Cassini Basic Training Seminar

Developing and Running Test Plans

Roos Instruments

Cassini Basic Seminar Outline

- Operation and Troubleshooting
- System Administration and Maintenance
- **Developing and Running RI Test Plans**
- Science of RF Measurement
- Device Definitions
- Example Applications Development
- Test Fixture and Device Interface Design
- Test Design & Best Practices Test Optimization
- Application User Guides

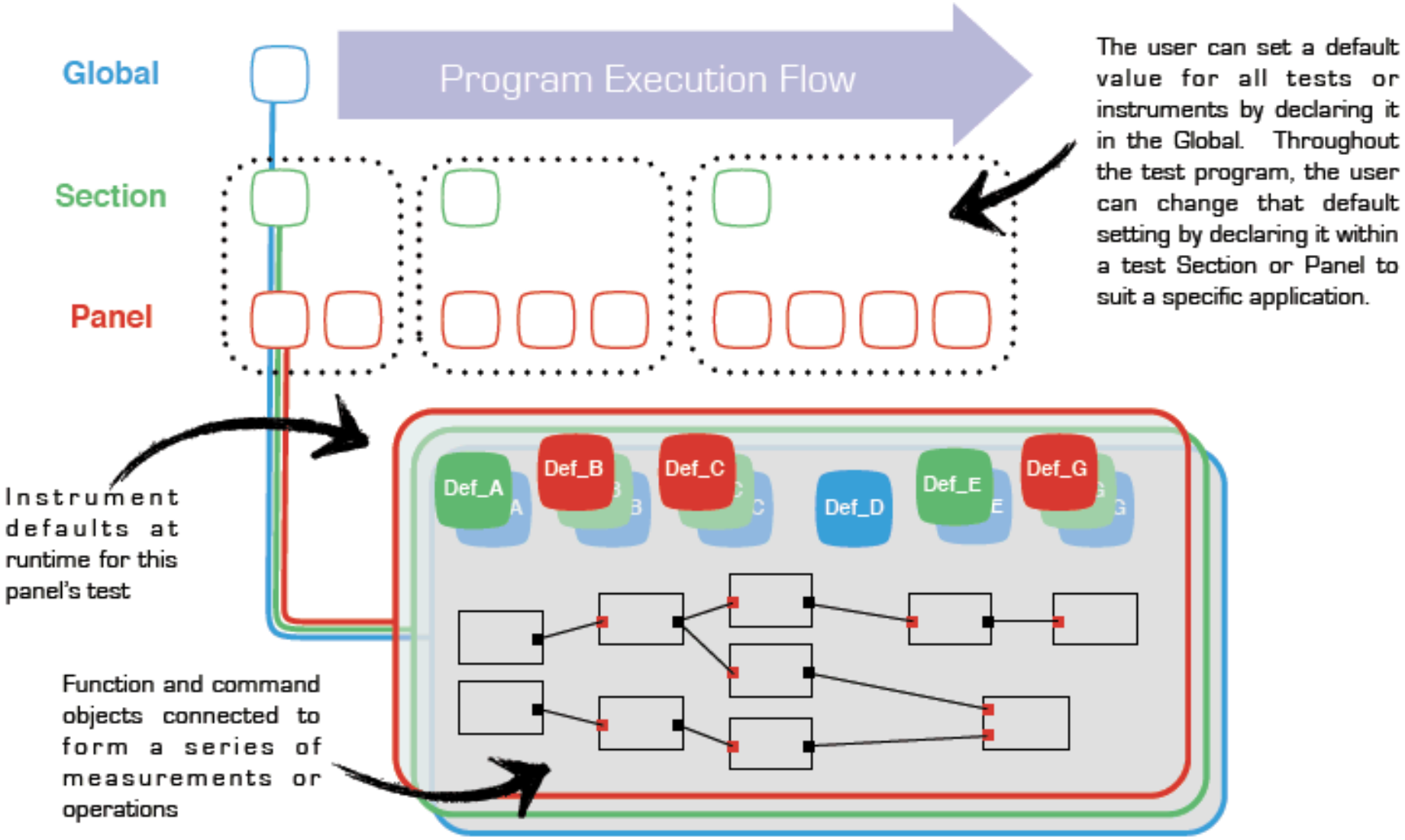
Chapter Outline (Ch 3)

- **Creating a New Test Plan**
- Understanding Test Plan Structure
- Building a Test Plan
- Saving Data
- Editing the Tester Configuration
- Compiling & Running Test Plan
- Viewing Test Results
- Setting Limits
- Release Test Plan for Production

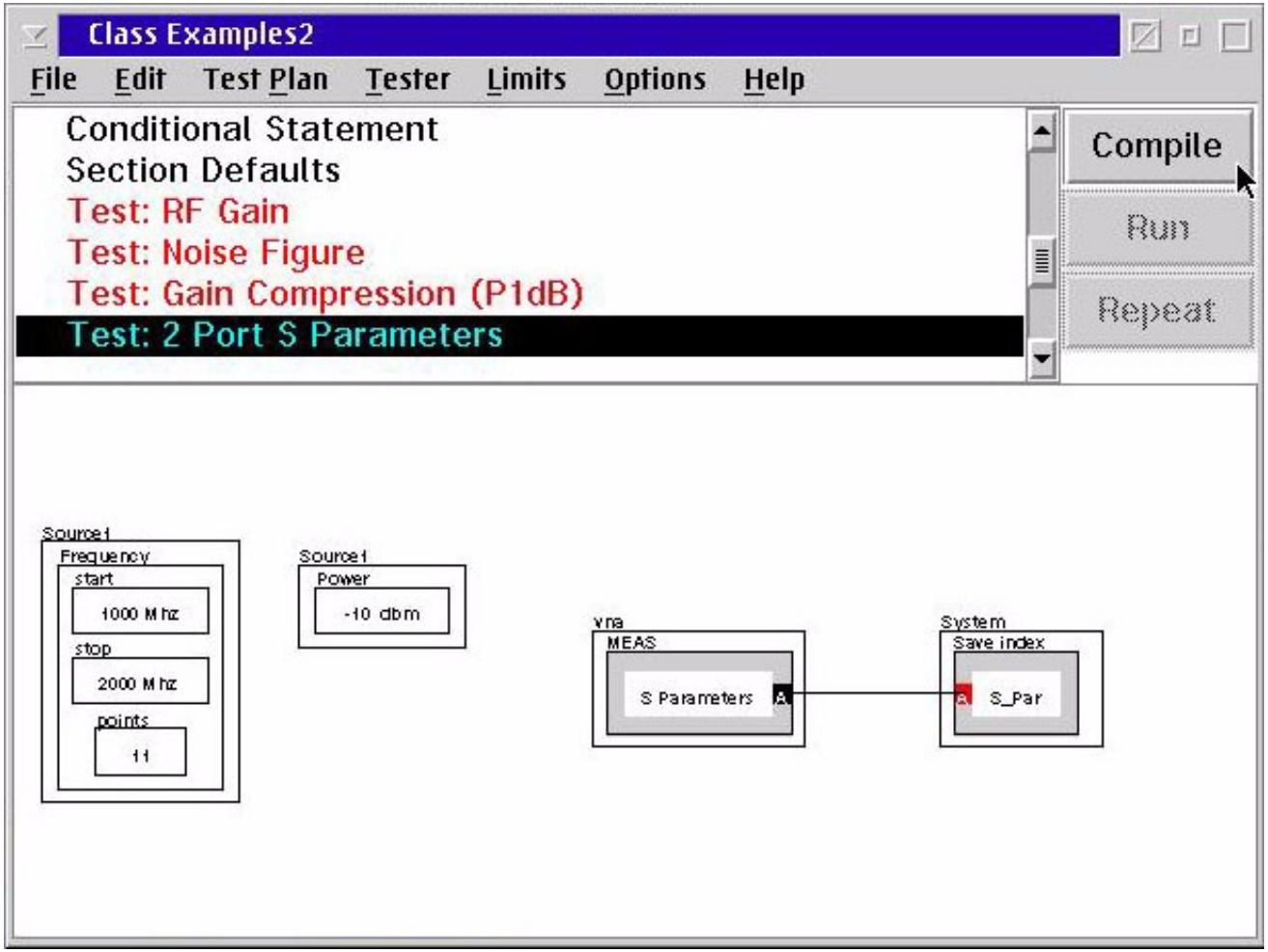
Test Plan Concepts

- States
- Measurements
- Limits
- Inheritance - global defaults, section defaults
- Buttons (objects)
- Run time vs. Design time

Test Plan Structure



Typical Test Plan

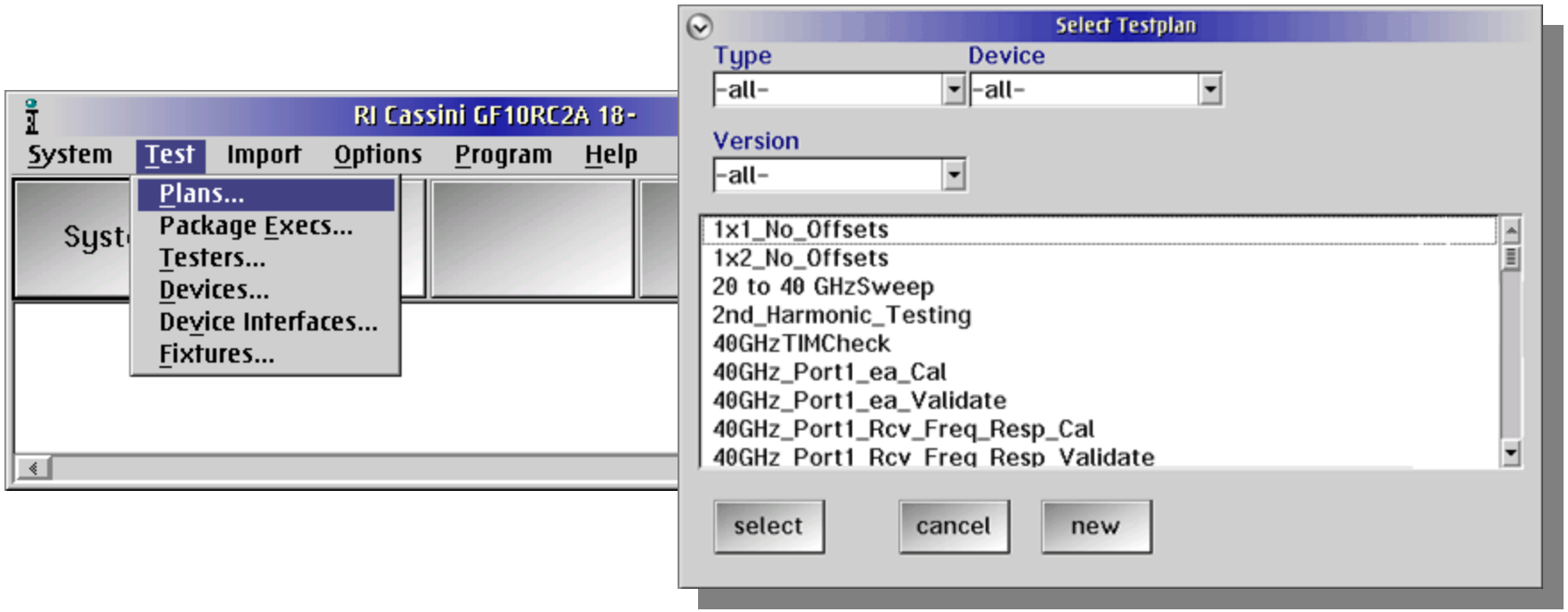


Creating Test Plan

- Creating a New Test Plan
- Change the Device Type
- Change the Interface Board
- Change the Fixture
- Edit the new Test Plan

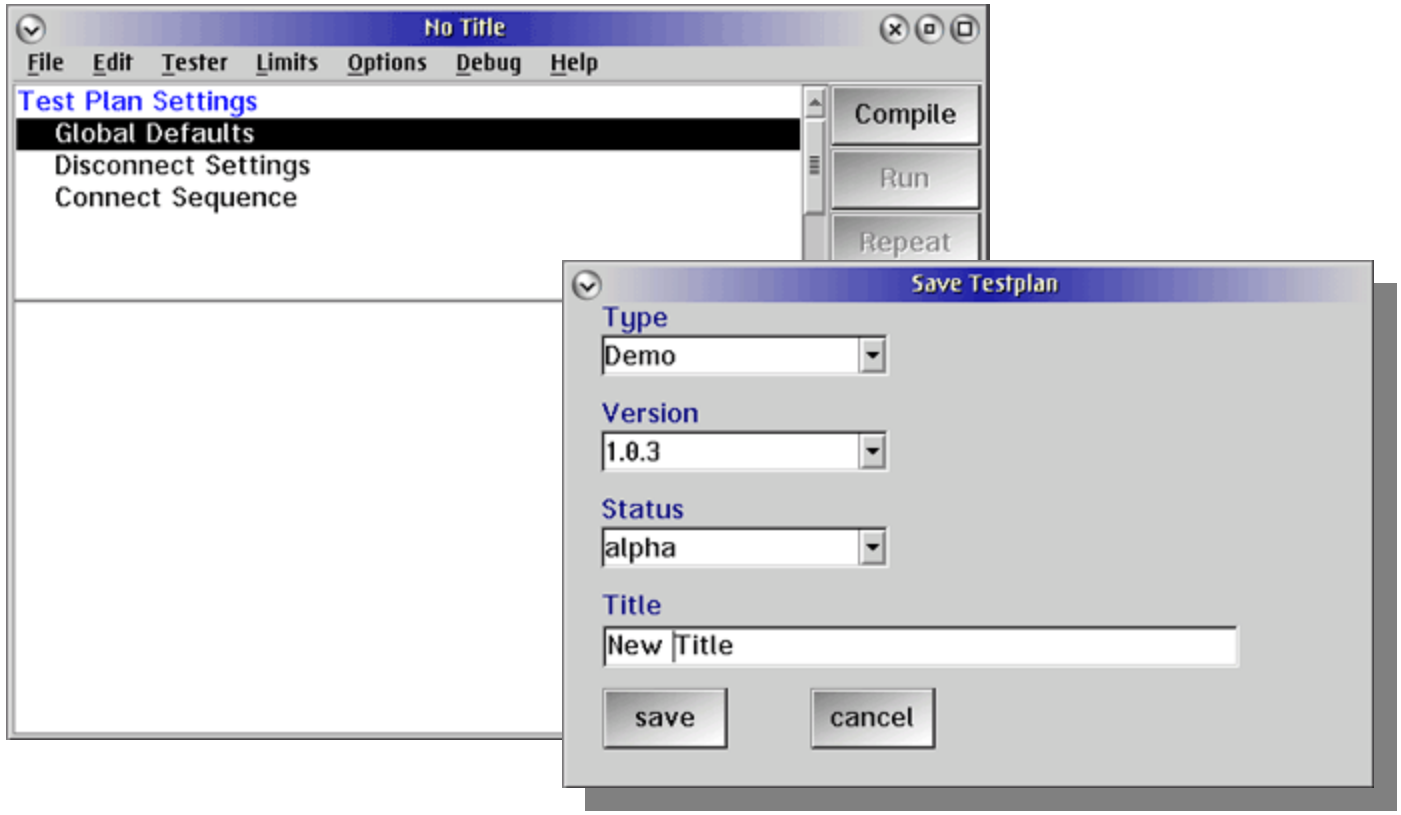
Creating a New Test Plan

- From the RI Message Window, select **Test** and **Plans...**
- From the Select Testplan window, select **New**



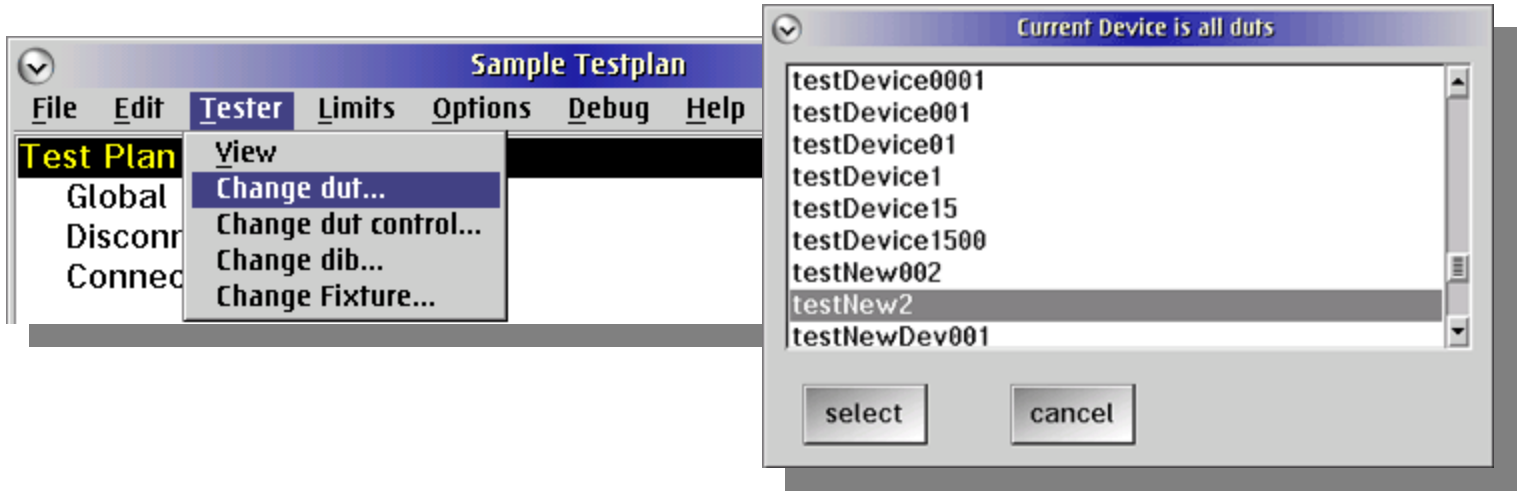
Save and Title the Test Plan

- File > Save Guru



Selecting the Device Type

- From **Tester** menu, **Change dut**
- Select the device



- Repeat for all Tester resources (DUT, DUT control, DIB, and Fixture)

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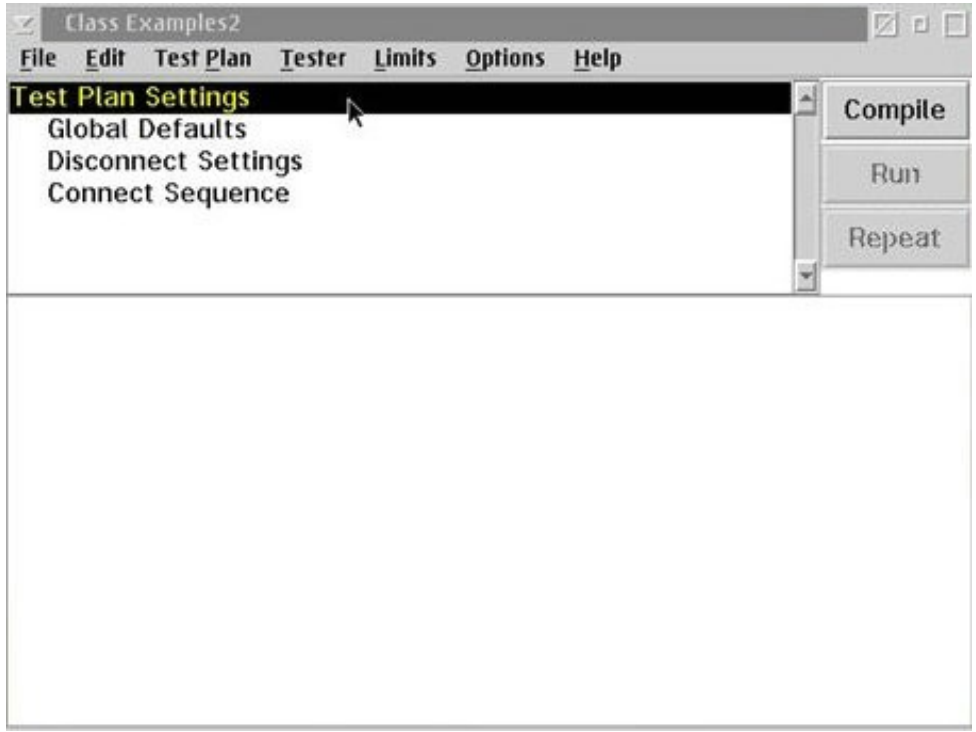
Test Plan Structure

- Global Defaults
- Disconnect Settings
- Connect Sequence
- Adding a Test Section
  - Conditional Statement
  - Section Defaults
  - Adding Test to a Test Section

New Test Plan

- Name of the test plan is displayed in the title bar
- Test plan outline panel and setting panel



