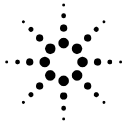
Agilent Technologies

Advisor Async/BiSync

Getting Started



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Call your local Agilent Technologies representative, or:
Tel: 1-800-698-0061
Fax: 303-754-4802
or call your local Agilent Sales and Service Office

Agilent Technologies
5070 Centennial Boulevard
Colorado Springs, Colorado
80919-2497

Web: http://www.agilent.com/comms/onenetworks

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Introduction

Introduction

The Agilent Advisor Async/BiSync is a powerful protocol analyzer designed to help you troubleshoot and analyze your network.

It consists of a ruggedized personal computer equipped with modular data acquisition and transmission hardware, as well as powerful Microsoft® Windows® based network analysis software. Standard peripherals such as serial/parallel ports, floppy drive, pc card slot, etc. are also included.

You can use the Advisor Async/BiSync to:

- resolve network problems quickly and effectively
- prevent network problems before they affect users
- optimize network performance

The Advisor Async/BiSync analyzes the following protocols:

- asynchronous and synchronous character oriented protocol
- ASCII and EBCDIC character formats

The Advisor Async/BiSync supports these built-in physical interfaces:

- RS-232
- RS-449
- V.35

The Advisor Async/BiSync gives you the tools to:

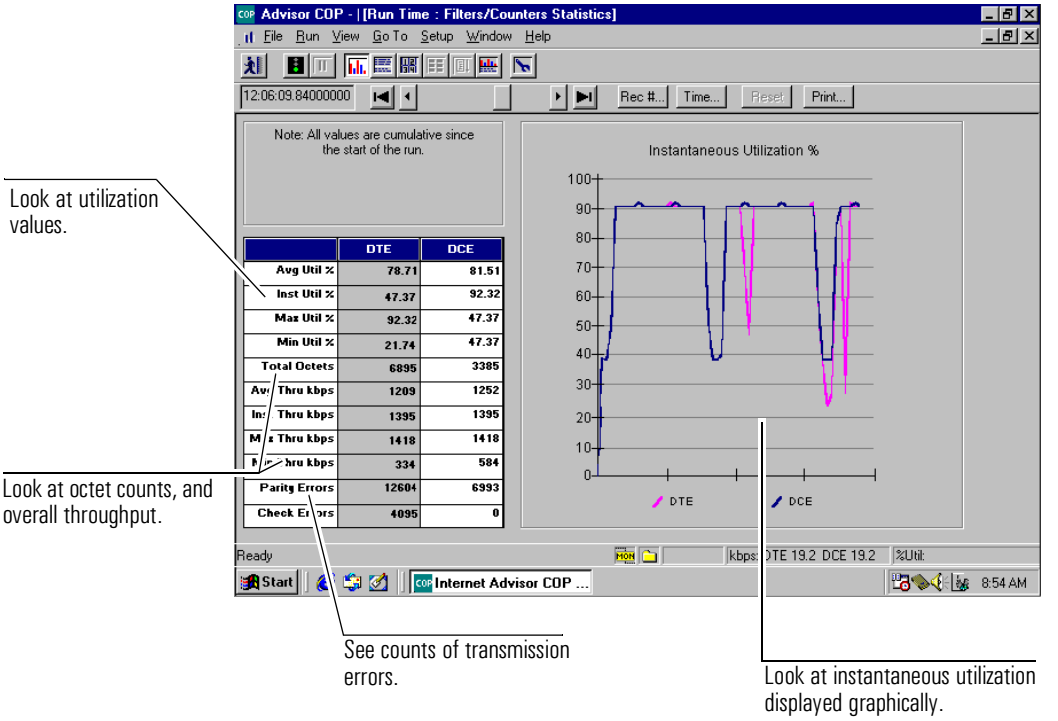
- See utilization and error statistics, and filter and count specific characters.
- Decode network traffic.
- Run simulation measurements.
- Perform post-process analysis on captured traffic and statistics.

The rest of this chapter describes in more detail the features provided by the Advisor Async/BiSync. To learn how to get started, go to chapter 2. To see how to use the Advisor, go to chapter 3. To get detailed operating instructions, user interface descriptions, and other information, go to the online help.

Examining Overall Utilization and Errors

See utilization, throughput, and error statistics.

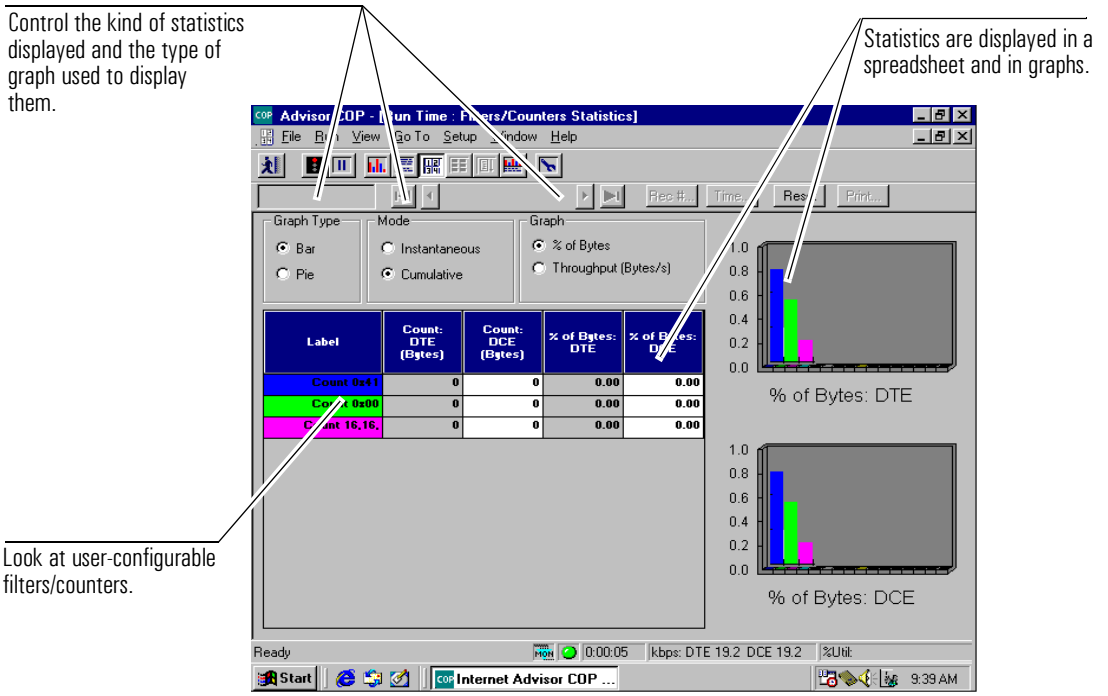
To get a high-level view of the throughput, utilization, and error conditions at the point on the network where you are connected, you can look at the Line Vitals view. The Advisor Async/BiSync provides this information regardless of the physical interface selected.



Filtering/Counting Specific Characters

Display statistics gathered by user-configurable filters and counters.

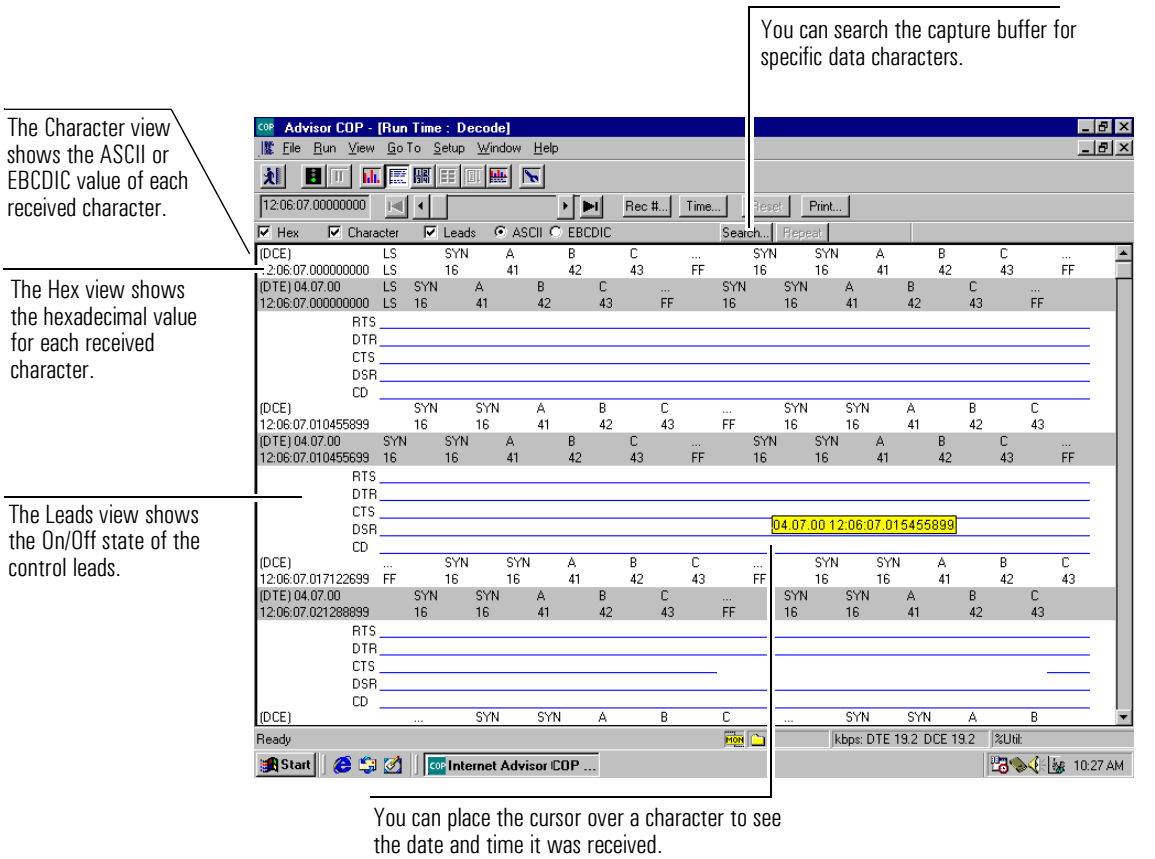
You can monitor very specific characters and traffic types by using the Filters/Counters Statistics view which displays statistics according to user-configurable hardware filters and counters. You can see instantaneous and cumulative statistical data for both the DTE and DCE sides of the test connection.



Decoding Network Traffic

Display the content of the monitored bit stream in a format you can easily read.

To get very detailed information about the traffic on the network, you can decode the bit stream into numbers, text, and symbols, and display it in the Decode view. You can search the capture buffer for specific characters.

