

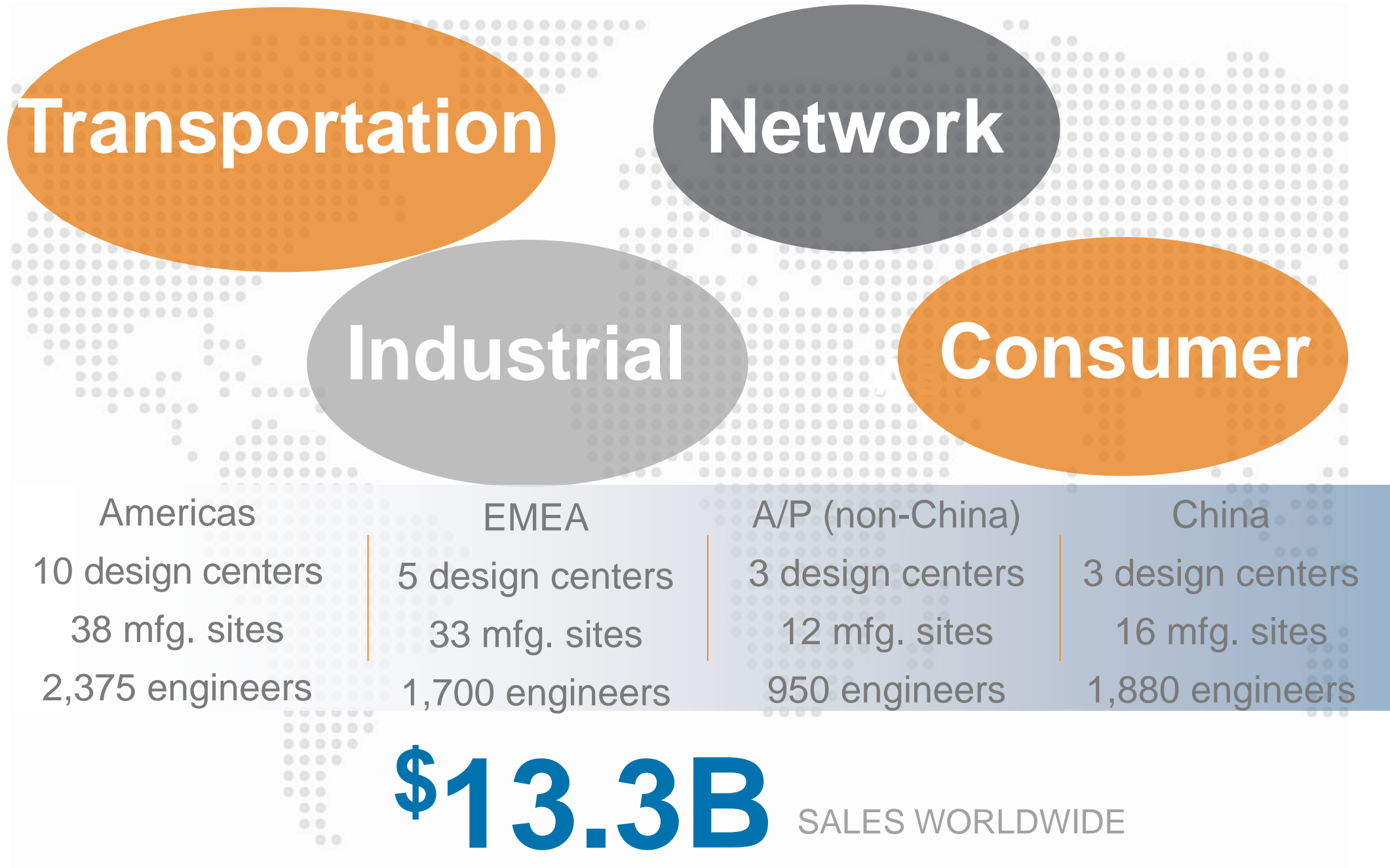
A WORLD LEADER IN CONNECTIVITY

- Solving connectivity challenges with the broadest range of products
- Engineering driven, customer focused
- Leveraging technology innovations across industries

The image shows a large, 3D-style logo for TE Connectivity. The letters 'TE' are in a large, bold, sans-serif font, and the word 'connectivity' is written in a smaller, lowercase, sans-serif font below it. The logo is set against a dark grey background with a slight gradient and shadow, giving it a three-dimensional appearance.

TE
connectivity

GLOBAL SCALE AND STRENGTH



LEADING WITH INNOVATION



For the third consecutive year, Thomson Reuters recognized TE as a Top 100 Global Innovator. This distinction recognizes our commitment to innovation.

2013 THOMSON REUTERS
TOP 100
GLOBAL INNOVATORS

7,000

ENGINEERS AROUND
THE GLOBE

18,000+

PATENTS GRANTED OR
PENDING

24%

OF SALES FROM NEW
PRODUCTS INTRODUCED
OVER THE LAST THREE
FISCAL YEARS

\$675M

MILLION INVESTED IN
R&D AND ENGINEERING

JAY NALLANI

- Lead Business Analyst at TE Connectivity
- 15 Plus years of industry experience (Automotive, Technology, Electronics)
- Areas of Specialty: CAD Data Management, Engineering Bill of Materials, Implementing PTC Windchill PDMLink Solutions, Production Support & Project Management.
- **Internet Presence:** LinkedIn
- **Hobbies:** Boy Scouts, Soccer Coach, Bollywood Music Choreography and Playing Drums.

Agenda

- PTC Windchill PDMLink Objects and Design Strategy Definitions
- When to use these design strategies ?
- Interaction with respect to *CAD* design & Design Challenges
- Demo – Top down design of a Connector
- Lessons learned

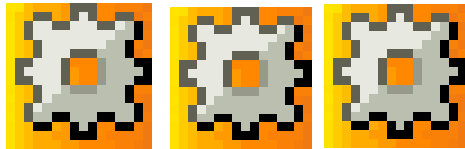
Expectation/Takeaways

1. A better understanding of bottom-up and top-down design strategies.
2. How to use PTC Windchill design strategies to eliminate design headaches?
3. Understand the techniques and tools to manage design strategies within your Organization/Team ?

PTC WindchillPDMLink Objects and Design Strategy Definitions

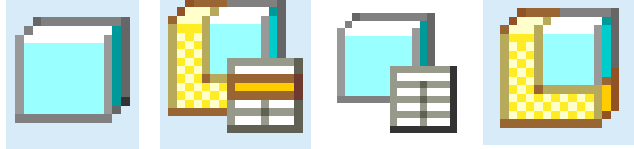
What PTC Windchill PDMLink Objects do we have to begin with ?

WTParts

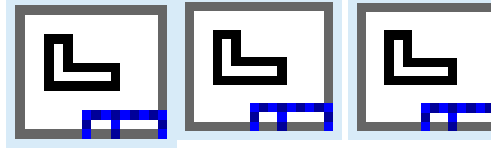


EPMDocs

CAD Models



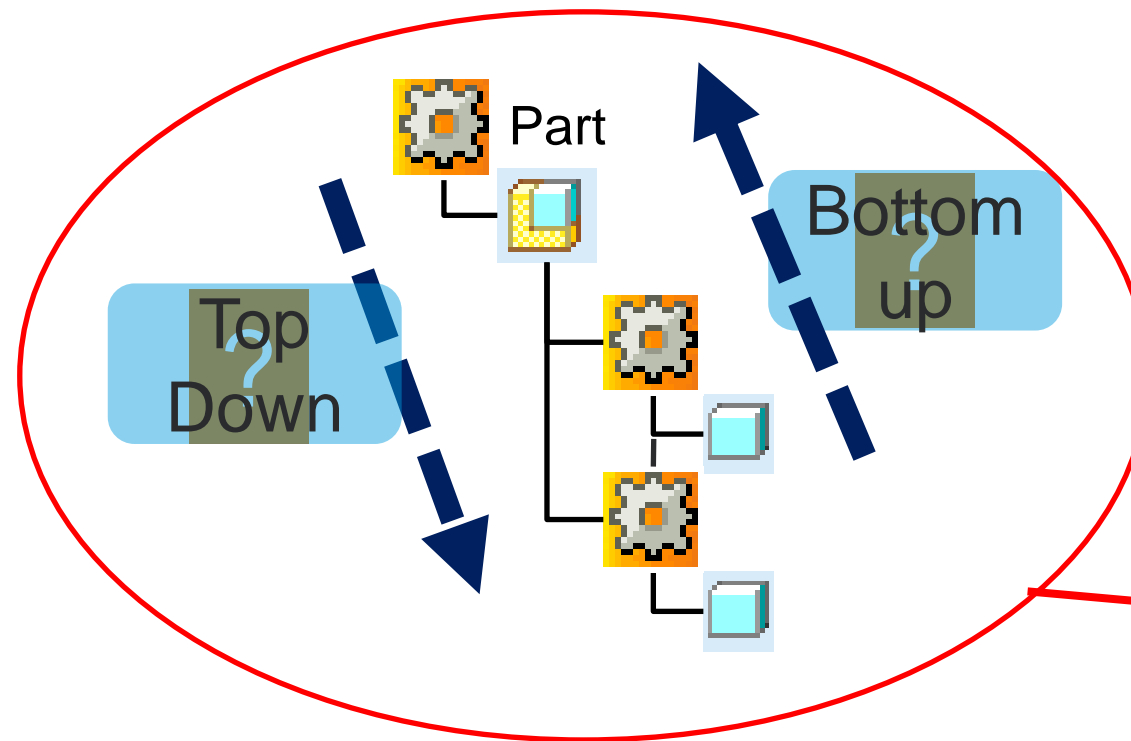
CAD Drawings



WTDocs



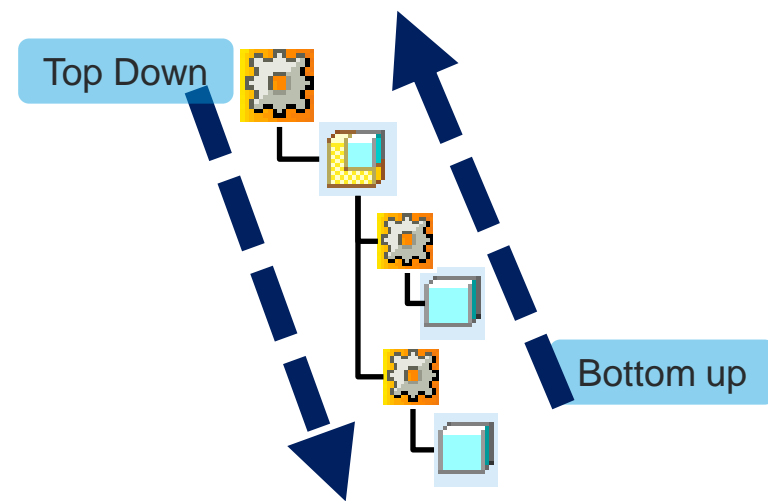
Associating or Linking various Objects builds the design.



