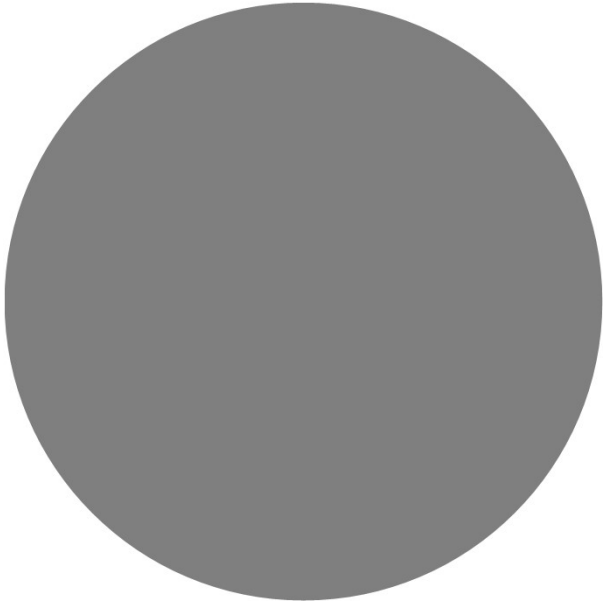
# Data Import / Export Methods in MagicDraw



How to receive / provide model information for non-SysML modeling team members (without retyping it)

Rod Wheeler

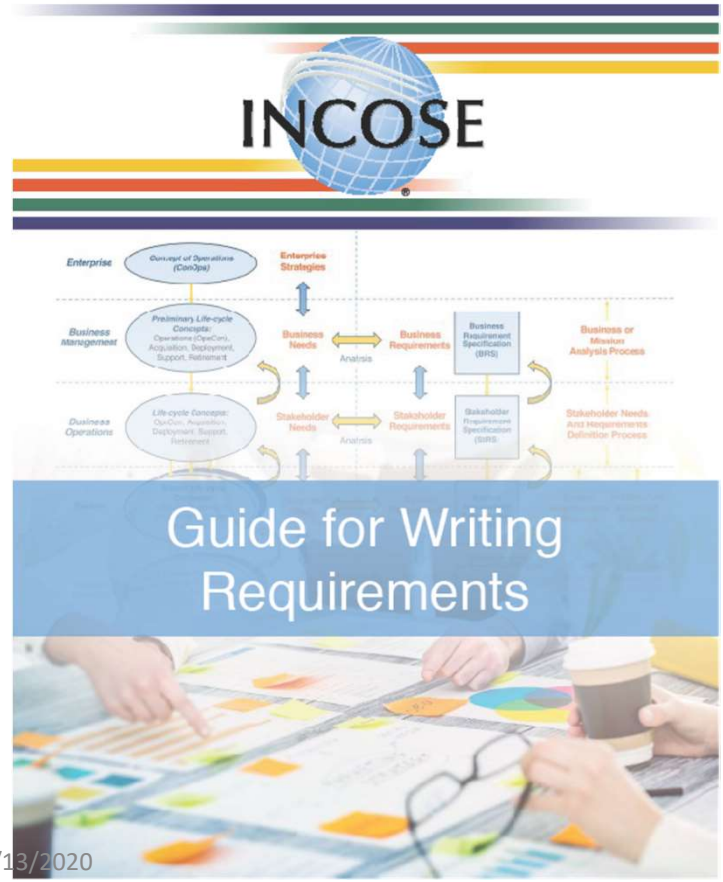
# Importing / Using /Exporting Data

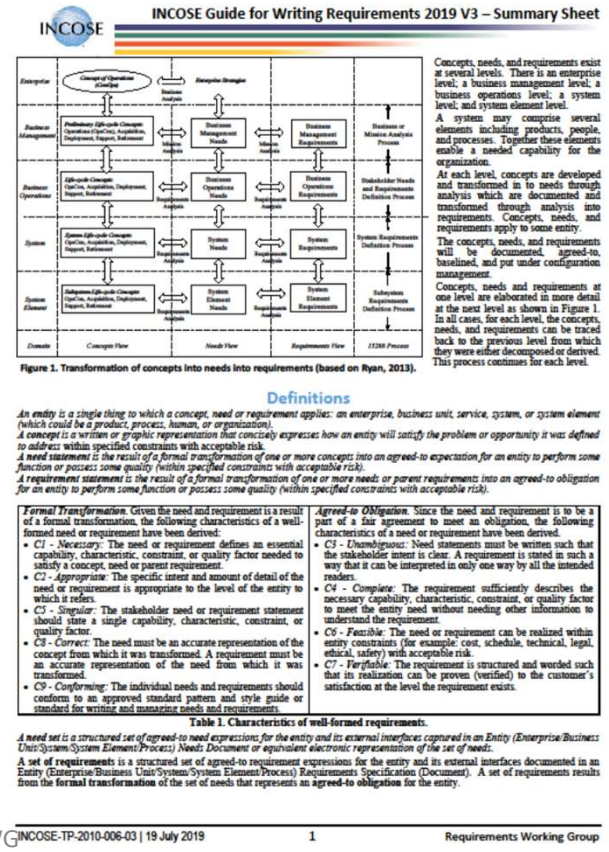
1) Review Data and understand the schema structure
   - Reports – Numerous Templates available to generate views

2) Exporting /Importing Model Data
   - Multiple Options available
     - CSV File Format / Excel File Format / HTML

3) Integrations with External Tools/Databases
   - Requirements Interchange Format (ReqIF), AP233
   - Open Services for Lifecycle Collaboration (OSLC) OASIS Open Projects
   - Numerous Additional Options Available – discussion?

# Requirements Resources



INCOSE Guide for Writing Requirements 2019 V3 – Summary Sheet

Figure 1. Transformation of concepts into needs into requirements (based on Ryan, 2013).

Concepts, needs, and requirements exist at several levels. There is an enterprise level; a business management level; a business operations level; a system level; and system element level.

A system may comprise several elements including products, people, and processes. Together these elements enable a needed capability for the organization.

At each level, concepts are developed and transformed in to needs through analysis which are documented and transformed through analysis into requirements. Concepts, needs, and requirements apply to some entity.

The concepts, needs, and requirements will be documented, agreed-to, baselined, and put under configuration management.

Concepts, needs and requirements at one level are elaborated in more detail at the next level as shown in Figure 1. In all cases, for each level, the concepts, needs, and requirements can be traced back to the previous level from which they were either decomposed or derived. This process continues for each level.

## Definitions

*An entity is a single thing to which a concept, need or requirement applies: an enterprise, business unit, service, system, or system element (which could be a product, process, human, or organization).*
*A concept is a written or graphic representation that concisely expresses how an entity will satisfy the problem or opportunity it was defined to address within specified constraints with acceptable risk.*
*A need statement is the result of a formal transformation of one or more concepts into an agreed-to expectation for an entity to perform some function or possess some quality (within specified constraints with acceptable risk).*
*A requirement statement is the result of a formal transformation of one or more needs or parent requirements into an agreed-to obligation for an entity to perform some function or possess some quality (within specified constraints with acceptable risk).*

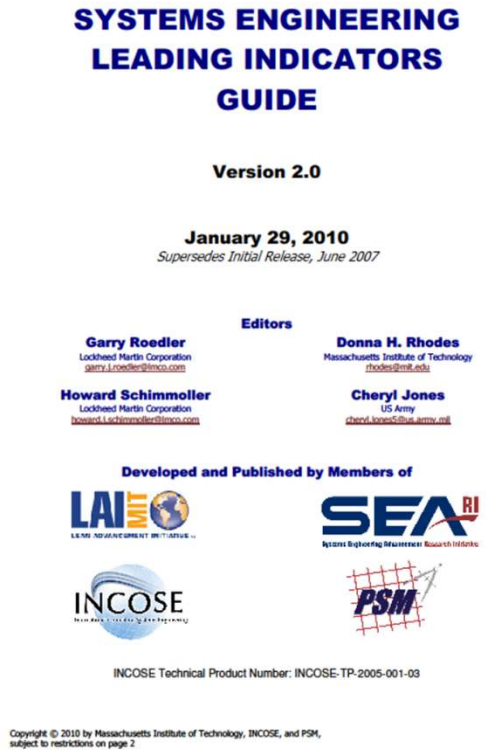
| ***Formal Transformation.*** Given the need and requirement is a result of a formal transformation, the following characteristics of a well-formed need or requirement have been derived: | ***Agreed-to Obligation.*** Since the need and requirement is to be a part of a fair agreement to meet an obligation, the following characteristics of a need or requirement have been derived. |
|---|---|
| • *C1 - Necessary:* The need or requirement defines an essential capability, characteristic, constraint, or quality factor needed to satisfy a concept, need or parent requirement.<br>• *C2 - Appropriate:* The specific intent and amount of detail of the need or requirement is appropriate to the level of the entity to which it refers.<br>• *C5 - Singular:* The stakeholder need or requirement statement should state a single capability, characteristic, constraint, or quality factor.<br>• *C8 - Correct:* The need must be an accurate representation of the concept from which it was transformed. A requirement must be an accurate representation of the need from which it was transformed.<br>• *C9 - Conforming:* The individual needs and requirements should conform to an approved standard pattern and style guide or standard for writing and managing needs and requirements. | • *C3 - Unambiguous:* Need statements must be written such that the stakeholder intent is clear. A requirement is stated in such a way that it can be interpreted in only one way by all the intended readers.<br>• *C4 - Complete:* The requirement sufficiently describes the necessary capability, characteristic, constraint, or quality factor to meet the entity need without needing other information to understand the requirement.<br>• *C6 - Feasible:* The need or requirement can be realized within entity constraints (for example: cost, schedule, technical, legal, ethical, safety) with acceptable risk.<br>• *C7 - Verifiable:* The requirement is structured and worded such that its realization can be proven (verified) to the customer's satisfaction at the level the requirement exists. |

**Table 1. Characteristics of well-formed requirements.**

*A need set is a structured set of agreed-to need expressions for the entity and its external interfaces captured in an Entity (Enterprise/Business Unit/System/System Element/Process) Needs Document or equivalent electronic representation of the set of needs.*

A **set of requirements** is a structured set of agreed-to requirement expressions for the entity and its external interfaces documented in an Entity (Enterprise/Business Unit/System/System Element/Process) Requirements Specification (Document). A set of requirements results from the **formal transformation** of the set of needs that represents an **agreed-to obligation** for the entity.