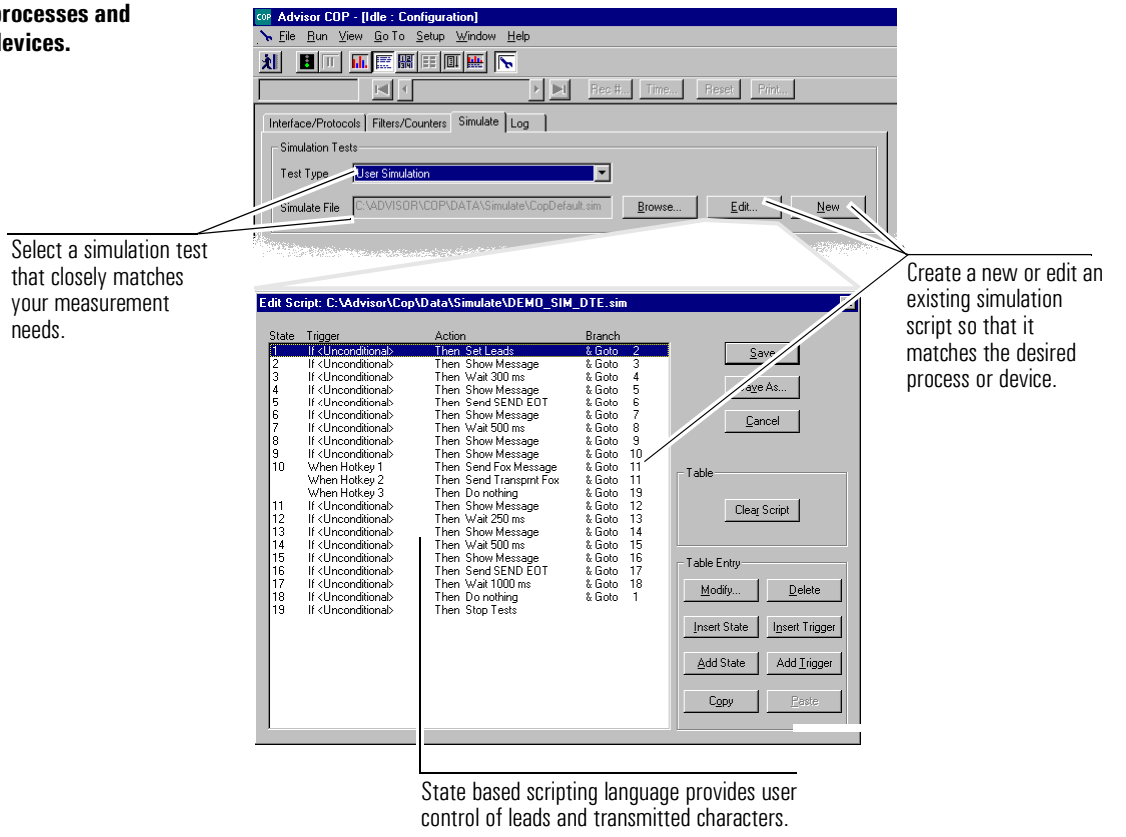


Running Simulation Measurement

Active tests provide additional information about your network.

In addition to passive monitoring, you can also perform tests of a more active nature. You can set up the Advisor Async/BiSync to simulate network devices or processes and to generate specialized traffic patterns.

Simulate network processes and devices.



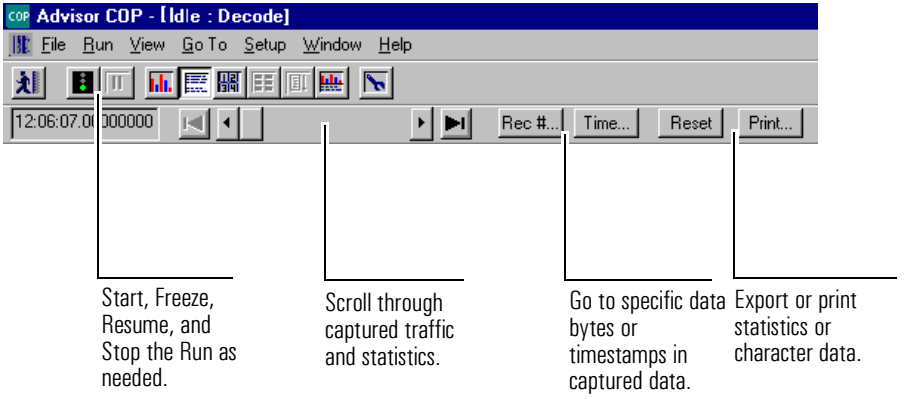
The results of Simulation tests are shown in the Simulation Results view.

Analyzing Post-Process Data

Capture (and save) network traffic and statistics for later analysis.

You can look at network traffic and statistics *after* you have captured it from a live network. This data can be accessed from the Advisor's capture buffer or from a data file, and you can manipulate the data in a number of ways.

When the Advisor Async/BiSync is monitoring, character data is being cycled through a large circular buffer. You can also configure it to do timed monitoring or to stop when full. You can use the Advisor's measurement views to see the contents of this buffer and these caches by stopping the run (ending data capture) or by "freezing" the run (the display is paused but data capture continues). You can also save captured data to a file.



2

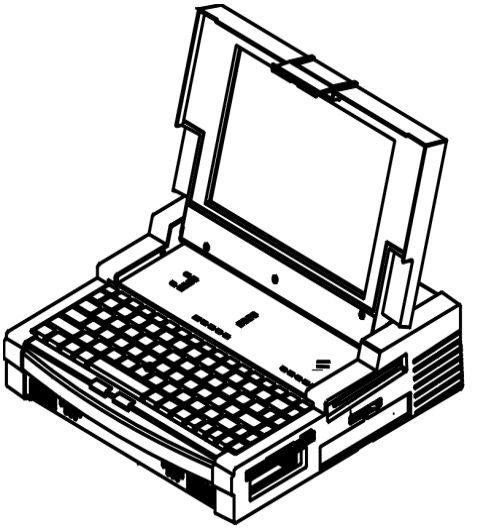
Getting Started

Getting Started

This chapter describes the steps you use to start testing with the Advisor Async/BiSync.

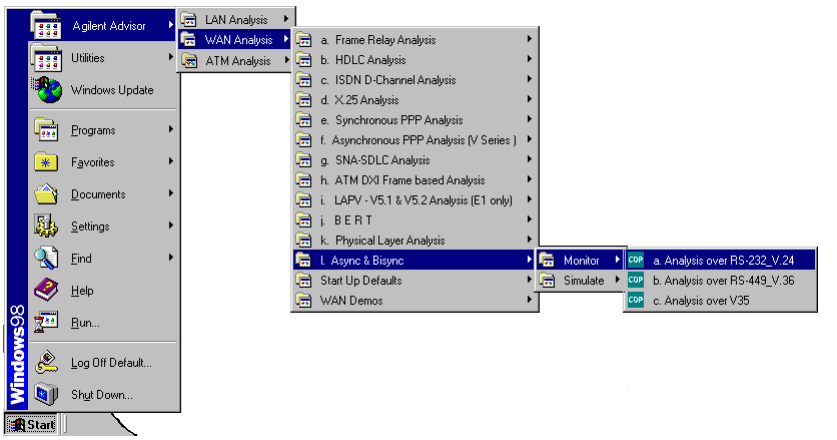
There are some steps you perform each time you start testing your network. Other steps you do only one time or just check that a step you performed previously is still valid.

① The RS-232/V.24, RS-449/V.36, and V.35 connectors are located on the Advisor mainframe.



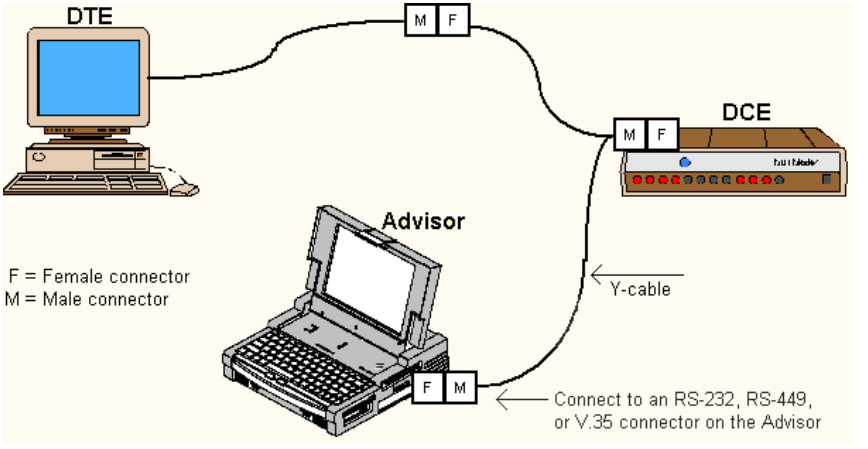
Use the Systems Guide to connect the mainframe, undercradle, and slide-in modules.
Use the instructions on the CD holder for the Advisor CD to install or add Advisor software.

