Release 11 of 6SigmaET contains a range of new and improved features, the most significant of which are listed below for your information.

User Interface

Release 11 of 6SigmaET brings the following changes to the user interface.

New Attach Window

We have improved and updated our Attach window, where you choose items - such as sensors or materials - to attach to a selected object. There is now a simple two-table format, clearly separating potential items that can be attached to an object and items that are already attached.

You can quickly move items from one table to the other with the Attach or Detach buttons. The tables now also indicate the parent object of each item. All of these improvements enable you to visualize and edit the attached/detached objects in a straightforward way.
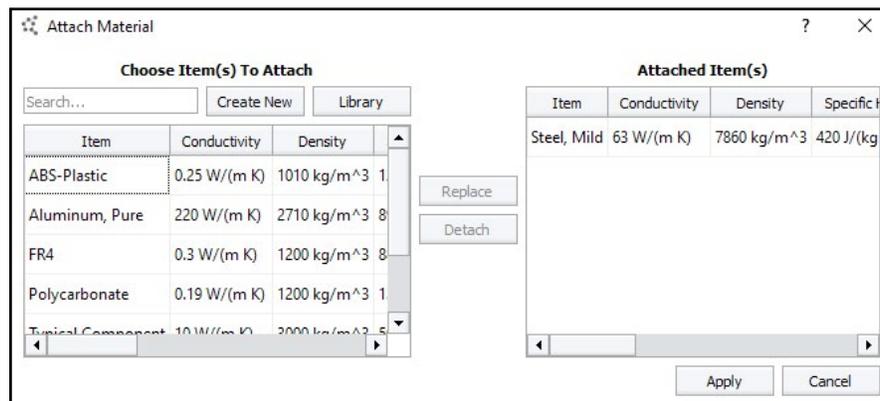

The new Attach window (above) makes working with attachments easier: the Choose Items table (left) shows all items that can be attached, along with their properties; while the Attached Items table (right) lists everything currently attached to the selected object.

Approximate with Library Items During Import

When mapping component models from an imported file to objects in the 6SigmaET library, you can now choose a similar library object to use when an exact match is unavailable. The Approximate With option will mark that object as an approximation so that you can easily locate it in your model later.

New Hover-Over Manipulator Cursors

We've made changes to the object manipulators to make them more user-friendly. When hovering over them, the mouse cursor will now change to indicate when that manipulator can be selected.
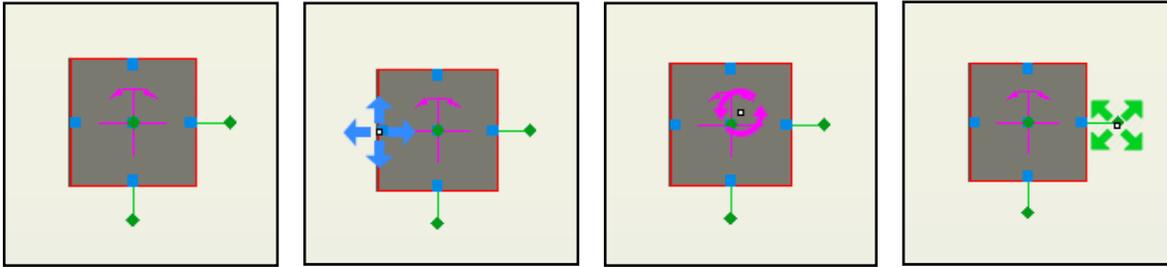

Hover over an object manipulator to see a larger manipulator icon (shown above). This icon helps you to identify when the mouse is in the correct position to select the manipulators.

File Locking in Shared Locations

We have made improvements to our file locking system when it is used in shared locations. Any model opened by one user in a shared location will now be locked, so no other users will be able to access it while the first user has it open.