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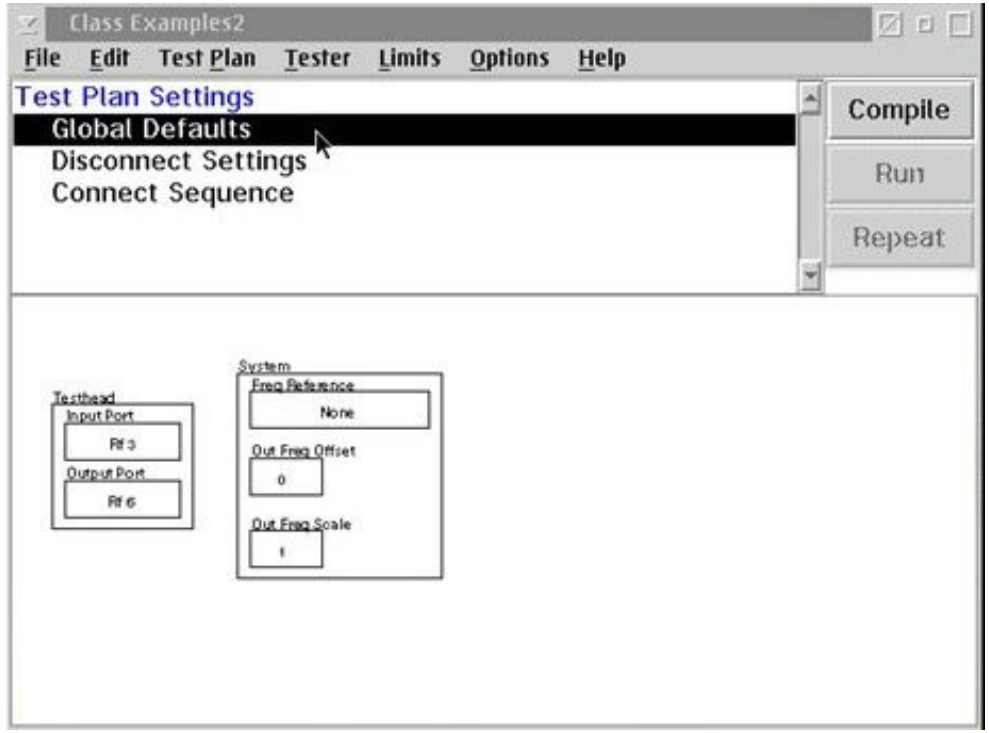
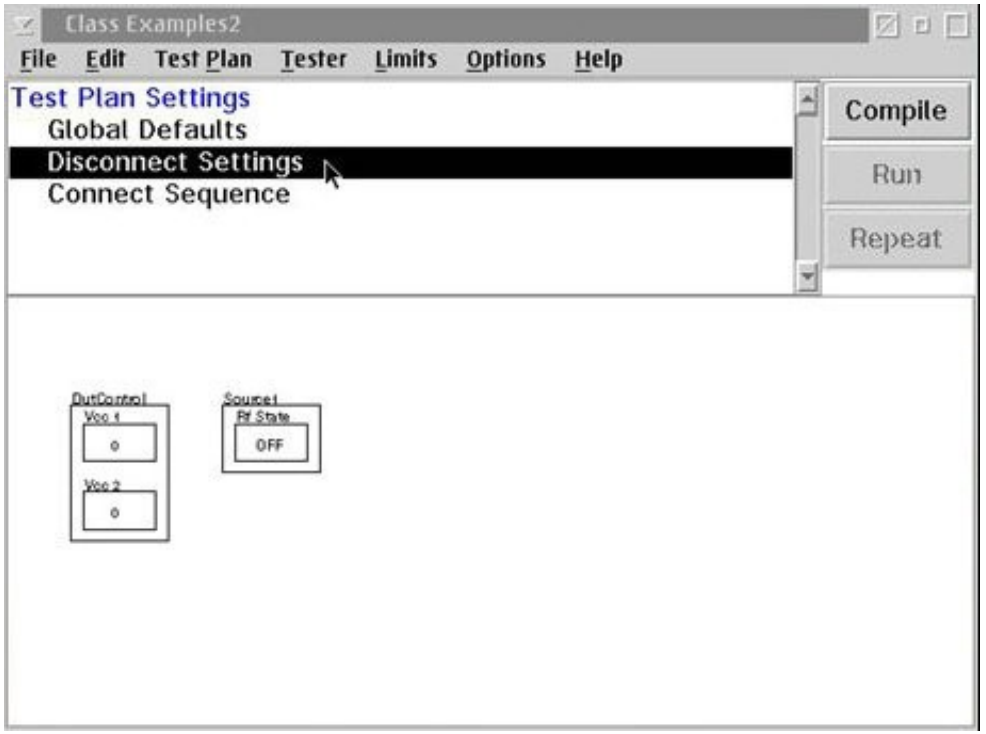
Global Defaults Panel

- Global Defaults define the Test Plan's default settings for all of the instruments in the tester.



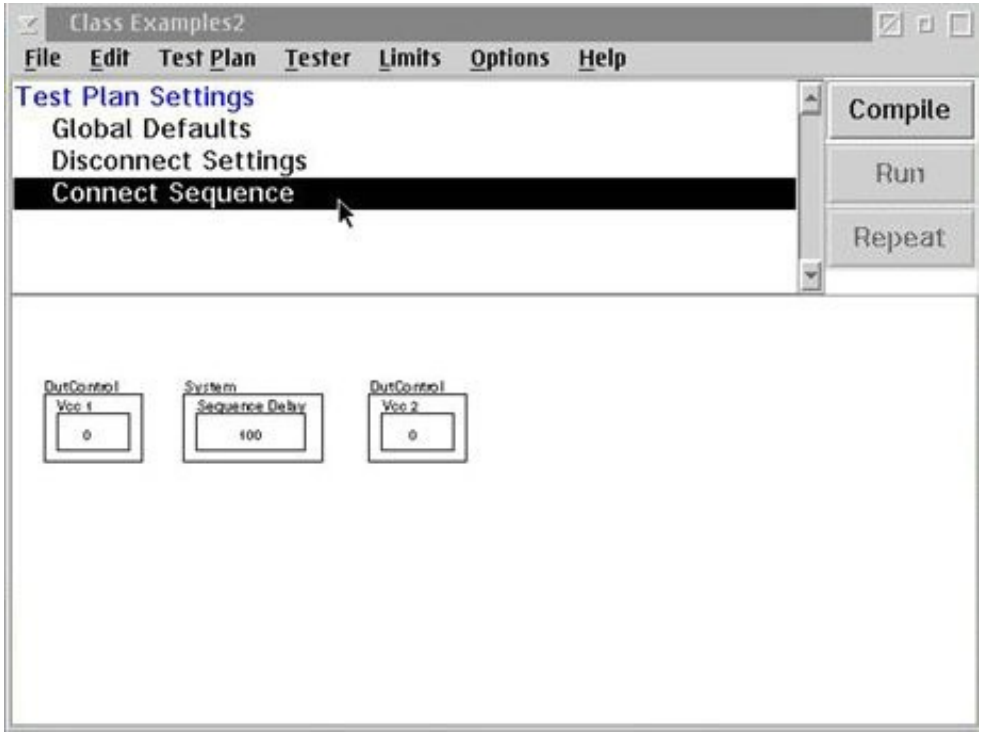
Disconnect Settings Panel

- Defines the specific state of the instruments at the moment the device-under-test is disconnected from the tester



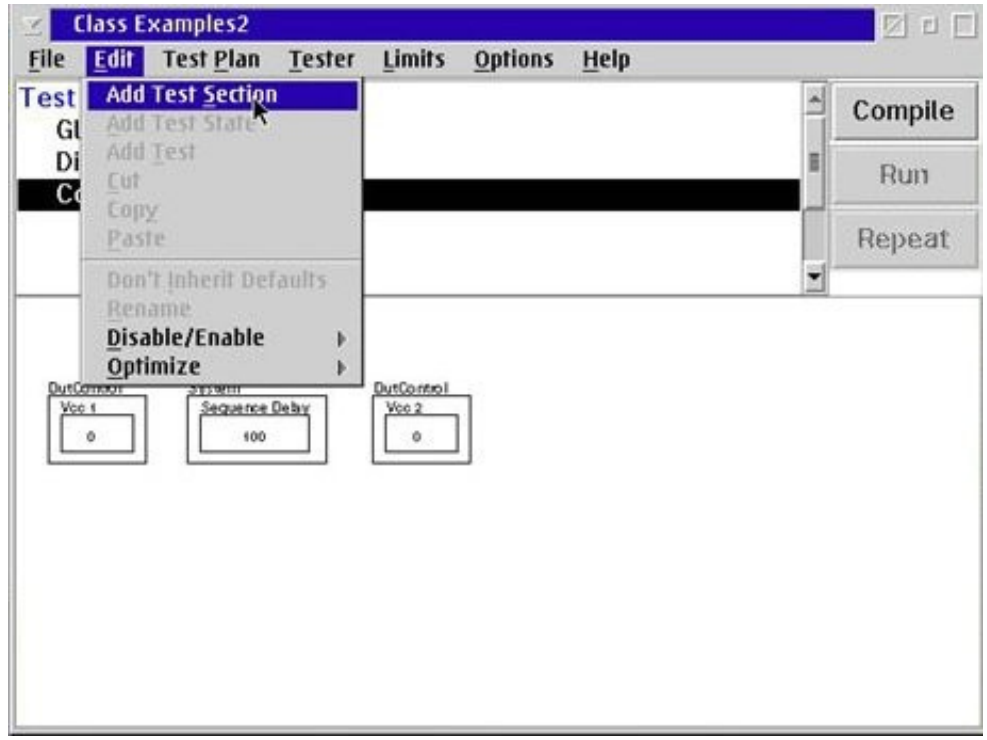
Connect Sequence Panel

- Defines the order in which settings are activated
- Order of execution is from left to right



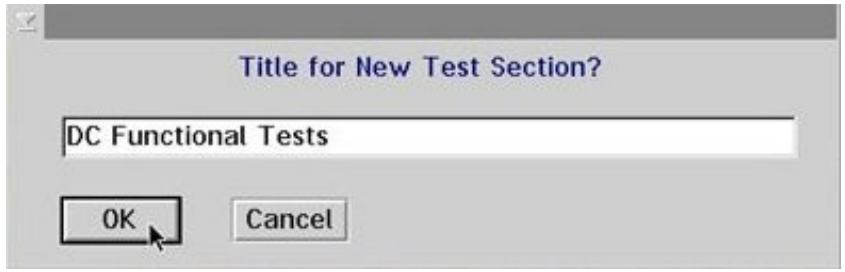
Adding a Test Section

- Each test plan must have at least one test section
- Select menu **Edit** & **Add Test Section**



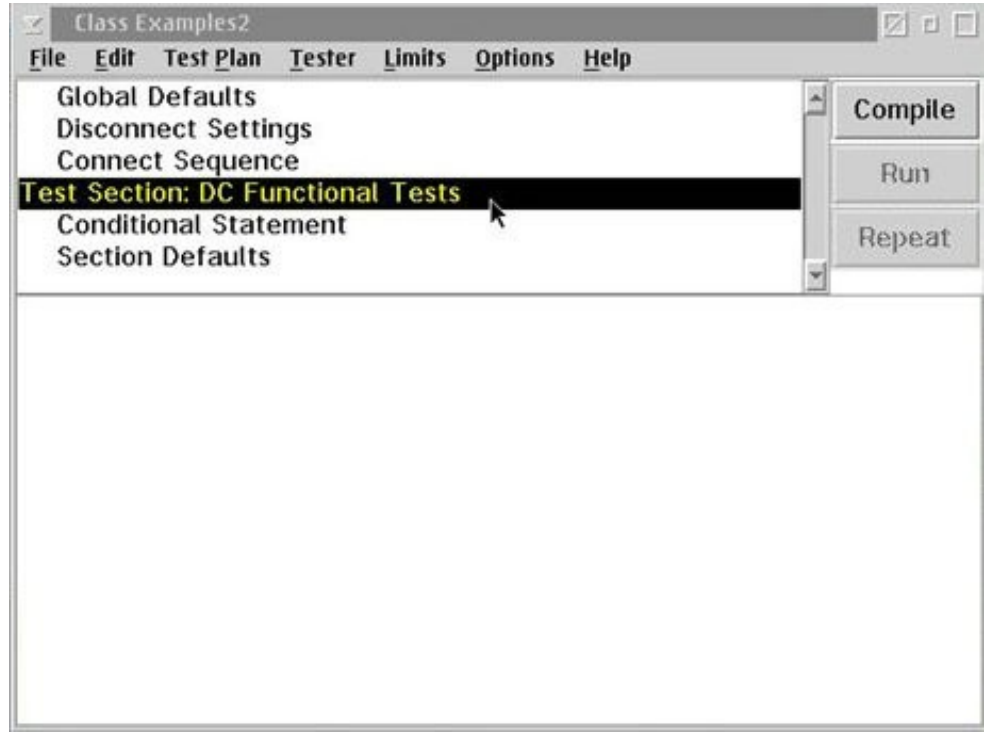
Test Section Title

- Enter the title of the new test section.



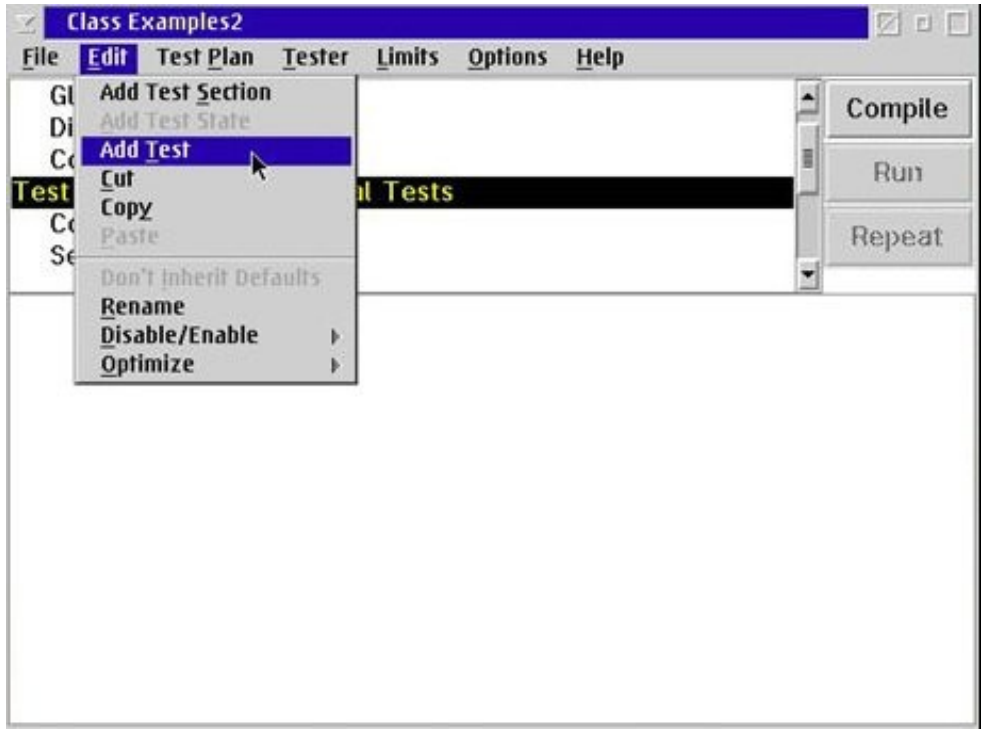
Test Section Layout

- Test Section Header
  - Conditional Statement
  - Section Defaults
  - One or more Test



Adding Test to a Test Section

- Select Test Section Header line in the test plan outline panel.
- Select menu **Edit** and **Add Test**.

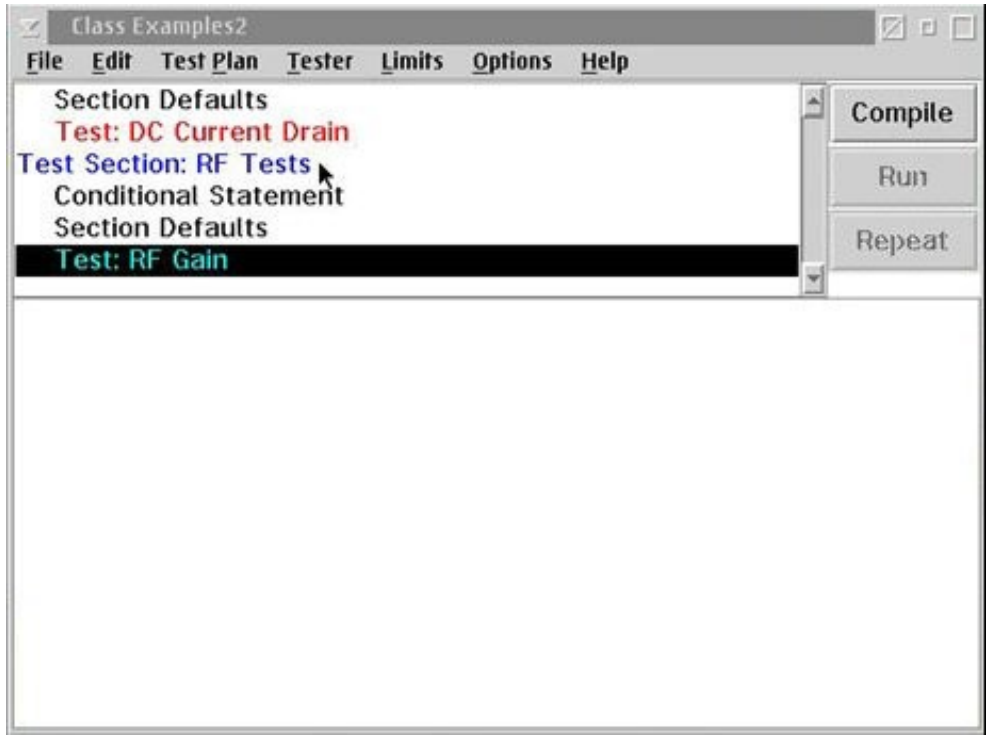


Test Title

- Enter the title for the new test.

Additional Tests and Test Sections

- Using the same procedure we have just describe



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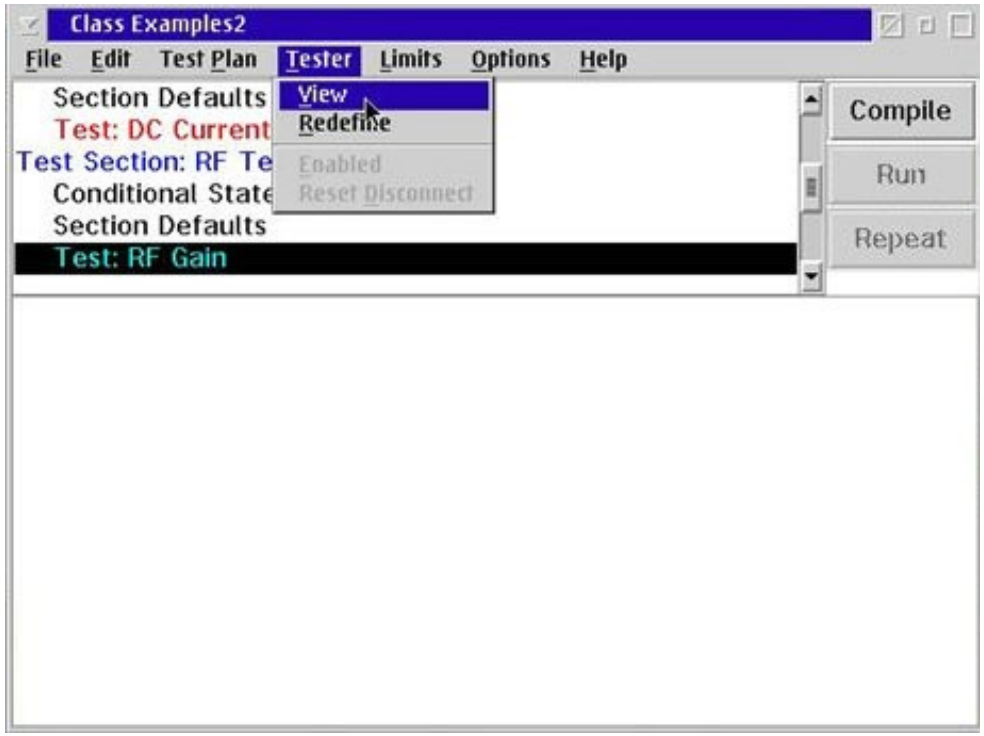
Building a Test

- Open the Tester Viewer window
- "Select" to Copy the Desired Button
- Paste the Button into the Test Panel
- Organizing the Test Panel

