

Software Suite for RFC-1242 & RFC-2544 Compliance Test

FEATURES SUMMARY

- RFC compliance testing based on RFC-1242, Benchmarking Terminology for Network Interconnection Devices, and RFC-2544, Benchmarking Methodology for Network Interconnect Devices, for the testing of Throughput, Latency, Packet Loss, and Back-to-Back.
- Test Modes:
 - Full or Half Duplex
 - Unidirectional or Bidirectional
- Supported Topologies:
 - One-to-One port pairs
 - One-to-Many ports
 - Many-to-One ports pairs
- Supports 802.3 framing.
- Simulation of a router with next-hop capability according to RFC-2544.
- Automatic execution of a single or a group of tests.
- Support for multi-user operation in a client-server environment.

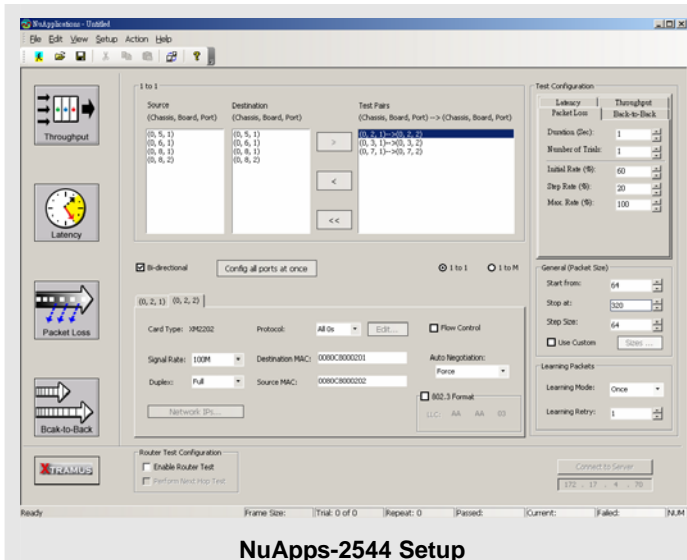
MAJOR BENEFITS

- Generation of full and sustainable loads for accurate evaluation of the performance limits of the DUT (Device Under Test) and/or the SUT (System Under Test).
- Comprehensive testing in multi-topology environments for Ethernet (10/100/1000Mbps).
- Real time display of test results.
- Various types of report formats, including MS-Excel and HTML.
- Generation of error log for debugging.
- User-selectable tabular or non-tabular report format for on-screen display of test results.
- Individual display of cut-through and store-and-forward latency measurements.

KEY APPLICATIONS

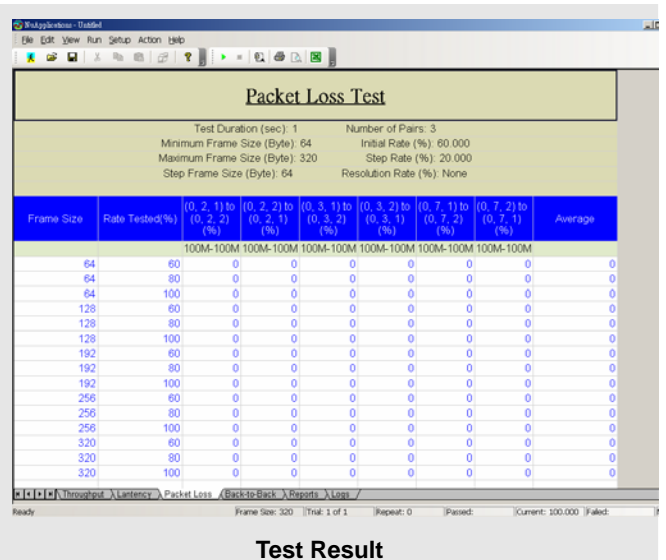
- Layer-2/3 performance analysis of the Throughput, Latency, Packet Loss, and Back-to-Back limits of Ethernet devices such as Bridges, Switches, Routers, and Ethernet networks.

Sample Screen Shots



The screenshot shows the 'NuApps-2544 Setup' window. It features several configuration panels: 'Throughput', 'Latency', 'Packet Loss', and 'Back-to-Back'. The 'Test Configuration' panel includes settings for 'Delay', 'Packet Loss', and 'Throughput Back-to-Back'. The 'General (Packet Size)' panel has 'Start from' and 'Step size' fields. The 'Router Test Configuration' panel includes 'Enable Router Test' and 'Perform Next Hop Test' checkboxes. The status bar at the bottom shows 'Ready', 'Frame Size: 1', 'Trial: 0 of 0', 'Repeat: 0', 'Passed: 0', 'Current: 0', and 'Failed: 0'.

