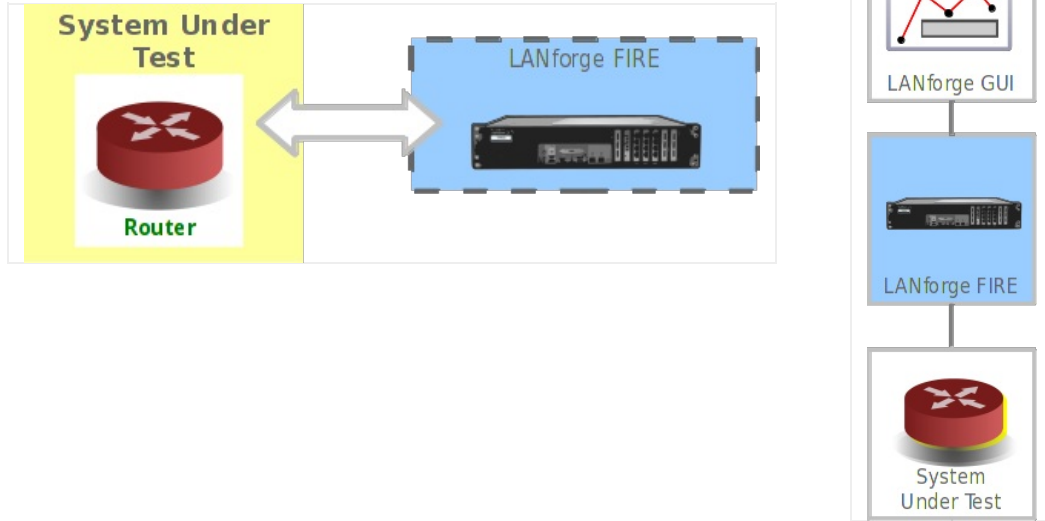


Generating Traffic to a Routed Network

Goal: Set up and run traffic on a routed network.

In this test scenario, LANforge-FIRE is used to generate traffic to a basic router in order to test throughput.



1. Connect one LANforge-FIRE port to the router's LAN port.
2. Connect another LANforge-FIRE port to the router's WAN port.
3. Set up the LANforge ports so that they have valid IP addresses. You can also use DHCP if the DUT supports it.
 - A. Go to the Port Manager

LANforge Manager Version(5.2.10)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators Collision-Domains

Disp: 192.168.100.27:0.0 Sniff Packets Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply View Details Create Modify Batch Modify

All Ethernet Interfaces (Ports) for all Resources.

Port	Pha...	Down	IP	SEC	Alias	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps TX
1.1.0	<input type="checkbox"/>	<input type="checkbox"/>	192.168.100.129	0	eth2	189,810	2,121	3	2,984	144,274	276	1	8,932
1.1.1	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	eth1	15,192	67	0	0	21,382	145	0	0
1.1.2	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	eth3	9,594	31	0	0	13,259	67	0	0
1.1.3	<input type="checkbox"/>	<input type="checkbox"/>	0.0.0.0	0	eth4	9,094	31	0	0	15,137	73	0	0

Logged in to: 192.168.100.129:4002 as: Admin

B. Modify port for Endpoint A (eth3). Set a valid network IP Address and Gateway IP.

The screenshot shows the 'eth3 (ubuntu) Configure Settings' window. At the top, it displays 'Port Status Information' with the current status 'LINK-UP 1000bt-FD AUTO-NEGOTIATE Flow-Control TSO GSO GRO' and driver information 'Driver Info: Port Type: Ethernet Driver: e1000(7.3.21-k8-NAPI) Bus: 0000:00:0a.0'. Below this is the 'Port Configurables' section, which is divided into several panels:

- Enable:** A list of checkboxes for various settings, including 'Set IP Info', 'Set IP6 Info', 'Set IF Down', 'Set MAC', 'Set TX Q Len', 'Set Offload', 'Set Rate Info', 'Set PROMISC', 'Set Rx-All/FCS', 'Set Bypass', 'Set Bridge Info', and 'Set CPU Mask'. There is also a 'Services' section with checkboxes for 'HTTP' and 'FTP'.
- General Interface Settings:** A central panel with fields for 'DNS Servers' (BLANK), 'IP Address' (192.168.2.102), 'IP Mask' (255.255.255.0), 'Gateway IP' (192.168.2.1), 'MAC Addr' (08:00:27:25:65:63), 'Br Cost' (Ignore), 'Rpt Timer' (medium (8 s)), and 'CPU Mask' (NO-SET). It also includes checkboxes for 'DHCP-IPv6', 'DHCP Release', 'Down', 'Aux-Mgt', and 'DHCP-IPv4'. Other fields include 'Secondary-IPs', 'DHCP Client ID' (None), 'Peer IP' (NA), 'Global IPv6' (AUTO), 'Link IPv6' (AUTO), 'IPV6 GW' (AUTO), 'MTU' (1500), 'TX Q Len' (1000), 'Priority' (Ignore), 'Watchdog' (0), and 'WiFi Bridge' (NONE).
- Port Rates:** Radio buttons for '10bt-HD', '10bt-FD', '1000bt-HD', '1000bt-FD', '1000-FD', and '10G-FD'. The 'Autonegotiate' option is selected. There are also checkboxes for 'Renegotiate', 'Restart Xcvr', 'PROMISC', 'RX-ALL', 'RX-FCS', 'Bypass NOW!', 'Bypass Power-UP', 'Bypass Power-DOWN', and 'Bypass Disconnect'.
- Advertise Ra...:** Checkboxes for '10bt-HD', '10bt-FD', '1000bt-HD', '1000bt-FD', '1000-FD', and '10G-FD'. The 'Flow-Control' checkbox is checked.
- Offload:** Checkboxes for 'TSO Enabled', 'UFO Enabled', 'GSO Enabled', 'LRO Enabled', and 'GRO Enabled'. The 'TSO Enabled' checkbox is checked.

At the bottom of the window, there are buttons for 'Print', 'View Details', 'Probe', 'Sync', 'Apply', 'OK', and 'Cancel'.

C. Modify port for Endpoint B (eth4). Set a valid network IP Address and Gateway IP.

eth4 (ubuntu) Configure Settings

Port Status Information
 Current: LINK-UP 1000bt-FD AUTO-NEGOTIATE Flow-Control TSO GSO GRO
 Driver Info: Port Type: Ethernet Driver: e1000(7.3.21-k8-NAPI) Bus: 0000:00:09.0

Port Configurables

Enable

- Set IP Info
- Set IP6 Info
- Set IF Down
- Set MAC
- Set TX Q Len
- Set MTU
- Set Offload
- Set Rate Info
- Set PROMISC
- Set Rx-All/FCS
- Set Bypass
- Set Bridge Info
- Set CPU Mask

Services

- HTTP
- FTP

General Interface Settings

- DHCP-IPv6 DHCP Release Down Aux-Mgt
- DHCP-IPv4 **Secondary-IPs** DHCP Client ID: None
- DNS Servers: BLANK Peer IP: NA
- IP Address: 172.16.1.103 Global IPv6: AUTO
- IP Mask: 255.255.255.0 Link IPv6: AUTO
- Gateway IP: 172.16.1.1 IPv6 GW: AUTO
- Alias: MTU: 1500
- MAC Addr: 08:00:27:ae:e4:72 TX Q Len: 1000
- Br Cost: Ignore Priority: Ignore
- Rpt Timer: medium (8 s) Watchdog: 0
- CPU Mask: NO-SET WiFi Bridge: NONE

Port Rates

- 10bt-HD
- 10bt-FD
- 100bt-HD
- 100bt-FD
- 1000-FD
- 10G-FD
- Autonegotiate

Renegotiate
 Restart Xcvr
 PROMISC
 RX-ALL
 RX-FCS
 Bypass NOW!
 Bypass Power-UP
 Bypass Power-DOWN
 Bypass Disconnect

Advertise Ra...

