

2024x Version News

Magic Cyber Systems Engineer

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2024x release introduces several improvements to Item Flow creation and editing. The **Create / Edit Item Flow** dialog now provides greater clarity and usability, providing a more focused approach to reviewing Activity Pairs connected with existing Activity Edges. In addition, **Autowire Parts** and **Delegate Port(s)** commands' availability is changed in the SysML Internal Block Diagram and the SysML Parametric Diagram. Also, the **Delegate Port(s)** command functionality regarding nested ports is now improved to treat each displayed nested port individually.

Simulation features introduce a number of powerful functionalities. The new product version allows you to run server-side simulation with modified Simulation Configuration properties and even employ a virtual Simulation Configuration without modifying the Teamwork Cloud project. The product also enables live unit conversion to simplify model analysis and reduce the likelihood of errors. Beyond these enhancements, you can customize the Histogram appearance, control the simulation termination logic with the help of a new Auto Terminate property, and benefit from other smaller improvements.


The 2024x release also introduces general modeling and infrastructure, as well as collaborative modeling enhancements.

For general modeling and infrastructure, this release presents the DSLS licensing option, the ability to zoom the Modeling Browser using keyboard shortcuts, and additional Legend adornment properties in Tables. Additionally, OpenJDK is now updated to version 17.0.8+7, CentOS Linux 7 is now replaced with Oracle Linux 8.8 support, and the JavaScript Rhino engine is now upgraded from 1.7R4 to the 1.7.13 version.

Several features have been discontinued with the 2024x version, such as the JavaScript Nashorn language usage, Record Macro functionality, and the SPEM plugin.

We have exciting news for collaborative modeling, as well. The new file exchange format .szip is now out of technology preview and was improved with a UI dialog for ease of use. Also, we introduce a major new feature: the Model Patch mechanism, a significantly lighter solution to move project changes. There are enhancements for 3DEXPERIENCE projects, too; you can now manage used projects more easily and open certain projects in a read-only mode.

To download the latest version of the modeling tool, see [Downloading installation files](#). For further information, check the [product documentation](#).

**2024x Hot Fix 2 available**
2024x Hot Fix 2 is now available for CATIA Magic and No Magic portfolios. It includes a number of improvements and bug fixes, and vulnerability fixes in our modeling tools, plugins, and server products . [Learn more >>](#)

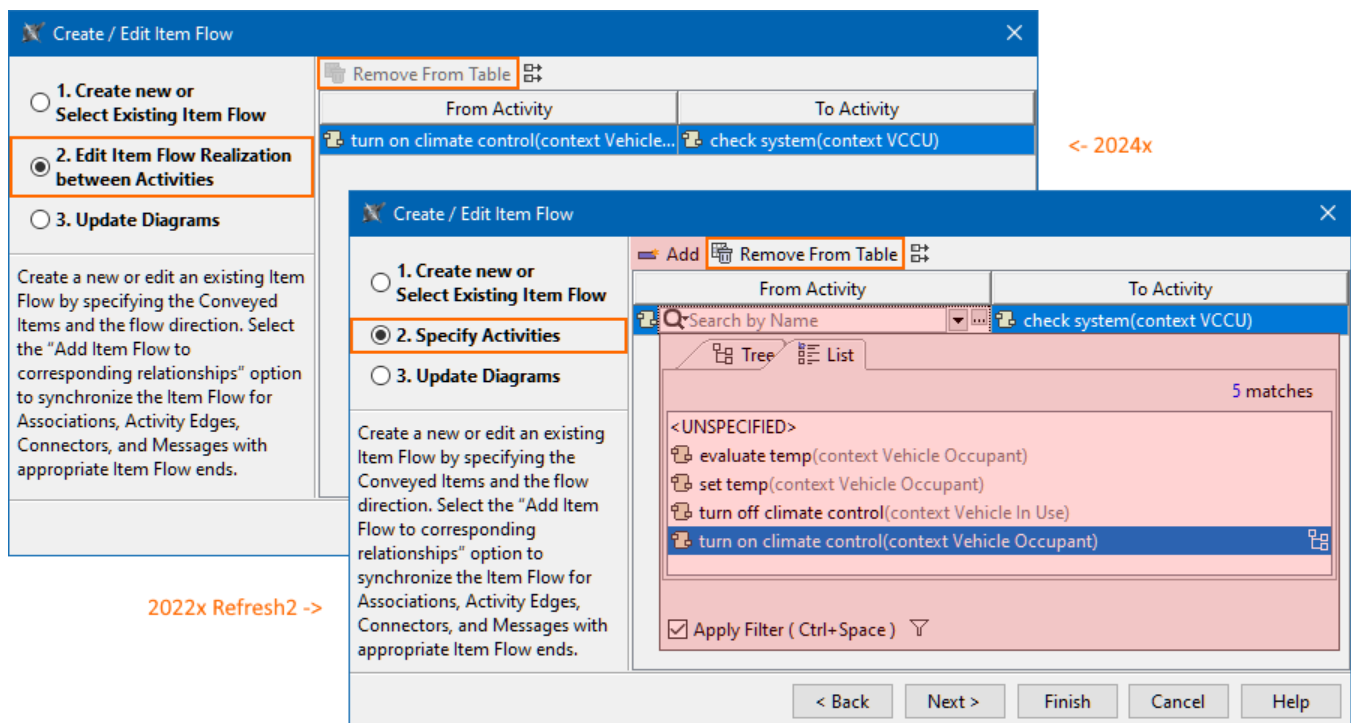
SysML Features	Discontinued Features	Collaboration
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SysML Features

Improved Item Flow Creation and Editing

SysML Plugin 2024x brings a more focused approach to reviewing Activity Pairs connected with existing Activity Edges in the **Create / Edit Item Flow** dialog, improving overall usability and clarity.

