

Supports SIP –(2543, 3261),
Megaco –(3525, 3015), MGCP,
and H323 protocols

Decodes MAC, IP, SIP, UDP,
TCP, RTP, & RTCP

Real-time and Offline
Analysis

Provides video capturing

Filtering and Search features

E-Model based (G.107) MOS,
R-factor, & Packets discarded
graphs

Gap, Jitter, Spectral Display
and Wave Graphs

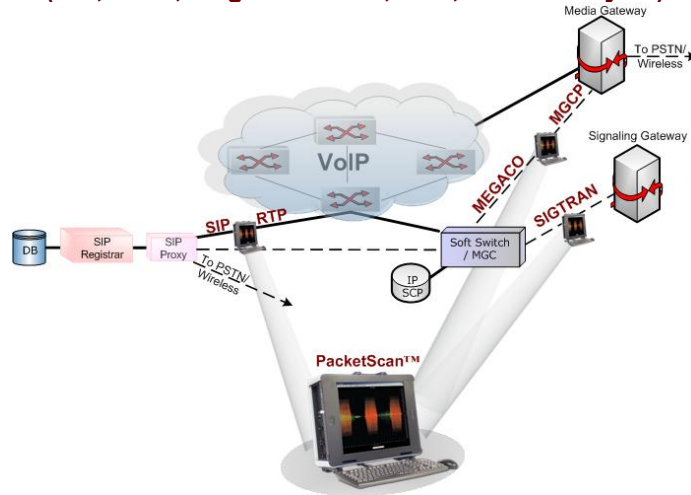
Active Calls, Avg Jitter, RTP
packets graphs

Includes Protocol Analysis
and Traffic Analysis views

Statistics –RTP, RTCP,
Inband events & other
counters

Supports video codecs such
as H263++ CIF 190 kbps,
QCIF 128 kbps, H263++ QCIF
64 kbps

PacketScan™ (With Video Analysis ^{New}) (SIP, H323, Megaco, MGCP, RTP, RTCP Analysis)



Overview

PacketScan™ is a real-time VoIP analyzer that captures live IP traffic, and segregates them into SIP/H323 calls and collects statistics about the calls. Hundreds of calls can be monitored in real-time including detailed analysis of selected voice band streams. Users can get an exact picture of QOS (quality of the service) and the technical adherence (adherence to the protocols specified by the standardizing authority) of the system under test. **PacketScan™** has the ability to collect vital statistics about calls for theoretically infinite time. The data capture is limited only by the hard disk capacity of PC.

Main Features

- Monitor progress of up to 500+ simultaneous calls with bi-directional RTP traffic
- Supported on systems with WinNT/2000 OS having Ethernet card and a sound card
- Supports SIP (SIP Session Initiation Protocol –2543 and -3261), Megaco3525, Megaco3015, MGCP, H323/H225, RTP protocol.
- Call Capturing based on Call Agents such as MOS, packet loss, latency, or called / calling numbers
- **PacketScan™** supports standard codecs such as G.711 (mu-Law and A-Law), GSM (Full Rate), G.729a, G.729b, G.726 (All Rates), AMR (All Rates), EVRC*, SMV*, iLBC and SPEEX. Newly added is H.263+ providing video capture and videoconference monitoring capability.
- Full RTP Analysis with audio capture/playback supported for all common Codecs
- Decode AMR in all packing formats, & G.726 RTP in AAL2 or IP packing types
- Includes Protocol Analysis and Traffic Analysis views
- The VPA provides Summary, Detailed, Hex-dump, and Call detail records view of the captured traffic.
- Traffic Analyzer (TA) or the Packet Data Analysis (PDA) interface displays call information in graphical format (Traffic Analyzer Call Quality Matrix- Summary View) as well as in tabular format (RTP Diagnostic - Detail View)
- Summary view displays DHCP, HTTP, FTP Message Types, SIP Method, SIP From, SIP To, SIP Call ID, SIP Cseq, RTCP Packet Type, SSRC of Sender & so on.
- User can get real-time call trace information based on SIP, H323 calls
- Can be deployed as a centralized monitoring system with associated relational or Oracle database
- Call Quality Of Service (QOS) for all calls with E-Model based (G.107) Mean Opinion Score (MOS) and R-factor with individual and summary statistics presented in graphical and tabular formats.



