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DIGITAL TRANSFORMS PHYSICAL

CAD DRIVEN BOMS BEST PRACTICES

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AGENDA

- Why drive BOM's from CAD?
- Review of Functionality
- Demonstration
  - Creating CAD driven BOMs
  - Updating the BOM
    - From CAD
    - From Windchil
- Best Practices

WINDCHILL PLM, A "PART"–CENTRIC APPROACH

Have properties and attributes

Be Lifecycle Managed

Be Change Managed
ECR/ECO

Have a Structure

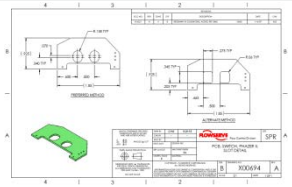
Name:	Widget
Created By:	Dave Designer
Created:	12/01/2010
State:	Released
Program:	Triima
Cost:	$3.37

Be released to a Plant (Org)

ORACLE
SAP

Be used By

Described by



CAD Models and Drawings

Have Attachments

Have Markups

Uses

Be Automated

Reference Other Documents that Manage Content

Have history and versions

A.1 A.2 B.1

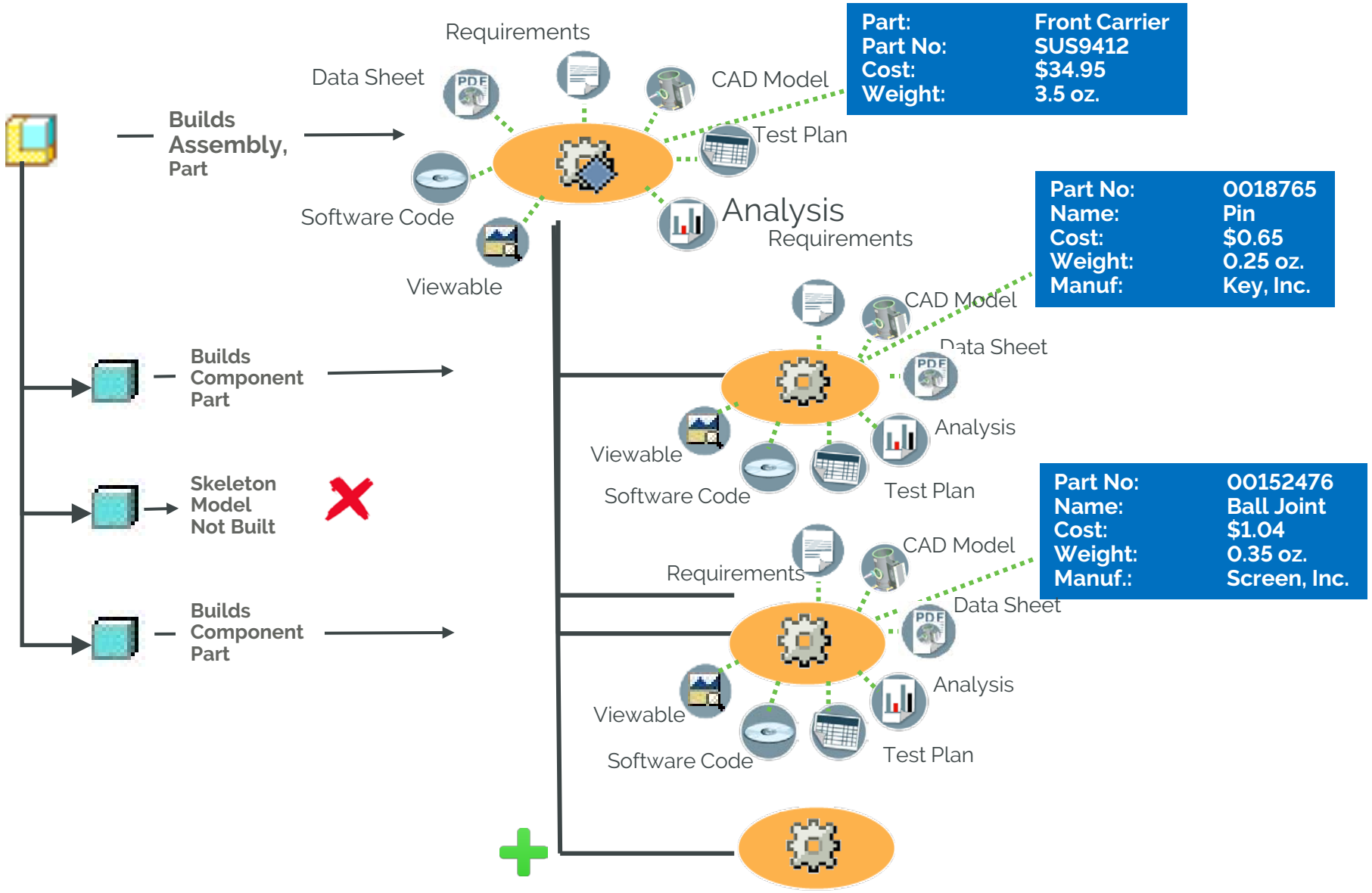
Have Approved Suppliers Lists

Acme PN 1234, B.1, APPROVED

Parts also support:

Taxonomy Classification
Alternates/Substitutes
Supersession
Requirement Traces
Views
