

Huntron NFSA Workstation Tutorial

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Huntron NFSA Workstation Software Tutorial

Huntron Workstation software

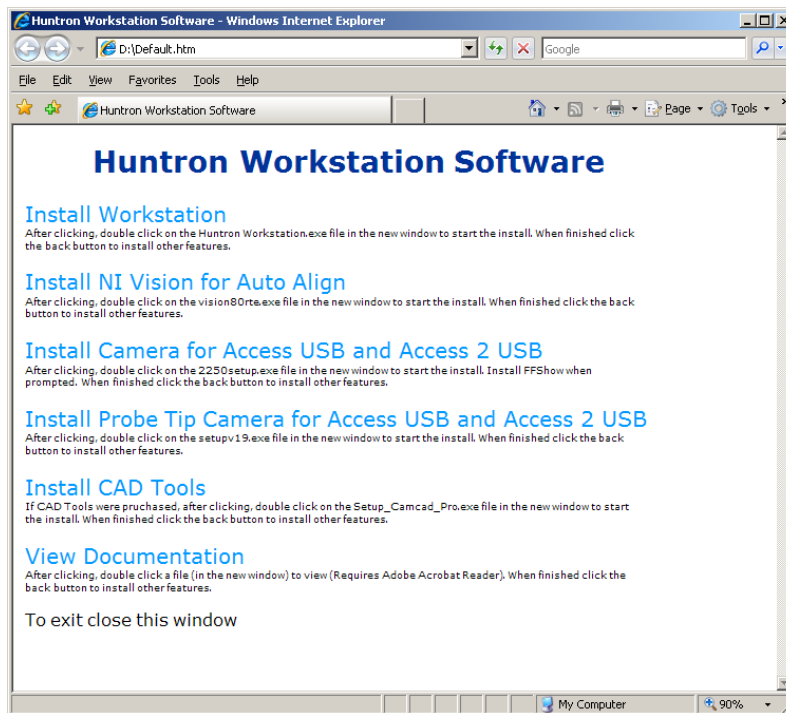
It is very helpful if you have a working knowledge of Microsoft Windows prior to using Huntron Workstation.

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.

While in Windows (2000, XP or Vista), insert the Huntron Workstation CDROM. The CDROM should Autorun and display the Installation page in a browser window.

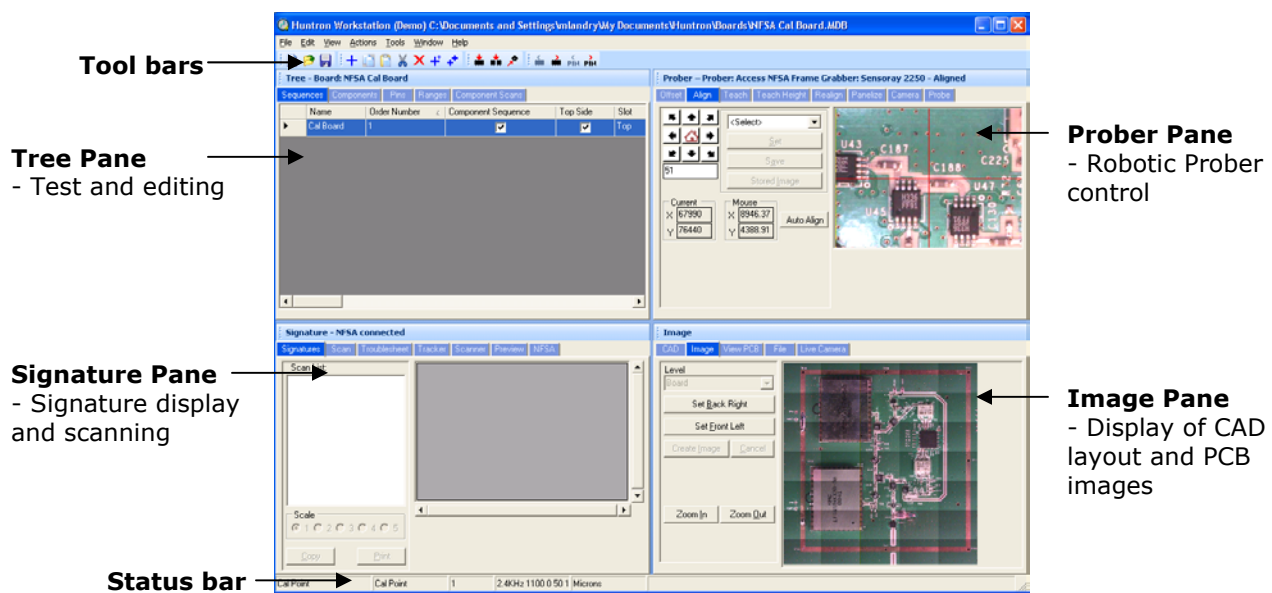


Select **Install Workstation** and follow the on-screen prompts for instructions while proceeding. When complete the programs listing will have a new program group called "Huntron" and an icon will be placed on the desktop. Select **Install CAD Tools** if you have purchased additional CAD Tools. For all Prober users, you will need to install the **NI Vision for Auto Align**. Access USB Prober users will need to install the **Camera**

and **Probe Tip Camera** drivers. Select the appropriate items from the Installation list to install these programs and drivers. You can view support documentation in PDF by clicking **View Documentation**

Huntron Workstation Main Interface

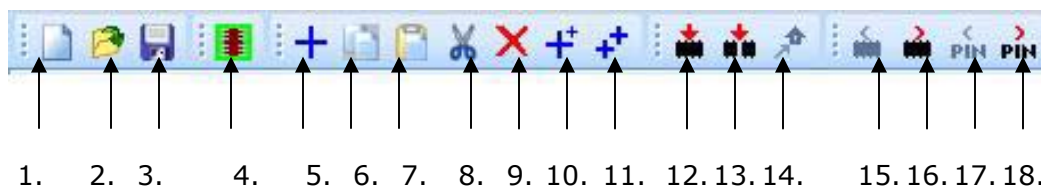
When starting Huntron Workstation for the first time, you will be prompted for an activation code. Type in the code exactly as it is presented on the installation CD. Huntron Workstation 4 has built-in conversion utilities that enable conversion of board tests created in 3.X versions of Huntron Workstation.



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 and status information while processes are running.

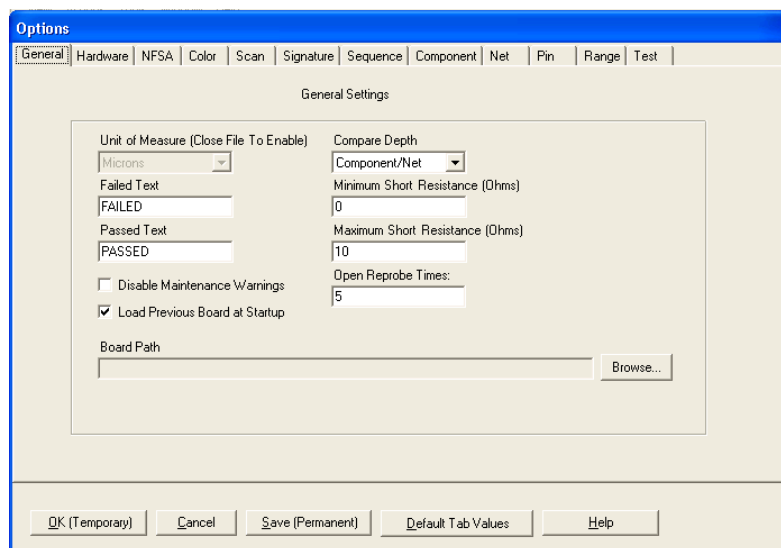
The Toolbar

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.

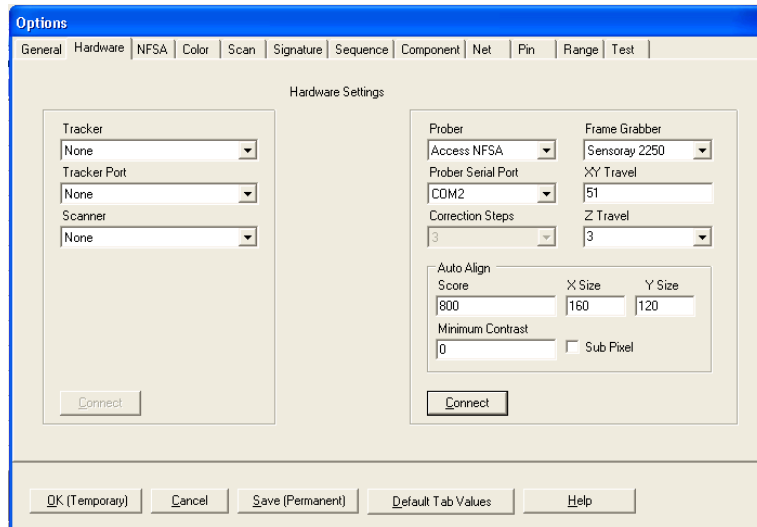


- | | |
|--|---------------------------------------|
| 1. Create New Board database | 10. Build New (Sequence, Component) |
| 2. Open Board database | 11. Repeat New (Sequence, Component) |
| 3. Save As... | 12. Scan Component or Net |
| 4. Custom Button(s) (User created) | 13. Scan Sequence |
| 5. Add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

