



*The Power of Connected Data*



SECollab



# SodiusWillert provides Engineering Data Integration solutions.

*Enabling Faster-to-Market, Higher Quality, and Conformant Products*

We design and distribute software solutions for Enterprise Interoperability and Connected Data, Data Transformation, and Model-Based Code Generation to improve traceability, exchange, and sharing of engineering data in highly regulated industries. We deploy our solutions worldwide in Aerospace, Automotive, Transportation, Defense and Medical industries.

Enterprise Interoperability



OSLC Connect

Data Sharing & Review



SECollab

Data Transformation



Publisher

Code Generation

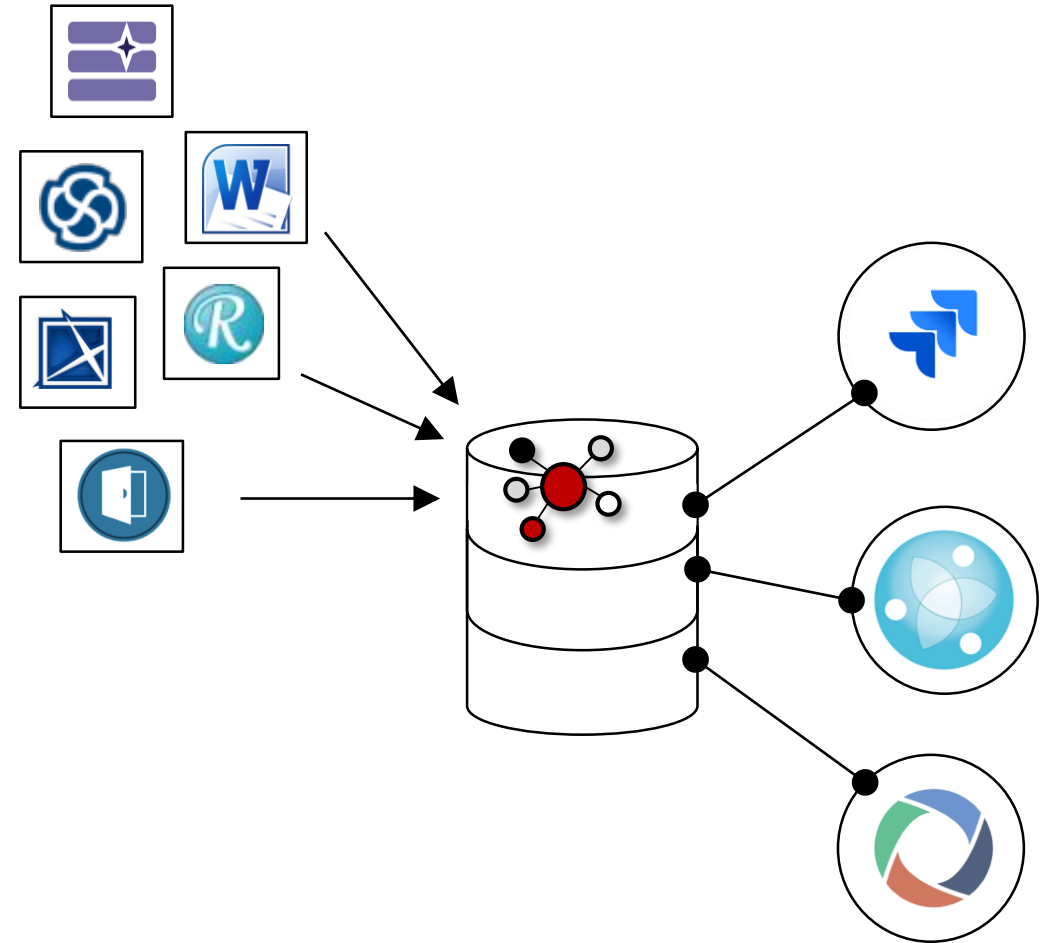


RXF



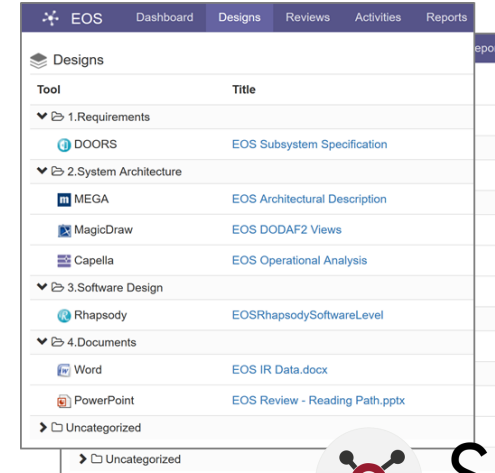
# SECollab

**Share and review  
data or models  
independent from tools**

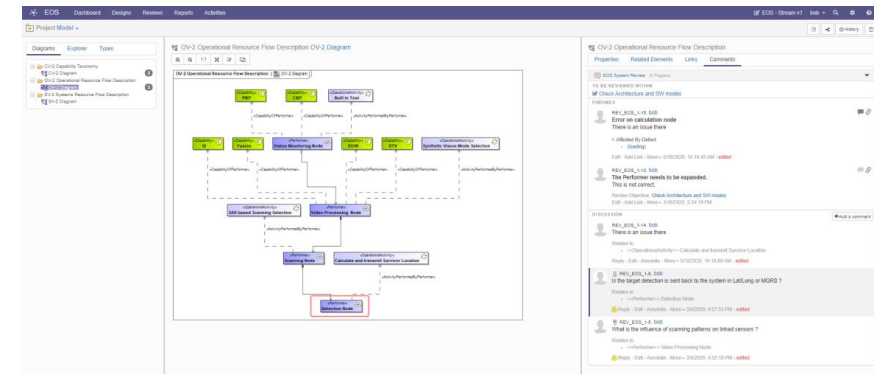


# Value Proposition

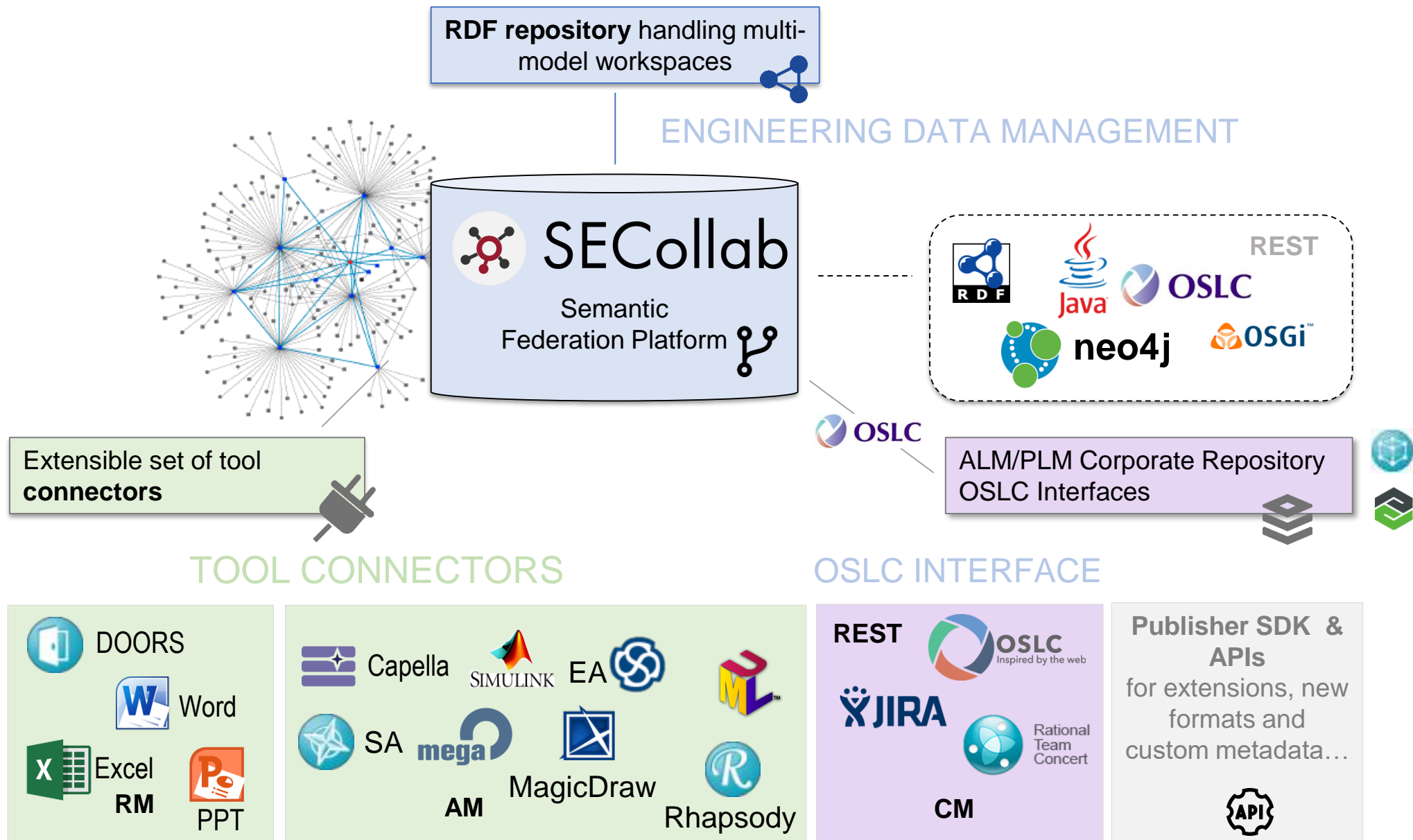
- **Share data and model content independent from tools**
  - Publish documents or model content, including diagrams, into a web platform
  - Access shared data from a single access point
- **Review published data and link findings with your CM management system**
  - Reviews can be setup across various data sources and models.
  - Any artifact can be commented in a consistent cross-tool context review
  - Your findings can be linked with your changed management system (IBM CCM/RTC, Jira, Polarion)
  - With its advanced search capabilities in the warehouse, you can easily navigate, analyse content and identify data, model elements or diagrams.
- **Provide a versioned and OSLC enabled graph data repository for file-based or non-OSLC applications**
  - SECollab provides natively a full OSLC-enabled repository and a standalone version mechanism. You can publish a model as a new model or as a new version of an existing model.
  - Data and Links are managed consistently with the versions of data across all tools in the SECollab configuration context.
  - Provides version diff and comparison mechanism for any shared content



Tool	Title
1.Requirements	
DOORS	EOS Subsystem Specification
2.System Architecture	
MEGA	EOS Architectural Description
MagicDraw	EOS DODAF2 Views
Capella	EOS Operational Analysis
3.Software Design	
Rhapsody	EOSRhapsodySoftwareLevel
4.Documents	
Word	EOS IR Data.docx
PowerPoint	EOS Review - Reading Path.pptx
Uncategorized	
Uncategorized	

