



SmartBits® Virtual Front Panel SmartWindow

Product Overview

SmartWindow is a graphical user interface that provides an interactive test and measurement environment for SmartBits test modules. As more complex network technologies are deployed, such as 10 GbE, IPv6, multicast, and policy-based bandwidth management, SmartWindow addresses the issues of declining capital budgets, fewer technical resources, shorter time to market, and the requirement to test an increasing number of complex products and services.

SmartWindow supports a broad variety of new and existing technologies that drive today's networks-- Ethernet, Fibre Channel, Packet over SONET (POS), WAN, Frame Relay, and layer 2 ATM interfaces. The application is included with every SmartBits chassis so within minutes, you can set up and start layer 2 and layer 3 device testing with IP, UDP, TCP, and user-defined PDUs in both IPv4 and IPv6. You can configure numerous tests for your specific equipment or application--NIC cards, servers, bridges, cable modems, xDSL modems, switches, routers, VLANs, firewalls, live networks, link turn-up, and multimedia scenarios. In minutes, you can measure latency, latency distributions, packet loss, ARP timing, frame variation, and sequence tracking using Spirent's SmartMetrics™ test suites.

With its support for expanding deployments of IPv6, IP QoS, multicast, and 10 GbE technologies, SmartWindow continues to set the standard for network device testing for functional, performance test, and debug applications.

Key Features

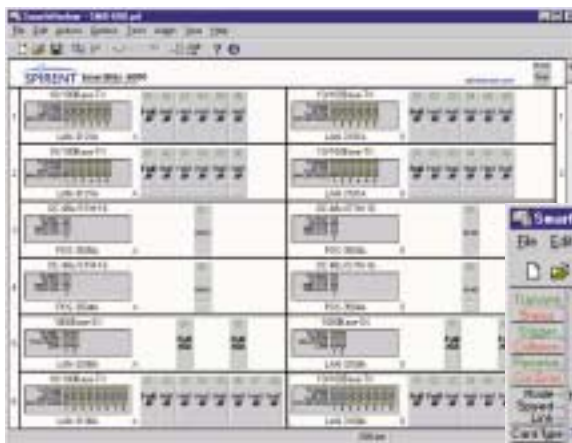
IPv6

Spirent is a leader in IPv6 functional and performance testing. SmartWindow allows network operators to introduce or expand IPv6 services by quickly verifying a device's end-to-end and protocol handling capabilities. SmartWindow helps equipment manufacturers qualify their IPv6 devices to compete successfully in this growing market. SmartWindow supports the critical layer-2 protocols in an IPv6, Ethernet (from 10Mbps to 10Gbps), or POS environment, providing a full range of interface speeds, as well as interoperability testing. You can segregate IPv6 from IPv4 traffic, allowing you to test your device's ability to simultaneously interoperate in both environments. You can use SmartWindow's IPv6 header editing capability to exercise your system's ability to handle IPv6's broad set of nested headers.

SmartWindow supports Neighbor Discovery and Address Auto-Configuration. These features reduce test setup time by automatically populating IPv6 addresses on configured traffic. SmartWindow supports the 8-bit Traffic Class and Differentiated Services fields and includes many specific IPv6-related counters for both events and rates, providing a comprehensive picture of how your device responds in the test environment. SmartWindow can simultaneously update and display IPv6 and IPv4 packet counters; there is no need to run separate tests for each protocol. SmartWindow provides full support for VLAN tagged traffic alongside real-time decoding and analysis of IPv6 traffic.

Internet Group Management Protocol

Multicast technologies support a new wave of growing network applications such as web conferencing and the streaming of live events. These applications require complex multicast features in communication devices.



SmartWindow test setup screens

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With SmartWindow, network operators can rapidly deliver new multicast services to customers by quickly qualifying the forwarding, throughput, latency, group capacity, and overhead associated with network elements in a mixed multicast and unicast environment. Equipment providers can ensure that their hardware and applications deliver the kind of performance required in this expanding segment. With SmartWindow, IGMP v1/v2/v3 can all be configured using a single integrated interface, providing a comprehensive test environment and saving test setup and execution time. SmartWindow features comprehensive IGMP-specific reporting capabilities, including dedicated rate and event counters. You can use the application to create 20,000 multicast groups per port. When testing IGMPv3, each group can maintain a source filter list of 100 hosts, allowing you to test your device's ability to juggle up to 2 million source filters.

