



# Simcenter™ MAGNET™ Suite Release Notes

Software Version 2212.0007  
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# Acronyms

Throughout this document, the following acronyms are used, where required:

- **SMag** -- refers to Simcenter™ MAGNET™ software
- **SMElec** -- refers to Simcenter™ MAGNET™ Electric software
- **SMTherm** -- refers to Simcenter™ MAGNET™ Thermal software
- **SMDO** -- refers to Simcenter™ MAGNET™ Design Optimization software
- **SMExt** -- refers to Simcenter™ MAGNET™ Extensions
- **SMforSIM** -- refers to Simcenter™ MAGNET™ Plug-in for Simulink
- **SMSMG** -- refers to Simcenter™ MAGNET™ System Model Generator Plug-in for Simulink

## Corrected Problems

### Problems fixed in release 2212.0007

- STEP imports dumped when closing and reopening model. Somehow, a SAT file created from a STEP import was encoded as Shift-JIS and contained Japanese characters which caused problems since we assume UTF-8 encoding. The code was changed to read in the file as binary and then attempt an ASCII to UTF-8 conversion. If that fails, it tries a Shift-JIS to UTF8 conversion.

### Problems fixed in release 2212.0006

- (**SMag** only) Static 3D *solves* in HPC were not all going into the true block of the solver report. This caused some MPI processes to never call MPI\_Barrier(), which in turn caused the root process to hang and never finish.
- Fixed the lamination values for:
  - M-36 26 Ga
  - M-43 26 Ga
  - M-36 29 Ga
  - M-45 29 Ga
  - updated the Steinmetz fits

### Problems fixed in release 2212.0005

- (**SMag** only) Surface force results are inconsistent over successive calculations
- (**SMag** only) Corrected the solver DC resistance calculations in 3D when the strand area is set. When the fill factor was far from 1, this could lead to incorrect results.
- (**SMDO** only) Fixed a reference to "Should be" constraints that no longer exist in a validation message.
- (**SMDO** only) Fixed a user-reported bug: "Design optimization corrupt model file after optimization - Case 01338525" that caused problems with a file opened in Simcenter MAGNET Design Optimization.

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- (SMElec only) Normal and tangential fields are wrong for older .en file.
  - (SMforSIM only) Failure occurs with two motion components when there are no coil components in the model. The error is caught before starting the solve.
  - Added the missing reporting for material resistivity differences in the tooltip.

#### Problems fixed in release 2212.0004

- Fixed BUG 32221: "Internal error when pasting in anisotropic dialog".
- Fixed a bug that was preventing animations from being generated in the Field page before any fields are displayed.
- Fixed the logic of the disabled status in the property page to match the (correct) logic in the group panel context menu.
- (SMag only) Fixed an issue in the MAGNET circuit window where the canvas is not automatically extended when a circuit is loaded.
- (SMExt only) Fixed the integration of 'surface unit normal' field.
- (SMExt only) Removed JxB fields referenced in 29675
- (SMSMG only) PHP-1242 - Partial fix of rollover text of Plug-in

#### Problems fixed in release 2212.0003

- (SMag only) Adjusted the text control size to avoid truncating the text.
- Added text to the error messages for the following error codes: 145028, 145558, 145560, 145571, 145607, 152016
- Fixed a big slowdown when solving.
- Fixed a longstanding bug in animations, where the first pass to calculate the minimum and maximum animation bounds was being done, even though the overlay's value generation method was set to Manual. Now, if all overlays where a field is displayed is set to Manual, the first pass is skipped, reducing the amount of time required.
- (SMExt only) Hanging of form, on minimize.

#### Problems fixed in release 2212.0002

- When opening any product of the Simcenter MAGNET Suite, users may get successive *Licensing Error* pop-ups informing them that license requests for CAD features failed. A licensing error is obtained for each unlicensed CAD format:
  - CATIA5 Reader and Writer (2)
  - CATIA4 Reader and Writer (2)
  - IGES Reader and Writer (2)
  - STEP Reader and Writer (2)
  - ProE Reader (1)
  - Inventor Reader (1)

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## Problems fixed in release 2212.0001

- Fixed the selection code to allow an empty array to eliminate the scripting error.
- Support case 3745458121.  
In any graph window, double clicking on it would make the model name disappear from the application window title bar. While a graph window is displayed, click on any item in the Coil panel or select any component in the Object tree -- the Solve menu items are grayed out and they get enabled only after another click on the graph window.