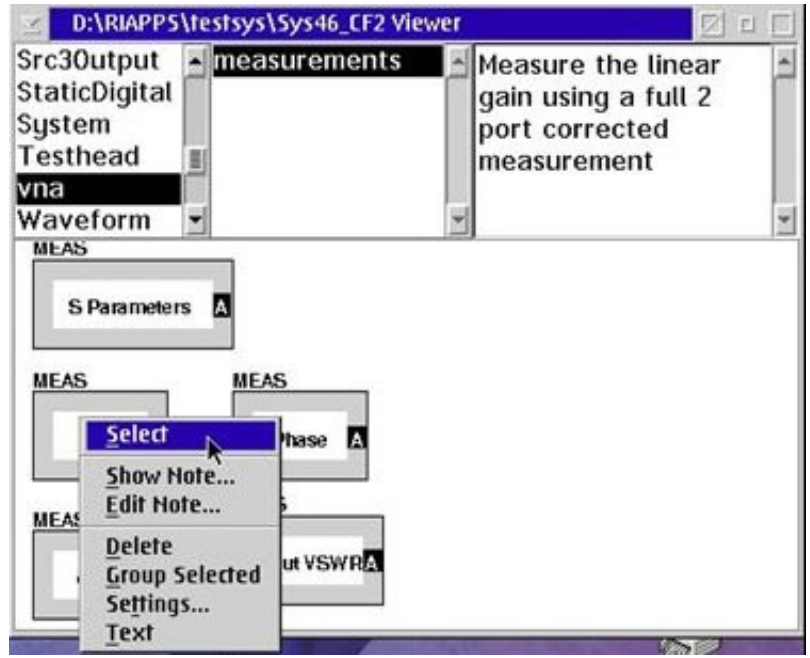
Open the Tester Viewer window

- Select menu **Tester** and **View**



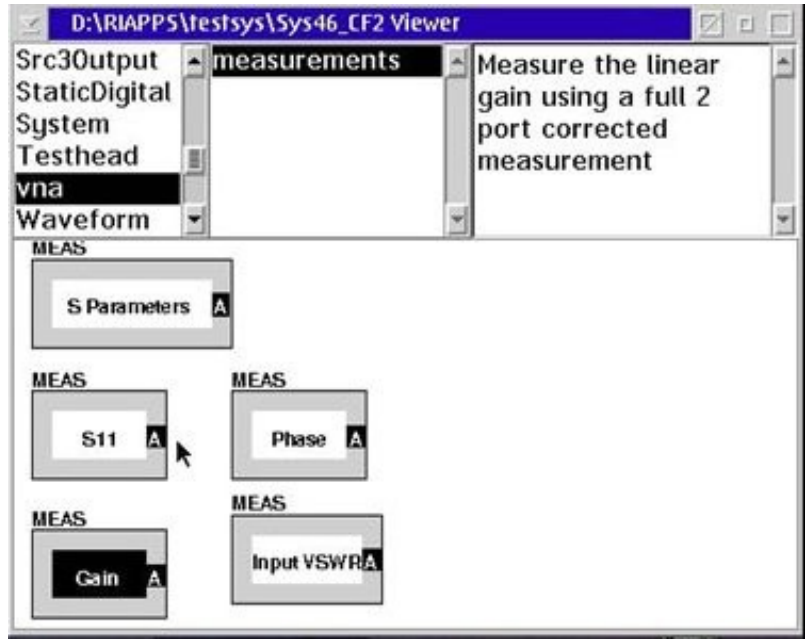
"Select" to Copy the Desired Button

- Select a instrument
- Select measurement or state
- RMBC (mouse button 2) on the button then click Select from the pop-up menu



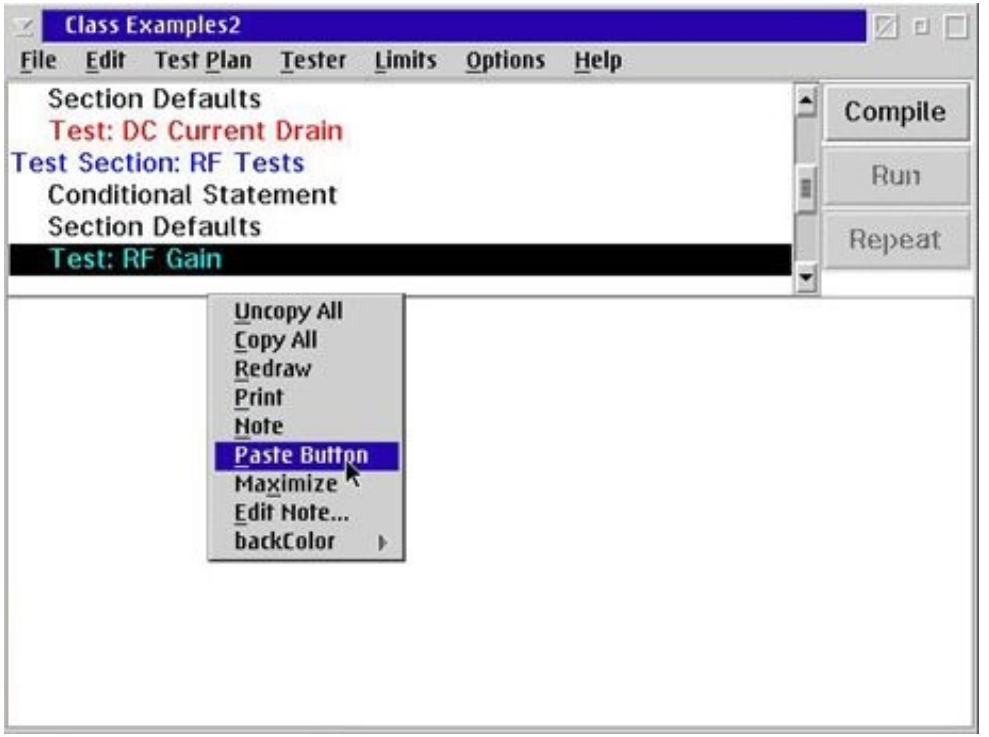
Selected Button is Highlighted

- Tester Viewer window will indicate selected button by highlighting the button.



Paste the Button into the Test Panel

- Change the active window to the Test Plan Editor
- RMBC (mouse button 2) on the desired location and select **Paste Button** from the pop-up menu.

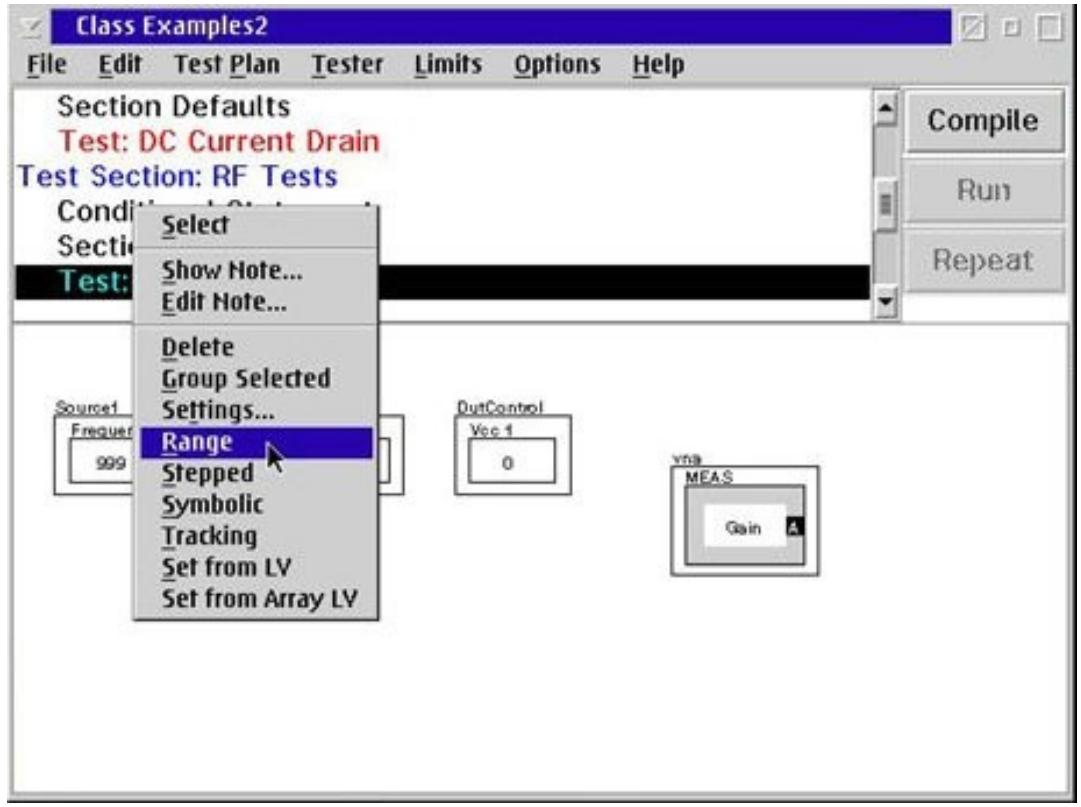


Organizing the Test Panel

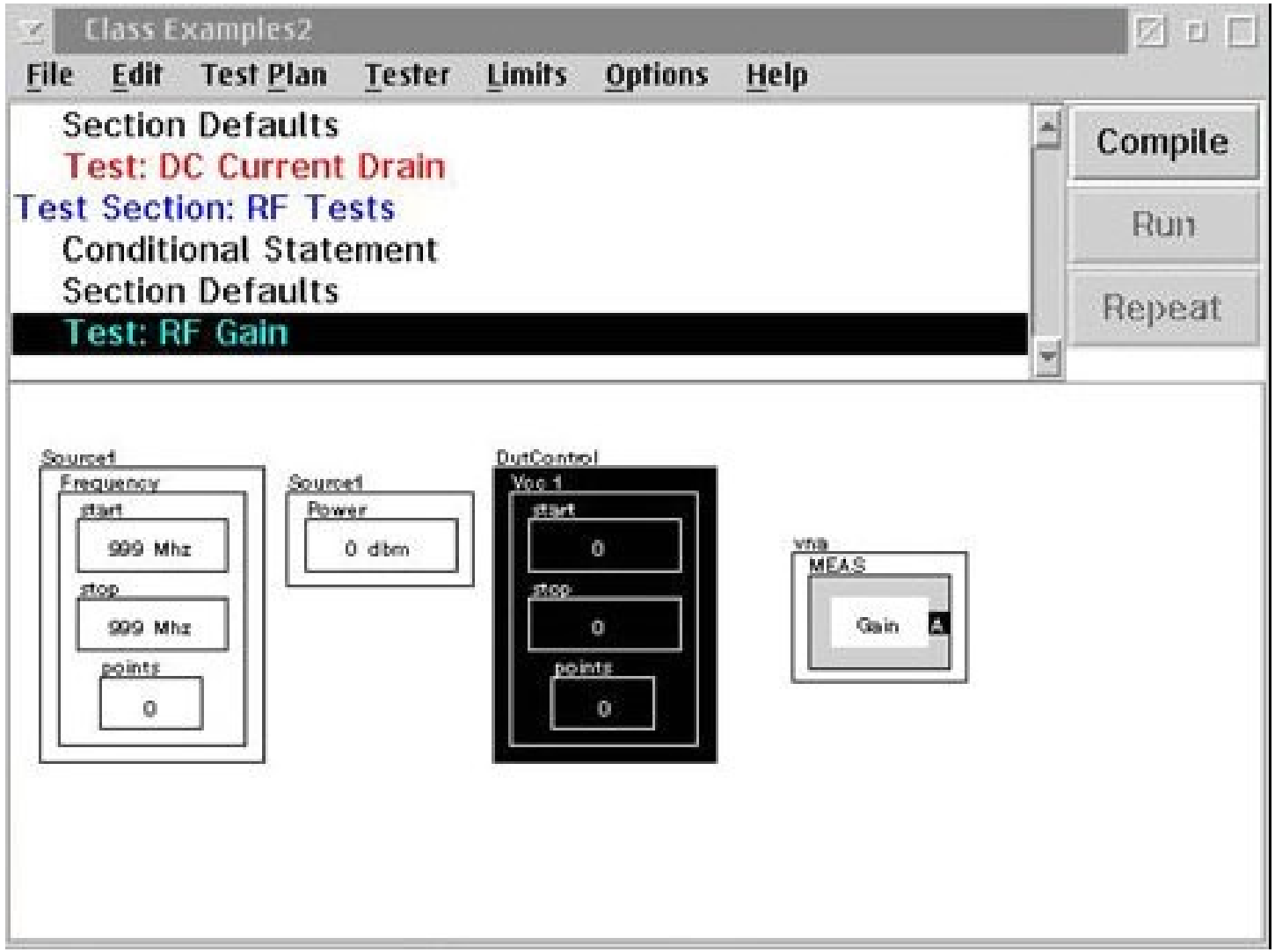
- RMBC (mouse button 2) and hold on the desired button then drag the button to new location
- Copying, Pasting, and Moving Buttons in the same process
- Short cut on copy button
  Ctrl + LMBC (mouse button 1)
- Short cut on paste button
  Ctrl + RMBC (mouse button 2)

Changing from Single Value to Range

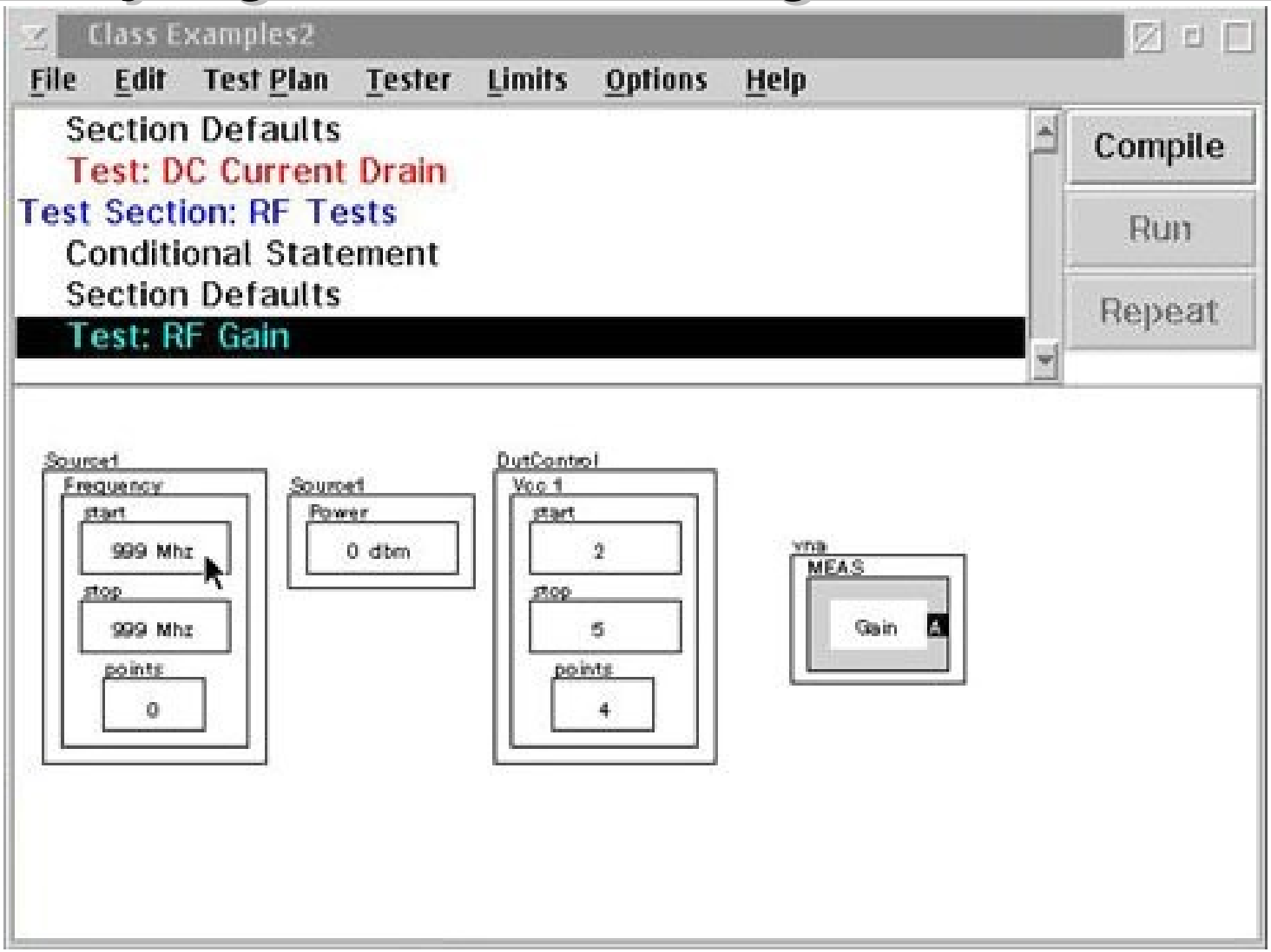
- Place the mouse pointer inside a state button, select pop-up menu Range



Grouped Buttons

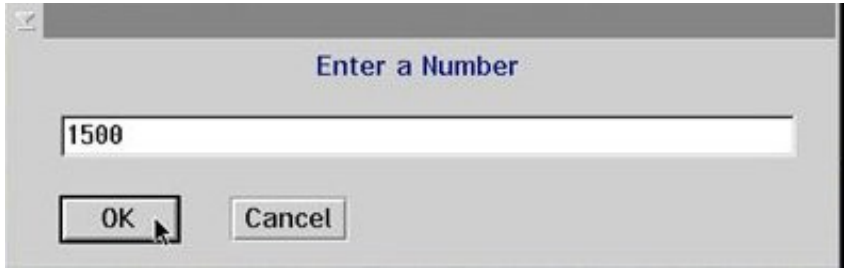


Modifying Button Settings

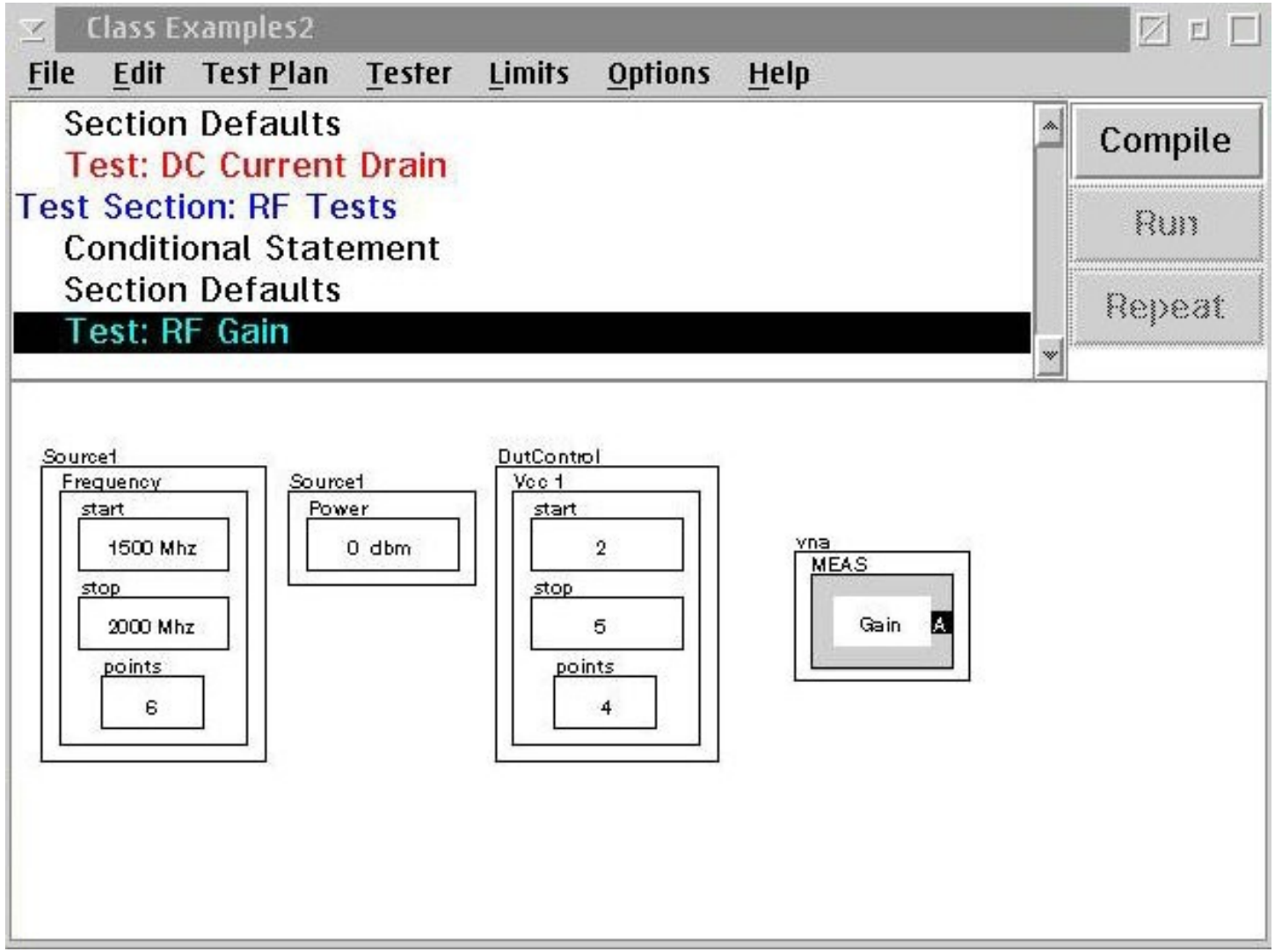


Modifying Button Settings

- Type in the new value then click OK or press Enter



Test Example: RF Gain



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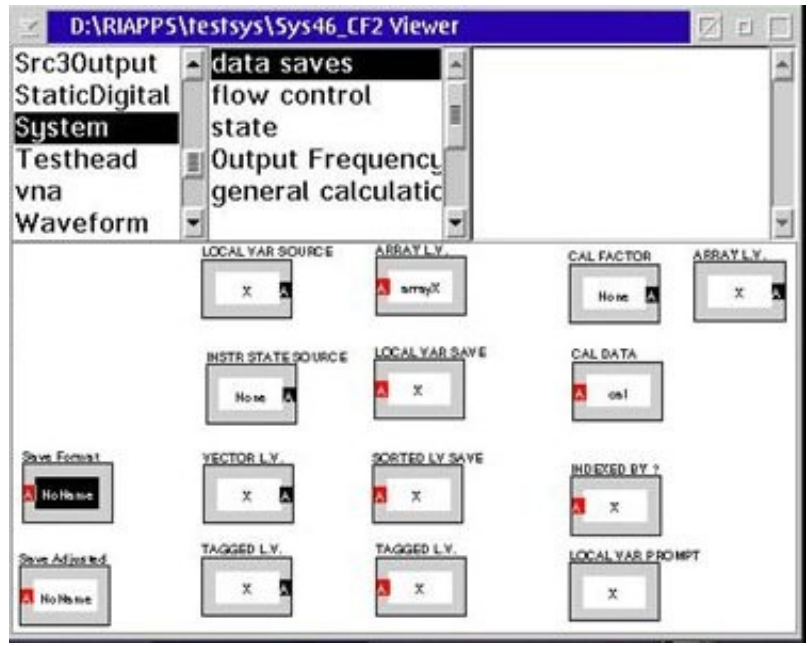
Saving Device Data