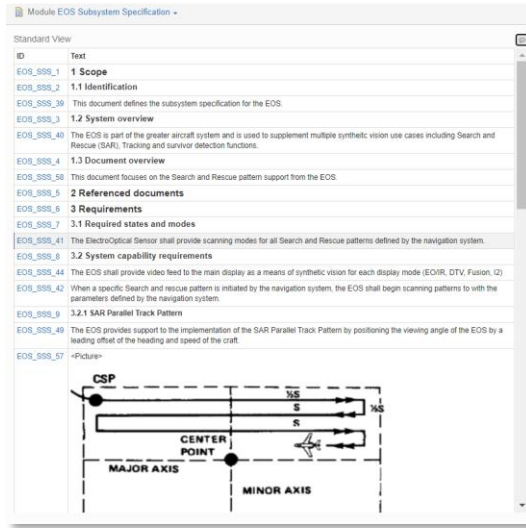
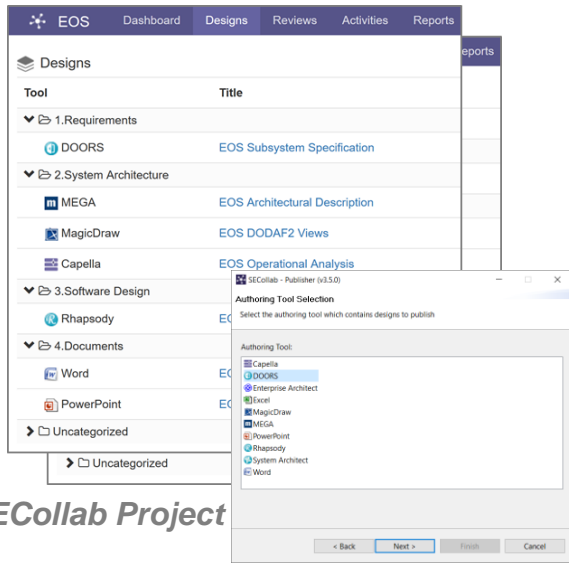


# SECollab High-Level View

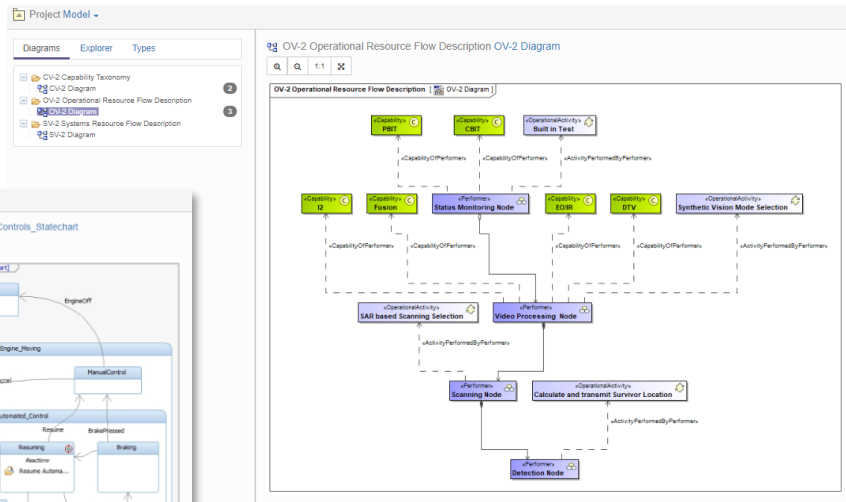


# Share data and model content independent from tools

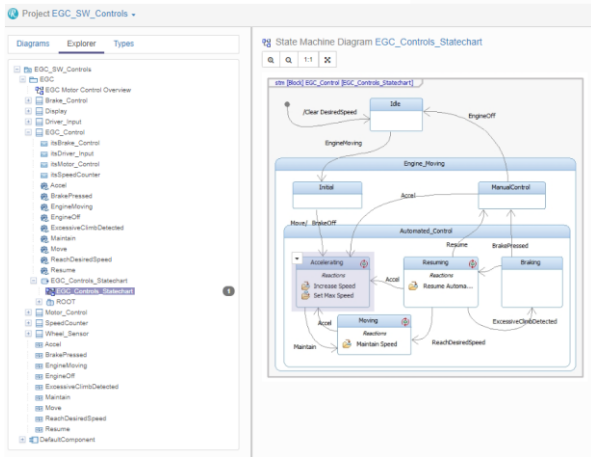
- Publish documents or model content, including diagrams, into a web platform
- Control the content to be shared and who will access the information
- Inspect artifacts in an intuitive and efficient UI (without authoring tool knowledge or license)



DOORS



MAGICDRAW

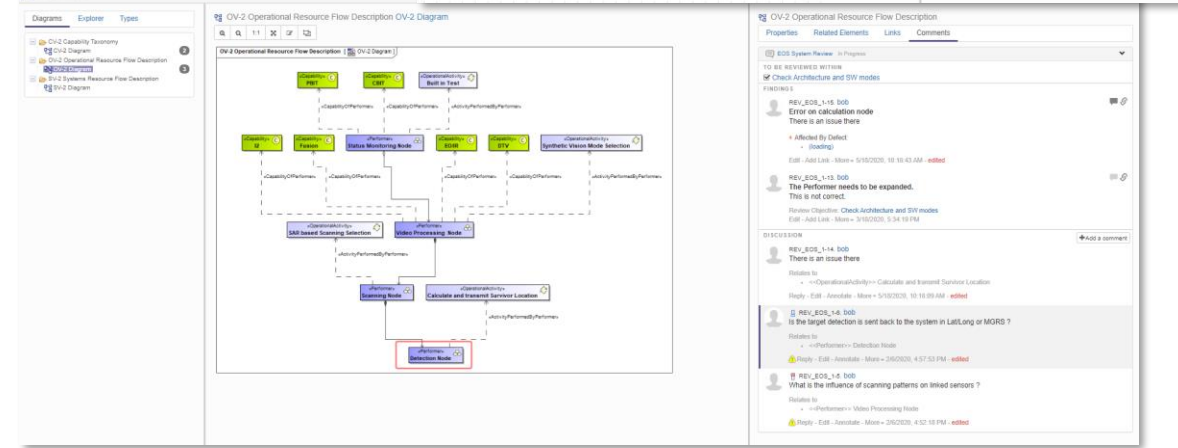
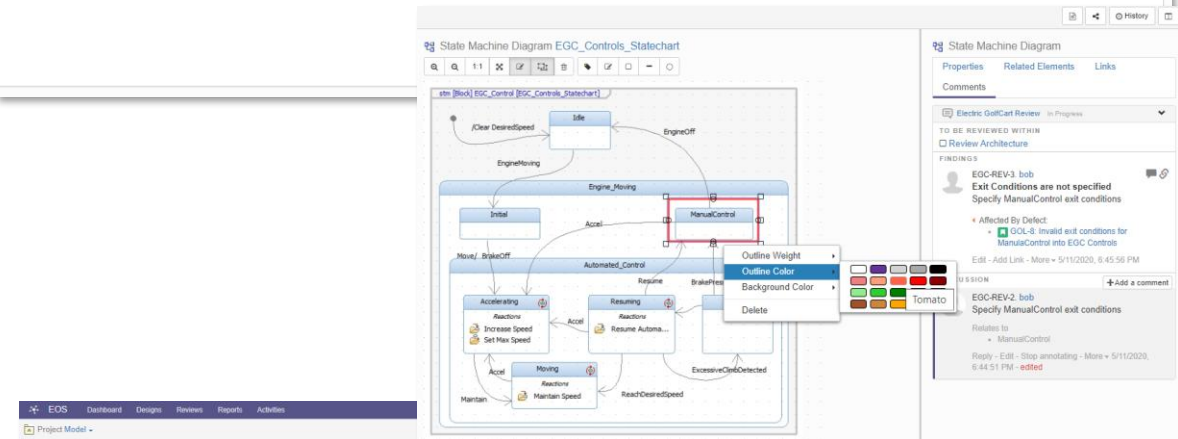


RHAPSODY



# Collaborate and Review published data

Review Objective	Completion	Review resources	Contributors
<b>Check System Requirements</b> The system requirements are based around identification and synthesis of the functions required of any solution system associated with performance and other quality measures and provide the basis for the assessment of candidate solutions and verification of the completed system.	50%	EOS Subsystem Specification	bob kate
<b>Check Architecture and SW modes</b> The System Architecture should define precise system boundary and functions, from which more detailed system requirements can be derived. 1) Check <<Capability>> and <<Performer>> elements from the architecture model. At least, the functional description should depict each system task to be performed in operation. 2) Check the various modes of the Survivor_Detection subsystem in use and events conducting to transitions of modes	83%	OV-2 Diagram EOS Navigation Survivor_Detection_StatechartDiagram	bob brian



- Define **Review objectives, contributors and reading path** to focus reviewers on specific data and goals
- **Comment and annotate** any artifact in a **cross-tool context review**
- Manage **discussion threads** in a collaborative engineering approach (internally or opening portal to partners/customers)
- With its advanced **search capabilities** in the shared repository, you can **easily navigate, analyse content** and identify data, model elements or diagrams.



V-2 Diagram

OV-2 Operational Resource Flow Description

EOS System Review In Progress

TO BE REVIEWED WITHIN

Check Architecture and SW modes

FINDINGS

REV\_EOS\_1-15\_bob  
Error on calculation node  
There is an issue there

Affected By Defect: EOS\_SSS\_57 - Invalid Requirement Issue

Details

Project: Jira ALM Tracker

Type: Bug

Priority: High

Affects Version/s: None

Status: TO DO

Resolution: Unresolved

Fix Version/s: None

Dates

Created: 06/Feb/20 10:46 AM

Updated: 18/May/20 4:17 AM

People

Assignee: Unassigned

Reporter: Bob

Description

The unit is not specified for Speed information on EOS\_SSS\_57 requirement.

Module EGC Requirements

ID	Text
1	1 Electric Golf Cart (EGC) Specifications
2	1.1 Description
3	This new caddy is based a highly innovative, manually (non-remote) controlled electric battery powered golf cart. It has a 200 Watt motor, speed control with battery charge indicator and GPS.
5	<Picture>
6	1.2 Specifications
15	1.2.1 Motor and Battery

Object 3

Properties Links Comments

COLLABORATION LINKS

Affected By: 00301: Add Electric Motor Support

7: Check description of EGC DOORS requirements

7: Check description of EGC DOORS requirements

Status: New

Details

Type: Task

Filed Against: Unassigned

Project Area: GOLF\_CART (Change Management)

Creation Date: 5/11/2020, 6:37:48 PM

Created By: Patricia

Owned By: Kate

Priority: Unassigned

Planned For: Unassigned

Estimate: Backlog

Time Spent: Backlog

Due Date: Unassigned

Quick Information

Subscribers (1): P

Affects Requirement (1): 1

Description

Check description of EGC DOORS requirements

# Formalize findings and Link with CM Systems

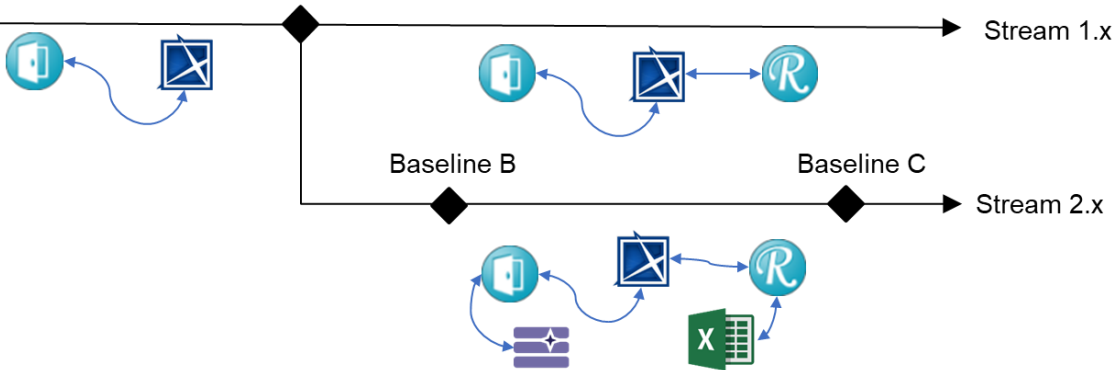
- **Define formal findings** to conclude discussion threads
- Using **OSLC** technology, **associate any compatible CM management** to fulfil your standard change request process
- **Link any finding or model artifact with issues** from your Changed Management System issues
  - Jira
  - IBM ELM – CCM (RTC)
  - Polarion
- **Enable Model Artefacts Visibility from the CM system**





