HP Internet Advisor — LAN

Internet Advisor 8.0

HP Internet Advisor—LAN problem solving series — No. 15

Significant enhancements to the HP Internet Advisor for LAN are included in the 8.0 software release.

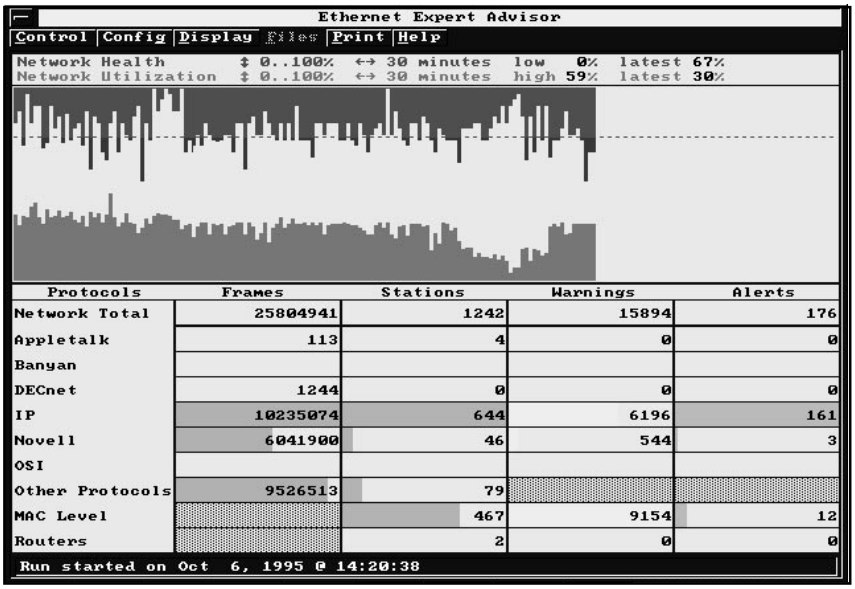
Internet Advisor 8.0

HP Internet Advisor 8.0 transforms data into meaningful diagnostic information. Constantly monitoring the traffic on your Ethernet, Token-Ring or FDDI LAN, the Internet Advisor reduces thousands of frames to a handful of significant events. It watches continuously for router misconfigurations, slow file transfers, inefficient window sizes, connection resets, and many other problems. And it does this for each protocol stack you have running, all in real time — as events actually occur.

Internet Advisor 8.0 provides an instantaneous, graphical representation of your network's health. On a single screen, you'll see summaries of all the important network parameters — displays results of Vital Signs, Protocol Statistics, Expert Commentator and Node Discovery measurements, plus a continuous plot over time of network utilization and network health. Internet Advisor lets you use this information to identify network problems quickly — and to drill down directly to the data you need to resolve these problems.

Internet Advisor 8.0 displays network health and utilization, plotted graphically over time. Network health — a quick, visual indicator of the health of the LAN — is measured by tracking warning events, alert events and errored frames as they are observed on the network. A perfect network would have a health rating of 100 percent. On a real network, each error, warning and alert event reduces the network health percentage by a user-defined weighting factor.

Observing network health and comparing it to the instantaneous utilization over time allows you to spot network performance problems at a glance. Normally, as network utilization rises, network health will decrease somewhat. If network health decreases dramatically or decreases during times of low utilization, your network probably has a significant problem. The Internet Advisor alerts you immediately if network health ever falls below the user-defined threshold.



Internet Advisor 8.0 continuously monitors each protocol stack running on your Ethernet, token-ring, or FDDI LAN and provides an instantaneous, graphical representation of your network's health.

Drill down to isolate problems quickly

Internet Advisor 8.0 tracks event summaries and categorizes them by protocol stack, so that you can quickly isolate problems to specific protocols. Yet this network performance summary is just the beginning. Drill down capability lets you "zoom in" on any area of interest, leading you quickly to the source of the problem. To drill down, simply double click on a specific parameter or area within the window — Internet Advisor immediately presents additional, important information. For example, drilling down on the "Network Total" provides information on all observed events, while drilling on specific protocols automatically filters to data relevant to that protocol stack.

