Systema-Thermica

European Space Thermal Engineering Workshop 2025

9th-11th of September, 2025

DEFENCE AND SPACE

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Agenda

- Systema 4.9.4P1 – Recently released LTS update
- Systema 4.9.4P2 – Coming soon
- Systema V5 – Long-term major release
- Conclusion – Key takeaways & outlook

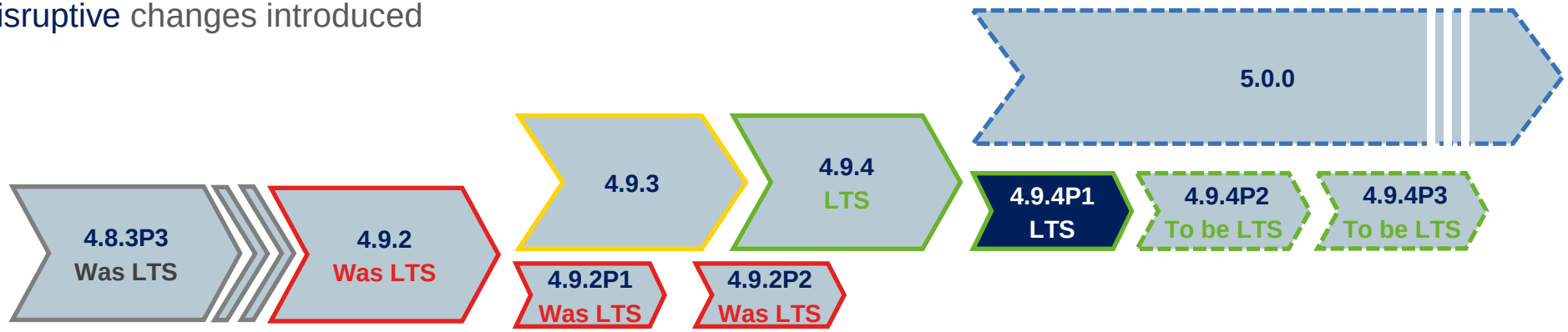
Systema 4.9.4P1 – Recently released LTS update

Systema - Thermica LTS 4.9.4P1 April. 2025:

Systema-4.9.4P1 is the **maintenance version** of the last Long Term Support (LTS) version.

As a quick reminder: an LTS release focuses on stability and long term maintenance.

- Provides reliability and continuity over time
- Includes bug fixes and minor improvements
- No disruptive changes introduced



KEY MESSAGE

Do not hesitate to send us some feedbacks !

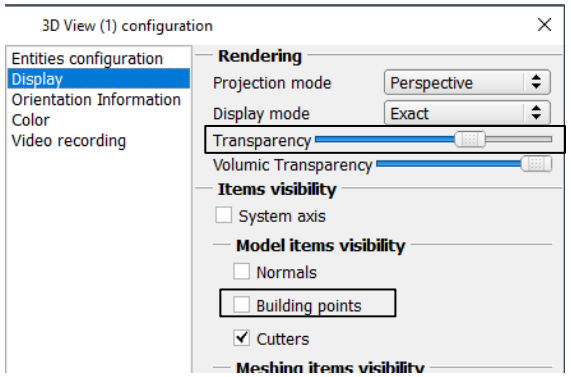
Systema

Systema-4.9.4P1

Python API

Enhanced with AI

Python API Enhancements

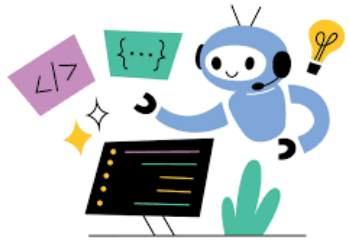


New function *setBuildingPointsVisibility(True/False)* to display/hide the building points in a 3D view

New function *get/setGlobalShapeTransparency()* to get/set the current transparency value defined in the 3D configuration window. […]

Python API Enhanced with AI

- Automate repetitive tasks with simple script
- Connect an **AI Agent** to control Systema directly
- Boost productivity using AI with the API documentation