# Version Management and Model Diff

Baseline A = Snapshot

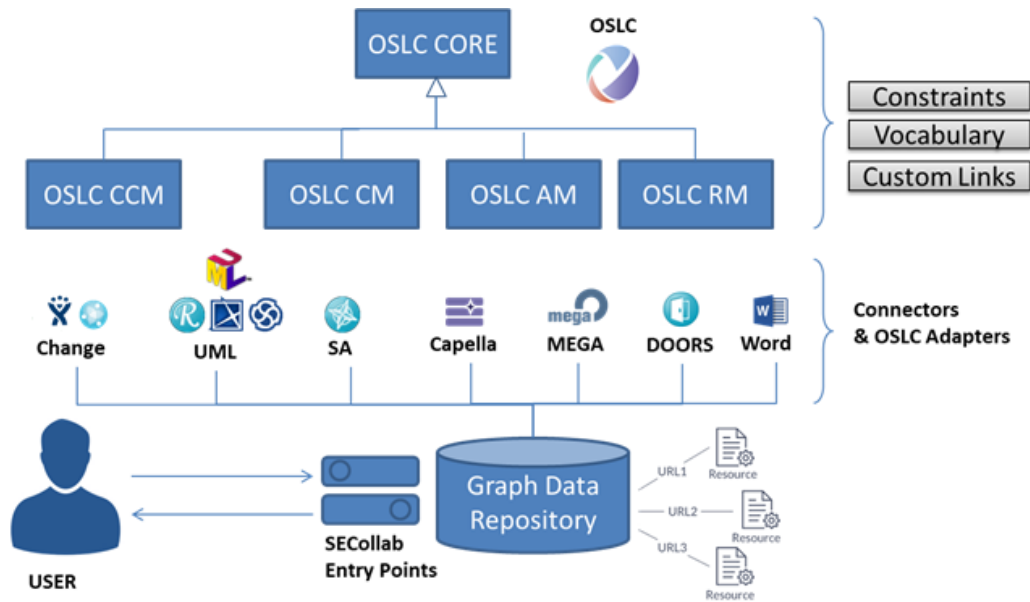


- SECollab enables a **unified context** across the set of disconnected engineering tools. Successive models versions are published in a **configured repository** managing **streams and baselines**.
- You can **publish a new version or update an existing version** of any resource set.
- All **changes are historized** and our **model diff view** displays all differences for resource, diagram, property and relationship elements.
- Added, deleted or modified elements are **highlighted and colored** on changed diagrams.

The screenshot shows the SECollab v2.0 Demo interface. The main window displays a model diff view for 'Design In-Flight Entertainment System'. The interface is divided into several sections:

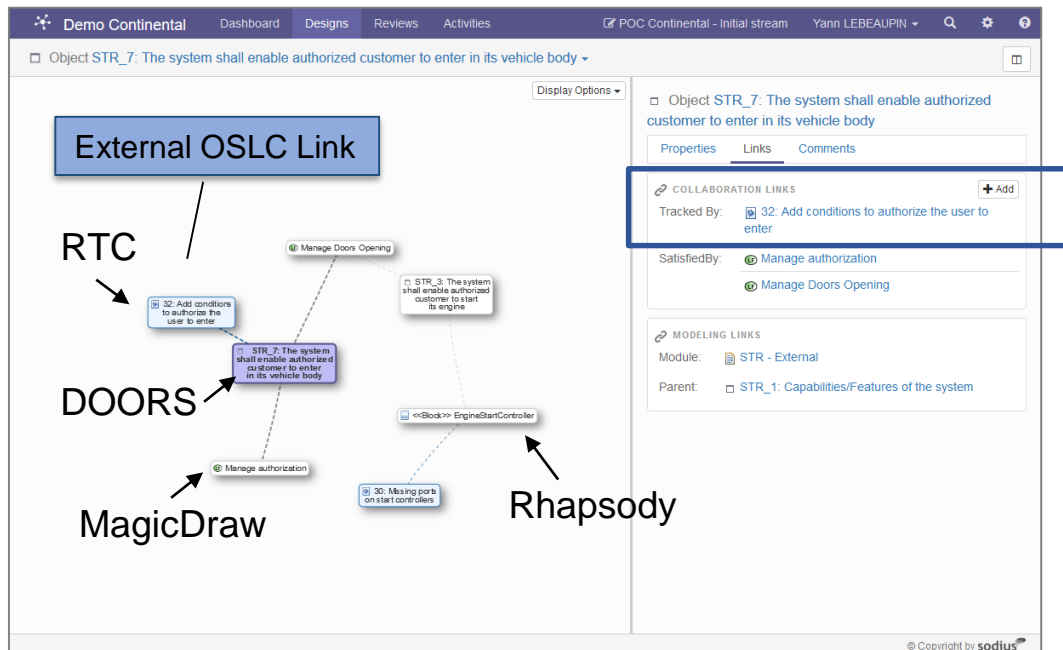
- Resources:** A list of resources on the left, including 'Internet Access', '[OABD] All Activities', '[OAB] All Operational Activities and Entities', '[OAB] High-Level Expected Activities', 'Browse the Internet', 'Buy Duty Free', 'Provide Internet Access', 'Use Entertainment Services', 'Passenger', and 'Cruising'. A 'Commented' filter is set to 'All'.
- Model Diff View:** The central area shows a comparison between two versions of the model. Elements are highlighted in different colors to indicate changes: red for removed elements, green for added elements, and yellow for modified elements. A 'Removed Elements' box highlights a red box around the 'Browse the Internet' activity in the left version. An 'Added Elements' box highlights a green box around the 'Buy Duty Free' activity in the right version.
- Annotations:** Several callout boxes provide additional information:
  - 'Filter on already reviewed (commented) elements' points to the 'Commented' filter.
  - 'List of changes between 2 versions (modified, added, removed)' points to the resource list.



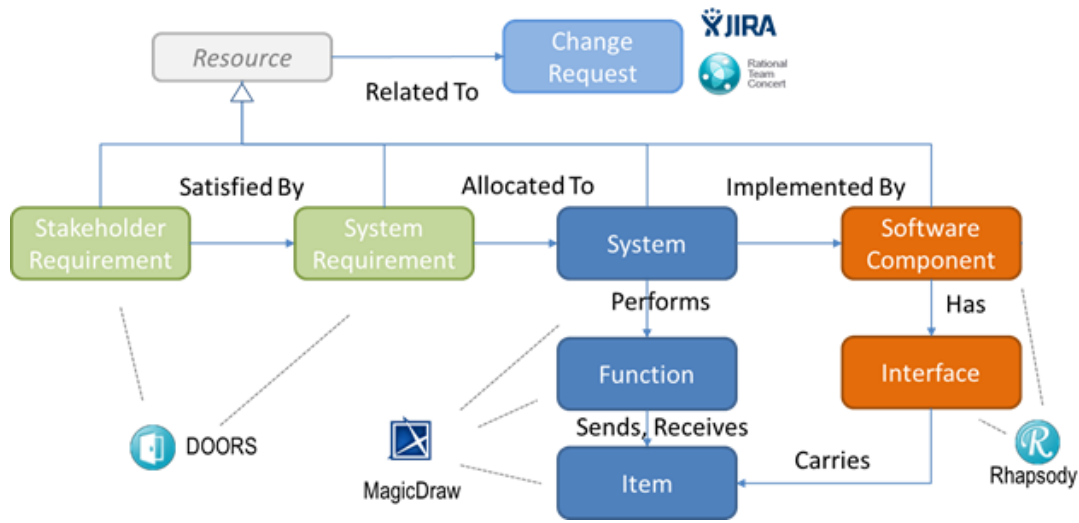


# OSLC-enabled Repository

- SECollab provides a **configured repository with OSLC native support**
- Acting both as **OSLC Consumer & Provider**, each individual design artifact is accessible and linkable with others resources (internally or externally with friended OSLC applications)
  - IBM ELM
  - Jira
  - Polarion

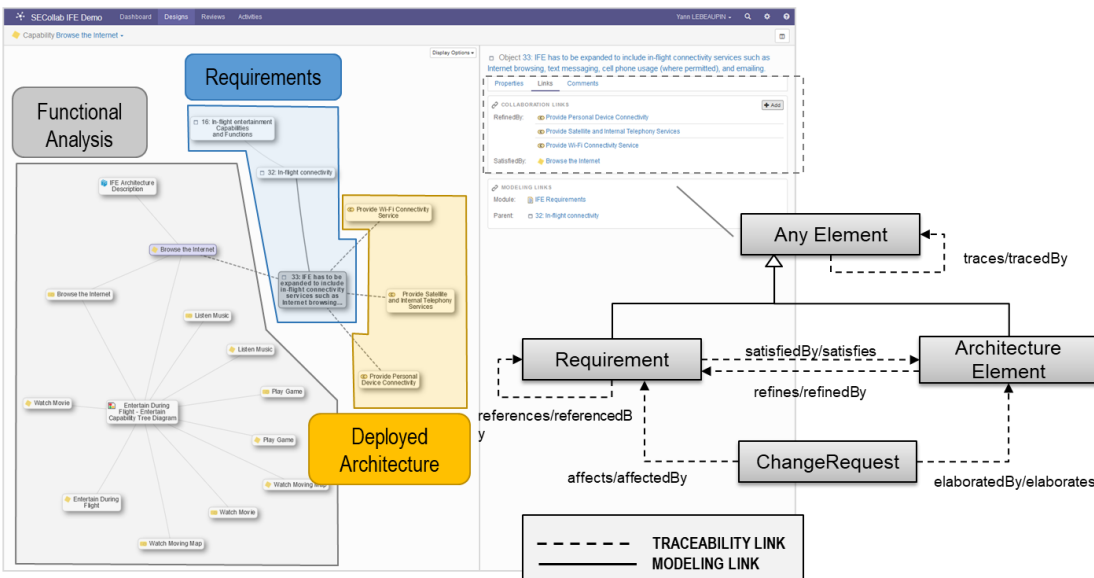


# Manage links & types across your unified ontology



- SECollab helps you to define a **transversal architecture model by specifying your own business ontology** above the heterogenous data coming from the published tools.

- You can **abstract your business/domain concepts**, additionally to the tools ones by adding **custom types, queries and links** over the published artifacts



- **Types** will be defined to strongly type your concepts (your "root" business objects)
- **Links** will be constrained by those new Types, defining the relationships between them
- **Queries** can be defined and executed over the whole Graph Database resources and links (checking constraints on types, properties of resources and relationships)



# Reporting Capabilities

SECollab  
Semantic Federation Platform

Dashboard EOS - Initia

### 1 - System Requirements/System Architecture Traceability

System Requirements must be linked to (SatisfiedBy) System Architecture elements.

Legend  
■ Matching  
■ Not Mat...

