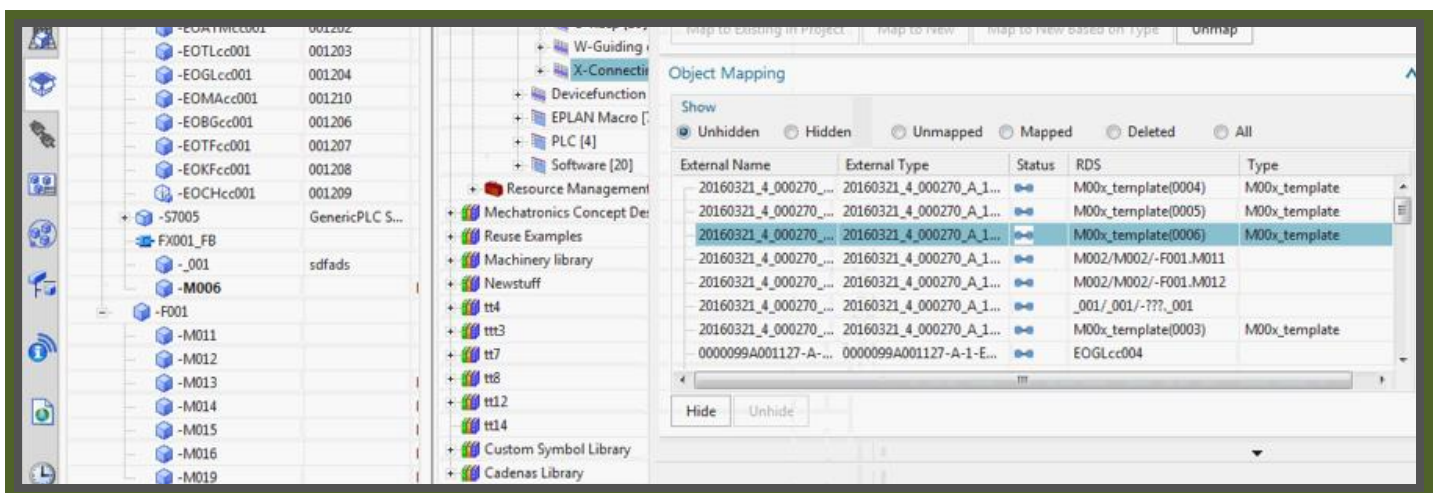
20160324_9.avi

Not added to call.. try all kinds of stuff... nthing works.



20160324_10.avi

Add this, play around a while, move things.. connect.. never updates calls.



20160324_1530

So lets look at ports.... Looks ok.

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|----------------|-----------|-------------------|------------|-------------|--|
| User Defined | | | | | | | |
| FtoD | | | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB049 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB048 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB050 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB051 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB047 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB045 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB043 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB046 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| DB042 | | DtoF | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| System Defined | | | | | | | |
| TIA Link | | | TIA Link | TIA Link FLP | Undirected | 1 | TIA Link A |
| EO | | | EO | Any | Undirected | N | Device Function, EOAny, PLCPortType, OB, PLC_CHANNEL_POR |
| INTERNAL | | | INTERNAL | AttributePortType | Undirected | N | PLCPortType, AttributePortType |
| INTERNAL | | | INTERNAL | AttributePortType | Undirected | N | PLCPortType, AttributePortType |

Check connection...

| Object | Connection | Status |
|---------|--|--------------------|
| KH01 | -F001.M011DB | |
| AM01 | -F001.M019DB, -F001.M016DB, -F001.M006DB, -F001.M015DB, -F001.M013DB, -F001.M012DB, -F001.M014DB, -F001.M011DB | Dynamic Connection |
| AM11 | -F001.M011DB | |
| FX00... | -F001.M011DB | Disconnect |

| Name | Formula | Value | Type | Dimensionality | Units | Source | Status | Comment | Ch... | Group |
|-------|---------------------------------|---|--------|----------------|-------|-------------------------------|--------|---------|-------|---------------|
| 1 fff | GetConnectedObjects(p3, "FtoD") | {"DB049", "DB048", "DB050", "DB051", "DB047", "DB045", "DB043", "DB046", "DB042"} | List | | | | | | | Default Group |
| 2 p1 | (Attribute) | "F001" | String | | | (F001:Type:Unique Identifier) | | | | Default Group |
| 3 p3 | (Attribute) | "F001" | String | | | (F001:Type:Unique Identifier) | | | | Default Group |
| 4 | ** | ** | String | | | | | | | Default Group |

Click OK... and VIOLA! links finally updated. Strange. But the goal we wanted. 😊 😊 😊

Configurations

| Name | Value | Type |
|---------------|--|------|
| Global Sym... | | |
| Tags | | |
| FB/IDB | | |
| KH01 | -F001.M011DB | |
| AM01 | -F001.M019DB, -F001.M016DB, -F001.M011DB, -F001.M006DB, -F001.M015DB, -F001.M013DB, -F001.M012DB, -F001.M014DB, -F001.M011DB | |
| AM11 | -F001.M011DB | |
| FX00... | -F001.M011DB | |
| FC | | |
| DB | | |
| Ports | | |
| Caller P... | | |
| Operand... | | |
| Rules | | |
| Calls | | |
| Methods | | |
| Operand | | |
| Methods | | |

Interface

| Name | Defa... | Data ... | Comments |
|-----------------------|---------|----------|----------|
| Input | | | |
| CONF_TIME_ONOFF | | Time | |
| CONF_HOME_PATTERN_OFF | | Word | |
| CONF_HOME_PATTERN_ON | | Word | |
| InOut | | | |
| Static | | | |
| MODE_FG | | "MOD... | |
| Input | | | |

PLC Code

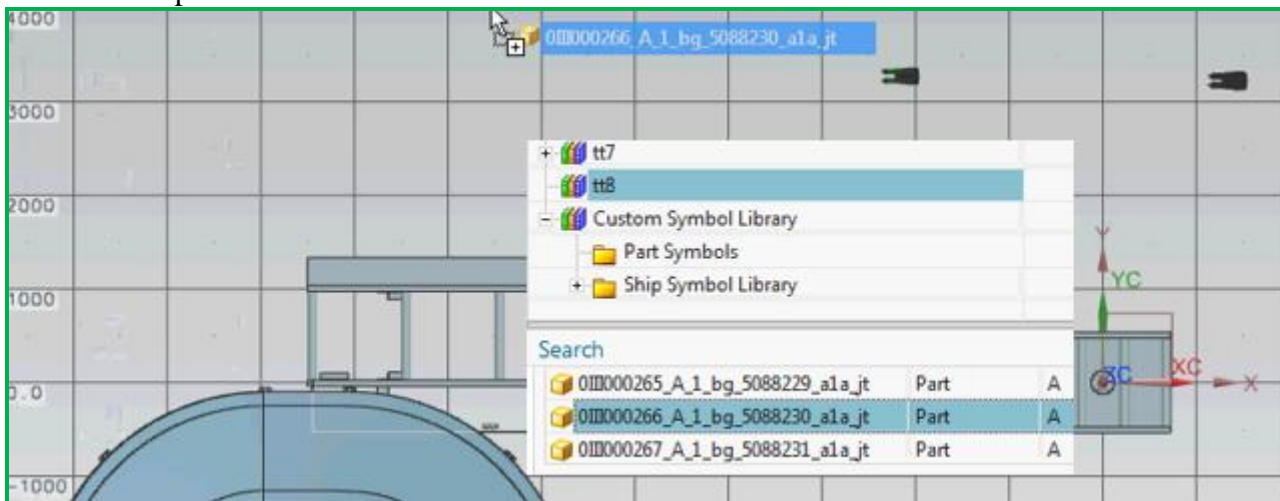
```
22 Network 4:--
23 CALL "DEV_2I_2O_UNI_FB", "--F001.M019DB"
24 CALL "DEV_2I_2O_UNI_FB", "--F001.M016DB"
25 CALL "DEV_2I_2O_UNI_FB", "--F001.M111DB"
26 CALL "DEV_2I_2O_UNI_FB", "--F001.M006DB"
27 CALL "DEV_2I_2O_UNI_FB", "--F001.M015DB"
28 CALL "DEV_2I_2O_UNI_FB", "--F001.M013DB"
29 CALL "DEV_2I_2O_UNI_FB", "--F001.M012DB"
30 CALL "DEV_2I_2O_UNI_FB", "--F001.M014DB"
31 CALL "DEV_2I_2O_UNI_FB", "--F001.M011DB"
32
```


17 (OLD). LD-AD round-trips

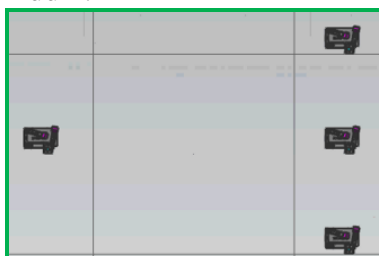
20160318_5_add_LD_part_manage_type_map_mtnbot.avi

17.1. "manage type mapping" (LD DE's to AD templates)

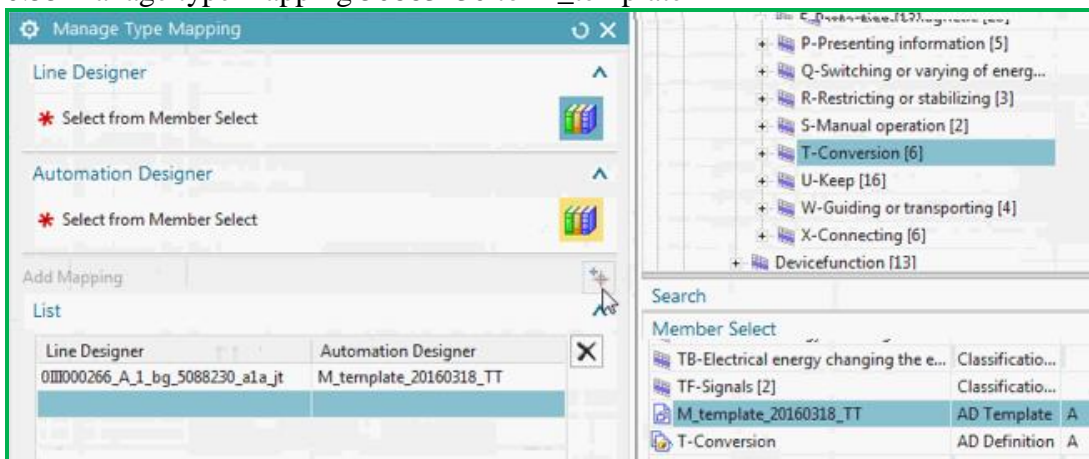
0:00 add LD parts 50883230



Add 4.



0:55 manage type mapping 50883230 to M_template



17.2. (ch6) mtnbot (add mapped template instances)

1:50 manage object mapping

Manage Object Mapping

Actions

Map to Existing in Project | Map to New | **Map to New Based on Type** | Unmap

Object Mapping

Show: Unhidden Hidden Unmapped Mapped Deleted All

| External Name | External Type | Status | RDS | Type |
|--------------------------------|-------------------------|--------|--------------------|--------|
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | | M_temp |
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | | M_temp |
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | | M_temp |
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | | M_temp |
| 0M000262_A_1_BG_5088226_A1A_JT | 0M000262_A_1_bg_5088... | | K001/K001/-???K001 | |

| External Name | External Type | Status | RDS | Type |
|--------------------------------|-------------------------|--------|--------------------------|--------|
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | M_template_20160318_T... | M_temp |
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | M_template_20160318_T... | M_temp |
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | M_template_20160318_T... | M_temp |
| 0M000266_A_1_BG_5088230_A1A_JT | 0M000266_A_1_bg_5088... | | M_template_20160318_T... | M_temp |

2:30 rename

Product Aspect Navigator

| Name | Des... | Template | Data |
|-----------------------|--------|------------------------------|------|
| CD000023;1-AD Project | | | |
| Unassigned | | | |
| -M004 | | M_template_20160318_TT(00... | |
| -M004 | | M_template_20160318_TT(00... | |
| -M004_2 | | M_template_20160318_TT(00... | |
| -M004_3 | | M_template_20160318_TT(00... | |
| -F004 | | | |
| -M002 | | | |
| -M004 | | | |

| Name | Des... | Template | Data |
|-----------------------|--------|------------------------------|------|
| CD000023;1-AD Project | | | |
| Unassigned | | | |
| -F004 | | | |
| -M002 | | | |
| -M004 | | | |
| -M0011 | | M_template_20160318_TT(00... | |
| -M0012 | | M_template_20160318_TT(00... | |
| -M0013 | | M_template_20160318_TT(00... | |
| -M0014a | | M_template_20160318_TT(00... | |

3:00 put in F aspect

Function Aspect Navigator

| Name | Descr... | Template |
|-----------------------|----------|-------------------------|
| CD000023;1-AD Project | | |
| Unassigned | | |
| F004 | | |
| FX001_FB | | |
| M002 | | |
| DEV_2I_2O_UNI_FB_DB | | |
| FX001_FB_DB | | |
| M004 | | |
| DEV_2I_2O_UNI_FB_DB | | |
| M0011 | | M_template_20160318_... |
| DEV_2I_2O_UNI_FB_DB | | ↳M_template_2016031... |
| M0012 | | M_template_20160318_... |
| DEV_2I_2O_UNI_FB_DB | | ↳M_template_2016031... |
| M0013 | | M_template_20160318_... |
| DEV_2I_2O_UNI_FB_DB | | ↳M_template_2016031... |
| M0014a | | M_template_20160318_... |
| DEV_2I_2O_UNI_FB_DB | | ↳M_template_2016031... |

Network 4

| | |
|------|-------------------------------------|
| CALL | "DEV_2I_2O_UNI_FB", "-F004.M002_DB" |
| CALL | "DEV_2I_2O_UNI_FB", "AM01" |
| CALL | "DEV_2I_2O_UNI_FB", "-F004.M004_DB" |

3:18 bulk connect, no effect

4:15 insert another template

Product Aspect Navigator

| Name | Descr... | Template |
|-----------------------|----------|-------------------------|
| CD000023;1-AD Project | | |
| Unassigned | | |
| -K001 | | |
| -K002 | | |
| -K003 | | |
| -F004 | | |
| -M002 | | |
| -M004 | | |
| -M0011 | | M_template_20160318_... |
| -M0012 | | M_template_20160318_... |
| -M0013 | | M_template_20160318_... |
| -M0014a | | M_template_20160318_... |
| -M0015 | | M_template_20160318_... |

Insert Template

Reuse Library

Select from Member Select (M_template_...)

Aspects

Select Parent (1)

In Function

In Location

In Product

OK Apply Cancel

Reuse Library

- T-Conversion [6]
- U-Keep [16]
- W-Guiding or transporting [4]
- X-Connecting [6]
- Devicefunction [13]

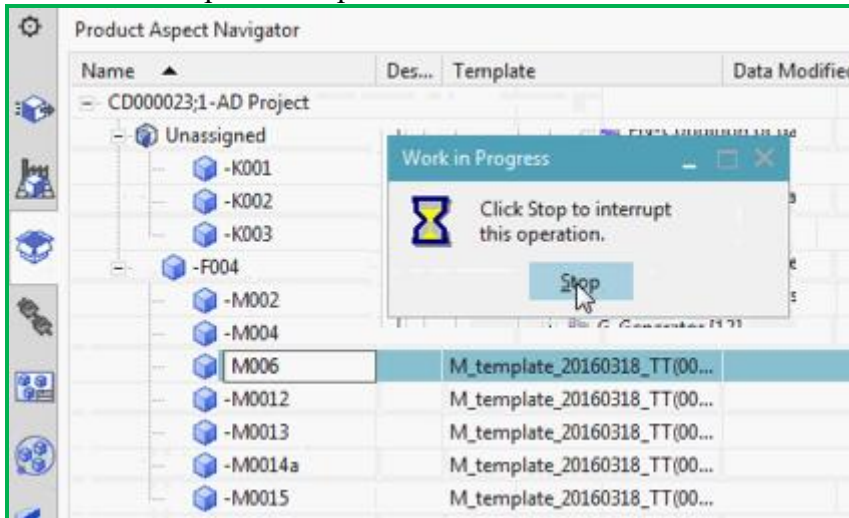
Search

Member Select

| | |
|--|------------------|
| TB-Electrical energy changing the e... | Classificatio... |
| TF-Signals [2] | Classificatio... |
| M_template_20160318_TT | AD Template A |
| T-Conversion | AD Definition A |

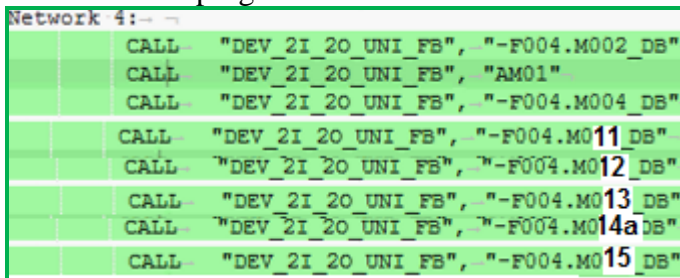
4:45 bulk connect no change

5:50 rename in product aspect ... worked



However.... At 6:07 I paused the movie record.

When work in progress ended the result was what wanted. Something like this:



But then switched to LD, back to AD, and all of AD was gone (I forgot to save while working). Also the last portion of the movie (after 6:07) was gone.

But basically it worked.

18. AD-EPLAN round-trips

xxx

19. AD-TIA round-trips

Xxx

D. dynamic connection outside of template (20130329)

11.3. Create dynamic connection for automation-tag

20160329 TERRY: I lost everything this morning that I did in the previous chapters... a bug with TC. So start over. Instead of doing all over, just in this section do a simple example starting with new project. I used RB_AT because not have S7 license and cant edit EDAG14, so just used from RL.

You need to create a dynamic connection to a tag.

Function Aspect Navigator

| Name | Template |
|--------------------------|-----------|
| CD000293;1-20150929 | |
| Unassigned | |
| =ATM001 | |
| =TL001 | |
| =GL007_ddd | fff(0001) |
| =GL007_ddd_1 | fff(0002) |
| =MA007 | fff(0002) |
| =BG000_xox | fff(0002) |
| =TF004 | fff(0002) |
| =BG002 | fff(0002) |
| =BG003 | fff(0002) |
| =BG004 | fff(0002) |
| RB_AT [FB1012] | fff(0002) |
| RB_AT_DB [DB1012] | fff(0002) |
| PosDev_2D2S2P_DB [DB369] | fff(0002) |
| DRIVE_G120D_CU240_IO_1 | fff(0002) |
| FRG_EStop | |

manual connection

dynamic connection (using port)

no port (for tag)

template1

template2

PLCcode

```

1 Network 1:--
2 ..... A- "FRG EStop"
    
```

11_16

In this section you:

1. Create port **ToTag** port (in EO P001).
2. Manual connect P001 to AM001 using the port.
3. Create RB_AT to AM001 dynamic connection.