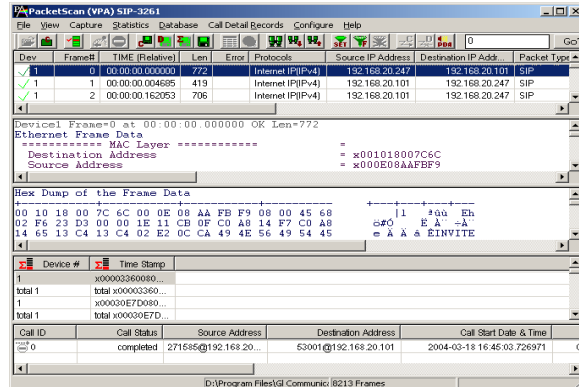
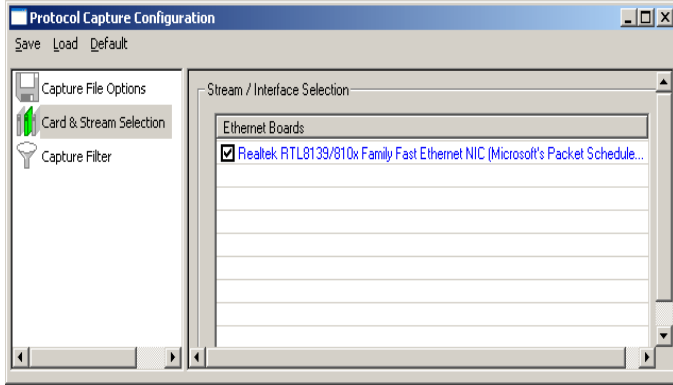
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Summary, Detail and Hexdump Views

PacketScan™ application displays summary, detail and hex dump view in different panes. The summary pane displays various information such as Frame Number, Time, Length, Message Types, IP source and destination addresses and so on. User can select a frame in summary view to analyze and decode each frame in the detail view. The Hex dump view displays the frame information in HEX and ASCII octet dump format.

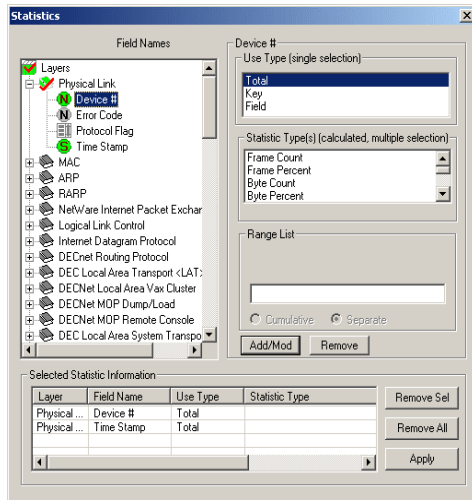
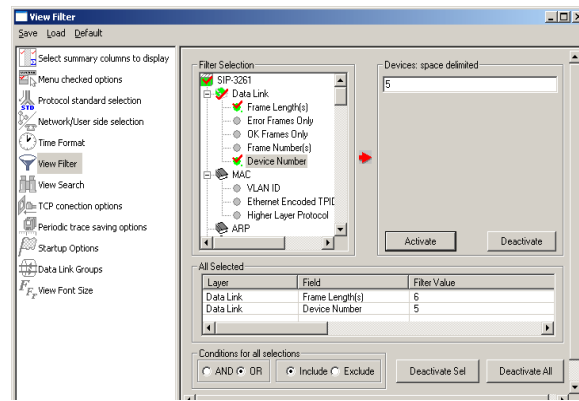


Real-time and Offline Analysis

Users can capture and analyze packets through real-time analysis or analyze the recorded data in offline mode. All captured or filtered traffic can be recorded into a trace file. The recorded trace file can be analyzed offline and exported to ASCII file, or printed.

Filtering and Search

Filtering and search capability adds a powerful dimension to the PacketScan™ application. This feature can isolate required frames from all frames in real-time /offline. This allows filtering according to Frame Number, Time, Length, Message Types, IP source and destination addresses and so on. The filtered frames can be searched further using different criteria.



Call Trace & Statistics View

Call trace defining important call specific parameters like call status, release cause, parties involved and more are displayed in Call Trace view.

Statistics is an important feature available in PacketScan™ and can be obtained for all frames both in real-time as well as offline mode. Various statistics can be obtained to study the performance and trend in the VoIP network, based on protocol fields and different parameters such as Use Type (Key/Total/Field), Statistic type (Frame count, Byte count, Frames/Sec) and patterns like Range List, Wild card.

