SPIRENT TESTCENTER

DHCP 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.
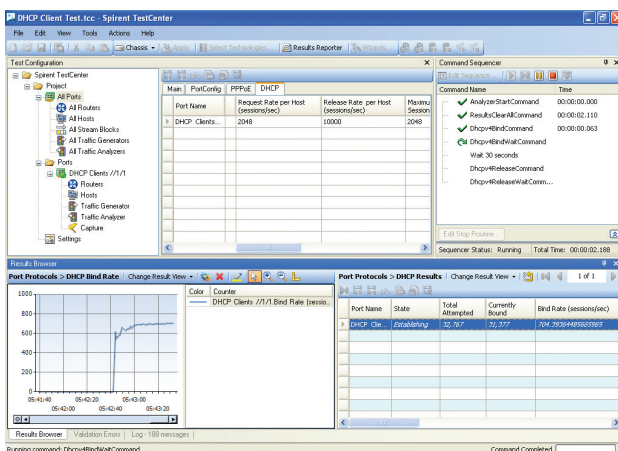
INCREASE PRODUCTIVITY: GET THERE FASTER WITH SPIRENT TESTCENTER™

- Create traffic patterns to test Triple Play
- Set VLAN and QoS settings for subscribers
- Simulate up to 32K subscribers per port
- Powerful command sequencer enables realistic scenarios and session flapping
- Analyze and chart detailed results in real time or export to HTML or PDF
- Create and customize options with the DHCP option editor
- Use DHCP server mode to test access concentrators and relay agents
- Use IP multicast for enhanced realism
- Combine with other Spirent TestCenter base packages

Spirent can help you address this challenge with Spirent TestCenter 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 Spirent TestCenter DHCP Base Package enables service providers and network equipment manufacturers to quickly test the scalability and performance of access networks, DHCP servers and relay agents.

Allocation of IP addresses is critical in any network design. The most common method used for issuing IP addresses is through Dynamic Host Configuration Protocol (DHCP). When rolling out next generation access networks and services, many service providers are moving to DHCP for address assignment. Combining authentication and other security measures with DHCP simplifies the provisioning of services like VoIP and IPTV with minimal overhead. To ensure devices like residential gateways, relay agents and DHCP servers are working correctly, network equipment manufacturers and service providers must test their performance and functionality.

DHCP BASE PACKAGE

Spirent's DHCP Base Package helps service providers and network equipment manufacturers validate subscriber scalability with unmatched port density. 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 DHCP Base Package to determine the correct amount of equipment necessary for meeting their customers' needs—avoiding over- and under-deployment.

APPLICATIONS

Spirent TestCenter customers use the DHCP Base Package to emulate thousands of clients and servers using different services across multiple ports. The package helps 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. For Triple Play testing, this package supports testing of multiple services per subscriber.

BENEFITS

- **Enhanced realism:** Real world scenarios have devices being issued an IP address via DHCP before upper layer protocols such as IGMP are used

- Fault analysis
  - **IP duplication:** Help determine impact when multiple users have the same IP address

  - **Address table management:** Help determine the effect when there are no available IP addresses and additional users need to connect

- **Detailed analysis:** Data plane analysis down to the client, server, service and stream. This is essential in quickly identifying and resolving intermittent performance issues that occur in only a small number of subscribers

- **Scalable tests:** Both client and server modes scale to 32k subscribers. Host blocks allow rapid configuration of subscribers with like attributes greatly reducing configuration effort.

- **Reduced test time:** Set up flapping test with clients connecting (acquire) and disconnecting (release) to validate system performance in realistic, unstable environments rather than an environment optimized for pure performance. Many of the device faults, such as memory leaks in control processors and poor login time, will only be visible under dynamic testing conditions.

KEY FEATURES

- 32K subscribers per port with up to 12 ports per test module
- Over 4 million subscribers per chassis
- Up to 1024 emulated servers
- Detailed analysis: upstream, downstream 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 allow user to track protocol messaging
- Real-time results and charting
- Custom DHCP option editor
- Duplicate and copy/paste feature allows quick setup of many host blocks
- A command sequencer 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 user to capture and decode control plane and data plane enabling deep functional troubleshooting

TEST RESULTS

The DHCP Base package provides both real-time and end-of-test results using spreadsheets and graphical formats. These results can be exported in Adobe PDF file format or HTML for spreadsheet or browser-based analysis and reporting. You can select from several methods for tracking data plane traffic. Tracking options include Session ID, VLAN and QoS value.

The DHCP Base Package will display real time results per session block with session counters, message counters, failed sessions and rates.

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TECHNICAL SPECIFICATIONS

Client/Server Configurable Options Include

- Bind/Renew rate
- Release rate
- Number subscribers
- VLAN ID
- VLAN priority
- VLAN subscriber count
- Host name with variables
- Option 82—relay agent
  - Local IP
  - Server IP
  - Enable circuit ID
  - Circuit ID

Client Specific Configurable Options

- DHCP Transaction ID
- Option 55—request list
  - Subnet mask (1)
  - Routers (3)
  - Domain name servers (6)
  - Domain name (15)
  - Static routes (33)
  - NetBIOS name servers (44)
  - NetBIOS node type (46)
  - NetBIOS scope (47)
  - IP address lease time (51)
  - Server Identifier (54)
  - Renewal time (58)
  - Rebinding time (59)
- Option 82—relay agent
  - Local IP
  - Server IP
  - Enable circuit ID
  - Circuit ID
- Enable remote ID
  - Remote ID
  - MAC address

- Per test options
- Suggested lease time
- Message timeout
- Number of retries
- Maximum DHCP message size

Server Specific Configurable Options

- Lease Time
- Renewal Time
- Rebinding Time
- Min Allowed Lease Time
- Decline Reserve Time
- Offer Reserve Time
- Server Host Name
- Pool Address Start/Step
- Pool Address Count
- Router List
- Domain List
- Domain Server List
- Relay Agent Address Pools

Flap Events Include

- DHCP abort
- DHCP bind
- DHCP renew
- DHCP release
- DHCP session info

Interactive Actions Include

- Bind
- Renew
- Release
- Start Server
- Stop Server
- Abort

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

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DHCP BASE PACKAGE

RFCS SUPPORTED

- RFC 2131 DHCP
- RFC 2132 DHCP Options
- IEEE 802.1 (.p/.q) VLAN tagging

SUPPORTED MODULES

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

BPK-1077A/B supports all Spirent TestCenter test modules and personality cards. BPK-1077B should be used with Series 2000 test modules.

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	
Product	Part Number
DHCP Base Package A	BPK-1077A
DHCP Base Package B	BPK-1077B
Related Spirent TestCenter Software	
IGMP/MLD Host IP Multicast Base Package	BPK-1003A
L2TPv2 Base Package B	BPK-1012B
PPPoX Base Package A	BPK-1007A
PPPoX Base Package B	BPK-1007B
ANCP Base Package B	BPK-1078B
IPTV Test Package A	TPK-1002A
IPTV Test Package B	TPK-1002B
Ethernet Access Concentrator Test Solution B	SPK-0003
BRAS Test Solution B	SPK-1033

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 highscalability 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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