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# PLMJobManager - Presentation Compare NX Data via CheckBox

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**CheckBox** is a solution to extract geometrical data, non geometrical data and drawings from NX-Parts for comparison, to detect differences between these parts.

#### **Ever NX Version change raises the following questions:**

- Does "my data" change because of the conversion to the new NX version?
- Can "my data" still be opened, update, edit and saved?
- Is "my data" in the new version in the same way manageable as in the current productive version?

This questions can only be answered when the "**own data**" is verified through appropriate methods!

A manual verification is very comprehensive and requires a **huge amount of time**. In addition, the tests are only successful if such manual checks are performed systematically. The **immense time** required for manual testing in practice leads to the fact that this part of the conversion is usually treated only superficially.

## To answer these questions the software **CheckBox** was developed in cooperation with the companies **BSH**, **KBA**, **MTU**, **Renk**, **ASML** and **S-PLM**



## The goal:

Developing a tool that answers the following question:

# Are the data in the new version the same as in the old version?

The following slides show you the concept on how to check the data in a save way with the help of the NXCheckBox and the PLMJobManager.

#### Introduction CheckBox Process Overview



#### Step 1: Extraction NX1992 Data





After extracting NXCheckBox Data the CB.Log files is analysed an the results are listed as partial Results. The following list shows how we do classify the NXCheckBox extraction Results.

-	PL	=	Part load	1
-	UF	=	Update all Feature	2
-	UD	=	Update Drawing	3
-	PH	=	Part Header	(4)
-	MD	=	Model Data	$\overline{6}$
-	AS	=	Assembly Data	
-	DR	=	Drawing Data	
-	EN	=	Entity	(8)
-	CBXml	=	CB.Data File (xml)	9
-	CGM	=	Drawing .cgm Files	(10)

The results of extracting data is imported into the JobServer Database.

[677] doune init program result file [680] single_part = #D:\NxData\BgStrukNx75\BgStrukEx-Einzeltei [721] loading part Info: Memory Load = 33 Info: dwAvailPhys = 11109156 Info: dwAvailPageFile = 26648496 Info: dwAvailVirtual = -586564
Start Check at Sat Feb 02 14:49:28 2013
[496] partname = #D:\NxDr1,BgStrukNx75\BgStrukEx-Einzelteil-0 Info: Part = D:\NxData\Bg_rukNx75\BgStrukEx-Einzelteil-04_dwg Info: xml_file = D:\NxData\BgStrukNx75\BgStrukEx-Einzelteil-04 [537] xmlfile = #D:\NxData\BgStrukNx75\BgStrukEx-Einzelteil-04
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Finished checking at Sat Feb 02 14:49:31 2013

#### Introduction NXCheckBox Compare Data





#### Introduction NXCheckBox Details off Extracted XML Data





#### Introduction NXCheckBox Details of Difference Report



#### DifReport.txt

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1	CheckBox Report:								
2	JM CheckBoxVer:V2.696 (Build:26.10.2010)								
з	Date								
4									
5	CheckBox.Data 1:[NX V3.0[103.0]]	CheckBox.D	ata 2[NX	V7.5[107.	.0]]				
6									
7	CliName.:[@DB/4022.625.4014/2/specification/110-001-01]	<pre> CliName.:[</pre>	@DB/4022.	625.4014/	2/specifi	cation/110-	001-01]		
8	PartDesc:	PartDesc:							
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10	PartHis.:24 18 Oct 10 22:29 NT Intel jfeuerst NX 3.0.3.2 - External ~	PartHis.:2	4 29 Jul	10 11:47	NT Intel	JFeuerst NX	7.5.0.32	(NX Manag	er~
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17	NxCB.Rel:V1.1.1.18 Build:(Aug 27 2010)	NxCB.Rel:V	1.1.1.18	Build:(Ma	ay 20 2010	)			
18	Date:18.10.10 22:29:51	Date:1	9.10.10 0	0:55:03					
19									
20	CheckBox Compair Result:								
21	ResultIsErr:True								
22	ResultHasWaring:True								
23	ResultCode:64								
24	ResultCodeBinary.:64								
25	ResultMsgShort: [PH:OK] [MD:OK] [AS:OK] [DR:OK] [EN:64 Msg:Err:Origin] [	Pef:OK]							
26									
27	CheckBox compair report:								
28	PartHistoCheck: OK								
29	<pre>Warning:DR(32):[ViewDependentObjects_n].[A3ENG_NEW]:[Value Differ(&lt;&gt;)</pre>	!!]							
30	->NX V3.0[103.0]: 74								
31	->NX V7.5[107.0]: 73								
32	++Error:EN(64):[Origin]:[X:[240.553540] Y:[291.117523] Z:[0.000000]]								
33	<pre> -&gt;NX V3.0[103.0]: [Type:[26] Subtype:[3] Desc:[UF_dim_parallel] Nam</pre>	e:[] Handle	:[RM%UL=V	1.0 PH=gE	3mdYwshQS4	FxA AUID=Rg	od6KgTQS4I	<b>xA</b> R00008	20300000018]
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#### Introduction NXCheckBox Analyze Data Compare Drawings

NXCheckBox extracts CGM files from specifications. These CGM files are used to create output data.

