

Agilent Networktester
VoIP Test Software

N4195A

Technical Data Sheet



Test the VoIP performance of network security and content-switching devices, gateways, networks, and application services.

Key Features

- **Simultaneous SIP and H.323 call emulation - perform realistic tests**
- **Large scale call performance - stress devices to their limits**
- **Integrated VLAN and access protocol support - verify IPsec-secured VoIP**
- **Multiple performance statistics - measure VoIP QoS in real time**
- **Add data applications and DoS to the same port - test VoIP degradation**

Product Overview

The Agilent NetworkTester is the industry's most powerful test solution for performance testing of connection-aware and content-aware (Layer 4-7) devices and networks.

NetworkTester offers Internet-scale, multi-protocol, multi-port client/server traffic emulation capabilities, delivering unprecedented realism, flexibility and control for your most complex test challenges.

The VoIP test software is an integral part of the NetworkTester solution that meets all of your needs for testing VoIP performance, quality and scalability.

Network equipment manufacturers, service providers and enterprise network operators need to measure the VoIP performance of network security devices before deployment. The Agilent NetworkTester VoIP Test Software can be easily configured to emulate thousands of IP phones, each initiating and establishing calls through a device under test (DUT). Real audio traffic can then be generated over each of the calls. Calls can even be made to or from real IP phones.

The convergence of voice and data traffic onto IP networks presents new challenges. Devices such as NAT firewalls, VPN concentrators, VoIP proxies and integrated gateways need to allow valid traffic to pass through while simultaneously blocking DoS attacks on the network and prioritizing voice traffic to ensure QoS. The Agilent NetworkTester can verify the simultaneous operation of security functions and characterize device performance limits under real-world conditions.

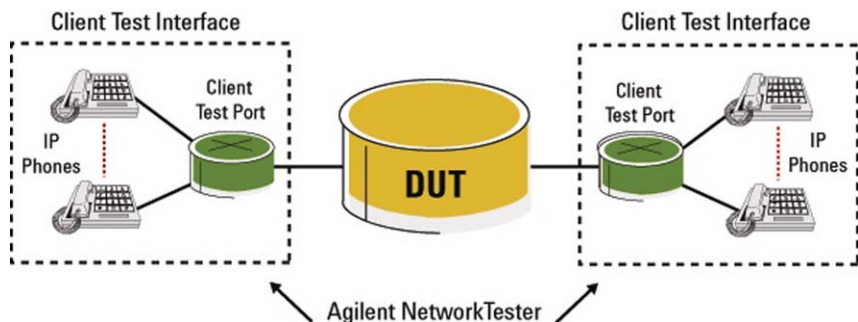


Figure 1: Generate and measure thousands of VoIP calls per second

Product Features

VoIP benchmarking

The VoIP test software can emulate many SIP and H.323 clients. Scalability and performance benchmarks can be determined, including:

- Maximum number of VoIP calls
- VoIP connection rate
- RTP traffic throughput, delay, loss and jitter

Simultaneously test SIP, H.323 and data applications

Both SIP and H.323 clients can be emulated from a single NetworkTester port, allowing the realistic testing of stateful security devices. Simultaneously generate a mix of stateful application traffic including HTTP, FTP, SMTP and Instant Messaging (Jabber) to realistically simulate users. Measure the performance impact of these other applications on VoIP calls.

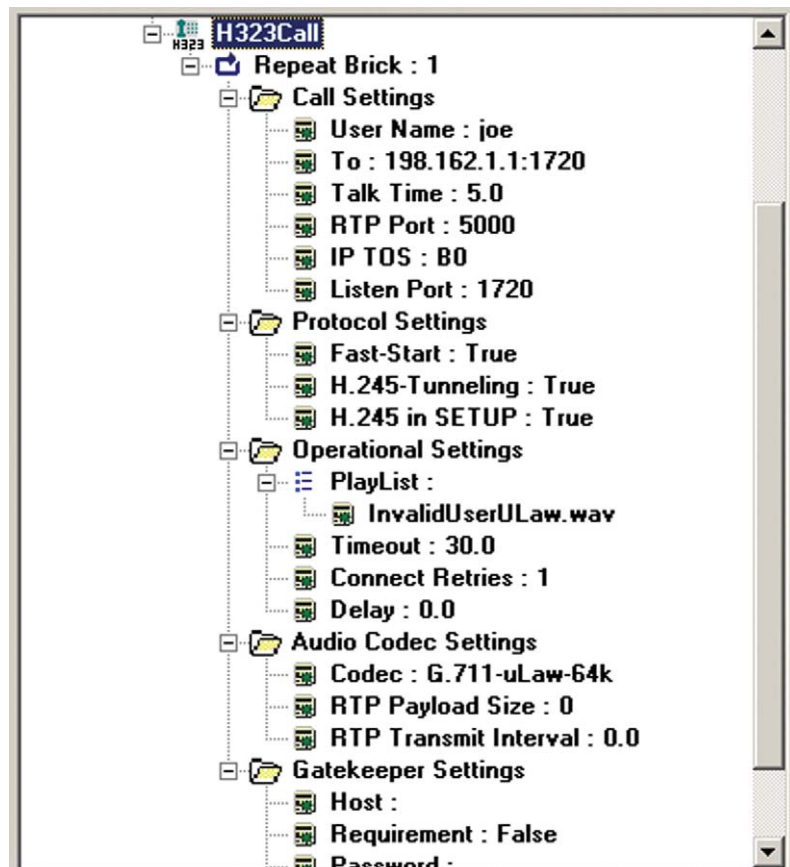


Figure 2: Measure the impact of data services and DoS attacks on VoIP call quality

