GETTING THE MOST OUT OF TEAMWORK CLOUD (MAGIC COLLABORATION STUDIO)

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- 18 years of experience in Computer and Software Engineering
- Leading Teamwork Cloud development for more than 7 years
- 3DS representative at OMG SysML v2 API and Services RTF
- Active member of OMG RAS 3.0 (Reusable Assets) RFC

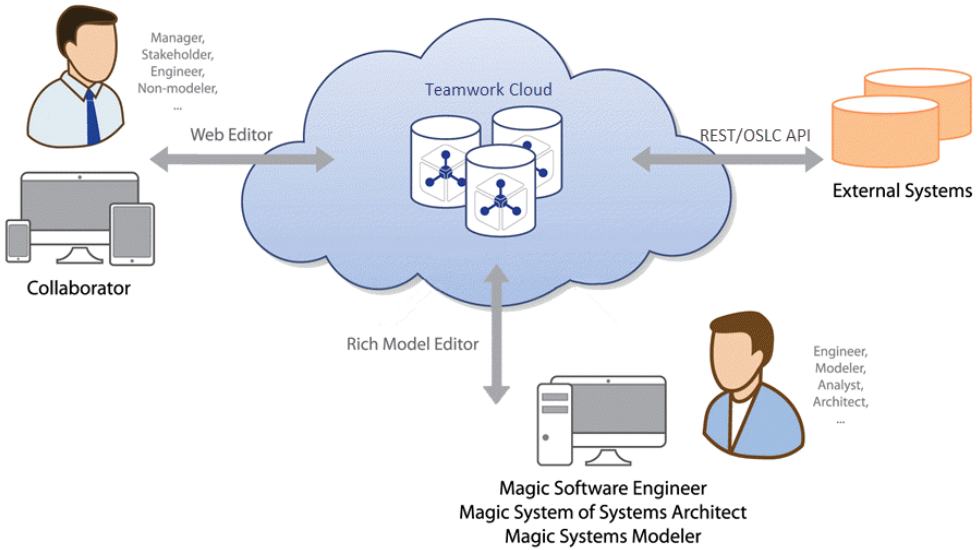
DASSAULT SYSTEMES

WHAT IS MAGIC COLLABORATION STUDIO?

- Magic Collaboration Studio is CATIA No Magic's bundle of products for collaborative model development
  - Teamwork Cloud
  - Cameo Collaborator

Teamwork Cloud

CAMEO® COLLABORATOR



DASSAULT SYSTEMES

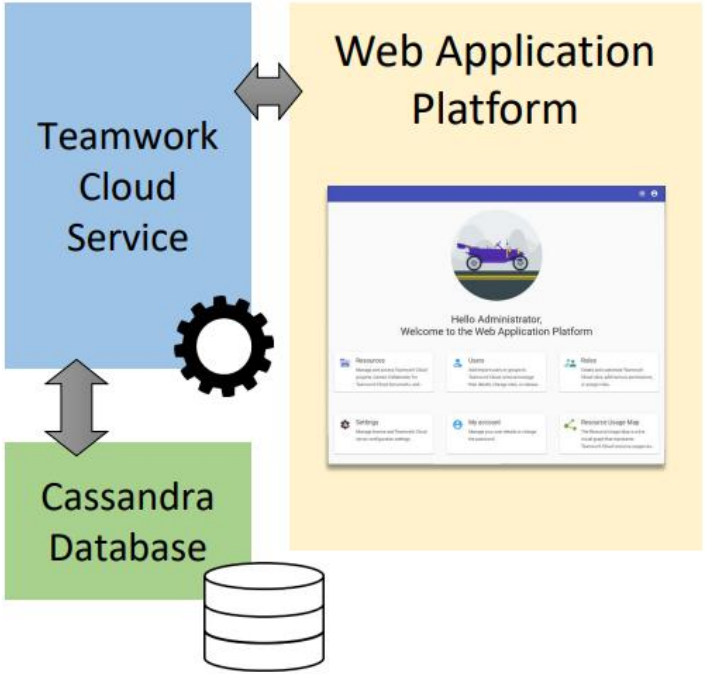
OUTLINE

- Introduction
- Key Model Management Principles
- APIs and Services
- Recent feature highlights

INTRODUCTION

WHAT IS TWC?

- Teamwork Cloud is CATIA No Magic's repository for collaborative model development and model version storage.
- As the name suggests, this product is Cloud-ready, and it can be deployed on a local hardware (VM) or on a hosted server in the Cloud.
- Teamwork Cloud can be accessed both by Cameo modeler and web interface
- Teamwork Cloud also exposes its data via REST and OSLC APIs



WHAT CAN I DO WITH TWC?

- Collaborative modeling (internal and external)
- Model versioning
- Model history
- Model branching and merging
- Access control
- Model and repository analysis
- Model exchange

INTERACTING WITH TWC

Hello Administrator,
Welcome to the Web Application Platform

Resources
Manage and access Teamwork Cloud projects, Cameo Collaborator for Teamwork Cloud documents, and OSLC resources.

Users
Add/import users or groups to Teamwork Cloud, remove/manage their details, change roles, or release locked elements.

Roles
Create and customize Teamwork Cloud roles, add/remove permissions, or assign roles.

Settings
Manage license and Teamwork Cloud server configuration settings.

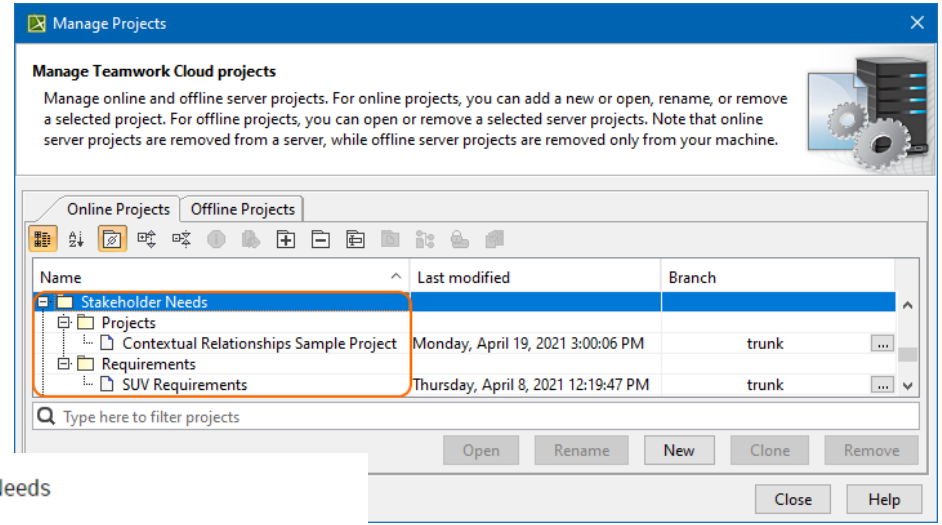
Resource Usage Map
The Resource Usage Map is a live visual graph that represents Teamwork Cloud resource usages as well as identifies potential problem areas.

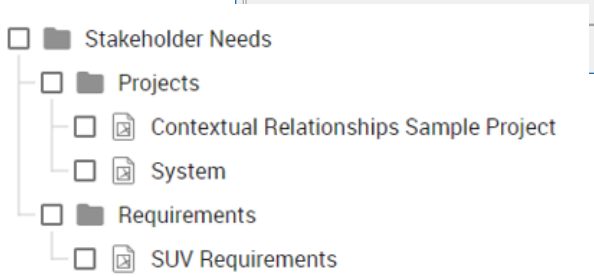
My account
Manage your user details or change the password.