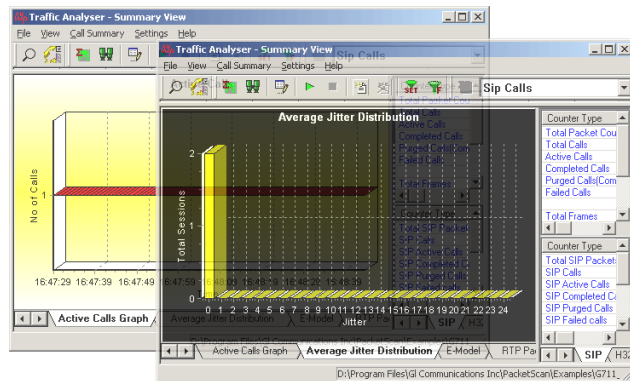
Packet Data Analysis (PDA)

Traffic Analyzer Summary View

TA Summary View displays summary of data transmission in each direction including calling number, called number, call id, start time, duration, Missing packets, and so on. It includes separate statistical counts on total packets, calls, failed calls, captured frames, etc., for SIP, H323, and RTP based calls. The user can get the statistics of Total Calls, Active Calls, Completed Calls, Purged Calls and so on.

Active Calls, Average Jitter Distribution graphs

In addition, it provides graphs to view active calls, active jitter distribution as shown in the figure to the right.



E-Model, RTP Packets graphs

TA Summary view also provides E-model based measurements. This graph provides R-factor, MOS and packets discarded against number of sessions.

Call #	SSRC	Payload	Packets	Missed	Dupl.	Out Of	Conver.	Listening	MOS	Packets D.	Avera.	Avera.	Avera.	Cumu.	Max	Max
1	20617...	PCMU/8000	1406	0	3	0	3.98 / 84	4.04 / 86	13	19.86	-3.00	6.00	52	0	86.26	66 / 4
2	19892...	PCMU/8000	1369	0	0	0	4.06 / 87	4.08 / 88	10	19.90	-1.00	3.00	122	0	77.17	57 / 2
3	22391...	G.729/8000	1005	0	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
4	18161...	G.729/8000	424	0	0	0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

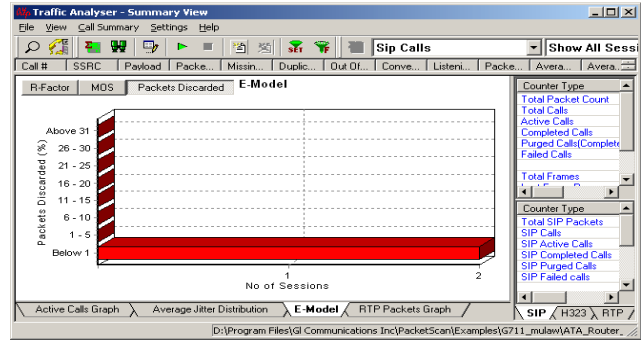
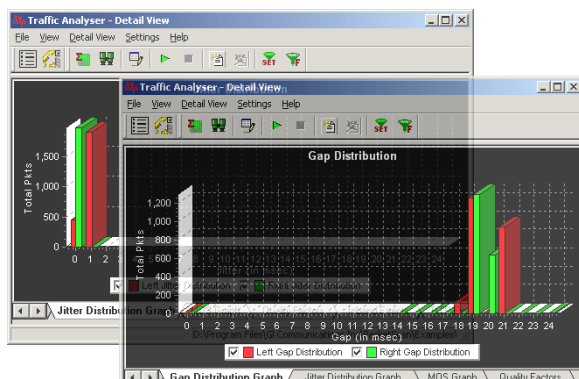
Traffic Analyzer Detail View

TA Detail View allows the user to have a detailed look at the two (or one) RTP sessions that are part of a single call. This distinction assists in any comparisons that are to be made between the two sessions. Here each frame of the selected session is dissected and its contents are displayed in a tabular form for easier viewing and to make comparisons. Vital aspects from the RTP frame needed for close analysis are included in the table.