Configurability (variants)
Manufacturing Process Plans
Illustrated Parts Lists
Representations (2D/3D)
Design Files (alternate reps)

CAD-DRIVEN PRODUCT STRUCTURE



Why CAD driven BOM's

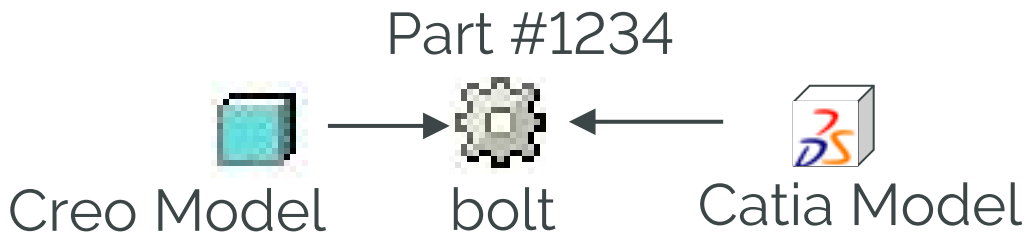
- Drives BOM structure from CAD
  - No longer independent tasks
  - Leverage parameters maintained in CAD
  - Simplify the change process
- Beginning of the "Digital Thread"
  - CAD and Viewables become reusable by down stream processes

TIPS FOR WORKING WITH CAD-DRIVEN STRUCTURES

Understanding Association Types

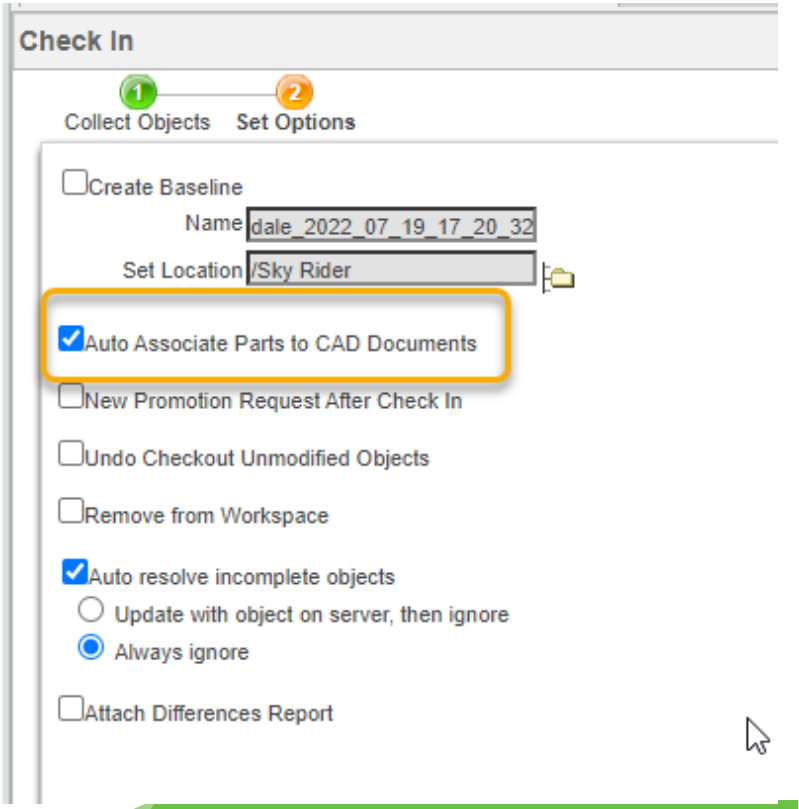
Association Type	Builds Structure	Attribute	Reps	Contributes to Structure	Usage
Owner	✓	✓	✓	✓	Associate primary CAD document responsible for driving structure creation
Contributing Image	✗	✓	✓	✓	Multi-CAD secondary association, flexible components
Image	✗	✗	✓	✓	Multi-CAD secondary association, flexible components
Contributing Content	✗	✓	✗	✗	Multi-CAD where secondary attributes critical to BOM
Content	✗	✗	✗	✗	Inclusion of additional descriptive CAD content, ex. Model's Drawing to Part

