SODIUS
WILLERT

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.

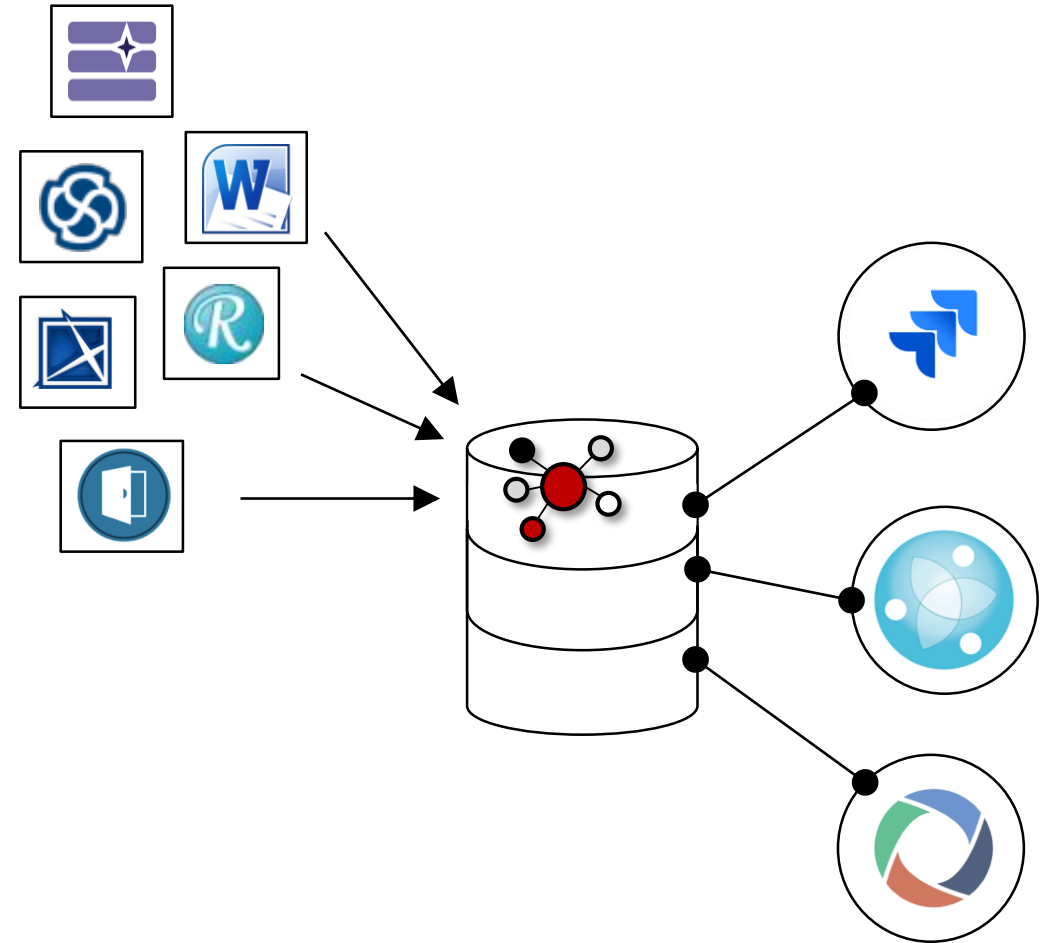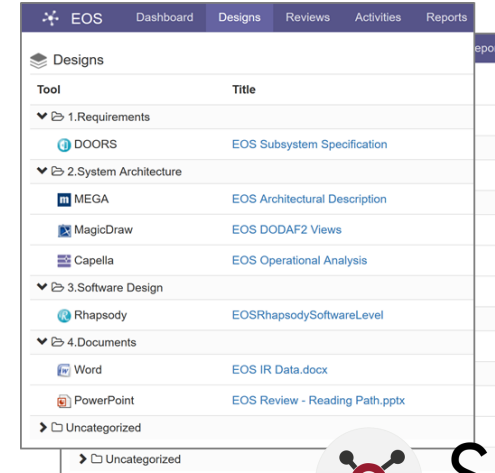| Enterprise Interoperability	Data Sharing & Review	Data Transformation	Code Generation
OSLC Connect	SECollab	Publisher	RXF