⇨ Example: in less than 30 minutes, AI generated a script to assemble models

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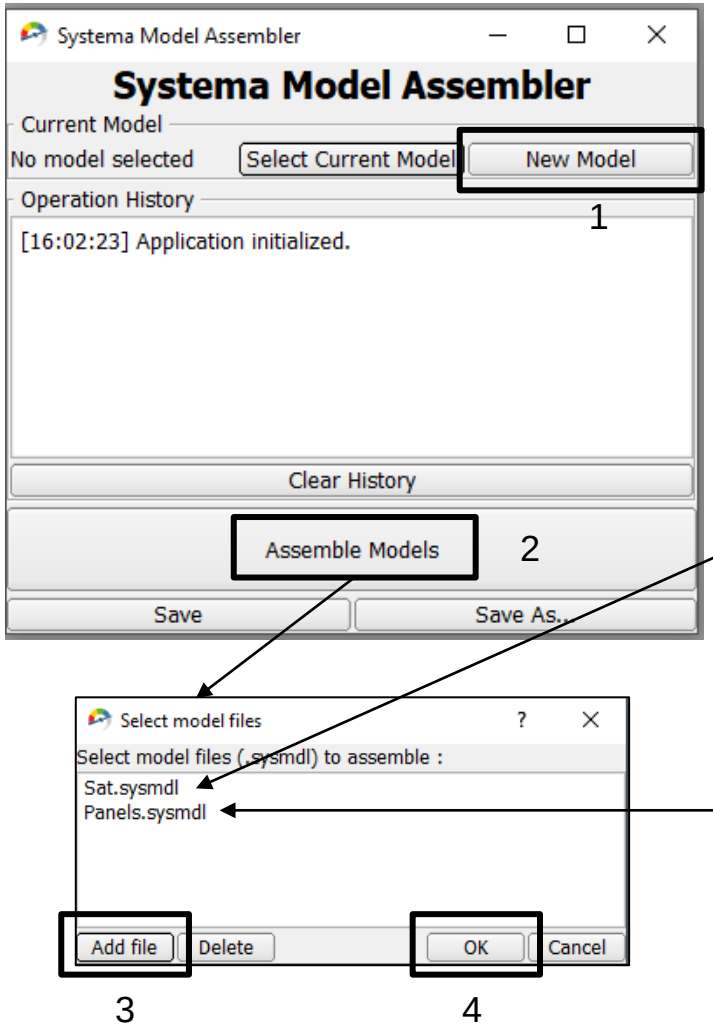
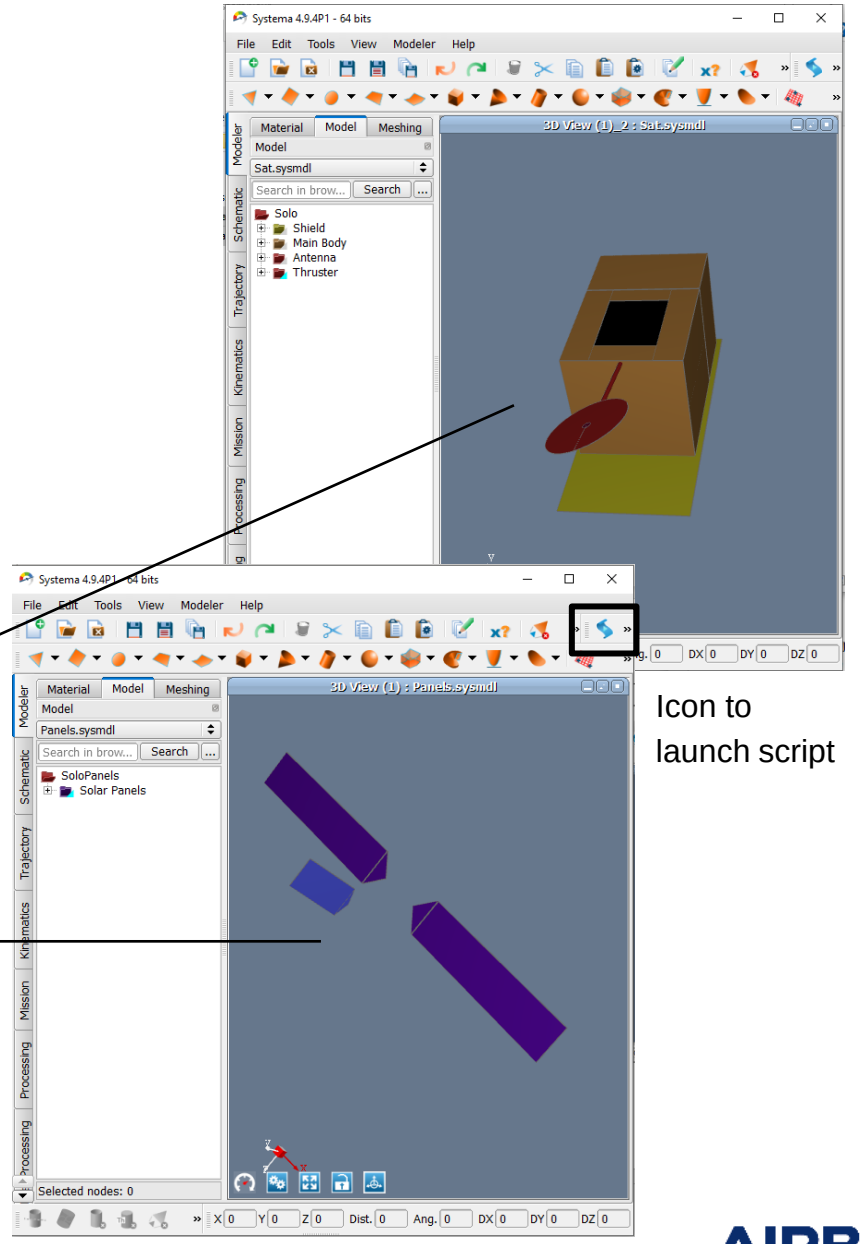
Python API