Contributing Image Example



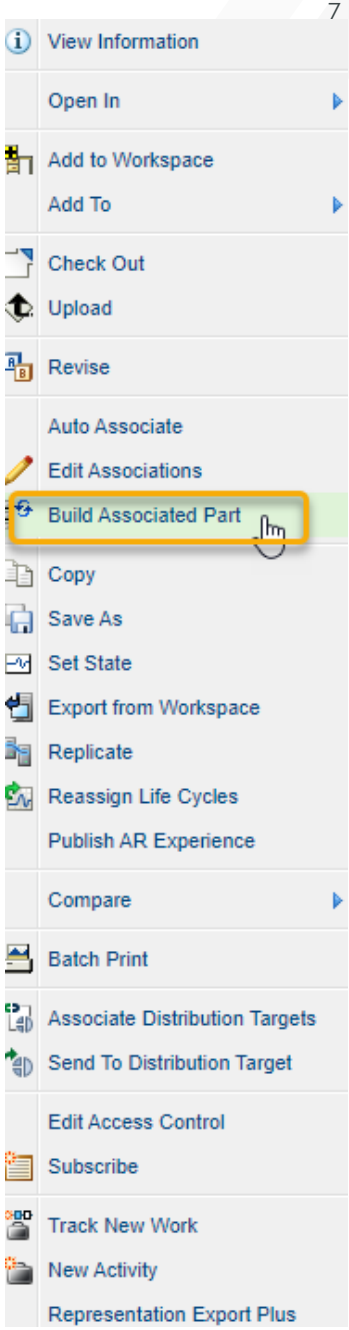
CREATING A CAD DRIVEN STRUCTURE

- Auto Associate
  - Determines what PART a CAD model should be related to?
    - Same as CAD file a name?? CAD model file name 12345.prt → Part 12345
    - CAD Attribute drives Part Number?? CAD attribute Part_Number = 45678 → Part 45678
    - If no match, should Auto Associate CREATE a NEW Part?
  - Optionally performs a "*Build*". (generates BOM structure)
    (Preference determines if Auto Associate also runs a Build)
  - Run on Checkin of CAD
  - Run manually from CAD object
  - Run manually from Related CAD table on Part
  - Subsequent checkins of CAD will update BOM for new parts and changes