# Requirements Resources (continued)



**SYSTEMS ENGINEERING LEADING INDICATORS GUIDE**

**Version 2.0**

**January 29, 2010**
*Supersedes Initial Release, June 2007*

**Editors**

**Garry Roedler**
Lockheed Martin Corporation
garry.j.roedler@lmco.com

**Donna H. Rhodes**
Massachusetts Institute of Technology
rhodes@mit.edu

**Howard Schimmoller**
Lockheed Martin Corporation
howard.l.schimmoller@lmco.com

**Cheryl Jones**
US Army
cheryl.jones5@us.army.mil

**Developed and Published by Members of**

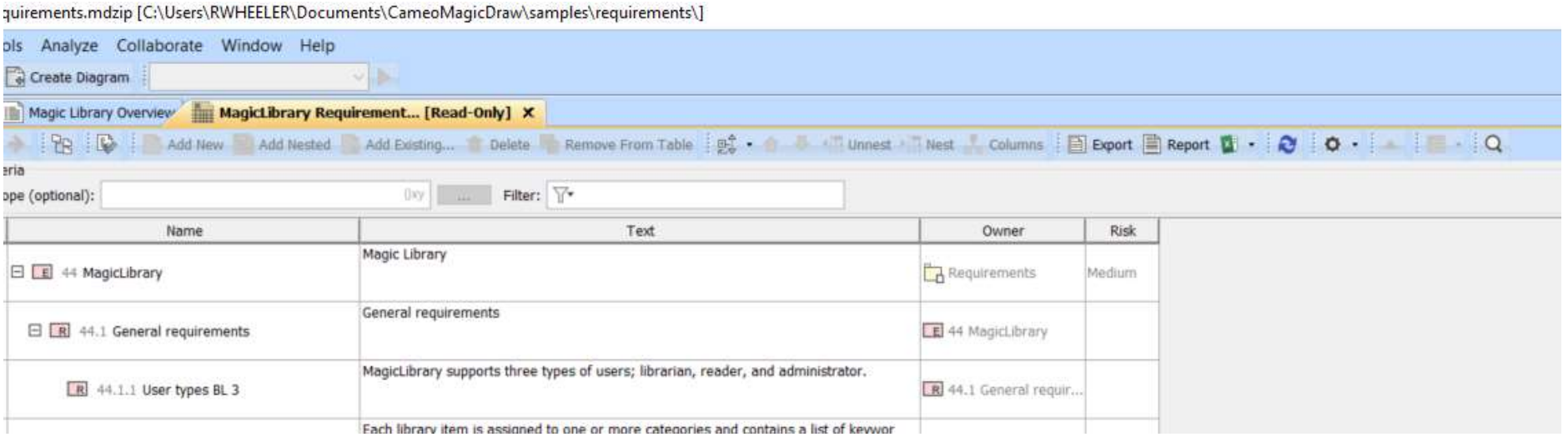
INCOSE Technical Product Number: INCOSE-TP-2005-001-03

# Magic Draw Plugins – Import/Export

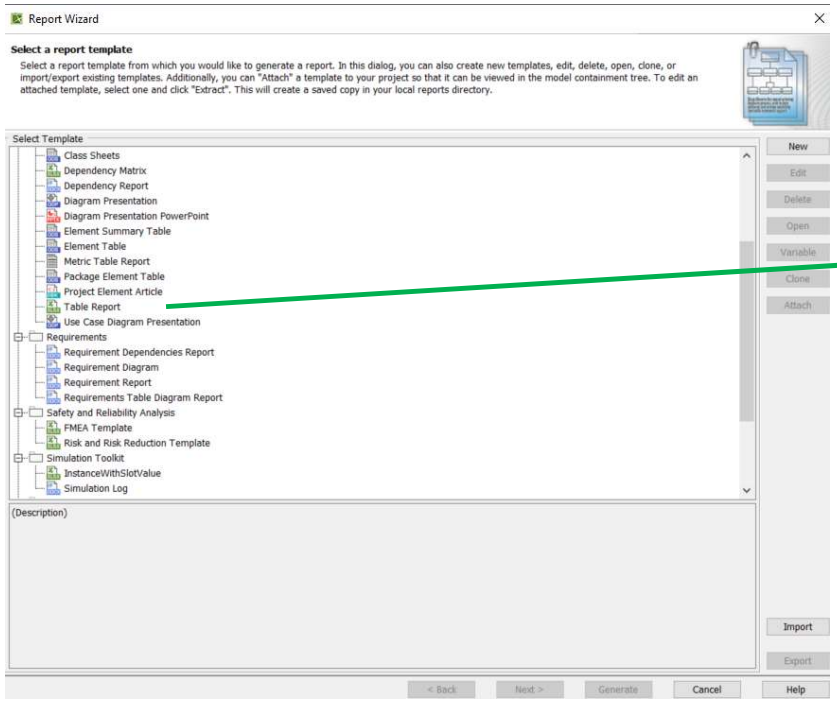
- FREE  MagicDraw Plugins
  - CSV Import
  - Excel Import

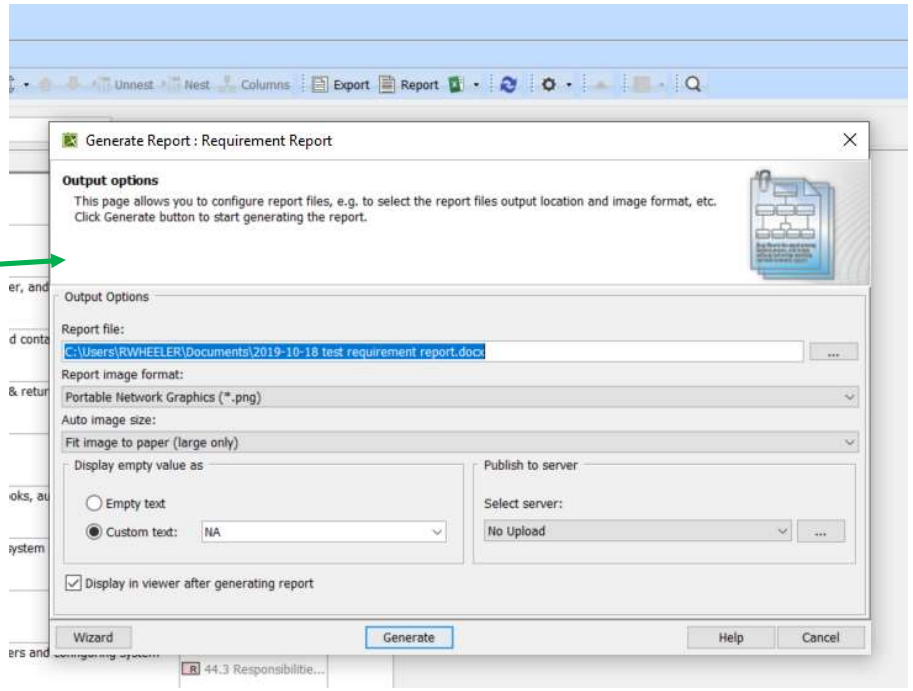
# Exporting  Data from MagicDraw -Tables

- Multiple Options available from table
  - CSV File Format /  Excel File Format / HTML
  - Reports – Numerous Templates available



# Report Templates - Multiple Out Of The Box templates provided – use as is or “Customize” to generate data views/reports needed

