

Le standard STEP AP 242 éd.1

Le site web public AP 242

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Objectifs du site web AP 242

- **Assurer la communication**
 - sur les informations générales de la norme
 - sur les aspects de développement commun et de principal usage de la norme par l'industrie automobile et aérospatiale
- **Conçu principalement pour les utilisateurs finaux**
 - OEM, PME, Agences Gouvernementales
- **Informations collectées et maintenues les équipes de développement de la norme**



Contenu du site web AP 242

- Besoins métiers supportés
- Use cases ciblés
- Normes qui en résultent : AP 242 édition 1, préparation de l'édition 2
- Périmètre d'application
- Relations avec les autres normes
- Implementor Forums associés
- Recommandations d'utilisation internationales de la normes
 - comment la norme doit être implementées par les éditeurs PLM
 - basées sur des test rounds
- Maturité globale des solutions d'interopérabilité disponibles (COTS) des éditeurs PLM
 - ◆ en opération, testées, étape préliminaire d'implémentation
- Non traité par le site web :
 - Liste descriptive des interfaces AP242 des COTS
 - Informations techniques et détaillées (pour cela le site fait référence à d'autres projets et site web)





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Introduction

The standard STEP AP 242 (ISO 10303 AP242) "Managed model based 3D engineering" is the merging of 2 [ISO](#) standards:

- Aerospace's [STEP AP203](#) "Configuration controlled 3D design",
- and Automotive's [STEP AP214](#) "Core data for automotive mechanical design processes.

The goal of this web site is to ensure the communication and awareness related to the common development and the primary use by the automotive and aerospace industries of the AP 242 standard.

This web site is mainly designed for the end users (OEMs, Small and Medium Entreprises, governmental agencies) searching for a [general information](#) on:

- the scope of the STEP AP 242 standard,
- and the overall maturities of the associated COTS STEP interoperability solutions of the PLM vendors (in operation, tested, in preliminary stage of implementation).

This web site does not aim at describing the list of STEP AP242 COTS interfaces of PLM vendors. This web site will refer other projects and/or other web sites for more technical or detailed information.

STEP AP 242 On A Page

To download a one page overview of STEP AP 242, please click on the image below:

ISO 10303 standard
STEP AP 242
for
Managed Model Based
3D Engineering

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

PDM
Part Identification, Product Data Management, Configuration Management, General management information, Activity and work management, Electrical, Simulation, Realization and configuration

Process Plans
Requirements, Design Rules, Manufacturing performance

3D Modeling
3D Part, 3D Assembly, 3D Shop Floor View

3D Composite design

<http://www.ap242.org/>

Content



This portal provides information collected and maintained by the STEP AP242 projects. It includes web pages describing information related to:

- the business requirements and the use cases targeted by the STEP AP242 standardization projects,
- the resulting standards (AP 242 edition 1, preparation of AP 242 edition 2),
- the Implementor Forums associated to the AP 242 standard,
- and finally the international recommended practices describing how this standard has to be implemented by the PLM vendors, based on interoperability test rounds.

The industries require increasingly capabilities for PLM interoperability based on open standards. A standard alone is useless. The STEP AP242 standard needs to be associated to the use cases and business requirements which clarify the context of usage. A standard must also be completed by recommended practices for their implementation, derived from shared implementation experiences gathered through Implementer Forums. All this information is usually produced by different independent projects and organizations, and widespread across different web sites, making it difficult to have a global picture and a comprehensive access to all the relevant information. This web site aims at helping the different categories of actors to access to the information relevant for their needs related to the AP 242 standard, without duplicating information already managed by other associated web sites (E.g. [CaX IF](#), [ISO /TC 184 /SC4](#)).

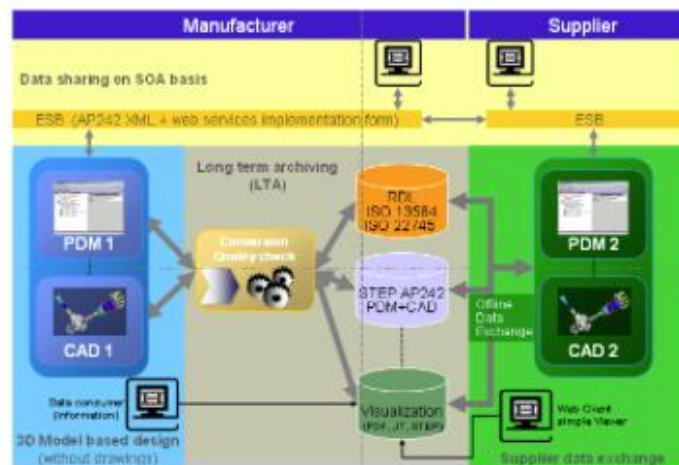


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[Why AP242?](#) » [Use cases](#)

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The Business Drivers for a convergent AP are based on the following usage scenarios and use cases. Figure 1 gives an overview on the usage 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.
Business Driver for Automotive and Aerospace: save efforts for drawing creation and gain efficiency, e.g. for downstream processes, by a unique 3D model based master design that covers all the information.

Supplier integration

Business Driver for Automotive and Aerospace: the supply chain gains importance (increasing work share and responsibility) for the final product. Therefore an efficient and complete exchange and/or sharing of the product definition based on one standard is important.

Long term archiving

Business Driver for Aerospace: documentation of Aerospace and defense products have to be available more than 50 years, therefore long term archiving based on 3D model design is a strong requirement.

