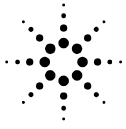
Agilent Technologies

Agilent Advisor ATM

Getting Started



Agilent Technologies

Notice

The information contained in this document is subject to change without notice.

AGILENT TECHNOLOGIES MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Agilent Technologies shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this material.

Warranty

A copy of the specific warranty terms applicable to your product and replacement parts can be obtained from your local Sales and Service Office.

Printing history

New editions of this guide are issued to reflect extensive changes made to the software. Revisions may be issued, between editions, to correct errors in the manual. There may not be a new edition issued in conjunction with every software release. The software release, at the date of printing, is noted in the following table.

Manual Name: Agilent Advisor ATM Getting Started

Part Number	Printing Date	Software Version
5967-4395	November 1998	ATM.10.100.01
5969-2261	July 1999	ATM.11.000.00
5969-4288	November 1999	ATM.11.200.00
5969-6028	March 2000	ATM.11.300.00
5969-8851	September 2000	ATM.11.500.00
5971-0967	April 2001	ATM.11.800.00

Product support

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://onenetworks.comms.agilent.com/

Printed in the U.S.A.

1 Introduction

2 Getting Started

3 Sample Tests

1

Introduction

Introduction

The Agilent Technologies Advisor ATM 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 ATM to:

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

The Advisor analyzes the following layers of an ATM network:

- Physical Layer Support and Analysis - the Advisor detects, decodes, and displays physical layer transport information related to the supported physical interfaces STM-1e/EC-3, STM-1/OC-3c, DS3, E3, T1, E1, J2, 155 Mbit UTP, and 25.6 Mbps UTP. This includes transmission errors and alarms, line utilization percentages, cell and frame counts, and interface-specific messaging.
- ATM Cell Layer - the Advisor can set up transmitted traffic and process received traffic based on the individual fields within the ATM cell header. In most cases, UNI and NNI header formats are supported.
- ATM Adaptation Layer - depending upon the analysis mode, the Advisor can process adaptation layers AAL-1 through AAL-5. In addition, 'layer 3' signaling protocols SAAL and Q.SAAL1, and OAM protocols are supported for monitor and limited emulation analysis.
- Upper Layer Analysis - beyond the ATM and AAL layers, the Advisor also provides detailed analysis of the Services layer and encapsulated LAN protocols. Examples include ILMI for address resolution, Multi-Protocol Over ATM (MPOA), IP over ATM, LAN Emulation, UNI/PNNI Signaling, and MPEG-2 video. In addition, many LAN protocols are decoded either routinely or explicitly depending on how the Advisor is configured.

The Advisor ATM supports the following physical interfaces:

- STM-1e/EC-3
- STM-1/OC-3c
- 155 Mbit UTP
- DS3 / E3
- 25.6 Mbps UTP
- T1 / E1 “D” series, and E1 “D” series
- J2

The Advisor gives you the tools to:

- Analyze the physical medium and physical layer protocol.
- See utilization and error statistics, filter and count specific frames and traffic types, and perform VP.VC-specific statistical analysis.
- Decode network traffic.
- Monitor network policing functions and see how policing algorithms might affect network traffic.
- Run bit error rate and simulation (traffic generation) tests.
- Verify QoS parameters using cell loss and cell delay tests.
- Test network switched virtual circuit signaling and LAN emulation processes.

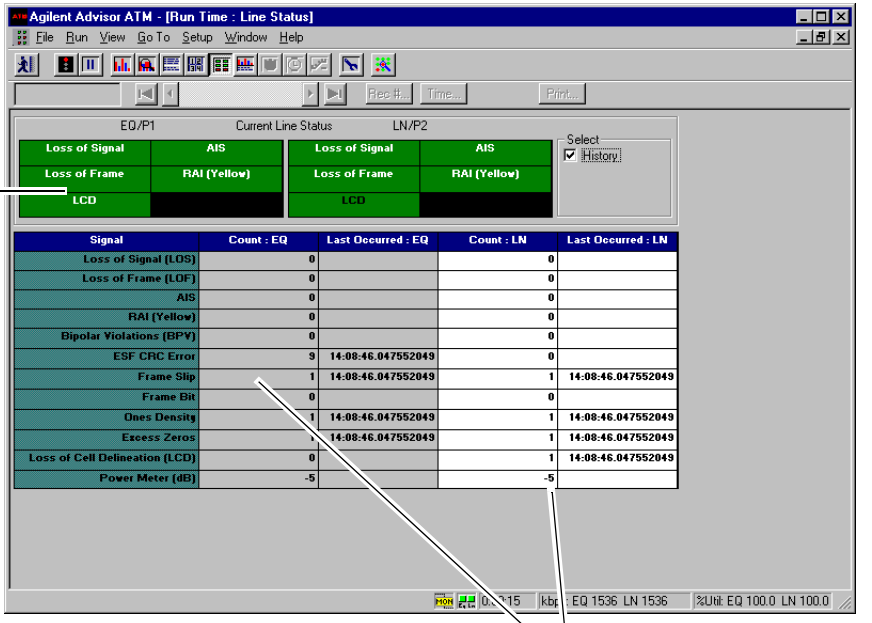
NOTE Not all capabilities are available for all protocols and physical interfaces.

The rest of this chapter describes in more detail the analysis features provided by the Advisor ATM. To learn how to get started, go to chapter 2. To see examples of 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 the Physical Layer

See signal, error, and alarm status of the physical line.

You can verify signal presence and frame synchronization, display physical layer error and alarm statistics, and see a statistical history of the status of the line collected since the start of the measurement. The Advisor ATM's Line Status view provides this information for OC-3c/STM-1, 155M UTP, DS3/E3, 25.6M UTP, and T1/E1 when the appropriate interface module is installed.



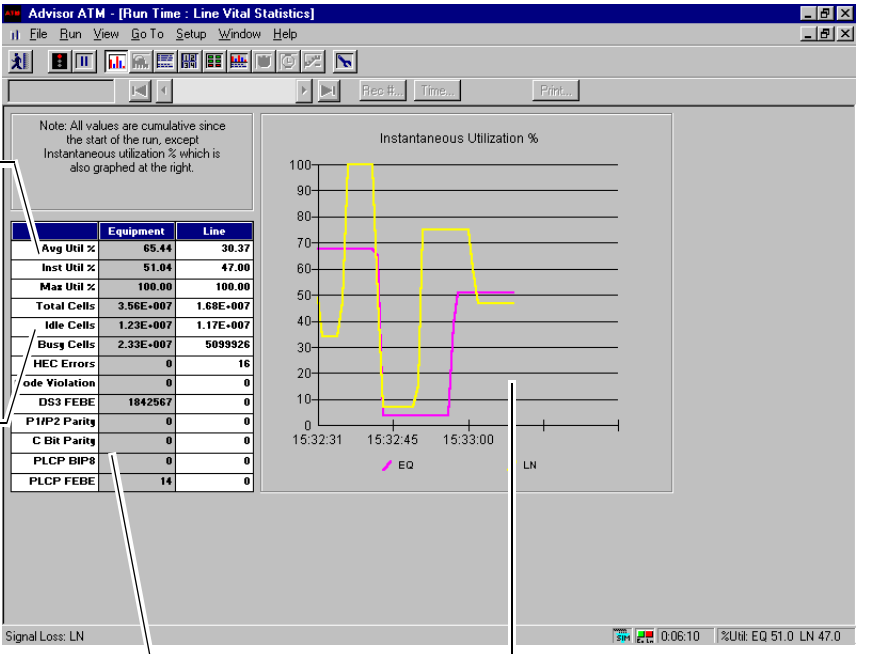
Use the on-screen 'soft' LEDs to see the status of physical layer transmission.

Use the spreadsheet to show a statistical history of the errors, alarms, and data events occurring on the link.

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 your connection point, you can look at the Line Vital Statistics view. The Advisor ATM provides this information regardless of physical interface or analysis mode.



Look at utilization values.

Look at counts of different cell types.

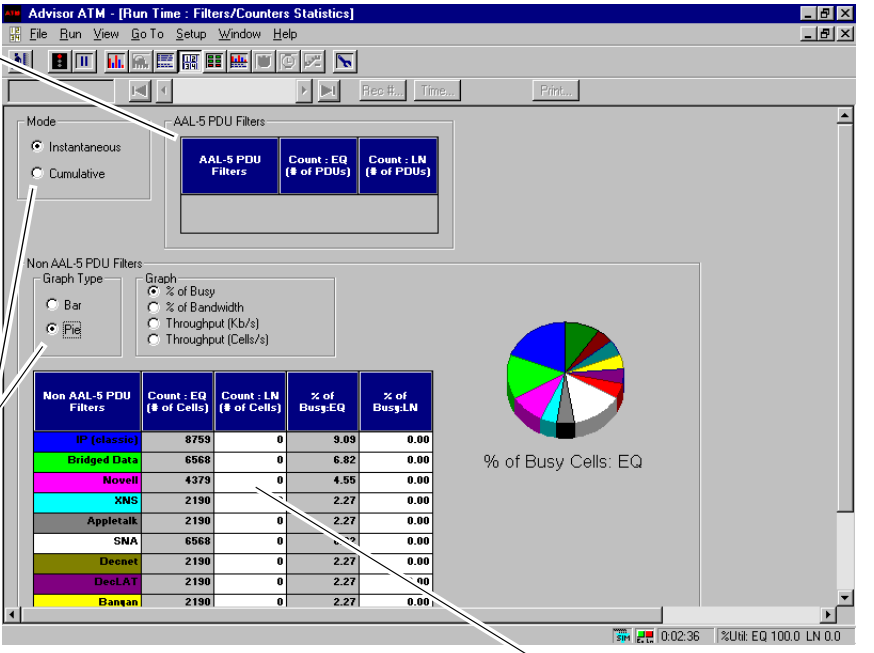
See counts of transmission errors.

Look at instantaneous utilization displayed graphically.

Filtering/Counting Specific Cells and Data Events

Display statistics gathered by user-configurable filters and counters.

You can monitor very specific cells and traffic types (including LAN PDUs) 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 Line and Equipment sides of the test connection.



Filter and count traffic based on IP, Frame Relay, or other PDU frames the cells carry.

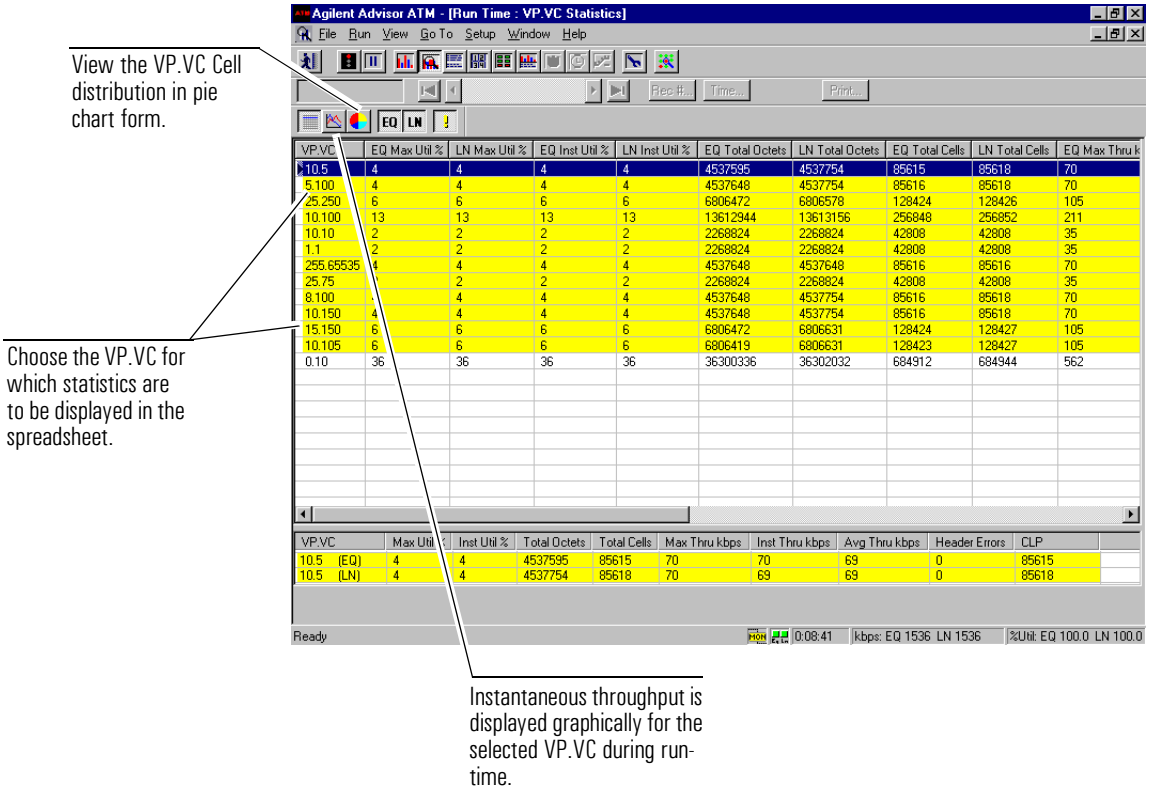
Control the way statistics are tabulated and graphed while a test is running.

Filter and count traffic based on ATM cell characteristics.

Analyzing Traffic According to VP.VC

See utilization, cell/byte counts, and throughput according to individual VP.VCs.

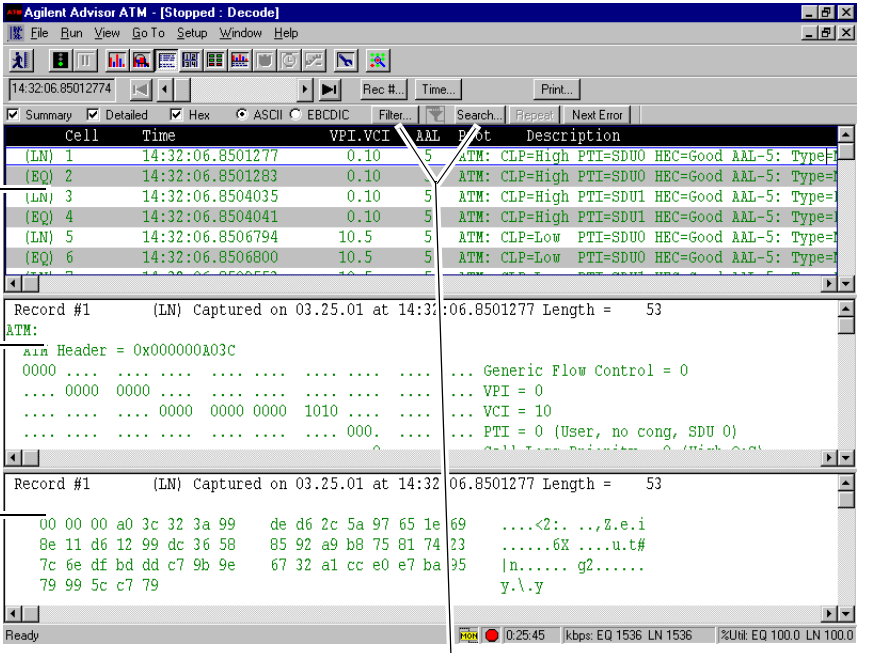
You can see utilization, cell and byte counts, and throughput for individual VP.VCs in the VP.VC Statistics view. The Advisor ATM will automatically detect a maximum of 1024 VP.VCs for most of the supported interface modules, or a maximum of 12 VP.VCs when using older interface modules. By selecting the desired channel, you can see real-time statistics in both a spreadsheet and a graph. You can view the VP.VC cell distribution in pie chart form. The presence of HEC errors and/or Cell Loss Priority bits are also shown with color coding.



