Quick Guide

4D SIMULATION
by Avant Leap

The 4D Simulation tool extracts data from all model constructive elements and assigns start and end construction dates in a .csv file. This is useful for creating Navisworks or 3Ds Max construction simulations from a Revit model.

NOTE: The "4D Simulation" tool works along with our products "Object Quantifier" and "Object Visualizer." A dedicated Revit AvantLeap Ribbon Tab with seven clash detection buttons.

Use Cases

- Sample Data Generation: Quickly generate large amounts of sample construction data as a starting point for simulations.
- Foundation for Construction Process: Provides engineers with a quick foundation for conceptualizing construction processes.
- Proposal Preparation: Assists constructors in setting up the necessary data for crafting proposals for construction site operations.

Key Features

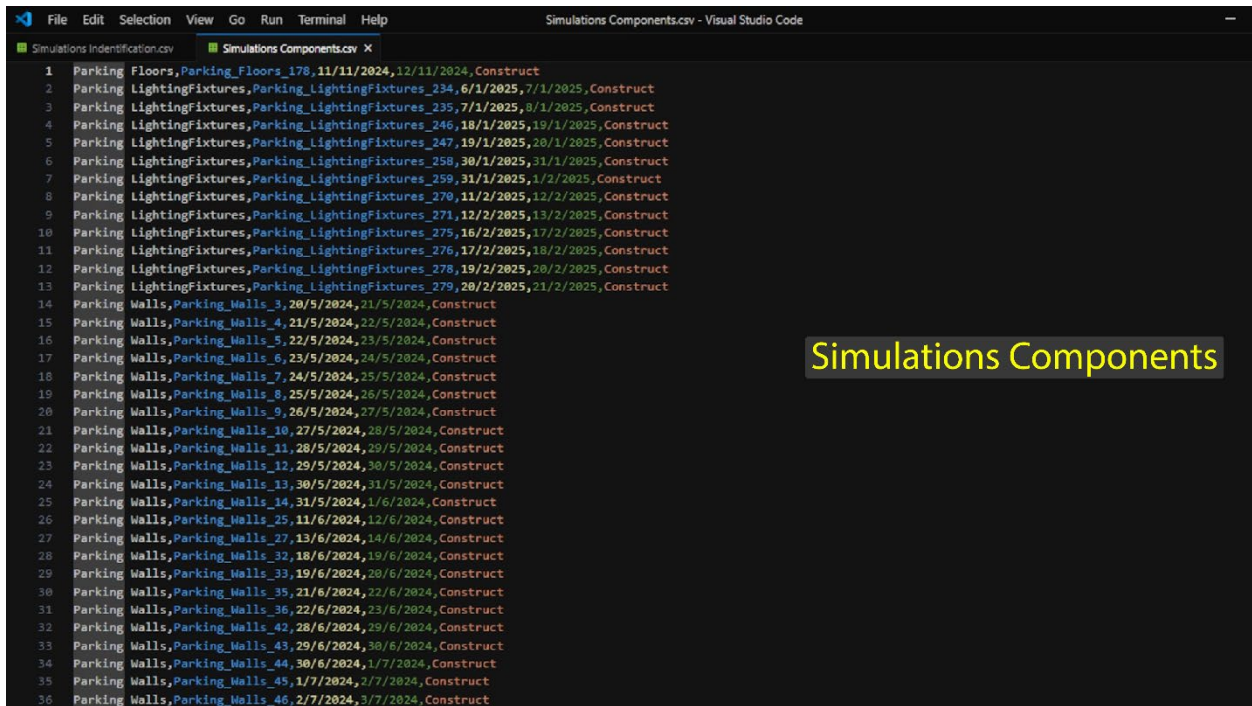- One-Click Operation: Everything's done in one click.
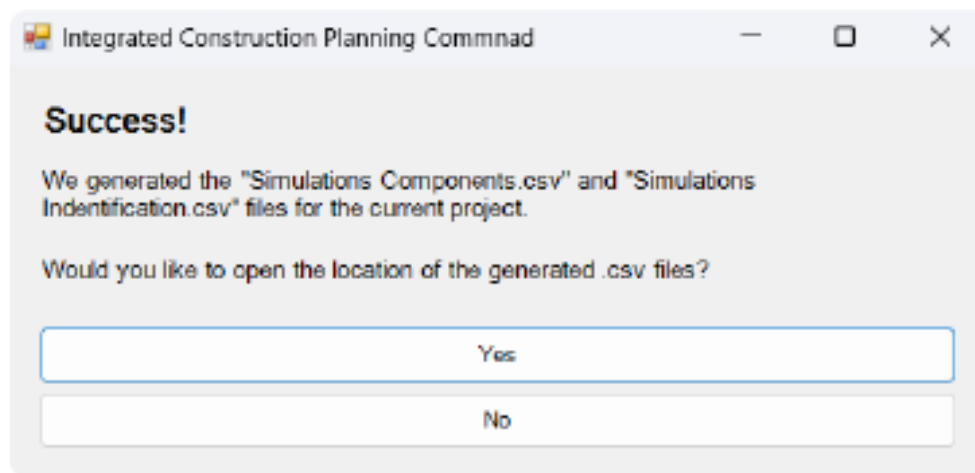
- Immediate Visualization: Press open in the dialog to visualize the files immediately.