Show / Hide Details

- EOS\_SSS\_42: When a specific Search and rescue pattern is initiated by the navigation system, the EOS shall begin scanning patterns with the parameters defined by the navigation system.
- EOS\_SSS\_43: The EOS mode management system shall provide a scanning mode utilizing the variables provided by the navigation system when the navigation system initiates a search and rescue pattern.
- EOS\_SSS\_53: The EOS shall transmit video to the main display via SMPTE interface.
- EOS\_SSS\_59: The EOS shall communicate with the navigation system via MIL-STD-1553B interface.
- EOS\_SSS\_60: The EOS shall receive power via the 400Hz bus on the craft.
- EOS\_SSS\_61: The EOS shall transmit and receive status and faults from the system management system via MIL-STD-1553 Interface.
- EOS\_SSS\_44: The EOS shall provide video feed to the main display as a means of synthetic vision for ...
- EOS\_SSS\_64: The EOS shall receive the navigation system mode to determine the scanning mode.
- EOS\_SSS\_56: The EOS video processing system shall receive the synthetic vision system mode from the display system selection and return with the video feed of the selected mode.
- EOS\_SSS\_63: The EOS shall receive the synthetic vision mode selection from the main display.
- EOS\_SSS\_62: The EOS shall receive power from the aircraft main power bus.

### 2 - System Architecture/Software Design Traceability

System Elements have to be traced to Software Component blocks

Legend  
■ Matching  
■ Not Mat...

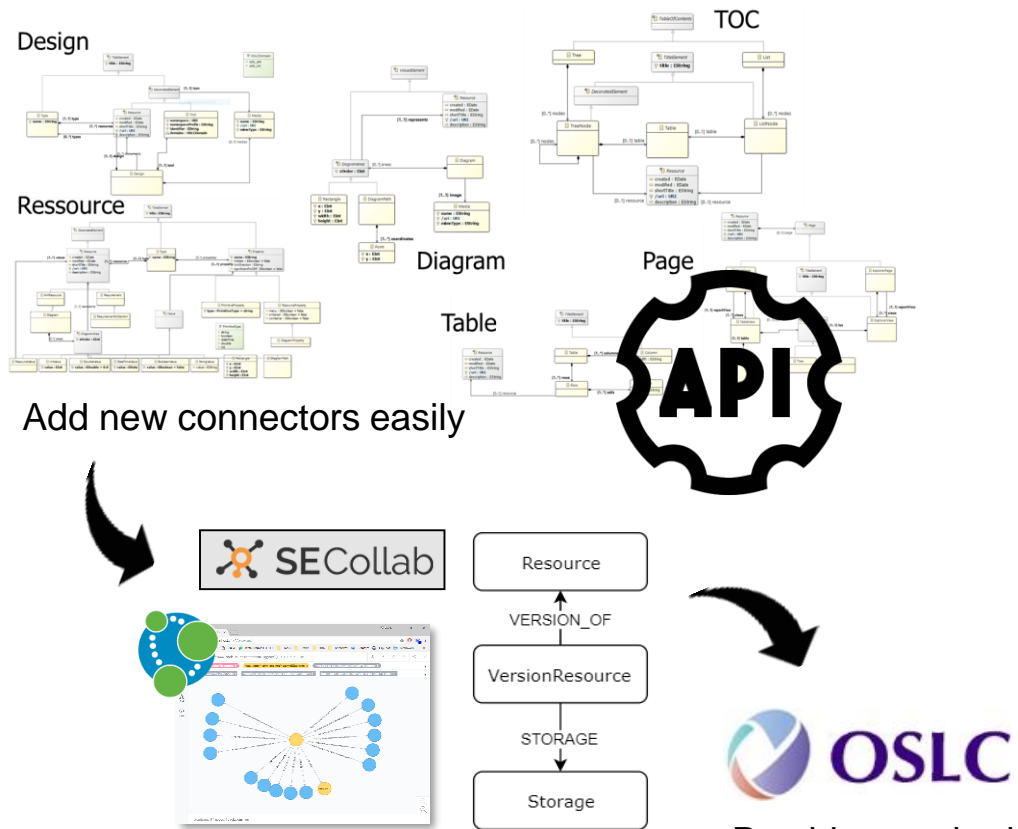
Show / Hide Deta

✓ Set up **summary reports/dashboards** including **metrics** defined in relation to the objectives/data of the review

Requirement  
satisfiedBy = SYS.3 BP6  
System  
Compliance Standard

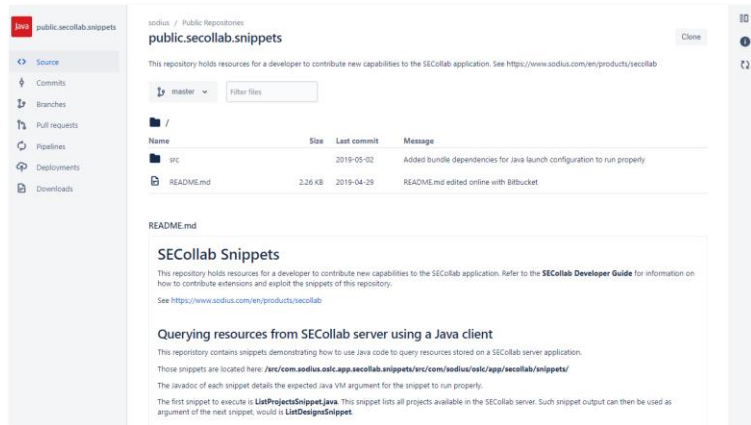
- Monitor your compliance using **real time reporting**
  - Automatic building of **web reports**
  - Based on **queries exploring the graph**
  - Various display patterns (coverage, lists of filtered objects, trends, etc.)
  - Drill-down access to assets
- Export **Reviews and Model Content** extracts into **PDF or Word** documents





# SDK and APIs

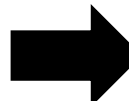
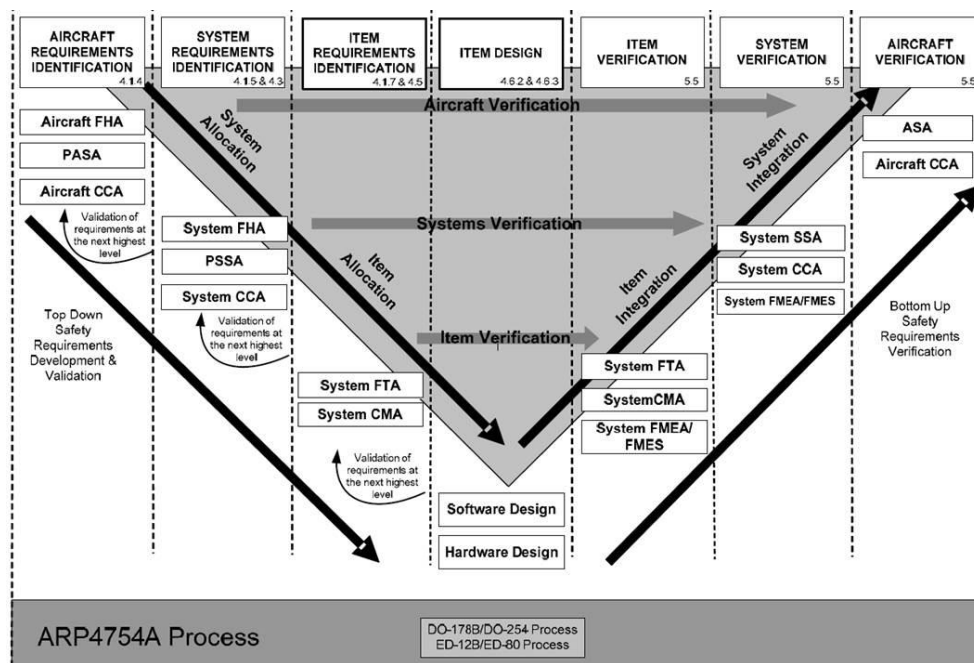
- Fully documented **Java SDK for Publication**
- **OSLC REST APIs** to access information remotely
- Complete examples and snippets available from our public Git repository



# AIDA Use Case

Implementing "SESA Traceability Plan with SECollab"

(SE Systems Engineering / SA Safety Assessment Data Aggregation Use Case)



The screenshots show the SECollab software interface. The top screenshot displays the 'Physical Function Breakdown (PFBD) Active Functions' for 'Project AIDA'. It shows a hierarchical tree of functions and their associated resources. The bottom screenshot shows the 'AC-3 is VerifiedBy' results, including a pie chart and a table of verification metrics.

AC-3 traceTo	FC01	FC02	FC03	FC04	FC05
[SF1] Control drone propulsion	2	✓	✓	4	2
[SF2] Control drone attitude and position	3	✓	✓	✓	✓
[SF3] Provide drone navigation data	3	✓	✓	✓	✓
[SF4] Control drone navigation	3	✓	✓	✓	✓
[SF6] Manage mission	2	✓	✓	✓	✓
[SF7] Monitor drone control	3	✓	✓	✓	✓

# Overview

- Demonstrates links import, update and visualization between Capella (Architecture/Requirement) and Safety artefacts (Failure Condition)
  - **AC-3 isVerifiedBy:** displays links between Capella Physical Function and Excel Failure Condition resources
  - **AC-4 tracedTo:** displays links between Excel Assumption and Excel Failure Condition resources
  - **AC-5 isVerifiedBy:** displays links between Excel Assumption and Capella Aircraft Specification resources
  - **AC-7 isAllocatedAndRefinedInto:** displays links between Capella Requirement and Capella Sub-System Requirement resources
  - **AC-8 isRefinedInto:** displays links between Capella System Function and Capella Aircraft Architecture Artefact resources
  - **AC-9 isRefinedInto:** displays links between Excel Failure Condition and Excel PASA Result resources
  - **AC-10 isAnalysedBy:** displays links between Capella Physical Function and Excel Failure Condition (FTA Failure Condition and PASA Result) resources
  - **AC-11 allocate:** displays links between Excel PASA Result and Excel (New) Safety Requirement resources








# Demo Environment

- SECollab 4.0.0 (Official Release March 2023)
- Capella 5.2.0 :  
<https://www.eclipse.org/downloads/download.php?file=/capella/core/products/releases/5.2.0-R20211130-125709>
- Capella Add-ons :
  - Requirements 0.12.3 : <https://download.eclipse.org/capella/addons/requirements/dropins/releases/0.12.3/>
  - Mass viewpoint 5.0.0 :  
<https://download.eclipse.org/capella/addons/basicmass/dropins/releases/5.0.0/BasicMass-dropins-5.0.0.202012150812.zip>
- Excel





# Capella/Excel Data

- Capella : AIDA Model (v2)  
<https://www.eclipse.org/downloads/download.php?file=/capella/core/products/releases/5.2.0-R20211130-125709>
- Capella Add-ons :
  - Requirements 0.12.3 : <https://download.eclipse.org/capella/addons/requirements/dropins/releases/0.12.3/>
  - Mass viewpoint 5.0.0 :  
<https://download.eclipse.org/capella/addons/basicmass/dropins/releases/5.0.0/BasicMass-dropins-5.0.0.202012150812.zip>
- Excel Data
  -  SESA Traceability Matrices – UC Aida-Artefacts-AFHA-Assumption-v2.xlsx
  -  SESA Traceability Matrices – UC Aida-Artefacts-FC-v2.xlsx
  -  SESA Traceability Matrices – UC Aida-Artefacts-PASA-Results-v2.xlsx
  -  SESA Traceability Matrices – UC Aida-Artefacts-SystemNewSafetyReqs-v2.xlsx
- Links as SECollab Excel Traceability file (Link Import Format)
  -  SESA Traceability Matrices – UC Aida-Links-v2.xlsx