1. Create port **ToTag** (in EO P001)

Port

Properties

Name: ToTag

Configuration

Port Type: EO

Connection Type: Any

Direction: Undirected

Cardinality: N

Connectable Types

2. Manual connect TL01 to FRG_Estop using the port

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------------|
| User Defined | | | EO | Any | Undirected | N | Device Function, EOAny, PLC... |
| ToTag | | | EO | Any | Undirected | N | Device Function, EOAny, PLC... |
| System Defined | | | | | | | |
| TIA Link | | | | TIA Link FLP | Undirected | 1 | TIA Link A |
| P001 | | | | Any | Undirected | N | Device Function, EOAny, PLC... |

Manual Connection

Source: ToTag

Target: AM011

Select Object (1)

Select Port

| Port | Connected Object | Connected Port | Port Type | Conn |
|-------|------------------|----------------|-----------|------|
| AM... | | | EO | TAG |
| FB001 | | SENSOR_ON | INTERNAL | |

Ports

| Port | Connected Ob... | Connected Port | Port Type | Connection Type | Direction | Cardinality | Connectable types |
|----------------|-----------------|----------------|-----------|-----------------|------------|-------------|--------------------------------|
| User Defined | | | EO | Any | Undirected | N | Device Function, EOAny, PLC... |
| ToTag | AM011 | AM011 | EO | TAG | Undirected | N | PLC_SOFTWARE_SYMBOL_P... |
| System Defined | | | | | | | |
| TIA Link | | | | TIA Link FLP | Undirected | 1 | TIA Link A |
| P001 | | | | Any | Undirected | N | Device Function, EOAny, PLC... |

3. Create RB_AT to tag dynamic connection

1. In the row for the tag right click and select "Dynamic Connection" or right-click on the tag in the code window. Note: If you do not see the popup "Dynamic connection", then unconnect first.

| Name | Value | Type |
|---------------|-------|------|
| Global Sym... | | |
| Tags | | |
| IBNO | | Bool |
| reset | | |
| Pos_... | | |

| | | | |
|----|--------------|-------------|--------------------|
| 19 | Network 4:-- | | Manual Connection |
| 20 | ----- | "IBNO" | Dynamic Connection |
| 21 | ----- | #ENABLE_ADV | |

| Name | Formula | Value | Type | Dimensionality |
|------|---------|---------------------------------|-----------------|----------------|
| 1 | dddd | GetConnectedObjects(p1,"ToTag") | {"ST001.Tag27"} | List |
| 2 | | ** | String | |

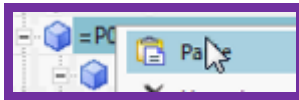
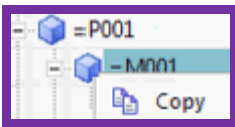
| Name | Value | Type |
|---------------|-------|------|
| Global Sym... | | |
| Tags | | |
| FRG_... | BG011 | Bool |
| FRG_... | | Bool |
| IBNO | AM011 | Bool |
| reset | | Bool |

| | | |
|----|--------------|-------------|
| 19 | Network 4:-- | |
| 20 | ----- | "AM011" |
| 21 | ----- | #ENABLE_ADV |
| 22 | ----- | |
| 23 | --- | |
| 24 | Network 5:-- | |
| 25 | ----- | "AM011" |
| 26 | ----- | #ENABLE_RTN |

| | | |
|---------|-------|--------------------|
| IBNO | AM011 | Bool |
| reset | | Dynamic Connection |
| Pos_... | | Disconnected |

Error: connection info not shown.

| Name | Formula | Value | Type | Dimensionality |
|------|---------|-------|--------|----------------|
| 1 | ** | ** | String | |



Function Aspect Navigator

Configurations

| Name | Value | Type |
|---------------|-------|------|
| Global Sym... | | |
| Tags | | |
| FRG_... | | Bool |
| FRG_... | | Bool |
| IBNO | AM011 | Bool |
| reset | | Bool |
| Pos_... | | Bool |
| slow... | | Bool |

PLC Code

```
19 Network 4:--
20 ..... "AM011"
21 ..... #ENABLE_ADV
22 .....
23 .....
24 Network 5:--
25 ..... "AM011"
26 ..... #ENABLE_RTN
27 .....
28 .....
29 Network 6:--
```

Properties

Select Object

Select Object (1)

Context

Interaction Method: Traditional

PLC Tag Attributes

| Title/Alias | Value | Units | T... | Type | R... | L... |
|---------------|--------|-------|------|--------|------|------|
| General | | | | | | |
| Name | AM011b | | | String | | |
| Symbolic Name | AM011 | | | String | | |

Value Expression Formula: AM011sym

Value

Configurations

| Name | Value | Type |
|---------------|----------|------|
| Global Sym... | | |
| Tags | | |
| FRG_... | BG011 | Bool |
| FRG_... | | Bool |
| IBNO | AM011sym | Bool |

PLC Code

```
19 Network 4:--
20 ..... "AM011sym"
21 ..... #ENABLE_ADV
22 .....
23 .....
24 Network 5:--
25 ..... "AM011sym"
```

Part 5. Real-world examples

20160310 talked with Andreas about this.

maybe 3-4 different template demos, for different business segments.

14a. Demo_Cell (EDAG)

14b. Demo_Cell (terry)

14c. ExampleProject_Automotive

15. material handling (baggage line)

16. packaging (tetra)

14a. Demo_Cell (EDAG) (20160316)

Why study Demo_Cell?

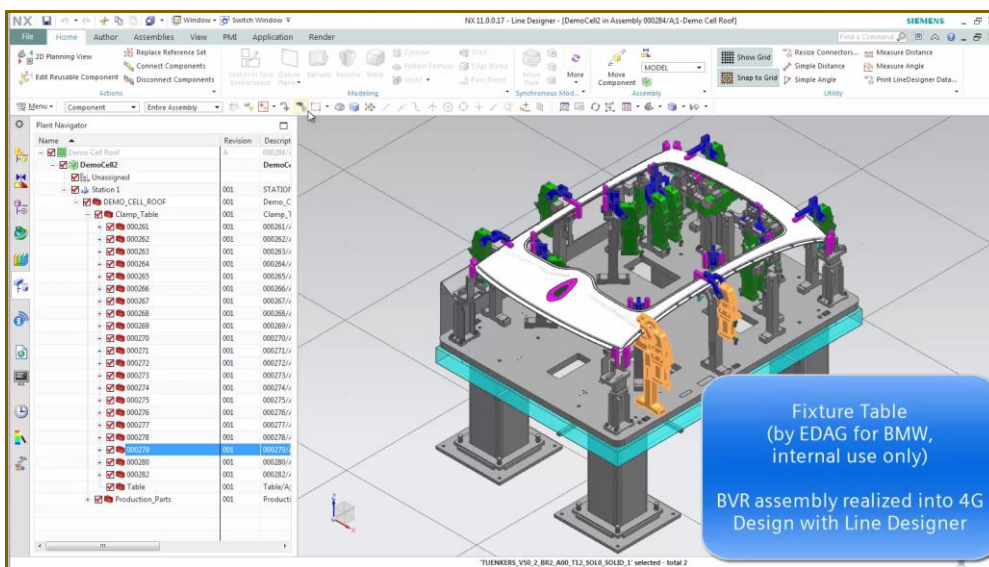
I want to eventually redo the existing "GS" to something like "GS for Demo_cell", to create a more start-to-finish, realistic, complete GS.

1. First step (this chapter) is to understand the EDAG Demo_Cell demo.

This chapter describes the EDAG Demo_cell movie (I rearrange the sequences).

the sentence in this chapter in **highlighted red** a few pages later shows main goal of AD as I understand it.

\\debonk10c19\ADNX\Teams\PRM\Video\2015-12 SystemTest DEAP_201511_7min_commented.mp4



2. Second step (ch 14b) is to create a version of Demo_Cell that integrates parts 1-3 of this GS.

Step-by-step description

Note:

"14b.1" means that this is demo'd in next chapter 14b "Demo_cell Terry" section 1.
"ch3-4" means corresponding quick start chapters.

Assume

1. LD CD setup (14b.1, ch3-4)
2. AD CD setup (14b.2, ch5)
3. AD template (cylinder) created (14b.3, ch7-13)
4. AD template -> reuse library (14b.4)
5. Reuse library setup and import (14b.5,6)
6. LD parts (DEs) already added (14b.7, ch4)

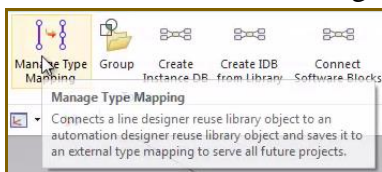
This chapter content:

1. (AD) map LD DE to AD EO
xxx AM clamp group
6:30 manage type mapping MM cylinder (14b.8)
2. (AD) clamp groups (AM)
2:10 insert AM clamp group (no mtnbot)
3. (AD) cylinders (MM)
1:35 mtnbot MM cylinders (14b.9, ch6)
2:30 Cylinders to clamp (should work here, but have to connect to sw block)
2:55 not connected; Call Rules
3:20 connect sw block
3:45 Send to tia
4. (LD, AD) how it should work... ADD CYLINDER
5:00 LD: add cylinder SZK 270
5:40 AD: mtnbot: add new AD EO for LD DE based on type mapping
xxx 0:00 sensor Demo mtnbot 1
xxx 6:55 sensor Demo mtnbot 2

6:30 1. (AD) map LD DE to AD EO (manage type mapping)

CREATE MECHATRONIC LIBRARY (cylinder).

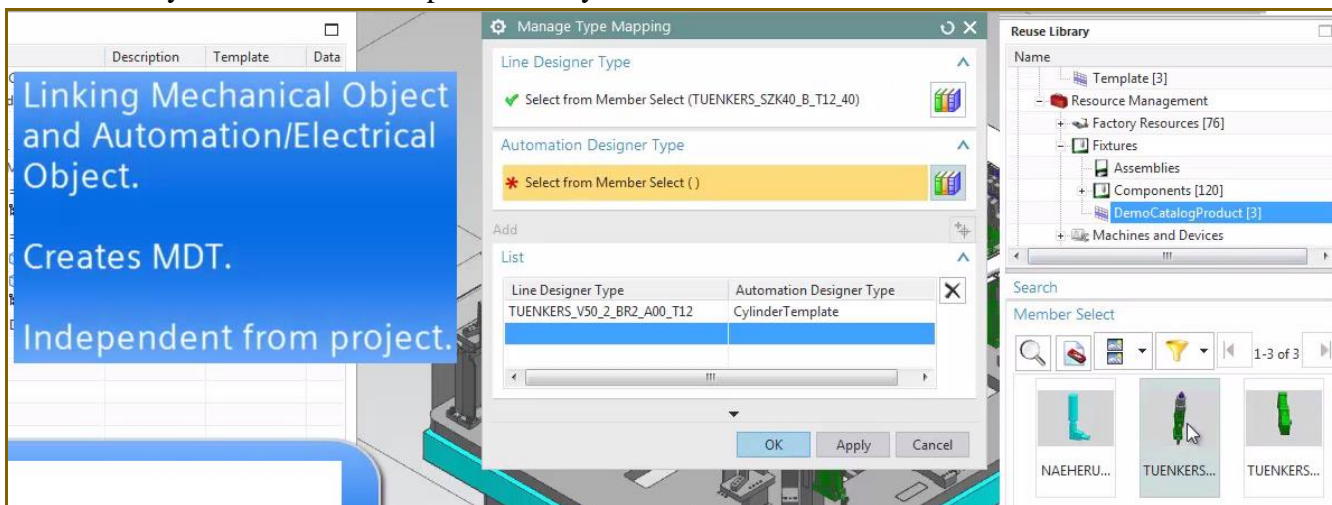
This is what I was not doing, why I could not map.



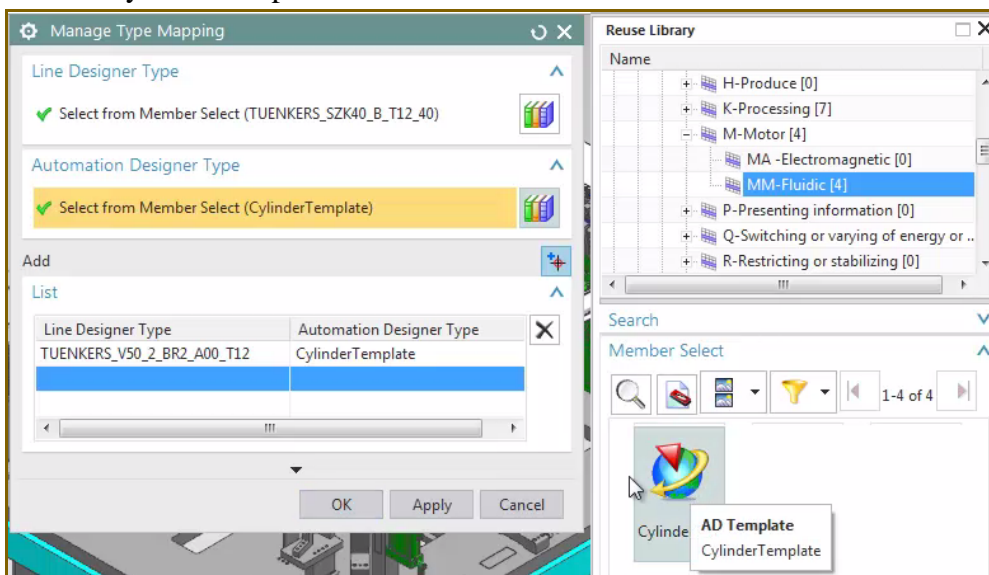
xxx AM clamp group

6:30 MM cylinder

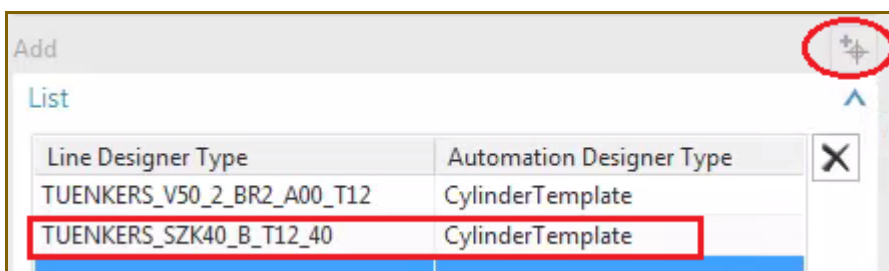
In movie they demo'd how to map the SZK cylinder.



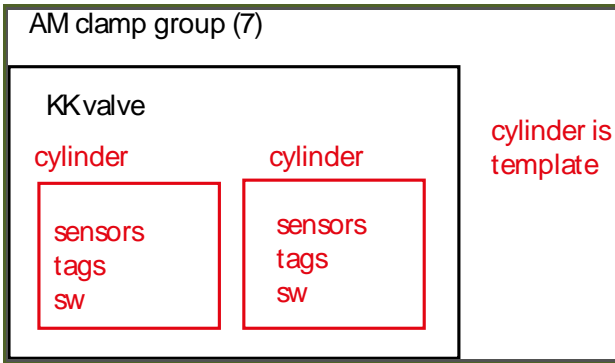
To MM cylinder template.



Click Add.

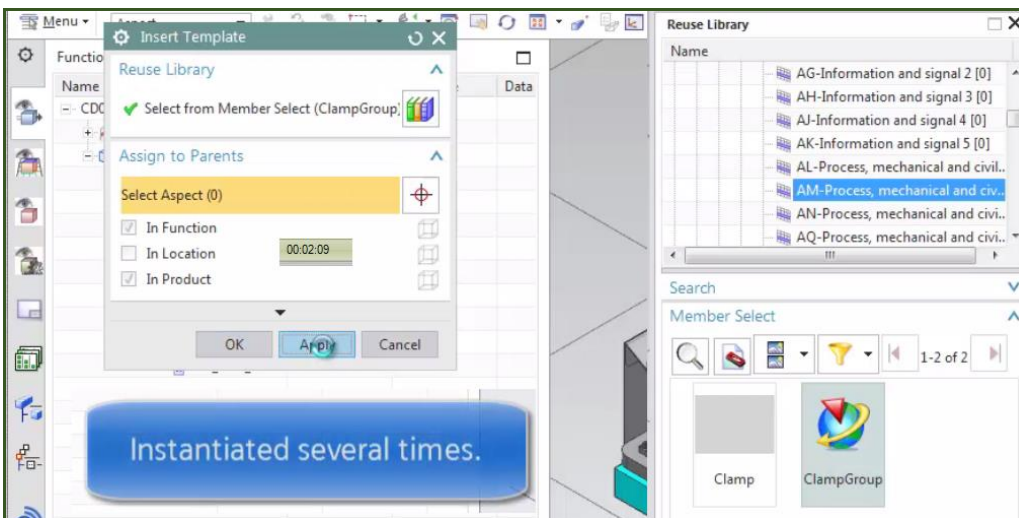


2. (AD) clamp groups (AM)



2:10 AM clamp group / insert (no mtnbot, no mechanical)

AM is clamp group. From what I understand, this does not correspond to a specific LD DE, therefore you don't mtnbot, just insert. Put under FX. I think also AM DEV_ADV_PN... is not called? Add 7.



| | | |
|------------|----------|-----------------|
| + =MM11_20 | Cylinder | CylinderTem... |
| + =AM001 | Clamp | ClampGroup(...) |
| + =AM001_1 | Clamp | ClampGroup(...) |
| + =AM001_2 | Clamp | ClampGroup(...) |
| + =AM001_3 | Clamp | ClampGroup(...) |
| + =AM001_4 | Clamp | ClampGroup(...) |
| + =AM001_5 | Clamp | ClampGroup(...) |
| + =AM001_6 | Clamp | ClampGroup(...) |
| =SG001 | | |

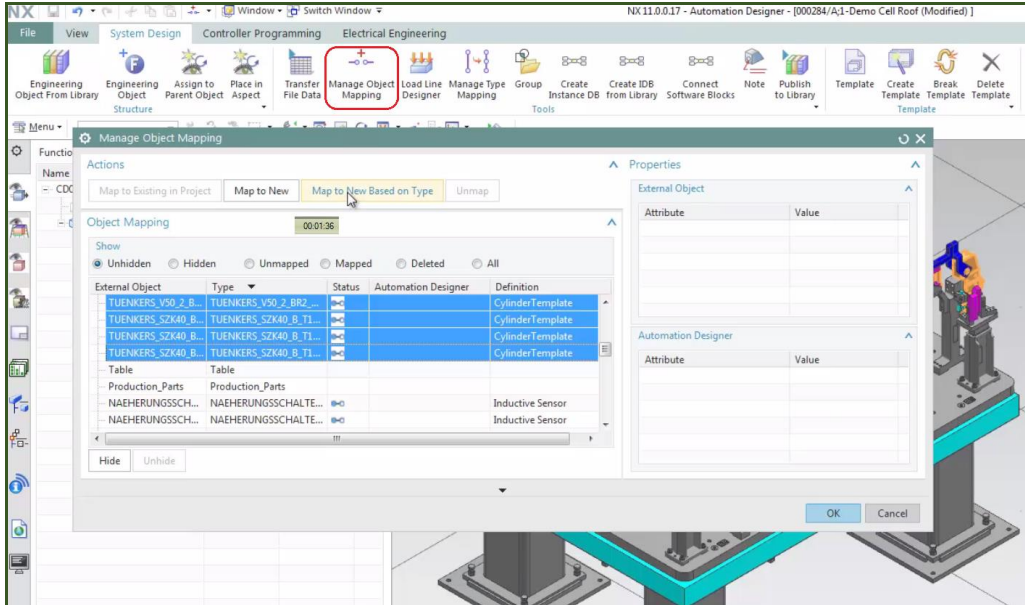
| | | |
|-----------------|----------|-----------------|
| - =SG001 | | |
| - =FX001 | Fixture | |
| - =AM001 | Clamp | |
| - =KK11 | Valve | |
| - DEV_VALV... | | |
| - =MM11_2 | Cylinder | |
| + =BG0 | Sensor | |
| + =BG1 | Sensor | |
| - DEV_ADV... | | |
| - DEV_ADV_PN... | | |
| + =AM001_1 | Clamp | ClampGroup(...) |
| + =AM001_1_1 | Clamp | ClampGroup(...) |
| + =AM001_2 | Clamp | ClampGroup(...) |
| + =AM001_3 | Clamp | ClampGroup(...) |
| + =AM001_4 | Clamp | ClampGroup(...) |
| + =AM001_5 | Clamp | ClampGroup(...) |
| + =AM001_6 | Clamp | ClampGroup(...) |

| | | |
|-----------------|----------|-----------------|
| - =SG001 | | |
| - =FX001 | Fixture | |
| - =AM001 | Clamp | |
| - =KK11 | Valve | |
| - DEV_VALV... | | |
| - =MM11_2 | Cylinder | |
| + =BG0 | Sensor | |
| + =BG1 | Sensor | |
| - DEV_ADV... | | |
| - DEV_ADV_PN... | | |
| - =AM001_1 | Clamp | ClampGroup(...) |
| + =KK11 | Valve | =ClampGrou... |
| - DEV_ADV_PN... | | =ClampGrou... |
| - =AM001_1_1 | Clamp | ClampGroup(...) |
| + =KK11 | Valve | =ClampGrou... |
| - DEV_ADV_PN... | | =ClampGrou... |
| + =AM001_2 | Clamp | ClampGroup(...) |
| + =AM001_3 | Clamp | ClampGroup(...) |

3. (AD) cylinders (MM)

1:35 cylinders mtnbot

The cylinder LD DE (external object in AD dialog below) has been type mapped to "cylinder template" MM, therefore in AD in the "manage object mapping" dialog its shown as unmapped. So all you do is mtnbot to create required EOs in AD.

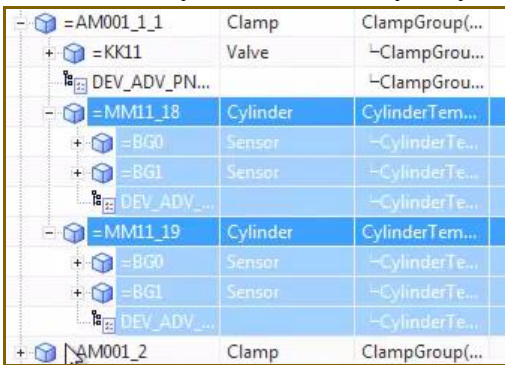


| Name | Description | Template |
|-------------------------|-------------|----------------|
| - CD000016:1-DemCell-AD | | |
| - Unassigned | | |
| + =MM11 | Cylinder | CylinderTem... |
| + =MM11_1 | Cylinder | CylinderTem... |
| + =MM11_2 | Cylinder | CylinderTem... |
| + =MM11_3 | Cylinder | CylinderTem... |
| + =MM11_4 | Cylinder | CylinderTem... |
| + =MM11_5 | Cylinder | CylinderTem... |
| + =MM11_6 | Cylinder | CylinderTem... |
| + =MM11_7 | Cylinder | CylinderTem... |
| + =MM11_8 | Cylinder | CylinderTem... |
| + =MM11_9 | Cylinder | CylinderTem... |
| + =MM11_10 | Cylinder | CylinderTem... |
| + =MM11_11 | Cylinder | CylinderTem... |
| + =MM11_12 | Cylinder | CylinderTem... |
| + =MM11_13 | Cylinder | CylinderTem... |
| + =MM11_14 | Cylinder | CylinderTem... |
| + =MM11_15 | Cylinder | CylinderTem... |
| + =MM11_16 | Cylinder | CylinderTem... |
| + =MM11_17 | Cylinder | CylinderTem... |
| + =MM11_18 | Cylinder | CylinderTem... |
| + =MM11_19 | Cylinder | CylinderTem... |
| + =MM11_20 | Cylinder | CylinderTem... |

2:30 Cylinders to clamp

Now move the cylinders to the clamp groups.

