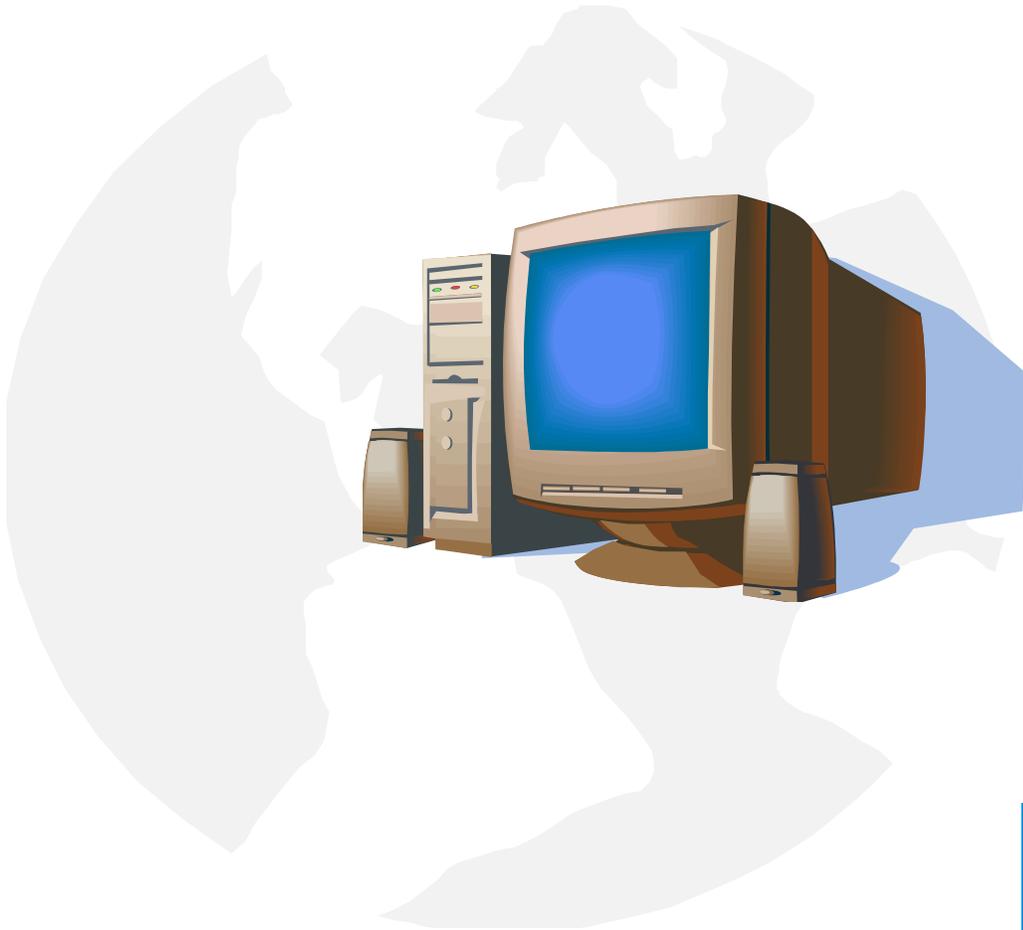


SES Software

Release Notes

Version 15.6



New Features in SES Software Release 15.6

This document summarizes the most important features added to version 15.6 of SES Software. For more information on these new features and enhancements, please read the Users' Group Conference Proceedings 2016 (available on the SES web site and on the distribution media, under the **PDF\UsersGroup Documents** folder; the latest proceedings document is also installed by default).

Engineering Modules	
Module	What's New
HIFREQ	<p>The following enhancements have been made to HIFREQ:</p> <ul style="list-style-type: none"> • It is now possible to model direct contacts (junctions) between wires and metallic plates, increasing the range of applications that can be studied using combinations of wires and plates. <p>For example, wire-plate junctions can be used to attach a ground wire to a transformer tank or other metallic container. They can also be used to energize objects made of plates.</p> <ul style="list-style-type: none"> • Conductor overlaps are detected more reliably for short conductor segments. • Error messages now indicate the original conductor number in addition to the conductor segment number.
HIFREQ/MALZ	<p>Improved conductor subdivision in cases involving very short segments (with a length almost equal to their radius).</p>
FFTSES	<p>The following enhancements have been made to FFTSES:</p> <ul style="list-style-type: none"> • Introduces the "Frequency Range" feature in the command mode version of FFTSES. This feature can be used to restrict the range of computation frequencies that can be suggested by FFTSES based on the shape of the input spectrum or of the frequency-domain response. • Allows extracting and plotting all available field or segment quantities using a single FFTSES command. • Introduces the notion of signal regularization in the Foward operation. This operation transforms the signal to avoid sharp discontinuities at the beginning and end of the time window.