KEY MODEL ORGANIZATION AND MANAGEMENT PRINCIPLES

RESOURCE ORGANIZATION

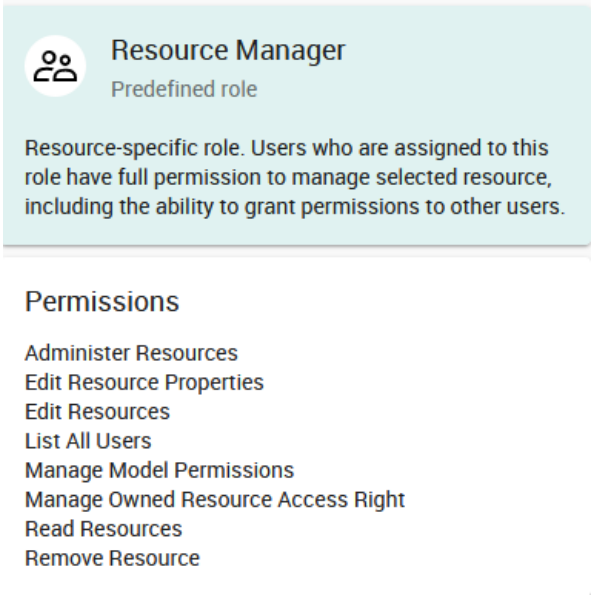
- Resource types
  - Cameo models
  - Collaborator documents
  - OSLC documents
- Resources are grouped into categories
- Categories can be nested





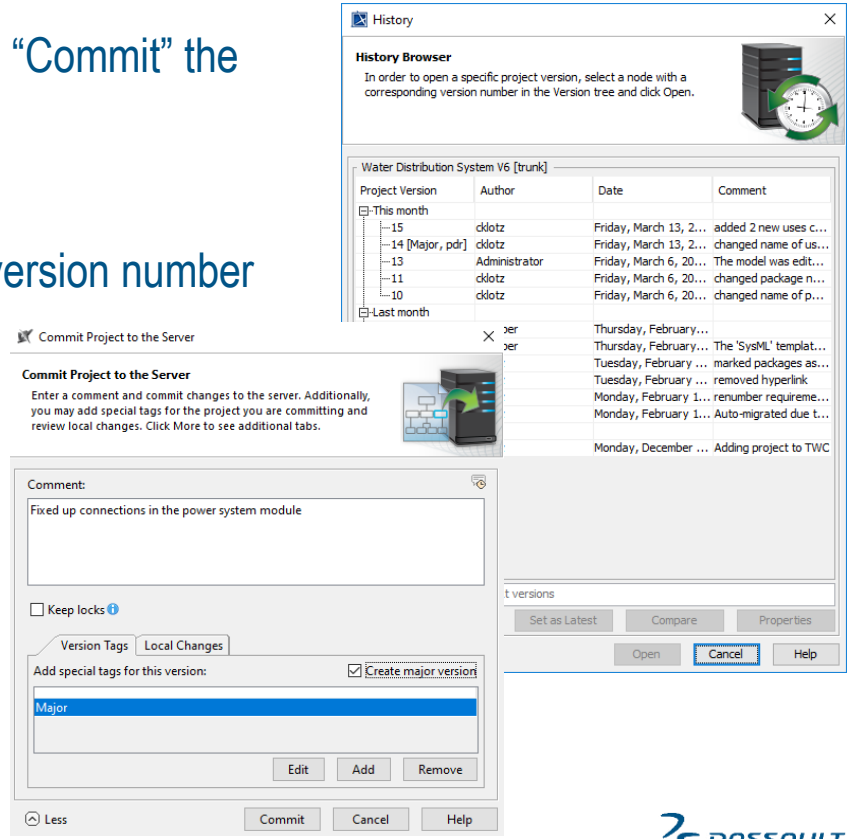
ACCESS CONTROL

- Teamwork Cloud uses Role Based Access Control (RBAC) mechanism to handle access to resources and categories in the repository
- A predefined set of Roles comes with installation by default
- Custom Roles can be created containing custom subset of Permissions
- Roles can be global or custom-scoped
- An end user gets assigned a Role and a Scope (in case of a scoped permission)
- Data Markings as an additional security layer on top

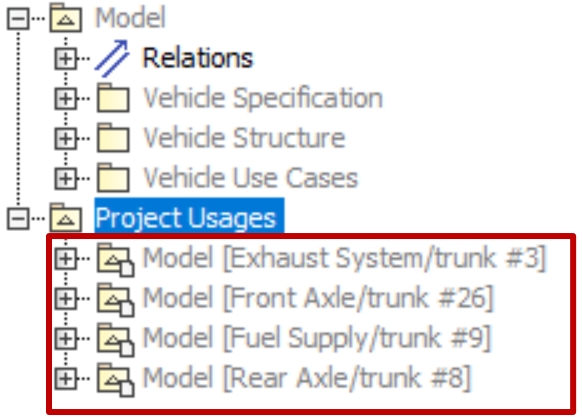


MODEL VERSIONING

- When a user modifies a project, the user will then “Commit” the changes to Teamwork Cloud
- Each commit creates a new version of the project
- A version will be assigned a unique consecutive version number
- Significant model versions driving model lifecycle state changes can be marked by tags
- Optimistic and pessimistic locking modes



MODEL COMPOSITION

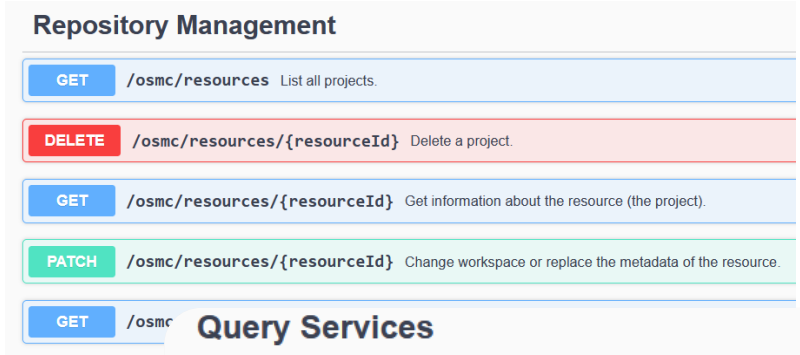


- When modeling complex large systems, model composition plays a crucial role
- TWC project can be decomposed to consist of other projects (Used Projects)
- Libraries, Sub-systems, Requirements etc.
- Master project can reference (use) different versions and branches of Used Projects
- Utilities available for efficient Used Project configuration and version handling

