



SKM NEWSLETTER

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Current Happenings and New Features

- We released PTW version 5.0.2.7. Version 5.0 contains many new features and useful tools including:
- Nes Custom Arc Flash Label and Work Permit capabilities.
- Arc Flash incident energy and flash boundary based on user defined current limiting equations.
- Arc Flash Line-Side reports. (Assumes working on the line side of protection and uses the up stream device to trip).
- NEW Arc Flash Users Guide Available on CD and website down.
- Group Print multiple Forms to a single PDF.
- Copy/Paste Text Blocks on one-lines and components between existing one-lines.
- Xref utility to update AutoCAD drawings with PTW schedules, one-lines and TCCs.
- Project Scenario Manager and Data Visulazer to display input/output data from multiple scenarios, support global input data change. Color coded data that are different than the base project.
- If your maintenance is current, be sure to check out our secure download site, at <http://www.skm.com/download/updates50.htm>. You can download all the latest drivers, help file, and other software.

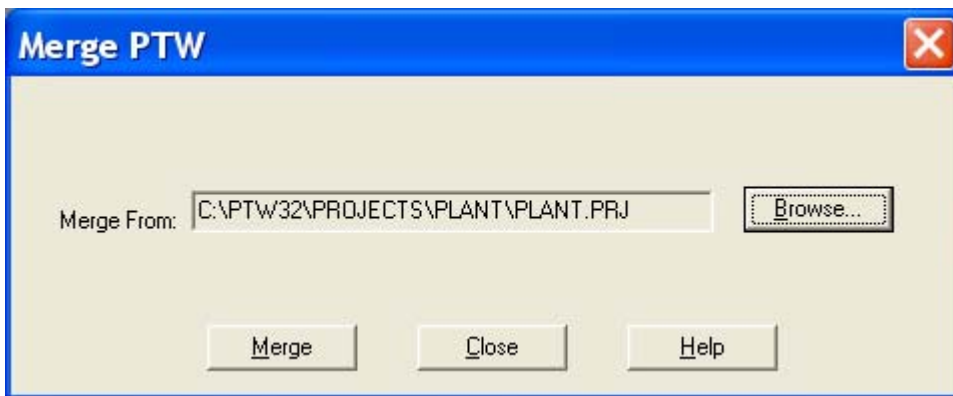
PTW Tips to Ease Your Work

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Project Collaboration

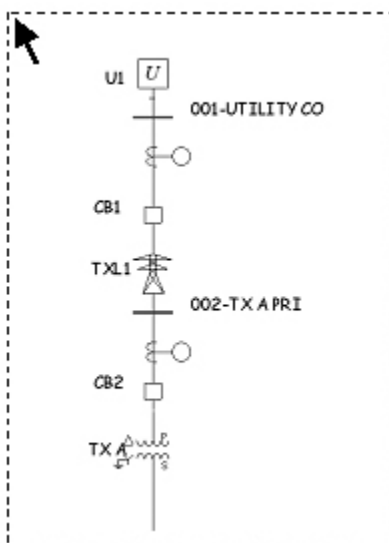
Have you ever wanted to split a large project into subsections, so each engineer could be assigned a portion to build? With the latest PTW, you can. Here's how to do it:

- 1) Start by building each portion of the system in a separate PTW project. For example, one project might focus on the primary distribution system, while another focuses on a new substation.
- 2) Once they're completed, you're ready to merge the projects. From within the first project, click Project>Merge. In the dialog box that appears, select the path to the 2nd project:

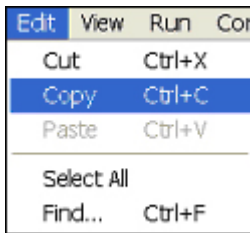


- 3) PTW will import the components into the new project. If there are any duplicate names, it'll even rename the incoming ones to avoid conflicts.