Have to add cylinders manually why? Why not put all in a clamp template?



| | | | |
|---|---------------|----------|-----------------|
| - | =AM001_1_1 | Clamp | ClampGroup(...) |
| + | =KK11 | Valve | -ClampGrou... |
| | DEV_ADV_PN... | | -ClampGrou... |
| - | =MM11_18 | Cylinder | CylinderTem... |
| + | =BG0 | Sensor | -CylinderTe... |
| + | =BG1 | Sensor | -CylinderTe... |
| | DEV_ADV_... | | -CylinderTe... |
| - | =MM11_19 | Cylinder | CylinderTem... |
| + | =BG0 | Sensor | -CylinderTe... |
| + | =BG1 | Sensor | -CylinderTe... |
| | DEV_ADV_... | | -CylinderTe... |
| + | =AM001_2 | Clamp | ClampGroup(...) |

Seems like do nothing with the clamp group sw.. the FX block simply calls the cylinder DEV_ADV.. block (1 for each cylinder) and references the 2 sensor tags (sensors on the cylinder for 2 positions?).

2:55 not connected; Call Rules

The call rule for FX auto-finds the cylinder SW blocks. But must connect SW to fix.
 HOW THIS IS DONE?

Function Manager Tree View:

| Name | Description | Template | Data |
|-----------------------|-------------|-----------------|------|
| CD000016;1-DemCell-AD | | | |
| Unassigned | | | |
| SG001 | | | |
| FX001 | Fixture | | |
| AM011 | Clamp | ClampGroup(...) | |
| AM012 | Clamp | ClampGroup(...) | |
| KK01 | Valve | ClampGroup(...) | |
| MM12_1 | Cylinder | CylinderTem... | |
| MM12_2 | Cylinder | CylinderTem... | |
| DEV_ADV_PNE... | | ClampGroup(...) | |
| AM013 | Clamp | ClampGroup(...) | |
| AM014 | Clamp | ClampGroup(...) | |
| AM015 | Clamp | ClampGroup(...) | |
| AM016 | Clamp | ClampGroup(...) | |
| AM017 | Clamp | ClampGroup(...) | |
| AM018 | Clamp | ClampGroup(...) | |
| FX001_FB [FB7] | | | |
| FX001_SDB [DB3] | | | |
| FX001_SEQ_FB [FB8] | | | |
| FX001_SEQ_IDB [D...] | | | |

PLC Code Editor:

```

184 Network 30:
185 //Caller on the position [Call_Clamps] is not connected with a valid function block.
186
187 Network 31: Ventil + Konfiguration
188 CALL #...
189 OVERFLOW_PIC := #16#0
190 DEACTIVATE := FALSE
191 Label_ID := #1032
192 DIAG := #diag
    
```

Replace by Call Dialog:

Name: Call_Clamps

Define Parameters:

| Parameter | Value | Type |
|-----------|-------|------|
| MM12_1 | | Byte |
| MM14_2 | | Byte |

PLC Code:

```

175 Network 29: Ventil -KFxx-KKxx + Konfiguration
176 CALL #KF70-KK05
177 OVERFLOW_PIC := #16#0
178 DEACTIVATE := FALSE
179 Label_ID := #1023
180 DIAG := #diag
181 DEV_CON := #DEV_CON
182
183
184 Network 30:
185 //Caller on the position [Call_Clamps] is not
186 connected with a valid function block.
    
```

3:20 connect sw block

Connect sw to fix.

The rule of the software block knows all components which need to be called. Parameter replacements works too.

Connect Software Blocks

00:03:20

Connecting the block to the PLC. Collecting all software to be called.

Connect Software Blocks

Station

Select Station (1)

Function

Connect Software Blocks

Station

Select Station (1)

Objects

Select Group (0)

Select Additional Object (1)

Software Blocks

| Parent - Blocks | Group |
|--|-------|
| <input checked="" type="checkbox"/> All | |
| <input checked="" type="checkbox"/> SG001.FX001/+ST010.FX00... | |

3:35 all fixed

```
184 Network 30: DEV_ADV_EXTENSION_DB
185 //
186 CALL #MM12_1 00:03:32
187     SENSOR_ADVANCE := "=SG001.FX001.AM012.MM12_1.BG1"
188     SENSOR_RETRACT := "=SG001.FX001.AM012.MM12_1.BG0"
189
190 Network 31: DEV_ADV_EXTENSION_DB
191 //
192 CALL #MM14_2
193     SENSOR_ADVANCE := "=SG001.FX001.AM014.MM14_2.BG1"
194     SENSOR_RETRACT := "=SG001.FX001.AM014.MM14_2.BG0"
```

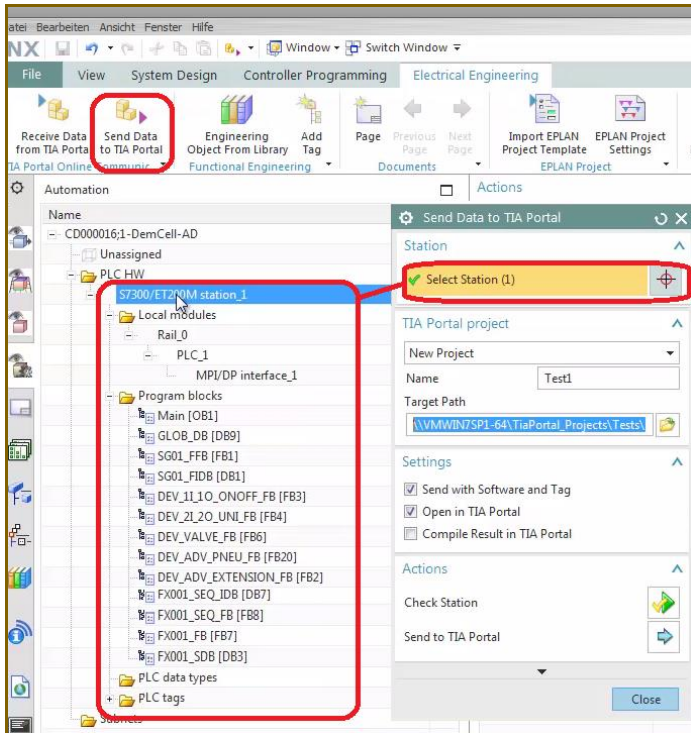
Everything is called.

what did above is the main goal. Quickly created new EPLAN/TIA when changes in LD. 😊

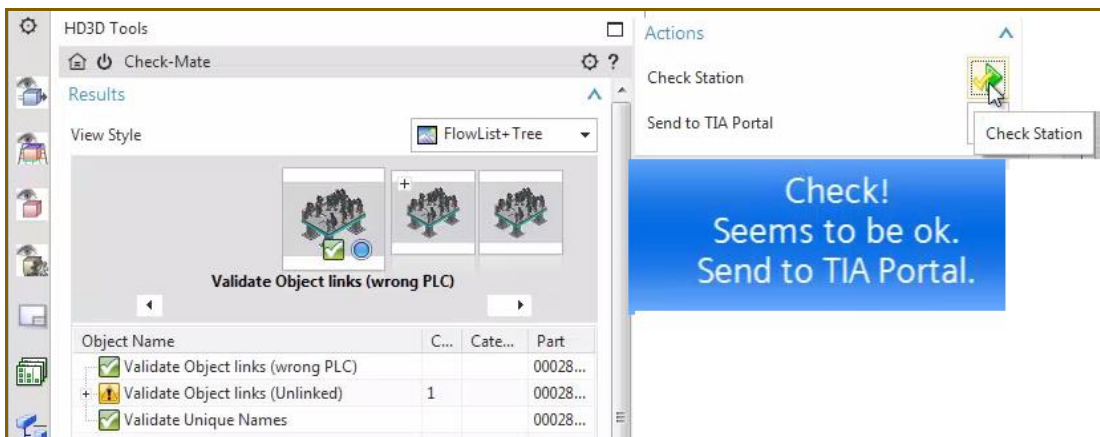
except, of course, that should work without having to connect sw.

3:45 Send to tia

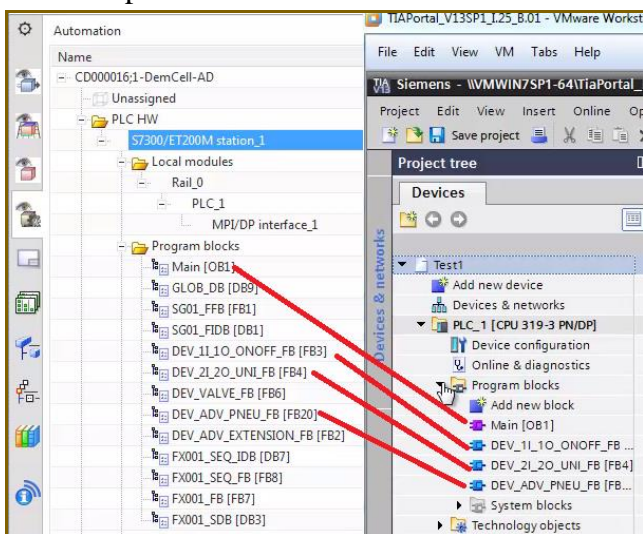
3:45 send to tia



4:10 checkmate ok



4:55 compare TIA and AD

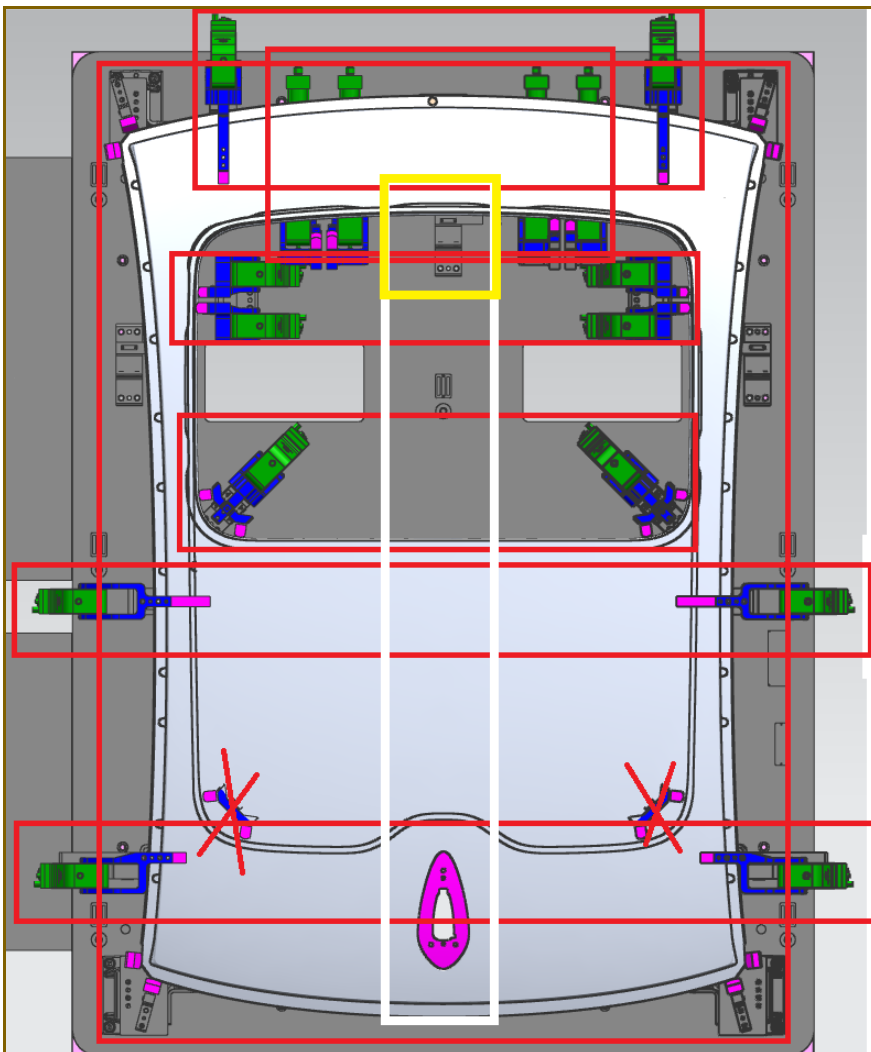


Tags.

The screenshot displays the 'Automation' environment with a project named 'Test1' and a PLC 'PLC_1 [CPU 319-3 PN/DP]'. The 'PLC tags' window is open, showing a list of 16 tags. The tags are organized into groups based on their names, which include identifiers like 'MM12', 'MM17', 'MM18', 'MM14', 'MM15', and 'MM13'. The right pane shows a table of these tags with the following columns: Name, Tag table, and Data type.

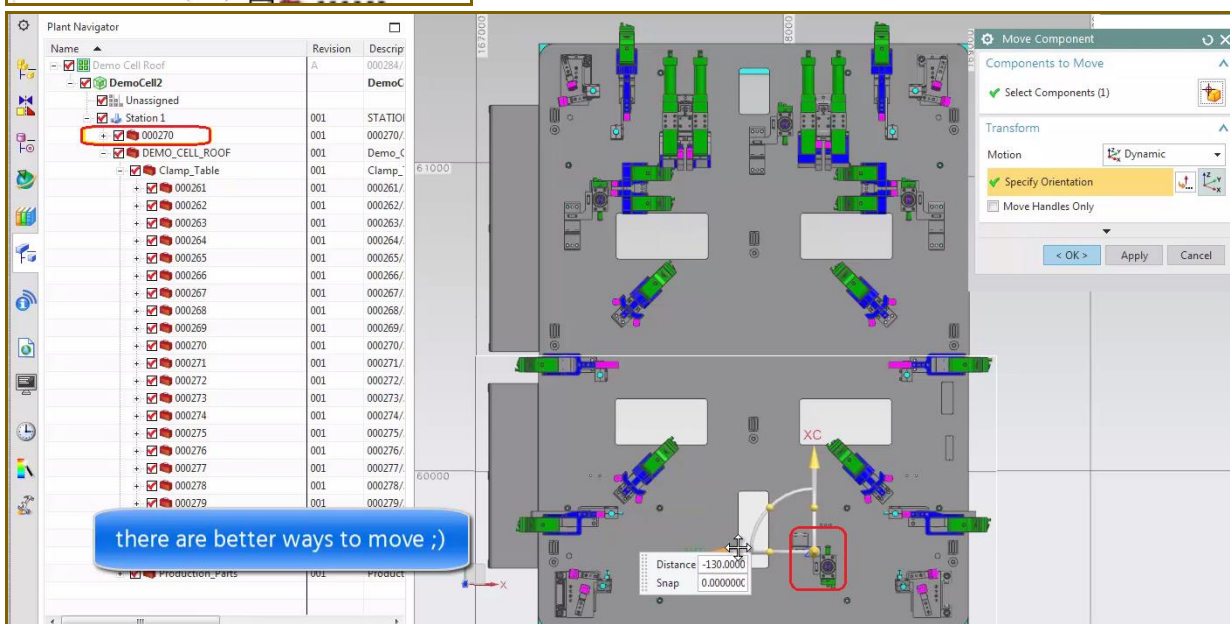
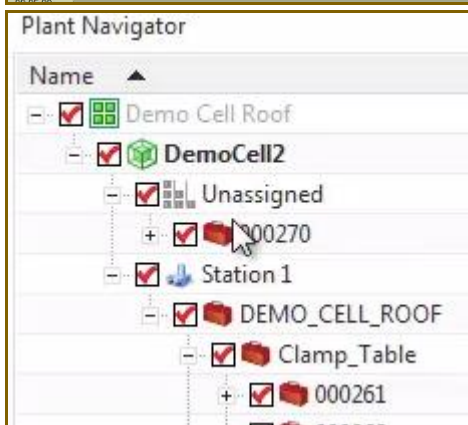
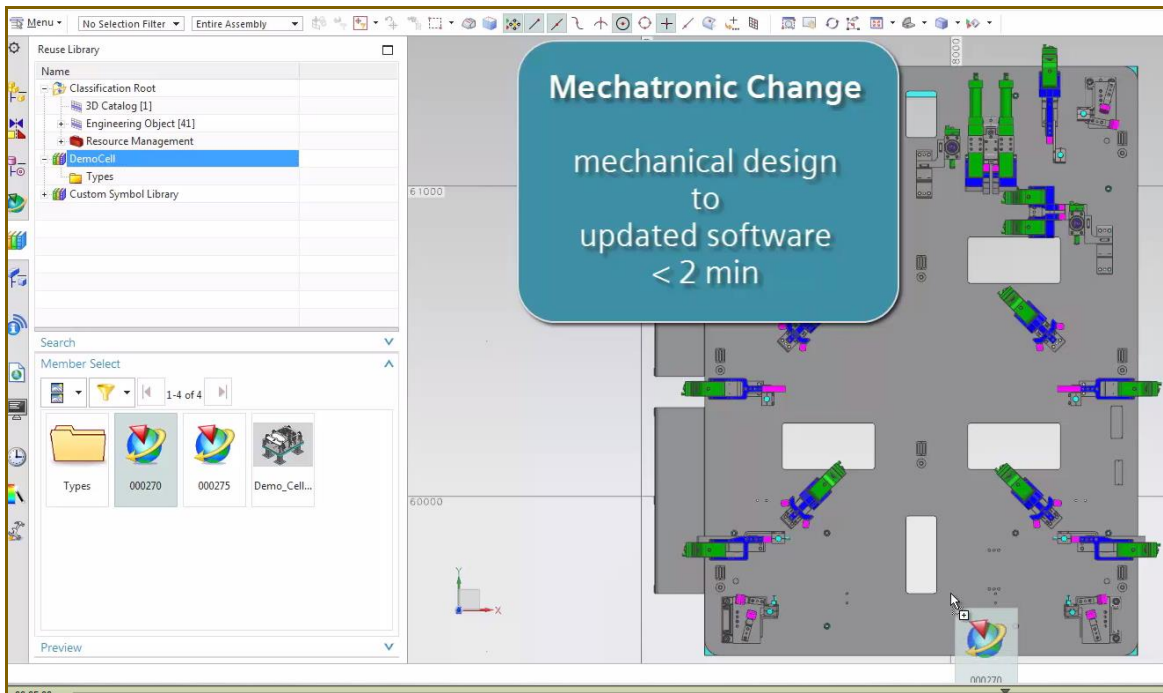
| | Name | Tag table | Data type |
|----|-----------------------------|-------------------|-----------|
| 1 | =SG001.FX001.AM012.MM12_... | Default tag table | Bool |
| 2 | =SG001.FX001.AM012.MM12_... | Default tag table | Bool |
| 3 | =SG001.FX001.AM012.MM12_... | Default tag table | Bool |
| 4 | =SG001.FX001.AM012.MM12_... | Default tag table | Bool |
| 5 | =SG001.FX001.AM014.MM14_... | Default tag table | Bool |
| 6 | =SG001.FX001.AM014.MM14_... | Default tag table | Bool |
| 7 | =SG001.FX001.AM014.MM14_... | Default tag table | Bool |
| 8 | =SG001.FX001.AM017.MM17_... | Default tag table | Bool |
| 9 | =SG001.FX001.AM017.MM17_... | Default tag table | Bool |
| 10 | =SG001.FX001.AM017.MM17_... | Default tag table | Bool |
| 11 | =SG001.FX001.AM011.MM11_... | Default tag table | Bool |
| 12 | =SG001.FX001.AM017.MM17_... | Default tag table | Bool |
| 13 | =SG001.FX001.AM018.MM18_... | Default tag table | Bool |
| 14 | =SG001.FX001.AM018.MM18_... | Default tag table | Bool |
| 15 | =SG001.FX001.AM018.MM18_... | Default tag table | Bool |
| 16 | =SG001.FX001.AM015.MM15_... | Default tag table | Bool |

The 8 tags groups maybe correspond to 8 squares below? (yellow are SZK, pneumatik stiftziehzylinder? Productid=P0013050, added in movie).