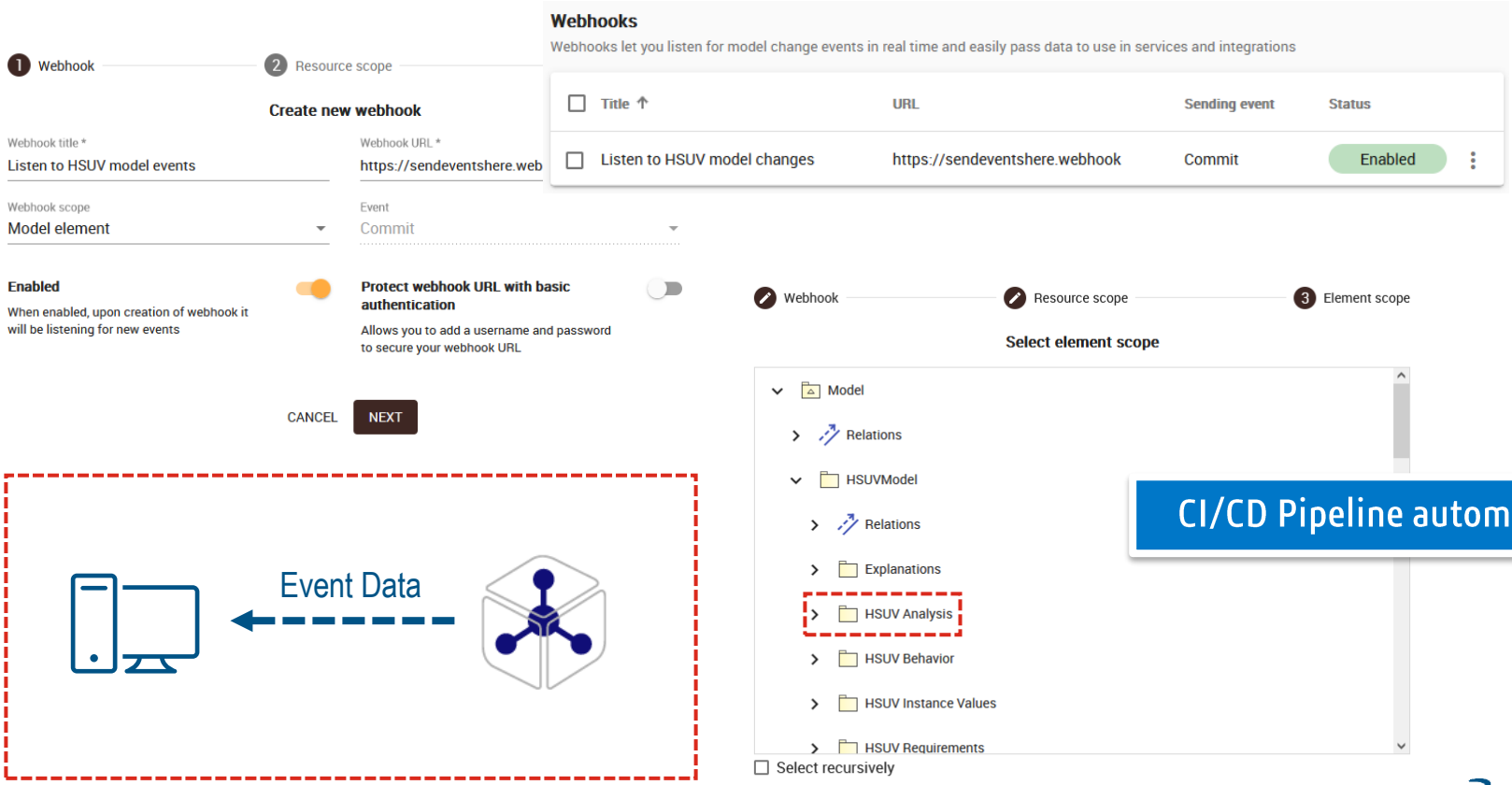
APIs and Services

WHAT KIND OF APIs?

- Administration
- Repository Management
- Model Management
- Model Decomposition and DSL extensions
- Webhooks
- **SysML v2 standard API and Services**



