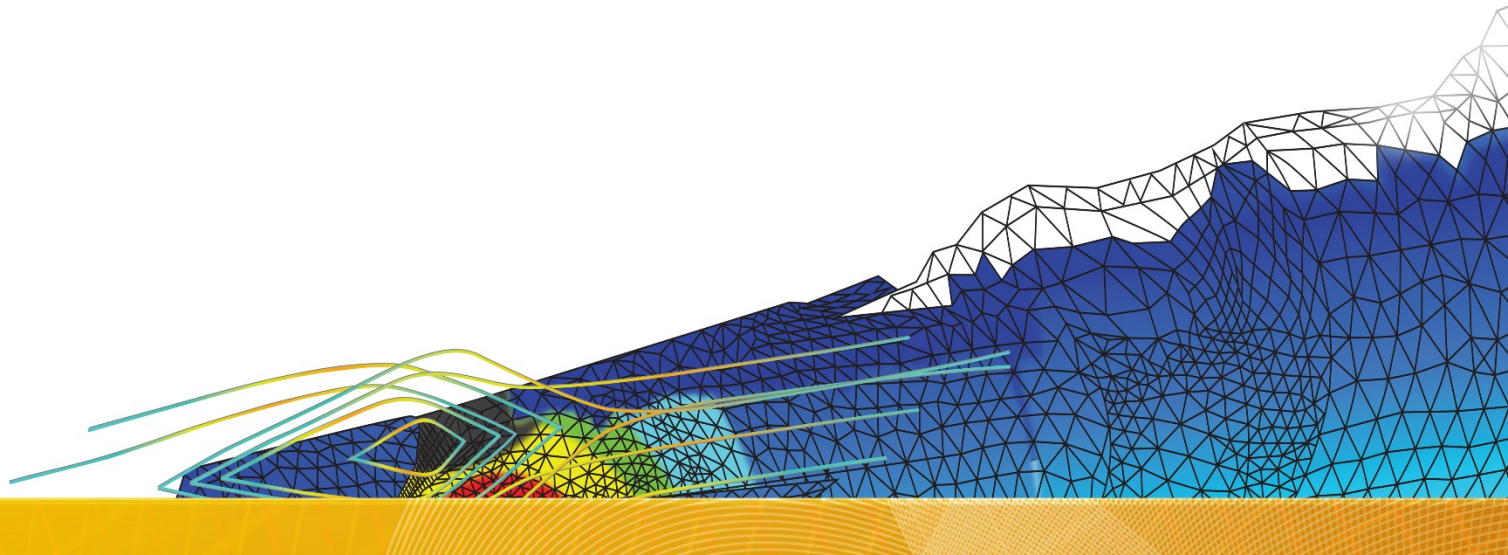




SCADE Suite Basics

Traceability



Brainstorming

Objective:

Define what requirements traceability is

Requirements:

In a group, share and discuss your opinion and then present it to the other groups

Preparation Time: 5 min

What is requirements traceability?