VoIP over access protocols

VoIP calls can be established over access protocols such as IPsec and VLANs. Simulate calls over IPsec VPNs to test devices such as VPN firewalls and integrated security gateways.

Flexible and Integrated User Interface

The NetPressure software application allows complex and large-scale VoIP test scenarios to be created quickly and easily through a single integrated user interface. Powerful test plans can be developed interactively with a few GUI operations in minutes (without the need for scripting) and easily saved for later use. Duplicate and adapt the supplied sample test plans to quickly build new test cases. In addition, this same flexibility is available through a Tcl/Tk application programming interface (API) for automated test environments.

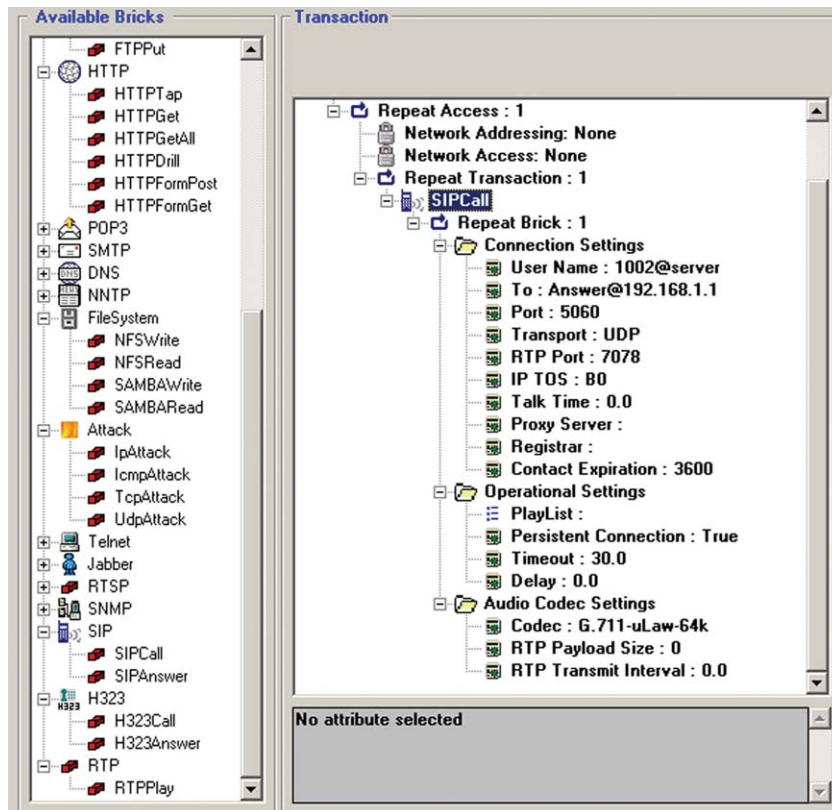


Figure 3: Flexible SIP Call configuration enables comprehensive test coverage

Technical Specifications

H.323 Parameters

The following H.323 parameters and associated options are supported. NetPressure H.323 clients can interact with other NetPressure H.323 clients, external H.323 clients, and external H.323 Gatekeepers and terminals.

H.323 Setup operational	and	<ul style="list-style-type: none"> Fast-Start Slow-Start Connection retries Inter-call delay Local username Remote username or aliasoH.225. Listen Port
H.245 Tunneling		<ul style="list-style-type: none"> Enabled Disabled
RTP Traffic		<ul style="list-style-type: none"> UDP Port Number IP Type of Service (TOS) Audio: .wav file(s) Call Duration Payload size (bytes) Transmit interval (ms)
Gatekeeper		<ul style="list-style-type: none"> H.235 Password Access token OID Host IP Address Registration Port Number
Audio Codecs		<ul style="list-style-type: none"> Any codec's that have a .wav representation can be supported by supplying an audio file and specifying RTP Payload Size and RTP Payload Interval G.711 uLaw G.711-Alaw GSM-06.10 G.723.1 G.729

SIP Parameters

The following SIP parameters and associated options are supported. NetPressure SIP clients can communicate with other NetPressure SIP clients, or with external SIP servers, including servers that support SIP Proxy and SIP User Agent Registration, but not SIP Redirect servers.