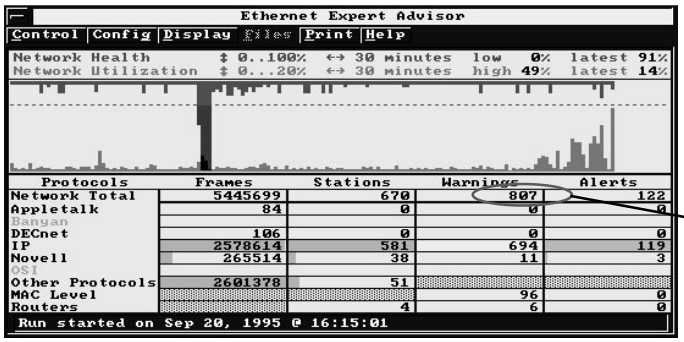
Suppose network health suddenly drops and the number of warnings for the IP protocol stack increases. Just double click on the field for IP warnings and Internet Advisor quickly drills down into the Expert Commentator measurement which generated those alerts. From there, you can drill down further to a detailed listing of each event, an explanation of what caused the event, suggestions for corrective actions, and even to detailed decodes of the frames in question to determine precisely what happened.

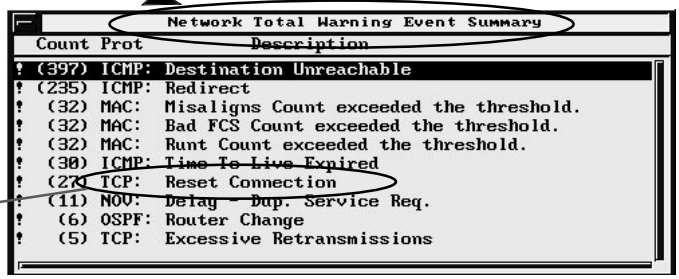
Internet Advisor 8.0 and its drill down capabilities provide an easy-to-use and comprehensive platform for quickly isolating most network problems. Of course, the Internet Advisor for LAN offers many other powerful troubleshooting tools, including complete seven-layer protocol decodes, active stimulus/response tests and a large collection of network performance statistics. But in most situations, the drill down capability is all you need to identify the cause of the problem — and resolve it quickly.

Drill down to isolate problems quickly

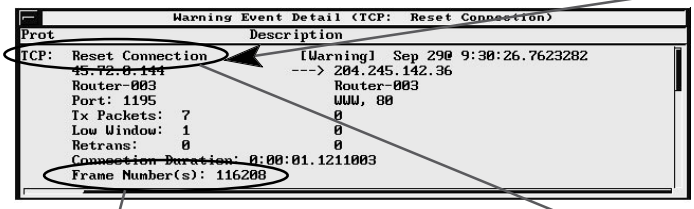
This example illustrates Internet Advisor 8.0's point-and-click drill-down process by showing one of many potential drill-down paths.

Internet Advisor 8.0's drill down capability leads you quickly to the source of problems by simply double clicking on areas of interest, as can be seen in the guided sequence shown below.

