Ansys / ELECTROMAGNETICS

What's New in Ansys Electronics Desktop 2024 R2

Ansys Electronics Desktop (AEDT) provides highly integrated electromagnetic simulators, circuit/system simulation, ECAD links, and compliance reporting. The single desktop allows users to insert and co-simulate among multiple design types. Click to see what's new for the following:

- HFSS
- HFSS 3D Layout
- Maxwell
- Icepak
- Mechanical
- Q3D Extractor
- Circuit
- FilterSolutions
- EMIT
- Twin Builder
- Granta Materials

Electronics Desktop

- Auto setting for HPC license to choose between Workgroup and Pack
- Import and export variables
- Auto complete enhancements
- Updated default Intel MPI version to 2021
- Extended support for Ansys Dark and Light themes (Beta, Windows only)
- Enhancements to Web Client for batch solve job submission, monitoring, and reporting (Beta)
- Improved monitoring of jobs submitted to HPC Platform Services from AEDT (Beta)

3D Modeler

- Parasolid modeling enhancements including translation improvements
- Geometry import and export enhancements

HFSS

- Support for layout components in designs with encrypted 3D components
- Optimized solver for designs with only Circuit ports
- Taylor distribution for finite array toolkit
- Composite Subarray enhancements
- Anisotropic linked impedance boundary improvement
- Allow sheet impedance boundary at domain interface
- Re-use matrix reordering in frequency sweep
- Reduced memory and improved monitoring for sparse direct solver
- Dynamic scheduling in discrete sweep without nested MPI
- Open MPI upgrade
- Upgraded AMD math library
- SBR+ enhancements:
  - SBR+ Array-tool type normalization for composite excitation
  - SBR+ Multi-bounce ray density control
- Beta features:
  - General Parallel component adapt for mesh fusion
  - SBR+ Near Field performance improvements
  - Multiple finite arrays definitions for 3D Component Array solver
  - Enhanced Circuit element implementation

HFSS 3D Layout

- Commercial release of Phi+ mesher
- Improved meshing speed and robustness for Rigid Flex models
- Mesh Fusion Usability, implicit intersection resolution for ECAD-on-ECAD
- Integration of AC/DC blending for frequency sweeps
- Parallel Adapt improvements
- GDS translation Performance improvements
- IC Layout Mode enhancements
- RaptorX integration enhancements
- Usability and performance enhancements
- Beta features:
  - SIwave DC Solver Integration for HFSS-PI
  - Q3D encrypted technology support and other enhancements

Icepak

- Monitor Points enhancements
- Meshing enhancements
- Enhanced SIwave workflow for components on PCB
- Post-processing enhancements
- Transient EM coupling
- Delphi CTM and ROM
- Support for Ideal Gas Law
- IDF Import/Export enhancements
- GPU Solver enhancements (Beta)

Maxwell

- Expression cache calculations with lightweight post-processor
- Enhanced non-linear material property calculations in the materials library
- Enhancements to the Magnetostatic-Eddy permeability link
- Anisotropic hysteresis improvement
- Solution enhancements for Layout components with A-Phi transient
- Support for EM harmonic loss for Eddy Current
- Hairpin Coil UDP enhancements
- ROM creation for brush-commutating machines
- Ability to calculate both Transient force and Harmonic force for electric machine NVH
- Maxwell-Motion co-simulation enhancements
- Improved convergence of two-way thermal coupling
- Enhancements for Maxwell-Fluent co-simulation for Electric Arc application
- Support for force/torque calculations in 3D AC Conduction solution
- New Eddy Current A-Phi solution for power electronics (Beta)
- New Continuum Air simulation method for rotational motion in 2D and 3D (Beta)
- Expression-based inputs for fields calculator (Beta)

AEDT Mechanical

- New Transient Thermal restart capability
- Commercial release of Structural solution type
- Slider meshing enhancements
- Support for Layout components (Beta)

Q3D Extractor

- Feedback iterator for new electrothermal flow
- Performance improvements for CG interpolating sweep

Circuit

General Enhancements:

- New MIPI C-PHY receiver component
- Support for custom TDR waveform definition
- Performance improvements for transient simulations

SPISim Enhancements:

- 100BT/1000BT compliance check and reporting

EMIT

- Improvements to STK installer
- Automated usage statistics

Twin Builder

- Extended support for PSPICE parameters
- PSPICE compatible dynamic lookup table
- PSPICE DDT operator improvements
- Motor-CAD Thermal ROM component
- Addition of NTGK model to Battery Wizard
- Device characterization improvements
- Support for Modelica Standard Library (MSL) 4.0
- Enhanced initialization of Dynamic ROM
- Improved Mechanical Modal ROM app
- Support for Ansys web licensing
- Removal of Fluent co-simulation link
- New PyTwin APIs for enhanced 3D Fields visualization

Granta

- Standard updates have continued to provide accurate and reliable simulation-ready materials data

- AEDT 2024 R2 has updated the fitting method used to calculate core loss coefficients for electrical steel model. The core loss coefficients in this database may thus differ from the coefficients re-derived using 2024 R2.

