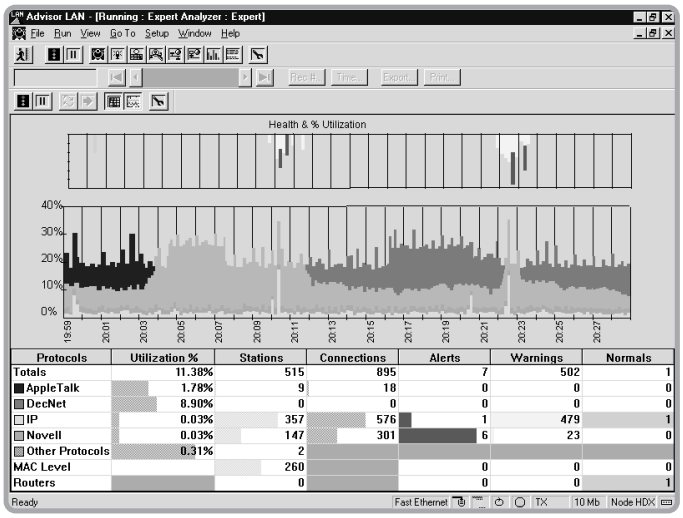
Agilent Technologies

Advisor–SW Edition J1955A

Product Overview



Intelligent, Quick Network Problem Resolution

The Advisor product suite from Agilent Technologies makes it easier than ever before to get top performance, reliability and up-time from your local area networks. The Agilent Advisor SW Edition, a software based protocol analyzer, gives you the tools you need to isolate and solve network problems on 10/100/1000 BaseT Ethernet and Token Ring networks.

The Agilent Advisor SW Edition, a software based protocol analyzer, gives you the tools you need to isolate and solve network problems on 10/100/1000 Ethernet networks. Advisor SW Edition is installed on a standard PC or notebook with Microsoft Windows® 98/2000/NT operating system and an appropriate NDIS network interface card. The Advisor SW Edition provides the identical graphical user interface, Expert Analyzer, and most of the analysis functionality of the award winning Agilent Advisor LAN/WAN/ATM protocol analyzer. For the first time in the industry, a software based protocol analysis system provides the feature set and analysis capability previously available only in hardware based systems - Advisor SW Edition.

Advisor SW Edition has the capability to analyze frames being captured from a NIC or a PCMCIA card rather than the Agilent Advisor acquisition hardware. The following list is a brief summary of the Advisor SW Edition key features:

Feature Summary

Unique Advisor SW Edition Features

- Intuitive Windows® user interface enhances productivity, Expert Advisor
- Compatible with other Agilent products to extend test and measurement capabilities
- Analyze critical full-duplex links
- Most comprehensive Voice over IP decodes in the industry
- Significant Voice over IP protocol stack filtering
- Oracle and Sybase analysis of frame sequences to detect and report events

Guided Troubleshooting

- Easy on-line step-by-step guide to solving common network problems
- Problems/events identified by severity to prioritize troubleshooting
- Drill-down sequences enable fast fault isolation, even without extensive protocol knowledge
- Numerous sample tests are provided in the on-line Agilent Advisor LAN Getting Started guide
- Extensive on-line help explanations addressing key network issues

Keeping Your Networks Up, Running, and Safe

- Overview of network health indicates when problems occur and action is required
- Clearly indicates who is using the bandwidth and how it is being used
- Avoids excess network downtime with rapid identification and resolution of events
- Network utilization by protocol shows overall network activity
- Connection analysis to characterize network traffic

Performance Measurements

- Expert Advisor® - graphs utilization and health over time, provides summary information on connections, protocols and network events of interest
- Protocol Commentators - detailed list of network events on connections and nodes
- Protocol statistics - detailed view of the active protocols on the network, including utilization statistics, number of errors and average frame size
- Connection statistics - detailed view of every active connection including the protocols in use and the problems encountered
- Node discovery - list of node physical addresses, names, network addresses and events that have occurred on each node
- Network vital statistics - list of every node on the network, showing utilization and data link layer (DLL) errors
- Line vital statistics - overview of physical layer information such as utilization
- Decodes - displays the contents of every packet on the network in summary, detailed and hex format

Advanced Features

- Flexible filtering for selecting only the data of interest
- Active stimulus/response tests to troubleshoot a production network
- Test new equipment or configurations before deploying them in the network
- Use of node names at MAC or network layers for easy identification of nodes

Quickly isolate and solve network problems with guided troubleshooting

Expert Advisor

Advisor SW Edition features the Expert Advisor, a tool that gives you an instantaneous view of the key issues and overall health of the network in an easy-to-use Windows user interface that makes troubleshooting any network segment a simple point-and-click process. At a glance you can determine how the bandwidth is being used or if there are potential or existing problems on the network. Figure 1 depicts the Expert Advisor, which contains the following significant information in one simple display:

- Potential and existing errors/events are graphically displayed in the network health bar and reported by protocol in the Alerts, Warnings, and Normals columns.
- Overall picture of the utilization of the bandwidth, color coded by protocol
- Quantifies how much bandwidth is used per protocol in the % utilization column
- The number of stations/nodes per protocol in use
- The number of active connections per protocol
- For the MAC level % utilization, stations, connections, and events are reported by column
- For routers, stations and events are displayed by column

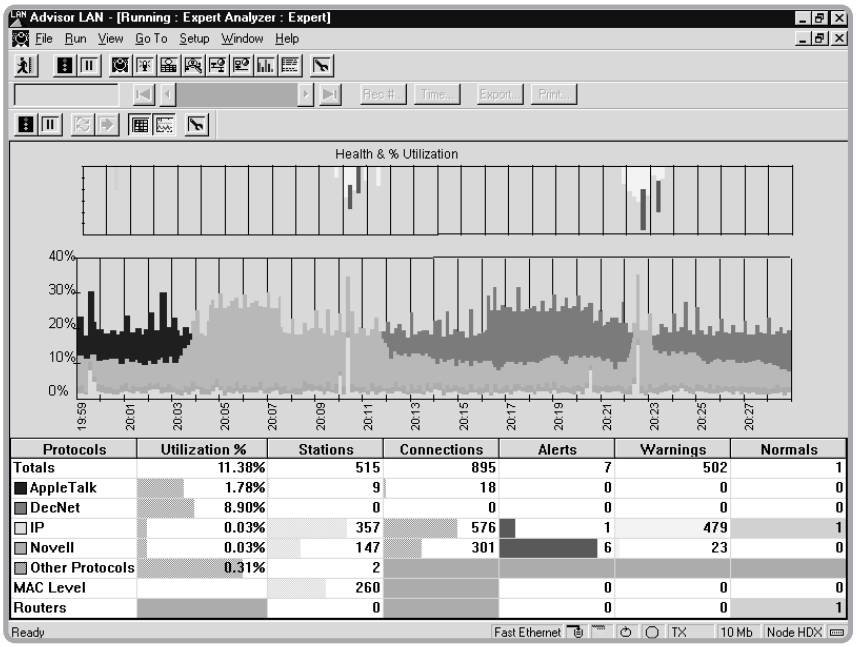


Figure 1: Running : Expert Analyzer : Expert

The Expert Advisor is the focal point of the Advisor SW Edition. From the Expert Advisor screen, you have access to all of the test and measurement features. In addition to the variety of information provided by the Expert Advisor in one view, it provides intuitive drill down access to all of the performance measurement features. This allows you to solve network problems quickly and effectively. Through the Expert Advisor, you gain thorough information about your network by easily using the comprehensive measurement statistics, including decodes for the major protocols from layer 1 through layer 7.

Protocol Commentators

At the heart of the Expert Advisor are a series of commentators, performing real-time analysis of frame sequences to detect protocol events. You can identify, understand and resolve network problems faster and more easily with the Advisor SW Edition. You can view summary information of significant network events, then drill down to get an easy-to-understand description of an event, including an explanation of probable causes and suggestions for correcting the problem. This automatic problem analysis capability saves you considerable time compared to troubleshooting with protocol decodes alone. Figure 2 depicts the IP Commentator view.

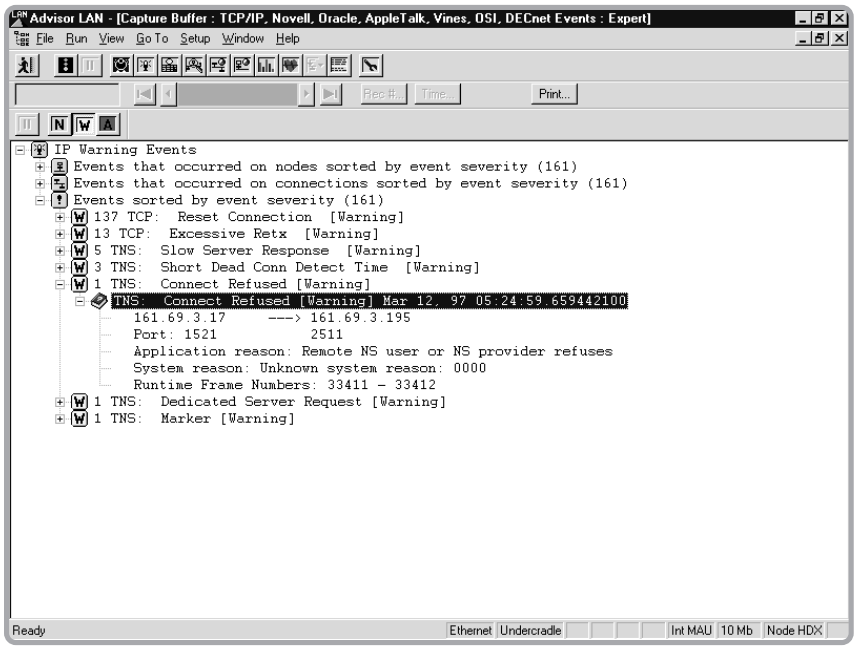


Figure 2: IP Protocol Commentator

With the Expert Advisor, utilization and significant events are shown graphically by protocol. The Advisor SW Edition translates captured data into meaningful diagnostic information, constantly monitoring the traffic on your network. You can obtain further information by drilling down on items of interest to show, for example, the client-server connection with a slow file transfer rate. Expert Advisor provides continuous feedback on key network issues such as router mis-configurations, slow file transfers, inefficient window sizes, connection resets and many other problems. It reduces thousands of frames to a handful of significant events and sorts them into three categories:

- **Alert events** indicate a serious network problem, such as "zero time to live" in IP.

- **Warning events** that highlight a configuration or a performance problem in the network, such as "connection refused" in Oracle; then lists all possible reasons for the refusal.

- **Normal events** that give information on normal network transactions, such as "file open or close" in Novell and provide statistics on the file transfer time.

Events are logged and linked to the corresponding captured frames, making it easy for you to scroll through the capture buffer to see the events that led up to the occurrence and view the details of the event itself. All commentators run concurrently or can be defined separately for the major protocol stacks.

Additional drill-down capability enables you to focus on the data, discover the source of the problem and suggests a solution. It does this for each protocol stack you have running, all in real time as events actually occur. A complete listing of events that are flagged by the commentators may be found in Appendix A.

Database Analysis Commentators

In addition to standard protocol commentators, the Advisor SW Edition provides the same easy to use and intuitive Expert Analyzer system for Oracle's TNS (Transparent Network Substrate) protocol and Sybase's TDS (Tabular Data Stream) protocol. Below is the list of events addressed.

Oracle Commentator (TNS)
Connect redirect event
Slow server response event
Short dead connection detection event
Excessive denied logons
Dedicated server request event
*Connect refused event

Sybase Commentator (TDS)
Login accept
Excessive failed logins
Logout
Slow server response
Frame containing error

*In the case of Oracles' Connect Refused events, Advisor SW Edition identifies all 66 possible reasons for the refusal.

Performance Analysis

A Picture of Your Network's Health

A comprehensive suite of statistical measurements helps you understand the traffic on your network on all layers, from the MAC and network layers to the application layer. In addition, statistics for individual nodes and connections on the network are available to characterize the traffic on your network. These network performance statistics can be accessed with just a click of the mouse. The Vitals measurements provide a statistical picture of the MAC layer and the various protocol stacks that identify problems or assist in optimizing the configuration of the network.