Enhanced with AI

Python API with AI example

An AI generated script to assemble models





Icon to launch script

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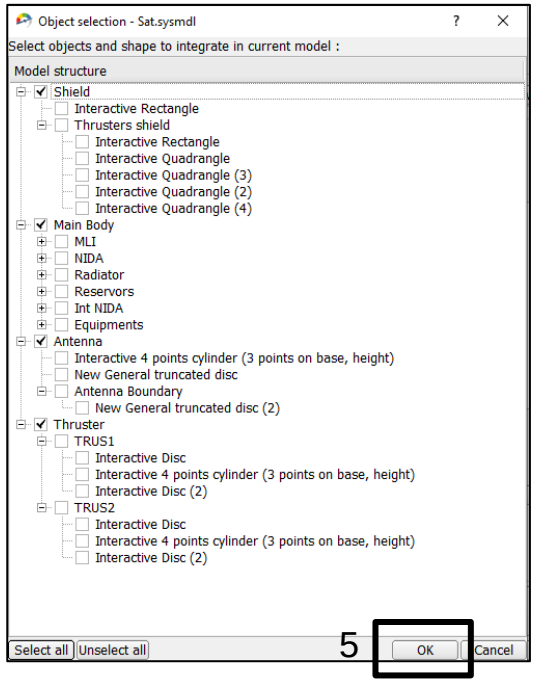
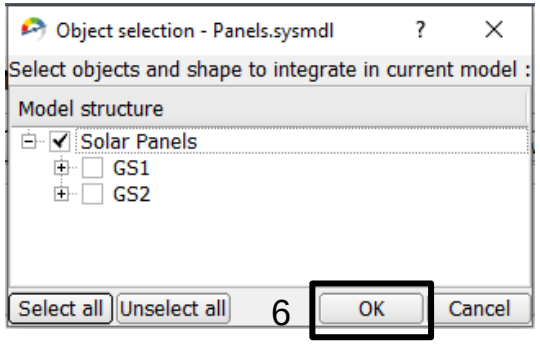
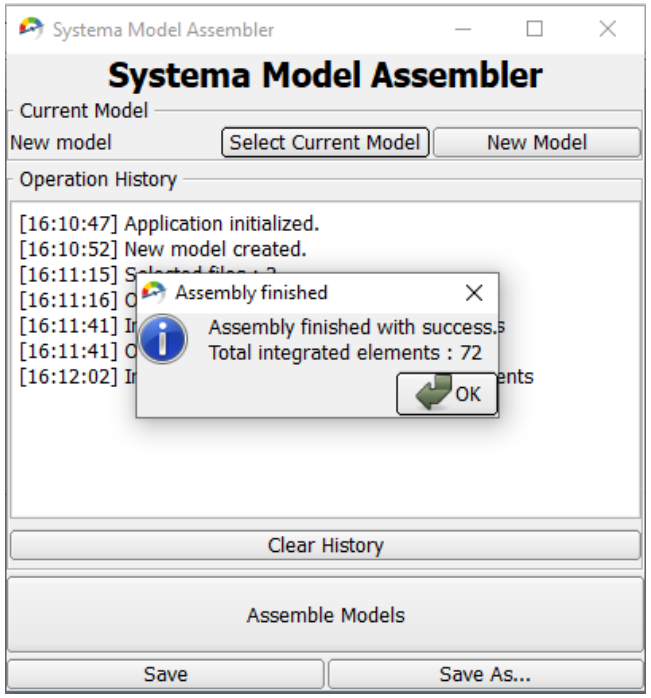
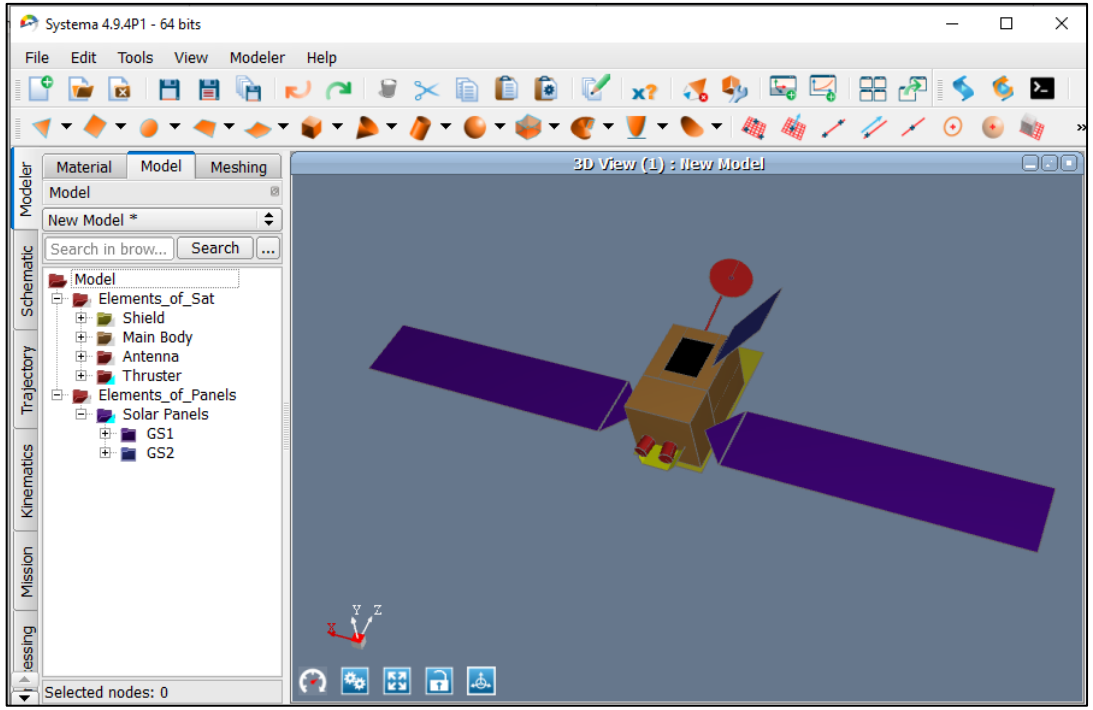
Python API