Name	Date modified	Type	Size
SharedParametersFile.txt	5/15/2024 6:34 AM	Documento de te...	2 KB
Simulations Components.csv	5/17/2024 4:57 PM	Comma Separate...	167 KB
Simulations Indentification.csv	5/17/2024 4:57 PM	Comma Separate...	93 KB

C:\Users\eduar\OneDrive\Documentos\AvantLeap\Tools\4DSimulation\ProjectsSupportFiles\Snowdon Towers Sample Architectural\Revit2025 ✕

- Custom Parameters: Checks if Avant Leap's custom parameters exist, if not, adds them to your model.
- Data Structures: Creates data structures that other Avant Leap tools take advantage of.
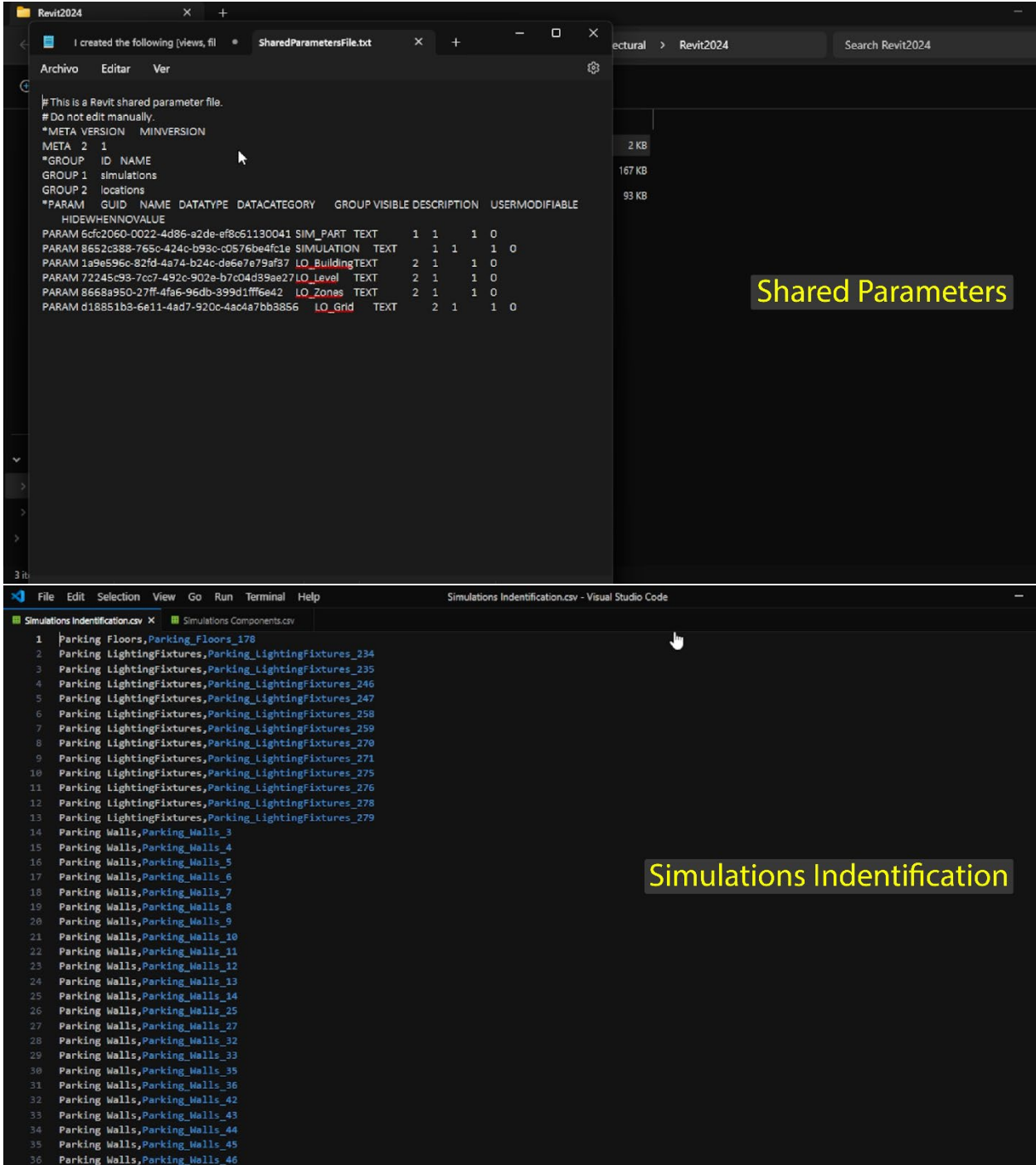- Constructive Data: Adds constructive data to your model elements.