PTC Windchill
PDMLink Design
Strategies
Presentation Focus

Out of scope: CREO Methodology and usage of CREO Skeleton Assemblies

The Process of designing products and managing product data using PTC Windchill requires the use of specific design methodologies and techniques. Windchill supports 3 different design strategies.



✓ 1. *Bottom-Up design*

CAD-driven (bottom-up) design is the traditional methodology used to create a product structure and has been a mainstay for product data management using Windchill.

✓ 2. *Top-Down design*

Top-down design is a methodology best practice typically used for creating large multidisciplinary product assemblies.

3. *Design-in-Context*

Design-in-context is a special Windchill technique that enables you to effectively filter a very large product structure and reduce it to a selection of components.

When to use these three design strategies ?

Bottom-Up, Top Down & Design-in-Context

The methodology employed usually depends on the

- Physical size of the product design
- Complexity of the product design
- Geographic organization of the enterprise involved.

Bottom-Up design

- Simple design
- Immediate requirement to define geometry or placement of components
- Mostly Owner Associations between CAD Structure and Part Structure.

Top-Down design

- No need to define geometry or placement of components.
- Immediate requirement to define high level product structure framework.
- Tasks can be delegated to teams that are geographically dispersed across the enterprise.

Design-in-Context

Modifying few data sets in a Large CAD Assemblies.

Interaction with respect to *CAD* design

Bottom-up design basics

1. Create PTC CREO CAD Model and Drawing
2. Check-in to PTC Windchill PDMLink

Check In

1 Collect Objects 2 Set Options

Create Baseline
Name: US083856_2014_03_17_23_4
Set Location: /RDO_0317

Auto Associate Parts to CAD Documents

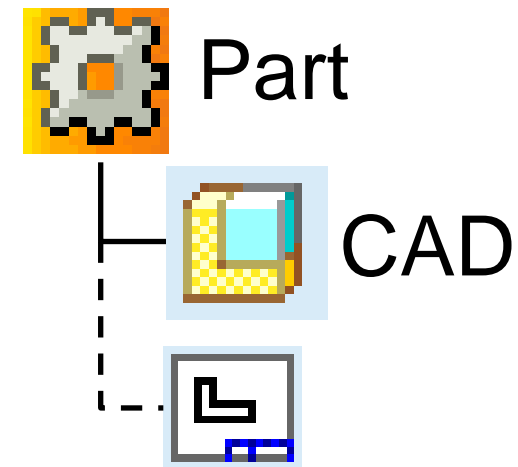
Undo Checkout Unmodified Objects

Remove from Workspace

Auto resolve incomplete objects
• Update with object on server, then ignore
• Always ignore

Attach Differences Report

3. During Check-in, select “Auto Associate Parts to CAD Documents” to create associations.



CAD Model - Owner Association, Drawing – Calculated Association

TE Standard Practice is to use Check-in with Auto-Associate

What happens when you associate a Part with a CAD Object ?

1 ✓ The Thumbnail

Visualization and Attributes | More Attributes

Visualization and Attributes

Name: CONNECTOR ASSEMBLY
 Status: Checked in
 Modified By: Nallani, Jay
 Last Modified: 2015-05-27 07:20 EDT

2 ✓ The Attributes

Common Attributes

MBD_Compliant: NO
 DOC_STATUS: Active
 PART_NO: 9999944-1
 DESC: CONNECTOR ASSEMBLY
 DWG_TITLE_2: COMPRESSION MOUNT
 DWG_TITLE: SPRING CONTACT PROBES

Number ▾

- 9999944-1
- 9999944-1.ASM
- 9999932-1
- 9999932-1.PRT
- 9999934-1
- 9999934-1.PRT
- 9999936-1
- 9999936-1.PRT

3 ✓ The Structure

Number	Name
9999944-1	CONNECTOR ASSEMBLY
9999944-1.ASM	CONNECTOR ASSEMBLY
9999944-1.DRW	CONNECTOR ASSEMBLY DRW

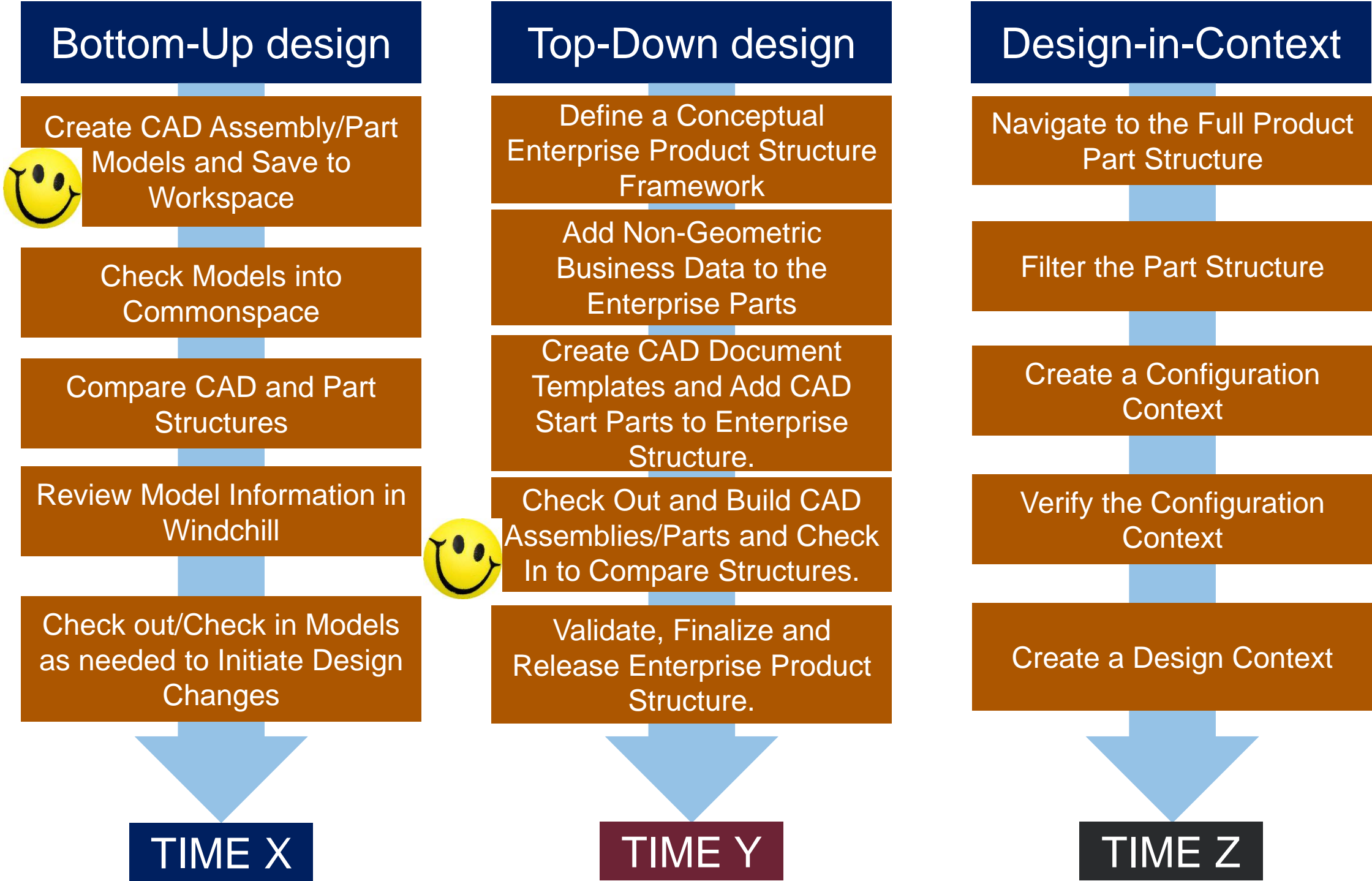
4 ✓ The Related Objects Association

Number	Association
9999944-1.ASM	Owner
9999944-1.DRW	Calculated

#4 Controls how 1,2 & 3 work

Understanding Build Rules is very important for Top-Down design

The usage of these **building** blocks for creating relationships between CAD and Parts must follow the above **rules**.



Question:
If you have Windchill 10x, where does the CREO work begin with respect to Bottom-Up & Top-Down ?

Some business units take CAD centric approach, few try to take top-down design approach.

Bottom-Up design

TIME X

Top-Down design

TIME Y

Design-in-Context

TIME Z

Challenges

1. How to choose a design strategy for a project ?
2. How to handle geographically located resources ?
3. Ideas for new products are dumped on engineering groups that are already busy and are unable to deliver new designs
4. Pressure to increase sales driving the company to launch new products at unprecedented rates.
5. Companies are impacted by forces from all directions, but it all comes down to execution. if you don't execute you will not win the market.



Creating connector design using PTC Windchill Top-Down Design

Concept to Production at a faster pace, Speed to market

Time Zone1: Product Architect in a sales and marketing meeting explores a design idea.

Time Zone2: PTC Windchill PDMLink Designer, releases the Product.

Design Idea: Create a 6 pair spring probe connector design that can support a wide range of termination options.

Level	TCPN	DESCRIPTION	Comment
0	9999948-1	CONNECTOR ASSEMBLY	<i>Use Windchill TOP-DOWN Design capability and generate a New Prototype design.</i>
1	9999936-1	SPRING PROBES	<i>Design ReUse -- In-House Design already exists</i>
1	9999932-1	CONNECTOR HOUSING INSTANCE	<i>Design ReUse -- In-House Design already exists</i>
1	9999934-1	CONNECTOR HOUSING MATE	<i>Design ReUse -- In-House Design already exists</i>
1	9999939-1	IDI CORE SPRING CONTACT PROBE	<i>Purchased Item - Supplier given CAD File by</i>
2	1-9999921-5	JN RESIN123 BLACK	<i>Supply Chain Management group</i>
1	9999938-1	HOUSING TERMINATOR	<i>New Design - Create brand New CREO design</i>

Windchill 10x allows you create WTParts with CAD associated (owner links) to build your CAD Product Structure

1st Step: Created Required brand new WTParts and CAD Models

Non-CREO User

New Part

1
Set Attributes

Project: TS Platinum webcasts
*** Type:** -- Select a Type --

Create CAD Document
 Keep checked out after checkin

New Part

1 — 2
Set Attributes **New CAD Document**

Project: TS Platinum webcasts
*** Type:** -- Select a Type --

Create CAD Document
 Keep checked out after checkin

New Part

1 — 2
Set Attributes **New CAD Document**

Project: TS Platinum webcasts
Authoring Application: Creo
Category: Assembly
Type: CAD Document
*** Template Name:** creo_elementspro5_mmns_design.asm **Default**

Assembly CAD Part

Number	Name
9999947-1	CONNECTOR ASSEMBLY
9999947-1.ASM	CONNECTOR ASSEMBLY

Number	Name
9999938-1	HOUSING TERMINATOR
9999938-1.PRT	HOUSING TERMINATOR

Import thru a spreadsheet

Action	Level	Number
	0	9999948-1
Add	1	9999932-1
Add	1	9999934-1
Add	1	9999936-1
Add	1	9999938-1
Add	1	9999939-1
Add	2	1-9999921-5

OR manually insert required WTParts

Number	Name
TCPN - 9999948-1	CONNECTOR ASSEMBLY, 1.2 (Design)
9999948-1	CONNECTOR ASSEMBLY
9999932-1	CONNECTOR HOUSING_INST1
9999934-1	CONNECTOR HOUSING MATE
9999936-1	SPRING PROBES
9999938-1	HOUSING TERMINATOR
9999939-1	IDI CORE SPRING CONTACT PROBES
1-9999921-5	JN RESIN123 BLACK

Timezone1: Product Architect in a sales and marketing meeting explores a design idea and created a Top-Down Design in PTC Windchill PDMLink

- Let's see what else Product Architect does in PTC Windchill – **Play Demo1**

What did the design engineer received from Product Architect ?