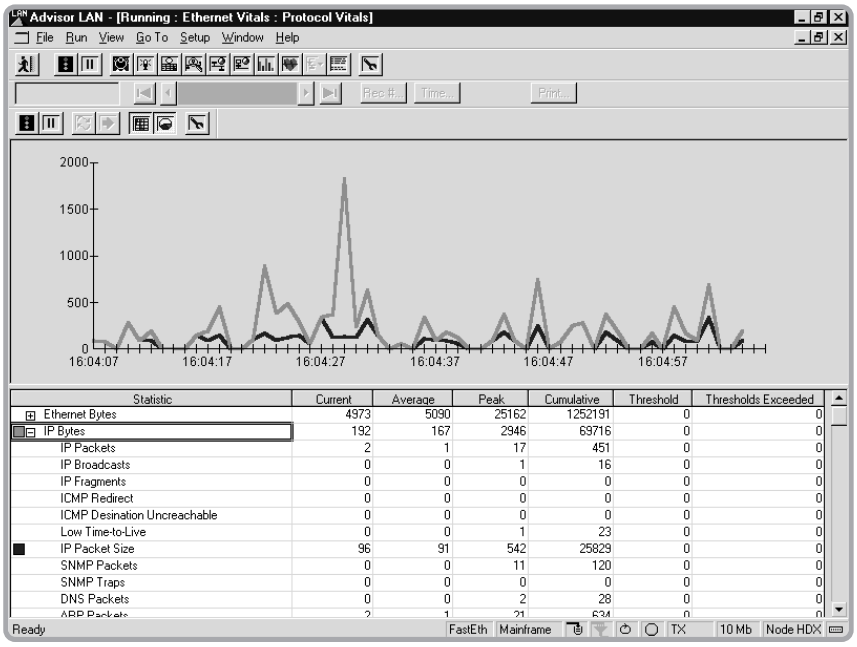


Figure 3: Running : Protocol Vital Statistics.

Protocol Vital statistics

Figure 3 depicts a typical Protocol Vital statistics display. Protocol Vital statistics provide current, average, peak and cumulative values for a number of protocol specific parameters, along with user-configurable thresholds that you can set dynamically to automatically detect intermittently occurring events. The Advisor SW Edition shows protocol vital statistics for Ethernet, IP, Novell, Apple Talk, Banyan Vines, OSI and DEC DRP. Within each of these protocols, a wealth of protocol specific information is provided. For the MAC layer, for example, the Advisor SW Edition provides:

- % Utilization
- Total # of frames
- Broadcasts
- Multicasts

For complete specifications on all protocol vital statistics, see Appendix B.

Line Vital statistics

The Line Vital statistics measurement graphs current and maximum utilization in real-time and provides current and maximum values in tabular format for the following parameters:

- Utilization (%)
- Number of frames
- Multicast frames
- Broadcast frames

Find out How the Bandwidth is Used

Connection Statistics

Many network problems are reported by users in terms such as, "I cannot connect to a printer" or "The connection to the network is very slow." To resolve these types of problems, you need to view the activity on a particular station or specific connection. To see who is using the bandwidth and how the bandwidth is being used, the Advisor SW Edition provides numerous connection statistics. By simply clicking on a busy node, you will see immediately whom the node is talking to most often and what protocol is used. The display shows by column:

- Total frames and bytes to or from a node
- Frames or bytes per second to or from a node
- Utilization to or from a node
- Total retransmissions to or from a node
- Retransmissions per second to or from a node
- Low window to or from a node
- Source or Destination Port

Right click on any column heading and select "Sort by this column" to sort the information for you by the chosen category. Data capture filters may be set while running these measurements, so that only a specific set of nodes is included. Figure 4 is a typical Connection Statistics display.

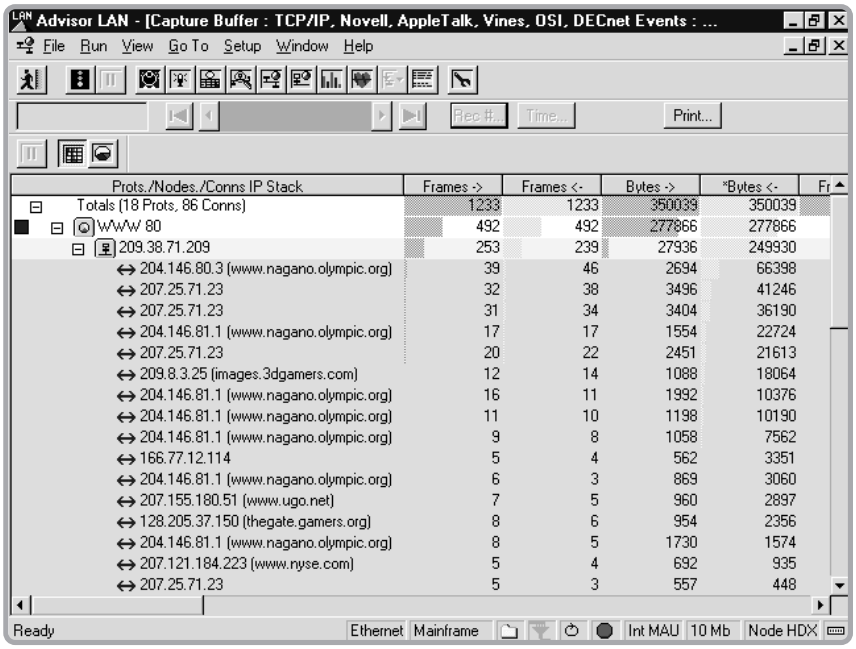


Figure 4: Capture Buffer : Connection Statistics.

Protocol and Frame Length Statistics

To help understand variations of frame length and protocol usage over time, protocol and frame length statistics are gathered simultaneously for the network and the major protocol stacks. The Advisor SW Edition shows these statistics in both tabular and pie chart format, showing % utilization or frame length distribution by protocol as depicted in figure 5. Ethernet frame lengths are displayed in the following categories:

64 – 127 bytes
128 – 255 bytes
256 – 511 bytes
512–1023 bytes
1024–1518 bytes

Protocol statistics provide by protocol:

- % utilization
- Total number of frames and bytes
- Frames and bytes per second
- DLL (data link layer) errors and
- Average frame length

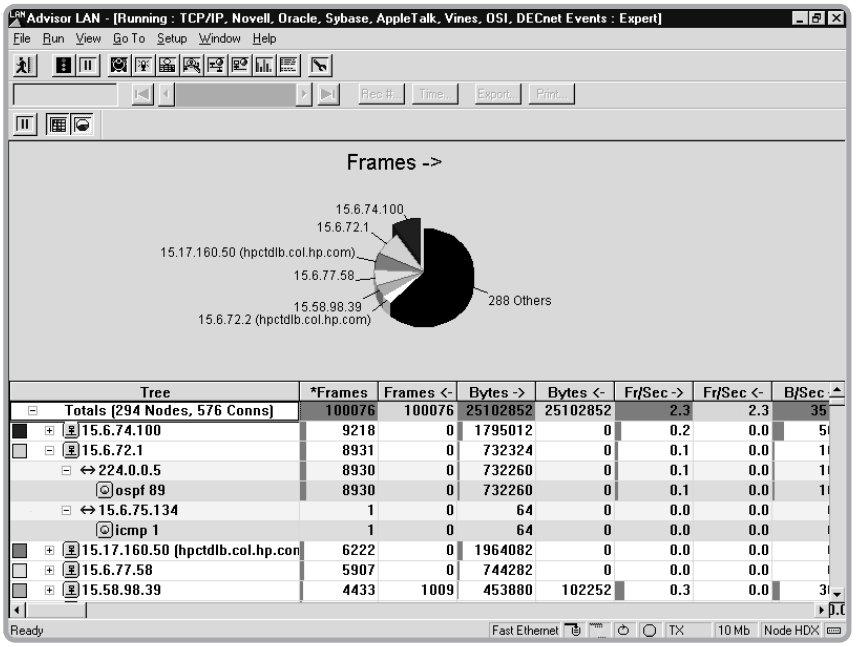


Figure 5: Connection Statistics.

MAC Node Statistics

Many times you need to find out exactly what is happening at the MAC Layer. The Advisor SW Edition provides you with numerous MAC Node statistics to help you understand what is going on at that layer by providing insight into the following parameters:

- Bytes transmitted
- Frames transmitted
- Bytes received
- Frames received
- Bytes transmitted per second
- Frames transmitted per second
- Bytes received per second
- Frames received per second
- Broadcasts % transmitted
- Broadcasts per second % received
- Multicasts
- Multicasts per second

Node discovery

Maintaining an up-to-date list of network nodes is key to managing many network problems as they occur. The Advisor SW Edition provides an open node list that is automatically incremented as nodes are discovered by the Expert Advisor. The node list shows MAC addresses, network addresses (IP, IPX, AppleTalk, DECnet, OSI, CLNP) and if possible the node names are provided in English. You have the ability to view nodes by protocol stack and if the node has an event you can drill down into the events associated with that node. Figure 6 shows a typical display for Node Discovery.

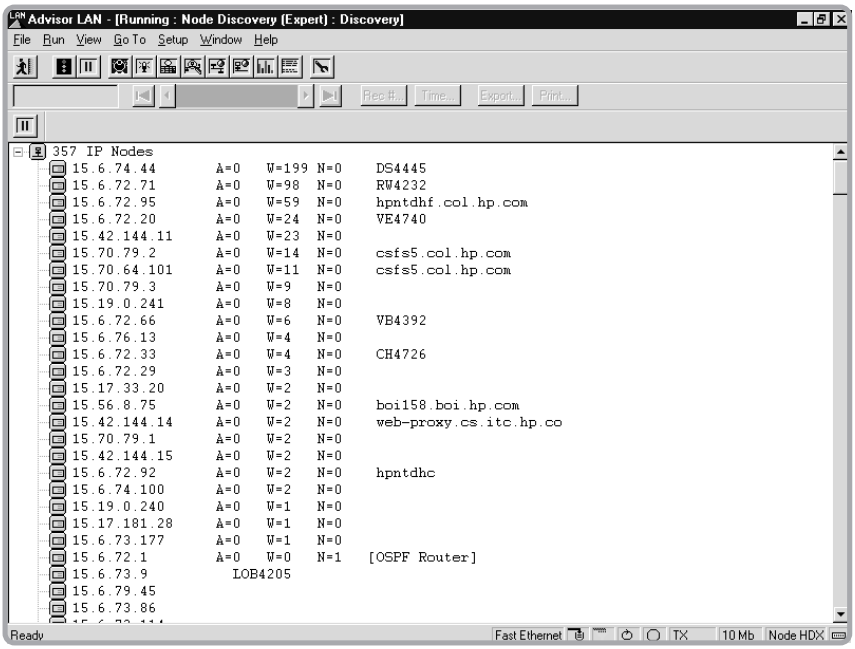


Figure 6: Node Discovery.

Find All the Details With Comprehensive Decodes

Decodes

Many problems can be solved with the Expert Advisor without viewing the details of each frame. However, when you need them, there are more than 240 high quality protocol decodes available to help interpret the protocols on the network. As shown in figure 7, a detailed display shows the field-by-field protocol decode for every frame, while the summary display provides a single-line or multi-line display of key frame fields. In addition, a hexadecimal display is provided which maps to the detailed display. Each protocol layer is displayed in its own color with each field or parameter completely translated in English. All layers of the stack are fully reassembled and decoded. Additionally, each frame has a timestamp that can be used for relative, absolute or delta timing measurements.

All major protocol stacks are supported, including:

- Voice over IP
- TCP/IP
- Microsoft®
- LAN Manager
- AppleTalk Banyan-Vines
- DECnet Phase IV/V
- IBM/SNA Media
- Novell OSI
- Sun XNS
- and others

The Advisor SW Edition provides 7-layer decodes of all major protocols, including 802.1p, 802.1Q and 802.3x. Protocol decodes have a built-in protocol follower that will flag errors as they occur. A convenient "Go to next error" feature allows you to advance to the next erroneous frame in the capture buffer.