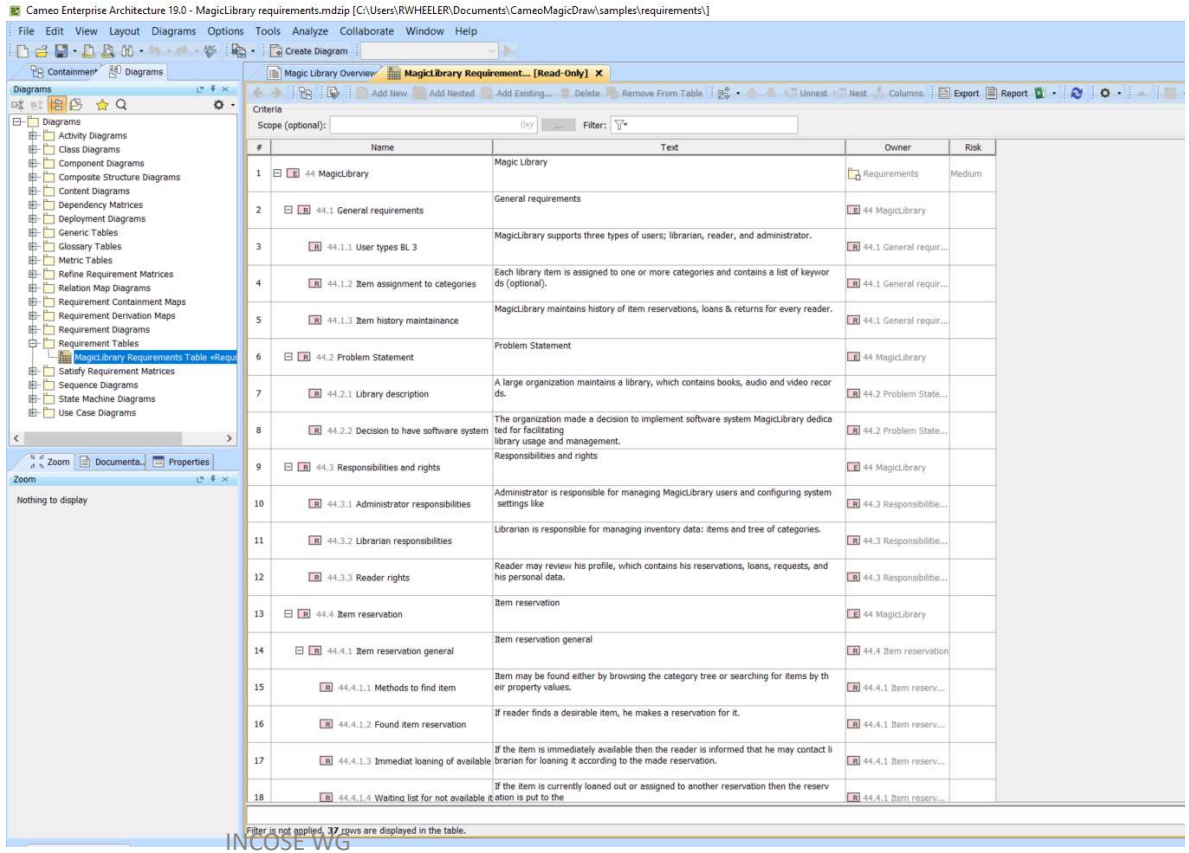



Generate your documents from the model:  Note: some external tools are able to parse and consume word files

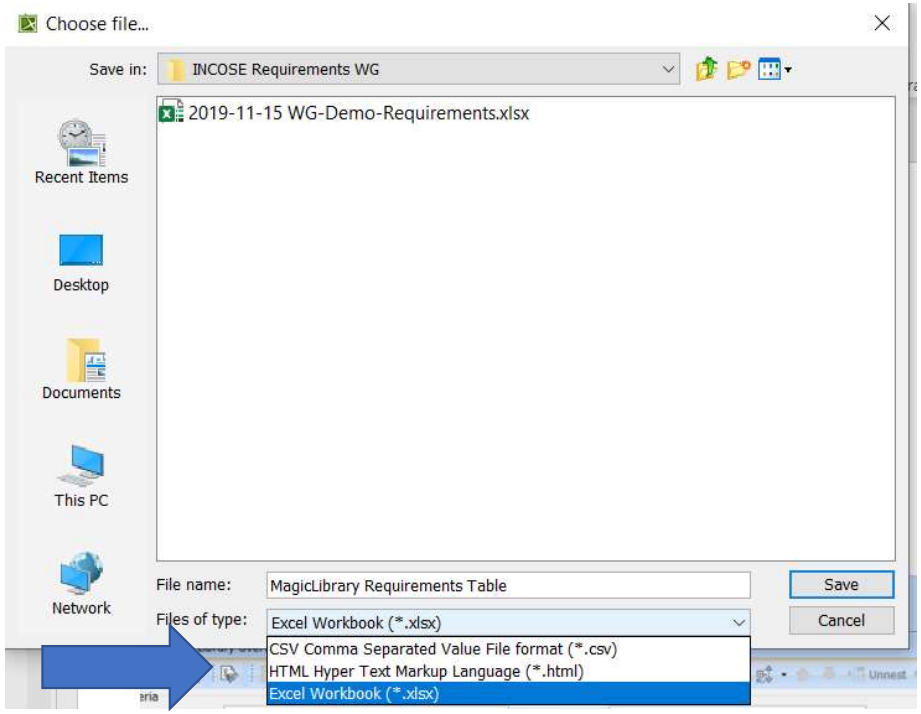
# Set up a table view

Display rows and columns you wish to export or add data into



# Select the File type you wish to export/import

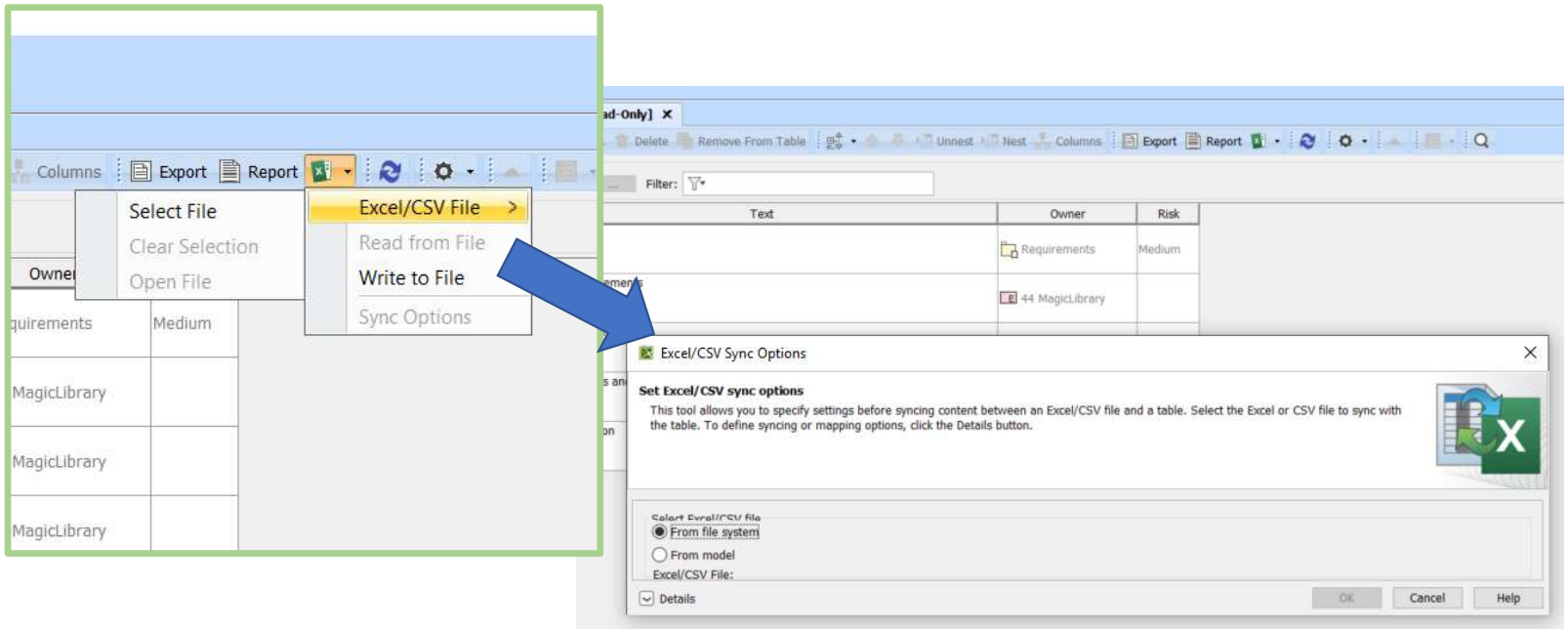
- From the Table view, you are given three options, with similar behavior on each option;
  - CSV Comma Separated Values
  - HTML Hyper Text Markup Language
  - Excel Workbook (supports sync)




Reliability, Safety, Logistics were able to use Excel files with their specialty tools

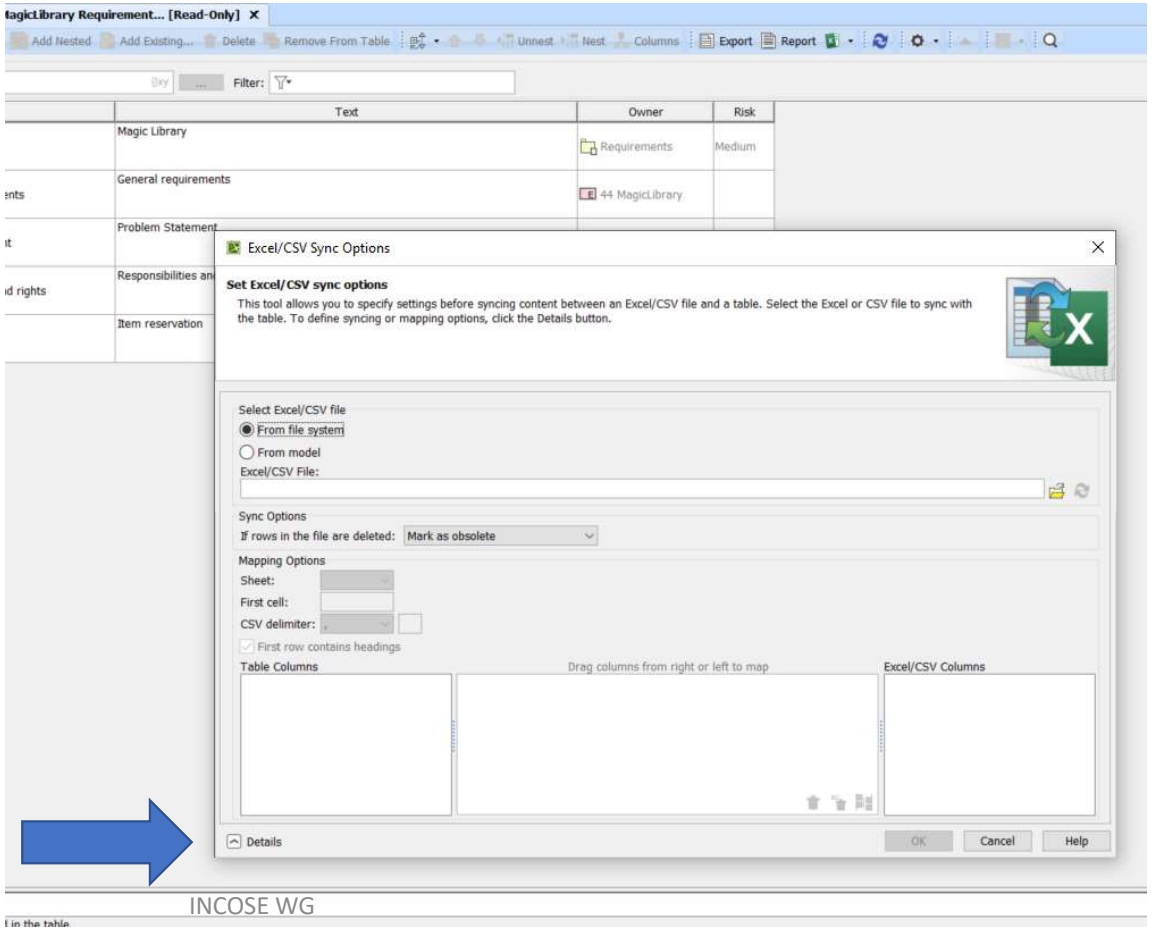
# Excel Export and Sync Option

- Perform a File export first to establish a template that can be subsequently  modified