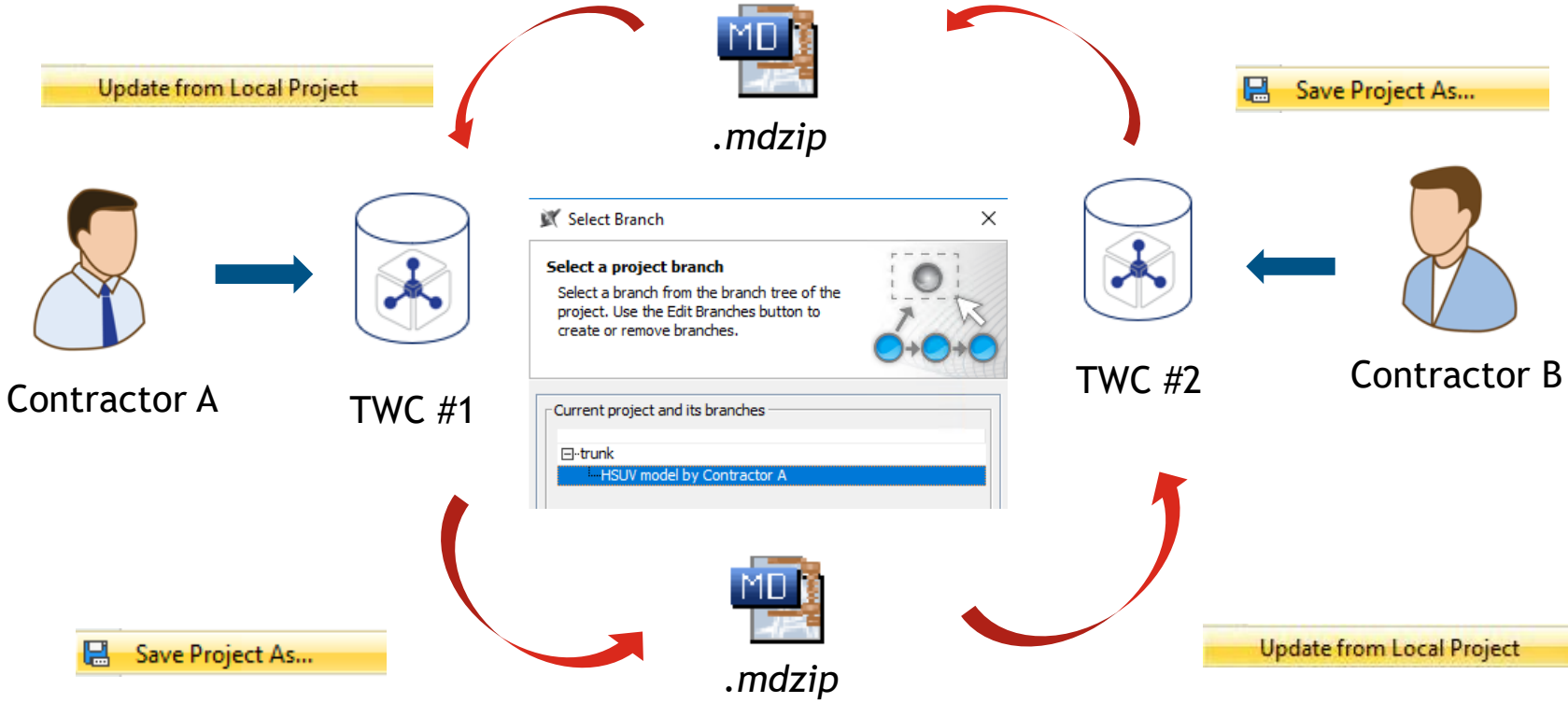
WEBHOOKS



CI/CD Pipeline automation

MODEL EXCHANGE

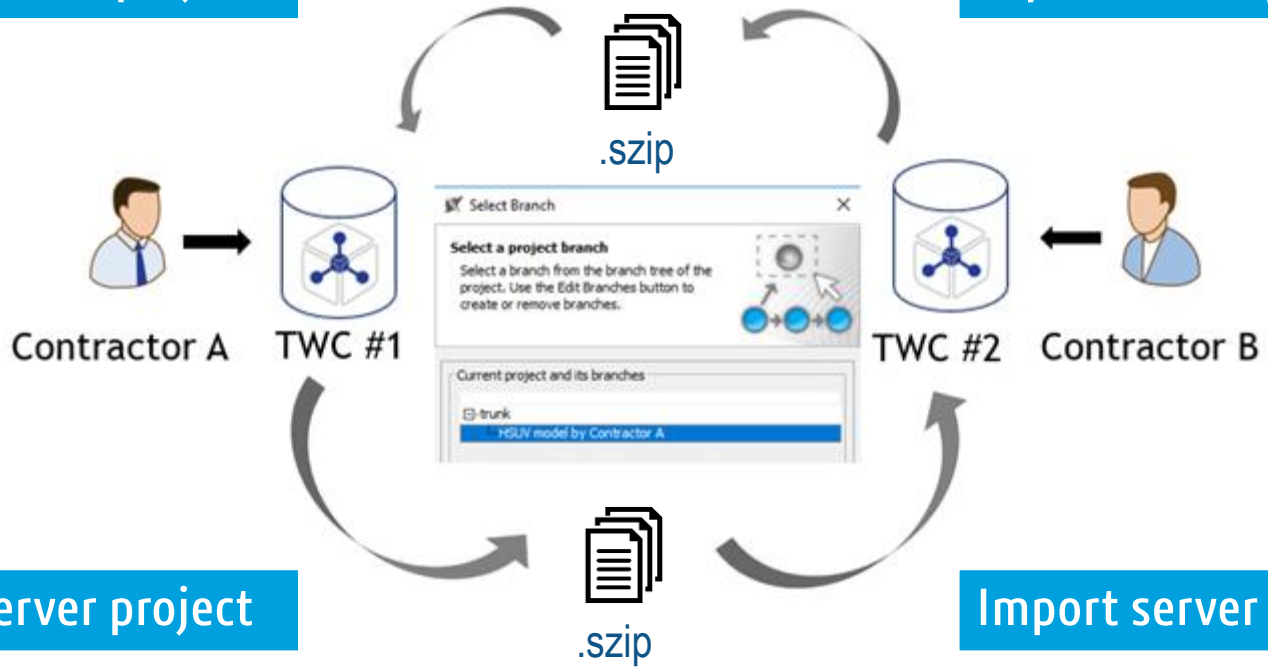
CLASSICAL MODEL EXCHANGE VIA .MDZIP



REWORKED DISCONNECTED TEAM COLLABORATION

Import server project

Export server project

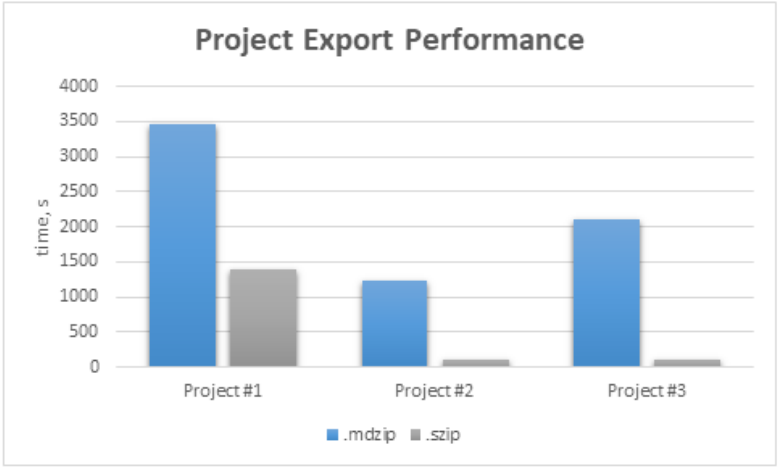


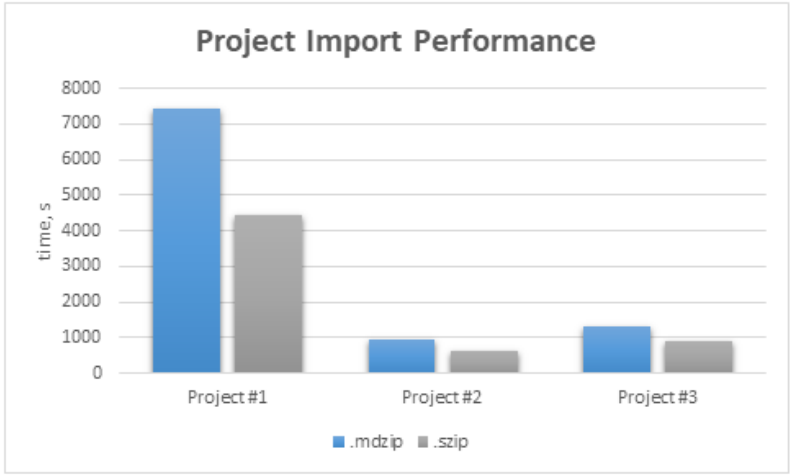
Export server project

Import server project

.mdzip → .szip (server zip)

.MDZIP VS .SZIP PERFORMANCE

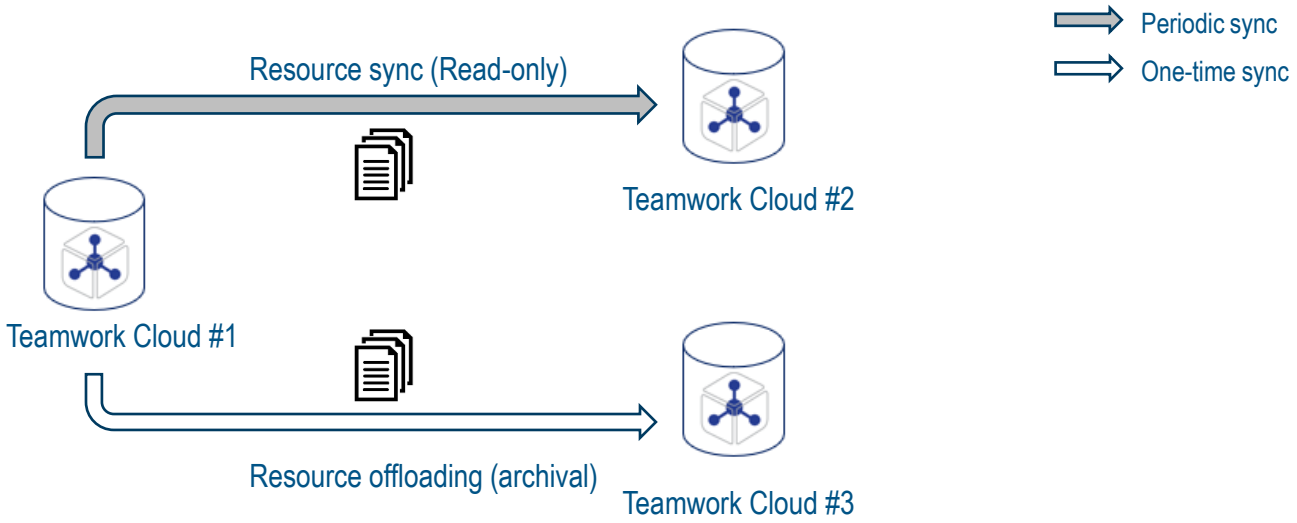




Project #1 (1M elements, 57 Used Projects), Project #2 (2M elements, 7 Used Projects), Project #3 (2M+ elements, 3 Used Projects)

