What's New in Ansys Electronics Desktop 2025 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

- Components, Assemblies, and Mesh Fusion:
  - Support for component mesh envelope completely contained within another component's mesh envelope in Mesh Fusion workflow
  - User-controlled mesh region options (bounding box, conformal, convex hull, etc.) for layout components in Mesh Fusion workflow
  - Layout component usability enhancements
  - Enhanced Phi Plus for MCAD/ECAD Assembly (Beta)
- Antenna Arrays:
  - Snapping support for virtual cells in 3D component array
  - Large Array post-processing (Beam steering) enhancements
  - Non-uniform unit cell for 3D component array
  - Triangular lattice visualization
- Solver:
  - Official release of auto HPC support on NUMA machines
  - Improved distributed discrete sweeps using MPI spawn

        - S-matrix only solve enhancements for projects containing circuit ports
        - Acceleration of solver during sweep using saved file data (Beta)
        - Sparse Direct Solver: GPU acceleration using cuDSS (Beta)
    - General Enhancements:
        - Algebraic fields calculator enhancements
        - Wave port without PEC backing
        - Average SEY plot on material surface
        - Circuit element de-embedding (Beta)
    - Hybrid and SBR+:
        - Hybrid with SBR-to-SBR FF link with antenna blockage support
        - SBR+ VRT footprint field visualization

HFSS 3D Layout

- Flex Workflow:
    - Bend definitions independent of zone boundaries
    - Automatic anchor point defined when no zone boundary listed as Fixed
    - Translation support for EMI Shield layers
- IC Mode:
    - Improved accuracy of Mesh Fusion and Parallel Adapt
    - Memory footprint/performance optimizations
    - HFSS Prism Solver (Beta)
- General Enhancements:
    - DC point for HFSS Mesh Fusion in Layout
    - User-controlled visibility settings for component footprints in encrypted Layout Components
    - Mesh Fusion: Support pin groups and circuit elements crossing partition boundaries (Beta)
    - IPC-2581 Export (Beta)
    - Enhancement of Phi Plus for ECAD/Mechanical CAD (Beta)

Icepak

- Overview Report, commercial release
- Compact Thermal Model API enablement
- Significant TZR import performance improvement
- Primitive object mesh parameters
- Mesh size regions
- Enhanced Mesh Fusion robustness and added manual refinement capability
- Support DTM for Blocks

- Support for Snapping
- GPU support for Transient solver and added CPU speed up for solver initialization (Beta)
- Native Network Editor support (Beta)
- Support parametric activation/deactivation of objects and components (Beta)
- Icepak Layout Component enhancements for 2-way DC loss support and 1-way AC loss support from HFSS Layout design

Maxwell

- General Enhancements:
  - Launch Motor-CAD from AEDT
  - SVPWM Winding enhancements
  - Motor-CAD and Maxwell performance map enhancements
  - Rename Eddy current solution type to AC Magnetic (Eddy Current)
  - TAU Mesh aspect ratio support for Curved Surface Meshing
  - Support Motion Design in System Coupling for Maxwell-Fluent co-simulation Electric Arc application
  - Datasets FFT in AC Magnetic (Eddy Current) Solution: Multi excitations with thresholds
  - Maxwell-Motion Workbench coupling (Transient force data) for NVH gearbox applications (Beta)
  - 3D component enhancements (Beta)
- Solvers:
  - 2D Transient Y-Connection for Solid Windings
  - Support for high-permeable magnetic thin layers in the Magnetostatic and AC magnetic with DC solutions
  - Maxwell Transient solver speedup for linear, non-motion, constant timestep models
  - Continuum Air 2D/3D enhancements (Beta)
- A-Phi Solvers:
  - Support mesh link for 3D Layout in Transient A-Phi solution
  - AC Magnetic (Eddy Current) A-Phi solution enhancements: Layout Component support (Beta)
  - RLGC model extraction enhancement in AC Magnetic (Eddy Current) A-Phi solution (Beta)

AEDT Mechanical

- In-place editing of datasets
- Vertex support for Structural BCs (Beta)
- Layout Component enhancements to support 2-way DC loss and 1-way AC loss from HFSS Layout design (Beta)

Q3D Extractor

- Ohmic loss evaluation at contact resistance boundaries
- Causal RLGC netlist export from Q3D in HFSS 3D Layout
- Improvements to the mesh refinement error calculation for AC RL

Circuit

General Enhancements:

- Improved Transient convergence for behavioral models
- Coupling-Decoupling Network models added to EMC Tools
- Transient solder option groups for design types
- Transient solver convergence improvements
- AI-driven automatic selection of state-space fitting algorithms in NDE (Beta)
- S-Element Fast Solve: Support for Y and Z state space models (Beta)
- Support for Back Channel Interface AMI models (Beta)

SPISim Enhancements:

- MIPI-DPHY channel compliance check
- Improved UCIe support and reporting

Twin Builder

- Hybrid Analytics and Scaled Deployment:
    - Multi-output Gaussian process for Fusion
    - Diagnostic plotting improvements for Fusion and Calibration
    - New WebApp for Twins/Runtimes
    - Support for string parameters in FMU in TwinAI
    - Support for dual-type FMUs in TwinAI
    - Other TwinAI enhancements
- Reduced Order Models:
    - New Parametric Dynamic ROM
    - New algorithm option for SVD computation
    - Improvements to LS-OPT workflow
    - ROM basic block support for new schematics
    - New Min/Max option for build complexity in DRB
    - Improvements to Build Options in DRB

