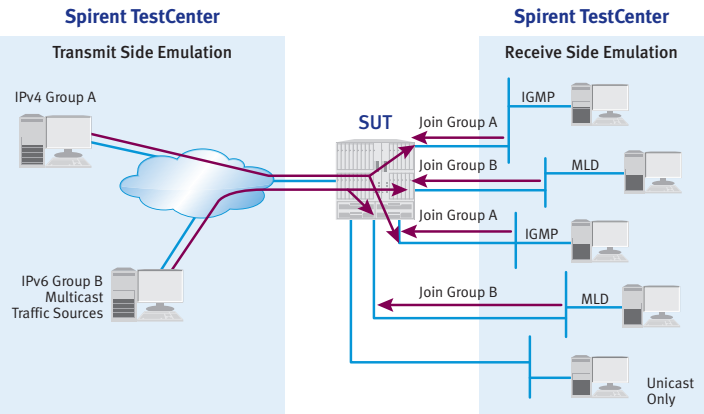
SPIRENT TESTCENTER

IGMP/MLD HOST IP MULTICAST BASE PACKAGE

Convergence is creating a new generation of integrated network devices and services that are much more complex than ever before. The resulting increased complexity, scarcity of testing skills and architectural shortcomings in current test systems are hurting the ability of manufacturers to ship products on time at escalating quality levels and slowing service providers' ability to deploy networks that get Quality of Experience (QoE) right the first time.

INCREASE PRODUCTIVITY: GET THERE FASTER WITH SPIRENT TESTCENTER

- Traffic wizards make it easy to set up unicast, multicast, IPv4 and IPv6 streams
- Support for IGMP over all supported Layer 2 encapsulations including VLAN, Q-in-Q, PPPoE and GRE
- IGMP/MLD Host Generator wizard quickly builds thousands of emulated hosts
- Interactive feature allows functional and negative testing including group report and leave messages
- Support for bi-directional control-plane capture and integrated support for optional real-time decoder (BPK-1029A) enables deep functional troubleshooting
- Concurrent operation with unicast and multicast routing protocols enables multicast edge router evaluation
- Mixed traffic types for analysis of cross-impact of multicast traffic on unicast-only performance



Spirent can help you address this challenge with Spirent TestCenter™ 2.0 with its innovative Inspire Architecture™. Now you can create and execute more complex test cases in less time with the same resources—and scale tests higher while debugging problems faster. The results: lower CAPEX and OPEX, faster time to market, greater market share and higher profitability.

The IGMP/MLD Host IP Multicast Base Package is a Spirent TestCenter component that helps service providers, large enterprises and network equipment manufacturers to quickly evaluate and troubleshoot host-to-router multicast behavior and the performance of networks and networking devices. This package includes the emulation of multicast registration protocols including IGMPv1/v2/v3, MLDv1/v2 and IGMP/MLD Querier (router emulation).

Because it is an integrated component of Spirent TestCenter, this package can work together with other Spirent TestCenter components to deliver easy, consistent TCL support for all key metropolitan and enterprise protocols including spanning tree, VLAN, DHCP, QoS, IPv4/IPv6 and routing. Spirent TestCenter also provides optional RFC-based benchmarking methodologies for Layer 2 and Layer 3.

IGMP/MLD HOST IP MULTICAST BASE PACKAGE

Detailed join/leave results measurements per host

Results Browser

Host Protocols > IGMP Results | Change Result View

Port Name	Host Name	Min. Join Latency (msec)	Max. Join Latency (msec)	Avg. Join Latency (msec)	Min. Leave Latency (msec)	Max. Leave Latency (msec)	Avg. Leave Latency (msec)
Port //12/1	Host 1	8.15704	8.15704	8.15704	2328.96137	2328.96137	2328.96137
Port //12/2	Host 2	11.87508	11.87508	11.87508	2181.93823	2181.93823	2181.93823
Port //12/3	Host 3	22.70637	22.70637	22.70637	2840.28994	2840.28994	2840.28994

Results Browser | Validation Errors | Log - 223 messages

APPLICATIONS

Spirent TestCenter customers use the IGMP/MLD Host IP Multicast Base Package to emulate multicast registration and traffic across an enterprise switch, edge router or network under test. The package assists with the evaluation of key functional parameters of switches and routers combining multicast traffic with QoS, routing and data forwarding.