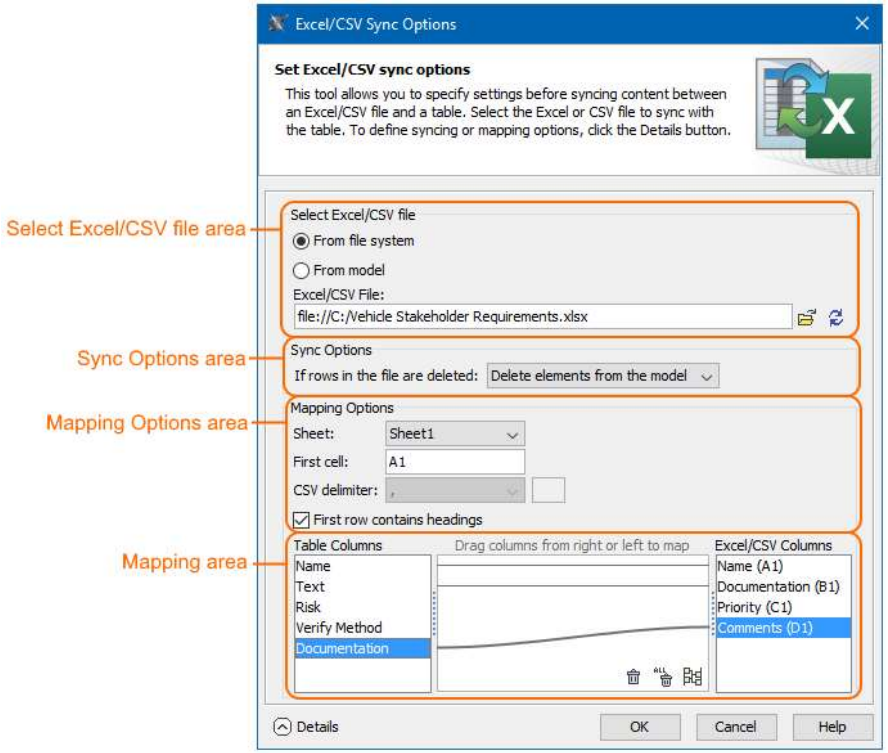


# Expand the Details dialog to set Sync Options

- Expand the Details dialog at bottom left of form to set Sync Options
- Select the file to populate the mapping options

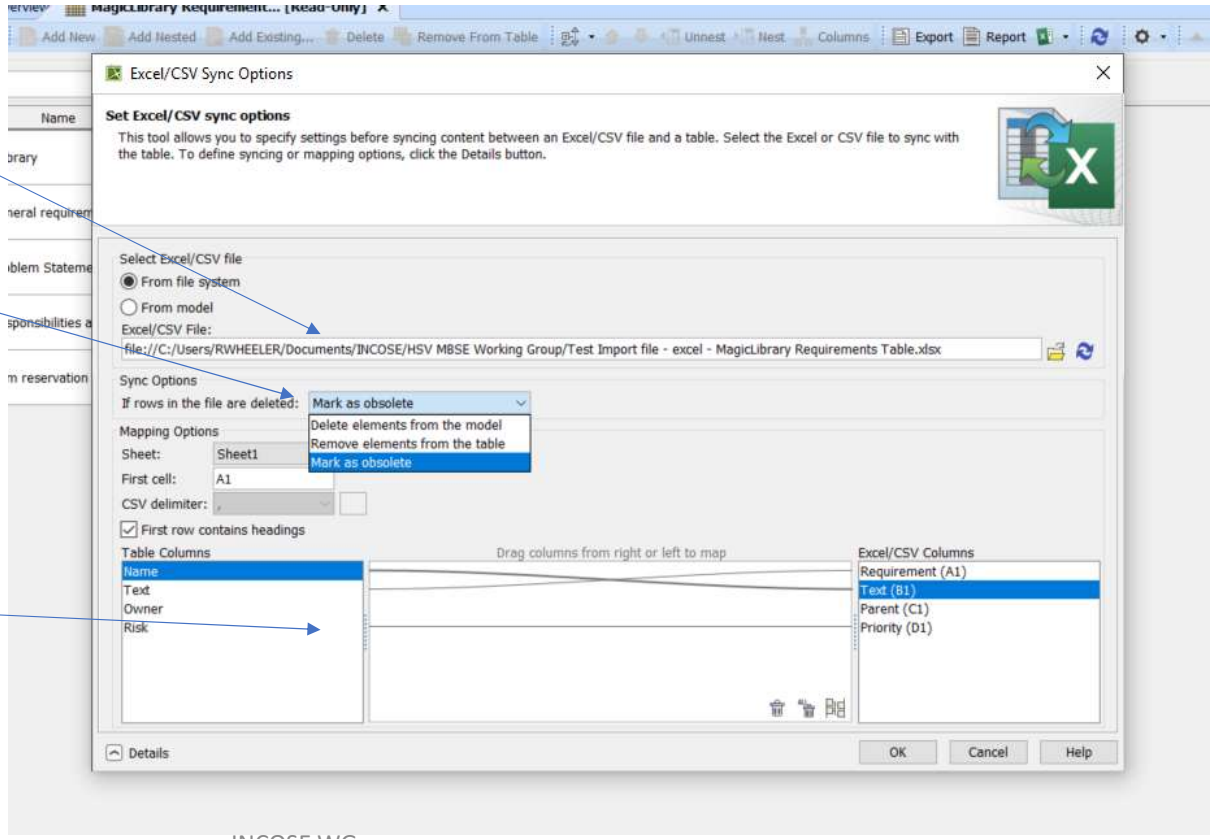


# Description of the Excel/CSV Sync Options dialog areas



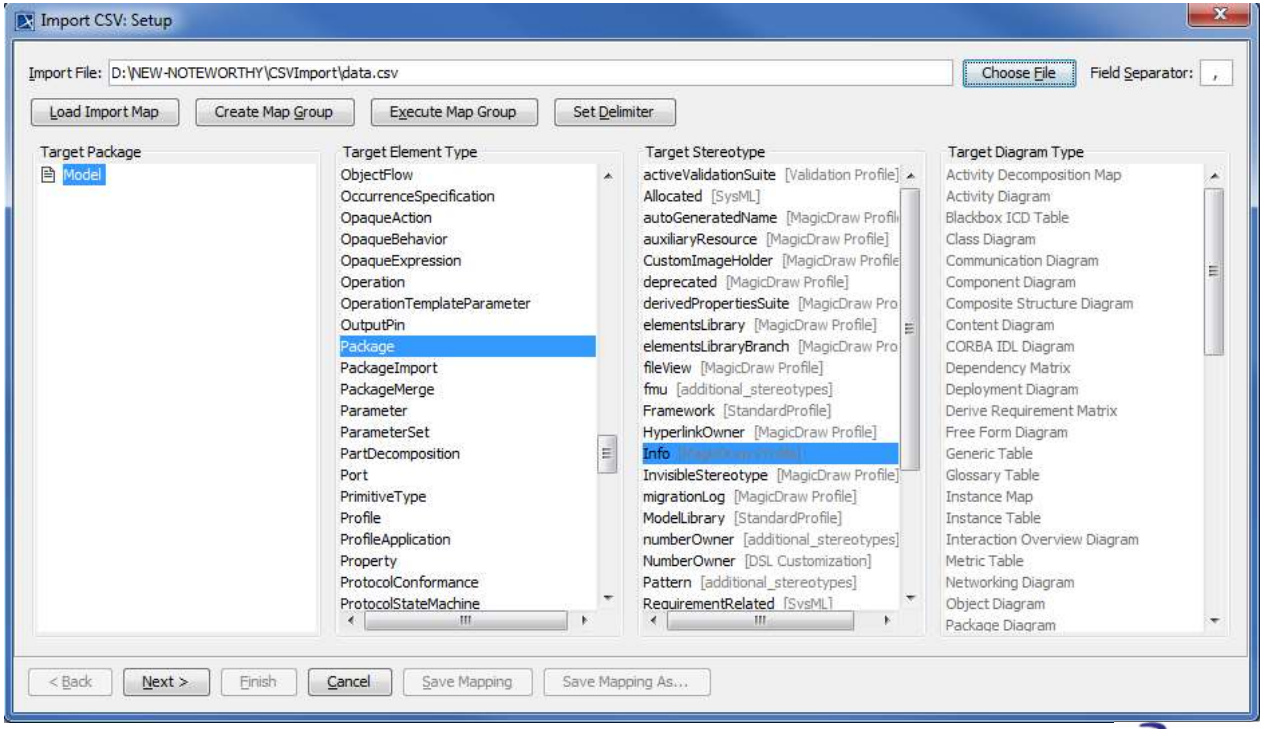
# Setting the Sync Mapping

- Select the File
- Select the Sync Option
- Establish Relationship between the Model and Excel File Row Names