Hardware Setup

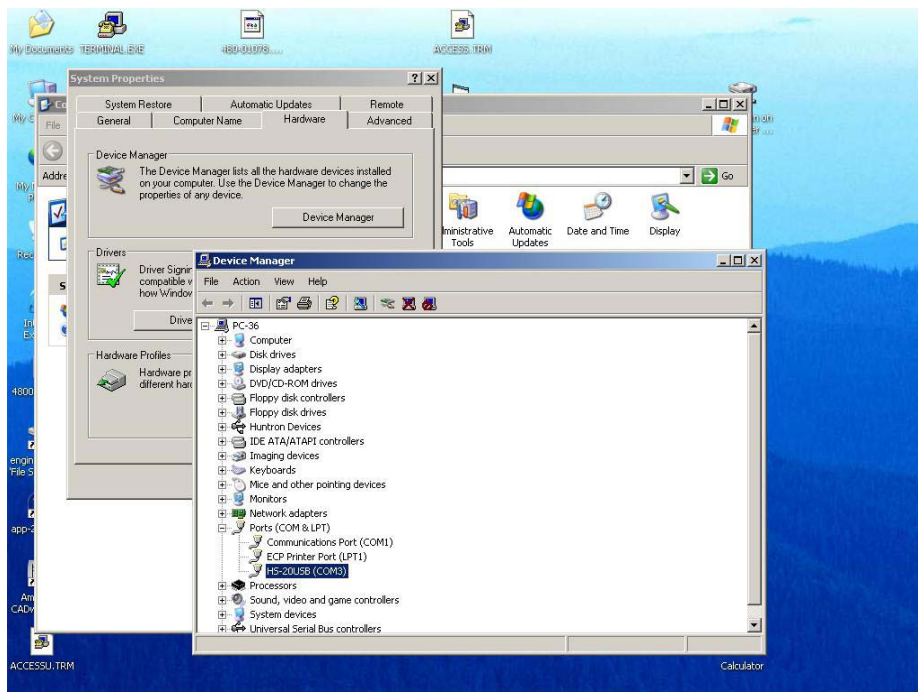


When first starting Huntron Workstation, select **Options** from the Tools menu. The Options window is used to setup default settings used when working in Huntron Workstation. Select the **General** tab and set the desired Unit of Measure (use **Microns** for Huntron Access Probers, **Mils** for any other Prober). For this tutorial, the Near Field Signature Analysis Probe is referred to as "NFSA".

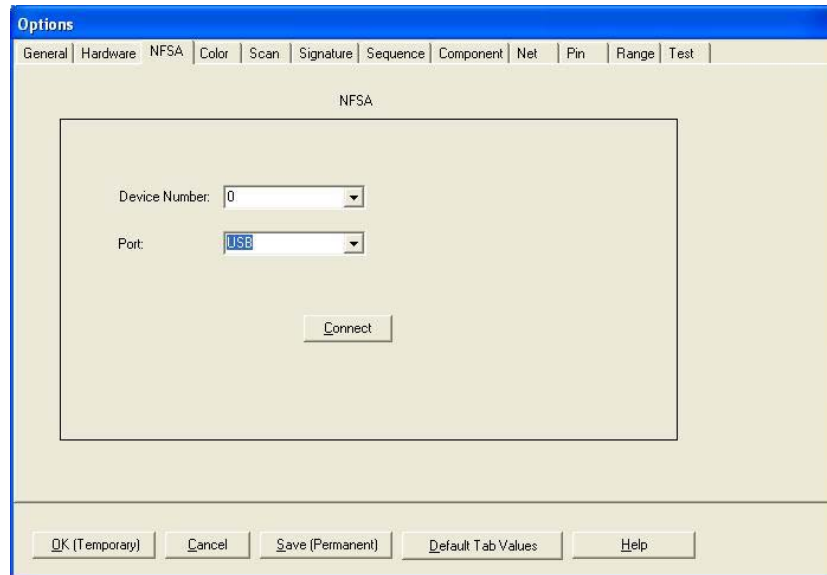


Select **Options** from the Tools menu. Select the **Hardware** tab and leave the type of Tracker hardware, the Tracker Port and Scanner options at none.

NFSA Prober users need to select the type of Prober, the serial port for the Prober and the Frame Grabber type. Select "Access NFSA" or "Access 2 NFSA" as the Prober and determine which COM port the Access NFSA connection is using, go to the Windows **Control Panel**, select **System** and select **Device Manager**. Locate the Ports settings as shown in the image below. Use the COM number shown next to "HS-20USB".



Click the **Connect** buttons to initiate communication with the selected hardware. In the Tools/Options window, select the **NFSA** tab and configure the NFSA Probe connections as shown below. Click the **Connect** button to connect to the probe.



Once connected, click the **Save (Permanent)** button to save this configuration as the startup default.

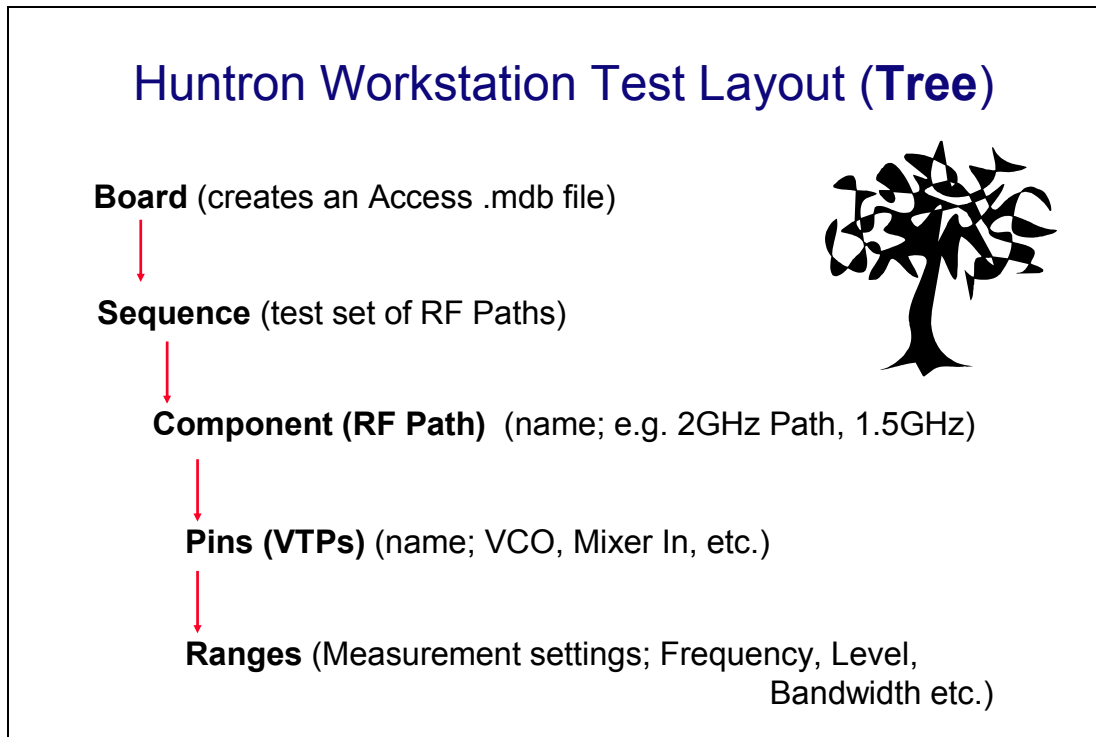
Using NFSA

The NFSA uses the concept of Virtual Test Points (VTP). A Virtual Test Points is a point in X, Y, Z space along with Measurement Frequency. A collection of VTPs make up an RF Path. There can be multiple Paths in a UUT. Generally a RF Path is the same as an actual RF signal path on the board. Each VTP has a stored reference 'signature' which is used to determine the validity of the measurement of an unknown board. The key to NFSA is determining the location of the VTPs for the RF Board under test. Once the RF signal path(s) of the board is determined the VTPs can be strategically placed along the path(s) for the best coverage of the board.

The Workstation Software has, for programming purposes, the concept of components and pins. When using with the NFSA probe it is best to think of components as RF signal paths and pins as Virtual Test Points (VTP) along this signal path.

Creating a NFSA RF Board Test

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



Example of Board Test Information:

Board Name: RF Board (creates "rf board.mdb" file)

Revision: Rev. A (This field is optional)

Sequence: RF Paths

Component (PATH): 2GHz Path (RF Path Name)

Pins (VTP): Per VTP settings for X, Y, Z locations, etc...

Ranges: Per VTP measurement settings, 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.

RF Test Building Procedures

- Determine RF Paths and VTP Locations of RF board
- Create Test Database in the Tree Pane
 - o Add Board, Sequence, and Components (Paths)
- Perform Camera Offset
- Select Alignment points
- Teach component pin (Path VTP)
- Scan Sequences and Set References

Listed above is a general outline on how you would proceed when preparing to test a RF board. 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

Add New Board

Name: Cal Board Manufacturer: Gold Disk Number: Unit of Measure: Microns Data Source: User

Revision: System: Unit: Load CC File... Load Top Image... Load Bottom Image...

Top | Bottom

Top Name: Top

Top Image Right X: 0

Top Image Back Y: 0

Top Image Pixel Size X: 0

Top Image Pixel Size Y: 0

Instructions:

OK Cancel Buttons... Help

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 Gold Disk 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

Slot field: Select the Prober slot that the board will be in when scanning.

Compare Priority: Selects the comparison priority between **Same** (serial number), **All** (serial numbers; this is the recommended setting) or **Min/Max** (Merged min/max signatures)

Previous/Next buttons: Steps through existing Sequences backward or forward.

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 **Add New, Repeat and Build** buttons will allow for another new Sequence to be created saving the current one.

The **Delete** button will erase the selected Sequence.

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

Adding a New Component (RF Path)

Edit Component

Component Name: 1.5GHz Path	Connection Type: Prober	Pause: <input type="checkbox"/>
Order Number: 2	Open Check Type: Recheck	Ranges Then Pin: <input checked="" type="checkbox"/>
Package: Probe	Open Recheck Depth: 203	Short Check: None
Number Of Pins: 16	Converted Merges:	Component ID: 5
Type:	Correction Steps: 3	Sequence ID: 1
Pin Spacing: 2540		

Part Package:	Top X: 0
Part Number:	Top Y: 0
Part Tolerance:	Up Top Z: 0
Part Value:	Bottom X: 0
Replacement:	Bottom Y: 0
Supplier:	Up Bottom Z: 0

Instructions

To add a new Component (RF Path), 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 (Path Name) in this field.