- Add the **SAVE DATA** buttons to the test panel
- Connect the **MEAS** button to the **SAVE DATA** button
- Each SAVE DATA button in the test plan must have a unique data name

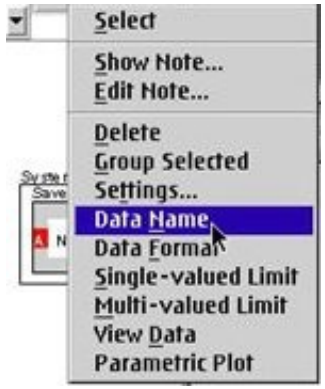


Adding the SAVE DATA button

- Go to the Tester Viewer window.
- Select the **System** choice from the Instrument list.
- Select the **data saves** choice from the Button Type list.
- Select and copy one of the SAVE DATA buttons:
  - **SAVE NO FORMAT**
  - **SAVE FORMAT**
  - **SAVE ADJUSTED**
- Return to the Test Plan Editor and paste
  the Return to the Test Plan Editor and paste
  the **SAVE DATA** button button

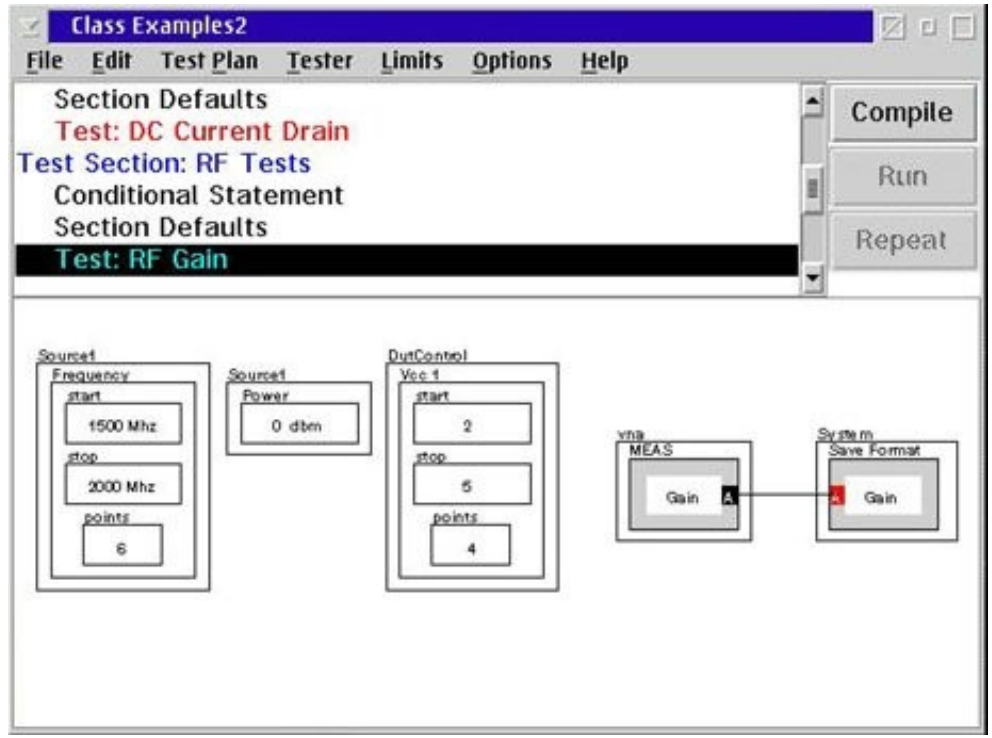
Data Name for the SAVE DATA button

- RMBC on the **SAVE DATA** button
- Select **Data Name**
- Enter the desired **Data Name**



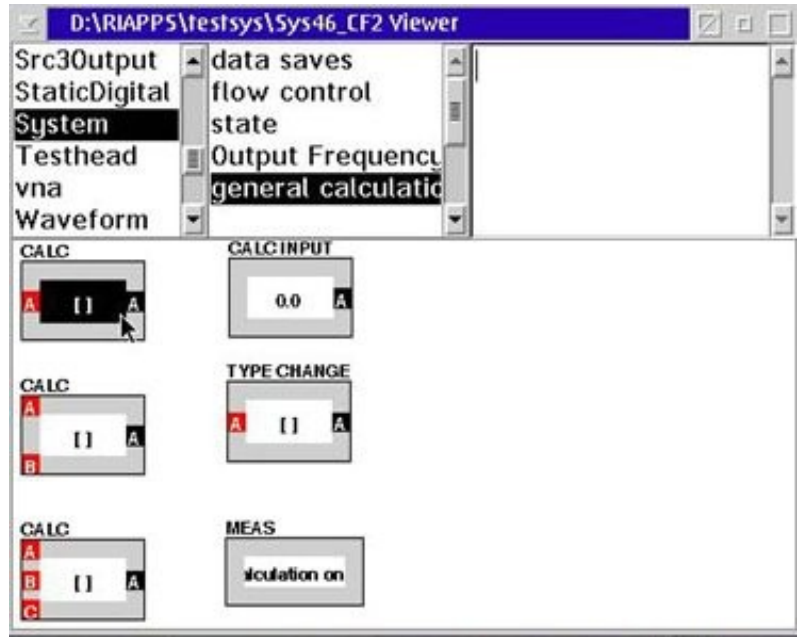
Connecting MEAS & SAVE DATA buttons

- Press and hold RMB the **sending data port** of the MEAS button,
- Drag to the **data receive port** of SAVE DATA
- To disconnect the button repeat the process again.



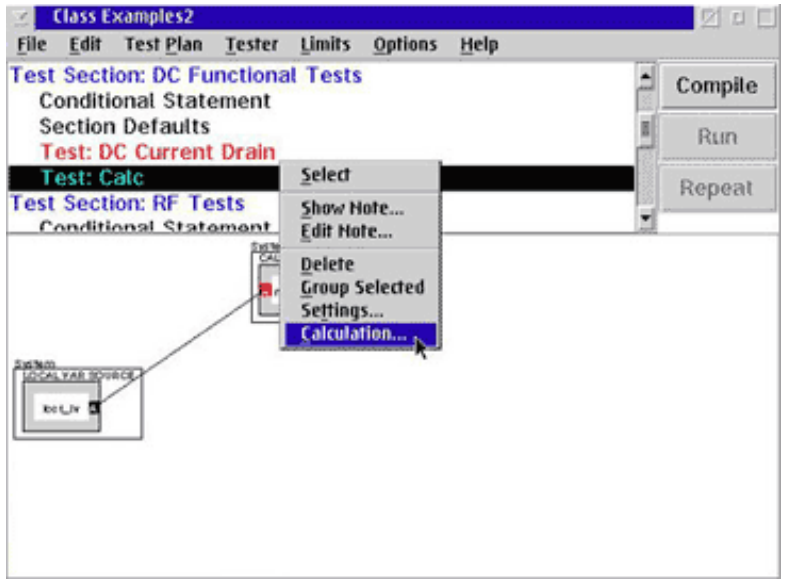
Adding CALC button

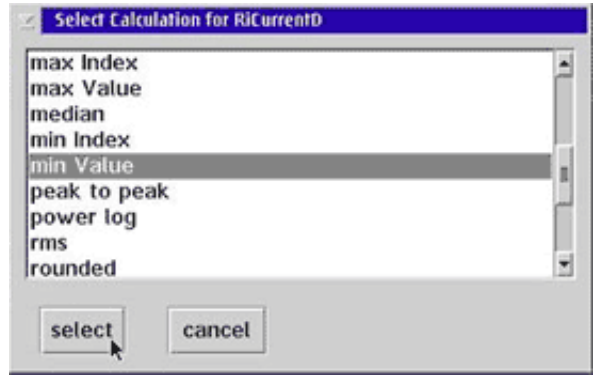
- Insert a general purpose CALC button and connect the lines as shown above.



Setting the CALC button

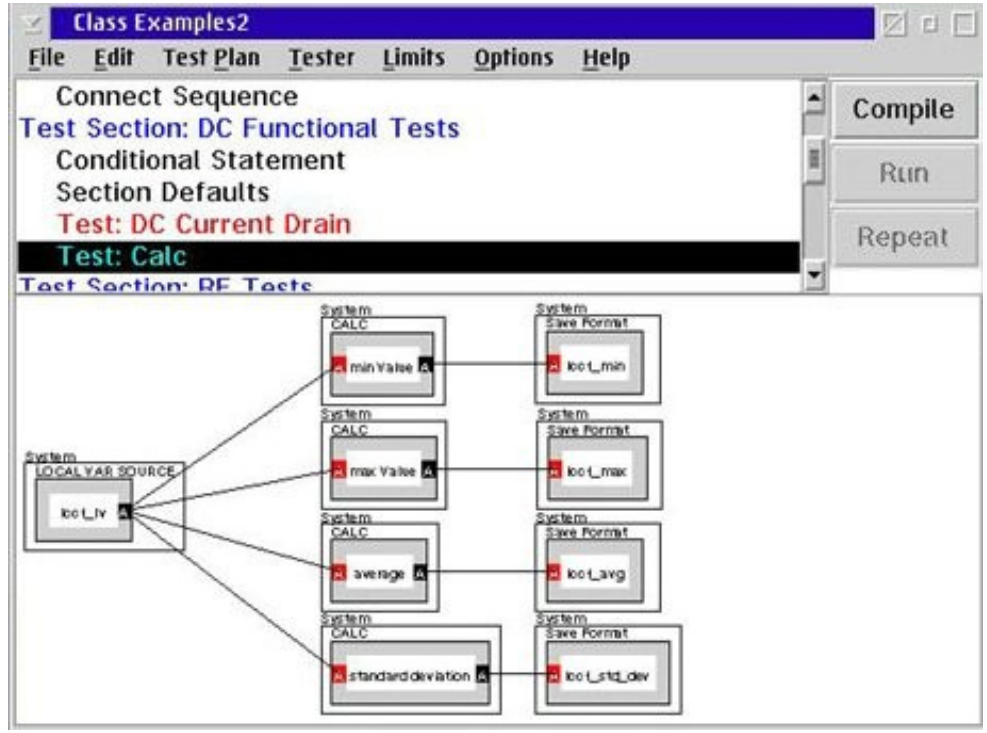
- RMBC and select **Calculation...**
- Select a calculation





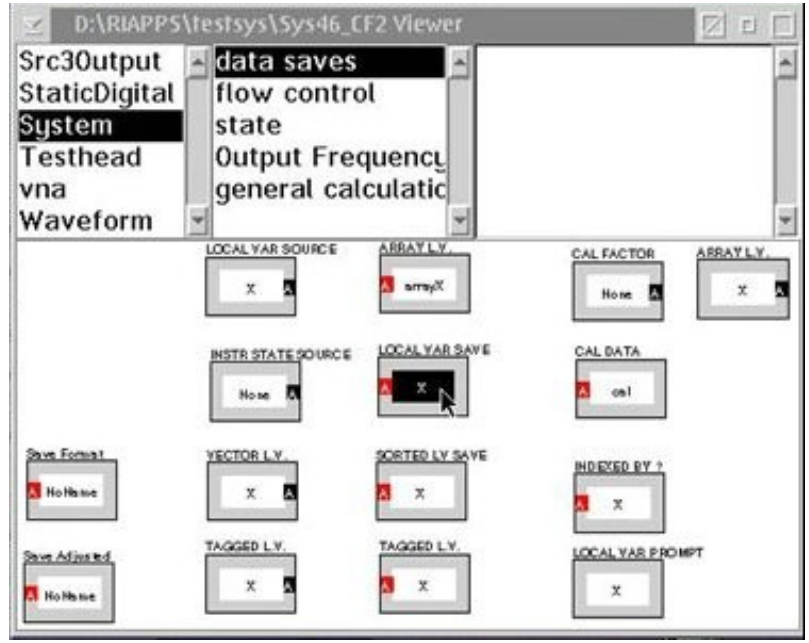
Saving Calibration Data

- Connect the **CALC** button to the another **CALC** button, **LOCAL VAR SOURCE**, or **SAVE FORMAT** buttons
- A sending data port can connect to zero or more data receive port



LOCAL VAR buttons

- **LOCAL VAR SAVE** buttons
- **LOCAL VAR SOURCE** buttons
- Use a **LOCAL VAR SAVE** button with a **LOCAL VAR SOURCE** button to transfer test results from one test panel to another

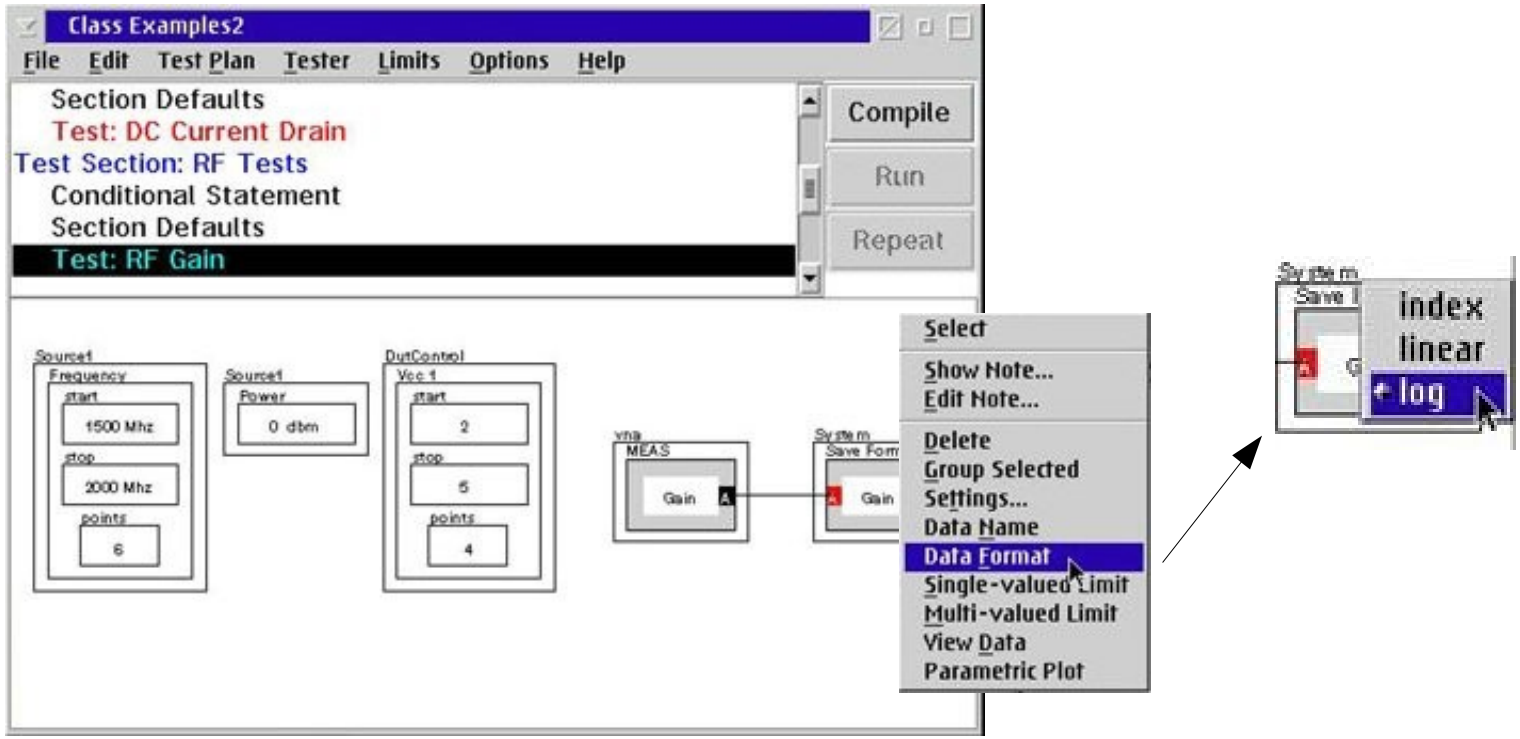


Selecting the Data Format

- Specify the data format (units) used by the system to save the data and limit check the data

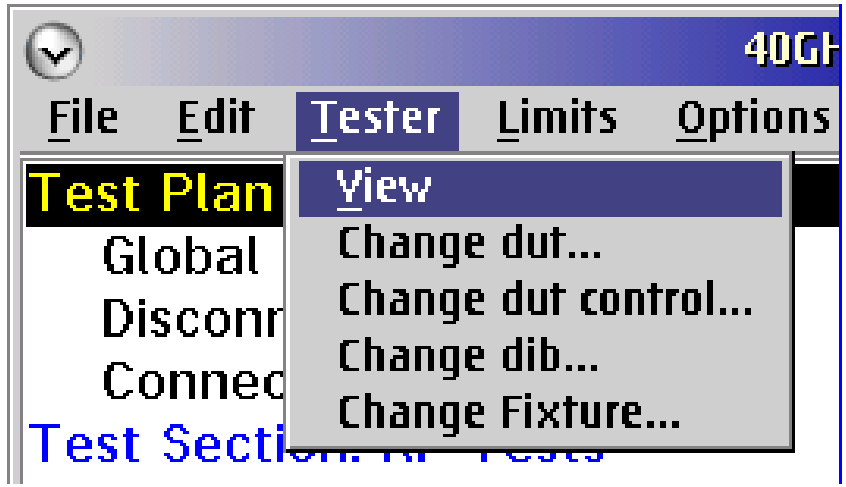
- RMBC on **SAVE Data** button,
- select **Data Form** from the pop-up menu
- select one of format choice from the pop-up menu

Data Format: Index, Linear, Log



Tester Configuration for the Test Plan

- Physical Tester
- Loaded Tester
- View Tester Resources



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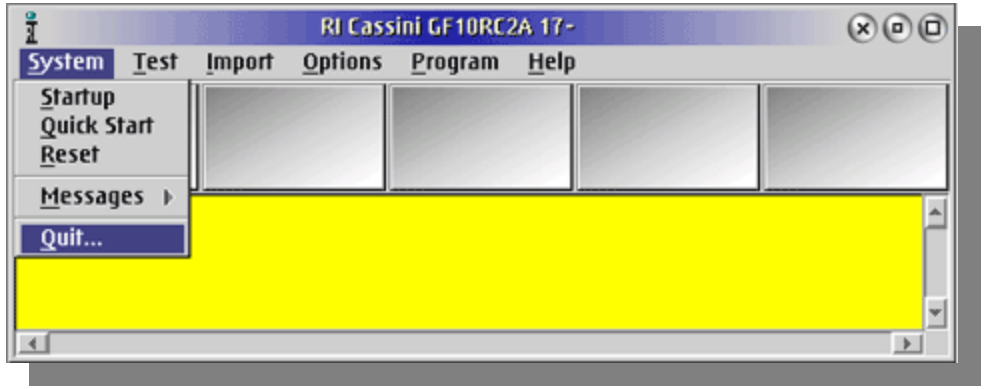
Tester System Mode

- ACTIVE HARWARE MODE!!!!

- SIMULATION MODE!!!!