② **Start the Advisor Async/BiSync application.**

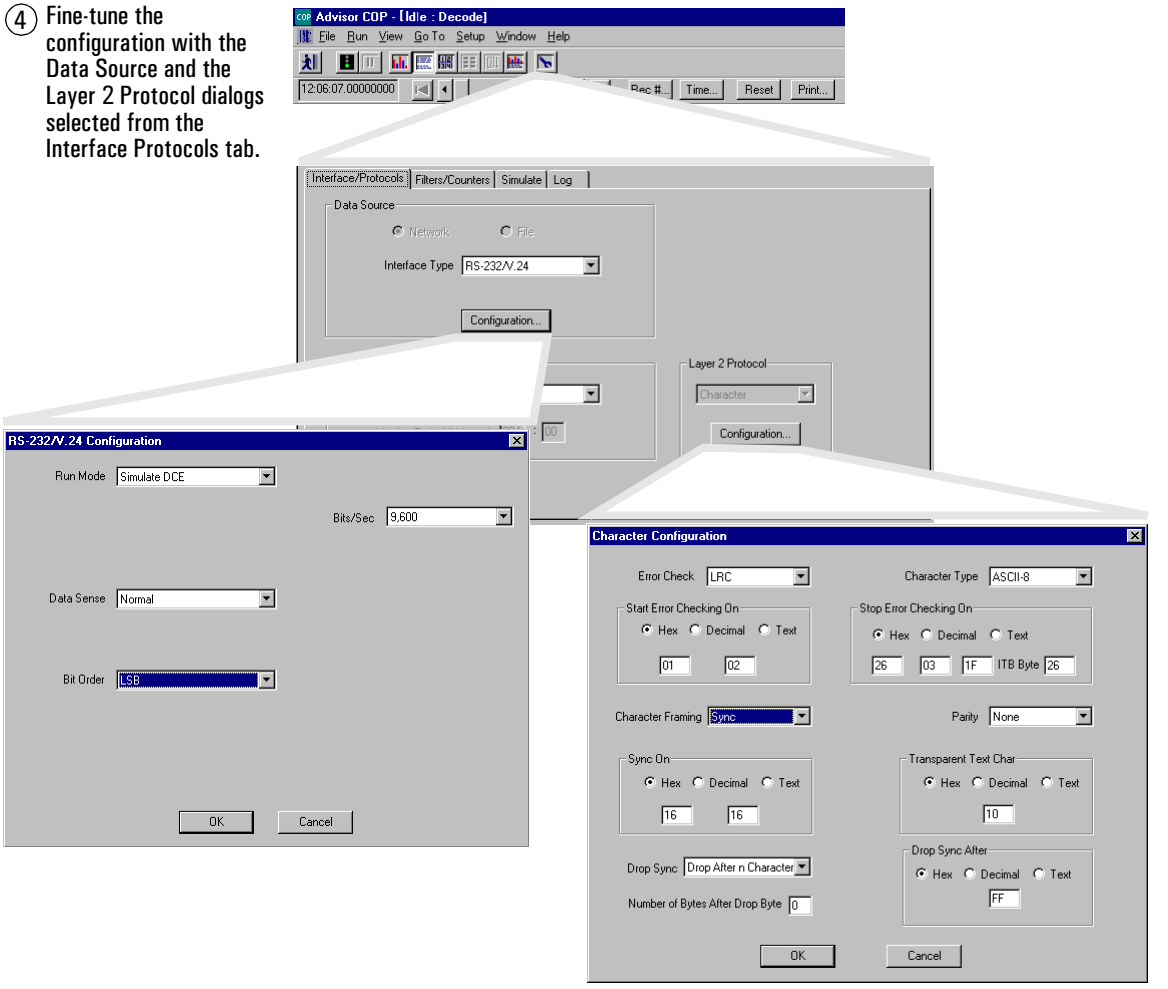


③ **Connect to the network.**

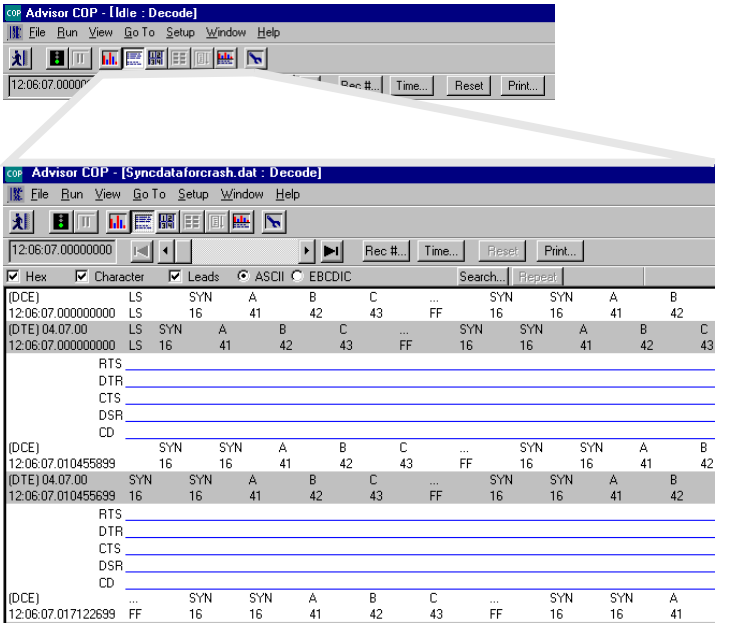
This illustration shows a common connection using a y-cable with the Advisor to passively monitor between a DTE and a DCE.



④ Fine-tune the configuration with the Data Source and the Layer 2 Protocol dialogs selected from the Interface Protocols tab.



⑤ Start the test and view results in any of the measurement views.



Installing Undercradles, Interface Modules, and Software

Undercradle and Interface Module installation

The RS-232/V.24, RS-449/V.36, and V.35 connectors are located on the Advisor mainframe. You do not need to install an undercradle or interface module for these connectors.

If you are running other Advisor applications, you may need to install an interface module or an undercradle. If these items are not already connected to your Advisor, refer to the *Mainframe Features System Guide* for instructions.

CAUTION

To avoid damage to your hardware, be sure the Advisor power switch is set to Off before removing or installing undercradles or interface modules.

Software Installation

The Advisor is shipped with it's application software installed on the hard drive. To reinstall Advisor software, or add a new application, use the instructions on the cover for the Advisor installation CD.

To install the Advisor software, first remove any attached undercradle and then use the installation instructions on the CD cover.

If you are installing other applications, follow the instructions provided with that software.

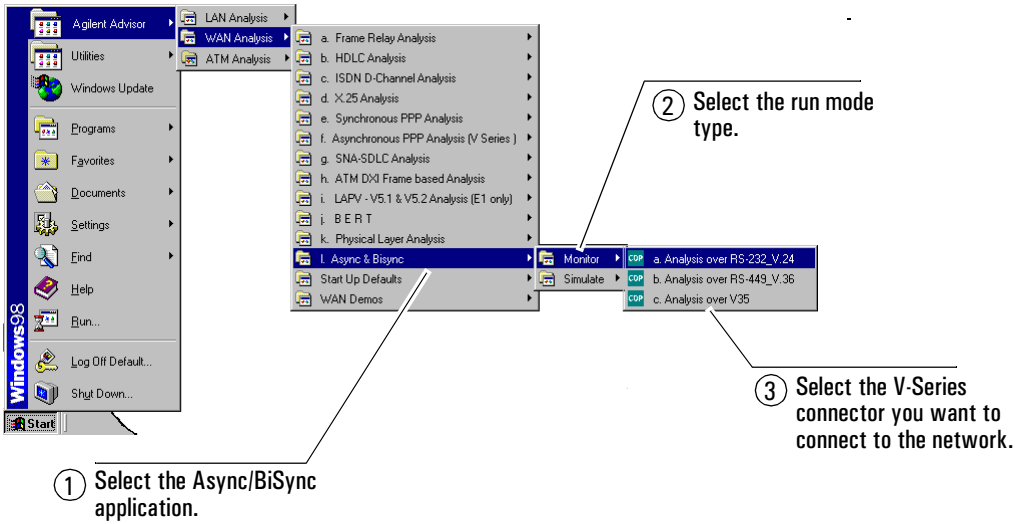
CAUTION

Be sure to save any measurement and configuration files you have created to a floppy disk before installing new Advisor software.

Starting the Application

Start and configure the Advisor Async/BiSync using a supplied test

To start an Advisor Async/BiSync application, select a supplied test from the Start menu in the Windows desktop.



Note

The first time you start the Windows software, you will be required to provide some registration information. Several dialog boxes prompt you for information such as user name, company name, etc. You can accept the default selections by pressing ENTER. In addition, you will be prompted for an authenticity number. The number you should enter is located on the Advisor mainframe.

Connecting to the Network

There are a number of ways to connect the Advisor Async/BiSync to the network, each of which depends on the kind of analysis you plan to perform. This part of the chapter describes, in general terms, the kinds of connections that are most often used. The Advisor's online Help also contains connection diagrams and instructions.

Note

The type of connection you use affects how the Advisor's physical interface is configured.

The Advisor's V-Series connectors provide a standardized interface for you to connect the Advisor to Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) and passively monitor or actively simulate network traffic.

V-Series recommendations specify that DCE devices should have a female connector. This is almost always the case. V-Series recommendations specify that DTE devices should have a male connection. However, many times DTE devices use the more rugged female connector internally and depend upon a male to male cable to connect the data and control signals to the DCE.

You use a Y-cable (a cable with one female and two male connectors) to connect the Advisor for monitor and simulate operations.

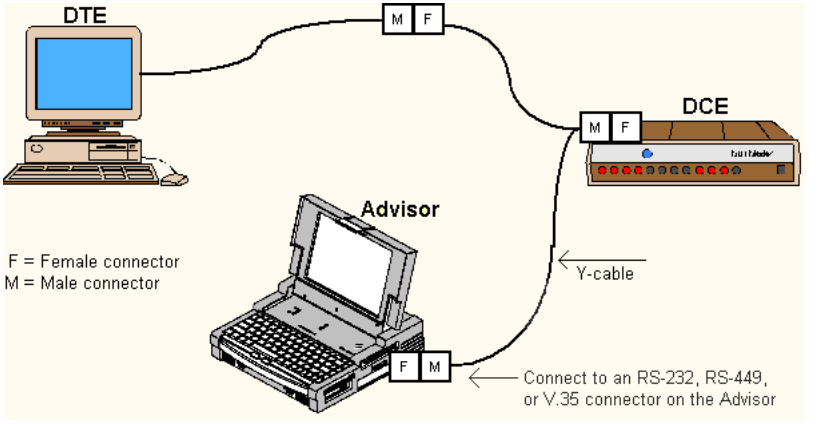
Monitor Connections

The most common connections are those used for passive monitoring.

In monitor mode, the Advisor passively monitors the connection without transmitting data or exercising control over the interface.

Connect to Passively Monitor Between a DTE and a DCE

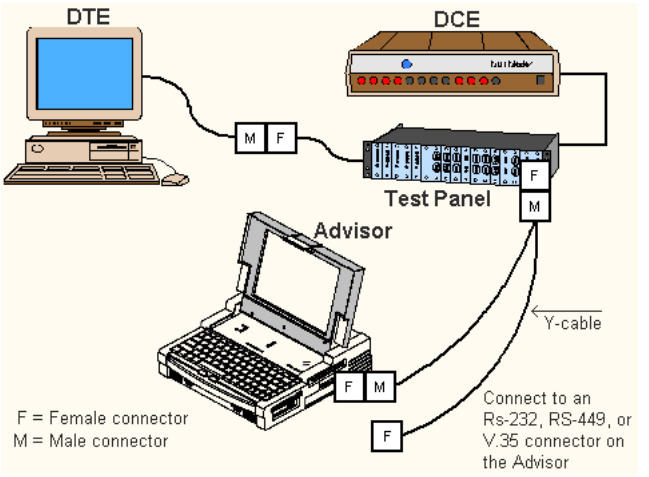
The Advisor can passively monitor data traffic between a DTE and a DCE.



1. Connect one male connector of the Y-cable to the appropriate V-series connector on the advisor.
2. Momentarily interrupt the circuit and connect the y-cable's female and remaining male connectors between the DTE and DCE as shown.
   Tip: Make this connection as quickly as possible. This can cause an interruption in communication between the devices.

Connect to Passively Monitor Using a Test Panel Connector

Some async/bisync installations provide dedicated test panels that you can use to monitor network traffic non-intrusively. These monitor ports are usually located at DCE.



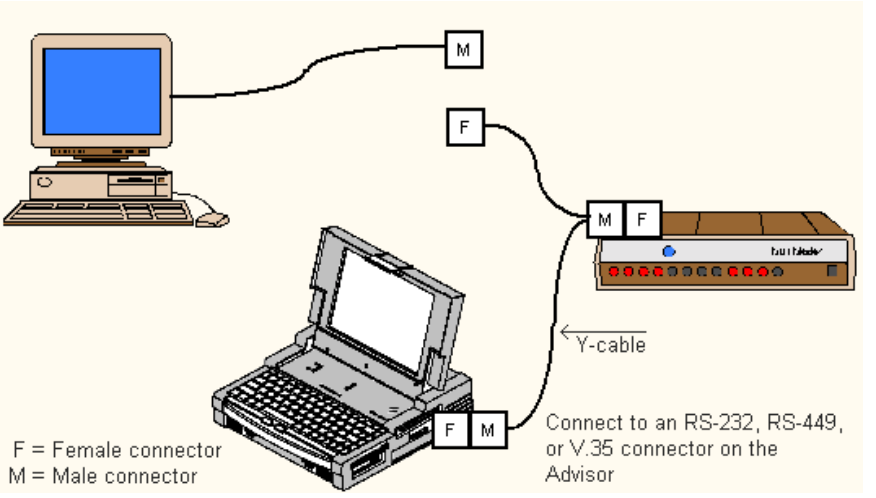
1. Connect one male connector of the Y-cable to the appropriate V-series connector on the Advisor.
2. Connect the other male connector to the monitor port on the test panel.
3. The female connector is not used.

Simulate Connections

In simulate mode, the Advisor becomes a device on the line. This gives you the added capability of interactive testing by injecting data. Chapter 3 in this guide provides a sample test that describes how to write simulate scripts so the Advisor acts as either a DTE or a DCE. The online Help also provides a description of writing simulate scripts.

