

Spirent Communications

Spirent TestCenter Software and Hardware New Features 5.08

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New Products and Features

Software Features

Multi-home Support in VXLAN IPv6 Underlay Wizard

In Spirent TestCenter release 5.08, the VXLAN EVPN Overlay wizard now supports multi-home options in VXLAN IPv6 underlay configurations. Users can configure multi-homed VTEPs with IPv6 addresses from the wizard. All existing multi-homing options for IPv4 VTEPs are also available for IPv6 VTEPs, and behavior remains the same.

- Within Port: Multi-homed VTEP devices are configured within the same VXLAN port.
- Across VLANs: VTEP configuration created on the first VLAN is duplicated across other VLANs in the same port.
- Across Ports: VTEP configuration created on the first port is duplicated across other ports selected in the VXLAN ports page.

Configure Multi-homed IPv6 VTEPs

vBRAS Support in VXLAN-GPE

Spirent TestCenter now supports vBRAS as the next protocol in VXLAN-GPE tunnel. vBRAS options can be configured in a VXLAN-GPE link. Ethernet, IPv4, and IPv6 are the available protocol types in vBRAS configurations. This new vBRAS option replaces the next protocol option, vBNG, as per the latest standard.

Source Device	Destination Device	Link Count	VNI	Peer Vtep IP Address	Next Protocol	vBRAS Protocol Type	Port Type	VRF ID	VRF Count	Slot ID	Subslot ID	Port ID	Logic ID	Slot Count	Subslot Count	Port Count	Logic Count
VTEP2-PCI...	VTEP2	24	200	1.0.0.1	vBRAS	IPv4		1	12								
VTEP2-DCI...	VTEP2	1	200	1.0.0.1	vBRAS	Ethernet	Tunnel			0			255	1			1
VTEP1-PS...	VTEP1	24	200	1.0.0.2	vBRAS	IPv6		1	12								
VTEP1-DS...	VTEP1	1	200	1.0.0.2	vBRAS	Ethernet	10GE			0	0	0		1	1	1	

OSPFv3 Protocol Emulation with SRv6 Extension

In Spirent TestCenter release 5.08, OSPFv3 protocol emulation is extended to support signaling of SRv6 locators, SRv6 capabilities, and SRv6 segment ID (SID) with endpoint behaviors such as “End” and “End.X”.

Note: Release 5.08 only supports SRv6 control plane functionality for OSPFv3.

“SRv6 Locator LSA” with “SRv6 Locator TLV” and “End Sid Sub TLV” is added.

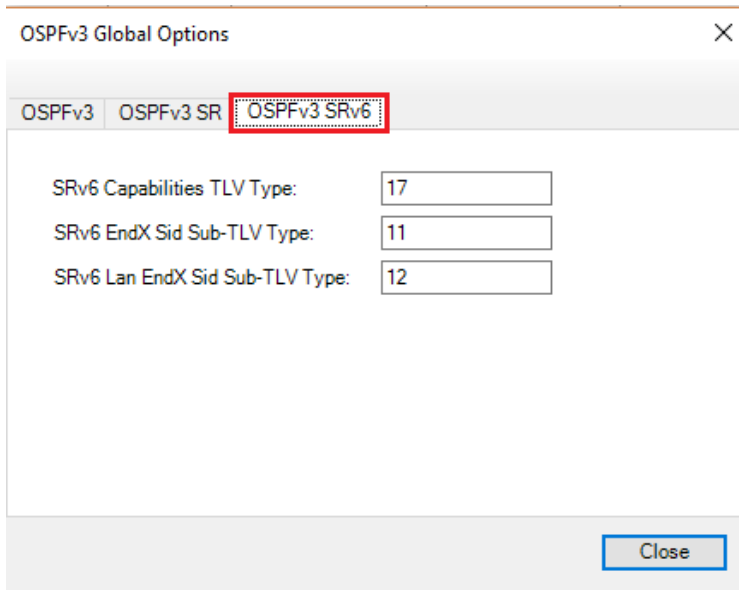
SRv6 capabilities TLV and node Maximum SID Depth (MSD) TLV are added to the Router Information LSA.

