PDM As Design and As Planned product structures interoperability capabilities
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LOTAR PDM WG input

- Long Term Archiving of Multi View toy airplane
  - A Designer create the As Designed view of the toy airplane (example dataset) and provide it to Manufacturer. Manufacturer is responsible of the creation of the As Planned product structure and verification that all part of the As Designed are used to produce the As Planned.
LOTAR PDM WG – Multiview use case

As designed

As planned

As built

Include deviations

Associations (Planned)

Associations (Realization)

As planned intermediate node

As built intermediate node

Deviations

As built node including deviations

Assembly node or leaf part

Process Operation

PO

inputs

output
Multiview discussion inside PDM-IF

- Focus on the As Designed / As Planned views

- Out of Scope
  - Process Operations
  - Deviations
  - As Built View
**PDM-IF Use case AD/AP (As Designed / As Planned)**

- **Exchange between an OEM and a manufacturer supplier**
  - Design (as designed) and manufacturing engineering (as planned) at OEM
  - Manufacturing (as built) at supplier

=> STEP file send to the supplier with as designed and as planned
STEP AP242 standard:
Overview of PDM product structure with configuration management
STEP AP242 standard: Support of the full life cycle

Part representation with positioning

Classification
- Classification
- Class

Part structure
- Part
- Part Version
- Part View

External Geometric Model
- Axis Placement

Geometric Coordinate Space

LifeCycle Stage
- View Context
- Application Domain

Positioning

Part relationship and transformation
- (ABS) Occurrence Occurrence
- NextAssembly Occurrence Usage
- Geometric Model Relationship With Placement Transformation
- Assembly Structure

Allows to describe different product structures:
- “As designed”
- “As Planned”
- “As Balanced”
- “As Built”, etc
RelationType attribute allows to specify the relationship e.g.:
- “Derivation”
- “Hierarchy”
- “Sequence”
- “Supplied item”, etc
STEP AP242 standard: Representation of planned and physically realized parts
Biplane aircraft dataset from Dassault Aviation

- Use of the Biplane test case as dataset for Multiview use case

- Clean of the original Biplane test case to remove configuration management information (Drift 1 and 2) out of scope
Introduction of multiview to the Biplane dataset

As designed product structure

As Planned product structure

As Built product structure
Difference between the As designed and As planned view

- Assembly structure modification and derivation tracking

PART_AIRCRAFT_asdesigned  ➔  PART_AIRCRAFT_asplanned

**derivation**
Draft STEP AP242 representation

Product Structure « As designed »

#PART_AIRCRAFT_asdesigned

#Fuselage Complet

ViewContext "As designed"

Part

Part Version

Assembly Definition

NextAssembly OccurrenceUsage

PartView Relationship

Relationtype = « derivation »

⇒ Tracking of object usage

#Fuselage

ViewContext "As designed"

Part

Part Version

Assembly Definition

NextAssembly OccurrenceUsage

PartView

PartView "As planned"

Product Structure « As planned »

#PART_AIRCRAFT_asplanned

#Fuselage assemble

ViewContext "As planned"

Part

Part Version

Assembly Definition

NextAssembly OccurrenceUsage

NextAssembly OccurrenceUsage

NextAssembly OccurrenceUsage

NextAssembly OccurrenceUsage
Next steps

- **December, 3 & 4**: PDM-IF joint User Group and Implementer Group workshop in Paris
  - Presentation of the AD/AP (As Designed / As Planned) use case during the PDM-IG User Group session

- Work on recommended practices update for the multi view representation

- Enrich the use case with Configuration Management, As Built, Make or buy, Serial numbers, ...
Thank You