# Demo Scenario

## 1. Import Data

- Publish Capella
- Publish Excel files

## 2. Project Template Focus (Administration)

- Types/Links/Reports definition

## 3. Import Traceability Links

- Import Traceability File (as Excel file)

## 4. Visualize Traceability

- WEB reports



# SECollab Project – Publish Capella

- Publish Capella to SECollab using integrated plugin

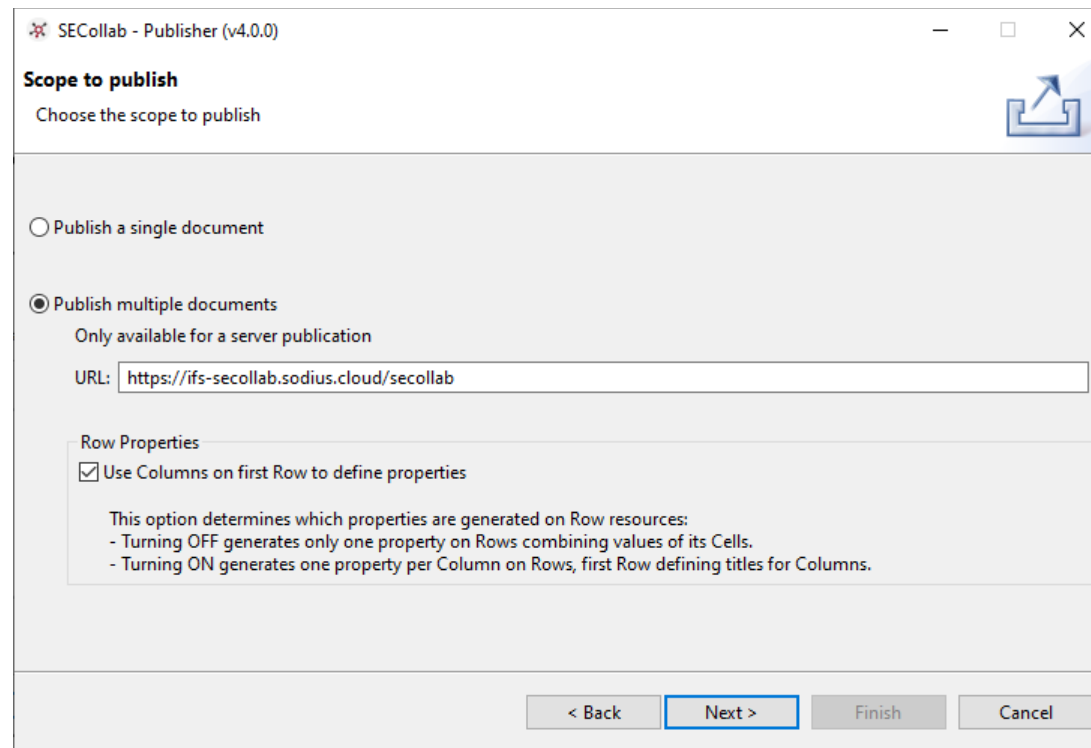
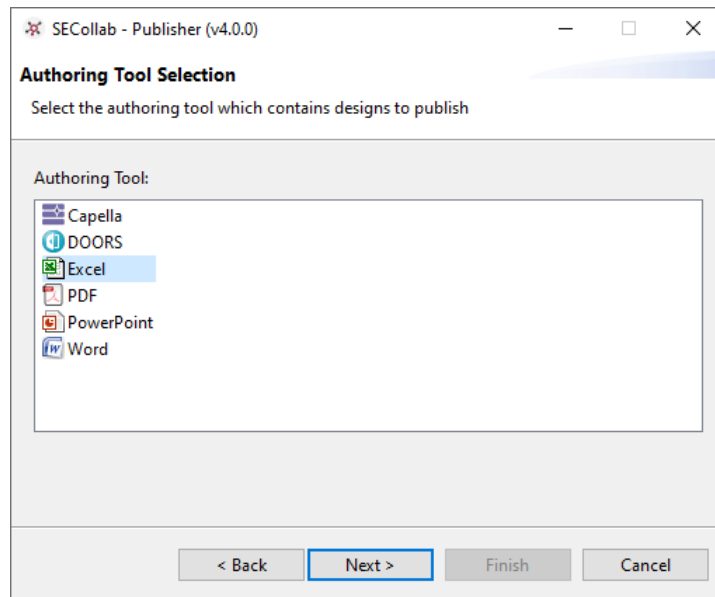
The screenshot illustrates the process of publishing a Capella model to SECollab. The main workspace shows a complex system functional dataflow diagram with components such as [DB] Store missions data, [SysFun\_2] Define mission, [SysFun\_4] Control drone motion, and [ENV] Generate environment conditions. An 'Export' wizard is open, with 'Export Capella to SECollab' selected. A separate dialog box titled 'Publish Capella to SECollab' is shown, allowing the user to select the Capella resources to export. The 'Capella resources selection' dialog lists the following resources:

- Common
  - Component Exchanges Scenario
  - Functional Chain Description
  - Functional Scenario
  - Mode State Machine
- Operational Analysis
  - Operational Activity Interaction Blank
  - Operational Capabilities Blank
  - Operational Entity Blank
  - Operational Process Description
- System Analysis
  - Logical Architecture
  - Physical Architecture



# SECollab Project – Publish Excel

- Publish Excel to SECollab using Excel Publisher



# SECollab Project – Inspect Published Data

- SECollab Project contains SESA Traceability Data

The screenshot displays the SECollab project interface. The top navigation bar includes 'Demo SESA Traceability', 'Dashboards', 'Designs', 'Reports', and 'Activities'. The user is logged in as 'Bob B' and is viewing the 'Designs' section. The left sidebar shows a tree view with 'Non classés', 'SESA Traceability', 'Capella', and 'Excel'. Under 'Capella', the 'AIDA' design is selected. The main content area shows the 'Properties' panel for the 'AIDA' design, with the following details:

Property	Value
Title	AIDA
Created	by Bob B on 1/26/23, 16:31:44
Modified	by Bob B on 1/26/23, 16:31:44
Tool	Capella

The 'Design content' panel shows the title 'AIDA' and a 'Collaboration links' section with a '+ Add' button. Below the links section, it states 'There is currently no links on this artifact'. The interface also includes buttons for 'Refresh', 'Import a Design', 'Generate a report', 'History', and 'Delete'.



Module Aircraft external needs (SE).xlsx -

Aircraft external needs (SE) History

Aircraft external needs (SE)

A	B	C
ID	Description	Typ
[AIDA_UserNeed_1]	The AIDA system shall provide the following information to assistate the pre-flight check process : - pictures and videos of the various inspection points as defined in standard pre-flight check procedure - analysis of the compliance of the aircraft state, and detection of the deviations - analysis of the icing state of the aircraft	Airc exte (SE)
[AIDA_UserNeed_2]	The AIDA system shall be an Unmanned Aircraft System concept.	Airc exte (SE)
[AIDA_UserNeed_3]	The AIDA system shall realize the aircraft inspection in the timeframe of a typical walk-around procedure.	Airc exte (SE)
[AIDA_UserNeed_4]	The AIDA system shall realize the Pre-Flight check of a civil aircraft in the typical environment of a commercial airport gate. The following operations may take place at the same time : passengers and cargo loading and unloading, fuel servicing, cleaning, food servicing, de-icing.	Airc exte (SE)
[AIDA_UserNeed_5]	The AIDA system shall realise the aircraft inspection in the following environmental conditions : - day or night - limited wind (<20kt TBC) - no precipitations (rain, snow, hail,...)	Airc exte (SE)
[AIDA_certif_1]	The AIDA system shall comply with the following UAS applicable rules : - Commission Implementing Regulation 2019/947 of 24 May 2019 on the rules and procedure for the operations of unmanned aircraft, amended by Commission regulation 2020/639 - Commission delegated regulation 2019/945 of 12 march 2019 on unmanned aircraft systems and on thrid country operators of unmanned aircraft systems, amended by Commission regulation 2020/746 - SC-RPAS1309-03 Special condition Equipment, systems and installations	Airc exte (SE)

Ligne

Properties | Links | Comments

Attributs Standards

Titre: [AIDA\_UserNeed\_1] (Ligne 2)

Attributs de feuille

ID: [AIDA\_UserNeed\_1]  
 Description: The AIDA system shall provide the following information to assistate the pre-flight check process : - pictures and videos of the various inspection points as defined in standard pre-flight check procedure - analysis of the compliance of the aircraft state, and detection of the deviations - analysis of the icing state of the aircraft  
 Type: Aircraft external need (SE)

# SECollab Project – Configure Link Import

- SECollab Project is configured with a custom template defining :
  - SESA Ontology
    - Types : Physical, System Function, Failure Condition, Requirement, etc.
    - Links : AC-3, AC-4, AC-5, AC-7, AC-8, AC-9, AC-10, AC-11 Links between specific types
  - SESA Traceability Web Report
    - Metrics (Pie-Chart) for each AC-xxx view
  - SESA Traceability Import Configuration : link import configuration from Excel file



# Links and Custom Types in SECollab

The image displays two screenshots from the SECollab application. The top screenshot shows the 'Link Types' configuration page. The left sidebar lists various project settings, with 'Link Types' selected. The main area shows a table of 'Collaboration Links' with columns for 'Disable link', 'Title', 'Name', 'Source Type', 'Target Type', 'Opposite Of', and 'Direction'. A specific link is highlighted with a blue box: 'AC-3 isVerifiedBy' with source type 'Capella Physical Function' and target type 'SA Failure Condition'. The bottom screenshot shows the 'Resource Types' configuration page. The left sidebar lists various project settings, with 'Resource Types' selected. The main area shows a list of resource types, with 'Capella Physical Function' highlighted. The right sidebar shows the configuration for this resource type, including 'Title', 'Name', 'Description', 'Type' (Architecture Resource), 'Tool' (Capella), and 'Query' (dcterms:type = "PhysicalFunction").

**Link Types Configuration:**

Collaboration Links	Properties
AC-10 analyses (FTA)	Disable link <input type="checkbox"/>
AC-10 isAnalysedBy (FTA)	Title: AC-3 isVerifiedBy
AC-11 Allocate	Name: ac-3_isverifiedby
AC-11 isAllocated	Source Type: Capella Physical Function
AC-3 isVerifiedBy	Target Type: SA Failure Condition
AC-3 verifies	Opposite Of: AC-3 verifies
AC-4 tracedTo	Direction: <input checked="" type="radio"/> Outgoing <input type="radio"/> Incoming
AC-4 traces	
AC-5 isVerifiedBy	
AC-5 verifies	
AC-7 allocatesAndRefines	
AC-7 isAllocatedAndRefinedInto	
AC-8 isRefinedInto	
AC-8 refines	
AC-9 isRefinedInto	
AC-9 refines	
Affected By	
Affected By Defect	
Affects Plan Item	

**Resource Types Configuration:**

Use this page to manage custom resource types. A resource type is a definition for a group of objects that serve a similar function. It can be used as the source or the target of custom link types or queries.