CROSS-CLUSTER SYNC

CROSS-CLUSTER RESOURCE SYNC



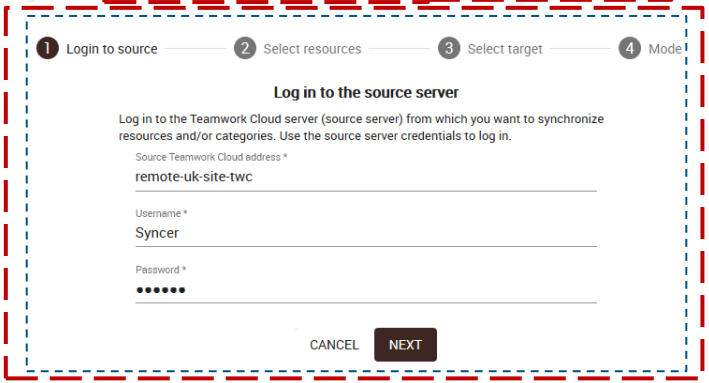
Synchronize/move resources across multi-site TWC deployments

CROSS-CLUSTER RESOURCE SYNC (II)

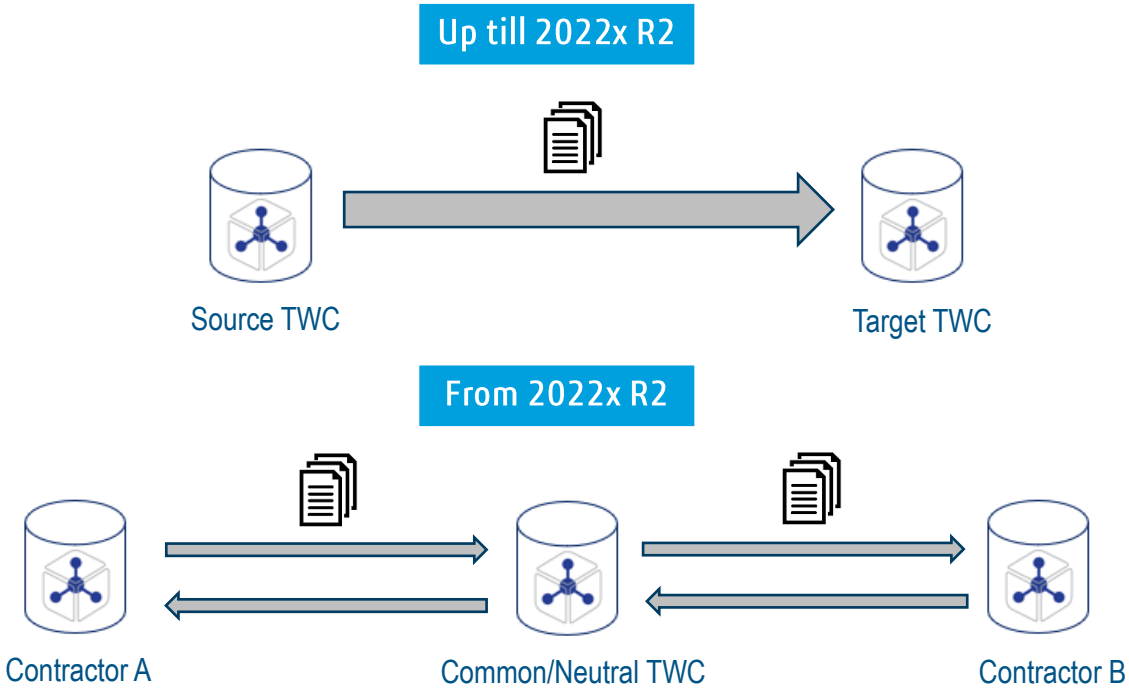
Remote repository management

Synchronize resources from another instance of Teamwork Cloud

Category/Resource from Source	Target category	Source address	Synchronization mode	Status	Synchronized
Vehicle Electrical System	Supplier A Models	twc-a-supplier	On every new commit	Partially synchronized	Sep 24, 2021, 11:23:06 AM
Climate Control System	From UK Site	uk-twc-site	majorVersion	Synchronized	Sep 20, 2021, 2:33:09 PM
Temperature Regulation Loop	Supplier B Models	twc-b-supplier	Manual	Synchronized	Sep 24, 2021, 10:11:05 AM

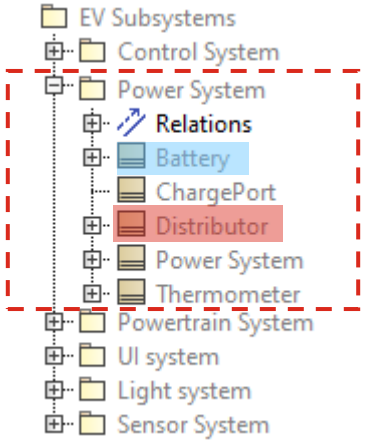


CROSS-CLUSTER RESOURCE SYNC TOPOLOGIES

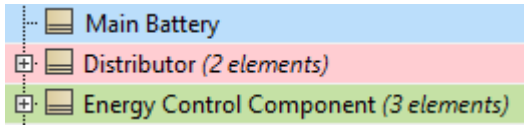


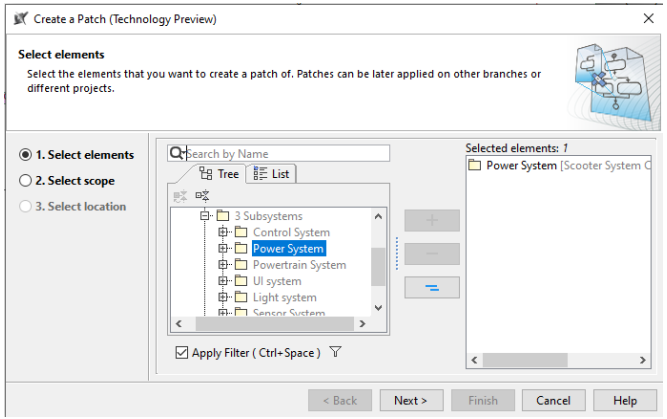
MODEL PATCHING

PORTABLE MODEL DIFF & PATCH (EXPORT)

