SES Software

New Features & Enhancements

Version 21.0 **2026**

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Introducing SES Software Version 21.0

The latest release of SES Software brings major advancements in capabilities, performance, functionality, documentation, and licensing. Here's what's new:

New Licensing Structure

- **Three Editions:** Lite, Pro, and Ultimate.
- **Automatic Upgrade:** All non-Lite licenses currently under AEU-MI or ETS support are upgraded to Ultimate, unlocking:
  - Powerful capabilities.
  - Unrestricted parallel computation runs for projects with the same topology.
- **Enhanced Hardware Detection:** Improved support for high-parallelism processors for unlimited concurrent runs of most computation modules and specialized applications: SESTransient, SESTrainSimulator, Right-of-Way (ROWCAD).

Key New Features

- **CDEGS:**
  - Offers native support for five device types + user-defined devices.
  - Performs advanced modeling of finite soil volumes.
- **SES-Heating:** Calculates temperature rise for grounding conductors (e.g., HVDC electrodes) and cables.
- **SESResap:**
  - Includes enhanced Driven-Rod resistivity measurement method.
  - Automatically accounts for buried metallic structures in soil resistivity measurements.
- **SESShield-2D:**
  - Complies with the 2024 revision of the IEC 62305-2 standard for risk assessment.
  - Introduces support for NFPA 780 standard for risk assessment.
- **SESShield-3D:** Handles multiple zones with different BIL levels simultaneously.
- **CorrCAD:**
  - Computes corrosion rates, offering greater functionality in corrosion assessments.
  - Introduces Stern-Geary Linear Equation to address cases where a data point falls outside the polarization curve.

Enhancements to Existing Features

- **Right-of-Way (ROWCAD):**
  - Supports devices with longitudinal impedances.
  - Supports non-interacting paths' zones.

- **SESTransient:** Adds harmonics signal generator.
- **CDEGS:**
    - Provides global support for conductive and non-conductive pipe-type enclosures.
    - Features wideband frequency transformers across all applications.

Explore the full list of enhancements and known issues at the end of this document to maximize your SES Software experience.

General Improvements

Updates on Application Availability

- A new version of SESScript is available in the Tools folder, and the original SESScript has been moved to the Legacy Applications folder.

User Experience Improvements

- **SESLibrary:** Includes sag calculator, multi-selection export to SESCrossSection, and a new tutorial video.
- **SESScript:** Adds Python scripting for advanced customization.
- **SESResultsViewer:** Allows navigating multiple F21 files in one session for devices in HIFREQ.

Core Improvements

- The maximum number of concurrent runs has been increased to 32,000.
- Applications can now run on Surface Pro 11 (Qualcomm ARM CPU).
- Hardware detection capabilities for processors with a high level of parallelism have been improved.

Enhancements

Main Software Packages (Programs)

Improvements made:

Package	What's New
CorrCAD	• The integrated Report & Plot module is now fully compatible for 'Compute without Polarization,' with features that were previously available only in 'Compute with Polarization.' • The software automatically detects the absence of Sacrificial Anodes or ICCP and disables 'Compute with Polarization' accordingly. • 'Multi-region soil models with real boundaries' are supported in MALZ mode, in addition to the previous 'multi-region soil models with virtual boundaries (no physical boundaries).' • Cable models are supported in MALZ mode, in addition to their previous availability in HIFREQ mode. • Selection is allowed between Solid and Virtual Connections in the Connections tab. • The program can compute and report the corrosion rate. • The Vertical Soil module is accessible when operating in HIFREQ mode. • The Stern-Geary Linear Polarization option is available. • The performance of the table grid has been significantly enhanced. • The Google Earth parameters definition screen has been updated to ensure consistency with other programs of SES Software, and appropriate data validation has been applied. • The program now supports entity models that contain only profiles.
Right-of-Way (ROWCAD)	• Monitor Data has been moved from Monitor Fault to Report & Plot, resulting in a clearer separation of the fault specification and monitored quantities extraction. • Some dropdown boxes now allow users to enter a custom value or select from the predefined options. • In the Devices panel, a simplified way of defining insulating joints, flanges, etc. has been added. It allows specifying a finite longitudinal impedance that transfers to both inductive (SPLITS) and total interference (MALZ) models. • A new column, called 'Segment External Coupling,' has been added to the Polyline Coordinates Editor to define segments that preserve their internal mutual couplings (between the segments' own conductors), but that disregard their coupling to external conductors (defined on other polylines). • The Cross-Section input mode has been renamed to SPLITS mode and the legacy Attribute-Set mode can no longer be switched to.

Package	What's New
	• Non-conductive pipe-type enclosures are now supported, in addition to the previously supported conductive enclosures.
SESShield-2D	• Revision 3 of IEC Standard 62305-2:2024 for risk assessment due to lightning is now supported. • Risk due to lightning can now be assessed according to NFPA-780 standard.