- Lets see design engineer complete the rest of the design – **Play Demo2**

Job ready for Production, in summary tools used

- Product Architect : PTC Windchill + CREO view
- Design Engineer : PTC Windchill + CREO

Recap of the Connector Design using PTC Windchill TOP Down Design

Update Product Structure either manually or using an import spreadsheet

Number	Name
9999948-1	CONNECTOR ASSEMBLY
9999932-1	CONNECTOR HOUSING_INST1
9999934-1	CONNECTOR HOUSING MATE
9999936-1	SPRING PROBES
9999938-1	HOUSING TERMINATOR
9999939-1	IDI CORE SPRING CONTACT PROBES
1-9999921-5	JN RESIN123 BLACK

Number	Name
9999948-1	CONNECTOR ASSEMBLY
9999948-1.ASM	CONNECTOR ASSEMBLY
9999932-1	CONNECTOR HOUSING_INST1
9999932-1.PRT	CONNECTOR HOUSING_INST1
9999934-1	CONNECTOR HOUSING MATE
9999934-1.PRT	CONNECTOR HOUSING MATE
9999936-1	SPRING PROBES
9999936-1.PRT	SPRING PROBES
9999938-1	HOUSING TERMINATOR
9999938-1.PRT	HOUSING TERMINATOR
9999939-1	IDI CORE SPRING CONTACT PROBES
9999939-1.PRT	IDI CORE SPRING CONTACT PROBES
1-9999921-5	JN RESIN123 BLACK

CREO ASSEMBLY

No build Rules applied

No Build Rules applied – Nothing in Occurrences Tab

Actions [gear icon] TCPN - 9999948-1, CONNECTOR ASSEMBLY, 1.2 (Design)

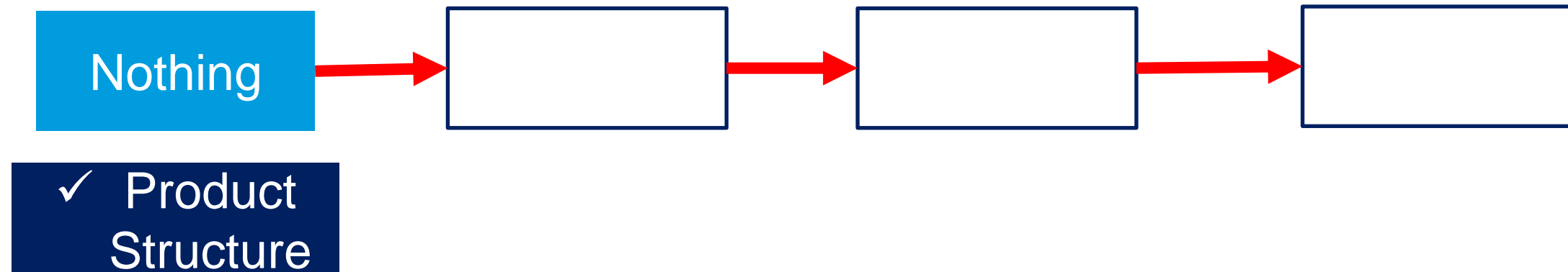
Details **Structure** Related Objects History Where Used Traceability Relatio

Number	Name	Attributes	Classification	Uses	Occurrences
9999948-1	CONNECTOR ASSEMBLY				
9999932-1	CONNECTOR HOUSING_INST1				
9999934-1	CONNECTOR HOUSING MATE				
9999936-1	SPRING PROBES				
9999938-1	HOUSING TERMINATOR				
9999939-1	IDI CORE SPRING CONTACT PROBES				
1-9999921-5	JN RESIN123 BLACK				

Remove Edit Export list to file

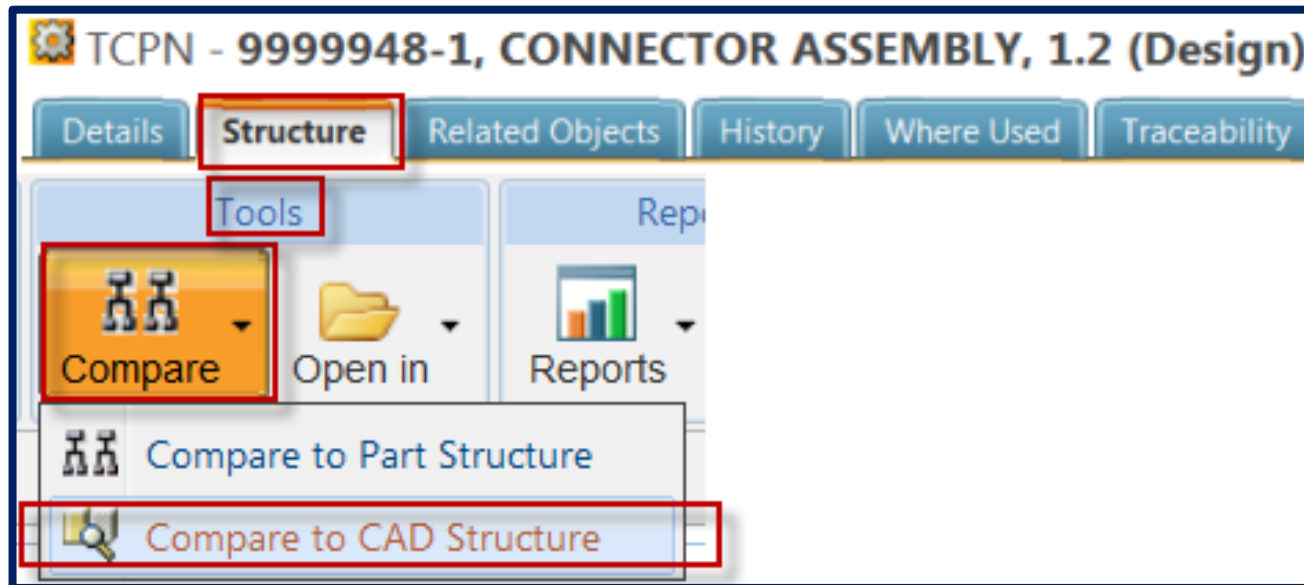
Number	Name	Build Status	Referen
+	Enter Number	Enter Name	

Build Status – Occurrences Tab – 4 step Workflow



Recap of the Connector Design using PTC Windchill TOP Down Design Cont...

No Build Rules applied – Nothing in the right side frame of Compare with CAD Structure