- Now, the second step centers exclusively on reviewing existing Activity Pairs connected by existing Activity Edges, thus:
 - New Activity Pairs cannot be created, and existing Activity Pairs cannot be edited. Because of this, the tool will no longer initiate the automatic generation of new elements or diagrams.
 - The overall synchronization of the dialog's steps is now improved to ensure that all relevant Activity Pairs are systematically gathered based on specified preferences. This results in a well-organized diagram list in the third step, accurately representing selected options.



A comparison of some of the changes in the second step of the **Create / Edit Item Flow** dialog between versions 2024x and 2022x Refresh2.

[Learn more about Item Flow creation and editing >>](#)

Other Improvements

- The **Tools** option group containing **Autowire Parts** and **Delegate Port(s)** commands has been removed from the SysML Parametric Diagram toolbar. Both **Delegate Port(s)** and **Autowire Parts** commands are no longer available for Constraint Properties and Constraint Parameters in the SysML Internal Block Diagram and the SysML Parametric Diagram.
- Improved **Delegate Port(s)** command functionality regarding nested ports. Now if the command is called from a part or a port enclosing a nested ports structure, each displayed nested port is treated individually to create delegated connectors and ports. [Learn more about automatic delegation >>](#)

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Simulation Features

Server-Side Simulation

Modifying Simulation Configuration Properties

Now, you can run server-side simulations with modified properties of a Simulation Configuration without having to change the Teamwork Cloud project. This approach provides a more convenient method to modify simulation properties without a modeling tool. It's even feasible to run a simulation without explicitly specifying a Simulation Configuration; instead, a virtual Simulation Configuration can be employed. This gives you the possibility to quickly choose a different execution target and define its simulation properties.

Request body

application/json

Specify a set of simulation options with values that will override the initial simulation options.
Specify a set of input parameters with values to be provided for the simulation.
Specify a set of output parameters to be obtained after the simulation. If no output parameters are specified, all initialized values are returned.

Example Value | Schema

```
{
  "inputs": {},
  "outputs": [],
  "simconfig": {
    "ALLOW_CONCURRENT_ALLOCATED_ACTIVITIES": true,
    "AUTOMATIC_PARAMETRIC_RECALCULATION": true,
    "AUTO_CONVERT_UNITS": true,
    "AUTO_CREATE_FUML_OBJECT_OF_OUTPUT_PIN": true,
    "AUTO_START": true,
    "AUTO_START_ACTIVE_OPTIONS": true,
    "AUTO_TERMINATE": true,
    "CLOCK_RATIO": 1,
    "CLONE_REFERENCES": true,
    "COMPLETION_EVENTS_AND_TRANSITIONS": true,
    "CONSTRAINT_FAILURE_AS_BREAKPOINT": true,
    "DECIMAL_PLACES": 4,
    "DEFAULT_LANGUAGE": "JavaScript Rhino",
    "DURATION_SIMULATION_MODE": "MIN",
    "ENDTIME": 0,
    "ENGINES_PRIORITY": "[on] fUML Engine\n[on] Interaction Engine\n[on] SCXML Engine",
    "INITIALIZE_NUMERICAL_VALUE": false,
    "INITIALIZE_REFERENCES": true,
    "NUMBER_OF_RUNS": 0,
    "NUMBER_OF_STEPS": 0,
    "PASS_CALLER_CONTEXT": true,
    "RECORD_TIMESTAMP": false,
    "REMEMBER_FAILURE_STATUS": true,
    "RESULT_LOCATION": "Results",
  }
}
```

The REST API request body with the 'simconfig' parameter which allows specifying simulation properties.

```
# Import **simconfig** for autocompletion
from pyST import simconfig as sc
```

```
simOptions = {
  "simconfig":
  {
    sc.AUTO_START: False,
    sc.
  }
}
```

i	ALLOW_CONCURRENT_ALLOCATED_ACTIVITIES	instance
i	AUTO_CONVERT_UNITS	instance
i	AUTO_CREATE_FUML_OBJECT_OF_OUTPUT_PIN	instance
i	AUTO_START	instance
i	AUTO_START_ACTIVE_OPTIONS	instance
i	AUTO_TERMINATE	instance
i	AUTOMATIC_PARAMETRIC_RECALCULATION	instance
i	CAPTURE_TIMESTAMP	instance
i	CLOCK_RATIO	instance
i	CLONE_REFERENCES	instance

Enabling the autocompletion option for the simulation using Jupyter Notebook.

[Learn more about modifying Simulation Configuration properties using REST API >>](#)

[Learn more about modifying Simulation Configuration properties using Jupyter Notebook >>](#)