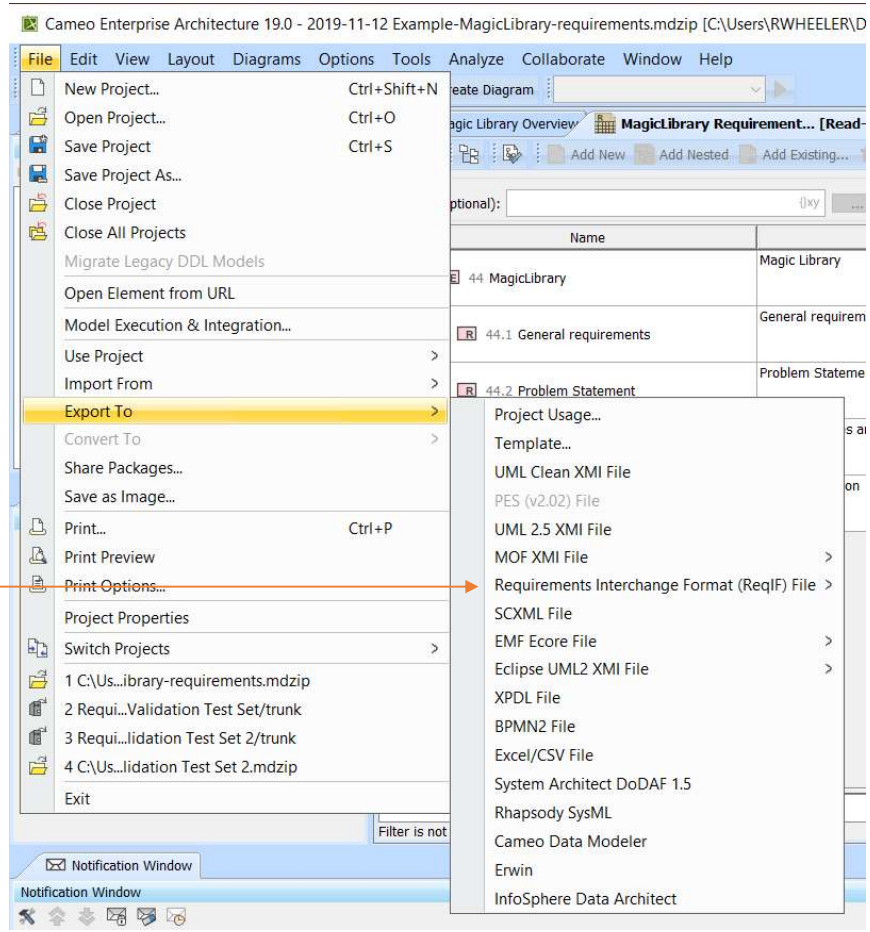
# CSV Import setup

After you open a project, you can start the *CSV* Import plugin by clicking **File** > **Import From** > **Import CSV** on the MagicDraw main menu. The **Import CSV: Setup** dialog, see figure below, will appear.



# Interchange with External Tools: Export / Import

- ReqIF™ Requirements Interchange Format
- https://www.omg.org/spec/ReqIF/About-ReqIF/
- OMG Open Standard Interface used by numerous commercial tools in exchanging requirements information
- OSLC OASIS Open Source



HOME SITE MAP LEGAL

## ABOUT THE REQUIREMENTS INTERCHANGE FORMAT SPECIFICATION VERSION 1.2

1.2 » REQIF » SPECIFICATIONS (HTTPS://WWW.OMG.ORG/SPEC)

# REQIF™

## Requirements Interchange Format

This document is created to inform: - Persons interested in exchanging requirements data between organizations that do not have a possibility to share the same repository. - Requirements authoring tool vendors who want to support the Requirements Interchange Format (ReqIF) with export and import interfaces for their requirements authoring tools. - Tool vendors other than requirements authoring tool vendors who wish to interchange requirements for documentation or other purposes. - Anyone interested in defining, interchanging, storing, etc., requirements in a standard interchange format.

**Title:**
Requirements Interchange Format
**Acronym:**
ReqIF™
**Version:**
1.2
**Document Status:**
formal ⓘ
**Publication Date:**
July 2016
**Categories:**
Domain (https://www.omg.org/spec/Category/Domain/)
Manufacturing (https://www.omg.org/spec/Category/Manufacturing/)
**IPR Mode ⓘ** (http://doc.omg.org/ipr)
RF-Limited ⓘ

Specification (https://www.omg.org/spec/ReqIF/1.2/PDF)

### TABLE OF CONTENTS



### COMPANIES THAT HAVE CONTRIBUTED TO THE DEVELOPMENT OF THIS SPECIFICATION



**Date:** July 2016

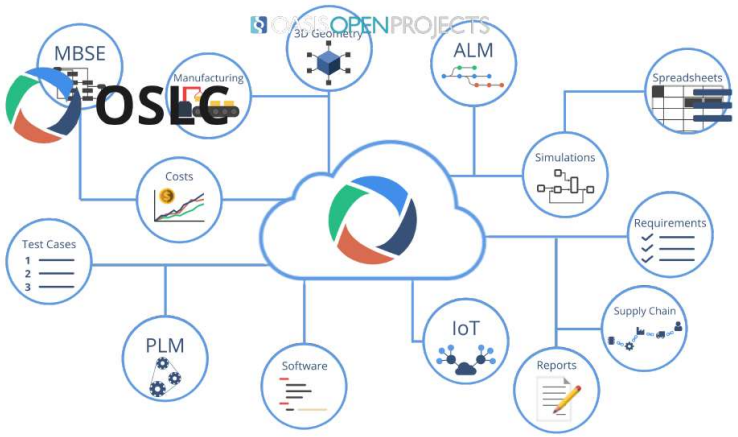
OBJECT MANAGEMENT GROUP®

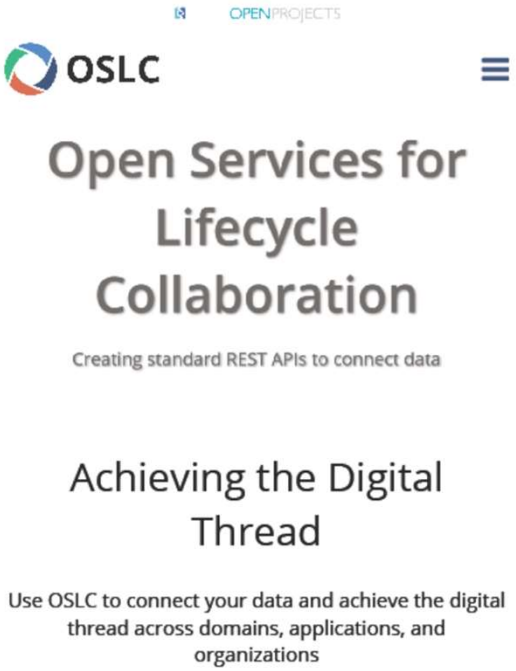
# Requirements Interchange Format (ReqIF)

*Version 1.2*


OMG Document Number: formal/2016-07-01
Standard document URL: http://www.omg.org/spec/ReqIF/1.2
Machine Consumable Files:
Normative: http://www.omg.org/spec/ReqIF/20101201/reqif.cmof
http://www.omg.org/spec/ReqIF/20110401/reqif.xsd
http://www.omg.org/spec/ReqIF/20110402/driver.xsd


OASIS OPEN PROJECTS


OASIS OPEN PROJECTS
OSLC
MBSE
Manufacturing
3D Geometry
ALM
Spreadsheets
Simulations
Costs
Requirements
Test Cases
1
2
3
PLM
Software
IoT
Supply Chain
Reports


OPENPROJECTS
OSLC
Open Services for Lifecycle Collaboration
Creating standard REST APIs to connect data
Achieving the Digital Thread
Use OSLC to connect your data and achieve the digital thread across domains, applications, and organizations

# CameoData Hub - $$$ MagicDraw Plugin Capabilities / introduction

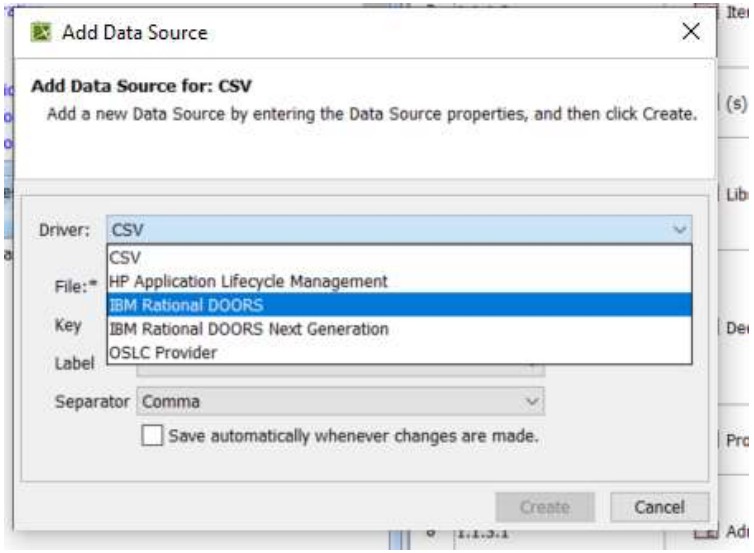
The primary use of Cameo DataHub is copying data with synchronization capabilities to and from the following requirement management tools.