Connect to Simulate a DTE

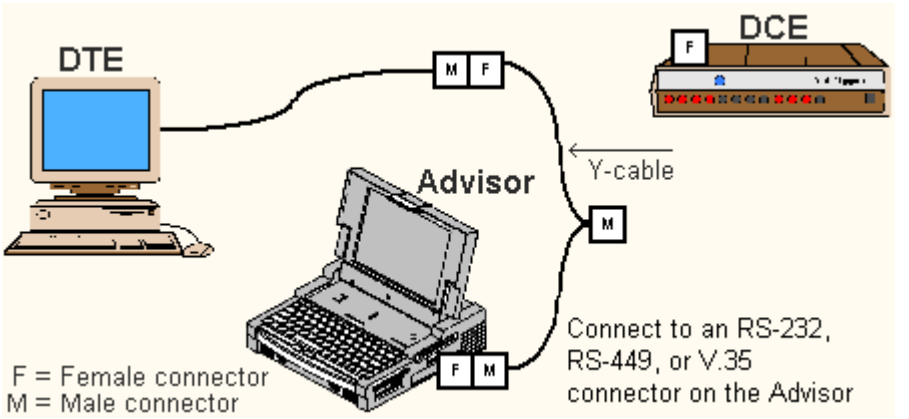
The Advisor is installed in place of a DTE and simulates DTE data traffic being sent to the DCE.



1. Connect one male connector of the Y-cable to the appropriate V-series connector on the Advisor.
2. Connect the remaining male connector to the DCE.
3. The female connector is not used.

Connect to Simulate a DCE

The Advisor is installed in place of a DCE and simulates DCE data traffic being sent to the DTE.



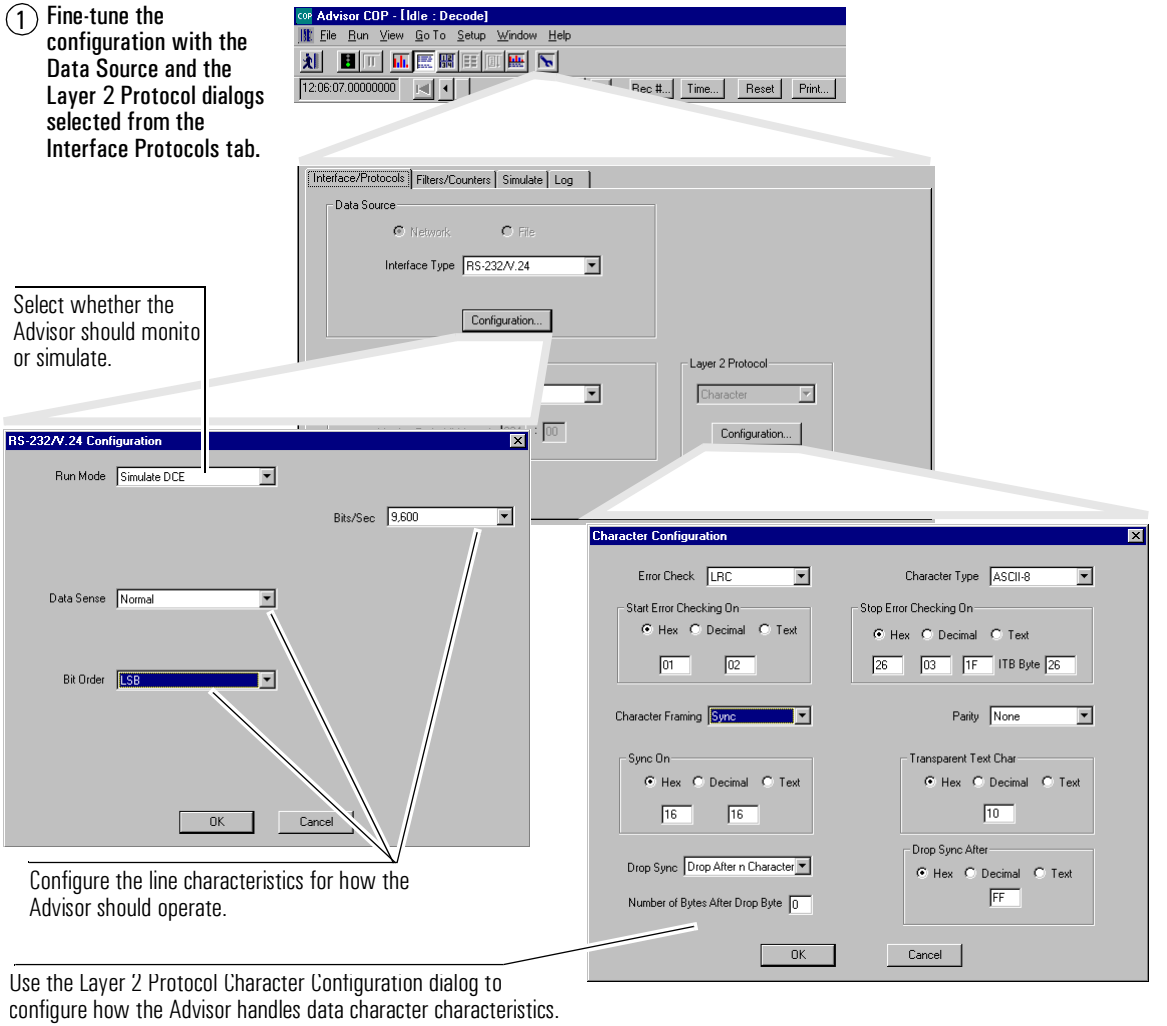
1. Connect one male connector of the Y-cable to the appropriate V-Series connector on the Advisor.
2. Connect the female connector to the cable going to the DTE.
3. The remaining male connector is not used.

Caution: When using a Y-cable to attach the Advisor to a DTE, take care to keep the pins of the unused male connector from making contact with any metal object.
This is especially true for the V.35 male connector. The signal levels are very low energy, and therefore not dangerous, but accidental short circuits can cause improper operation of the DTE and unreliable data collection by the Advisor.

Configuring the Instrument

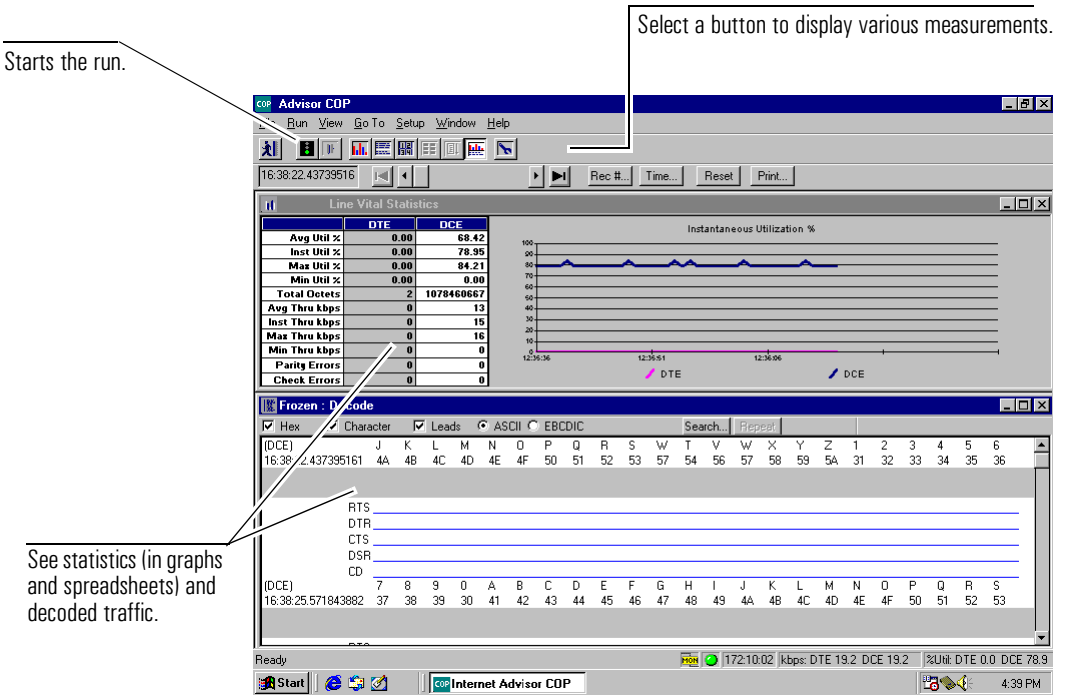
There are times when you need to 'fine-tune' the configuration for unique network conditions or measurement requirements. All configuration parameters can be saved and reused later.

① **Fine-tune the configuration with the Data Source and the Layer 2 Protocol dialogs selected from the Interface Protocols tab.**



Starting a Test and Viewing the Results

Once you have selected the test, connected to the network, and fine-tuned the configuration (if necessary), you can start the test and view data in the Advisor's measurement views.



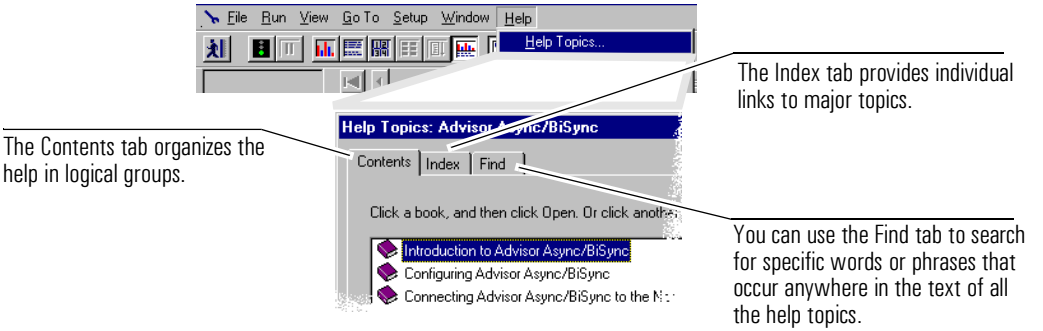
Finding More Information

Advisor Async/BiSync Online Help

Online help is built into the Advisor Async/BiSync application. You can access help from the menu bar at the top of the application window or by using the F1 key.

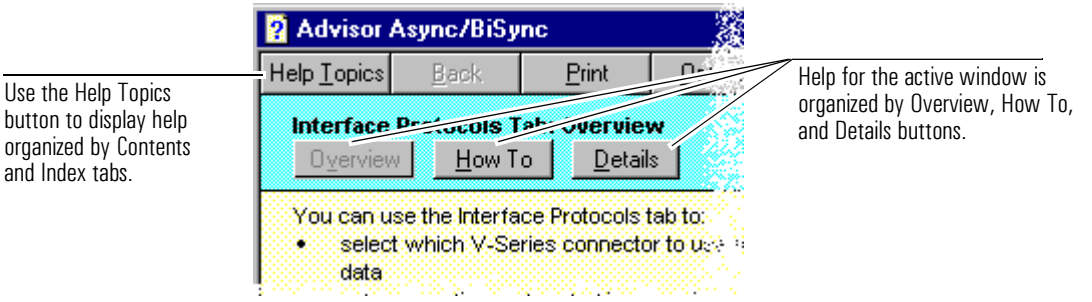
Online Help Menu

The Help menu item opens the general Advisor Async/BiSync help window so that you can choose from three different ways to find the help you want.



Context Sensitive Online Help

You can quickly find information about the currently selected Advisor window by pressing the F1 key.



Sample Tests

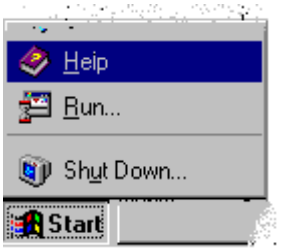
The next chapter in this book describes examples for using the Advisor to make measurements on your network.

Other Advisor Books

Each of the technologies that can be tested with the Advisor has a separate Getting Started manual. Use the appropriate Getting Started manual when you need to test another network technology.

Windows Online Help

You can find information on general Windows operation from the online Help tutorial. It is a good idea to spend a few minutes learning the basic functions and terminology associated with the Windows environment.



***Operating System Guide* manual**

The manual, *Operating System Guide*, is shipped with each Advisor to help you get up and running quickly.