IP Quality of Service

IP QoS is increasingly used to manage bandwidth and implement service level agreements in public and private networks. Using SmartWindow, you can qualify your device's ability to differentiate and manage traffic classes so you can compete in this growth market. SmartWindow allows you to analyze the DUT's ability to handle different traffic priorities simultaneously. You can set the class of service (CoS) for each stream and measure its throughput, latency, and other key performance metrics. SmartWindow offers an extensive set of dedicated CoS counters. IPv4 and IPv6 CoS metrics are aggregated, providing a comprehensive view of QoS on your IP network. There is simultaneous display of Traffic Class/TOS/Raw bits or DSCP/TOS/Raw bits. There are separate IPv6 Traffic Class/DiffServ and IPv4 TOS/DiffServ transmit presentations. The user can set the traffic class or DSCP value and the DiffServ or TOS value is set automatically. The interface is simple to configure, allowing you to lower the time and cost to test IP QoS.

10 GbE

With 1 GbE NICs now available on home computers, 10 GbE is quickly becoming the next step for service providers, equipment manufacturers, and enterprises. Spirent is a leader in 10 GbE testing. SmartWindow supports the entire line of SmartBits 10 GbE modules, including LAN and WAN configurations. There are numerous transceivers available, including XENPAK (LAN and WAN), the CX-4 copper transceiver, and more. With SmartWindow, you can test 1G and 10G devices end-to-end, test 10G uplink and trunk ports, and test the device's ability to aggregate many 1G feeders into a 10G backbone (both Ethernet and POS) where performance is critical.

VLAN Tags

VLANs play an increasingly important role for bandwidth management in enterprise LANs, metropolitan networks, and with services supplied by network operators. You can use SmartWindow to confirm proper handling of VLAN tags, as well as to test a device's throughput and latency. SmartWindow supports 802.1p, 802.2q, and 802.3ac VLAN tagged frames and provides automated mechanisms to simplify and accelerate testing in the presence of VLAN tags. This support crosses the SmartBits product line and includes traffic up to 10Gbps as well as traffic generated for IPv6 and IGMP-based streams. Within each stream, you can create flows with different VIDs, CFIs, or PRIs. Dedicated counters display the number of frames received with each of the eight VLAN priorities.

SmartMetrics™ Test Functions

Using SmartWindow, you can directly access the SmartMetrics testing features embedded on many SmartBits modules. Stream-based SmartMetrics tests include:

- Latency per stream
- Latency per port over time
- Latency distribution per stream
- Raw packet tags
- Frame variation per stream
- Sequence tracking
- Sequence tracking plus latency

Smart Counters

SmartWindow features a large variety of 64-bit counters that are essential for high-speed and long-duration tests. The application includes specific counters for IPv4, IPv6, stream latency, VLAN tagging, IGMP, Class of Service, Data Integrity, MPLS, and Fibre Channel, to name a few. These counters, updated in real time, lower your time to test. They allow you to quickly analyze how your DUT is performing in the test environment and to document device performance in terms of rates and events. SmartWindow allows you to set up counter spreadsheets and to customize them to display any combination of ports and counters. Users can set up cells that perform math computations to calculate values such as packet loss or the number of frames transmitted or received from a group of ports. You can also set up and run multiple spreadsheets simultaneously.

Capture

Using the SmartBits test modules, you can quickly analyze unique events by capturing the affected data and examining each frame or packet. The capture buffer supports over 40,000 frames. You can capture frames as large as 16K bytes. You can capture data on multiple ports, examine the data with SmartWindow's decoder, or use SmartWindow's integration with ClearSight™, Ethereal™, Observer™, or Sniffer™.

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Requirements

- A SmartBits 200/2000 or SmartBits 600x/6000x chassis equipped with the appropriate SmartBits modules.
- An IBM or compatible Pentium™ III PC (at least 750Mhz) with 1G of RAM running Microsoft Windows 2000, Microsoft Windows XP, or Microsoft Windows NT, with mouse and SVGA color monitor that supports at least 1024 x 768.

Ordering Information

SmartWindow is included with each SmartBits chassis.

Spirent Communications offers a variety of ServiceEdge™ maintenance, support and training packages. For more information, visit the Spirent website at www.spirentcom.com or contact your Spirent sales representative.

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