DSLS Licensing Server Support

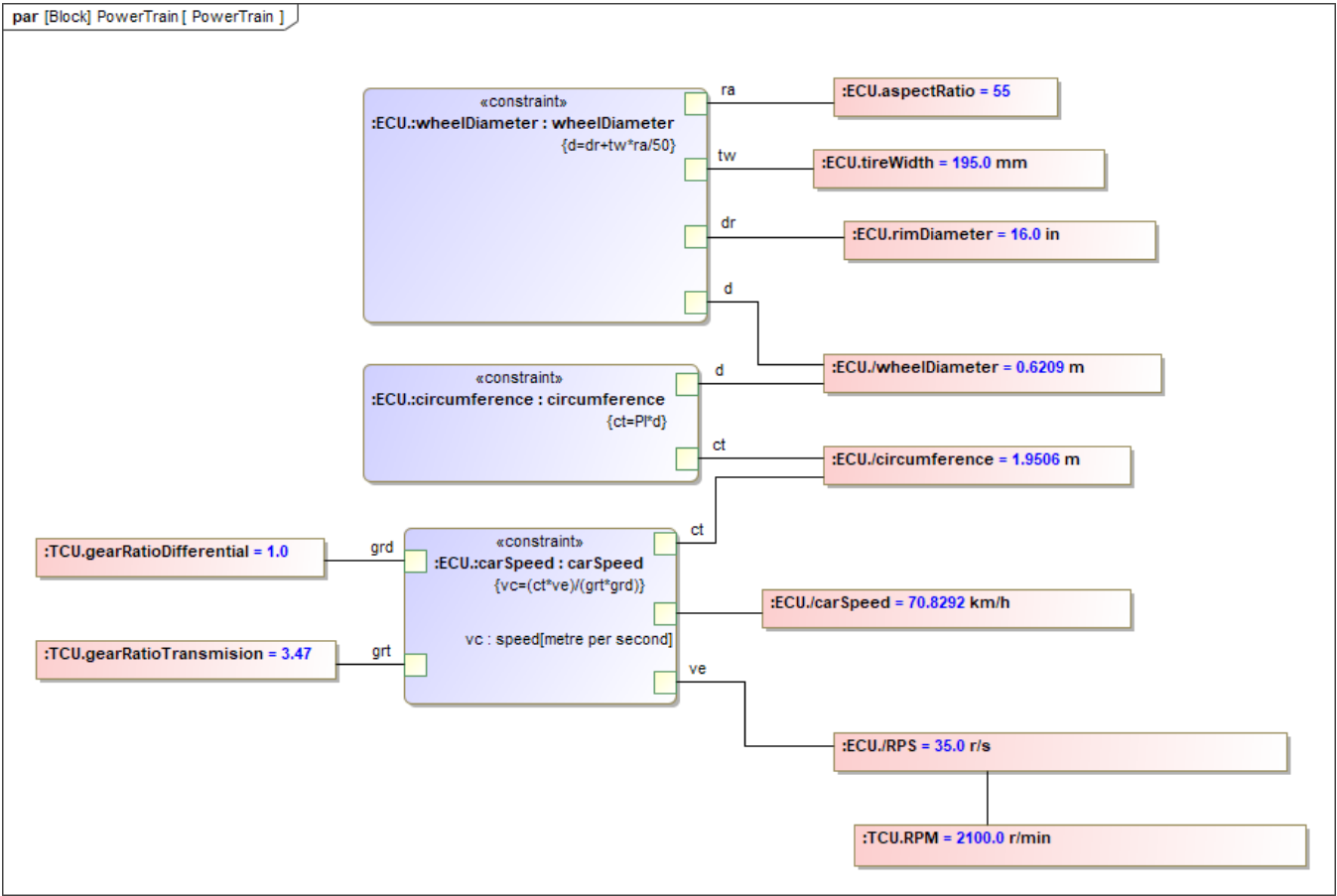
From version 2024x, in addition to FlexNet, server-side simulation supports the DSLS licensing server.

[Learn more about DSLS licensing >>](#)

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Live Unit Conversion for Runtime Objects

Cameo Simulation Toolkit 2024x introduces live unit conversion for simulation runtime objects. When Value Properties are connected using a Binding Connector, their runtime values will be automatically converted if they have compatible Value Types (like grams and kilograms). This feature simplifies model analysis, especially when combining elements from various sources, and reduces the possibility of errors.



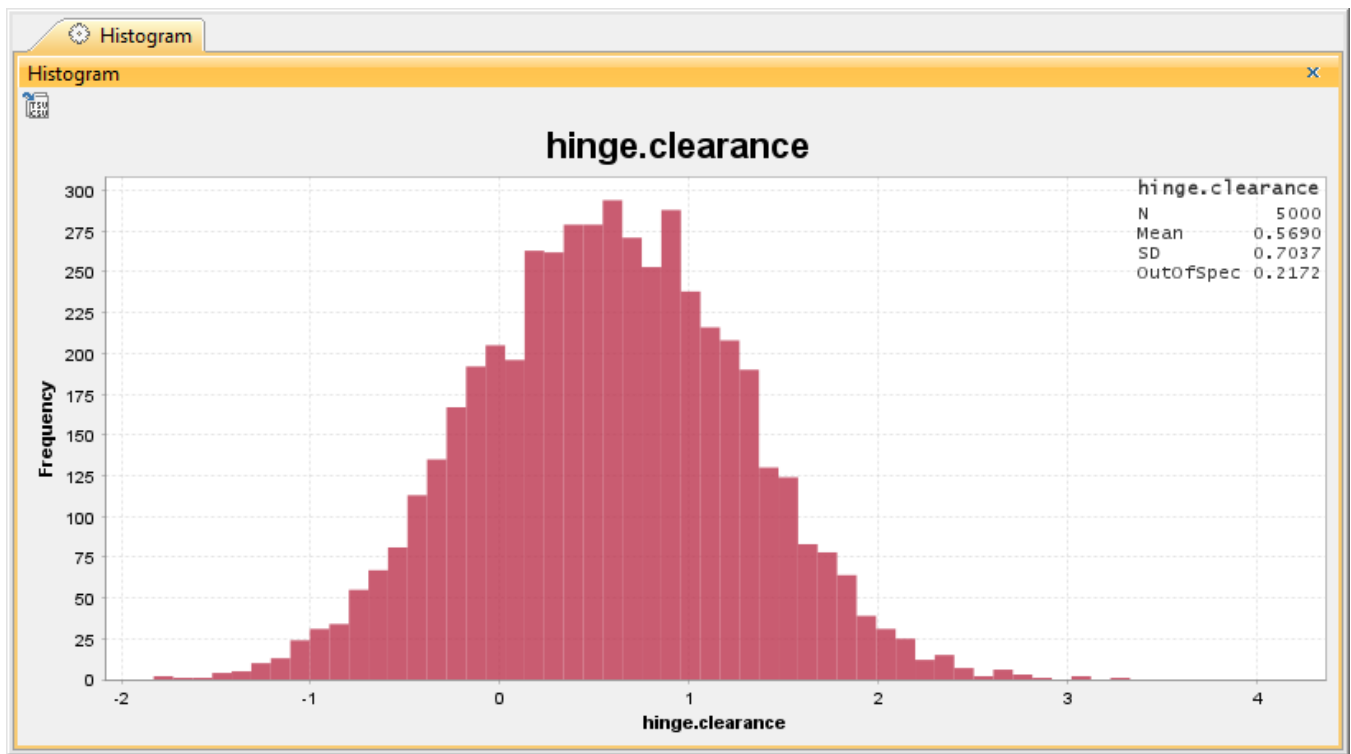
A Parametric Diagram with runtime values of Value Properties being automatically converted according to their Value Types during simulation.