Edit All Ribbons

You can now exclude unwanted items from all of the software's ribbons, in addition to the fully-customizable Home ribbon.
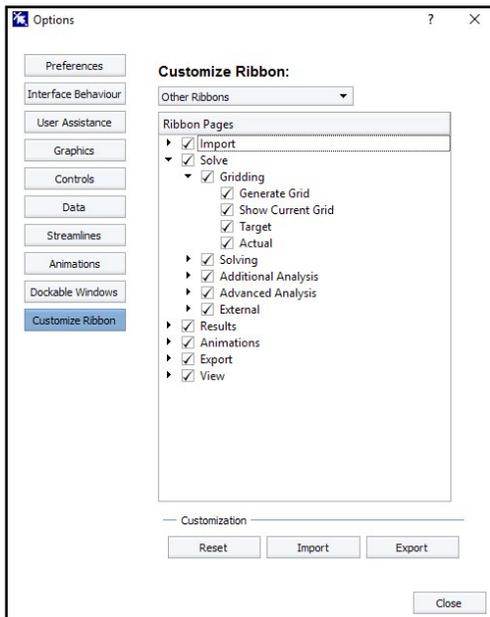
In File>Options>Customize Ribbon, select 'Other Ribbons' from the drop-down to edit the software ribbons (shown left).

Expand the nodes and use the checkboxes to show or hide ribbon tools, ribbon sections or even the ribbons themselves.

You can also use the Import/Export buttons to use your customized ribbon settings elsewhere.
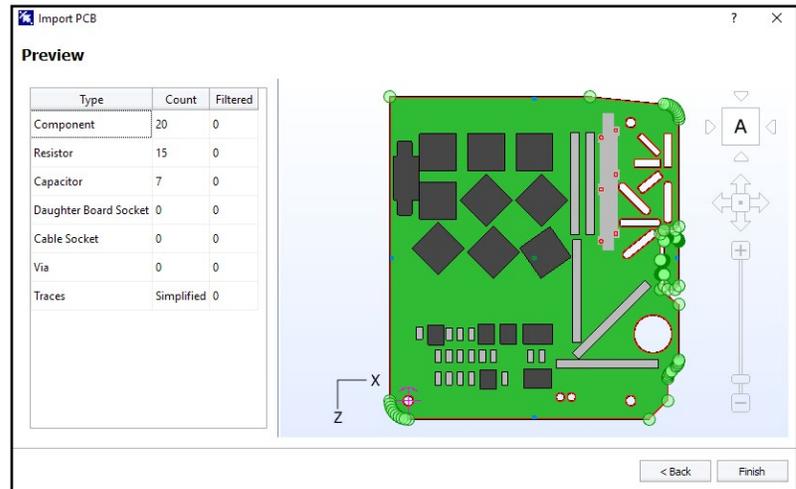
PCB Layer Modeling Levels Renamed

We've renamed the *Modeling Level* options for PCB layers to make their functionality clearer. *Simplified* has been renamed to *Uniform Conductivity*, and *From Image* has been renamed to *Simplified*.

Improvements to IDF and IDX Import

We've made changes to the way IDF and IDX files are imported. A new wizard has been created to expose all the available import options and make the import process more straightforward.

Import an IDF or IDX file to see the new Import PCB wizard (right).

The new wizard makes the available import options clear, and simplifies the PCB import process.

Type	Count	Filtered
Component	20	0
Resistor	15	0
Capacitor	7	0
Daughter Board Socket	0	0
Cable Socket	0	0
Via	0	0
Traces	Simplified	0

Planar Isotropic Conductivity Normal to Surface

You can now specify a planar isotropic thermal conductivity 'normal' to the surface of on object, instead of just a single direction. This allows flexible or bent PCBs to be modeled. For complex STL shapes, the values of conductivity will be determined based on the nearest surface to the internal cell.

Model Creation & Manipulation

We've worked on the following features to provide you with enhanced or improved model creation and manipulation capabilities.

Press ESC to Deselect Objects

You can now press escape to deselect any object you currently have selected. This will work whenever the 6SigmaET software is selected as the main window on your desktop.

New JEDEC Templates

We've added three JEDEC test chamber templates to help you test your models to industry standards.

Improvements to Fan Swirl Calculation

Axial fans can now have the amount of swirl in the flow calculated from a fin efficiency (default 70%) and the rotational speed of the blades.