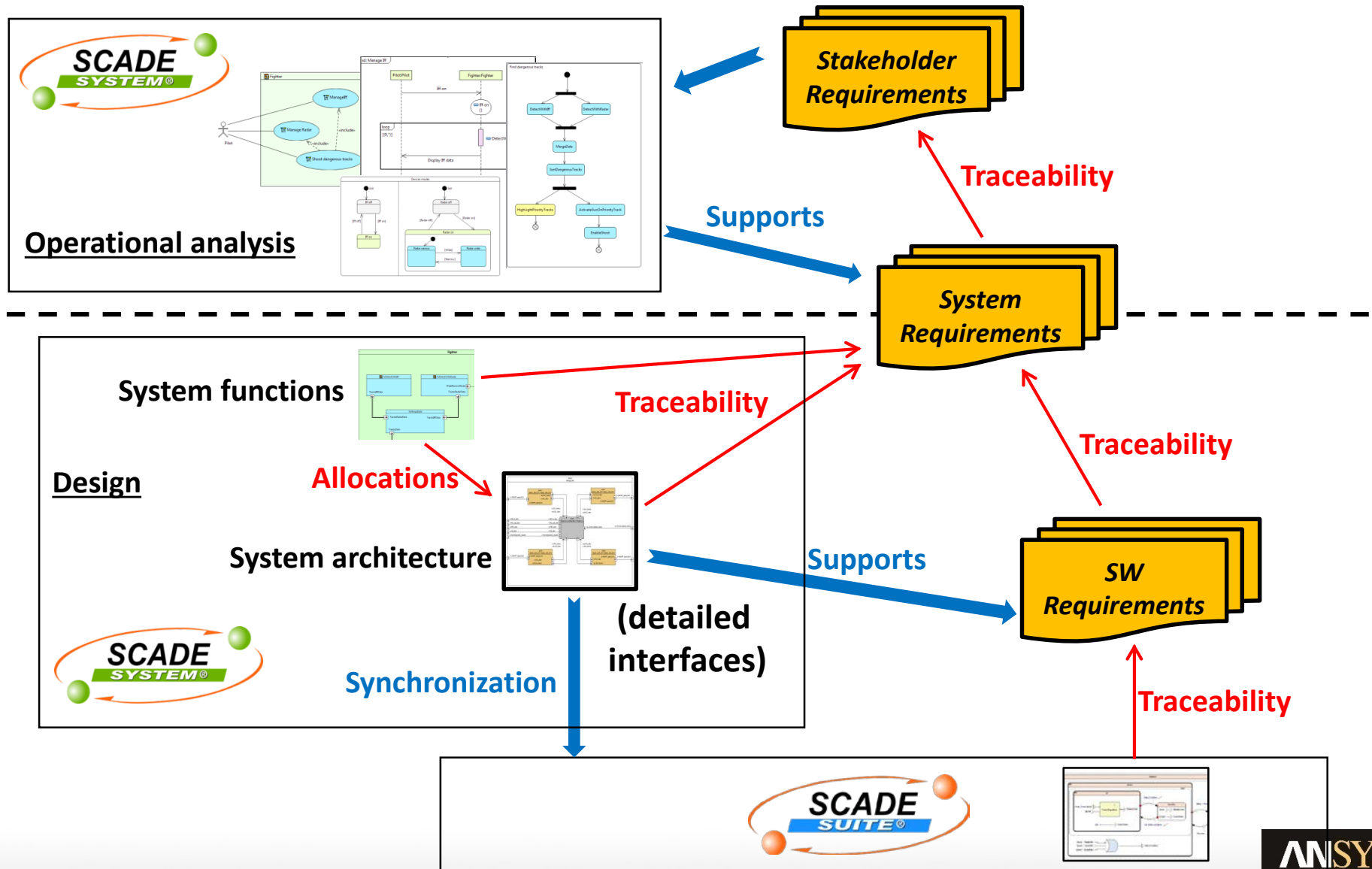
Requirements...

- Requirements are explicitly defined and identified at different levels of the system development

... Traceability

- Requirements are tracked across the entire design cycle, including the iterative phases (evolutions, derivatives, etc.)

What is requirements traceability?



What is requirements traceability?

Initial investment...