CDEGS

Module

What's New

CDEGS-Specify

The following enhancements have been made in **CDEGS-Specify**:

- Introduces support for the specification of coating-type on conductors in MALT.
- Displays the Chinese help file in the Plate Characteristics Editor screen when run in a Chinese environment.

SESTLC

The following enhancements have been made to **SESTLC**:

- The behavior of the 'Exposed Circuit' data table in 'Fault Condition Interference' mode has been improved.
- The diagram displayed for a steady-state interference analysis has been improved.

SESEnviroPlus

SESEnviroPlus introduces a new **User-Defined** method in order to resolve the difficulties in calculating the corona performance parameters for methods that differ from the built-in methods in **SESEnviroPlus**.

This new method makes it possible to:

- Change the coefficients of the existing (built-in) corona performance calculation methods.
- Create new corona performance calculation methods.
- Change, add, or ignore corrections.

Right-of-Way Pro

The following enhancements have been made in **RightOfWay**:

- The **SES TransposIT** tool has been integrated into RightOfWay to allow users to implement automated and flexible transmission line *phase transpositions* and cable *cross-bondings*.
- The pipe-enclosure of a Group path can be defined as a “Dummy” or virtual conductor allowing users to quickly define a group of cables located within a trench or duct.
- Users can now import conductors, profiles and any other MALZ object into a total interference MALZ file directly from the **ROWCAD Entity** definition as a “Total Interference” template file.
- The total interference level for steady state conditions is now fully integrated and can be automatically computed without user interactions, allowing users to account for both the *inductive* and *conductive* coupling simultaneously in RightOfWay. Additional plot options have been added for this feature in the **Advanced Process** window of the **Steady State** option.
- In the **Total Interference** module, users can apply a global shift on the entire network system. Once requested, this shift consisting of a global X_s and Y_s shift value will be added to all conductors’ X and Y coordinates in the total interference MALZ model file.
- The existing maximum soil *breakdown distance* and various fault *arcng* and *flashover* distance options have been improved and additional new options have been added. Therefore, it is possible to estimate critical soil breakdown and flashover distances due to fault conditions, whether initiated by lightning or not, based on different approaches. Users can select the option that best matches the situation being examined.
- Excel plots of the arcing distance can now be created.

SESShield-3D

The following enhancements have been made in **SESShield-3D**:

- The **Accuracy Level** concept has been introduced in order to maximize the computation speed by minimizing the number of sides in each polygons used to approximate the interception surfaces.
- All rendering modes are now available for all the analysis methods. Buttons for selecting the rendering mode for the generated volumes are now available on the toolbar.
- Components can now be labeled with their name or component number in the graphical area.
- The location of objects imported from the **SESShield-3D Object Database** can now be specified. A scaling factor can also be applied to the imported objects.
- SESShield-3D now provides options for highlighting components and objects in the graphical area according to whether they belong to a group or not.
- The **Construction Tree** now has its own toolbar and its overall behavior was improved. In particular, you can now control which objects are displayed in the graphical area (all objects, only the objects to be protected or only the objects part of the protection system) from the **Construction Tree** toolbar.
- Some options in the **SESShield-3D Settings** screen have been moved and new options have been introduced. For example, the maximum number of recent files can be specified from the **On Startup** section.
- In addition to the possibility to import geometries created with SESShield-3D and with SESCAD (saved as MALT files), existing geometries saved as MALZ and HIFREQ files can now also be imported in SESShield-3D.
- Introduces support for specification of radii in inches in imported MALT, MALZ, and HIFREQ files.
- A new How To manual for designing the shielding system of a simple substation has been added to the numerous existing SES How To manuals.