Enhanced with AI









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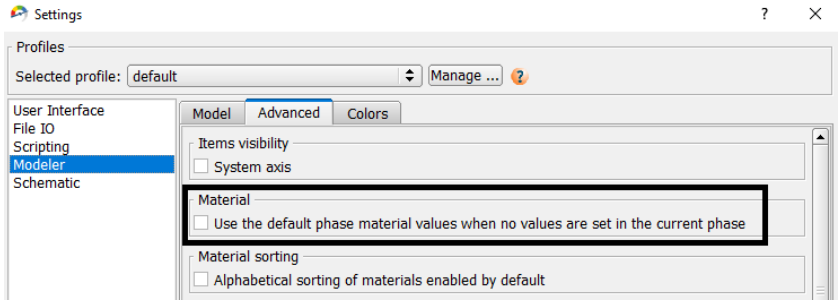
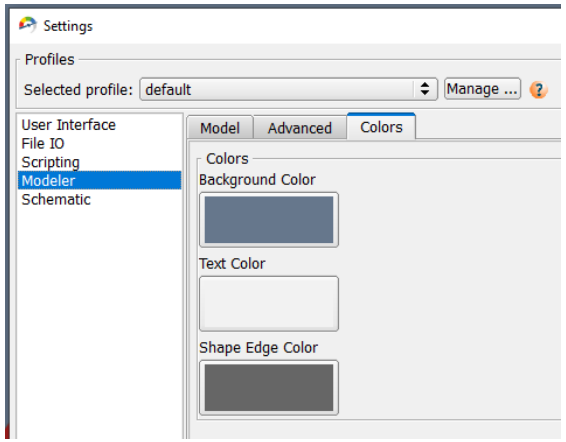
New settings

New setting to use the default phase material values when no values are set in the current phase



New setting to set the default background color, text color and shape edge color used in Modeler 3D views.