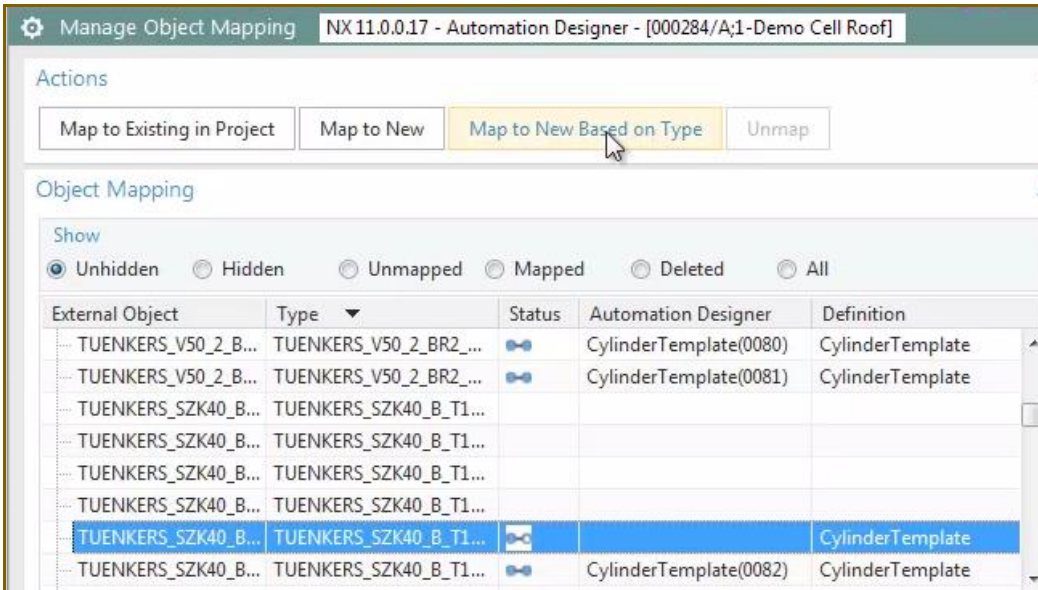
4. (LD, AD) how it should work... ADD CYLINDER

5:00 LD: add cylinder SZK 270

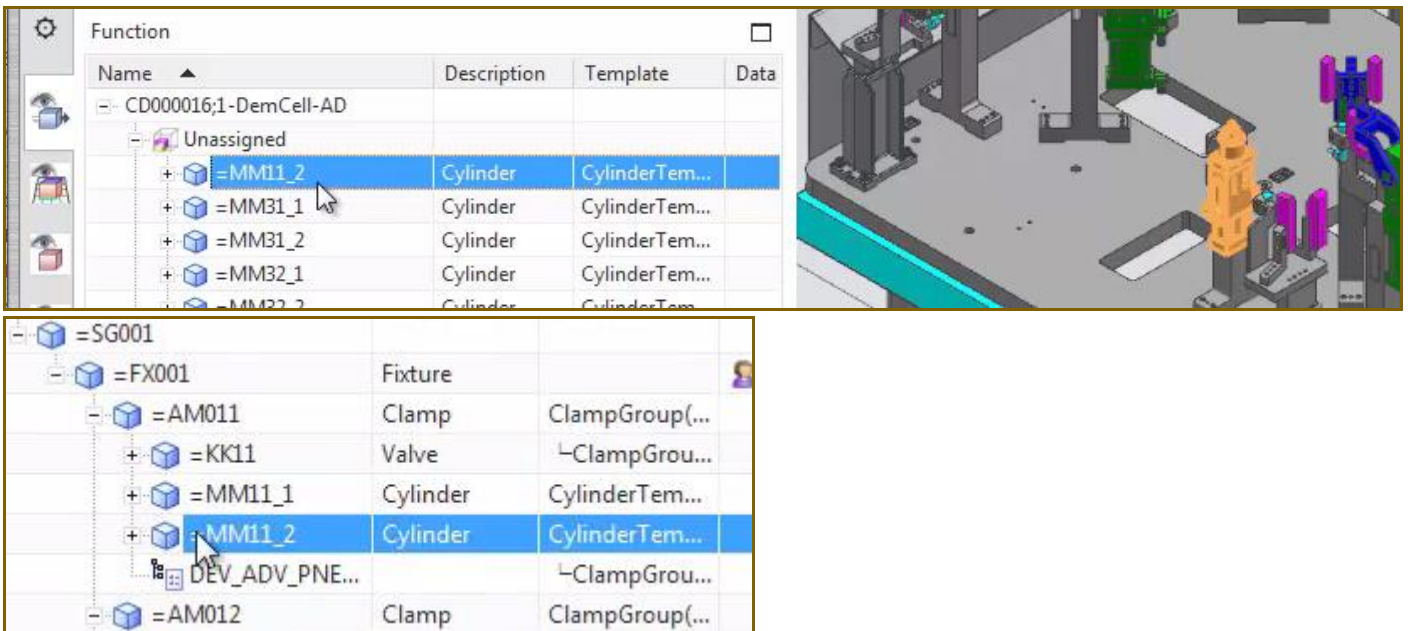


5:40 AD: mtnbot: add new AD EO for LD DE based on type mapping

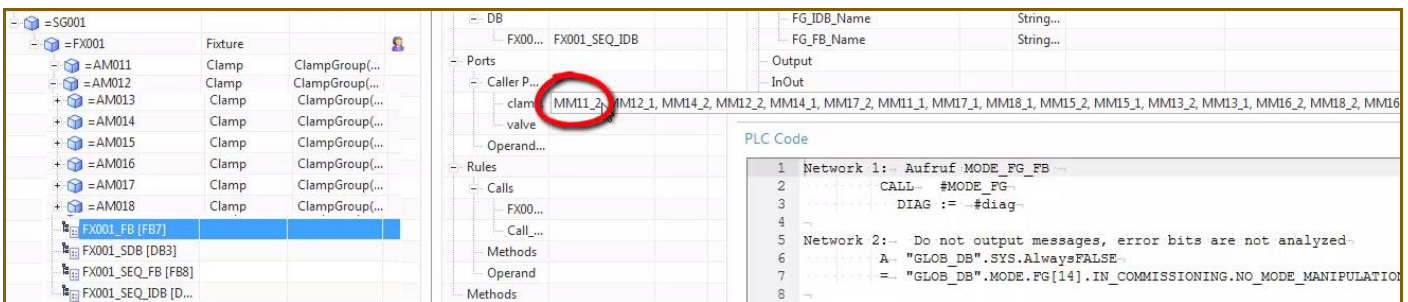
Add the EO.



Move the EO.

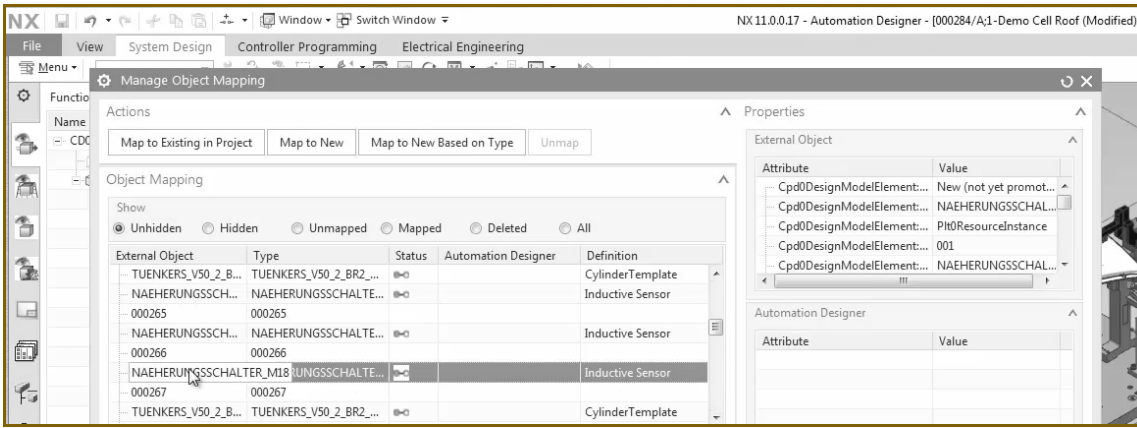


Note that the new EO is included in the main call.

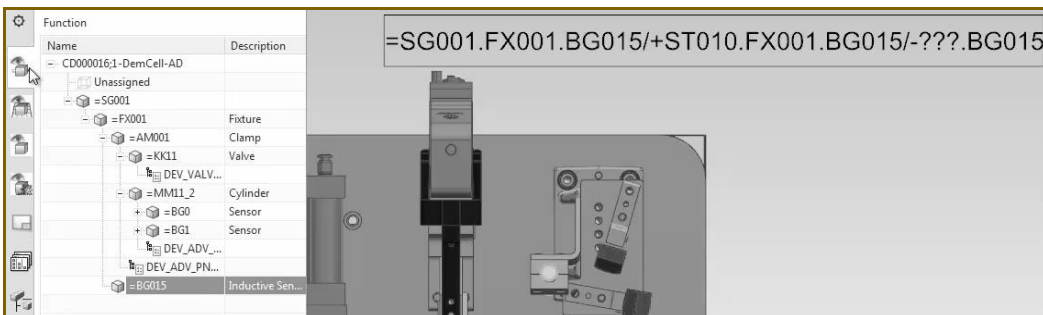
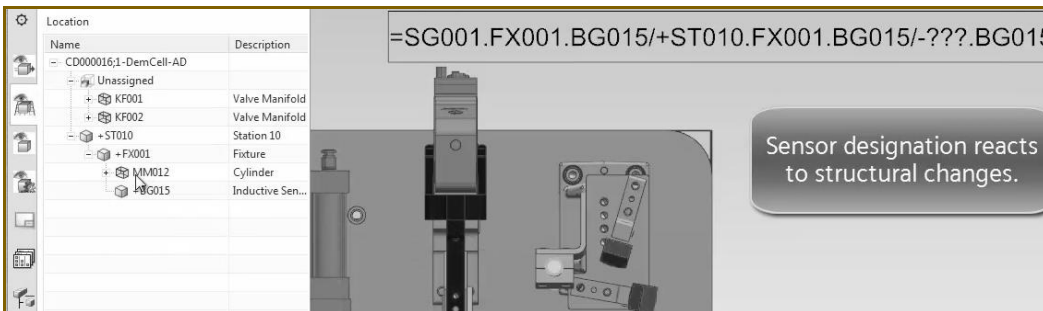
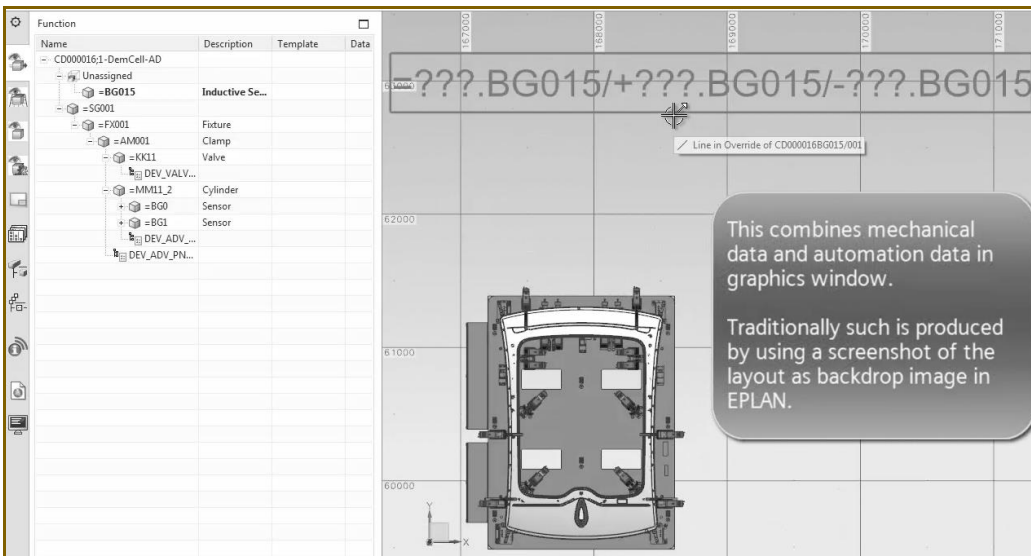


what did above is the main goal. Quickly created new EPLAN/TIA when changes in LD. 😊

xxx 0:00 sensor demo mtnbot 1



After mtnbot the new EO in AD.



xxx 6:55 sensor Demo mtnbot 2

Manage Object Mapping

Actions: Map to Existing in Project, Map to New, Map to New Based on Type, Unmap

Object Mapping

Show: Unhidden Hidden Unmapped Mapped Deleted All

| External Object | Type | Status | Automation Designer | Definition |
|------------------------|------------------------|--------|---------------------|------------------|
| TUENKERS_V50_2_B... | TUENKERS_V50_2_BR2_... | | | CylinderTemplate |
| NAEHERUNGSSCH... | NAEHERUNGSSCHALTE... | | | Inductive Sensor |
| 000265 | 000265 | | | |
| NAEHERUNGSSCH... | NAEHERUNGSSCHALTE... | | | Inductive Sensor |
| 000266 | 000266 | | | |
| NAEHERUNGSSCHALTER_M18 | UNGSSCHALTE... | | | Inductive Sensor |
| 000267 | 000267 | | | |
| TUENKERS_V50_2_B... | TUENKERS_V50_2_BR2_... | | | CylinderTemplate |

Properties

External Object

| Attribute | Value |
|---------------------------|------------------------|
| Cpd0DesignModelElement... | New (not yet promot... |
| Cpd0DesignModelElement... | NAEHERUNGSSCHAL... |
| Cpd0DesignModelElement... | Pit0ResourceInstance |
| Cpd0DesignModelElement... | 001 |
| Cpd0DesignModelElement... | NAEHERUNGSSCHAL... |

Project then already knows what to instantiate into Electrical/Automation.

Can be automated and used in mass instantiation.

OK Cancel

Function

| Name | Description | Template |
|-----------------------|-----------------|----------|
| CD000016;1-DemCell-AD | | |
| Unassigned | | |
| =BG015 | Inductive Se... | |
| =SG001 | | |
| =FX001 | Fixture | |
| =AM001 | Clamp | |
| =KK11 | Valve | |
| DEV_VALV... | | |
| =MM11_2 | Cylinder | |
| =BG0 | Sensor | |
| =BG1 | Sensor | |
| DEV_ADV_... | | |
| DEV_ADV_PN... | | |

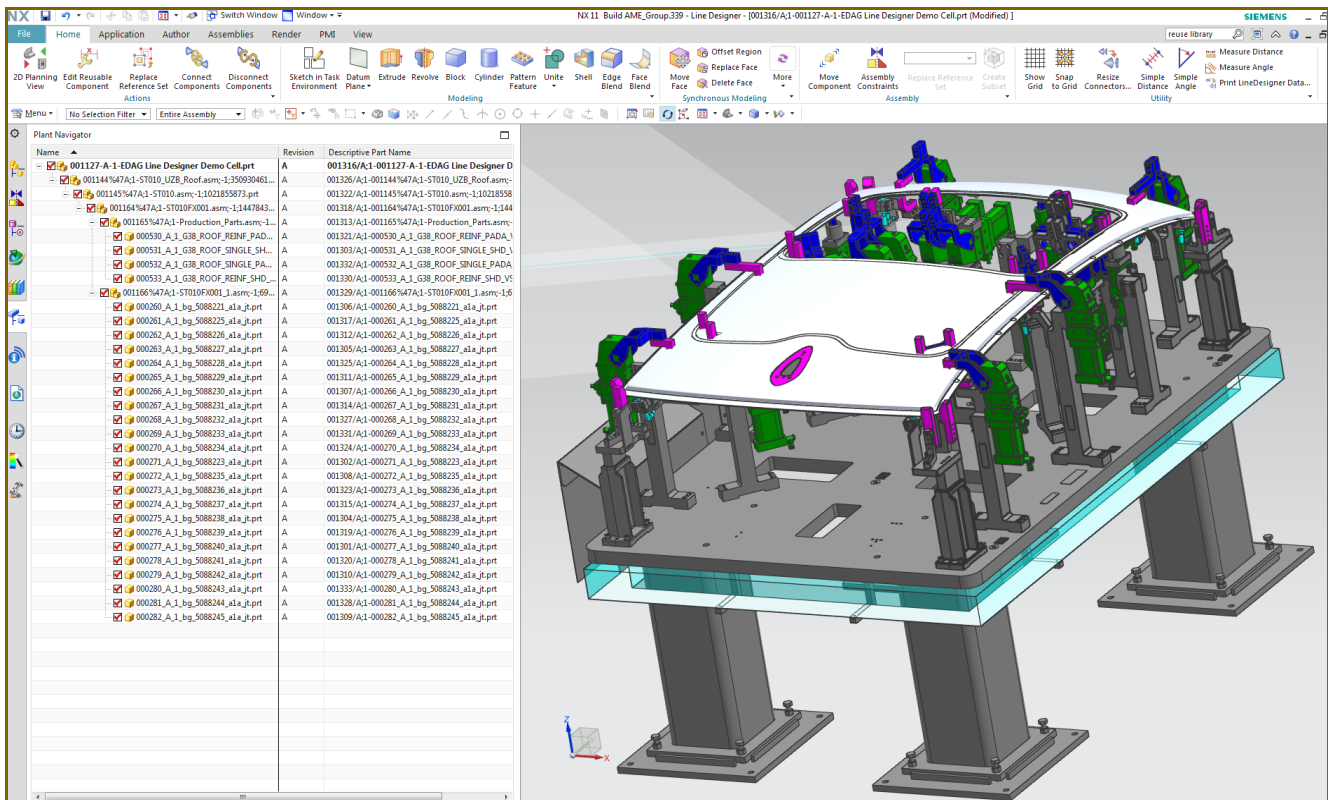
14b. Demo_Cell (terry) (20160317)

This chapter describes my version of demo_cell.

I used (Andreas has simplified, far fewer parts, easier to load and work with)

\\debonk10c19\ADNX\Teams\PRM\Customer Project Data\EDAG FFT - do not distribute\Fixture Table\EDAG-Tooling - NX\001127_A_1_EDAG_Line_Designer_Demo_Cell)

Screenshots are from 20160314_5_last_try.avi, what I did on 192.168.117.107.