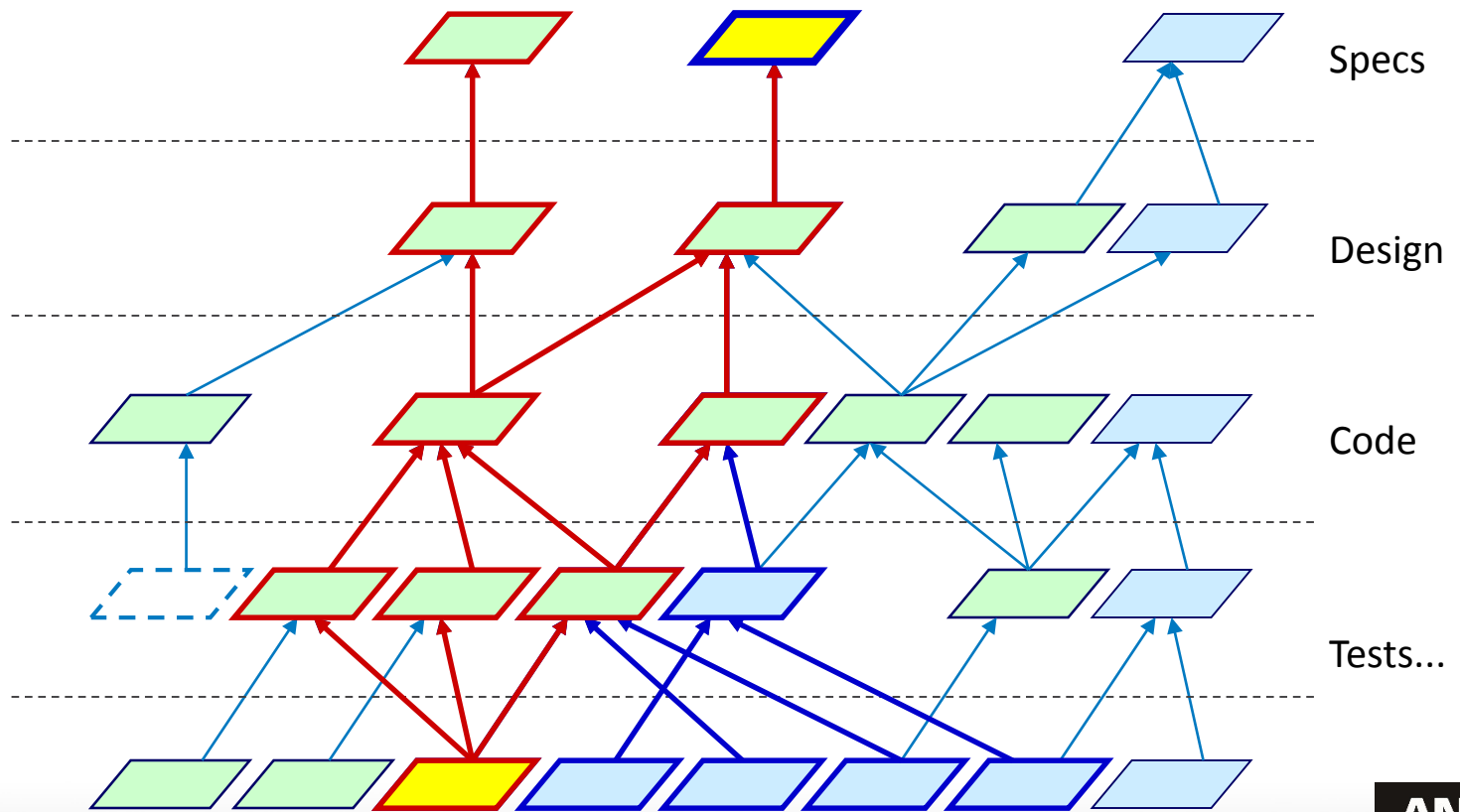
- Requirements standards definition
- Information added to files according to standards
- Requirements management tool

... with great benefits

- Improves project members and stakeholders relationship
- Provides management visibility and support for decision making
- Enables fast maturity of specifications
- Saves time to evaluate impact of changes

What is requirements traceability?

- « How do you implement this requirement...? »
- « If I change something in my design, what's the impact...? »
- « If I change something in my implementation, what about the regression...? »



What is Requirements Traceability?

Requirements Traceability is mandatory in Aeronautics (DO-178C for Software, DO-254 for Hardware):

Table A-3	Objective
6	High-level requirements are traceable to system requirements

Table A-4	Objective
6	Low-level-requirements are traceable to high-level requirements

Table A-5	Objective
5	Source code is traceable to low-level requirements

Requirements Traceability is required as well by the EN 50128 standard for Rail Transportation software:

6.5.4.14 Traceability to requirements shall be an important consideration in the validation of a safety-related system and means shall be provided to allow this to be demonstrated throughout all phases of the lifecycle.

