



# Spirent TestCenter PPPoX Base Package

## Product Overview

Triple Play—a converged infrastructure for voice, video and data traffic—is attracting millions of new subscribers each quarter. Service providers are competing to capture their share of this growth market, as subscribers seek the cost savings and feature benefits of Triple Play. The protocol used to help facilitate communication between a subscriber and the service provider is PPP (Point-to-Point Protocol). PPP's low overhead and simplicity make it easy to deploy and manage while minimizing its impact on bandwidth.

The rapid deployment of Triple Play makes effective system testing a critical requirement. Service providers must quickly and accurately predict the impact on their networks of intense growth in subscriber numbers. They need to verify that an equipment manufacturer's solution will perform to advertised service level agreements—information that is also critical to the equipment manufacturer's business.

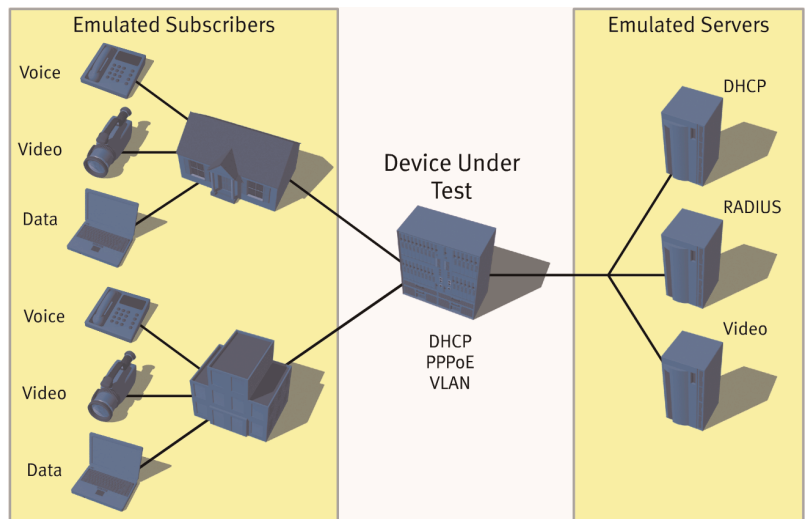
The PPPoX Base Package helps service providers and network equipment manufacturers validate subscriber scalability in an unmatched port density solution. This integrated component of the Spirent TestCenter simplifies large-scale test configurations to identify issues involving equipment selection, setting competitive service level agreements and planning growth with confidence. Service providers use the PPPoX Base Package to determine the correct amount of equipment necessary for their customers' needs—avoiding over- and under-deployment.

## Applications

Spirent TestCenter customers use the PPPoX Base Package to emulate thousands of subscribers using different services across multiple ports. The package helps them to determine QoS per subscriber at different subscriber capacities and to determine capacity at a set QoS bandwidth. It can simulate typical or extreme subscriber traffic load conditions for minutes, hours or

days, and evaluate key performance parameters of Ethernet aggregation devices under controlled conditions.

Customers can use the package with DHCP to simulate IP address assignment for multimedia gateways while using PPPoX for Internet. It can be used with IGMP to simulate IPTV (set-top boxes), in PPPoX server mode to test Layer 2 DSLAM type devices, or to emulate and terminate PPPoX subscribers through a DSLAM or other Layer 2 PPP device.



## GET IT DONE FASTER WITH Spirent TestCenter

- Create traffic patterns to test Triple Play
- Set QoS settings for subscribers
- Simulate up to 16K subscribers per port
- Save rack space with up to 8 ports per module and 12 modules per chassis
- Use interactive session flapping for real-time troubleshooting
- Analyze detailed results in real time, or export to HTML or CSV
- Use PPPoX server mode to test Layer 2 DSLAM type devices
- Use IP multicast for enhanced realism

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## Benefits

- **Increased testing capacity**—With the highest port density and subscriber per port emulation, the PPPoX base package can accomplish more in less lab space
- **Reduced test time**—The flapping wizard sets up flapping tests quickly and easily to validate system performance in realistic unstable environments rather than an environment optimized for pure performance. Many device faults, such as memory leaks in control processors and poor login time, will only be visible under dynamic testing conditions
- **Detailed analysis**—Data plane analysis down to the subscriber (1 stream per service per subscriber). This is essential in quickly identifying and resolving intermittent performance issues that occur in only a small number of subscribers when supporting thousands of subscribers

## Key Features

- 16K subscribers per port with up to eight ports per test module
- 128K subscribers per test module
- 1,536K subscribers per chassis
- PPPoX server and client mode
- Detailed analysis: up stream, down stream and peer-to-peer analysis per subscriber or port
- Interactive feature allows functional and negative testing including connecting and disconnecting groups of subscribers
- Integrated protocol counters allows user to track protocol messaging
- Real-time event log allows user to view protocol messaging on a per-port basis
- Easily create large-scale tests with features such as duplicate and copy/paste

- A flap scheduler provides integrated control plane connect and disconnect and data plane events, allowing users to view the result of a control plane event graphically in real time
- Integrated capture feature allows users to capture and decode control plane and data plane traffic, enabling deep functional troubleshooting

## Test Results

The PPPoX base package provides both real-time and end-of-test results using spreadsheets and graphical formats. These results can be exported in comma separated value (.CSV) file format or HTML for spreadsheet or browser-based analysis and reporting.