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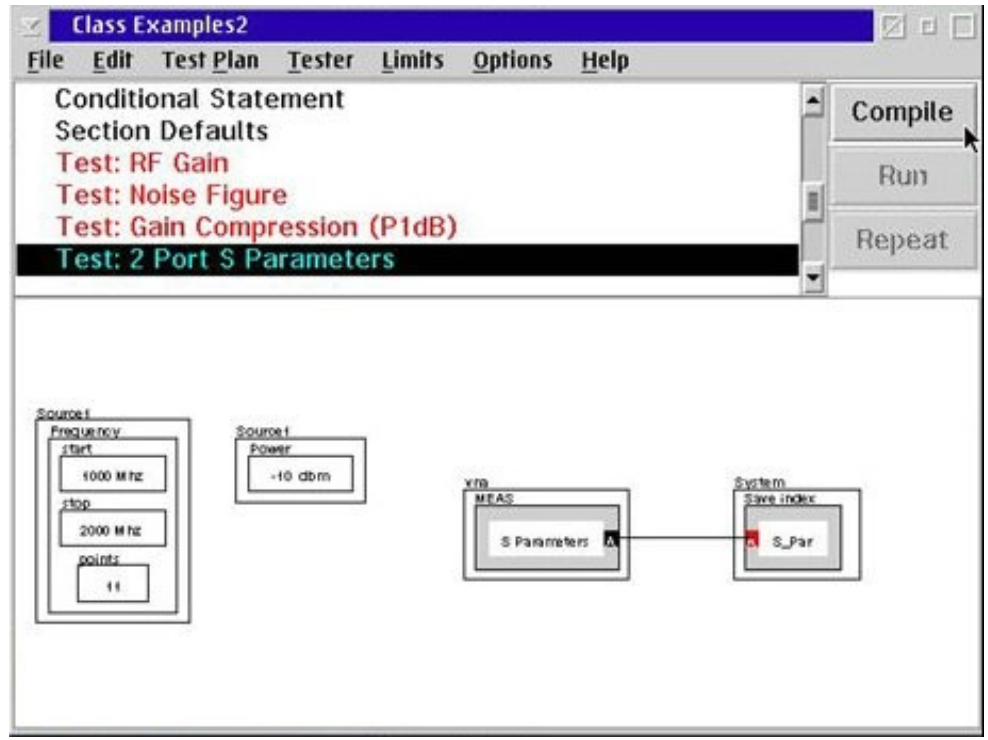
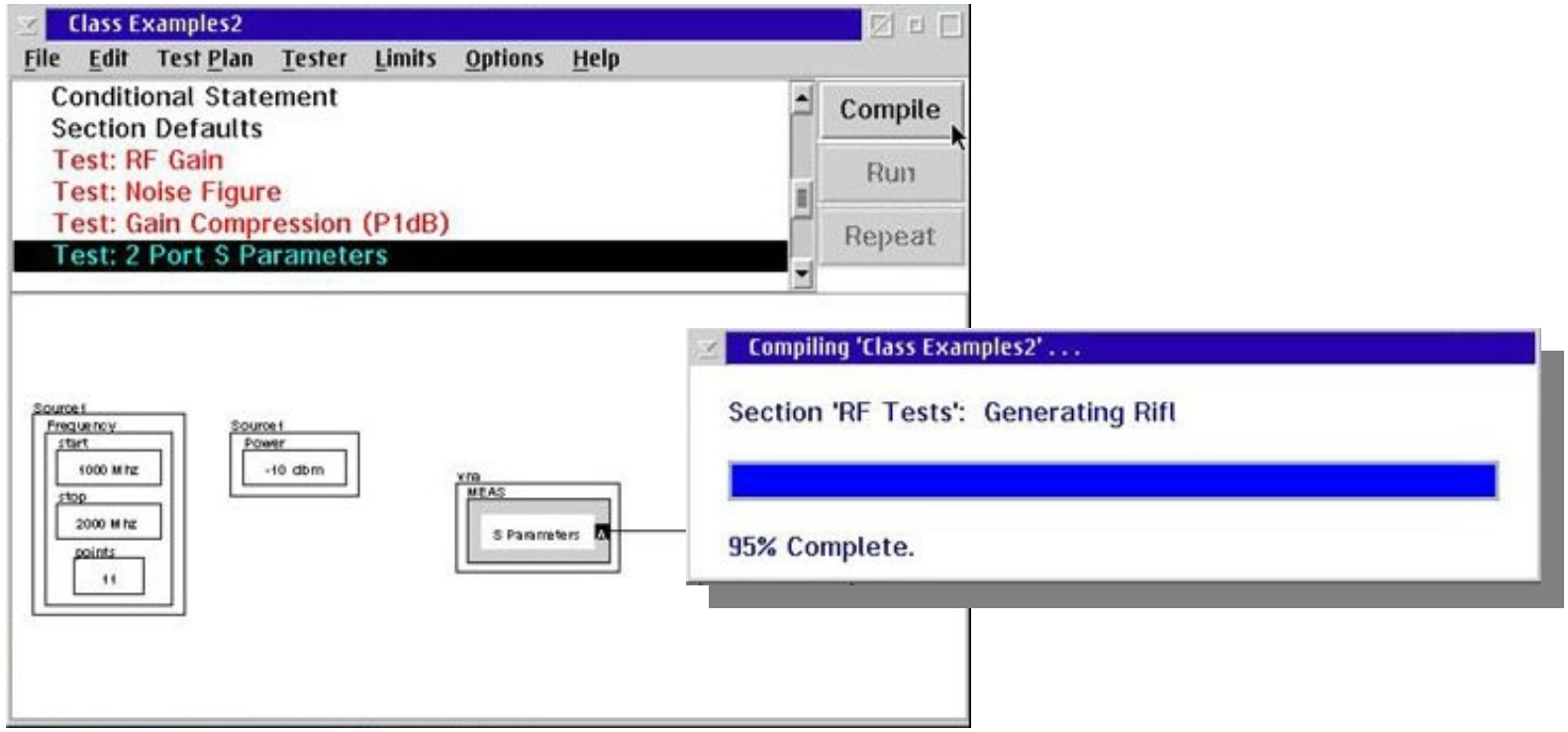
Compiling & Running Test Plan

- Before a test plan can be executed, we need to compile and optimize it for the Tester
- Be sure that the current Active tester is the physical tester configuration



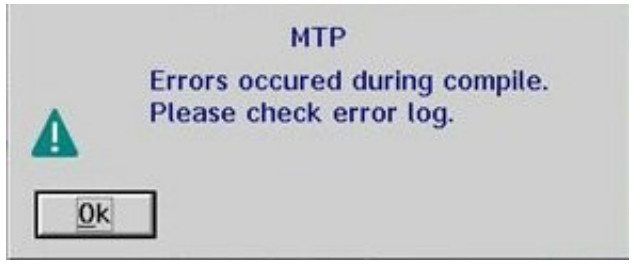
Compile and Optimize Test Plan

- From the Test Plan Editor, select **Test Plan** menu & **Compile**
- Or the press **Compile** button on the top right



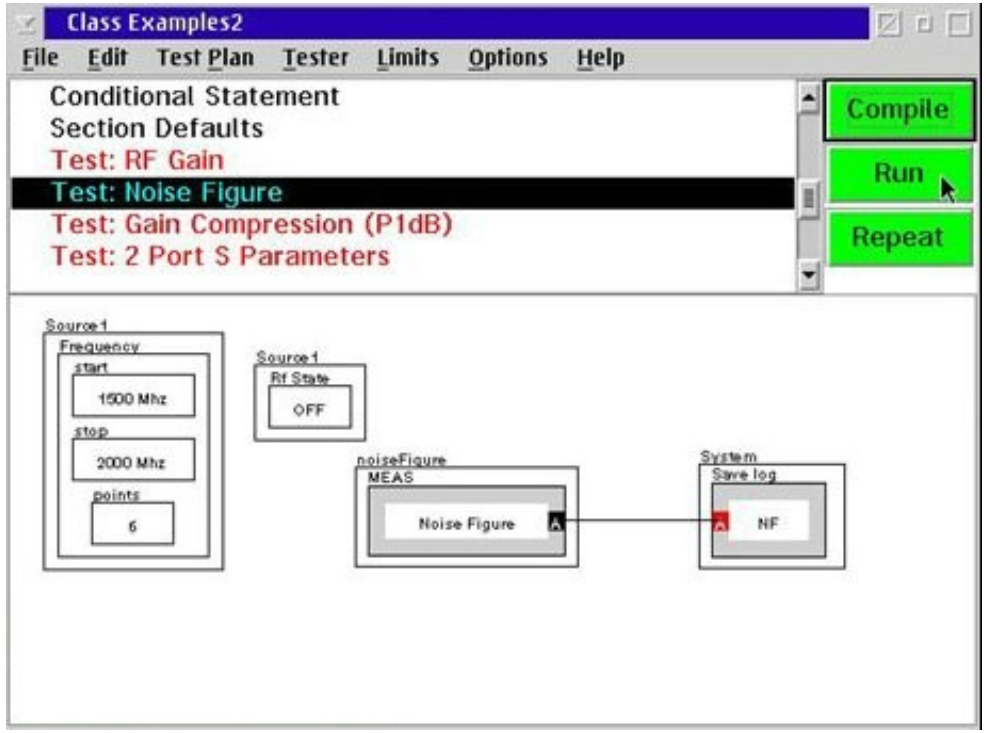
Compile Errors

- If an error is discovered during the compile process
- Details are displayed in the RI Message Window



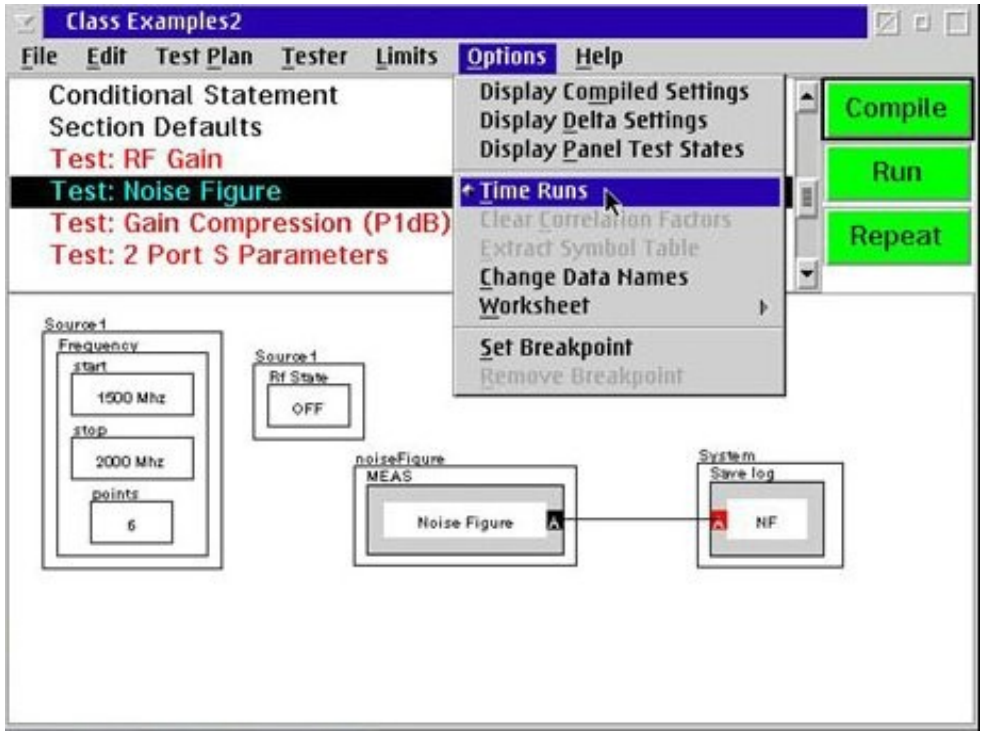
Running a Test Plan

- Select **Test Plan** menu & **Run**
- or just press **Run** button on the top right



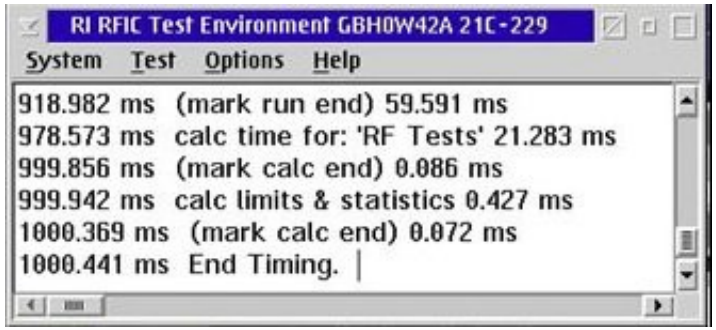
Time Runs for a Test Plan

- To time how fast a Test Plan runs
- Select **Options** menu & **Time Runs**



System Message window - Timing

- Detail timing display on the System Message window



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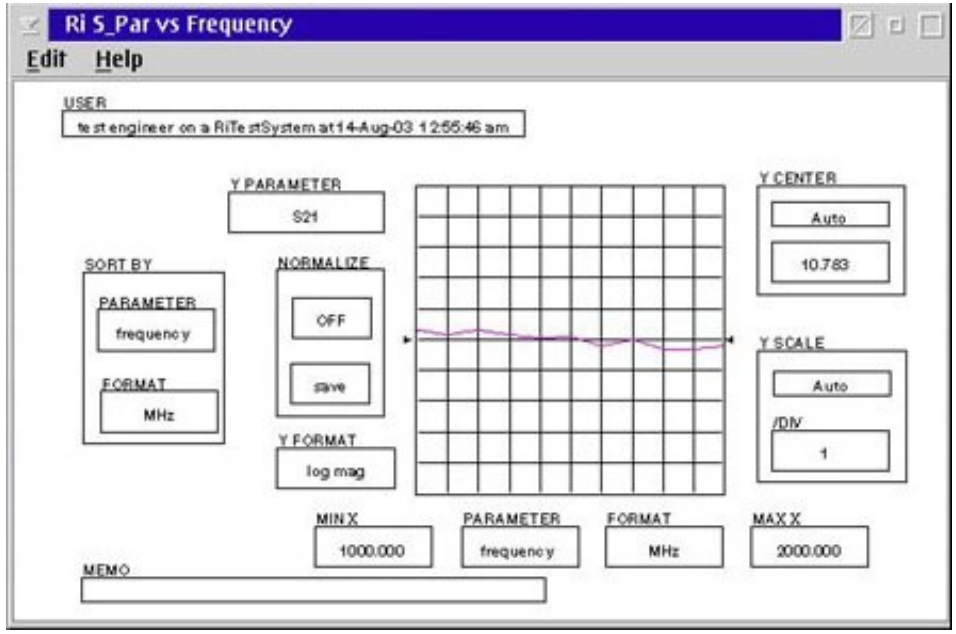
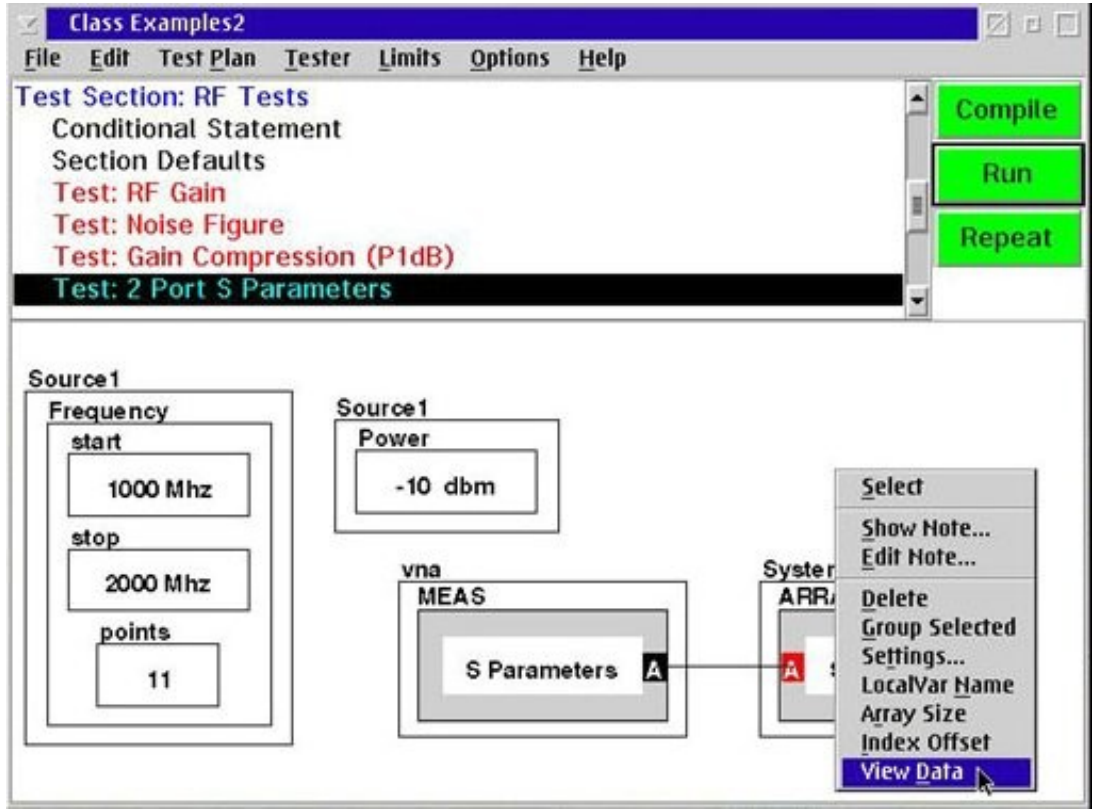
Viewing Test Results

- Data Viewer displays the SAVE DATA button's Name and the name of the instrument settings button in its title bar
- Set the parameters, formats and order



Viewing Test Data

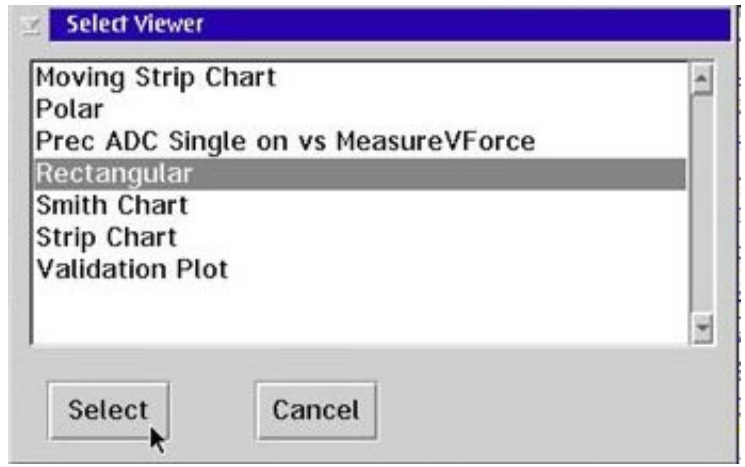
- RMBC on **SAVE DATA** button, select **View Data** from the pop-up menu



Select Viewer Type

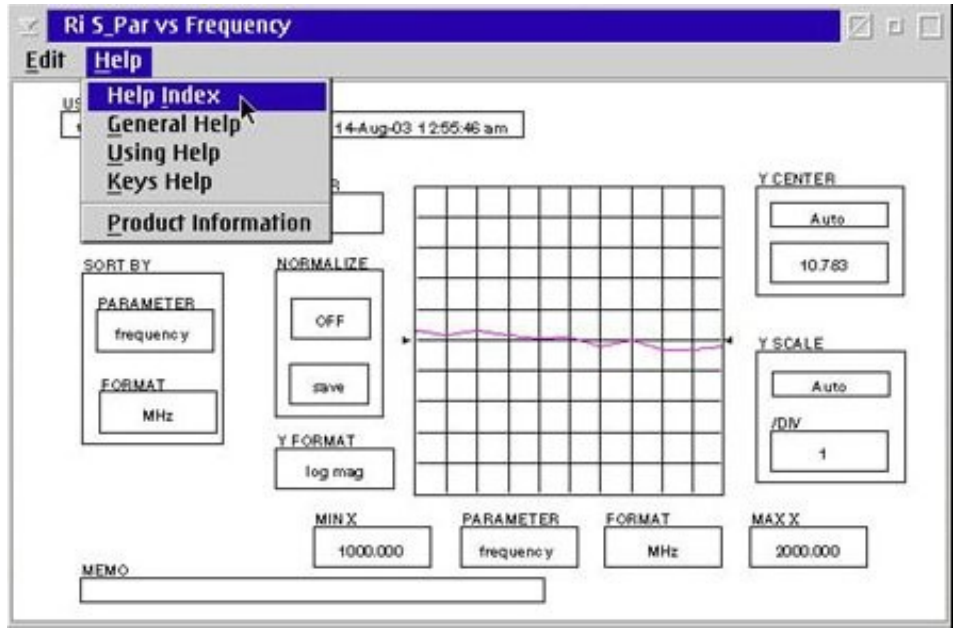
- Select a list of data viewer choices from the **Select Viewer** dialog box

- Rectangular
- Smith Chart
- Polar
- Strip Chart



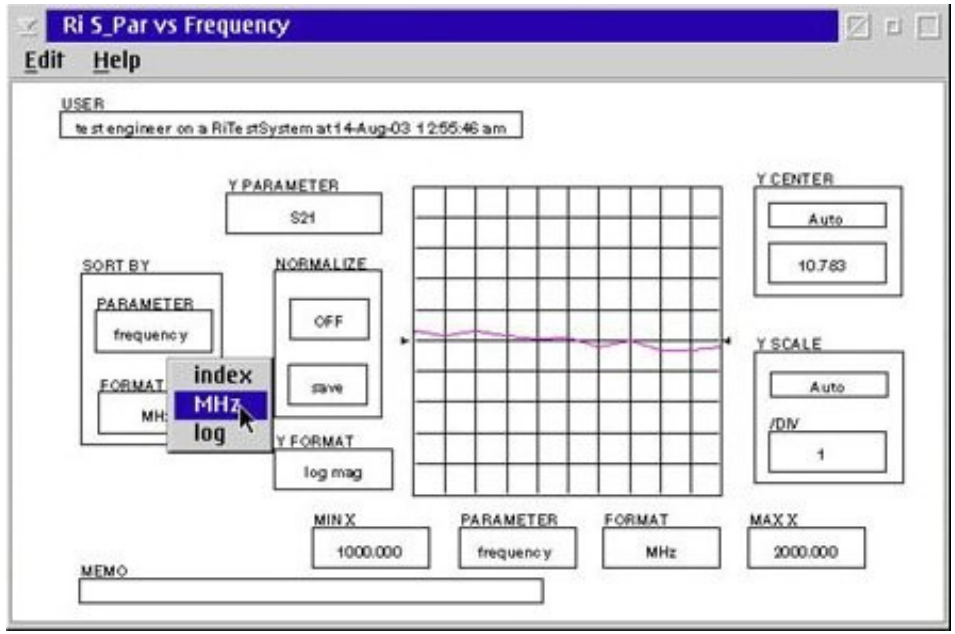
On Screen Help Text

- RMBC on any of the button, select **Show Note...**
- For extensive on-screen reference information, click on **Help** menu