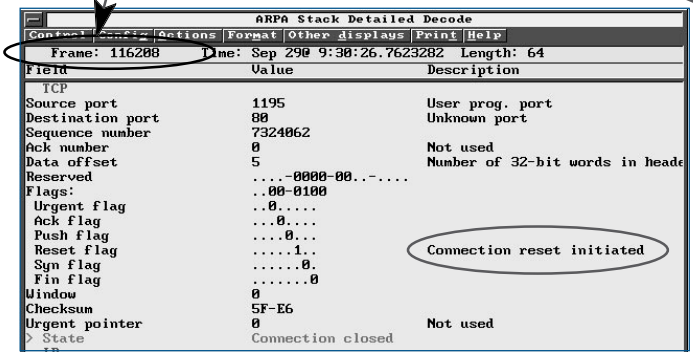




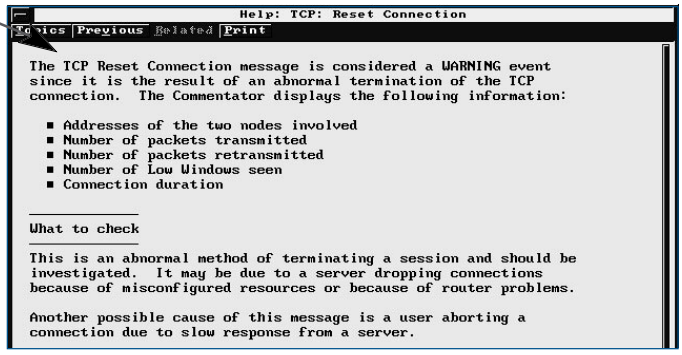
Each warning event is time-stamped and detailed, so you'll know exactly which stations were involved and what caused the error.



By drilling down on warning events, you can focus on inefficiencies that could be impacting network performance.



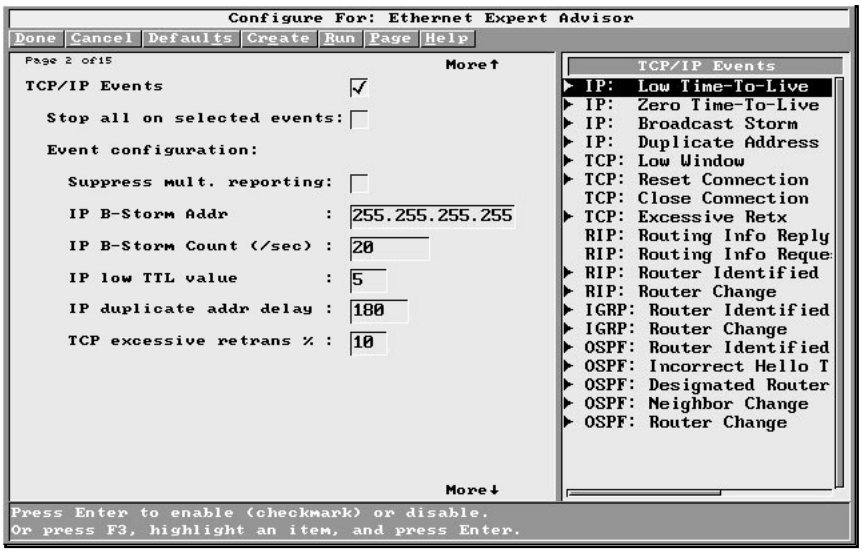
By double-clicking on the frame number(s), you'll view in detail the actual data frames that caused the event.



To identify and solve the problem, just double click on the event description. You'll get an explanation of how that event was detected, its likely causes, and what to check next to resolve it quickly.

Configuring Internet Advisor for your network

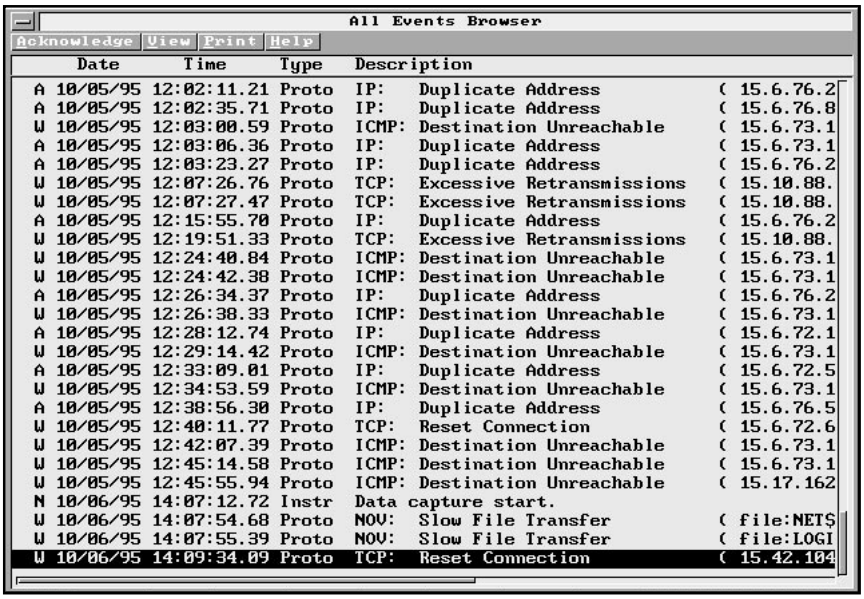
Customize Internet Advisor 8.0 to your network, or even specific segments within your network. Statistical thresholds and other configurable parameters for the underlying measurements can be modified through the configure pulldown. Customized configurations can be saved and re-used whenever needed.