## Enhancements

### Enhancements in release 2212.0007

- (**SMag** only) Coil field generation it will always perform a cavity check, even if "MeshAllowUnconstrainedCavities" is set to "Yes" (this check takes just 4 seconds for the 15 million Tet model) and print a warning to SolverLog.txt if cavities are detected.
- (**SMTherm** only) Added the composite material direction to the Simcenter MAGNET Thermal solver property field property page. It is used in EMD, so it should be added there.
- Updated labels from declination to polar angle. Fixed 'azimuth' typo.
- Added code to prevent the computer from going into sleep mode during an optimization or a solve.

### Enhancements in release 2212.0006

- Added the following Boolean functions to the device expressions. They return 1 for true and 0 for false. They can be used with the if() function or standalone.
  - - gt(lhs, rhs): returns lhs > rhs
  - - gte(lhs, rhs): returns lhs >= rhs
  - - lt(lhs, rhs): returns lhs < rhs
  - - lte(lhs, rhs): returns lhs <= rhs
  - - eq(lhs, rhs): returns lhs == rhs
  - - ne(lhs, rhs): returns lhs != rhs
  - - teq(lhs, rhs): returns lhs == rhs, where lhs and rhs are text values
  - - tne(lhs, rhs): returns lhs != rhs, where lhs and rhs are text values
  - - and(lhs, rhs): returns lhs && rhs
  - - or(lhs, rhs): returns lhs || rhs
  - - not(arg): Boolean not operation.
  - - tin(str, substr): return true if substr is in str.

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### Enhancements in release 2212.0005

- Reordered the difference reporting to be grouped logically by physics, in more or less the order in the Options dialog: general, magnetic, electric, thermal, other, fluid, mechanical.
- (**SMExt** only) Added electrodes to the list of allowed components.
- (**SMExt** only) Fixed the units for Demagnetization

### Enhancements in release 2212.0004

- (**SMag** only) Added support for a multi-selection property page in the circuit window.
- (**SMag** only) Added support for windings in the multi-selection property page.
- (**SMElec** only) Fixed components that are assigned to a PEI constraint to behave like the PEI constraint was assigned to all of its faces.
- (**SMExt** only) Fixed Graph layout for Field Extractor
- (**SMExt** only) Standardized formatting for the input data grid
- Added a check for the value generation method so that IsAutoMinMax can be passed correctly in the calls to addField/removeField.
- Disabled mousewheel zooming/scrolling in the mode view unless the view has focus.
- Made the dialog memory registry entries process-id specific, so that multiple instances of Simcenter MAGNET don't change each other's dialog settings. The same fix applies to both Simcenter MAGNET Electric and Simcenter MAGNET Thermal.
- Removed the MeshAtPositionZero parameter from being hidden-settable to being a proper mesh system parameter.
- Removed the bitness from the Simcenter MAGNET Electric and Simcenter MAGNET Thermal's "About boxes" to match Simcenter MAGNET's.
- Added a default description for the model material and user material databases.

### Enhancements in release 2212.0003

- Added missing ACIS export versions 31.0, 30.0, 29.0, 28.0.
- (**SMag** only) Added MeshAtPositionZero to the top-level parameter page grid. When this parameter is set to Yes, it allows a 3D Motion problem with periodic boundary conditions to start in an unaligned position, provided that the zero position has been made to correspond to the perfectly aligned position.
- Added new scripting API to the ContourPlotOverlay, ShadedPlotOverlay, and ArrowPlotOverlay:
  - `int getValueGenerationMethod()`  
Returns `infoGenerateLinearValues`, `infoGenerateLogarithmicValues`, `infoGenerateExponentialValues`, or `infoManualValues`.

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## Enhancements in release 2212.0001

- **(SM only)** Added support in the Simcenter MAGNET Distributed Solver setup for the MS HPC Pack 2019 Update 1 (6.1.7531).
- **(SME only)** Added some code to allow electrodes to touch if the voltage of two electrodes are close, in an absolute sense. In previous versions, this worked for voltages close, in a relative sense, but that could fail when the voltage is near zero. Now, one or the other is sufficient to allow touching electrodes.
- **(SME and SMT only)** Corrected some logic determining how voltage or temperature multipliers should be reversed after a model transformation.

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