Summary of the LOTAR International Workshop
30 November – 3 December 2021, On-Line

Summary:

The Q4 2021 LOTAR workshop was well attended by more than 50 participants in total, including several new team members. Below are the highlights of the meeting.

Project management:

- Addressed proposed rescheduling of the joint meeting of the MBx-IF User Groups and reviewed draft agenda.
- Discussed development of LOTAR Parts template to enable traceability of requirements from basic and common to domain parts.
- Reviewed budget plans for 2022
- Reviewed status of inputs for year end report.
- Planned topics for Meta Data WG Friday Session
- Reviewed V Model standards relationship concepts to work towards consistency in standards from OAIS/LOTAR to STEP.
- Reviewed status of proposed MBSE-IF and MBSE Use Case.
- Reviewed PDM IF, CAx-IF, and EWIS-IF Use Cases.
- Reviewed AP242 and AP239 roadmap through 2023
- Requested web page updates including roadmap to be identified during workshop.
- Integration of LOTAR Parts in general to ensure ability to develop and audit implementations to LOTAR requirements.
- Discussed use cases for persistend IDs in support of Meta Data WG activity.

WG "LOTAR Mechanical and PMI" (Parts 1xx)

- Continued the review of the LOTAR Part 100 "Common concepts for long term archiving and retrieval of 3D mechanical CAD information"
- The result of the pilot 2 for the Part 132 structural joint for assembly and installation shows the need to continue the Recommended Practices.
- The CAx-IF user group (UG) and implementer group (IG) met where the IG gave feedback for the next round on PMI, Composites, Persistent ID and other topics

WG "LOTAR Product Data Management" (Parts 2xx)

- Continued working on Part 210/230 drafts
- Discussed Part 4000 mapping review with Max Ungerer
- Identified changes needed to Part 230 to clarify diagrams and descriptions
- Refined the proposal for standard content across LOTAR domain parts (PDM perspective)
- Refined what is relevant metadata for archiving from the PDM perspective
- Reviewed the OAIS-IF (IPELTU presentation)
- Started to define the 200-1TS (Validation Property) test cases and scenarios
- Further developed PDM-IF Alternate/Substitute Use-Case (1-way 'asymmetric' vs. 2-way 'symmetric')

WG "LOTAR Composites" (Parts 3xx)

- Received Implementor feedback on the implementation of flat pattern, rosette guide by curve 90°. It may result in some updates of the Recommended Practices and/or the STEP AP242 ARM.
- Discussion of the interoperability issues between vendors related to the geometry of the stacking,
- Reviewed the candidate requirements for STEP AP242 edition 3,
- Reviewed the test cases for the next CAx-IF test round, reviewed the 5 year roadmap and discussed the plan for Part 300 activities.

WG "LOTAR of Electrical Wiring Harness" (Parts 4xx)

- Discused the organization of the list of essential information for Part 410
- Updated the LOTAR Electrical WG 5 year roadmap (2022 – 2026)
- Reviewed the status of progress of the 3 LOTAR 2021 Electrical pilots:
  - Catia V5 and NX STEP AP242 ed2 Export interfaces to implement the mechanism for external element references, linking the electrical information and the geometry information, the 2 pilots respectively developed by CT CoreTechnologie and Datakit,
  - Created 3 types of quality control rules in Schematron (ISO/IEC 1975) from the AP242 ed2 SysML Domain model, with the goal to provide a full XML validation beyond the capabilities of the AP242 ed2 XML schema alone, developed by AFNeT Services,
- Contributed to the 2021 EWIS Interoperability Forum User Group with the preparation of test cases, inputs for EWIS IF Implementer Group Test Rounds 4 (Sept. 2021 – March 2022) and 5 (April 2022 – Sept. 2022).

WG "LOTAR of Model Based Systems Engineering" (Parts 5xx)

- The MBSE team's focus is the development of the Part 500 (General MBSE Archiving) and Part 520 (How to Archive Simulation / Analytical Models) documents. The WG has completed several significant updates and assigned new actions for next steps.
- Presentation by UC3M demonstrating how to link Requirements to Behavior Models prior to archiving. The links are managed in the metadata templates created for the ReqIF and FMI models..
- Presentation by Modelon extending the 2020 workflow prototype that demonstrates the archive process for a FMI/SSP simulation model. The new demonstration included the addition of an AIP, how to generate a record of golden results that validates the retrieved data, and how to automate the comparison of the validation data.
- The combined LOTAR –PDES MBSE Teams have defined a set of metadata requirements and templates applicable to the different model types. This includes a depiction of what data is different and common with the AIP.

Summary of the CAx-IF on line meeting held on 1 Dec, 2021

The CAx-IF Implementor Group held a successful technical workshop during the LOTAR winter meeting. Accomplishments:

- Reviewed the Round 48J Meeting Minutes as well as recent updates to the Recommended Practices for AP242 XML and Alternative Part Shapes
- Launched Test Round 49J, which covers a wide variety of topics including Semantic PMI, Graphic PMI in Assemblies, Composites, Kinematics, AP242 XML Interoperability, Alternative Part Shapes, User Defined Attributes and Persistent IDs.
- Joint meeting with the CAx-IF User Group to review testing progress on current requirements
- Joint meeting with the LOTAR Mechanical CAD and Composites teams to discuss the status of current pilot activities as well as determine the exact scope for Round 49J. For Composites, rosettes guided by a curve.

Summary of the EWIS-IF on line meeting held on 1 Dec, 2021

- The EWIS User Group and Implementer Group met to review the test cases of the Test Round 4 (Sept. 2021 – March 2022). It resulted in the updated list of test cases.
- Held specific discussions on the way to implement the mechanism for external element references, linking the electrical information in the AP242 XML domain model, and the geometry information, in AP242 part 21 Application Interpreted Model (AIM), with the review of the related section of the draft AP242 Electrical Wiring Harness Recommended Practices.
- The EWIS IF User Group met separately to prepare the use cases and test cases for the Test Round 5, planned for April 2022 to September 2022.

Summary of the Meta Data WG Session on 3 Dec 2021

- Discussed where Descriptive Information is captured, which is used to index and query for packages within an archive
- Discussed priorities for developing a roadmap for part 21 content
  - As domain meta data is identified, identify whether it is common (e.g. persistent id), domain specific (e.g. validation properties), or both (depending on domain)
- Discussed common use cases for export, changes to packages with dependencies/relationships to other packages, meta data relationships within a package, i.e. Content Information exposed / replicated as Preservation Descriptive Information, or as Descriptive Information within Packaging Information.
- Discussed how best to manage meta data definitions between part 21 and domain parts. Preference would be to define all meta data within part 21 as we are for terms and definitions in part 7.
- Reviewed summaries of WG discussions during the week with regard to Meta Data
- Discussed that Part 21 should include a mapping to data standards as we are doing for domain parts.

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