20160316 new videos:

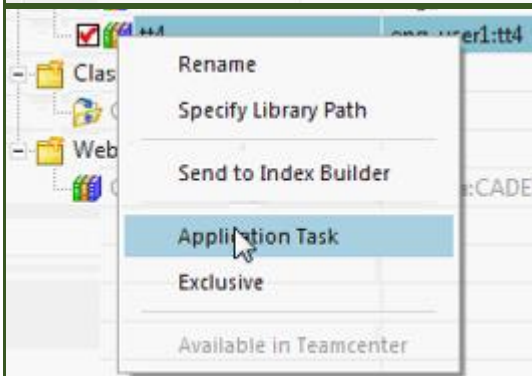
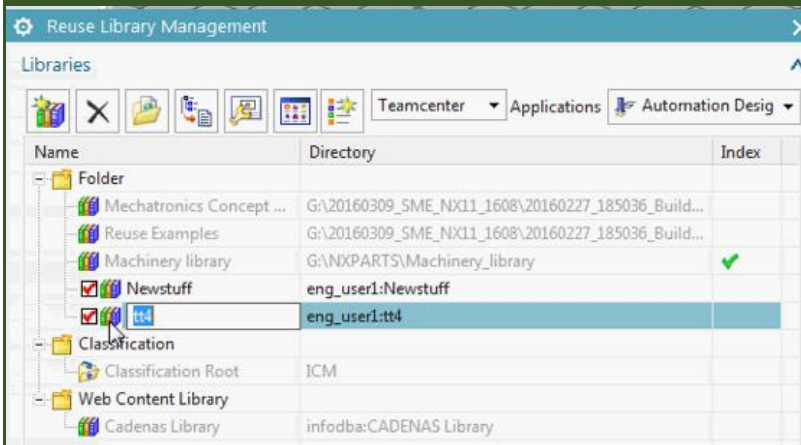
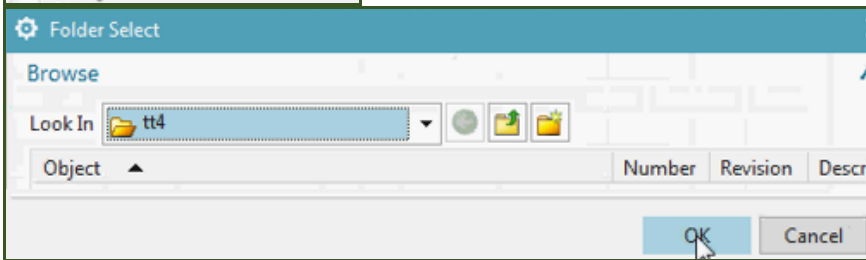
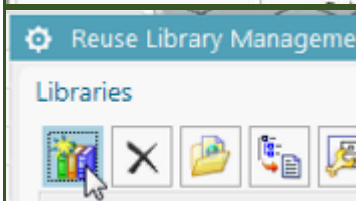
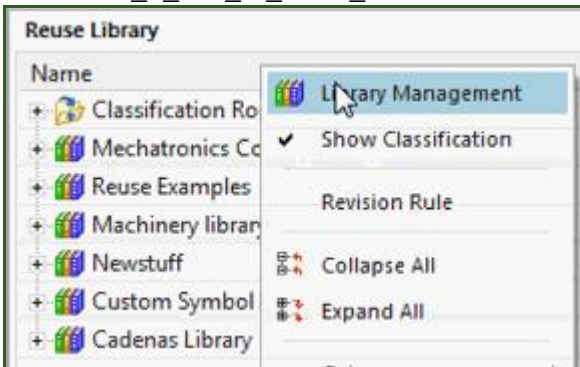
- 5: 20160316_1_create_rl_dir_and_import_parts.avi
- 7: 20160316_2_add_to_LD.avi
- 17,18: 20160316_3_create_type_map_and_mtnbot.avi

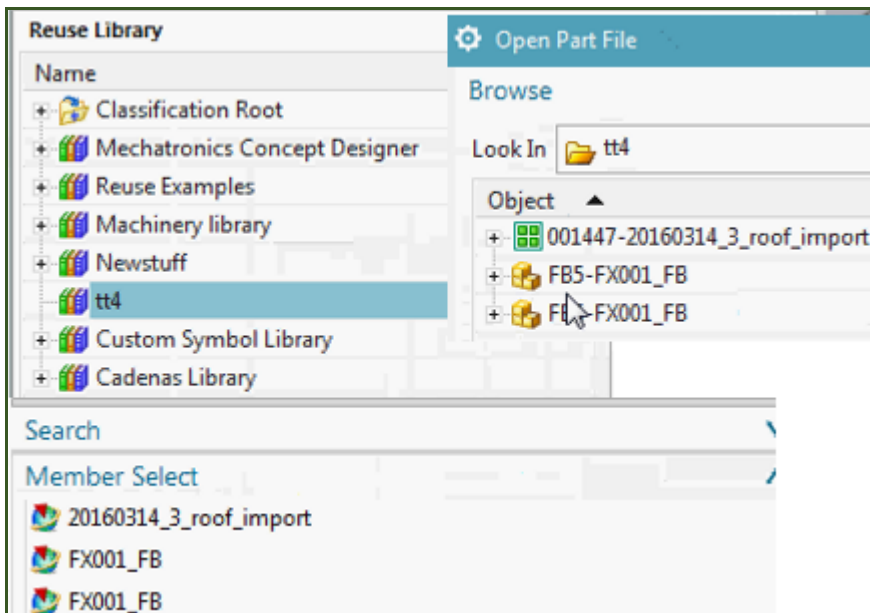
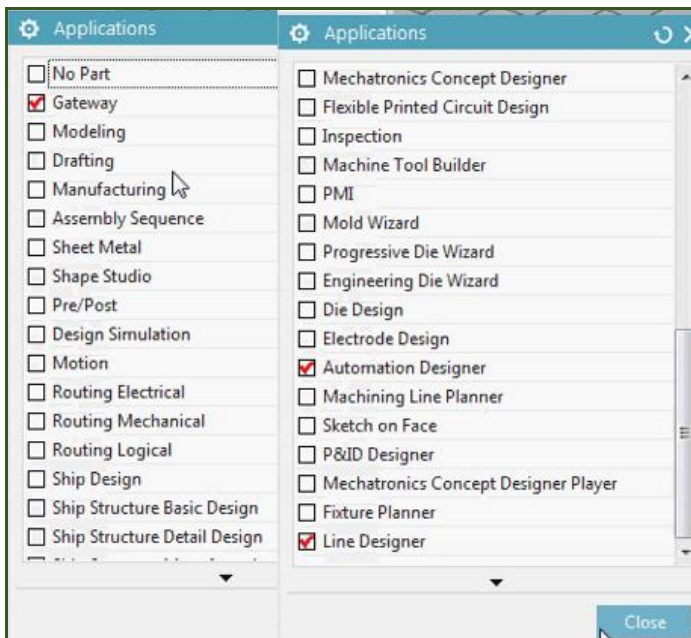
5. import roof parts

3.1. Add dir to reuse library

20160316_1_create_rl_dir_and_import_parts.avi

20160315_1_add_to_reuse_lib.avi

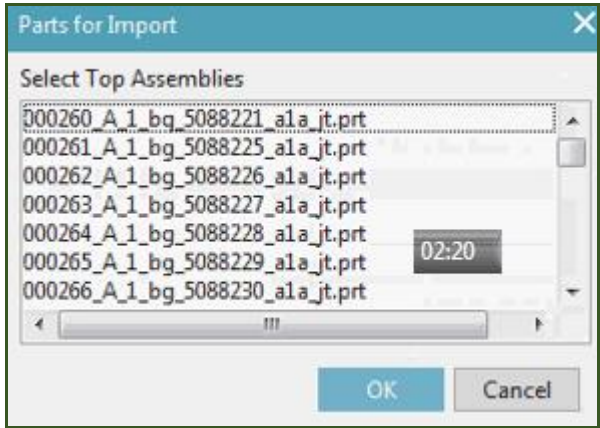
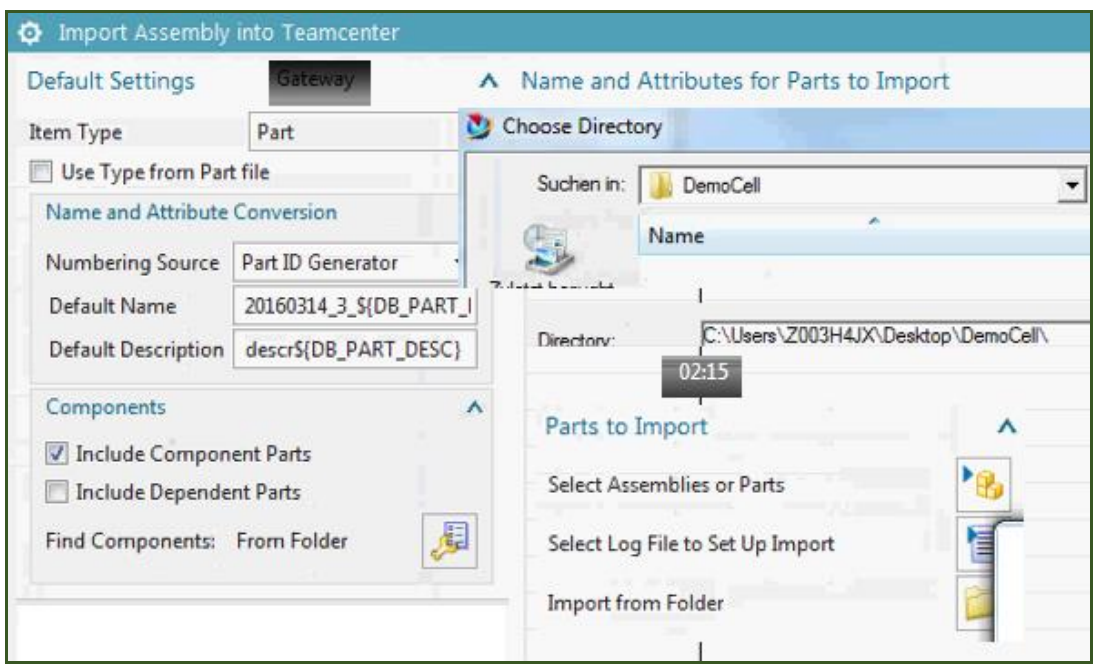
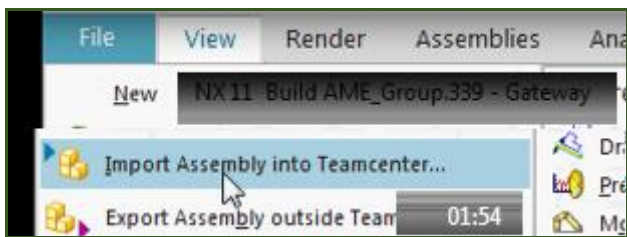




3.2. Import (roof into TC) (GW) ????

20160316_1_create_rl_dir_and_import_parts.avi

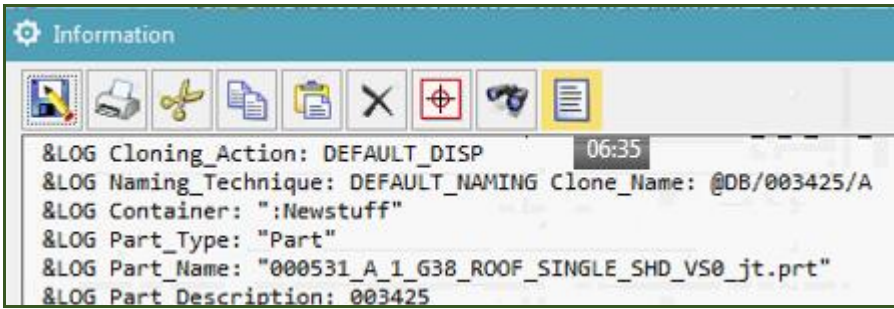
Basically doing what was already assumed in ch4... parts in the reuse library.
Into reuse library.



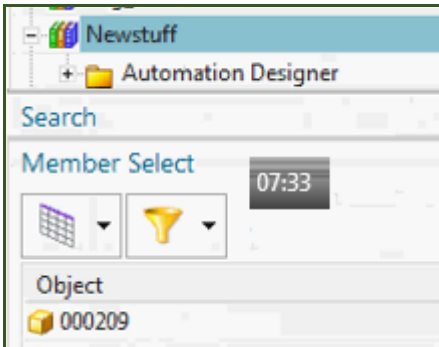
Where select target dir???????????????????

Name and Attributes for Parts to Import

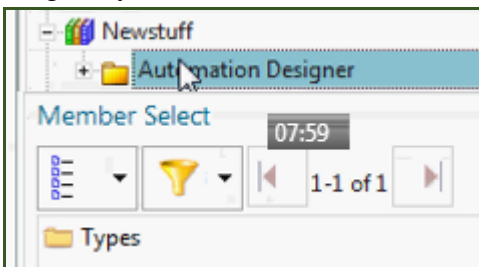
| Object Name | Part | | Part Revision | Information | | |
|------------------------------------|--------|------------------|---------------|-------------|----------------------|------|
| | ID | Name | Revision | Part State | Reason for Inclusion | Team |
| 1 000260_A_1_bg_5088221_a1a_jt.prt | 003395 | 000260_A_1_bg... | A | | Component of 00... | ? |
| 2 000261_A_1_bg_5088225_a1a_jt.prt | 003398 | 000261_A_1_bg... | A | | Component of 00... | ? |
| 3 000262_A_1_bg_5088226_a1a_jt.prt | 003399 | 000262_A_1_bg... | A | | Component of 00... | ? |
| 4 000263_A_1_bg_5088227_a1a_jt.prt | 003415 | 000263_A_1_bg... | A | | Component of 00... | ? |
| 5 000264_A_1_bg_5088228_a1a_jt.prt | 003412 | 000264_A_1_bg... | A | | Component of 00... | ? |



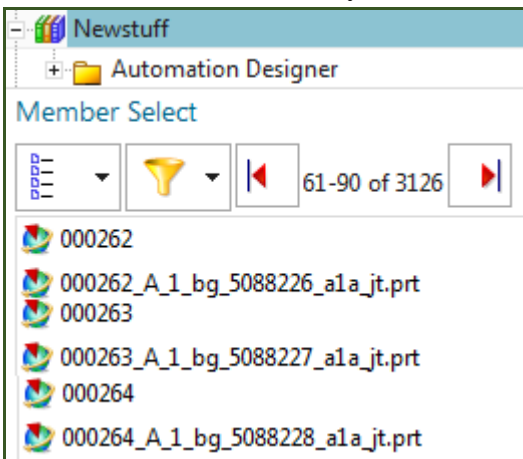
Arrows missing



Magically returns.



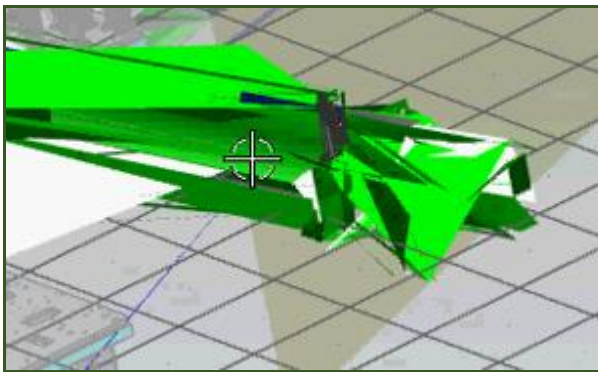
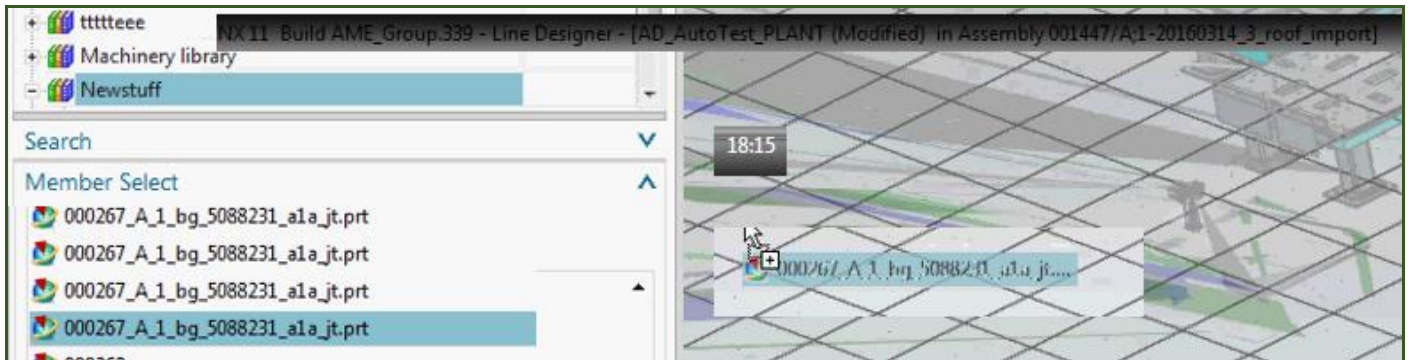
Parts are in the reuse library.



7. (ch4) create LD workset, subset, TEST add parts (DE's) to LD layout

20160316_2_add_to_LD.avi

Basically doing part of ch 4.

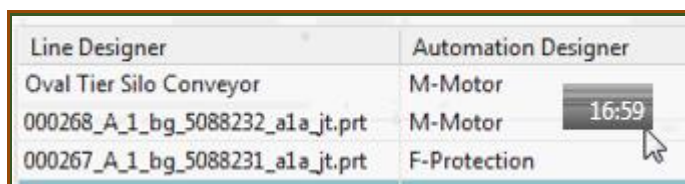
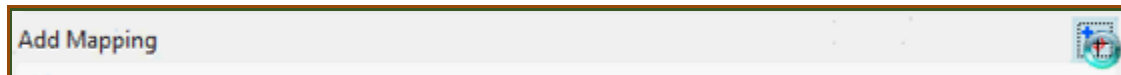
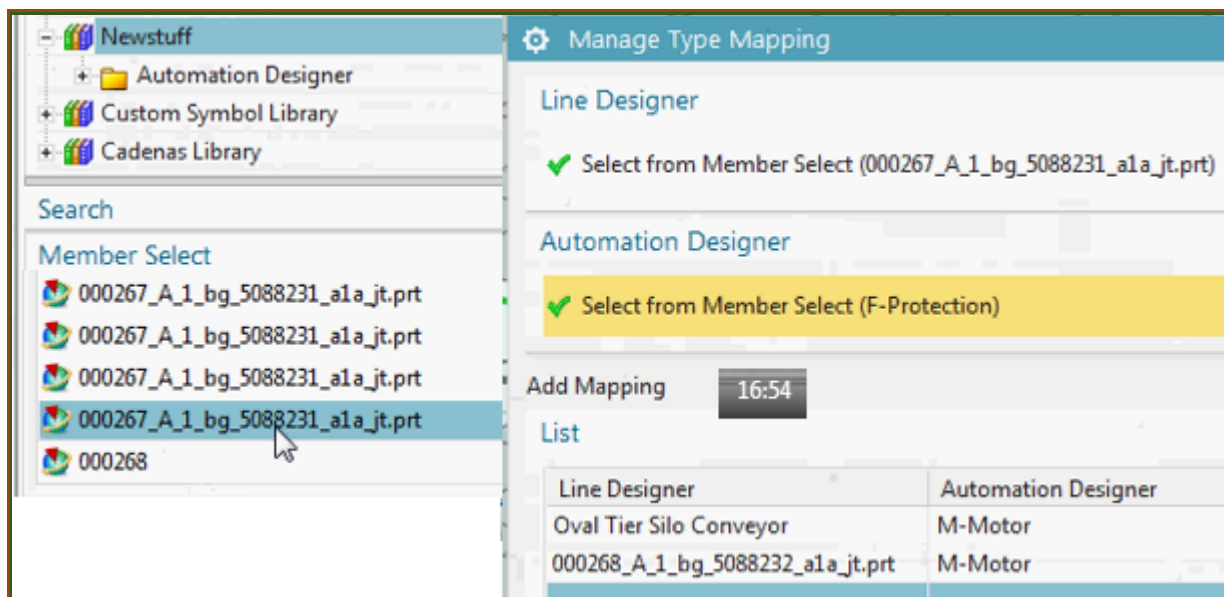
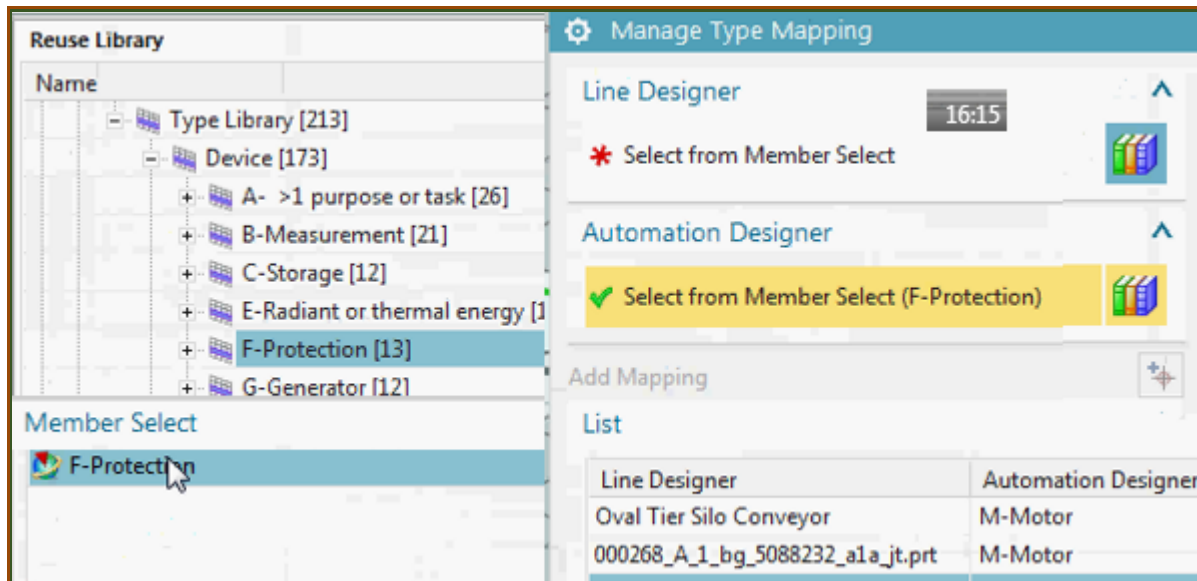


17. "manage type mapping" (LD DE's to AD templates)

20160316_3_create_type_map_and_mtnbot.avi

For this movie could only map the top level... I think its because that's what I imported.

Basically doing part of ch 6.



