MAGMASOFT® Patch 5.5.0.2 Notes

The MAGMASOFT® software, Release 5.5, has been updated with a program patch. This patch is called Patch 5.5.0.2.

These Patch Notes are a general update of the documentation of MAGMASOFT® 5.5. Here, all relevant program changes (bug fixes for the most part) that have been implemented after Release 5.5.0.0 are summarized in short form. For the use of MAGMASOFT® it is strongly recommended to use this latest version.

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.

1 Patch 5.5.0.2

- **Failure of installation and license server**

Installation, licenses

2 The installation of MAGMASOFT® could fail while the setup wizard was running. No license server was installed or configured in this situation. A manual installation/configuration of the license server also failed then. This bug has been fixed.

- **CodeMeter service and Active Directory**

Installation, licenses

2 While installing or updating the CodeMeter system service, it was scanning the Active Directory service by default, which was not accepted in some situations. Such default scans are now switched off by default.

- **MAGMASOFT® and input devices**

General, common

2 Before entering a perspective with a 3D geometry workspace, MAGMASOFT® is checking for input devices (e.g. space mouse). In some cases the system was blocking some queries to the internal hardware. This bug has been fixed.

- **Synchronization of vents after changes**

General, die casting (all modules)

2 Geometrical errors with the synchronization of vents been fixed, which occurred after opening projects and loading existing geometry.

When moving, changing or deleting existing vent entities in die casting projects, this did sometimes not work correctly and lead to errors. Designs of experiments (DOEs) could crash in such situations, e.g. in start sequences. This bug has been fixed.

- **Corrupted project versions**

  Project management

  2 MAGMASOFT® does not disturb the project version anymore if file permissions allow the user to delete a file, but not to read it.

  In this case all file registrations were lost, and no results were displayed in the Result Perspective. You will now get an error message "`ERROR 709-1457 Unable to open project ...`". Please check your file permissions in this case. If you have corrupted projects that do not show results because they are not registered, but present on the hard drive, please close MAGMASOFT®, open a shell, and type/run the following command line:

  ```
  ms -m MAGMApvs -repairRegistration -proj $MPRODIR
  ```

  Here, **`ms`** is the command to start MAGMASOFT®.

  `$MPRODIR` is the path to your project version (example: `/data/MAGMAprojects/MyProject/v42`).

- **Geometry preview in project workspace**

  Project management

  2 The geometry preview is now correctly stored as a PNG image ("`geometry.png`"), in order to provide preview images for environments without MAGMAinteract®), like Linux systems. The screen shot now fits all visible geometry anyway. In the previous Patch 5.5.0.1, the preview image was sometimes not available in the 'Version List' view of the project workspace.

  See also Ch. 3.5.2 of the Standard MAGMASOFT® Manual.

- **Mesh generation and duplicate material labels**

  Geometry modeling

  2 When opening the Geometry Perspective, duplicate material groups with the same ID are now removed automatically from the model. This fixes a (rare) failure of the mesh generation process.

- **Density for tracer particles at inlet**

  Geometry modeling

  2 If you had generated tracer particles with different densities while creating an inlet, the simulation results did not show the corresponding differences in density. This bug has been fixed. If this error occurs in a project version that you had converted from an earlier program release, you have to generate the mesh and run the simulation again to make this bug fix work.

- **Update of 'Chemex' database**

  Geometry modeling

  2 The 'Chemex' geometry database has been updated. Some new geometry and material datasets are now available.

- **Calculation of 'Porosity' volumes**

  Result presentation

  2 When picking points of a 'Porosity' result, the calculation of porosity volumes was restricted to cast materials. Now, this works for other materials, too (e.g. pouring basins).

- **Progress of advanced radiation calculation**

  Investment casting

  2 When calculating radiation with the radiation algorithm 'Advanced' (solidification simulation options), e.g. for an investment casting project, the progress of the simulation in the Simulation Perspective was not indicated in due time. This was above all true if you had chosen the setting 'Accuracy Level' ➔ 'Very High'. This bug has been fixed. The progress of radiation tracing is now indicated properly, also in the form of a progress bar.

  Activating the calculation of advanced radiation is described in Ch. 5.5 of the Investment Casting Manual.

- **Pouring basin and convection**

  MAGMAiron

  2 If your geometry contained a 'Pouring Basin' material domain, and if you had simulated convection for an iron casting project, the pouring basin did sometimes behave differently compared to a simulation without convection. This bug has been fixed.

- **Solidification simulation with convection**

  MAGMAiron

  2 The solidification simulation for an iron casting project could crash, if micromodeling and convection was calculated. This bug was related to time step control issues and has been fixed.

- **Primary austenite for cast iron alloys**

  MAGMAiron

  2 The calculation of the fraction of primary austenite in hypoeutectic cast iron alloys has been corrected.

- **Stress calculation for imported project**

  MAGMAstress

  2 Simulations for MAGMAstress projects that had been set up with and converted from earlier program releases did sometimes not start and crashed. This bug has been fixed.

- **Generation of canonical mesh (MAGMAstress)**

  MAGMAstress

  2 With rather large meshes, the generation of the canonical mesh for stress calculations took a very long time. This bug has been fixed.

- **Temperature fields for heat treatment stress**

  MAGMAstress, heat treatment

  2 When using the last temperature field of the stress results from the solidification simulation as a starting point for the heat treatment, the solver added an extra ambient temperature result before the actual heat treatment. This bug has been fixed. The correct temperature fields are now taken into account for the stress simulation.

- **Melt level in tundish**

  MAGMA CC

  2 If you had simulated filling during withdrawal including a tundish, the melt level in the tundish was sometimes not reduced, even if the volume flow from the inlet was smaller than the volume flow due to withdrawal. This bug has been fixed.

- **Wrong display of surfaces**

  MAGMAc+m, result presentation

  2 There were visualization errors of certain geometries / material domains in the Result Perspective of MAGMAc+m projects, e.g. with cores, tempering channels and core boxes. This bug has been fixed.

  You should delete the files "`Mesh.gc`" and "`Geometry.gc`" in the directory `GeneratedData/Mesh/Dual` of the affected project version to make this bug fix work.

2 Patch 5.5.0.1

- **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** — 1

  Geometry modeling, design optimization (Linux/Cluster)

  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** — 1

  Mesh generation

  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** — 1

  Mesh generation

  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** — 1

  Simulation calculation

  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-finishedJobs=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** — 1

  Result presentation

  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'** — 1

  Result presentation

  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'** — 1

Result presentation, simulation results

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%.

- **Fitting view with 'Distortion'** — 1

Result presentation

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** — 1

Assessment Perspective, design optimization

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

- **Mold stability and porosities** — 1

MAGMAiron

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** — 1

MAGMAsteel

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** — 1

MAGMAsteel, heat treatment

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.

- **Tempering channels with flow** — 1

MAGMAhpdc

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.

- **Filling simulation with tracer particles** — 1

MAGMAhpdc

Simulation calculations of the filling phase of MAGMAhpdc projects could crash if no tracer particles had been defined. This bug has been fixed.

- **Stress calculations for HPDC** — 1

MAGMAhpdc, MAGMAstress

Several issues concerning simulation crashes and hanging jobs for stress calculations of MAGMAhpdc projects have been fixed, e.g. for the dosing process phase.

- **Enhancements of continuous casting** — 1

MAGMA CC

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.