





CFST

- Xou'll be <u>muted</u> all along the Webinar.
- K There's a <u>Question Section</u> to ask your questions or send your comments when you want.
- K If you have any <u>technical issue</u>, please use the chat box (not the Question).

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K The Webinar will be <u>recorded</u>. A link to the recording will be sent to you in few days.

Connecting the Dots: Interoperability between your favourite Systems Engineering tools



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- ℅ Who are WE & Who am I?
- ✗ The INTEROPERABILITY Hub
- 🔀 Interoperability Use Case Walkthrough
- 💥 Q&A



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The REUSE Company is a tool vendor specialized in the application of <u>semantic technologies</u> and <u>artificial</u> <u>intelligence</u> to improve the <u>digitalization</u> of the Systems Engineering life cycle.





- Project and Life cycle management.
- Requirements and risk management.
- **Natural language** processing to deeply understand textual items (requirements, risks, test cases...).
- Text authoring and assistance for technical writers: requirements, risks, FMEA, tests cases, manuals...
- Knowledge Management.
- Semantic **interoperability** to digitalize the different activities that conform a complex project. Transformation: requirements to models and viceversa.
- SMART quality analysis, IV&V, traceability, configuration management, decision management, knowledge management, life cycle management:
 - Empowered by AI techniques and knowledge repositories.
- Coarse and fine grain **reuse.**



TRC Intro >

What We Do

Tools and Platforms

International Standards

Handbooks

02

Tools and Platforms

All these capabilities are seamlessly integrated into a wide variety of tools and platforms:

- IBM, Siemens, PTC, Dassault, Capella, MagicDraw/Cameo, Simulink.
- And other Requirements, MBSE, ALM and PLM tools, including MS Office.



TRC Intro >

What We Do

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03

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IEEE 12207

IEEE 29110

International Standards

Aligned with international standards: IEEE 15288, IEEE 12207, IEEE 29110



TRC Intro >

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04

Handbooks and guidelines



INCOSE Handbook



INCOSE GfWR



NASA



ECSS





Jose Pereira



Current Position: Key Account Manager of The REUSE Company

- Member of the Sales & Consulting Department within The REUSE Company
- Kesponsible for the Temperature War Systems Engineering Use Case
- 💥 Systems Engineering Methodology thesis development
- Complete SE Use Case based on the INCOSE 15288 Standard
- 3 years of experience and supervised training under two members of the INCOSE Group, ASEP & CSEP
- Computer Science & Engineering



The INTEROPERABILITY Hub

Different Source Types



TEXTUAL REQUIREMENTS

Are the HEART of the current system engineering practices

CONCEPTUAL MODELS

Helps FORMALIZE and consolidate customer and system requirements

PHYSICAL MODELS

Helps validate FEASIBILITY, elicit/justify NEW REQUIREMENTS for the system/subsystems





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One Synchronized Source of Truth



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Use case walkthrough



Single Sources of Truth









Step 01: Requirements Rewrite

Requirements Rewrite:



Textual to Textual Requirements.





Step 01: Requirements Rewrite



Requirements Rewrite: Textual to Textual Requirements.

- I. Initiate the SES ENGINEERING Studio.
- 2. Connect to the MS Word containing the low-quality specification and parse its content.
- 3. Connect to the MS Excel where the high-quality requirements will be allocated.
- 4. Within the Interoperability Management Capability, define a new activity.
- 5. Select the Source and Target of the desired OPERATION: "Rewrite Low-Quality Requirements into High-Quality Requirements".
- 6. Define all transformations to be performed.
- 7. Once created, execute the Interoperability activity.





Step 02: Copy To





Textual to Textual Requirements.







Copy To: Textual to Textual Requirements.

- I. Connect the MS Excel containing the high-quality requirements.
- 2. Connect to the DOORS project and module desired.
- 3. Within the Interoperability Management Capability, define a new activity.
- 4. Select the Source and Target of the desired OPERATION: "Replicate Content Clean (RCC)".
- 5. Once created, execute the Interoperability activity.





Step 03: Model Generation

Model Generation:



Textual Requirements to SysML Model.





Step 03: Model Generation



Model Generation:

Textual Requirements to SysML Model.

- I. Connect to the DOORS project and module containing the high-quality requirements.
- 2. Connect to the empty Cameo Systems Modeler where SysML model will be generated.
- 3. Within the Interoperability Management Capability, define a new activity.
- 4. Select the Source and Target of the desired TRANFORMATION: "Generate SysML models from Textual Sources".
- 5. Once created, execute the Interoperability activity.





Step 04: Model Transformation

Model Tranformation:

SysML Model to Arcadia Model.







Step 04: Model Transformation



Model Tranformation: SysML Model to Arcadia Model.



- I. Connect to Cameo Systems Modeler, where the SysML model has been generated.
- 2. Connect to Capella, where the Arcadia model will be generated.
- 3. Within the Interoperability Management Capability, define a new activity.
- 4. Select the Source and Target of the desired TRANFORMATION: "Generate Arcadia model from SysML model".
- 5. Once created, execute the Interoperability activity.





Step 05: Code Generation

Code Generation:

Conceptual Model to Code.





Step 05: Code Generation



Code Generation: Conceptual Model to Code.

- I. Connect to Capella, where the Conceptual model will be allocated.
- 2. Within the Interoperability Management Capability, define a new activity.
- 3. Select the Source and Target of the desired TRANFORMATION: "Generate Code from Conceptual model".
- 4. Once created, execute the Interoperability activity.





Extra Step 06:Test Case Generation

Test Case Generation:



Textual Requirements to Test Cases.





Extra Step 07: Test Case Generation

Test Case Generation:

Textual Requirements to Test Cases.



I. Connect to the MS Word containing the requirements specification to generate test cases.

- 2. Connect to the MS Excel which will contain the test cases once generated.
- 3. Within the Interoperability Management Capability, define a new activity.
- 4. Select the Source and Target of the desired TRANFORMATION: "Generate Test Cases from Requirements".
- 5. Once created, execute the Interoperability activity.





Extra Step 07: 3D Model Generation

3D Model Generation: Different Sources to 3D Model.





Extra Step 07: 3D Model Generation

3D Model Generation:



Different Sources to 3D Model.











Requirements Management through A||G Contracts

X This webinar presents an approach to requirements management through A||G Contracts and is based on the capture of assumptions and guarantees as requirements, allowing manual capture of contract compliance and the underlying reasoning, allowing in this way the NLP analysis and semi-automatic evaluation of the contracts.

Dates: November the 15th, 2022



Our Youtube:

https://www.youtube.com/user/TheREUSECompany

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