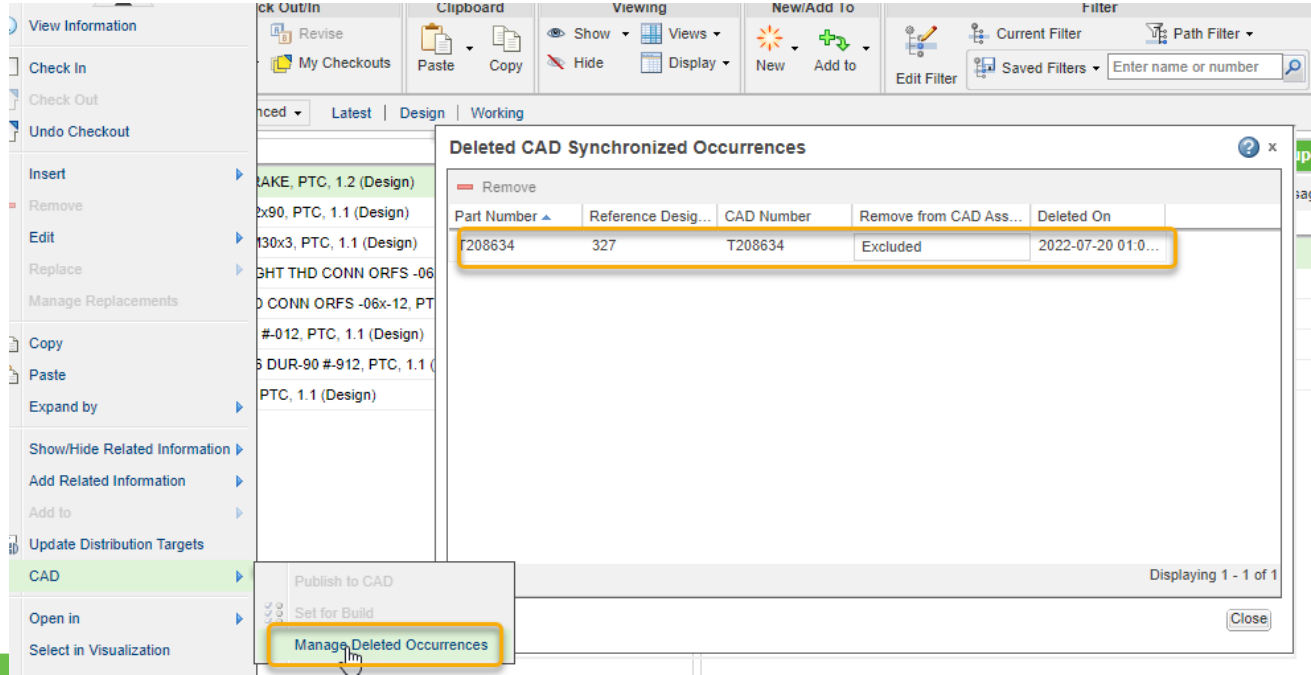
THE BUILD PROCESS

- A “Build” constructs the ***structure*** of a Part. (Also known as a BOM)
  - Can be ran during Auto Associate
  - Can be Ran Manually
  - Can be ran from within Compare CAD to Part



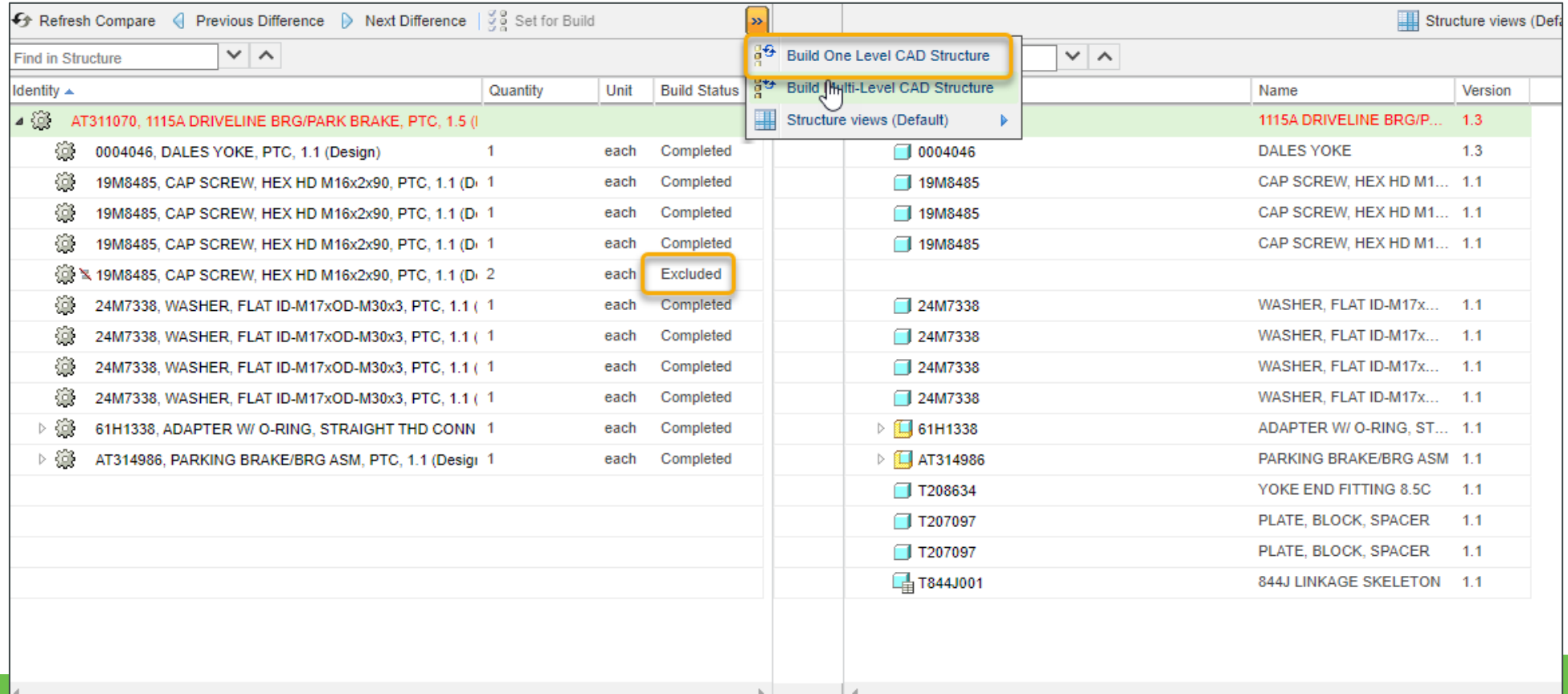
WHAT IF MY CAD STRUCTURE IS DIFFERENT FROM THE BOM STRUCTURE I WANT?

