Huntron Workstation Tracker 2800/2800S Tutorial

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Huntron Workstation software Tutorial for Tracker 2800/2800S

It is very helpful if you have a working knowledge of Microsoft Windows prior to using Huntron Workstation.
You are allowed to create a backup copy of the software disk. *Your purchase agreement allows for copies to be made for backup purposes only- copying for distribution or resale is strictly prohibited.*

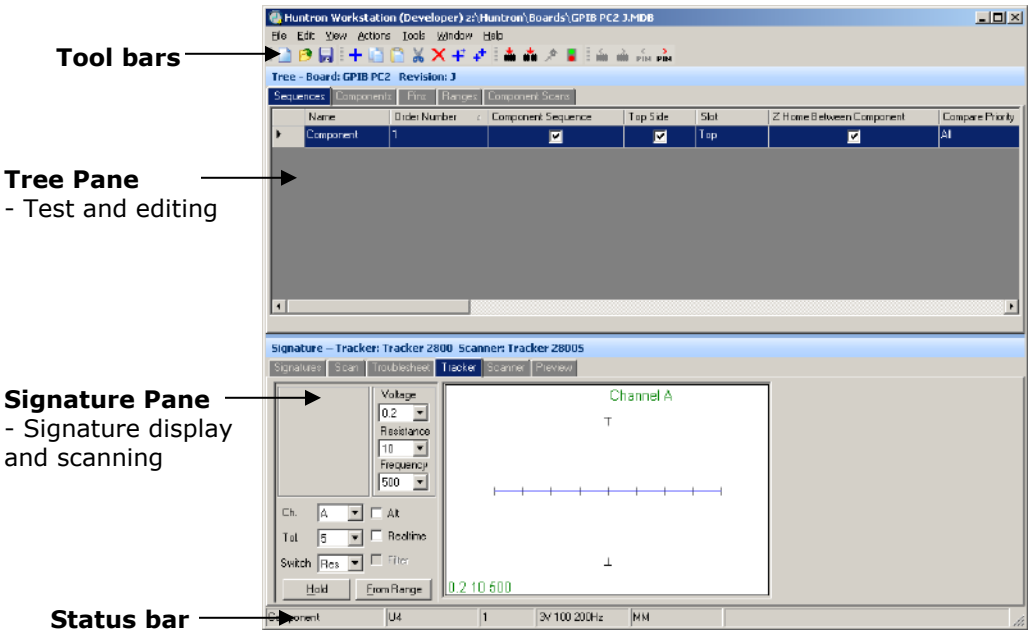
Installation Instructions

Install the software **BEFORE** connecting any hardware. Uninstall any previous versions prior to loading the current version. For more installation details follow the "Getting Started" sheet included with your Huntron product.

Uninstall any previous versions of Workstation prior to installing the new version. Insert the Huntron Workstation DVD. The DVD should Autorun and begin the installation process. If your PC has Autorun disabled then open a browse window to the DVD and select WorkstationSetup.exe. This will begin the installation process. During the install you will be asked to install additional software for Access Probers. Select NO as your response.
If you purchased CAD Tools then install using the supplied CD. Follow instructions listed in the CAD Tools Tutorial.
If you are using Workstation in conjunction with a digital multimeter, follow the instructions listed in the Workstation DMM Tutorial.
All of the Workstation tutorials are available on the Huntron web site:
www.huntron.com/sales-support/software.htm

Huntron Workstation Main Interface

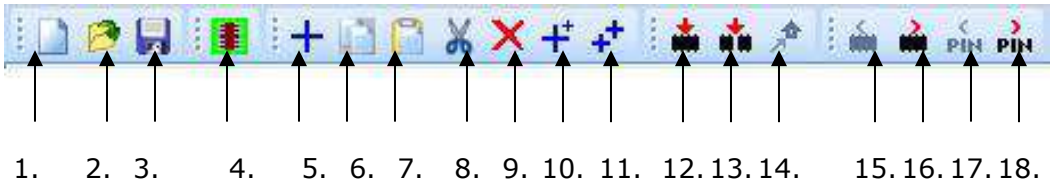
When starting Huntron Workstation for the first time, you will be prompted for an activation code. Type in the case sensitive code exactly as it is presented on the installation CD or CD envelope.



The Main Window for Huntron Workstation 4 features a multi-pane layout so many aspects of the test creation and execution can be displayed at the same time. The Panes are interactive to a certain degree in that changes in one Pane will affect other Panes. The Panes can be resized, floated independently or "tabbed" to the sides of the window. The Status Bar displays information about items currently selected in the Tree pane and status information while processes are running.

The Toolbar

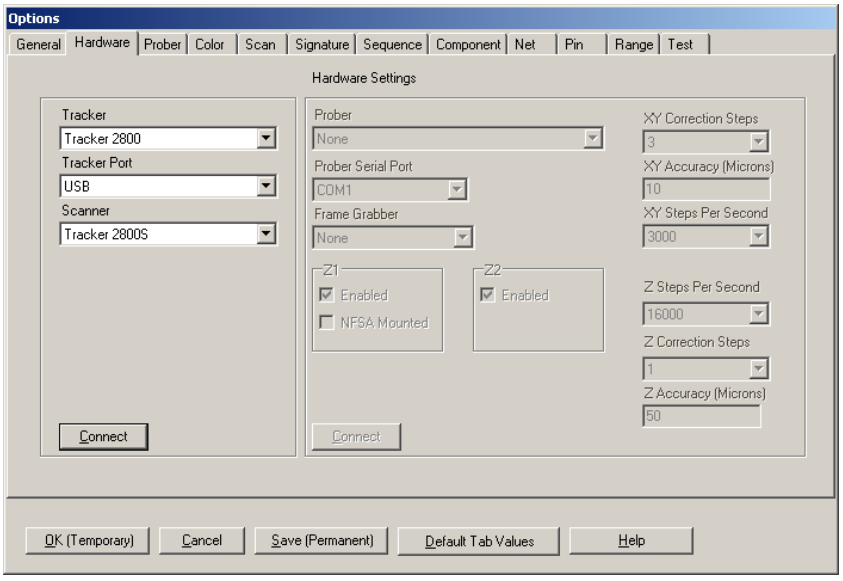
The Toolbar just under the application menus allows for quick access to several program functions. The function of each is broken out in the diagram below.



1. Create New Board database
2. Open Board database
3. Save As…
4. Custom Button(s) (User created)
5. Add New (Sequence, Component or Range)
6. Copy (Sequence, Component, Net or Range)
7. Paste (Sequence, Component, Net or Range)
8. Cut (Sequence, Component, Net or Range)
9. Delete (Seq., Comp., Net, Range or Scan)
10. Build New (Sequence, Component)
11. Repeat New (Sequence, Component)
12. Scan Component or Net
13. Scan Sequence
14. Send Prober head to Home position
15. Previous Component or Net
16. Next Component or Net
17. Previous Pin
18. Next Pin

Hardware Setup

When first starting Huntron Workstation, select **Options** from the **Tools** menu. The Options window is used to setup default settings used when working in Huntron Workstation. Your Tracker 2800 should be connected to a USB port and powered ON at this time.



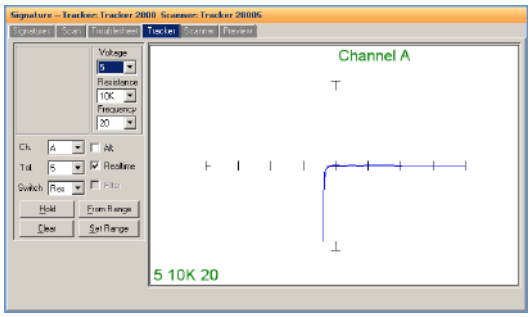
For this tutorial, the Tracker 2800 will be referred to in general as “Tracker”.
Select the **Hardware** tab and set the type of Tracker hardware to Tracker 2800, the Tracker Port (USB) and Scanner (if a Tracker 2800S is being used). Disregard the Prober settings on the right side of the window.

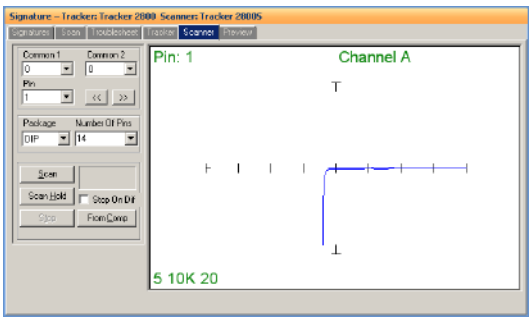
Click the **Connect** button to initiate communication with the selected hardware. Once connected, click the **Save (Permanent)** button to save this configuration as the startup default. The Tracker 2800 will have “In Remote Mode” displayed on the LCD.

Using a Tracker 2800

The Tracker 2800 comes from the Factory calibrated for standalone use.
- Select **Tools/Maintenance/Tracker 2800 Diagnostics** from the menu.
Click the **Alignment** button. When the Alignment procedure finishes (about 10 minutes), run **Verify Alignment**. This also takes about 10 minutes to complete. The Alignment information is stored in the Tracker 2800 and will be used by the software. If changes are made to the cabling or attached instruments, simply run **Alignment** and **Verify Alignment** again.

Manual Modes – Tracker and Scanner





You may find it useful to manually test some of your components while adjusting the range parameters. The two manual modes, Tracker and Scanner located in the **Signatures** pane, can work together to display the signature of a component pin. Tracker mode sets the range parameters, channel and tolerance. Signatures will be displayed to the right while probing with hand-held probes (select the Realtime check box). The **Hold** button will capture and hold the current signature allowing for quick comparisons. **ALT** mode will switch automatically between channel A and channel B. Scanner mode allows you to use a Huntron Tracker 2800S to interface to the component pins. You can set the package type and number of pins (Common 1 and 2

are not supported by the Tracker 2800S). The **Scan** button starts a hands free scan of the component through the scanner cable interface or you manually increment the pins with the **<<** and **>>** buttons. The **Hold** button will capture and hold the current signature allowing for quick comparisons. Manual modes are for real time display only and does not allow for permanent signature storage. To store signatures you will need to create a **Board Test**.