6.5.4.15 Within the context of this European Standard, and to a degree appropriate to the specified software safety integrity level, traceability shall particularly address

- a) traceability of requirements to the design or other objects which fulfil them,
- b) traceability of design objects to the implementation objects which instantiate them,
- c) traceability of requirements and design objects to the tests (component, integration, overall test) and analyses that verify them.

Whatever is the solution used for requirements, the need for traceability with project workbenches and authoring tools is always present.

Application Lifecycle Management Gateway

SCADE LifeCycle Application Lifecycle Management Gateway (ALM) extends SCADE Suite with ALM tool connection capabilities:

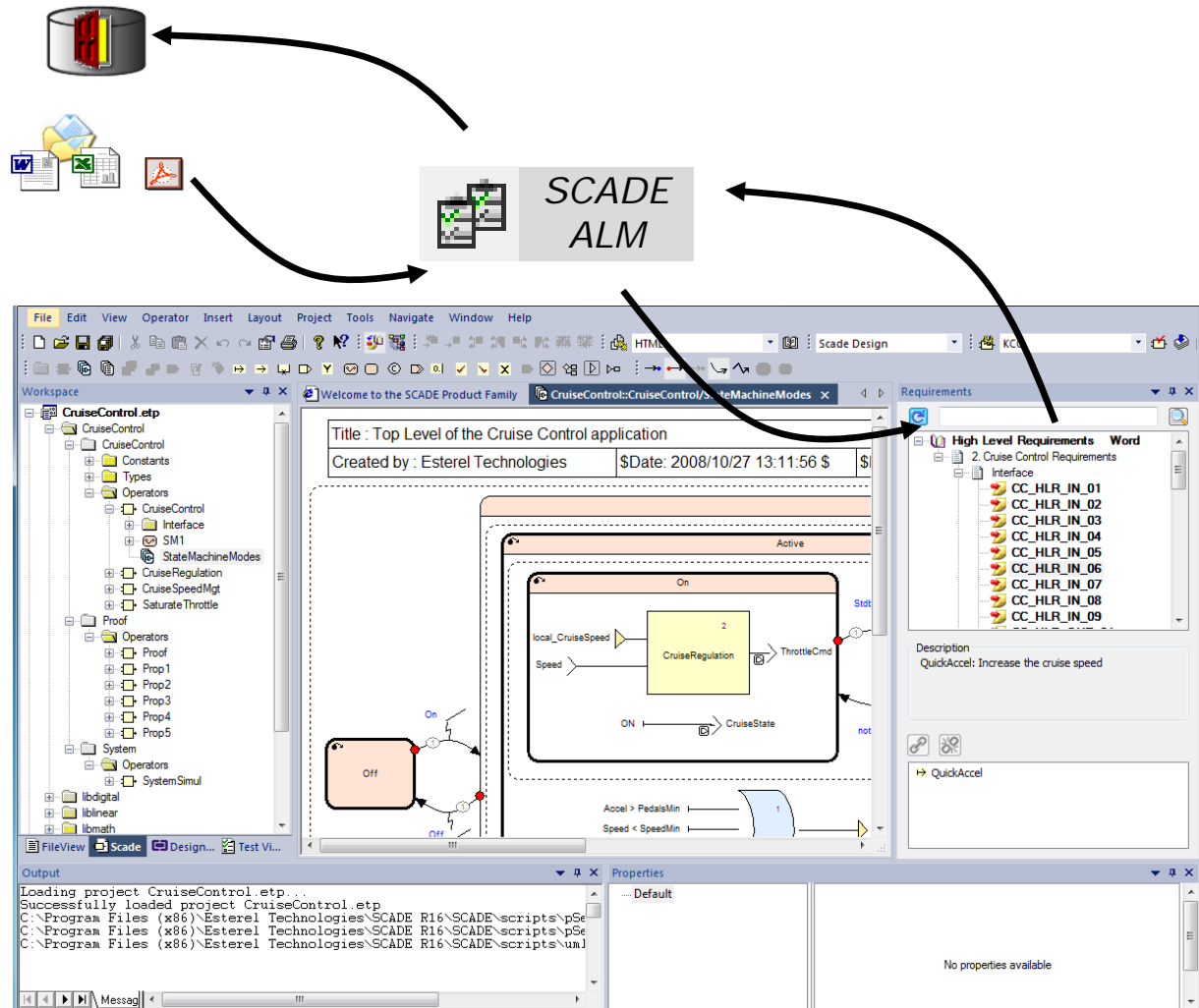
- Connects to ALM tools like DOORS or Reqtify
- Provides a complete traceability solution for the model design process in ALM tool environments

