MoSSEC

A proposed standard for sharing Modelling and Simulation information in a collaborative Systems Engineering Context
Agenda

- Why do I need MoSSEC?
- What is MoSSEC?
- MoSSEC New Work Item
- Summary
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Challenges for distributed systems engineering

- **Distributed Infrastructure**
  - Secure Collaboration for:
    - Locations
    - Organisations
    - Software Platforms

- **Distributed Processes**
  - Multitude of Modelling and Simulation tools
  - Simulation driven design changes traced and under PLM control

- **Distributed Data**
  - Modelling and Simulation data
  - V-cycle meta-data
    - (who, what, when, where, how, why, etc)
  - Efficient sharing, synchronisation and integration

Remain Compliant with existing Standards (e.g. AP233, AP239, AP242)
Challenges for distributed systems engineering

• **Distributed Infrastructure**
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Distributed SE challenges are applicable to in-house organisations
Collaboration vs Modelling & Simulation Data

Modelling and Simulation data
- Managed in the PLM/M&S systems
- Exchanged with technical standards

Collaborative SE context data
- Managed by MoSSEC Compliant Tools
- Exchanged with MoSSEC standard

Together they enable the distributed dataset
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MoSSEC: a common approach based on standards

- MoSSEC provides a common approach for:
  - Structuring the Distributed Dataset
  - Structuring the Information Services for Dataset Management
- MoSSEC is built on ISO standards
MoSSEC Business Object Model coverage

- Contracts
- Access rights
- Security classification

- Networks
- Models
- Key Values

- Templates
- Methods
- Libraries

- Connections
- Components
- Breakdowns

- Expectations
- Needs and Goals
- Value Creation Strategy

- Requirements and Approvals
- Assumptions and Justifications
- Quality Gates and Reports

- Organizations
- Persons

- Security & Trust
- Actors & Organisations
- Value Generation

- Models Management
- Study Management
- Requirements & Quality

- Methodology
- Architecture & Interfaces
- Optimisation

- Objects are:
  - Business Level
  - Domain neutral

- Studies
- Objectives
- Concepts
MoSSEC Unique Combination of Features

- Links Modelling and Simulation to the Systems Engineering Context
  - Uses objects at a business level

- Efficiently shares context information
  - Uses web services defined using the business object specification

- Builds on existing standards
  - Uses New STEP Architecture mapping to AP239 and the Core Technical Capabilities
  - Exploits AP239 usages such as Long Term Archiving.
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MoSSEC project - participants

• **Project Co-chairs:**
  • Adrian Murton (Airbus Operations Ltd)
  • Greg Pollari (Rockwell Collins)

• **Industrial:**
  • Airbus Group, Boeing, Rockwell Collins, Honeywell, GKN Aerospace, BAE Systems…

• **Vendors:**
  • Dassault Systèmes, Eurostep, MSC Software, Siemens PLM Software…

• **Organisations:**
  • ASD SSG, AFNET, UKCeB, AVSI/SAVI
  • PDES Inc. (to be confirmed), AIA (to be confirmed)
MoSSEC – Work activities since PWI submission

• PWI submitted May 24\textsuperscript{th} 2016

• International Workshop (June 13-14 Toulouse)
  • Good attendance from partners
  • Worked on contents for White paper

• Creation/update of MoSSEC website
  • www.mossec.org (Public)
  • private.mossec.org (Private)

• Bi-weekly phone calls

• Completion of White paper
  • Reviewed by key participants
MoSSEC White Paper (associated with New Work Item)

• MoSSEC Business Aspects
  • Overview of business context
  • Synthesis of business requirements
  • Business use case example
• MoSSEC Technical Aspects
  • Definition of technical content
  • Development principles
  • Interdependencies with related standards
• MoSSEC Project and Risk Management
  • Deliverables
  • Financial aspects
  • Scheduling

White Paper

ISO 10303 (STEP) MoSSEC edition 1

Application Protocol
For Modelling and Simulation information
in the collaborative Systems Engineering
Context (MoSSEC)

MoSSEC Business Aspects:

- **Business Context**
  - Explaining the System engineering context and typical problem statements

- **Business Needs**
  - Consolidated from partner requirements, workshops and meetings

- **Business Use-case example**
  - Ad-hoc design study explained step by step

More details available in references that are available from the MoSSEC website: [www.mossec.org](http://www.mossec.org)
MoSSEC Technical Aspects: Technical Content - Proposed Scope of V1

- Studies
- Models
- Requirements/Quality
- Security & Trust
- Architectures & Interfaces

+ supporting objects from other rows
MoSSEC Technical Aspects: Development principles

- Part of “New STEP Architecture”
- Mapped to “Core” and shares subset with other APs
- Implementation Methods used to generate Implementation models
MoSSEC Project and Risk Management: WBS – based on AP239 ed3 structure

- WP1: Standard Edition (CD, DIS, IS)
- WP2: Architecture & AP integration
- WP3: Business value and models
- WP4: Information Models
- WP5: Implementation Models
- WP6: Pilots

These WPs include shared activities with AP242 ed2, AP239 ed3 and New STEP architecture work.

Within New STEP Architecture ensure integration of:
- Models: Activity, Conceptual, Domain
- Implementation Methods

Management of interdependences with other projects (e.g. AP242ed2, AP239ed3, AP209)

Agreed I/O from other AP activity models “Joined up data across activity model”

STEP MoSSEC ed1
Project Steering Committee (PSC)

Technical board

ISO deliverables

Issues Resolution & Interaction with other ISO groups (TC184/SC4 MG12, MG21, and MG22)

Agreed I/O from other AP activity models “Joined up data across activity model”

- Activity model
- Conceptual model
- Pilot cases
- Usage guidance

- Domain model
- Mapping to CTCs or other AP Business Objects

- Implementation models (incl. XSD & Web services)

- Pilot implementations
- Pilot cases running
- Consistency assessment
- Preparation of future Implementers Forum
MoSSEC: Further information

- MoSSEC website
  - [http://www.mossec.org/](http://www.mossec.org/)
  - Overview
  - Resources
  - News
  - Links

- Members website
  - [http://private.mossec.org](http://private.mossec.org)
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Summary
MoSSEC: Modelling and Simulation information in a collaborative Systems Engineering Context

A proposed ISO standard:

• To improve decision making for complex products.
• For sharing the systems engineering context (Who, What, Where, When, How, Why) of modelling and simulation data between Internal teams/domains and Extended Enterprise
• Supported by industrial partners (e.g. Airbus, Rockwell Collins, Boeing, BAE Systems) and vendors (e.g. Eurostep, Dassault Systèmes, MSC Software, Siemens)

Status:

• A first definition used extensively on EU research projects
• “New Work Item” and associated white paper to be submitted to ISO October 2016
• [www.mossec.org](http://www.mossec.org)