- Ways to Override the BOM creation process
  - From CAD
    - Some CAD types automatically excluded: (Skeletons, Templates, etc.)
    - Exclude CAD model from BOM using an attribute to identify it as not in BOM
    - Use “Bulk Items” to add parts to BOM that don’t have a CAD model
  - From Windchill
    - Add / Remove Parts to BOM directly in Windchill
      - Optionally choose to update CAD or not
    - Override Quantities
  - Restructure BOM (EBOM to MBOM)
    - Requires MPMLink (Covered in another session)



COMPARE PART TO CAD

- Shows build status of CAD and Parts
- Allows build status to be changes.
- A build process can be initiated directly from the Compare screen.



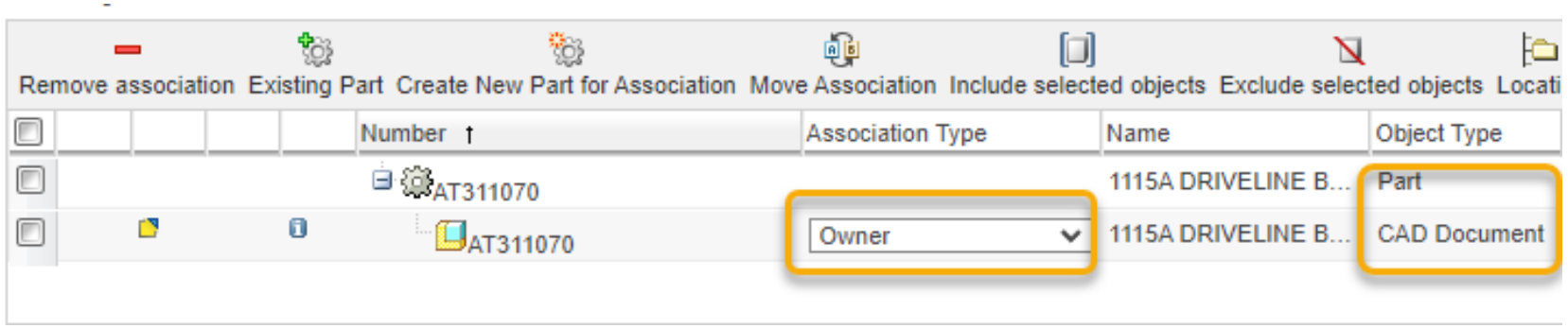
DEMONSTRATION

BEST PRACTICES IN CAD DRIVEN BOM'S

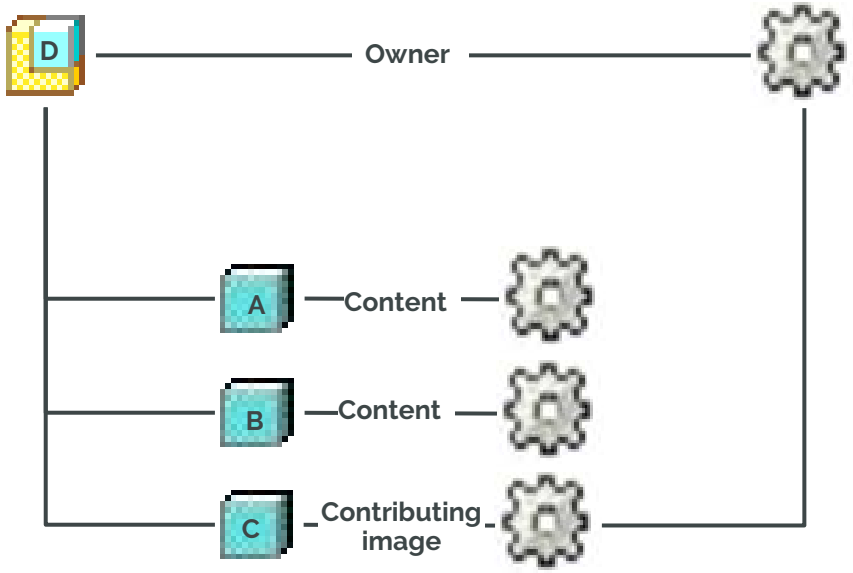
- Maintain as much of the BOM as possible from CAD.
- When Revising, revise the CAD model and Part together. This maintains the link to the correct version.
- If the CAD model is Revised separately, know how to update the relationship to the correct version