Data sharing on SOA basis

Business Driver for Aerospace: the complete support of the product life cycle for design, manufacturing and support in service, e.g. also for exchange with customers (airlines, ...) in the service life cycle, is necessary. Therefore the compatibility with [STEP AP239](#) product life cycle support (PLCS) is required.

Engineering Visualization

Business Driver for Automotive and Aerospace: since the number of data consumers is much higher than the number of data creators (internal and external suppliers) an Engineering Visualization strategy based on a lightweight visualization format can save significant license costs for data consumers while increasing the availability of 3D product data for all kinds of applications.
Business Driver for Aerospace: use of one single standard (STEP convergent AP) for the long term archive requires a consistent mapping to a separate performance-optimized visualization format.
(Visualization formats [JT](#), [U3D](#) and [PRC](#) are considered).

Other usage scenarios, including

- Design to Engineering Analysis
- Design to Manufacturing data exchange
- Design to Manufacturing simulation
- Design to NC planning
- Design to Inspection planning

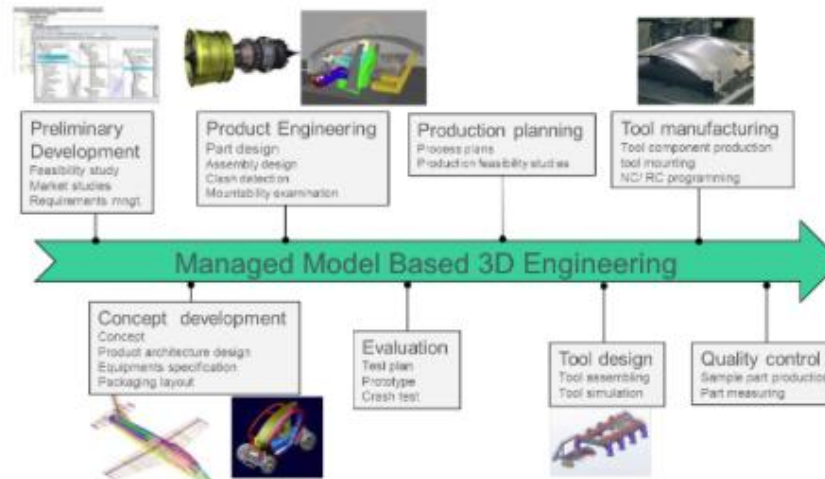
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The AP242 standard

The scope and foundations of the AP 242 standard has been defined in the [White Paper](#) "Development of a Convergent Modular STEP Application Protocol Based on AP 203 and AP 214: STEP AP 242 – Managed Model Based 3D Engineering", Version 1.0, 2009-11-05.

The STEP AP 242 standard is managed by ISO/TC 184/SC 4 as ISO 10303 AP 242. The purchase of such standard, when released, can be done via the national standardization bodies.

It is developed in a in a phased approach, in several editions, according to business requirements and agreed project plans (scope, resources, time, quality) for coverage of the Managed 3D Model Based Engineering process, as illustrated by the next figure.



Overall planning of AP 242 edition 1 and edition 2

The development of AP 242 edition 1 has started mid of 2010 and is planned to become "International Standard" Q1 2014.

The aerospace and automotive industries are preparing the scope and project plan of AP 242 edition 2 (anticipated to start Q1 2014 and to become IS Q4 2016). The detailed planning is given by the following figure.

	2009	2010	2011	2012	2013	2014	2015	2016	2017
AP 242 ed. 1	WP 11	NWI 09	CD Ballot 05		DIS Ballot 05	IS Publication 02			
AP 242 ed. 2					WP 11	NWI 5	CD Ballot 05	DIS Ballot 11	IS Publication 12
AP 242 ed. 2 Workshops						n°1 09	n°2 06	n°3 03	n°4 12



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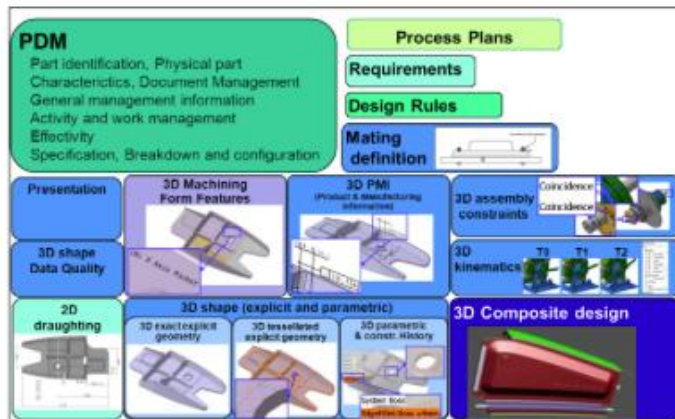
- [CAD 3D Interoperability](#)
- [Machining Form Features Interoperability](#)
- [Composite Design Interoperability](#)
- [Kinematics Interoperability](#)
- [PDM Interoperability](#)
- [Requirement Interoperability](#)

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Overview of AP242 edition 1 information model

This page provide the overview of the type of product information of AP 242 edition 1 standard, of the capabilities of the Business Object Model of AP 242 ed. 1 and of the 2 implementation formats (P21 AIM and P28 XSD BO model). Main interdependencies with other standards can be found at "Other related standards".

The overview of the content is described and illustration of this content is provided in the two following figures:



Overview of Business Object model capabilities

AP214 BOM is based on a set of capabilities, organized according the following figure (version available 21st of September).