[Learn more about unit conversion for runtime objects >>](#)

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Histogram Improvements

We're happy to present a new functionality that will allow you to tailor the Histogram appearance. With this improvement, you can define a custom number of data bins in which the results will be distributed and achieve the desired Histogram shape and precision. Furthermore, the edge of the last data bin will now match the maximum value of the value array, ensuring accurate representation.

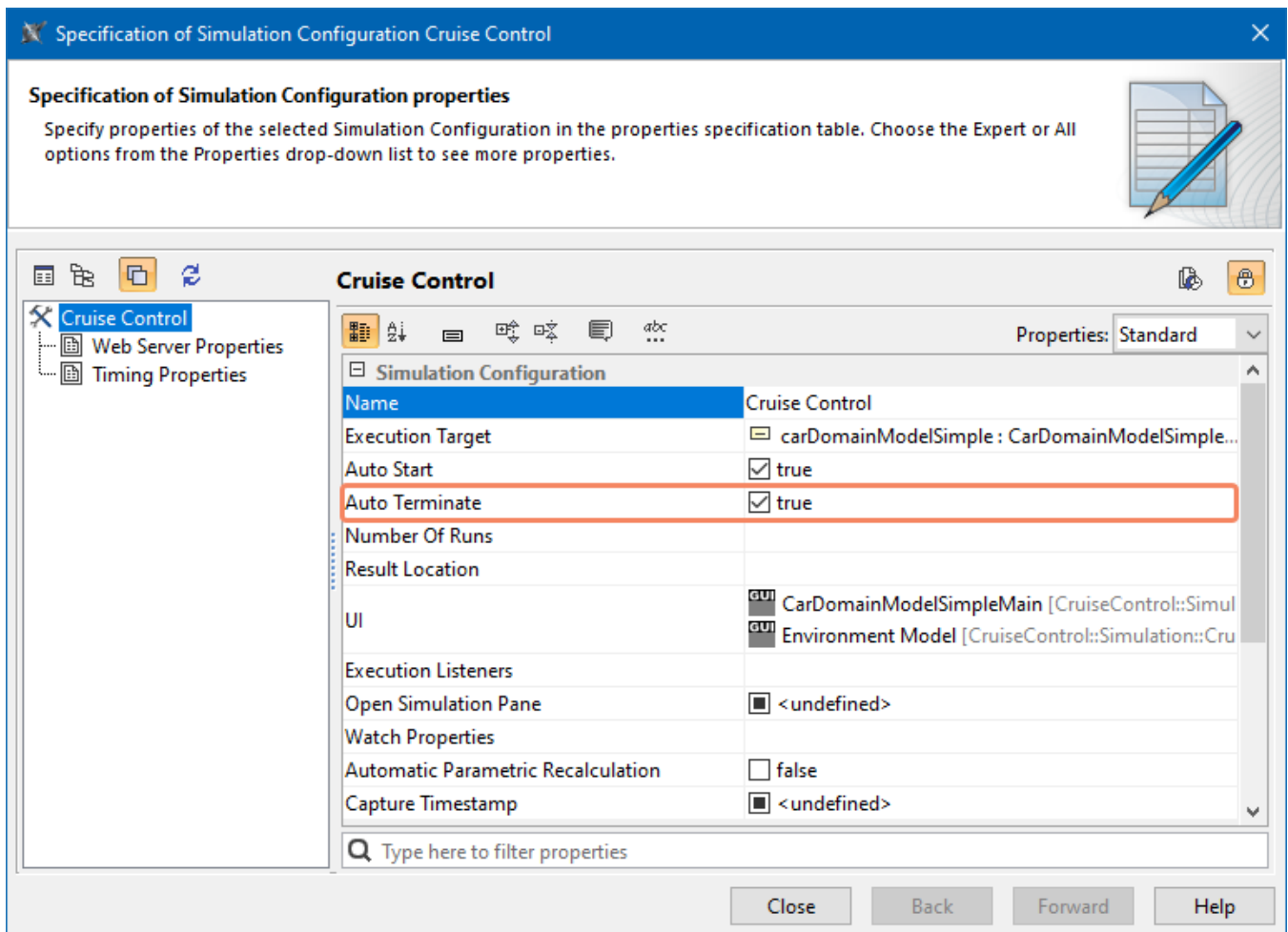


A sample Histogram with the custom number of data bins. Here, the **Number Of Bins** property is set to 50.

[Learn more about working with Histograms >>](#)

Auto-Terminating Simulation Configurations

Simulation Configurations now have a new **Auto Terminate** property, allowing you to manage the simulation termination logic. If you set this property to *true*, the simulation is terminated when it completes or after the initialization phase if it does not start automatically. When the property is set to *false*, the simulation continues to run without termination, hanging at the end or after the initialization phase if it does not start automatically.