Creating a Board Test

There are a number of steps necessary to creating a board test.

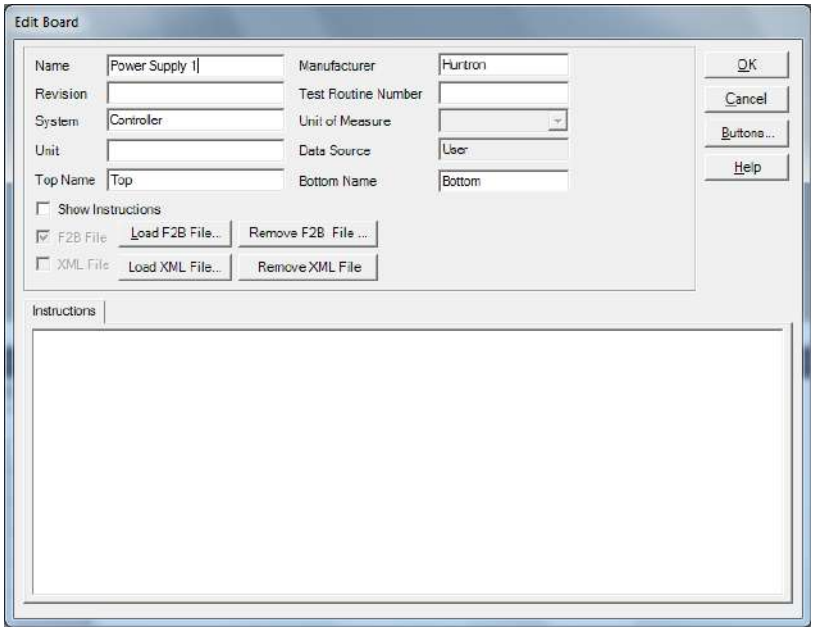
Example of Board Test Information:
Board Name: Main Board (creates "main board.hwdb" file)
Revision: Rev. A (This field is optional)
Sequence: IC's
Component: U27 (component name) or A2 (NET name)
Pins: per pin settings for Scan Pin setting, channel, net name, etc…
Ranges: Per pin settings for common reference pin, tolerance, etc…
The user has total discretion as to the information input into these fields. There is no "right" way as to what information is entered as every user's situation will be different. The above example is just one way the information might be entered.
Entering information into the Entry windows is very straight forward. The easiest way to move from field to field is by pressing the **TAB** key. You can also use the mouse to click into a particular field so you can enter information.

Test Building Procedures

- Create Test Database in the Tree Pane
    - Add Board, Sequence, and Components before scanning
- Scan Components and Set References

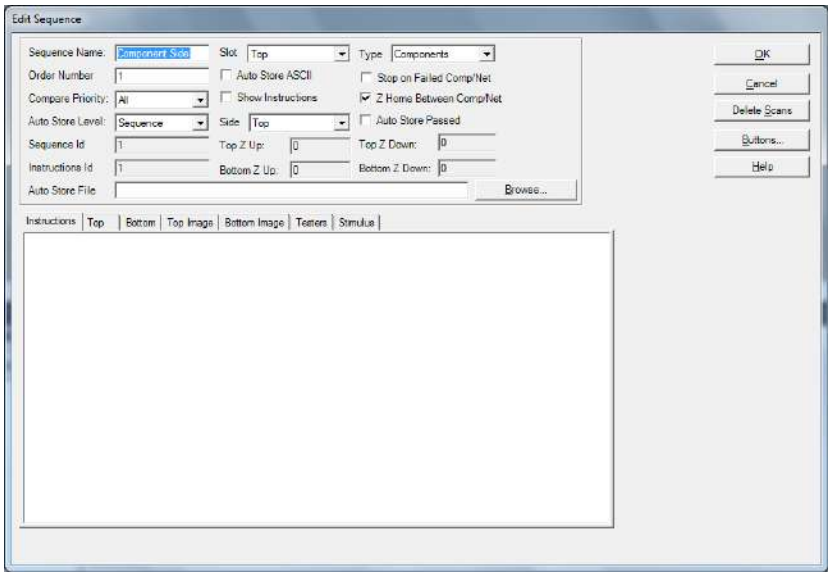
Listed above is a general outline on how you would proceed when preparing to test a board. These guidelines apply to all package types and boards. As with any type of complex test equipment, practice makes perfect so take the time to learn and practice these procedures.

Creating a Board Database



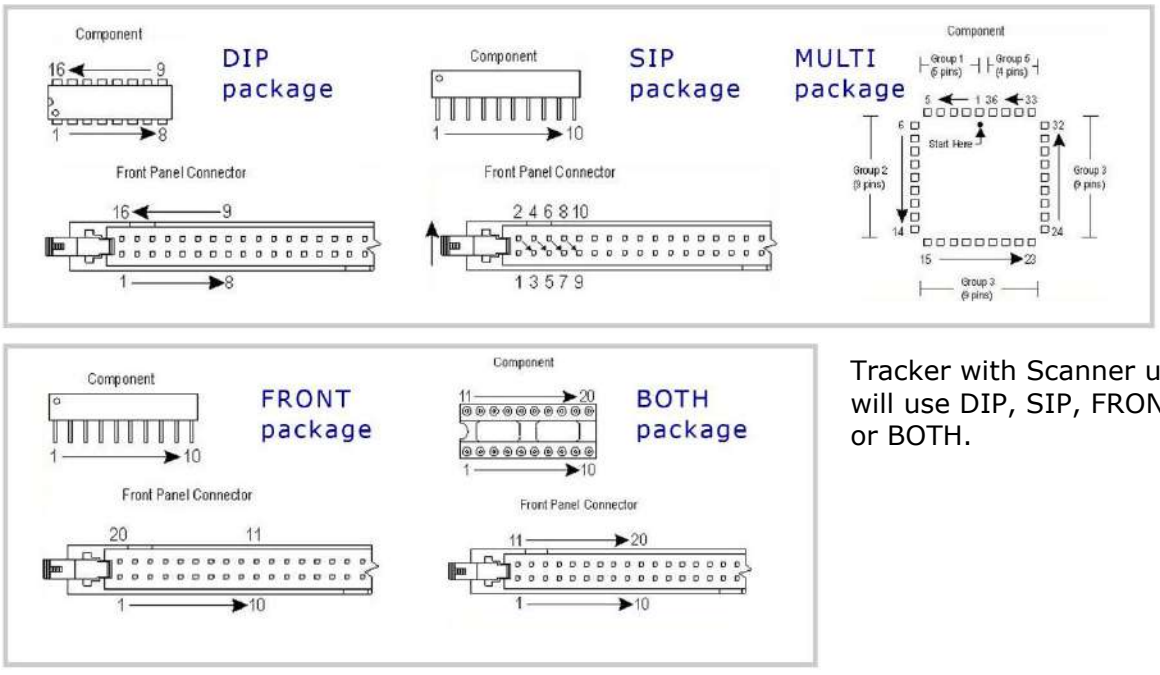
To create a new Board, select **New** from the File menu or use the New button in the toolbar. Input information into the "Add New Board" dialog as needed. The only field that is required is board **Name**. Other fields such as Revision, System, Unit, Manufacturer and Test Routine Number can be completed with related information if desired.

Adding a New Sequence



To add a new Sequence, select the **Sequence** tab in the Tree pane. Select **Add New Sequence** from the Edit menu or click the Add New button **(+)** in the toolbar.
Details:
Sequence Name Field: Enter Sequence name
Compare Priority: Selects the comparison priority between **Same** (serial number), **All** (serial numbers; this is the recommended setting) or **Merge** (Merged min/max signatures)
Instructions field: Enter any instructions or system information that you wish to pass on to future users. Note: the **ENTER** key in this field will work as a carriage return.
The **Delete Scans** button will delete all of the signature scans for the Sequence.
The **Buttons...** button will allow you to create a custom toolbar button that is attached to the selected Sequence.
Other functions within this window can be read about by clicking the **HELP** button.

Component Package Types

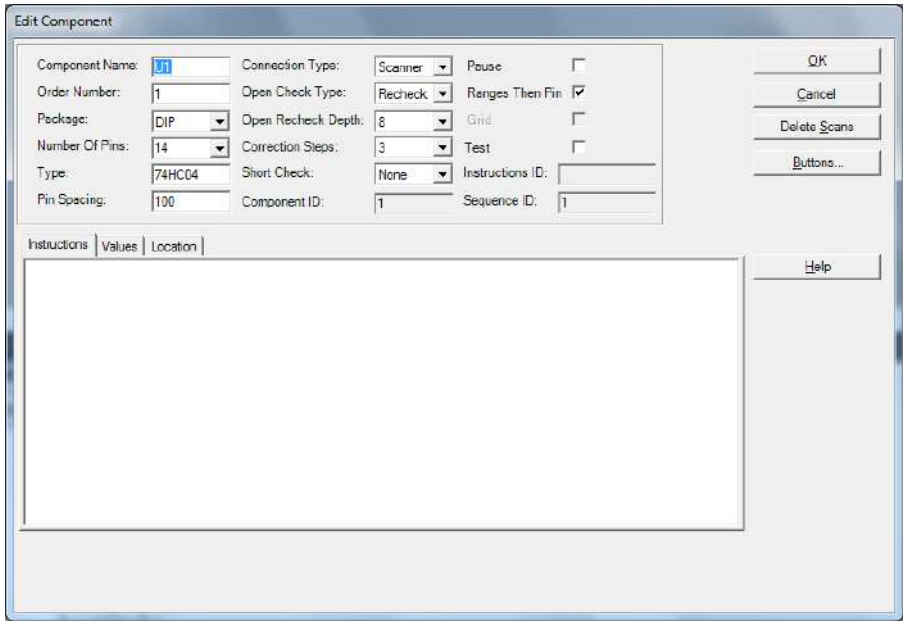


Tracker with Scanner users will use DIP, SIP, FRONT, or BOTH.

For Tracker with Scanner users, the package type determines how the Scanner pins are counted. The available Scanner packages are **DIP**, **SIP**, **Both**, and **Front**. The **MULTI** package may be used if a test created on another Huntron is moved to your

Tracker 2800 system. The **MULTI** package will also be used for components created using the CAD and/or HAF Import features.