Traceability applied to a SCADE Model

Requirements automatically captured from DOORS or textual documents,...

Traceability is done while doing the SW development work.

Traceability analysis is always up to date.



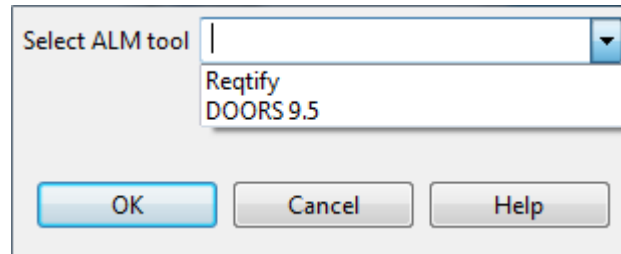
ALM Tool Selection

Launch the ALM tool:

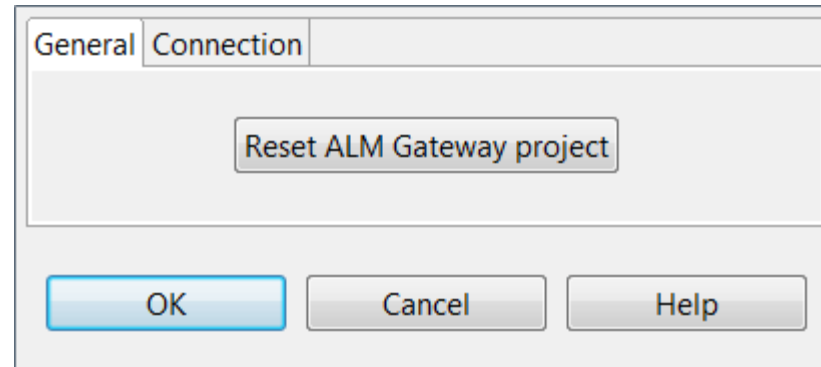
- Select the SCADE menu *Project > ALM Gateway* or click on the ALM tool toolbar:



- Select ALM tool (if need be)



ALM Tool General Settings



Option	Description
Reset ALM Gateway Project	Remove the ALM Gateway project from the SCADE project to allow defining another ALM connection

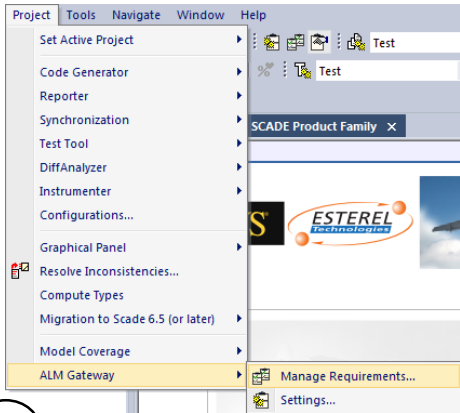
Tip To switch to another ALM tool, remove the ALM Gateway project from the SCADE project (the ALM Gateway project file is not deleted from the disk) and create a new ALM connection