Decoding ATM 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 also filter the display according to protocol or cell characteristics, and you can search the capture buffer for specific cells.



The Summary view can be tailored to show PDU information.

The Detail view shows the contents of each field in the decoded cell/PDU.

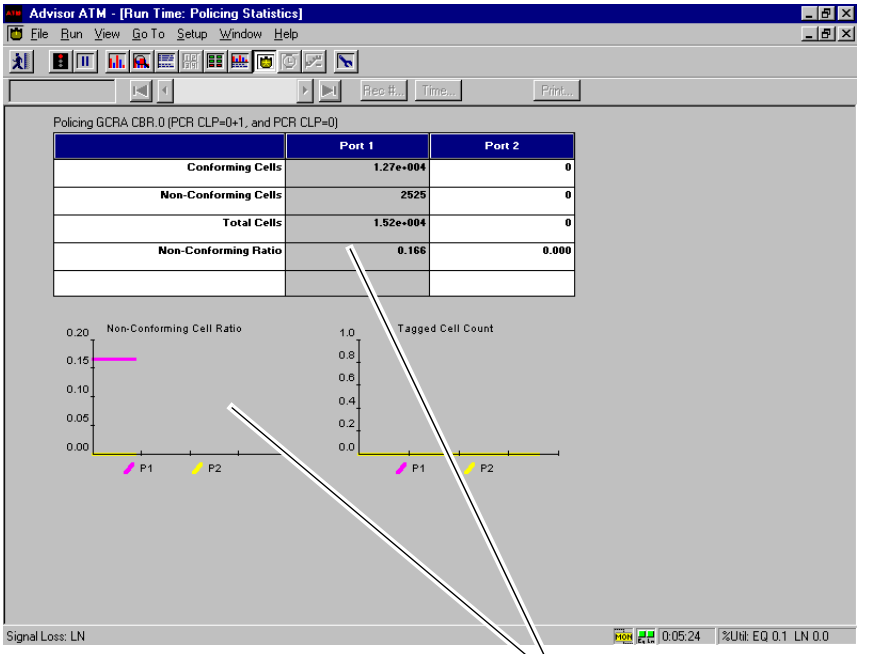
The Hex view shows the actual bytes in the decoded frame. The right column shows the contents in ASCII or EBCDIC.

You can filter what is displayed in this view, and you can search the capture buffer for specific cells/PDUs or data events.

Verifying the Network's Policing Functions

Make sure ATM equipment controls its transmission in order to adhere to network contract parameters.

You can verify an ATM network's policing functions by using the Policing Statistics view. Based on the policing algorithm you select, the Advisor will monitor live network traffic and provide you with statistics about the number of cells that conform, do not conform, and are likely to be tagged as they enter the core network. The Advisor's Policing measurement complements ATM Quality of Service (QoS) testing by providing a means to verify edge switch performance in an enterprise environment, and to confirm end user's compliance with service contract parameters.



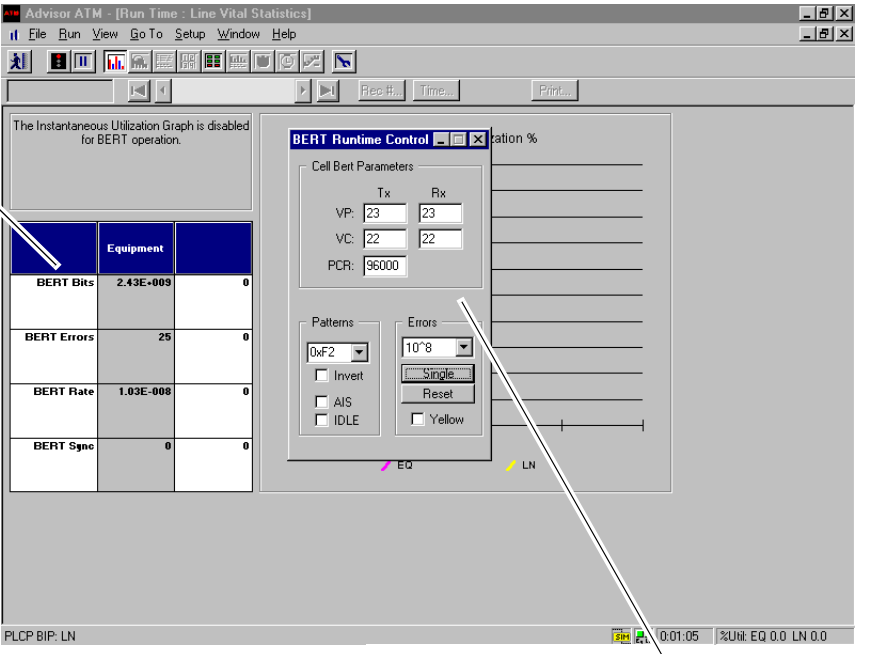
You can see how ATM traffic may be affected by the network's policing algorithms in a spreadsheet and in graphs.

Measuring Bit Error Rates and Generating Custom Traffic Patterns

Use active tests to gather additional information about your network.

In addition to the passive monitoring capabilities mentioned on the previous pages, you can also perform tests of a more active nature. You can set up the Advisor ATM to perform bit error rate tests (BERT) and to generate specialized traffic patterns using simulation.

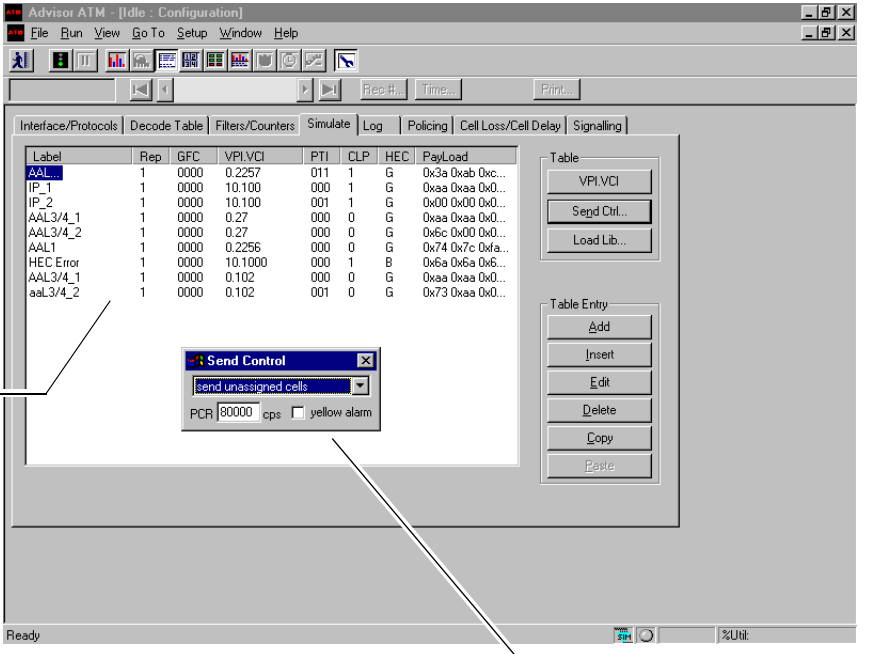
Test the integrity of the physical layer with bit error rate tests (BERT).



BERT Statistics are displayed in a spreadsheet in the Line Vital Statistics view.

You can control the characteristics of the bit error rate test during run-time.

Set up and transmit cells for traffic loading and ATM equipment stress tests.



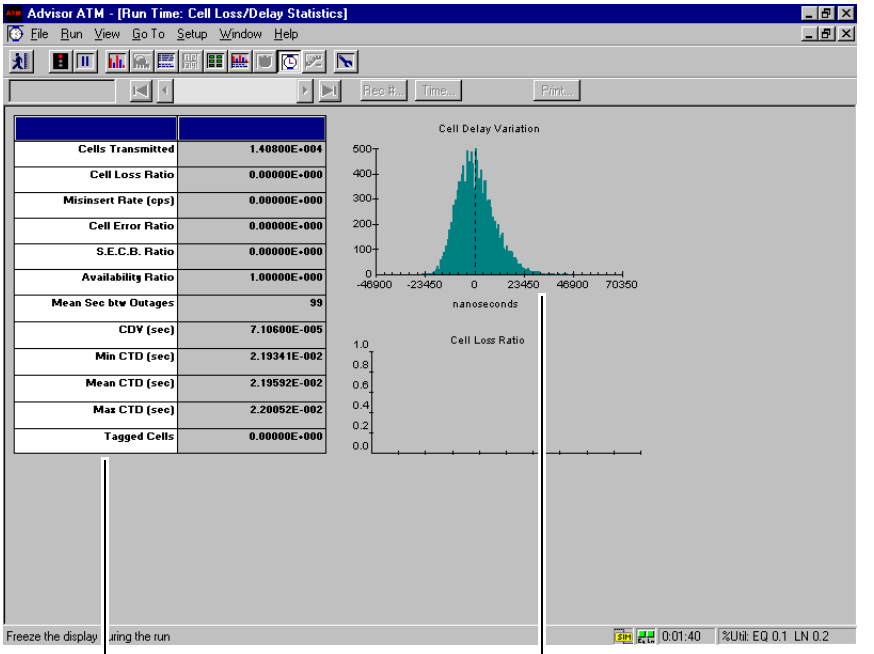
Set up the individual cells that will be transmitted during the simulation.

Control the characteristics of the transmission during run-time.

Testing Quality of Service (QoS) with Cell Loss/Cell Delay Measurements

Measure cell loss and cell delay as part of your QoS testing process.

Network administrators and service providers are very interested in making sure their ATM networks provide a consistent Quality of Service (QoS). A fundamental part of QoS testing is the Advisor ATM's Cell Loss and Cell Delay measurement. Key QoS parameters are measured based on the traffic contract parameters set up on the Advisor and are displayed in spreadsheet and graphical formats. Cell Loss and Cell Delay measurements can be made in both a loopback and end-to-end mode.



See the results of the cell loss and cell delay measurement in the spreadsheet.

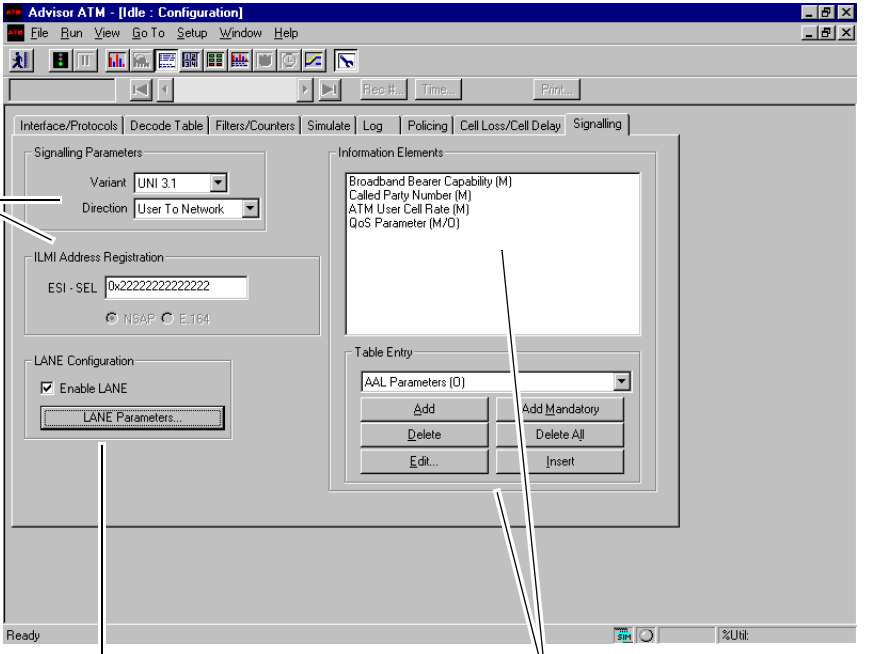
See important QoS measurement values displayed graphically.

Testing UNI Signaling and LAN Emulation

Test UNI Signaling and LAN Emulation connectivity.

The Advisor ATM provides active tests to verify Switched Virtual Circuit (SVC) set up and LAN Emulation (LANE) connection operations. For signaling, User-Network Interface (UNI) specifications 3.0, 3.1, and 4.0 are supported. In addition, LANE 1.0 (for UNI 3.0 and 3.1) is supported when testing connectivity between a LAN emulation client (LEC) and the LAN emulation server (LES) residing on a network router or switch.

Customize signaling and LANE parameters in order to match the network process you want to verify.

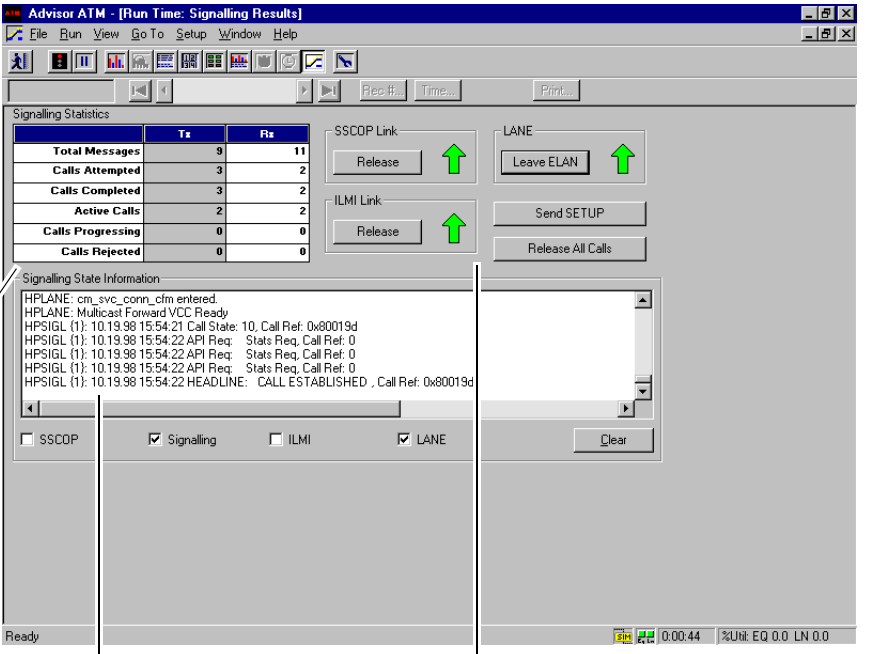


Select the UNI variant, direction, and address registration parameters.

