



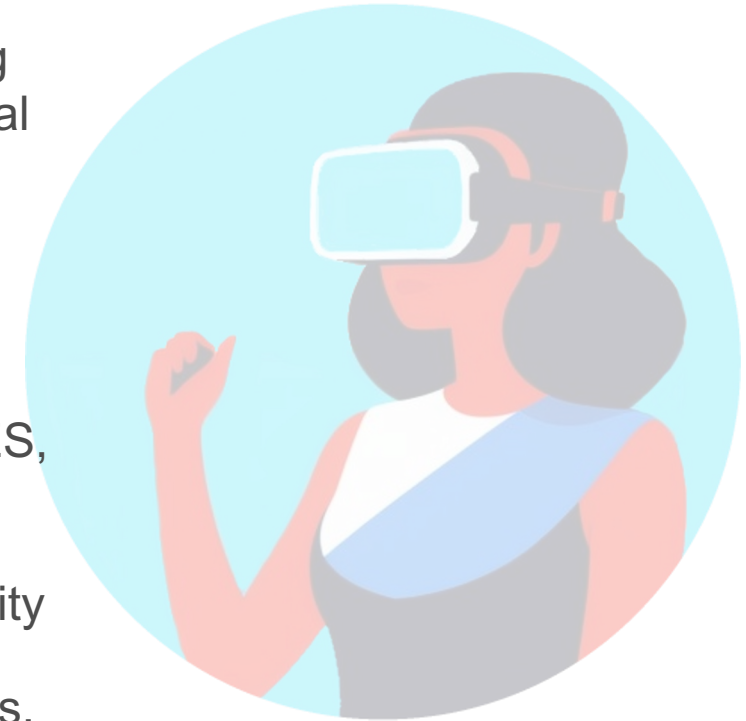
Engineering 3D CITS

Work in progress: Creation of new eArchiving specifications

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3D Data

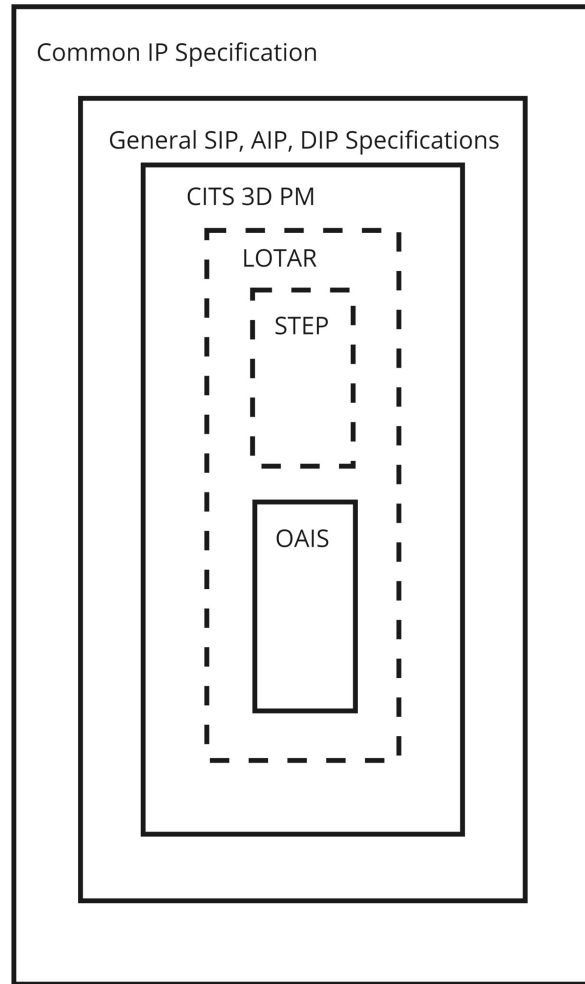
- 3D data widespread across many domains and use cases – engineering product models, construction, video games, visualisation, heritage, virtual reality, digital art
- Range of techniques and technologies – point clouds, photogrammetry, wireframes, skeletons, skinning, voxels, orthorectification.....
- Diverse file formats – ASTM E57, STL, OBJ, FBX, COLLADA, 3DS, IGES, STEP, ICF, VRML/X3D, PLY, Extensible 3D, HDF
- Many software platforms, many proprietary, general lack of interoperability
- Few metadata standards available, tend/need to be specific to use cases, domains, formats – buildm (descriptive, architecture), E57m (technical, point clouds), IFCm (technical, building information)
- Standards or best practice initiatives are also aligned to use cases – LOTAR/EN 9300 (product models) CS3DP (heritage), DURARK (architecture), BIM (construction), HBIM (heritage buildings)





Purpose – the specification is designed to be used for the transfer of 3D Product Data to archives as well as for records exchange between different 3D Product Information Model systems

3D Product Model CITS



- 3D digital product data (CAD, product model data)
- Builds on CSIP, SIP, AIP, DIP
- Builds on LOTAR/EN 9300 – “Long Term Archiving of digital technical product information”
- Which references OAIS and STEP/ISO 10303 - “Standard for exchange of product model data”

Objectives for archiving 3D product data



Business requirements such as keeping knowledge

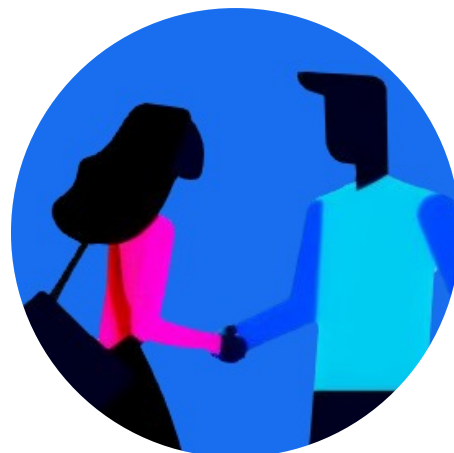


Legal requirements, such as proof of technical documentation for actions in law

Use cases



Submission from engineering department to an organisational archive



Consolidation of archives intra-organisationally or with sources through acquisition or merger



Dissemination of archival data preserving integrity and authenticity of the package and data object

3D PM CITS and LOTAR

- EN 9300/LOTAR describes requirements for archiving of range of use cases (core models), e.g. 3D Geometry, Structural Analysis, Electronic Assembly
- Describes processes, core data and metadata requirements
- Is not prescriptive on package structure or metadata standards and profiles
- Based on OAIS (ISO 14721)
- References ISO 10303 (Standard for the Exchange of Product Data, STEP)
- Specifically requires:
 - Validation information (consistency of data content between representations, is it a true reflection?)
 - Verification information (quality of data within tolerances, is it good enough?)
 - Digital signatures on transfer to archive to verify authenticity

Principles

- EN 9300 Conformance
 - requirements of CITS 3D PM do not conflict with those in EN 9300
 - requirements for package and package (representation) metadata in EN 9300 become requirements in CITS 3D PM
 - scope of CSIP is not altered by requirements in EN 9300 (e.g. process, management)
- Use of PREMIS
 - PREMIS is used to record technical metadata required by EN 9300, including:
 - Digital signature events
 - Verification events and results
 - Validation events and results

Next Steps

- Co-ordination with LOTAR group
- Metadata standards (LOTAR metadata group)
 - Package descriptive
 - Representation technical
- User adoption?
 - Airbus Space and Defense
- Broader 3D Heritage CITS development



Thank you