- MagicDraw (MagicDraw® with SysML and UPDM Plugin 18.5)
- IBM® Rational® DOORS® (8.0, 8.1, 8.2, 8.3, 9.0, 9.1, 9.2, 9.3, 9.4, 9.5, and 9.6)
- IBM® Rational® DOORS® Next Generation 4.x, 5.x, and up to 6.0.4
- HP Application Lifecycle Management (ALM) 12.x
- CSV files

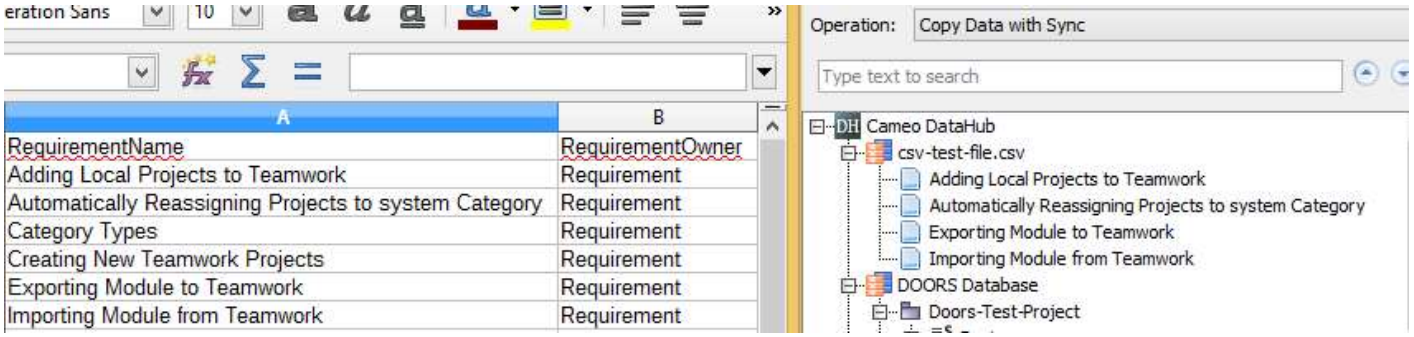
Can copy text-based requirements and requirement objects between the applications mentioned above.

# DataHub:  Data Sources

- DataHub  supports multiple file connection types;
- Comma Separated Values
- IBM DOORS
- IBM DOORS Next Generaltion
- OSLC Provider