SECollab

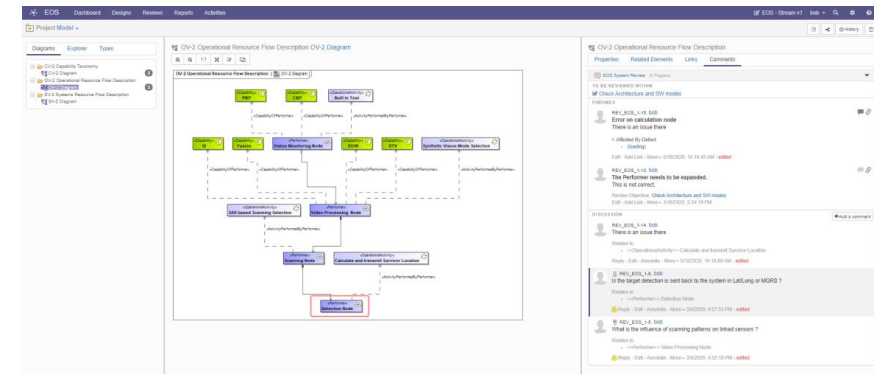**Share and review data or models independent from tools**
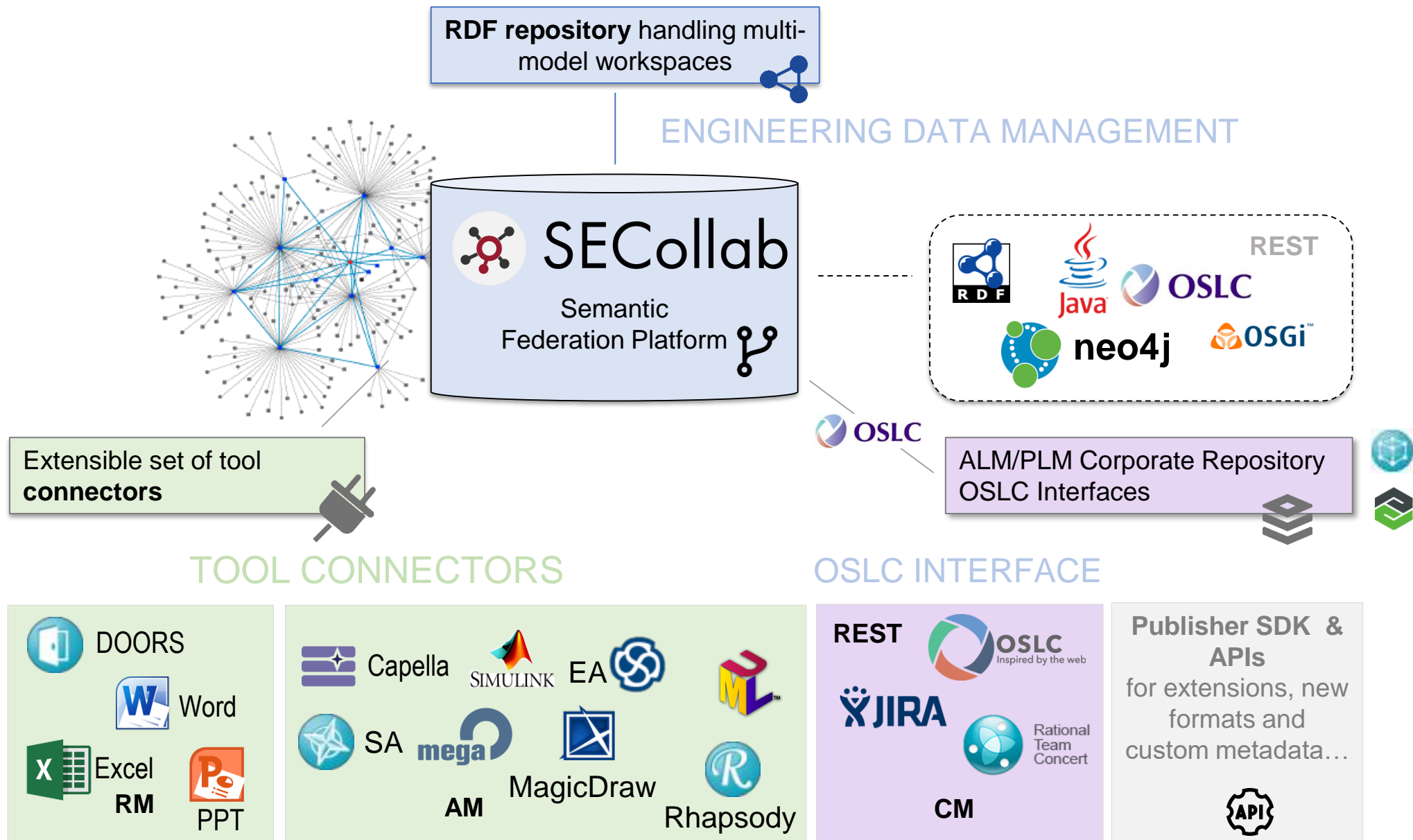
Value Proposition
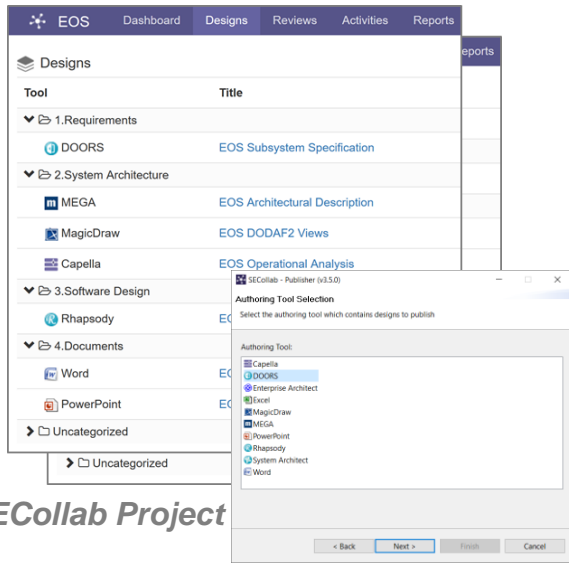
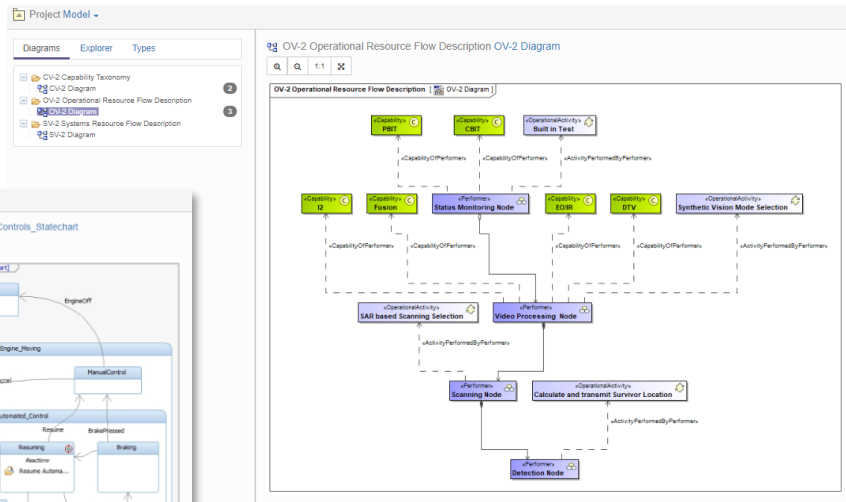- **Share data and model content independent from tools**
  - Publish documents or model content, including diagrams, into a web platform
  - Access shared data from a single access point

