TrangoLink SpartaElite
Layer 2 vs. Layer 3 Mode - Quick Tips & Setup

Differences between Layer 2 Mode and Layer 3 Mode

Layer 3 Mode

- Only for IPv4 payload
- All frames encapsulated into new L3 tunnel covering IPComp (opt), IPsec ESP, Original payload
- Protects the original payload + the original IP header
- Lower packet overhead as compared to L2 mode [about 34-38 bytes]
- Support Anti-expansion and minimum compression, but ESP tunnel overhead would still exist
- Supports daisy_chain mode of multiple links
- Inter-operable with Standard IPsec compliant devices
- Limitations
    - Only 1 GigE ingress port is available for data traffic if IBM is required
    - All 4 GigE ingress port available for data traffic without IBM

Layer 2 Mode

- For any Ethernet packet including IPv4, IPv6, MPLS, PBB etc
- All frames encapsulated into new L2/L3 tunnel covering IPComp (opt), IPsec ESP, Original payload with L2
- All 4 GigE ingress ports available for data traffic along with IBM functionality
- Protects the entire original payload including the Ethernet Src/Dst Mac address
- Supports daisy_chain mode of multiple links
- Limitations
    - Additional packet overhead of new IP encapsulation [Ethernet+IP header]
    - Only single policy supported and not interoperable with 3rd party devices
    - Doesn't support anti-expansion, supports min comp size

Examples of the differences in compression modes:

File	Size	Type	L2 Ratio	L3 Ratio
1152x864 pixels / 16.7 million colors JPEG file	842468	A10.jpg	0.86	0.97
Acrobat Reader 5.0 executable	3870784	AcroRd32.exe	1.49	1.51
Alphabetically sorted English word-list	4067439	english.dic	2.28	2.33
Macromedia Flash MX Manual; Adobe Acrobat pdf	4526946	FlashMX.pdf	0.97	1.07
Fighter-planes.com traffic log file	20617071	FP.LOG	2.04	2.70
Microsoft Office 97 Dynamic Link Library	3782416	MSO97.DLL	1.28	1.29
Occupational Health and Safety; MS Word file	4168192	ohs.doc	2.00	2.04
1356x1020 pixels Bitmap file	4149414	rafale.bmp	1.90	1.91
Delphi First Impression OCX Help file	4121418	vcfiu.hlp	2.30	2.33
1995 CIA World Fact Book	2899483	world95.txt	1.39	1.40
Average			**1.65**	**1.76**

Steps to Enable Compression

To enable/setup compression from a blank (not preconfigured) Sparta IDU, the following steps are necessary. The steps can be performed from the web interface or the CLI.

- ✓ Configure and test RF link without compression/encryption to ensure normal operation.
- ✓ Set FIPS Mode (from web or CLI config node).
  - o One side of the link will need to be the A side and the other side B. Trango recommends setting the A & B FIPS setting to match the A & B ODU assignment. You can check which ODU is attached to the IDU with the model command.
  - o The L2 or L3 setting must be the same on both sides.
- ✓ Save config <config save> and reboot.
- ✓ From the crypto command prompt or web interface (from cli view mode, config to config node, then crypto to crypto node – default password is crypto for crypto node) set the policy as desired. The policy setting should match on both sides of the link.
  - o For compression only at CLI fips prompt: policy_comp 23
- ✓ Set dtag_tpid or daisy_chain setting, if necessary – see below: L3 8100 or 9100, L2 should be 9100
- ✓ Save config <config save> and reboot.
- ✓ Upon receipt of the first packet matching the policy, the radios will automatically establish a tunnel and begin compression and/or encryption as selected in the policy.
- ✓ The status of the tunnel can be viewed with the CLI command <status sa>.

Special Notes for Layer 3 Mode – dtag tpid

For Layer 3 mode, the programmer must either change the dtag tpid to 8100 or establish daisy chain mode for expanded traffic compatibility.

Option	Advantage	Limitation
Daisy_Chain mode	Both compression/encryption and IBM available on single port	Only single GigE port would be available
Change dtag tpid to 0x8100	All ingress ports would work for encryption/compression	IBM won't function