Improved Sketching of Cables, Traces and Ducts

We've made a wide range of improvements to the sketching of cables, traces and ducts (routes), making it faster and easier to draw these objects. Our new junction objects and branch buttons (mentioned below) make drawing your route more flexible, while more intuitive sketching logic helps you to draw quickly and accurately.

New Route Junction Object

We've developed a new junction object to replace corner geometry and joins in routes. This allows you to add new branching segments to an existing route easily, and quickly change the start or end locations of existing segments. You can also copy/paste and delete junctions and segments without disturbing the rest of a route.
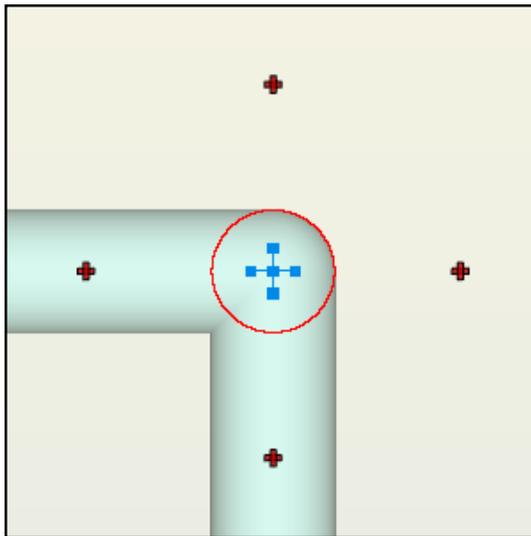
The new junction object (left) gives you more control over the corner geometry and joins in your routes.

Drag a junction to change a corner/ join location quickly, or click the branch button to begin drawing a branch from the junction.

New Branch Buttons for Cable Sketching

We've created new branch buttons, which allow you to draw route branches and append segments when sketching a route. These buttons appear alongside and at the ends of segments, and move in line with your cursor to show where you can draw an adjoining branch or append a segment. They also appear around junctions to indicate where new segments can be added.

Select a route junction or segment and the red branch buttons will appear (right). They will move along segments as you move the cursor.

*Click the branch buttons to begin drawing a new route branch.*
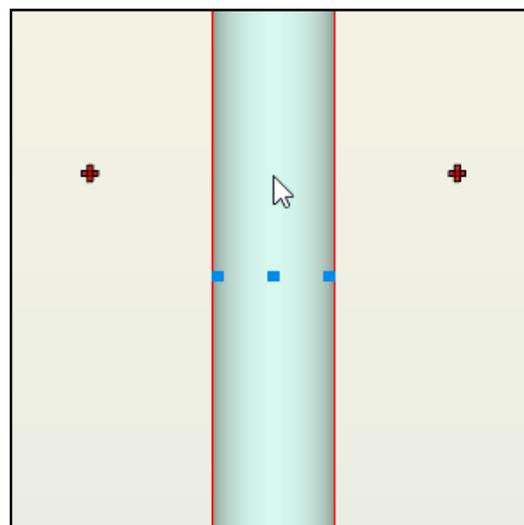
New, Updated or Removed Model Objects

In response to customer feedback, we've added some new objects, updated some existing objects, and removed some old ones from the software.

New Shielding Can Object

We've added a new shielding can object to 6SigmaET, which represents a metal can that can be placed over components on a PCB to reduce electromagnetic interference. It can be drawn as a rectangle or a polygon shape, and vents can be added to the sides so that the majority of shielding cans can be modeled easily.
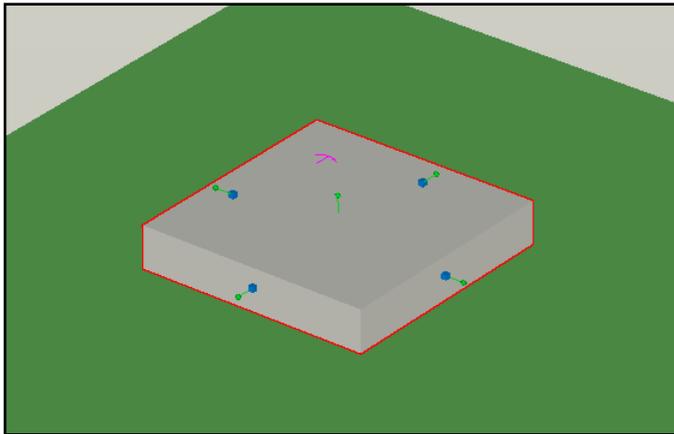
The new shielding can object (left) allows you to model how electromagnetic shielding could affect the thermal properties of your design.