- **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 fill 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

SECollab High-Level View

RDF repository handling multi-model workspaces

ENGINEERING DATA MANAGEMENT

SECollab

Semantic Federation Platform

REST

RDF Java OSLC neo4j OSGi

OSLC

ALM/PLM Corporate Repository OSLC Interfaces

Extensible set of tool **connectors**

TOOL CONNECTORS

OSLC INTERFACE

DOORS

Word

Excel

RM

PPT

Capella SIMULINK EA

SA mega MagicDraw Rhapsody

AM

UML

REST OSLC Inspired by the web

JIRA Rational Team Concert

CM

Publisher SDK & APIs
for extensions, new formats and custom metadata…

API

SECollab Project

DOORS

MAGICDRAW

RHAPSODY

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)
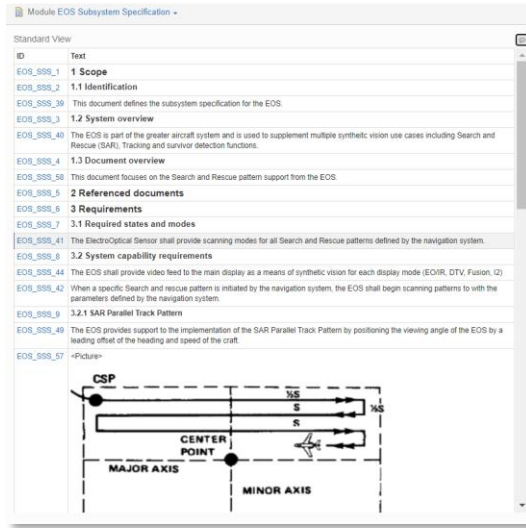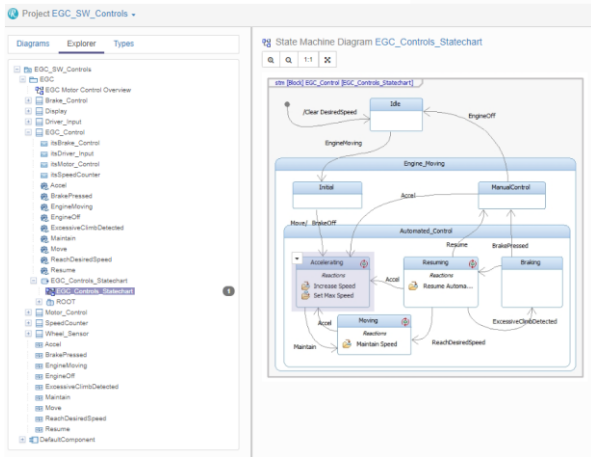
Collaborate and Review published data

- 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.

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
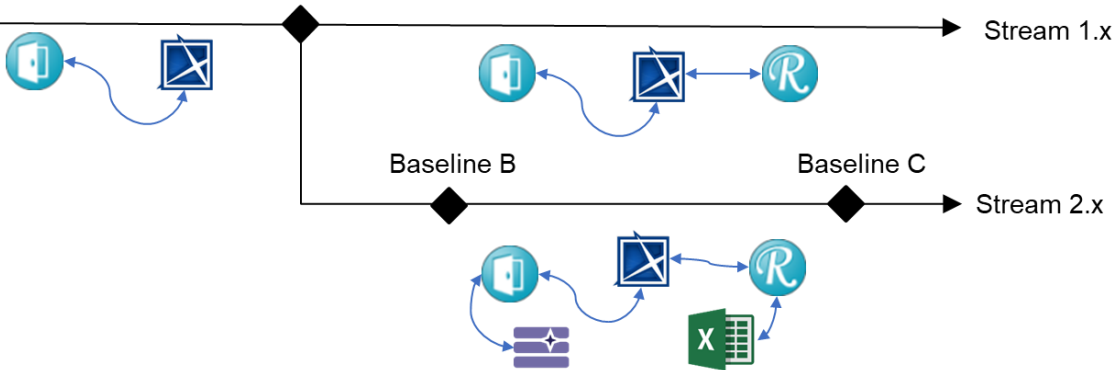
- SECollab enables a **unified context** across the set of disconnected engineering tools. Successive models versions are published in a **configured repository** managing **streams and baselines**.