Users evaluate key performance parameters of switches and routers under typical or extreme multicast traffic load conditions for minutes, hours or days. They can verify the ability of switches and routers to manage users joining and leaving multicast groups over extended periods, and perform comparative analysis of switches and routers with multicast traffic.

- Emulate thousands of multicast hosts per port
- Perform Join/Leave latency testing

BENEFITS

- Increase productivity: Reduce the multicast testing learning curve with an easy-to-use GUI complete with configurable views for setup and results with GUI to script support (TCL)
- Reduce time to test: GUI tools and traffic wizard allow quick setup, and automatic report generation saves time in results presentation
- Improve product/service reliability: Quickly and economically evaluate a very large number of groups and hosts to find issues with multicast and existing unicast behavior in the lab before a service is deployed
- Real-world network emulation: Emulate multiple protocols and schedule real-time protocol events; advanced support of IGMPv3 and MLDv2 enables users to test multicast with the additional complexities and benefits of source filtering for wide-scale multicast deployment

TECHNICAL SPECIFICATIONS

IGMP/MLD Emulation Features

- IGMP (IPv4) versions 1, 2, and 3
- MLD (IPv6) versions 1 and 2
- Up to 8,192 multicast hosts per port
- Join up to 20,000 groups per port
- Issue IGMP/MLD report and leave messages interactively or via the Command Sequencer
- Configurable maximum rate of IGMP/MLD messages per port
- Include and Exclude filters (for IGMPv3 and MLDv2)
- Force Robust Join (For IGMPv1/v2 and MLDv1)
- Robustness variable (for IGMPv3 and MLDv2)
- True stack based implementation will reply to IGMP/MLD membership queries
- Insert Checksum errors for negative testing
- Insert Length Errors for negative testing
- Configurable IPv4 Do Not Fragment (DF bit)

IGMP/MLD Querier Emulation Features

- True stack based implementation realistically emulates routers while testing Layer 2 IGMP/MLD snooping
- IGMP (IPv4) versions 1, 2, and 3
- MLD (IPv6) versions 1 and 2
- Up to 200 emulated routers per port sending queries for each group
- Realistic all groups query and group specific query messages
- Configurable query interval and response interval
- Start/Stop each querier interactively or via Command Sequencer

KEY MEASUREMENTS

IGMP/MLD Per Port Real-time and Final Results

- TX/RX Frames
- TX/RX Reports (all versions)
- TX IGMPv3/MLDv2 Mode Is Include/Mode Is Exclude
- TX IGMPv3/MLDv2 Change to Include Mode/Change to Exclude Mode
- TX IGMPv3/MLDv2 Allow New/Block Old Sources
- TX MLD Stop Listen Groups
- TX/RX Queries (all versions)
- TX/RX General Queries
- TX/RX Group Specific Queries
- TX/RX Group and Source Specific Queries
- RX Unknown Types
- RX Checksum Errors
- RX Length Errors

IGMP/MLD Per Host Real Time and Final Results

- Multicast Version
- RX Unknown Types
- RX IGMP/MLD Checksum Errors
- RX IGMP/MLD Length Errors
- Min./Max./Ave. Join Latency (ms)
- Min./Max./Ave. Leave Latency (ms)

