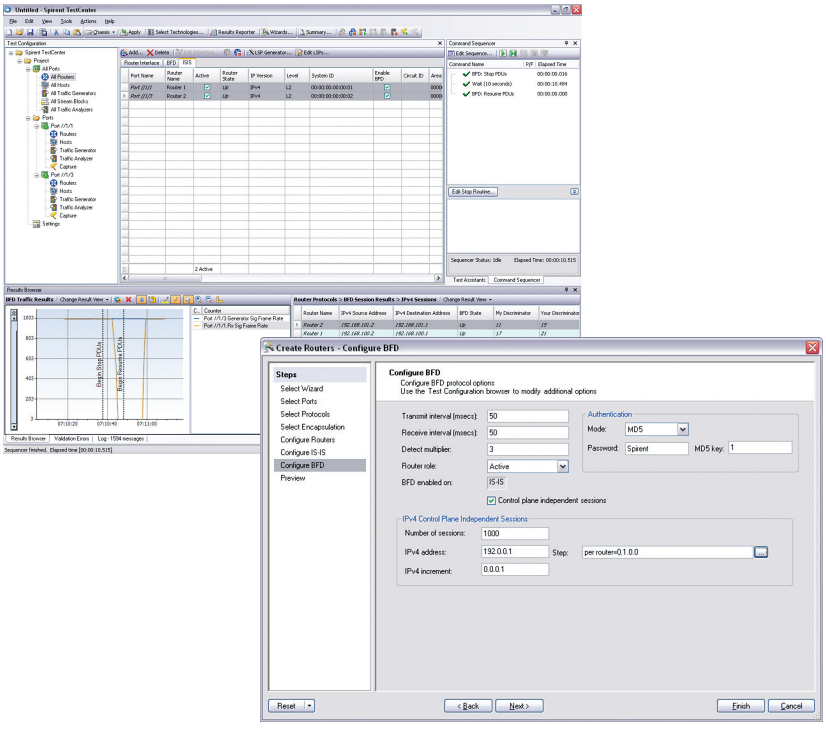
TestCenter™

Bidirectional Forwarding Detection Base Package

VIAVI TestCenter's Protocol Dependent BFD protocol emulation works with other routing protocols to communicate link and protocol state transitions. This allows network testers to view protocol performance during network events such as protocol, route, link flap events or network over-subscription. Protocol dependent BFD configuration is automatic with single-click activation.

In Control Plane Independent mode, static BFD sessions can be created independent of routing sessions for static or policy routing functional protocol testing, and protocol scale testing. Static sessions are configured in blocks and optionally learn discriminator values.

The BFD Base Package is also integrated with other Unicast and MPLS protocol base packages high-availability protocols like Graceful Restart to provide realistic protocol emulation for network failover test.



Bidirectional Forwarding Detection Base Package Configuration

TestCenter Bidirectional Forwarding Detection (BFD) Base Package is the industry's most complete protocol test solution, helping NEM and service provider testers evaluate the performance of BFD-enabled network devices by emulating the BFD protocol and its interaction with control-plane routing protocols and data-plane traffic or in control plane independent mode for static testing.

Applications

- Stress test BFD-enabled device forwarding performance and scalability while running routing protocols with BFD, and data-plane traffic
- Verify BFD protocol functionality with key Unicast and MPLS protocols in realistic network topologies and traffic
- Simulate high availability network topologies to test new network designs prior to implementation
- Qualifying new code for network devices prior to implementation with long-term, protocol testing

Features & Benefits

- Quick and easy to use integrated wizards support all Unicast and MPLS routing protocols
- Support for IPv4 and IPv6 protocols over a variety of interface encapsulations
- Support for all Unicast and MPLS routing protocols
- Integrated with graceful restart; allows for advanced convergence testing
- Interactive commands and results test timers, flag values and diagnostic codes lets users test scalability and protocol functionality in the same test
- Support for Ethernet, ATM, and SONET media types and all associated encapsulations allows testing over any media type or encapsulation supported by TestCenter
- Support for up to 400 BFD sessions on 1 port at 3.33 ms transmit interval