- 10bt-HD
- 10bt-FD
- 100bt-HD
- 100bt-FD
- 1000-FD
- 10G-FD
- Flow-Control

Offload

- TSO Enabled
- UFO Enabled
- GSO Enabled
- LRO Enabled
- GRO Enabled

Print View Details Probe Sync Apply OK Cancel

D. Verify the port configuration

LANforge Manager Version(5.2.10)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators Collision-Domains

Disp: 192.168.100.27:0.0 Sniff Packets Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply View Details Create Modify Batch Modify

All Ethernet Interfaces (Ports) for all Resources.

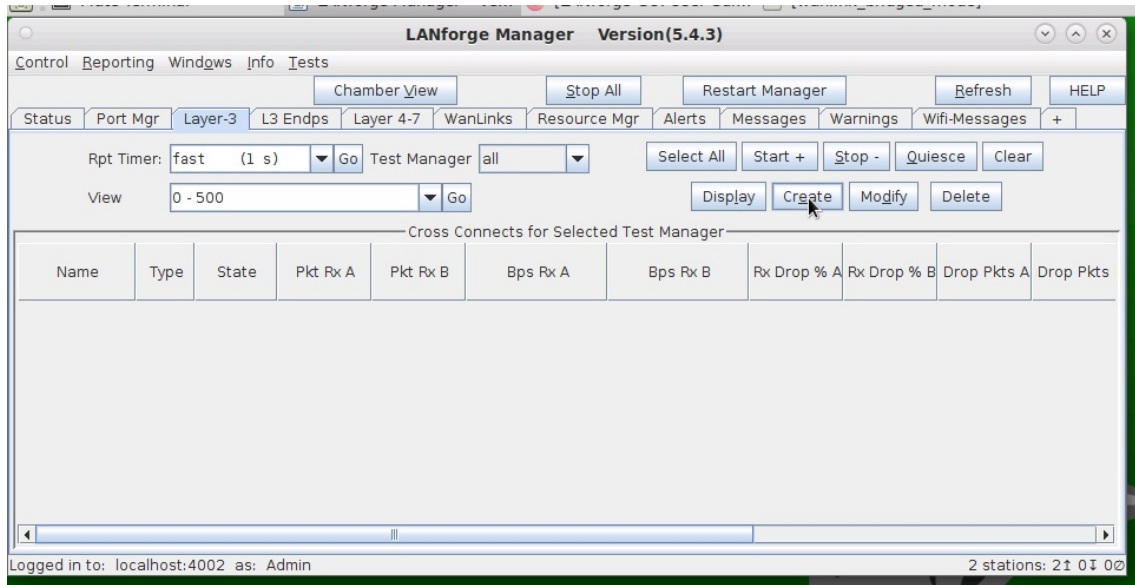
Port	Pha...	Down	IP	SEC	Alias	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps TX	Collis
1.1.0			192.168.100.129	0	eth2	682,954	6,865	5	4,110	1,370,419	2,297	2	9,827	
1.1.1			0.0.0.0	0	eth1	15,192	67	0	0	21,382	145	0	0	
1.1.2			192.168.2.102	0	eth3	16,407	59	0	0	21,575	107	0	0	
1.1.3			172.16.1.103	0	eth4	13,085	46	0	0	22,648	110	0	0	