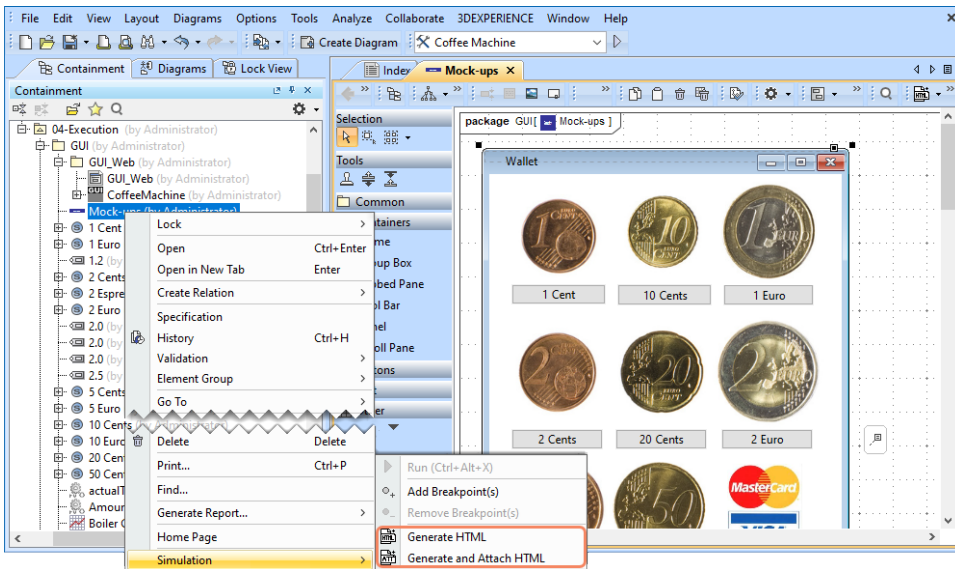
A new **Auto Terminate** property of a Simulation Configuration.

[Learn more about Simulation Configuration properties >>](#)

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Other Improvements

- Generating HTML has become easier, thanks to the availability of the **Generate HTML** and **Generate and Attach HTML** actions in new, convenient locations. These actions can now be accessed from the context menu of a User Interface Modeling Diagram or a UI element in the Containment tree. Additionally, you can invoke the actions by right-clicking a property symbol, provided its type is a Widget.



- The simulation now considers the **Decimal Places** project option.
- The *Parametric Execution Profile* has been eliminated. The constraints for parametric execution have been moved to the *Simulation Profile*.

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Discontinued Features

The following features have been discontinued with the 2024x version release.

JavaScript Nashorn Scripting

The JavaScript Nashorn language usage has been removed from the modeling tool. Please use JavaScript *Rhino* instead. This affects expression-related functionality, e.g., custom validation rules, derived properties, smart packages, tables, and macros.

[Learn more about the deprecated JavaScript Nashorn >>](#)

Record Macro Functionality

The Record Macro functionality has been discontinued. However, any previously recorded macros can still be used in the modeling tool.

SPEM Plugin

The SPEM 2.0 Plugin (16.8 and 16.9 versions) has been discontinued.

Known Migration Issues

Projects created using modeling tools of version 19.x, may get corrupted after migration to version 2024x.

To avoid project corruption, before migrating or opening projects for the first time, close the modeling tool, open the `<modeling_tool_install_dir>\bin<modeling_tool>.properties` file, find the `JAVA_ARGS` line, and add the `-Dskip.ProjectCleanup=true` (for MAC OS: `-Dskip.ProjectCleanup=true`) argument as one of its values.

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Modeling and Infrastructure

DSLS Licensing

Starting with the 2024x release, we are introducing a new licensing option - DSLS (Dassault Systèmes License Server). DSLS is a licensing system developed by Dassault Systèmes that provides these benefits:

- License usage statistics, debugging, and simple UI to administer and view statistics.
- Licenses are bound to their expiration date rather than the product version.
- Nodelock (seat), floating, and managed licensing options.

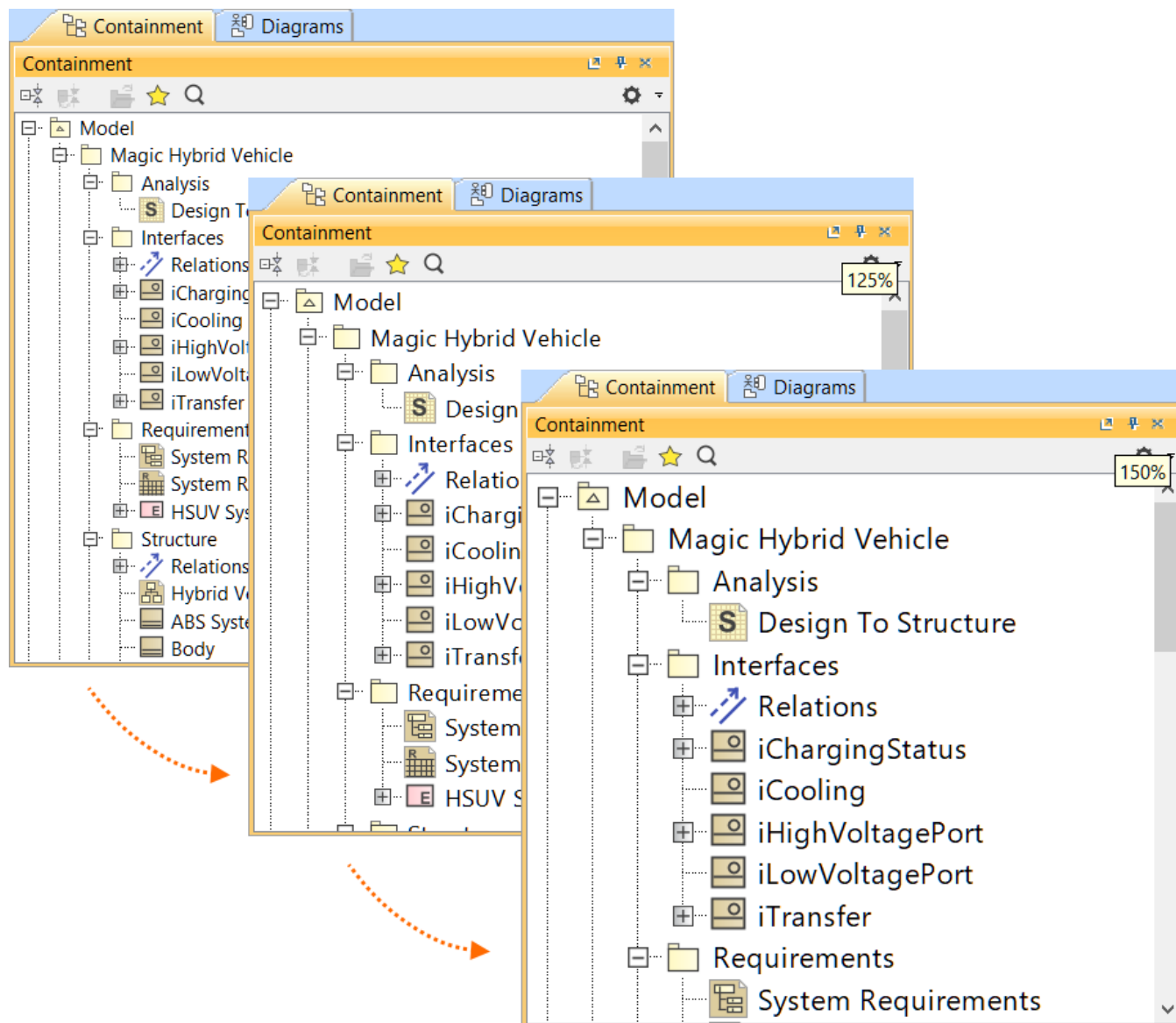
Thus, now you can choose to use either FlexNet or DSLS for product licensing.