Simulations Components

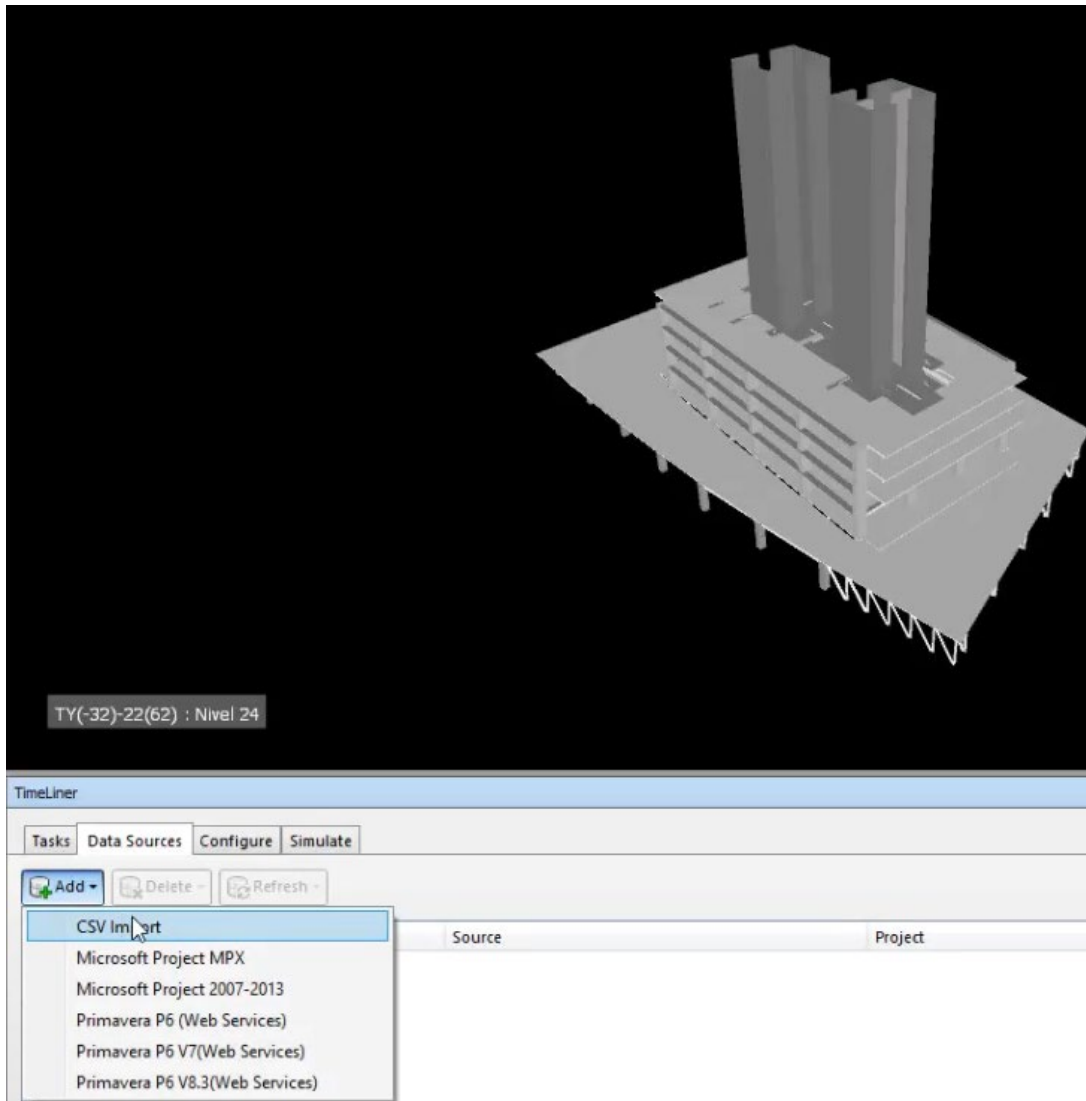Shared Parameters

Simulations Indentification

Navisworks Usage

Review Custom Properties:

After exporting the data from Revit, the first step in Navisworks is to review the custom properties added to the model. These properties include the start and end dates of the construction phases, along with any other relevant data that will be used in the simulation.

Import CSV Files:

Import the CSV files generated by the 4D Simulation tool into Navisworks. Depending on your project setup, you may need to import files based on different criteria such as Level and Category or by individual Part. This step integrates the construction timeline data into the Navisworks model, preparing it for detailed scheduling and simulation.

Configure Import:

Map the CSV data to the correct properties in Navisworks, ensuring that the timeline and other critical data are accurately represented.
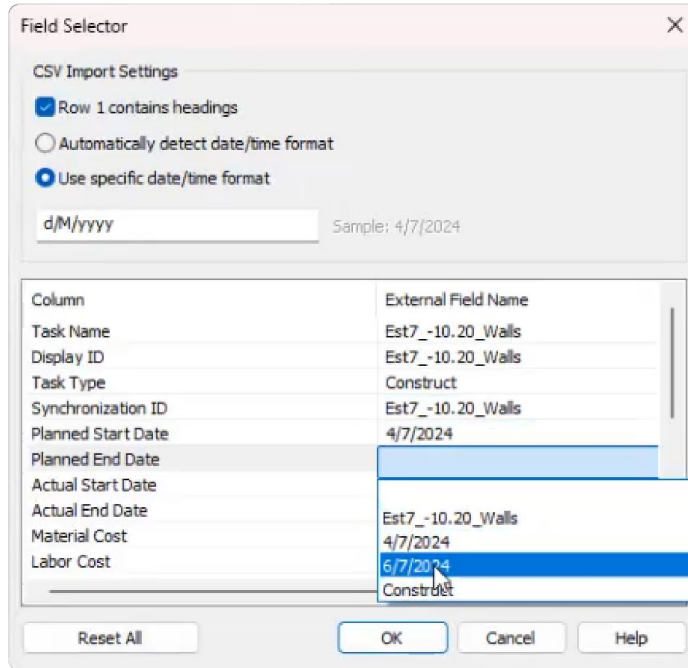
Apply Assignment Rules:

Apply rules for assigning tasks and parameters to the model elements. Use task names and parameters like SIMULATION or SIM PART to categorize and organize the elements.
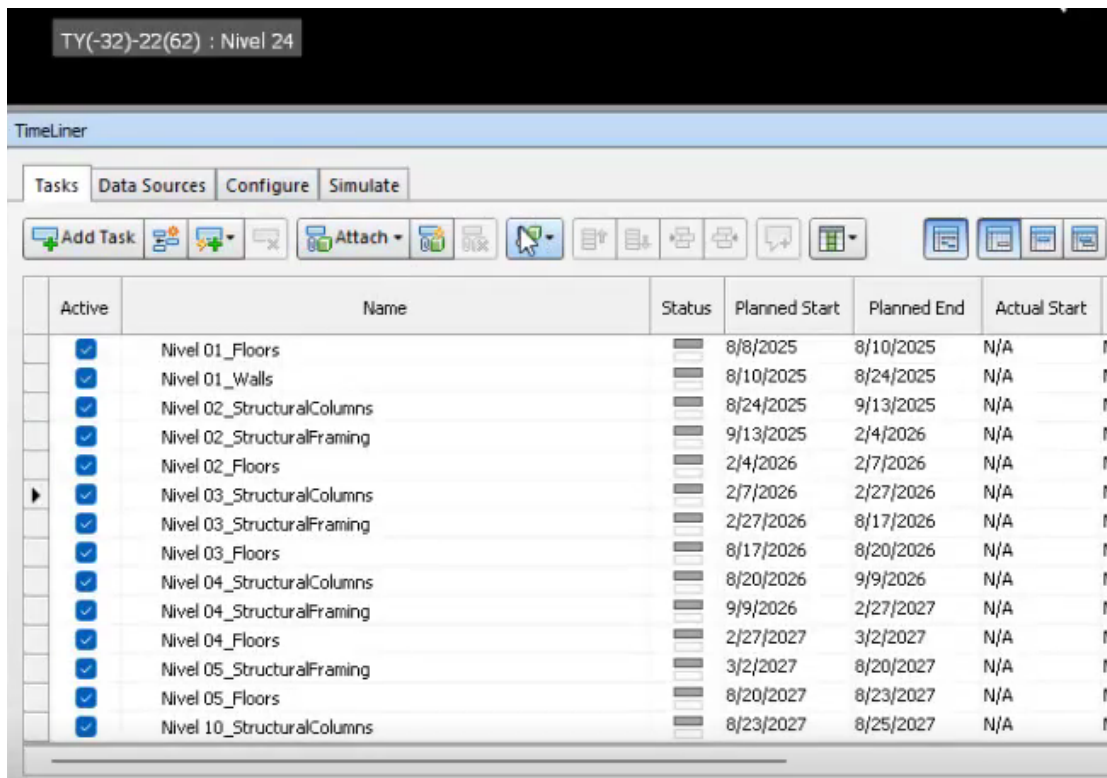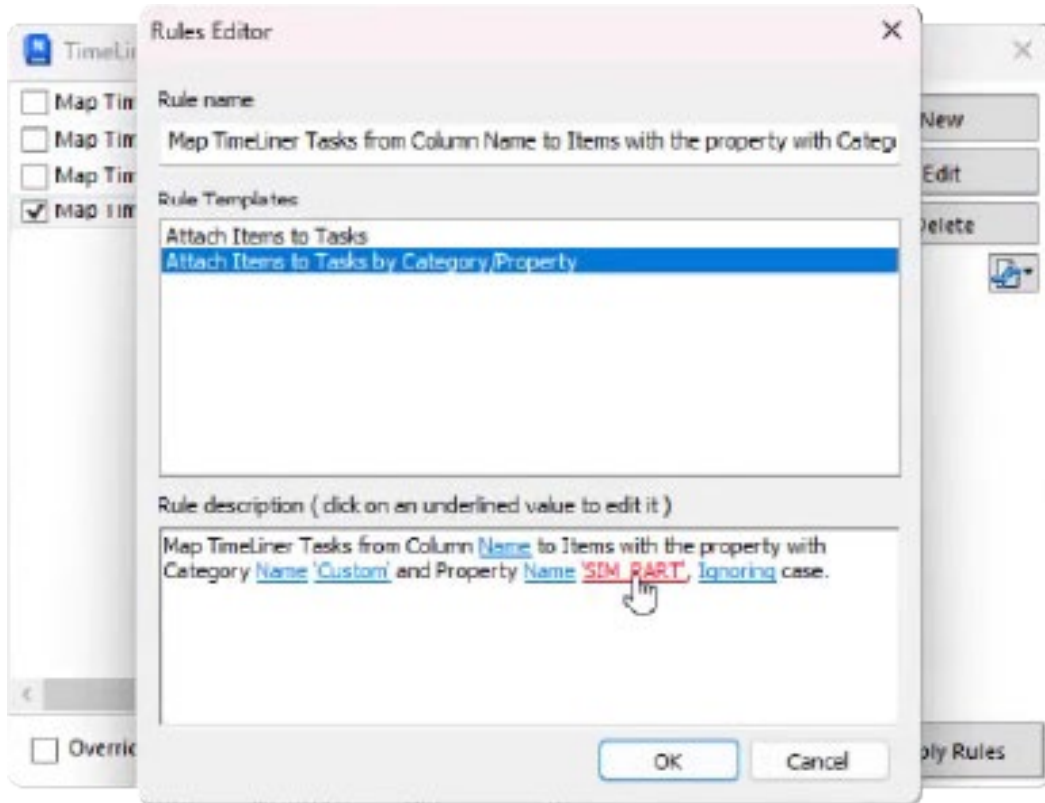