Three new Sub TLV are added to Router LSA Link TLV:

- End.X SID Sub TLV
- Lan End.X SID Sub TLV
- Link MSD Sub TLV

A new tab “OSPFv3 SRv6” is added in OSPFv3 Global Options. You can customize these values:

- SRv6 Capabilities TLV Type
- SRv6EndX Sid Sub-TLV Type
- SRv6 Lan EndX Sid Sub-TLV Type



OSPFv3 Global Options

OSPFv3 OSPFv3 SR **OSPFv3 SRv6**

SRv6 Capabilities TLV Type:

SRv6 EndX Sid Sub-TLV Type:

SRv6 Lan EndX Sid Sub-TLV Type:

Close

The following screen capture shows how to add and configure SRv6 Locator LSA, SRv6 Locator TLV, and End Sid Sub TLV.

OSPFv3 LSAs

Select Routers + Add LSA + Add SRv6 Locator TLV + Add SRv6 End SID Sub-TLV + Add End SID Structure Sub-TLV X Delete LSA Generator...

Name	Port Name	Device Name	Active	Route type	Algorithm	Locator Length	Flags	Metric	Locator	Flags	Endpoint Behavior ID	SID
OspfV3Srv6LocatorLsa 2	Port //10.61...	Device 1	<input checked="" type="checkbox"/>	AS External	1	64		1	aaaa:1:1:1::	0	0	aaaa:1:
OspfV3Srv6LocatorTlv 2			<input checked="" type="checkbox"/>									
OspfV3Srv6EndSidSubTlv 4			<input checked="" type="checkbox"/>									
OspfV3Srv6SidStructureSubTlv 6			<input checked="" type="checkbox"/>									

The screen capture shows how to add and configure SRv6 capabilities TLV and Node MSD TLV under the Router Information LSA.

OSPFv3 LSAs

Select Routers + Add LSA + Add SR Algorithm TLV + Add SR SID/Label Range TLV + Add SR Local Block TLV + Add SRMS Preference TLV + Add SRv6 Capabilities TLV + Add SRv6 Node MSD TLV X Delete LSA Generator...

Name	Port Name	Device Name	Active	Flags	MSDs	Maximum End D SRH	Maximum End Pop	Maximum Segments Left	Maximum T.Encap SRH	Maximum T.Insert SRH	Scope	Advertising Router ID	Li
OspfV3RouterInformationLsa 2	Port //10.61...	Device 1	<input checked="" type="checkbox"/>								Area Scoped	192.0.0.1	0
OspfV3Srv6CapabilitiesTlv 2			<input checked="" type="checkbox"/>	O-flag									
OspfV3Srv6MsdSubTlv 3			<input checked="" type="checkbox"/>		Maximum...	8	8	8	8	8			

The screen capture shows how to add and configure End.X SID Sub TLV, Lan End.X SID Sub TLV, and Link MSD TLV under the Router LSA Link TLV.

OSPFv3 LSAs

Select Routers + Add X Delete LSA Generator...

Port Name	Device Name	LSA Name	Active	LSA Type	Advertising Router ID	Link State ID	Router Type	Options	Age (sec)	Sequence Number	Checksum
Port //10...	Device 1	OspfV3Route...	<input checked="" type="checkbox"/>	Extended LSA	192.0.0.1	0		13	0	80000001	Good

+ Add + Add Adj-SID Sub-TLV + Add LAN Adj-SID Sub-TLV + Add END.X SID Sub-TLV + Add LAN END.X SID Sub-TLV + Add SRv6 Link MSD Sub-TLV + Add EndX SID Structure Sub-TLV + Add Lan EndX SID Structure Sub-TLV X Delete