 The DSLS version must be compatible with the modeling tool version you use (currently, DSLS version R2024x with modeling tool version 2024x).

[Learn more about DSLS Licensing >>](#)

Zoom in Model Browser

From now on, you can easily increase the size of the displayed data in the Model Browser tabs. Zoom in and out using keyboard shortcuts to modify the view to your liking.

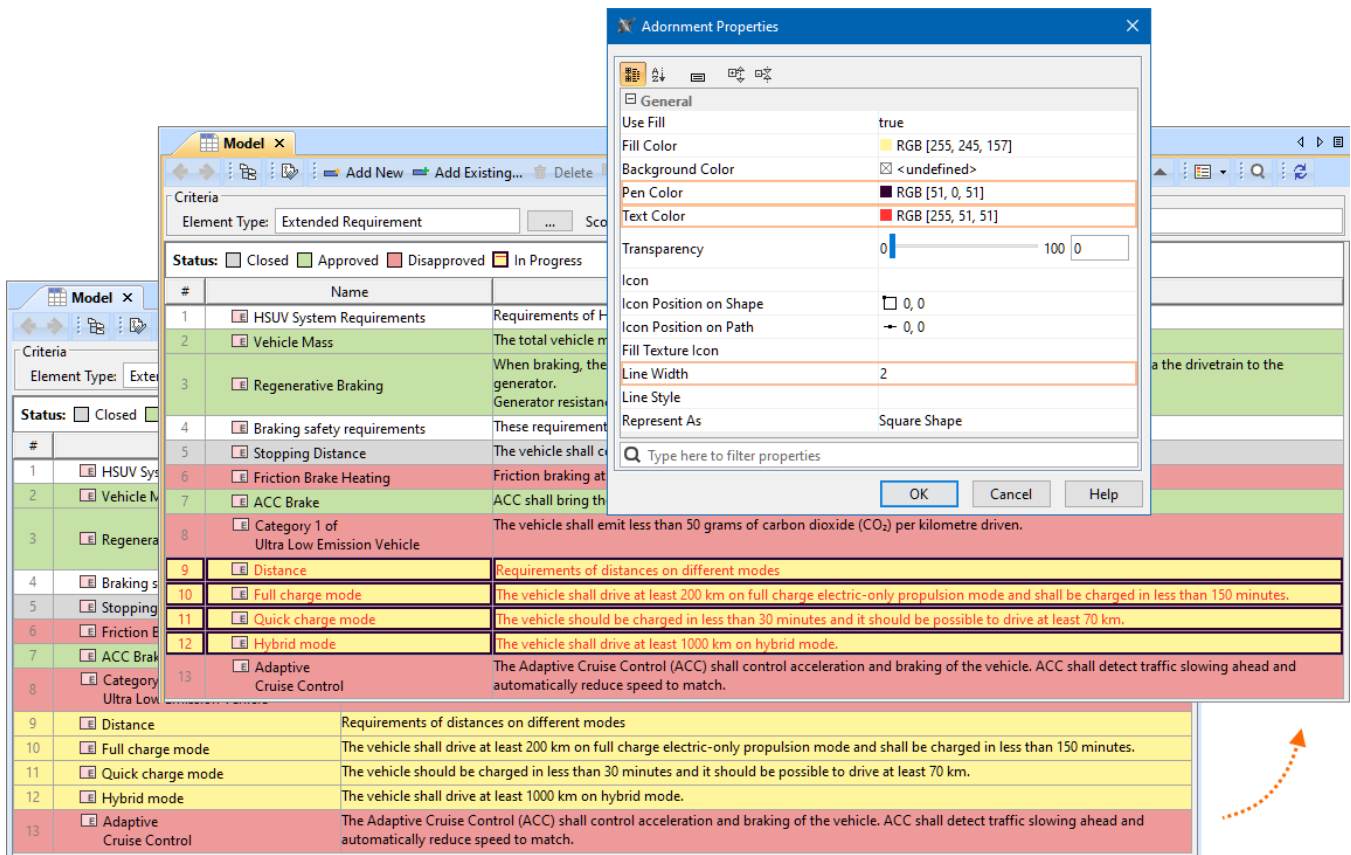


Zooming in the Model Browser using keyboard shortcuts.

[Learn more about zooming in the Model Browser>>](#)

Advanced Legend Adornments in Tables

In addition to using Legend Items' Fill Color property to color table cells, now you can also add and color cell borders via the Pen Color and Line Width properties, as well as change the color of the text via the Text Color property, allowing you more options to emphasize specific data rows in tables.