Heading	Value	TimeStamp	Type	Event	On	Power	Freq1/Power1
SSRC	4172548656	00:00:00.000	IDLE	Undefined	5	3079	0.00
Source IP Address	192.168.20.	00:00:03.078	UNS	Undefined	5	-23.95	333/24.77
Destination IP Address	192.168.20.	00:00:03.083	IDLE	Undefined	3	0.00	
Source Port	16440	00:00:03.086	UNS	Undefined	17	-23.21	312/31.35
Destination Port	19342	00:00:03.103	IDLE	Undefined	1	0.00	
RTP Packets Count	2351	00:00:03.104	UNS	Undefined	5	-24.19	0/0.00
RTCP Packets Count	0	00:00:03.108	IDLE	Undefined	1	0.00	
Packets With Marker Bit	0	00:00:03.109	UNS	Undefined	14	-25.75	464/29.72
Total Audio Bytes	375360	00:00:03.122	IDLE	Undefined	1	0.00	
RTCP Sender's Reports	0	00:00:03.123	UNS	Undefined	5	-25.41	0/0.00
RTCP Receiver's Reports	0	00:00:03.128	IDLE	Undefined	1	0.00	
Out Of Sequence Packets	0	00:00:03.129	UNS	Undefined	14	-26.31	0/0.00
Missing Packets	0	00:00:03.143	IDLE	Undefined	8	0.00	
		00:00:03.151	UNS	Undefined	7	-25.50	354/27.42
		00:00:03.158	IDLE	Undefined	2	0.00	
		00:00:03.160	UNS	Undefined	2	-23.31	0/0.00

Gap/Jitter Graph

Gap graph plots the Gap (in milliseconds) versus the packet number. Jitter graph plots the Jitter values versus the packet number. If both the sessions of the call have been selected then plotting them in the same view enables comparison between them



Record Video

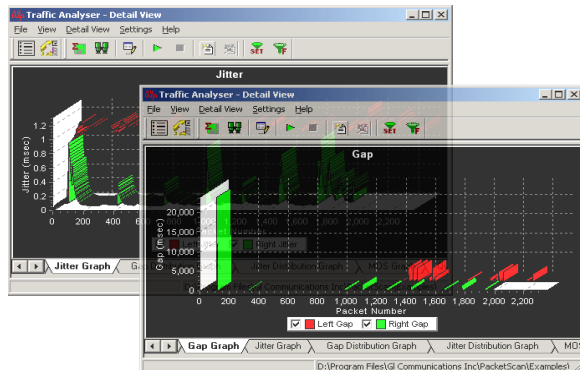
PacketScan™ can monitor video calls and display both audio and video RTP streams in summary view. There is a provision to view video calls using a filter. Users can record video calls to a file in QuickTime format, which can be viewed by VLC player.

Record video option is available for both Auto Detected RTP Calls and SIP Calls. Supported Video Codecs are: H263++ CIF 190 kbps, H263++ CIF 350 kbps, H263++ CIF 512 kbps, H263++ QCIF 128 kbps, H263++ QCIF 64 kbps, and H263++ QCIF 80 kbps.

Pac.	Se.	R.	P.	Packet	Gap	J.	Pac.	Se.	R.	P.	Packet	Gap	J.
6	5490	23	PCMU	160	Sessio...	0.00	5	8476	16	PCMU	160	Sessio...	0.00
8	5491	23	PCMU	160	Sessio...	21	2	7	8477	16	PCMU	160	Sessio...
10	5492	23	PCMU	160	In Seq...	19	2	9	8478	16	PCMU	160	In Seq...
12	5493	23	PCMU	160	In Seq...	21	2	11	8479	16	PCMU	160	In Seq...
14	5494	23	PCMU	160	In Seq...	19	2	13	8480	16	PCMU	160	In Seq...
16	5495	23	PCMU	160	In Seq...	21	2	15	8481	16	PCMU	160	In Seq...
18	5496	23	PCMU	160	In Seq...	19	2	17	8482	16	PCMU	160	In Seq...

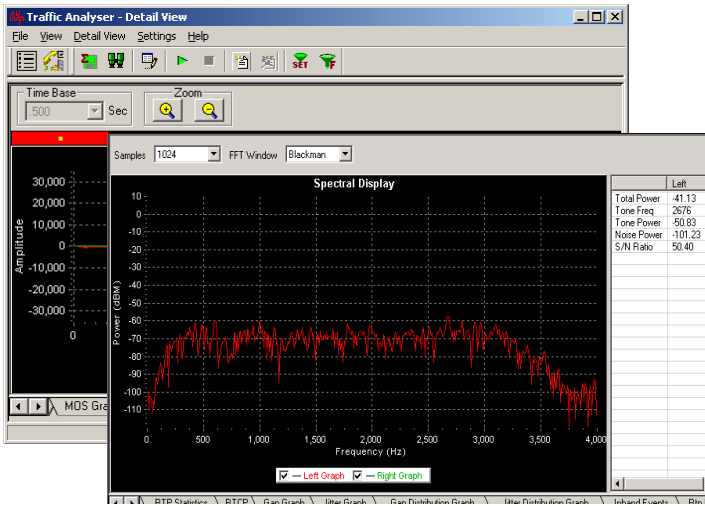
RTP/RTCP Statistics and Inband Events

The user can get the complete details of a single selected call. Details like, Total Packets Count, SSRC, RTP packet Count, RTCP Packet Count, Total Audio Bytes. Inband Events display inband DTMF and MF digits as they are received with details such as Timestamp, Type, Event, On-Time, Power, Freq1 / Power1, Freq2 / Power2.