Warning and alert events and their thresholds can be customized to your network, and stored away for future use.

Tracking network events over time

All Commentator warning and alert events, along with any statistical thresholds that have been exceeded, can be time-stamped and recorded in the event log, providing a chronological history that can be correlated with fluctuations in observed network performance. The event log can store approximately 24 hours of these events on a reasonably well running network. The event log can be printed along with the individual results from the underlying measurements.



The event log provides a chronological record of significant events and threshold crossings, which is extremely valuable when isolating intermittent faults.

Three new Commentators and Vitals Measurements

Commentators and Vital Signs measurements are added for Banyan Vines, AppleTalk Phase 2, and OSI. These add to the already existing measurements for TCP/IP, Novell and DECnet. The new commentator events and vital signs parameters for each stack are listed on this page.

AppleTalk Phase 2

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

Vital Sign Statistics:

Network Utilization, Percent	Network Utilization, Packets
DDP Utilization, Percent	DDP Packets
DDP Hop Count Exceeded Packets	DDP Packet Size
AARP Packets	ADSP Fragments
ATP Fragments	ATP Tickle Packets
Missed Frames	

Banyan Vines

Commentator Events:

VIP Low Hop Count	VIP Duplicate Address
VIP Broadcast Storm	VIPC Excessive Retransmissions
VSPP Excessive Retransmissions	VIPC Connection Closed
VSPP Connection Closed	VRTP Router Change
VSPP Low Window	VRTP Router Identified
VICP Exception Notification	VICP Metric Notification

Vital Sign Statistics:

Network Utilization, Percent	Network Utilization, Packets
VIP Utilization, Percent	VIP Packets
VIP Packet Size	VIP Hop Count Exceeded
VIPC Fragments	VIPC Datagram Packets
VSPP Fragments	VSPP Low Window
VARP Packets	VRTP Redirects
Missed Frames	

OSI:

Commentator Events:

CLNP Low Lifetime	CLNP Zero Lifetime
CLNP Error PDU	TP Error PDU
TP Connection Initiated, Rejected, Aborted, and Closed	
TP Excessive Retransmissions	TP Low Credit
TP Low Credit Recovered	TP Slow Transfer
ES-IS Redirect	IS-IS Level 1 Router Hello
ES-IS Int System Identified	IS-IS Level 2 Router Hello
ES-IS Low Holding Time	IS-IS Low Holding Time
ES-IS High Holding Time	IS-IS High Holding Time
	IS-IS Router Identified

Vital Sign Statistics:

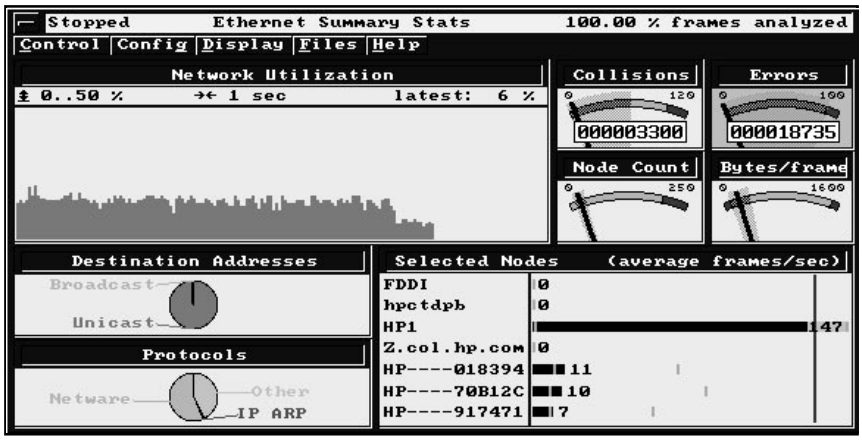
Network Utilization, Percent	Network Packets
CLNP Utilization, Percent	CLNP Packets
CLNP Packet Size	CLNP Error PDUs
CLNP Data PDUs	CLNP Low Lifetime
TP Error PDUs	TP Low Credit
TP Fragments	Missed Frames

In addition, the following routing events are added to the TCP Commentator:

RIP Router Change	IGRP Router Change
OSPF Designated Router Change	IGRP Router Identified
OSPF Incorrect Hello Time	OSPF Neighbor Change
OSPF Router Identified	OSPF Router Change

Summary Statistics

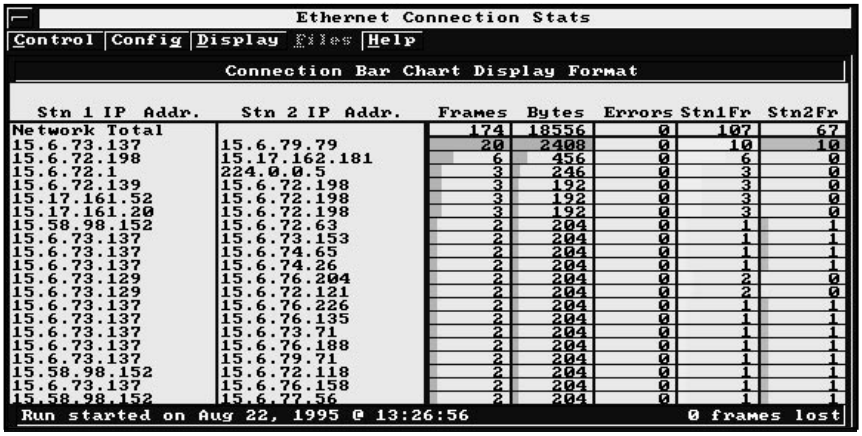
Summary Statistics' new drill down capability improves access to most statistical measurements in the Internet Advisor for LAN. Starting from Summary Statistics, other statistical measurements can be started simply by double-clicking on the area of interest in Summary Statistics. For example, double-clicking on the Protocols Pie Chart in Summary Statistics starts the Protocol Statistics measurement, which provides more detailed protocol statistics, or double-clicking on the Collisions Gauge starts Ethernet Vitals which provides more detailed collision statistics.



Simply by double-clicking on a portion of the Summary Statistics screen, you will launch more detailed statistical measurements.

Connection Statistics

Connection Statistics keeps track of conversation pairs by MAC address, network address, or subnets. All common network addresses and subnet types are supported, including IP, Novell IPX, DECnet, AppleTalk, Banyan or OSI. In addition, IP can be configured for user-defined subnets. Using the Connection Statistics measurement, you can track errors and bandwidth utilization (by frames or by kbytes) by connection pair, and display the results in either bar-chart or pie-chart format.



By monitoring traffic by connections, you will know which conversations are consuming the most bandwidth.