- 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**.**
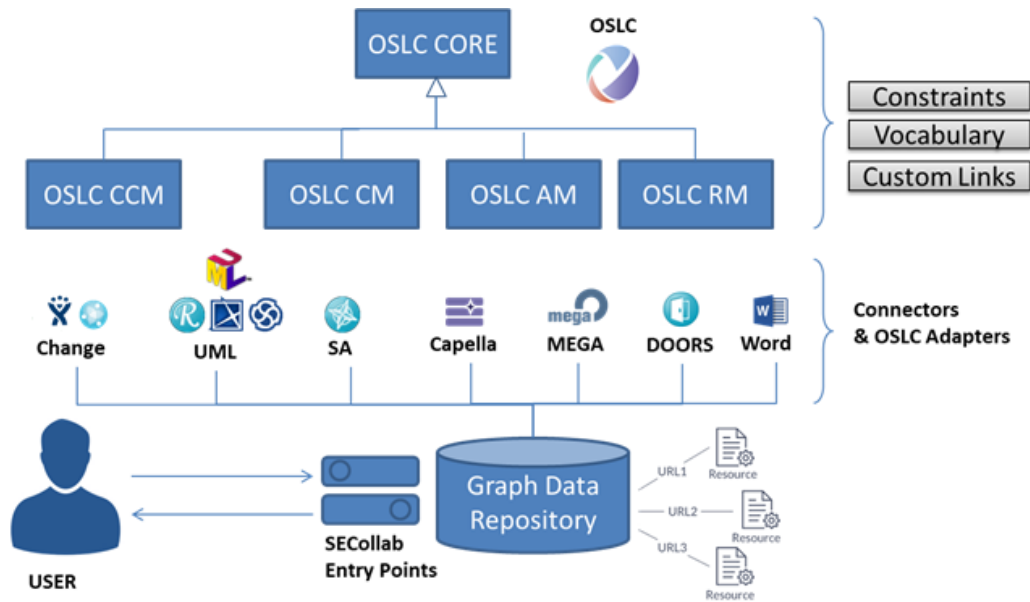
OSLC-enabled Repository

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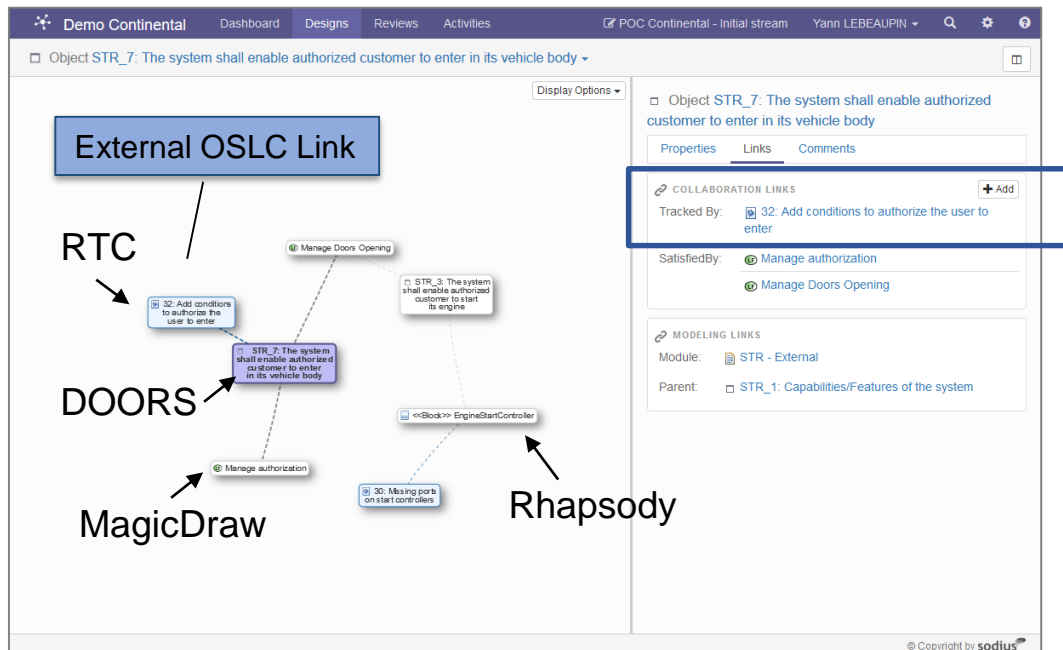
Manage links & types across your unified ontology
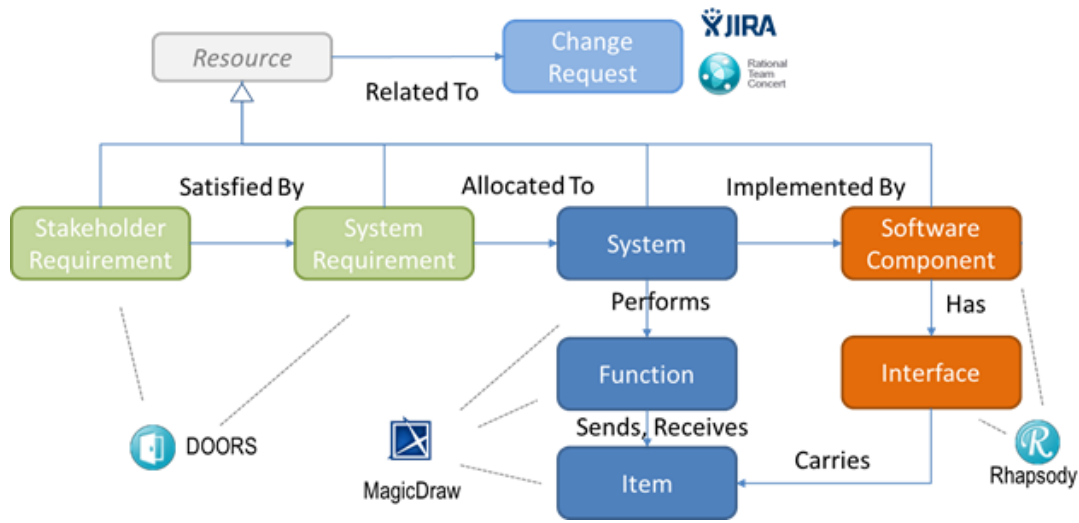
- SECollab helps you to define a **transversal architecture model by specifying you own business ontology** above the heterogenous data coming from the published tools.