**Capella Physical Function Resource Type Configuration:**

- Title: Capella Physical Function
- Name: CapellaPhysicalFunction
- Resource type's identifier: Resource type's identifier
- Description: Description
- Type: Architecture Resource
- Tool: Capella
- Query: dcterms:type = "PhysicalFunction"

Note : opposite links have been defined in SECollab (even if not imported from Excel file, it allows bi-directional navigation in the SECollab application)





# Define Traceability Model

- SECollab Feature
  - Import traceability plan as Excel file
  - One sheet per Source Design/Target Design
  - Sheet Format : ID Source – Outgoing Link Name(s) – ID Target
    - Link name needs to be the “technical” one defined for the custom link in SECollab

	A	B	C	D
1	LHS ID (AFHA Assumption Id)	Links (Internal Outgoing Link)	RHS ID (Aircraft specification Id)	
2	FHA_Ass1	ac-5_isverifiedby	0922e2b7-3e79-4519-a026-018c1fa908d7	
3	FHA_Ass1	ac-5_isverifiedby	263f3408-eaf8-43f1-8649-77f819b782b2	
4	FHA_Ass1	ac-5_isverifiedby	8a19701e-f284-4998-be02-e928f328e10d	
5	FHA_Ass1	ac-5_isverifiedby	40de6da2-7c73-4f86-93d6-e70724e98c63	
6	FHA_Ass1	ac-5_isverifiedby	7020056b-6aad-4ee9-9b81-7d2e75e46944	
7	FHA_Ass1	ac-5_isverifiedby	ea11ec9-240c-460f-99dc-89f6bf77db03	
8	FHA_Ass1	ac-5_isverifiedby	de30b484-5d6b-42f0-b7b6-c59887648314	
9	FHA_Ass1	ac-5_isverifiedby	7020056b-6aad-4ee9-9b81-7d2e75e46944	
10	FHA_Ass1	ac-5_isverifiedby	ea11ec9-240c-460f-99dc-89f6bf77db03	
11	FHA_Ass1	ac-5_isverifiedby	9db420ce-ab5d-4f5b-b2b0-f17517c7637b	
12	FHA_Ass1	ac-5_isverifiedby	2c7c43ef-e69c-4d5a-86f0-5c5f129e3e6d	
13	FHA_Ass2	ac-5_isverifiedby	-	
14	FHA_Ass3	ac-5_isverifiedby	2801b509-9826-468c-9a41-c1c5e23889	
15	FHA_Ass4	ac-5_isverifiedby	add61b1a-63c0-4430-80f4-afccc2fb4b0b	
16	FHA_Ass4	ac-5_isverifiedby	8292695c-d893-4b6a-94c5-ecc44cb1baf7	
17	FHA_Ass4	ac-5_isverifiedby	5b839055-eb1e-4d14-90ef-dfac79dba5d6	
18	FHA_Ass4	ac-5_isverifiedby	4f0ad947-a741-4c35-9adb-ed780eb3c6be	
19	FHA_Ass4	ac-5_isverifiedby	5b839055-eb1e-4d14-90ef-dfac79dba5d6	
20	FHA_Ass5	ac-5_isverifiedby	0922e2b7-3e79-4519-a026-018c1fa908d7	
21	FHA_Ass5	ac-5_isverifiedby	263f3408-eaf8-43f1-8649-77f819b782b2	
22	FHA_Ass5	ac-5_isverifiedby	40de6da2-7c73-4f86-93d6-e70724e98c63	
23	FHA_Ass5	ac-5_isverifiedby	8a19701e-f284-4998-be02-e928f328e10d	
24	FHA_Ass5	ac-5_isverifiedby	de30b484-5d6b-42f0-b7b6-c59887648314	
25	FHA_Ass6	ac-5_isverifiedby	add61b1a-63c0-4430-80f4-afccc2fb4b0b	
26	FHA_Ass6	ac-5_isverifiedby	8292695c-d893-4b6a-94c5-ecc44cb1baf7	
27	FHA_Ass6	ac-5_isverifiedby	5b839055-eb1e-4d14-90ef-dfac79dba5d6	
28	FHA_Ass6	ac-5_isverifiedby	4f0ad947-a741-4c35-9adb-ed780eb3c6be	
29	FHA_Ass6	ac-5_isverifiedby	ee2cf6ae-dca2-4772-9b0e-cc453e7c7ffd	
30	FHA_Ass6	ac-5_isverifiedby	ee2cf6ae-dca2-4772-9b0e-cc453e7c7ffd	
31	FHA_Ass6	ac-5_isverifiedby	0a2f97d8-2973-4e93-bcb0-d8383c49ccd7	
32	FHA_Ass6	ac-5_isverifiedby	9aa4ac34-058c-48fe-87ba-064807318c19	
33	FHA_Ass7	ac-5_isverifiedby	add61b1a-63c0-4430-80f4-afccc2fb4b0b	
34	FHA_Ass7	ac-5_isverifiedby	df53dafa-17f1-4ac2-bc92-1a1034a38b21	
35	FHA_Ass7	ac-5_isverifiedby	4f0ad947-a741-4c35-9adb-ed780eb3c6be	
36	FHA_Ass8	ac-5_isverifiedby	add61b1a-63c0-4430-80f4-afccc2fb4b0b	
37	FHA_Ass8	ac-5_isverifiedby	df53dafa-17f1-4ac2-bc92-1a1034a38b21	
38	FHA_Ass8	ac-5_isverifiedby	4f0ad947-a741-4c35-9adb-ed780eb3c6be	
39	FHA_Ass8	ac-5_isverifiedby	0a2f97d8-2973-4e93-bcb0-d8383c49ccd7	
40	FHA_Ass9	ac-5_isverifiedby	add61b1a-63c0-4430-80f4-afccc2fb4b0b	
41	FHA_Ass9	ac-5_isverifiedby	df53dafa-17f1-4ac2-bc92-1a1034a38b21	
42	FHA_Ass9	ac-5_isverifiedby	4f0ad947-a741-4c35-9adb-ed780eb3c6be	
43	FHA_Ass10	ac-5_isverifiedby	263f3408-eaf8-43f1-8649-77f819b782b2	
44	FHA_Ass10	ac-5_isverifiedby	8a19701e-f284-4998-be02-e928f328e10d	



# Link Import Template

- Once links defined, link import template can be defined to import (and update) thousand of links in one single operation
- Defining Excel sheets
  - Link + Source Design / Target Design mapping
  - The column used to map element is mapped in this file to the expected ID property

The screenshot displays the 'Import of links' page in the 'Demo SESA Traceability' application. The left sidebar shows a navigation menu with categories like PROJECT, ASSOCIATIONS & PUBLICATIONS, LINKS & RESOURCES, REPORT TEMPLATES, TEMPLATES, IMPORT & EXPORT, and DATA ADMINISTRATION. The 'Import of links' option is highlighted under the 'IMPORT & EXPORT' category.

The main content area is titled 'Import of links' and contains a list of traceability templates under the heading 'SESA Links Import'. The templates listed are AC10 (FC), AC-8, AC-11, AC-5, AC-10 (PASA Results), AC-3 (highlighted), AC-9, AC-7, and AC-4. Each template has a trash icon next to it.

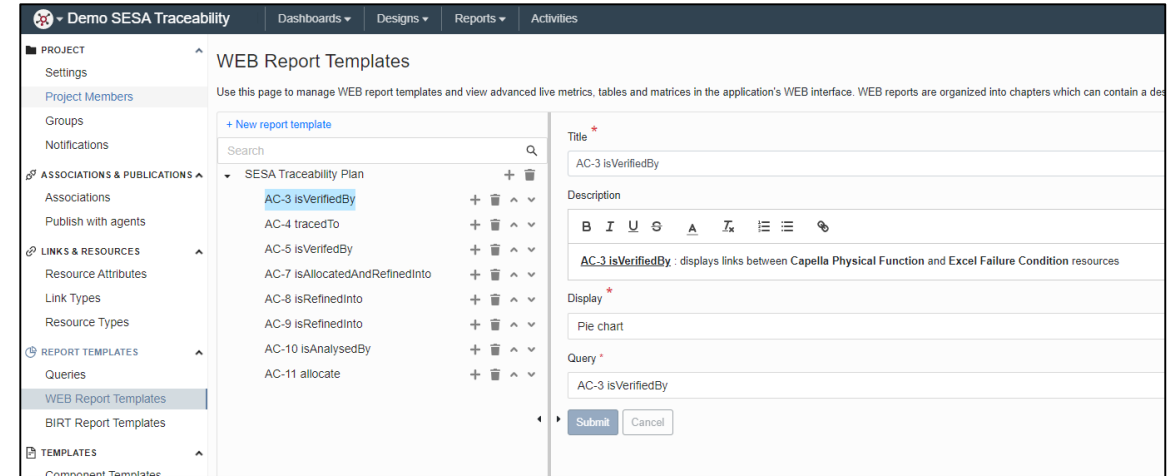
The right-hand side of the interface shows the configuration form for the selected 'AC-3' template. The form includes the following fields and options:

- Title**: AC-3
- Description**: (Empty text area)
- Excel sheet name**: AC3
- Supported Links**: AC-3 IsVerifiedBy (Capella Physical Function -> SA Failure Condition)
- Source**: (Empty text area)
- Tool**: Capella
- Design**: AIDA
- Root container**: AIDA
- Attribute**: Id (selected from a dropdown menu)

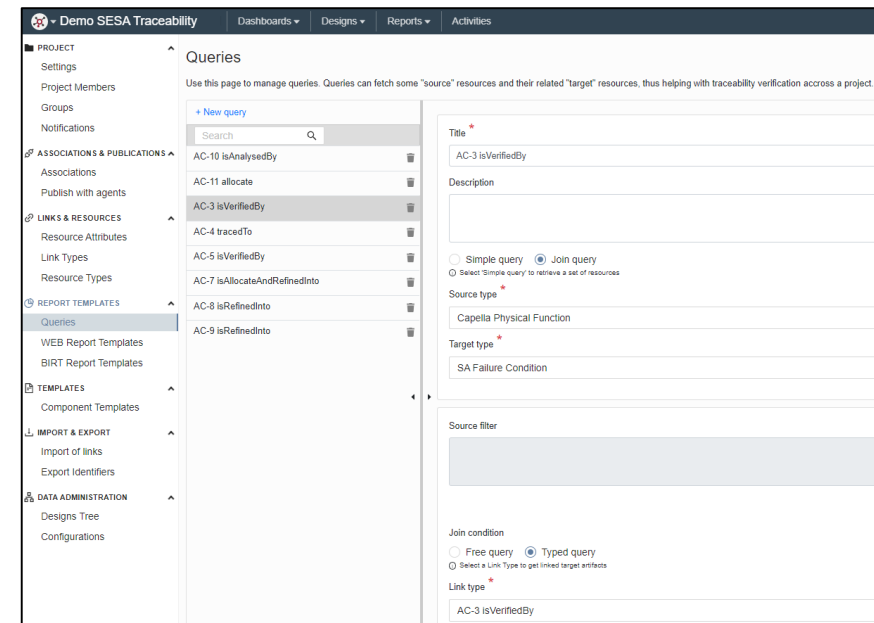
The dropdown menu for the Attribute field shows the following options: Id, Relation type proxy, ReqIF description, ReqIF identifier, and ReqIF long name.