Tools and Utilities	
Module	What's New
Safety Module	In CDEGS-Examine, AutoGridPro, AutoDesign, and GRServer, the Safety module was upgraded for the standard and safety limits calculations to use IEEE Std.80-2013.
SESBat	Allows batch database conversions performed by the BINASC and ASCBIN tools.
SESCAD	<p>The following enhancements have been made in SESCAD:</p> <ul style="list-style-type: none"> • SESCAD is now a complete editor for MALT, MALZ, and HIFREQ files: all settings for those programs that could not be edited in previous versions of SESCAD can now be defined on the new Advanced Options screen. • The Outer Radius of conductors can be specified on their Conductor-Type for MALZ and HIFREQ. • In MALZ and HIFREQ, Conductor-Type information can be imported from the SES Conductor Database. • The Delete Unused Characteristics command was introduced to delete characteristics that are currently not used in a document, re-adjusting the characteristics type codes assigned to conductors and other objects so that they keep on pointing to the same Characteristics Definitions. • The detection of network gaps in the Ambiguity Viewer screen was improved with the addition of a few options. • Selection Handles were introduced to help select plates and soil volumes using the mouse. • Energizations can be specified on metallic plates in HIFREQ. • The “Default” Conductor Type, Coating Type and Lead Type are now imported when importing a file.
ROWCAD	<p>The following enhancements have been made in ROWCAD:</p> <ul style="list-style-type: none"> • The program is now outfitted with a convenient Keyhole Markup Language (kml) file import feature. Latitude and longitude are converted via a Universal Transverse Mercator projection: Google Earth paths and placemarks are converted to ROWCAD Polylines and Entities, respectively. • In addition, you can choose how the system is centered to avoid large coordinates, thereby streamlining your work with GPS coordinates and Right-of-Way, resulting in a simpler, more accurate model creation process. • It is now possible to directly specify the minimum region cut length in order to have better control of the region matching behavior. • A light grey grid with graduated axes has been added to the drawing area. • The following enhancements were made to PathExport: <ul style="list-style-type: none"> - Introduces support for Fixed-Points in ROWCAD projects. - Adds a version stamp in log file.

Tools and Utilities

Module	What's New
SESeBundle (Beta)	<p>SESeBundle introduces the possibility to create equivalent hollow conductors. This can be useful, for instance, when modeling power cables that include concentric wires and/or a wire armor composed of several individual conductors.</p> <p>The characteristics of the equivalent hollow conductor calculated by SESeBundle can be used to specify a single hollow conductor as a sheath or armour in a cable model.</p>
CORRCAD (Beta)	<p>The following enhancements have been made in CORRCAD:</p> <ul style="list-style-type: none"> • The effective resistance of the coating of pipelines and other structures can now be modeled using discrete or distributed elements. This can be useful, for instance, when modeling a coated pipe for which polarization data in the presence of coating is not available. • Different cross-sections can be assigned along the polyline defining the structure to be protected. This makes it easier, for instance, to model cases where the characteristics of the structure (e.g., radius of a pipeline) change along its length, to model the presence of insulating joints. • New curve fitting component for SESCurveFit and CORRCAD. • The SESCurveFit tool, which is used in CorrCAD to fit polarization curves to analytical formulas, was enhanced with the addition of a new, more accurate form of polynomial fit. This new <i>Chebyshev</i> polynomial option can be useful when trying to fit polarization data that does not conform well to the traditional Butler-Volmer curves. • Several options were added to control the display of the results. • Background items were added in the main drawing area to provide useful information about the drawing
SEStralin (Beta)	<p>The following enhancements have been made in SEStralin:</p> <ul style="list-style-type: none"> • A View Report button has been added in the Computation Results panel. This allows a quick access to the output (F09) results file once the results have been computed. • The program now uses the new Soil Model Editor component to display and edit the properties of the soil model.

Tools and Utilities

Module	What's New
SESThreshold (Beta)	<p>The following enhancements have been made in SESThreshold and Zone Editor:</p> <ul style="list-style-type: none"> • The IEEE80-2000 standard options have now been updated to IEEE80-2013. • Improved handling of IGNORED zones in threshold plots. • Drag-and-drop of input (F05) and database (F21) files is now possible. • Zones and specifications can now be transferred from Touch to Step and vice-versa. • Within a given quantity (Touch or Step), specifications can now be copied from one zone to another. • A Decrement Factor Tool is offered to help explain and visualize the decrement factor concept. • A Typical Range of Resistivities window is now available to give information about the typical resistivity of different soil materials. • Primitive shapes can now be created and exploded in Zone Editor. • The characteristics of a shape in Zone Editor can be controlled during its construction. • Undo/Redo actions are now possible in SESThreshold and Zone Editor. • A Quick-start Guide is now available when SESThreshold or Zone Editor help is invoked.
SESImpedance	Improves the printing of information in the output (F09) file.
GRServer	<p>The following enhancements have been made in GRServer:</p> <ul style="list-style-type: none"> • Plots of electric field for the MALT and MALZ modules have been added. • Plots of Instantaneous and Semi-Major axis values for vector quantities in the MALZ and HIFREQ modules have been added.