Router Link Contents

Name	Port Name	Device Name	Active	MSDs	Link Type	Interface ID	Neighbor Interface ID	Neighbor Router ID	Metric	Endpoint Behavior ID	Flags	Algorithm	Weight
OspfV3RouterLsaif 2	Port //10.61...	Device 1	<input checked="" type="checkbox"/>		Point to Point	0	0	0.0.0.0	1				
OspfV3Srv6LanEndXsidSubTlv 2			<input checked="" type="checkbox"/>							0		1	1
OspfV3Srv6SidStructureSubTlv 4			<input checked="" type="checkbox"/>										
OspfV3Srv6EndXsidSubTlv 2			<input checked="" type="checkbox"/>							0		1	1
OspfV3Srv6SidStructureSubTlv 5			<input checked="" type="checkbox"/>										
OspfV3Srv6MsdSubTlv 2			<input checked="" type="checkbox"/>										

Close

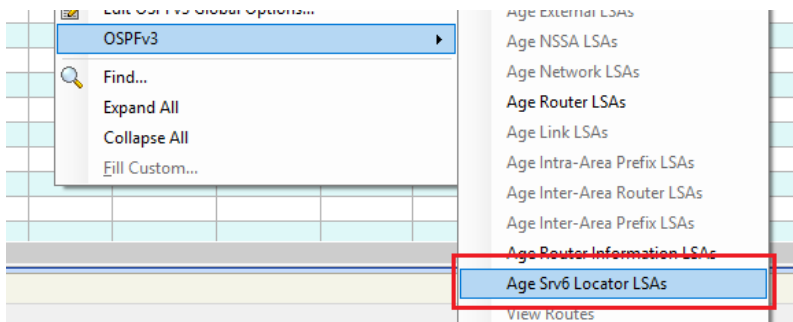
Select the “Enable Extended LSA” checkbox to enable SRv6 extensions for OSPFv3 protocol emulation.

Emulated Device Interface		6rd/6to4	DS-Lite	BFD	OSPFv3													
Port Name	Device Name	Tags	Device Count	Active	Router State	Adjacency Status	Instance ID	Area ID	Enable Extended LSA	Extended LSA Mode	Area Extended LSA Mode	Enable BFD	Interface ID	Interface Cost	Network Type	Router Priority	Enable View Routes	Options
Port //10...	Device 2	Click to ad...	1	<input checked="" type="checkbox"/>	P2P	Full	0	0.0.0.0	<input checked="" type="checkbox"/>	Full	InheritGlobal	<input type="checkbox"/>	0	1	P2P	0	<input type="checkbox"/>	13

Results for SRv6 Locator LSA are added.

1 of 1 Show: All Ports							
NSSA	Rx Router Info LSA	Tx Router Info LSA	Rx Srv6 Locator LSA	Tx Srv6 Locator LSA	Rx E Router LSA	Tx E Router LSA	Rx E Network LSA
1	1	1	1	1	2	2	0
1	1	1	1	1	2	2	0

Use the “Age SRv6 Locator LSAs” option to age out SRv6 locator LSAs.



OSPFv2 Protocol Events

In Spirent TestCenter release 5.08, events for the OSPFv2 protocol are supported and can be viewed in Spirent TestCenter IQ. These events are useful for troubleshooting any test involving OSPFv2 protocol. Refer to the screen captures for details.

OSPFv2 Up and Down events are generated when the protocol state changes to up or down.

Apply Start	STC	Info		2020-03-17 1:43:22.956
Apply Complete	STC	Info		2020-03-17 1:43:25.686
Start All Devices	STC	Info		2020-03-17 1:43:25.704
OSPFv2 State Up	STC://10.109.114.34/1/1	Info	OSPFv2 Device Up	2020-03-17 1:43:32.153
OSPFv2 State Up	STC://10.109.116.190/1/1	Info	OSPFv2 Device Up	2020-03-17 1:43:32.158
OSPFv2 State Up	STC://10.109.114.34/1/1	Info	OSPFv2 Device Up	2020-03-17 1:43:35.289
OSPFv2 State Up	STC://10.109.116.190/1/1	Info	OSPFv2 Device Up	2020-03-17 1:43:35.294

OSPFv2 Command events are generated when a user invokes commands to trigger changes in behavior during the test.