Adding a New Component



To add a new Component, select the **Component** tab in the Tree pane. Select **Add New Component** from the Edit menu or click Add New button (**+**) in the toolbar. Details:

Component Name field: Enter the component name (reference designator) in this field.

Package and **Number of Pins** fields: Using the mouse, click on the down arrow to the right of the field to bring up the pull-down menu. Select the package type and number of pins from these menus.

Type field: This information is optional but you can enter the component type in this field.

Connection Type: Select the type of hardware used to interface to the component. Select **Probes** if manual probes will be used or **Scanner** if a Tracker 2800S will be used.

The **Delete Scans** button will delete all of the signature scans for the Component.

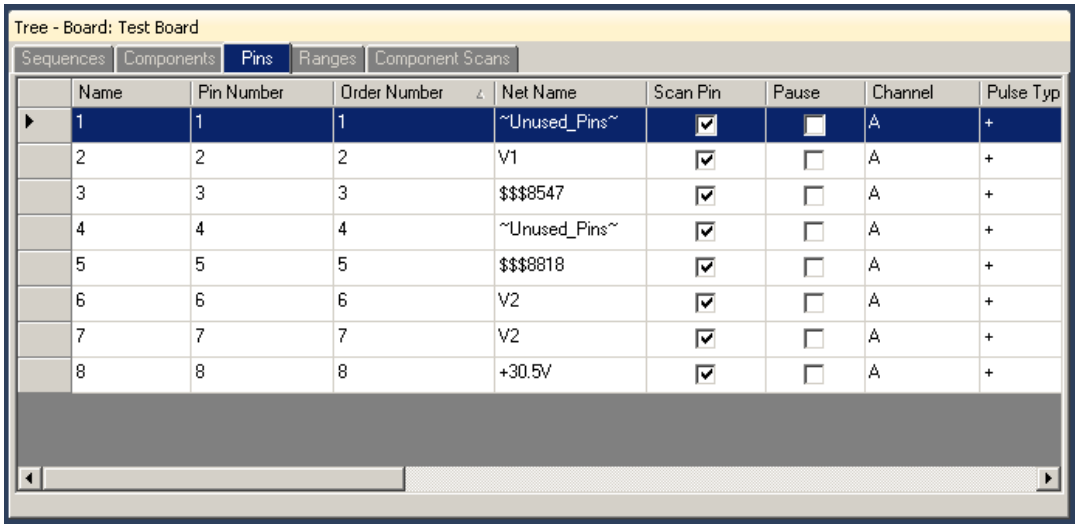
The **Buttons...** button will allow you to create a custom toolbar button that is attached to the selected Component.

Instructions field: Enter any instructions or component information that you wish to pass on to future users.

Other functions within this window can be read about by clicking the HELP button.

Tree/Pin Tab

Once a component is added to the Workstation Tree, switching to the Pin tab will display information for each pin of the selected component.

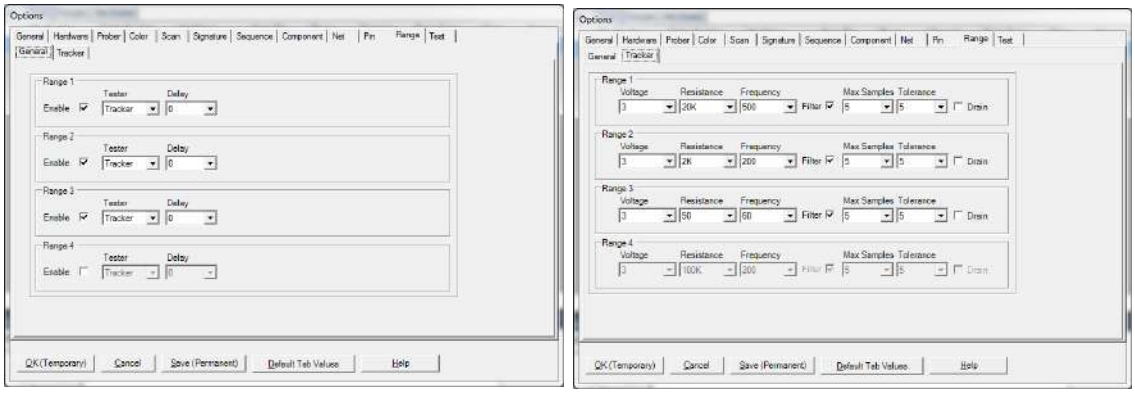


Name	Pin Number	Order Number	Net Name	Scan Pin	Pause	Channel	Pulse Typ
1	1	1	~Unused_Pins~	☑	☐	A	+
2	2	2	V1	☑	☐	A	+
3	3	3	$$$8547	☑	☐	A	+
4	4	4	~Unused_Pins~	☑	☐	A	+
5	5	5	$$$8818	☑	☐	A	+
6	6	6	V2	☑	☐	A	+
7	7	7	V2	☑	☐	A	+
8	8	8	+30.5V	☑	☐	A	+

Text in the **Name** field can be modified directly by clicking in the text field and typing the new name. The **Scan Pin** setting enables or disables scanning of the pin. **Pause** will cause the scan to pause when the selected pin is reached.
Information on the other settings in the Pin tab is available in the **Workstation Help**.

Adding a New Range

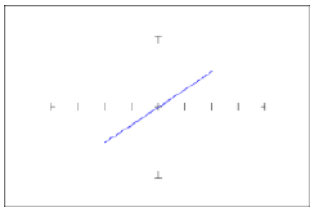
When a new component is added to a Sequence the ranges used are set by the defaults set up in the **Tools/Options/Ranges** tab. It is best to set up your desired default ranges before adding Components to your Sequence.



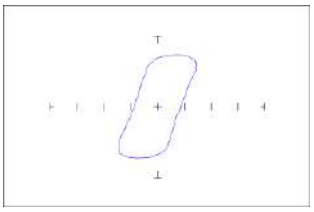
In the Range/General tab, enable the number ranges and set the tester type as Tracker (default). In the Ranges tab, set the Voltage, Resistance and Frequency range parameters. These are the ranges that will be used when adding a new Component. It does not change existing Components. On a new software installation these defaults set three ranges – **3V, 50Kohms at 500Hz**; **3V, 1Kohms at 200Hz** and **3V, 50 ohms at 60Hz**. In general use, these three ranges will work well but you may need to add or modify ranges based on component type and value. As a general reference, the table below can be used to assist you in setting ranges.

Range	200mV	3V	5V	10-15V	20V
10Ω-100Ω	Continuity, shorts, caps, resistors and inductors	Low impedance components	Newer MOS ICs	Power supply and Regulators	
1KΩ-10KΩ	Resistive faults	Latest MOS and Surface mount ICs	Newer MOS ICs	Older MOS ICs	
50KΩ	Resistive faults	Resistive faults	Older MOS ICs	TTL 74, 74LS ICs and older MOS ICs	TTL 74 ICs, power transistors
100KΩ	Resistive faults	Resistive faults	Resistive faults	Resistive faults	High resistive and High power

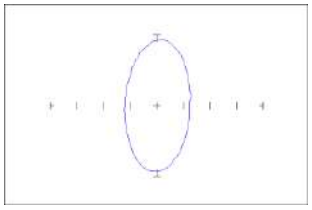
The Tracker signatures are shaped based on the Tracker range settings. The basic goal is to achieve signatures that are halfway between open and short. The signatures for the four basic types of components shown below illustrate this primary goal.



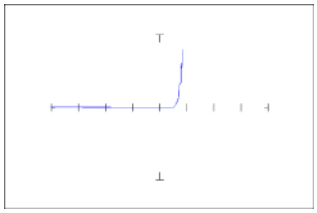
Resistance



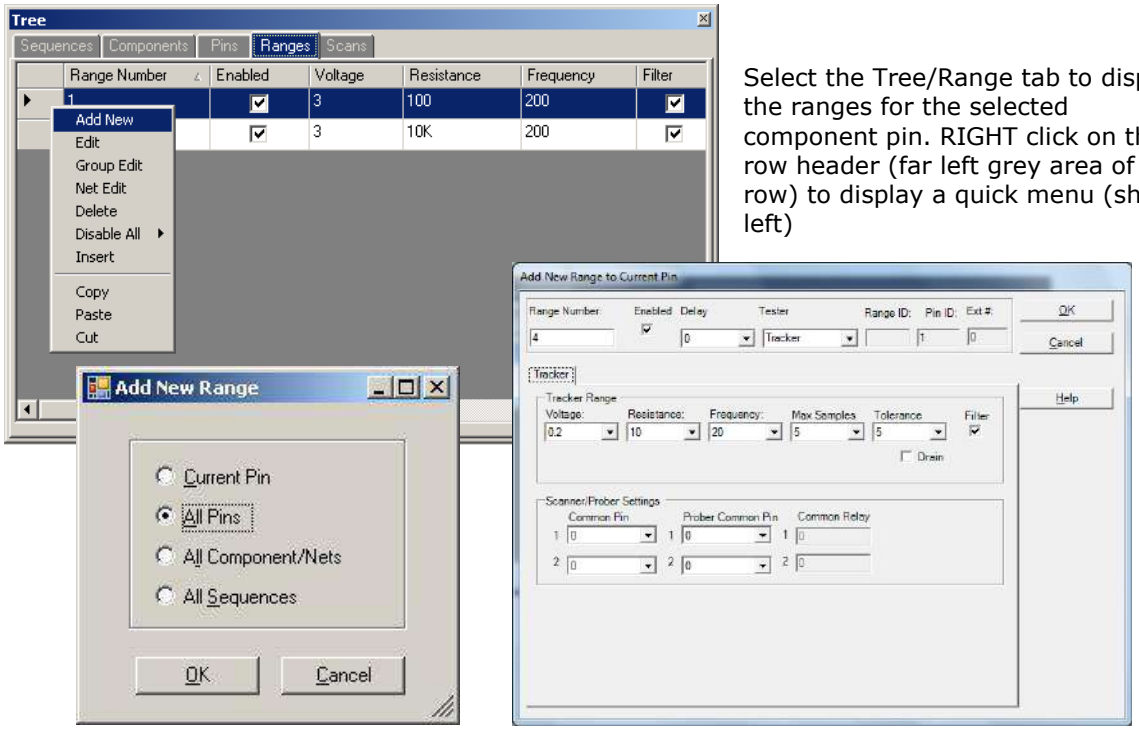
Inductance



Capacitance



Semi-conductance



Select the Tree/Range tab to display the ranges for the selected component pin. RIGHT click on the row header (far left grey area of the row) to display a quick menu (shown left)

To add a new Range, select the Range tab in the Tree pane. Select **Add New Range** from the Edit menu or click the Add New button (+) in the toolbar. A pop-up dialog will ask where you want the new range to be added. Select the desired radio button (**All Pins** is generally the desired selection) and click **OK**.