Gap/Jitter Distribution Graph

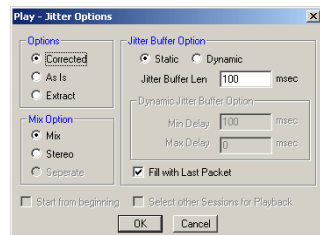
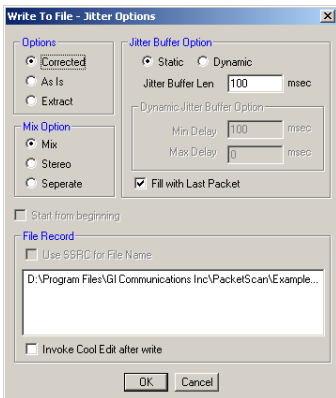
In Gap Distribution Graph the number of packets with a particular value of gap is plotted against the (gap) value. In Jitter Distribution Graph the number of packets with a particular value of gap is plotted against the (jitter) value



Other Common Applications in Detail & Summary View

Triggers and Action Settings

Triggers and Action Settings window allows the user to filter calls based on the triggers and actions criteria set for the completed calls. The filtered file can be saved in .hdl and all the voice files can be saved in .wav format by checking “Save Call to HDL” and / or “Audio Recording” respectively. The file can be saved in .wav format and choose formatting options such as “Stereo”, or “Mix”.



Save call

The Save Call feature enables the user to save a particular call as a separate HDL file. This is especially useful to get data from real-time traffic locations for detailed analysis of a flawed call. By using this option, user can save the call that needs to be analyzed as a HDL file and transport it using temporary media to the lab for detailed analysis

Buyers Guide:

PKV100 - [PacketScan™ \(Real-time and Offline\)](#)

PKV101 - [PacketScan™ - Offline](#)

Related Software

PKV105- [SIGTRAN Analyzer](#)

PKS100- [PacketGen™](#) (includes PacketScan™)

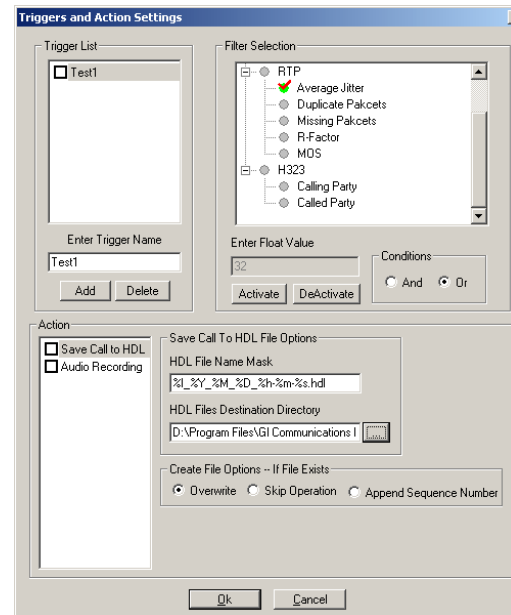
PKS110- [PacketH.323](#)

PKB100- [RTP ToolBox™](#)

Wave Graph and Spectral Display

The Wave graph displays the amplitude of the incoming signal in a selected call as a function of time. This application helps in visually assessing any activity on the traffic such as noise, tone, speech, etc.

Spectral Display shows the power of incoming signal while the capturing is going on as a function of frequency. The power of the signal can be viewed with different sampling rates and functions.



Play Audio and Write to File

The Play Audio plays the selected call to the PC speaker. Options to Play to Sound Card such as Mix, Stereo, and Separate are provided to the user before the actual play is started. Write to File is similar to the Play Audio option. The basic difference being that the output is written to a file instead of playing to the speaker. Various options are provided so that the user can save the file in a required format, and use the files with voice quality analysis software to investigate more about the quality of voice in the network.