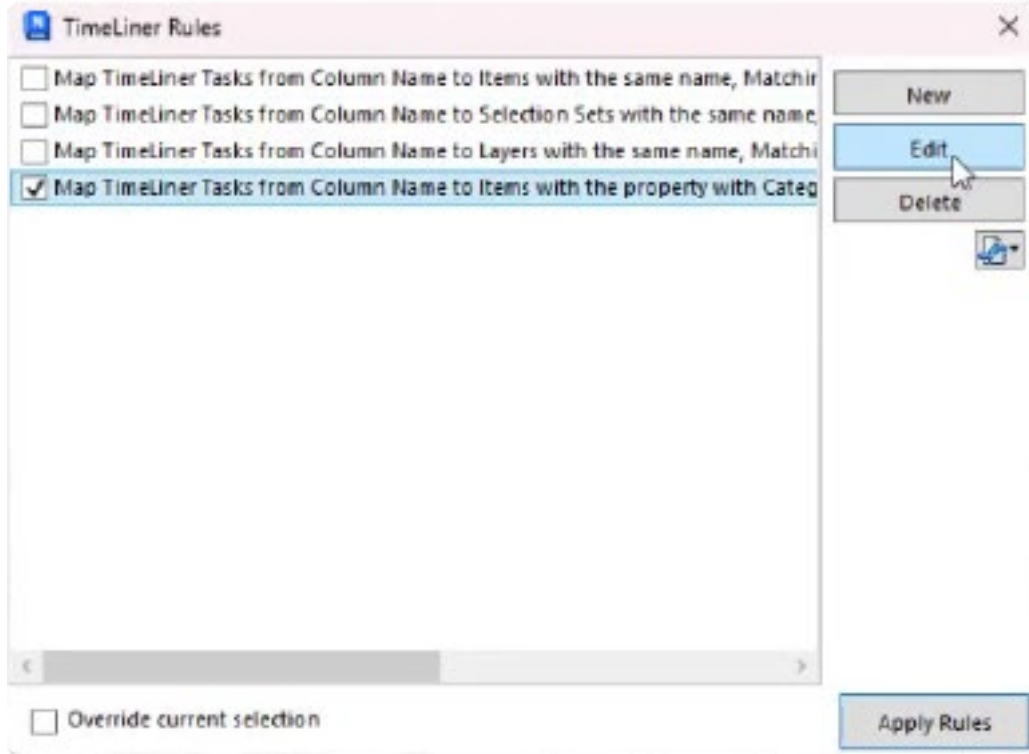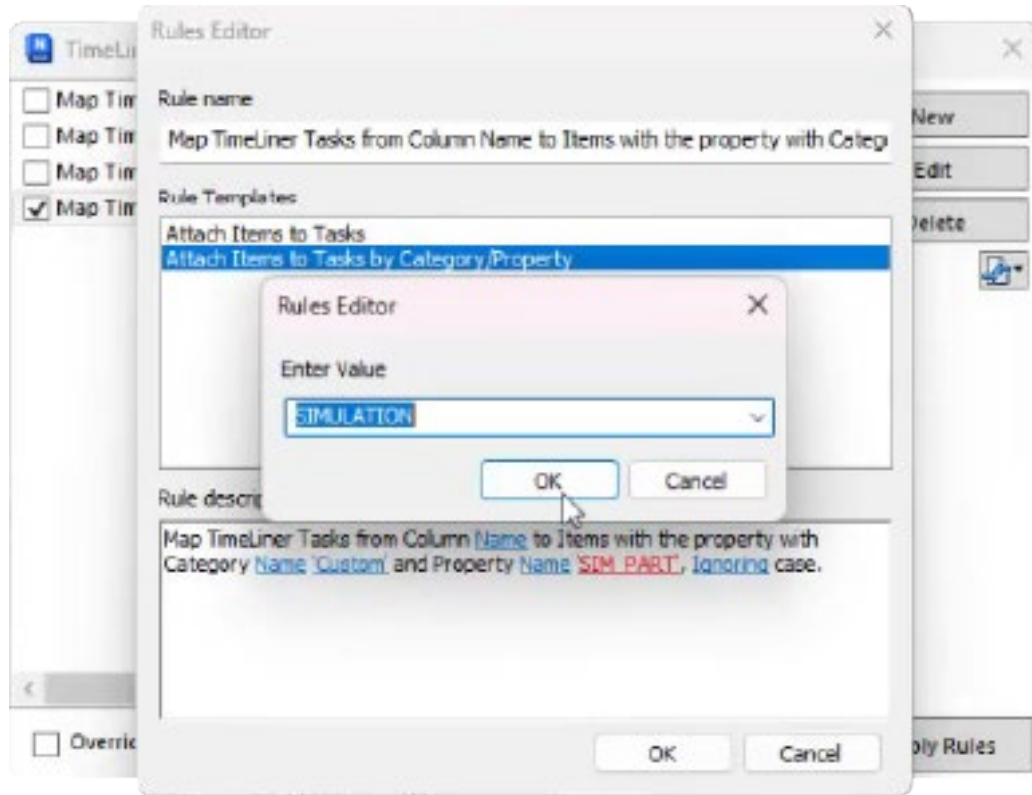
TimeLiner Rules