IGMP/MLD Per Host-Group Real Time and Final Results

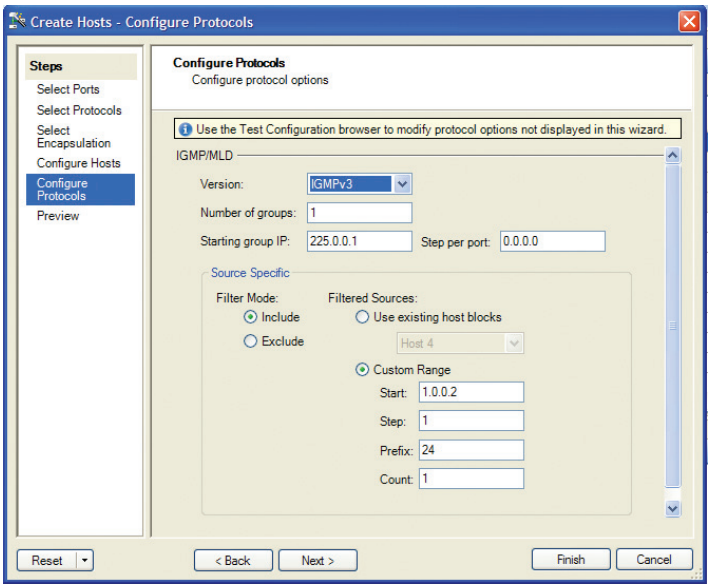
- Host/Group Address
- Session state
- State Change Timestamp
- Join Timestamp
- Leave Timestamp
- Join/Leave latency measurements

IGMP/MLD Per Router Real-time and Final Results

- Multicast Version
- TX/RX Frames
- RX Unknown Types
- RX IGMP/MLD Checksum Errors
- RX IGMP/MLD Length Errors

RELATED STANDARDS

- RFC 1112—Host Extensions for IP Multicasting
- RFC 2236—Internet Group Management Protocol, Version 2
- RFC 3376—Internet Group Management Protocol, Version 3
- RFC 2710—Multicast Listener Discovery (MLD) for IPv6
- RFC 3810—Multicast Listener Discovery Version 2 (MLDv2) for IPv6



Multicast host configuration wizard

SUPPORTED MODULES

Series 2000 modules provide higher performance than Series 1000 modules; contact your Spirent representative for details.

BPK-1003A/B supports all Spirent TestCenter test modules and personality cards.

REQUIREMENTS

- Pentium® or greater PC running Windows® XP Professional SP2 with mouse/color monitor required for GUI operation. See Minimum PC Requirements section.
- One Ethernet cable and one 10/100/1000 Mbps Ethernet card installed in the PC
- A SPT-2000A Spirent 2U Chassis and Controller, SPT-5000A Spirent 5U Chassis and Controller or SPT-9000A Spirent 9U Chassis and Controller
- Operating system languages supported: English, French, German, Italian, Japanese, Korean, and Chinese (traditional and simplified)

MINIMUM PC REQUIREMENTS

- Small Port System: 1-25 ports
  - 2.4GHz Pentium 4 or equivalent with 512MB of free RAM and 10GB of free disk
- Medium Port System: 26-75 ports
  - 3GHz Pentium 4 or equivalent with 2GB of RAM and 15GB of free disk space
- Large Port (75+ ports)
  - E6400 Intel® Core™ 2 Duo or equivalent with 3GB of RAM and 100GB of free disk space

ORDERING INFORMATION

Part numbers ending in "A" indicate the standard performance version; those ending in "B" indicate the high performance version.

ORDERING INFORMATION	
Description	**Part Number**
Base Package A—Supports up to 4,096 Hosts Per Port joining up to 20,000 groups per port, supports 10 emulated queriers per port	IGMP/MLD Host IP Multicast BPK-1003A
Base Package B—Supports up to 8,192 Hosts Per Port joining up to 20,000 groups per port, supports 200 emulated queriers per port	IGMP/MLD Host IP Multicast BPK-1003B
Related Spirent TestCenter Software	
Packet Generator and Analyzer	BPK-1001A/B* Base Package
Multicast Routing Base Package	BPK-1005A/B
Unicast Routing Base Package	BPK-1004A/B
Spirent TestCenter Enhanced	BPK-1029A Capture and Decode Base Package

* Indicates a required package

SPIRENT GLOBAL SERVICES

Spirent Global Services optimizes your productivity with Spirent TestCenter over a broad range of technologies:

Professional Services

- Test lab optimization: Test automation engineering services
- Service deployment and service-level optimization: Vendor acceptance testing, SLA benchmarking, infrastructure and security validation
- Device scalability optimization: POC high-scalability validation testing

Education Services

- Web-based training: 24 x 7 hardware and software training
- Instructor-led training: Hands-on methodology and product training
- Certifications: SCPA and SCPE certifications

Implementation Services

- Optimized new customer productivity with up to three days of on-site assistance

Visit www.spirent.com/gs or contact your Spirent sales representative.

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