SIP Setup and operational		<ul style="list-style-type: none"> Inter-call delay SIP Port number Local username Remote username / URL
Proxy Server		<ul style="list-style-type: none"> IP Address

Registrar Server		<ul style="list-style-type: none"> IP Address
SIP Signaling Transport Protocol		<ul style="list-style-type: none"> TCP UDP
RTP Traffic		<ul style="list-style-type: none"> UDP Port Number IP Type of Service (TOS) Audio: .wav file(s) Call Duration Payload size (bytes) Transmit interval (ms)
TCP Connection		<ul style="list-style-type: none"> Persistent or Non-Persistent
Audio Codecs		<ul style="list-style-type: none"> Any codec's that have a .wav representation can be supported by supplying an audio file and specifying RTP Payload Size and RTP Payload Interval G.711-uLaw G.711-Alaw GSM-06.10 G.723.1 G.729

Statistics

VoIP statistics collected during a test can be displayed numerically, graphically or saved to a file.

Description	Statistic	Units
Number of VoIP calls established per second	Call Setup Rate (Sessions/second in GUI)	Calls/second
Total number of successfully established VoIP calls	(1) Total Calls (Total Sessions in GUI) (2) Cumulative Calls in GUI	Calls
The average one-way transmission delay of the RTP packets	Average Delay	Milliseconds
The minimum delay variation of the RTP packets	Minimum Jitter	Milliseconds
The maximum delay variation of the RTP packets	Maximum Jitter	Milliseconds
The average delay variation of the RTP packets	Average Jitter	Milliseconds
Number of RTP packets lost by the DUT	Packet Loss	Packets
Number of RTP packets that did not arrive in the same order as they were transmitted	Out of Order Packets	Packets
The amount of RTP data that is received each second	Throughput	Rates

Configuration

Please see the NetworkTester Ordering and Configuration Guide for more information.

Product Numbers

N4195A NetworkTester VoIP (SIP/H.323) Software License

Adds integrated SIP and H.323 protocol emulation to the NetPressure application for one NetworkTester system.

N4193A - NetPressure IPv6 Software License

Adds integrated IPv6 support, including IPv6 protocol emulation, to the NetPressure application for one NetworkTester system. Provides VoIPv6 testing when combined with N4195A.

N4194A - NetworkTester IPsec Software License for IPv4/v6

Adds integrated IPsec protocol emulation to the NetPressure application for one NetworkTester system. Provides VoIP/IPsec testing when combined with N4195A.

PS-S12-101, PS-S12-102, PS-S12-103, PS-S12-601 - Software and Support Agreement

One-year, two-year and three-year, and annual renewal for software and support agreement to cover all installed NetworkTester software.

Applicable VoIP Standards

G.711: Pulse code modulation (PCM) of voice frequencies at 56/64 kbps

G.723.1: Very low rate linear-predictive codec

G.729: ITU standard codec, provides toll-quality speech audio at 8kbps rate

GSM 06.10: ETSI Global System for Mobile Communications

H.225: Call signaling protocols and media stream packetization for packet-based multimedia communication systems

H.235: Security and encryption for H-Series multimedia terminals

H.245: Control protocol for multimedia communication

H.323: Packet-based multimedia communications systems

RFC 3261: SIP: Session Initiation Protocol

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Agilent's NetworkTester Solution

Agilent's NetworkTester solution offers a powerful and versatile test platform to address the evolving test needs of connection and content aware devices and networks. NetworkTester provides Network Equipment Manufacturers, Public Network Operators and Private Enterprise Network Managers with the industry's leading solution for multi-protocol, multi-port traffic emulation for performance analysis of today's L4-7 networking devices.

Warranty and Support

Hardware Warranty

Agilent warrants all NetworkTester hardware against defects in materials and workmanship for a period of 1 year from the date of delivery. Agilent further warrants that the NetworkTester will conform to specifications. During the warranty period, Agilent will, at its option, repair or replace the defective hardware. Services provided under this warranty will normally require return of the hardware to Agilent.

Software Warranty

Agilent warrants all NetworkTester software for a period of 90 days. Agilent warrants that the software will not fail to execute its programming instructions due to defects in materials and workmanship when properly installed and used on the hardware designated by Agilent. This warranty only covers physical defects in the media, whereby the media is replaced at no charge during the warranty period.

Software Updates

With the purchase of any new system controller Agilent will provide 1 year of complimentary software updates. At the end of the first year you can enroll into the Software Enhancement Service (SES) for continuing software product enhancements.

Support

Technical support is available throughout the support life of the product. Support is available to verify that the equipment works properly, to help with product operation, and to provide basic measurement assistance for the use of the specified capabilities, at no extra cost, upon request.

Ordering Information

To order and configure the test solution, consult your local Agilent field engineer.

Sales, Service and Support

United States:

Agilent Technologies
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
1-800-452-4844

Canada:

Agilent Technologies Canada Inc.
2660 Matheson Blvd. E
Mississauga, Ontario
L4W 5M2
1-877-894-4414

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1180 AZ Amstelveen
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(31 20) 547-2323

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07004 666666

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