

Public SSB Fact Sheet: ISO 10303-242 (STEP AP242)

Projects

Exported on 12/19/2023

Table of Contents

No headings included in this document

[General](#) [Details](#) [Positioning in V-Model](#) [Relevance and benefit for collaborative systems engineering](#)

[Additional resources](#)

Short description/ Transmitted information	<ul style="list-style-type: none"> • 3D model-based engineering information • product data including product and document structure, change and configuration management • 3D CAD models (geometry, topology, PMI) and visualization • Validation properties • Kinematics • Composites
Normative document	ISO 10303-242:2020 ¹
Version/ Release status	Edition 2
Release date	April 2020
Application scope	<ul style="list-style-type: none"> • Data exchange • Data sharing and collaboration • Engineering backbone • Reference model • Long term archiving
Goals	<ul style="list-style-type: none"> • Coverage of the most of the many different automotive and aerospace use cases in product development with a common format • Interoperability between CAx systems and PLM systems • Provide a reference model for engineering data • Provide a common engineering backbone with links to various other standards and domain specific specifications
Promoting bodies	<ul style="list-style-type: none"> • prostep ivip Association² • VDA³ • GAAG
Type	<ul style="list-style-type: none"> • ISO standard⁴

¹ <https://www.iso.org/standard/66654.html>

² <http://www.prostep.org>

³ <http://www.vda.de>

⁴ <https://www.iso.org/standard/66654.html>

IT standard classification	<ul style="list-style-type: none"> • Interoperability standard • Process standard • Integration standard
Data format(s)	<ul style="list-style-type: none"> • Text format (ASCII) • Encoded in EXPRESS or XML
Additional available resources	<ul style="list-style-type: none"> • Recommended practices (implementation guidelines) • Benchmarks • Benchmark short reports • Benchmark long reports • Test suite documents • Testing files • Use cases • Guidelines • Best practice • Best practices examples • Round table presentations
Relevant prostep ivip project groups	<ul style="list-style-type: none"> • STEP AP 242 Maintenance⁵ • Production Lifecycle Information Management (PLIM)⁶ • PDM Implementor Forum (PDM IF)⁷ • STEP Benchmark (STEP BM)⁸

General [Details](#) Positioning in V-Model Relevance and benefit for collaborative systems engineering

Additional resources

STEP AP242 is the successor of AP203 and AP214.

STEP AP 242 Edition 1 (published in 2014) provides all the functionalities covered by the AP 203 ed2 and AP 214 ed3. It includes also new functionalities, such as:

- The “Shape Quality” modules, derived from STEP Part 59 and based on the SASIG PDQ guidelines,
- The results of the PDM harmonization between STEP AP 242 Business Object Model, now called Domain Model, and AP 239 PLCS Platform Specific Model,
- A new model for STEP 3D tessellated geometry and
- New generic capabilities for STEP “external element references” used for kinematics and other disciplines.

AP 242 Edition 2 (published in 2020) is the extension of AP 242 Edition 1 to the electrical design domain, completed with specific enhancements in the following domains:

- PDM,
- 3D geometry,
- 3D PMI,
- Composites and

⁵ <https://www.prostep.org/en/projects/step-ap-242-maintenance/>

⁶ <https://www.prostep.org/en/projects/production-lifecycle-information-management-plim/>

⁷ <https://www.prostep.org/en/projects/pdm-implementor-forum/>

⁸ <https://www.prostep.org/en/projects/step-benchmark/>

- Mechanical design

AP 242 Edition 3 is a corrective maintenance edition.

AP 242 Edition 4 is in development. prostep ivip and VDA are proposing the following extensions:

- Assembly PMI
- Visual issue management
- Improvement of the external element reference mechanism

Further extensions for Edition 3 are planned by other stakeholders.

STEP AP 242 has 2 coordinated and closely interlinked information models each with its own implementation form:

- AIM model for Part 21 (ASCII) file exchange
- Domain Model for XML file exchange

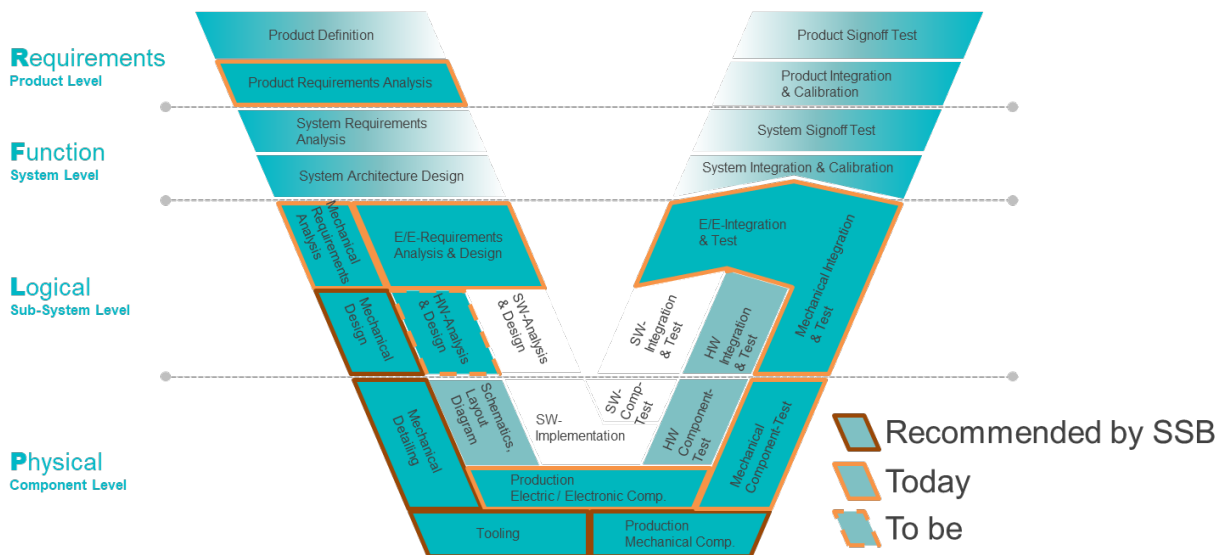
The Domain Model scope is a subset of the AIM model scope. The focus of the Domain Model is on product structure data incl. metadata providing the basis for the engineering backbone.

PMI currently only present in the AIM Model is planned to be added into the Domain Model in Edition 4.

General Details [Positioning in V-Model](#) Relevance and benefit for collaborative systems engineering

Additional resources

Positioning of ISO10303-242 in V-Model



The Fact Sheet basically covers the entire scope of the standard. However, the prostep ivip association respectively the SSB recommends AP 242 only for a restricted scope and for some areas such as requirements and electrical harnesses alternative standards such as ReqIF and KBL/VEC.

General Details Positioning in V-Model [Relevance and benefit for collaborative systems engineering](#)

Additional resources

The benefits of using STEP AP242 are

- Combination of AP242 and other protocols (e.g. 243) provides added value
- Established standard for PDM (product structure, configurations)
- Backbone to which other standards may be docked

[General](#) [Details](#) [Positioning in V-Model](#) [Relevance and benefit for collaborative systems engineering](#)

[Additional resources](#)

Datei

Geändert

[image2021-11-29_14-16-21.png](#)⁹

Dez. 06, 2022 by [Peter Tabbert](#)¹⁰

⁹ https://intranet.prostep.org/download/attachments/96698385/image2021-11-29_14-16-21.png?api=v2

¹⁰ <https://intranet.prostep.org/display/~petertabbert>