- You can **abstract your business/domain concepts**, additionally to the tools ones by adding **custom types, queries and links** over the published artifacts
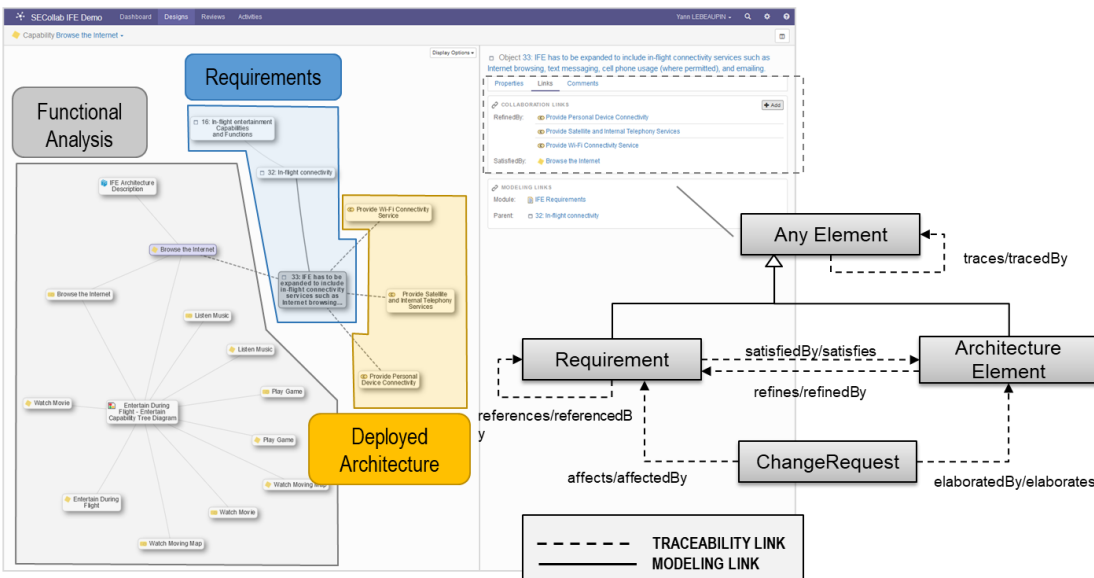
  - **Types** will be defined to strongly type your concepts (your "root" business objects)

  - **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

- 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
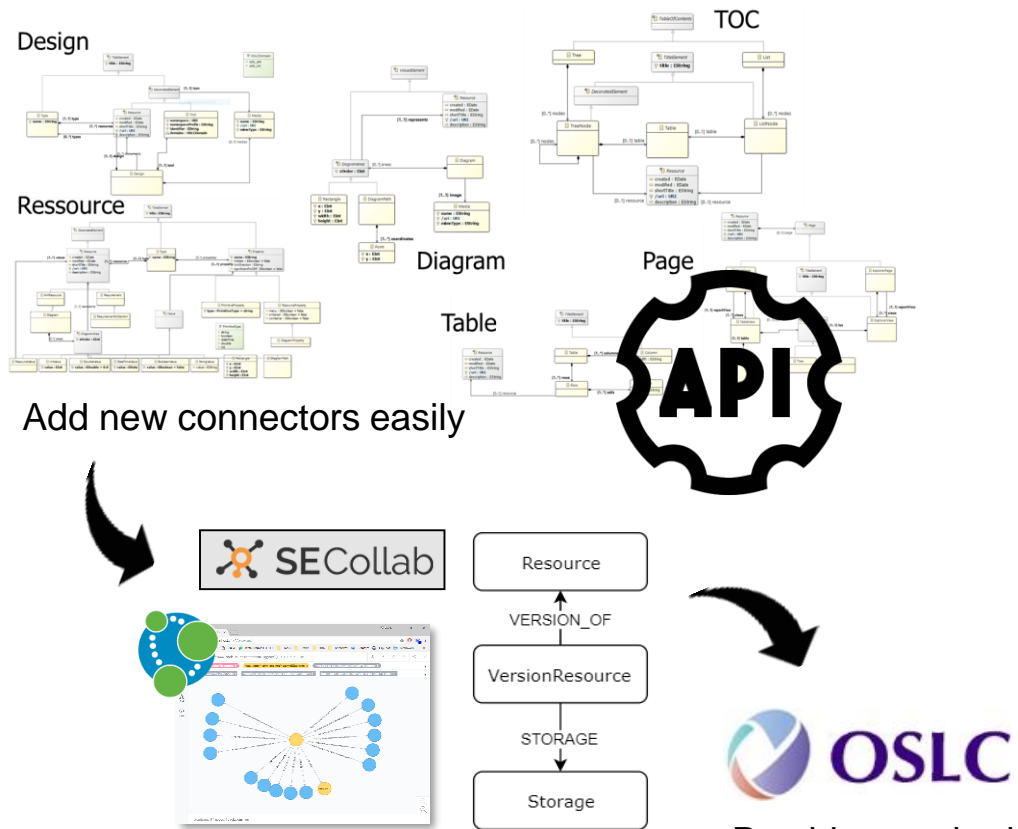
SDK and APIs