- 4) Once you've imported the project, use the new copy/paste feature of one-line diagrams to easily bring together the two sections. To do so, first select the components from an imported one-line by drawing a box around them:



5) Now click Edit>Copy:

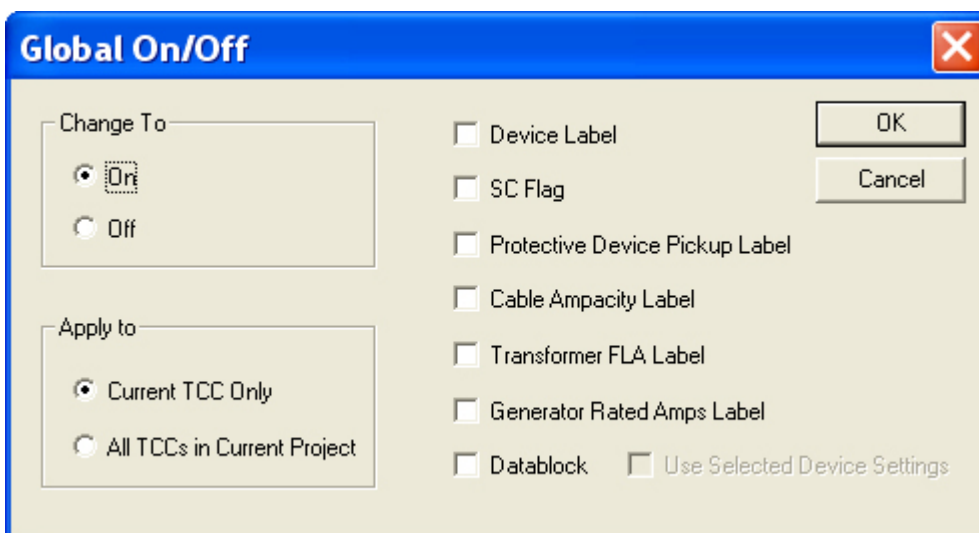


6) Lastly, open an existing one-line from the first project and click Edit>Paste. The one-line diagrams from the two projects will now appear together nicely, and you can connect them to finish the merge.

Modifying TCC Settings

CAPTOR TCCs provide lots of ways to customize their appearance. If you're unsure how to use them all, these distinctions might help:

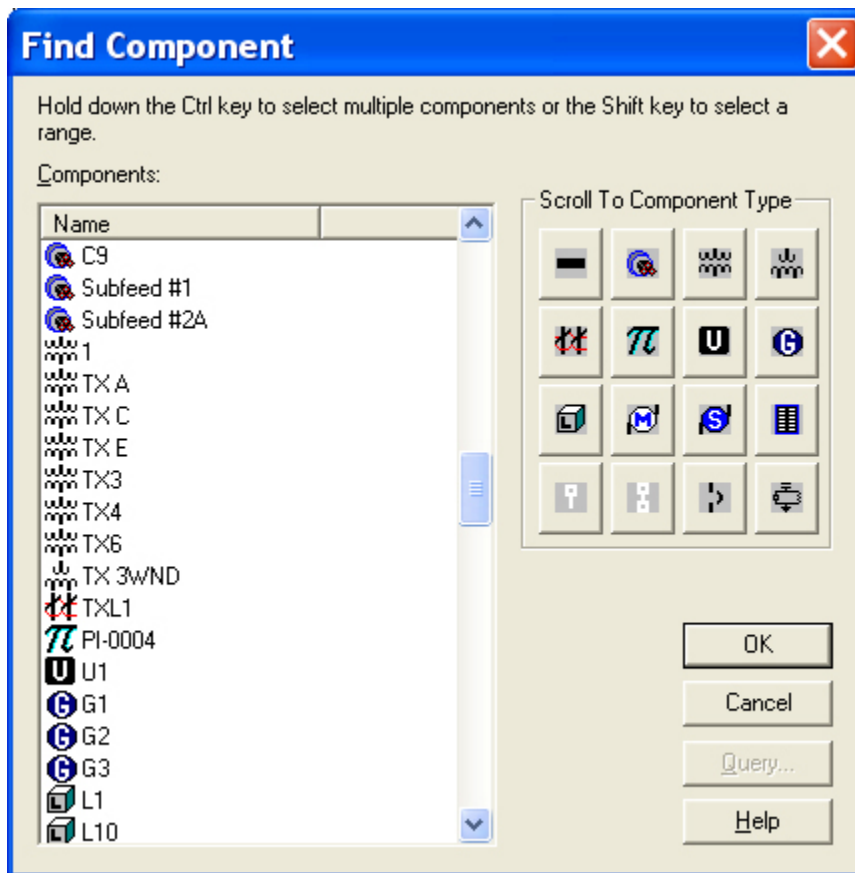
- 1) To create a default appearance for all future TCCs (that is, TCCs you haven't created yet), use the Project>Option settings.
- 2) To change the appearance of an existing TCC, use the Settings>TCC Settings command.
- 3) To change the appearance of all the existing TCCs (which is incredibly useful if you have hundreds of TCCs and your boss just told you to remove the name tags and display a datablock for each device), use the Settings>Global Settings command:



Find Components

There are times that your one-line becomes so large and finding certain items could be a difficult task. In PTW, you can simply click on the "Ctrl + F" keys to find a specific item on

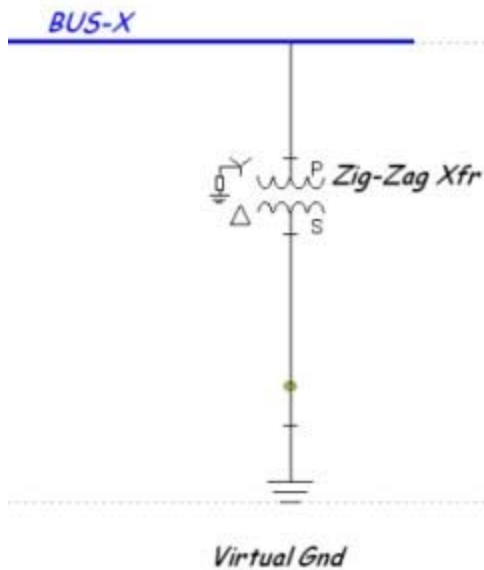
your one-line. If you have your one-line open and you click on the "Ctrl + F" keys on your keyboard, a window similar to the one below will appear on your screen. It lists of all the items on the one-line. You simply, select the component you are looking for on the list and PTW will identify and zoom-in on the component automatically.



Modeling a Zig-Zag Grounding Transformer in PTW

For modeling a Zig-Zag Grounding Transformer in PTW, a two winding transformer with Wye-Grounded connection on the Primary and Delta connection on the secondary can be used. The primary side of this transformer is connected to the bus for which a Zig-Zag Grounding Transformer is going to be simulated. The bus nominal voltage should be applied to the Primary Rated Voltage of the transformer.

A bus needs to be connected to the secondary side of this transformer without any further connection to real components. The secondary side bus can be converted to a Bus Node to look like a Zig-Zag transformer and prohibit any display of data or inclusion in the reports. The secondary side bus can be virtually connected to a one-node grounding annotation symbol. Any Rated Voltage can be selected for the Secondary of the transformer, but it is recommended to be same as Primary Voltage for clarity.



After entering the primary and secondary voltages, the impedance values of this transformer can be calculated by either of the following modeling alternatives.

Alternative 1 - Using Neutral Ground Impedance

In this modeling alternative the impedance values for the Positive and Zero Sequence are nearly zero and only a Neutral Impedance will limit the single phase to ground fault level of the primary side. After entering the kVA rating of the Zig-Zag transformer, the Neutral Resistance or Reactance can be calculated as follows:

$$Z_g = V / (\text{Sqrt}(3) * I_g)$$

Where,

Z_g: Neutral Resistance/Reactance of the modeled transformer in Ohms

V: Line to Line voltage of the Primary side of the Zig-Zag transformer in Volts

I_g: Designed Single Phase to Ground Fault current of the Zig-Zag transformer in Amps

The same value can be reached if the Neutral Current Calculator in the Transformer Impedance Subview of the PTW Component Editor is used.

Alternative 2 - Using Transformer Zero Sequence Impedance

In this alternative the impedance values for the Positive Sequence and Neutral Impedance are nearly zero and only the transformer Zero Sequence Impedance will limit the single phase to ground fault level of the primary side. After entering the kVA rating of the Zig-Zag transformer, the Zero Sequence Resistance or Reactance can be calculated as follows:

$$Z_0 = 100 * (3 * \text{kVA} * 1000) / (\text{Sqrt}3 * V * I_g)$$

Where,

Z₀: Zero Sequence Resistance/Reactance of the modeled transformer in %

KVA: kVA rating of the Zig-Zag Transformer

V: Line to Line voltage of the Primary side of the Zig-Zag transformer in Volts

Ig: Designed Single Phase to Ground Fault current of the Zig-Zag transformer in Amps

Global Modification of Input Data/Attributes

Data Visualizer is a new powerful feature of PTW in version 5.0. This display, originally designed to compare study results between several scenarios, can also be used for Global Modification of input data/attributes as follows.

1) From the "Document" pull-down menu select "Data Visualizer" and hit the "Components" in the visualizer screen.

2) Push "Query" button and filter the desired components (for instance All Motors) and hit 'OK" to replace and insert them in the "Data Visualizer". You may not see the components because an associated data block is not applied yet.