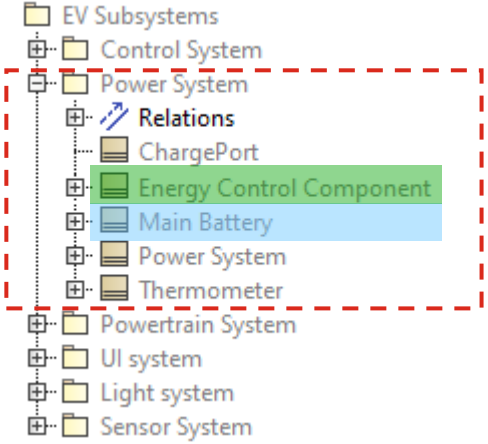


Source Model v1



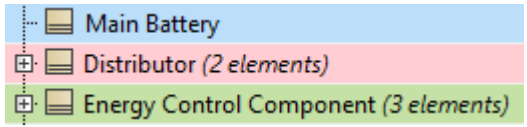


PowerSystemV1-V2.patch

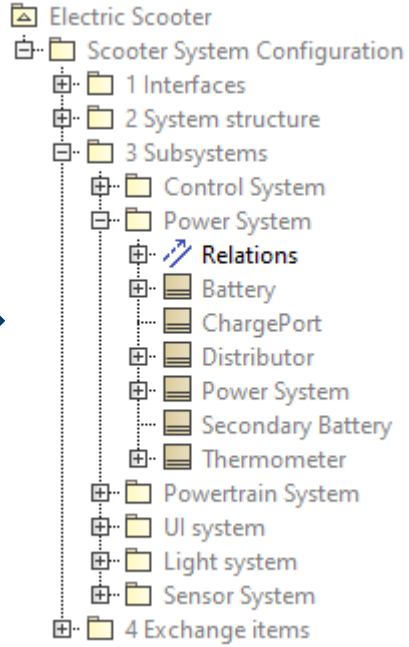


Source Model v2

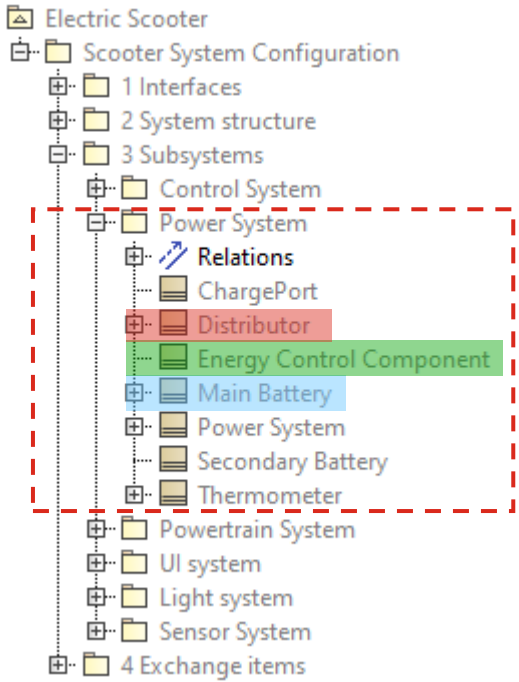
PORTABLE MODEL DIFF & PATCH (APPLICATION)



PowerSystemV1-V2.patch



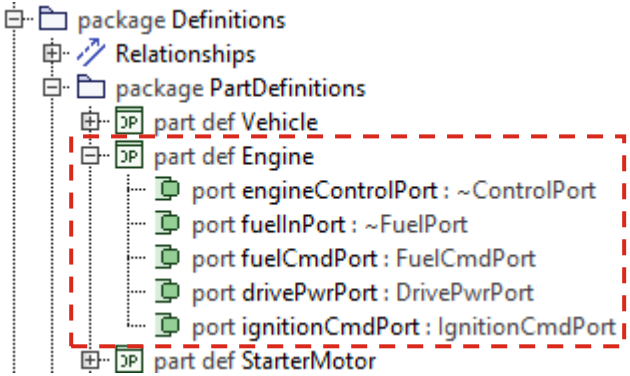
Target Model

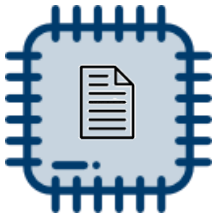


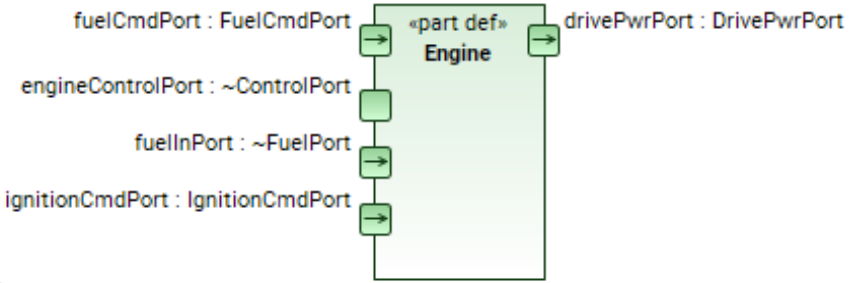
Resulting Target Model

MODEL PATCHING (BB)

A Serializable Model Change Set



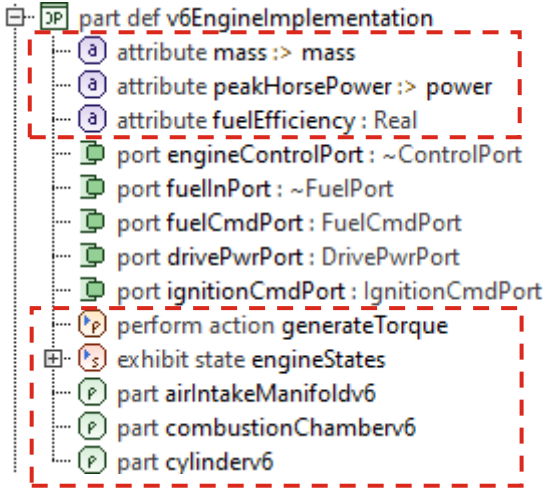


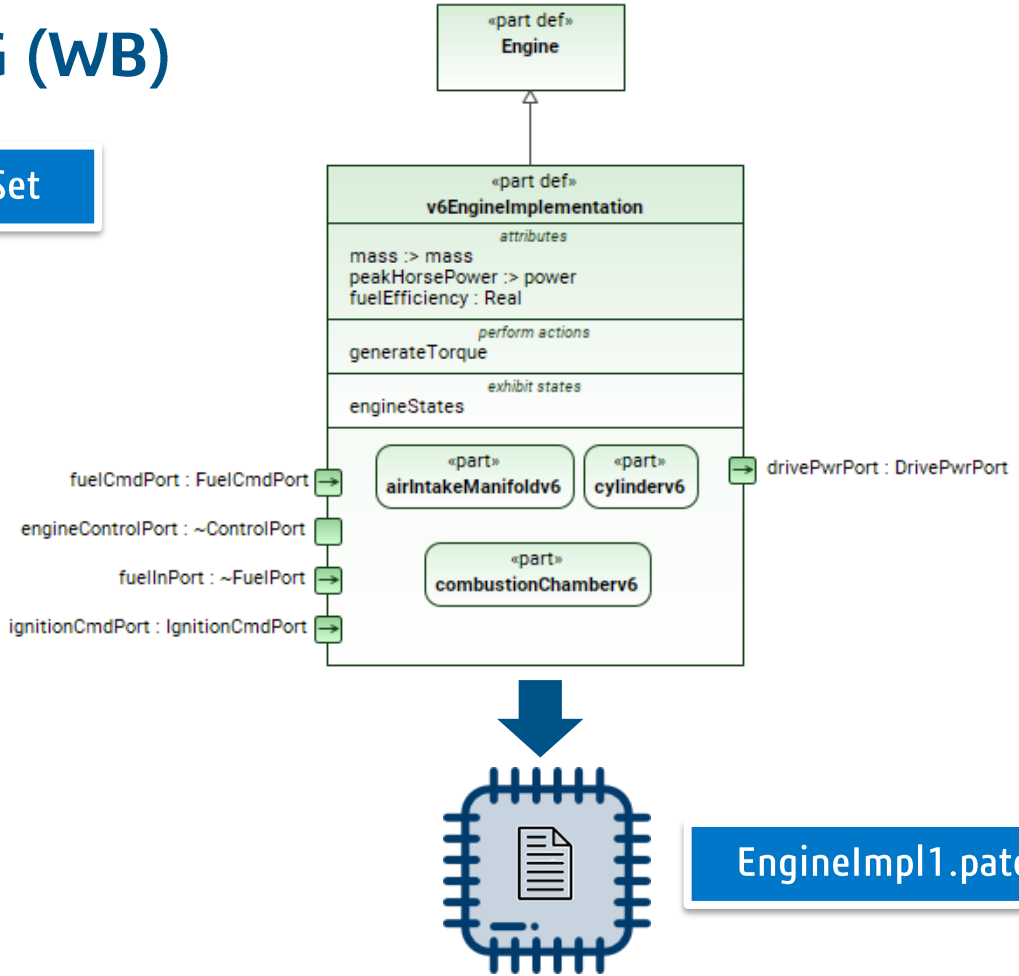


EngineBlackBox.patch

MODEL PATCHING (WB)