- Fully documented **Java SDK for Publication**

- OSLC **REST APIs** to access information remotely

- Complete examples and snippets available from our public Git repository
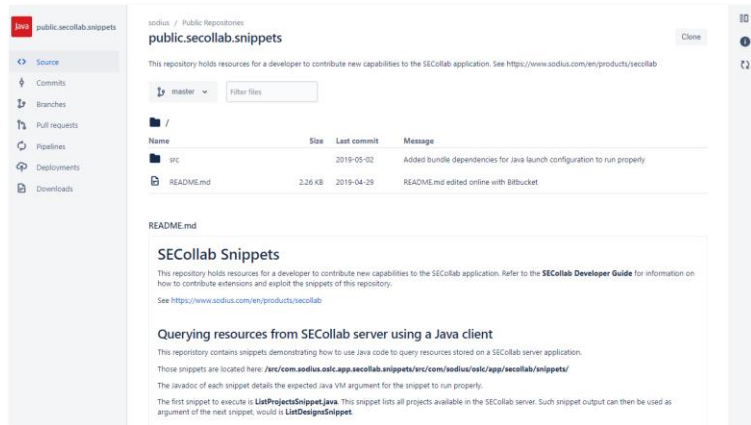
AIDA Use Case

Implementing "SESA Traceability Plan with SECollab"

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

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

SECollab Project – Publish Excel

- ## Publish Excel to SECollab using Excel Publisher
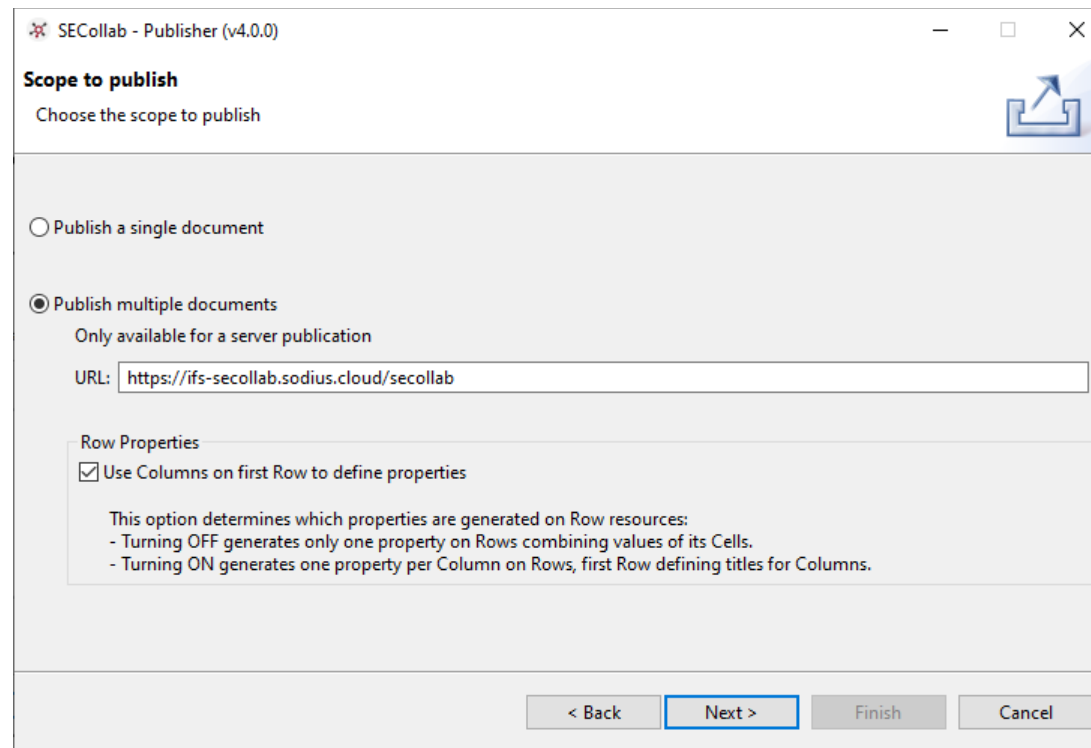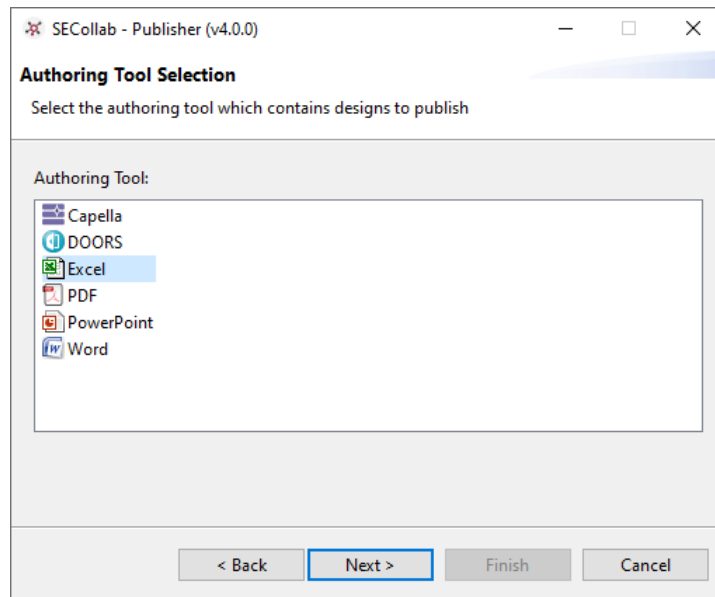
SECollab Project – Inspect Published Data