Agilent Technologies was first to the market with new Voice over IP protocols. Advisor SW Edition provides the most extensive list of Voice and Fax over IP protocols in the industry:

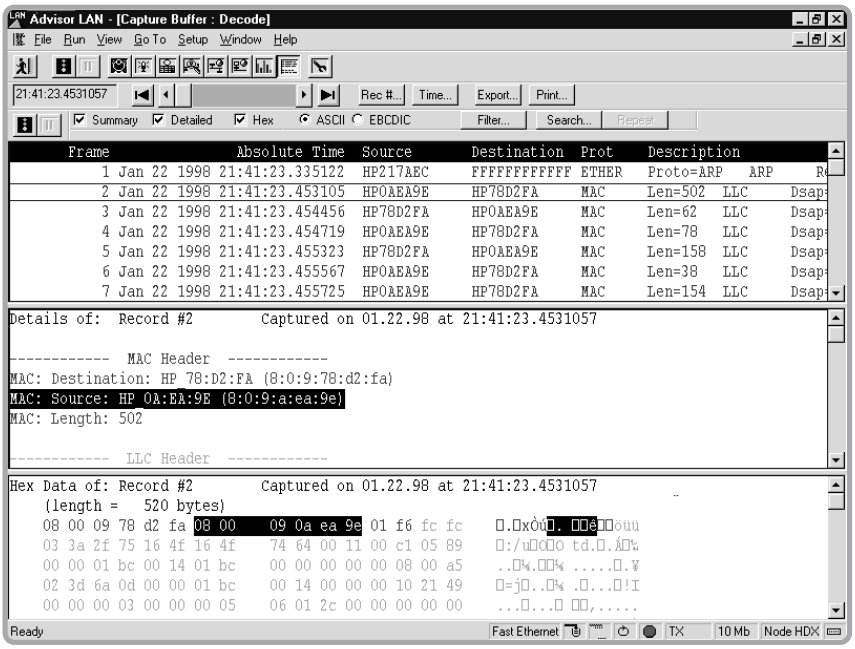


Figure 5: Capture Buffer: Decode>

Narrow the Data to Find Only What You Need

Filters

Filtering capabilities allow you to select only those packets of interest. The Advisor SW Edition supports two types of data filtering to assist you in troubleshooting and analyzing large quantities of data generated on a high-speed link.

- **Capture filters** are essential for targeted searches since they allow you to specify which frames Advisor SW Edition should store in the capture buffer. Packets in the capture buffer can be searched for by protocol. When the specified packet is found, the cursor is placed over that packet.

- **Display filters** let you narrow your data search by specifying which frames should be shown on the display. Once data is captured in the buffer, further filter the data to be displayed on the screen.

  Capture filters can be set to filter by protocol, station addresses, and other trans port layer addressing such as MAC addresses. When filtering by data, up to 64 bytes may be specified in the data field following the MAC source and destination addresses as filter criteria (or network layer for IP and IPX network filters).

  The Advisor SW Edition also provides filtering by VLAN (Cisco ISL or IEEE802. 1p/Q), by protocol and by station. Once a filter condition has been met, you can stop data capture with the filter event at the start, near the center or at the end of the capture buffer.

Find an Answer by Duplicating a Problem

Traffic Generation and Active Tests

Built into the Advisor SW Edition is a traffic generator that adds intelligent packet and capture file-editing and playback capabilities. Ideal for those in manufacturing test and support organizations, it provides the tools you need to thoroughly test, simulate, and troubleshoot a network device or problem.

You can quickly configure the Advisor SW Edition to generate a series of packets to simulate a test network or a single packet such as an ARP or PING to troubleshoot a production network. Figure 8 depicts a frame being built in the traffic generator.

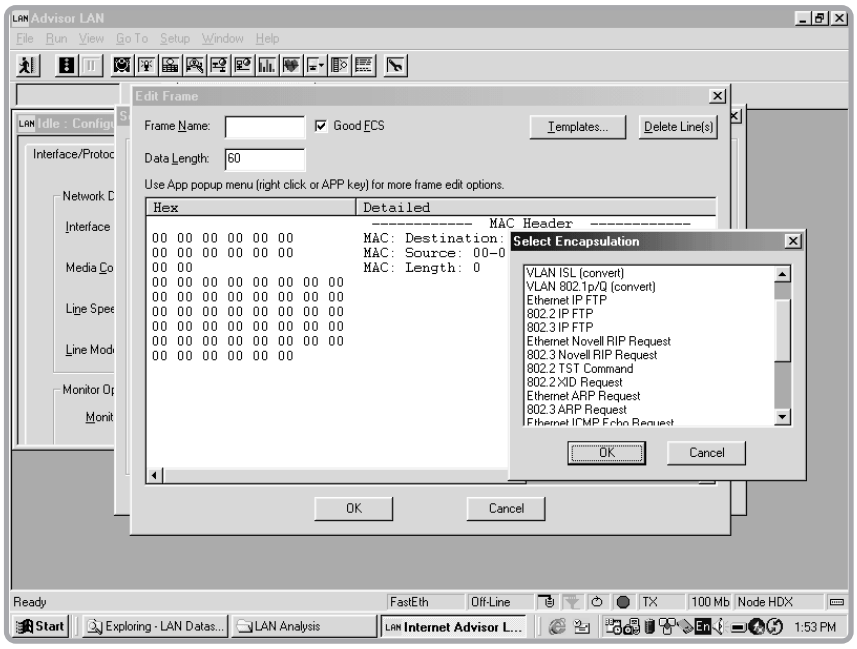


Figure 8: Traffic Generation.

Other Active Tests

A number of pre-written response time measurements and other active tests are included with the Ethernet Advisor. These include:

- IP Ping Novell Network list
- IP ARP Novell View Nodes
- IP RARP Novell Nearest Server
- IP Trace Route Novell Server list
- IP Active Net Discovery Novell Node Ping
- Novell Server Ping

IP Active network discovery discovers IP addresses once you specify an IP subnet mask and optional DNS server address and other parameters. An inverse DNS lookup is performed on each IP address so that all IP station names are learned.

Built-In Measurement Help

The on-line help system provides easy access to the information you need to do your job effectively. All Advisor SW Edition measurements provide standard Windows help. In addition to helping with the operation of the Advisor SW Edition, it provides background information about the protocols and event descriptions. Use the standard help menu for general information, or access context-sensitive help screens for assistance in solving a particular problem.

In addition, you can retrieve explanations from the commentator events by double clicking on the event title in the commentator view. This will display a help screen with a description of possible causes, solutions, and other tutorial and event information specific to the event in question. Figure 9 depicts an example of on-line Help.

The on-line Help provides a series of easy step-by-step examples to solve common network problems. It provides instructions and screen examples to quickly guide you to the cause of a network problem. The tutorial is automatically opened with the Expert Analyzer window or it can be launched from Help, Contents, and then selecting Solving Common Network Problems

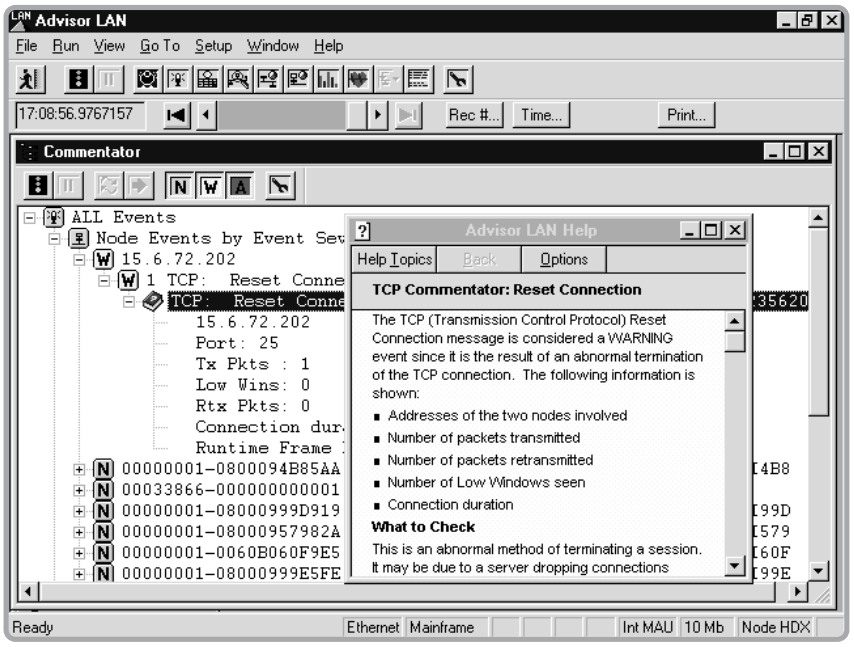


Figure 9: Help

Additional Features

Logging

Measurement logging is available to store test results in a disk file. You can select logging for all the open measurements from a common configuration dialog.

File Conversions

When you have captured a data trace on a NetMetrix Probe or on an analyzer other than the Advisor SW Edition and you need to examine it in much more detail, you can still take advantage of the powerful analysis capabilities of the Expert Advisor. Using the built-in conversion routines, data from most major manufacturers' analyzers can be converted to Advisor SW Edition format and analyzed with the Expert Advisor in the post-processing mode.

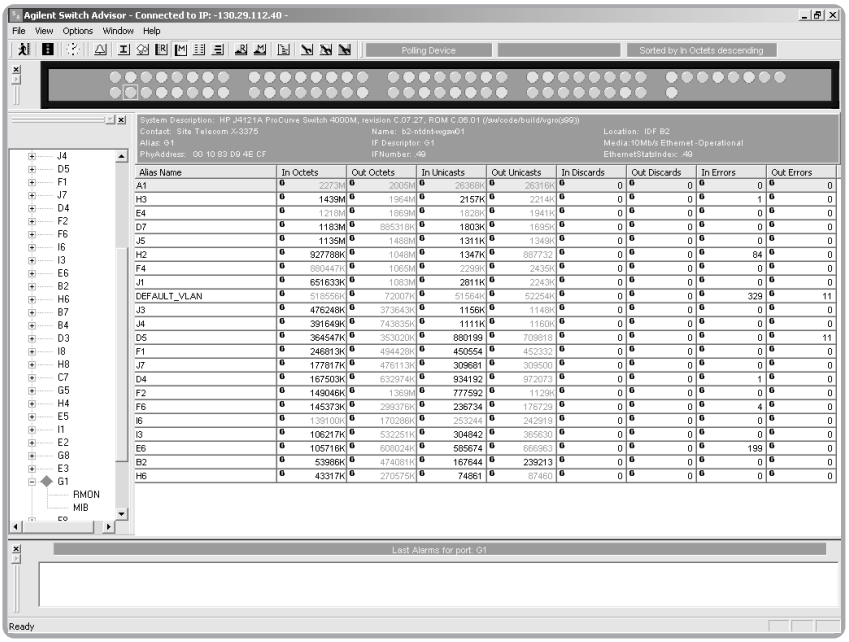
Remote Access

All Advisor SW Edition applications are compatible with off-the-shelf Windows remote control packages such as pcAnywhere from Symantec Corp.