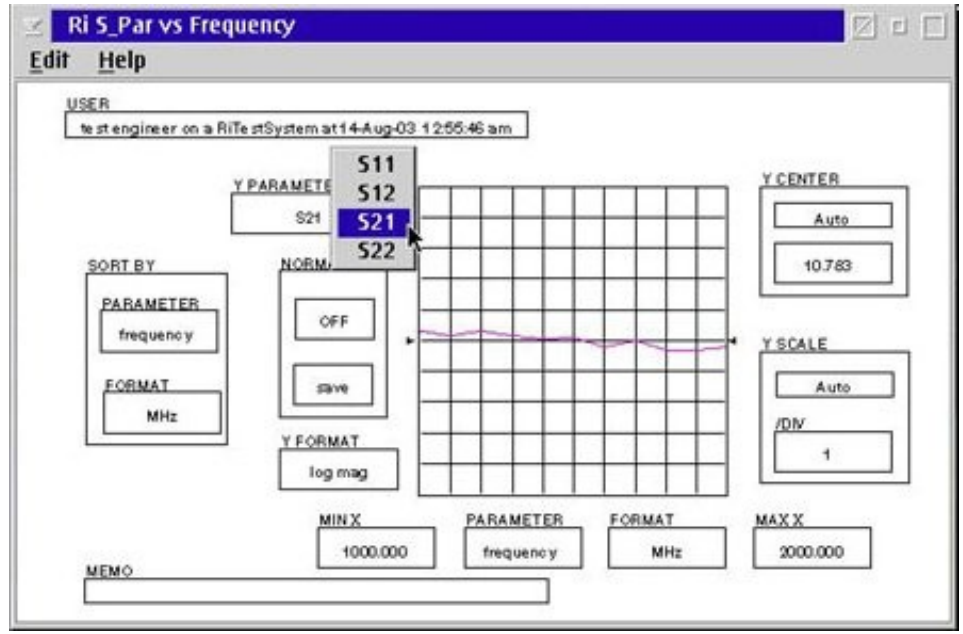
Change Data Layout Format (SORT BY)

- **PARAMETER** button displays the parameter that the data is sorted by
- **FORMAT** button is used to displays the order of format in which the data is presented



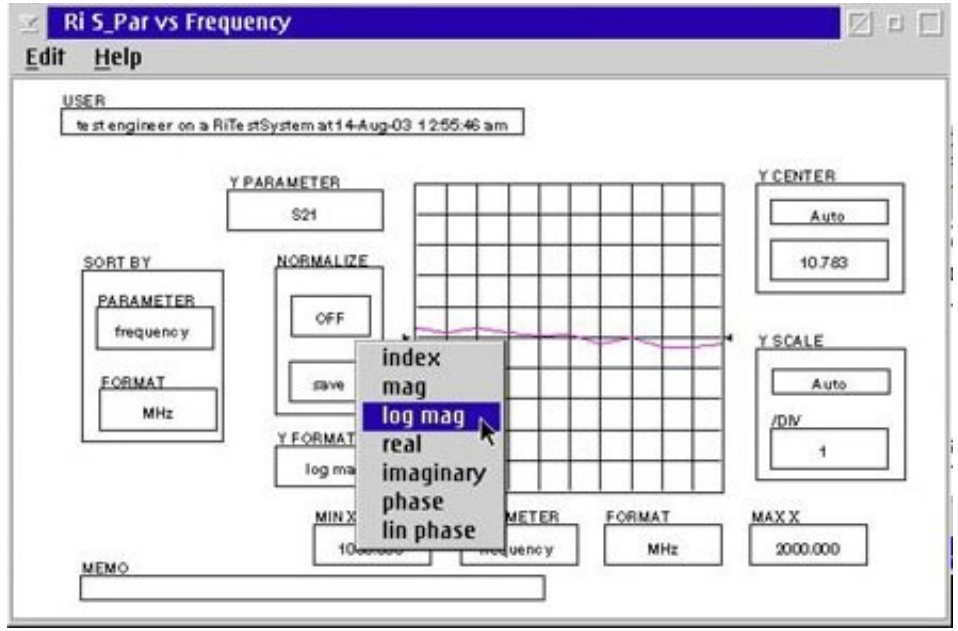
Change Data Viewer Sort Parameters

- **Y PARAMETER** button select the measurement parameter data you want displayed along the Y axis



Change Data Viewer Format

- **Y FORMAT** button select the units and format of the Y Axis data.



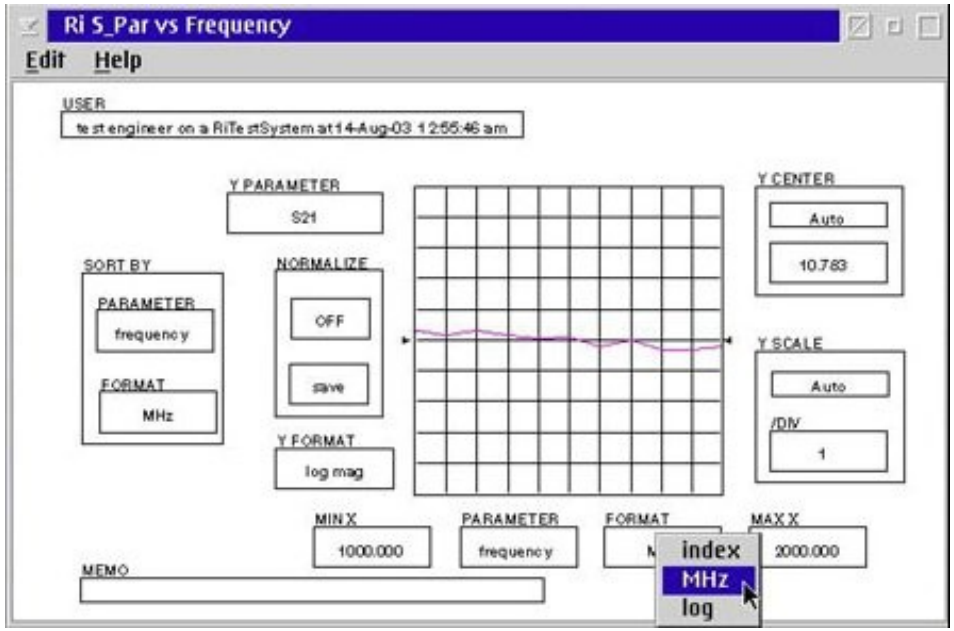
Format Parameters

- Formats available depend on the measurement parameter selected

Ex. for the S21 measurement

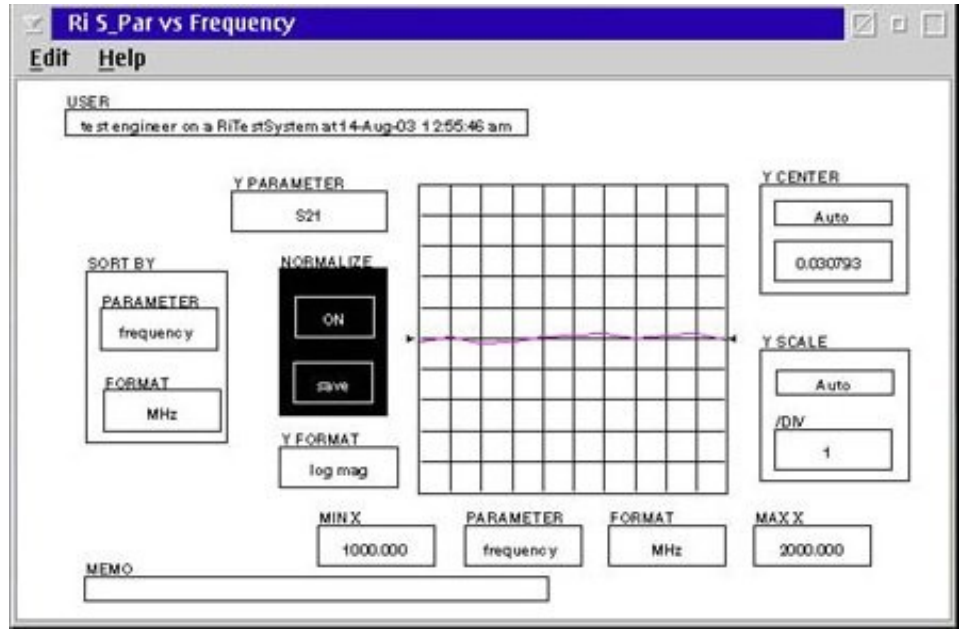
Change Data Viewer Axis Scale

- **MIN X** and **MAX X**
- **FORMAT** X axis
- **Y CENTER** and **Y SCALE**



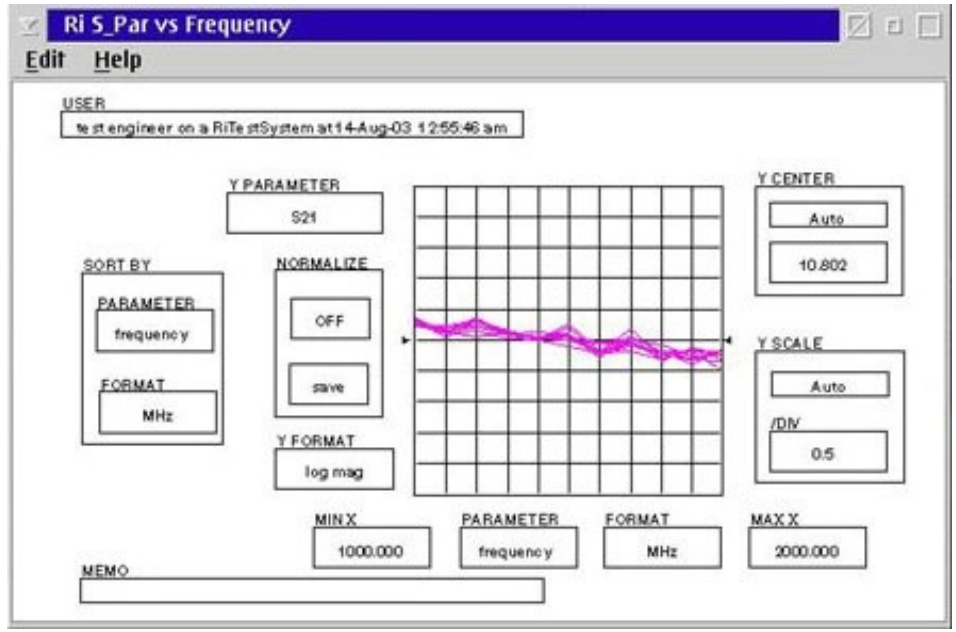
Change Data Viewer Normalization

- **NORMALIZE** button enable you to save the test results currently displayed on the test results plot and to display succeeding test result traces relative to the test results data saved



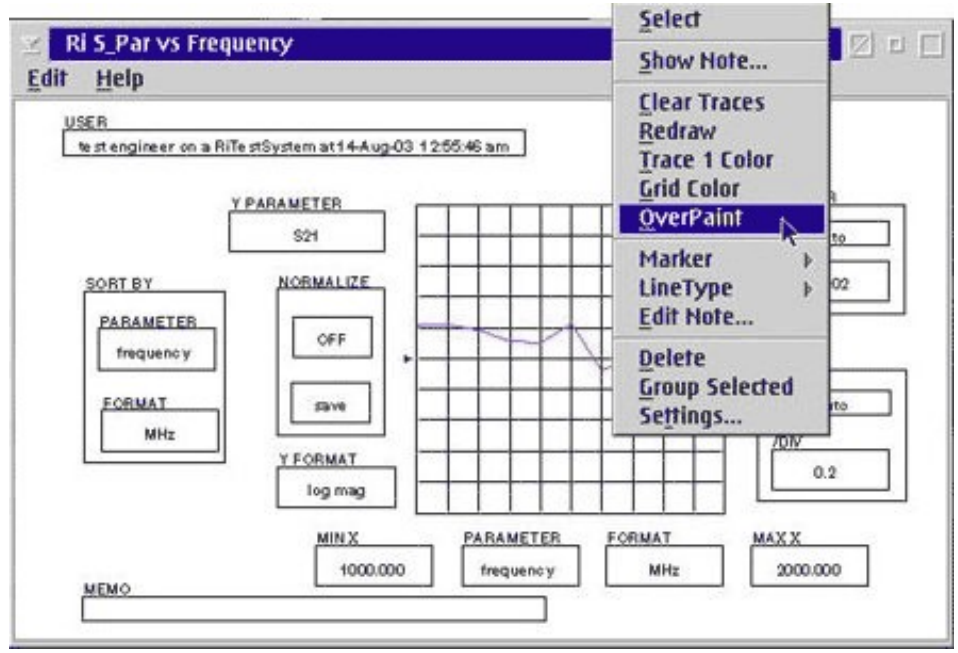
OverPaint Data Viewer Option

- OverPaint is a toggle function



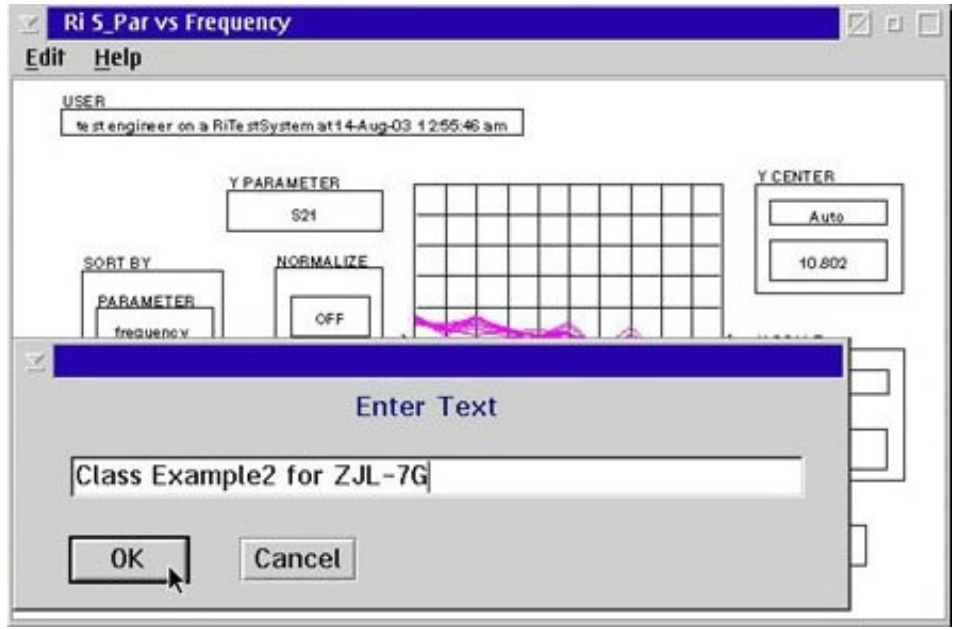
Using OverPaint Viewer Option

- RMBC on the Data Viewer and select OverPaint from the pop-up menu



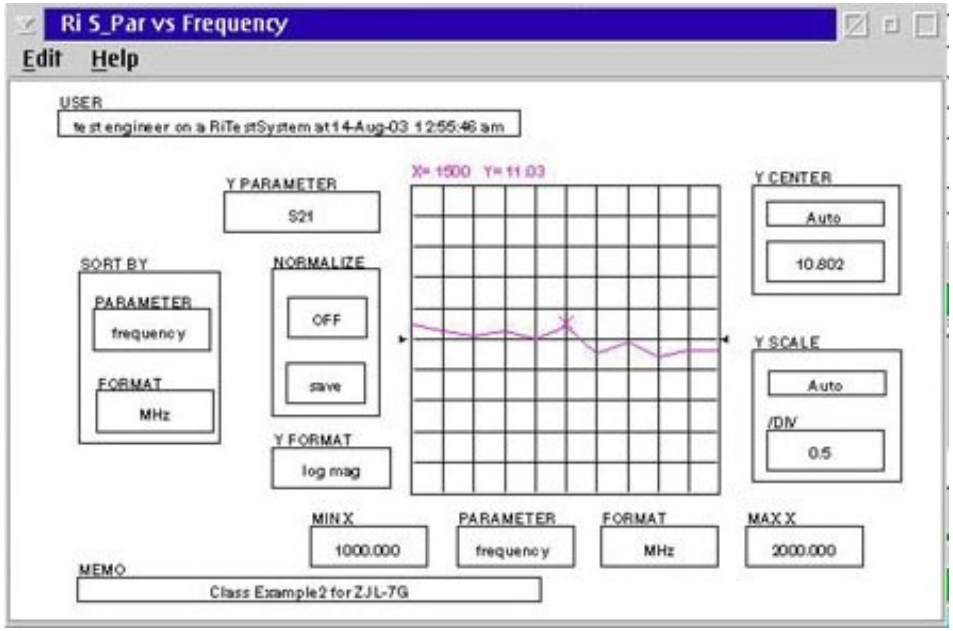
Adding Memo to Data Viewer

- **MEMO** button provides capability to add text or comments to each plot
- Click on the **MENO** button and enter the text



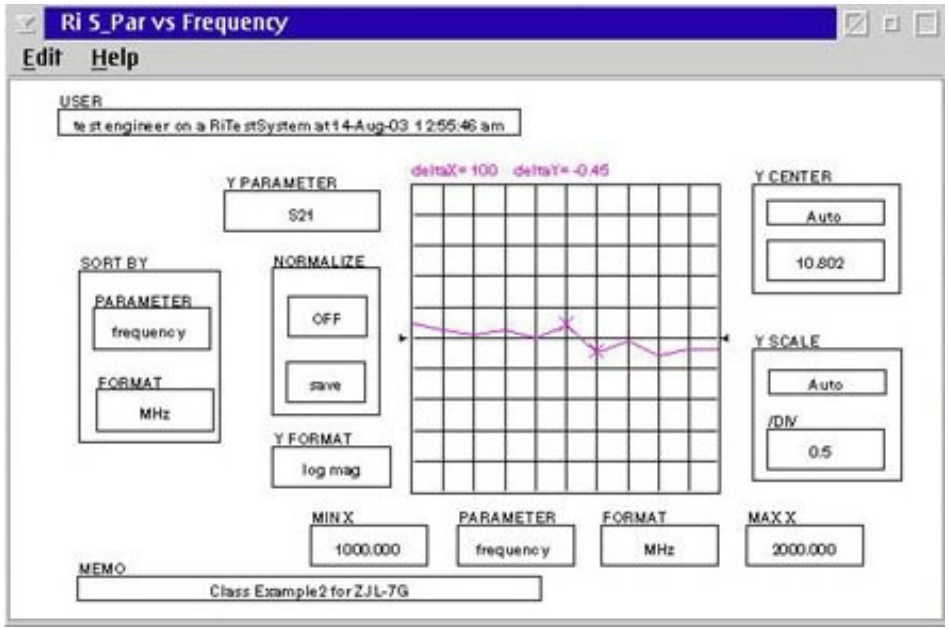
Use Data Viewer to Identify Data Point

- LMBC on the Data Viewer identify the X and Y coordinates



Delta Coordinates

- Identify the difference between two point by click and hold on LMB on the first point then drag to the second point
(delta X & delta Y coordinates)