Enable and configure LAN emulation.

Add and edit individual signaling information elements that will be used in transmitted SETUP messages.

See the results of signaling or LAN emulation in the Signaling Results view.



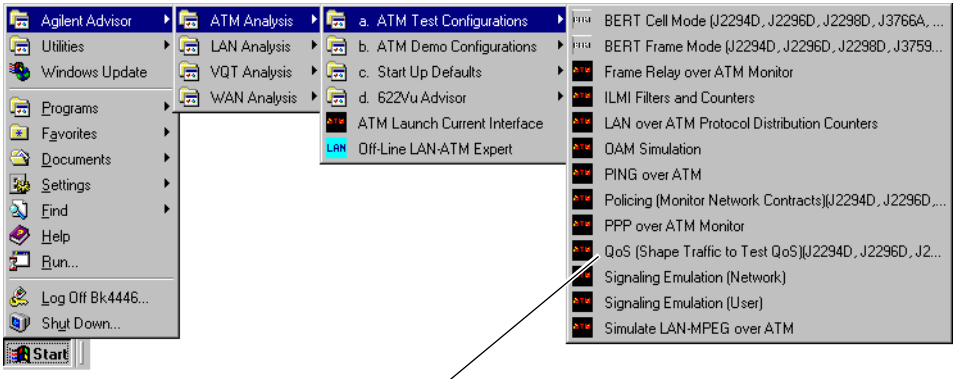
Statistics related to the calls made and received during the signaling/LANE process are displayed in a spreadsheet.

Signaling and LANE trace messages are shown as they occur.

You can control and observe signaling and LANE progress using these buttons.

Supplied Tests

To make it easier to configure, the Advisor ATM comes equipped with supplied tests. Supplied tests, or “canned tests” as they are sometimes called, are listings in the Advisor menus (in the Windows desktop) that automatically set up the Advisor for common test situations and then start the Advisor ATM application. Supplied tests set up the physical interface, decode characteristics, hardware filters/counters, and other analysis parameters so you don’t have to. You can also use supplied tests as templates for custom tests of your own.



Start an Advisor ATM application by selecting the test that most closely matches your measurement needs.

You may have to fine-tune the configuration provided by the supplied test, or provide additional specific parameters to the analysis you plan to perform.

2

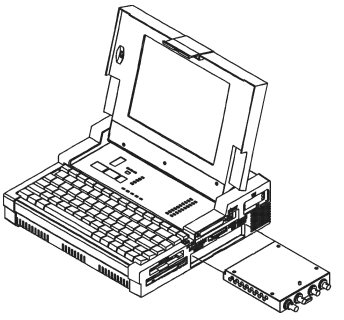
Getting Started

Getting Started

This chapter describes the steps you use to start testing with the Advisor ATM.

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.

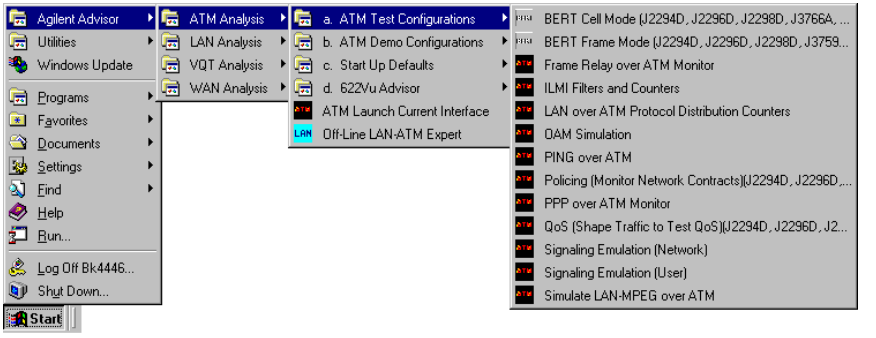
① Install the undercradle and slide-in module you plan to use. Install software if necessary.



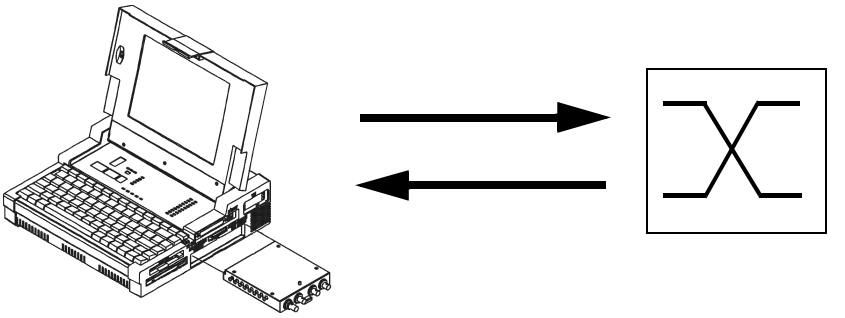
Use the System Guide to connect the mainframe, undercradle, and slide-in modules.

Use the instructions on the Advisor CD holder to install or add Advisor software.

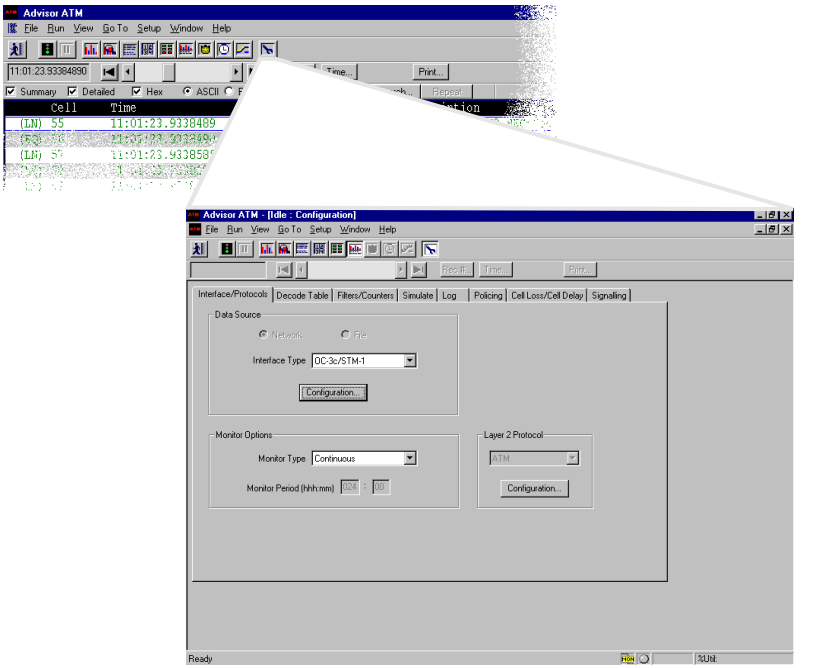
② Start an Advisor ATM application using one of the supplied tests. You can also start the application with no specific configuration.



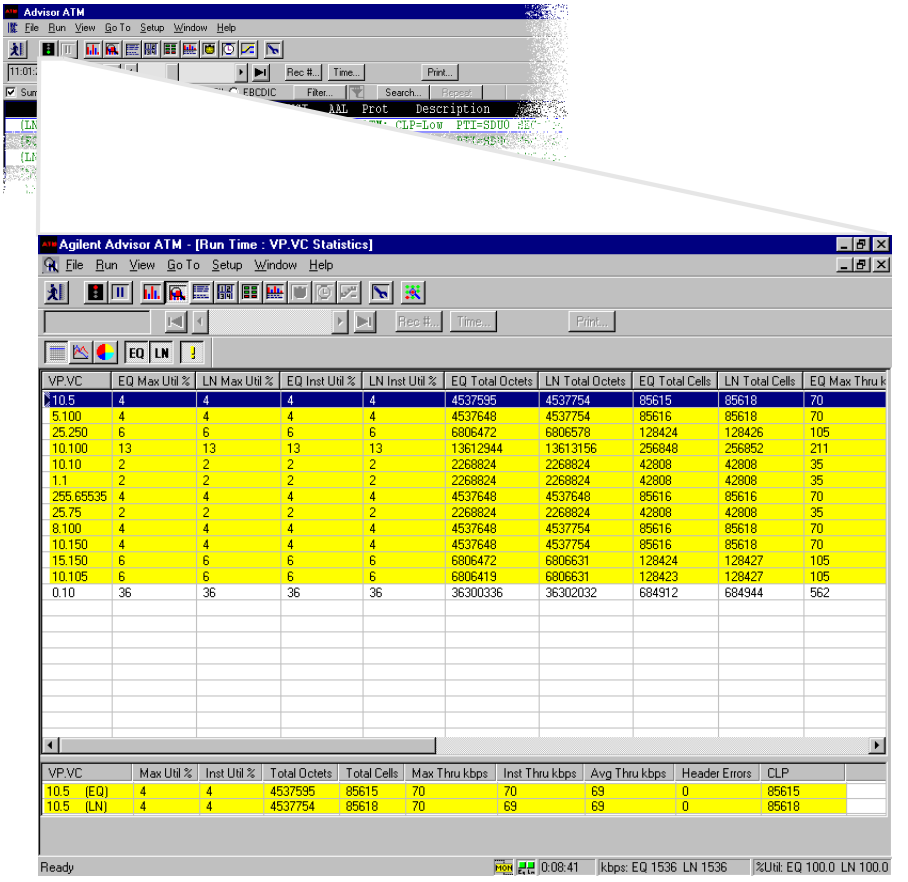
③ Connect to the network.



④ Fine-tune the configuration provided by the supplied test.



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



Installing Interface Modules and Software

Interface Module installation

To use the Advisor ATM, you may have to install an interface module for the specific physical interface to which you intend to connect. If this item is 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 interface modules.

Software Installation

New Advisors are shipped with their application software installed on the hard drive. However, software upgrades require that you install new Advisor applications, new versions of Windows, or both.

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

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

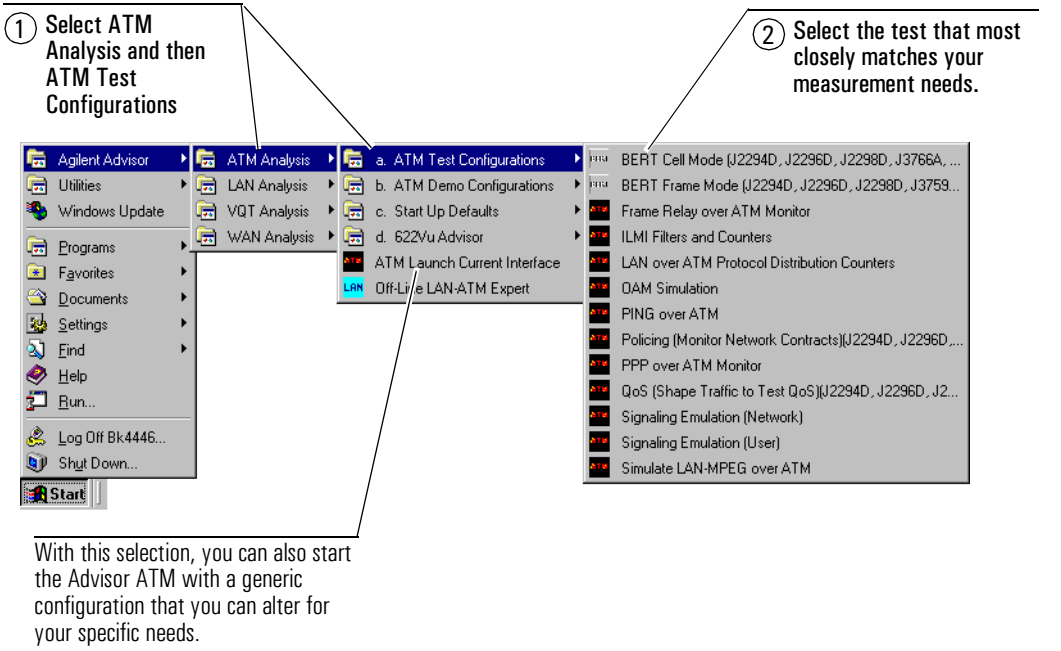
CAUTION

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

Starting the Application

Start and configure the Advisor ATM using a supplied test

To start the Advisor ATM application, select a supplied test from the Start menus in the Windows desktop. Supplied tests start and configure the Advisor for specific groups of measurements.



Note

The first time you start the Advisor software, you are 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 with the Advisor mainframe.

Connecting to the Network

There are a number of ways to connect the Advisor 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 contains detailed connection diagrams sorted according to physical interface and network analysis type.

Note

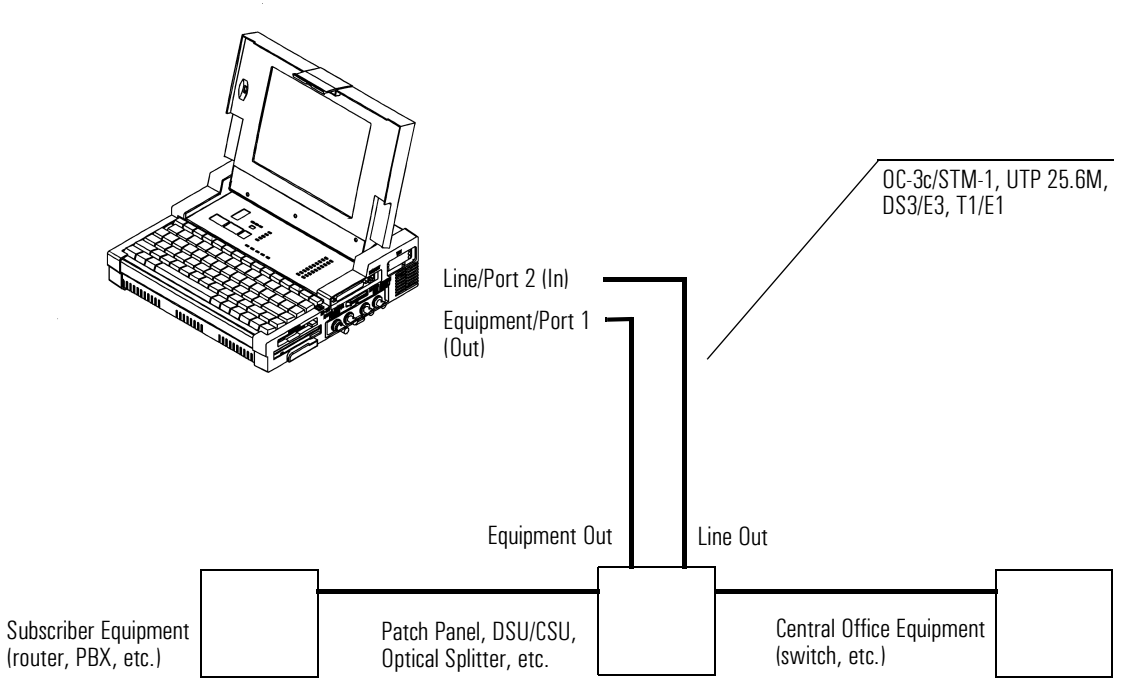
The type of connection you use affects how the Advisor's physical interface is configured. The connection diagrams in the online help provide the necessary configuration information.