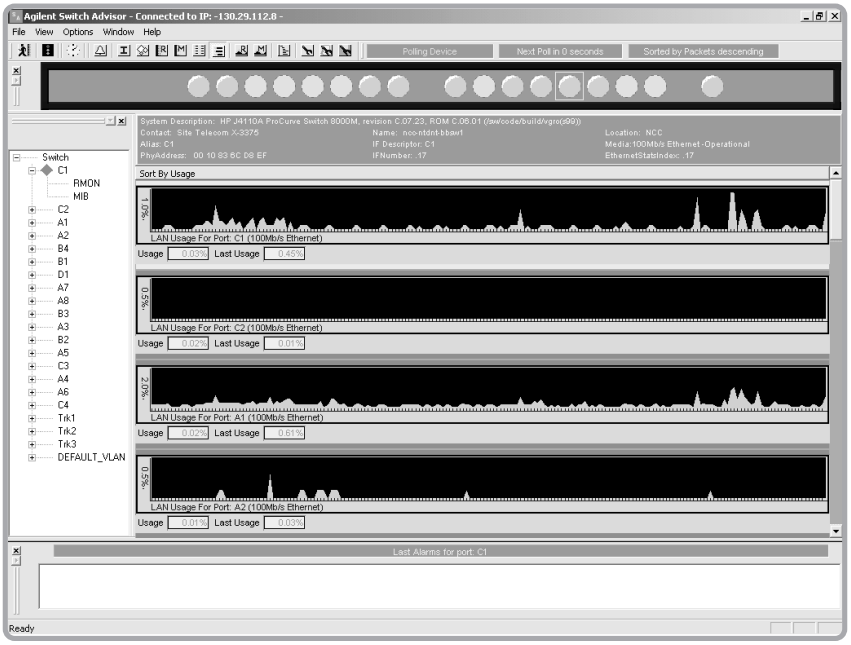
Switch Advisor

Remotely Gather Switch Statistics from Around Your Network

Trend switch port utilization and other vital statistics without leaving your chair. Discover switches and other Management Information Base (MIB) supported devices via user directed search or directly enter device management IP address and graphically view current port utilization levels. Switch Advisor sends SNMP messages over your network connection and gathers MIB data including utilization, packet information and errors.



This raw data is correlated and displayed on an easy to understand Graphical User Interface. Five separate views organize the switches data, allowing the user to concentrate on the data of interest, presenting pertinent statistical and graphical information needed to assess the health of the data being processed by the switch. Select which port to monitor via the "explorer" navigation menu or "clicking" on the port of interest.



Major Features

- Management - Displays System information including switch part number, location, designated name and site contact information. Displays each port number by customizable "Alias" name with Interface description, associated Media type and whether RMON capability is supported, per interface.

- MIB Statistics - Displays per port statistics including In/Out Octets, Unicasts, Discards and errors.

- Port Usage - Graphically displays switch-port utilization, per port, over time. Also, allows same measurements to be taken during a user-initiated test.

- Single Port Statistics - Displays per-port information including graphical representation of "In" and "Out" port utilization, Octets, Unicasts, Broadcasts, Discards, and Errors. Also, allows same measurements to be taken during a user-initiated test.

- MIB Browser - Allows user directed MIB data collection.

Advisor SW Edition Technical Specifications

Minimum Requirements for the PC System

- Pentium Class 133 MHz CPU (or comparable) with 32MB of memory
- 1-GB hard drive
- Built-in tracking device or external mouse
- VGA or SVGA monitor
- Operating System: MS Windows 98 / 2000 / NT 4.x
- PCMIA/PCI slot for network interface card
- 40 MB of hard disk space

Recommended Requirements for the PC System

- 300 MHz Intel Pentium II CPU (or comparable) with 128 MB of memory
- 1-GB hard drive
- Built-in tracking device or external mouse
- VGA or SVGA monitor
- Operating System: MS Windows 98 / 2000 / NT 4.x
- PCMCIA / PCI slot for network interface card
- 40 MB of hard disk space

Recommended Network Interface Cards

- 10/100/1000 BaseT Ethernet
- 16/4 Token Ring

Traffic Generator Specifications

- (NIC card dependent)

Frame copy:
Copy from another message
Copy from capture buffer
Frame formats:
Ethernet, IEEE 802.3
Number of user-defined bytes per message:
up to the maximum legal frame size

Warranty

Software: 90 day replacement only

J4618B
Expert System Based VoIP Analysis and RQM Measurements

Help solve connectivity issues and signaling problems

VoIP Expert

Troubleshooting expertise at your fingertips

The VoIP Expert provides continuous feedback on VoIP signaling and voice packet transport. It reduces thousands of frames to a handful of significant events.

- Automatically detects erroneous call set-up and tear down:
  - -Unreachable destination
  - -User busy
  - -Resources unavailable
  - -Inter-working error
- Generates alarms for non-standard protocol behavior:
  - -Invalid message
  - -Unknown data type
- Warns of errors:
  - -Open logical channel reject
  - -No bandwidth
  - -Resource unavailable
  - -Security denial
  - -Transport QoS not available
- Measures gatekeeper performance.
  - -Alarms on excessive requests
  - -Alarms on long response times
- Alerts the user to slow IP network and VoIP device performance:
  - -Long call set up times
  - -Missed sequenced and duplicate RTP packets
- Draws attention to VoIP device incompatibility:
  - -Terminal Capability Set Reject or Release

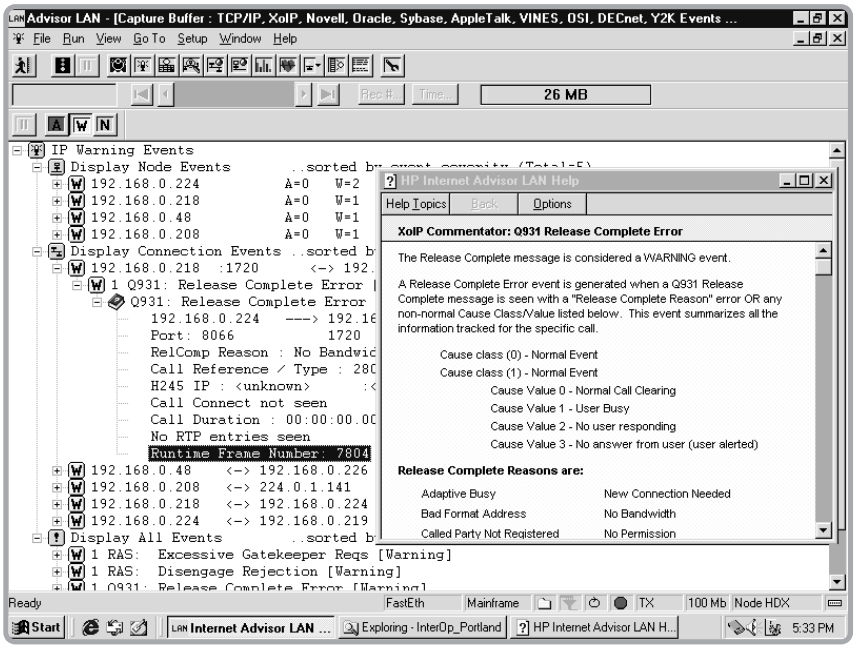


Figure 10: XoIP Commentator.

Additional drill-down capability enables you to focus on the data, discover the source of the problem and find a suggested solution. With a single click of the mouse, the VoIP Expert provides a path to:

- The decode screen highlighting the packet generating the error
- The connection, node and protocol statistics
- The call detail records for each call or part call

VoIP Commentators

Accelerate service developmental and product deployment

At the heart of the VoIP Expert are a series of commentators, performing real-time analysis of frame sequences to detect protocol events. Events are logged and linked to the corresponding captured frames, making it easy for you to scroll through the capture buffer to see the events that led up to the occurrence and view the details of the event itself.

The VoIP Commentator intelligently analyzes every stage of the call process and informs the user of all notable events. Since the H.323 protocol is still new to many and is also very complex, technicians not skilled in the intricacies of the protocol can still troubleshoot new VoIP installations. Engineers involved in designing VoIP products can quickly validate their H.323 implementation without having to analyze every H.323 message. This increases the ability to inter-operate with other systems.

The RQM Advisor software measures the IP packet performance of Voice over IP networks. Specifically, packet loss and jitter is measured for each session or conversation using RTP to transport voice or video.

RQM Advisor (RTP QoS Monitor)

Providing Visibility Packet Loss and Jitter

The RQM Advisor software measures the IP packet performance of Voice over IP networks. Specifically, packet loss and jitter is measured for each session or conversation using RTP to transport voice or video.

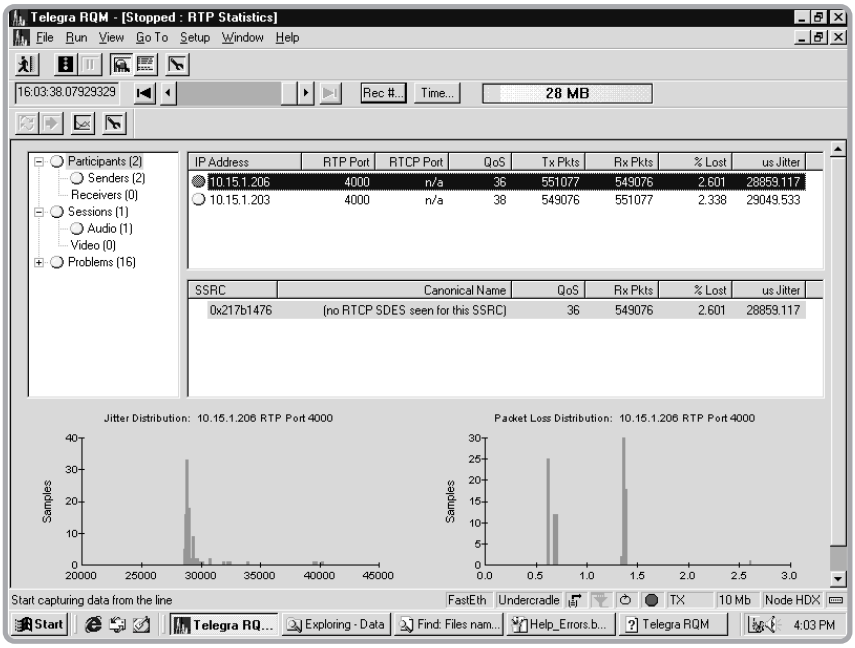


Figure 11: Stopped : RQM Advisor.

Portable RTP monitoring

- Ethernet 10/100/1000 BaseT and Token Ring interfaces
- Ethernet 10/100 interfaces
- Packet loss and jitter calculated for each individual RTP stream
- Graphs of RTP packet loss and jitter values over time
- Graphs of statistical distribution of RTP packet loss and jitter values
- User-configurable RTP alarms
- Continuous unattended logging of RTP packet loss and jitter statistics
- Continuous unattended logging of RTP problems

Measure IP impairments at any point in the network

In an operational network, it is vital to isolate the cause of poor voice or video transport. This may often be due to intolerable problems in the IP network. Measurement of packet loss, packet loss ratios and jitter are an essential part of assessing Quality of Service delivered by the IP network. The RQM Advisor connects passively at any one point in the network measuring IP impairments introduced up to that point in the network.

Characterize the performance of gateways

The RQM Advisor is also used to measure the level of impairments introduced by an IP network and to assess whether acceptable speech quality can be expected over that network. The exact level of jitter and packet loss within the IP network must be measured in order to characterize the performance of the gateway. The RQM Advisor is the ideal solution to measure and record accurate statistics of RTP sessions carrying voice. Such data can then be exported for incorporation into overall reports on the signaling or voice performance of the gateway.

The RQM Advisor is a passive monitoring application designed to measure packet loss and jitter introduced by the IP network. The time and sequence in which each packet was sent is contained in the RTP protocol header and analyzed together with time of arrival by the RQM Advisor to allow this single point measurement.

Identify RTP participants, sessions, and problems

As the RQM Advisor analyzes the UDP datagrams from the LAN, it creates a list of all individual RTP participants and a corresponding list of all of the RTP sessions that it sees. It separates all of the RTP participants into senders and receivers. A sender is an RTP participant that has sent any RTP data packets during the sampling interval.

In addition all of the RTP sessions are separated into one of two categories: audio and video, based on the payload type identifier in the RTP header. The RQM Advisor displays the current RTP participant and session information, as well as any errors and alarms, in the RTP statistics view. This display allows the user to control and filter the details that will be shown in the table and graph part of the statistics view.

User setup and flexibility

The RQM Advisor helps you focus in on the traffic of interest. Sessions can be filtered on the basis of IP addresses, selecting RTP traffic only, with or without specific UDP port numbers. A configurable QoS scale is available allowing you to quickly recognize IP network conditions of significance to your equipment. Results can be integrated over a sample interval set by the user, from 1 to 3600 seconds.

Thresholds can be set to notify the user on error conditions in inter-arrival jitter, packet loss ratio and sequence number gap.