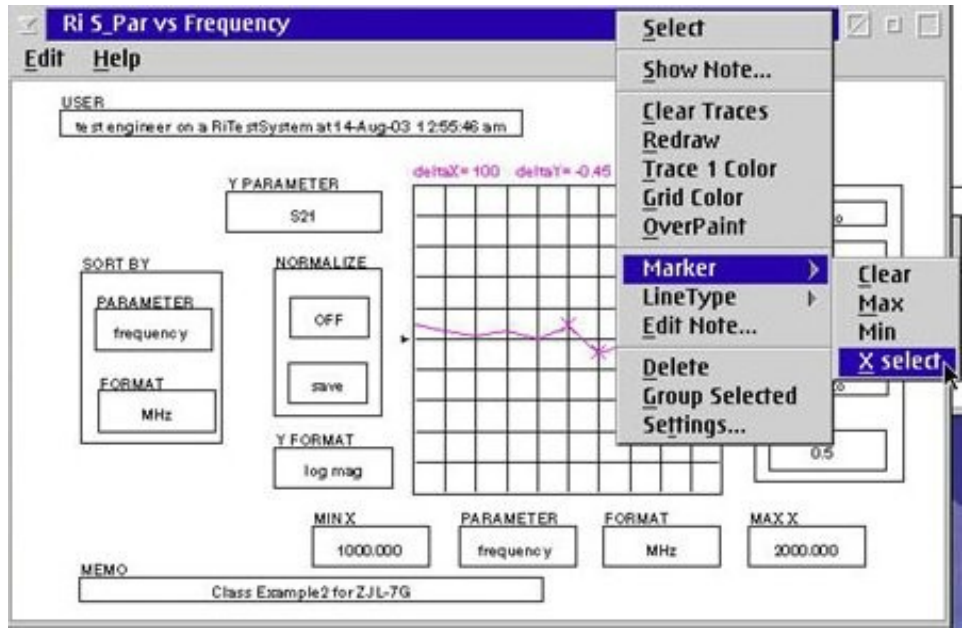


Data Viewer Mouse Button 2 Functions

- RMBC on the Data Viewer

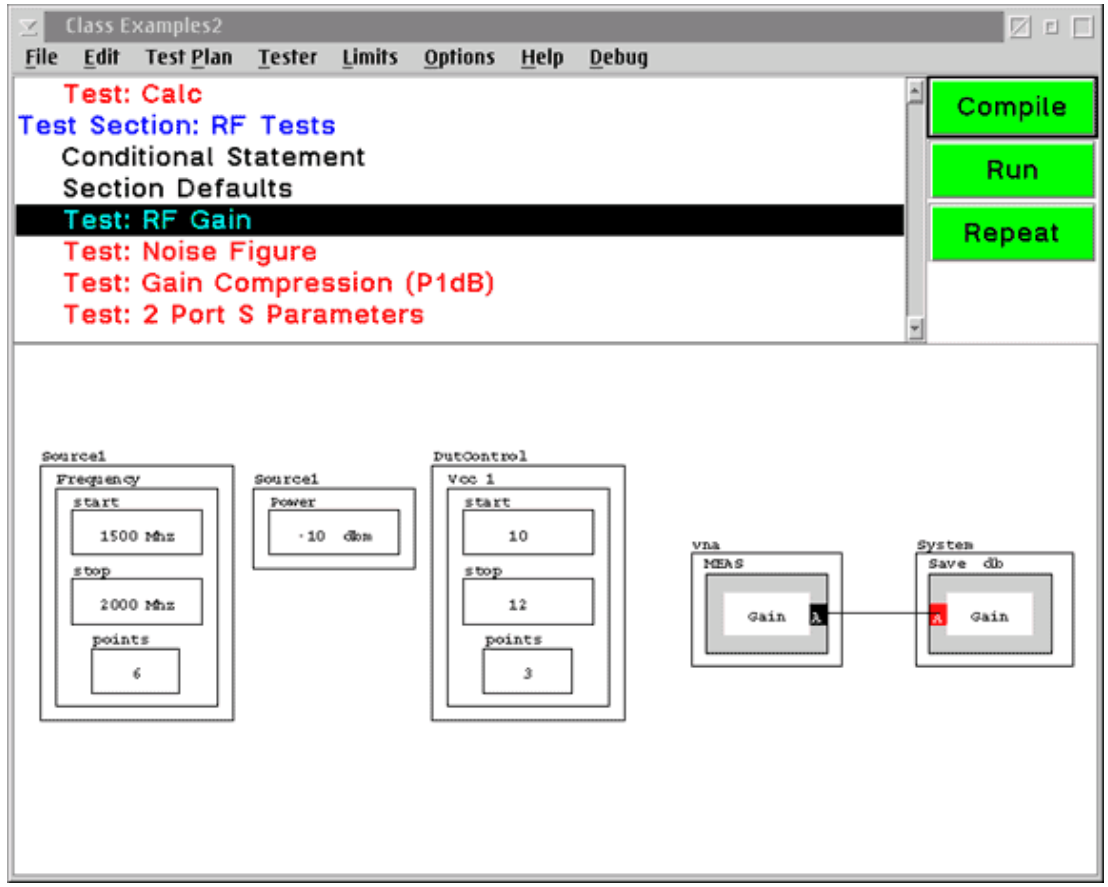
Clear Traces
Redraw
Trace 1 color
Grid color
Lines
Marker
- **Clear**
- **Max**
- **Min**
- **X select**

Line Type



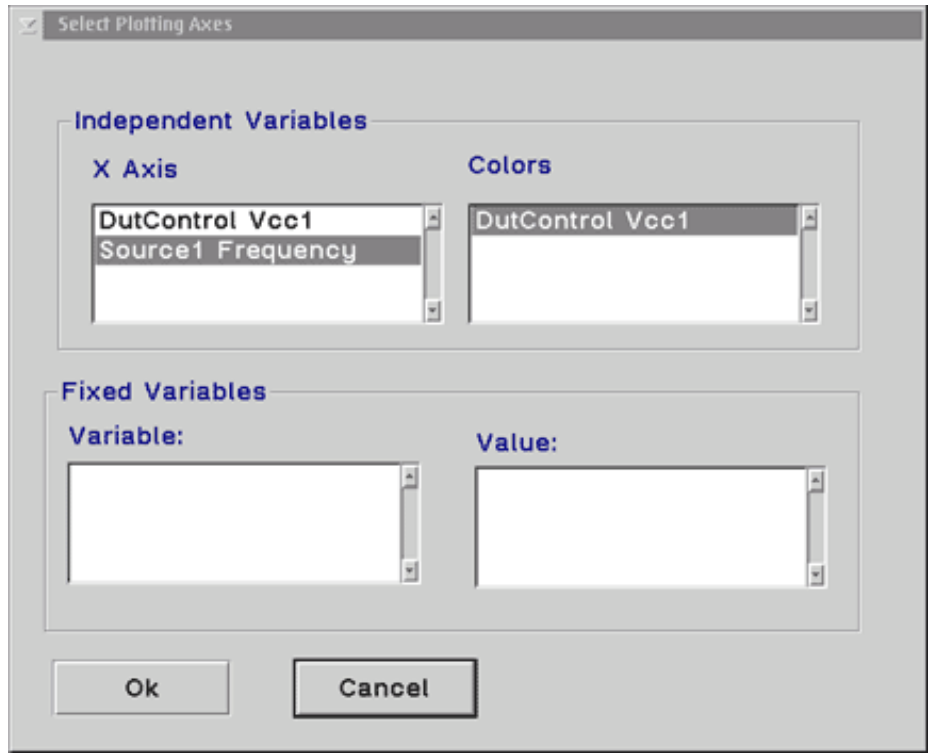
Multi-Dimentional Data Viewers

- Multi-Dimensional Data Viwer uses different colored traces to distinguish between different parameter values



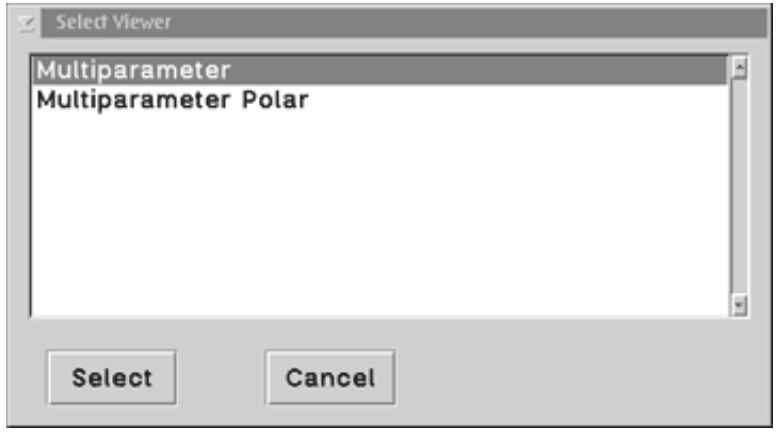
Opening a Multi-Dimentional Data Viewer

- RMBC on SAVE DATA button, select the **View Data** option
- Select parameter for the X axis
- Select parameter to display different colored trace lines



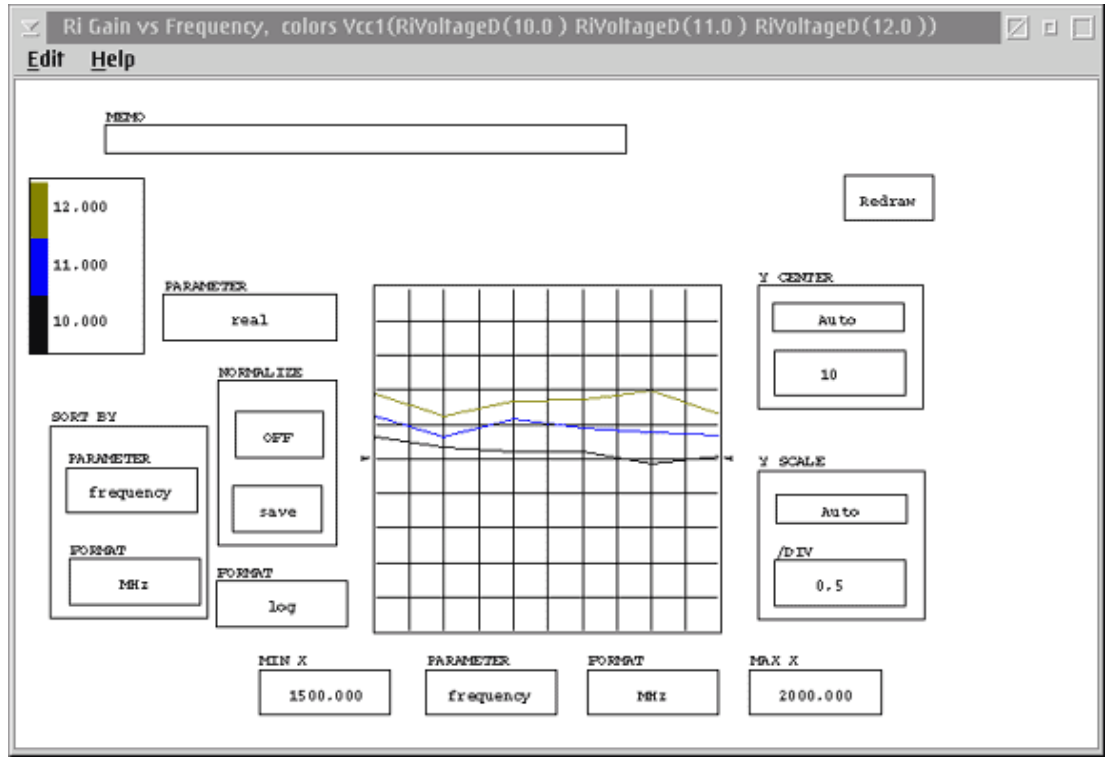
Select a Viewer

- Select a viewer from the Select Viewer dialog box



Using the Multi-Dimensional Data Viewer

- Multi-Dimensional Data Viewer similar to the X & Y coordinate data viewer with added buttons **color bar** and **Redraw**

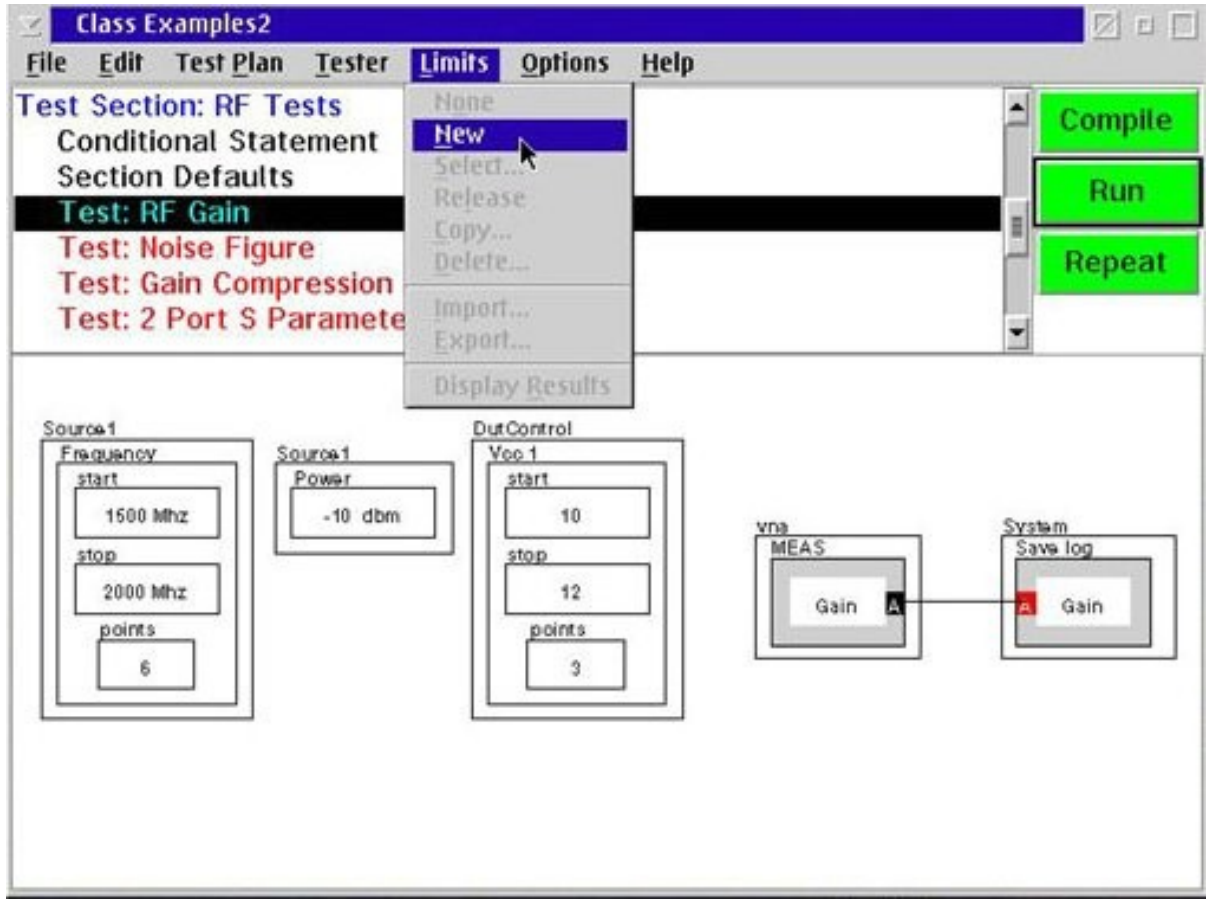


Setting and Selecting Limits

- Each test plan can have one or more sets of test limits associated with the test plan.
- Need compiled and run the test plan at least once before creating test limits
- To set test limits to the test plan, you must first either open an existing set of test limits or create a new set of test limits.

Create new set of test limits

- Select the Test Plan Editors menu **Limits** and **New**



Histogram

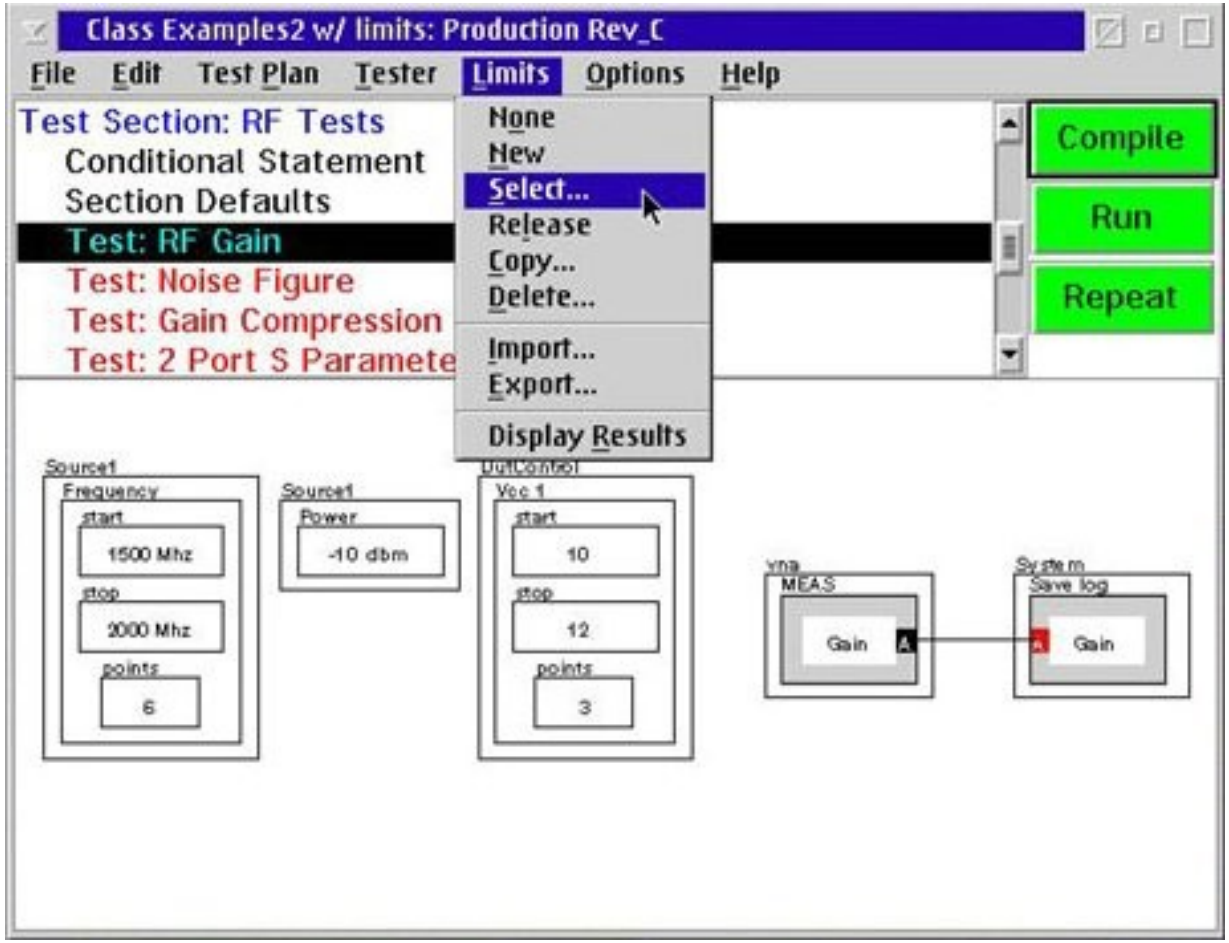
- Enter a title for the new test limits and click OK
- Reserved name **Histogram**

Chapter Outline (Ch 3)

- Creating a New Test Plan
- Understanding Test Plan Structure
- Building a Test Plan
- Saving Data
- Editing the Tester Configuration
- Compiling & Running Test Plan
- Viewing Test Results
- **Setting Limits**
- Release Test Plan for Production

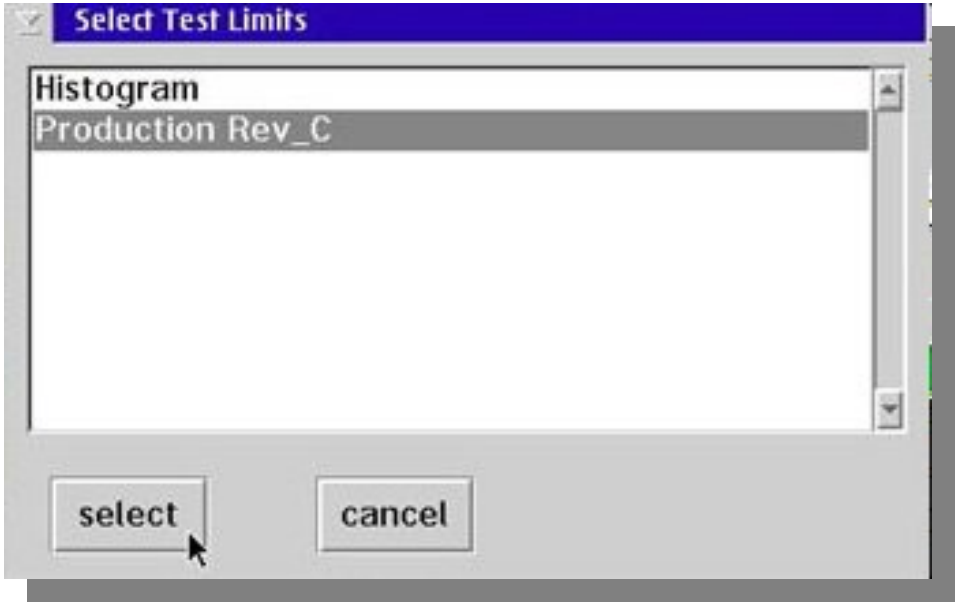
Selecting Test Limits

- Select the Test Plan Editors menu **Limits** and **Select...**



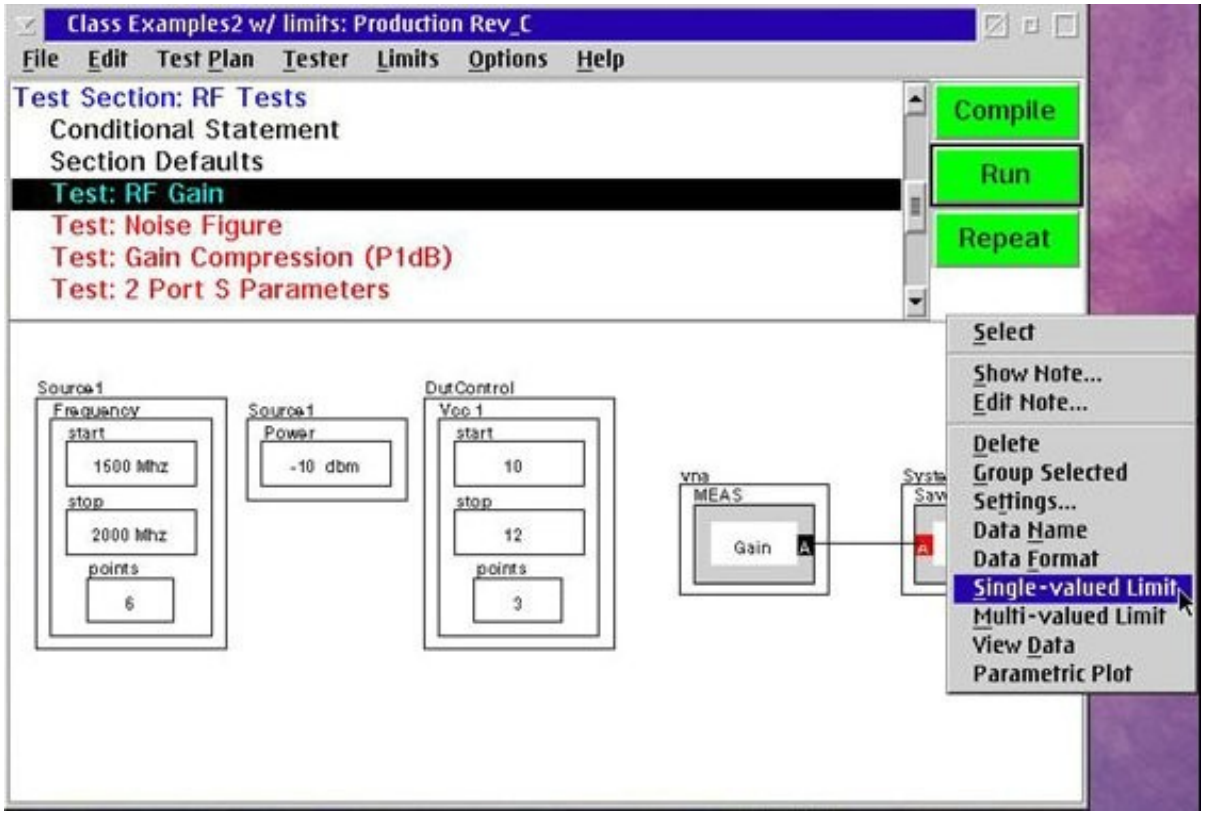
Test Limits

- Test Plan Editor displays the Select Test Limits dialog box
- Select the desired test limits