Package and **Number of Pins** fields: The Number of Pins should be set to at least the number of VTPs in this RF Path (component). Select more pins than the current number of VTPs allows more VTPs to be added later. For unused pins (VTPs) uncheck the **Scan Pin** check box on the **Pin Tab**

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

Pin Spacing: Not used by NFS A

Connection Type: Not used by NFS A

Open Check Type: Not used by NFS A

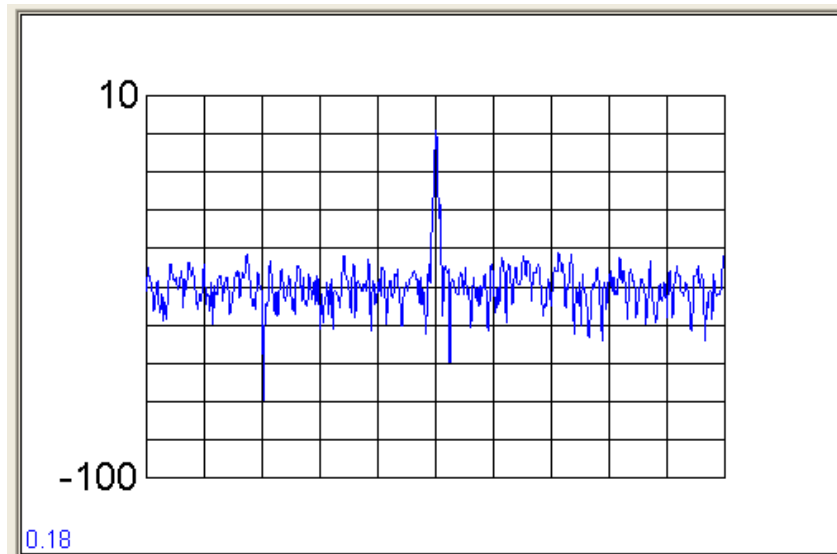
Correction Steps: Sets the maximum amount of correction steps used with the Huntron Access Prober when moving to the first VTP of the path.

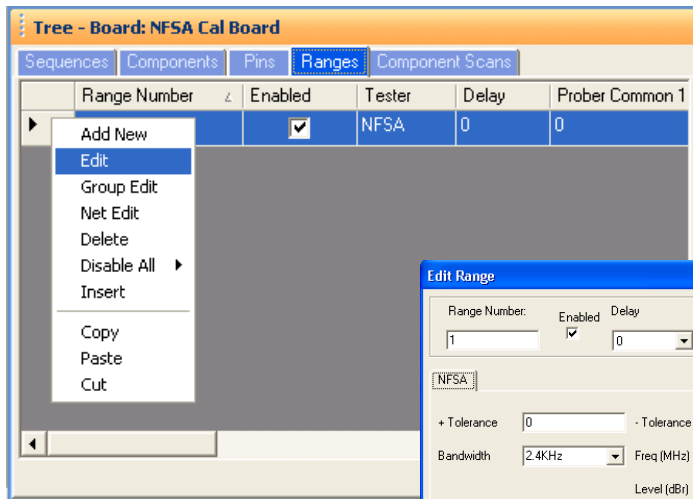
Instructions field: Enter any instructions or component information that you wish to pass on to future users.

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

Modifying a Range (NFSA Measurement Setup)

When a new component (RF Path) is added to a Sequence a default range is added to each pin (VTP). The defaults are set up in the **Tools/Options/Range/NFSA** tab. On a new software installation these defaults are set to **500MHz, 0 dBr** and **2.4 KHz Bandwidth**. These settings need to be modified based on RF signal being sensed at each VTP. The goal is to obtain a good RF spectrum measurement at each VTP as shown below. For ease of use it is best to only have 1 range (measurement setup) for each VTP. To make measure different frequencies at the same XY coordinate it is best to have multiple VTPs at the same XY coordinate each with 1 measurement setup specifying the different measurement frequency.





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 edit a Range, select the Range tab in the Tree pane. Select **Edit Range** from the Edit menu or the quick menu shown above. The Edit Range dialog will be displayed.

Edit Range Details:

Note: All of the settings **Bandwidth/Frequency/Frequency Tolerance/Averages** can be modified directly in the Range grid.

Bandwidth: Selects the measure bandwidth. Possible options:

2.4KHz, 1.2 KHz, 600 Hz, and 300 Hz

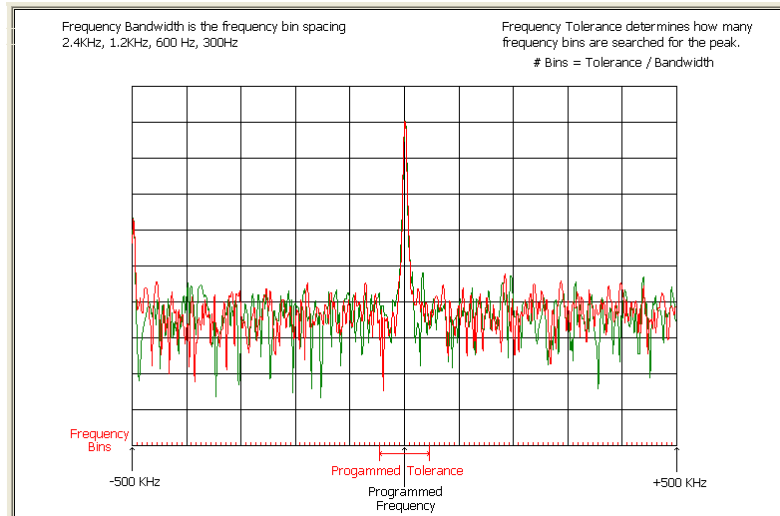
This determines the number of digitizer samples and the FFT Bin spacing of the measurement.

Freq (MHz): This is the expect frequency of the RF signal being sensed.

Level (dBr): This is the expect power level of RF signal being sensed.

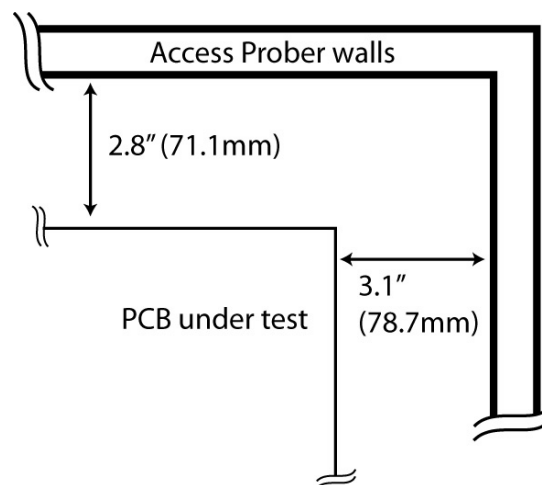
Freq Tol (KHz): This specifies the amount of frequency bins around the expected frequency to search for the signal (rounded to the nearest frequency bin). See diagram below.

Averages: This specifies the number of measurements average to obtain the result.

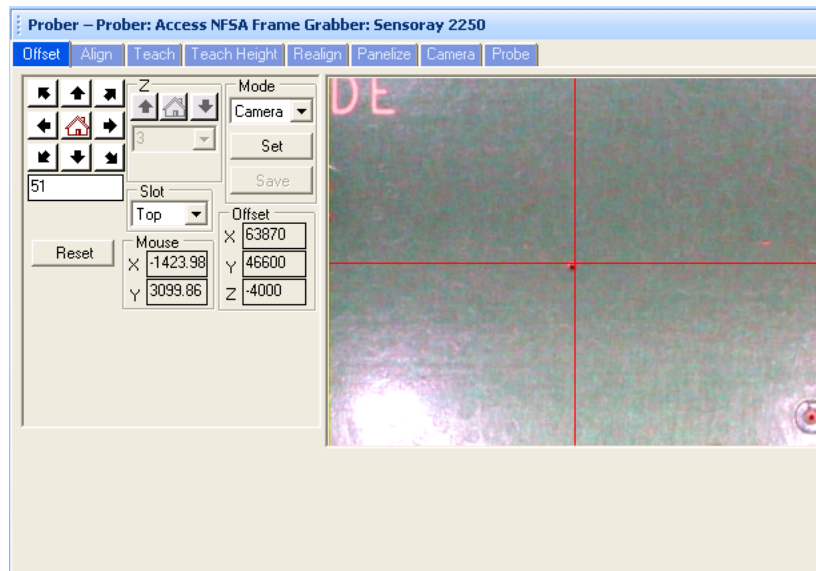


Mounting a PCB in the Prober

The PCB under test can be mounted into the Access Prober at one of four levels – Top, Middle, Bottom and Base (Access 2 Probers only). It is important that the PCB be mounted precisely at one of these levels to ensure proper accuracy. The figure below illustrates the minimum PCB edge to Prober wall distances



Prober Setup – Camera Offset part 1



Performing the Camera Offset procedure is essential for the Prober to access test points accurately.

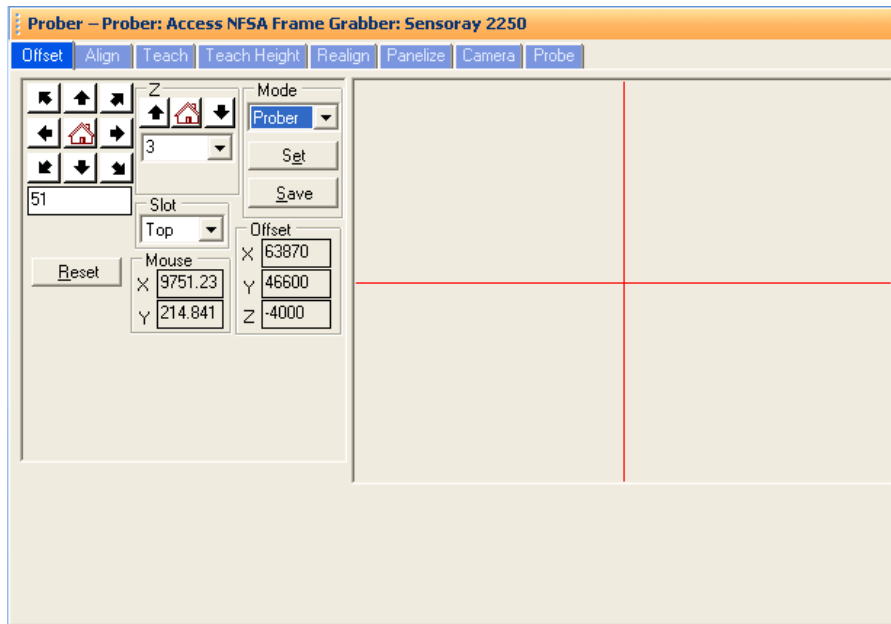
Select the **Offset** tab in the Prober pane.