Alarms can be set to activate on the following events:

- TRP data received on odd UDP ports number
- Packet inter-arrival jitter exceeds threshold
- Packet loss ratio exceeds threshold
- Sequence number gap exceeds threshold
- RTP payload type changes during an RTP session
- RTP source restart

Alarms can activate the following actions:

- Pop-up a Dialog
- Beep
- Stop Capture

Presentation of results

One line of information is dedicated to each session, participant or problem condition. Selecting one of them gives more detail below. The graph format may show the measurement versus time or a histogram of the distribution of the magnitude of the jitter and packet loss.

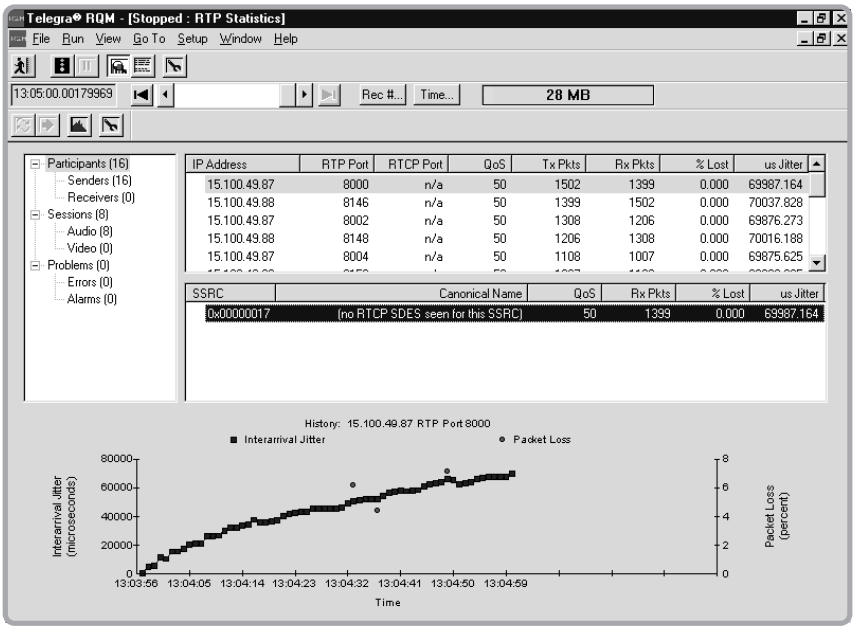


Figure 12: RTP Statistics.

All measurements can be automatically sorted to see, for example, the session with greatest jitter on the top line of the display.

RTP statistics measurement records can be saved in .CSV format and exported to a spreadsheet for further analysis.

Packets relating to problem areas can be brought into view with a simple right mouse click. Select an error, session or participant and packets associated with those events spring into view together with the RTCP packets for comparison.

J5425A – Switch Advisor

Efficiently scan across hundreds of collision domains to locate problems

The Agilent J5425A Switch Advisor provides the capability to monitor MIB and RMON statistics from any SNMP supported network-connected device, including switches and routers. Today's switched infrastructure solved yesterdays' problem of large collision domains, but introduced new trouble-shooting challenges: protocol analyzers report on the collision domain they're attached to, switched ports act like their own network, how do I manage hundreds and thousands of collision domains? Switch Advisor solves this problem.

Once connected to a device, a very powerful feature of the Switch Advisor is its ability to perform a "sort" of device ports in an ascending or descending order. This feature allows you to quickly examine the statistics of a multi-port device (multiple collision domains) and identify the top users of bandwidth. By performing a descending order sort on "collisions" or "errors", you can quickly examine hundreds of individual collision domains for the source of network problems.

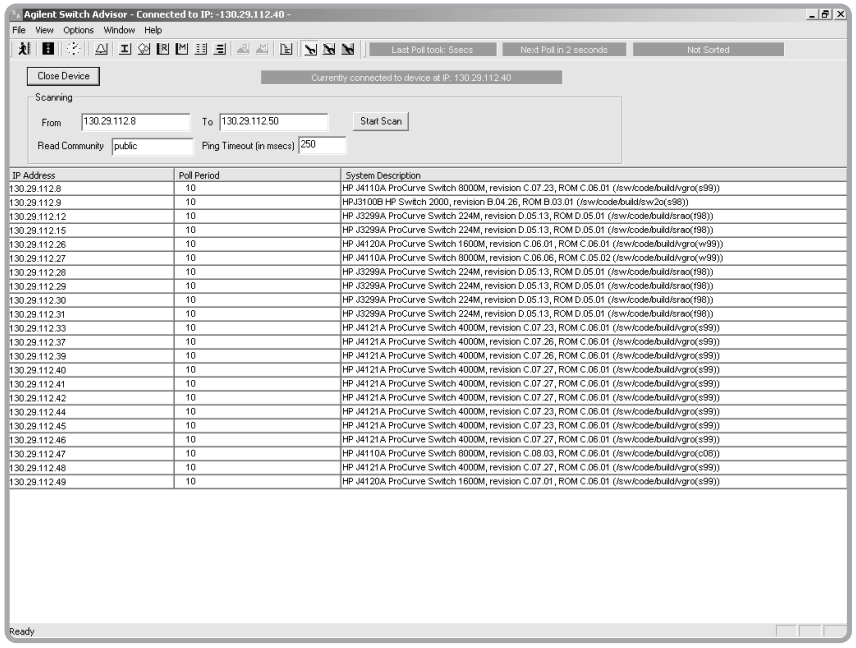
Switch Advisor can only be connected to one SNMP device at a time, but multiple instances of Switch Advisor is allowed. The number of simultaneous open sessions is only limited by your PC hardware (CPU, Memory).

Feature Highlights

- Discover all SNMP supported devices in your network
- Ascending/Descending sort on device port statistics
- Identifies top users/collision domains/errors depending upon MIB/RMON statistic sorted on.
- Last 30 minute utilization history graph (using default 10 second polling period)
- Comprehensive single port statistics
- Alarm any or all device ports with user defined thresholds
- Log device port MIB/RMON statistics, port status, Alarms (.csv file format)
- Multiple Switch Advisor Windows open simultaneously (one for each device actively monitored)
- Monitor all Manufacturer devices (device must support SNMP)

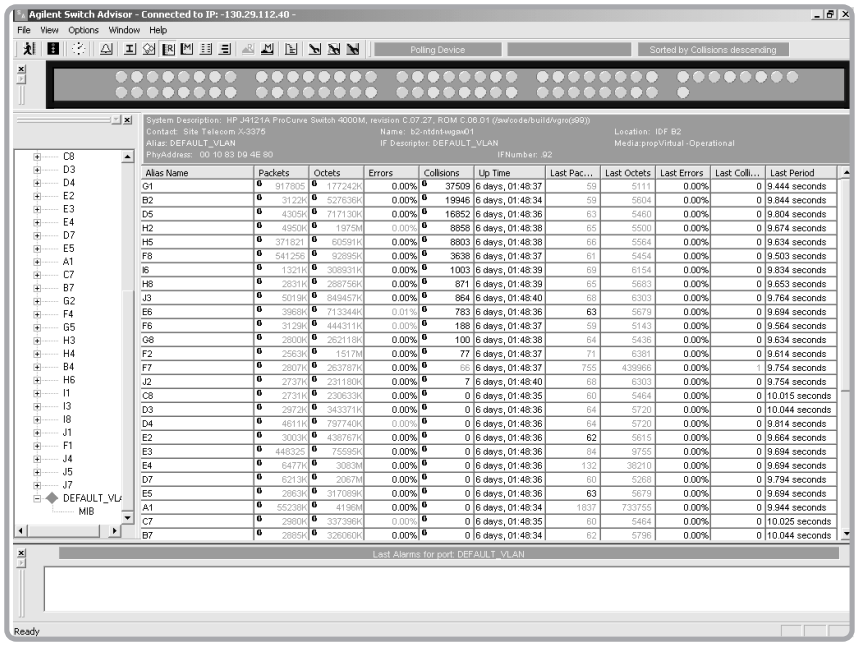
Discover all SNMP Supported Devices

Input an IP address range, sit back, and let Switch Advisor scan your network. New devices are installed everyday, but you may not be aware of it. You cannot troubleshoot a device that you do know is there.



Identify Where the Problem is Quickly

Open the RMON Statistics view and do a descending order sort of the switch ports to identify your top utilized ports, or sort on "collisions" to quickly locate which ports (collision domains) are causing problems.

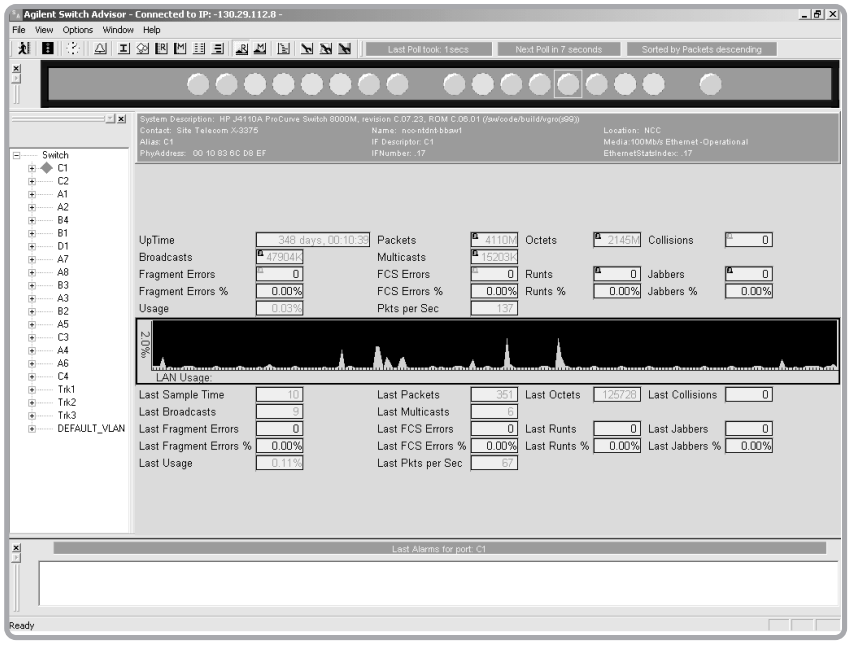


Comprehensive Overview of Port Health

Once you have located a port of interest with the RMON Statistics view, drill down to the Single Port Statistics view to determine the health and activity of individual ports. Statistics include:

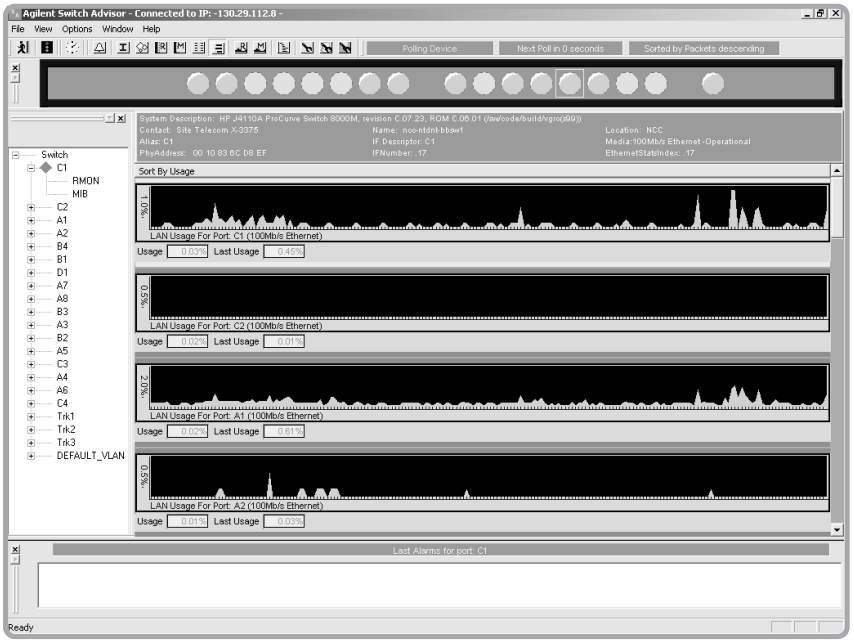
- Broadcast
- Multicast
- Octets
- Runts
- Jabbers
- Fragment and FCS errors
- Collisions
- Usage
- Packets per second

These statistics and others are reported both cumulatively and for the last polling period.