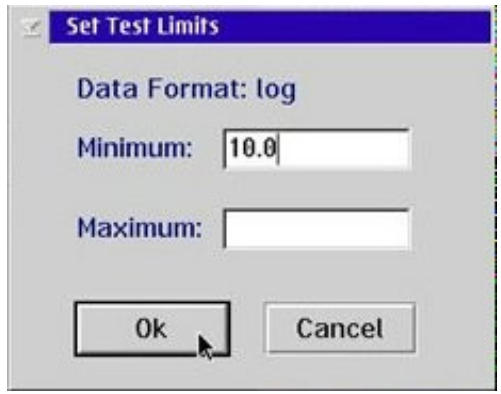
Adding Single Valued Test Limits

- RMBC on the DATA SAVE button
- Select the **Single-valued Limit** from pop-up menu



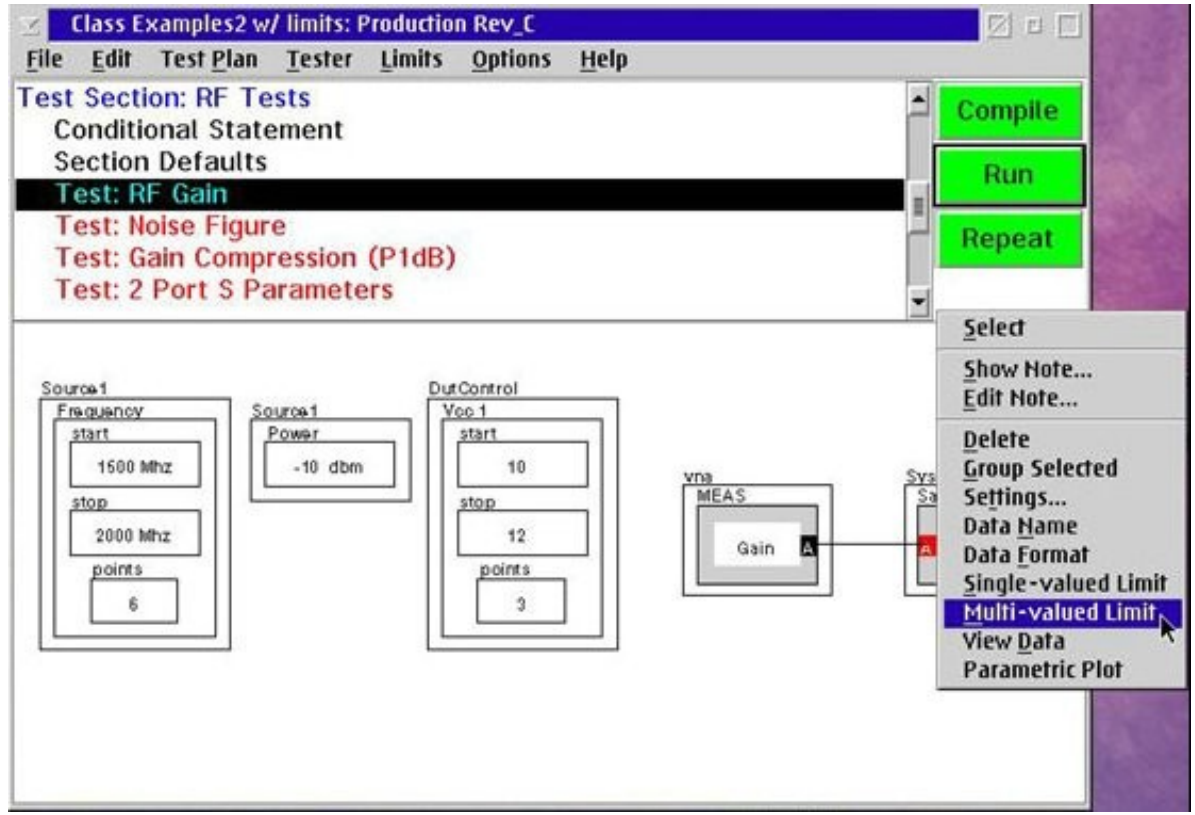
Test Limit Types

- Test Plan Editor will display the **Set Test Limits** dialog box
- Enter the upper and/or lower limit
- Select the **OK** button



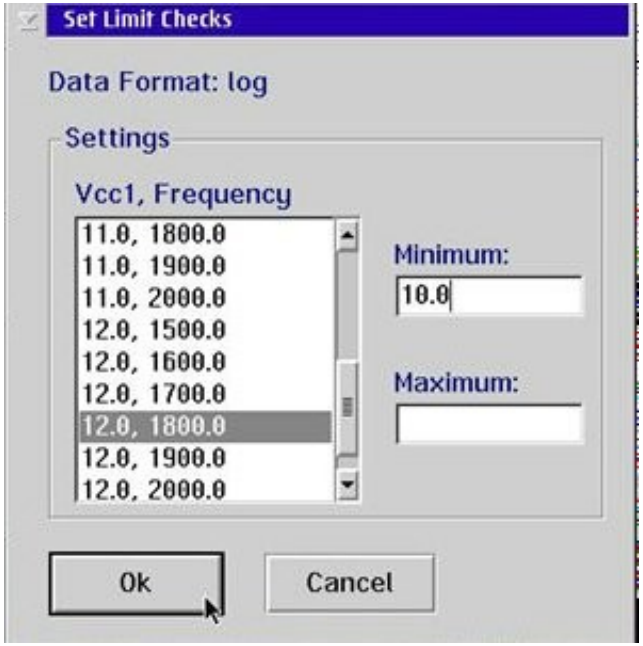
Adding Multi-Valued Test Limits

- RMBC on the DATA SAVE button
- Select the **Multi-Valued Limit** from pop-up menu



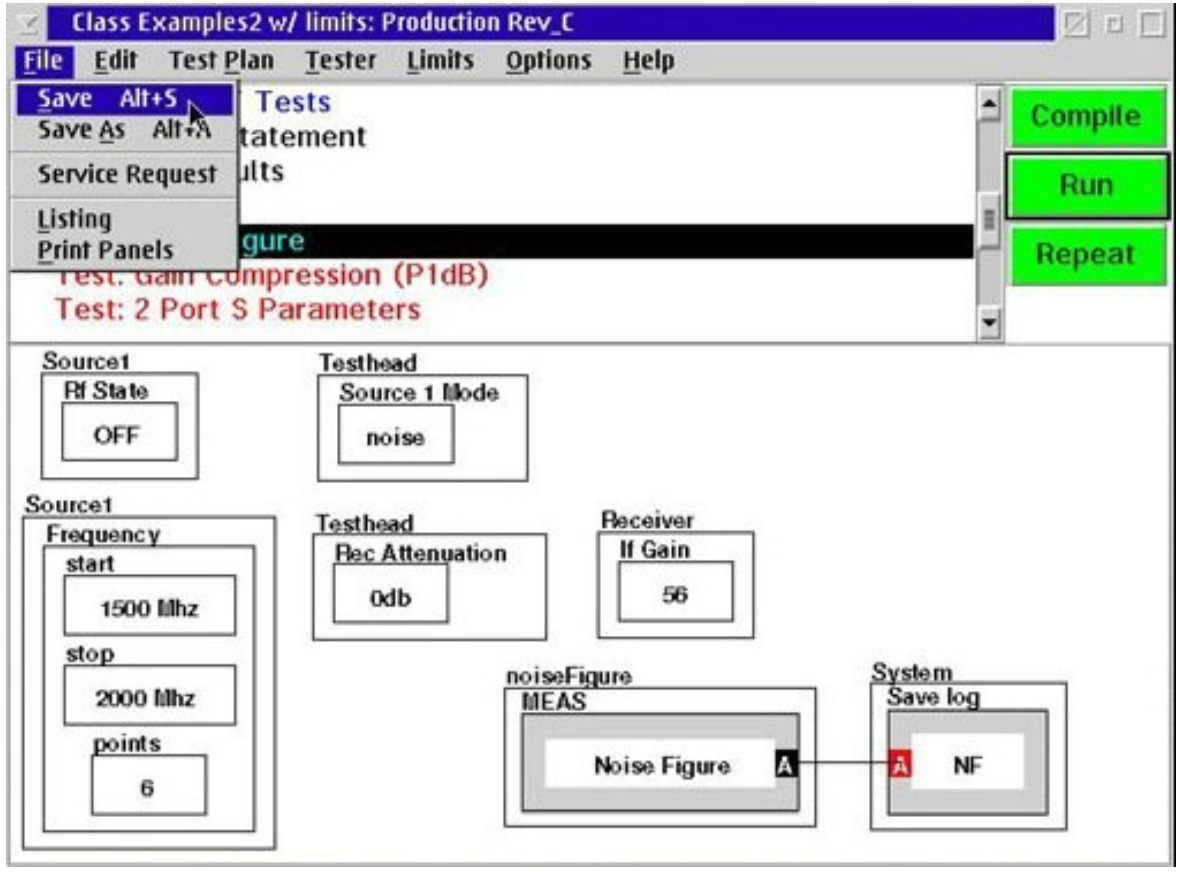
Upper or Lower Limits

- Enter the upper and/or lower limits for each of the point



Saving the Test Limit

- Save the test limits with the test plan
- Test Plan Editors menu **File** and **Save**



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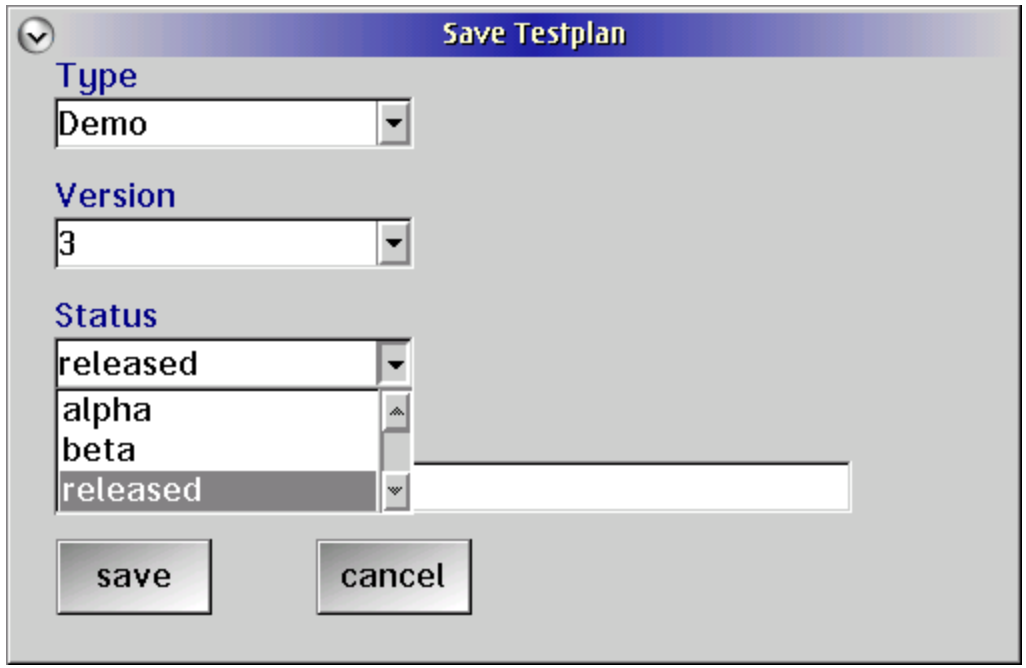
- **Release Test Plan for Production**

Release for Production

- Change status to released

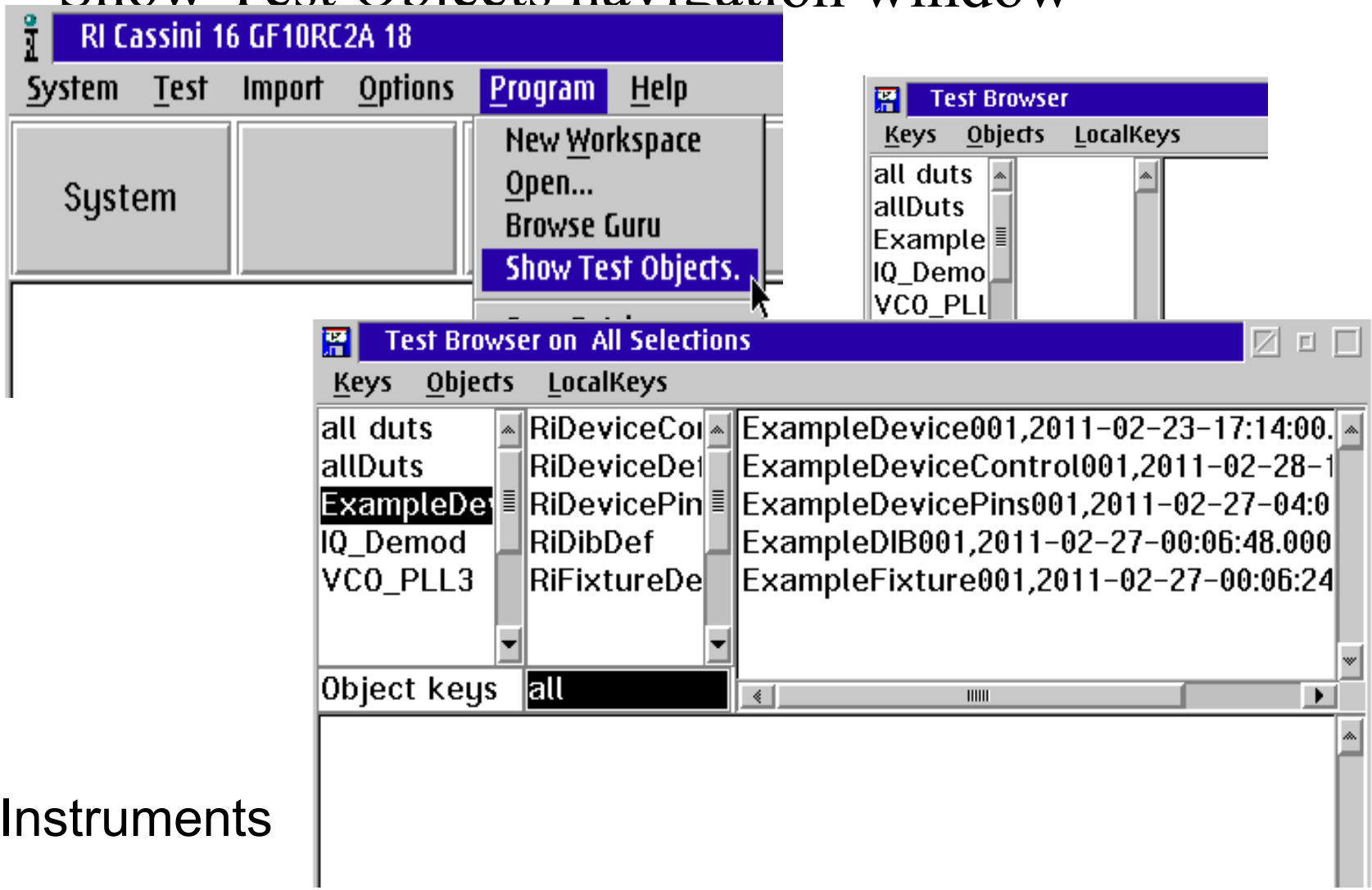


Chapter Outline (Ch 3)

- Creating a New Test Plan
- ...
- Editing the Tester Configuration
- Compiling & Running Test Plan
- Viewing Test Results
- Setting Limits
- **Release Test Plan for Production**
- Opening a Previous Version (Guru)
- Package Exec: Handler Bin Defintions

Opening a Previous Version

- Show Test Objects navigation window



Chapter Outline (Ch 3)

- Creating a New Test Plan
- ...
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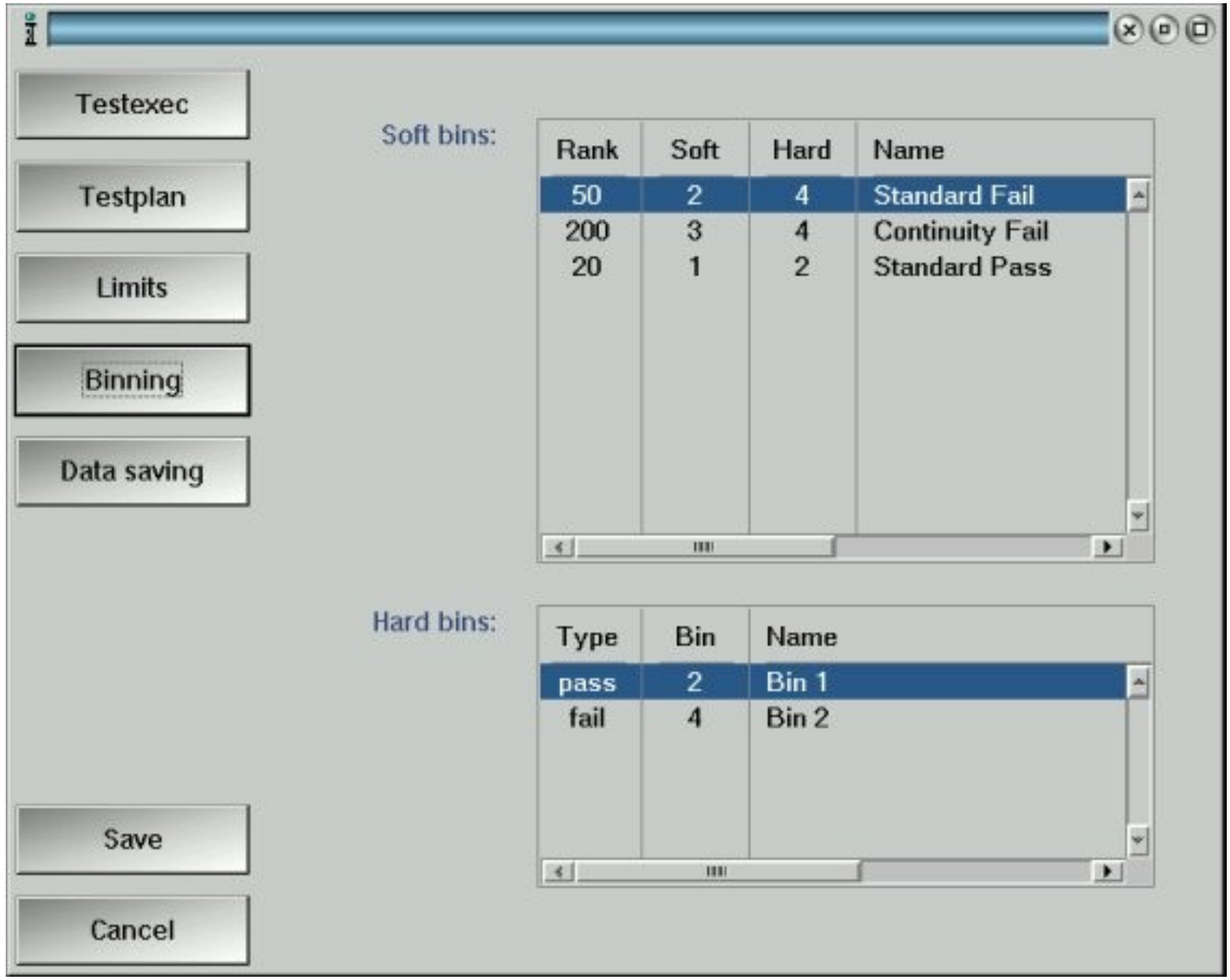
- Opening a Previous Version (Guru)
- **Package Exec: Handler Bin Defintions**

Package Exec: Handler Bins

- Choose "hard" or "soft" bin for each category
- Hard bin is the sort value sent to the handler
- Soft bin is stored in data logs (STDF)
- If using Retset Criteria, you should use a "re-plunge" capable hander
- Set the "retset bin" signal to cause a handler re-plunge

Package Exec: Handler Bins



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Chapter Review (Ch 3)

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- Release Test Plan for Production

Next Topics Preview

- Science of RF Measurement
- Device Definitions
- Example Application Development
- Fixture ad Device Interface Design
- Test Design & Best Practices

Questions?

Any Questions from this Chapter?