BOMs in the Cloud with Autodesk PLM 360 (PL2818)

Hagay Dvir
Product Manager
Class Content

- Introductions .................................................. 40 min
  - Class
  - BOM Basics
- Getting started .............................................. 20 min
  - BOM Modeling
  - Importing a BOM
  - Change Orders and Release Processes
- Using the BOM .............................................. 20 min
  - Authoring the BOM
  - Downstream uses
- Summary and Q&A ........................................ 10 min
Introductions
Who Are We?

- Hagay Dvir, Product Manager
  - 15 years experience with Enterprise Systems in general and PLM in particular, mostly in the Manufacturing domain

- Kevin Robinson, Product Manager
Who Are You?

Class Participants

- BOM Practitioner
- PLM Implementor
- Other
The Class

- The class will focus on the basics of BOM management with Autodesk PLM 360
- Due to the broad nature of the subject, we will touch many areas and will stay very shallow
- Please jump in with any *comprehension questions* during the presentation and demo. Due to time constraints, please leave any *subject expansion questions* to the end of the presentation.
BOM Basics
What Is A Bill Of Materials (BOM)?

A list of everything that needs to be **ordered or consumed** by the manufacturing facility and that is delivered as **part of the Product**.

### Included (examples)
- Raw materials
- Parts / Assemblies
- Consumables
- User guides
- Packaging

### Excluded (examples)
- Manufacturing tools
- Manufacturing consumables

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<th>Q</th>
<th>UoM</th>
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Revision?!
Question

- When looking at a Bill of Materials for a Car, should I be able to find the transmission gears in the BOM?
End Items?

- Made
- Ordered (must have a PN)
- Stocked, Shipped
So Is The BOM Simply A List of End Items?

The Case for a Nested BOM

- Design context
- Configuration elements
- Manufacturing planning
- Procurement
- Spare Parts
From Nested BOM To Flat BOM
An End Item May Also Have a BOM

To make this

And this

Order this

Order all these
Can The Same BOM Have Different Views?

- There are some good reasons to do so
  - In Process Assemblies (IPA) that are different from the Design Context
  - Delayed Make/Buy decisions (or different decision for different facilities)
  - Procurement of Kits
  - Spare Parts Catalog
A Model For BOM Derivatives

No cross-departmental information may be stored on the department specific branches!

(so where should geometry go?!)

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A Model For CAD/BOM Alignment

Reversible library of Parts

Design Representation

PLM

Product BOM

End Item (Instance)

Design Rep

End Item Design

PDM

CAD Assembly

Component

Sub-assembly

Component

Component

Component

 BUT What is this relationship?!
From Custom To Standard Products

- Engineer To Order / Low Volume
  - Short design cycles
  - Design & Manufacture
  - Unique Order BOMs
  - CAD / PART 1:1
  - CAD/BOM LC together

- Configure To Order / High Volume
  - Long design cycles’
  - Design, then Manufacture
  - Configured Order BOMs
  - CAD / PART 1:N
  - CAD/BOM LC independently
BOM Modeling Example

Product

Hierarchy (green)

End Items (yellow)

Design Rep
Spare Parts Catalog – A Special Case

Each item in the Spare Parts catalog is a product.
Getting Started With BOMs in PLM 360
BOM in PLM 360

Demo Snippet

- Where is the BOM
- Flat BOM vs. Nested BOM
BOM Setup

Demo Snippet

- Define properties for Parts & Assemblies
- Include a reference to the Design Representation
- Define properties for the BOM
- Define BOM Relationships

BOM Essentials

Custom Properties

Sourcing

BOM is defined in PLM 360 as a collection of Items with Hierarchy
Getting BOM Data to PLM 360

- Author with PLM 360
- Import from Excel
- Import using API (Direct / Middleware)

NOTE: Vault Integration creates a Design Representation of the Vault structure in PLM but does not create a PLM BOM
Import From Excel

- Two Step Process
  - Import Items
  - Import Relationships
- One Step Process
  - Combine data into a single import file

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<td>AAA 2 cell battery holder</td>
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How The Import File Is Organized

- Parent – Child notation
  - Parent object is duplicated
  - One or no child object referenced in each line

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<th>C</th>
<th>D</th>
<th>E</th>
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**Import From Excel**

*Demo Snippet*

- Show how to import a Vault exported BOM file into PLM
- Show how to auto create the Design Representation links to the Vault Integration items

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Revision Controlled Workspaces

Parts, Assemblies, Requirements, Documents are all Revision Controlled

They get revised by the Revisioning item (e.g. a Change Order)

Revision Controlled

Revisioning

Life Cycle Management
Setting Up Lifecycle States

*Demo Snippet*

- Show how to load the Life Cycle editor
- Show how to author states and transitions

- Revision Controlled items have LC States
- Revisioning items apply the LC States to the Revision Controlled Items
Release Process

**Demo Snippet**

- Associate a Set of Items to a Change Order
- Configurable Change Order approval process
- Transition the Change Order to completion
- Show the Released Part
Using The BOM
BOM Authoring

Demo Snippet

- Add Parts to a BOM
- Discuss the Working revision
- Discuss Flat BOM vs. Nested BOM
Sourcing

Demo Snippet

- Show how to add Sourcing data
- Demonstrate price rollups
Downstream Uses

Demo Snippet

- Show how to associate to a Part in an inspection process
Summary
What Have We Learned?

- Discussed different types of BOM
- Learned how to map the BOM design to PLM 360
- Experienced some of the built-in abilities of PLM 360 to handle BOM data
  - Hierarchical structure
  - Release process
  - Rollups
- Discussed some downstream implications
What Next?

- Join me at the Lounge 1:30 to 3:30 PM
- Hagay.dvir@autodesk.com

Questions

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Comments & Requests

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