Preview of New Tools and Utilities

Module	Description
 CDEGS (Beta)	<p>A complete overhaul of the main CDEGS program offers the benefits of working with features that use the same user-interface standards of the new lineup of SES Software programs and provides rich, flexible, and intuitive functionalities to the existing features.</p> <p>At this early stage, the following are some of the enhancements:</p> <ul style="list-style-type: none"> • Being able to quickly add jobs into the Job-ID list by dropping multiple files and folders, with sub-folders also being captured automatically. • Each program button has its dedicated session selection for those that are available for the selected job. • A convenient undo/redo on the operations made in the Job-ID list.
 SESResap (Beta)	<p>Being able to do all that the existing RESAP in CDEGS can do, the new program additionally offers the following enhancements:</p> <ul style="list-style-type: none"> • Clearer schematics with electrode labelling that follows popular conventions from instrument manufacturers, • Measurements data grid with optional columns that help verify the input data, • Possibility of adding comments for any data point, • Interactive plot of the data, • Clearer specification of analysis parameters, • Useful field data sheet that helps achieve quality measurements.
 SESFFT (Beta)	<p>Being able to do all that the existing FFTSES in CDEGS can do, the new program additionally offers the following enhancements:</p> <ul style="list-style-type: none"> • Direct visualization of the frequency spectrum of the input signal in Forward mode. • Specification of window or regularization functions to smooth out time-domain signals and attenuate undesired high-frequency components. • It is now possible to apply the frequency recommendation algorithm only within a user-defined range instead of the whole spectrum. • It is now possible to request the computation of multiple quantities for conductor segments and profiles at the same time.
 SoilModelEditor (Beta)	<p>The new standalone tool allows to create new soil structure data or edit existing soil data for MALT, MALZ, HIFREQ, or TRALIN. Currently, SESCAD and SESTRALIN have integrated the SoilModelEditor component to model the soil data.</p> <p>Future versions will extend support to all of the other SES Software programs, allowing soil models to be shared easily.</p>

Preview of New Tools and Utilities

Module	Description
 SESLibrary (Beta)	<p>SESLibrary is another new program included in this version of the software. This program allows you to inspect the properties of a large number of <i>components</i> that can be part of models for many SES Software engineering programs. It currently includes a comprehensive database of conductors as well as several power cables; many other components will be added to the library in the near future.</p> <p>This module is currently available as a stand-alone program but will eventually be integrated as a component in several other SES programs, where it will act as a replacement for the existing SES Conductor Database and other libraries currently available in the software.</p>
 SESPlotViewer (Beta)	<p>SESPlotViewer is a new program that can display data as plots of various types. The program also displays that same data in tabular format, and optionally allows editing it. The main use of this program is as a plotter for the computation results produced by some SES Software engineering programs, but it can also be used to create plots from scratch, using your own data.</p> <p>The program uses the centralized SES Plotting Engine component at its core; SESFFT is an example of another program using the same component. Eventually, all programs will fulfill their plotting requirements with this component.</p>

Notable Bug-fixes	
Module	Description
SPLITS	The potential of terminals defining a single circuit (earth impedance) could be computed incorrectly in cases involving both terminals with multiple circuits and terminals with a single circuit.
CDEGS-Compute	FFTSES cases where only Graphics (no Computations) are requested would not run.
AutoGridPro	In the Ampacity module of AutoGridPro, user-defined decrement factors could not be specified when using regional settings where the decimal separator is not a period.
Right-of-Way	The following bug-fixes have been made in Right-of-Way: <ul style="list-style-type: none"> • Paths that are “Dummy” over an entire terminal in ROWCAD can now be imported successfully in Right-of-Way. • The second 'Monitor Fault' operation run during the same Right-of-Way session could fail. • The 'Monitor Fault' operation could fail due to the presence of spaces in the names of busses or terminals
SESShield-3D	The 'Shielding Failure Analysis' option was made unavailable for all 'Shielding System Placement Methods' for which it is either inapplicable or not implemented.
ROWCAD	A Data Execution Prevention (DEP) error has been fixed. This error could occur on some platforms when executing the Generate Regions command in ROWCAD.
GRSPLITS-3D	The following bug-fixes have been made in GRSPLITS-3D: <ul style="list-style-type: none"> • When viewing SPLITS data, the Transformer Information panel now shows the correct characteristics of a transformer. • When opening a large SPLITS file, the program may become unresponsive.
SESShield	Fixes a software activation problem.
SESThreshold (Beta)	The following bug-fixes have been made in SESThreshold: <ul style="list-style-type: none"> • Opening a MALZ or HIFREQ project that had been associated to a corresponding F21 file would not read its units correctly and the program would always interpret it as metric. • The Search Radius for the Touch voltage was not communicated correctly for projects that were using imperial units, resulting in potentially lower Touch voltages displayed in the plot.



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