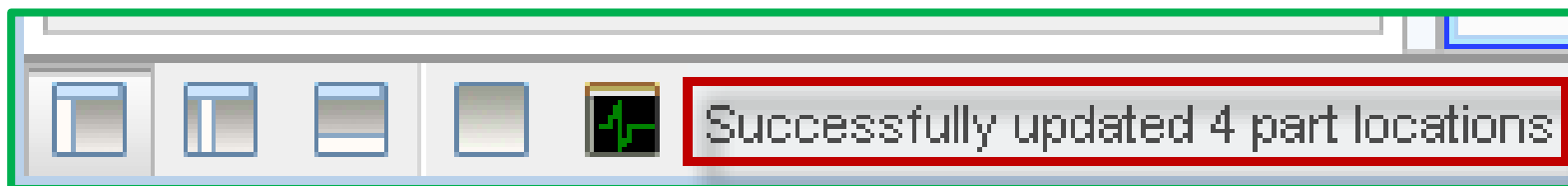
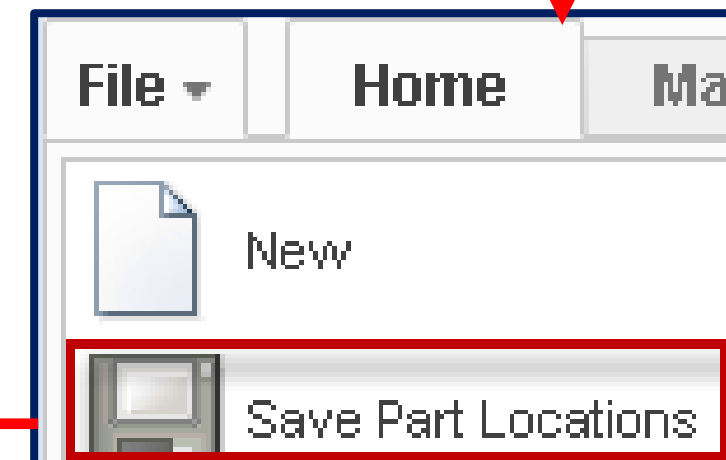
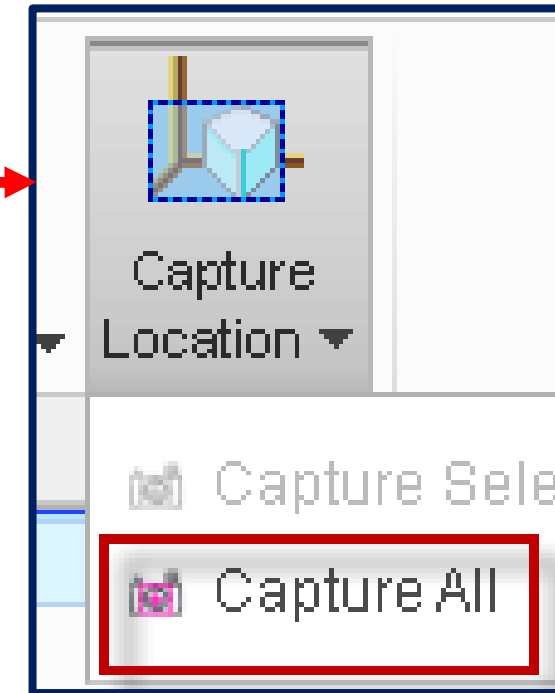
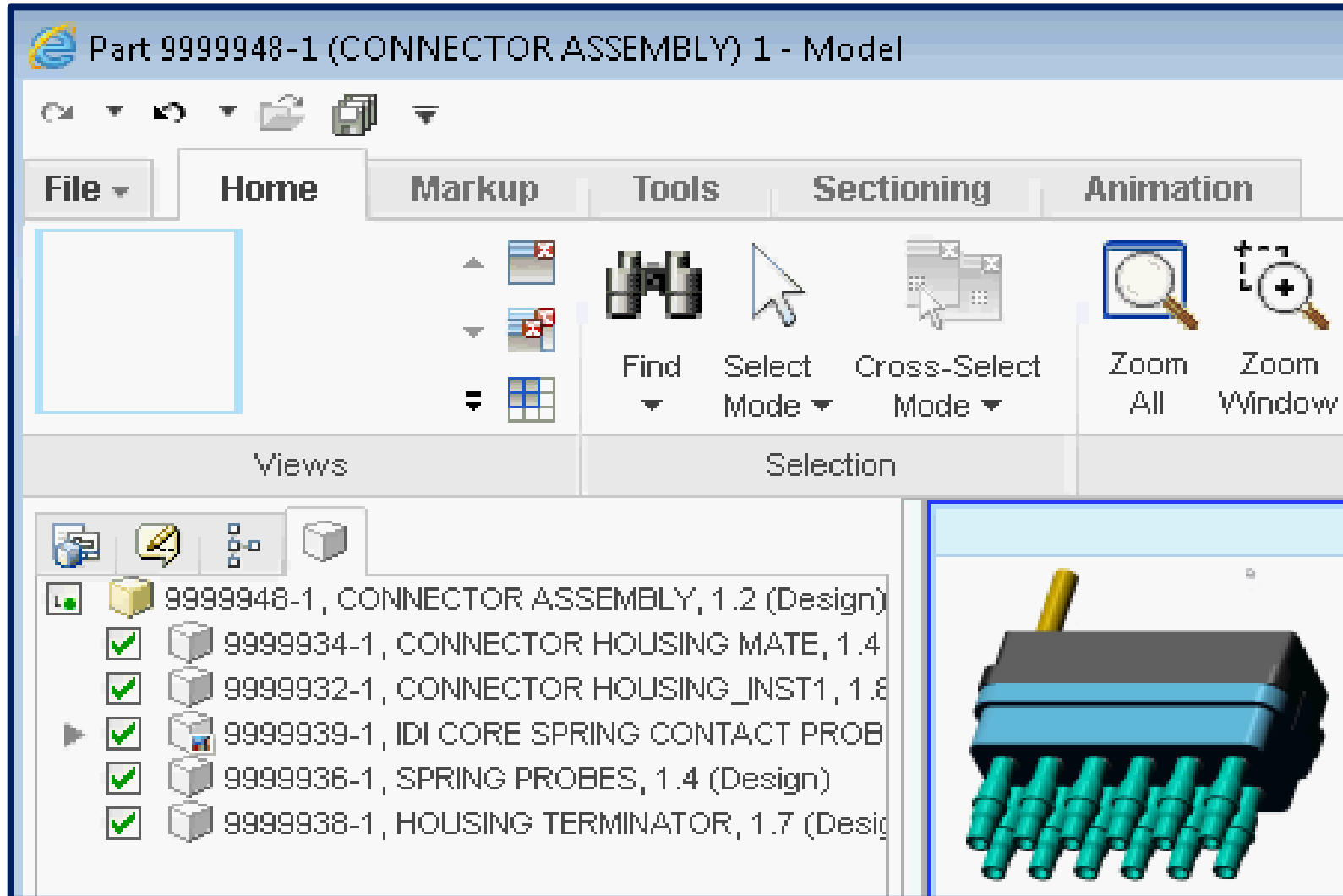


The screenshot shows the 'Compare Part to CAD Document' window in Internet Explorer. The table below compares the design structure with the CAD structure. The 'Build Status' column is highlighted with a red box, and the right-hand table is also highlighted with a red box.

Identity	Qua...	Unit	Build Status	PART_NO...	Number	Name	Version	Quantity
9999948-1, CONNECTOR ASSEMBLY, 1.2 (Design)				99999	9999948-1.ASM	CONNECTOR ASSEMBLY	1.0	
9999932-1, CONNECTOR HOUSING_INST1, 1.8 (Design)	1	piece	Excluded					
9999934-1, CONNECTOR HOUSING MATE, 1.4 (Design)	1	piece	Excluded					
9999936-1, SPRING PROBES, 1.4 (Design)	1	piece	Excluded					
9999938-1, HOUSING TERMINATOR, 1.7 (Design)	1	piece	Excluded					
9999939-1, IDI CORE SPRING CONTACT PROBES, 1.10 (D	1	piece	Excluded					
1-9999921-5, JN RESIN123 BLACK, A.0 (Design)	1	pound	Excluded					

Recap of the Connector Design using PTC Windchill TOP Down Design Cont...

CREO View learning -- Open the Top Level Assembly TCPN in CREO View and adjust the positioning

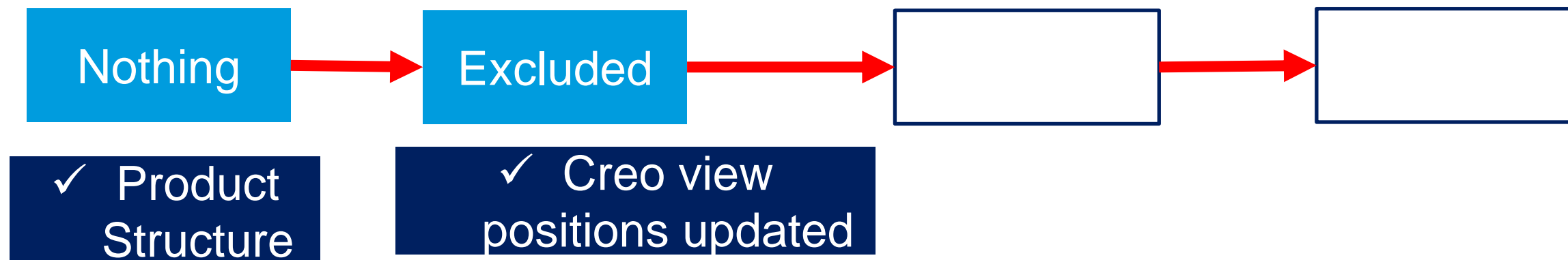


After Visually changing the design in **CREO View**, observe the Build Status column in Occurrences Tab

Number	Name	Version	Quantity	Unit
9999948-1	CONNECTOR ASSEMBLY	1.2 (Design)		
9999932-1	CONNECTOR HOUSING_INST1	1.8 (Design)	1	piece
9999934-1	CONNECTOR HOUSING MATE	1.4 (Design)	1	piece
9999936-1	SPRING PROBES	1.4 (Design)	1	piece
9999938-1	HOUSING TERMINATOR	1.7 (Design)	1	piece
9999939-1	IDI CORE SPRING CONTACT PROBES	1.10 (Design)	1	piece
1-9999921-5	JN RESIN123 BLACK	A.0 (Design)	0.073	poun

Number	Name	Build Status
9999932-1	CONNECTOR HOUSING_INST1	Excluded
9999934-1	CONNECTOR HOUSING MATE	Excluded
9999936-1	SPRING PROBES	Excluded
9999939-1	IDI CORE SPRING CONTACT PR..	Excluded

Build Status – Occurrences Tab – 4 step Workflow



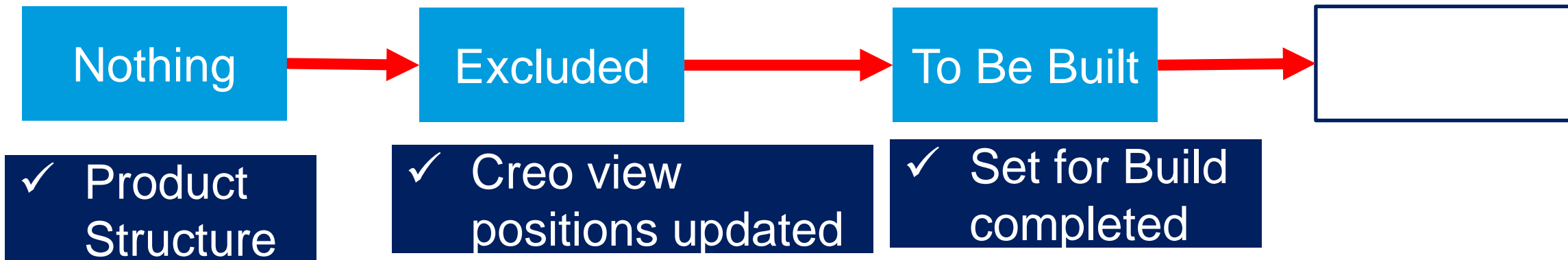
Component Level CAD “Set for Build” applied

Number	Name	Version
9999948-1	CONNECTOR ASSEMBLY	1.2 (Design)
9999932-1	CONNECTOR HOUSING_INST1	1.8 (Design)
9999934-1	CONNECTOR HOUSING MATE	1.4 (Design)

Number	Name	Version	Quantity	Unit
9999948-1	CONNECTOR ASSEMBLY	1.2 (Design)		
9999932-1	CONNECTOR HOUSING_INST1	1.8 (Design)	1	piece
9999934-1	CONNECTOR HOUSING MATE	1.4 (Design)	1	piece
9999936-1	SPRING PROBES	1.4 (Design)	1	piece
9999938-1	HOUSING TERMINATOR	1.7 (Design)	1	piece
9999939-1	IDI CORE SPRING CONTACT PROBES	1.10 (Design)	1	piece
1-9999921-5	JN RESIN123 BLACK	A.0 (Design)	0.073	poun

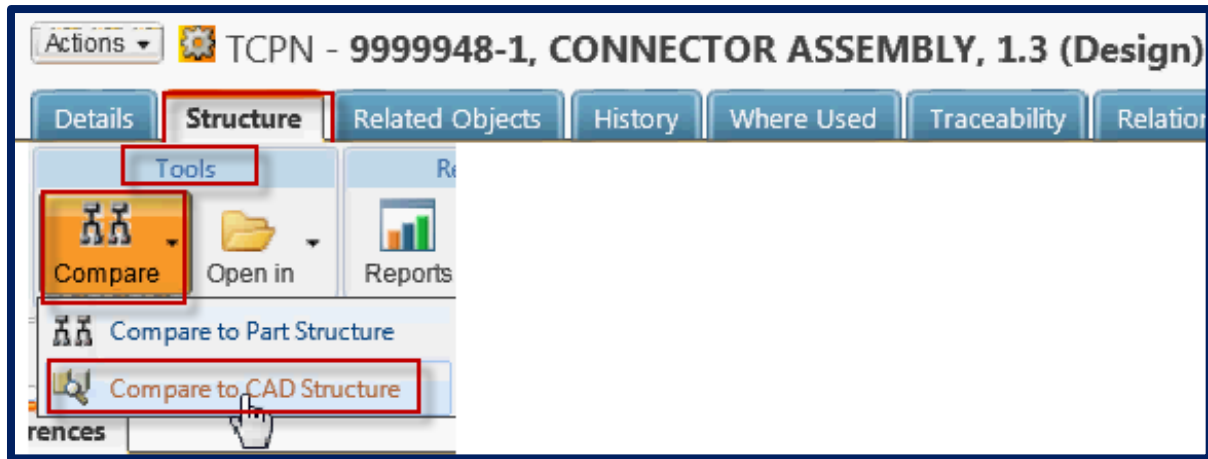
Number	Name	Build Status
9999932-1	CONNECTOR HOUSING_INST1	To Be Built
9999934-1	CONNECTOR HOUSING MATE	To Be Built
9999936-1	SPRING PROBES	To Be Built
9999938-1	HOUSING TERMINATOR	To Be Built
9999939-1	IDI CORE SPRING CONTACT PR...	To Be Built

Build Status – Occurrences Tab – 4 step Workflow



Recap of the Connector Design using PTC Windchill TOP Down Design Cont...