Navigate the Camera to a target on the PCB. A very small target that is still visible by eye works best. Use the arrow buttons to move the camera the distance set in the travel distance field (directly below the arrow buttons). You can also click directly in the camera image to move the camera crosshairs to the clicked location.

When the target is selected, press **Set**.

Select **Prober** in the Mode drop menu to move to the next step.

Prober Setup – Camera Offset part 2



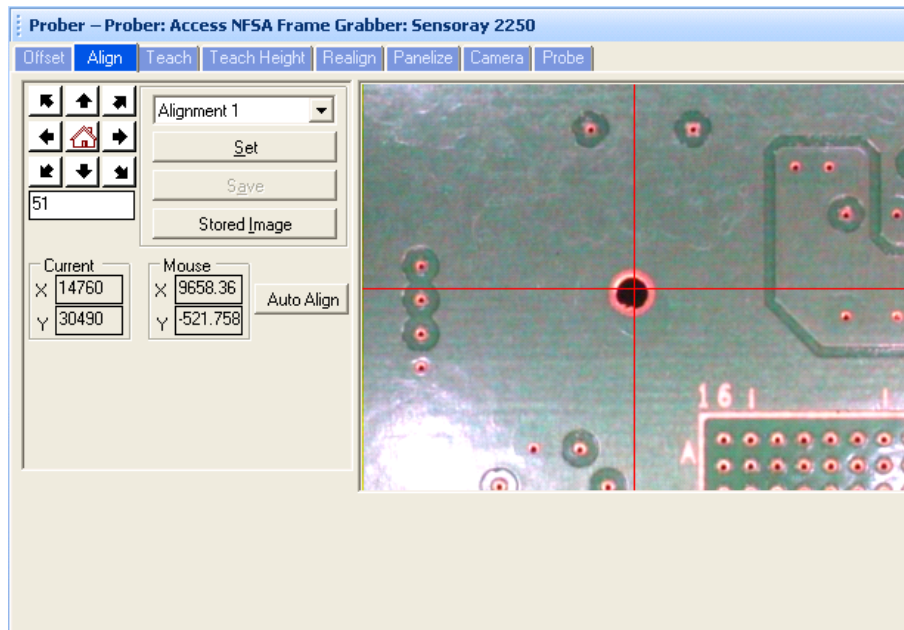
Lower the probe tip down using the **Z** buttons until the probe just makes contact with the PCB.

Visually examine the position of the probe tip; it should be located on the target selected in part 1 of Camera Offset, if not move on to the next step. Use a magnifying glass if necessary.

Use the **XY** buttons to navigate the probe to the target selected in Part 1. The probe will lift when moving in the X or Y direction. Access USB Prober users may find the Probe Tip Camera useful in setting the probe tip on the offset target. Select the **Live Camera tab** in the Image pane then click the Select button to display the video source dialog. Select the correct video source and click the **Start** button. A live image will appear in the Live Camera tab. Use the Live Camera only when needed as it can draw on computer resources and slow other software processes. Use the **Stop** button in the Video Source dialog to stop the video feed.

When the probe is placed precisely on the target so it is just touching, press the **Set** and **Save** buttons to calculate the Offset values.

Prober setup – Alignment part 1



Alignment points that are positioned in opposite corners of the board work best. If the test was created using CAD data, the alignment points are pre-selected and you should proceed to the Teach Height page.

Select the **Align** tab in the Prober pane.

Select **Alignment 1** from the drop menu.

Select and navigate the camera to the first alignment point. Small vias or traces with 90 degree bends work well for alignment points.

When the camera is set on the first alignment point press **Set**.

The alignment point drop menu will select **Alignment 2** automatically.

The **Auto Align** feature will use image recognition to find and automatically center on the alignment point. Auto Align will work only after Align is performed manually the first time.

Prober setup – Alignment part 2



Make sure **Alignment 2** is selected in the Alignment point drop field.

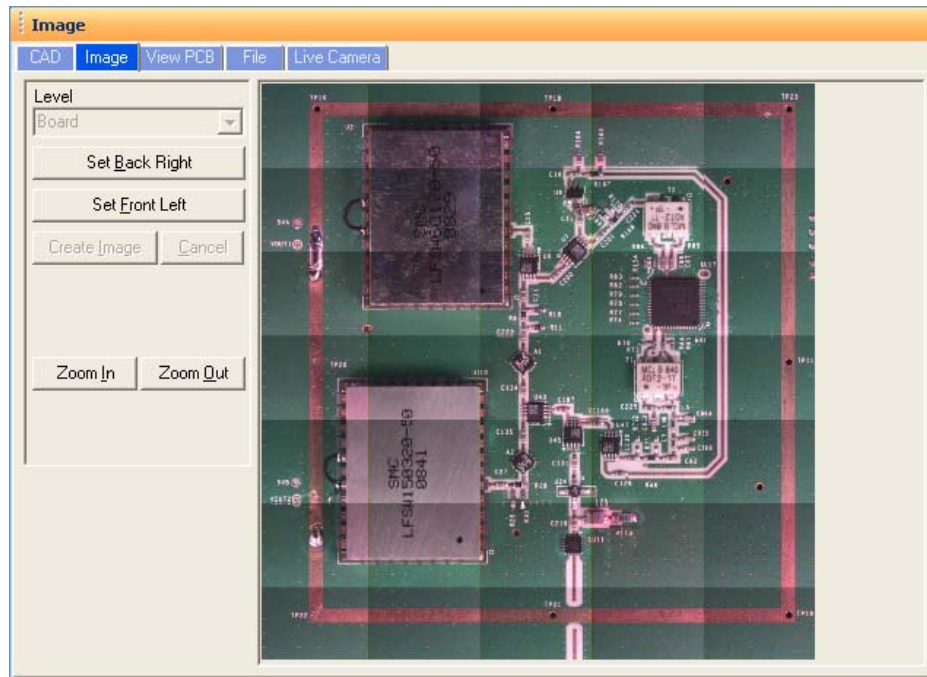
Select and navigate the camera to the second alignment point.

When the camera is set on the second alignment, press the **Set** button.

The **Auto Align** feature will use image recognition to find and automatically center on the alignment point. Auto Align will only work after Align is performed manually the first time.

Press the **Save** button to store the alignment points and the alignment point images.

Creating a Board Image



For Prober users, the built-in color camera can be used to create a “mosaic” of the PCB by capturing images of the board and stitching them together. This is accomplished in the Image/Image Pane. The board must first be aligned before creating the image.

Once aligned, you can use any camera pane in the Prober pane to set the borders for image capture. We suggest using the Prober/Camera pane rather than the Prober/Align pane or Prober/Teach pane.

Move the camera to the back right corner of the board.

Press the **Set Back Right** button in the Image/Image Pane.

Move the camera to the front left corner of the board.

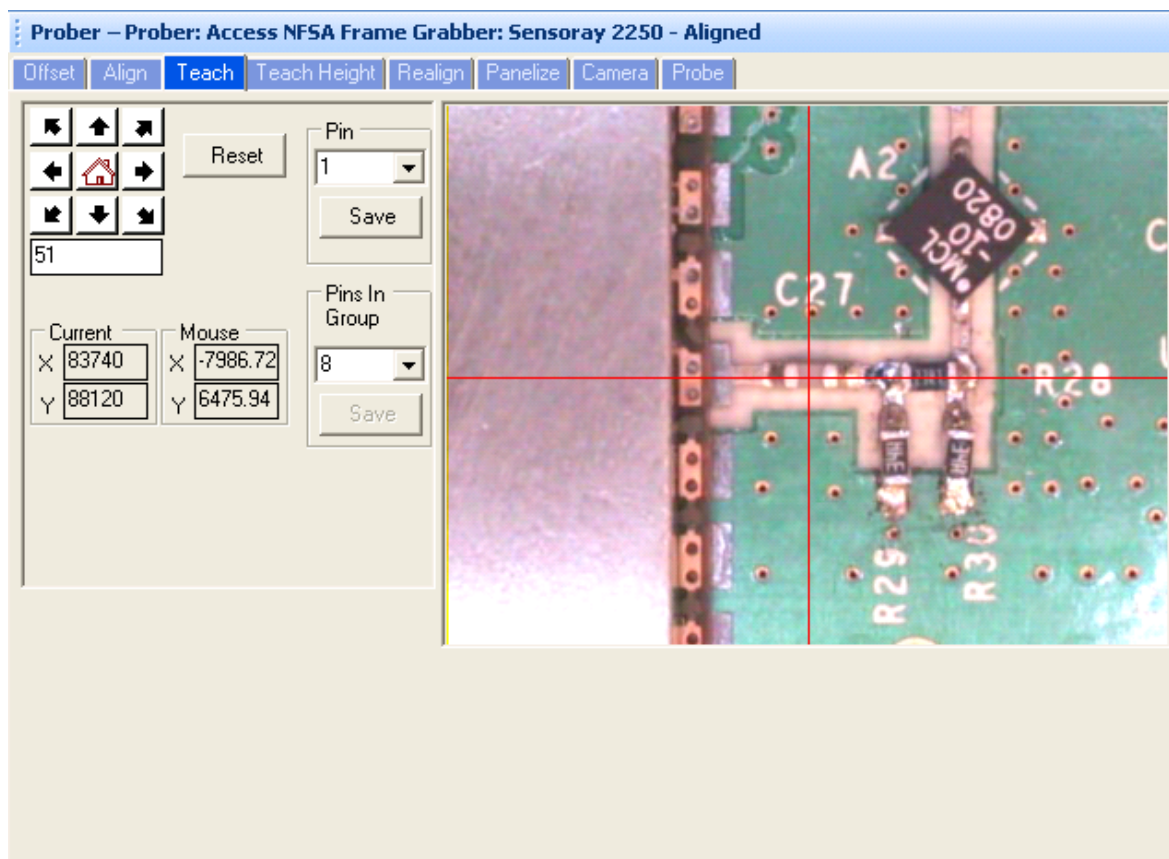
Press the **Set Front Left** button in the Image/Image Pane.