# Reporting on Traceability

- To ease control of imported link, specific coverage web reports can be define and shared between projects



- A report has been defined to display a coverage pie-chart for each link type



# Importing Links

- From the Designs List page, authorized users (specific permission) can import Link Import Excel file

The screenshot displays the 'Designs' page in the SESA Traceability application. The interface includes a top navigation bar with 'Demo SESA Traceability', 'Dashboards', 'Designs', 'Reports', and 'Activities'. The main content area is divided into three sections: a left sidebar for design navigation, a central 'Properties' panel, and a right panel for 'Design content' and 'Collaboration links'. The 'Import a Traceability file' button is highlighted with a red box.

**Designs**

Design name...  Filter by tool

- Non classés
- SESA Traceability
  - Capella
    - AIDA
  - Excel
    - SESA Traceability Matrices – UC Aida-Artefacts-AFHA-Assumption-v2.xlsx
    - SESA Traceability Matrices – UC Aida-Artefacts-FC-v2.xlsx
    - SESA Traceability Matrices – UC Aida-Artefacts-PASA-Results-v2.xlsx
    - SESA Traceability Matrices – UC Aida-Artefacts-SystemNewSafetyReqs-v2.xlsx

**Properties**

Title : AIDA  
Created : by Bob B on 1/26/23, 16:31:44  
Modified : by Bob B on 1/26/23, 16:31:44  
Tool : Capella

**Design content**

AIDA

**Collaboration links**

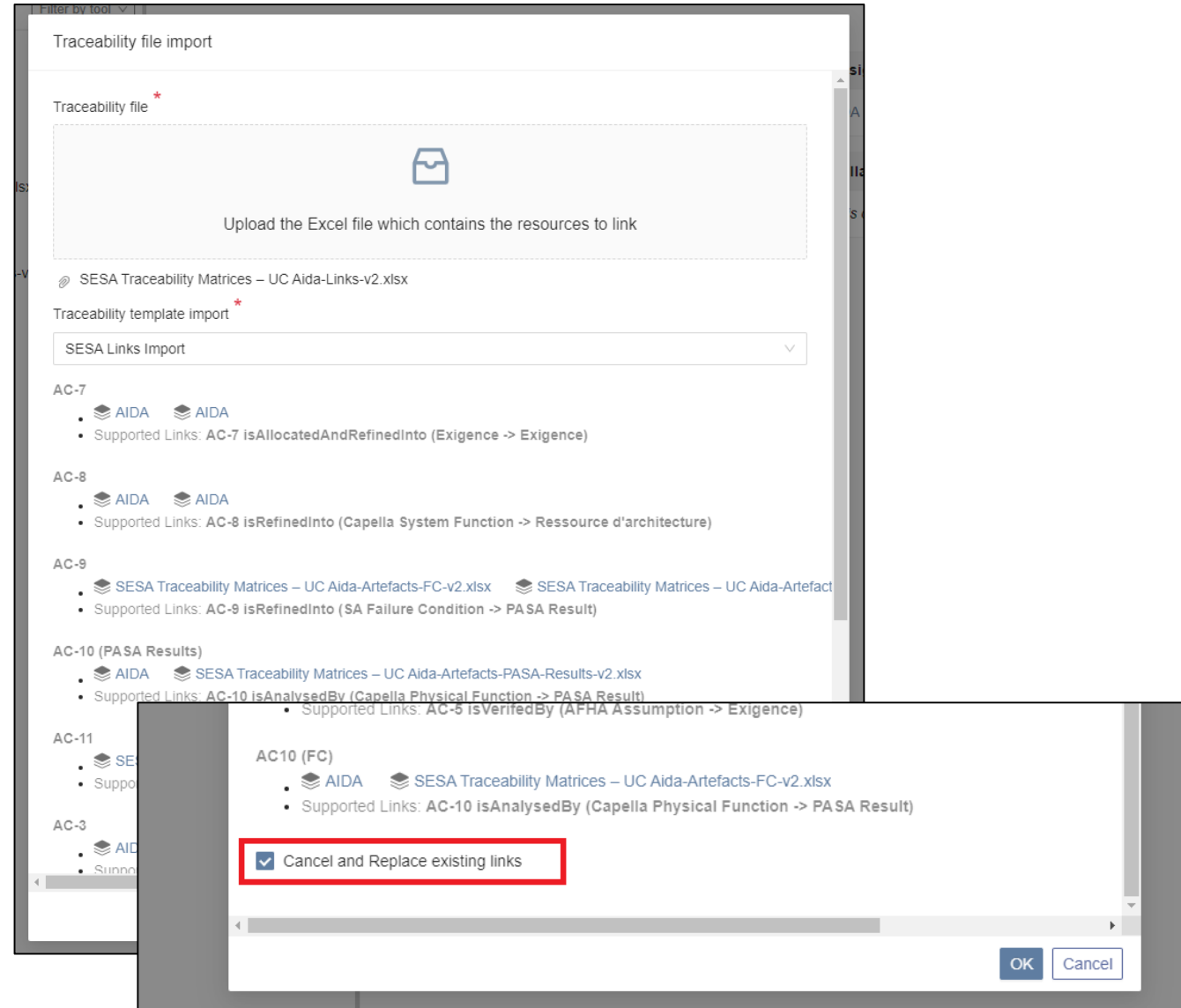
There is currently no links on this artifact

Refresh  Import a Design  Generate a report  **Import a Traceability file**



# Import Traceability

- For each sheet defined in the Traceability template, the Excel file is analysed and matching designs displayed
- An option allows to refresh all links from the imported Excel files



# Results

- Traceability Links are automatically updated from the Excel file. Collaboration links are visible in the Links tab of each design content (Excel or Capella)

The screenshot displays a software interface for 'Demo SESA Traceability'. The main window shows a table of 'AFHAAssumptions' with columns for id, uri, name, type, description, revision, author, date, comment, and domain. The table contains six rows of data. A right-hand pane shows the 'Links' tab for the selected row, displaying 'Collaboration links' such as 'AC-4 tracedTo' and 'AC-5 isVerifiedBy'. A pop-up window titled 'Provide direct remote identification information' is open, showing 'Attributes' and 'Additional information'.

	A	B	C	D	E	F	G	H	I	J	K	L
1		id	uri	name	type	description	revision	author	date	comment	domain	
2	▶	FHA_Ass1	http://s2c/traceabilityPoC/SA/excel/FHA_Ass1	Drone is operated in a zone cleared from flying objects	AFHA Assumption		unknown	S2C Team	2022/12/21 2 0:30:24		SA	
3	▶	FHA_Ass2	http://s2c/traceabilityPoC/SA/excel/FHA_Ass2	The drone operator is not located under the drone flight path	AFHA Assumption		unknown	S2C Team	2022/12/21 2 0:30:25		SA	
4	▶	FHA_Ass3	http://s2c/traceabilityPoC/SA/excel/FHA_Ass3	Drone is operated with a direct line of site from the pilot	AFHA Assumption		unknown	S2C Team	2022/12/21 2 0:30:26		SA	
5	▶	FHA_Ass4	http://s2c/traceabilityPoC/SA/excel/FHA_Ass4	Drone will fall within authorised area if thrust is lost	AFHA Assumption		unknown	S2C Team	2022/12/21 2 0:30:26		SA	
6	▶	FHA_Ass5	http://s2c/traceabilityPoC/SA/excel/FHA_Ass5	Outside authorised operating zone, the drone might hit someone	AFHA Assumption		unknown	S2C Team	2022/12/21 2 0:30:26		SA	

**Collaboration links**

- ▶ AC-4 tracedTo
- ▶ AC-5 isVerifiedBy

**Provide direct remote identification information**

**Attributes**

Titre : Provide direct remote identification information

Additional information : When the drone is in operation, the AIDA system shall broadcast a direct remote identification that: - allows the upload of the UAS operator registration number in accordance with Article 14 of Implementing Regulation (EU) 2019/947 and exclusively following the process provided by the registration system; - ensures, in real time during the whole duration of the flight, the direct periodic broadcast from the UA using an open and documented transmission protocol, of the following data, in a way that they can be received directly by existing mobile devices within the broadcasting range: i the UAS operator registration number; ii the unique physical serial number of the UA compliant with standard ANSII/CTA-2053; iii the geographical position of the UA and its height above the surface or take-off point; iv the route course measured clockwise from true north and ground speed of the UA; and v the geographical position of the remote pilot or, if not available, the take-off point; -ensures that the user cannot modify the data mentioned under points ii, iii, iv and v



# Bi-directional Navigation

- When selecting any link, user can navigate to the target element and visualize opposite direction

The screenshot displays the 'Demo SESA Traceability' application interface. On the left, a 'Collaboration links' panel shows a list of links. The link 'Provide direct remote identification information' is selected and highlighted in blue. A blue arrow points from this link to the main content area. The main content area shows a list of 'SystemFunctionalRequirement' elements. The element 'Provide direct remote identification information' is selected and highlighted in blue. A blue arrow points from this element back to the 'Collaboration links' panel, illustrating the bi-directional navigation. The right side of the interface shows a detailed view of the selected element, including its properties and collaboration links.

Row FHA\_Ass1: Drone is operated in a zone cleared from flying objects (Row 2)

Properties Links

Collaboration links + Add

- AC-4 tracedTo
- FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2)
- FC02: Uncontrolled drone in an authorized area (Row 3)
- Control drone motion - flight plan mode
- Provide drone navigation data - obstacle detection
- Manage mission
- Control drone motion - control modes
- Provide direct remote identification information

SystemFunctionalRequirement

- Analyse acquired visual information
- Control drone motion - attitude stabilisation mode
- Control drone motion - control modes
- Control drone motion - emergency landing
- Control drone motion - flight plan mode
- Control drone motion - position stabilisation mode
- Detect AIDA failures - attitude loss
- Detect AIDA failures - log of events
- Detect AIDA failures - pilot commands loss
- Detect AIDA failures - position loss
- Manage mission
- Provide direct remote identification information
- Provide drone navigation data - aircraft detection
- Provide drone navigation data - attitude and angular rate
- Provide drone navigation data - obstacle detection
- Provide drone navigation data - position and speed

SystemFunctionalRequirement Provide direct remote identification information

Properties Links

Collaboration links + Add

AC-5 verifies

FHA\_Ass1: Drone is operated in a zone cleared from flying objects (Row 2)

Authoring tools relationships

Incoming traces

[SysFun\_1] Provide direct remote identification information -> Provide direct remote identification information

Project

Related capella elements

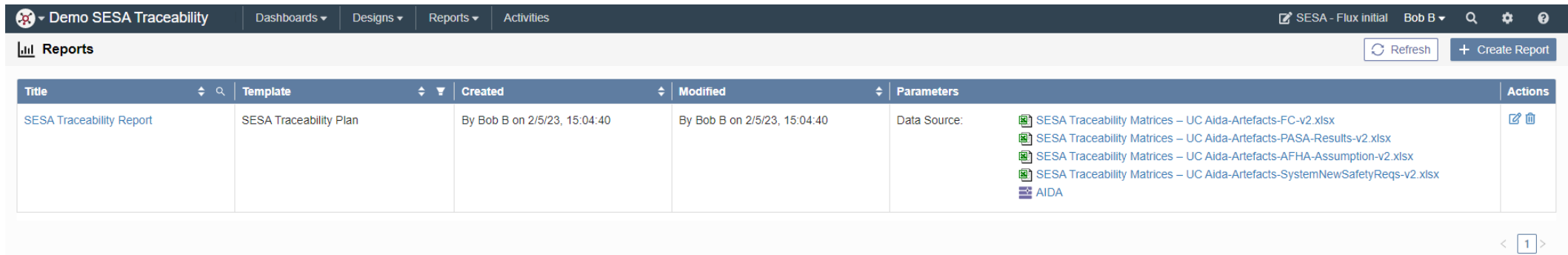
AIDA

[SysFun\_1] Provide direct remote identification information



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# Reporting on Traceability

- The project template has been configured (administration step, stored in a shared template applicable to any new project) to provide a specific web report allowing quick inspection of coverage of imported links.