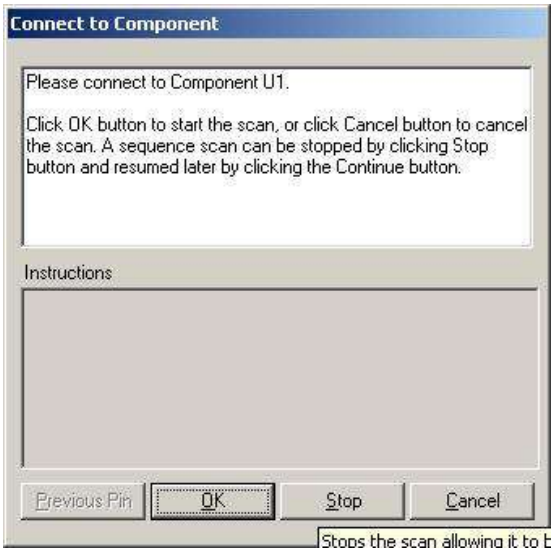
Add New Range Details:

Note: **Voltage/Resistance/Frequency** can be modified directly in the Range grid.
Voltage/Resistance/Frequency fields: Select the desired range settings
Max Samples/Tolerance/Delay: Select the setting to be used when scanning **this range**
Common Pin: Common pin selection is not available with the Tracker 2800S.

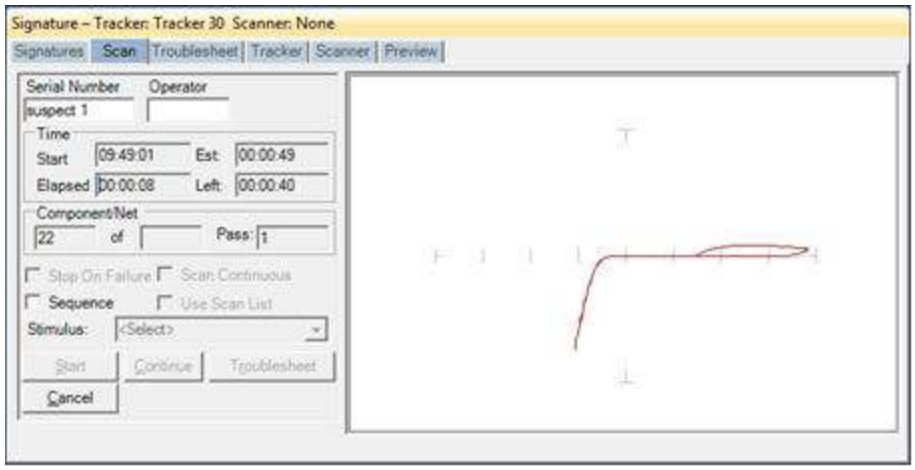
Note: It is easier to set up the ranges used by selecting **Tools/Options/Range** from the Tools menu in the menu bar and pre-configuring the default ranges.

Scanning with a Tracker 2800 or Tracker 2800S

To scan an entire Sequence, select the Sequence in the Tree/Sequence tab. To scan an individual component, select the component in the Tree/Component tab.
Select the **Scan tab** in the Signatures pane and input a **Serial Number** then click the **Start** button.



You will be prompted to connect to the component. Tracker with Scanner users should connect to the selected component at this time. Click **OK** to initiate the Scan.



If you are performing Sequence scan you will be prompted to continue to the next component until all of the components in the Sequence have been scanned.

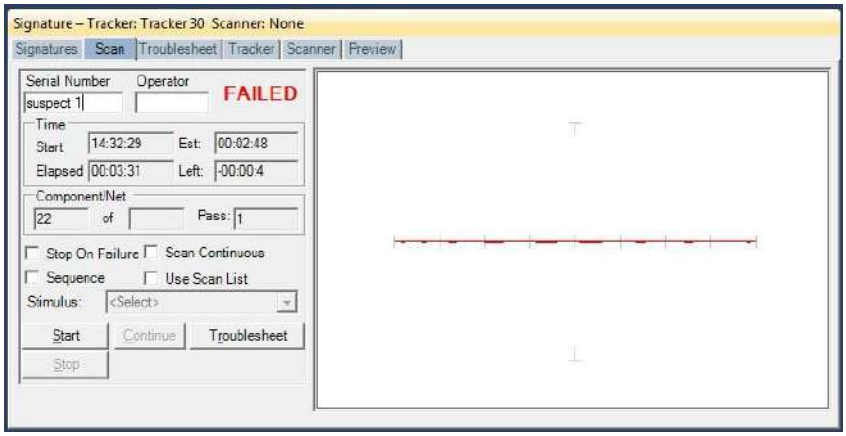
If a Tracker with probes is being used your will prompted to connect to pin 1 of the selected component (if performing a single component scan) or of the first component in the Sequence (if performing a Sequence scan). Click the **OK** button to scan the first pin. You will then be prompted to move to the next pin for scanning. Click **OK** to scan and continue in this manner until all of the component pins are scanned. At anytime during scanning you can click the **Previous Pin** button to go back and rescan the previous pin.



Once all pins are scanned click the **OK** button to continue.

When the Sequence or Component scan is complete the Scan Results window will be displayed. Go to the **Scan Results** section of this tutorial for more information on what to do after scanning.

Scan Results

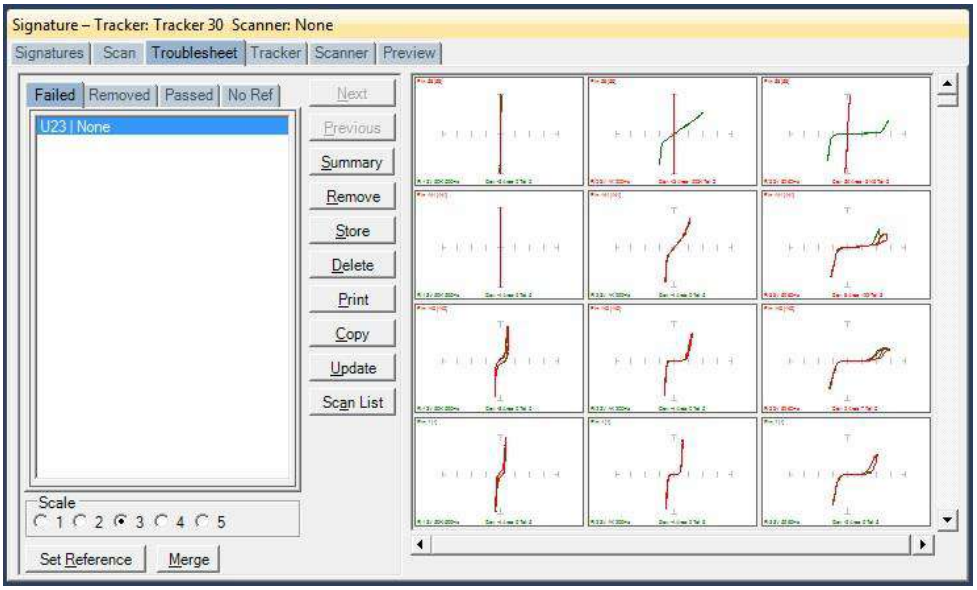


When a scan is complete, the results PASSED, FAILED or NO REF will be displayed (the text of the PASSED and FAILED message can be changed in the **Tools/Options/General** settings). The NO REF message will be displayed on the first scan of any test since there are no signatures stored as Reference.

Clicking the **Troublesheet** button will display the signature differences in the Troublesheet tab of the Signature pane.

Note: Selecting the **Troublesheet tab** may display previous Troublesheet information.