Monitor Connections

The most common connections are those used for passive monitoring. There are two types: patch panel connections and pass-through/bridged connections.

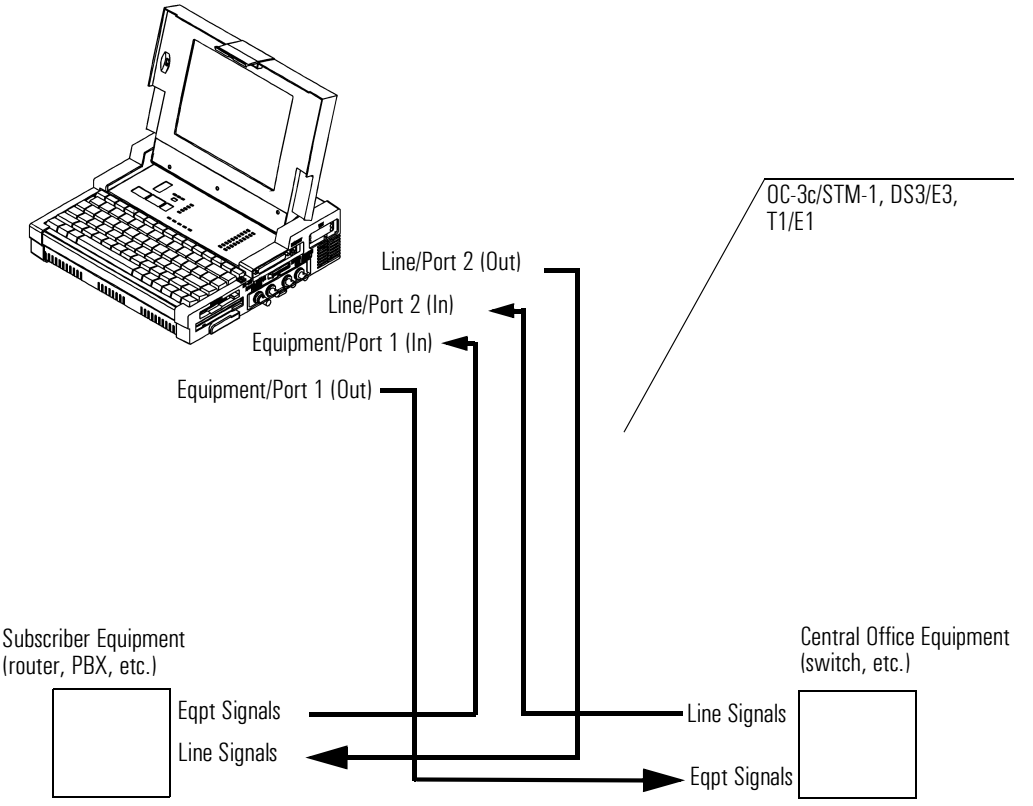
Patch Panel Connections

Many ATM installations provide dedicated patch panels that are used to monitor network traffic non-intrusively. These monitor ports are usually located at DSUs/CSUs, network switches, or at key points throughout a network. The Advisor is most often connected between subscriber/end-user equipment and central office switches, but is also used in service provider's backbone networks.



Pass-Through/Bridged Connections

Sometimes it is necessary to pass the network traffic through the Advisor. This is often the case when a dedicated patch panel is not available. Depending on the physical interface you are using, network signals may be regenerated by the Advisor. Setting up this type of connection requires network connections to be brought down.



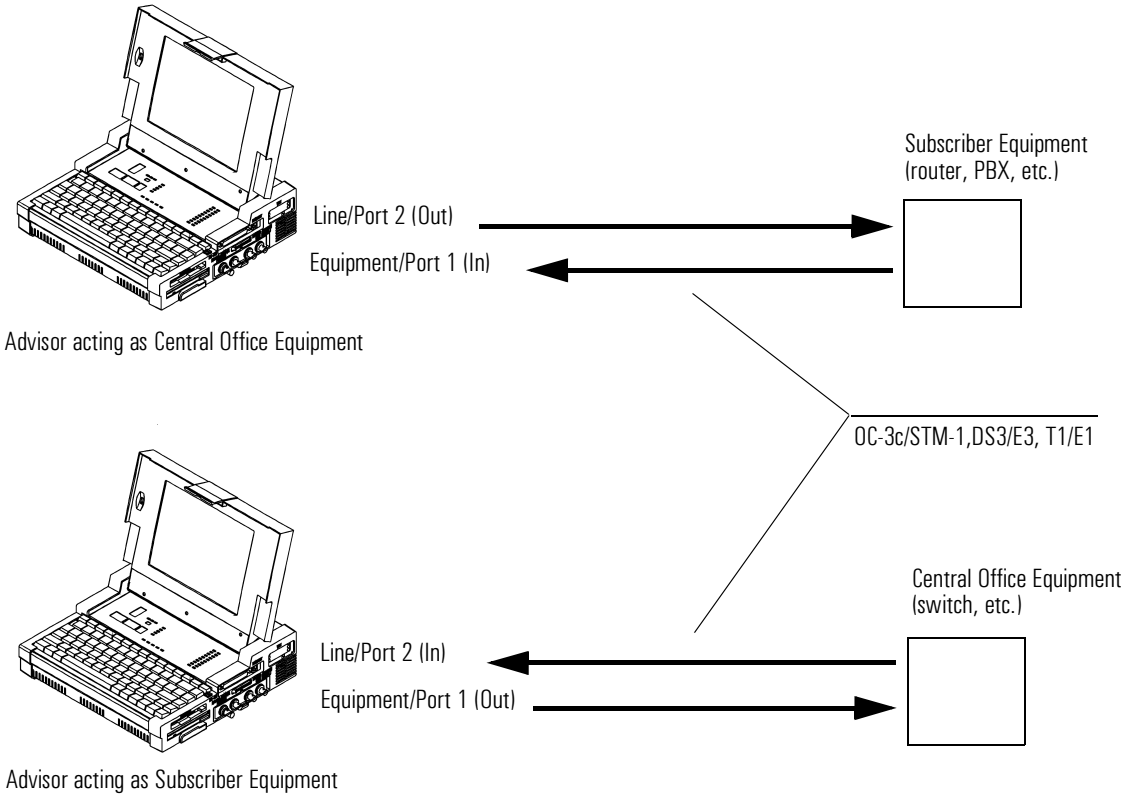
Please refer to the Advisor ATM's online help for detailed connection diagrams for all of the supported physical interfaces.

Simulation, Cell Loss/Delay, Signaling, BERT Connections

Testing that requires the Advisor to transmit traffic onto the network uses connections somewhat different than those used by passive monitoring. For the most part, these connections terminate a transmission path.

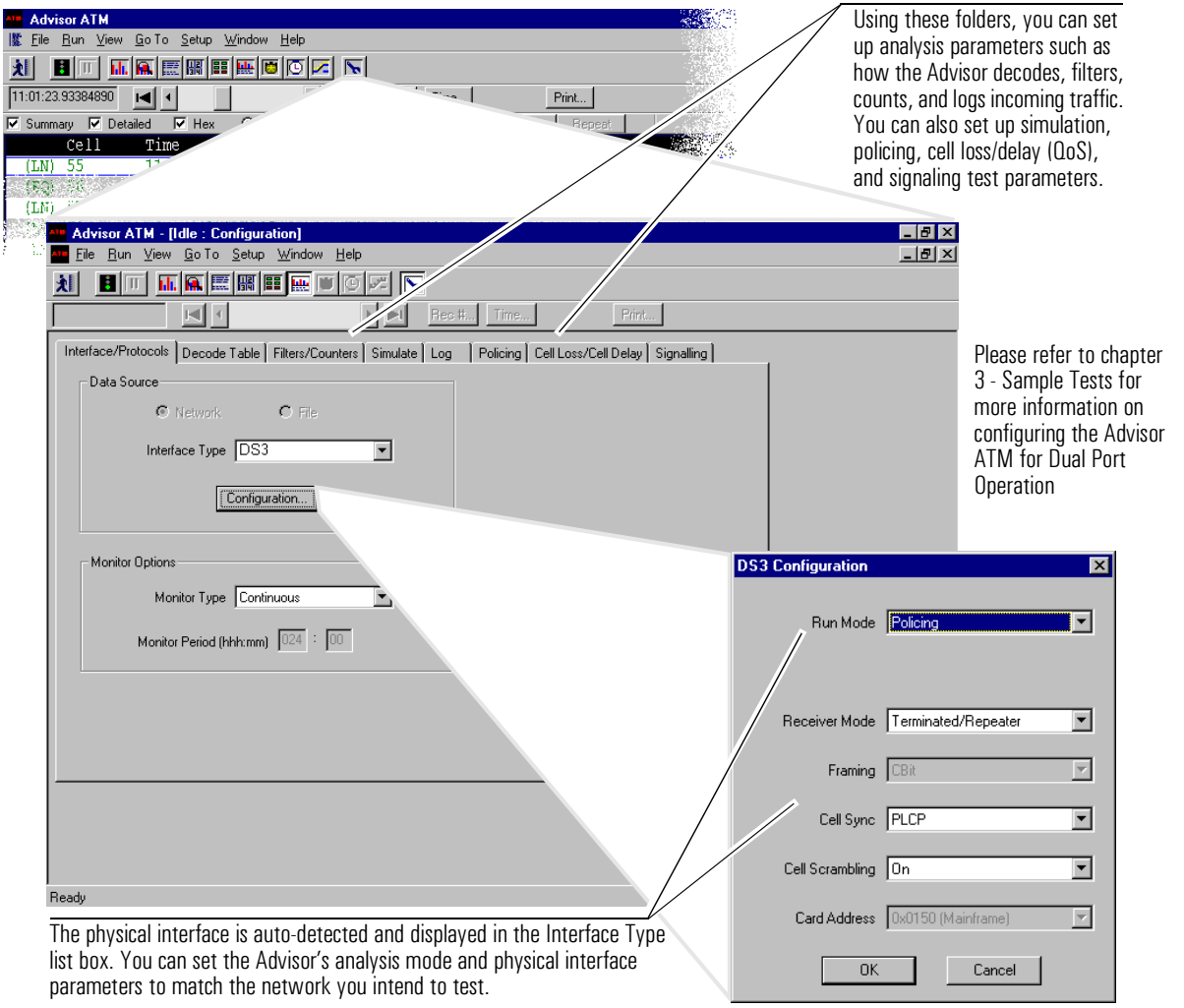
Terminated Connections

Terminated connections are used when the Advisor replaces a device on either end of a network segment; for example, when the Advisor is used to emulate customer premises equipment in conversation with a network switch. These connection methods do not allow network traffic to be transmitted to devices beyond the Advisor.



Configuring the Instrument

Even though starting with a supplied test configures some aspects of the Advisor ATM, you will still need to configure parameters specific to the interface and/or measurement. All configuration parameters can be saved and reused later.



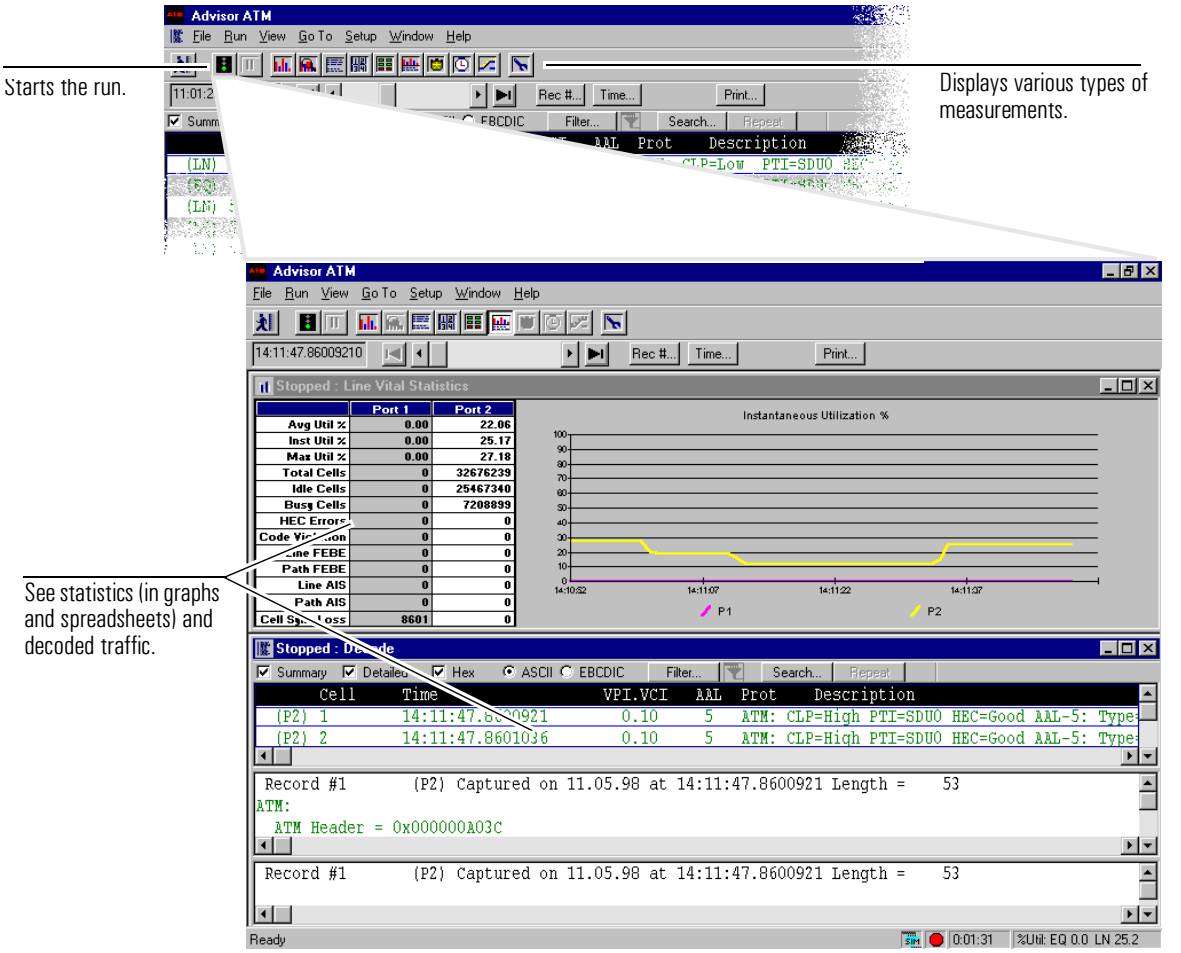
Using these folders, you can set up analysis parameters such as how the Advisor decodes, filters, counts, and logs incoming traffic. You can also set up simulation, policing, cell loss/delay (QoS), and signaling test parameters.