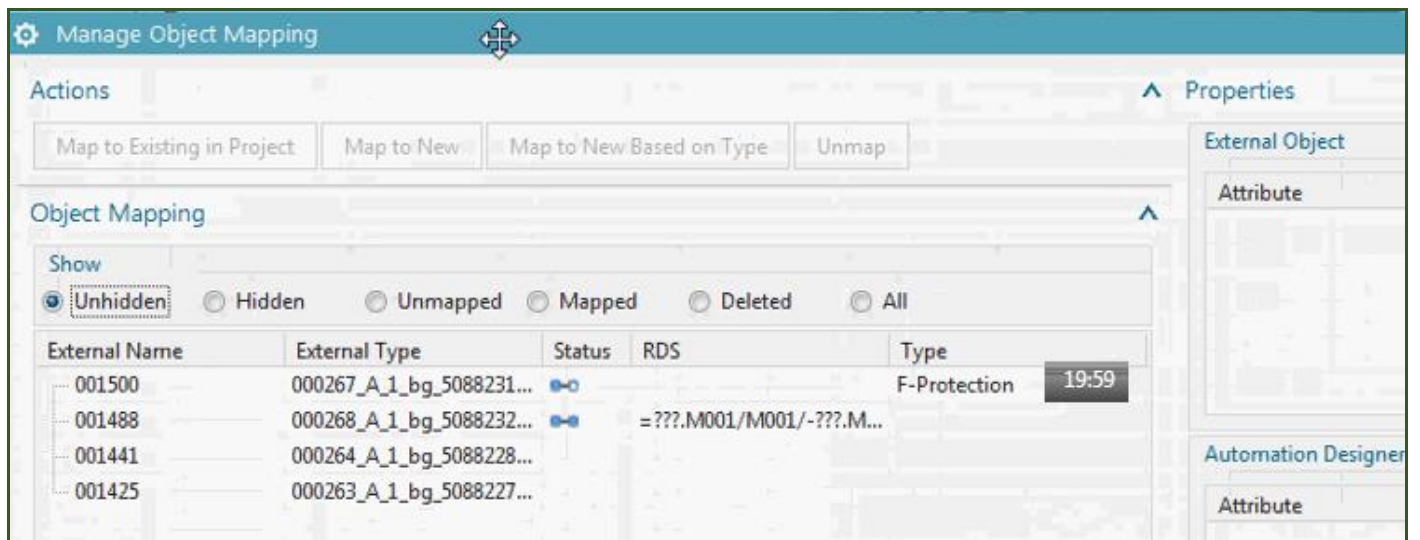
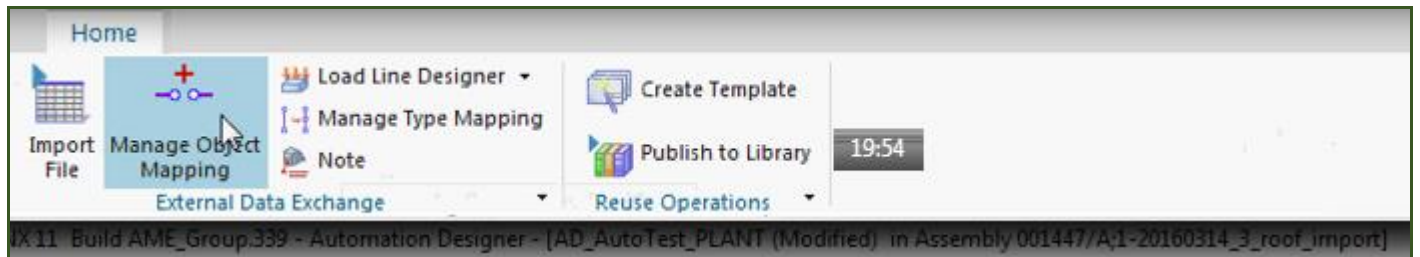
18. (ch6) mtnbot (add mapped templates)

20160316_3_create_type_map_and_mtnbot.avi

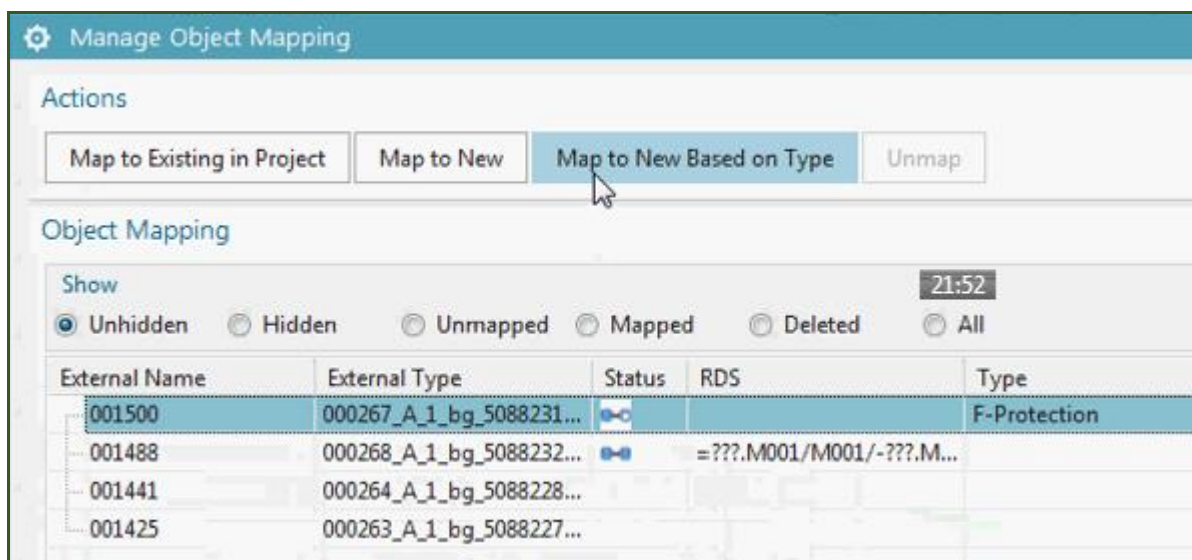
For this movie could only map the top level... I think its because that's what I imported.

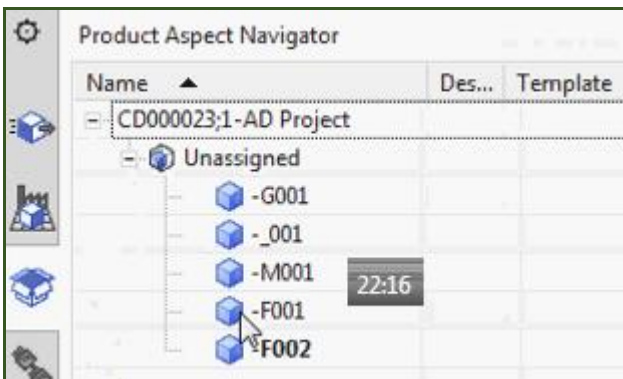
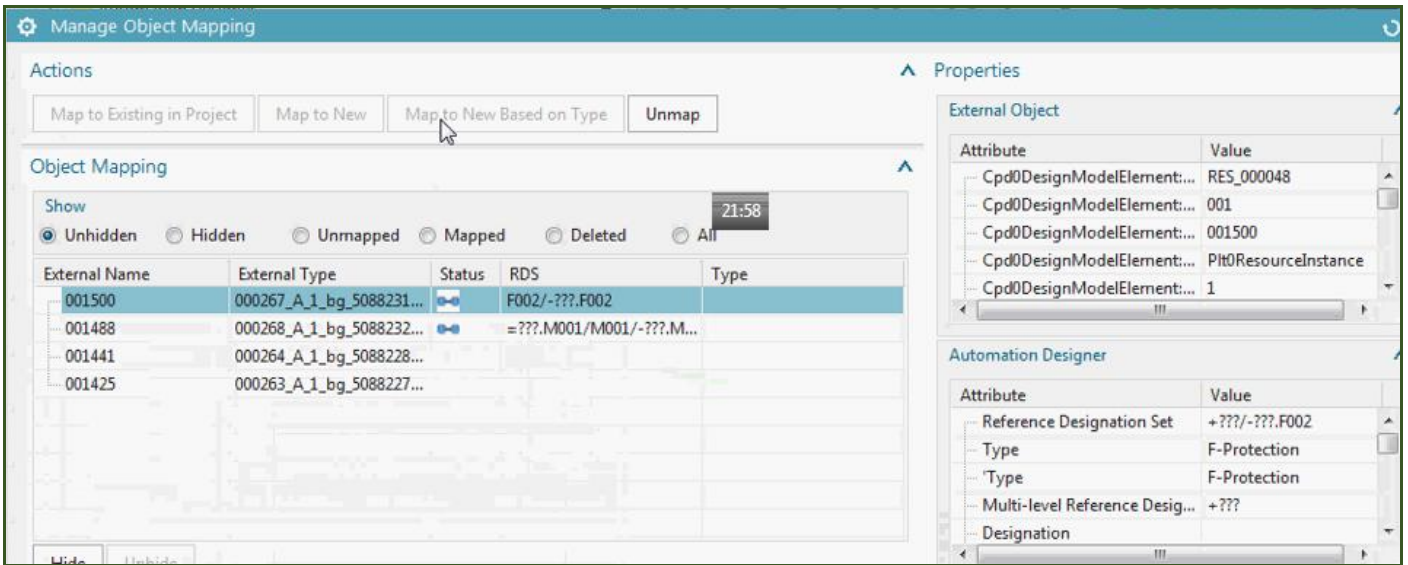
mtnbot (map to new based on type)

Basically doing part of ch 6.



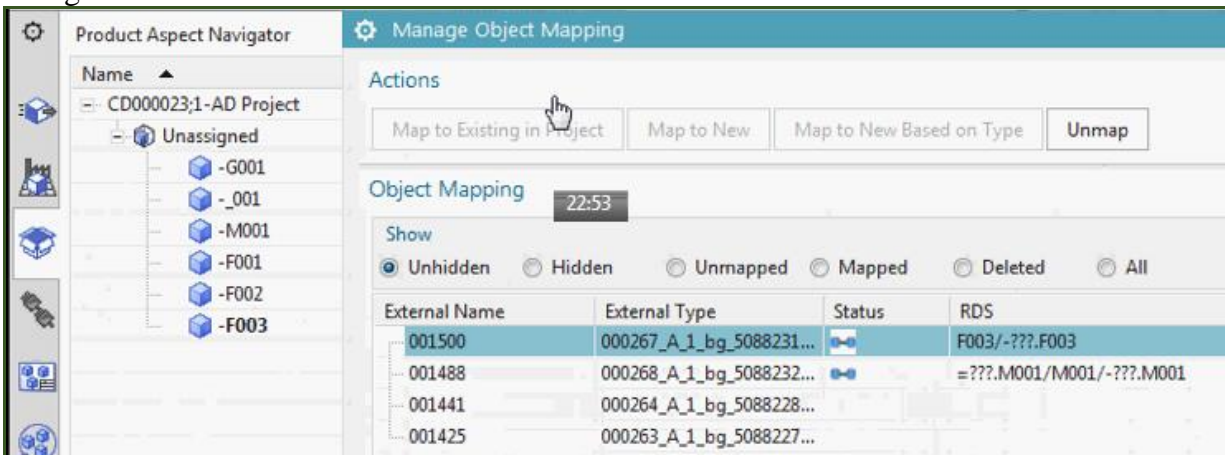
Unmap do again....





Did not show up in function aspect!!

Do again.



Somehow it worked 😊

After this could do EPLAN and TIA for a full realistic demo.

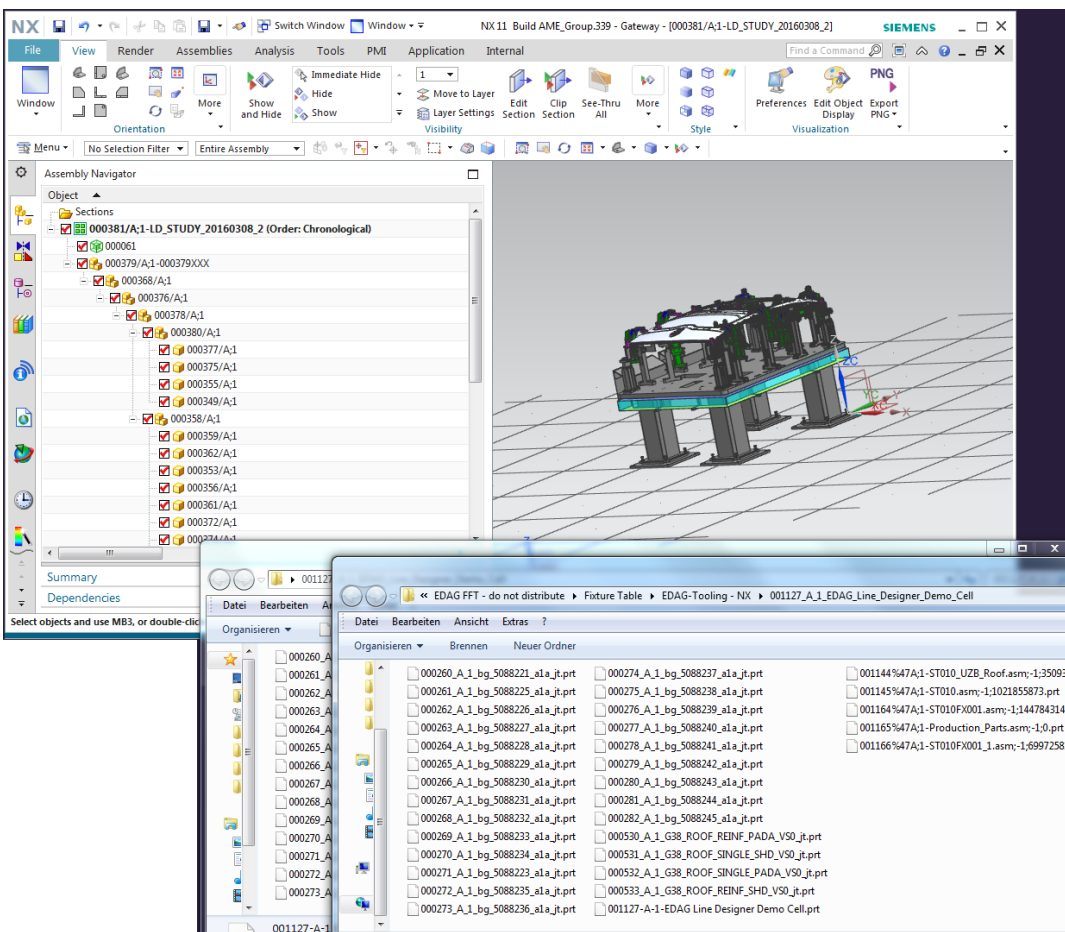
20160308 first import of roof

Setup terry desktop

1. TC VM: Deploy 18 it's basically for SME53 but should work with SME52 as well.
192.168.117.110
2. SME: G:\20160307_SME_NX11_1608\20160227_185036_Build
3. LD PROJECT: From Andreas... imported.

\\debonk10c19\ADNX\Teams\PRM\Customer Project Data\EDAG FFT - do not distribute\Fixture Table\EDAG-Tooling - NX\001127_A_1_EDAG_Line_Designer_Demo_Cell

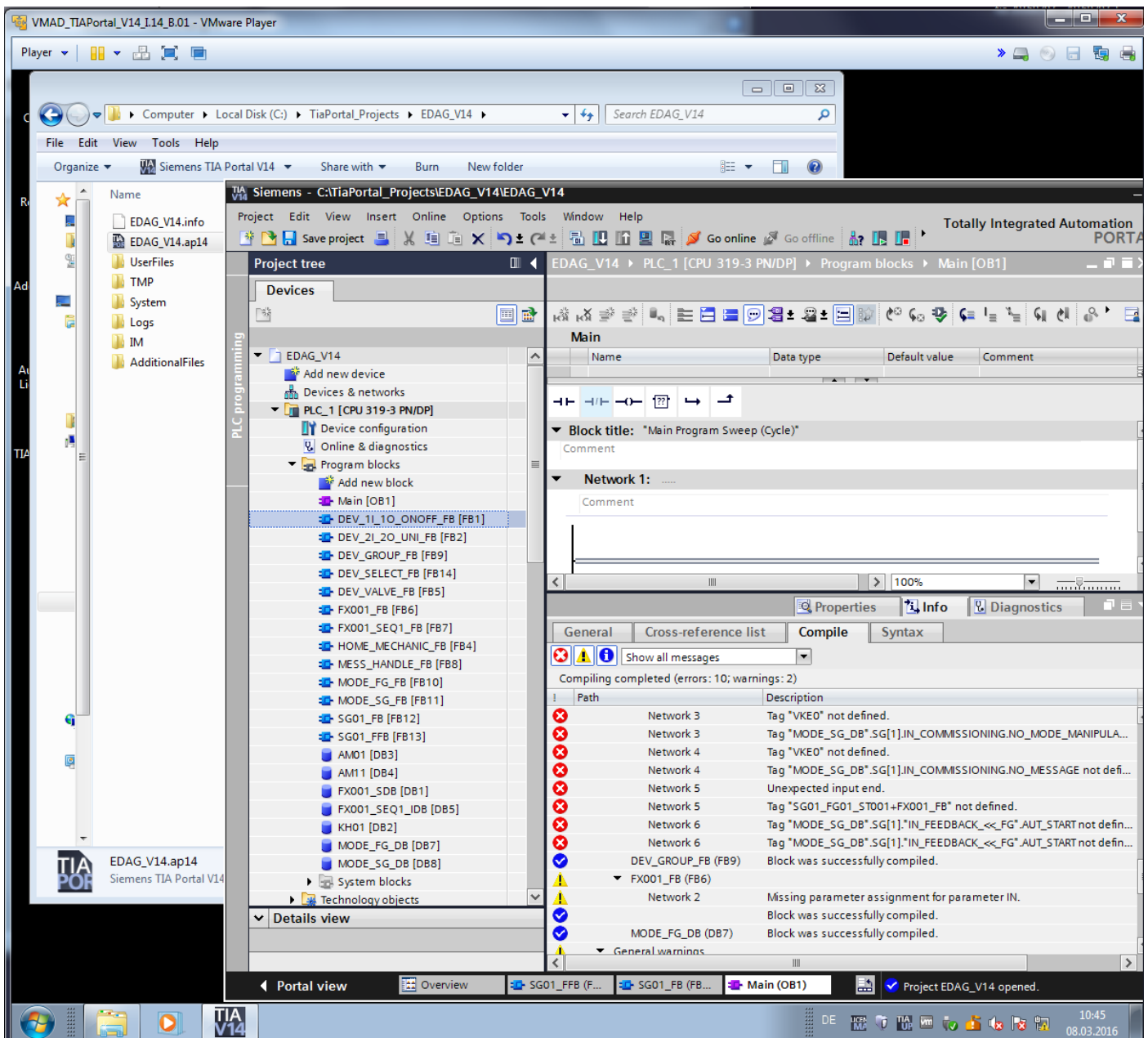
My local pc. not sure if I did it right. Much simpler than in the past.



4. Try this more complex version later.
\\debonk10c19\ADNX\Teams\PRM\Customer Project Data\EDAG FFT - do not distribute\Fixture Table\FixtureTable - Geometry.7z\

5. TIA VM
G:\20160307_VMAD_TIAPortal_V14_I.14_B.01.7z

Wrong language, tag errors... waiting for Andreas help...



After these problems fixed...

6. Import hw/sw.
7. Create aspect tree, add sw, dynamize, Create expressions like what Brent sent.
8. create template, Instantiate template, Map to LD.
9. add clamp table, without a few components, instantiate template, delete parts, and it auto-adjusts?
10. Do this over for GS automotive example ch13. (no customer info).

14c. ExampleProject_Automotive

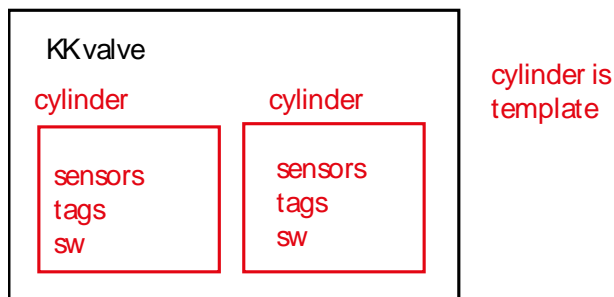
\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\ExampleProject_Automotive

G:\20160311_PRM\ExampleData and Geometries - ExampleProjects\ExampleProject_Automotive

20160314 spindelhubsäule

G:\20160311_PRM\ExampleData and Geometries - ExampleProjects\ExampleProject_Automotive\AutomotiveLayout\spindelhubsaeule

Imported. Very slow too many parts. I think the chain cable is the problem.. delete somehow?
AM clamp group (7)



14d. material handling (baggage line)

Own model from fd4, can be used.

\\debonk10c19\ADNX\Teams\PRM\ExampleData and Geometries\ExampleProjects\ExampleProject_Automotive

14e. packaging (tetra)

xxx

Part 6. AD functional details

In this part try to take a lot from

1. user guide
2. AD_GS_v222_20160128_1522_second_half_20160302.doc (most of this was taken from the requirements spec).