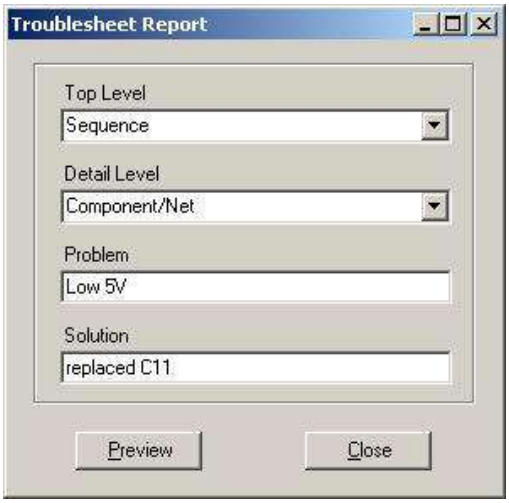
Viewing Signatures – Troublesheet

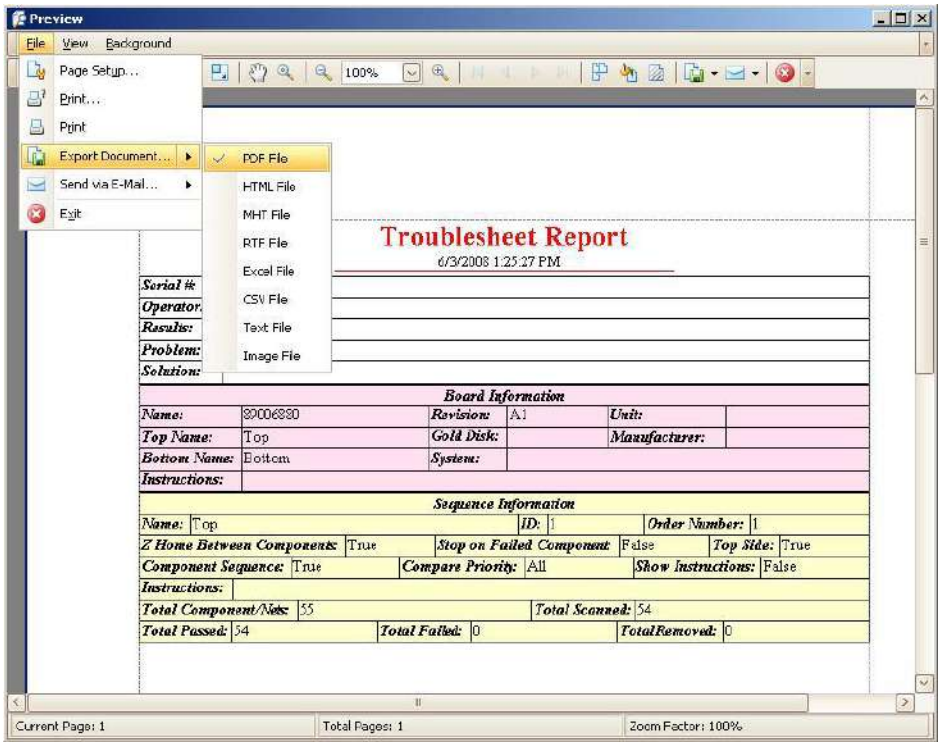


To view the Troublesheet, press the **Troublesheet** button in the Scan Results window. This will display the signatures that compare differently from the Reference signatures. When a scan is executed signatures are compared against the Reference set (or sets) if it exists. On the first scan, the signatures will be displayed in red and listed in the **No Ref tab**. This occurs because the first scan has no reference to compare against. To add the signatures in the Troublesheet as a Reference, press the **Set Reference** button (do this only with known good signatures). Signatures of the compared signatures are displayed in contrasting colors. By default, the Reference signature is green and the failed signature is red.

To add the Troublesheet signatures to the Merge signature set, press the **Merge** button (do this only with known good signatures that vary slightly from the original Merge signature set).

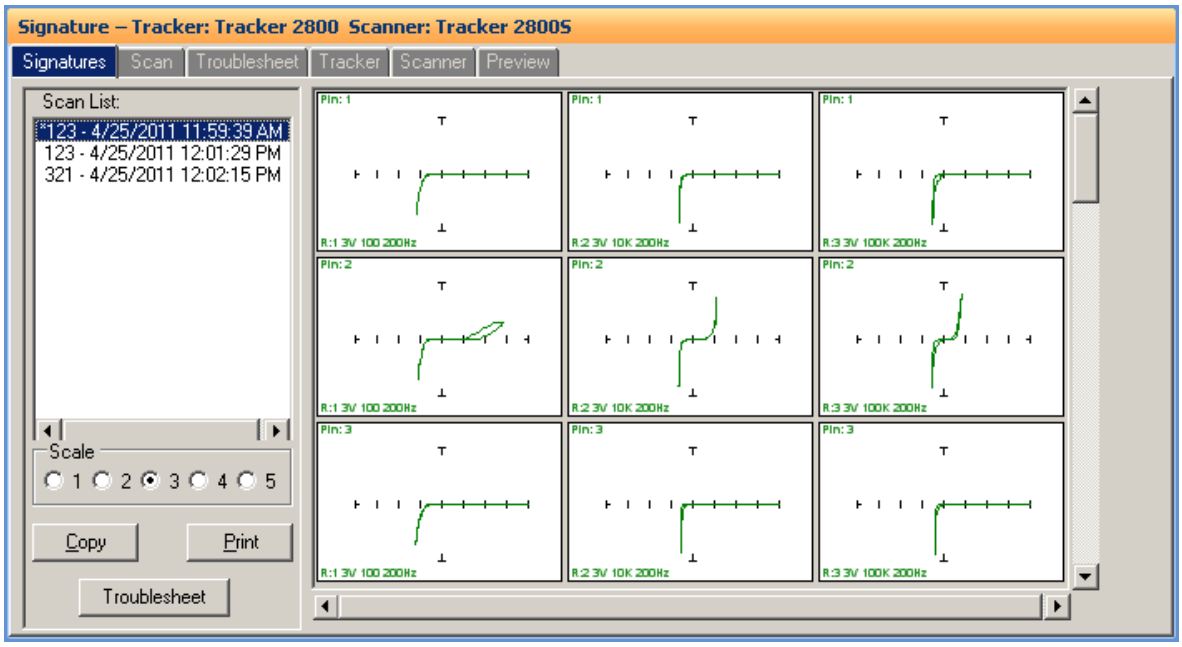
Viewing Signatures Troublesheet Report





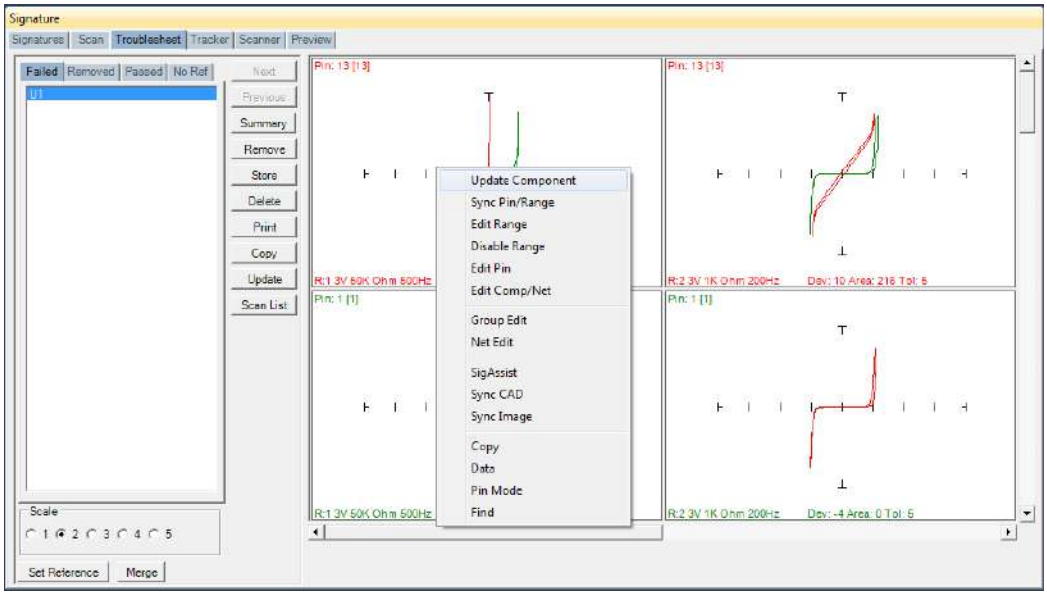
To view and print the Troublesheet report, press the **Print** button in the Troublesheet window. You can select from several options including a Sequence or Component Level report, the level of detail and add problem and solution comments to the report. Click **Preview** to view the report on-screen. The report can be printed or exported in several different formats including HTML and PDF by selecting **File/Export Document** in the Preview window.

Viewing Signatures in the Signatures Pane



To view scanned signatures, select the **Signatures** tab in the Signature Pane. The Scan name, date and time will be displayed on the left side of the window (Reference signatures are marked with an asterisk) and signatures on the right. The **Scale** buttons will change the number of columns displayed. Scaling the window will increase the number of signatures displayed. The **Copy** button will copy the signatures to the Windows clipboard so they can be pasted into another program (in a metafile format). The **Print** button will print the signatures in one of several different user selected formats.

Viewing Signatures – Right Click



Additional options when viewing signatures can be displayed by right clicking in the signature area.

Update Component: Updates the Troublesheet for the selected component only

Sync Pin/Range: Selects pin and range in the Tree (see default in Tools/Options)

Edit Range: Selects the pin and range in the Tree and opens the Edit Range dialog

Edit Pin: Selects the Pin the in the Tree and opens the Edit Pin dialog

Edit Comp/Net: Selects the Component or Net the in the Tree and opens the Edit Component or Net dialog

Group Edit: Opens Group Edit dialog for editing of component pin parameters as a group

Net Edit: Opens Net Edit dialog for editing of Net pin parameters as a group

Real Time: Display signature in real time

SigAssist: Displays the SigAssist window showing calculated approximate values of resistance, capacitance, breakdown voltage, etc. based on signature information

Sync CAD: Will link the selected signature to the CAD image displayed in the Image/CAD pane. **Sync CAD** will be disabled if there is no linked CAD data.

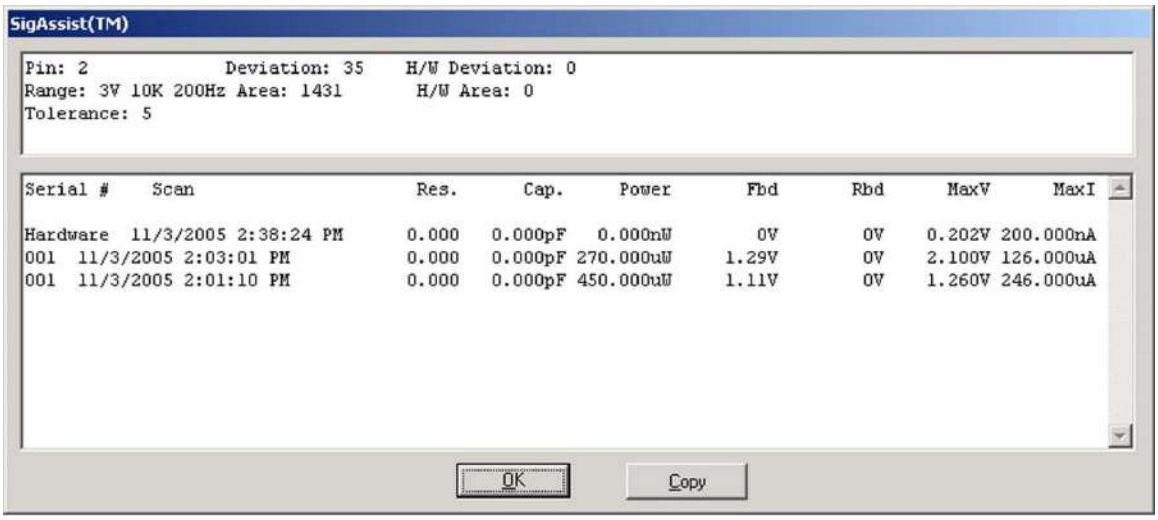
Copy: Places the signature image in the clipboard