OSPFv2 State Up	STC://10.109.116.190/1/1	Info	OSPFv2 Device Up	2020-03-17 1:44:32.600
Command: OSPFv2 Shutdown Router	STC://10.109.116.190/1/1	Info	OSPFv2 Shutdown Router Command	2020-03-17 1:44:35.094
Command: OSPFv2 Shutdown Router	STC://10.109.116.190/1/1	Info	OSPFv2 Shutdown Router Command	2020-03-17 1:44:35.107
Command: OSPFv2 Shutdown Router	STC://10.109.114.34/1/1	Info	OSPFv2 Shutdown Router Command	2020-03-17 1:44:35.110
Command: OSPFv2 Shutdown Router	STC://10.109.114.34/1/1	Info	OSPFv2 Shutdown Router Command	2020-03-17 1:44:35.110
OSPFv2 State Down	STC://10.109.116.190/1/1	Info	OSPFv2 device is down due to comma...	2020-03-17 1:44:35.114
OSPFv2 State Down	STC://10.109.114.34/1/1	Info	OSPFv2 device is down due to comma...	2020-03-17 1:44:35.116
OSPFv2 State Down	STC://10.109.114.34/1/1	Info	OSPFv2 device is down due to comma...	2020-03-17 1:44:35.155
OSPFv2 State Down	STC://10.109.116.190/1/1	Info	OSPFv2 device is down due to comma...	2020-03-17 1:44:35.155
Command: OSPFv2 Restore Router	STC://10.109.116.190/1/1	Info	OSPFv2 Restore Router Command	2020-03-17 1:44:40.532
Command: OSPFv2 Restore Router	STC://10.109.114.34/1/1	Info	OSPFv2 Restore Router Command	2020-03-17 1:44:40.539
Command: OSPFv2 Restore Router	STC://10.109.116.190/1/1	Info	OSPFv2 Restore Router Command	2020-03-17 1:44:40.539
Command: OSPFv2 Restore Router	STC://10.109.114.34/1/1	Info	OSPFv2 Restore Router Command	2020-03-17 1:44:40.540

OSPFv2 Error events are generated when an unexpected error occurred during the test. This could be due to a malformed packet or unsupported protocol attribute received from the DUT.

Info	OSPFv2 Device Up	2020-03-17 0:41:24...	ngc_gated	Protocol Events	Device 3	—	—
Info	OSPFv2 Device Up	2020-03-17 0:41:24...	ngc_gated	Protocol Events	Device 1	—	—
Info		2020-03-17 0:41:27...		Test Events	—	—	—
Info		2020-03-17 0:41:30...		Test Events	—	—	—
Error	DD Options Mismatch	2020-03-17 0:41:30...	ngc_gated	Protocol Events	Device 3	DD Options Mismat...	Received DD packet with options 0 configured options 2
Error	Initialize Flag Mismatch	2020-03-17 0:41:30...	ngc_gated	Protocol Events	Device 1	Initialize Flag Mism...	Received DD packet with init flag unexpectedly set whe...

OSPFv2 Timer events are generated when a protocol timer expires during the test.

Command: OSPFv2 Stop Hello	STC://10.109.116.1...	Info	OSPFv2 Stop Hello Command	2020-03-17 1:43:42...
OSPFv2 Timer Expired	STC://10.109.114.3...	Error	OSPFv2 Timer Expired	2020-03-17 1:44:15...
OSPFv2 State Down	STC://10.109.114.3...	Info	OSPFv2 device is down due to router dead interval timer expiry	2020-03-17 1:44:15...
OSPFv2 Timer Expired	STC://10.109.114.3...	Error	OSPFv2 Timer Expired	2020-03-17 1:44:16...
OSPFv2 State Down	STC://10.109.114.3...	Info	OSPFv2 device is down due to router dead interval timer expiry	2020-03-17 1:44:16...
OSPFv2 Timer Expired	STC://10.109.116.1...	Error	OSPFv2 Timer Expired	2020-03-17 1:44:17...
OSPFv2 State Down	STC://10.109.116.1...	Info	OSPFv2 device is down due to router dead interval timer expiry	2020-03-17 1:44:17...
OSPFv2 Timer Expired	STC://10.109.116.1...	Error	OSPFv2 Timer Expired	2020-03-17 1:44:17...
OSPFv2 State Down	STC://10.109.116.1...	Info	OSPFv2 device is down due to router dead interval timer expiry	2020-03-17 1:44:17...