ALM Tool DOORS Settings

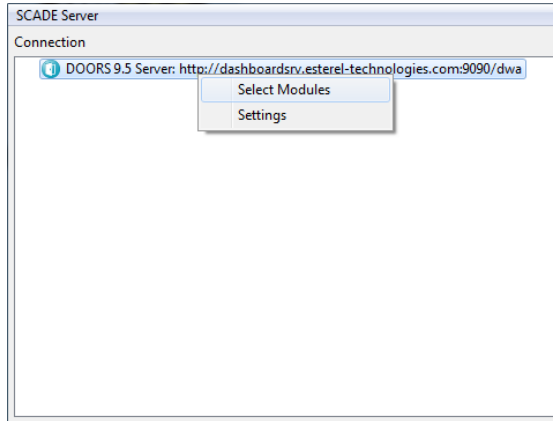
The screenshot shows a dialog box titled 'General' with a 'Connection' tab. Inside the tab, there are five text input fields labeled 'Server URL', 'User', 'Password', 'Consumer Key', and 'Consumer Secret'. Below these fields is a checkbox labeled 'Synchronize at project saving'. At the bottom of the dialog are three buttons: 'OK', 'Cancel', and 'Help'.

Option	Description
Server URL	Specify a URL to the DOORS server like <code>http://dwa_server:9090/dwa</code>
User	Specify the DOORS user name
Password	Specify the DOORS user password
Consumer Key	Specify the consumer key of DOORS OSCLC Local Key
Consumer Secret	Specify the OAuth Secret of DOORS OSCLC Local Key
Synchronize at project saving	Upload traceability link modifications to DOORS 9.5 when saving the active project, specification, referenced object, or symbol.

ALM Tool DOORS Connection

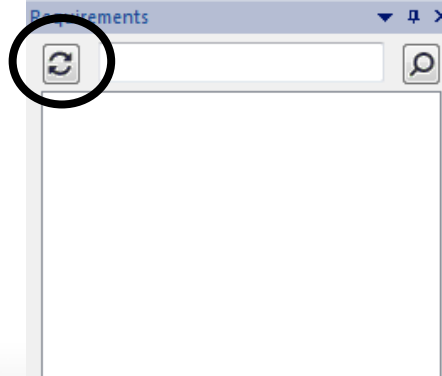
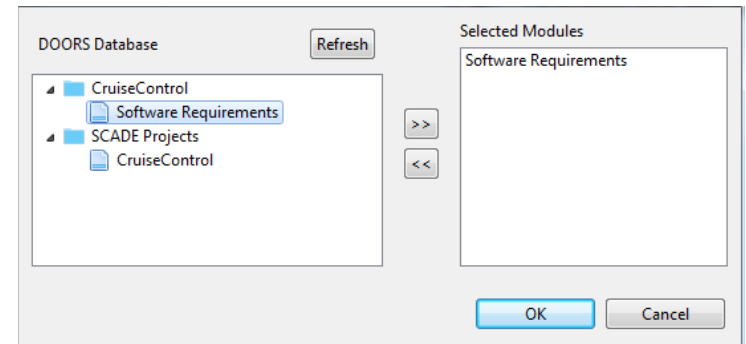


① Select the SCADE menu
*Project > ALM Gateway >
Management Requirements...*



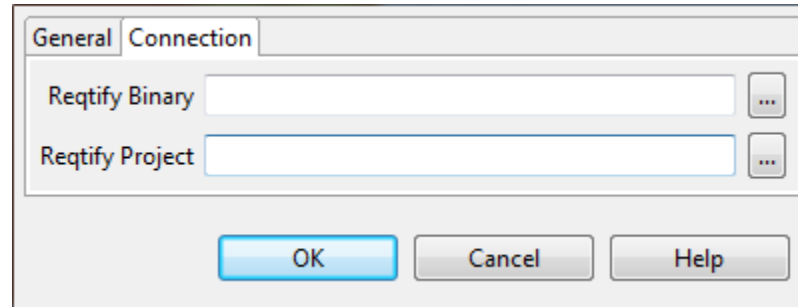
② Right click on DOORS server
and *Select Modules*

③ Select the modules from
the DOORS Database



④ Load the requirements in
Requirements windows

ALM Tool Reqtify Settings

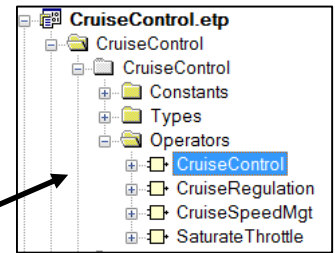


Option	Description
Reqtify Binary	Specify the absolute path to the Reqtify executable
Reqtify Project	Specify the path to the Reqtify project (.rqt file) associated with the SCADE project The Reqtify project path must be relative to the SCADE project path