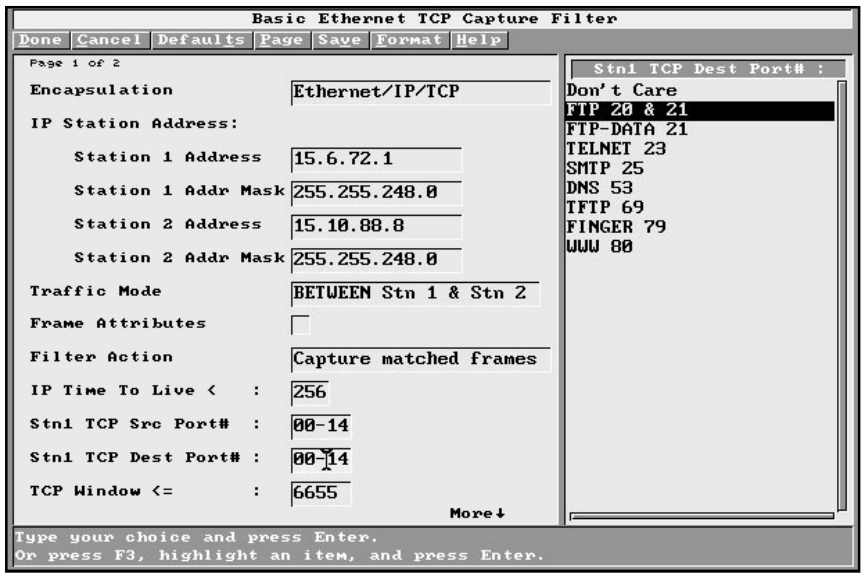
Network and application layer filtering

Filtering allows you to use both the data capture buffer and your own time more efficiently by presenting only those frames that are related to the problem at hand.

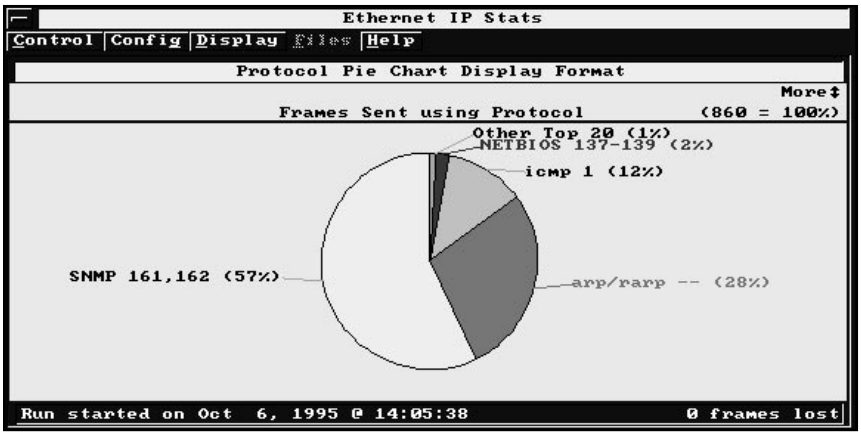
Internet Advisor 8.0 makes several significant enhancements to the filtering capabilities. The high performance data acquisition hardware of the HP Internet Advisor for LAN allows you to filter by:

- MAC level station addresses
- network level address (IP, Novell IPX, DECnet DRP, AppleTalk DDP or Banyan Vines VIP)
- source or destination
- socket or port
- hop count
- time-to-live value or TCP window size
- frame attributes
- frame type
- any user-specified data field.

In addition, MAC layer filters can now be configured to capture multicast frames only.



High performance capture filters allow you to focus on data traffic that is related to the problem at hand.



The Protocol Statistics measurement shows you how your network bandwidth is being consumed by each of the various protocol stacks (IP, Novell, DECnet, AppleTalk, Banyan Vines or OSI).

Other revision A.08 enhancements

In addition to supporting IP and Novell IPX, the Protocol Statistics measurement is enhanced by adding DECnet, OSI, Banyan Vines, and AppleTalk (Phase 1 and Phase 2) protocol stacks.

Measurements available for testing FDDI interfaces have been enhanced and now include Expert Advisor, FDDI Top Talkers, and network/application layer filtering.

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Printed in U.S.A. 1/96

5964-9111E