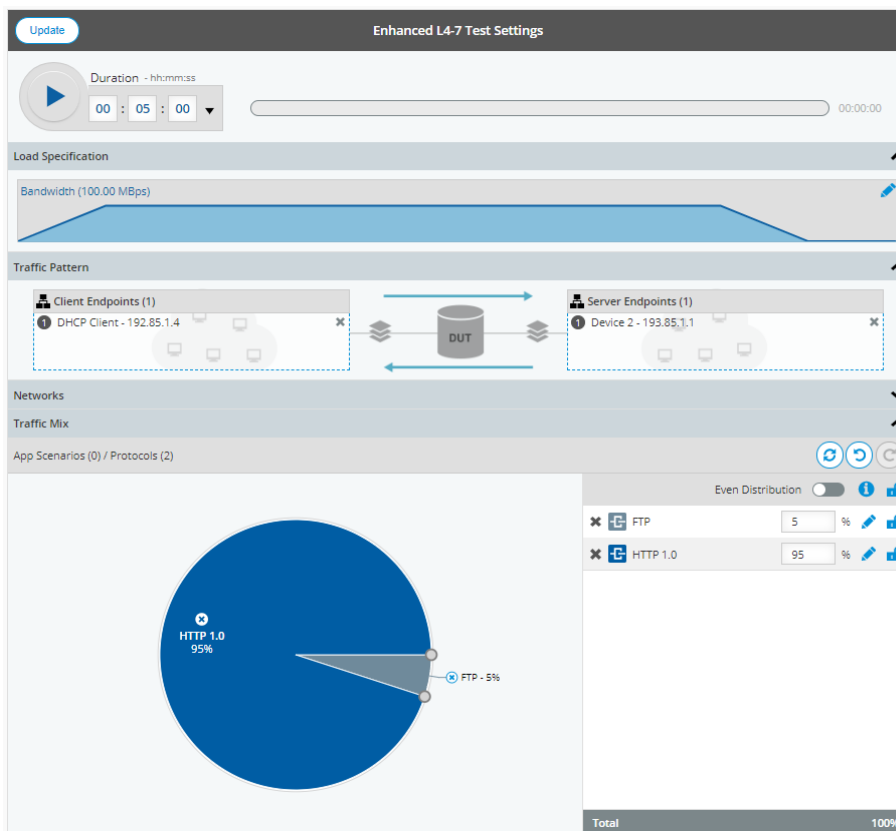
Layer 1 Support

Spirent TestCenter now supports the integration of Layer 1 features.

- This integration is only available on 400G DX3/PX3 QSFP-DD form factor test modules
- Supported speeds in this release: 400/200G
- L1 is only available on versions that support Auto Negotiation and Link Training
- Automation is now supported
- L1 statistics can be viewed using TestCenter IQ

