Zumara

Test VoIP, Legacy Equipment and Networks with Unrivalled Versatility

Zumara is a powerful quality measurement tool and protocol test system for VoIP applications over Fast or Gigabit Ethernet LAN.

Zumara software can simulate up to seven independent SIP, SIP-i or H.323 LAN endpoints via the PC host NIC or a combination of NIC & LAN adapters. This transforms a standard PC host into a powerful tool for VoIP simulation, analysis, traffic generation & speech quality testing.

Zumara runs on Microsoft XP, Vista or Windows 7

Typical Zumara Applications

- Simulate, test and de-bug protocol errors in a converged network.
- Generate and answer calls using different protocols to test interoperability through Gateway's & Softswitches.
- Create a library of realistic call flows with a mix of protocol message content, field content & codec's.
- Simultaneously test between different Network nodes viewing synchronised protocol events in one display Window.
- Check speech quality using optional PESQ measurement and listen to RTP flow through the host soundcard.
- Simulate SIP-i with ISUP over SIP using TCP, UDP or SCTP (optional) as a LAN transport.

- Software tool which transforms your PC into a powerful protocol analyser and simulator.
- Use your PC host NIC or LAN adapter/s to simulate up to seven virtual endpoints.
- Ethernet 10/100 & Gigabit are supported.
- Supports SIP, SIP-i and H.323 for VoIP or ISDN, ISUP and Q-SIG for Legacy.
- Protocol events can be viewed using Zumara event editor or Wireshark.
- Extremely versatile Windows user interface.
- Users can easily create a library of test profiles with different call flows/types.
- Optional support for g.729 and SCTP (Stream Control Transmission Protocol)
- Verify speech quality with PESQ/MOS score option.
- Test protocol compliance using optional conformance test suites.

Interoperability Testing

Zumara supports our popular Clarinet hardware interface pods for E1/T1 & S/T-U. These pods connect seamlessly to your PC host via USB & synchronise with LAN interfaces. Any combination of LAN or Clarinet interface pods (up to a maximum of seven) may be simultaneously controlled and synchronised by one Zumara application.

Test interoperability and speech quality through a Gateway using Zumara to simulate LAN protocols such as SIP or H.323 and our Clarinet interface pods to simulate WAN protocols such as ISUP or Q-SIG. For example, calls may be generated as ISDN and answered as SIP or generated as H.323 and answered as Q-SIG.

Request a free trial at:
www.pds-test.co.uk/trial.html

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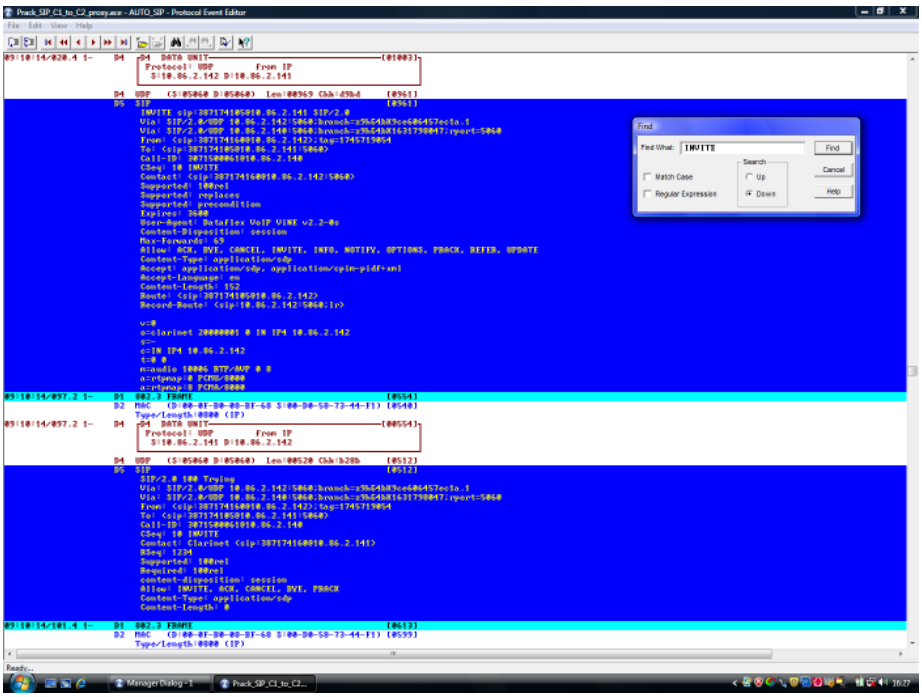
Protocol Analysis

- Real-time protocol analysis is provided and recorded directly to the PC host hard drive allowing long term monitoring.
- Multi-protocol analysis of SIP, SIP-i, H.323, and numerous WAN protocols.
- Use Zumara or a special version of Wireshark (provided) to open protocol event files.
- Event time stamping to within 1mS.
- Powerful filtering of each layer, pre and post capture.
- Supports Megaco (H.248) and SIP over SCTP transport.
- Automatic recording of all or selected events.
- ASN1 decode included.

