

MAGMASOFT® Patch 5.5.0.1 Notes

The MAGMASOFT® software, Release 5.5, has been updated with a program patch. This patch is called Patch 5.5.0.1.

In this document, all improvements, bug fixes and changes of MAGMASOFT® that have been implemented with Patch 5.5.0.1 are described in short form. For the use of MAGMASOFT® it is strongly recommended to use this latest version.

In this document, only those contents are described that are new since the previous patch, which was Release/Patch 5.5.0.0.

Please read this document carefully. The given information is not included in any other document about MAGMASOFT®. If you need further information, feel free to contact the MAGMA customer support. Visit our homepage, e.g. www.magmasoft.com, for contact and further details.

- **Online help now available**

Online help, documentation

1

The online help system has been updated and completed. The online help contents for Release 5.5 are now available.

- **Crashes of optimization runs while processing geometry**

Geometry modeling, design optimization (Linux/Cluster)

1

On Linux Cluster systems, MAGMA observed random crashes of design calculations while evaluating geometry volumes, e.g. in the course of Boolean operations. This bug has been fixed.

- **Crashes with mesh generation**

Mesh generation

1

Random program crashes that occurred in the context of mesh generation – e.g. if the mesh display was closed – have been fixed.

- **Mesh generation defaults**

Mesh generation

1

With sand mold casting projects, a first mesh generation run was always carried out with the default setting 'Equidistant' (5 mm), even if you as the user had configured different settings. This bug has been fixed.

- **Job list (queue), finished simulation jobs**

Simulation calculation

1

There is a new feature for the batch service available that serves for limiting the number of finished simulation jobs in the queue. By default, old jobs are deleted automatically from the queue if 30 or more finished jobs still exist in the queue. (Running and waiting jobs are not considered.)

You can adjust the default number of 30 by editing the file "**batch-service.cfg**". This file is located under C:\<local app data>\MAGMA\MAGMABatchService\<release>\conf (on Windows) and /var/tmp/<user>/MAGMA/MAGMABatchservice/<release>/conf (on Linux).

- ⇒ Open this file with a text editor.
- ⇒ Look for the text line that contains the string "**max-finished-Jobs=30**". This line starts with the string "Queue".
- ⇒ Change the number as desired.
- ⇒ Save and close the file.

Make sure to terminate the MAGMASOFT® Batch Service before editing the "batch-service.cfg" file. Make also sure to close the text editor after editing the file. Do not change the file format. It is recommended to backup the file before changing it.

If the job list in the queue is too long, this can slow down the performance of the program, especially if you work with the Network Batch Service. Hence, make sure that you do not use values that are too high.

- **Simulation calculation and result presentation**

Result presentation

1

In rare cases, communication problems between the Simulation and the Result Perspective occurred. In this case, e.g., not all of the simulation results could be invoked. This bug has been fixed.

- **'Transparency and 'X-Ray'**

Result presentation

1

In the Result Perspective, the result display with 'X-Ray' has been improved. Example: Transparent areas of the system appear clearer now if the system is viewed in one of the main axis directions.

- **Porosity volume and 'X-Ray'**

Result presentation, simulation results

1

The evaluation of the 'Porosity' result together with 'X-Ray' has been improved as follows:

The porosity volume of those areas that show porosities can be selected and illustrated with the middle mouse button. The porosity volume is now always calculated with a limiting value of 1%, no matter which lower limit you have chosen for 'X-Ray'.

As a consequence, the displayed size of the shown porosity can indeed change its size, but the accompanying porosity volume remains the same. If, due to an appropriate 'X-Ray' value, several partitions are forming from a coherent area, the porosity volume for each separate area is nevertheless indicated for the lower limit of 1%.

See also Porosities / 'Porosity', page 806 of the Standard MAGMASOFT® Manual.

- **Fitting view with 'Distortion'**

Result presentation

1

In the Result Perspective, fitting the view of stress results with the 'Distortion' option being active did not work properly. As a consequence, re-fitting the view in the course of animations did not work correctly, too. This bug has been fixed.

- **Axes of 'Main Effects' chart**

Assessment Perspective, design optimization

1

Display errors in the axis dialog for main effect charts have been fixed.

- **Mold stability and porosities**

MAGMAiron

1 In MAGMAiron, the mold stability can influence the formation of porosity, if there is a possibility of feeding between two hot spots near a mold wall, e.g. hot spot A and hot spot B. For iron casting, the influence of mold dilation on the porosity formation will be noticeable if the following three conditions are satisfied at the same time:

- 1) The melt in the hot spot A is expanding (not shrinking) and has no porosity;
- 2) The hot spot A has a non-frozen contact to the mold;
- 3) The expanding hot spot A has contact to a shrinking hot spot B, in which the porosity is forming.

If these three conditions are met simultaneously, the melt from the expanding hot spot A can be transferred into hot spot B. This transferred melt will compensate or even prevent the shrinkage porosity formation in hot spot B.

The volume of the transferred melt volume depends on the mold stability. The expanding melt from hot spot A also pushes away the mold wall, increasing its own cavity volume. If the mold stability is weak, it will deform – and thus accommodate the expansion of hot spot A. In this case, the extra volume of the expansion will stay in hot spot A. On the other hand, for a rigid mold, the wall will not deform, and the extra volume of the expansion will be completely transferred into hot spot B.

- **Dump and restart with convection and segregation**

MAGMAsteel

1 If you had dumped a simulation with MAGMAsteel for that you had activated the calculation of convection and segregation and then restarted it, the solver could crash. This bug has been fixed.

- **Units for heat treatment results**

MAGMAsteel, heat treatment

1 There were wrong unit names for the results 'Temper Hardness' and 'Quench Hardness' after a heat treatment calculation. The results are calculated in Vickers [HV], but the labels of the axes said Brinell. This bug has been fixed.

- **Synchronization of vents after changes (HPDC)**

MAGMAhpdc

1 When moving, changing or deleting existing vent entities in MAGMAhpdc projects, this did sometimes not work correctly and lead to errors. E.g. designs of experiments (DOEs) could crash in such situations. This bug has been fixed.

- **Tempering channels with flow**

MAGMAhpdc

1 If you had modelled tempering channels with one inflow and many outflow entities, the results in the Result Perspective sometimes showed inflows as outflows, and vice versa. This bug has been fixed.

See also Ch. 3.8.2 of the MAGMAhpdc Manual.

- **Stress calculations for HPDC**

MAGMAhpdc, MAGMAstress

1 Several issues concerning simulation crashes and hanging jobs for stress calculations of MAGMAhpdc projects have been fixed, e.g. for the dosing process phase. E.g., simulations could crash if no tracer particles had been defined in certain situations. This bug has been fixed.

- **Improvements of 'Air' result**

MAGMAhpdc

1

Calculations of the new 'Air' result have been improved further and show even more realistic results now.

- **Enhancements of continuous casting**

MAGMA CC

1

Diverse enhancements and improvements of calculations with MAGMA CC have been implemented. The simulation runs much more reliable and stable now. This affects, e.g., the withdrawal phase.

What is more, a possible freezing of the GUI has been fixed that occurred when running a non-geometrical update of the mesh while entering the Mesh Perspective, while the mesh display was not open yet.