Spirent TestCenter Enhanced L4-7: New Hardware and Virtual Support

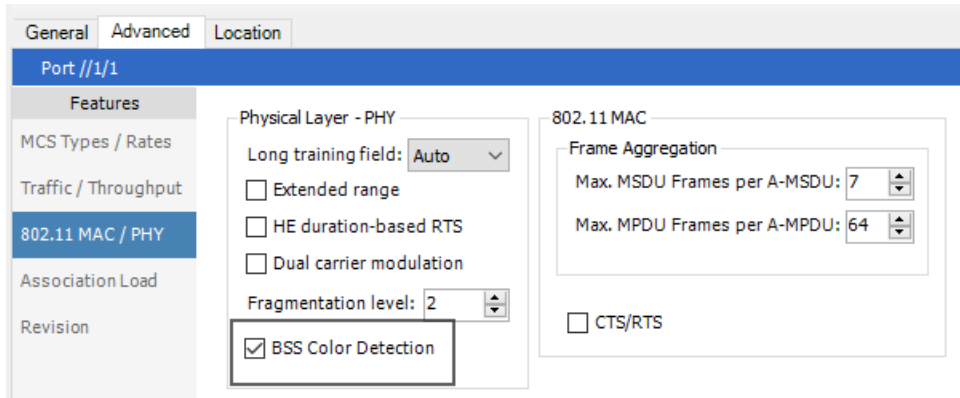
- Add PPPoE endpoints support
- Add support for the following modules:
 - FX2-40G-Q2, -Q3, -Q4, -Q5
 - FX2-10G-Q2, -Q3, -Q4, -Q5
 - FX2-10G-S16, -S12, -S8, -S4
 - FX2-1G-S16, S12
 - VM-100M-V1-1P (100M rate)
 - VM-1G-V1-1P (1G rate)



For the latest list of supported hardware, refer to [FAQ18968](#).

Spirent Wi-Fi 6 BSS Color Detection

In Spirent TestCenter release 5.08, Spirent Wi-Fi 6 gears are enabled to detect both BSS color code from the client's BSS and to report a counter for a BSS color code collision, when the client detects that OBSS is using the same BSS color code. The feature is enabled by default. It can be disabled/enabled from the selection under "Advanced" for a WLAN port.



General | **Advanced** | Location

Port //1/1

Features

- MCS Types / Rates
- Traffic / Throughput
- 802.11 MAC / PHY**
- Association Load
- Revision

Physical Layer - PHY

Long training field: Auto

Extended range

HE duration-based RTS

Dual carrier modulation

Fragmentation level: 2

BSS Color Detection

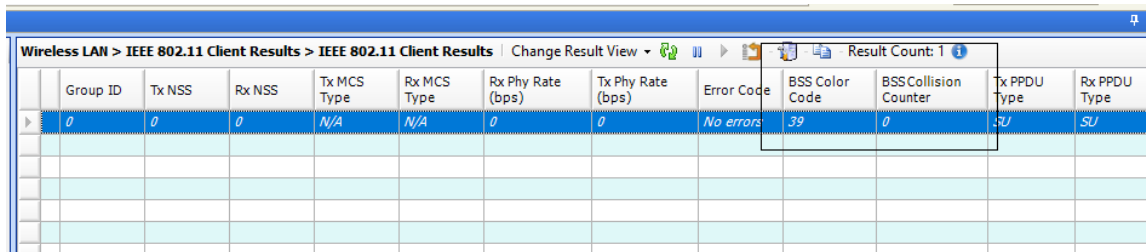
802.11 MAC

Frame Aggregation

Max. MSDU Frames per A-MSDU: 7

Max. MPDU Frames per A-MPDU: 64

CTS/RTS



Wireless LAN > IEEE 802.11 Client Results > IEEE 802.11 Client Results | Change Result View | Result Count: 1

Group ID	Tx NSS	Rx NSS	Tx MCS Type	Rx MCS Type	Rx Phy Rate (bps)	Tx Phy Rate (bps)	Error Code	BSS Color Code	BSS Collision Counter	Tx PPDU Type	Rx PPDU Type
0	0	0	N/A	N/A	0	0	No errors	39	0	-U	SU

Spirent Support

To obtain technical support for Spirent Communications products, please contact our Support Services department using any of the following methods:

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The latest versions of user manuals, application notes, and software and firmware updates are available on the Spirent Communications Customer Service Center website at <https://support.spirent.com>.

Information about Spirent Communications and its products and services can be found on the main company website at <https://www.spirent.com>.

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