New shortcut

CTRL+Space to toggle shape visibility in Modeler and Meshing 3D views

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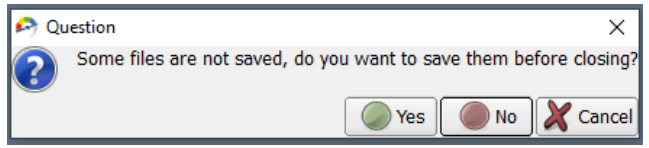
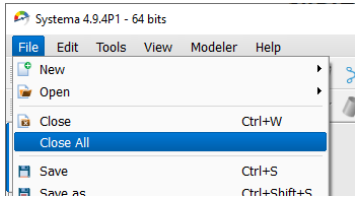
Enhanced Usability

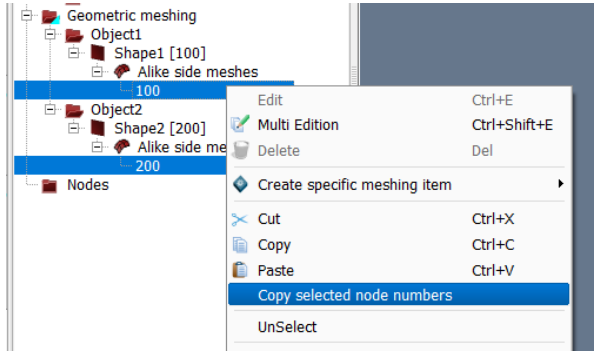
Added a popup to close without saving using the close button ×



Note: It was already available in the menu since 4.9.4 version



Added the possibility to copy selected meshing nodes into the clipboard by right clicking (in the meshing browser, or the 3D view).



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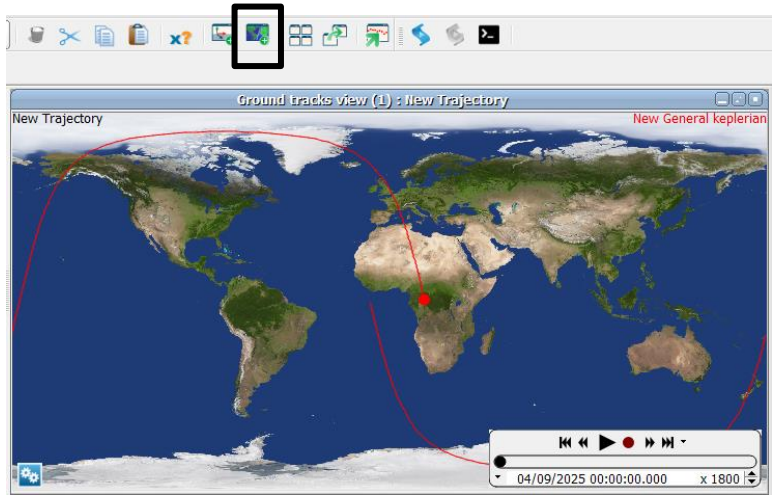
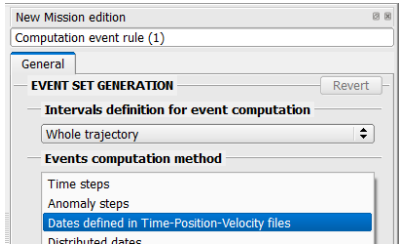
Trajectory and Mission Enhancements

Improved period accuracy for SSO and keplerian arcs

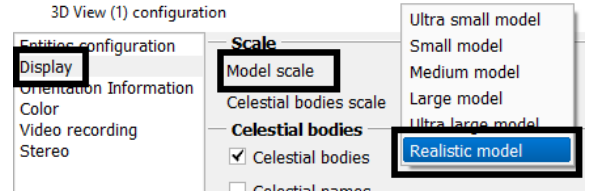
Simplified access to ground track view with an icon directly in the top toolbar