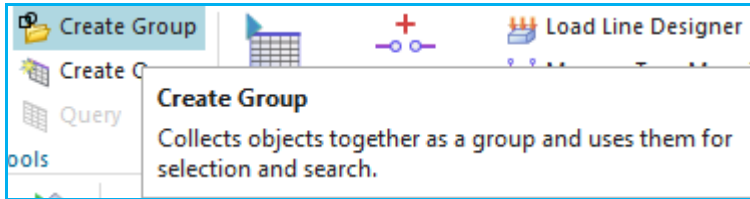
16. Projects

16.1. projects and worksets

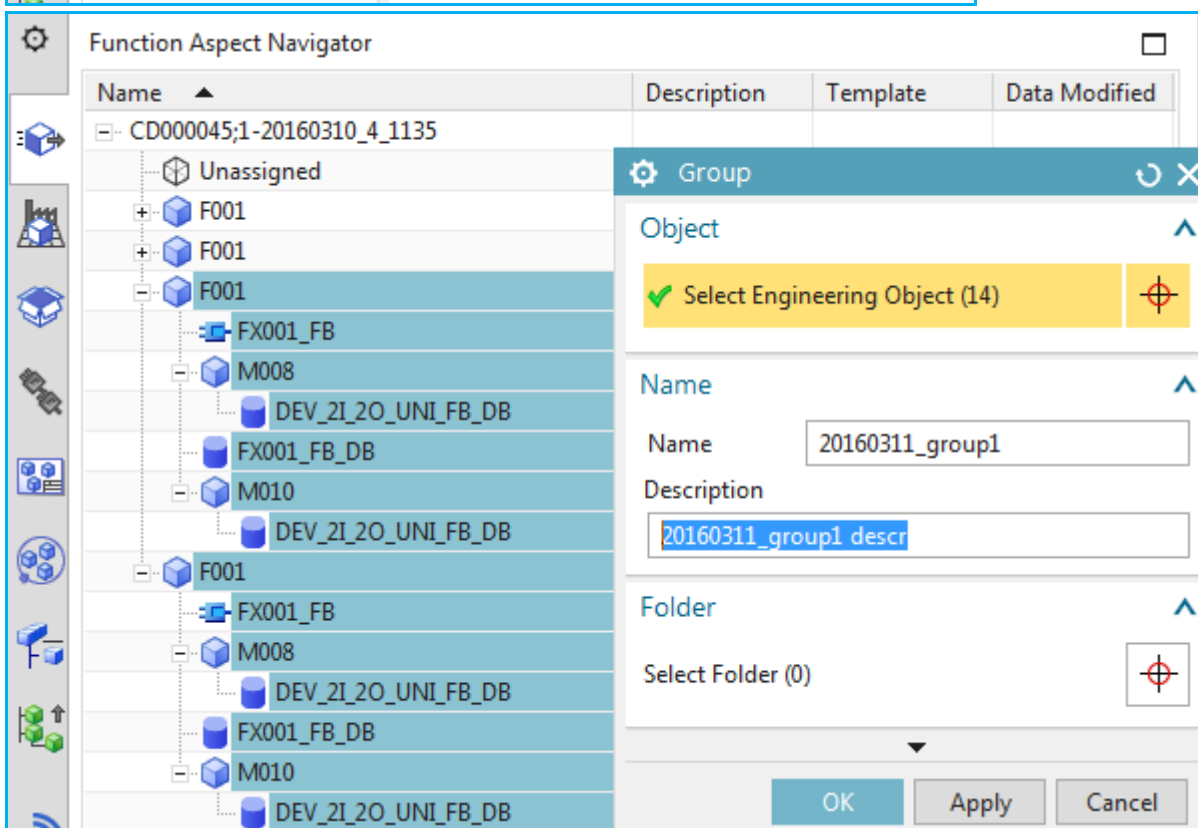
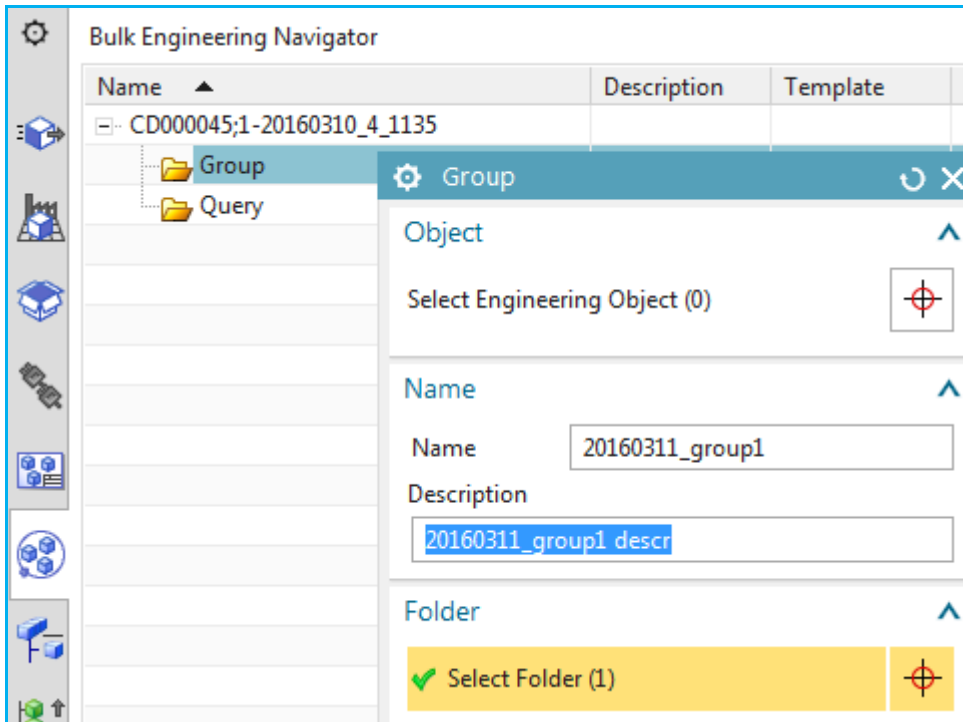
16.2. show and hide, highlight, notes

17.4. Groups (20160311)

20160311 my first guess at what you might do with groups. Demo.



1. Create group.



Result.

| Name | Description | Template |
|----------------------------|-----------------------|---------------------------|
| CD000045;1-20160310_4_1135 | | |
| Group | | |
| 20160311_group1 | 20160311_group1 descr | |
| DEV_2I_2O_UNI_FB_DB | | 20160311_1_template(0003) |
| DEV_2I_2O_UNI_FB_DB | | 20160311_1_template(0003) |
| DEV_2I_2O_UNI_FB_DB | | 20160311_1_template(0002) |
| DEV_2I_2O_UNI_FB_DB | | 20160311_1_template(0002) |
| F001/F001/-F011 | | 20160311_1_template(0002) |
| F001/F001/-F012 | | 20160311_1_template(0003) |
| FX001_FB | | 20160311_1_template(0003) |
| FX001_FB | | 20160311_1_template(0002) |
| FX001_FB_DB | | 20160311_1_template(0003) |
| FX001_FB_DB | | 20160311_1_template(0002) |
| M008/M008/-F011.M008 | | 20160311_1_template(0002) |
| M008/M008/-F012.M008 | | 20160311_1_template(0003) |
| M010/M010/-F011.M010 | | 20160311_1_template(0002) |
| M010/M010/-F012.M010 | | 20160311_1_template(0003) |
| Query | | |

2. Usage example: Bulk connection.

| Name | Description |
|----------------------------|-----------------------|
| CD000045;1-20160310_4_1135 | |
| Group | |
| 20160311_group1 | 20160311_group1 descr |
| DEV_2I_2O_UNI_FB_DB | |
| DEV_2I_2O_UNI_FB_DB | |
| DEV_2I_2O_UNI_FB_DB | |
| DEV_2I_2O_UNI_FB_DB | |
| F001/F001/-F011 | |
| F001/F001/-F012 | |
| FX001_FB | |
| FX001_FB | |
| FX001_FB_DB | |
| FX001_FB_DB | |
| M008/M008/-F011.M008 | |
| M008/M008/-F012.M008 | |
| M010/M010/-F011.M010 | |
| M010/M010/-F012.M010 | |
| Query | |

Bulk Connection

Source

✓ Select Object (15)

Total Number of Objects (15)

Descendants Included:

Port Type Filter

View Filters

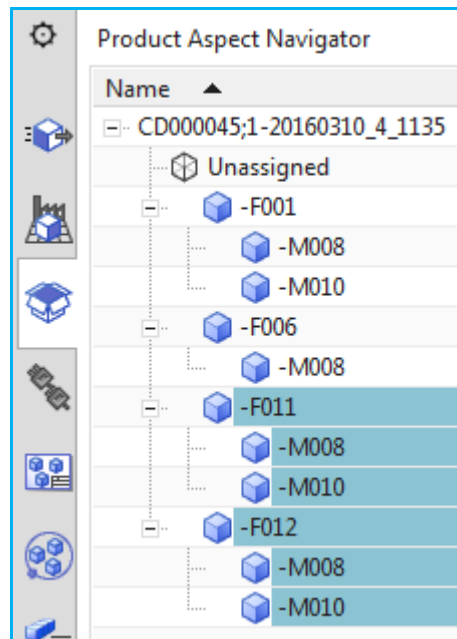
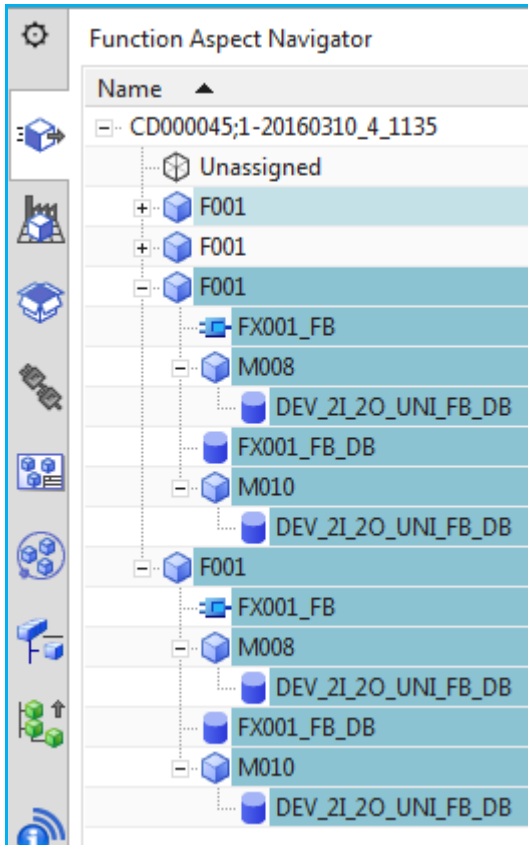
Hide objects without ports of selected Port Type

Hide connections of not selected ports

Ports

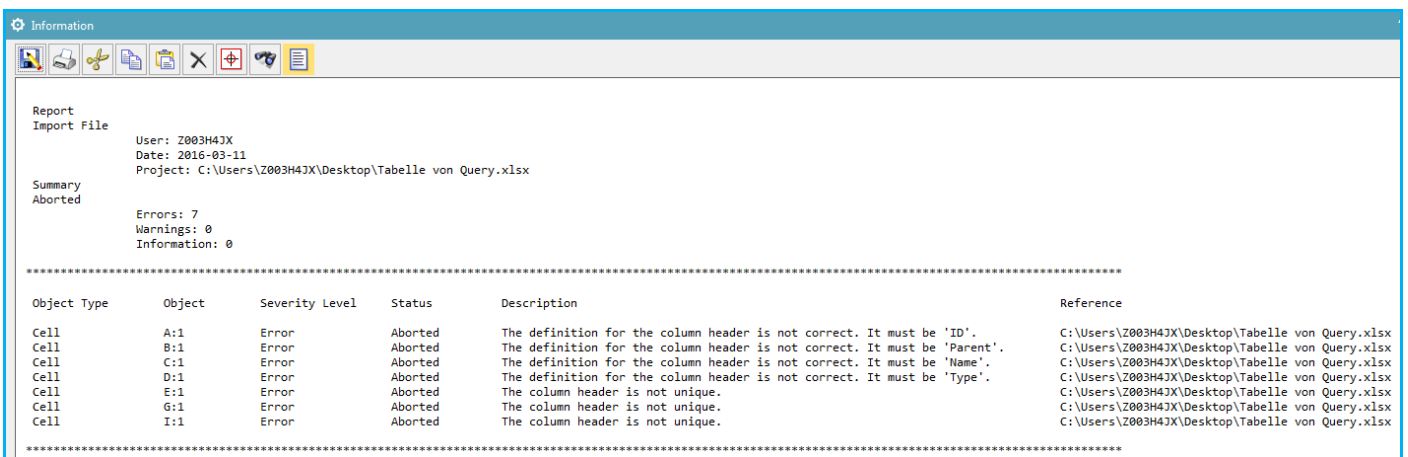
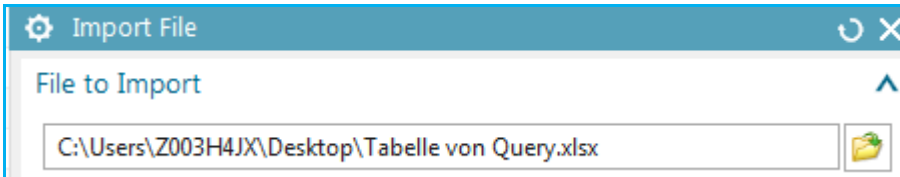
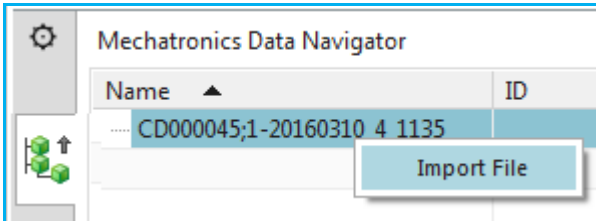
| Status | Port | Reference Designat | Engine |
|--------|---------|--------------------|--------|
| 1 | Block_C | DEV_2I_2O_UNI... | |
| 2 | Block_C | FX001_FB_DB | |
| 3 | | +??-/F012.M010 | |
| 4 | Block_C | DEV_2I_2O_UNI... | |
| 5 | Block_C | FX001_FB_DB | |
| 6 | | +??-/F011.M010 | |
| 7 | Block_C | DEV_2I_2O_UNI... | |
| 8 | Block_C | FX001_FB | |

Note that selected also in aspects.



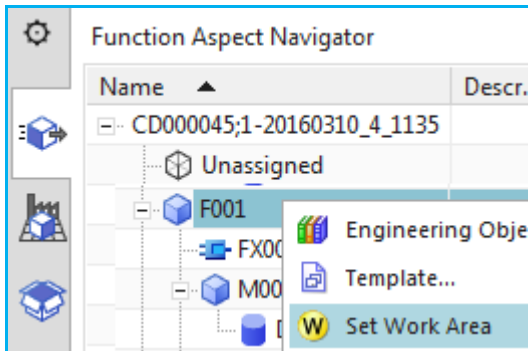
17.5. Excel import (mechatronics data navigator) ERROR (20160311)

TERRY: how to do this?

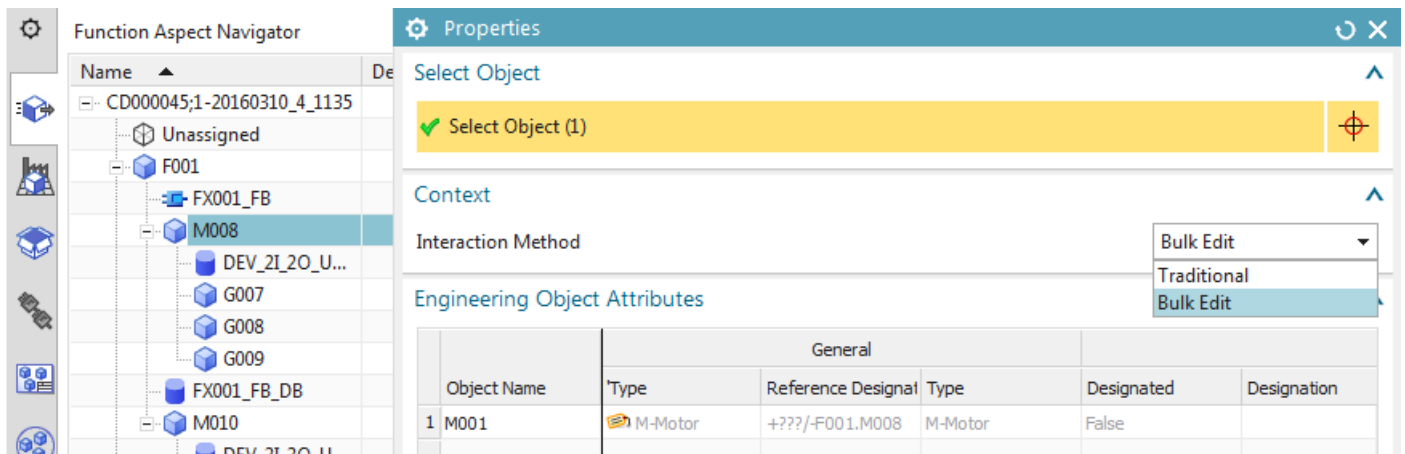


17.6. Workarea DON'T UNDERSTAND

TERRY: what is purpose of workarea?

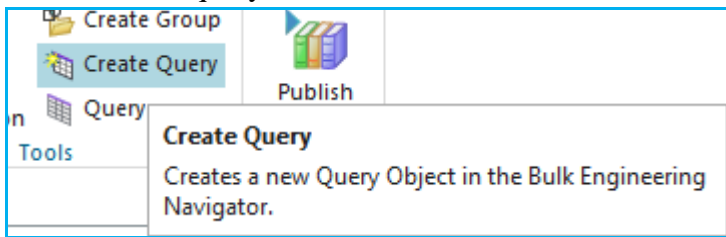


17.7. Bulk edit DON'T UNDERSTAND

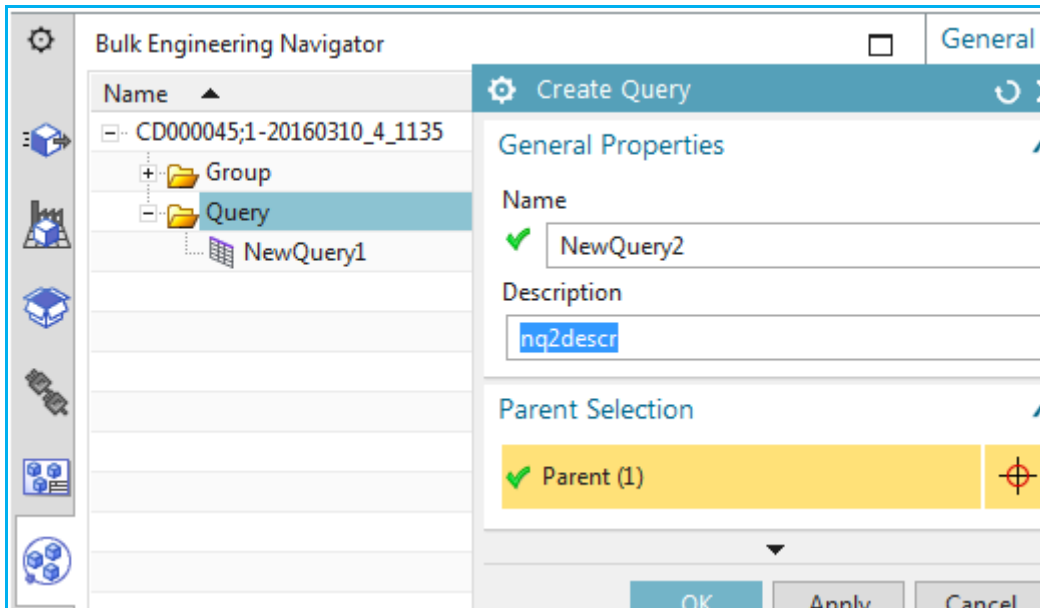


17.8. Query (20160311)

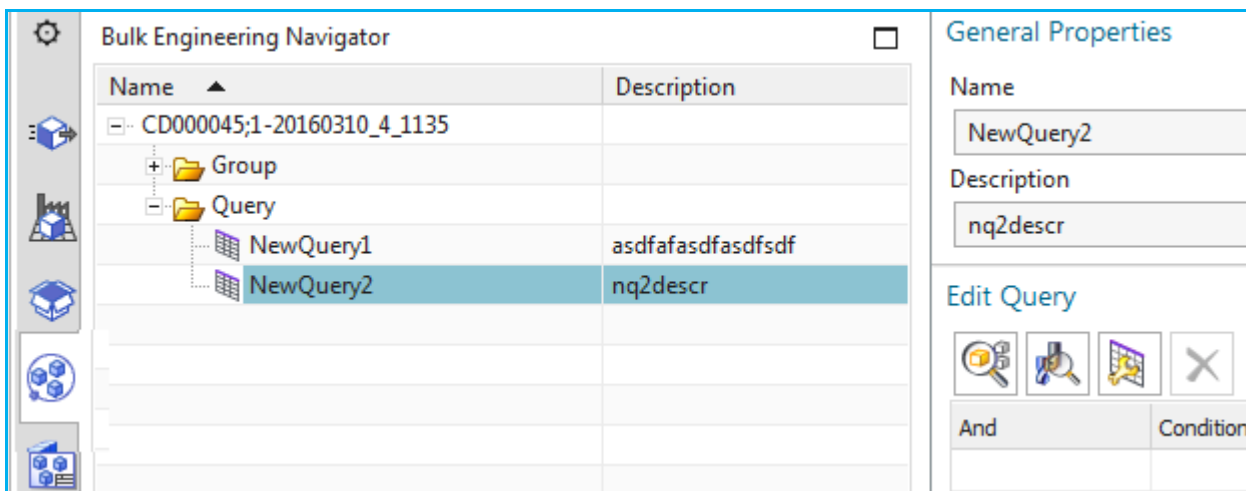
1. click create query.