Perform Requirements Traceability

Add the coverage of requirements:

- Select a Scade object in the Scade view
- From the Requirements Docking Window
 - Select a requirement in the available list
 - Click on Create Link



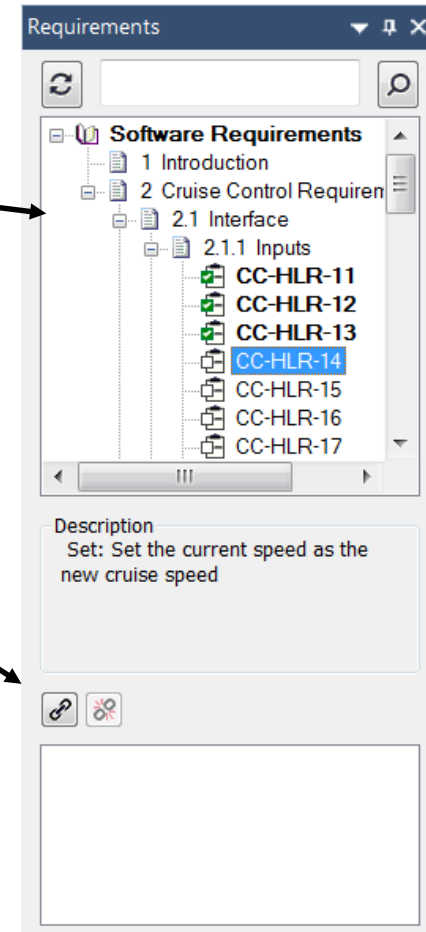
①

②

③

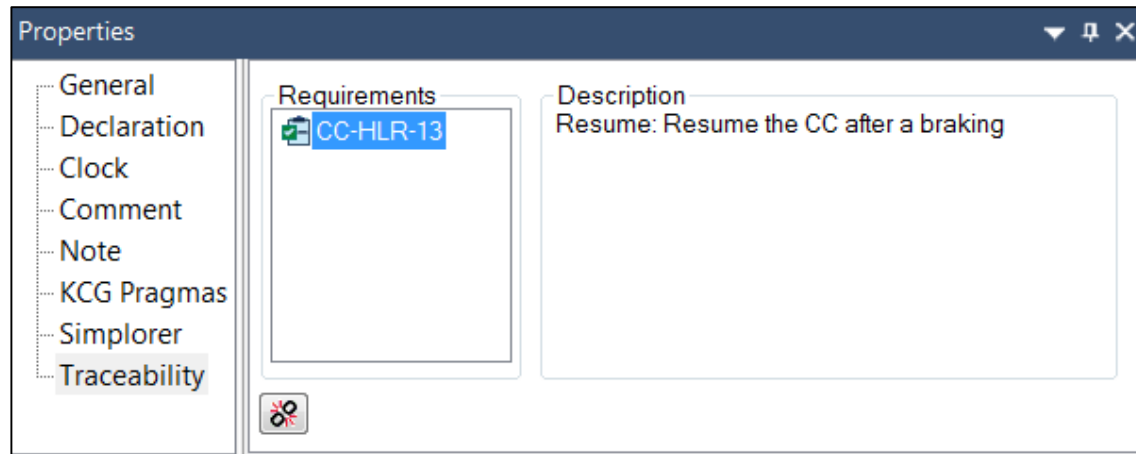
Remove the coverage of requirements:

- From the Requirements Docking Window
 - Select an element in the covered objects list
 - Click on Remove Link 



Create Requirements Traceability

Traceability links of the selected Scade object are displayed in the Traceability tab of the Properties window (empty if no requirements coverage)



From the Properties window

- Remove a covered requirement
 - Select it in the Requirements list
 - Click on Remove Link 