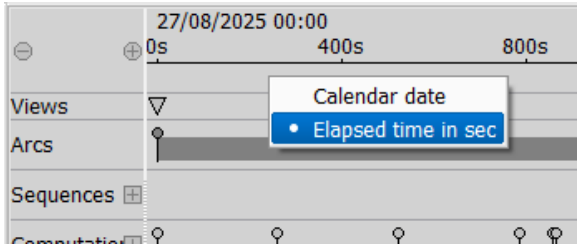
New option to create computation event based on dates defined in arc time-position-velocity files

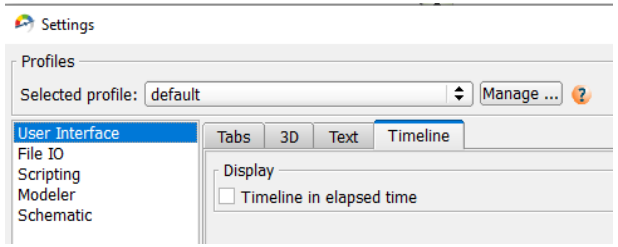


New “realistic model” option for model scaling factor in 3d view



New option to change the displayed time mode in the timeline between either elapsed time in seconds or calendar date (months, days, hours, minutes, seconds). Right click in the timeline or in the settings.





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Thermica and Thermisol Enhancements

Nodal description

Addition of the material phase used for the calculation in the nod.nwk output file.

Improved accuracy of the variables defined in the nod.nwk. They are now written in scientific format with 6 significant figures.

Few bug fixes and Improvements

Added an error message when node label is exceeding 64 characters

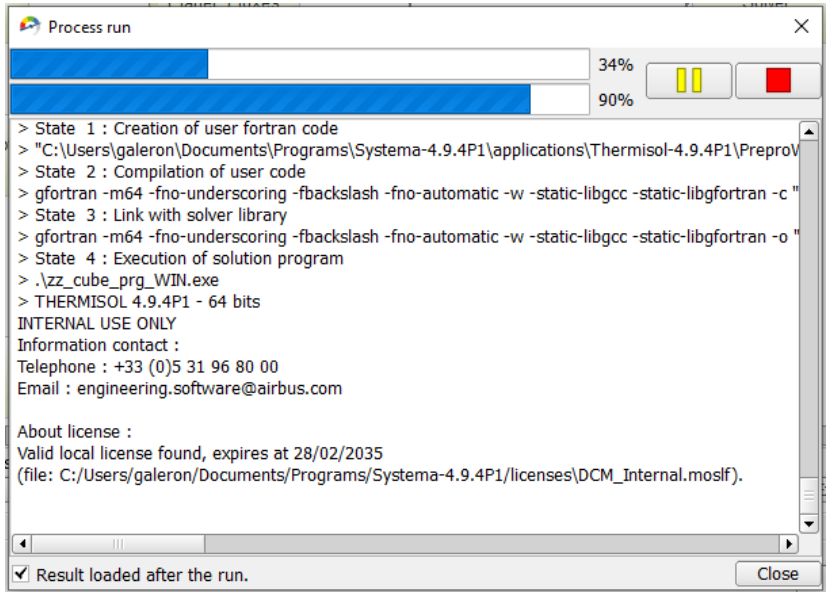
Improved conduction calculation accuracy, particularly for triangles and quadrangles

[…]

Progress Bar Improvement

Improvement of the progress bar so that it continues to advance smoothly during the execution of the Thermisol calculation.
It is only visible in the graphical interface.

For calculations launched in batch mode, it is possible to monitor the calculation's progress in the temp.csv file (to be opened with a text editor).



