

## **Standard for the Exchange of Product model data (STEP - ISO 10303) Application Protocol 242 “Managed Model Based 3D Engineering”**

### **Abstract**

For 20 years a significant amount of effort has been made by the aerospace and automotive industry to develop two parallel STEP standards: AP 203 edition 1 was published in 1994, primarily driven by aerospace and defense requirements and developed and maintained by PDES, Inc. AP 214 edition 1 was published in 2001, driven primarily by automotive requirements, and developed and maintained by the ProSTEP iViP and SASIG organizations.

The ASD SSG working jointly with ProSTEP iViP, and NIST working jointly with PDES, Inc. have identified an opportunity for a convergent AP, based on AP 214 edition 3 and AP 203 edition 2. As a response, ISO TC 184/SC 4 has reserved a part number for the convergent AP: ISO 10303-242.

The main technical requirement for AP 242 is to become the cornerstone standard of the cross-process capabilities for interoperability of core engineering design information under configuration management, that is to say,

- providing specifications for exchange and long term archiving,
- providing a consistent business object model used for PLM web services, and
- being the reference for the mapping to ISO 3D light visualization specifications.

### **Example scenarios**

- 3D Model based design: Product design with a 3D master model including all the information typically on technical drawings, e.g. product manufacturing information, within this 3D model in order to avoid technical drawings completely.
- Supplier data exchange.
- Long Term Archiving

### **Responsible organization**

At this stage, collaborative project driven by AIA, ASD, SASIG, PDES Inc. and ProSTEP iViP.

### **Lead Organization within ASD**

ASD Strategic Standardization Group - contact: J.Y. Delaunay

### **Other stakeholders – by function/organization**

AIA, PDES Inc.

ProSTEP iViP

Automotive industry: SASIG

### **Business Justification**

Combining AP 203 and AP 214 into a single convergent information model provides benefits to both the user and vendor communities, and the automotive and aerospace industry.

### **Description of activity/deliverables**

Activities

## Technology Radar Element Description

Modification and creation of Application Modules (1000 series), including STEPmod improvement.

AP242 development (main clauses, annexes and supplementary material).

Update Recommended Practices (PDM, CAD)

### Deliverables

The main deliverable is a new modular application protocol – AP 242, and any associated new components of the ISO TC 184/SC 4 standards (modules, reference data, ...). The project plan includes the delivery of NWI/CD document, its submission for CD and DIS ballot, and the resolution of any comments received.

Besides the document itself Recommended Practices will be updated and STEP interfaces tested.

### Assumptions

#### **Business benefits**

1. The collaboration from a large number of organizations and industries provides a larger resource pool than would be possible otherwise and would spread the cost across a wider group of organizations.
2. The development of the convergent AP provides an opportunity to add new capabilities not currently found in AP 203 or 214.
3. The modular approach improves the interoperability of Application protocols.
4. Vendors, from a cost standpoint, prefer supporting only one AP.

#### **Location in ASD SSG Framework**

Enterprise Information - Product definition data through life

#### **ASD SSG action plan**

General STEP action plan:

- Development of ASD CAD and PLM policies with supporting STEP Implementation Guidelines targeted at supplier marketplace
- Adoption of relevant available ISO 10303 Application Protocols as part of eBusiness framework
- Identification of ASD requirements and active participation in further development of Application Protocols such as Systems Engineering and the future AP 242 which integrates AP203 and AP214 with extensions under the modular architecture.

#### **ASD SSG Status (updated)**

Work on “PDM information interoperability Policy” in progress.

Creation of AP242 started with the issue of a White Paper in 2009 and the development of the standard is currently in progress.

#### **Adoption Plan**

At short term ASD will recognize AP242 as future targeted standard replacing AP203 and AP214, through the “ASD PDM interoperability Policy”.

ASD will adopt AP242 through its direct participation to the ISO standardization process.

## Technology Radar Element Description

### **ASD adoption statement**

None at this stage.

### **ASD recommendation**

Linked recommendations will be included in "ASD SSG PDM information interoperability policy".

### **Link to a standards host site**

ISO TC184/SC4 - <http://www.tc184-sc4.org>

### **Link to supporting material**

ProSTEP iViP web site.