CAx
Implementor Forum

A TEMPLATE FOR INTEROPERABILITY TESTING

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AFNeT

PDES, Inc.
Connecting the Digital Enterprise

prostep IVIP

CAx Implementor Forum (CAx-IF)

- Joint testing forum hosted by PDES, Inc., prostep ivip, and AFNeT

- Composed of CAD and CAE vendors as well as translation and validation software developers providing STEP translators

- Closed group (sandbox) allowing implementors to develop and test new approaches in a trusted environment

- Launched in 1999, by merging previous PDES, Inc. and prostep ivip efforts. Since then, 40 test rounds have been completed focused on CAD domain. CAE domain test rounds started in September, 2017

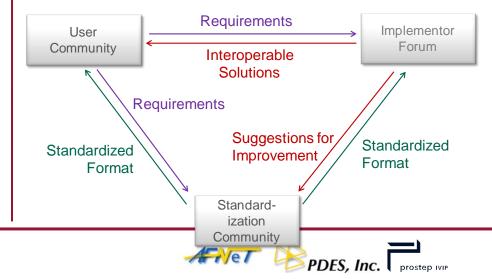- Mission is to meet industry's needs by developing and testing standards based interoperable products

How Industry benefits from the CAx-IF

Member / Vendor Benefits

- Testing in a closed, trusted environment

- Early detection of errors leads to faster development cycles

- Beta-testing with other systems enhances product interoperability and robustness even before production release

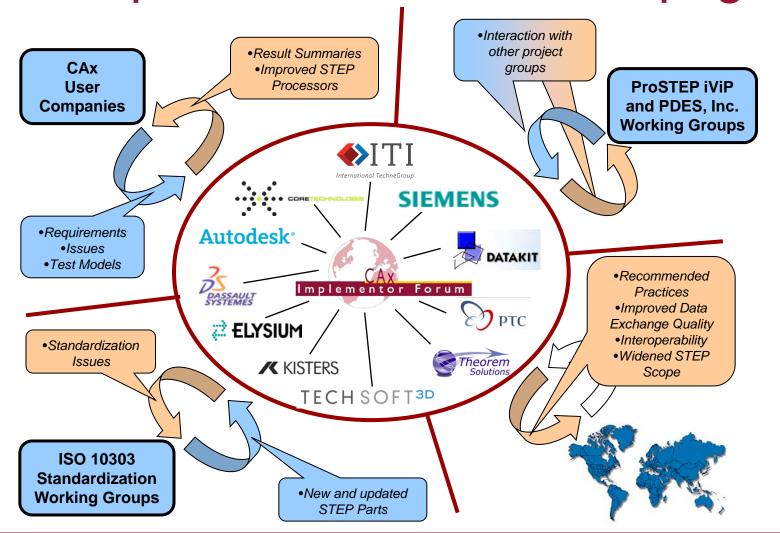- User requirements can be communicated, and common implementation approaches agreed upon

User / Customer Benefits

- Stability of new capabilities
  - E.g. PMI Polyline Presentation: Since testing started in 2008, no major changes to implementation structure. Widely used in industry now!

- Early feedback on requirements
  - Concerning feasibility, and timeframe for support in various tools

CAx Implementor Forum "on a page"

