

#### **4.9.4**

Applicable user manual version: 4.8.3.

#### **Corrections**

- Fixed a ray-tracing bug in very specific cases where rays bounced off cutters instead of passing through them.

#### **4.9.3**

Applicable user manual version: 4.8.3.

No modification.

#### **4.9.2P2**

Applicable user manual version: 4.8.3.

No modification.

#### **4.9.2P1**

Applicable user manual version: 4.8.3.

No modification.

#### **4.9.2**

Applicable user manual version: 4.8.3.

No modification.

#### **4.9.1**

Applicable user manual version: 4.8.3.

No modification.

#### **4.9.0**

Applicable user manual version: 4.8.3.

**Corrections**

- Plumimp will no longer spam warnings when some parts of the model are outside of the flow file, only one warning will be shown in the console.
- Fixed unit display in the output file for All Thrusters.
- Fixed NaN results when a surface is completely cut.

**4.8.3P1**

Applicable user manual version: 4.8.3.

**Corrections**

- Bug fix in the SDS/HDF5 library (h5 close on Windows)

**4.8.3****Plumimp module:**

- Modification of the All Thruster Thermal flux sum computation: The contribution of all thusters is now computed on each mesh cell, and the maximum for the group and surface is the max of the sum of the contribution of the thrusters.

**4.8.0****Plumimp module:**

- Corrections of bugs in the computation of droplets deposits

**Systema modeller:**

- Line and point help items can be selected in the 3D viewer
- An advanced search is available to find shapes with defined applicative properties
- CAD files can be opened and simplified when Systema installation directory is in read-only. Log files generated by the Elysium CAD Library at the download and during simplification are written in the default temporary file of the operating system.

### Systema meshing:

- It is possible to **select only the visible face** of a mesh

Applicable user manual version: 4.5.2.

## **4.7.0**

### Systema framework:

- The CAD file library has been changed and offers new simplification features: small pieces removal, holes/chamfers/fillets removal. See Systema User Manual for details.
- The 3D display performance has been improved and Systema is available for 64 bits Windows architecture.
- A new post-processing tab is available allowing, among other, to extract results on meshes more easily. See the Systema Release Note for details.

### Plumimp module:

- Capability to handle FLOW file containing droplet field information has been added: the droplet deposit can be computed and integrated

Applicable user manual version: 4.5.2.

## **4.6.0**

### Systema framework:

- Systema offers the possibility to add volumic shapes in the model. Plumimp is not yet able to handle them, this will be implemented in a future version.
- It is possible to create Plumimp specific items in using the Python interface, see the Systema/Python API documentation for details
- The Systema GUI has been revamped, see Systema Release Note for details.

### Plumimp module:

#### Resolved issues:

- When a box or composite shape belongs to a group, the group results are wrong

Applicable user manual version: 4.5.2.

## **4.5.2**

Resolved issues:

- When a reverse was applied on a shape, the results were displayed on the wrong side of the surface
- The shadowing of a surface by itself (curved surfaces) was not working

Minor improvement:

- The reference point for torques computation has been added in the xls/html output files. If used, the thruster reference force is also added in these files.

Applicable user manual version: 4.5.2.

## **4.5.1**

First PLUME V4 commercial release

The Plume V4 software is based on Plume V3.2.32 Matplimp and Plumimp modules. The free molecular regime has been implemented and handles the Knudsen model.

The main differences between Plume V3 and Plume V4 are:

- A new meshing library is available, allowing the user to input a characteristic length that is used to compute the surface mesh splitting such that all meshes have dimension of the order of this length.
- It is possible to fire several rays from meshes, making it possible to improve the computed physical quantities (already available in Plumimp V3 module). In particular, the maximum heat flux on a mesh can be better estimated. It enables also to have coarser meshes without loss of precision.
- It is possible to define several thrusters not having necessarily the same flow and thermo files.
- The mass fluxes can be integrated according to a firing duration and/or a density associated to the thrusters. This allows to have an estimate of the deposit thickness on surfaces having

- For the post-processing, it is now possible to define groups of surfaces and obtain mean/max results on these groups. It is also possible to visualize results for all the defined thrusters even if a kinematics has been defined.
- All tabulated results are available in html format, making it possible to import them directly in a spreadsheet editor.