Compare to CAD Structure – allows you to connect to design engineers workspace, Hover over information glyphs



Not Built:
The Part and CAD Document are out of date. The Build CAD Structure action will update the existing CAD Document use and CAD Document to have the same attributes as the Part's.

**Edit in
Workspace:**

May20-JN

The screenshot shows a comparison table between a design and a CAD document. The table has columns for Identity, Quantity, Unit, Build Status, Find Number, Part Number, Name, and Version. The design is '9999948-1, CONNECTOR ASSEMBLY, 1.3 (Design)' and the CAD document is '9999948-1.asm, 1.0'. The table shows that the design is 'To Be Built' and the CAD document is '1.0'. The table is titled 'Table views (TE-Part-To-CADCompare)'. A blue box highlights the 'Build Status' column, and a red box highlights the 'Part Number' column.

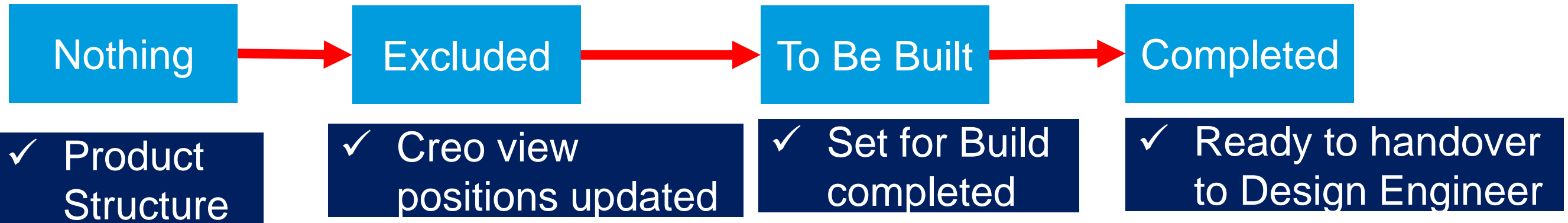
Identity	Qua...	Unit	Build Status	Find Nu...	PART_N...	Number	Name	Version
9999948-1, CONNECTOR ASSEMBLY, 1.3 (Design)			To Be Built		9999948-1.ASM	9999948-1.ASM	CONNECTOR ASSEMBLY	1.0
9999932-1, CONNECTOR HOUSING_INST1, 1.8 (Design)	1	piece	To Be Built	10	9999932-1.PRT	9999932-1.PRT	CONNECTOR HOUSING_INST1	1.1
9999934-1, CONNECTOR HOUSING MATE, 1.4 (Design)	1	piece	To Be Built	20	9999934-1.PRT	9999934-1.PRT	CONNECTOR HOUSING MATE	1.3
9999936-1, SPRING PROBES, 1.4 (Design)	1	piece	To Be Built	30	9999936-1.PRT	9999936-1.PRT	SPRING PROBES	1.2
9999938-1, HOUSING TERMINATOR, 1.7 (Design)	1	piece	To Be Built	40	9999938-1.PRT	9999938-1.PRT	HOUSING TERMINATOR	1.6
9999939-1, IDI CORE SPRING CONTACT PROBES, 1.10 (Design)	1	piece	To Be Built	50	9999939-1.PRT	9999939-1.PRT	IDI CORE SPRING CONTACT...	1.2

Identity	Qua...	Unit	Build Status	Fin
9999948-1, CONNECTOR ASSEMBLY, 1.3 (Design)				
9999932-1, CONNECTOR HOUSING_INST1, 1.8 (Design)				
9999934-1, CONNECTOR HOUSING MATE, 1.4 (Design)				
9999936-1, SPRING PROBES, 1.4 (Design)				
9999938-1, HOUSING TERMINATOR, 1.7 (Design)				
9999939-1, IDI CORE SPRING CONTACT PROBES				

- View Information
- Compare to CAD Structure
- Set for Build
- Build One Level CAD Structure**

Identity	Qua...	Unit	Build Status
9999948-1, CONNECTOR ASSEMBLY, 1.3 (Design)			
9999932-1, CONNECTOR HOUSING_INST1, 1.8 (Design)	1	piece	Completed
9999934-1, CONNECTOR HOUSING MATE, 1.4 (Design)	1	piece	Completed
9999936-1, SPRING PROBES, 1.4 (Design)	1	piece	Completed
9999938-1, HOUSING TERMINATOR, 1.7 (Design)	1	piece	Completed
9999939-1, IDI CORE SPRING CONTACT PROBES, 1.10 (Design)	1	piece	Completed

Build Status – Occurrences Tab – 4 step Workflow

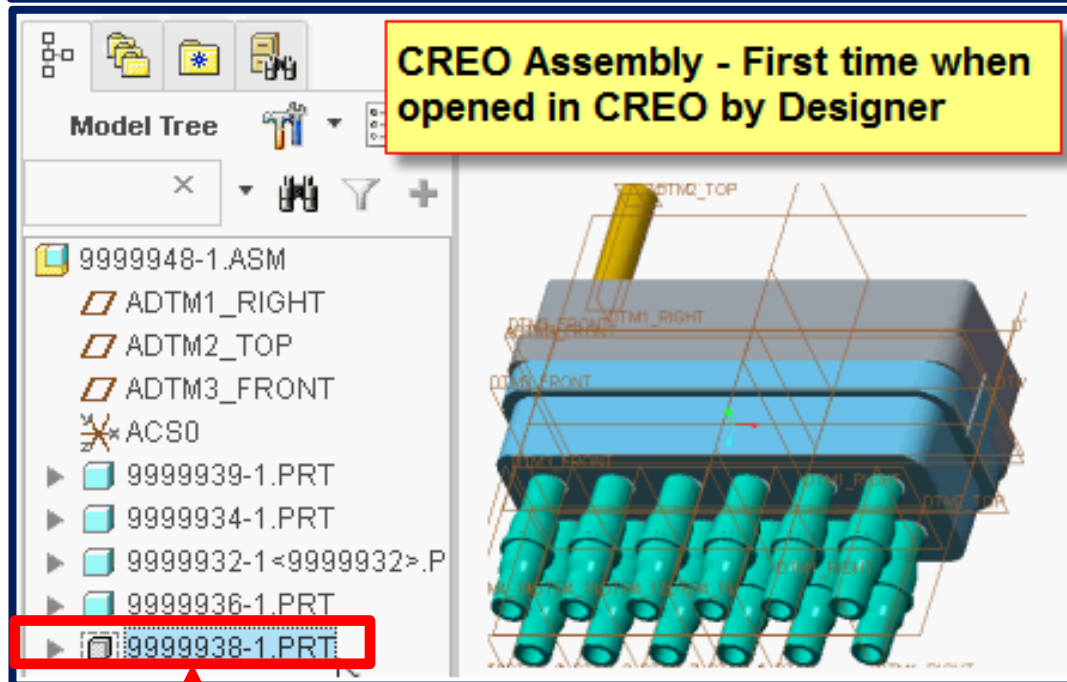


Recap of the Connector Design using PTC Windchill TOP Down Design Cont...

How the design looks for the first time when opened in PTC CREO ?

Number	Name	Version	Attributes	Classification	Uses	Occurrences
9999948-1	CONNECTOR ASSEMBLY	1.3 (Design)				
9999932-1	CONNECTOR HOUSING_INST1	1.8 (Design)				
9999934-1	CONNECTOR HOUSING MATE	1.4 (Design)				
9999936-1	SPRING PROBES	1.4 (Design)				
9999938-1	HOUSING TERMINATOR	1.7 (Design)				
9999939-1	IDI CORE SPRING CONTACT PROBES	1.10 (Design)				
1-9999921-5	JN RESIN123 BLACK	A.0 (Design)				