3) Push "Datablock" button and select the data block with the required attribute(s) to be changed globally (for instance the Input Data) and hit "apply". Now the selected components with required attributes are displayed on the Data Visualizer.

4) Click the 'Group By" button in the Data Visualizer and select "Group Data By Attribute" option and push "OK".

5) Select the cells containing the entered values which are going to be changed globally under the Base Project or any included Scenario (for instance the Load Factor values of the Motors). Selection process of multiple cells in Data Visualizer is similar to any spread sheet like Excel (left-click and hold on the first cell and drag it over to the last cell or select the first cell and then use your curser button up/down while holding the shift key). Hit the "Save Format" button to save this format for any future use.

6) Right-click on the selected (highlighted) cells and select "Global Change" from the menu. Then enter the "New Value" to be Replaced with or Multiplied by existing values and push "OK".

Now the new Input Data/Attribute values are displayed and applied to the selected components. The component data changes are directly applied to the project database.

2005 Training Classes

[PTW Software - Standard Class*](#) - This 3-day class focuses primarily on DAPPER, CAPTOR, TMS, and A_FAULT, with an overview of the engineering methodology involved in three-phase analysis. \$895

1) February 28 - March 2, 2005 (Redondo Beach, CA) *

2) June 6 - June 8, 2005 (Redondo Beach, CA) *

3) October 24 - 26, 2005 (Redondo Beach, CA) *

** Stay 2 more days for the Advanced class and save \$95. The dates are consecutive to make it easy.*

[Click here](#) to register for the Standard, Advanced, and Combined class.

[PTW Software - Advanced Class](#)* - This 2-day class focuses on Arc Flash, Equipment Evaluation, and HI_WAVE. \$695

- 1) Thursday, March 3 - Friday, March 4, 2005 (Redondo Beach, CA)*
- 2) Thursday, June 9 - Friday, June 10, 2005 (Redondo Beach, CA)*
- 3) Thursday, October 27 - Friday, October 28, 2005 (Redondo Beach, CA)*

*Arrive 3 days early for the Standard Class and save \$95. The dates are consecutive to make it easy. [Click here](#) for more information.

[Click here](#) to register for the Standard, Advanced, and Combined class.

[Power Systems Design & Analysis](#) - This 4 1/2 day class begins with a thorough discussion of the engineering methodology involved in three-phase analysis, then provides instruction in the use of PTW software in this analysis. \$1495

- 1) March 7 - 11, 2005 (Houston, TX)
- 2) April 4 - 8, 2005 (Allentown, PA)
- 3) June 13 - 17, 2005 (Orlando, FL)
- 4) August 1 - 5, 2005 (Denver, CO)
- 5) October 17 - 21, 2005 (Houston, TX)

[Click here](#) to register on our website for the Design and Analysis class.

[Overcurrent Coordination with PTW CAPTOR](#) - This course is intended for electric power engineers responsible for the selection and setting of circuit breakers, relays, and fuses. \$1495

- 1) May 23 - 27, 2005 (Allentown, PA)
- 2) Sept 26-30 (Redondo Beach, CA)

[Click here](#) to register on our website for the Overcurrent class.

Products

We have more study modules than ever! Take a look at our latest offerings; you may find just the tool you need:

[PTW-LT](#) - A light version of Power*Tools designed for smaller applications.

[Arc Flash](#) -- Incident energy and arc flash boundary for each bus in a system.

[A_FAULT](#) -- ANSI fault analysis.

[CAPTOR](#) -- Computer Aided Plotting for Time Overcurrent Reporting.

[CABLE 3-D](#) -- Cable Pulling Tension Calculation.

[DAPPER](#) -- Distribution Analysis for Power Planning Evaluation and Reporting.

[DC System Analysis](#) -- Includes battery sizing, DC load flow, DC short circuit (ANSI & IEC)

[Equipment Evaluation](#) -- Protective equipment ratings.

[GroundMat](#) -- Electrical Grounding Analysis

[HI_WAVE](#) -- Harmonic Investigation, Wave Analysis, and Voltage Evaluation.

[IEC_FAULT](#) -- IEC fault analysis.

[IEC_61363](#) -- IEC short circuit study module models current that flows under abnormal conditions.

[PTW - I*SIM](#) -- Industrial Simulation and Transient Stability.

[Reliability](#) -- System design reliability.

[TMS](#) -- Transient Motor Starting.

[Unbalanced Studies](#) -- Simulate systems with single-phase, two-phase and unbalanced three-phase load conditions.