Please refer to chapter 3 - Sample Tests for more information on configuring the Advisor ATM for Dual Port Operation

The physical interface is auto-detected and displayed in the Interface Type list box. You can set the Advisor's analysis mode and physical interface parameters to match the network you intend to test.

Starting a Test and Viewing the Results

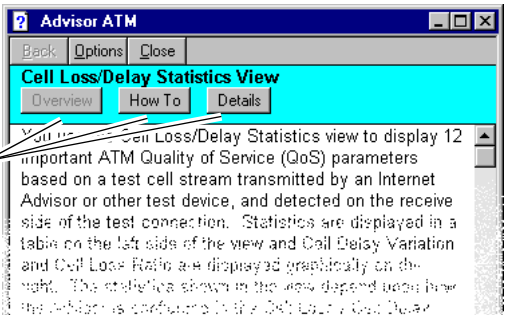
Once you have selected a test, connected to the network, and fine-tuned the configuration (if necessary), you can start the test and view data in the Advisor's measurement views.



Finding More Information

Advisor ATM online help

The Advisor ATM has an extensive online help system. You can quickly find information for the currently displayed measurement view or dialog box by pressing **F1**.



Help for the active measurement view or dialog box is organized using the Overview, How To, and Details buttons.

You can also browse the help system using the help menu which provides access to the Table of Contents, Index, and Full Text Search feature.

Sample Tests

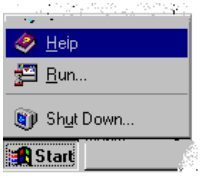
The next chapter in this book describes examples of using the Advisor to make measurements on your network.

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 - “About Windows 98”. It is a good idea to spend a few minutes learning the basic functions and terminology associated with this environment.



3

Sample Tests

Sample Tests

This chapter provides three examples of how to use the Advisor to analyze ATM traffic and solve ATM network problems. The following examples are designed to give you a basic understanding of the ATM Advisor's operation and features:

- Verifying Traffic Shaping with the Policing Measurement. This test is a monitor test that closely matches most other monitor-only test scenarios.
- Measuring Key QoS Parameters with a Cell Loss/Cell Delay Test
- Testing Switched Virtual Circuit Set Up and LAN Emulation Join Processes

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 ATM application to get specific information about the window, measurement view, or dialog box you are looking at.

Verifying Correct Traffic Shaping Using Policing

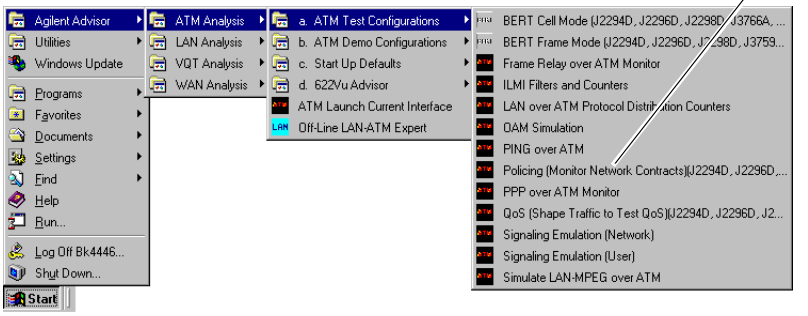
This example tests whether ATM traffic transmitted from an edge device (typically a router or switch) is shaped appropriately in order to conform to the contract parameters being used by the network's edge switch. In other words, you will be able to see how traffic will be handled by the network's 'policing' algorithms before that traffic is actually placed on the network. To do this, we will monitor network traffic at a DS3 patch panel located between an ATM router and an ATM switch. Specifically, we will:

- Connect to the network.
- Configure the Advisor for Policing according to the traffic contract parameters known to be used by the network.
- Start the test and check to see whether the traffic conforms to the contract parameters.

To begin, you need to have installed a DS3 interface module into the Advisor, gone to the location where you will connect the Advisor to the network, and turned the Advisor on.

Note

This example represents a common troubleshooting method and can be modified to suit many other test situations.

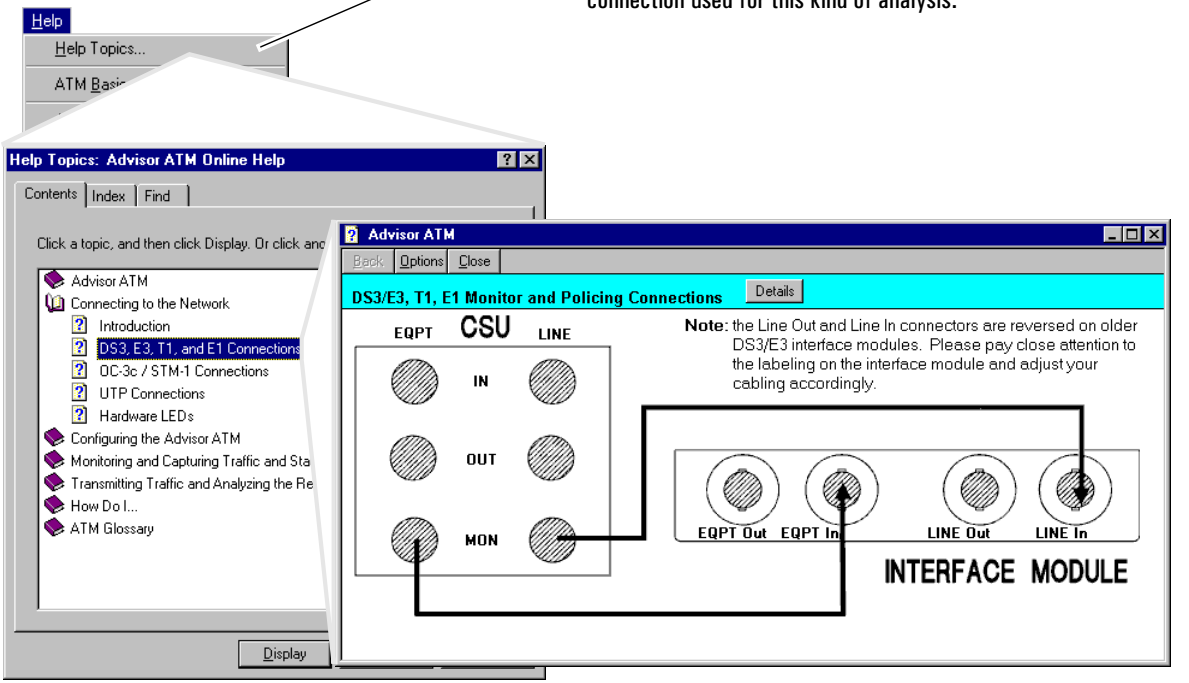


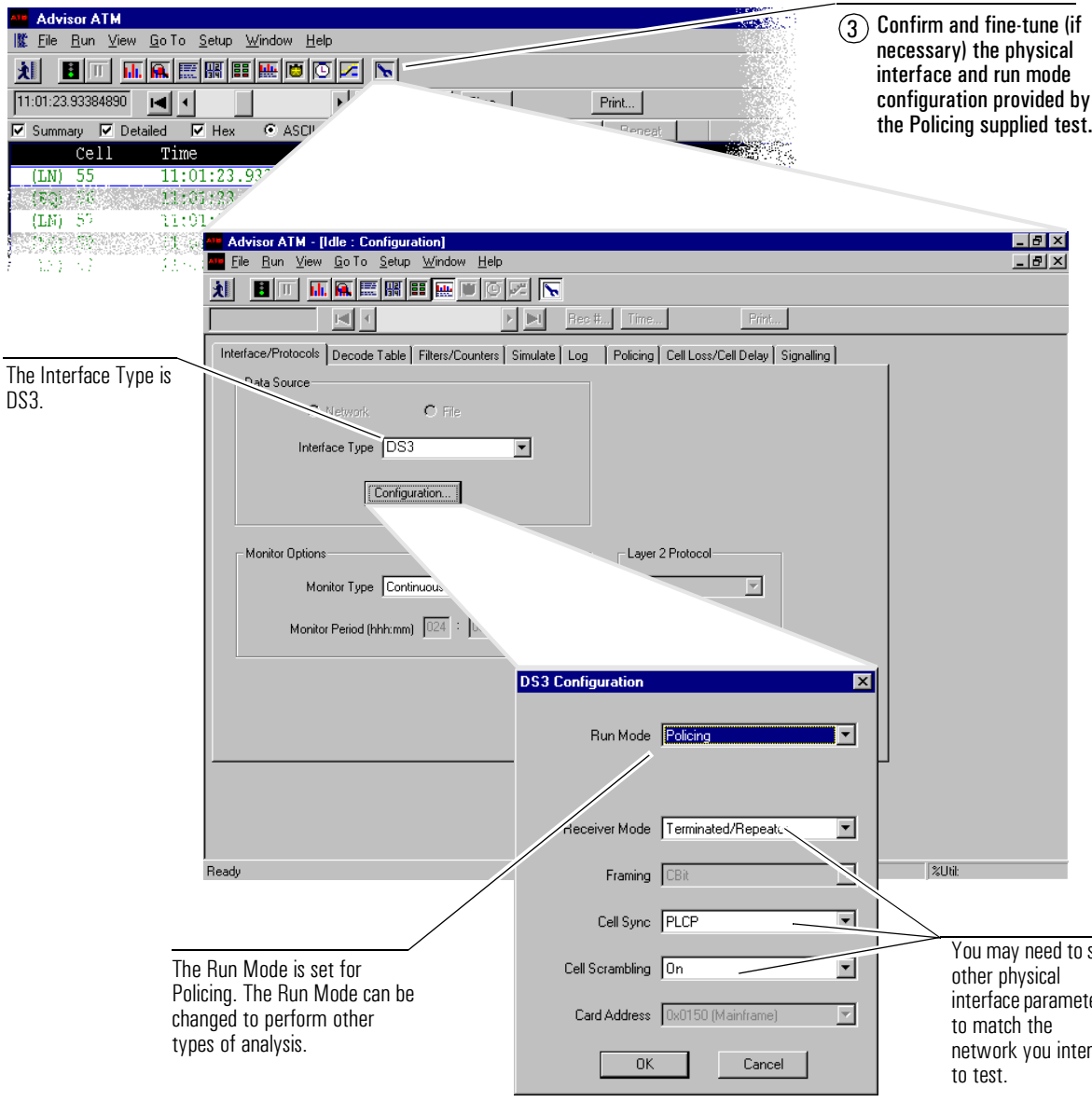
1 Select the Policing test as shown here.

This test configures the Advisor to monitor customer traffic to verify whether it conforms to the network's traffic contract parameters.

Note: Policing is supported with the "D" series T1 and E1 interface modules and later versions of the OC-3c/STM-1, 155M UTP, DS3/E3, and UTP 25.6 modules.

2 Look in the online help for the DS3 Monitoring and Policing connection. This is the most common connection used for this kind of analysis.





3 Confirm and fine-tune (if necessary) the physical interface and run mode configuration provided by the Policing supplied test.

The Interface Type is DS3.

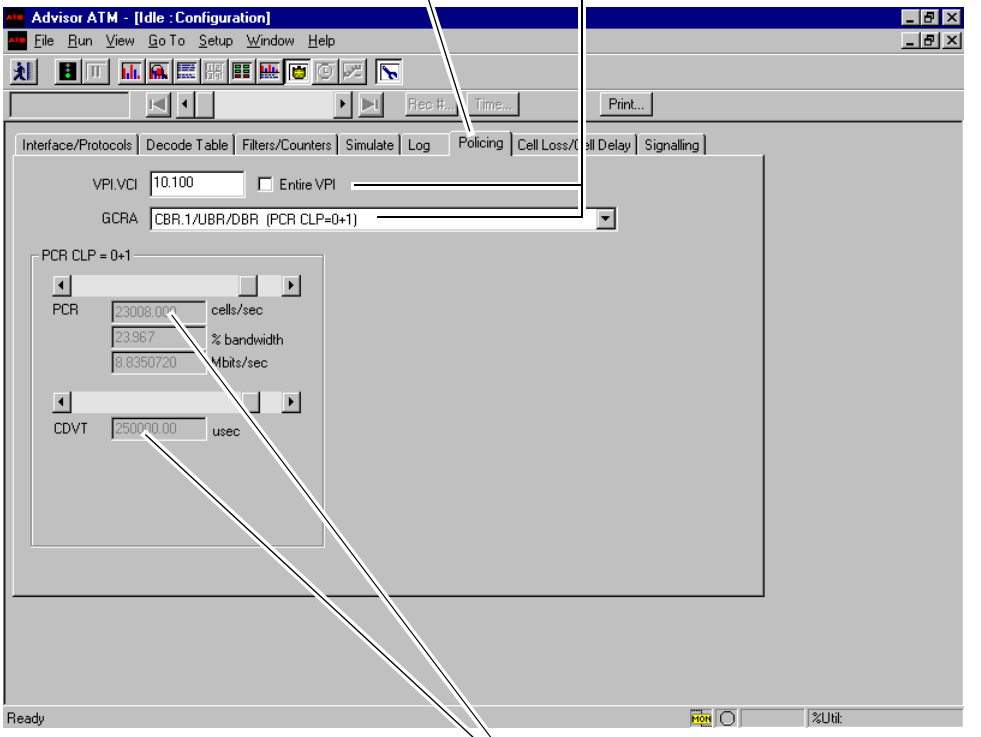
The Run Mode is set for Policing. The Run Mode can be changed to perform other types of analysis.