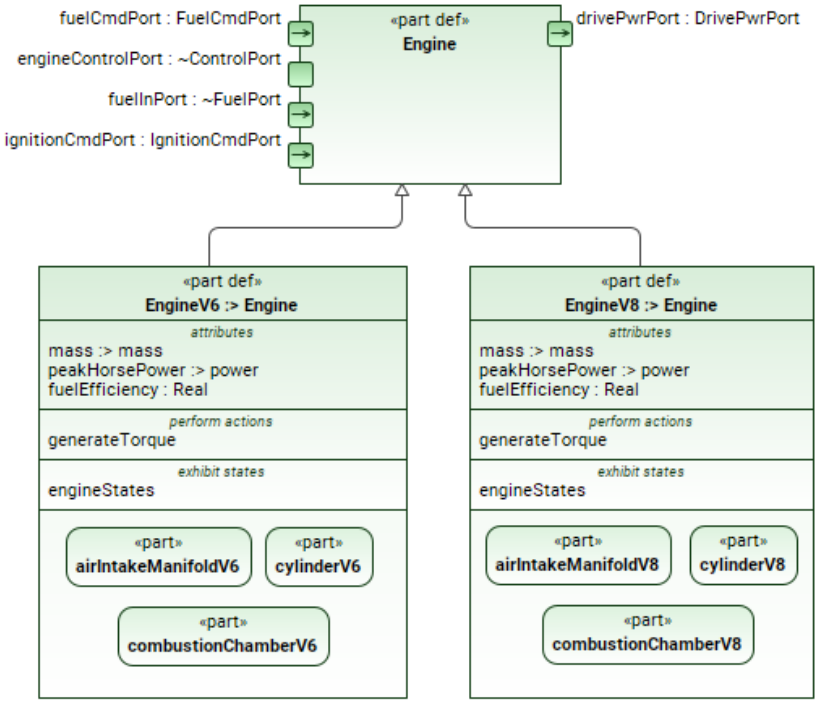
A Serializable Model Change Set





MODEL PATCHING (MULTIPLE WBs)