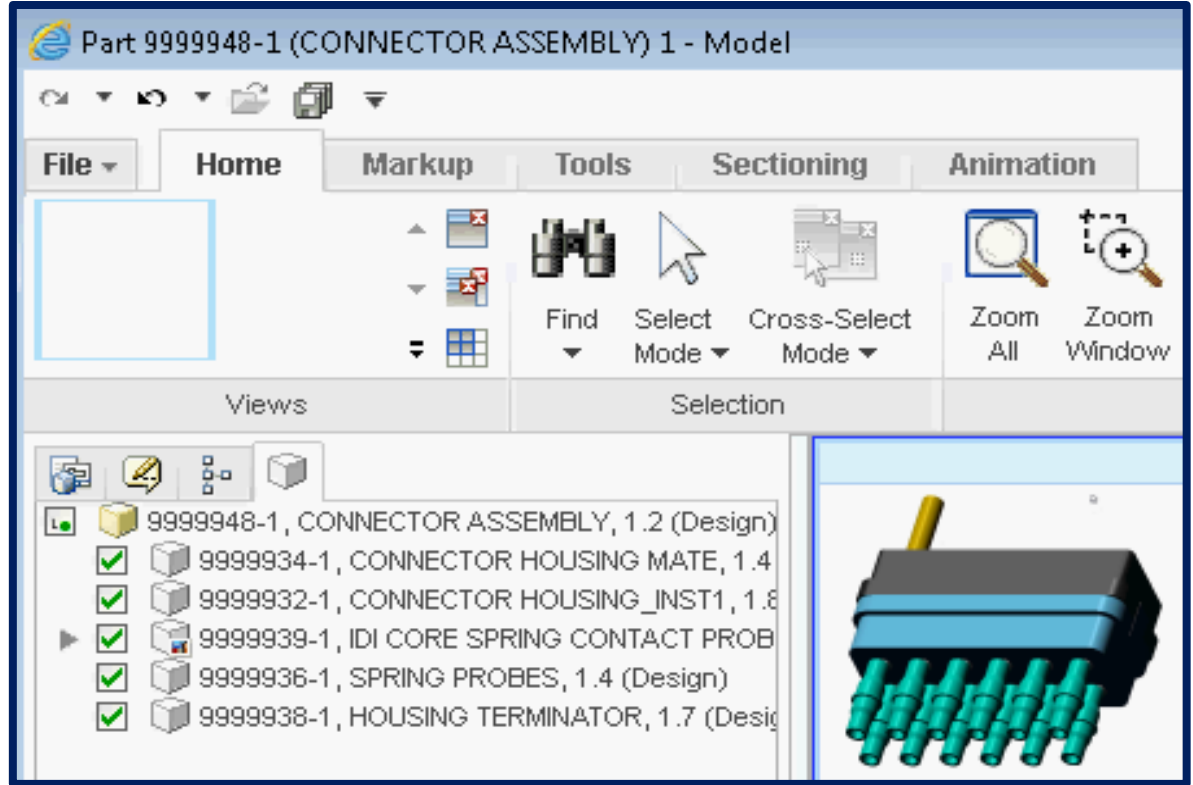
Number	Name	Build Status
9999932-1	CONNECTOR HOUSING_INST1	Completed
9999934-1	CONNECTOR HOUSING MATE	Completed
9999936-1	SPRING PROBES	Completed
9999938-1	HOUSING TERMINATOR	Completed
9999939-1	IDI CORE SPRING CONTACT PR..	Completed



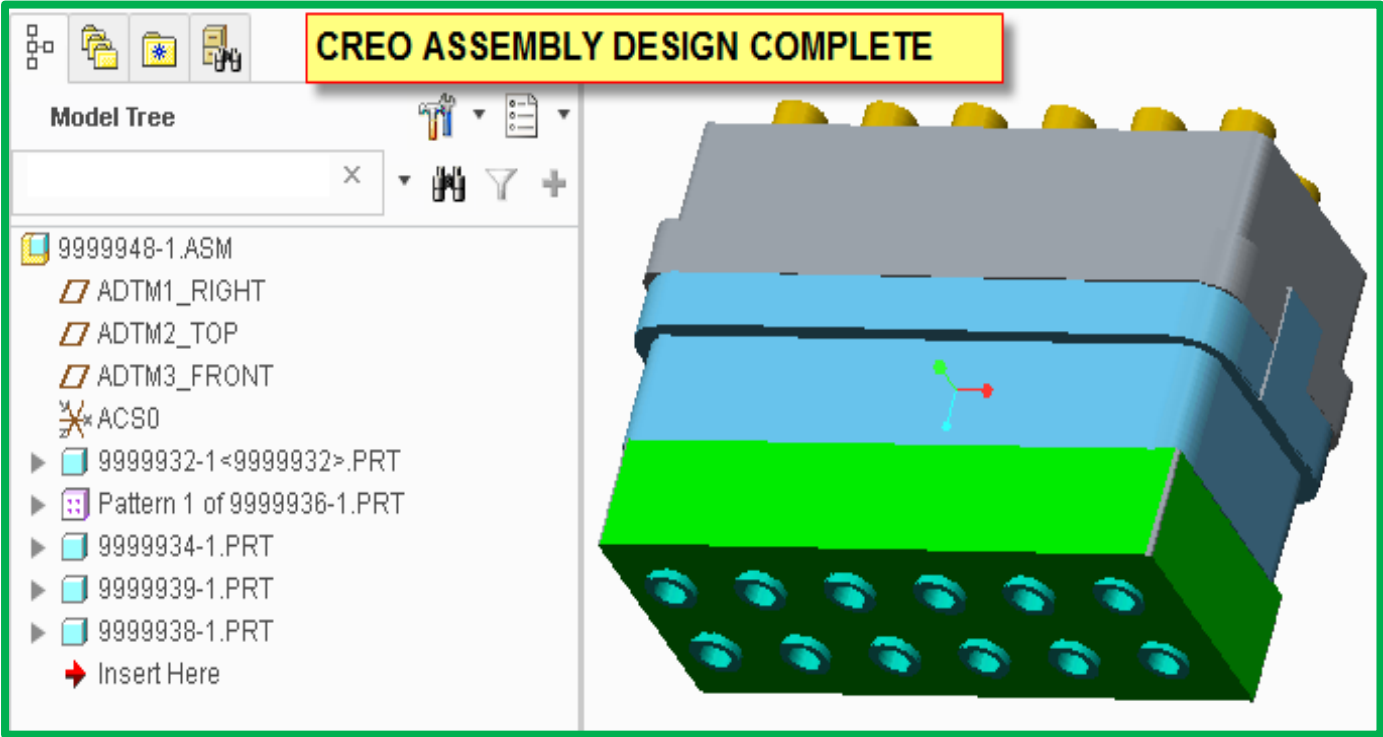
Design Requirement

Level	TCPN	DESCRIPTION	Comment
0	9999948-1	CONNECTOR ASSEMBLY	<i>Use Windchill TOP-DOWN Design capability and generate a New Prototype design.</i>
1	9999936-1	SPRING PROBES	<i>Design ReUse -- In-House Design already exists</i>
1	9999932-1	CONNECTOR HOUSING INSTANCE	<i>Design ReUse -- In-House Design already exists</i>
1	9999934-1	CONNECTOR HOUSING MATE	<i>Design ReUse -- In-House Design already exists</i>
1	9999939-1	IDI CORE SPRING CONTACT PROBE	<i>Purchased Item - Supplier given CAD File by Supply Chain Management group</i>
2	1-9999921-5	JN RESIN123 BLACK	
1	9999938-1	HOUSING TERMINATOR	New Design - Create brand New CREO design

Product Architect + Creo View



Design Engineer + CREO



Identity	Quantity	Unit
9999948-1, CONNECTOR ASSEMBLY, 1.3 (Design)		
9999932-1, CONNECTOR HOUSING_INST1, 1.8 (Design)	1	pie
9999934-1, CONNECTOR HOUSING MATE, 1.4 (Design)	1	pie
9999936-1, SPRING PROBES, 1.4 (Design)	1	pie
9999938-1, HOUSING TERMINATOR, 1.7 (Design)	1	pie
9999939-1, IDI CORE SPRING CONTACT PROBES, 1.10 (Design)	1	pie

Number	Name	Version	Quantity	Unit
9999948-1	CONNECTOR ASSEMBLY	1.4 (Design)		
9999932-1	CONNECTOR HOUSING_INST1	1.8 (Design)	1	piece
9999934-1	CONNECTOR HOUSING MATE	1.4 (Design)	1	piece
9999936-1	SPRING PROBES	1.5 (Design)	12	piece
9999938-1	HOUSING TERMINATOR	1.8 (Design)	1	piece
9999939-1	IDI CORE SPRING CONTACT PRO...	1.10 (Design)	1	piece

Implement within your Organization Teams

Design Strategies – Lessons Learned

Design Strategy

- Bottom up
- Top Down
- Design-in Context

1. How Build Rules work for different WTPart-CAD Associations ? (Owner, Image, Contributing Image, Content, Contributing Content)

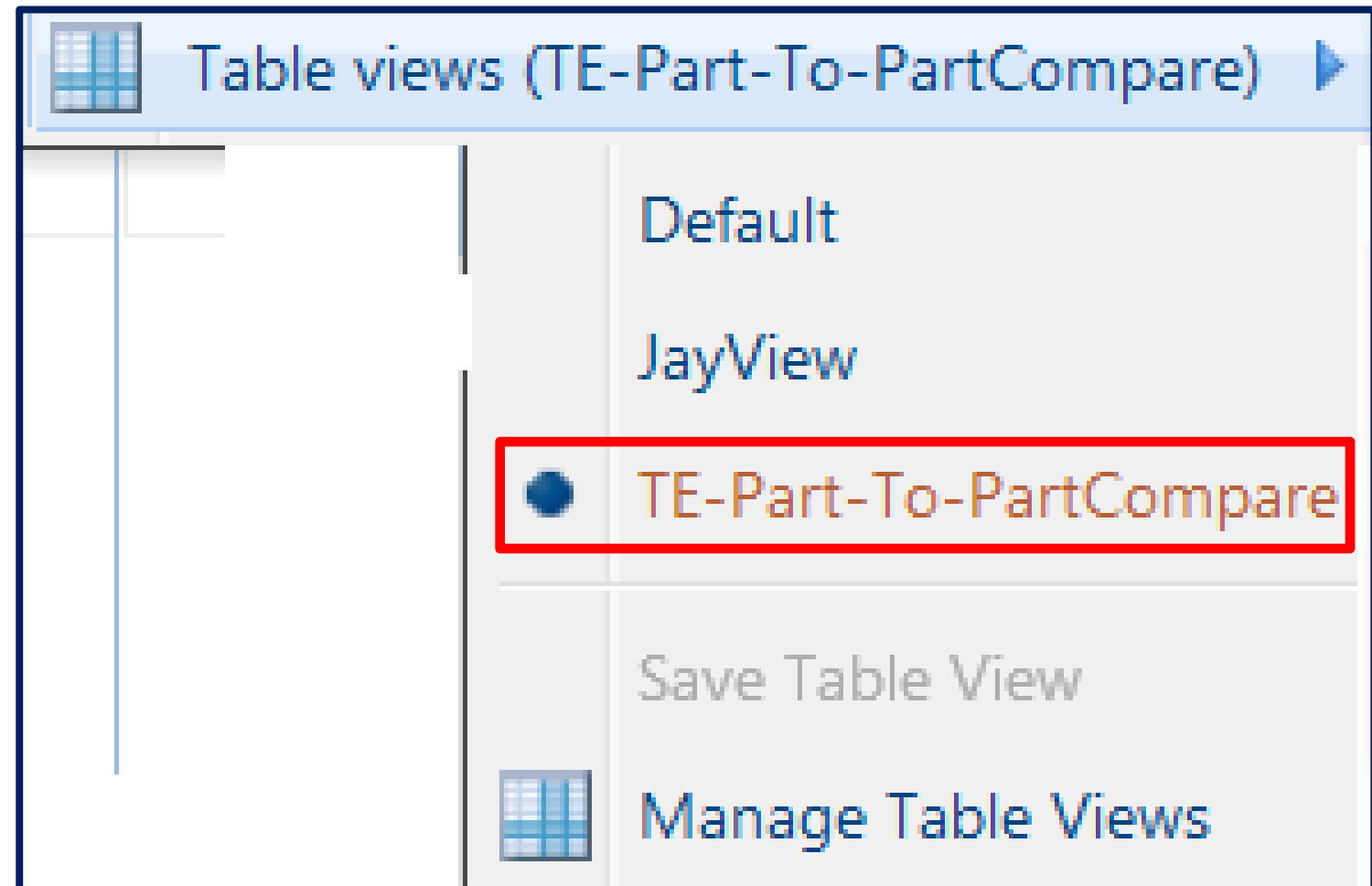
- Structure
- Attribute
- Representation (Thumbnail)

2. Methodology Employed

- Physical size of the product design
- Complexity of the product design
- Geographical Organization

Compare Table views come very handy

- ❖ Truly able to tell if structures are in sync or not by looking at the two structures (CAD and Part) side by side.
- ❖ Configure Table Views with required attributes.