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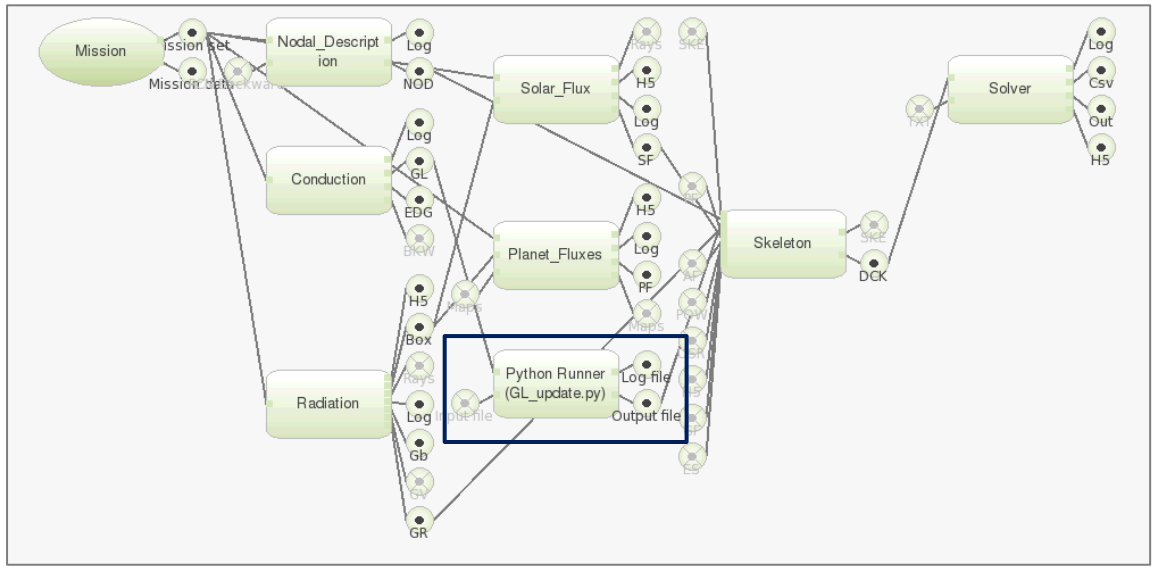
Systema 4.9.4P2 – Coming soon

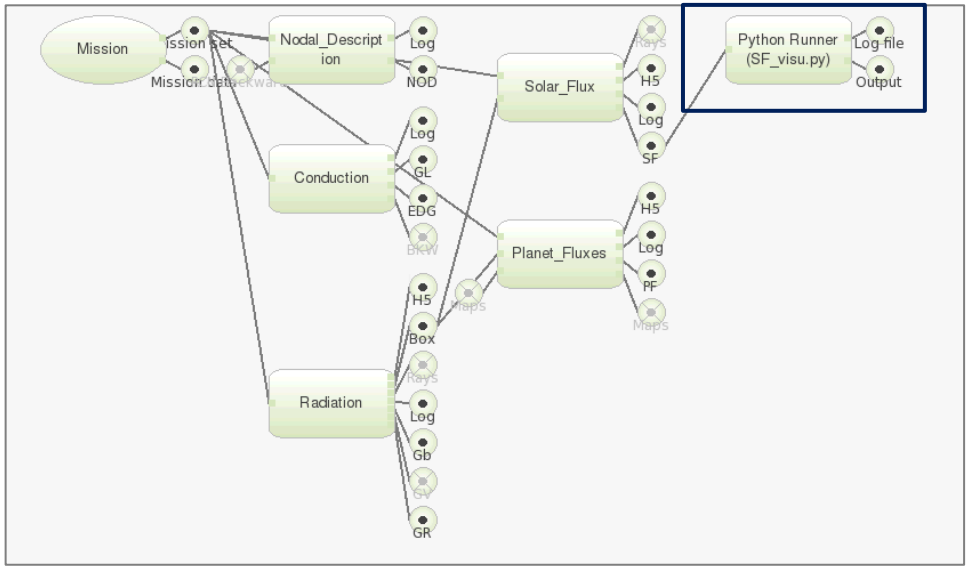
Upcoming release Systema - Thermica 4.9.4P2

4.9.4 → 5 → 4.9.4P1 → 4.9.4P2

Continuous bug fixing and stability updates, including performance improvements in Thermisol

New Python processing module offering numerous new possibilities





YOUR FEEDBACK MATTERS

If you have specific needs or ideas you would like us to integrate, please reach out to us!

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Systema V5 – Long-term major release

A new generation

A complete re-design of Systema to prepare for tomorrow’s innovations
Built on a modern, modular and scalable architecture
Strong emphasis on usability and performance
Designed to facilitate integration with external tools and workflows