- SECollab Project contains SESA Traceability Data

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 Equiment, systems and installations	Airc exte (SE

< 1 >

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

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

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

Reporting on Traceability

- To ease control of imported link, specific coverage web reports can be define and shared between projects
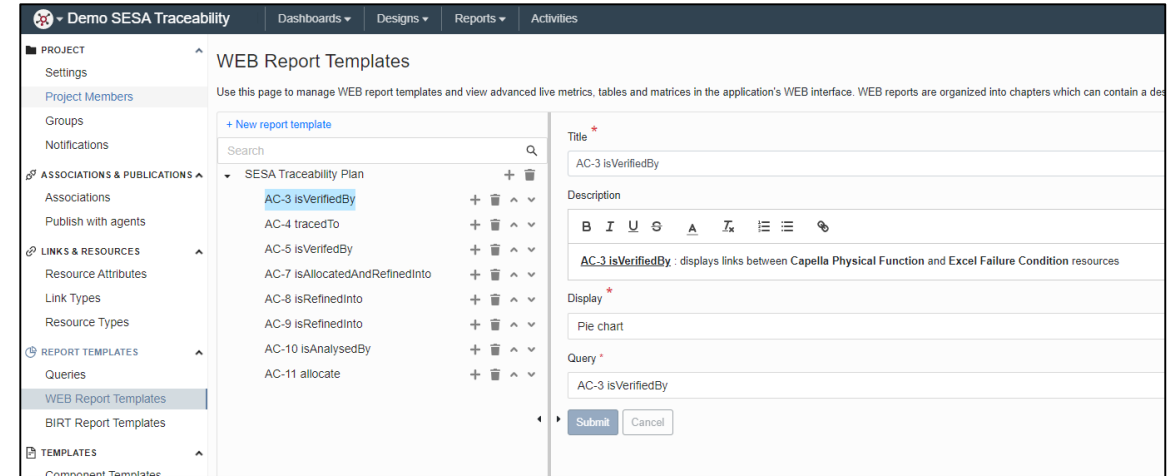
- A report has been defined to display a coverage pie-chart for each link type
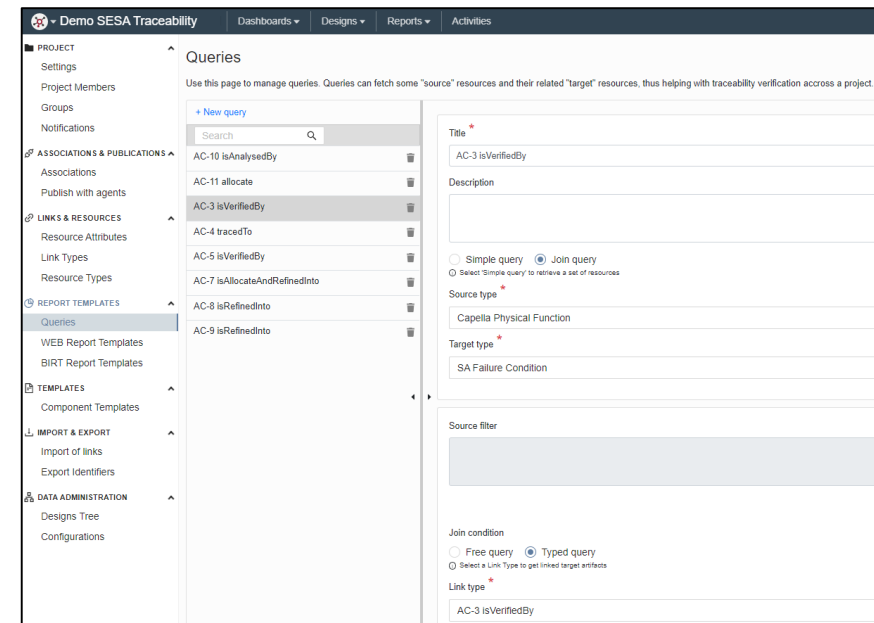
Importing Links