The **Create Image** button should now be enabled, press to create the board image.

Larger boards will require more time to create the board image. Once the board image is created, you can click a point on the board image and the Prober will move the camera to that point.

Right-click on the image to display a menu to **Delete**, **Copy** or **Save As** the board image.

Prober setup – VTP Teach – XY Setup



Use care when teaching VTP locations. The NFSA Probe tip can be damaged if care is not taken. Select the **Teach** tab in the Prober pane.

Select the component to teach the Tree/Component pane.

Select **1** in the **Pin** drop menu.

Navigate the camera to the Location of the first VTP of the selected RF Path
(see image above).

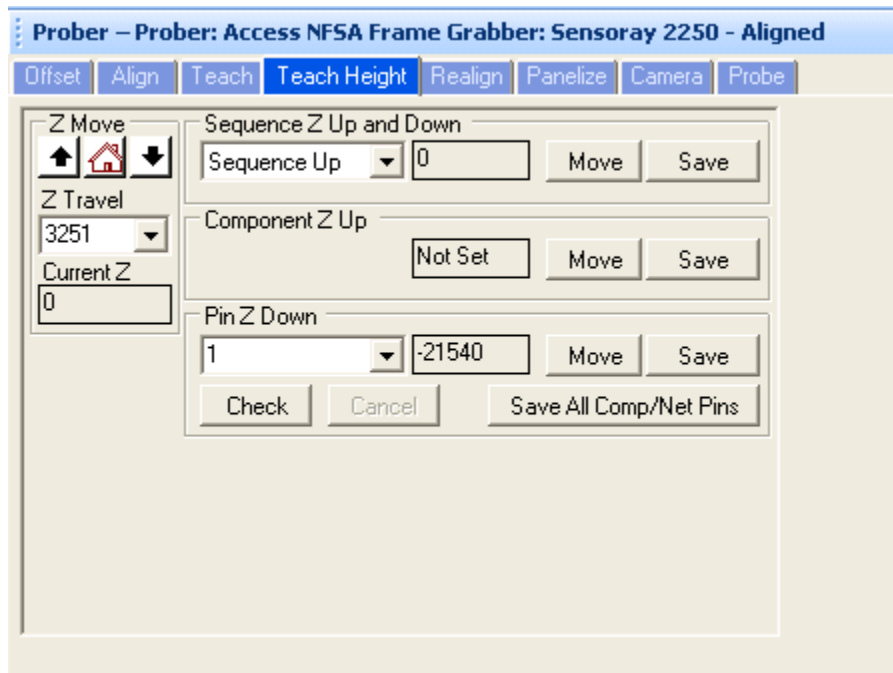
When the camera is set on the first VTP, press the **Save** button. The **Pin** drop menu will increment to the next pin.

Navigate the camera to the Location of the 2nd VTP of the selected RF Path

When the camera is set on the 2nd VTP, press the **Save** button.

Continue setting the XY locations of all the VTPs.

Prober setup – VTP Component Teach Height (Z)



Select the **Teach Height** tab in the Prober Pane.

Select a Pin number in the **Pin Z Down** drop menu. This will position the probe tip at the selected VTP.

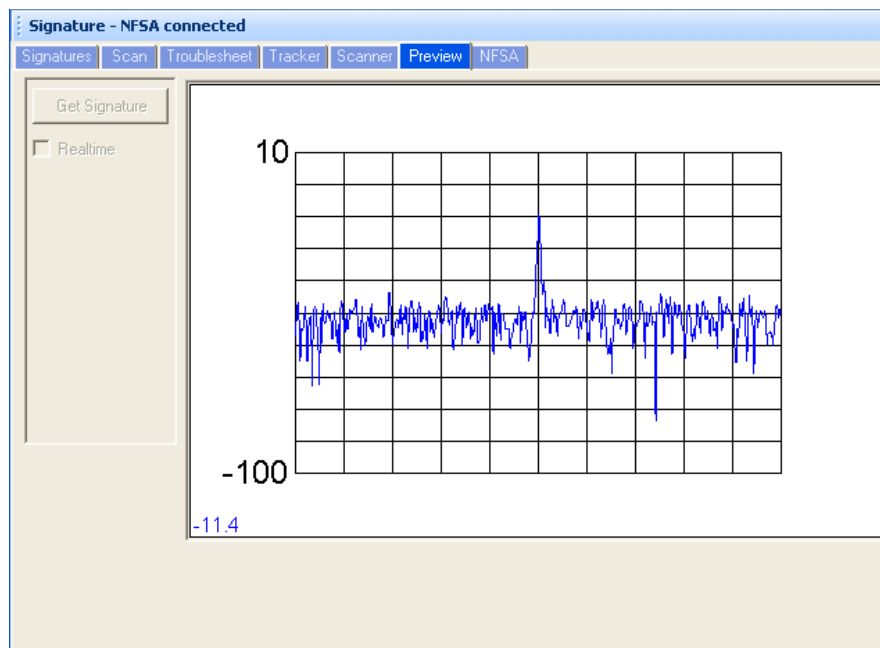
Select **Sequence Up** from the **Sequence Z Up and Down** drop menu.

Use the **Z Move** buttons to lower the Z axis probe to the desired Sequence Up level. Make sure this level is high enough to clear tall components. This is the position the probe will lift to while probing a component.

Press the **Save** button in the **Sequence Z Up and Down** section to set the Sequence Up position.

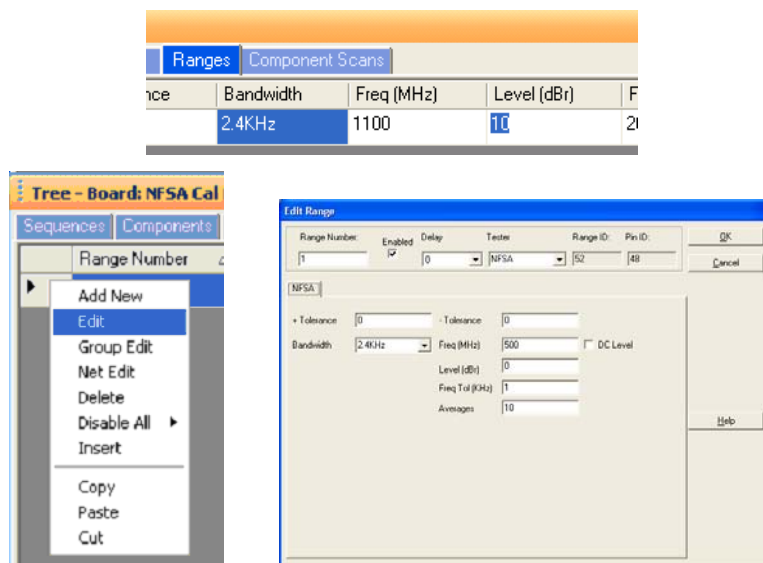
If desired, you can set an additional Up level for the component. This is the level that the probe will lift to when moving from one pin to the next. Use the **Z Move** buttons to move the probe down to the desired Component Up level. Make sure this level is high enough to clear the component package. Press the **Save** button in the Component Z Up section to set the Component Z Up position.

The next step is to set the probe down position. The best way to do this is with a known good board, powered up and generating the RF signal expected. Select the **Preview** in the Signature to preview the NFSA measurement at the VTP.



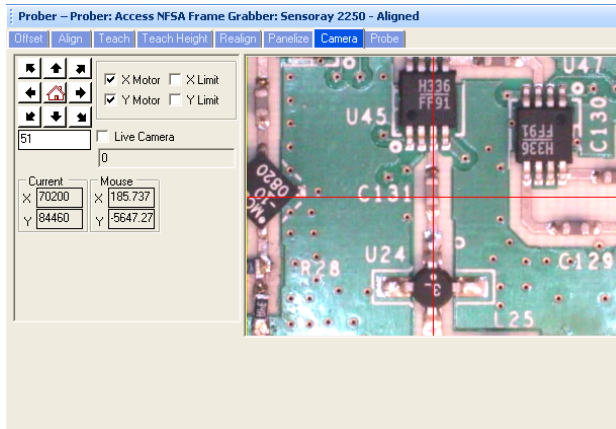
As the Z height is adjusted down the preview window will display the NFSA signature measured at that height. Adjust the height until an optimal signature is measured.

The measurement level and frequency can be adjusted by editing the VTP Range settings by editing directly in the **Range Grid** or with the **Edit Range** dialog.



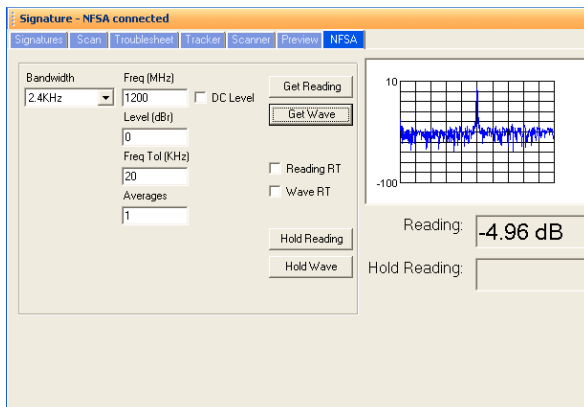
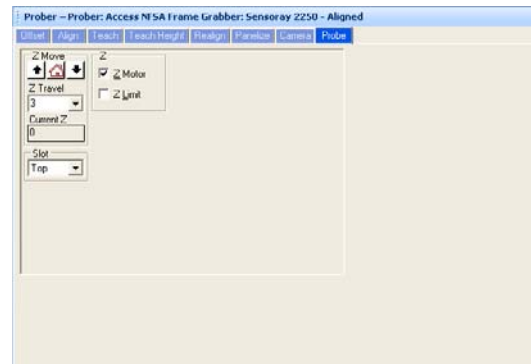
Use the **Z Move** buttons to lower/raise the NFSA Probe tip until the desired signature is displayed in the Preview Tab of the Signature pane. The Preview Tab preview pane is updated with each movement of the NFSA Probe. You may want to lower the probe in small increments once you get close to the components. Press the **Save** button in the **Pin Z Down** section.