Data: Displays the signatures numeric data

Range/Pin Mode: Displays signature with Range priority or Pin priority see (default in Tools/Options/Signature tab)

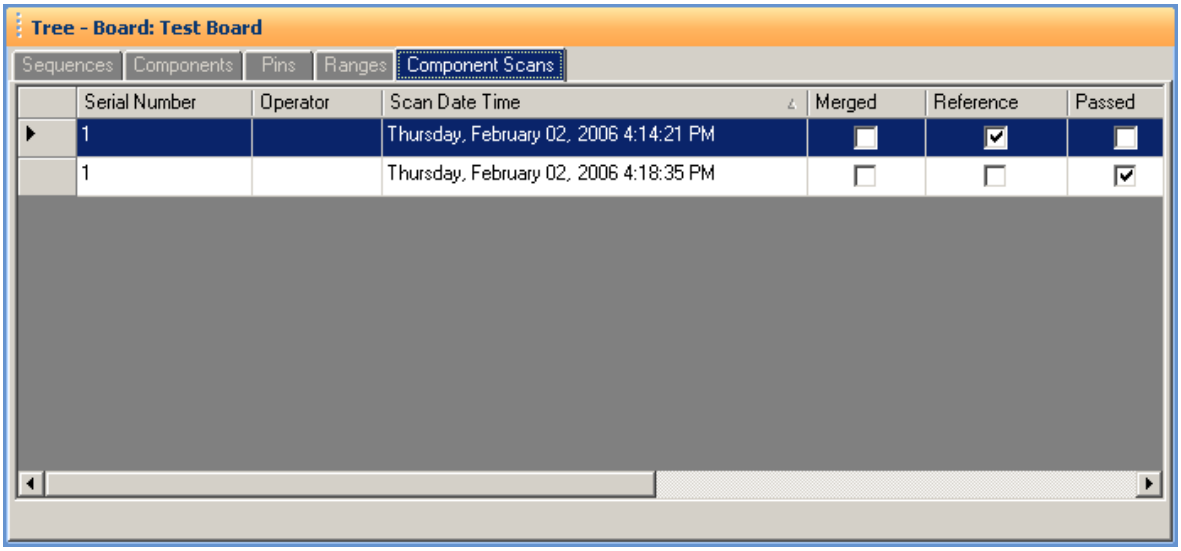
Find: Searches the Troublesheet list for the component name entered

View SigAssist Information



The SigAssist window can be viewed by right-clicking on a displayed signature and selecting SigAssist. It appears as an additional pop-up window. The information presented relates to the individual scans displayed in the signature. The calculated resistance, capacitance, power, forward breakdown voltage (Fbd), reverse breakdown voltage (Rbd), maximum voltage and maximum current are displayed. These values are for troubleshooting purposes only and are not intended to be used as true measurements. The accuracy of the SigAssist values depends greatly on the scanned signature information. SigAssist values may not be calculated for signatures that do not contain enough information for reasonable calculations to take place (i.e. opens, shorts). The Copy button will put a copy of the window into the clipboard for use in other programs.

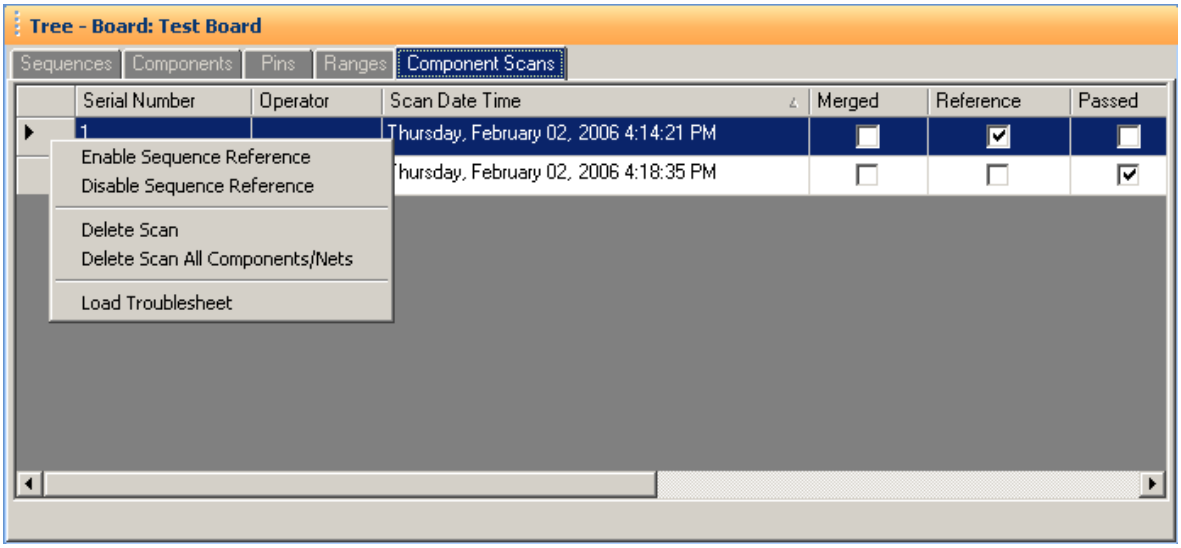
Component Scans Information



Selecting the **Component Scans** tab in the Tree Pane will display all of the scans performed on the selected component in a table format. The Scan information displayed includes the serial number, operator, date/time, Merge setting (checked if this scan is included in the Merge set), Reference setting (checked indicates it is set as a comparison Reference), Pass status (will be checked if components passed comparison), Removed status (will be checked if component was removed from Troublesheet), Area number (highest of scanned pins), Deviation, Min/Max status and other settings (see Help for more information).

Selecting a Scan in the Component Scans tab will display the selected scan in the Signature pane in both the Signature tab and the Troublesheet tab.

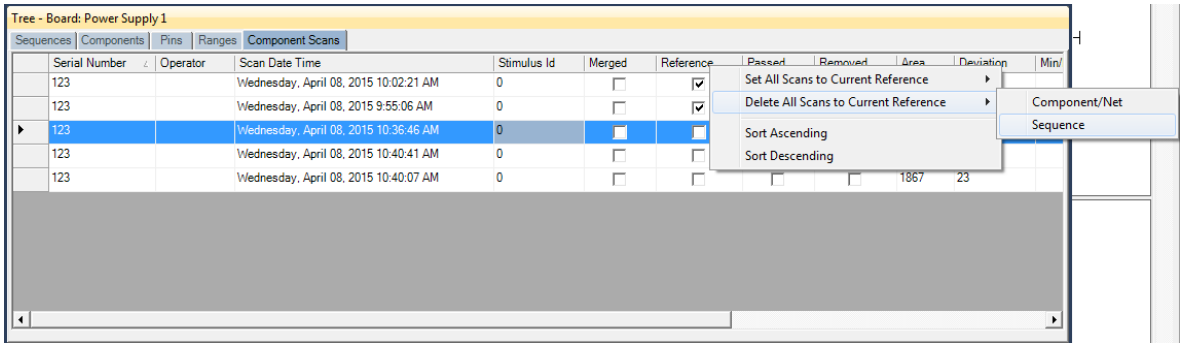
Component Scans – Right Clicking (Auxiliary menus)



Right clicking on the Row bar of the Component Scans tab displays an additional menu for performing specific tasks such as enabling/disabling References, deleting a scan for the selected components or all components and loading a Troublesheet. **Enable Sequence Reference** will mark the scan as a Reference for the entire Sequence. **Disable Sequence Scan** will disable the selected Sequence as a reference. **Delete Scan** will erase the selected scan for the current component only. **Delete Scan All Components/Nets** will erase the selected scan for all components or nets in the Sequence.

Load Troublesheet will display the selected scan in the Signatures/Troublesheet pane.

Component Scans – Right Clicking (Auxiliary menus)

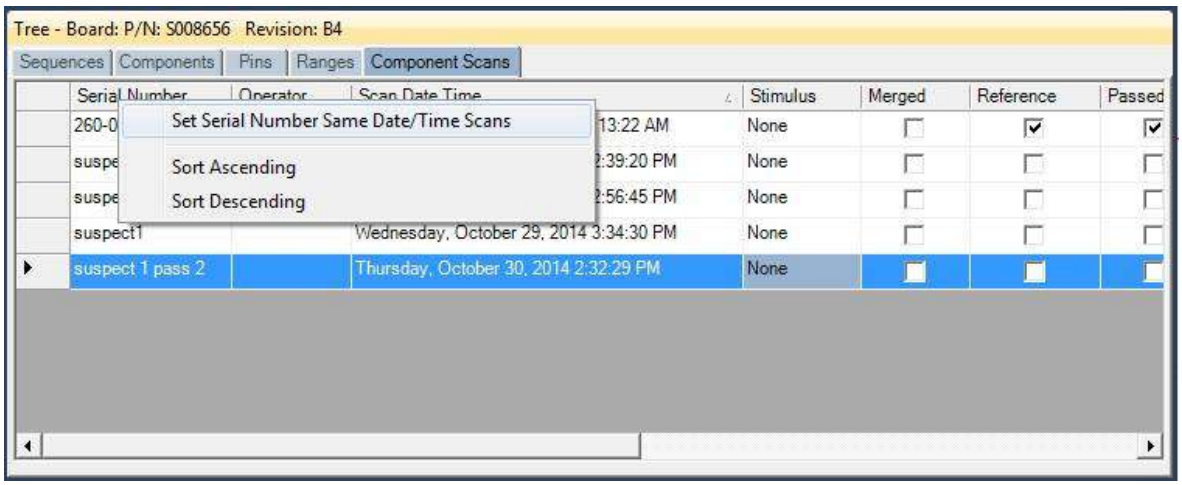


Right clicking on the Column bar of the Component Scans pane displays an additional menu for performing specific tasks such as sorting or globally setting parameters. The menu will vary depending on the column selected. In the image above, the Reference column header was right-clicked where you can select to set scans as Reference or delete them.