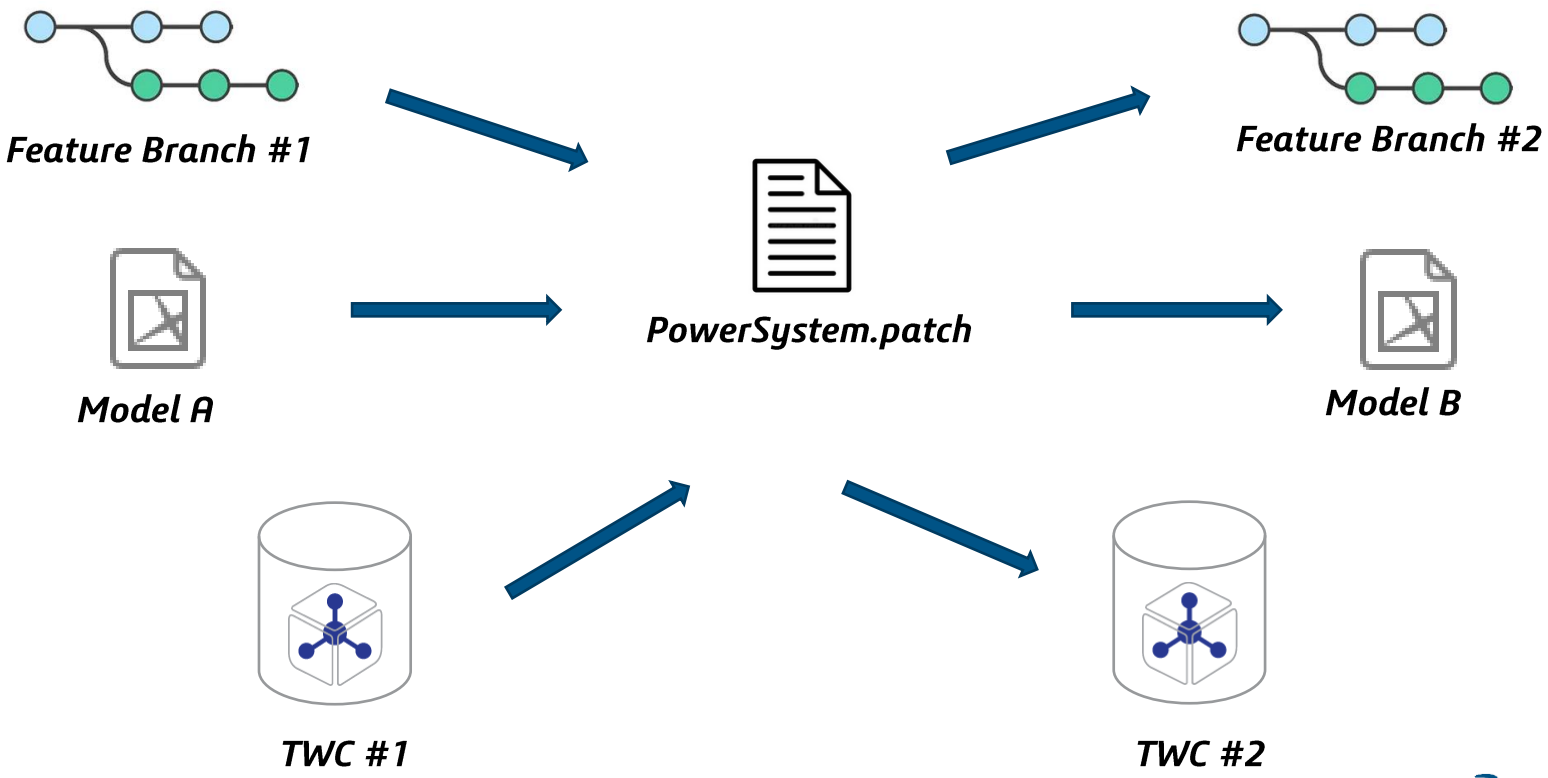
A Serializable Model Change Set



EngineImpl1.patch

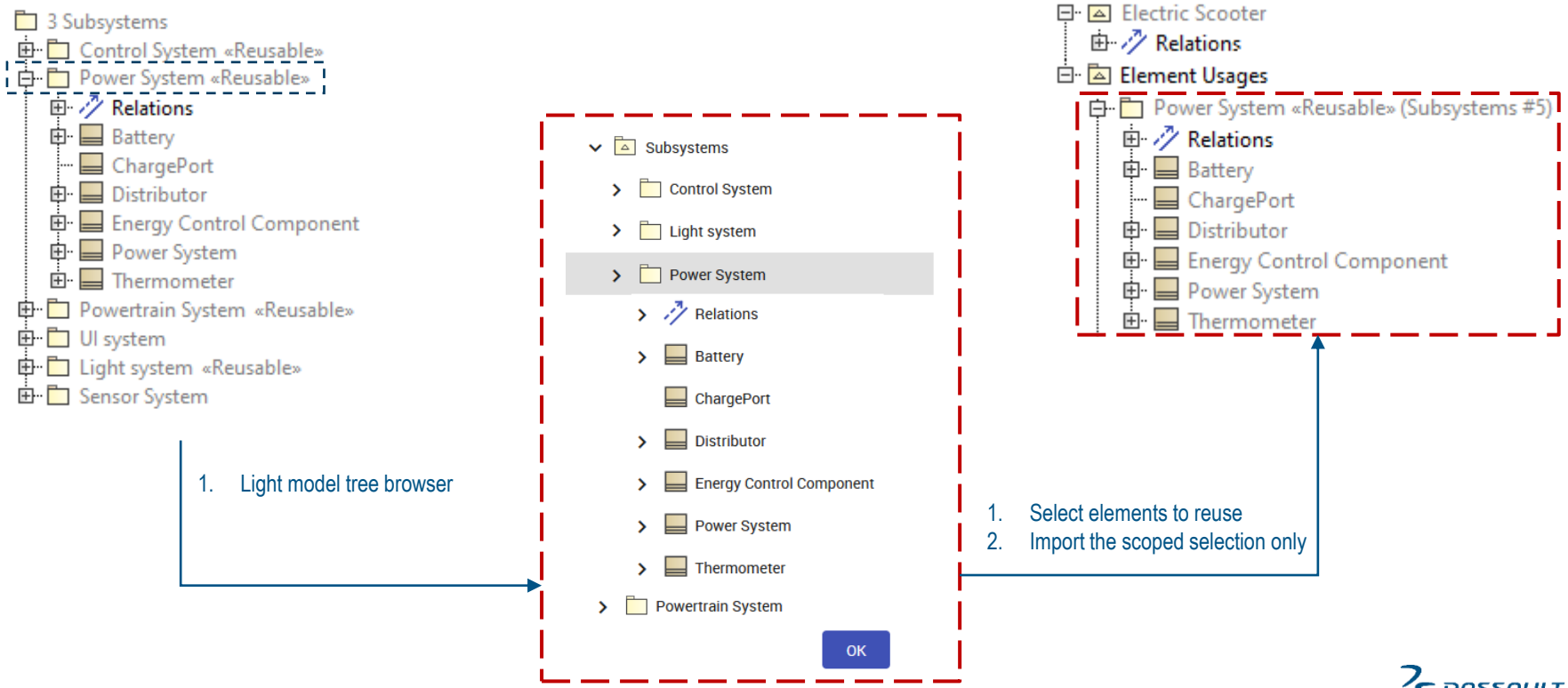
EngineImpl2.patch

PORTABLE MODEL DIFF & PATCH



USED PROJECTS 2.0

LIGHTWEIGHT ELEMENT REUSE (TECH. PREVIEW)



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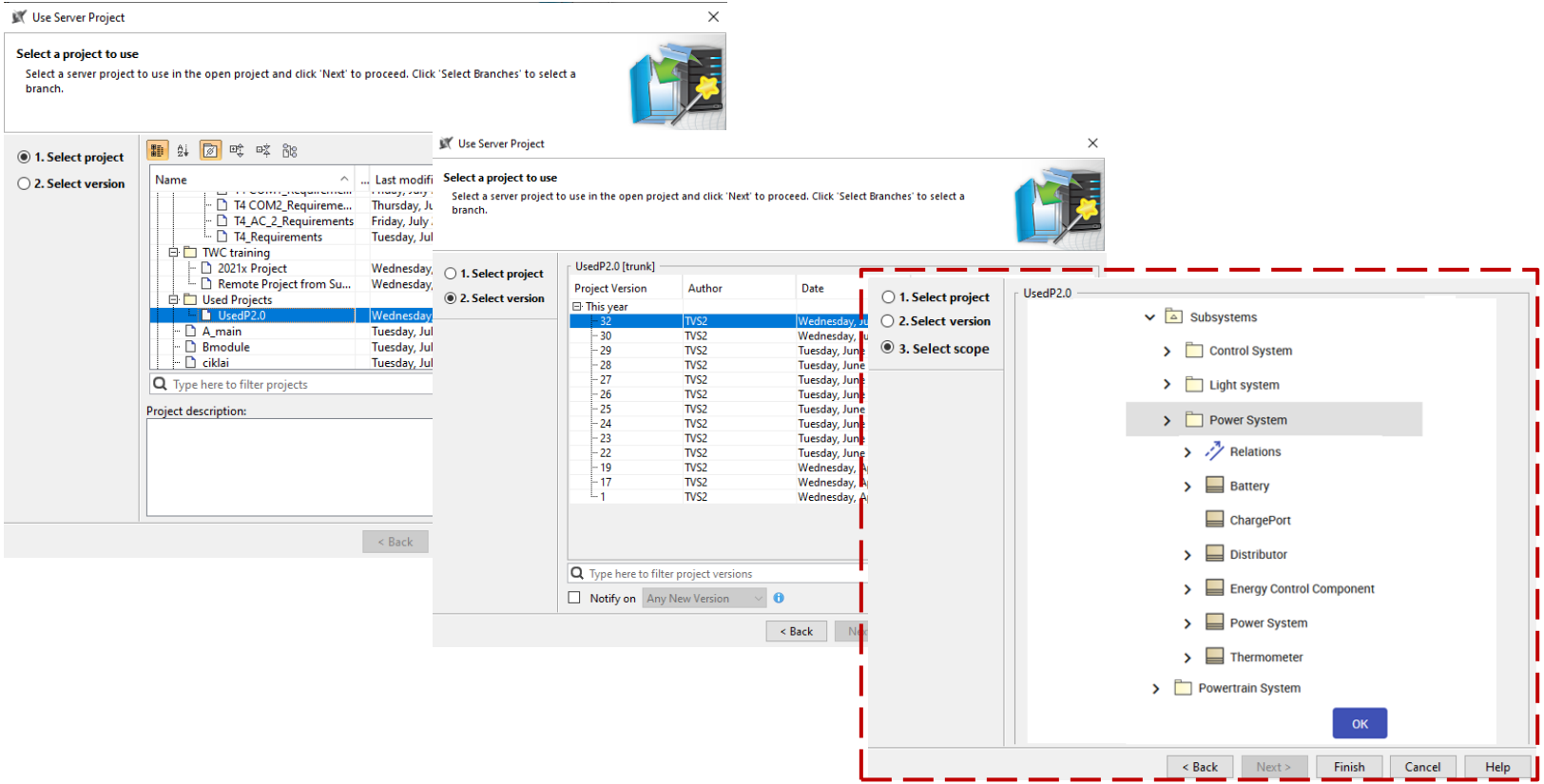

DASSAULT SYSTEMES