You may need to set other physical interface parameters to match the network you intend to test.

④ **Bring the Policing folder to the front so you can configure measurement-specific parameters.**

⑤ **Select the VP.VC you want to monitor and the Generic Cell Rate Algorithm (GCRA) used by the network you are testing.**

In this case, the constant bit rate (CBR), 'single bucket' algorithm is selected.

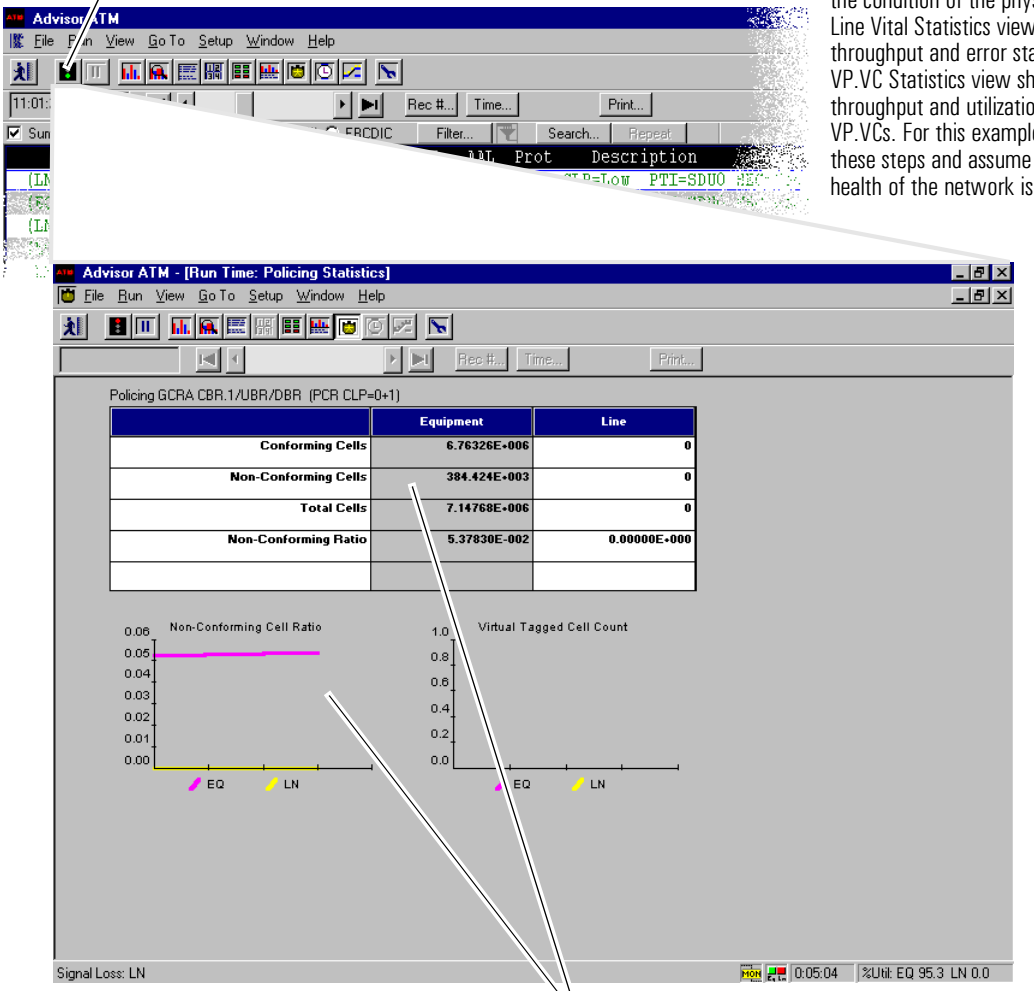


⑥ **Set the Peak Cell Rate (PCR) and the Cell Delay Variation Tolerance (CDVT) values.**

The policing function on the ATM switch is set to a PCR or 23000 cells/sec and a CDVT of 250000 usec. Because the Advisor uses ITU-T standard values, and because we want accurate measurements, the setting used here is 23008 cells/sec and 250000 usec.

⑦ Start the test. The Policing Statistics view will be displayed automatically.

Note: in many troubleshooting scenarios you would often use other measurement views to verify basic network operation. For example, the Line Status view tells you the condition of the physical layer. The Line Vital Statistics view shows general throughput and error statistics. The VP.VC Statistics view shows you throughput and utilization for individual VP.VCs. For this example, we will skip these steps and assume the general health of the network is good.



From the spreadsheet and the graph, you can see that some cells are 'non-conforming'. If these cells were to be transmitted onto a network that uses the traffic contract parameters for which the Advisor is configured, they would be discarded. This indicates that the sending device needs to be re-configured to shape its traffic so it will conform to the contract present on the network.

Testing SVC Signaling and LAN Emulation

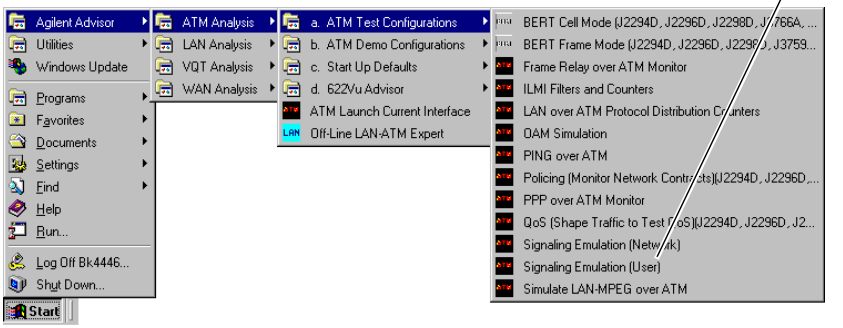
This example shows how you would set up and run the Advisor ATM in order to test switched virtual circuit (SVC) signaling and LAN emulation (LANE) processes that occur on an OC-3c interface between a LAN Emulation Server (the network) and a LAN Emulation Client (the Advisor). This example can be adapted to test SVC only by simply eliminating the LANE-specific steps. This example will show how to:

- Connect to the network.
- Configure the Advisor for both SVC signaling and LAN emulation.
- Start the run and control each step of the SVC setup and LANE join process.
- Verify that the necessary SVCs were established and that the emulated LAN has been successfully joined.

To begin, you need to have installed an OC-3c interface module into the Advisor, gone to the location where you will connect the Advisor to the network, and turned the Advisor on.

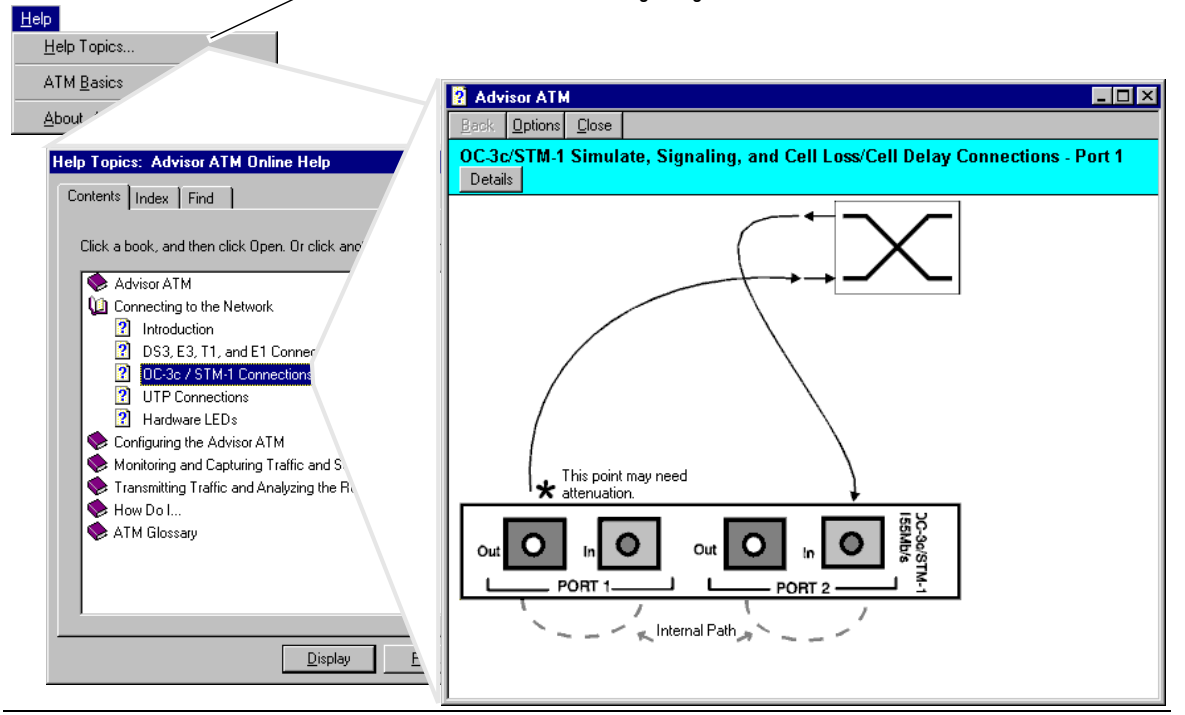
Note

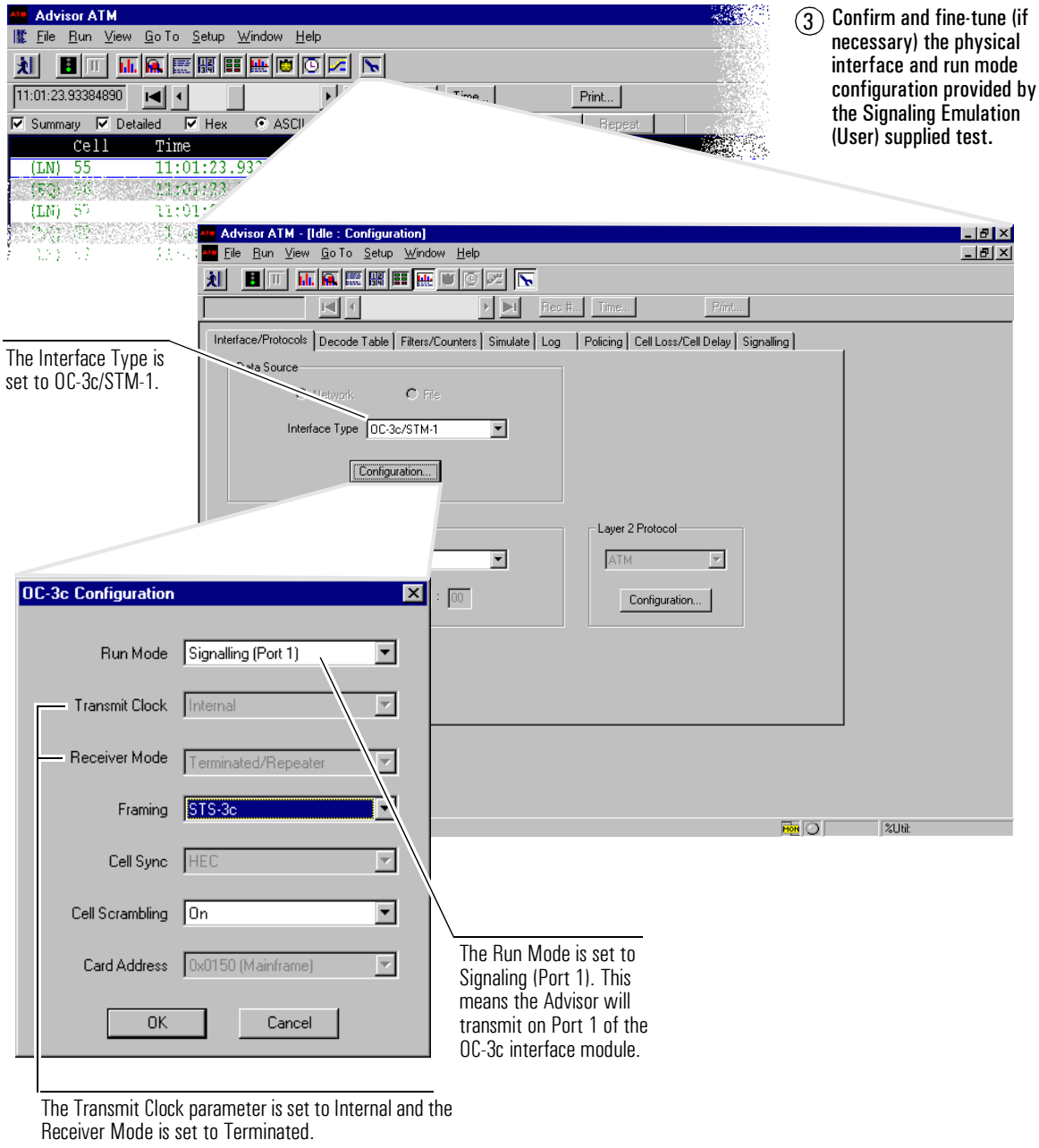
The first three steps shown in this example represent a common troubleshooting method and can be modified to suit many other test situations.



1 Select the Signaling Emulation (User) test as shown here. This test configures the Advisor to transmit signaling messages on Port 1 (Out) and to respond to signaling messages received on Port 2 (In). You will need to manually configure other parameters later in this process.

2 Look in the online help for the connection necessary to perform this kind of analysis. In this case, it is the OC-3c Signaling (Port 1) connection.