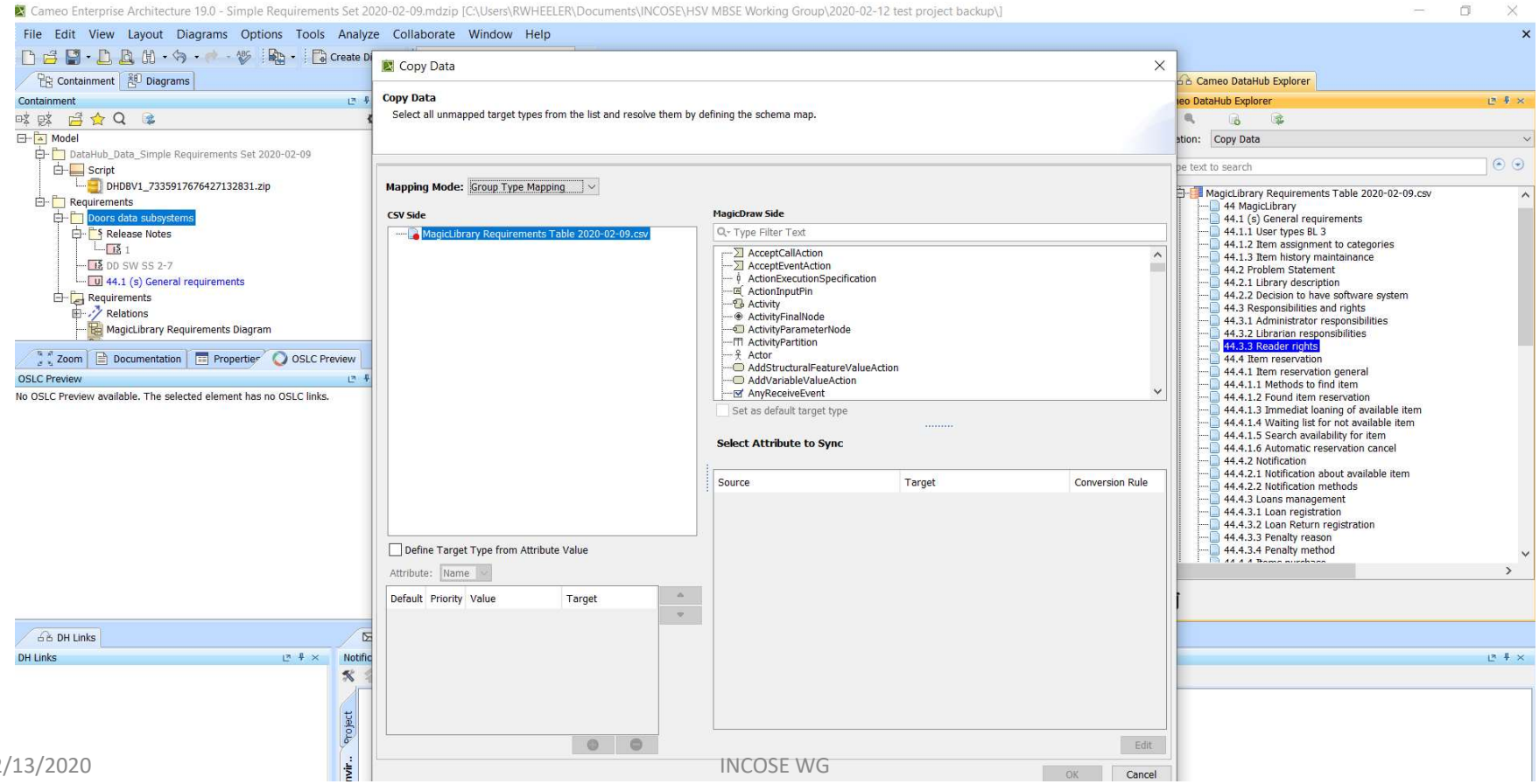


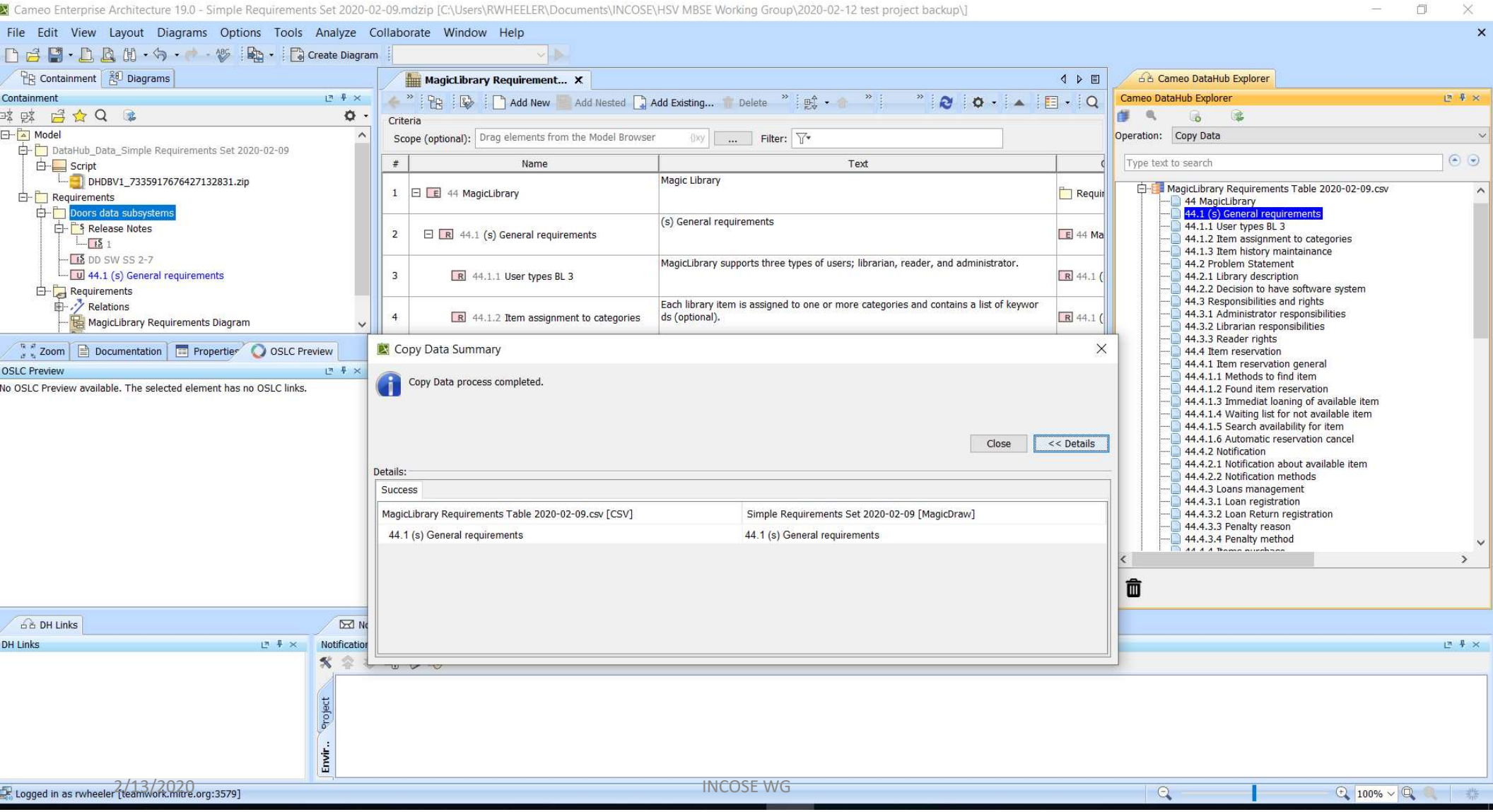
# DATAHub – CSV



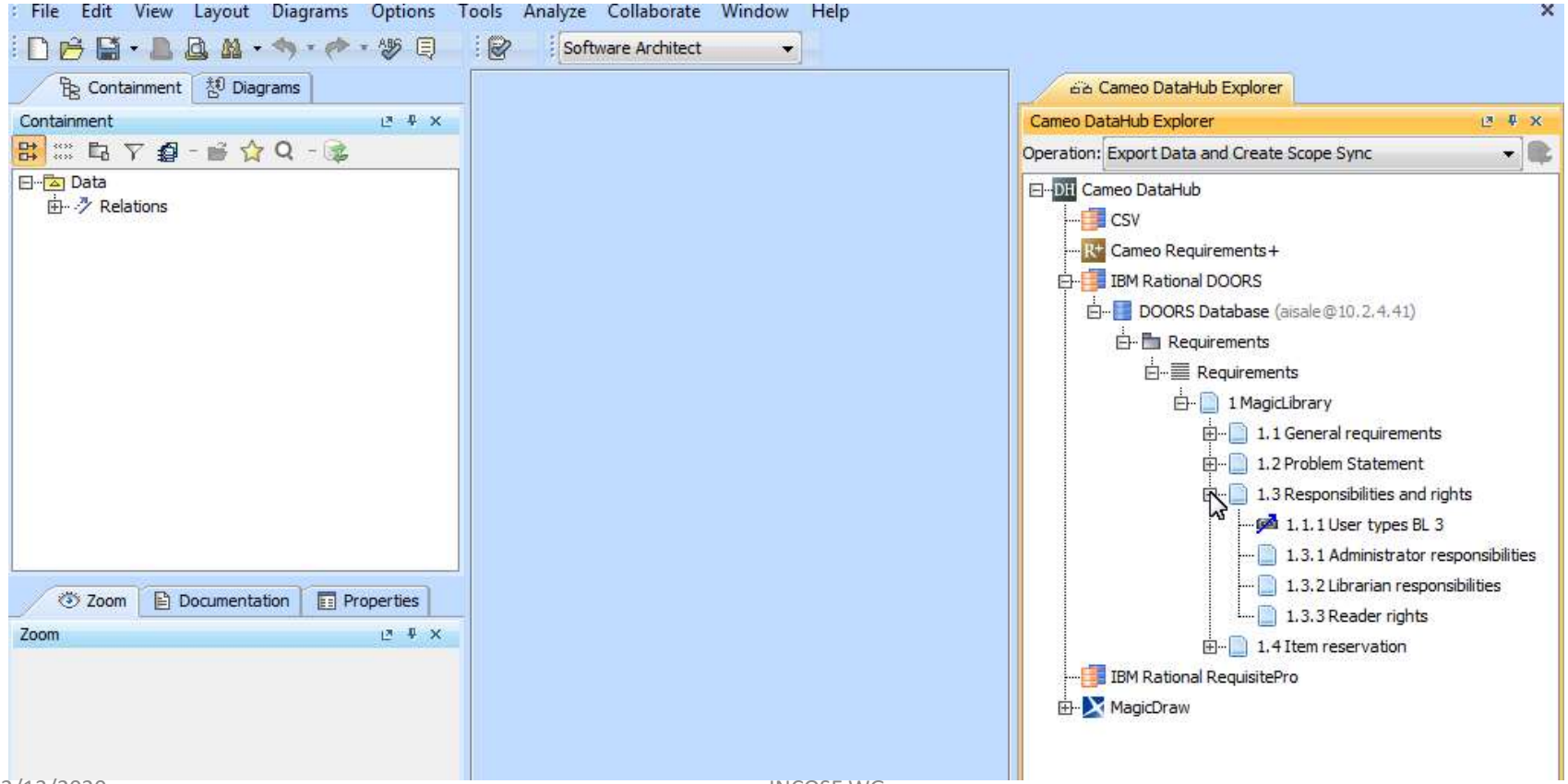

The CSV file is not updated when the updates on the tree-view CSV Data Source are not saved.