Manual Modes – Camera and Prober



Use the XY buttons or click in the camera image to move the probe to a point.

Use the Z Move buttons to lower the probe to the point targeted by the camera.



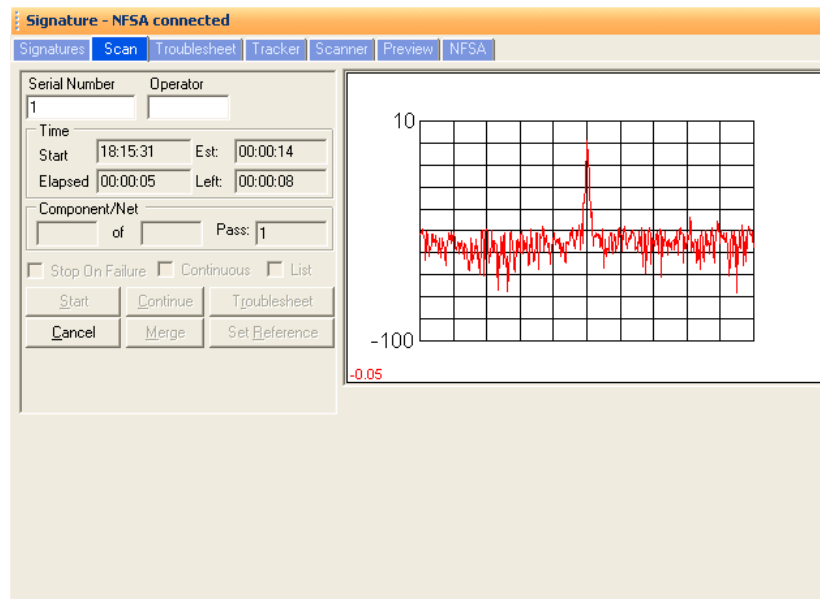
Setup the NFSA Measurement parameters and click Get Reading or Get Wave to observe the measured signal.

These panes in the Prober Pane are used in conjunction with the **NFSA** mode (Signature pane) to drive the camera to a point above the board and put the NFSA

Prober tip at the point. The signature at the point will be displayed and controlled in the Signatures/Tracker pane.

NOTE: Camera Offset and board Alignment must be performed prior to using the Camera and NFSA mode together. This ensures the probe is at the point indicated in the Camera image.

Scanning a Sequence or Component (Path)



Select the Sequence or Component to be scanned in the Tree Pane.

Select the **Scan** tab in the Signature Pane (shown above).

Input a **Serial Number** into the Serial Number field; this will be the name of the scan.

The **Stop On Failure** check box will cause the scanning to stop if a component comparison fails. This is most useful when scanning known good boards to add as references.

The **Continuous** check box will cause the scan to go into a loop mode where it will scan without stopping until a signature comparison fails.

The **List** check box will add the ability to use a Scan List when the Scan Sequence dialog appears (see Creating a Scan List section).

Press the **Start** button to execute the scan.

The test instructions prompt will be displayed. Clicking OK will start the scan for probers

Scan Results

The screenshot shows the 'Signature - NFSA connected' software interface. The 'Scan' tab is active, displaying the following information:

- Serial Number:** 1
- Operator:** [Empty]
- Result:** PASSED (in green text)
- Time:**
 - Start: 18:18:07
 - Est: 00:00:14
 - Elapsed: 00:00:19
 - Left: -00:00:00
- Component/Net:** [Empty] of [Empty] Pass: 1
- Options:**
 - ☐ Stop On Failure
 - ☐ Continuous
 - ☐ List
- Buttons:** Start, Continue, Troubleshoot, Stop, Merge, Set Reference

To the right of the controls is a large grid, likely for displaying scan results or signatures.

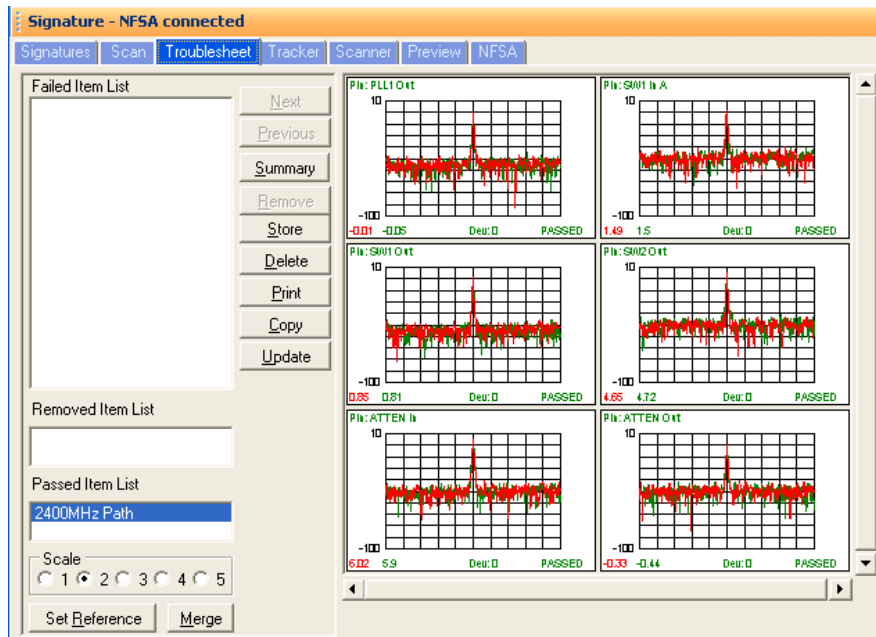
When a scan is complete, the results Passed or Failed will be displayed (the text of the results message can be changed in the **Tools/Options/General** settings). The Failed message will be displayed on the first scan of any test since there are no signatures stored as Reference.

To mark a signature set (entire scan) as a Reference, press the **Set Reference** button. This will mark this set of signatures to be used as a known good comparison set when scanning other boards.

To mark a signature sets a Merged set that can have subsequent signatures added or "merged", press the **Merge** button. Use the Merge function only when potential differences between Merged signature sets are very small.

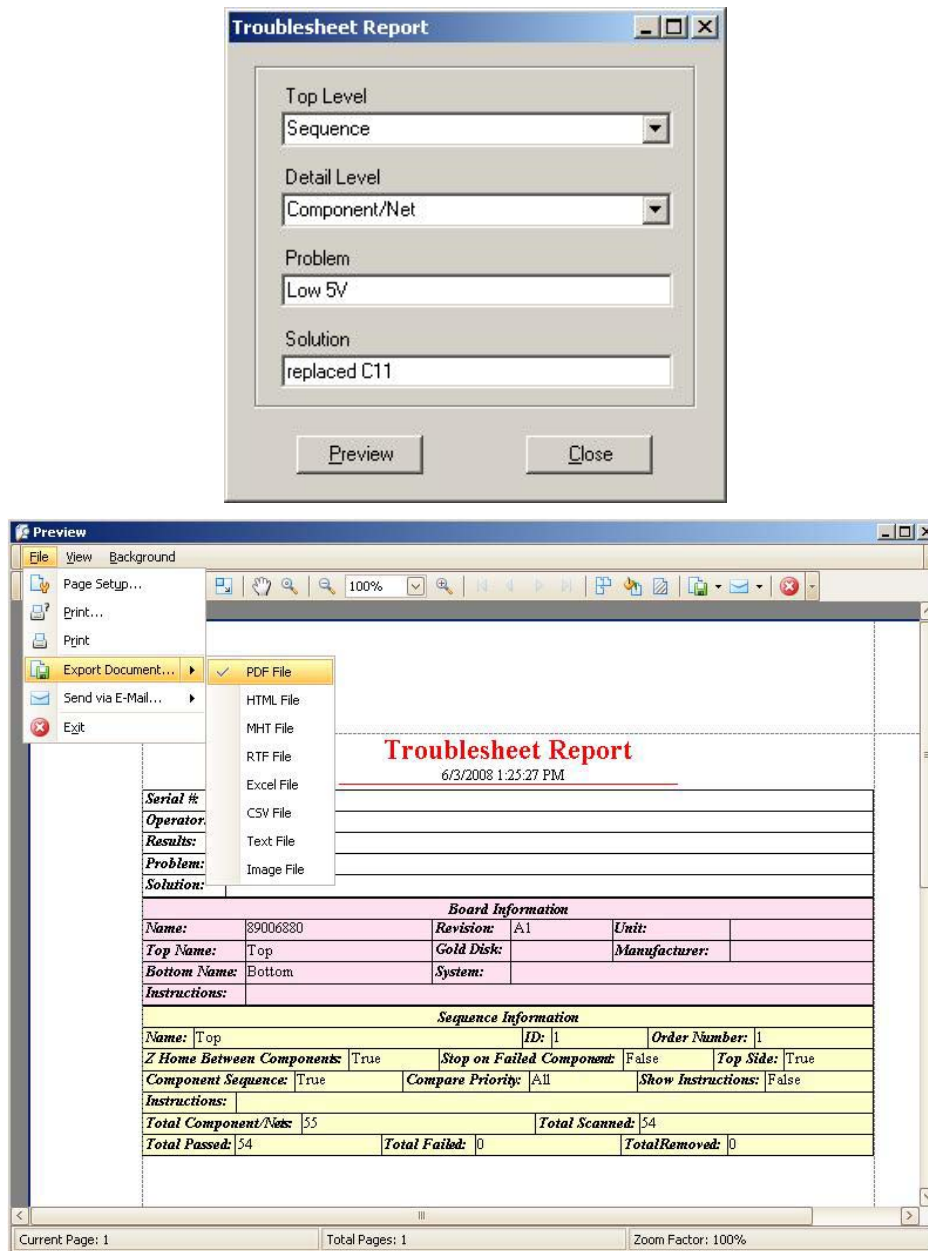
Clicking the **Troubleshoot** button will display the signature differences in the Troubleshoot tab of the Signature pane.