3

Sample Tests

Sample Tests

This chapter provides examples of how to create and run a simulate script to use the Advisor to analyze and solve asynchronous and bisynchronous traffic problems. The following examples are designed to give you a basic understanding of the Advisor's operation and features:

- Configuration
- Creating a Simulation Script
- Running a Simulation Script

These examples illustrate the simulation capabilities of the Advisor.

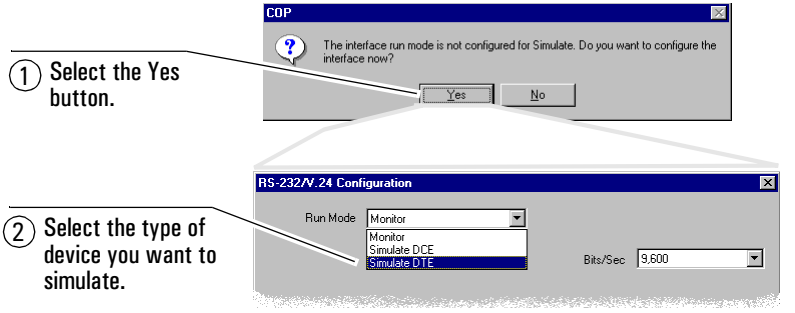
To learn more...

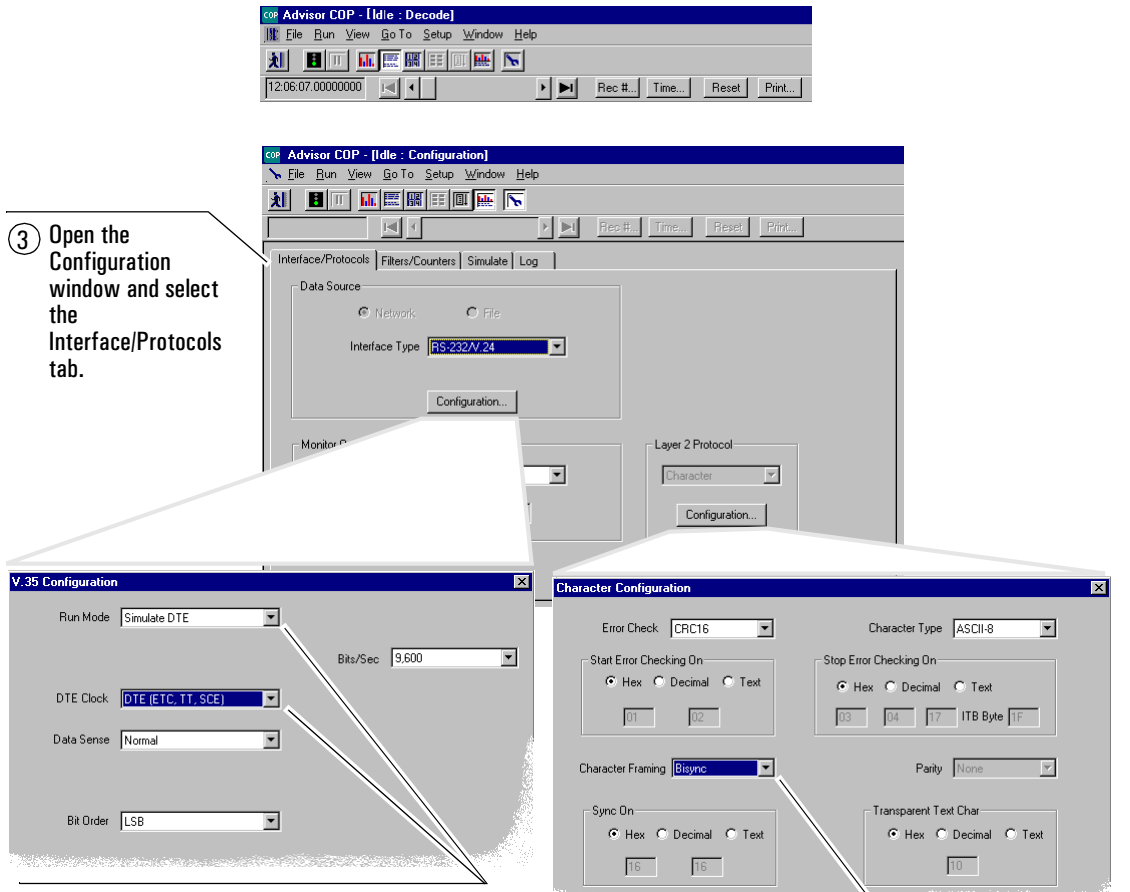
For more information about how to use the features of the Advisor, refer to the "How Do I..." section of the online Help. You can also press F1 while in the Advisor Async/BiSync application to get specific information about the window, measurement view, or dialog box you are observing.

Configuring for Simulation

This example illustrates how to configure the Advisor Aysnc/BiSync for simulation.

You must be configured to simulate before you click on the Simulate tab in the configuration screen. If you are configured for Monitor and click on the Simulate tab, you will see the following dialog:





3 Open the Configuration window and select the Interface/Protocols tab.

5 **Set the Run Mode to simulate DTE and then set the DTE Clock to come from the DTE.**

Normally, the DCE supplies the clock for the DTE. However, for this demo simulation, you need to set the DTE to supply the clock.

4 **Set the Character Framing to Bisync.**

You will now be configured to run the demo simulation that will be created in the “Creating a Simulation Script” sample test that follows.

You can use the file Demo_Sim_DTE.dat thas been included in the C:\Advisor\Cop\Data directory to configure the Advisor.

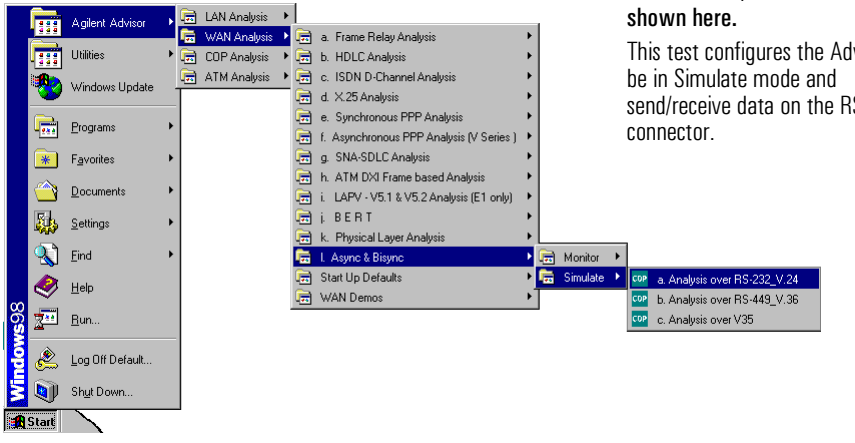
Creating a Simulation Script

This example illustrates how to create a simulate script so that the Advisor Aysnc/BiSync will demonstrate simulation of a DTE device. The example will go through the steps necessary to write the script to demonstrate simulation in DTE mode. This example will demonstrate how to:

- Set the on/off state of the leads.
- Display a status message.
- Create a hotkey to control a simulation.
- Send a string of characters.
- Send a string of transparent characters.
- Wait for a fixed time.

The steps shown here represent common troubleshooting conditions for simulating a DTE. You can easily modify the steps to simulate a DCE to suit other test situations.

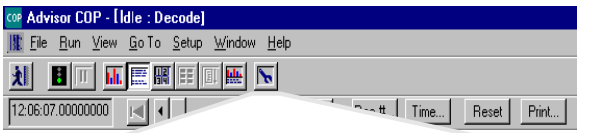
To begin, you need to have the Advisor turned on and configured as described in the previous sample test, “Configuring for Simulation”.



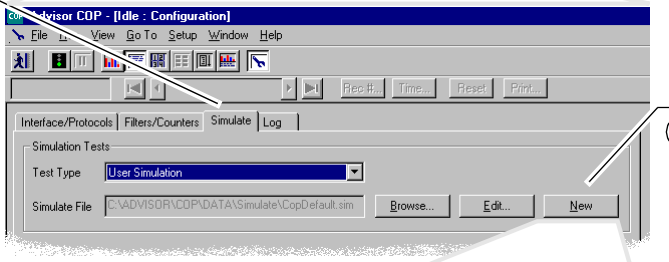
1 Select the ‘Simulate Analysis over RS-232/V.34’ test as shown here.

This test configures the Advisor to be in Simulate mode and send/receive data on the RS-232 connector.

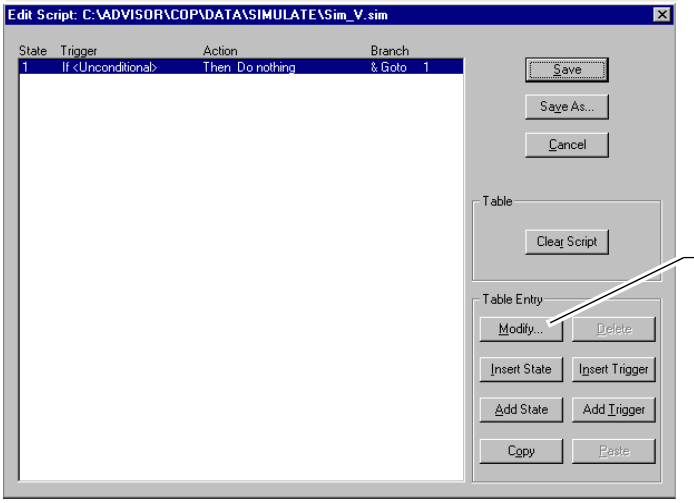
② Open the Configure window.



③ Select the Simulate tab.



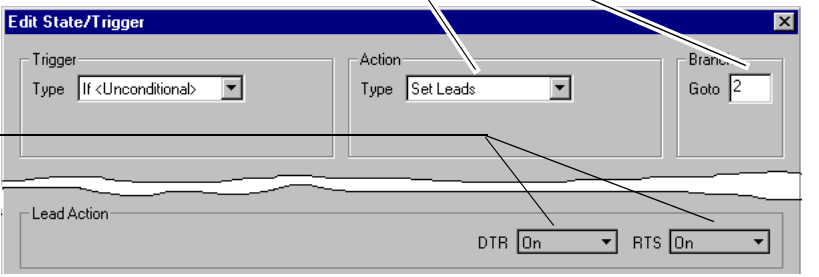
④ **Select the New button to start a new simulate script**
OR
Use the Browse button to find the existing script Demo_Sim_DTE.sim and then select the Edit button.



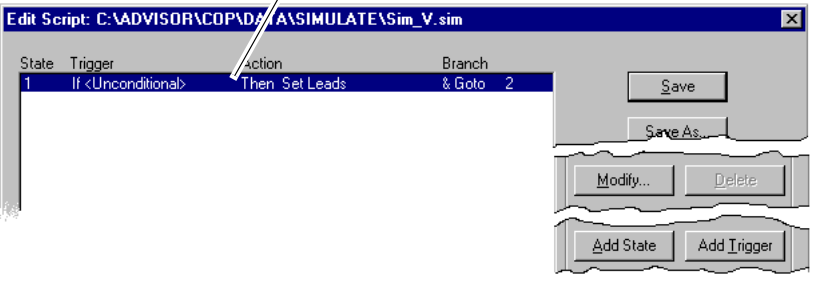
⑤ **With the first line highlighted, select the Modify button to open the Edit State dialog.**
If you opened Demo_Sim_DTE.sim, you will see all of the example already entered.

⑥ Select an Action Type of Set Leads. Type 2 in the Goto field.

⑦ Set DTR and RTS to On and then click OK.