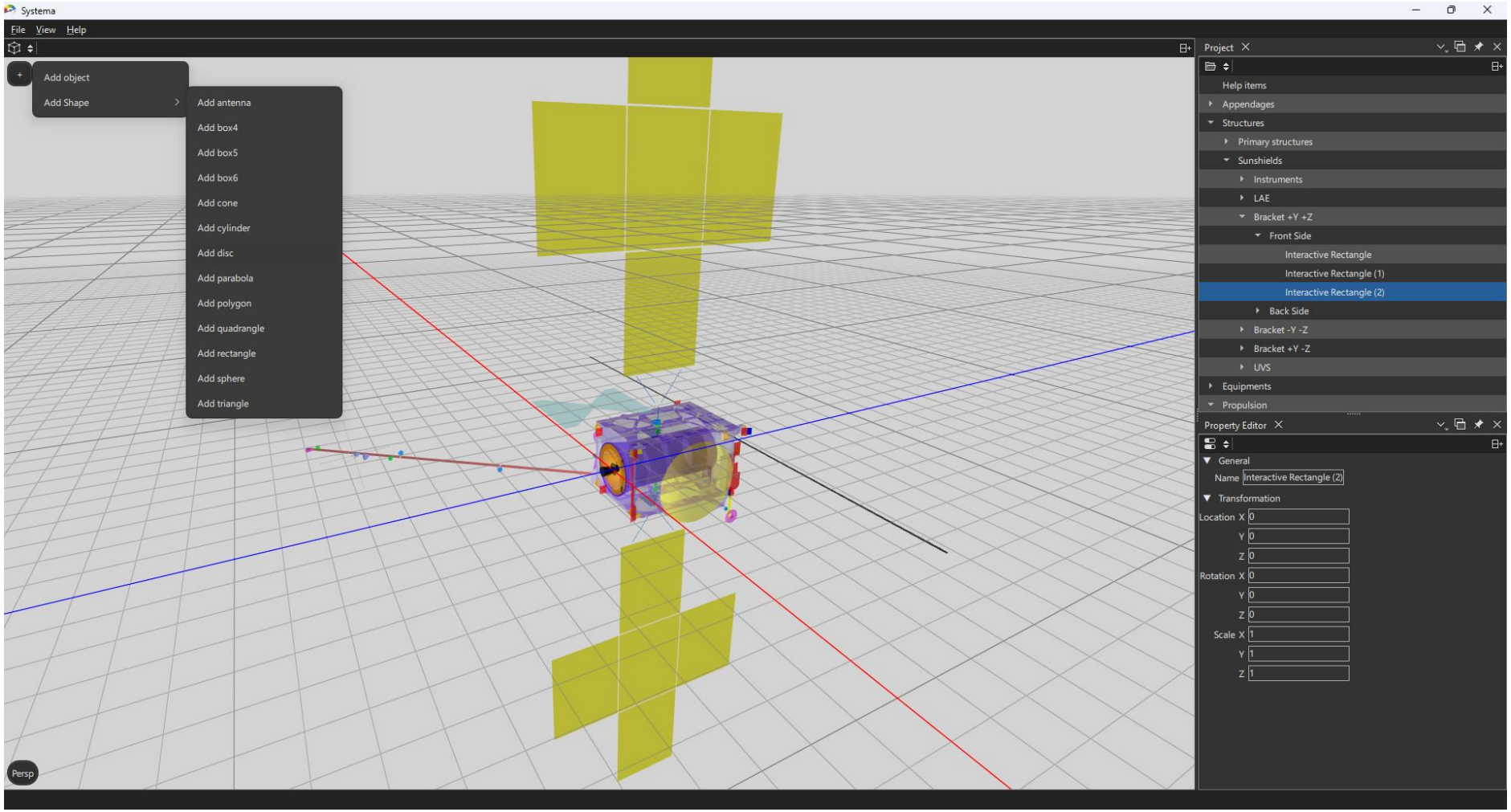
Key uses cases and benefits

Unified environment for geometry, conditioning and mission data
Strong compatibility with V4 models to ensure smooth transition
Interactive 3D visualization with improved model handling
Extensible framework that makes it easier to add new capabilities
Improved maintainability ensuring long-term support and evolutions

Current development progress

Core 3D viewer already functional

Basic model editor, tree structure and property editor in place



Systema V5

Long-term major release

Systema V5 – Long-term major release

Road ahead

Progressive rollout of new capabilities, guided by real use cases

- Robust industrial foundation
- Improved 3D visualization & usability

- Model assembly:

  reuse & combine validated sub-models
- Modular workflows for complex scenarios

- Extension with physics and solvers
- Enhanced post-processing for faster and more efficient analysis

Conclusion

Systema-4.9.4P1 maintenance version was released in April 2025

Numerous bug fixes and optimizations improve overall usability and precision.

Systema-4.9.4P2 will be the next maintenance version with a new Python Runner processing module.

Systema-5.0 the future, a new foundation: modular, scalable and robust.

DID YOU KNOW ?

We make Systema available for free to students upon request

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Thank you

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