Viewing Signatures – Troubleshoot



To view the Troubleshoot, press the **Troubleshoot** 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 with a FAILED indication. This occurs because the first scan has no reference to compare against. To add the signatures in the Troubleshoot 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.

Viewing Signatures Troubleshoot Report



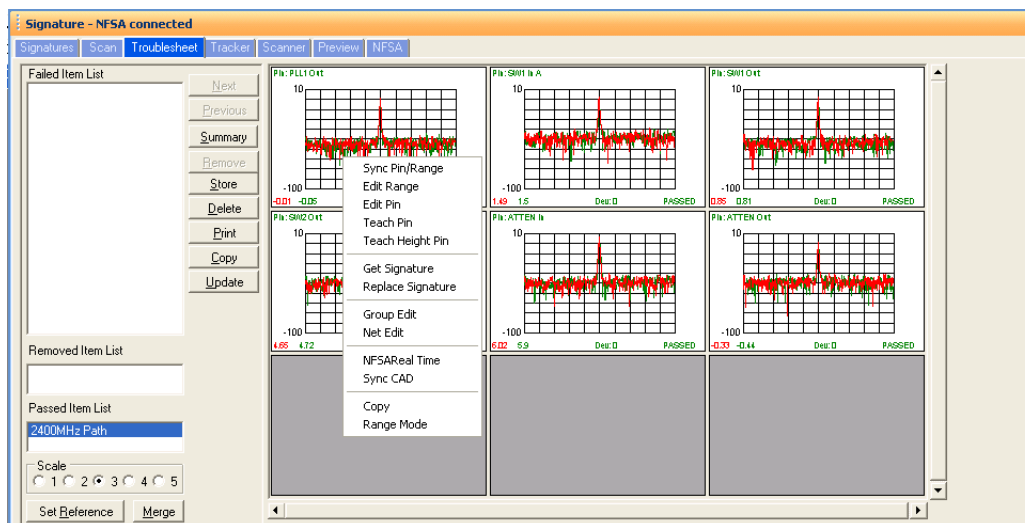
To view and print the Troubleshoot report, press the **Print** button in the Troubleshoot window. You can select from several options including a Sequence or Component Level report, the level of detail and add problem and solution comments to the report. Click **Preview** to view the report on-screen. 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 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.

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

Teach Pin: Selects the pin the Prober Teach pane

Teach Height Pin: Selects the pin the Prober Teach Height pane

Get Signature: Capture signature

Get Pin Signatures: Captures signature for all ranges – works only in Range Mode

Replace: Replaces the stored signature with the current signature displayed for the selected pin, range and scan (shown in the Scan List to the left)

Replace Pin Signatures: Replaces the stored signatures with the current signatures displayed for the selected pin, all ranges and scan – works only in Range Mode

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

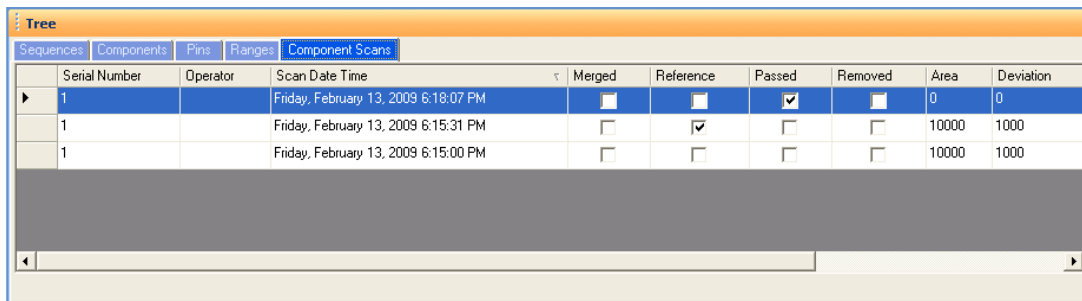
Net Edit: Opens Net Edit dialog for editing of Net pin parameters as a group

Real Time: Display signature in real time

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.

Range/Pin Mode: Displays signature with Range priority or Pin priority; see default in Tools/Options).

Component Scans Information

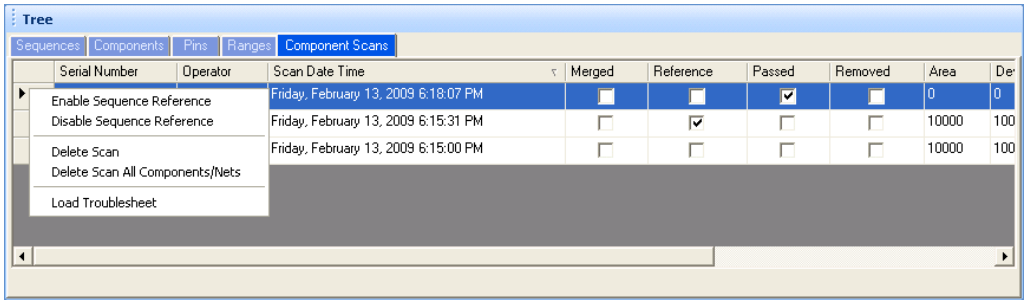


Serial Number	Operator	Scan Date Time	Merged	Reference	Passed	Removed	Area	Deviation
1		Friday, February 13, 2009 6:18:07 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0	0
1		Friday, February 13, 2009 6:15:31 PM	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10000	1000
1		Friday, February 13, 2009 6:15:00 PM	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10000	1000

Selecting the **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 Troubleshoot), Area number

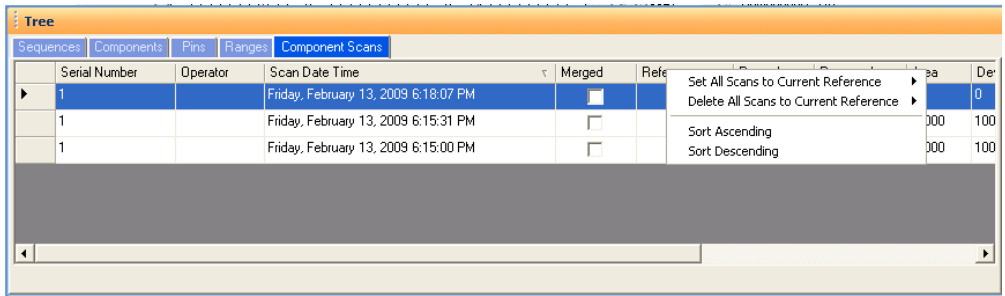
(highest of scanned pins), Deviation, Min/Max status and other settings (see Help for more information).

Component Scans – Right Clicking (Auxiliary menus)



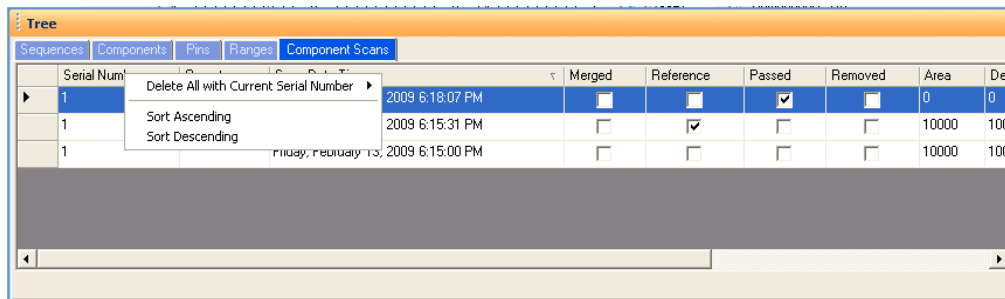
Right clicking on the Row bar of the Scan pane displays an additional menu for performing specific tasks such as deleting a scan for the selected components or all components. **Delete Scan** will erase the selected scan for the current component only. **Delete Scan All Components/Nets** will erase the selected scan for all components or nets in the Sequence.

Component Scans – Right Clicking (Auxiliary menus)



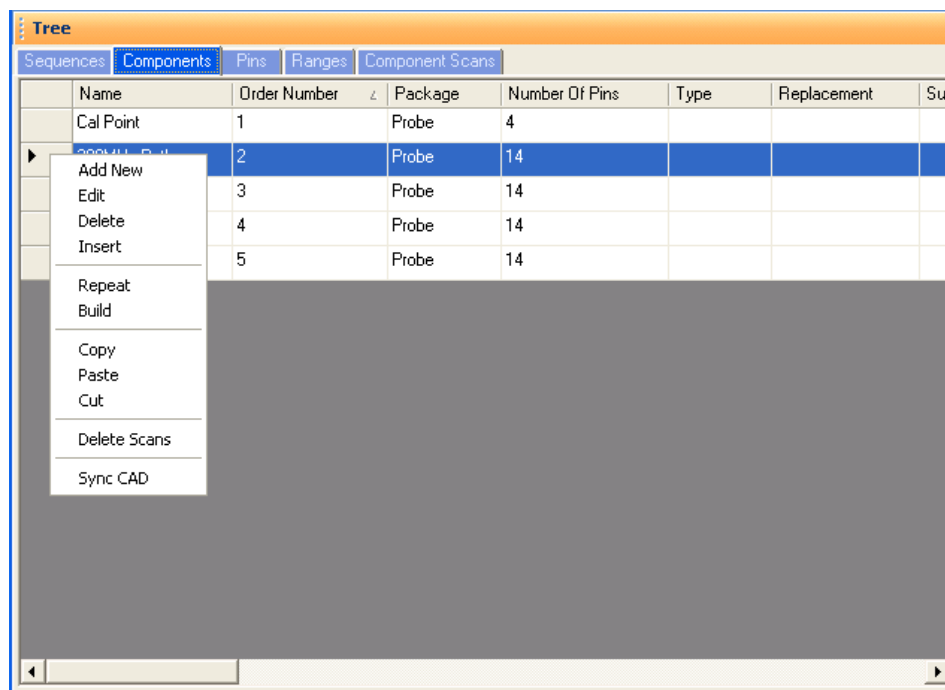
Right clicking on the Column bar of the Scans pane displays an additional menu for performing specific tasks such as sorting or globally setting parameters. The menu will vary depending on the column selected. In the image above, the Reference column header was right-clicked.