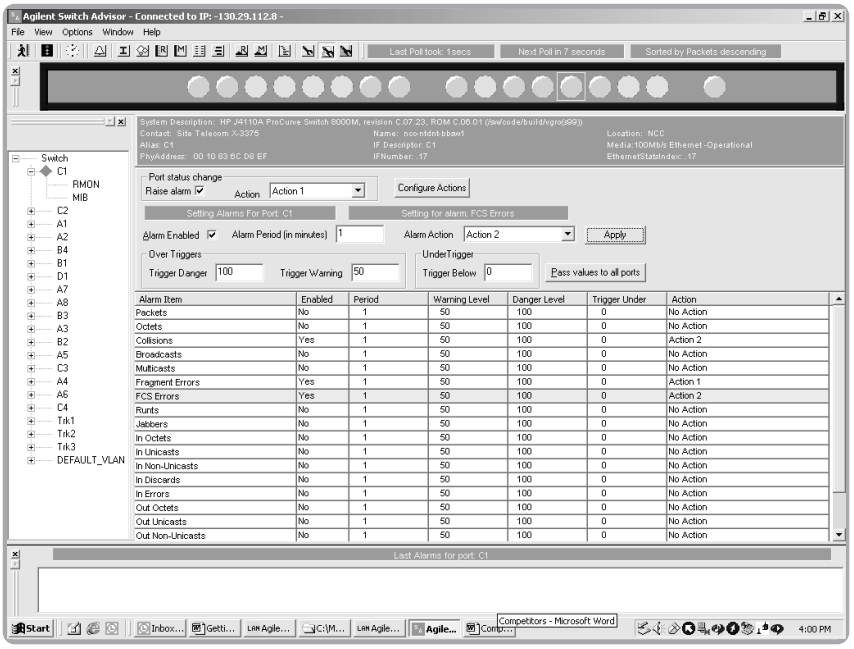
Quickly Assess Switch Efficiency

The Port Usage view graphically displays the last 30 minutes of Usage history (based on the default 10 second poll period) for device ports in the order of the last "sort". Quickly visualize the efficiency of any device and determine whether or not it is delivering the capacity necessary to support satisfactory response times to your users.



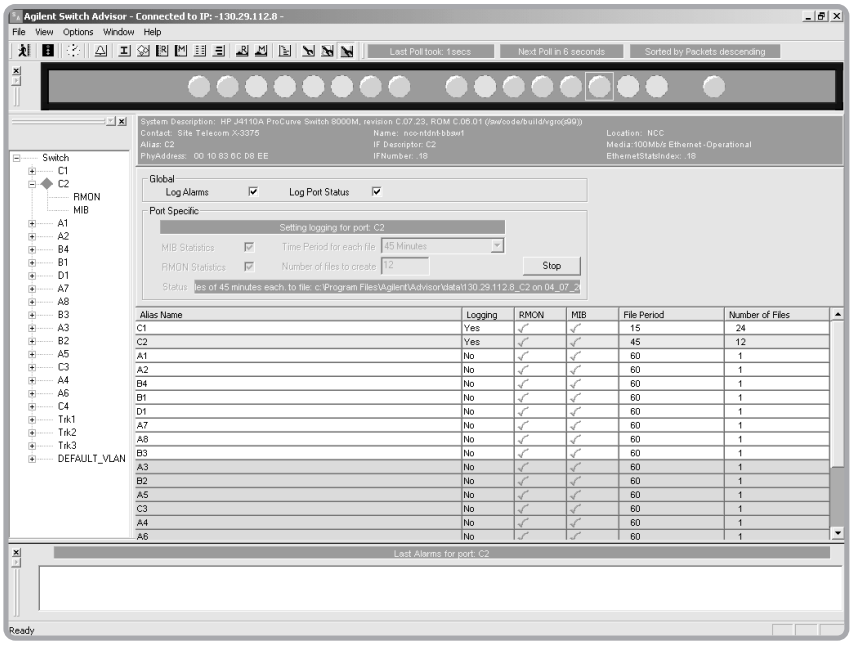
Alarm Suspect Ports

Switch Advisor vigilantly keeps watch over your network. Set alarms on individual or all ports. Customize fault thresholds to give you notice of network problems before they impact your users.



Create Log Files

Log port statistics including Alarms, Port Status, RMON, and MIB in any combination you need, creating individual files for the ports you select. The comma-separated variable files are in .csv format and ready for import into a spreadsheet for further analysis.



Technical Specifications

Your PC must be a Pentium class machine with a minimum of 64 Mbytes of RAM (128 Mbytes RAM for NT4 and Windows 2000), fitted with a LAN card running any one of the following operating systems:

- Windows®NT4
- Windows®2000
- Windows® 98

Appendix A – Protocol Commentators

Commentators perform real-time analysis of frame sequences to detect protocol events. They are unique for each protocol. Following is a listing of the various events that are detected and commented on:

TCP/IP Commentator Events

IP: broadcast storm, low time-to-live, zero time-to-live, duplicate address
TCP: low window, excessive retransmission, close connection, open connection
RIP: router identified, routing information reply, routing information request, router change
IGRP: router identified, router change
OSPF: router change, incorrect hello time, neighbor change, router identified, designated router change

Novell Commentator Events

General service query/response
File: create, create hop count, open, open hop count, reading, writing, transfer rate, close, closed file
Create Service connection
Delay/busy server
Destroy service connection
Down file server
Watchdog request/reply packets
Failed reply packet
Negotiate buffer size
Slow file transfer
Transaction tracking
Routing information request/reply packets
Nearest service query/response
Burst mode: connection request/reply, read file, read file error, write file, write file error, slow file transfer, close

OSI Commentator Events

CLNP low lifetime ES-IS redirect
CLNP zero lifetime
TP error PDU
TP excessive retransmissions
TP low credit IS-IS low holding time
TP low credit recovered
TP slow transfer
TP connection initiated, rejected, aborted, and closed
ES-IS low holding time
IS-IS level 1 router hello
IS-IS level 2 router hello
IS-IS high holding time
IS-IS router identified

AppleTalk Commentator Events

DDP hop count exceeded
DDP destination unreachable
ATP excessive retransmission
ASP session opened, rejected, closed, slow transfer rate
AFP login, logout
ADSP connection open, denied, closed, slow transfer rate, excessive retransmission, low window
RTMP router change, router identified
PAP open connection, close connection printer busy
ZIP zone diameter exceeded

Banyan Vines Commentator Events

VIP low hop count
VIP duplicate address
VIP broadcast storm
VSPP excessive retransmissions
VSPP connection closed
VSPP low window VICP metric notification
VRTP router change
VRTP router identified
VIPC connection closed
VIPC excessive retransmissions
VICP exception notification

Appendix A – Protocol Commentators

DECnet Commentator Events

DRP level 1 and 2 router message
DRP router identified
DRP Ethernet router hello message
DRP high visit count
DRP level 1 and 2 change message
DRP return to sender packet
DRP duplicate network address
DRP incorrect hello timer
NSP excessive retransmitted connect initiates
NSP excessive retransmisson
NSP connection initiated, rejected, aborted, and closed
NSP flow control stop and resume data messages
LAT excessive retransmission
LAT virtual connection initiated, rejected, and closed
LAT service connection initiated, rejected and closed
DAP file open/create, open error, close, close error, and slow file transfer
DEC V TP slow file transfer
DEC V low and zero lifetimes
DEC V connection initiated, rejected, closed, and aborted
DEC V TP low credit and low credit recovered
DEC V TP excessive retransmission
CLNP and TP error PDUs

Oracle Commentator Events

Marker event
Excessive denied logons events
Connect redirect event
Dedicated server request event
Slow server response event
Connect refused event
Short dead connection detection event

Sybase Commentator Events

Login accept/fail
Excessive failed logins
Logout
Slow login
Slow server response
Connection error
Connection attention
Excessive urgent data
Excessive data rate
Excessive transaction rate

Appendix B – Protocol Vitals

While the Advisor SW Edition is decoding data, it is also gathering important information from the network. Data gathered varies by protocol as outlined below:

TCP/IP Vitals

IP utilization
IP packets
IP broadcasts
IP fragments
IP low time to live
IP packet size
IP routing packets
SNMP trap packets
SNMP get/set packets
ICMP redirects
ICMP destination unreachable
ARP packets
DNS packets
TCP reset connection packets
TCP low window packets

Novell Vitals

Novell utilization
IPX packets
IPX packet size
PX local Tx rate
PX remote Tx rate
IPX RIP frame
IPX SAP frames
NCP burst mode
NCP read request packets
NCP write request packets
NCP busy server (%)

OSI Vitals

OSI utilization (%)
OSI packets
OSI packet size
CLNP error messages
CLNP data messages
CLNP low lifetime packets
TP error messages
TP low credit
TP fragments
ESIS ESH PDU's
ESIS ISH PDU's
ESIS redirect PDU's
ISIS hello's
ISIS packets

AppleTalk Vitals

AppleTalk utilization (%)
DDP phase I packets
DDP phase II packets
DDP high hop count packets
DDP packet size
ADSP low window packets
ADSP fragments
ADSP attention
ADSP close connection packets
NBP broadcast request
NBP look-up reply
ATP limited buffer packets
AARP packets
RTMP packets
ZIP packets

Banyan Vines Vitals

VINES utilization (%)
VIP packets
VIP packet size
VIP low hop count packets
VIP broadcasts
VIPC probes
VIPC fragments
VIPC datagrams
VSPP fragments
VSPP low window packets
VSPP probes
VRTP packets
VARP packets
VRTP redirects

Appendix B – Protocol Vitals

DECnet Vitals

DEC DRP utilization (%)
DEC MOP utilization (%)
DEC LAT utilization (%)
DRP data messages
DEC LAVC utilization (%)
DRP RTS packets
DRP packet size
NSP fragments
DRP routing control messages
DEC V utilization (%)
DRP high visit count packets
CLNP error messages
DEC V packet size
DEC V low lifetime messages
DEC V data messages
DEC V low credit messages
TP error messages
DEC V fragments
NSP retransmission connect initiates

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
NetBIOS	NetBIOS	3COM	yes
MIP	Extensions to Mobile IP	3COM	
NBP	Name Binding Protocol	3COM	
ADSP	Data Stream Protocol	AppleTalk	yes
AEP	Echo Protocol	AppleTalk	yes
ATP	Transaction Protocol	AppleTalk	yes
DDP	Datagram Delivery Protocol Phase 1 & 2	AppleTalk	yes
ELAP	Ethernet Link Access Protocol	AppleTalk	yes
NBP	Name Binding Protocol	AppleTalk	yes
RTMP	Routing Table Maintenance Protocol	AppleTalk	yes
ZIP	Zone Information Protocol	AppleTalk	yes
AARP	Address Resolution Protocol	AppleTalk	
AFP	Filing Protocol	AppleTalk	
ALAP	Link Access Protocol over WAN	AppleTalk	
ASP	Session Protocol	AppleTalk	
PAP	Printer Access Protocol	AppleTalk	
SoftTalk	Session Layer Protocol	AppleTalk	
AAL-1	ATM Adaption Layer 1	ATM	yes
AAL-2	ATM Adaption Layer 2	ATM	yes
AAL-2PF	ATM Adaption Layer 2PF	ATM	yes
AAL-3/4 CPCS	ATM Adaption Layer 3/4 Common Part Convergence Sublayer	ATM	yes
AAL-5	ATM Adaption Layer 5	ATM	yes
ARP	Classical IP and ARP over ATM	ATM	yes
IFMP	Ipsilon Flow Management Protocol for IP Switching	ATM	yes
IFMP-C	Ipsilon Flow Management Protocol for IP Switching	ATM	yes
ILMI - SNMP	Internet Local Management Interface	ATM	yes
MPEG-2	Motion Picture Expert Group	ATM	yes
MPOA	MultiProtocol Over ATM	ATM	yes
OAM	Operations and Maintenance	ATM	yes
PNNI - Routing	Private Network to Network Interface - Routing	ATM	yes
PNNI - Signaling	Private Network to Network Interface - Signaling	ATM	yes
RFC 1483 / 2684	ATM	ATM	yes
SAAL	Signaling ATM Adaption Layer	ATM	yes
SPANS	System Performance Analysis	ATM	yes
SSTED	Service Specific Transmission and Error Detection	ATM	yes
UNI 3.*	User Network Interface	ATM	yes
UNI 3.0	User Network Interface	ATM	yes
UNI 3.1	User Network Interface	ATM	yes
UNI 4.0	User Network Interface	ATM	yes
ATM	Asynchronous Transfer Mode	ATM	