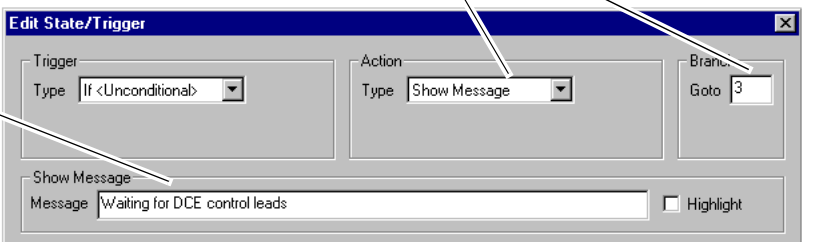
New state in the Edit Script dialog.



⑧ **State 2** -- Select **Add State** and then select **Modify** to define the next line of the script.

⑨ Select an Action Type of Show Message.
Type 3 in the Goto field.

⑩ Type a message, 'Waiting for DCE control leads' and then click OK.

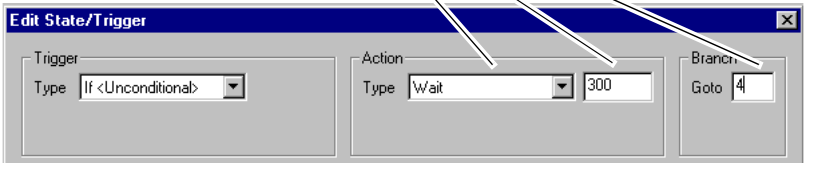


⑪ **State 3** -- In Edit Script dialog, select **Add State** and then select **Modify**.

Here, the demo has a wait time of 300. For a 'live' test, you would select "When Lead Change" for a trigger and set the correct lead state to wait for.

⑫ Select an Action Type of Wait.
Enter 300 for wait time.
Type 4 in the Goto field

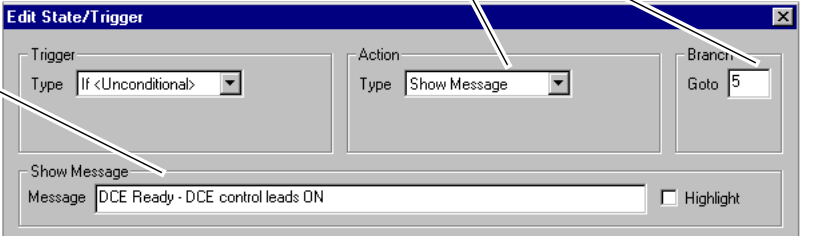
⑬ Click OK.



⑭ **State 4** --In Edit Script dialog, select **Add State** and then select **Modify**.

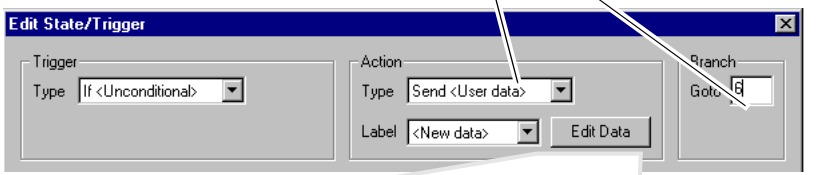
⑮ Select an Action Type of Show Message.
Type 5 in the Goto field.

⑯ Type a message, 'DCE Ready - CDE control leads ON' and then click OK.



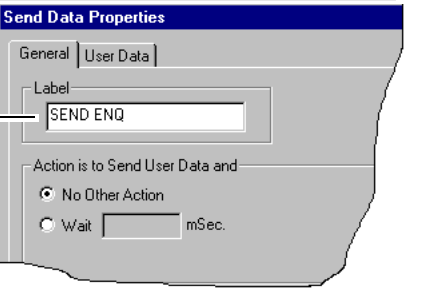
⑰ **State 5** --In Edit Script dialog, select **Add State** and then select **Modify**.

⑱ Select an Action Type of Send <User Data>. Type 6 in the Goto field.

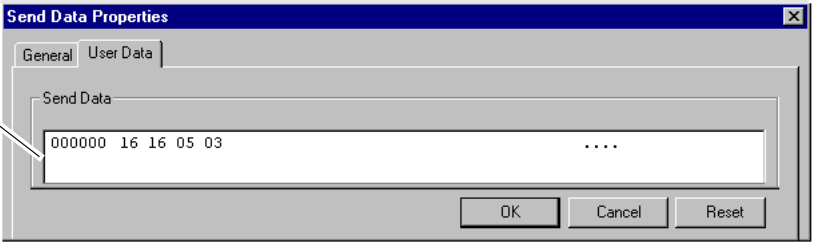


⑲ Click the Edit Data button.

⑳ Type 'Send ENQ' in the label field.



㉑ Select the User Data tab.

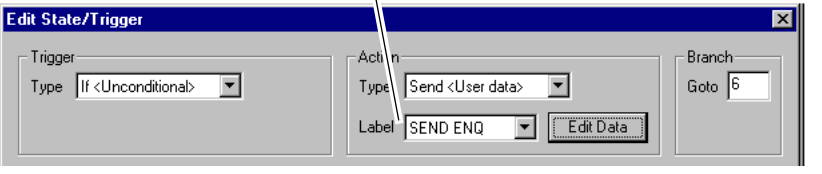


㉒ Type 16 16 05 03 for data and then click OK.

16 = SYN
05 = ENQ
03 = ETX

Tip: For "live" line testing, you would send the requried message depending on the DCE required sequence of commands.

New data label from the message above..

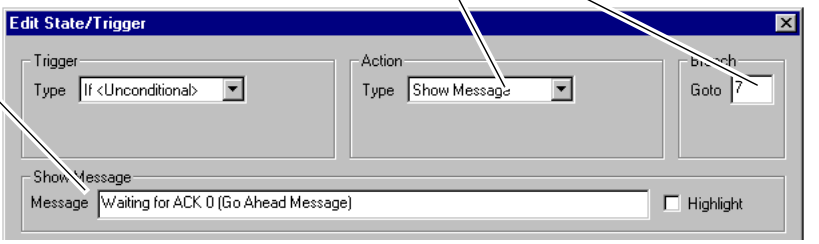


㉓ Click OK.

(24) **State 6** --In Edit Script dialog, select **Add State** and then select **Modify**.

(25) Select an Action Type of Show Message.
Type 7 in the Goto field.

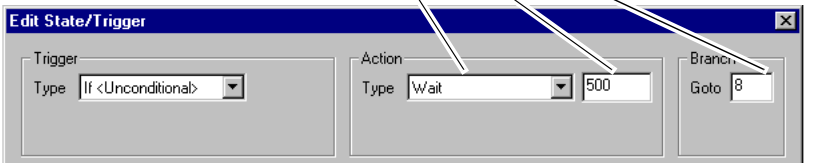
(26) Type a message, 'Waiting for ACK 0 (Go Ahead Message)' and then click OK.



(27) **State 7** --In Edit Script dialog, select **Add State** and then select **Modify**.

(28) Select an Action Type of Wait.
Enter 500 for wait time.
Type 8 in the Goto field.

(29) Click OK.

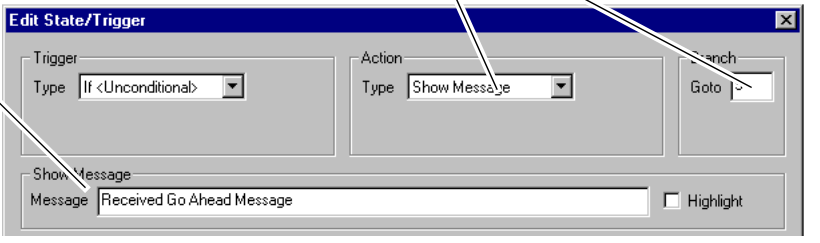


Tip: For "live" line testing, you would set the Trigger Action to the appropriate selection depending on what the DCE responds with.

(30) **State 8** --In Edit Script dialog, select **Add State** and then select **Modify**.

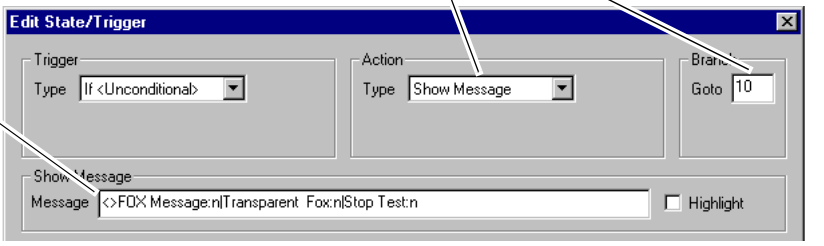
(31) Select an Action Type of Show Message.
Type 9 in the Goto field.

(32) Type a message, 'Received Go Ahead Message' and then click OK.



(33) **State 9** --In Edit Script dialog, select **Add State** and then select **Modify**.

(34) **Select an Action Type of Show Message. Type 10 in the Goto field.**



(35) **Type a message, with the syntax shown in the example.**

This syntax creates 3 hotkey buttons that display in the Simulate Results view when you run this script.

Where
< > -- identifies the beginning of the hotkey setup message.
: -- terminates the string for a button name.
n -- the number of clicks that may occur before the button is removed.
| -- provides a separator between the buttons.

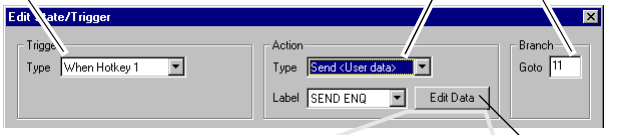
(36) **Click OK.**

37 **State 10**--In Edit Script dialog, select **Add Trigger** and then select **Modify**.

Note: This is different from previous steps. Add Trigger adds a new line at the bottom of the current state line.

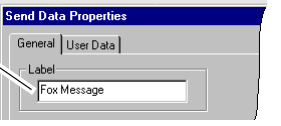
38 Select a Trigger Type of When Hotkey 1.

39 Select an Action Type of Send <User Data> Leave 11 in the Goto field.

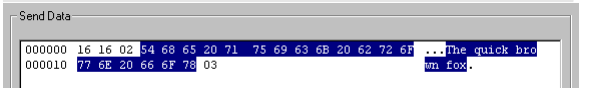


40 Select <New data> in the Label field and then select the Edit Data button.

41 Type 'Fox Message' in the label field.



42 Select the User Data tab.



43 Type the message, 'The Quick brown fox' and then click OK.

In the left field, you can enter hex values directly.

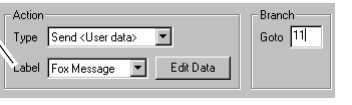
In the right field, you can enter letters directly.

16 = SYN

02 = STX

03 = ETX

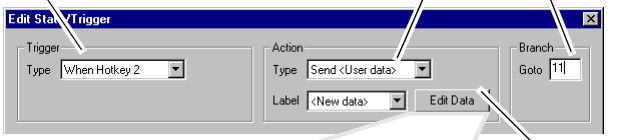
44 Note that the new Fox Message is selected and then click OK.



㊺ **State 10** --In Edit Script dialog, select **Add Trigger** and then select **Modify**.

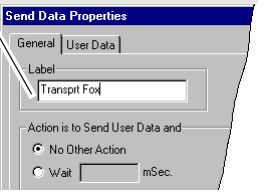
㊻ Select a Trigger Type of When Hotkey 2.

㊼ Select an Action Type of Send <User Data> Leave 11 in the Goto field.



㊾ Type 'Transprt Fox' in the label field.

㊽ Select <New data> in the Label field and then select the Edit Data button.



㊿ Select the User Data tab.