- Map TimeLiner Tasks from Column Name to Items with the same name, Matchir
- Map TimeLiner Tasks from Column Name to Selection Sets with the same name,
- Map TimeLiner Tasks from Column Name to Layers with the same name, Matchi
- ☑ Map TimeLiner Tasks from Column Name to Items with the property with Categ

New
Edit
Delete

☐ Override current selection

Apply Rules

Rules Editor

Rule name:

Map TimeLiner Tasks from Column Name to Items with the property with Categ

Rule Templates

Attach Items to Tasks
Attach Items to Tasks by Category/Property

Rule description (click on an underlined value to edit it)

Map TimeLiner Tasks from Column Name to Items with the property with
Category Name 'Custom' and Property Name 'SIM_PART', Ignoring case.
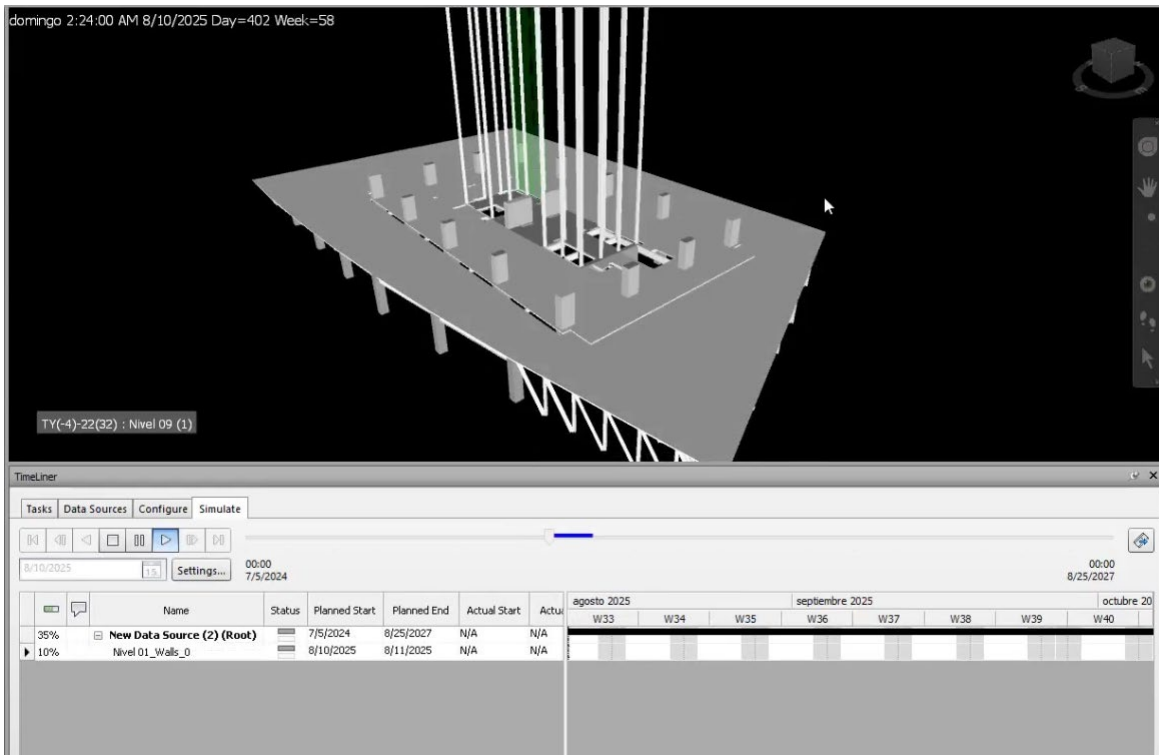
OK   Cancel

Run Simulation:

Watch how the construction process will unfold over time, identify any potential issues, and make necessary adjustments to the schedule or tasks.

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