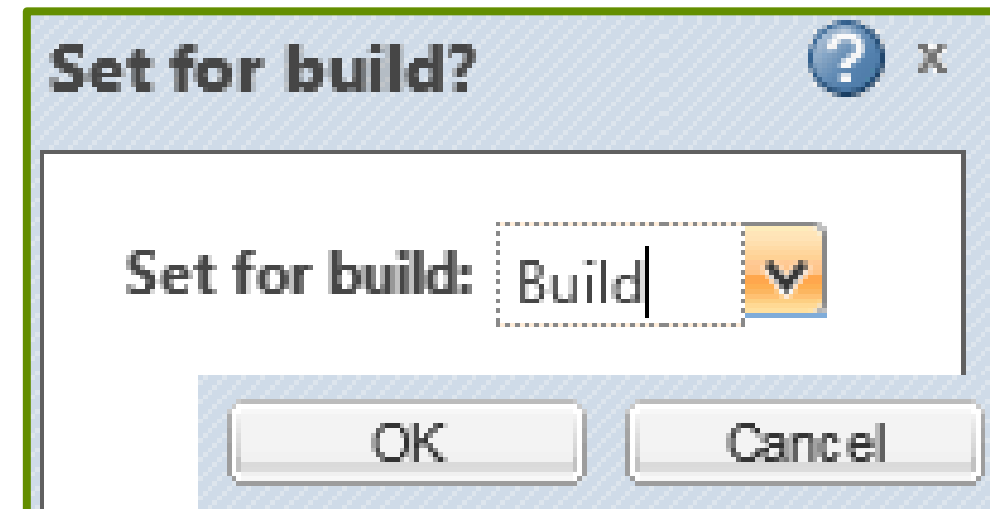
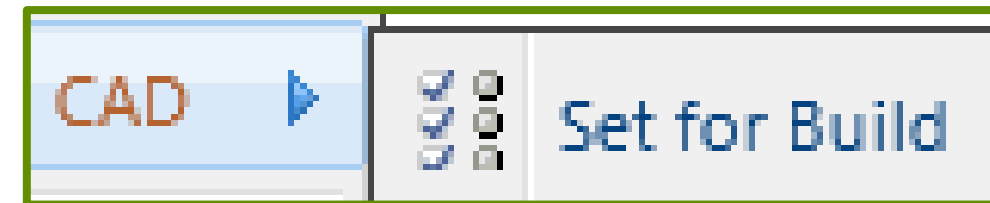


At TE Part-To-Part Compare views were configured with required attributes

Before setting the build, Check out Top Level TCPN

Checkout symbol

Number	Name	Version
9999944-1	CONNECTORASSEMBLY	1.2 (Design)
9999944-1.ASM	CONNECTOR ASSEMBLY	1.1
9999932-1	CONNECTOR HOUSING	1.4 (Design)
9999932-1.PRT	CONNECTOR HOUSING	1.1
9999934-1	HOUSING MATE	1.2 (Design)
9999934-1.PRT	HOUSING MATE	1.1
9999936-1	PROBE2	1.3 (Design)
9999936-1.PRT	PROBE2	1.1



- Select one component at a time or
- Multiple components using CTRL key

CAD iteration changes when Build is completed.

Number	Name	Version	Quantity	Unit
9999944-1	CONNECTORASSEMBLY	1.3 (Design)		
9999944-1.ASM	CONNECTOR ASSEMBLY	1.1		
9999932-1	CONNECTOR HOUSING	1.4 (Design)		
9999932-1.PRT	CONNECTOR HOUSING	1.1		
9999934-1	HOUSING MATE	1.2 (Design)		
9999934-1.PRT	HOUSING MATE	1.1		
9999936-1	PROBE2	1.3 (Design)		
9999936-1.PRT	PROBE2	1.1		

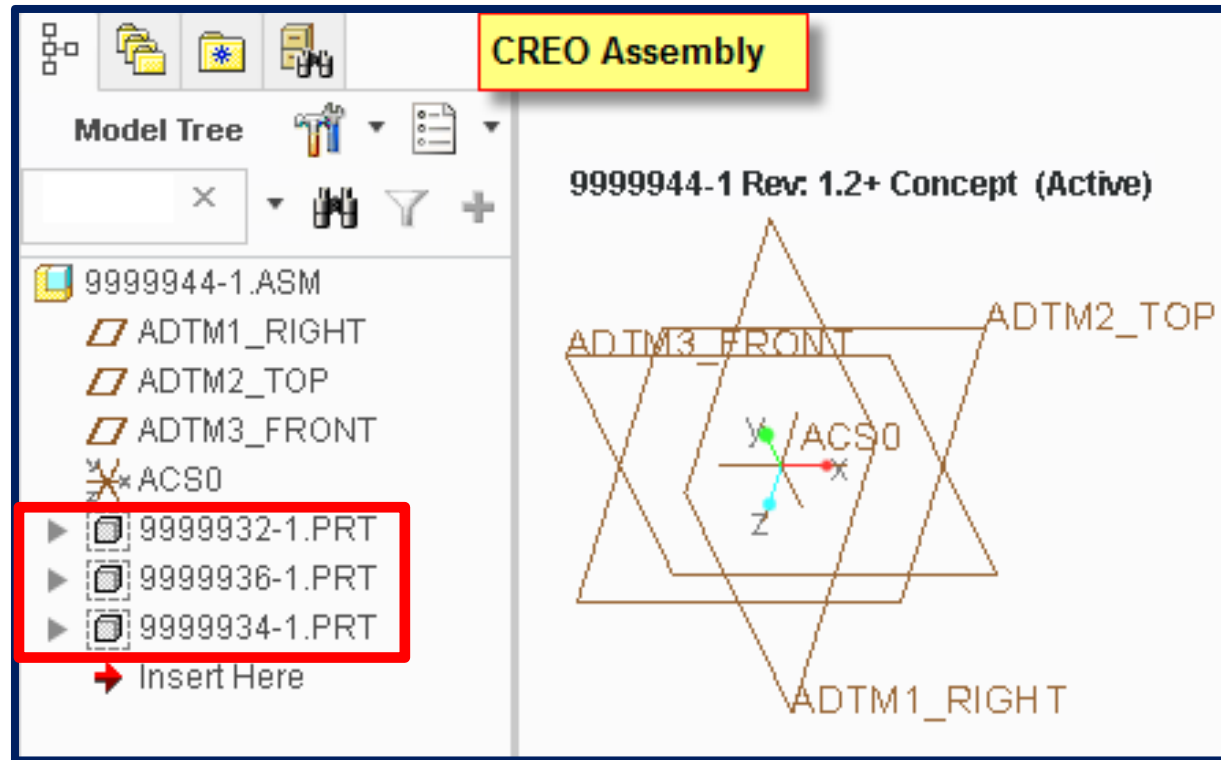
Number	Name	Version
9999944-1	CONNECTORASSEMBLY	1.3 (Design)
9999944-1.ASM	CONNECTOR ASSEMBLY	1.2
9999932-1	CONNECTOR HOUSING	1.4 (Design)
9999932-1.PRT	CONNECTOR HOUSING	1.1
9999934-1	HOUSING MATE	1.2 (Design)
9999934-1.PRT	HOUSING MATE	1.1
9999936-1	PROBE2	1.3 (Design)
9999936-1.PRT	PROBE2	1.1

Identity
9999944-1, CONNECTORASSEMBLY, 1.3 (Design)

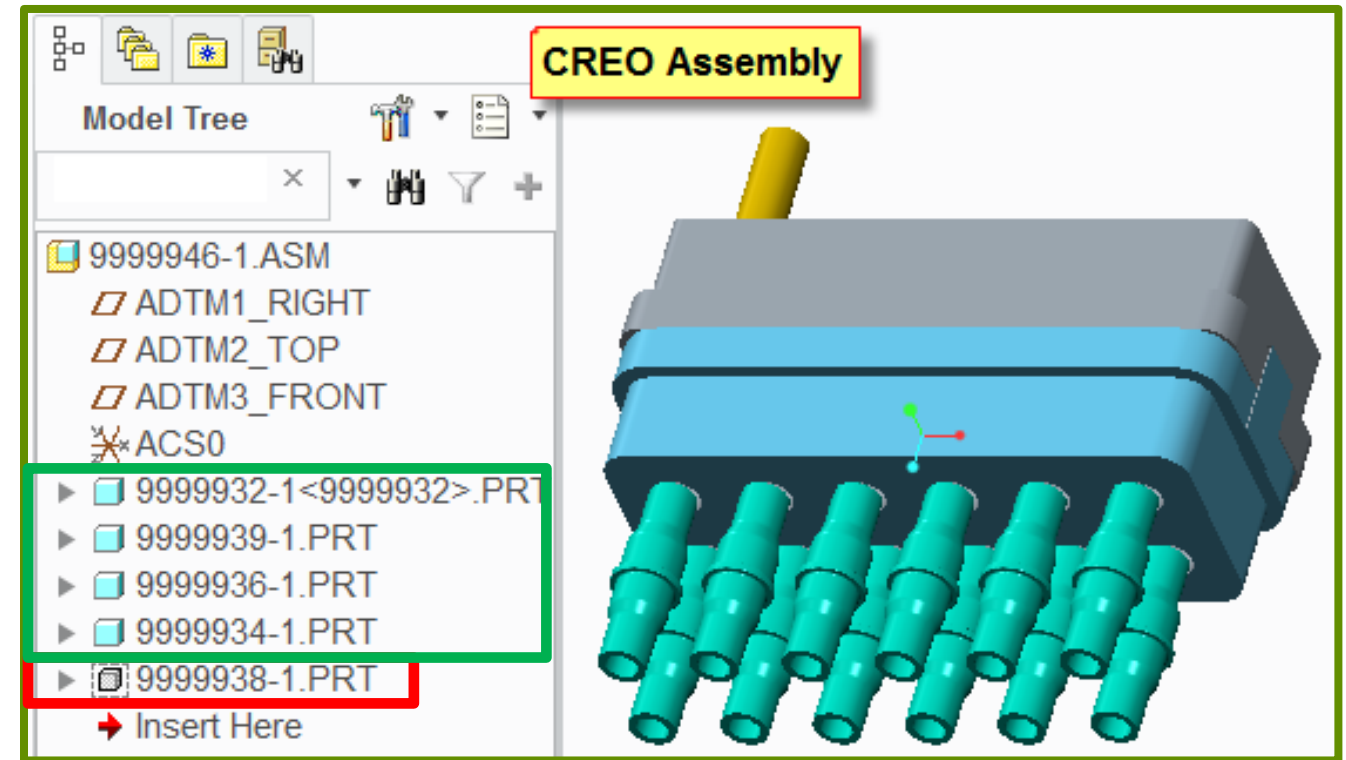
	9999932-1, CONN		View Information	piece	To Be Built
	9999934-1, HOUS		Compare to CAD Structure	piece	To Be Built
	9999936-1, PROBE		Set for Build	piece	To Be Built
				Build One Level CAD Structure	
				Build Multi-Level CAD Structure	