Select from several methods for tracking data plane traffic. Tracking options include PPP session ID, VLAN and QoS value. Display real time results per session block with session counters, message counters, failed sessions and rates.

## Technical Specifications

### Configurable options include

- Session quantity
- Mode: server/client
- Session attempt rate
- Session disconnect rate
- Sessions per VLAN
- Start and step MAC address
- Authentication - auto, CHAP, PAP or none
- Unique login, domain and passwords
- Service name
- Magic number
- MRU size
- ACCM value

Number of Sessions

All Ports: 43250 sessions

Port /	Session Block	# of Sessions	# of Clients	Sessions per VLAN	Authentication	VLAN ID Start	VLAN ID Step	User Priority	MAC Start	MAC Step	IPCP Enable
Honolulu 6B-1											
	sub1	1000	1000	1	< None >	1	1	0	00-10-94-01-00-01	00-00-00-00-00-01	IPCPv4
	sub2	1000	1000	1	Auto;Include CH...	1	1	0	00-10-95-01-00-01	00-00-00-00-00-01	IPCPv4
		2000									
Honolulu 6B-2											
	sub1	1000	1000	1	PAP;Include CHA...	1	1	0	00-10-96-01-00-01	00-00-00-00-00-01	IPCPv4
	sub2	2000	1000	2	CHAP;Include CH...	2	2	1	00-10-97-01-00-01	00-00-00-00-00-01	IPCPv4
		3000									
Honolulu 6B-3											
	sub1	1000	1000	1	< None >	1	1	0	00-10-98-01-00-01	00-00-00-00-00-01	IPCPv4
	sub2	1000	1000	1	Auto;Exclude CH...	1	1	0	00-10-99-01-00-01	00-00-00-00-00-01	IPCPv4
		2000									
Honolulu 6B-4											
	sub1	4000	1000	4	CHAP;Exclude C...	3	3	2	00-10-9A-01-00-01	00-00-00-00-00-01	IPCPv4
	sub2	5000	1000	5	PAP;Exclude CH...	4	4	3	00-10-9B-01-00-01	00-00-00-00-00-01	IPCPv4
		9000									
Honolulu 6B-5											
	sub1	1000	1000	1	< None >	1	1	0	00-10-9C-01-00-01	00-00-00-00-00-01	IPCPv6
	sub2	1000	1000	1	< None >	1	1	0	00-10-9D-01-00-01	00-00-00-00-00-01	IPCPv6
		2000									
Honolulu 6B-6											
	sub1	8000	1000	8	Auto;Include CH...	5	5	4	00-10-9E-01-00-01	00-00-00-00-00-01	IPCPv6
	sub2	5000	500	10	Auto;Include CH...	6	6	5	00-10-9F-01-00-01	00-00-00-00-00-01	IPCPv6

- Configure request and timeout
- Terminate request and timeout
- Responds to keep-alives
- IPv4-CP or IPv6 CP

**Flap events include**

- PPPoX connect
- PPPoX disconnect
- PPPoX\_WaitForConnect-Ports

**Interactive actions include**

- Connect
- Disconnect
- Pause
- Resume
- Retry
- Abort
- Start server mode

**Data plane configuration**

- Duration: seconds, packet burst, or continuous
- Load options: %bandwidth of port, frames per second, Mbps, Kbps, bps
- Frame size: individually set, fixed, random, step, custom step list
- Load: individually set, fixed, random, step, custom step list

**RFCs Supported**

- RFC 1332 IP CP
- RFC 1334 PAP Authentication
- RFC 1570 LCP Extensions
- RFC 1661 PPP
- RFC 1662 PPP in HDLC (information on ACCM)
- RFC 1994 CHAP
- RFC 2472 IPv6 over PPP
- RFC 2516 PPP over Ethernet
- IEEE 802.1 (.p/.q)VLAN tagging

**Supported Modules**

Module	Description
CPR-1001A	10/100/1000 Copper RJ-45, 8 Port
EDM-1001A	10/100/1000 Dual Media, 4 Port
FBR-1001A	1G Fiber SFP, 8 Port
XFP-1001A	10G XFP, 1 Port
CPR-2001A	10/100/1000 Copper RJ-45, 8 Port
EDM-2001A	10/100/1000 Dual Media, 4 Port
FBR-2001A	1G Fiber SFP, 8 Port
CPR-2002A	10/100 Copper RJ-45, 8 Port
XFP-2001A	10G XFP, 1 Port

**Requirements**

- An SPT-2000A Spirent 2U chassis and controller or SPT-5000A Spirent 5U chassis and controller with the appropriate hardware modules
- Pentium™ or greater PC running Windows® 2000 SP4 or XP SP1/1A/2 with mouse/color monitor required for GUI operation

**Ordering Information**

- BPK-1007A** PPPoX Base Package A
- BPK-1007B** PPPoX Base Package B

BPK-1007A is a performance-limited version, available at lower cost. BPK-1007B, the full-performance version, should be used with Series 2000 test modules.

**Other related Spirent TestCenter software**

- BPK-1003A** IGMP/MLD Host IP Multicast Base Package
- BPK-1008A** DHCP Base Package A
- BPK-1008B** DHCP Base Package B
- SPK-0003B** Ethernet Access Concentrator Test Solution B

**Spirent Global Services**

Spirent Global Services provides a variety of professional services, support services, and education services — all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services website at [www.spirentcom.com/gs](http://www.spirentcom.com/gs) or contact your Spirent sales representative.

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