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
DXI	Data Exchange Interface	ATM	
GSMP	General Switch Management Protocol	ATM	
IP Switch		ATM	
LNNI	LAN Network-Network Interface	ATM	
ORP	Optical Routing Protocol over ATM LAPD	ATM	
OSP	Optical Signaling Protocol over ATM LAPD	ATM	
UTP	User Network Interface	ATM	
ARP	Address Resolution Protocol	Banyan VINES	yes
ICP	Internet Control Protocol	Banyan VINES	yes
IP	Network Layer	Banyan VINES	yes
IPC	Interprocess Communication Protocol	Banyan VINES	yes
RTP	Routing Update Protocol	Banyan VINES	yes
SMB	Server Message Block	Banyan VINES	yes
SPP	Sequenced Packet Protocol	Banyan VINES	yes
AS	Application Services	Banyan VINES	
Echo	Echo	Banyan VINES	
Matchmaker	Program to Program Communication	Banyan VINES	
CDP	Cisco Discovery Protocol	Cisco	yes
CGMP	Cisco Group Membership Protocol	Cisco	yes
DISL	Dynamic ISL	Cisco	yes
DLSw+	proprietary DLSw extensions	Cisco	yes
EIGRP	Enhanced Interior Gateway Routing Protocol	Cisco	yes
STUN	Serial Tunneling of SDLC header	Cisco	yes
VTP	Virtual Trunking Protocol	Cisco	yes
DLSw	Data Link Switching	Cisco	
HSRP	Hot Standby Router	Cisco	
IGRP	Internet Gateway Routing Protocol	Cisco	
ISL	Inter-Switch Link Protocol	Cisco	
RUDP	Reliable UDP	Cisco	
SLE	Cisco - Serial Link Encapsulation	Cisco	
SSP	Skinny Client Control Protocol aka Skinny Station Protocol	Cisco	
TDP	Tag Distribution Protocol over TCP	Cisco	
XOT	X.25 Over TCP Protocol	Cisco	
DECnet-DNS	Distributed Name Services	DECNet IV, V	yes
DRP	DECnet Routing Protocol	DECNet IV, V	yes
CTERM	Command Terminal	DECNet IV, V	
DAP	Data Access Protocol	DECNet IV, V	
DNAv4	Digital Network Architecture version 4	DECNet IV, V	
FOUND	Found	DECNet IV, V	
LAT	Local Area Transport Protocol	DECNet IV, V	
MOP	Maintenance Operations Protocol	DECNet IV, V	
NICE	Network Information & Control Exchange	DECNet IV, V	
NSP	Network Services Protocol	DECNet IV, V	
SCP	Session Control Protocol	DECNet IV, V	
Data Flow Control	SNA Session Layer	IBM/SNA	yes

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
DIAP	Document Interchange Architecture Protocol	IBM/SNA	yes
Transmission Control	SNA Transport Layer	IBM/SNA	yes
DCAP	Document Content Architecture Protocol	IBM/SNA	
DSP	Distributed Services Protocol	IBM/SNA	
FSP	File Services Protocol	IBM/SNA	
Function Management	SNA Function Management	IBM/SNA	
General Data Stream	SNA General Data Stream	IBM/SNA	
Management Services	SNA Management Services	IBM/SNA	
NCP	Network Control Protocol	IBM/SNA	
NetBIOS	NetBIOS	IBM/SNA	
Path Control	SNA Network Layer	IBM/SNA	
SCP	Session Control Protocol	IBM/SNA	
SMB	Server Message Block	IBM/SNA	
FDDI	Fiber Distributed Data Interface	LAN	
SMT	Station Management / FDDI	LAN	
FNA	Fujitsu Network Architecture	LLC	yes
IEEE 802.5	Token Ring	LLC	yes
MPLS	Multi-Protocol Label Switching	LLC	yes
SNAP	Subnet Access Protocol	LLC	yes
802.1Q	Load balanced switch-to-switch trunking on VLAN	LLC	
ARM	Component of VIVID	LLC	
ARM TLV	Component of VIVID	LLC	
BME	Component of VIVID	LLC	
CCP	Component of VIVID	LLC	
CCP TLV	Component of VIVID	LLC	
Ethernet	Ethernet Data Link Control	LLC	
IEEE 802.1	Spanning Tree	LLC	
IEEE 802.1p	VLAN - GARP, GVRP, GMRP	LLC	
IEEE 802.1Q	Flow control	LLC	
IEEE 802.3	IEEE 802.3	LLC	
IEEE 802.3x	IEEE 802.3 extensions	LLC	
IEEE 802.6	Metropolitan Area Network	LLC	
LLC	Logical Link Control	LLC	
PPPOE	Point-to-Point Over Ethernet	LLC	
Token Ring MAC	Token Ring Medium Access Control	LLC	
VIVID	System LAN Emulation	LLC	
XTP	Xpress Transfer over Ethernet, Token-Ring, FDDI > LLC/SNAP, IP	LLC	
DS	Datagram Service	Microsoft	
NetBIOS	LAN Manager	Microsoft	
NS	Name Service	Microsoft	

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
SMB	LAN Manager SMB	Microsoft	
SS	Session Service	Microsoft	
BGP-4	Carrying Label Information in BGP-4	MPLS	yes
CR-LDP	Label Distribution Protocol	MPLS	yes
DiffServ	Support of Differentiated Services	MPLS	yes
LDP	Label Distribution Protocol	MPLS	yes
CP	Label Encapsulation Protocol	MPLS	
ICMP	Internet Control Message for MPLS	MPLS	
ICMPv6	Internet Control Message Protocol for MPLS	MPLS	
LSE	Label Stack Encoding	MPLS	
RSVP ext	RSVP-TE: Extensions to RSVP for MPLS Tunnels, RSVP Refresh Overhead Reduction Extensions, RSVP with IETF integrated Services	MPLS	
Diagnostic	Diagnostic	Novell	yes
NCP 2.x, 3.x	Netware Control Protocols version 2.x, 3.x	Novell	yes
NetBIOS	NetBIOS	Novell	yes
RIP	Routing Information Protocol	Novell	yes
SAP	Service Advertising Protocol	Novell	yes
SPX	Sequenced Packet Exchange	Novell	yes
Echo	Echo	Novell	
Error	Error	Novell	
IPX	Internet Packet Exchange	Novell	
NCP 4.x	Netware Control Protocols version 4.x	Novell	
NLSP	Novell Link State Protocol	Novell	
NovelI-5	Netware Core Protocols	Novell	
Packet Burst	Packet Burst	Novell	
PEP	Packet Exchange Protocol	Novell	
TNS	Transparent Network Substrate	Oracle	yes
CLNP	Connectionless Network Protocol	OSI	yes
ES-IS	End System-Intermediate System	OSI	yes
IS-IS	Intermediate System-Intermediate System	OSI	yes
MMS	Manufacturing Messaging Service	OSI	yes
TP0	Transport Protocol class 0	OSI	yes
ACSE	Application Control Service Element	OSI	
ASN.1	Abstract Syntax Notation	OSI	
CMIP/CMISE	Common Management Information Protocol	OSI	
FTAM	File Transfer Access and Management - MAP decode	OSI	
IS-IS ext	IS-IS extensions for Traffic Engineering and Update	OSI	
NLCP PPP	OSI Network Layer Control Protocol	OSI	
Presentation	Presentation	OSI	
ROSE	Remote Operation Service Element	OSI	
RTSE	Reliable Transfer Service Element	OSI	

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
Session	Session	OSI	
TP1	Transport Protocol class 1	OSI	
TP2	Transport Protocol class 2	OSI	
TP3	Transport Protocol class 3	OSI	
TP4	Transport Protocol class 4	OSI	
X.400	Electronic Mail	OSI	
X.500	Directory Services	OSI	
MP	Multilink Protocol	PPP	yes
PPP	Point to Point Protocol	PPP	yes
BAC / BACP	Bandwidth Allocation Control Protocol	PPP	
CCP	Compression Control Protocol	PPP	
CHAP	Challenge Handshake Authentication Protocol	PPP	
EAP	Extensible Authentication Protocol	PPP	
IPXCP	IPX Control Protocol	PPP	
L2TP	Layer 2 Tunneling Protocol	PPP	
LCP	Link Control Protocol	PPP	
NETBCP	NetBIOS Frames Control Protocol	PPP	
PAP	Password Authentication Protocol	PPP	
PPP w/HDLC	PPP with HDLC-like framing, PPP over SONET/SDH	PPP	
IP-SCSI	IP over SCSI Protocol	SAN	
IP-SEC AH	IP-Security Authentication Header	Security	yes
IP-SEC ESP	Internet IP Security Encapsulating Security Payload	Security	yes
IP-SEC ISAKMP	Internet Security Association & Key Management over UDP port 500	Security	yes
IP-SEC	IP Security	Security	
IP-SEC DOI	Internet IP Security Domain of Interpretation for ISAKMP	Security	
IP-SEC IKE	Key Encryption	Security	
BISUP	Broadband ISDN User Part - SS7 protocol for node-to-node signaling for ATM	SS7	yes
MTP3-b	SS7 Message Transfer Part	SS7	
SCCP	SS7 Signalling Connection Control Part	SS7	
SCTP (SS7 in IP)	Simple Control Transmission Protocol - to carry SS7 over IP	SS7	
TCAP	SS7 Transaction Capabilities Application Part	SS7	
MOUNT	Mount	Sun	yes
NFS Version 2	Network File System	Sun	yes
NIS	Network Information Services	Sun	yes
PMAP	Port Mapper	Sun	yes
RPC	Remote Procedure Call	Sun	yes
BOOTPARAM	Boot Parameters	Sun	
PCNFSD	PC Network File System	Sun	

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
RLOCK	RLOCK	Sun	
RSTAT	RSTAT	Sun	
TDS	Tabular Data Stream	Sybase	
ARP	Address Resolution Protocol	TCP/IP	yes
BGP	Border Gateway Protocol	TCP/IP	yes
BGP-4	BGP version 4	TCP/IP	yes
BOOTP	BOOT Protocol	TCP/IP	yes
DHCP	Dynamic Host Configuration Protocol	TCP/IP	yes
DLSw	Data Link Switching	TCP/IP	yes
DNS	Domain Name Service	TCP/IP	yes
DVMRPv3	Distance Vector Multicast Routing Protocol	TCP/IP	yes
EIGRP	Enhanced Interior Gateway Routing Protocol	TCP/IP	yes
FTP	File Transfer Protocol	TCP/IP	yes
GMRP	802.1 GARP Multicast Registration Protocol	TCP/IP	yes
GRE	Generic Routing Encapsulation	TCP/IP	yes
GTP	GPRS (General Packet Radio Service) Tunneling Protocol	TCP/IP	yes
HTTP	Hypertext Transfer Protocol	TCP/IP	yes
ICMP	Internet Control Message Protocol	TCP/IP	yes
IGMP	Internet Gateway Routing Protocol	TCP/IP	yes
IGRP	Internet Gateway Routing Protocol	TCP/IP	yes
IIOP	Internet Inter-ORB Protocol	TCP/IP	yes
IPinIP	IP within IP	TCP/IP	yes
LDAP	Lightweight Directory Access Protocol	TCP/IP	yes
MIP	Mobile IP	TCP/IP	yes
MIP RT	Mobile IP Reverse Tunneling	TCP/IP	yes
MOSPF	Multicast Open Shortest Path First	TCP/IP	yes
MSDP	Multicast Source Discovery Protocol	TCP/IP	yes
NetBIOS	NetBIOS	TCP/IP	yes
OSPF	Open Shortest Path First	TCP/IP	yes
PIM-DM	Protocol Independent Multicast - Dense Mode	TCP/IP	yes
PIM-SM	Protocol Independent Multicast - Sparse Mode	TCP/IP	yes
RIP	Routing Information Protocol	TCP/IP	yes
RSRB	Remote Source Route Bridging Protocol	TCP/IP	yes
RSVP	Resource Reservation Protocol	TCP/IP	yes
SMB	Server Message Block	TCP/IP	yes
SNMP	Simple Network Management Protocol	TCP/IP	yes
TCP	Transport Control Protocol	TCP/IP	yes
TELNET	Telnet	TCP/IP	yes
UDP	User Datagram Protocol	TCP/IP	yes
BGMP	Border Gateway Multicast Protocol	TCP/IP	
BGP-4 ext	BGP Autonomous System Confederation, BGP Route Reflection, BGP Communities Attribute	TCP/IP	

