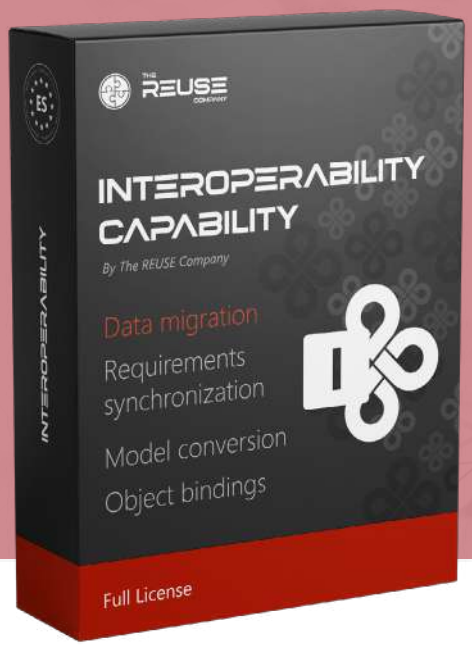
SES ENGINEERING STUDIO
INTEROPERABILITY Capability

A SMARTER WAY TO MANAGE THE DIGITAL THREAD



ABOUT

Most Systems Engineering projects involve a large ecosystem, file formats, modeling languages, and other diverse aspects which pose the challenge of integrating all the assets together to maintain the **digital thread** and ensure traceability across the system life cycle.

This becomes even more challenging when considering our complex organizations, and interactions with third-party entities, partners, customers or suppliers.

S**ES ENGINEERING Studio**, powered by its wide connectivity workbench of over 50 connectors, offers an Interoperability HUB that establishes a Synchronized Source of Truth (SSoT). This approach destroys silos while maintaining each individual source of truth.

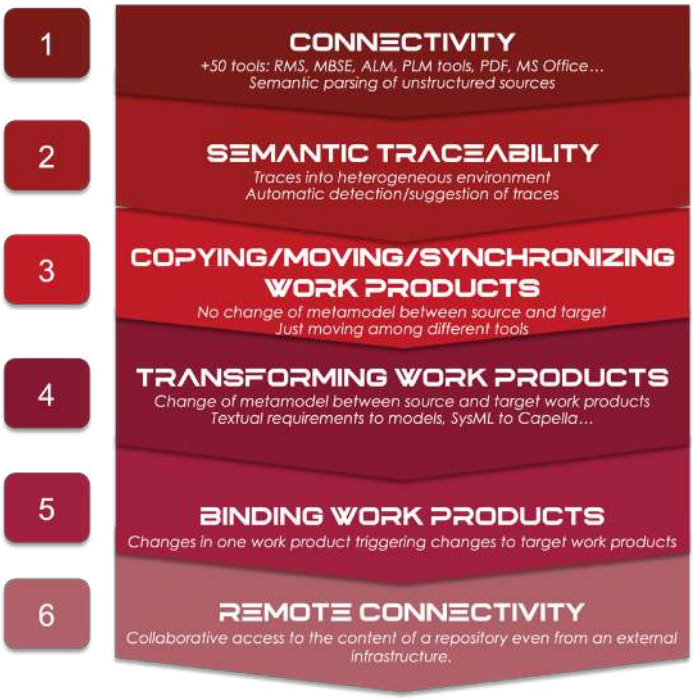
The **Interoperability Capability** included in the **SES ENGINEERING Studio** is based on 6 different pillars: from the connectivity to a large number of tools and file formats and the possibility to establish traces among items in different formats and tools, to the possibility to synchronize information among those tools (tools of the same nature, requirements, models...).

But what makes this approach unique is the application of a semantic kernel that enables transformations among different formats (textual requirements to models or test cases, models to requirements...).

Finally, the Interoperability HUB allows real-time connectivity among different IT environments and different tools in different organizations.

THE POWER OF CONNECTIVITY

A passport towards a digital thread without boundaries



Systems Engineering is a very demanding discipline that aims at orchestrating the activities of a large number of professionals, from different disciplines, using a wide variety of different file formats and tool, in most of the cases from different vendors, and not always designed as to provide seamless connectivity.

The Interoperability HUB of the **SES ENGINEERING Studio** aims to address this need. It enables a complete digital thread through the connectivity to over 50 different widely used tools, allowing to establish the traceability required by many regulatory frames, and enabling multiple possibilities to exchange information between the involved tools that, in many cases, are operated by different entities (partners, customers, providers, regulatory bodies). This might require either the synchronization and transformation of documents and models among different tools, and also the concurrent access to the same repository, even from external IT infrastructures.

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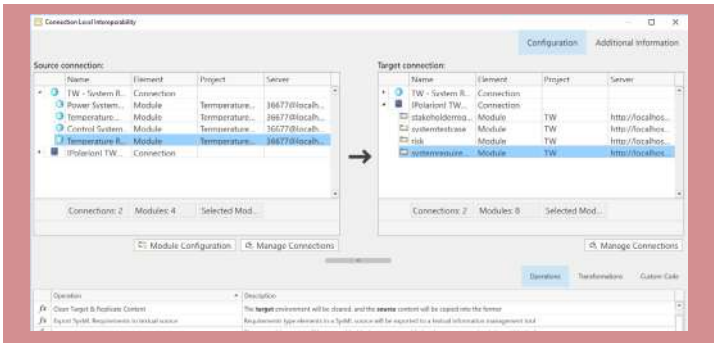
CONNECTIVITY & SEMANTIC TRACEABILITY

The first pillar of the Interoperability HUB corresponds to the ability of **SES ENGINEERING Studio** to connect to +50 different tools. From Requirements Management, MBSE tools, ALM, PLM, MS Office, PDF... This HUB avoids point-to-point connectivity by providing a canonical representation of the sources and maintaining a SSoT (Synchronized Sources of Truth).