Logged in to: 192.168.100.129:4002 as: Admin

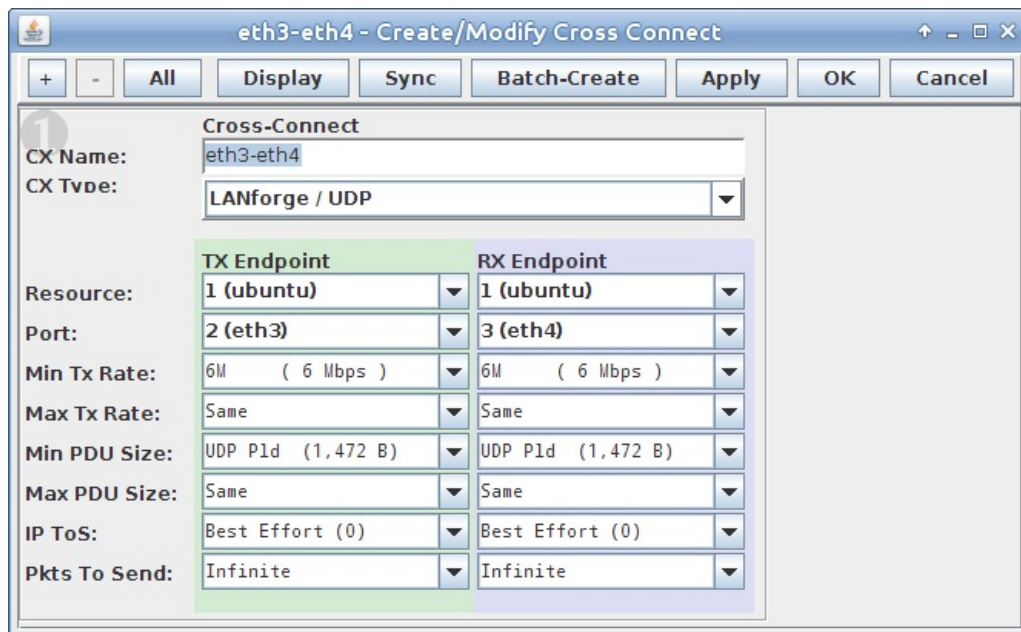
For more information see [LANforge User's Guide: Ports\(Interfaces\)](#)