NuApps-2544 Setup



The screenshot shows the 'Packet Loss Test' results window. It displays test parameters: 'Test Duration (sec): 1', 'Number of Pairs: 3', 'Minimum Frame Size (Byte): 64', 'Initial Rate (%): 60.000', 'Maximum Frame Size (Byte): 320', 'Step Rate (%): 20.000', and 'Step Frame Size (Byte): 64', 'Resolution Rate (%): None'. Below this is a table with columns for 'Frame Size', 'Rate Tested (%)', and seven test scenarios: '(0, 2, 1) to (0, 2, 2)', '(0, 2, 1) to (0, 3, 2)', '(0, 3, 1) to (0, 3, 2)', '(0, 3, 1) to (0, 7, 2)', '(0, 7, 1) to (0, 7, 2)', '(0, 7, 1) to (0, 7, 1)', and 'Average'. The table shows 0% packet loss for all configurations.

Frame Size	Rate Tested (%)	(0, 2, 1) to (0, 2, 2) (%)	(0, 2, 1) to (0, 3, 2) (%)	(0, 3, 1) to (0, 3, 2) (%)	(0, 3, 1) to (0, 7, 2) (%)	(0, 7, 1) to (0, 7, 2) (%)	(0, 7, 1) to (0, 7, 1) (%)	Average
64	60	0	0	0	0	0	0	0
80	60	0	0	0	0	0	0	0
128	60	0	0	0	0	0	0	0
128	80	0	0	0	0	0	0	0
128	100	0	0	0	0	0	0	0
192	60	0	0	0	0	0	0	0
192	80	0	0	0	0	0	0	0
192	100	0	0	0	0	0	0	0
256	60	0	0	0	0	0	0	0
256	80	0	0	0	0	0	0	0
256	100	0	0	0	0	0	0	0
320	60	0	0	0	0	0	0	0
320	80	0	0	0	0	0	0	0
320	100	0	0	0	0	0	0	0

Test Result

OVERVIEW

REQUIREMENTS

Testing Platform	NuStreams-2000/600 chassis with the appropriate NuStreams test modules
Operating System	Microsoft Windows 2000 or Windows XP
PC and Peripherals	An IBM or compatible Pentium III or above PC with at least 256MB of RAM, 10GB of available hard disk space, keyboard, mouse, color monitor, and a 10/100Mbps Ethernet controller card (in the PC)
Cabling	Use appropriate cables (for example, category 5e, straight-through or crossover, depending on the DUT) to connect the NuStreams test modules with the DUT and the NuStreams chassis with the PC.

NuApps-2544 is a user-friendly, automated test suite based on industry-standard RFC-1242 and RFC-2544 for analyzing the performance of Ethernet switches, bridges, and routers using NuStreams-2000/600.

The multiple topologies and the load generation capabilities supported by **NuApps-2544**, along with the measurement accuracy of NuStreams-2000/600 provide the user an effective way to accurately evaluate the Throughput, Latency, Packet Loss, and Back-to-Back of a DUT or SUT in One-to-One, One-to-Many, Many-to-One configurations.

The real time display of test results and various customizable report formats of **NuApps-2544** make it easy for the user to view the test data and organize it into an appropriate form to debug, report, and/or record.

The Throughput Test of **NuApps-2544** allows the user to determine the maximum throughput rate at which a DUT or a SUT can support the transmission of packets without dropping a single one. The test duration, packet length and packet transmission rate can all be customized to meet the desired test condition.

NuApps-2544 could provide the Latency information of a DUT or a SUT by measuring the time it takes to forward a packet while under loading. The load generated by NuStreams-2000/600 can be customized in accordance with different packet lengths and can last for a specified period of time to provide a comprehensive view of the performance of the DUT or SUT.

By measuring the percentage of packets that are not forwarded because of lack of resources, the Packet Loss rate of a DUT can be determined using **NuApps-2544**. The loading, and test duration can be customized to simulate real-world scenarios, thus giving the user a clear view of the performance limits of the DUT under different loading environments.

The Back-to-Back Test, **NuApps-2544** measures the buffer capacity of the DUT by sending bursts of traffic at the maximum frame rate and by measuring the longest burst size for which no packets are dropped. For each packet length specified in the test setup, the test is automatically repeated to provide an accurate view of the buffer capacity of the DUT under different conditions.

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