(51) Type the message, 'The Quick brown fox' and then click OK.

In the left field, you can enter hex values directly.

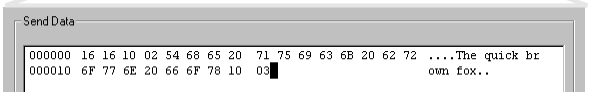
In the right field, you can enter letters directly.

16 = SYN

10 = DLE

02 = STX

03 = ETX

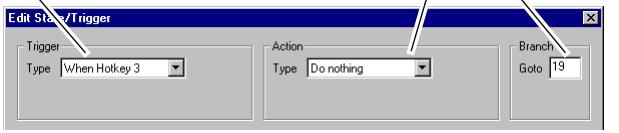


(52) Note that the new Transprt Fox message is selected and then click OK.

53 **State 10** --In Edit Script dialog, select **Add Trigger** and then select **Modify**.

54 Select a Trigger Type of When Hotkey 3.

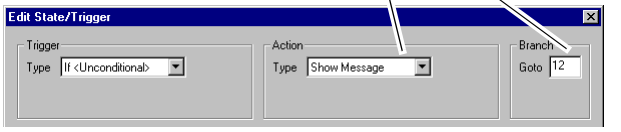
55 Select an Action Type of Do Nothing. Type 19 in the Goto field.



56 Click OK.

57 **State 11** --In Edit Script dialog, select **Add State** and then select **Modify**.

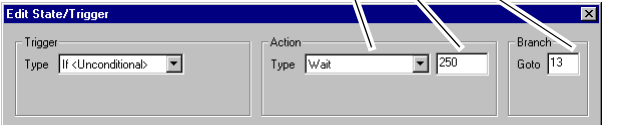
58 Select an Action Type of Do Nothing. Type 12 in the Goto field.



59 Click OK.

60 **State 12** --In Edit Script dialog, select **Add State** and then select **Modify**.

61 Select an Action Type of Wait. Enter 250 for wait time. Type 13 in the Goto field.

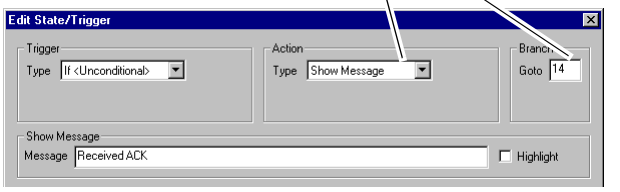


62 Click OK.

Tip: For "live" line testing, you would set the Trigger to a valid DCE response.

63 **State 13** --In Edit Script dialog, select **Add State** and then select **Modify**.

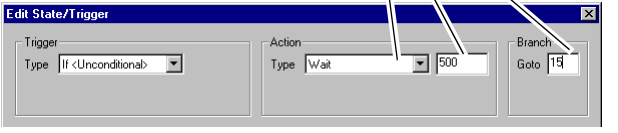
64 Select an Action Type of Do Nothing.
Type 14 in the Goto field.



65 Click OK.

66 **State 14** --In Edit Script dialog, select **Add State** and then select **Modify**.

67 Select an Action Type of Do Nothing.
Enter 500 for wait time.
Type 15 in the Goto field.

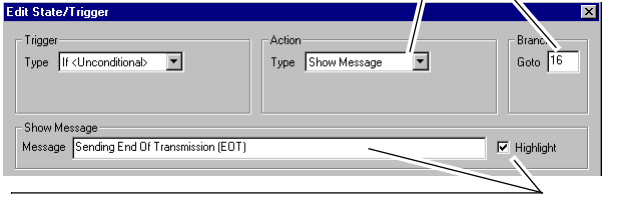


68 Click OK.

Tip: For "live" line testing, you would set the Trigger to a valid DCE response.

69 **State 15** --In Edit Script dialog, select **Add State** and then select **Modify**.

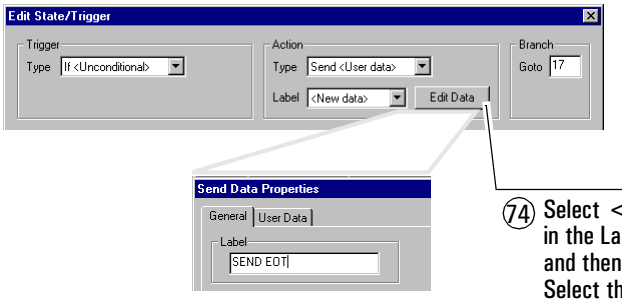
70 Select an Action Type of Show Message.
Type 16 in the Goto field.



71 Type a message, "Sending End of Transmission EOT".
Select the Highlight checkbox.
Click OK.

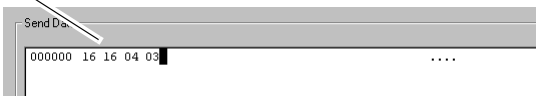
72 **State 16** --In Edit Script dialog, select **Add State** and then select **Modify**.

73 Select an Action Type of Send ＜User data＞.
Type 17 in the Goto field.



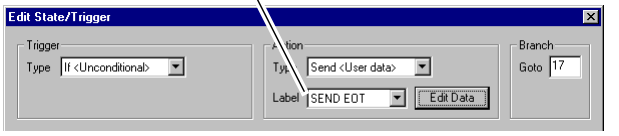
74 Select ＜New data＞
in the Label field
and then
Select the Edit Data button.

75 Type message
16 16 04 03
and then
click OK.
16 = SYN
04 = EOT
03 = ETX



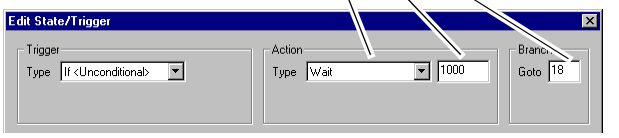
New message label

76 Click OK.



(77) **State 17** -- In Edit Script dialog, select **Add State** and then select **Modify**.

(78) Select an Action Type of Wait.
Enter 1000 for wait time.
Type 18 in the Goto field.

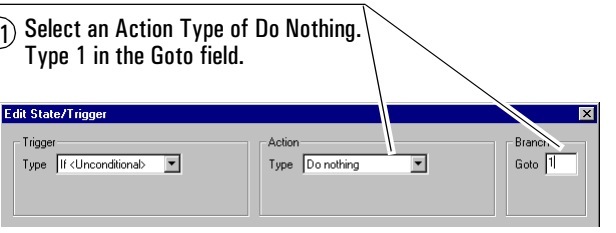


(79) Click OK.

Tip: For "live" line testing, you would set the Trigger to a valid DLE response.

(80) **State 18** --In Edit Script dialog, select **Add State** and then select **Modify**.

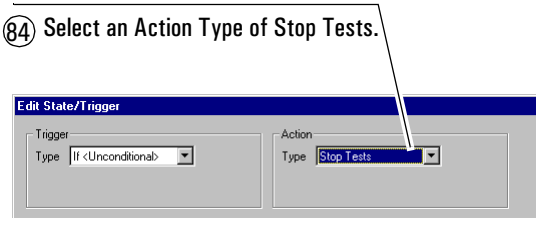
(81) Select an Action Type of Do Nothing.
Type 1 in the Goto field.



(82) Click OK.

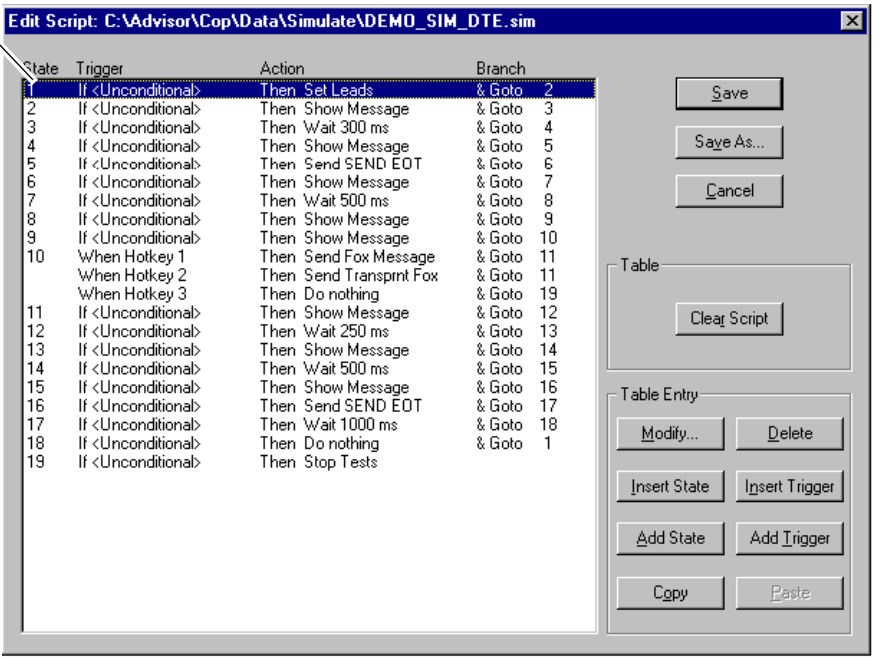
(83) **State 19** --In Edit Script dialog, select **Add State** and then select **Modify**.

(84) Select an Action Type of Stop Tests.



(85) Click OK.

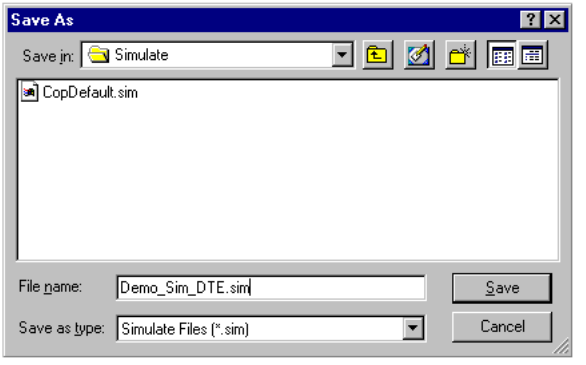
86 **If you have followed all the previous steps, your simulate script should look like this.**



87 **Use the Save button to save the simulate script.**

88 **In the Edit Script dialog, select the Save As button and save the script.**

For example: C:\Advisor\Cop\Data\Simulate\Demo_Sim_DTE.sim.



Summary:

This sample script demonstrates several of the features available in simulate scripts.

The next sample test demonstrates how to run the simulate script.

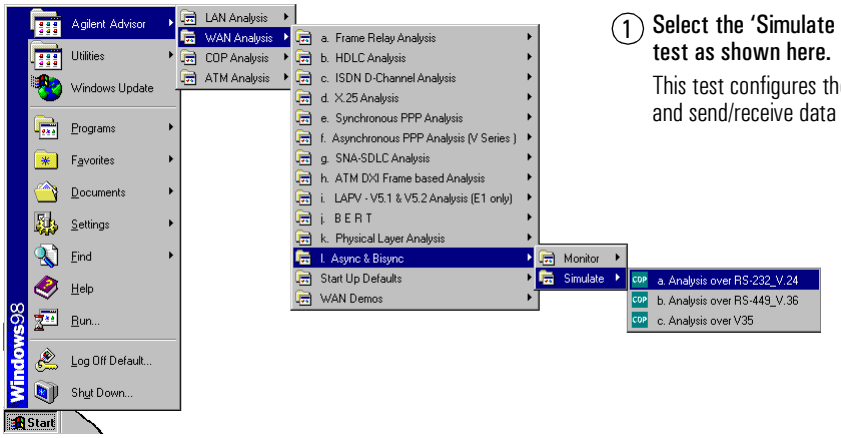
Running a Simulation Script

This example illustrates how to run the simulate script that was created in the previous sample test. In this sample, the Advisor Aysnc/BiSync will simulate a DTE device. The example will go through the steps necessary to load the script and operate in simulate DTE mode. This example will demonstrate how to:

- Start the Advisor Async/BiSync application in simulate mode
- Select settings for the simulation.
- Load the simulate script.
- Run the simulation script.