4. Create a Layer-3 connection using the two configured ports.

A. Go to the **Layer-3** tab



B. Create a new Cross-Connect

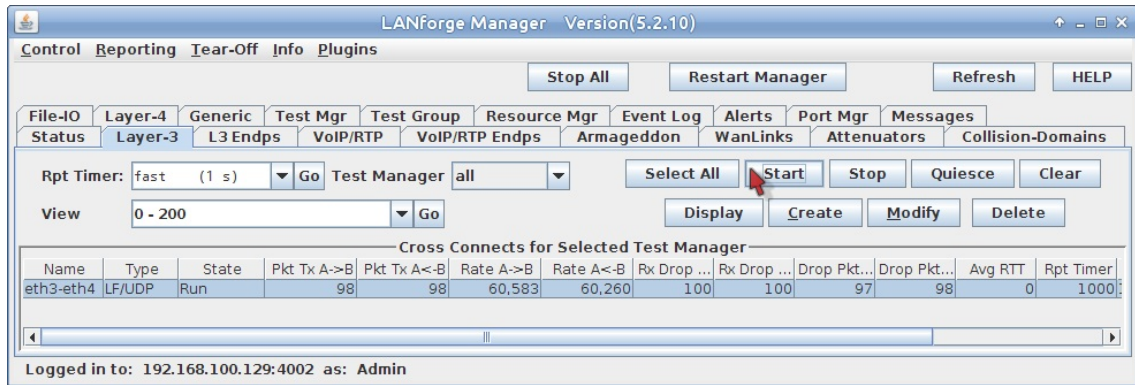


C. Verify the new Cross-Connect

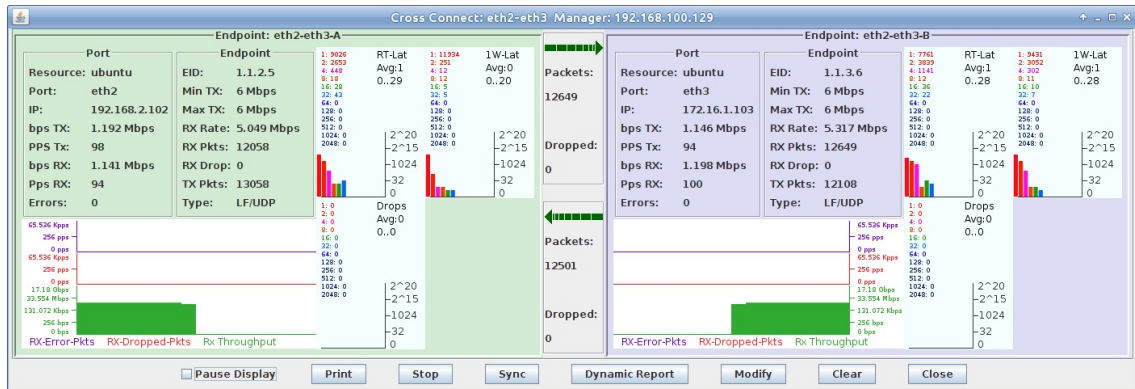
For more information see [LANforge User's Guid: Layer-3 Cross-Connects \(FIRE\)](#)

5. Run traffic and determine router throughput.

- A. Select the cross-connect on the **Layer-3** tab, click **Start** and then **Display**



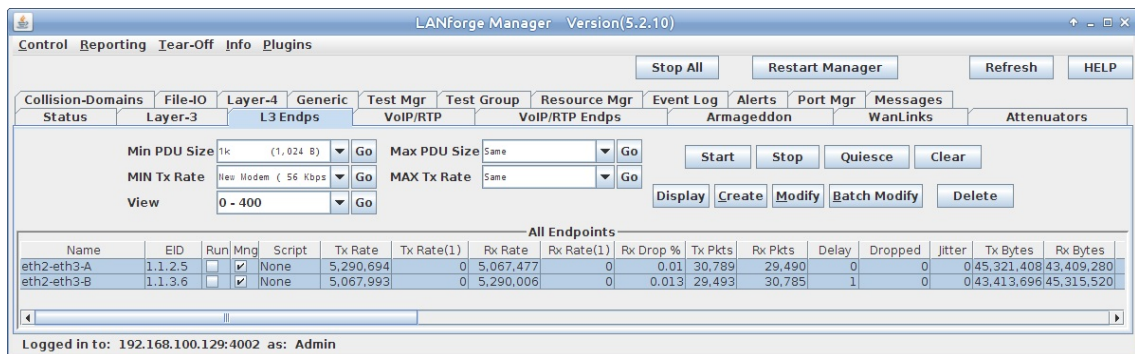
- B. View the Layer-3 cross-connect display



For more information see [LANforge User's Guide: Layer-3 Cross-Connect Display](#)

6. For this example, a low performance router was used to illustrate poor throughput, variable latency, and dropped packets.

- A. Go to the **L3 Endps** tab



B. Scroll to the right to view Latency and Dropped Packets

LANforge Manager Version(5.2.10)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

Collision-Domains File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators

Min PDU Size 1k (1,024 B) Go Max PDU Size Same Go Start Stop Quiesce Clear

MIN Tx Rate New Modem (56 Kbps) Go MAX Tx Rate Same Go Display Create Modify Batch Modify Delete

View 0 - 400

All Endpoints

Pattern	Min PDU	Max PDU	Min Rate	Max Rate	Send-Buf	Rcv-Buf	CWND	TCP-MSS	Bursty	A/B	Elapsed	Destination Addr	Source Addr
0 INCREASING	1,472	1,472	6,000,000	6,000,000	0/64000	0/256000	0	0/0	<input type="checkbox"/>	A	68	172.16.1.103 33008	192.168.2.102 33007
0 INCREASING	1,472	1,472	6,000,000	6,000,000	0/64000	0/256000	0	0/0	<input type="checkbox"/>	B	68	192.168.2.102 33007	172.16.1.103 33008

Logged in to: 192.168.100.129:4002 as: Admin

For more information see [LANforge User's Guid: Layer-3 Endpoints \(FIRE\)](#)

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