The screenshot displays a web application interface for 'Demo SESA Traceability'. The top navigation bar includes 'Dashboards', 'Designs', 'Reports', and 'Activities'. The current view is 'Reports', with a 'Refresh' button and a '+ Create Report' button. The main content is a table with the following data:

Title	Template	Created	Modified	Parameters	Actions
SESA Traceability Report	SESA Traceability Plan	By Bob B on 2/5/23, 15:04:40	By Bob B on 2/5/23, 15:04:40	Data Source: <ul style="list-style-type: none"><li>SESA Traceability Matrices – UC Aida-Artefacts-FC-v2.xlsx</li><li>SESA Traceability Matrices – UC Aida-Artefacts-PASA-Results-v2.xlsx</li><li>SESA Traceability Matrices – UC Aida-Artefacts-AFHA-Assumption-v2.xlsx</li><li>SESA Traceability Matrices – UC Aida-Artefacts-SystemNewSafetyReqs-v2.xlsx</li><li>AIDA</li></ul>	 





# Reporting on Traceability Coverage

- Each report chapter displays coverage metrics on the managed views.

The screenshot displays a web application interface for 'Demo SESA Traceability'. The main content area is divided into three sections, each showing a report for a specific Assurance Case (AC):

- AC-3 isVerifiedBy:** Displays links between Capella Physical Function and Excel Failure Condition resources. A pie chart shows 6 (3.8%) Matching (blue) and 152 (96.2%) Not Matching (orange).
- AC-4 tracedTo:** Displays links between Excel Assumption and Excel Failure Condition resources. A pie chart shows 15 (100%) Matching (blue) and 0 (0%) Not Matching (orange).
- AC-5 isVerifiedBy:** Displays links between Excel Assumption and Capella Aircraft Specification resources. A pie chart is partially visible.

On the right side, a table titled 'AC-3 isVerifiedBy (Matching)' lists specific matches between failure conditions (FC) and physical functions (SF):

Title	Matches
(SF1) Control drone propulsion	FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2) FC02: Uncontrolled drone in an authorized area (Row 3)
(SF2) Control drone attitude and position	FC02: Uncontrolled drone in an authorized area (Row 3) FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2) FC03: Loss of drone capability leading to mission abortion (Row 4)
(SF3) Provide drone navigation data	FC03: Loss of drone capability leading to mission abortion (Row 4) FC02: Uncontrolled drone in an authorized area (Row 3) FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2)
(SF4) Control drone navigation	FC04: Loss of drone protection (Row 5) FC03: Loss of drone capability leading to mission abortion (Row 4) FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2)
(SF6) Manage mission	FC03: Loss of drone capability leading to mission abortion (Row 4) FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2)
(SF7) Monitor drone control	FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2) FC02: Uncontrolled drone in an authorized area (Row 3) FC04: Loss of drone protection (Row 5)



# Others Reports

- Matrix or Table views can be defined to visualize specific links and focus on specific type of resources

The screenshot shows a table titled "SESA Traceability Matrices – UC Aida...". It features a "Row filter" and "Column filter" at the top, both with "Edit" buttons. The table has a header row for "AIDA" and a column for "AC-3 isVerifiedBy". The main body of the table contains several rows representing physical functions and their verification status across different categories.

		FC01: Uncontrolled drone (dron...	FC02: Uncontrolled drone in an ...	FC03: Loss of drone capability L...	FC04: Loss of drone protection L...	FC05: Degradation of drone con...	FC06: Incapacity (Row 7)
✓ AC-3 isVerifiedBy	AIDA	6	4	4	2		
[SF1] Control drone propulsion		2	✓	✓			
[SF2] Control drone attitude and position		3	✓	✓	✓		
[SF3] Provide drone navigation data		3	✓	✓	✓		
[SF4] Control drone navigation		3	✓		✓	✓	
[SF6] Manage mission		2	✓		✓		
[SF7] Monitor drone control		3	✓	✓		✓	

The screenshot shows a table titled "All Capella Physical Functions". It features a "Row filter" and "Column filter" at the top, both with "Edit" buttons. The table has a header row for "All Capella Physical Functions" and a column for "AC-3". The main body of the table contains several rows representing physical functions and their verification status across different categories.

		AC-3	AC-10
[SF2.3.3] Control pitch angle			
[SF2.3.4] Control roll angle			
[SF2.3.5] Control yaw angle			
[SF2.3] Control attitude			FC_control_06: Complete loss of thrust due to Flight Control system (Row 13) FC_control_02: Erroneous attitude/altitude control (Row 7) FC_control_03: Erroneous attitude/altitude control combined with incapacity to depower actuators due to Flight control system (Row 8)
[SF2.4.1] Compute attitude consign			
[SF2.4.2] Compute total thrust			
[SF2.4.3] Select total thrust consign			
[SF2.4] Control attitude			FC_control_02: Erroneous attitude/altitude control (Row 7) FC_control_03: Erroneous attitude/altitude control combined with incapacity to depower actuators due to Flight control system (Row 8) FC_control_06: Complete loss of thrust due to Flight Control system (Row 13)
[SF2.5.1] Compute motors expected thrust			
[SF2.5.2] Compute motors speed command			
[SF2.5] Compute motor commands			FC_control_06: Complete loss of thrust due to Flight Control system (Row 13)
[SF2] Control drone attitude and position		FC02: Uncontrolled drone in an authorized area (Row 3) FC01: Uncontrolled drone (drone fly away) in an unauthorized area (Row 2) FC03: Loss of drone capability leading to mission abortion (Row 4)	
[SF3.1.1] Measure drone acceleration			
[SF3.1.2] Measure drone rate			
[SF3.1.3] Measure magnetic north direction			
[SF3.1.4] Measure ground distance			
[SF3.1.5] Measure ambient pressure			
[SF3.1.6] Film ground			
[FC3.1.7] Compute amount error			



# Web Report – Table Template Example

- This table view template displays links for Capella Physical Functions

**WEB Report Templates** Refresh

Use this page to manage WEB report templates and view advanced live metrics, tables and matrices in the application's WEB interface. WEB reports are organized into chapters which can contain a description and a graph based on an existing query and predefined WEB report types.

[+ New report template](#)

Search

**PROJECT**

- Settings
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- Notifications

**ASSOCIATIONS & PUBLICATIONS**

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- Publish with agents

**LINKS & RESOURCES**

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- Resource Types

**REPORT TEMPLATES**

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- BIRT Report Templates

**TEMPLATES**

- Component Templates

**IMPORT & EXPORT**

- Import of links
- Export Identifiers

**DATA ADMINISTRATION**

- Designs Tree
- Configurations

**Traceability View**

**Title \***

Traceability View

**Description**

B I U G A Ix |≡≡ |

Insert text here...

**Display \***

Traceability table

**Query \***

All Capella Physical Functions

**Traceability table**

Column Label	Column Name	Data Source	Query	Actions
AC-3	actree		AC-3 isVerifiedBy	
AC-10	acten		AC-10 isAnalysedBy	

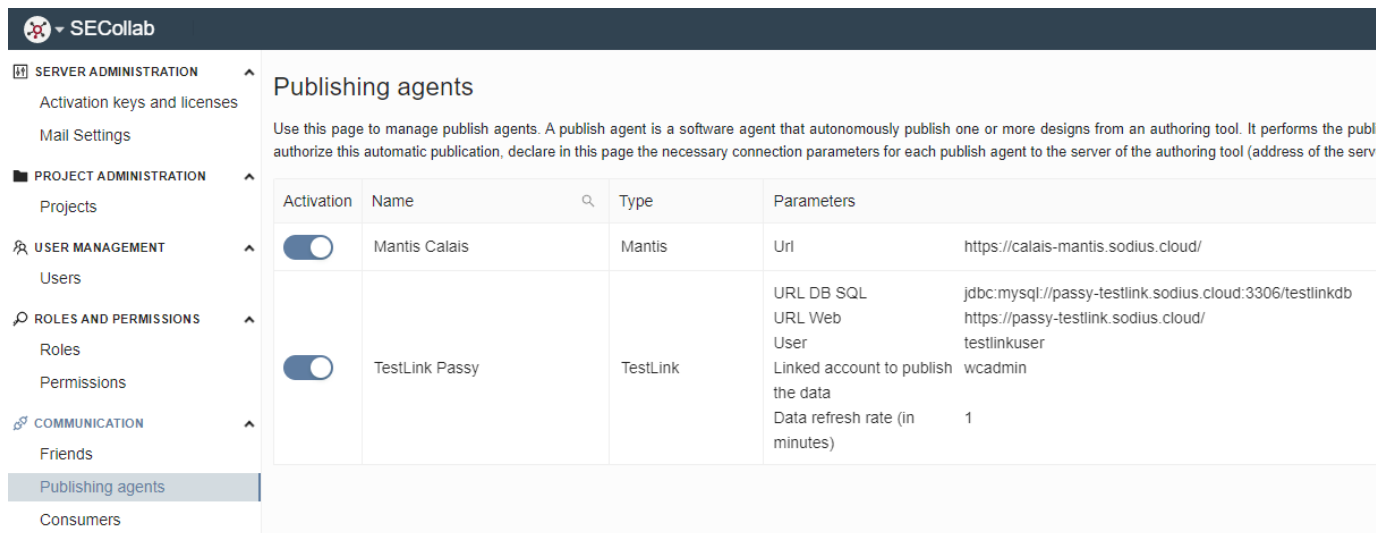
Add Row +

Submit Cancel



# Automation

- The SESA demonstrator for the AIDA Use case demonstrates links import/update/visualization with demo resources of the project.
- In production, link consolidation is usually automated using the Publishing Agent mechanism of SECollab
  - An agent automates publishing or “post-processing” activities when a design (i.e any data published as a SECollab design) is updated
  - It allows processing of consolidated links data (file, metadata, database) to automatically get “up-to-date” links each time an engineering data is refreshed



SECollab

SERVER ADMINISTRATION

- Activation keys and licenses
- Mail Settings

PROJECT ADMINISTRATION

- Projects

USER MANAGEMENT

- Users

ROLES AND PERMISSIONS

- Roles
- Permissions

COMMUNICATION

- Friends
- Publishing agents**
- Consumers

### Publishing agents

Use this page to manage publish agents. A publish agent is a software agent that autonomously publish one or more designs from an authoring tool. It performs the publi authorize this automatic publication, declare in this page the necessary connection parameters for each publish agent to the server of the authoring tool (address of the servi

Activation	Name	Type	Parameters
<input checked="" type="checkbox"/>	Mantis Calais	Mantis	Url https://calais-mantis.sodius.cloud/
<input checked="" type="checkbox"/>	TestLink Passy	TestLink	URL DB SQL jdbc:mysql://passy-testlink.sodius.cloud:3306/testlinkdb URL Web https://passy-testlink.sodius.cloud/ User testlinkuser Linked account to publish wcadmin the data Data refresh rate (in minutes) 1





***The Power of Connected Data***

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