Computation Modules

Improvements made:

Computation Module	What's New
HIFREQ	• The option to specify non-conductive enclosures for pipe-type cables has been introduced. • Metallic plates can now be specified in horizontally layered multilayer soils. • Finite volumes can now be specified in horizontally layered soils. • Various types of devices in the network, with multiple sets of characteristics, can now be specified. These can be computed in the same run. • With Power Transformers, the frequency dependence of the response of transformers can optionally be accounted for. Also, the circulating currents in delta connections on the interpretation of test data can optionally be accounted for.
MALZ	• The program can now compute the temperature rise of conductors that are buried in Uniform or Two-Layer soils based on the current flow in the conductors and the soil. • Support for the calculation of the temperature rise of HVDC electrodes has been added.
TRALIN	• The option to specify non-conductive enclosures for pipe-type cables has been introduced.

Applications

Improvements made:

Application	What's New
CDEGS	• CDEGS now calls SESCircuitSimulator to specify and examine FCDIST models.
SESBatch	• The new Unlimited Parallel mode allows Ultimate license users to execute several related computations simultaneously, on all CPU cores, without being limited by traditional concurrent run restrictions.
SESCAD	• Finite volumes can now be specified in HIFREQ models. • It is now possible to model various types of physical devices that are connected to the network. • The option to specify non-conductive enclosures for pipe-type cables has been introduced.
SESCAD - Release Candidate	• Separate Project, Soil Model, and Grounding System descriptions are now accepted. • Soil volumes are now enabled for HIFREQ.
SESCircuitSimulator	• A section selection column has been added to the Displayed Terminal (s) table in SPLITS mode.
SESCrossSection	• The UI for concentric cable and enclosed cable specifications was improved. • The enclosure of pipe-type cables can be specified as Conductive or Non-Conductive in TRALIN Group Mode and in HIFREQ module. Conductive enclosure can be specified in MALZ module. • Multiple selected components can be imported from SESLibrary. • Cables can be specified for the MALZ module in HIFREQ-MALZ Mode.
SESLibrary	• The Sag Calculator makes it easy to quickly and accurately calculate the sag of overhead conductors, ensuring safe and reliable transmission line design. It helps prevent costly issues by identifying potential interference with nearby utilities like pipelines, communication lines, and railways.
SESResap	• The Emulation Method has been introduced to account for the effects of nearby buried metallic structures on soil resistivity measurements for the Wenner, Schlumberger, and General methods. • The Driven Rod resistivity measurement method accounts for the effects of nearby buried metallic structures.

Application	What's New
SESResultsViewer	• Multiple .f21 files related to device scenarios can now be opened within a single session. Users can analyze each file individually or combine them by creating envelopes. • It is now possible to report and plot the 1 cm² holiday current density in CSIRPS for HIFREQ.
SESScript	• Multiple tabs and Python scripting are now supported.
SESTextEditor	• A new File Navigator panel acts as a table of contents (with collapsible sub-headings) for .F05 and .F09 files, allowing users to quickly locate and jump to sections of interest in the document.
SESTransient	• The new Harmonics signal generator now allows the simulation of time-domain excitations composed of harmonic components of a fundamental frequency. • HIFREQ finite soil volumes are now supported. • The calculation of the step voltages in FFTSES is much faster for cases defining many observation points. • The HIFREQ vertical soil model is now supported. • The ergonomics of the interface for creating graphics and animations, as well as extracting calculation results, have been improved.
SoilModelEditor	• Finite soil volumes, including their characteristics, such as relative permittivity, permeability, and resistivity, can be embedded within uniform, horizontally multilayered, and infinite soil models in HIFREQ. The soil model, including soil volumes in HIFREQ, can also be converted to either MALT or MALZ, and vice versa, for analysis. • The characteristics of the vertical soil layers, along with the air layer in HIFREQ, can be specified based on the resistivity, relative permeability, and permittivity of each layer.
TransformerDataEditor	• The secondary to primary zero sequence impedance and winding loss have been introduced in HIFREQ to account for the secondary to primary zero sequence test in the presence of a tertiary delta winding. • A new command, Structured-Data-Characteristics, has been introduced for HIFREQ. The UI converts the legacy Test-Data command to this new format. This updated command is better structured, making it easier for advanced users to understand and work with HIFREQ F05 files.

Documentation

Improvements made:

Media	What's New
Online help	• Context-sensitive help for SESCrossSection, SESCircuitSimulator, SESeBundle, and TransformerDataEditor has been updated with a user-friendly structured data format. Fundamental user interface items are at the beginning. Instructions are next, clearly marked. A dedicated section at the end contains detailed reference material and deep contextual information.
Support documents	• The Getting Started guide has been fully updated and redesigned. The former Tools and Utilities document has been restructured and renamed SES Software Components. These documents are available in the Support folder.
Technical documents	• Three How-to manuals (ACTotalInterference, GISGRND, and GROUND) were updated and translated into all supported languages. • Updated French and Spanish translations have been produced based on the most recent version of the How-to manual AutoGridPro. • Seven new Quick Start Guides have been published and several others have been updated.
Video tutorials	• A video tutorial for CDEGS File Launcher has been added and the SESLibrary tutorial has been updated.