Protocol Simulation

- Manual or automatic simulation of multiple calls with independent message and field content.
- Simulation of up to seven virtual LAN endpoints and different protocols in parallel.
- SIP users may edit the content of communication acceptance triggers.
- Supports full simulation of SIP, SIP-i and H.323 plus optional legacy protocols.
- PRACK , OPTIONS, UPDATE, NOTIFY and other responses are supported.
- Virtual LAN endpoints each have a unique MAC & IP address.
- Up to 350 communications can be launched simultaneously and repeated up to one million times.
- RTP can be generated using WAV files or the host soundcard.
- B channel content may also be generated with WAV files using optional Clarint WAN interfaces.
- SIP headers and message body may be customised and checked or sent without parse, allowing invalid content.
- The content of the SIP message body can be automatically completed by the Zumara for all responses.
- H.323 User-User IE PER ASN1 may easily be coded via an editor which displays both the HEX & the ASN1 notation.
- G.729 codec support is available as an option with either two or fifty full duplex channels
- Optional support for SCTP as an alternative for TCP or UDP for LAN transport.



This window provides an example of the protocol decode available on the Zumara, where the level of detail and the colours used at each layer may be selected by the user.

Shown in this example are a layer 1 indication of 802.3 frames and flags between frames with timestamp, a layer 2 indication of source & destination MAC address, a layer 4 UDP indication of source & destination IP address and a layer 5 SIP message decode.

Extensive filters, triggers and search facilities are provided.

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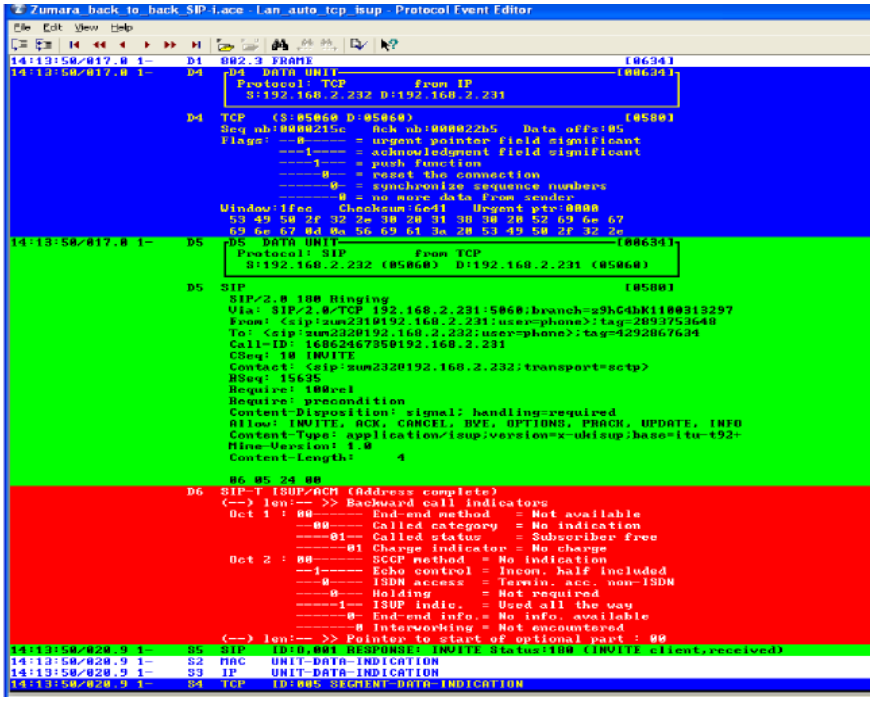

This window shows simulation of SIP-i using the Zumara where an ISUP/ACM (Address Complete) message has been included in the SIP Ringing response.

A user-friendly ISUP editor is provided allowing different protocol variants ITU, ITU-UK, ANSI and ITU-VN7 to be selected before easily adding ISUP parameters to all relevant SIP messages. SIP-i may be simulated using TCP, UDP or SCTP (optional) for transport.