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

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
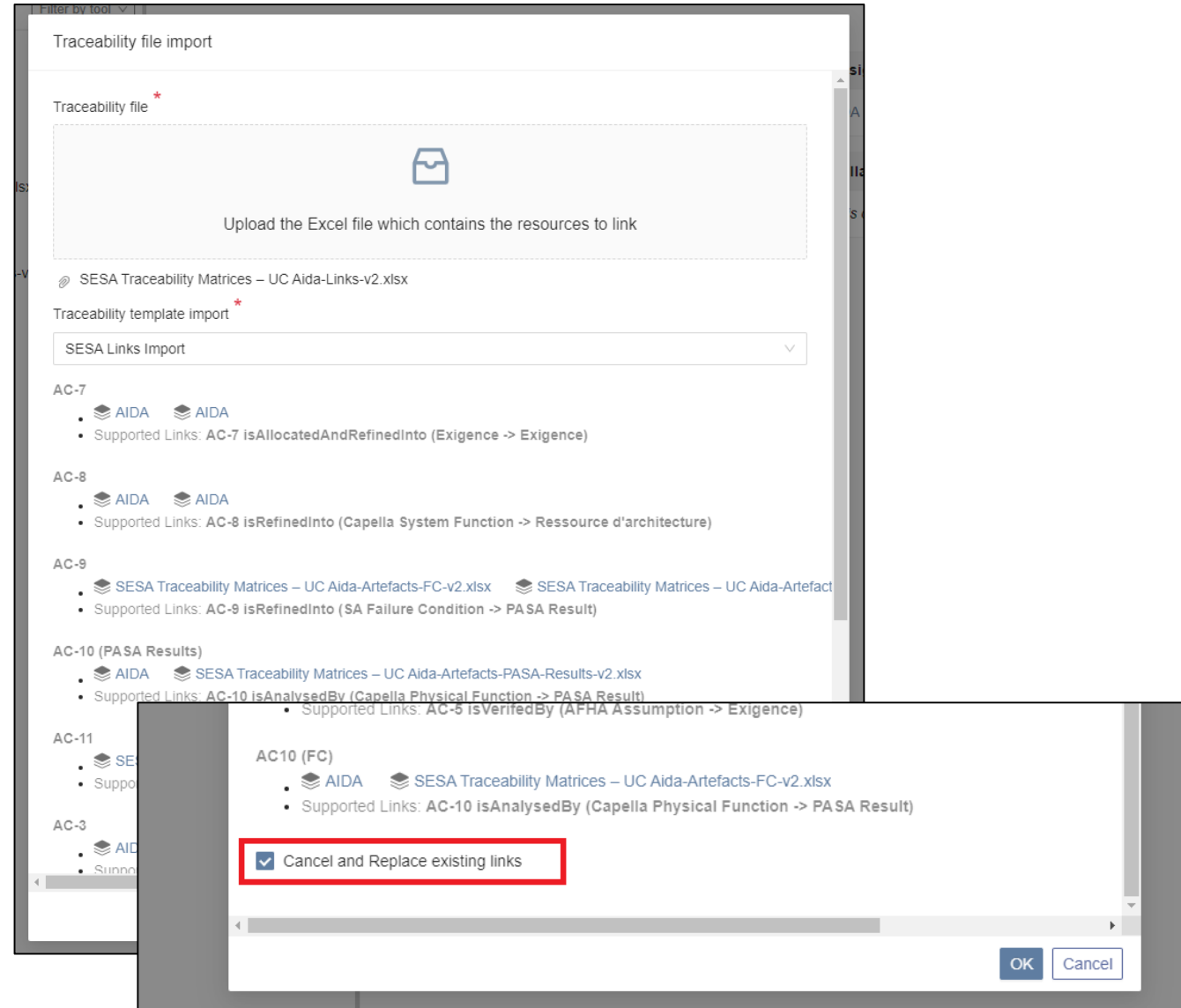
Results

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

Bi-directional Navigation

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

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.

Reporting on Traceability Coverage

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

Others Reports

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

Web Report – Table Template Example

- This table view template displays links for Capella Physical Functions
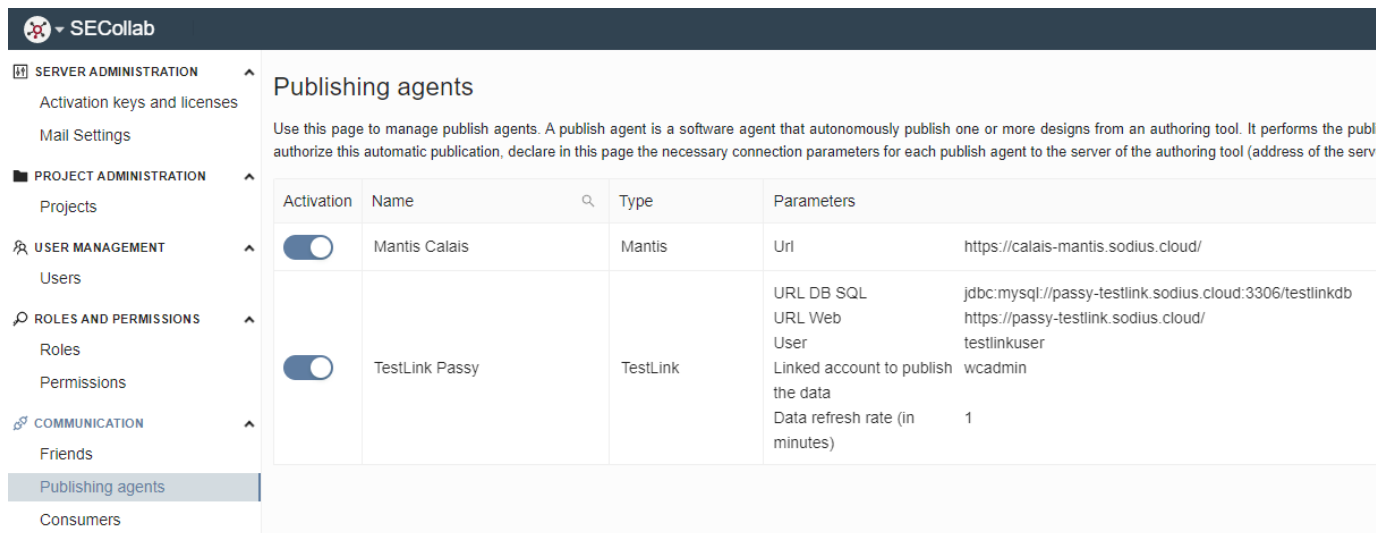
Automation

- 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

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