- Solver and Model Libary:
    - New EMI/EMC post-processing analysis
    - Motor Equivalent Circuit toolkit enhancements
    - MotorCAD Thermal ROM improvements
    - PSPICE improvements
    - Updated Atan2 behavior
    - Improvements to Simulink coder support

Granta

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

Electronics Desktop

- Cloud Burst: Multi-step submission and all 3D products supported
- Integration with Ansys Engineering Copilot and Ansys Learning Hub
- Improved rendering and 3D physical quantity visualization
- User experience improvement for registry setting
- Support JSON input as command line option
- Web UI job submission to various schedulers (Beta)

3D Modeler

- Import Named Selections from CAD products
- 3D Component Handle and Insertion Usability Improvements
- View options for Modeler in history tree groups

Selected Bug Corrections

Circuit

- 1177884 – Netlist-based Q2D dynamic link now produces results in Designer Transient/QuickEye analysis.
- 1216137 – HFSS-Circuit dynamic link sweep selection in Circuit UI no longer automatically resets to 'Last Adaptive'
- 1212384 – Improved SPISim Causality Checker for closer alignment with IEEE P370 scripts.
- 1213381 – Enhanced SPISim voltage transfer function calculation and plotting capabilities.

HFSS

- 1171678 – Layout Component in HFSS 3D now supports material with dataset.
- 1208229 – Imported PRT files include material names.
- 1232415 – Port type will be preserved correctly when layout component is imported in HFSS 3D.
- 1239338 – Complex 3D component array project now can be loaded in reasonable time.

Icepak

- 1125681 – Names no longer change during Step file opening.
- 1189670 – Extract_Delphi_Network toolkit works with PyAEDT 0.12.0.

Maxwell

- 1198218 – AC Magnetic double potential with ground: 0V is on correct side.
- 1236205 – 2D solver memory leak correction.

Mechanical

- 1191802 – Maxwell EM-Force now maps correctly at AEDT Mechanical.
- 1220415 – AEDT Mechanical succeeds with LSF.

Q3D Extractor

- 1147053 – Improved performance for PRIME mesh refinement.
- 1205277 – Improved source handling in very large designs.

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

- 1233401 – Ansys Engineering Copilot Window goes blank when out of focus or idle for sometime.
- 1251452 – Download path message is correctly displayed in LSDSO UI.
- 1267451 – Export to WEBM video format is not working with ffmpeg 7.1.0.

  Workaround: Export to AVI format and use an external tool (such as an older version of ffmpeg) to convert AVI to WEBM.

Circuit

- 977257 – UDO scripting for SPISim on Linux may hang due to SPISimJNI process not exiting.

Workaround: To reduce the chance of script hanging - Insert oDesktop.CloseAllWindows () immediately after inserting the design. This workaround may avoid the hang in some configurations, but the root cause inside SPISimJNI_LX64.exe is still under investigation.

- 1137902 – AEDT Circuit crashes during parametric sweep for Time-Domain plots.
- 1210654 – Using Design Parameters to sweep the name of the W-element RLGC model is not possible.
- 1229479 – Small perturbation in the training data may give rise to different RL fits when the data is non-causal.
- 1237107 – HFSS-Circuit dynamic link requires manual reapplication for RLC port renormalization.

  Workaround: Use manual correction/adjustment.
- 1237969 – SPISim Cascade operation for Even-Odd mode with higher port counts (>4) produces incorrect results.
- 1260409 – SPISim Port reordering from Even-Odd to Incremental is incorrect for port counts >4.
- 1271342 – Importing a reordered solution into NdExplorer gives incorrect Differential Pair results.

  Workaround: Reset ordering on the solution's design before importing it into NdExplorer. The reordered solution will give correct results in NdExplorer if differential pairs are not used.

EMIT

- 1212508 – GLTF CAD Files automatically exported from HFSS to EMIT may be scaled incorrectly.

  Workaround: The issue is with a 3rd party library used to do the export. The export has been most successful when the HFSS design is set to use meters which will export the model in meters. If the scaling in EMIT is still incorrect, it's possible to modify the "transformation" in the gltf file to be 1.0 for any non-zero values.
- 1222951 – Warnings shown in the EMIT schematic may not refresh properly.

  Workaround: The warnings shown in EMIT's dialog boxes(e.g. Coupling, Component Editor, Results) are correct, but the warnings displayed on the Coupling node of the project or in the schematic may not be accurate. Saving, closing, and reopening the project may sync all the warnings with the correct values.

HFSS

- 1246540 – GLTF model part names are not being imported.

HFSS 3D Layout

- 1259497 – Different behaviors between importing auto generated air gap layers via GDSII and Stackup dialog/APIs.

Icepak

- 1241477 – In designs exported from SIwave, copied and pasted PCB native components have a duplicate component definition that is disregarded by the solver.

  Workaround: In Icepak designs exported from SIwave, delete any PCB instances that were copied and pasted and recreate them.

Mechanical

- 1261833 – When running Restart Analysis in Transient design type, heat flux excitations are ignored in the analysis. The result will not show any effects due to heat flux and will be incorrect.

PerceiveEM

- 1251250 – Curved surface processing has numeric instabilities; recommend to avoid feature by not defining vertext normals of meshes.

Q3D Extractor

- 1219917 – Projects using Prime mesh may not solve in Linux.
- 1268885 – Distributed CG solve may error on Ubuntu 24.04.

SIwave

- 1278726 – SIwave UI HFSS region solves may fail on SLES 15.5

  Workaround: Export the SIwave project to 3D Layout and execute the simulation from that environment.