This method was developed by Thomas Körner from B/S/H. Merge.tif

**PPM** (Parts per Million) value which shows if drawings have

The Merge.tif image file is also be used to see quick differences between drawings.





#### Introduction NXCheckBox Analyze Data Compare Drawings



#### Example below shows an Issue found by missing AssocEnt1 (1)



© addPLM - GmbH Document: [NXCheckBox\_01Presentation\_en] (J.Fes) last update [16.09.2022] Output date: [28.09.2022]

#### Introduction CheckBox Analyze Data Compare CB.xml files

All analyzed Data from XML and from Drawing compare will be combined to one Result:

- PH = Part Header (from XML)
- MD = Model Data (from XML)
- AS = Assembly Data (from XML)
- DR = Drawing Data (from XML)

 $\left( 2 \right)$ 

2

1

- EN = Entity Data Dim/Text (from XML)
- PPM= Dif.tif (from Drawing compare)

 $\left( 3 \right)$ 

 If the Result Value is = 0 no differences between the part's are found. Example: [PH:OK] [MD:OK] [AS:OK] [DR:OK] [EN:OK] [PPM:OK]

(4)

3

 If the Result Value is > 0 there are differences between the Parts → the Parts must be checked ! Example: [PH:OK] [MD:ERR:Lay;Refs;] [AS:OK] [DR:OK] [EN:OK] [PPM:3078]

(4)

(5)





 $\left( \begin{array}{c} 6 \end{array} \right)$ 

 $\left( 5 \right)$ 

 $\left( \begin{array}{c} 6 \end{array} \right)$ 

#### Introduction NXCheckBox Analyze Data Get Entire Results



#### All Result's are view via PLMJobManager

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3-Normtell-03/A	BG-Normtell-03-A	UGMASTER	30.08.2011 12:46 infodba	SP D.CB1.1.OK (after 1st extr.)	D.CB2.1.CK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)			[PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-Normteil-02/A	BG-Normtell-02-A	UGMASTER	11.05.2014 08:15 infodba	SP D.CB1.1.OK (after 1st extr.)	D.CB2.2.OK (after 2nt extr.)	D.CB3.2.WRN (after 2nt CBC)			[PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-Normtel-01/A	BG-Normteil-01-A	UGMASTER	11.05.2014 08:12 infodba	SP D.CB1.1.OK (after 1st extr.)	D.CB2.2.CK (after 2nt extr.)	D.CB3.2.WRN (after 2nt CBC)			[PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-Einzelteil-04/A	BG-Einzelteil-04-A	UGMASTER	08.08.2014 13:45 infodba	SP D.CB1.1.OK (after 1st extr.)	D.CB2.1.OK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)			[PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
-Einzelteil-04/A	BG-Einzeltei-04-A	UGPART	31.10.2011 10:49 infodba	SP D.CB1.1.OK (after 1st extr.)	D.CB2.2.WRN (after 2nt extr. D.CB2.2.WRN (after 2nt extr.	<ul> <li>D.CB3.2.WRN (after 2nt CBC)</li> <li>D.CB3.2.WRN (after 2nt CBC)</li> </ul>			[PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
>====20101+02/A	BO-EINZEITEIL-02-A	UGMASTER	08.08.2014 13:45 M0008	D.CB1.1.OK (after 1st extr.)	D.CB2.2.WKN (after 2nt extr. D.CB2.1.OK (after 1st extr.)	D CB3 1 OK /after 1st CBC)			[PH:0K][PD:0K][AS:0K][DB:0K][EN25:0K][EN26:0K][D
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3-KBG-02/A	BG-KBG-02-A	UGMASTER	08.08.2014 13:45 infodba	AP D.CB1.1.OK (after 1st extr.)	D CB2.1.OK (after 1st extr.)	D CB3.1 OK (after 1st CBC)		2	4 [PH:0K][MD:0K][AS:0K][DR:0K][EN25:0K][FN26:0K][D
3-KBG-013/A	BG-KBG-013-A	UGMASTER	08.08.2014 13:45 infodba	AP D.CB1.1.OK (after 1st extr.)	D.CB2.1.CK (after 1st extr.)	D.CB3.1.WRN (after 1st CBC)		3	8 [PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-MBG-01/A	BG-MBG-01-A	UGMASTER	08.08.2014 13:45 infodba	AP D.CB1.1.OK (after 1st extr.)	D.CB2.1.OK (after 1st extr.)	D.CB3.1.WRN (after 1st CBC)		1	5 [PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-KB3-012/A	BG-KBG-012-A	UGMASTER	08.08.2014 13:45 infodba	AP D.CB1.1.OK (after 1st extr.)	D.CB2.1.CK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)		4 1	2 [PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-KBG-011/A	BG-KBG-011-A	UGMASTER	08.08.2014 13:45 infodba	AP D.CB1.1.OK (after 1st extr.)	D.CB2.1.OK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)		5 1	3 [PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-MB/3-02/A	BG-MBG-02-A	UGMASTER	08.08.2014 13:45 infodba	AP D.CB1.1.OK (after 1st extr.)	D.CB2.1.CK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)		6 1	4 [PH:OK][MD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
3-AGG-Mod-01/A	BG-AGG-Mod-01-A	UGMASTER	02.05.2015 10:03 infodba	AP D.CB1.1.OK (after 1st extr.)	D.CB2.1.OK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)		7 3	<pre>II [PH:0K][MD:0K][AS:0K][DR:0K][EN25:0K][EN26:0K][D</pre>
>-82/G-03/A	BO-KBG-03-A	-1 UGMASTER	11.06.2014 08:16 Infodba	D.CB1.1.OK (after 1st extr.)	D.CB2.1.CK (after 1st extr.)	D.CB3.1.OK (after 1st CBC)		1	/ [PH:OK][HD:OK][AS:OK][DR:OK][EN25:OK][EN26:OK][D
Count = 19 details of ) mmk d Date. d Date. d Date. lDate.	I Item8 BG-No BG-No 0 UGMAS 30.00 infod SP	Nev_List prmteil-03/A prmteil-03-A 575R 9.3011 12:46 dba		**					· · · · · · · · · · · · · · · · · · ·
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Via J.Link you have a Quick access to all Data via CB.Mgr.Comp.