New Net Object

We've added a new net object to group PCB conductors together, allowing easy translation and rotation of a group of conductors.

Solution

We've dedicated time to improving the level of control you have over the solving process. Here's what's new in Release 11.

Higher Limit on Maximum Grid Cells

We've increased the maximum number of grid cells available in 6SigmaET - you can now solve models up to 700 million grid cells.

Define Thermal Power from Temperature Sensor

We've added the option to define thermal power from temperature sensor readings. This new setting is available on solid obstructions and all component types.

Submit Models to Rescale via 6SigmaET

We've improved 6SigmaET's integration with the Rescale cloud platform. You can now send models to Rescale for solving, monitor progress and retrieve results directly from the 6SigmaET software.
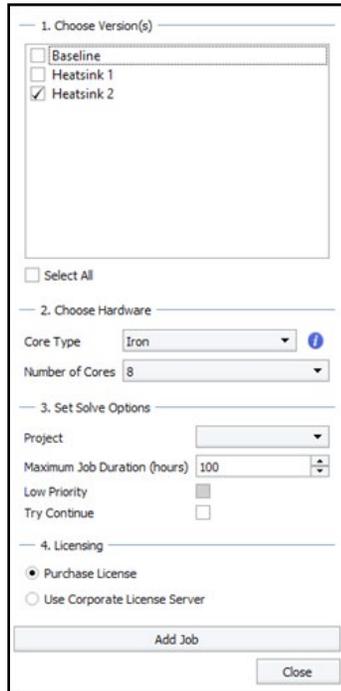
You can now send jobs to the Rescale servers directly from 6SigmaET (shown left). This functionality is similar to the 6SigmaET Batch server, and allows you to send multiple models or versions for solving at once.

Separate Saving of Simulation Data and Field Data for Transient Models

You can now save simulation data and field data separately for transient models (such as during a cooling failure analysis). To do this, use the *Flow Field Output Specification* and *Object Results Output Specification* options in the Transient node of Solution Control.

Double Precision Solver

We've added a new double precision solver to the Miscellaneous section of Solution Control. This improves the calculation of the temperature residual, and can mean your model will solve in fewer iterations.

New Options for Grid Rules

We've added two new options for *Grid Rules*: *Big Models*, which coarsens the background grid and solid obstructions for models over 10m long; and *Package Grid*, which grids sub-components down to micron scales and is useful for package-level models.

Parallel Joule Heating Calculation

Joule Heating electrical current and potential calculations are now performed in parallel. *Allow Solution To Continue* is on by default, so the calculation will start from pre-existing fields when these are available (e.g. in a transient). The results for some unstructured grid models have also been improved.

Parallel Calculation of Radiation Exchange Factor

The radiation exchange factor calculation has now been parallelized, allowing your model to solve faster.

New CFD Server Options for HPC Clusters

You can now use a client PC to submit and retrieve 6SigmaET jobs from a CFD Server on a HPC cluster. Previously, this could only be done on the cluster itself.

Model Integration

Future Facilities continues to make 6SigmaET even more inter-operable by introducing the following new integrations.

Export PCB as IDX File

You can now export 6SigmaET PCB objects as IDX files.

Results Data

The way in which your solved model appears, and the options that you have to display the results and create new views and reports, have all been enhanced in Release 11 of 6SigmaET.

Mean Pressure Reported on Result Faces

We've expanded our solution result reporting, so mean pressure is now reported on result faces.

Contact Us

If you have any questions about Release 11 of 6SigmaET, please don't hesitate to contact us: support@futurefacilities.com.