Selected Defect Corrections

Electronics Desktop

- 973071 – 3D component names are allowed to start with a number.
- 993749 – Subregion created on a component instance is refreshed after moving the component instance.
- 998882 – Improvements to 3D Modeler left drag + key combinations for viewpoint change.

Circuit

- 946648 – Restored missing elements in component libraries.
- 962496 – Bit Pattern dialog box for IBIS Component correctly opens.
- 965948 – 'IBIS_Synth' from AEDT Components Library launches correct dialog box.
- 1014957 – AMI parameters of Usage In and Type String are passed to the model properly if their values contain parenthesis characters.
- 1024025 – SPISim shows anticipated plot when ticking 'GND Related' box when plotting PU/PC curves of data from an IBIS model.

HFSS

- 928963 – HFSS-SBR+ link now can sweep mapped project variable for material.
- 972902 – HFSS-SBR+ composite link now takes into consideration antenna efficiency.
- 975935 – Multi-frequency export in "Antenna Parameter" dialog box is now working.

HFSS 3D Layout

- 946204 – Q3D in 3DL: CG Solver no longer stuck in interpolating sweep.

Icepak

- 941822 – Solver Initialization times for designs consisting of large power maps have been optimized.
- 953595 – Trace mapping correctly captures the effect of thermal vias.
- 960418 – Thermo Electric Cooler toolkit is working as expected.

Maxwell

- 965210 – Auto mode TDM now solving transient problem.
- 991412 – "Enable Iterative Solver" succeeds for eddy current solver design.

Mechanical

- 997058 – Piecewise constant time step variation setups are working as expected.

Known Issues and Limitations

The following items describe specific issues known at the time of release. Workarounds for these items, if available, are included in the respective descriptions. Inclusion in this document does not imply the issues and limitations are applicable to future releases. Go to the Ansys Electronics Desktop Customer Portal (https://support.ansys.com/portal/site/AnsysCustomerPortal) for information about service packs and any additional items not included in this document.

Electronics Desktop

- 1012638 – Data from a previous job as well as the current job may be shown in the Monitor Job UI when monitoring multiple jobs under HPC Platform Services.
- 1019719 – After 2024 R2 has been installed, 2024 R1 and earlier releases will experience an anstranslator licensing failure. There is a fix included in the 24.1.1 service pack.

  Workaround: Customers using earlier versions can work around this issue by setting the environment variable ECAD_TRANSLATORS_INSTALL_DIR to the location of the release being run.

- 1026638 – In the job monitoring GUI, Web Client button does not launch web client for all LSDSO running jobs.
- 1039282 – With Intel MPI 2021 on Windows, verbs provider is not selected when setting ANSOFT_MPI_INTERCONNECT=infiniband

  Workaround: Manually set I_MPI_OFI_PROVIDER=verbs when running/submitting job.

- 1036779 – Report and plot data is not shown in web client for HPS jobs.
- 1045980 – Values of Discovery link parameters created in 2024R1 need to be scaled to SI units in 2024R2.

Circuit

- 792594 – If two Spice files include models with the same name, the same data will be used for both instances of that model.
- 960265 – AMI parameters of Usage In and Format Table may not be imported and passed to the model properly.
- 1020058 – Cannot plot Spectrum results for Transient analysis if Circuit contains system components.

EMIT

- 1036188 – Multi-interferer (N-1) analysis does not support multiple transmitters that are connected by RF components.
- 1036885 – The periodic and spread spectrum clock emitter plot is inaccurate after the start frequency is reduced.

FilterSolutions

- 1005838 – Parallel edge-coupled filters may have incorrect feed line geometry when exported to HFSS, especially for rotated resonators and lower design frequencies.

HFSS

- 958079 – IE solver with half space boundary and absorbing dielectric leads to unreasonable results.
- 1033099 – SBR+ VRT track-based filter not working correctly for MBRDC rays.

HFSS 3D Layout

- 1046026 – Linux-based SIwave SYZ with HFSS regions simulations invoked from 3D Layout may occasionally error when "Solve regions in parallel" is enabled

Icepak

- 929595 – Distributed solutions on Linux do not work properly for PCB trace mapping when multiple nodes are used.