- Use "overrides" in Windchill only when you want to intentionally depict the BOM differently than in CAD
- Set up common Lifecycle Transitions for CAD and Parts
- Your Engineering Change Notice Tasks should reflect the roles and responsibilities of updating the CAD and BOM.

THE EDIT ASSOCIATIONS FUNCTION

- After Parts have been associate to CAD models, you can manually change or remove associations using the Edit Relationships command.
  - Change an item from an Owner link to another type of link
  - Remove Links
  - Add Links manually.
- A build may be necessary after changing relationship types



TIPS FOR WORKING WITH CAD-DRIVEN STRUCTURES



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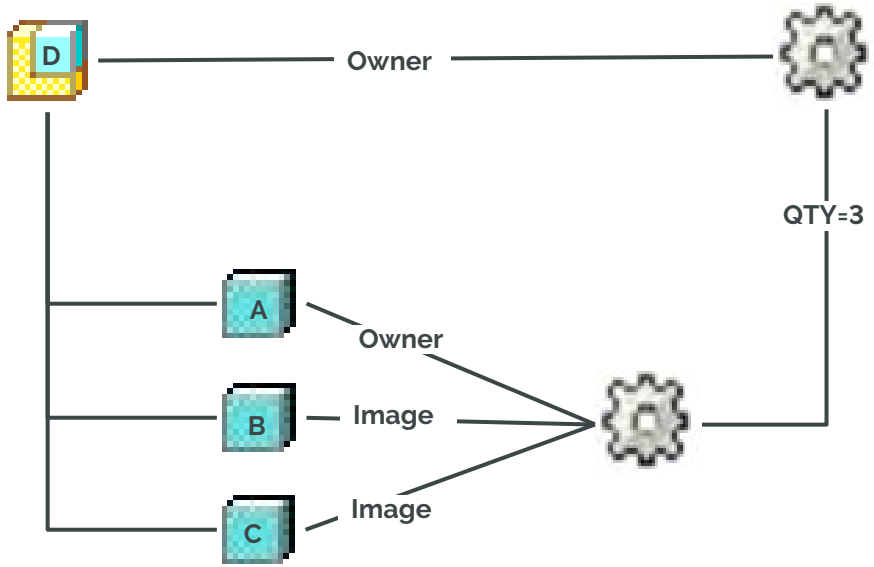
Contributing Image	✗	✓	✓	✓
Image	✗	✗	✓	✓
Contributing Content	✗	✓	✗	✗
Content	✗	✗	✗	✗

TIPS FOR WORKING WITH CAD-DRIVEN STRUCTURES

Example: Flexible components (Cables)



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THANK YOU

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