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BgStrukEx-AGG-Mod-01_01_A_master_NX4.XML	81 KB
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BgStrukEx-AGG-Mod-01_01_A_specification_Z1_NX4.XML	59 KB
BgStrukEx-AGG-Mod-01_01_A_specification_Z1_NX4-NX5_Dif_Xml.txt	26 KB
BgStrukEx-AGG-Mod-01_01_A_specification_Z1_NX5.XML	60 KB
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BgStrukEx-AGG-Mod-01_01_A_specification_Z1_SHT1_NX4-NX5_Dif_CgmToPrt.prt	704 KB
BgStrukEx-AGG-Mod-01_01_A_specification_Z1_SHT1_NX4-NX5_Dif_Histo.log	2 KB
BgStrukEx-AGG-Mod-01_01_A_specification_Z1_SHT1_NX4-NX5_Dif_Merge.tif	1.327 KB
BgStrukEx-AGG-Mod-01_01_A_specification_Z1_SHT1_NX5.cgm	134 KB
BgStrukEx-AGG-Mod-01_01_A_specification_Z1_SHT1_NX5.tif	20 KB

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#### Introduction CheckBox performance data recording

NXCheckBox in combination with PLMJobManager can also be used to record NX performance Data.

The princip is that timestamps in CheckBox.xml files are used to harvest the performance data and to collect them into an Excel file. This Data can then be used to analyze the NX performance.





#### **Benefits**



### **Benefits for using NXCheckBox**

- ✓ Getting overview about NX TC Software Quality
- ✓ Getting overview about your NX TC Data Quality
- Helps to setup NX TC customer settings
- Helps to find issues before designers working with the new NX – TC Version
- ✓ Helps to keep the value of PLM Data
- Reduces cost's "after upgrade" because
   Data and software issues can be better identified and solved before upgrade.
- Reduces Upgrade risks

#### Introduction NXCheckBox Involved Company's

The CheckBox Software is developed by Mr, Bernd Schieber (SISW Stuttgart). Software specification, project coordination and PLMJobManager integration was done by Mr. Josef Feuerstein (addPLM)

All Company's did spend 3 Day's of Services to SISW.

At the Meeting (on 28.04.2010) the participants' agreed that it is possible for another company to join this Project. To take part in this Project the new company has also to spend 4 Day's of Services on this project. Info: The PLMJobManager Software is a separated Software and is not Part of the CheckBox Tool.





#### **System requirements**



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# JobServer:

- Win10 Workstation
- W2008 .. W2019 Server



- Win10 Workstation
- W2008 .. W2019 Server
- with Full NX- und TC- installation