Text Color, Pen Color, and Line Width adornment properties are specified for the Legend Item *In Progress*.

Other Improvements

- **OpenJDK version update.** Desktop applications (MagicDraw, Cameo Systems Modeler, Cameo Enterprise Architecture, Magic Software Architect, Magic Cyber Systems Engineer, Magic Systems of Systems Architect) and Teamwork Cloud are now only run using OpenJDK 17.0.8+7 version.
- **Supported operating system changes for Linux.** CentOS Linux 7 has reached End of Life; thus, it is no longer supported. It is now replaced with Oracle Linux 8.8 support.
- **JavaScript Rhino version update.** The JavaScript Rhino engine is now upgraded from 1.7R4 to the 1.7.13 version.
- It is no longer necessary to display the pin's type when displaying its multiplicity due to the newly introduced Show Multiplicity symbol property.

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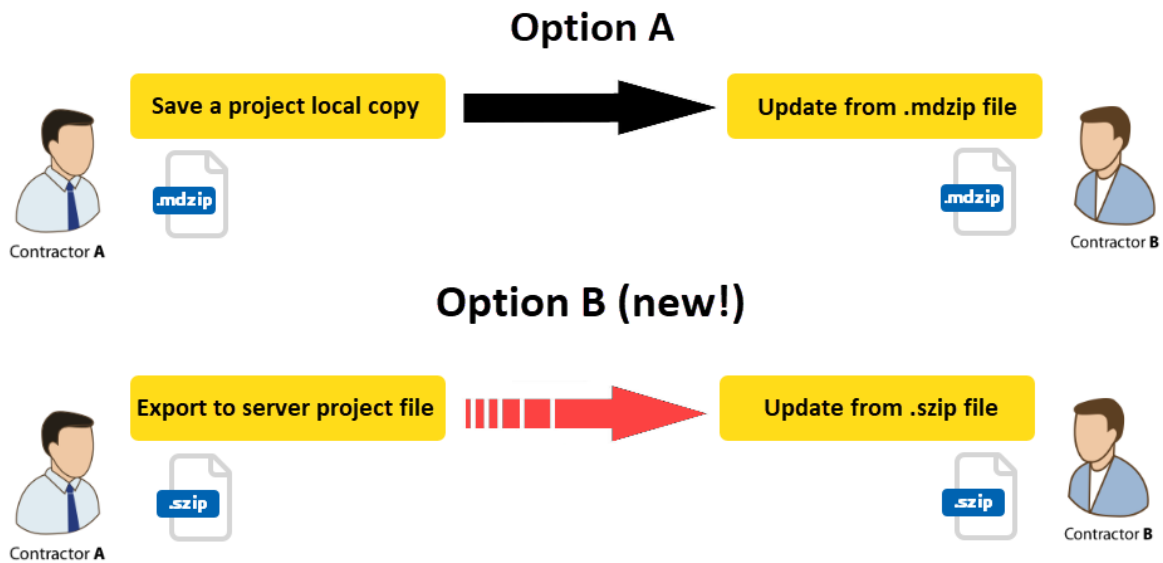
Collaboration

Teamwork Cloud

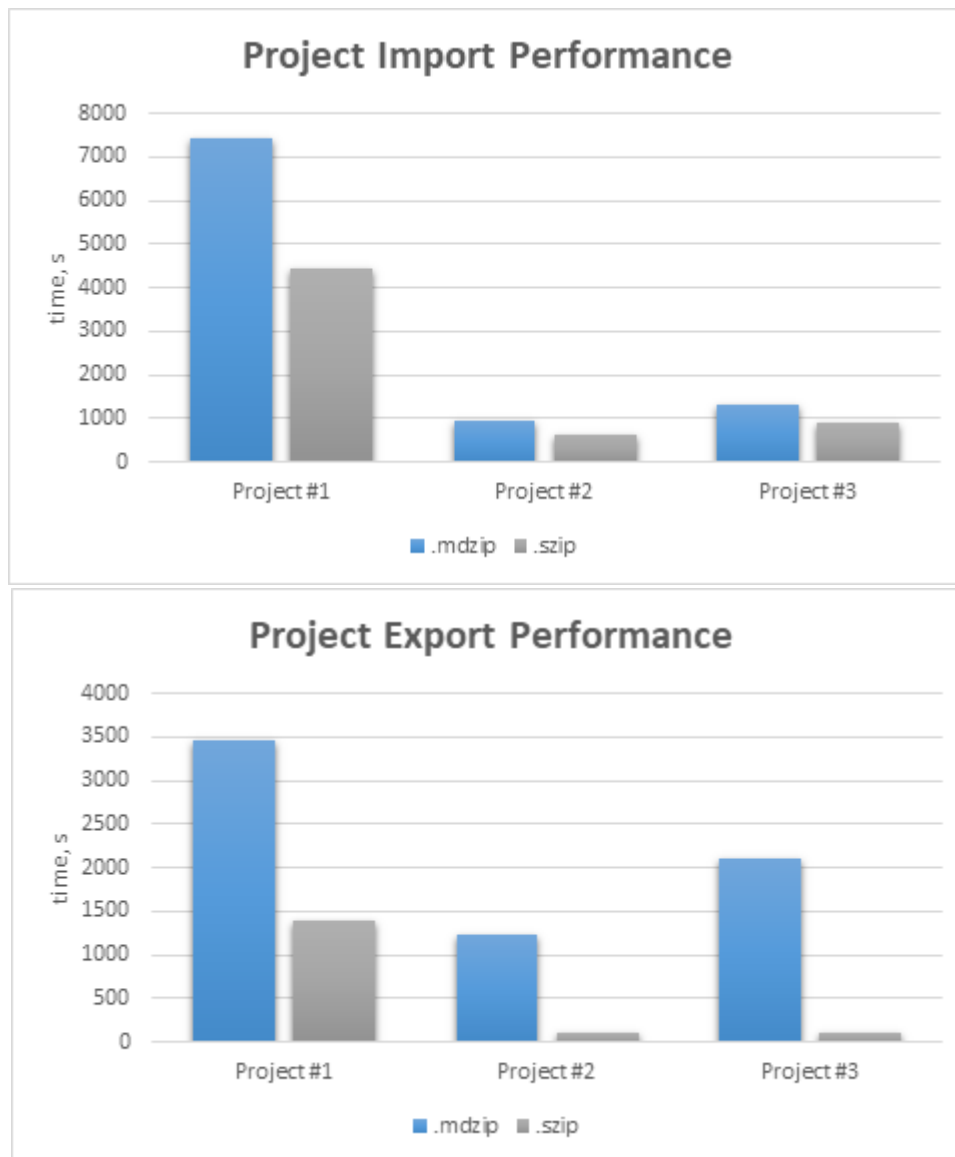
New File Exchange Format for Server Projects