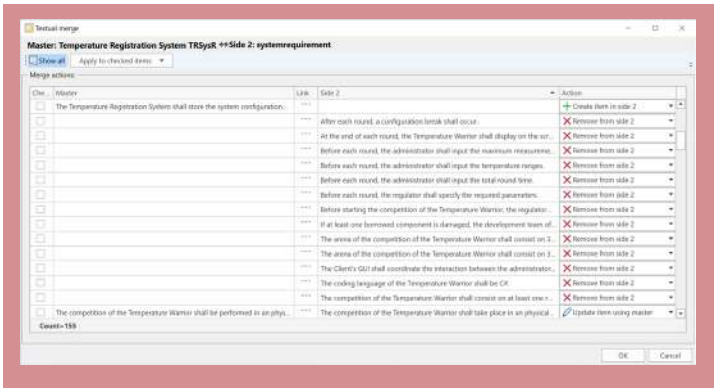
Starting here, **SES ENGINEERING Studio** implements a complete traceability module, offering semantic methods and artificial intelligence to suggest new traces, thus easing the required but demanding traceability activities.

COPY, MERGE AND SYNCHRONIZE CONTENT

Selecting the 2 source connections to any of the compatible tool platforms, the Interoperability HUB enables data migration between heterogenous tools



The Interoperability HUB can suggest operations for each pair of objects that are being synchronized between the two selected sources.



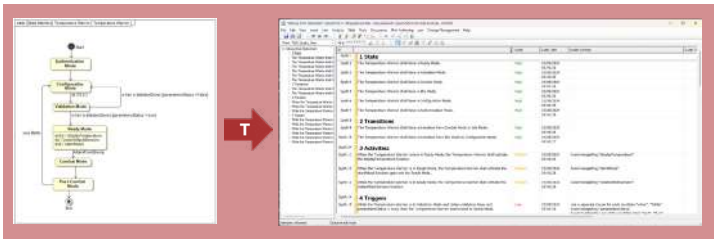
This way, changes occurring in either of the paired connections will be synchronized throughout the project.

The mapping between source and target is fully customizable. Along with the items themselves, one or more attributes in the source can be merged or synchronized with the target. Also, the HUB allows to filter the synchronized elements using attributes, types of objects, stereotypes, the location of the item within a specific package, or even the presence in a specific type of diagram...

DATA CONVERSION AND TRANSFORMATION

Next pillar corresponds to transformation of metamodels during the synchronization. Using a semantic engine, transformation from Cameo or other SysML-based tool to Capella is now a seamless operation.

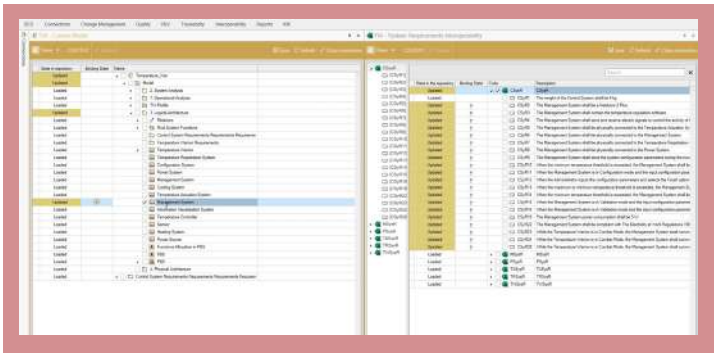
Same for other even more demanding transformations such as the generation of requirements from models, and vice versa; the generation of test cases from textual requirements...



OBJECT BINDING

Once a synchronization process has been executed, the HUB can not only take care of changes in one or the other side to trigger suspicious links, but also, by enabling the binding feature in the link, changes can be automatically propagated from one element to the other.

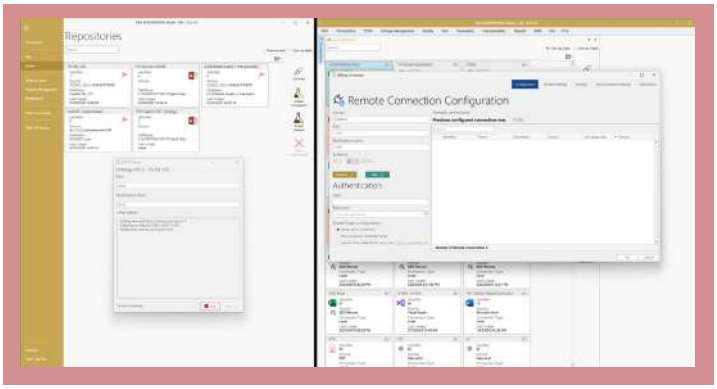
As a matter of example, if a requirement in a RM tool is bound to a model element in a MBSE tool, changes in the name of the element might, after confirmation, trigger changes in all the requirements naming this model element.



REMOTE CONNECTIVITY

The final block of the Interoperability pillars corresponds to the ability to connect one **SES ENGINEERING Studio**, to a data source that is not a local asset, but rather managed in a different environment (server).

This mechanism allows, among many other possibilities, to establish a connection from the customer's infrastructure to the content of the repositories where the provider is developing a document, a model... There are plenty of possibilities to determine the level of access of this remote connectivity, access in read-only mode is just one of them. However, the smart synchronization mechanisms implemented by the **SES ENGINEERING Studio** allow also to work collaboratively from different environments.



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