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
DIFFSERV	Differentiated Services	TCP/IP	
DISL	Dynamic ISL	TCP/IP	
DISP	Dispatching for SNMP	TCP/IP	
EGP	Exterior Gateway Protocol	TCP/IP	
Finger	Finger User Information	TCP/IP	
GGP	Gateway to Gateway Protocol	TCP/IP	
GIOP	General Inter-ORB Protocol	TCP/IP	
GOPHER	File Retrieval	TCP/IP	
HTTP 1.1	Hypertext Transfer Protocol	TCP/IP	
ICMP RS	Internet Control Message Router Solicitation ICMP Router Discovery	TCP/IP	
IGMPv2	Internet Group Management Protocol version 2	TCP/IP	
IP	Internet Protocol	TCP/IP	
IPCP	Internet Protocol Control Protocol	TCP/IP	
IPv6	Internet Protocol Version 6	TCP/IP	
IRC	Internet Relay Chat	TCP/IP	
LMP	Link Management Protocol over IP	TCP/IP	
LPP	ISO Services	TCP/IP	
M2PA	MTP2 - User Peer-to-Peer Adapt Layer	TCP/IP	
MBGP	Multi-protocol BGP	TCP/IP	
NNTP	Network News Transfer	TCP/IP	
NTP	Network Time Protocol	TCP/IP	
ODSI CP	Optical Domain Service Interconnect Control Protocol - protocol used on optical switches and routers	TCP/IP	
ODSI SS	Optical Domain Service Interconnect Signaling Specification - protocol used on optical switches and routers	TCP/IP	
OSPF ext	Open Shortest Path First — NSSA option,	TCP/IP	
	Opaque Link State Advertisement option, Digital Signature Traffic Engineering Extensions to OSPF, Traffic Engineering Extensions to OSPF Summary LSA	TCP/IP	
OSPF v6	OSPF for IPv6	TCP/IP	
OTA - WAP	WAP Push Over the Air	TCP/IP	
POP3	Post Office Protocol v3 and extensions	TCP/IP	
PPTP	Point to Point Tunneling Protocol	TCP/IP	
RARP	Reverse Address Resolution Protocol	TCP/IP	
REXEC	Remote Exec	TCP/IP	
RIP-2	Routing Information Protocol version 2	TCP/IP	
RIPv6	RIPng for IPv6	TCP/IP	
RLOGIN	Remote Login	TCP/IP	
RLPR	Remote Print Routed Route daemon Protocol	TCP/IP	
RSHELL	Remote Shell	TCP/IP	

Appendix C – LAN Protocols Supported by Advisor SW Edition

Protocol	Description	Protocol Suite	Filter
RTSP	Real Time Streaming (like HTTP)	TCP/IP	
RWHO	Remote Who	TCP/IP	
SCMG	SCCP Management	TCP/IP	
SMPP	Short Message Peer to Peer Protocol v3.4	TCP/IP	
SMTP	Simple Mail Transport Protocol	TCP/IP	
SNMP-2	Simple Network Management Protocol version 2	TCP/IP	
SNMP-2c	Simple Network Management Protocol version 2c	TCP/IP	
SNMP-3	Simple Network Management Protocol version 3	TCP/IP	
Teradata	NCR Teradata	TCP/IP	
TFTP	Trivial File Transfer Protocol	TCP/IP	
TIMED	Time Daemon Protocol	TCP/IP	
VRRP	Virtual Router Redundancy	TCP/IP	
VTP	Virtual Trunking Protocol	TCP/IP	
XWIN	X-Windows	TCP/IP	
RADIUS	LT2P Security	UDP	yes
RADIUS Accounting	Radius Accounting	UDP	yes
Auto LAN over WAN Recognition	Automatic LAN over WAN Recognition	WAN	yes
BOP Annex G	Bit Oriented Protocol	WAN	yes
DASS2 - LAP	Digital Access Signaling	WAN	yes
Ethertype	Ethertype	WAN	yes
Frame Relay	Frame Relay	WAN	yes
LAPD	Link Access Protocol for the D channel	WAN	yes
LAPV	Link Access Protocol - v5	WAN	yes
RFC 1490 / 2427	Frame Relay	WAN	yes
VoFR	Voice over Frame Relay	WAN	yes
X.25	X.25	WAN	yes
CLLM	Consolidated Link Layer Management	WAN	
DASS2/DPNSS	ISDN variant from Motorola and British Telecom	WAN	
DPNSS	Digital Private Network Signaling System	WAN	
DPNSS - DLC	Digital Private Network Signaling System	WAN	
GR303 EOC	Based on LAPD, reassembly to CMIS/ASN.1 on T1 GR-303-IMD, IDLC System Generic Operations Interface	WAN	
GR303 TMC	Based on LAPD, Q.931 on T1-GR-303-CORE Issue 2, IDLC Generic Requirements, Objectives and Interface	WAN	
HDLC	High level Data Link Control	WAN	
LAPB	Link Access Procedure Balanced	WAN	
LMI Annex A	Local Management Interface - Annex A	WAN	
LMI Annex D	Local Management Interface - Annex D	WAN	
LMI Original	Local Management Interface	WAN	

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Protocol	Description	Protocol Suite	Filter
NODELOC	Node Location	WAN	
PDU Bridged	Protocol Data Unit Bridged	WAN	
QD2	Deutsche Telekom Layer 3 - 7 Protocol	WAN	
SDLC	Serial Data Link Control	WAN	
SLIP	Serial Line Interface Protocol	WAN	
TOH	Transport OverHead	WAN	
V5.1/V5.2	ITU standard for testing	WAN	
VJCTCPIP (compressed)	VanJacobson Compression over TCP/IP (compressed)	WAN	
VJUTCPIP (uncompressed)	VanJacobson Compression over TCP/IP (uncompressed)	WAN	
VoFR Annex C	Voice over Frame Relay Annex C	WAN	
VoFR Annex E	Voice over Frame Relay Annex E	WAN	
VoFR Annex F	Voice over Frame Relay Annex F	WAN	
VoFR Annex G	Voice over Frame Relay Annex G	WAN	
VoFR Annex H	Voice over Frame Relay Annex H	WAN	
VoFR Annex I	Voice over Frame Relay Annex I	WAN	
X.75	X.75	WAN	
UA Profile	WAP User Agent Profile	WAP	yes
Binary XML	WAP Binary XML content Format	WAP	
SI	WAP Service Indication	WAP	
SL	WAP Service Load	WAP	
WCMP	WAP Internet Control Message Protocol	WAP	
WML	WAP Markup Language	WAP	
WMLScript	WAP WML Script	WAP	
WSP	WAP Wireless Session	WAP	
WTP	WAP Wireless Transaction	WAP	
MM / CC	3GPP Signalling Layer 3 Mobility Management/Call Control	Wireless	yes
FP	Framing Protocol for 3G	Wireless	
IuUP	Interface User Plane Protocol with RLP	Wireless	
MAC	Medium access control Protocol for 3G	Wireless	
MDLP	Mobile Data Link Protocol	Wireless	
RANAP	Radio Access Network Application Part UMTS UTRAN Iu Interface RANAP Signaling	Wireless	
RLC	Radio Link Control for 3G	Wireless	
RLP UMTS v1	Radio Link Protocol for 3G	Wireless	
RLP UMTS v2	Radio Link Protocol for 3G	Wireless	
RRC	Radio Resource Control for 3G in Japan	Wireless	
SNDCP	Subnetwork Dependent Convergence Protocol	Wireless	
SSCF-NNI	Service Specific Coordination Function, B-ISDN ATM Adaptation Layer - Service Specific Coordination Function for Signalling at the Network Node Interface (SSCF at NNI)	Wireless	

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Protocol	Description	Protocol Suite	Filter
CDMA Voice	Code Division Multiple Access Speech Handling IFR for Lucent, Layer 3 proprietary	Wireless - Lucent	
RLP USA v1	Radio Link Protocol for USA with Lucent (proprietary)	Wireless - Lucent	
RLP USA v2	Radio Link Protocol for USA with Lucent (proprietary)	Wireless - Lucent	
Echo	XNS - Echo	Xerox/XNS	yes
SPP	Sequenced Packet Protocol	Xerox/XNS	yes
Error	XNS - B149 Error	Xerox/XNS	
PEP	XNS - Packet Exchange Protocol	Xerox/XNS	
RIP	Routing Information Protocol	Xerox/XNS	
IDP	Internet Datagram Protocol	Xerox/XNS/Motorola	
H.225.0 Version 3	Call signalling (Q.931/Q.932)	XoIP	yes
H.245 Version 1	Call Control for H.323 multimedia	XoIP	yes
H.450.1	Call control for supplementary services (generic requirements)	XoIP	yes
Q.931 (H.225.0 V1)	Signaling for H.323	XoIP	yes
RAS (H.225.0 V1)	Registration, Admission, Status for H.323	XoIP	yes
RTCP	Real-time Transport Control Protocol	XoIP	yes
RTP	Real-time Transport Protocol	XoIP	yes
SDP	Session Description Protocol	XoIP	yes
SIP	Session Initiation Protocol	XoIP	yes
XGCP	Extended GCP	XoIP	yes
COPS	Common Open Policy Service COPS Messages for Packet Cable	XoIP	
H.225.0 Version 2	RAS (Registration, Admission, and Status)	XoIP	
H.235	Security and encryption for H-series multimedia terminals	XoIP	
H.245 Version 2	Call signaling for H.323 logical channels	XoIP	
H.245 Version 3	Call signaling for H.323 logical channels	XoIP	
H.245 Version 5	Control Protocol for Multimedia Communication	XoIP	
H.248 MEGACO	Logical next step to MGCP. ITU-T & IETF come together for carrier-class VoIP signaling	XoIP	
H.261	Video CODEC used in H.323 (for audiovisual services at p x 64 Kbits/s)	XoIP	
H.263	Video codec for low bit rate communication	XoIP	
H.323v3 Annex E	Protocol for multiplexed call signaling transport — alternative to Q.931 for call signaling	XoIP	
H.323v3 Annex F	Protocol for multiplexed call signaling transport — alternative to Q.931 for call signaling	XoIP	
H.323v3 Annex G	Communication between administrative domains	XoIP	

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Protocol	Description	Protocol Suite	Filter
H.450.2	Call transfer supplementary service for H.323	XoIP	
H.450.3	Call diversion supplementary service for H.323	XoIP	
Megaco Text Variant	Media Gateway Control Protocol	XoIP	
MGCP	Media Gateway Control Protocol	XoIP	
NCS	PacketCable, Network-Based Call SignalingProtocol	XoIP	
SAP	Session Announcement Protocol	XoIP	
SGCP	Simple Gateway Control Protocol	XoIP	
T.120	Data Protocols for Multimedia Conferencing	XoIP	
T.122	Data Protocols for Multimedia Conferencing	XoIP	
T.123	Data Protocols for Multimedia Conferencing	XoIP	
T.125	Data Protocols for Multimedia Conferencing	XoIP	
T.38	Real-time Group 3 facsimile over IP networks	XoIP	
XoIP	Media over IP	XoIP	

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