This method is an easy way to delete non-reference scans that are listed in the Tree/Component Scans pane. Select a scan that is a non-reference (the Reference check box is unchecked) the right-click the column as shown above. Select **Delete All Scans to Current Reference/Component/Net** or **Sequence** to delete the non-reference scans for the individual Component/Net or for the entire Sequence.

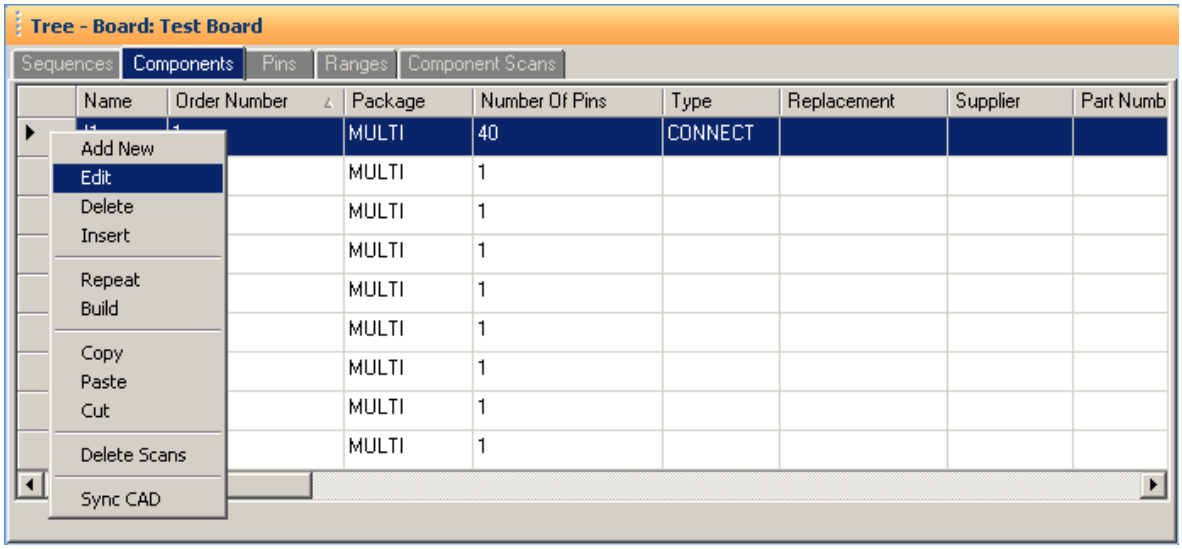
Another more general method to delete non-reference scans is to select "**Delete Board Non-Reference Scans**" from the Workstation **Edit menu**.

Component Scans – Right Clicking (Auxiliary menus)



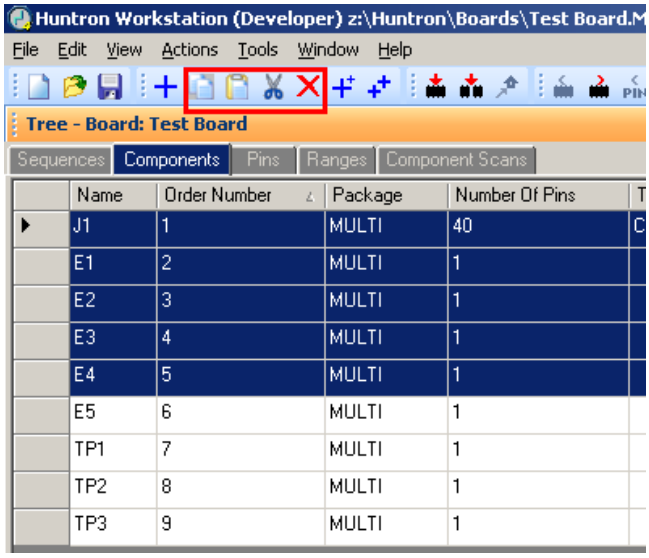
Right clicking on the Column bar of the Scans pane displays an additional menu for performing specific tasks such as sorting or globally deleting items. In the image above, the Serial Number column header was right-clicked.

Sequence/Component/Pin Editing – Right Click menus

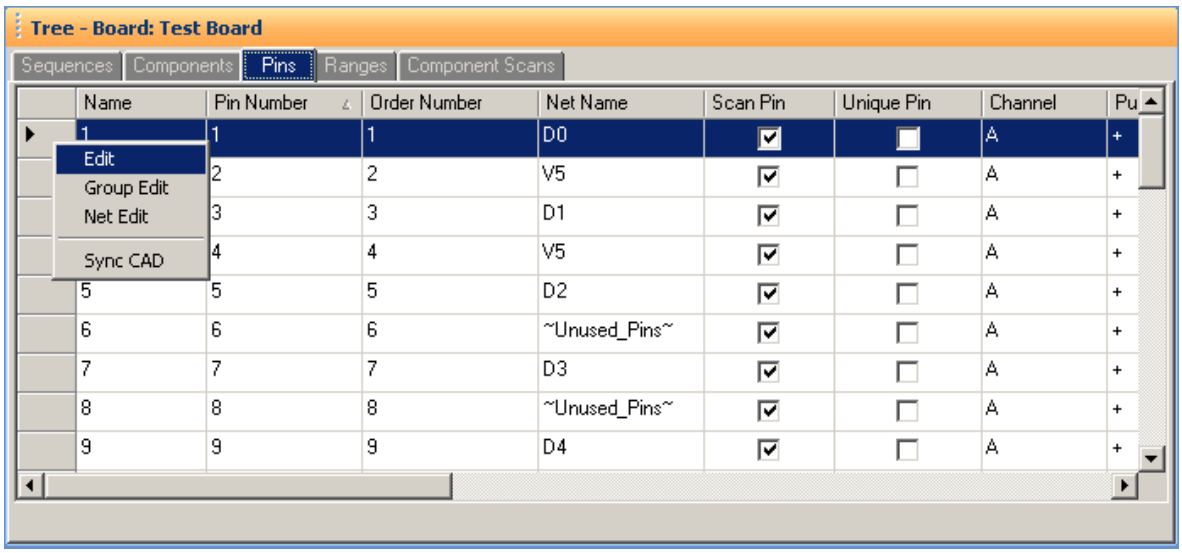


Right clicking on the Row header bar of the Tree pane displays an additional menu for performing specific tasks such as **Add New**, **Insert**, **Delete**, **Repeat**, **Build** (repeat but with name incremented by 1), **Copy**, **Paste** and **Cut**. Right clicking works at all levels of the Tree pane including Sequence, Component (shown above), Pins, Ranges and Scans.

It is also possible to select groups of components by holding the **SHIFT** or **CTRL** keys while selecting components in the Tree. To copy, paste, cut or delete groups of components, use the Copy, Paste, Cut or Delete Toolbar buttons below the main menu.

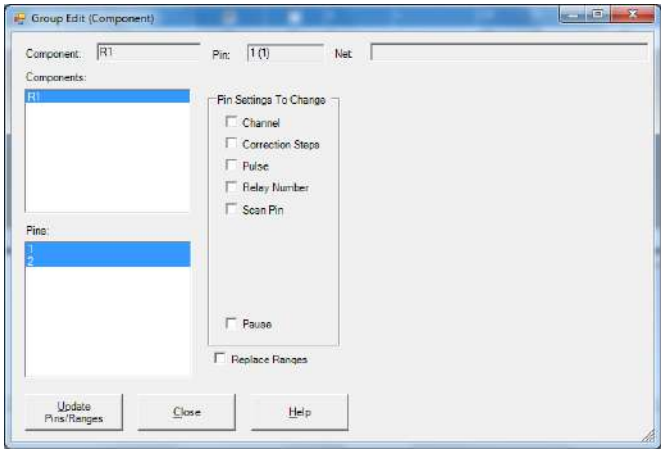


Pin Editing – Right Clicking (Auxiliary menus)



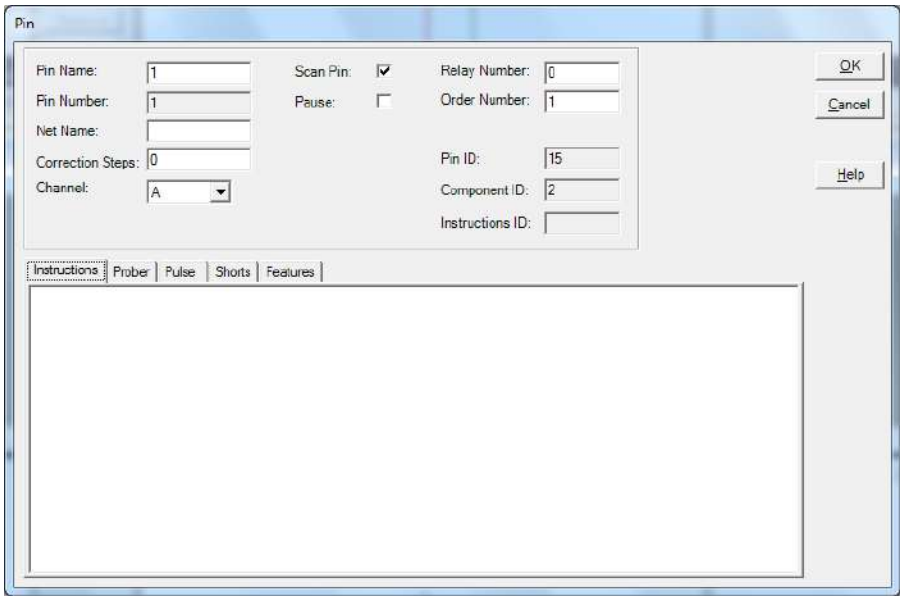
Right clicking on the Row header bar of the Tree/Pins pane allows for editing of the pin information. Select **Edit** to open the Edit window for the selected pin.
Note: Some Pin settings can also be edited directly in the Pins grid by clicking the appropriate field and modifying the setting.

Group Edit and **Net Edit** allow you make changes to the pin of a component and have those modifications also change components that have the same number of pins within the same Sequence.