In version 2022x Refresh2, we introduced **.szip** – a new [server project exchange format](#). It addresses the issues of slow performance and project structural changes associated with the .mdzip format. Using .szip, you can export and import projects more quickly without altering the project structure.

In version 2024x, we further improved the .szip format by introducing a new UI dialog that allows you to select which projects you want to import to the server and which to skip. This gives you greater control over the file exchange process.



The charts below depict how the .szip project format increases the performance of project export and import operations when compared to .mdzip. Depending on the project size element and used project count-wise, the performance gain for export can vary between 2-20 times, while the project import speed has been increased by roughly 40%.

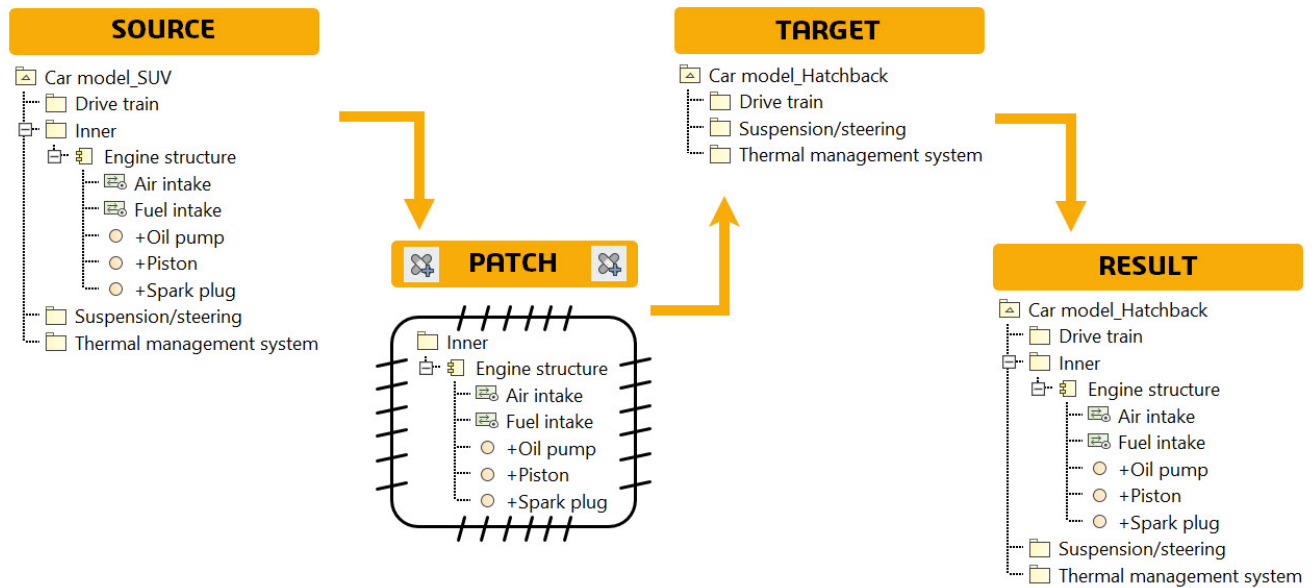


Comparing the import and export performance of Project #1 (1M elements, 57 Used Projects), Project #2 (2M elements, 7 Used Projects), and Project #3 (2M+ elements, 3 Used Projects).

Model Patch Mechanism (Technology Preview)

We introduce the technology preview of the [Model Patch mechanism](#), a more lightweight way to move model changes. Model Patch can help you:

- Move changes from one branch to another without the need to perform a full Merge operation, which can be slow and cumbersome;
- Transfer only a specific scope of model changes between disconnected teams instead of the entire model;
- Reuse only the necessary subset of an external model as an alternative to bringing in the whole model as a Used Project.



Power'By

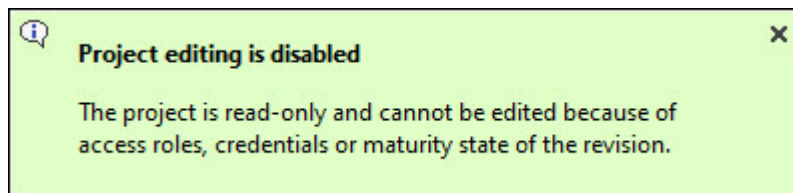
New Features to Manage Used Projects

We added new features that provide you with better capabilities to manage used projects in **3DEXPERIENCE**:

- Export packages as a new server project;
- Move elements to/from used projects;
- Import used projects.

Opening Projects in Read-Only Mode

Beginning with version 2024x, you can open **3DEXPERIENCE** projects in Read-Only mode. Projects open in this mode with a balloon notification if you do not have the necessary access rights or if the project is in Read-Only mode because of its maturity state.



Notification informing the user that the **3DEXPERIENCE** project is read-only.

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[Version news of servers and plugins >>](#)