Technical Specifications

- Integrated wizards support all Unicast and MPLS routing protocols
- Support for IPv4 and IPv6 or dual stack
- Multiple sessions per router
- RIPv1, RIPv2 and RIPng
- OSPFv2 and OSPFv3
- IS-IS
- BGP4, MP-BGP (single and multi-hop)
- LDP and RSVP-TE
- Integrated with Graceful Restart for high availability and convergence testing
- Simple and MD-5 authentication
- Active/passive mode
- Asynchronous or demand mode with interactive polling
- Integrated packet generator/analyzer uses BFD frame templates which allow you to send custom BFD messages modifying any field in the header for functional testing.
- Configurable timers include: Transmit Interval, Receive Interval, Echo Receive Interval and Detect Multiplier
- BFD echo configuration, echo response and results
- Real-time capture of BFD and other routing protocol packets
- Support for Ethernet, 10-Gigabit Ethernet, VLANs, Stacked VLANs (Q-in-Q), POS (SONET or SDH) with HDLC or PPP encapsulation, GRE and L2TP tunneling
- Send interactive diagnostic codes: No Diagnostic, Control Detection, Time Expired, Echo Function Failed, Neighbor Signaled Session Down, Forwarding Plane Reset, Path Down, Concatenated Path Down, Admin Down and Reverse Concatenated Path Down
- Two BFD test modes: Control Plane Independent and Protocol Dependent test static or fate-driven BFD sessions
- BFD Event Logging displays Detailed BFD States including: Admin Down, Down, Init and Up
- Displays PFCADM flag bit results
- Control plane independent session settings include: Source and Destination IPv4 Address, Source and Destination IPv6 Address, Number of Sessions, Increment (in IP format), Enable My Discriminator, My Discriminator and My Discriminator Increment
- Interactive commands per BFD router or per routing protocol

Technical Specifications Cont.

- Interactive commands include: Start and Stop Control Plane Independent BFD, Admin Up, Admin Down, Enable Demand Mode, Disable Demand Mode, Initiate Poll, Stop PDUs, Start PDUs and Set Diagnostic State
- Command sequencer support for all interactive commands including support for sequence loops to create repetitive stress tests
- Activate, deactivate, and reactivate BFD routers and control-plane independent sessions to build scalability tests that add objects over time
- Per-router results counters including: Router Name, BFD Sessions Up, BFD Sessions Down and TX/RX BFD packets
- Per-session results counters including: Router Name, IPv4 or IPv6 Source Address, IPv4 or IPv6 Destination Address, BFD State (Up, Init, Down, and Admin Down), My Discriminator, Your Discriminator, BFD Diagnostic Code, BFD Control Bits (PFCADM), Transmit Count, Receive Count, Transmit Interval, Received Desired Minimum Receive Interval, Received Required Minimum Echo Receive Interval
- Summarized protocol session statistics per test, port and router including: BFD Up, BFD Down, Up Count, Init Count, Down Count and Admin Down Count
- Min detect time: 10 ms
- Min transmit time: 10 ms
- Two modes of operations supported—Normal mode and GenTx mode. For high scale operations, BFD must run in GenTx mode to support 3.3 or 10 ms intervals on 100s of BFD sessions on 1 port

Supported Modules/Platforms

- Supports all current TestCenter platforms
- BPK-1004A/B required for Unicast protocol testing
- BPK-1006A/B required for MPLS protocol testing
- BPK-1001A/B required for packet generator/analyzer features

Ordering Information

- Bidirectional Forwarding Detection (BFD) Base Package A: BPK-1066A

Related Standards

- Draft-ietf-bfd-base-06.txt—Describes basic BFD operation
- Draft-ietf-bfd-generic-03.txt—Describes BFD application
- Draft-ietf-bfd-v4v6-1hop-06.txt—Describes BFD operation for single hop protocols
- Draft-ietf-bfd-multihop-05.txt—Describes BFD operation for multihop protocols

VIAVI

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