

# Simcenter 3D Low Frequency EM Release Highlights

**Version: Simcenter 3D 2020.1**

**SIMCENTER**

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## 1 Electric field solver environment

- In this release, the Electric field solver has been added to the Simcenter 3D Low Frequency EM environment. The new electric field simulation capabilities cover an entire range of new applications such as insulation systems, high voltage components, surge arrestors, bus bars, cables, and many more. The user can perform electrostatic, current flow, time-harmonic, and transient electric field simulations in both 2D and 3D. Additionally, the user can perform coupled electric-thermal simulations, to study effects such as the temperature rise due to lossy dielectrics.

## 2 Electro-vibro-acoustic

- Support is added for coupled electro-vibro-acoustic simulations by exporting the electromagnetic forces to a UNV file that can be used as a load for vibration and acoustic simulations.

## 3 Coupled Thermal solutions

- Support has been added for Transient EM/Transient thermal simulations.
- Support has been added for convection body types, which can be used to calculate an average convective heat transfer coefficient for different types of surfaces on a model.

## 4 Modeling

- Object-level parameters have been added that permit: specifying initial temperature, specifying polynomial order, disabling adaption, disabling in thermal solution, specifying average power loss start and end time, specifying the hysteresis method, ignoring eddy currents and ignoring remagnetization/demagnetization.
- Support has been added for modeling anisotropic material properties.

## 5 Adaption

- Support has been added for Adaption. Simcenter 3D Low Frequency EM's adaption process automatically identifies the areas of the mesh most in need of improvement and refines the mesh (h-adaption for 2D/3D solutions), or increases the polynomial order of the elements (p-adaption for 3D solutions only), in those areas.