Component Scans – Right Clicking (Auxiliary menus)



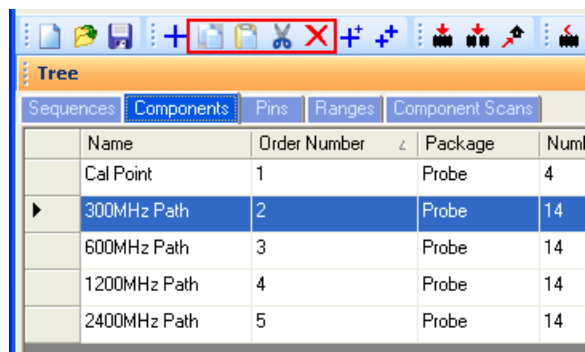
Right clicking on the Column bar of the Scans pane displays an additional menu for performing specific tasks such as sorting or globally deleting items. In the image above, the Serial Number column header was right-clicked.

Sequence/Component/Pin Editing – Right Click menus

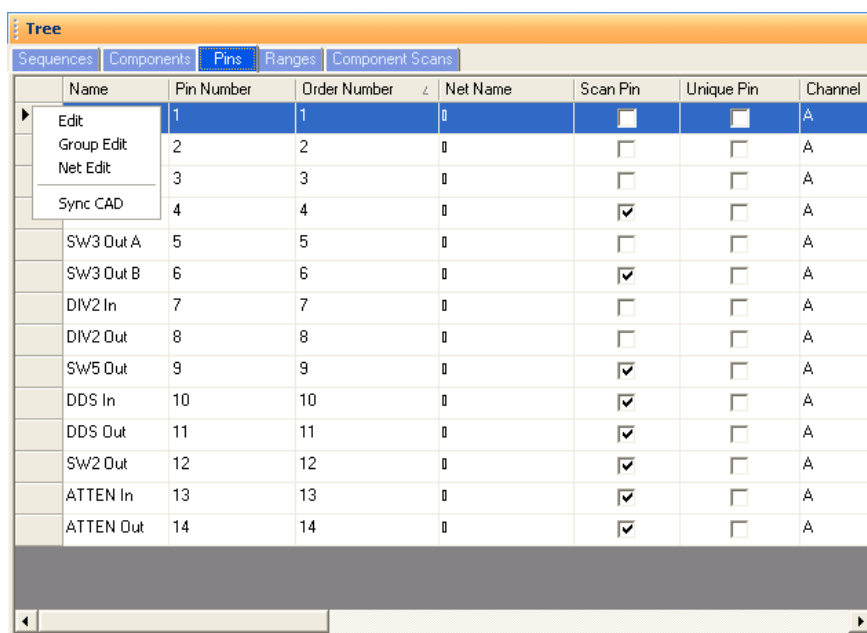


Right clicking on the Row header bar of the Tree pane displays an additional menu for performing specific tasks such as **Add New**, **Insert**, **Delete**, **Repeat**, **Build** (repeat but with name incremented by 1), **Copy**, **Paste** and **Cut**. Right clicking works at all levels of the Tree pane including Sequence, Component (shown above), Pins, Ranges and Scans. The **Sync CAD** option available at the Component and Pin levels will synchronize the selected component or pin to the CAD image in the Image pane.

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.



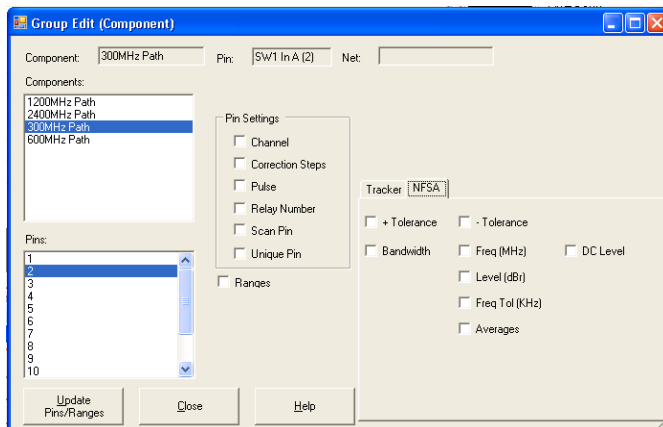
Pin Editing – Right Clicking (Auxiliary menus)



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.



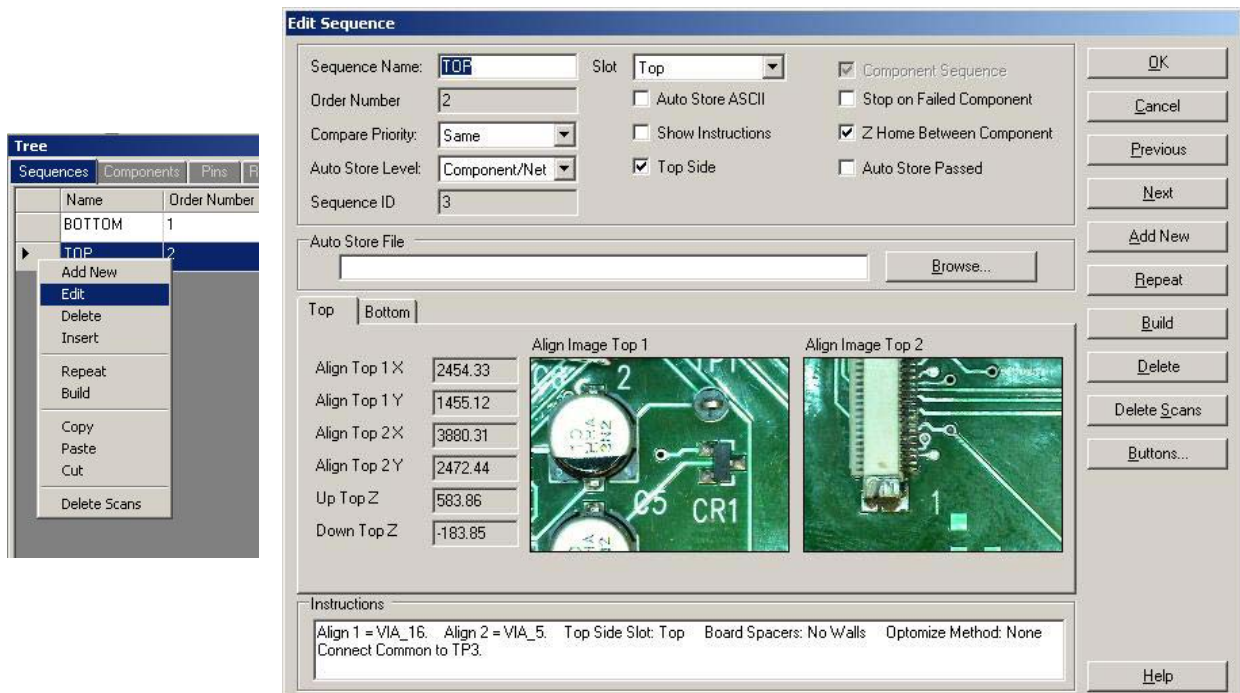
Change the desired settings for the current Pin first then select Group Edit from the right-click menu (see above). Components with the same number of pins will be listed. Select the components and pins you want to be changed. Select the Pin Settings check box(s) for the setting(s) you want changed. 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.

If you are moving to Huntron Workstation version 4 from Huntron Workstation version 3 then you will want to utilize the tests created in the older version. Version 4 uses a different database structure so the old tests need to be converted for use in version 4. To start, select **Convert** from the File menu. The Select System to Convert window will open. The default directory name for version 3.X is "winhunt". Browse to the winhunt directory. Select the SYSTEM.DBF file and click **Open**.

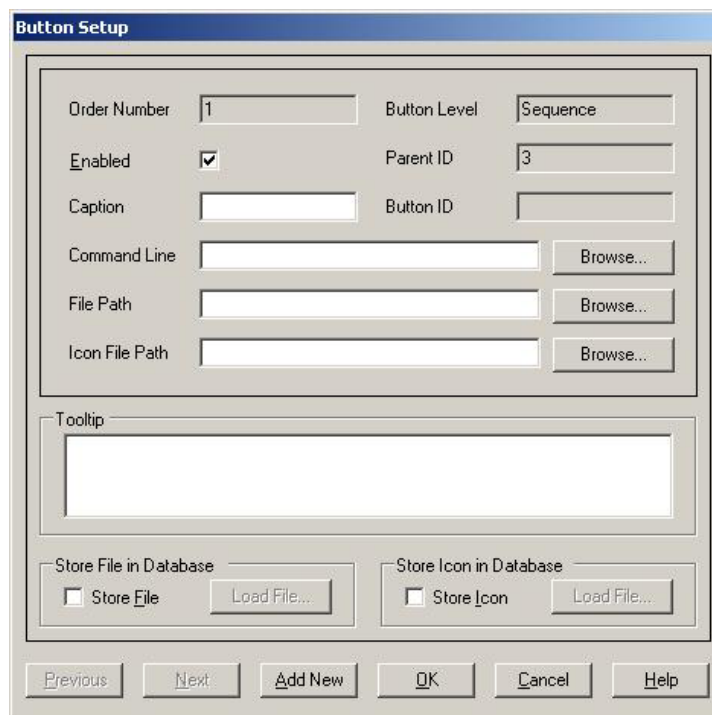
Huntron Workstation Buttons Feature

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.

Button Setup

Order Number	1	Button Level	Sequence
Enabled	<input checked="" type="checkbox"/>	Parent ID	3
Caption	Board Image	Button ID	1
Command Line	C:\WINDOWS\system32\mspaint.exe	Browse...	
File Path	z:\Huntron\Boards\board-images\board-imag	Browse...	
Icon File Path		Browse...	

Tooltip

Displays image of PCB top side

Store File in Database

☐ Store File Load File...

Store Icon in Database

☐ Store Icon Load File...

Previous Next Add New OK Cancel Help

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 Huntron at 800-426-9265, 425-743-3171 or email info@huntron.com.

There is online assistance for Huntron Workstation at www.huntron.com/support/workstation.htm. This page will contain software updates, a form for reporting software issues and updates to documentation such as this tutorial.