ISO 10303 standard
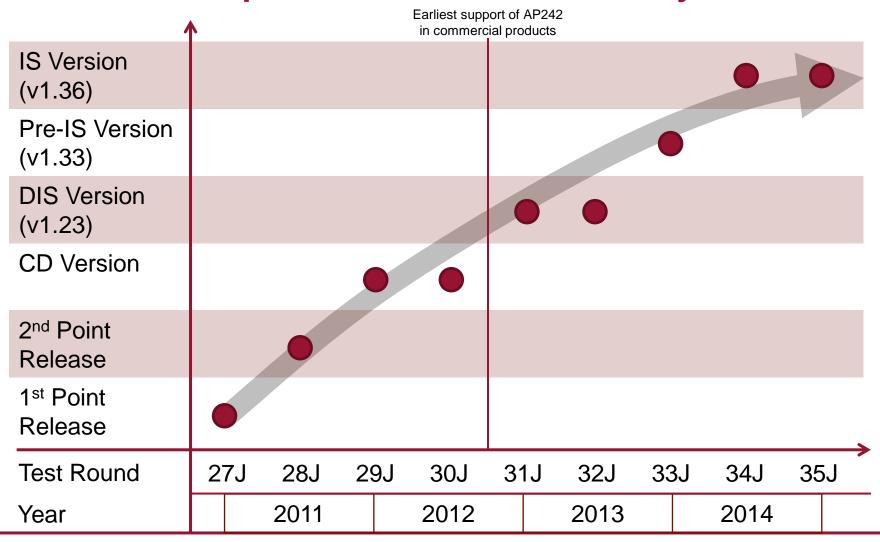STEP AP 242

for

Managed Model Based
3D Engineering

For the aerospace, automotive,
& other mechanical manufacturers
and their suppliers

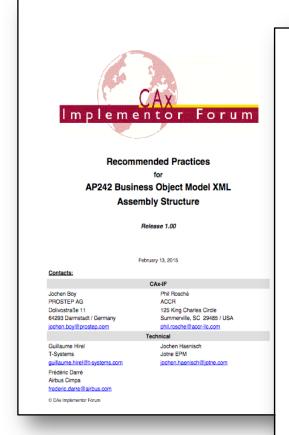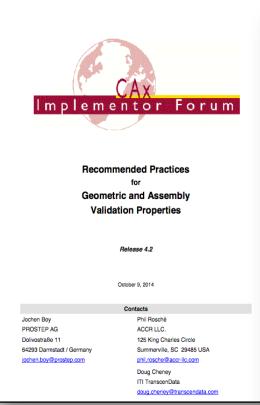http://www.ap242.org/

AP242 Implementation History

Earliest support of AP242 in commercial products

| | IS Version (v1.36) | Pre-IS Version (v1.33) | DIS Version (v1.23) | CD Version | 2nd Point Release | 1st Point Release |

CAx-IF Testing Methodology

1. Participants provide STEP files based on:
   - Current EXPRESS / XML Schemas
   - Latest (draft) Recommended Practices
   - Test Case definitions

2. STEP files are checked for:
   - Syntax (conformance to schema)
   - Structure / Semantics (conformance to Recommended Practices)

3. STEP files and corresponding statistics are provided in the member area of the CAx-IF homepage

4. Participants grab all provided files, process them, and report on their results. Detailed review at meeting.

5. If issues are found, they are resolved during the test round as far as possible.

Recommended Practices Documents

CAx-IF Test Case Specification

CAx-IF Online Test Environment

Activities supporting and promoting STEP AP242 implementation

- NIST MBE PMI Validation and Conformance Testing
  - Developed set of <u>publicly available</u> test cases for PMI
  - Natively modeled in four major CAD systems
  - Reviewed by expert users and system vendors
  - Used by CAx-IF and AP242 Benchmark as reference point
  - ► https://go.usa.gov/mGVm

- NIST STEP File Analyzer
  - Creates spread sheets from STEP files
  - Generates report for AP242 PMI Representation and Presentation
  - Lists Validation Properties
  - Verifies compliance with Recommended Practices
  - ► https://go.usa.gov/yccx

Activities supporting and promoting STEP AP242 implementation

- PDES, Inc. / prostep ivip "**CAx Implementor Forum**"
  - Creation of Recommended Practices for STEP (Part 21 and XML)
  - Joint test rounds, focus on geometry and assembly structure
  - Closed group / development environment

- Prostep ivip / VDA "**JT Implementor Forum**"
  - Creation of Implementation Guidelines for JT
  - Joint Test Rounds, focus on geometry and assembly structure
    - including combined use of AP242 XML and JT
  - Closed group / development environment

- AFNeT / prostep ivip "**PDM Implementor Forum**"
  - Creation of Recommended Practices for STEP (XML)
  - Joint test rounds, focus on PDM-relevant information
  - Closed group / development environment

For more information about the CAx-IF:

https://www.cax-if.org/

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