➤ User has access

Visualization or PTC Creo View part location updates, retrieve models into PTC CREO Session when Assembly is opened



- No Creo View position updates
- No models retrieved in CREO Session



- 4 Models Creo View Position updated
- Models retrieved in CREO Session

- 1 Model no Creo View Position update

Adding same component multiple times

Number
9999508-1
9999508-1.ASM
9999503-1
9999503-1.PRT
9999503-1
9999503-1.PRT
9999503-1
9999503-1.PRT

Confirm

CONFIRM: Child already exists. Add again?

A part you are adding is already a child of the parent.

Creo View - Windows Internet Explorer provided by TE - 20091005.1

Views Selection

- 9999508-1, JN ASSEMBLY2, A.2 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)

During build
Problem starts

Name	Status
Build Structure	Failed

Name	Retry Opti...	Description
		Cannot have multiple usagelinks to the same child part with Completed or To Be Built occurrences.

Best practice

Number	Quantity	Unit
9999508-1		
9999508-1.ASM		
9999503-1	3	piece
9999503-1.PRT		

Creo View - Windows Internet Explorer provided by TE - 20091005.1

Views Selection

- 9999508-1, JN ASSEMBLY2, A.2 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)



Build Rules applied and retrieved in CREO

Model Tree

- 9999508-1.ASM
 - ADTM1_RIGHT
 - ADTM2_TOP
 - ADTM3_FRONT
 - ACS0
 - 9999503-1.PRT
 - 9999503-1.PRT
 - 9999503-1.PRT
 - Insert Here

Study of all different WTPart-CAD Association types with PTC Windchill Top-Down Design approach

User creates an assembly WTPart with an associated CAD Document

Number	Version
 9999502-1	A.1 (Design)
 9999502-1.ASM	A.0

User Makes a Product Structure with some components that fit design criteria.

ImportSheetType=BOM			
This row 2 is Reserved for Comments Line			
This row 3 is Reserved for Comments Line			
This row 4 is Reserved for Comments Line			
This row 5 is Reserved for Comments Line			
Action	Level	Number	Organization ID
	0	9999502-1	
Add	1	9999503-1	
Add	1	9999504-1	
Add	1	9999505-1	
Add	1	9999506-1	
Add	1	9999507-1	

Study of all different WTPart-CAD Association types with PTC Windchill Top-Down Design approach

Number	Version
9999502-1	A.2 (Desi...)
9999502-1.ASM	A.0
9999503-1	A.1 (Desi...)
9999503-1.PRT	A.0
9999504-1	B.1 (Desi...)
9999504-1.PRT	B.0
9999505-1	C.1 (Desi...)
9999505-1.PRT	C.0
9999506-1	A.1 (Desi...)
9999506-1.PRT	A.0
9999507-1	A.1 (Desi...)
9999507-1.PRT	A.0

Creo View - Windows Internet Explorer provided by TE - 20091005.1

File Home Markup Tools Sectioning Animation

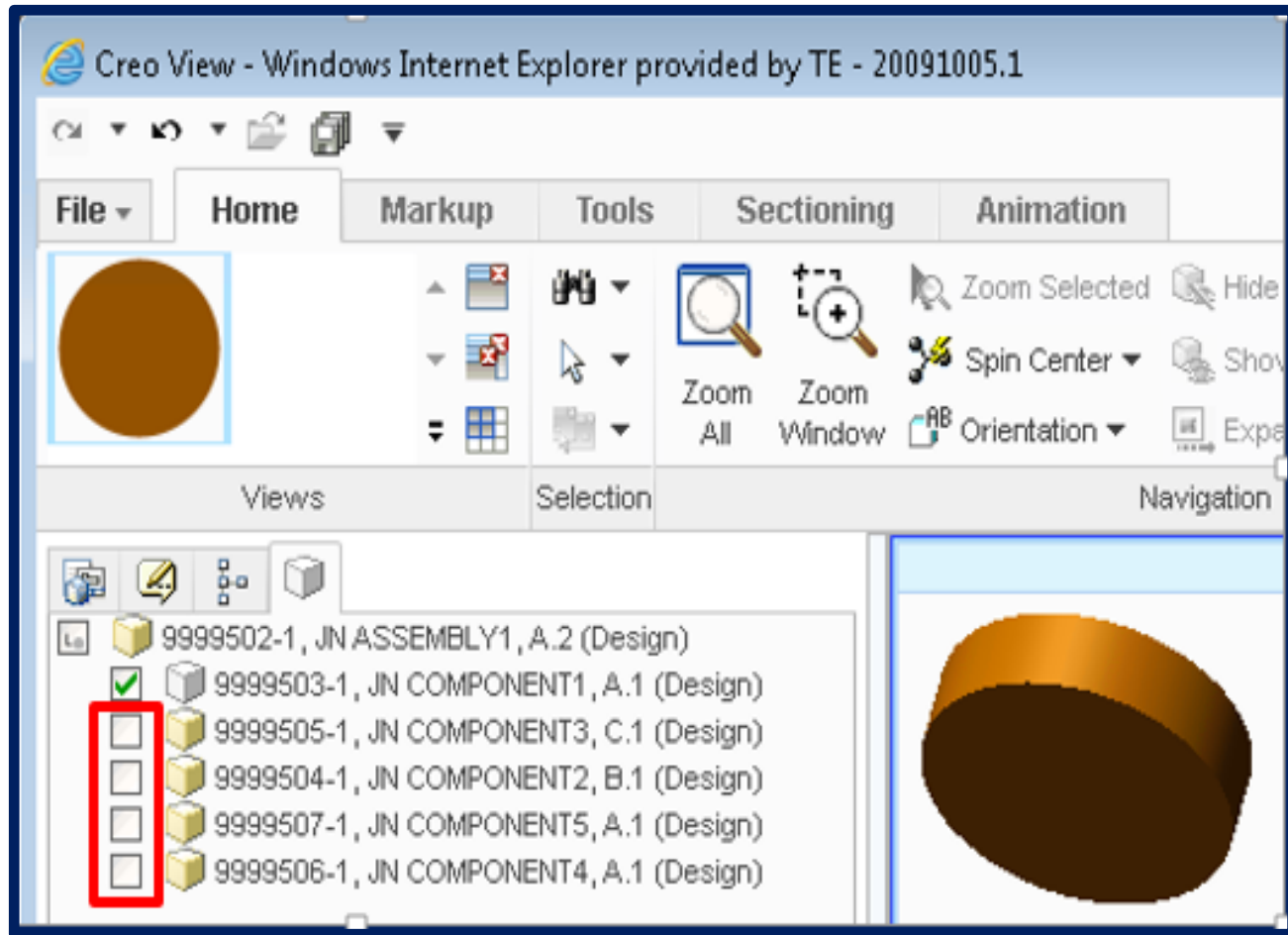
Views Selection Navigation

- 9999502-1, JN ASSEMBLY1, A.2 (Design)
- 9999503-1, JN COMPONENT1, A.1 (Design)
- 9999505-1, JN COMPONENT3, C.1 (Design)
- 9999504-1, JN COMPONENT2, B.1 (Design)
- 9999507-1, JN COMPONENT5, A.1 (Design)
- 9999506-1, JN COMPONENT4, A.1 (Design)

In Creo View only one object shown and other check boxes cannot be selected. Why ?

Associated WT Part has no thumbnail

Study of all different WTPart-CAD Association types with PTC Windchill Top-Down Design approach



Number	Version	Association Type	Order
9999502-1	A.2 (Design)	Owner	
9999502-1.ASM	A.0		
9999503-1	A.1 (Design)	Owner	1
9999503-1.PRT	A.0		
9999504-1	B.1 (Design)	Contributing Image	2
9999504-1.PRT	B.0		
9999505-1	C.1 (Design)	Image	3
9999505-1.PRT	C.0		
9999506-1	A.1 (Design)	Contributing Content	4
9999506-1.PRT	A.0		
9999507-1	A.1 (Design)	Content	5
9999507-1.PRT	A.0		

What else can be a problem ?

Only Owner Associated Component is shown in the CREO View

Study of all different WTPart-CAD Association types with PTC Windchill Top-Down Design approach

Compare Part to CAD Document - Windows Internet Explorer provided by TE - 20091005.1

Refresh Compare Previous Difference Next Difference >>

Table view s (TE-Part-To-CADCompare)

Find in Structure

Identity	Qua...	Unit	Build Status		PART_NO	Number	Name	Version
9999502-1, JN ASSEMBLY1, A.4 (Design)				E	9999502-1	9999502-1.ASM	9999502-1	A.0
9999503-1, JN COMPONENT1, A.1 (Design)	1	piece	To Be Built	+	9999503-1	9999503-1.PRT	9999503-1	A.0
9999504-1, JN COMPONENT2, B.1 (Design)	1	piece	To Be Built	+	9999504-1	9999504-1.PRT	9999504-1	B.0
9999505-1, JN COMPONENT3, C.1 (Design)	1	piece	To Be Built	+	9999505-1	9999505-1.PRT	9999505-1	C.0
9999506-1, JN COMPONENT4, A.1 (Design)	1	piece	To Be Built	⊘				
9999507-1, JN COMPONENT5, A.1 (Design)	1	piece	To Be Built	⊘				

Name	Status	
Build Structure	Failed	ⓘ ⚠

Name	Retry Opti...	Description
⊘		Build from part is not supported for target objects other than CAD documents.

Homework: What association types, do you like to see take advantage of Top-Down Design Strategy Approach ?

- Your feedback is valuable
- Don't miss out on the chance to provide your feedback
- Gain a chance to win an instant prize!
- Complete your session evaluation now

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