



## Now Your PVA Array Tree Can Match Your One-Line Drawing

The Solmetric PV Analyzer is widely used to commission and maintain commercial/industrial and utility PV systems. It is optimized to measure a large number of strings per hour, and one of the features that makes this possible is the ability to save your measurements by just touching the string under test in the 'array tree'. The array tree pictures all of the levels of the PV system, allowing the user to confidently navigate to a particular circuit. The array tree is constructed using the Array Navigator feature during setup of the software, prior to going onsite to do the measurements.

Large PV plants typically have more 'layers' of hardware than small PV systems. For example, a residential system may have just strings and an inverter, but a utility plant may have blocks, skids, inverters, re-combiners, combiners, harnesses, and strings. To unambiguously locate every circuit in the system, you want your array tree to display the same layers *and the same layer names* as the one-line drawing.

**Version 3.7 of the PVA software** expands the capabilities of the Array Navigator, allowing the user to create array trees with more layers and with custom layer names. An example is shown in Figure 1.

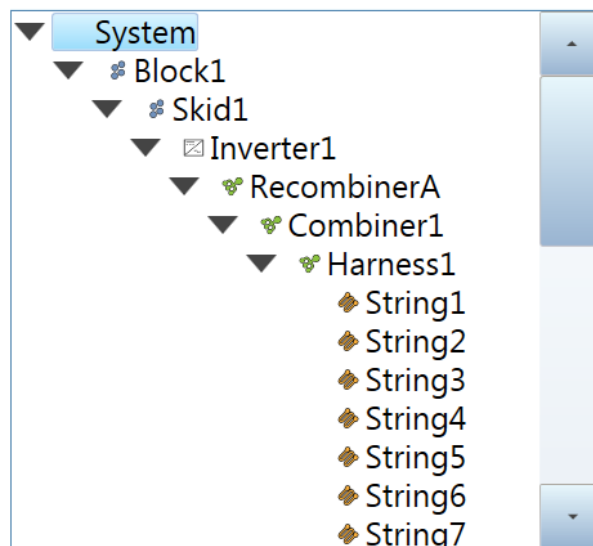


Figure 1. Array tree of a utility PV plant.

When the measurements are complete and the data is exported for analysis, the location of each measurement is saved along with the data, allowing the final report to list exactly where each I-V curve was measured.

The process of building your array tree is simple. When the New Project Wizard comes to the step of creating your array tree, the screen shown in Figure 2 appears.

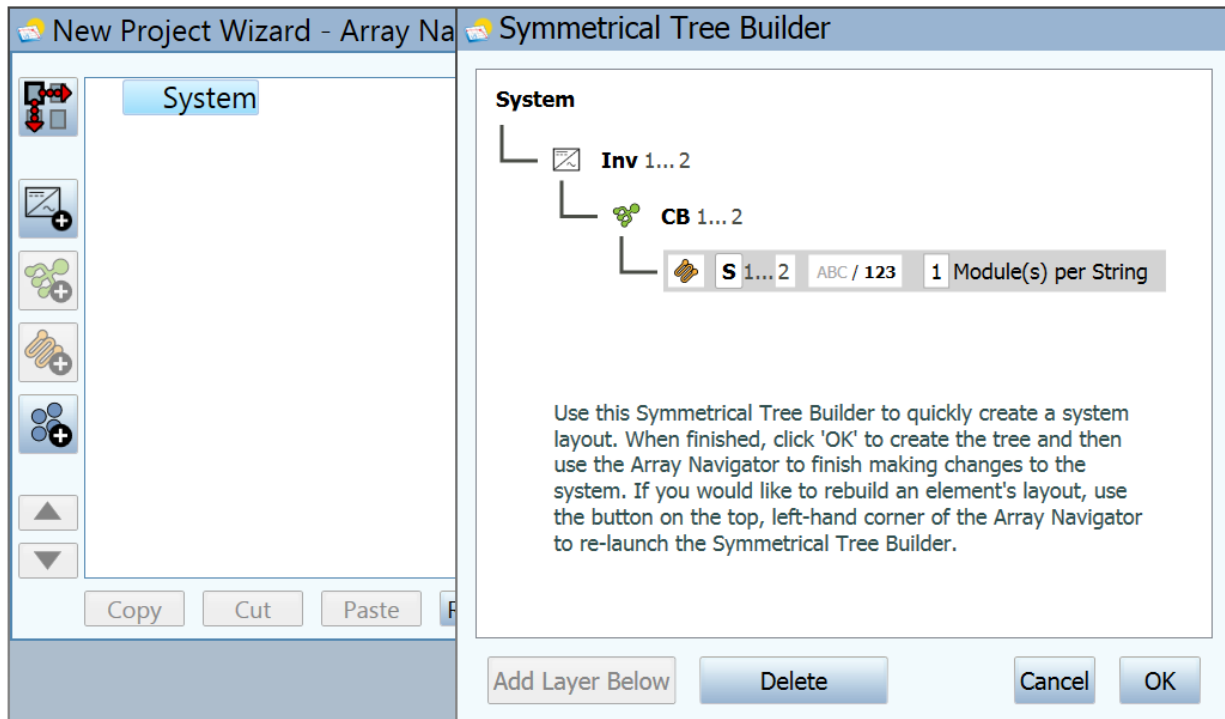


Figure 2. Using the Symmetrical Tree Builder you can create a tree with as many layers as needed, and name them to match the one-line drawing. Once the basic tree is created, the symmetrical tree builder is closed and the tree can be modified as needed in the Array Navigator screen.

The first step is to create a tree that represents the ‘symmetrical’ part of your system. To take a simple example, a symmetrical system is one where each inverter has the same number of combiners, which in turn have the same number of strings, which in turn have the same number of modules. It’s the symmetrical part of your system that you want to describe in the Symmetrical Tree Builder. Many large PV plants are entirely symmetrical.

You add layers to the tree by just highlighting the next highest layer and clicking Add Layer Below. In each layer there are editable fields (see the white windows) to customize the type of layer and enter names and numbers. A layer can be an inverter, a group, a combiner, or a string. Add a ‘combiner’ layer to represent anything that combines electrical circuits (re-combiner, combiner, or harness). Add a ‘group’ layer to represent other organizational levels: blocks, parking lots, skids, pads, tracking motor groups, and so on.

After closing the Symmetrical Tree Builder, you can use the editing features of the Array Navigator to add or delete items, copy and paste, move up and down, and so on. Often a project includes a smaller PV system to use up remaining space, and you can add easily build that system in Array Navigator.