Speech Quality Testing - PESQ

Perceptual evaluation of speech quality (PESQ) is a recognised method of accurately testing the level of quality that will be perceived by the user of a VoIP network. Successful measurement requires a WAV file to be generated by two parties connected at different network nodes, the files received at each end are recorded and compared with a reference file in order to determine any loss of quality en-route.

The P.862 ITU PESQ standard combines the excellent psycho-acoustic & cognitive model of PSQM+ with a time alignment algorithm to accurately manage the variation in delay. PESQ provides a score in the range of 1 to 5 where 1 is unacceptable & 5 is excellent. A typical range for VoIP is 3.5 to 4.2. WAV files for PESQ measurement are available from the ITU-T website in original (or) & degraded (dg) format to meet a variety of applications.

Typical PESQ Applications

- Make several PESQ measurements during one long duration call in order to test speech quality over time as network demands fluctuate.
- Provide P.862 ITU PESQ test results to equipment vendors, network operators & end users.
- Test the effect when using different codec types.
- Test and evaluate network equipment & services.
- Ensure Quality of Service (Q.O.S).

Zumara PESQ Option

- Zumara can measure PESQ from LAN to LAN or from LAN to WAN through a Gateway.
- Zumara injects a preceding pulse to ensure the exact start of each file is known for comparison. This ensures highly accurate results even when tests are made over International links.
- Zumara PESQ results table provides an indication of loss, jitter, PESQ score (P862), MOS score (P862.1), noise score & speech score amongst others.
- PESQ measurements can be made between any two physical interfaces to provide total network visibility. This is important due to the number of devices and codec types that may be encountered by a call on route from A to B.

G.729 Codec Support Options

Options are available to support two full duplex G.729 codec channels for basic test and verification or fifty full duplex G.729 codec channels for load test applications. The G.711 codec is available as standard. If other codec types are required, please contact us.

SCTP Support Option

The Stream Control Protocol Transmission (SCTP) offers distinct advantages over TCP or UDP for LAN transport, particularly when using SIP-i.

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Clarinet Interface Pods

Zumara supports our popular Clarinet hardware interface pods for E1/T1 and S/T-U. These pod(s) connect seamlessly to your PC host via USB and synchronise with LAN interfaces. Any combination of up to seven LAN, E1/T1 & S/T-U interfaces may be connected and controlled simultaneously, by Zumara.

E1/T1 Interface Pod - Model 2001

The Clarinet 2001 USB controlled E1/T1 pod supports simulation and analysis of many protocols carried over these interfaces including: V5.1, V5.2, Q-SIG, ISDN & SS#7.

The pod has a built-in Bit Error Rate tester, codec (µ Law or A Law selectable), digital port and handset port (handset supplied). Input impedance is selectable (75, 100, 120 ohms or high impedance) and high sensitivity allows monitoring of signals down to -36dB. Zero code suppression and coding may also be selected for the T1 port. Power for the pod is taken from the USB port therefore external power adapters are not required.

Clarinet E1/T1 USB controlled interface pod

ISDN S-T/U Interface Pod - Model 2002

For applications involving the development and testing of ISDN basic rate terminal equipment or network ports, the 2002 USB S-T/U pod is the ideal choice.

The S-T Bus has two bridged RJ45 connectors providing one I.430 interface. The U interface has two RJ45 connectors (one dedicated 'to NT' and one dedicated 'to LT') providing one G.961 (2B1Q encoding) interface.

The pod has a built-in Bit Error Rate tester, codec (µ Law or A Law selectable), digital port and handset port (handset supplied). Power for the pod is taken from the USB port therefore external power adapters are not required.

Clarinet S/T-U USB controlled interface pod

Optional Conformance Test Suites

An extensive range of 'ready to run' conformance test scripts are available for Zumara software to test interoperability and protocol compliance. Test suites are available for H.225, SIP, ISDN, V5, ISUP, and Q-SIG. Our test suites are widely used by many leading test laboratories and are also ideal for self declaration.

Summary

If you require a low cost, highly versatile test tool for protocol testing, quality measurement, interoperability testing, load generation or simultaneous analysis at different network nodes, request a trial of Zumara today.

Conformance Test Suite Benefits

- Test suites available for SIP, H.225, ISDN, V5, Q-SIG, and ISUP.
- Protocol messages are interleaved with test stages in order to verify and debug behaviour.
- Reduce time to market - 'off the shelf' availability.
- Easy to use with PICS/PIXIT editor and result summary.
- Ensure compliance to industry standards.
- Cost effective.
- Automatic selection of tests.

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