# CSV Data Mapping in DataHub

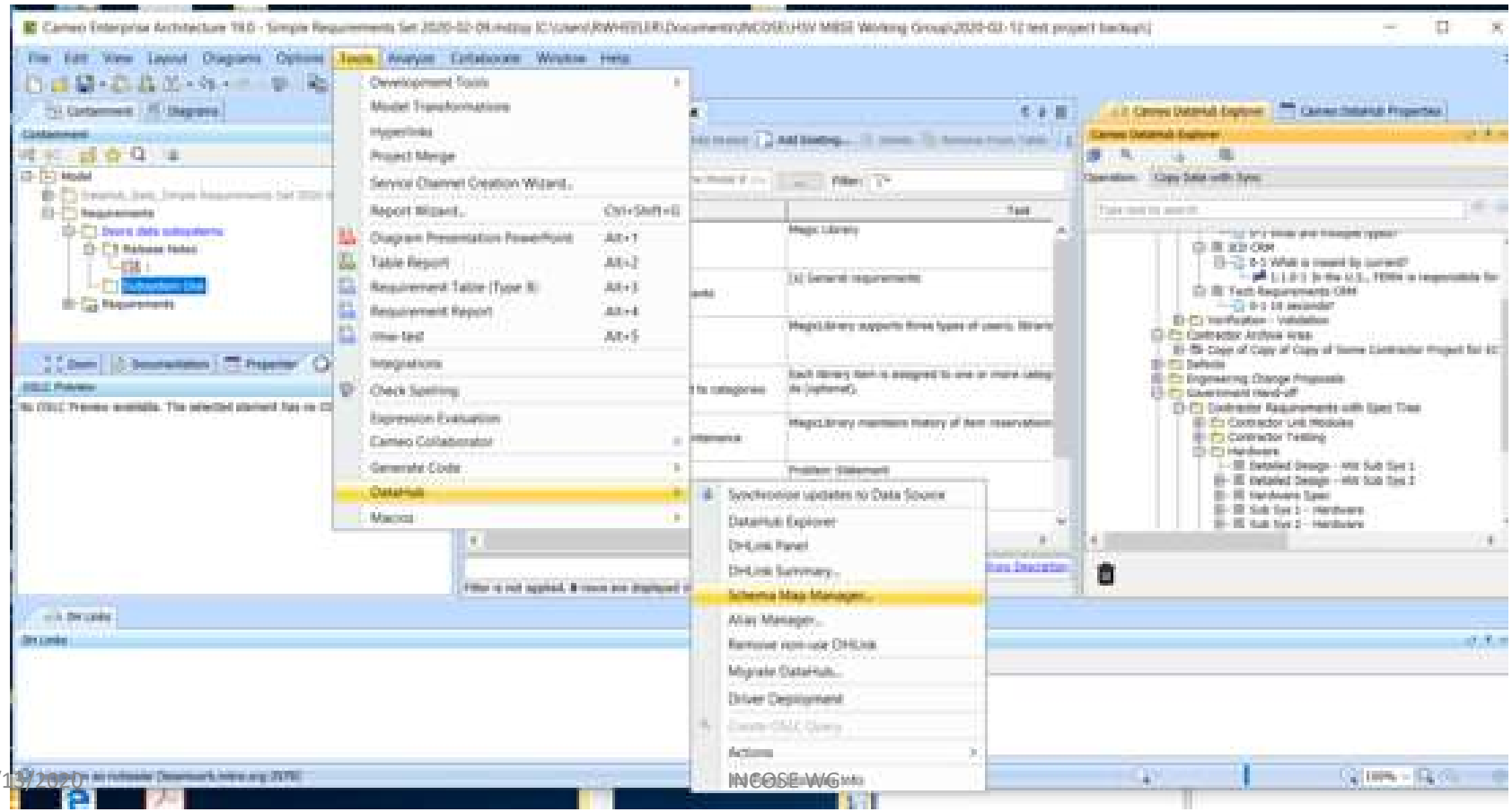



Cameo Enterprise Architecture 19.0 - Simple Requirements Set 2020-02-09.mdzip [C:\Users\RWHEELER\Documents\INCOSE\HSV MBSE Working Group\2020-02-12 test project backup\]
File Edit View Layout Diagrams Options Tools Analyze Collaborate Window Help
Create Diagram
Containment
Diagrams
Containment
Model
DataHub_Data_Simple Requirements Set 2020-02-09
Script
DHDBV1_7335917676427132831.zip
Requirements
Doors data subsystems
Release Notes
1
DD SW SS 2-7
44.1 (s) General requirements
Requirements
Relations
MagicLibrary Requirements Diagram
MagicLibrary Requirement...
Add New
Add Nested
Add Existing...
Delete
Criteria
Scope (optional):
Drag elements from the Model Browser
Filter:
# Name Text
1 44 MagicLibrary Magic Library
2 44.1 (s) General requirements (s) General requirements
3 44.1.1 User types BL 3 MagicLibrary supports three types of users; librarian, reader, and administrator.
4 44.1.2 Item assignment to categories Each library item is assigned to one or more categories and contains a list of keywords (optional).
Cameo DataHub Explorer
Operation: Copy Data
Type text to search
MagicLibrary Requirements Table 2020-02-09.csv
44 MagicLibrary
44.1 (s) General requirements
44.1.1 User types BL 3
44.1.2 Item assignment to categories
44.2 Problem Statement
44.2.1 Library description
44.2.2 Decision to have software system
44.3 Responsibilities and rights
44.3.1 Administrator responsibilities
44.3.2 Librarian responsibilities
44.3.3 Reader rights
44.4 Item reservation
44.4.1 Item reservation general
44.4.1.1 Methods to find item
44.4.1.2 Found item reservation
44.4.1.3 Immediat loaning of available item
44.4.1.4 Waiting list for not available item
44.4.1.5 Search availability for item
44.4.1.6 Automatic reservation cancel
44.4.2 Notification
44.4.2.1 Notification about available item
44.4.2.2 Notification methods
44.4.3 Loans management
44.4.3.1 Loan registration
44.4.3.2 Loan Return registration
44.4.3.3 Penalty reason
44.4.3.4 Penalty method
Zoom
Documentation
Properties
OSLC Preview
OSLC Preview
No OSLC Preview available. The selected element has no OSLC links.
Copy Data Summary
Copy Data process completed.
Close
<< Details
Details:
Success
MagicLibrary Requirements Table 2020-02-09.csv [CSV]
Simple Requirements Set 2020-02-09 [MagicDraw]
44.1 (s) General requirements
44.1 (s) General requirements
DH Links
DH Links
Notification
Project
Envir...
Logged in as rwheeler [teamwork.mitre.org:3579]
100%

# DataHub – DOORS Requirements Explorer

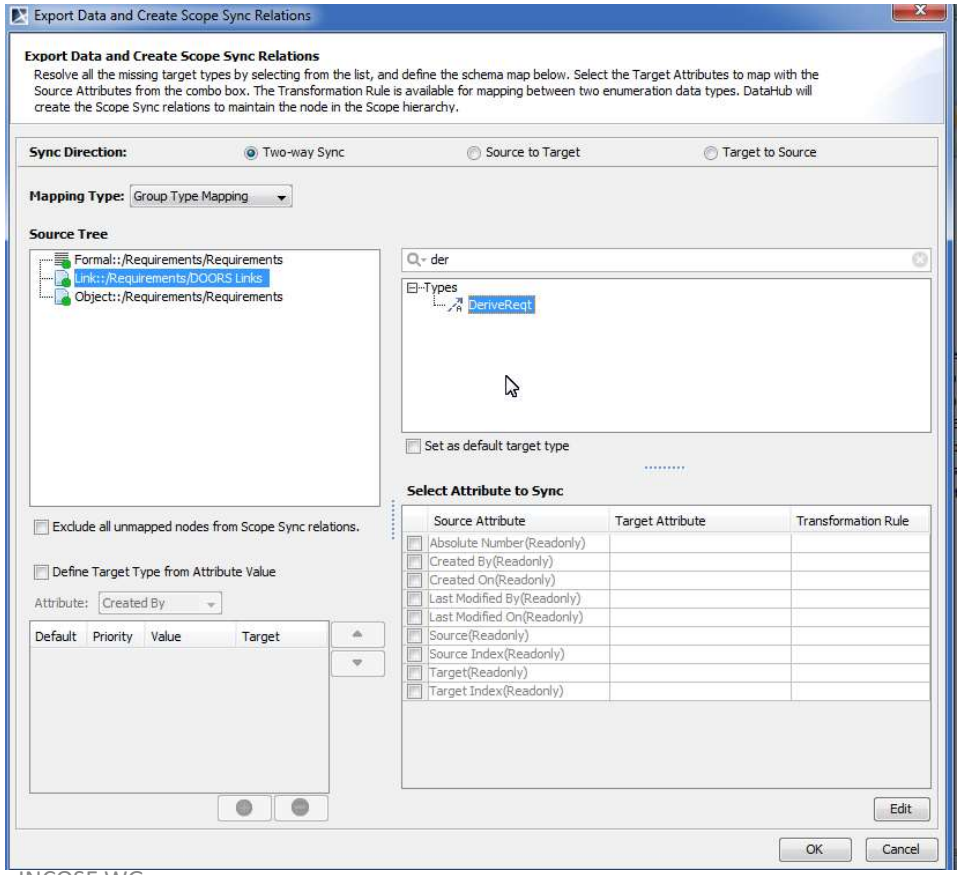


# DataHub Schema Map Manager



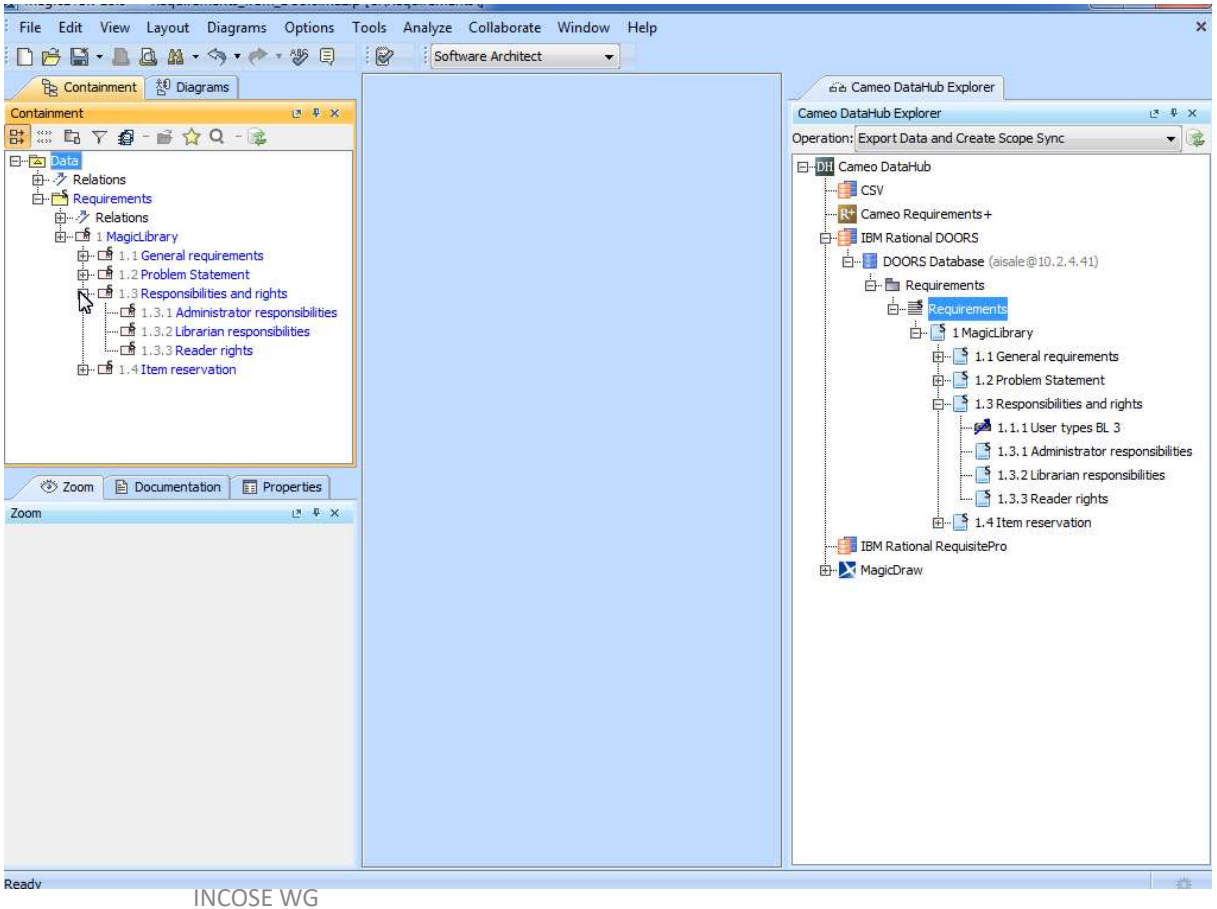
# Identify Elements to Import from DOORS

- Establishing mapping in datahub is preformed in similar to the excel and csv file;
- Select the data type
- Select the data attributes to be populated
- Select the direction of data flow (from file, to file, or bidirectional sync)



# Requirements Synchronized in Both Tools or one-way sync

- Note the requirements in MagicDraw are blue as the model has not been saved after sync.
- Each requirement has an “S” indicating it is synchronized with DOORS.
- Changes made in either tool can be pushed to the other tool by selecting update on the DataHub menu



# DataHub Operations

**Data**

Data refers to an item whose specific format enables it to be synchronized with and referenced to and from another data. Data can be a MagicDraw® element or relation, a DOORS node or relation, or a CSV row.

**DataHub operations**

You can use DataHub operations to copy data, copy data with sync, create OSLC Link, copy data and create DHTrace, or create DHTrace. The table below describes the functions of the DataHub operations.

| Operation | Function |
|---|---|
| **Copy Data** | To copy data without creating any DHLinks. |
| **Copy Data With Sync** | To copy data and create a DHLink for synchronization. |
| **Copy Data with DHTrace** | To copy data and also create DHTrace links between source and target. |
| **Create DHTrace** | To create only a DHTrace link without any data. |
| **Create OSLC Link** | To create an OSLC Link. |

# DataHub – My.Lessons Learned

- MagicDraw ID's can be changed – DOORS Object ID's can not be changed. Recommend capturing the DOORS ID within the MagicDraw element as a backup method of maintaining traceability across the databases

- DO NOT DELETE THE SYNC "S" or link package without thinking it through at least twice

- Generally DOORS admin is different than the MagicDraw Admin – the two admins must work together when considering schema changes and and how it will affect data synchronization