Change the desired settings for the current Pin first then select Group Edit from the right-click menu (see above). Components with the same number of pins will be listed. Select the components and pins you want to be changed. Select the Pin Settings check box(s) for the setting(s) you want changed. Check the Ranges box to match the ranges (this will cause signatures to be deleted). Click the **Update Pins/Ranges** button to make the changes.

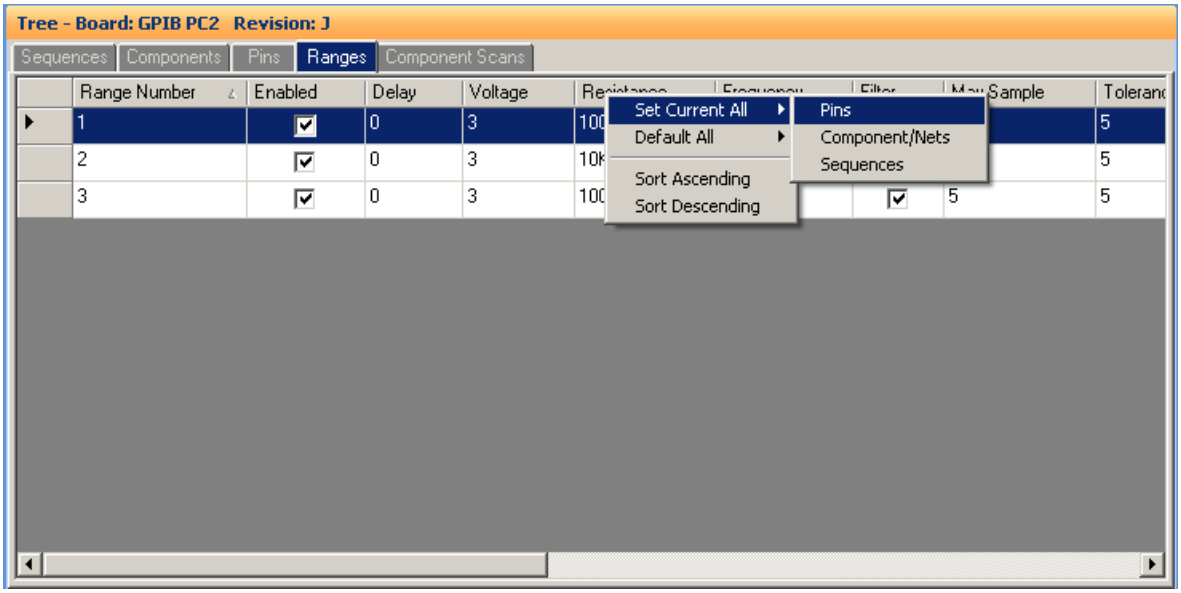
Pin Editing



Individual pin characteristics can be edited in the Pin Edit window. **Pin Name, Net name**, **Channel**, **Correction steps** (for Access Probers) and **Scan Pin** (enable/disable scanning of the pin) can be controlled. Instructions related to the selected pin can also be entered.

Range Editing – Right Clicking (Auxiliary menus)

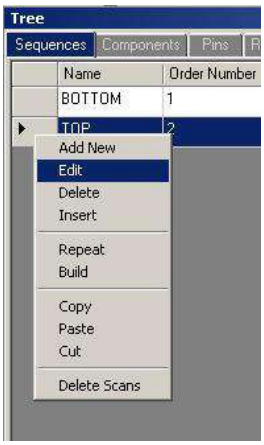
There are very useful right-click menus available in the Range tab of the Tree pane. You can **right-click** the column or row headers to display shortcuts to various functions.



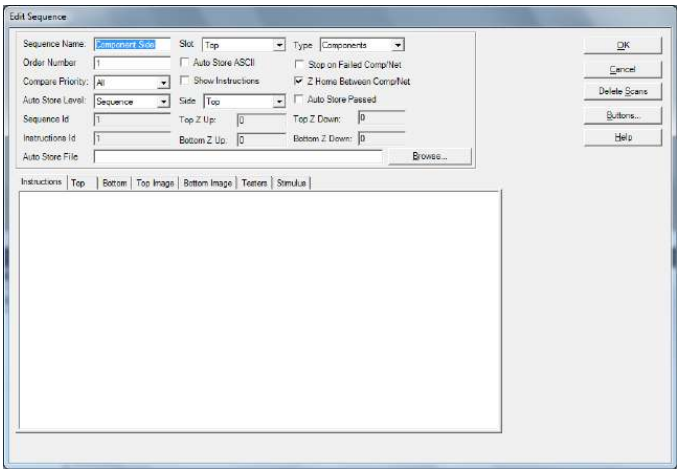
One of the most useful is the ability to make global changes based on a specific setting. For example, to make a range setting such as Voltage, Resistance and Frequency affect all pins (or Components or Sequences), make the desired change and **right-click** the column header (as shown above). Select Set Current All – and choose the level you want the change to affect i.e. all **Pins**, all **Component/Nets** or all **Sequences**. The menu is similar most of the Range tab column header right-click menus.

Huntron Workstation Buttons Feature

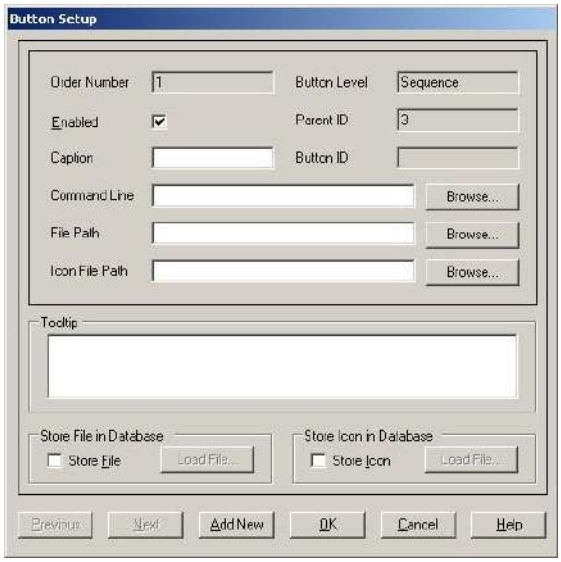
Huntron Workstation has a built-in feature that allows any Windows based program to be started by clicking a button in the Workstation toolbar. It is very easy to use and a "Button" can be attached to any Board, Sequence or Component/Net. In this example, a Button will be created for a Sequence but the process is the same for the Board and Component/Net levels.



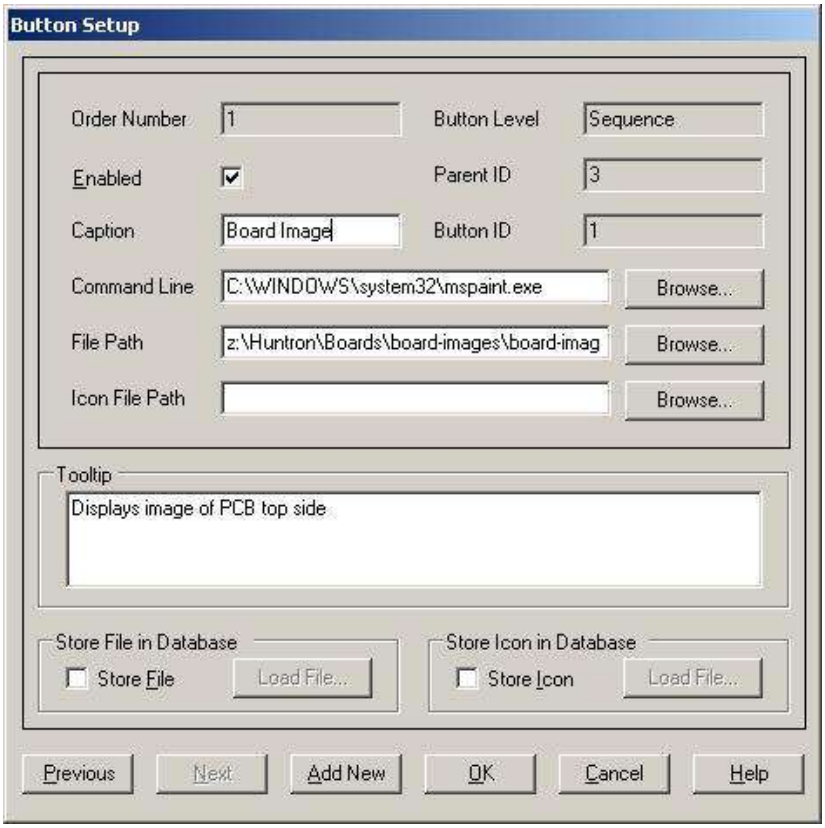
To start, the Sequence edit window is opened by right-clicking the row header for the desired sequence. The Edit window will be displayed (see below).



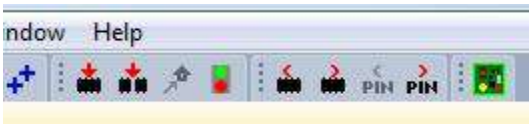
Select the **Buttons…** button located on the right side of the Sequence Edit window to open the Buttons Setup window.



To configure the Button, a Caption (button name displayed in the Tools menu), Command Line (the application to be run) and File Path (the file opened by the executed application) need to be input into the corresponding fields. A File path will not always be required such as instances where a browser is started and pointed to a specific URL. In this example, the button will be configured to start the Microsoft Paint application and open a small PCB image (see image below). If desired, the icon displayed in the main window toolbar can be set by browsing to and setting a path to an .ICO (icon) file in the **Icon File Path** field. Add text that will be displayed when the cursor is placed over the Button in **Tooltip** field. To make the linked file or icon stored as part of the Board database, check the **Store File** and/or **Store Icon** checkboxes.



Click **OK** to accept the Button. To create additional Buttons, repeat this process and click the **Add New** button in the Button Setup window.
When Buttons are created, an additional toolbar will appear below the Huntron Workstation menu. This toolbar will change according to the level (board, sequence or component/net) selected.



The icon shown can be replaced by selecting an appropriate icon in the Button Setup window (the default icon is shown). Click the toolbar button to execute the Button.

Technical Support

For questions or assistance in using Huntron Workstation, contact **VI-Tracer** at **+30-210-59-86-179** or email **technical@vitracer.com**