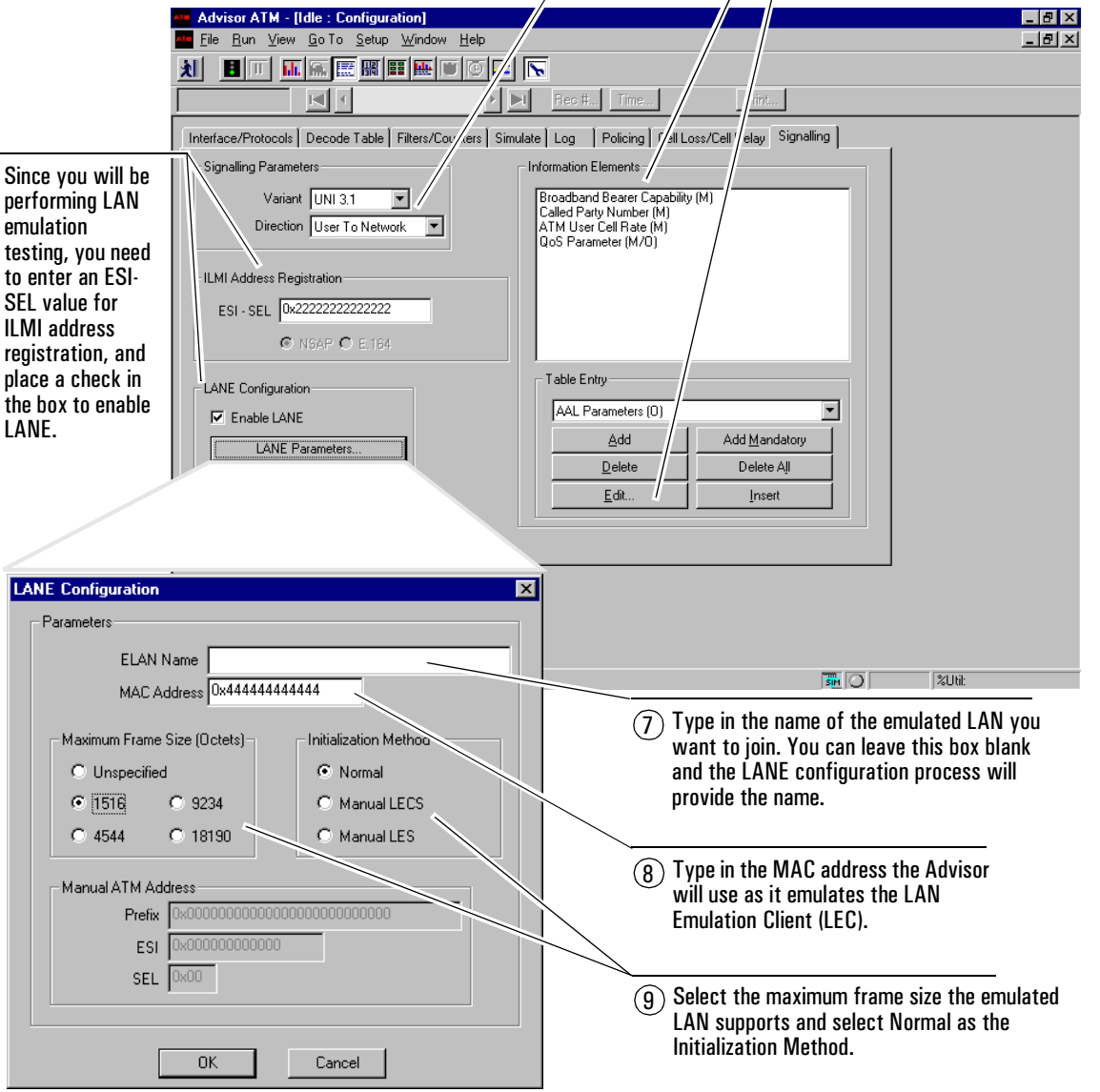


(3) Confirm and fine-tune (if necessary) the physical interface and run mode configuration provided by the Signaling Emulation (User) supplied test.

④ Confirm signaling parameters provided by the supplied test. The Advisor's LAN emulation capabilities require the Variant to be set to UNI 3.0 or 3.1 and the Direction set to User-to-Network.

⑤ If necessary, configure the parameters of the information elements used in the SETUP messages sent by the Advisor.

⑥ Since you will be performing LAN emulation testing, you need to enter an ESI-SEL value for ILMI address registration, and place a check in the box to enable LANE.



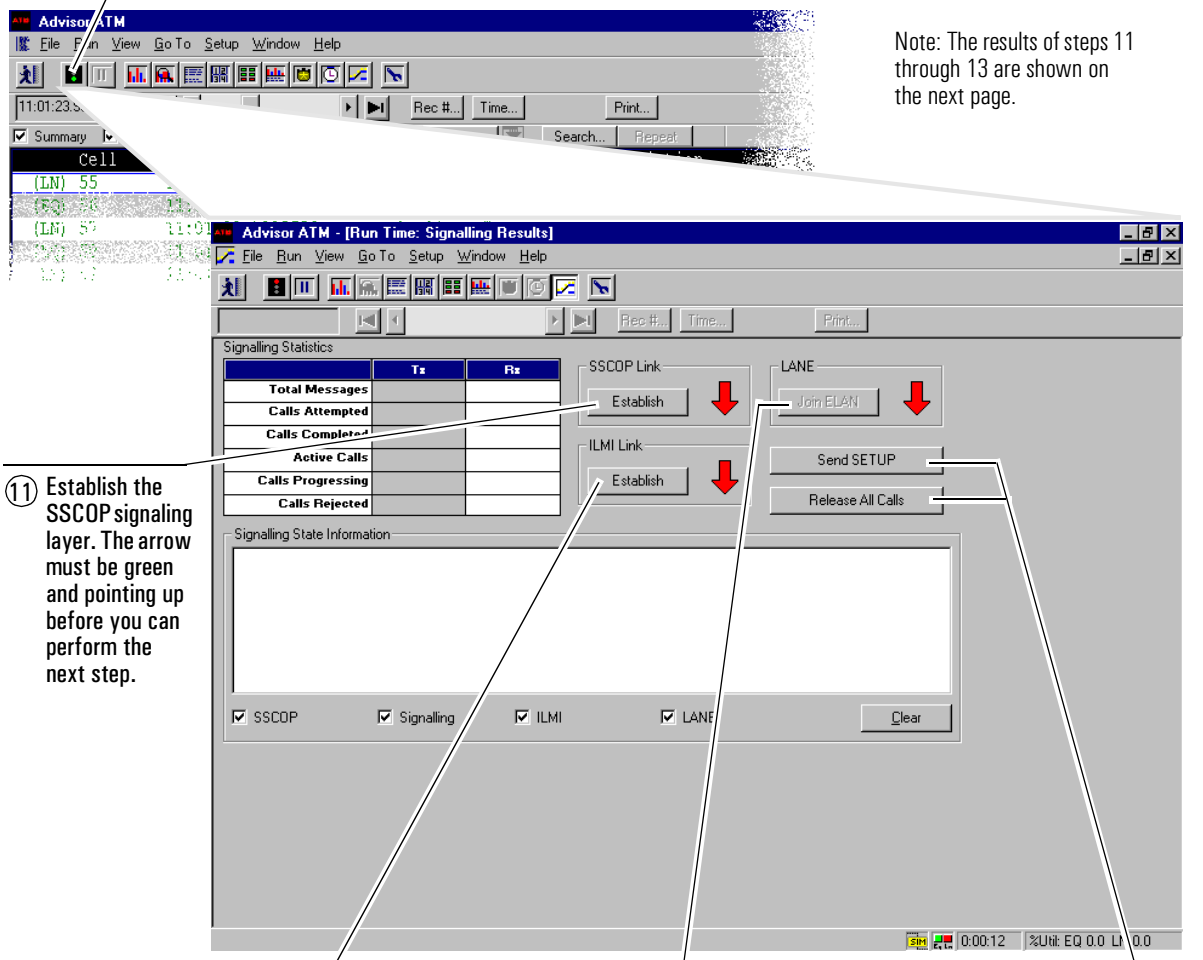
⑦ Type in the name of the emulated LAN you want to join. You can leave this box blank and the LANE configuration process will provide the name.

⑧ Type in the MAC address the Advisor will use as it emulates the LAN Emulation Client (LEC).

⑨ Select the maximum frame size the emulated LAN supports and select Normal as the Initialization Method.

⑩ Start the test. The Signaling Results view is displayed automatically. You use the buttons in this view to control the test's operation.

Note: The results of steps 11 through 13 are shown on the next page.



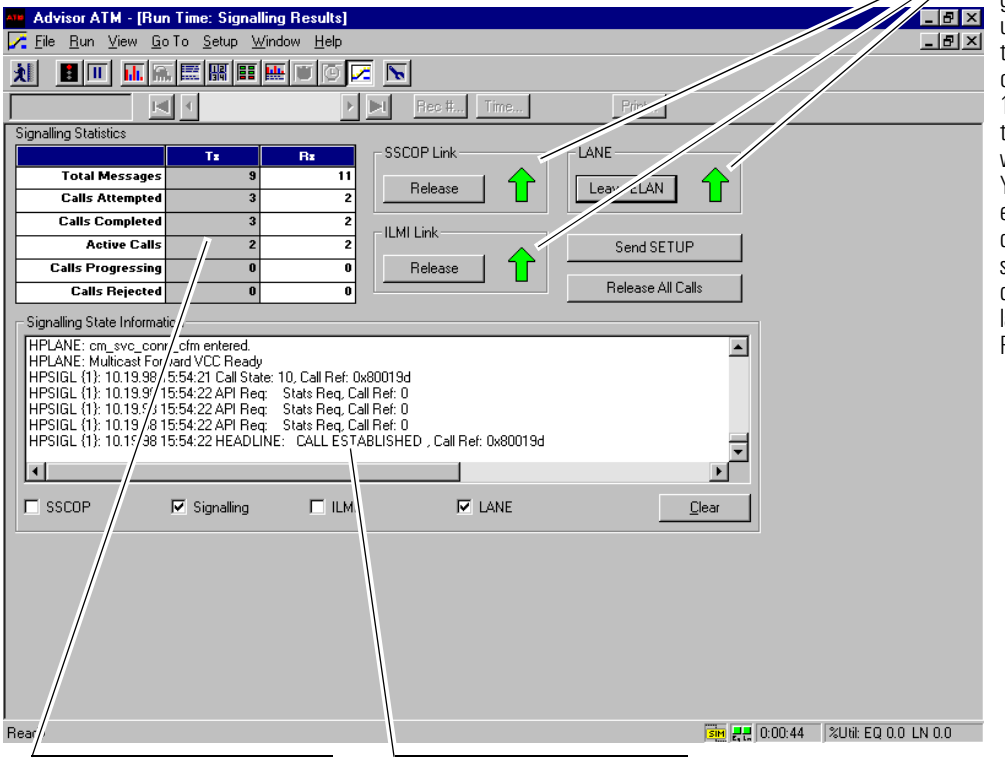
⑪ Establish the SSCOP signaling layer. The arrow must be green and pointing up before you can perform the next step.

⑫ Enable the ILMI stack. This step is required when you are performing LAN emulation testing and may be required for regular SVC signaling testing.

⑬ Join the emulated LAN.

⑭ Once the SSCOP layer is established, you can cause the Advisor to send individual SETUP messages. You can also release all of the SVCs that have been set up during signaling and LAN emulation testing.

⑮ View the results of the test.



These arrows are green and pointing up to indicate that the corresponding operations (steps 11, 12, and 13 on the previous page) were successful. You can leave the emulated LAN, disable the ILMI stack, and bring down the SSCOP layer by clicking the Release buttons.

Statistics related to the calls made are shown in this spreadsheet. Notice that 3 calls originating from the Advisor (Tx - transmit) were successfully made. Also notice that 2 SVCs are currently active on each side of the test connection, showing that SVCs to and from the LAN Emulation Server (LES) and the Broadcast and Unknown Server (BUS) are active. This indicates that the emulated LAN was joined successfully.

Trace messages show internal state transitions and messages that occurred while the Advisor (acting as a LEC) communicated with the network. In addition, you can look at the Decode view to see a decoded version of all the cells transmitted during the process.

Testing Quality of Service Parameters (QoS) with Cell Loss / Cell Delay

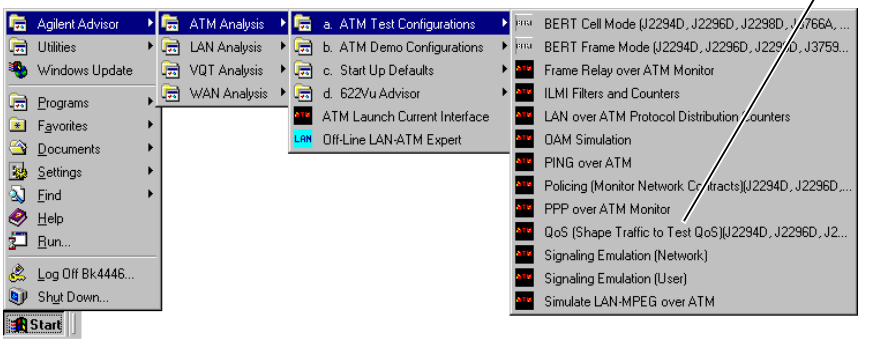
This example shows how you would test cell loss. cell delay, and a number of other important Quality of Service (QoS) parameters across several ATM switches connected by an OC-3c transmission line. This is the kind of measurement that might be performed when new ATM service is being provisioned and the need to baseline the network's performance exists. Typically, you will use two Advisors, each transmitting test cells to the other, in order to make the measurements for both directions of transmission and to measure QoS point-to-point. This example will demonstrate how to:

- Connect the Advisor to the network.
- Configure the cell loss and cell delay test to match the network's traffic contract.
- Run the test and look at key QoS measurement results.

To begin, you need to have installed an OC-3c interface module into the Advisor, gone to the location where you will connect the Advisor to the network, and turned the Advisor on.

Note

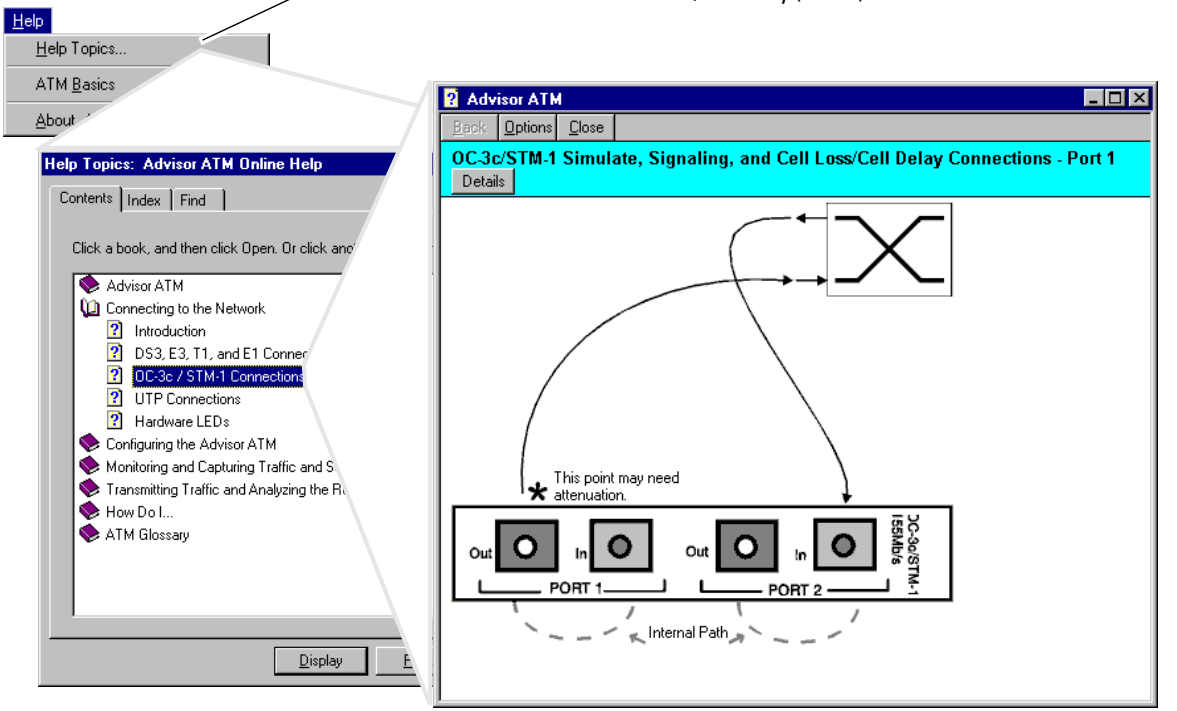
The Advisor's Cell Loss and Cell Delay measurement is most affective in an end-to-end mode. Keep this in mind: to perform an end-to-end measurement, you will need to perform the steps that follow for two Advisors - one on both ends.