The steps shown here represent common troubleshooting conditions for simulating a DTE. You can easily modify the steps to simulate a DCE to suit other test situations.

To begin, turn the Advisor on.

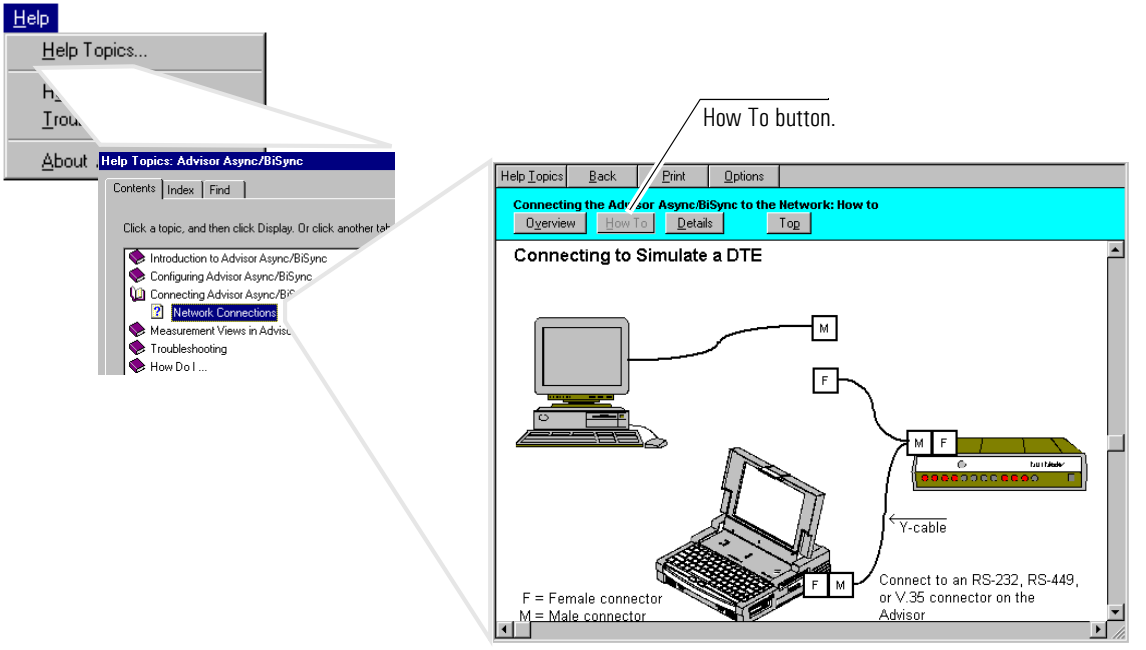


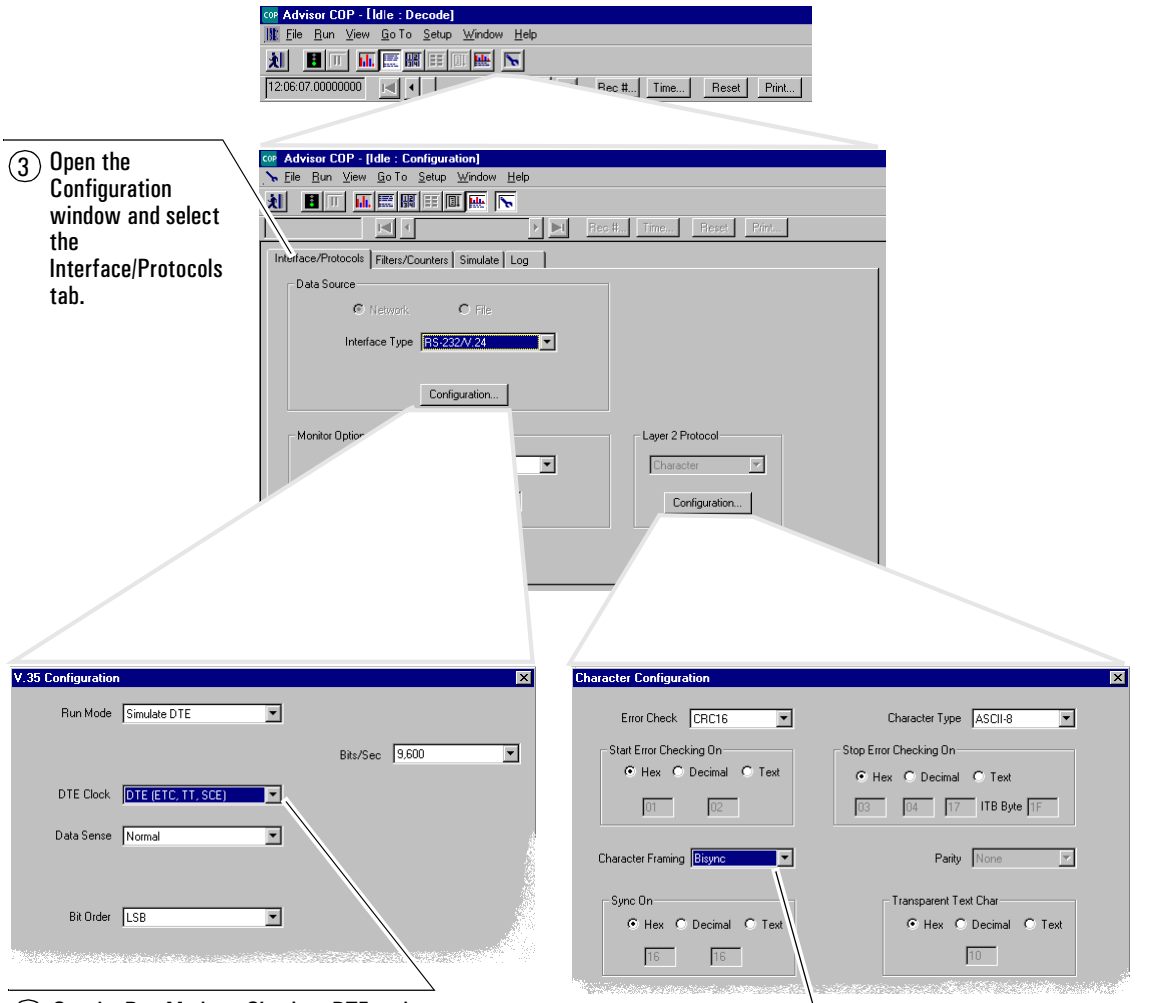
① **Select the 'Simulate Analysis over RS-232/V.34' test as shown here.**

This test configures the Advisor to be in Simulate mode and send/receive data on the RS-232 connector.

② **Look in the online Help for "Connecting Advisor to the Network".**
Click the How To button and select help about the Simulate DTE connection.
This shows the connection you should use to simulate a DTE.

Note: For this demonstration, you should NOT be connected to a live line.





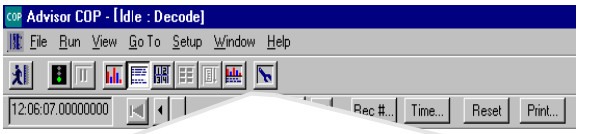
3 Open the Configuration window and select the Interface/Protocols tab.

5 Set the Run Mode to Simulate DTE and then set the DTE Clock to come from the DTE.

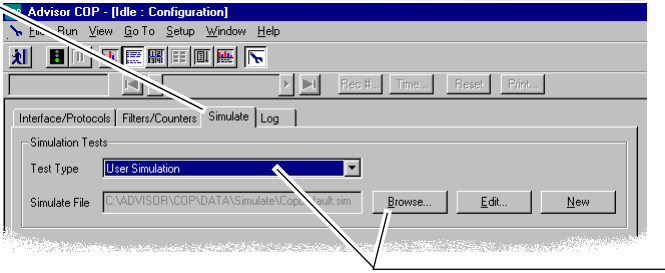
Normally, the DCE supplies the clock for the DTE. However, for this demo simulation, you need to set the DTE to supply the clock.

4 Set the Character Framing to Bisync.

⑥ Select the Configure button.

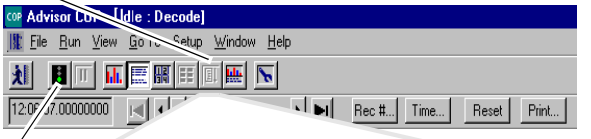


⑦ Select the Simulate tab.

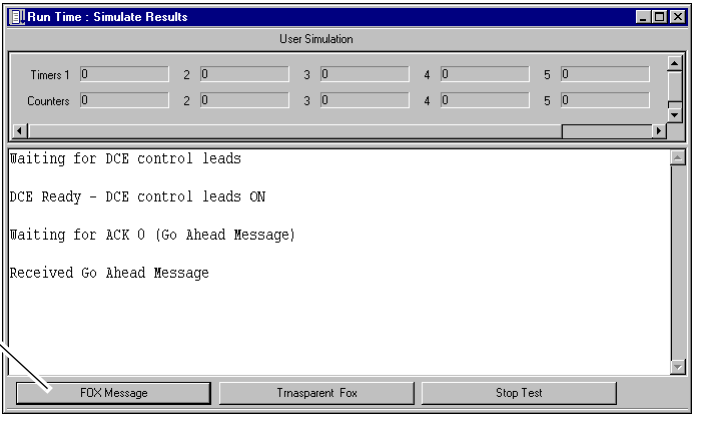


⑧ Use the Browse button to find the existing script file from the previous example:
C:\Advisor\Cop\Data\Simulate\Demo_Sim_DTE.sim

⑨ Select the Simulate Results button.



⑩ Click the Start button to start the demo simulation.
The demo simulate script you selected earlier will run.



⑪ Use the hotkeys to control the simulation.

A

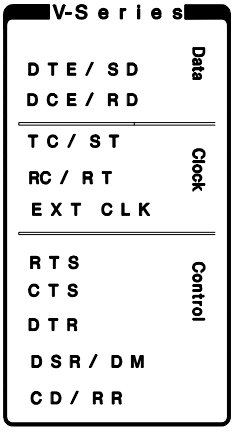
Front Panel LEDs

Front Panel LEDs

V-Series LEDs

This appendix contains illustrations and descriptions of the front panel LEDs for the V-Series physical interfaces supported by the Advisor Async/BiSync. The front panel LEDs indicate real-time lead state or line status conditions.

The built-in V.35, RS-449, and RS-232 interfaces use the same LEDs and LED labels. The LEDs show Space/On and Mark/Off conditions for V-Series leads. If both LEDs are lit, the lead is toggling between the two states. If the LEDs are dark, there is no signal present.



DTE/SD - Send Data.
DCE/RD - Receive Data.
TC/ST - DTE/Send Timing (DCE)
RC/RT - DCE/Receive Timing (DCE)
EXT CLK - for DTE clock source.
RTS - Request to Send
CTS - Clear to Send
DTR - Data Terminal Ready
DSR/DM - Data Set/Mode Ready
CD/RR - Carrier Detect/Receiver Ready

V-Series LEDs can indicate whether a device is physically DTE or DCE. Connect the Advisor to the device under test and configure the Advisor for monitoring. If either of the DTE/SD LEDs light up, the device under test is DTE. If DCE/RD LEDs light up, the device under test is DCE.