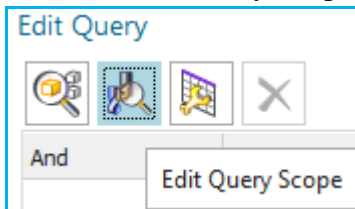
2. Enter name and select parent.



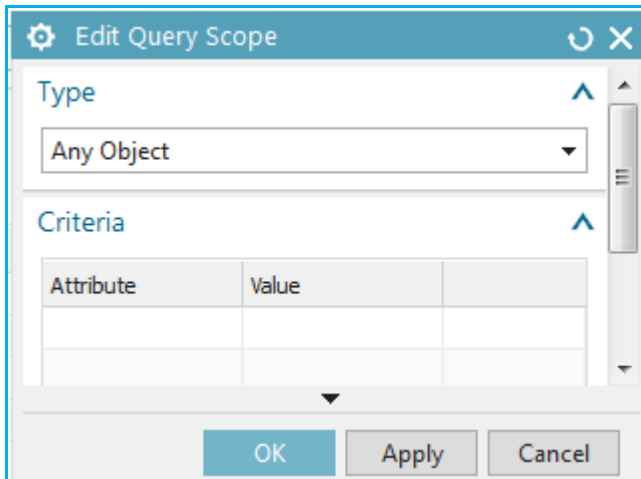
Result.



3. Click "Edit Query Scope".



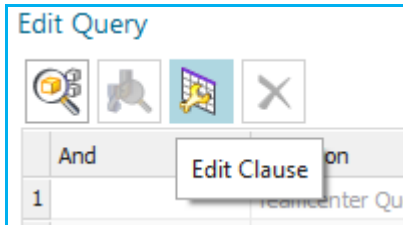
4. Select type.



5. Click OK.

| | And | Condition | Operator | Value | Path |
|---|-----|------------------|----------|------------|------|
| 1 | | Teamcenter Query | Is | Any Object | |
| | | | | | |

6. Click "Edit clause".



7. Select classification.

The 'Reuse Library' tree shows the following structure:

- Classification Root
 - Automation Designer
 - Product Library [1]
 - Device [2]
 - Solution Library [7]
 - Type Library [209]
 - Device [171]
 - A- >1 purpose or tas
 - B-Measurement [21]
 - C-Storage [12]
 - E-Radiant or thermal
 - F-Protection [13]**
 - FA-Overvoltage [
 - FB-Residual curre
 - FC-Overcurrent [
 - FE-Other electric
 - FL-Pressure [1]
 - FM-Fire [1]
 - FN-Condition or

The 'General Properties' for 'NewQuery2' show:

- Name: NewQuery2
- Description: nq2descr

The 'Edit Clause' dialog shows:

- Type: Classification
- Classification: Select Classification (F-Protection)
- Operator: As

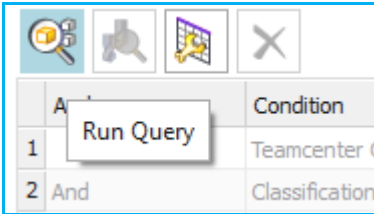
The 'Select Property' list shows:

| | Property | Opera |
|---|----------------------|-------|
| 1 | Power frequency... | |
| 2 | Power frequency... | |
| 3 | Temperature (max) | |
| 4 | Temperature (min) | |
| 5 | Power loss | |
| 6 | Control voltage ... | |
| 7 | Control voltage ... | |
| 8 | DC control voltag... | |
| 9 | DC control voltag... | |

8. Click ok.

| And | Condition | Operator | Value | Path |
|-------|------------------|----------|--------------|--------------------|
| 1 | Teamcenter Query | Is | Any Object | |
| 2 And | Classification | As | F-Protection | Automation Desi... |

9. Click "Run query".



Seems like templates not shown?

Product Aspect Navigator

| Name | Des... | Template |
|----------------------------|----------------------------|----------|
| CD000045;1-20160310_4_1135 | | |
| Unassigned | | |
| -F001 | | |
| -M008 | | |
| -M010 | | |
| -F006 | | |
| -M008 | | |
| -F011 | 20160311_1_template(0002) | |
| -M008 | ↳20160311_1_template(0002) | |
| -M010 | ↳20160311_1_template(0002) | |
| -F012 | 20160311_1_template(0003) | |
| -M008 | ↳20160311_1_template(0003) | |
| -M010 | ↳20160311_1_template(0003) | |

General Properties

Name: NewQuery2

Description: nq2descr

Edit Query

| And | Condition | Operator | Value | Path |
|-----|------------------|----------------|--------------|--------------------|
| 1 | Teamcenter Query | Is | Any Object | |
| 2 | And | Classification | F-Protection | Automation Desi... |

Query Result

| Object Name | General | Function Aspect | | Location Aspect | | Product Aspect | |
|-------------|-----------|-----------------|------------|-----------------|-------|----------------|-------------|
| | | Reference Desig | Designatic | Multi R | Desig | Multi Refe | Designation |
| 1 F001 | +??/-F006 | | | | +??? | F006 | -F006 |
| 2 F001 | +??/-F001 | | | | +??? | F001 | -F001 |

10. Select all objects.

Query Result

Select All Objects in Query Result

Function Aspect Navigator

| Name | Descr... | Template | Data |
|----------------------------|----------|----------|------|
| CD000045;1-20160310_4_1135 | | | |
| Unassigned | | | |
| F001 | | | |
| FX001_FB | | | |
| M008 | | | |
| DEV_2I_2O_U... | | | |
| FX001_FB_DB | | | |
| M010 | | | |
| DEV_2I_2O_U... | | | |
| F001 | | | |
| FX001_FB | | | |
| M008 | | | |
| DEV_2I_2O_U... | | | |
| FX001_FB_DB | | | |

General Properties

Name: NewQuery2

Description: nq2descr

Edit Query

Query Result

| | | General |
|-------------|------|--------------|
| | | Reference De |
| Object Name | | |
| 1 | F001 | +??/-F006 |
| 2 | F001 | +??/-F001 |

11. Export to spreadsheet.

Query Result

Export Query Result to Spreadsheet

Object Name Reference De Designation Multi Referen

Tabelle von Query

| | A | B | C | D | E | F | G | H | I | J |
|---|---|-------------|--------------|--------------|---------------|--------------|---------------|--------------|-----------------|-------------|
| 1 | | | General | Function Asp | Function Asp | Location Asp | Location Asp | Product Aspe | Product Aspect | |
| 2 | | Object Name | Reference De | Designation | Multi Referen | Designation | Multi Referen | Designation | Multi Reference | Designation |
| 3 | 1 | F001 | +??/-F006 | | | | +??? | F006 | -F006 | |
| 4 | 2 | F001 | +??/-F001 | | | | +??? | F001 | -F001 | |

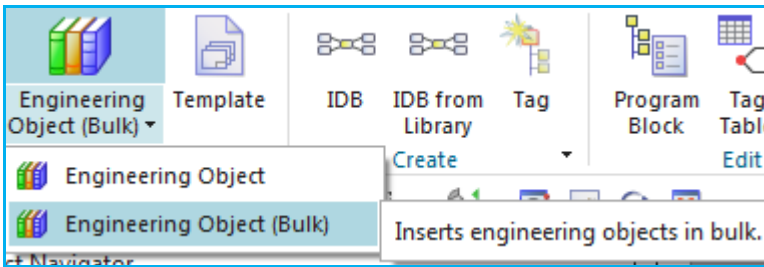
17.9. types

17. Safety (DON'T UNDERSTAND)

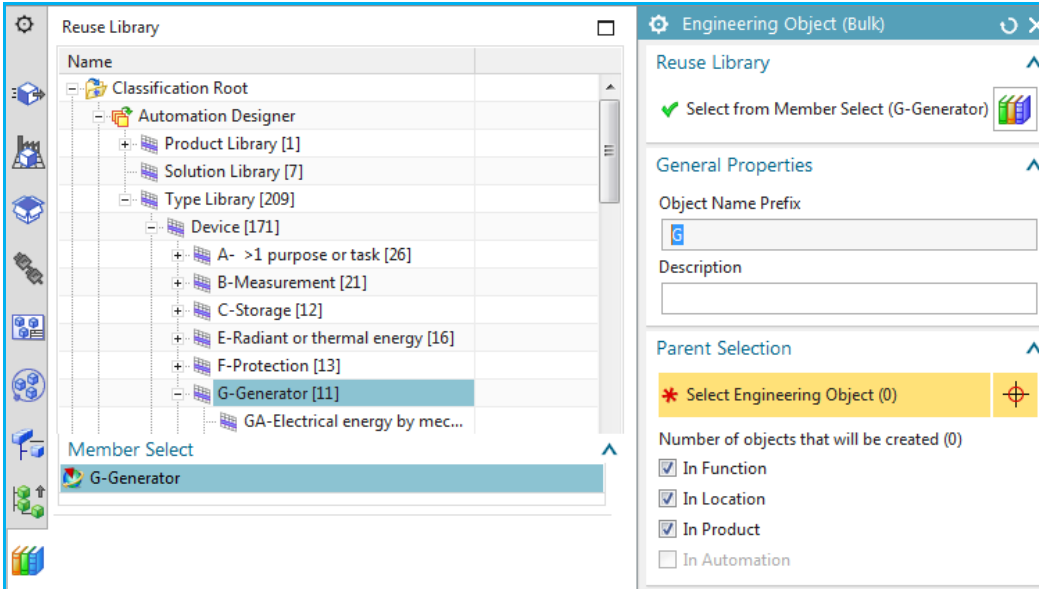
\\debonk10c19\ADNX\Teams\PRM\Topics\TIA portal\Safety

18. Objects and the aspect tree

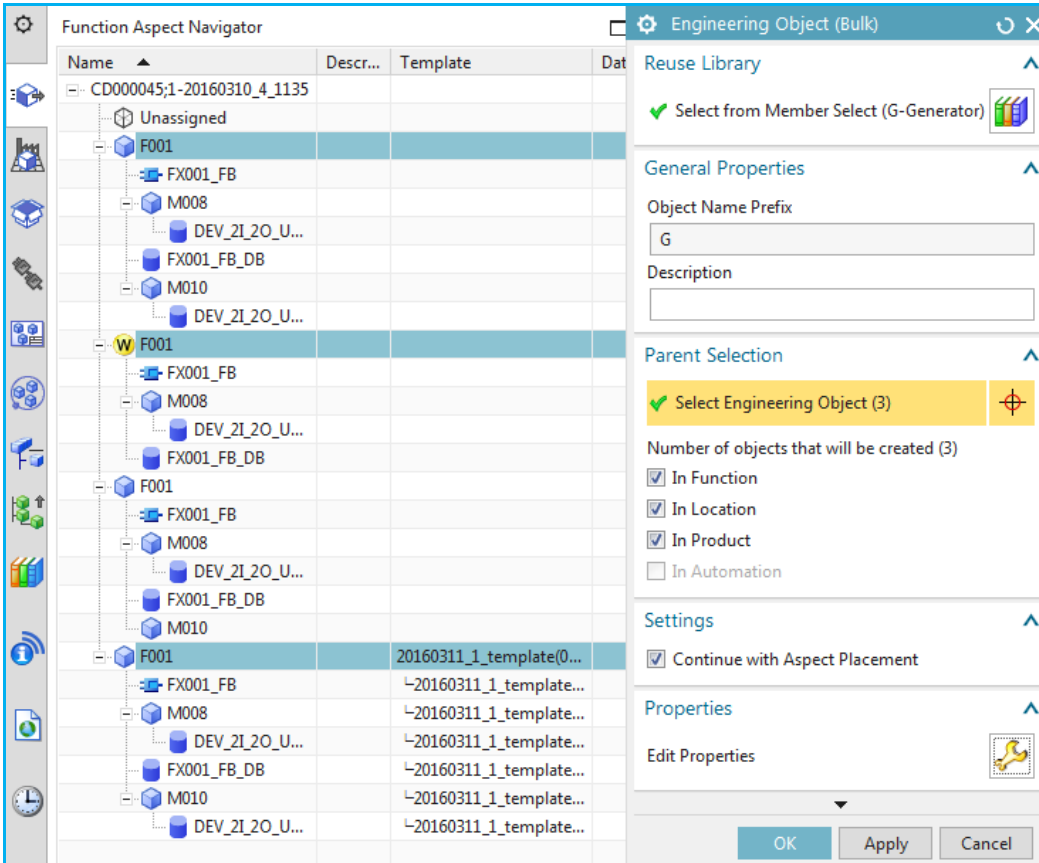
18.x. Engineering object (bulk) DON'T UNDERSTAND



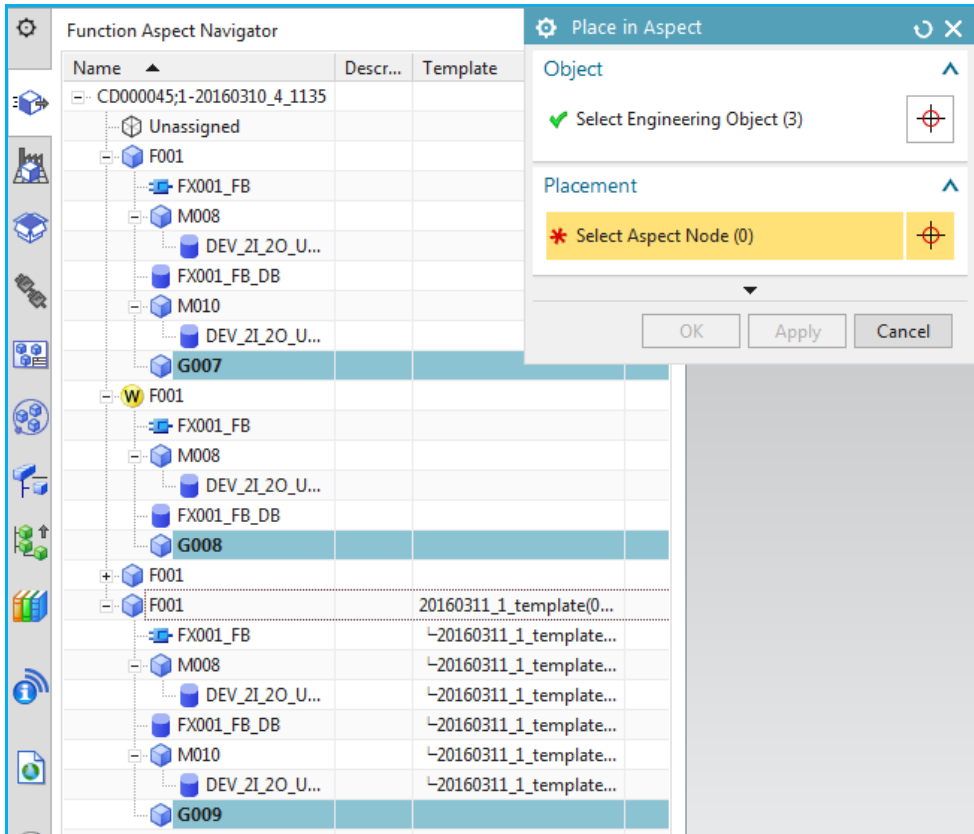
1. select member.



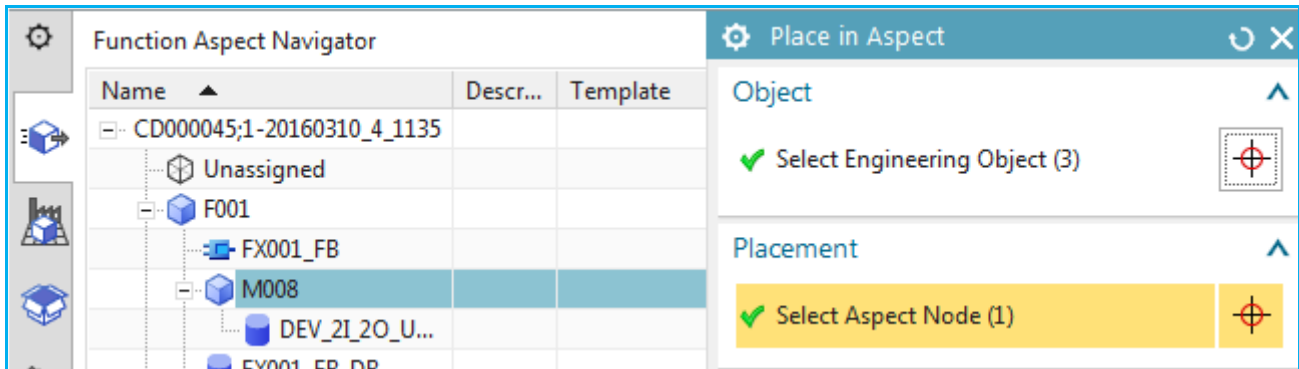
2. select parent(s).



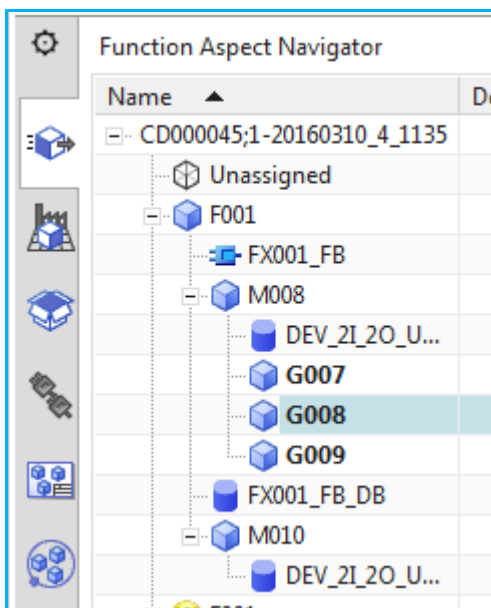
3. click ok. 3 objects created. Placement dialog still open.



4. Select aspect node to place in.



Result.



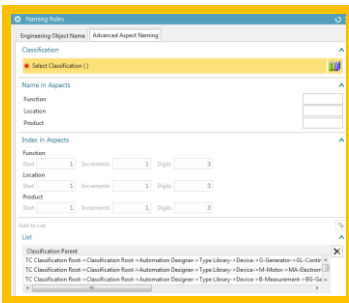
resource library, library imports

assign product, product selection

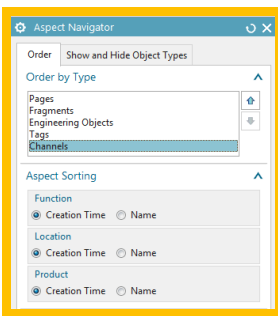
EOs (properties, etc.)

Bulk (multiple connections)

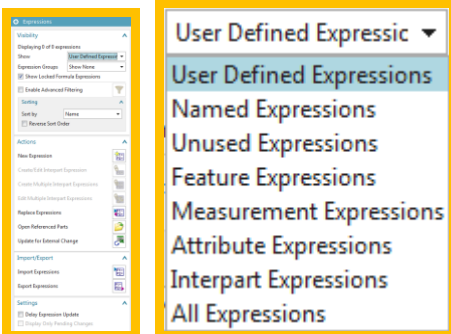
Naming



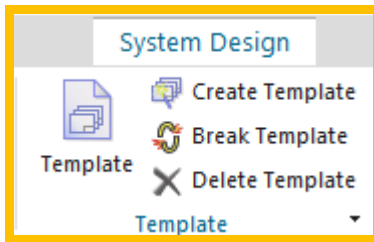
Aspects



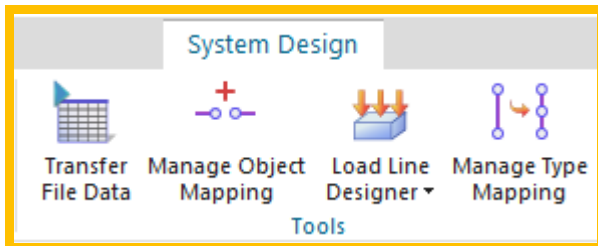
19. Expressions



20. Templates?



21. LD



Upstream (import xlsx file)

Load LD objects

mapping

22. EPLAN

EPLAN details, template, preview

Document (replacement for EPLAN)

23. TIA

Automation tab (details)?

TIA round-trip

TIA config HW in TIA portal

Bulk (multiple connections)

ports and connections

Port types.