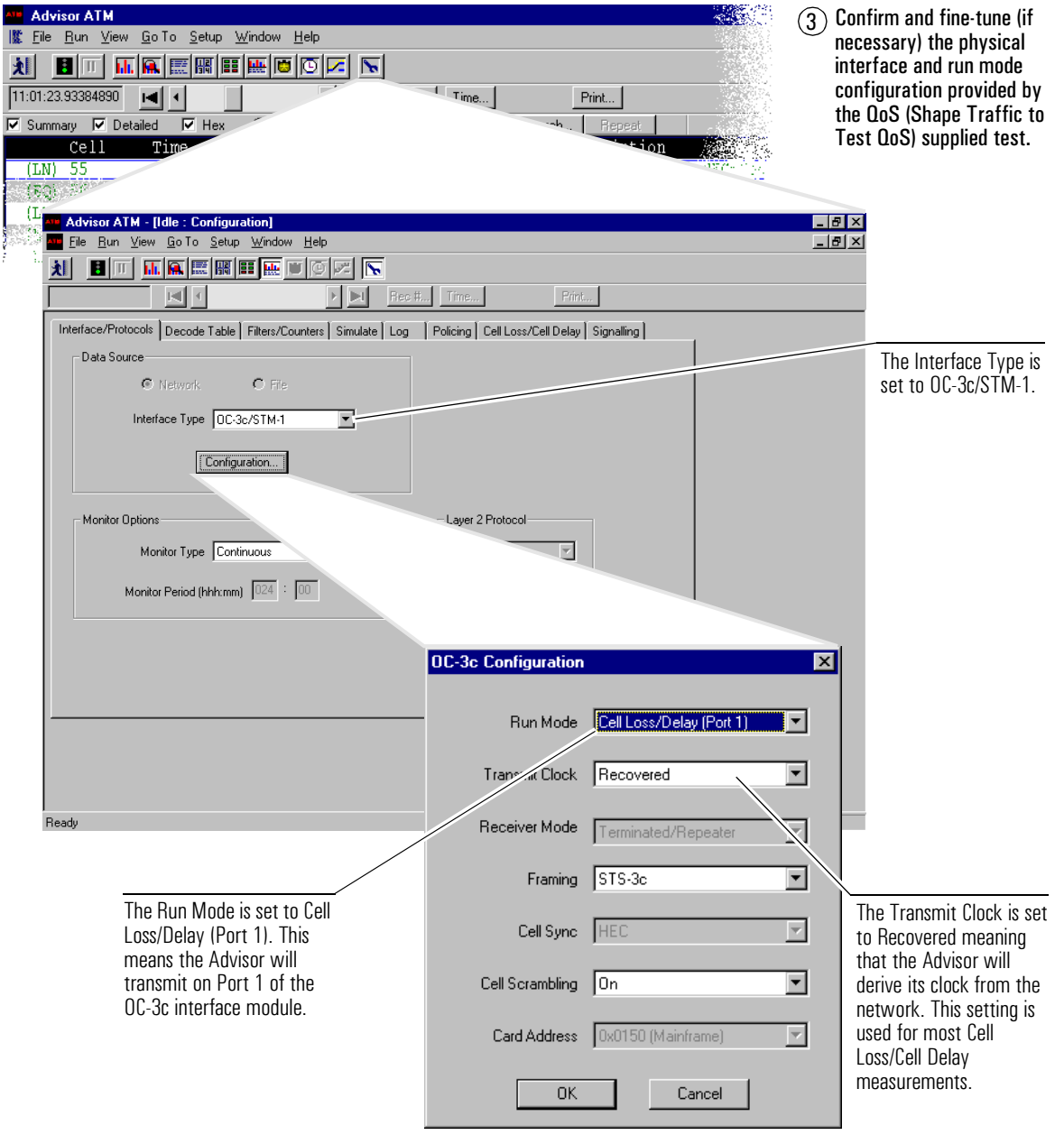


1 **Select the QoS (Shape Traffic to Test QoS) test as shown here.**

This test configures the Advisor to transmit 0.191 test cells from Port 1 (Out), and receive and analyze test cells on Port 2 (In).

2 **Look in the online help for the connection necessary to perform this kind of analysis. In this case, it is the OC-3c Cell Loss/Cell Delay (Port 1) connection.**





3 Confirm and fine-tune (if necessary) the physical interface and run mode configuration provided by the QoS (Shape Traffic to Test QoS) supplied test.

The Interface Type is set to OC-3c/STM-1.

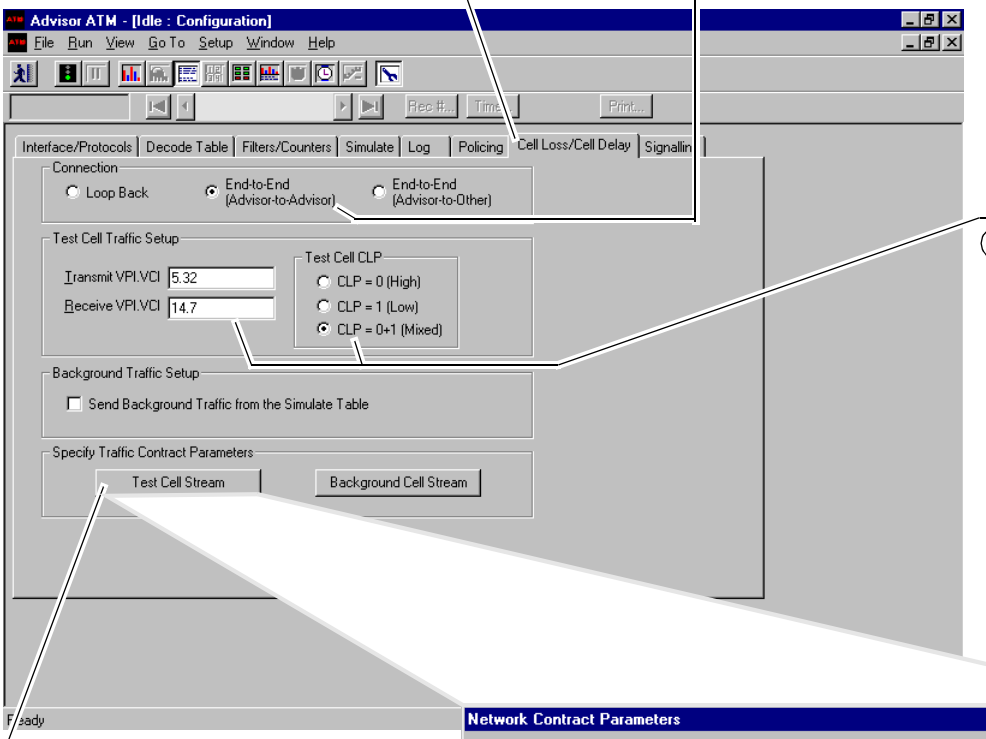
The Run Mode is set to Cell Loss/Delay (Port 1). This means the Advisor will transmit on Port 1 of the OC-3c interface module.

The Transmit Clock is set to Recovered meaning that the Advisor will derive its clock from the network. This setting is used for most Cell Loss/Cell Delay measurements.

④ **Bring the Cell Loss/Cell Delay folder to the front so you can configure measurement-specific parameters.**

⑤ **Set the connection to End-to-End (Advisor-to-Advisor).**

Remember, this mode requires the use of two Advisors. In some test situations, Loopback or Advisor-to-Other will be necessary.



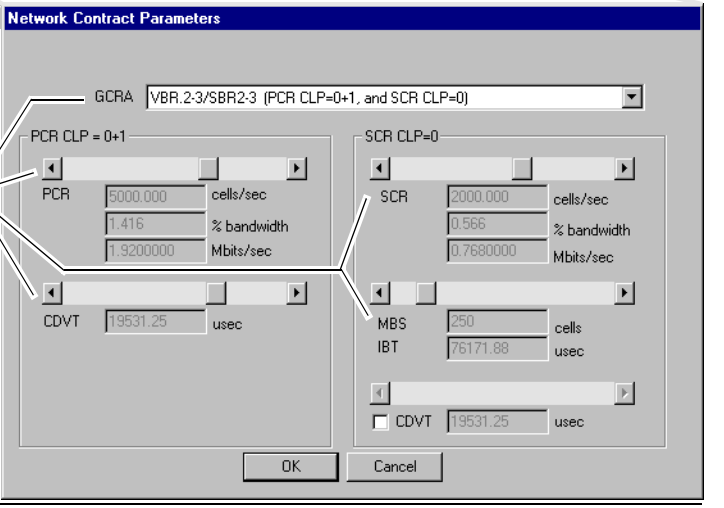
⑥ **Set the Transmit and Receive VP.VCs and the Cell Loss Priority (CLP) of the test cells.**

The Advisor will send test cells out on the Transmit VP.VC and measure test cells arriving on the Receive VP.VC.

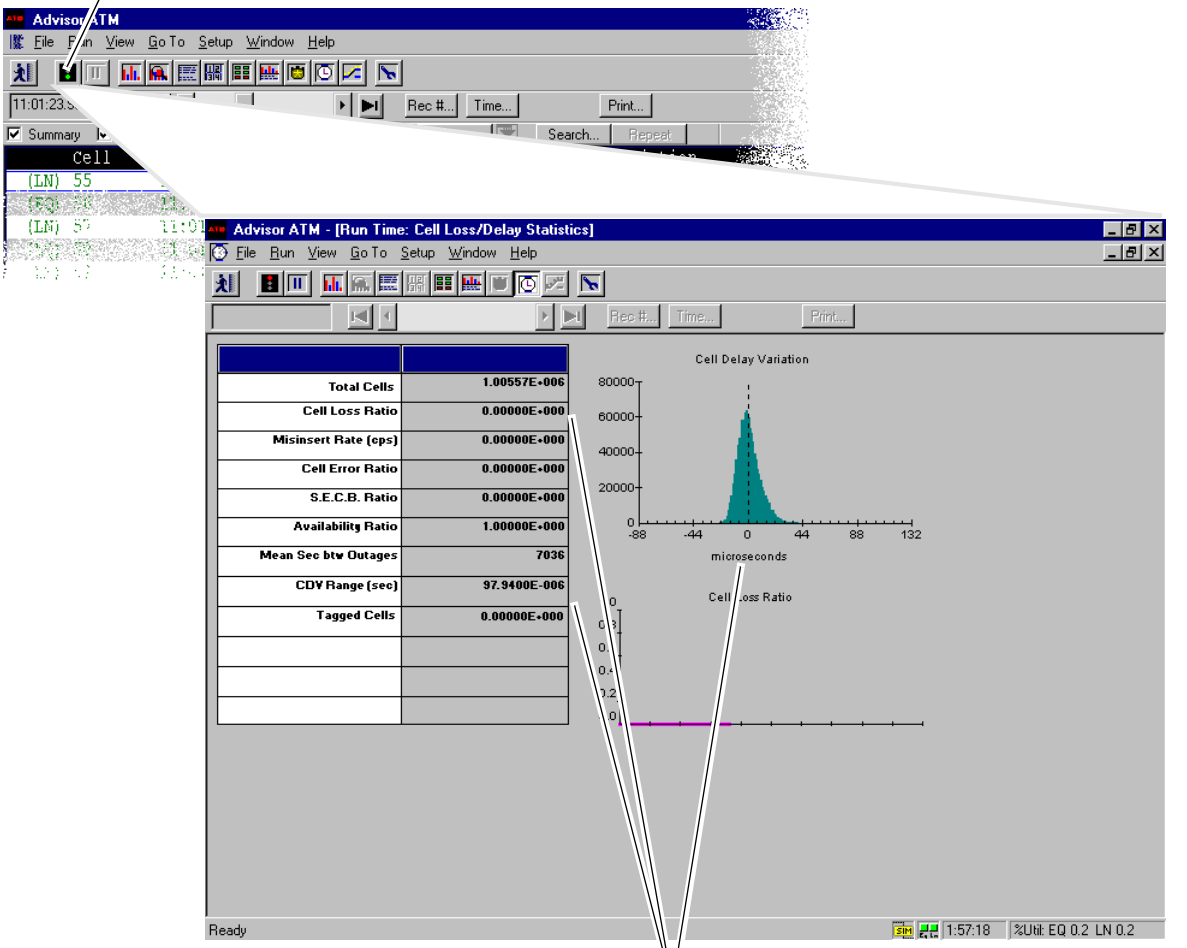
⑦ **Set the Traffic Contract Parameters used to shape the transmitted test cells.**

⑧ **Select the Generic Cell Rate Algorithm (GCRA), Peak Cell Rate (PCR), Cell Delay Variation Tolerance (CDVT), Sustained Cell Rate (SCR), Maximum Burst Size (MBS), and so on.**

For this example, a 'double-bucket' (with tagging) algorithm is selected, and typical individual parameters have been defined. For this test to be affective, these values should be set at or just below the values defined for the network you are measuring.



⑨ Start the test. The Cell Loss/Delay Statistics view will be displayed automatically.



The Cell Loss/Delay Statistics view shows the results of measurements made on the incoming test cell stream. As you can see in this example, no cell loss is occurring, there is a Cell Delay Variation (CDV) range of 97.9 microseconds (acceptable in most cases), and no cells are being tagged. This indicates that the transmission path from the remote Advisor to this one is providing the QoS that you expect.