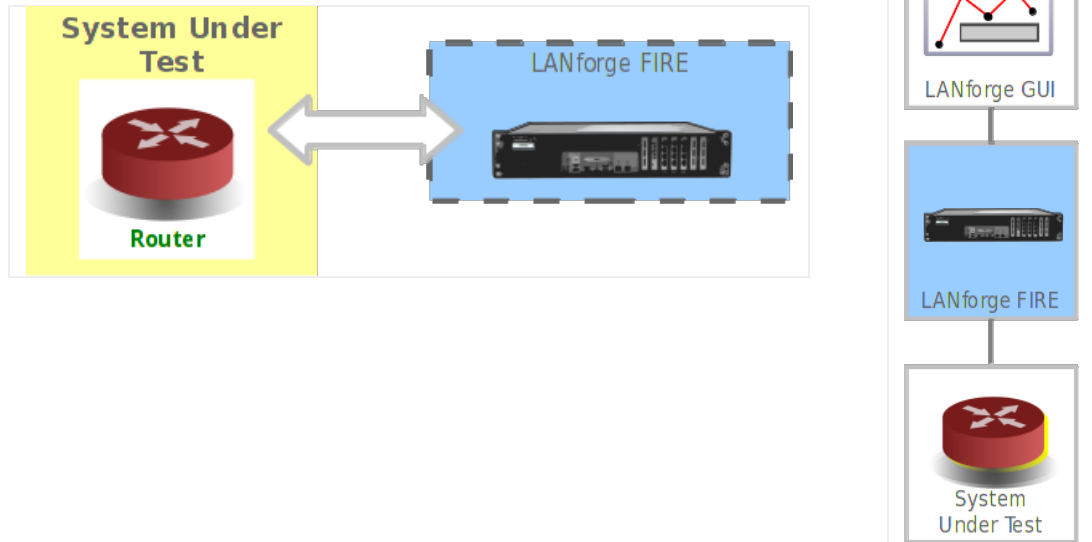


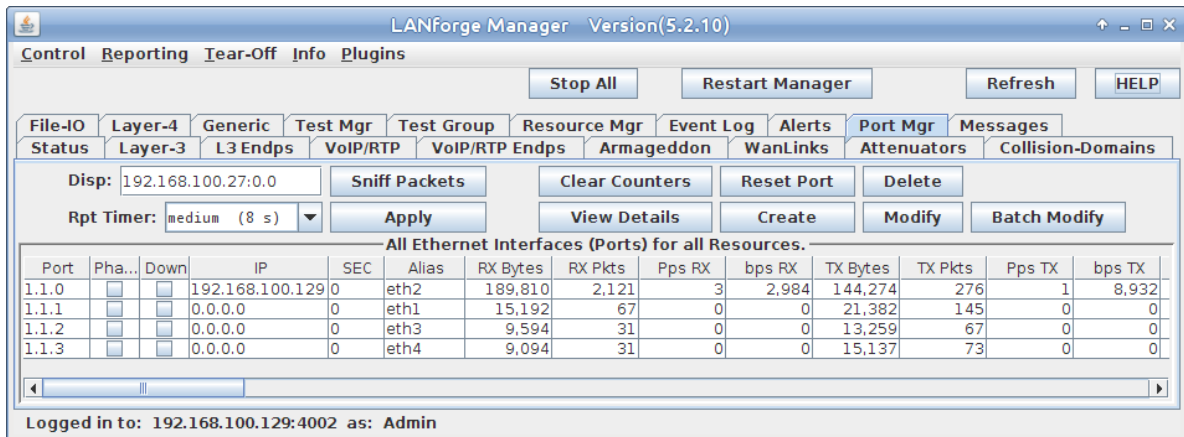
## Generating Traffic to a Routed Network

**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-I/O 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.

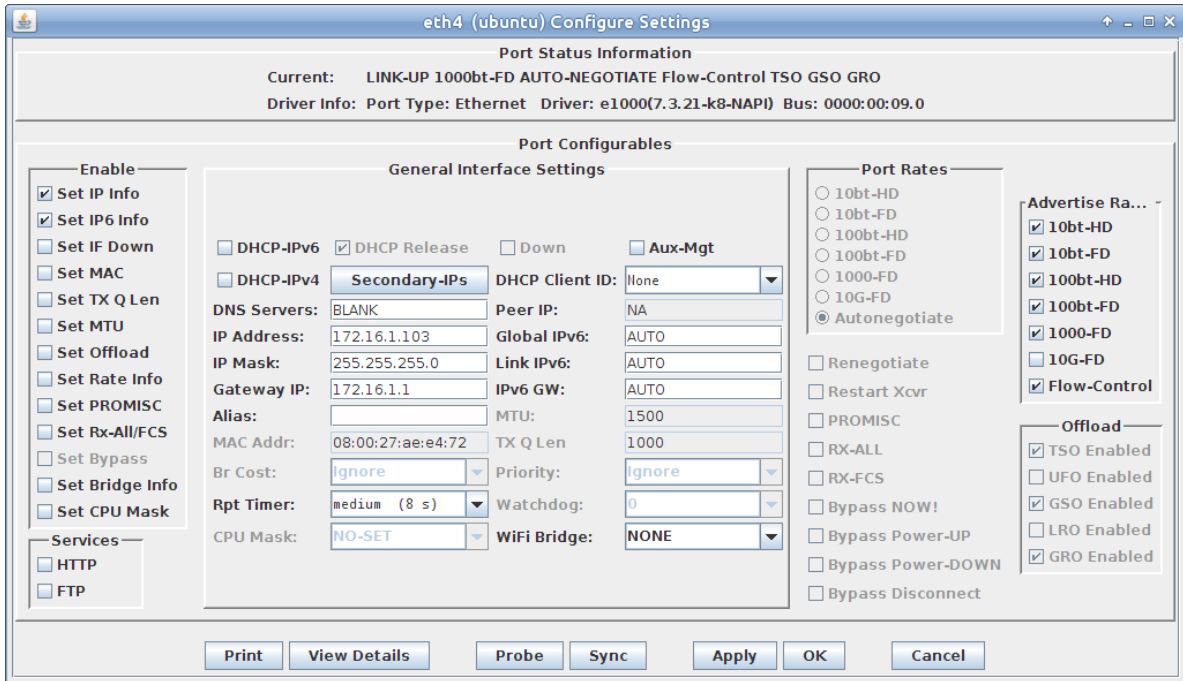
The screenshot shows the 'eth3 (ubuntu) Configure Settings' window. At the top, it displays 'Port Status Information' with the current status: 'LINK-UP 1000bt-FD AUTO-NEGOTIATE Flow-Control TSO GSO GRO'. Below this, it shows 'Driver Info: Port Type: Ethernet Driver: e1000(7.3.21-k8-NAPI) Bus: 0000:00:0a.0'.

The main section is 'Port Configurables', which is divided into several panels:

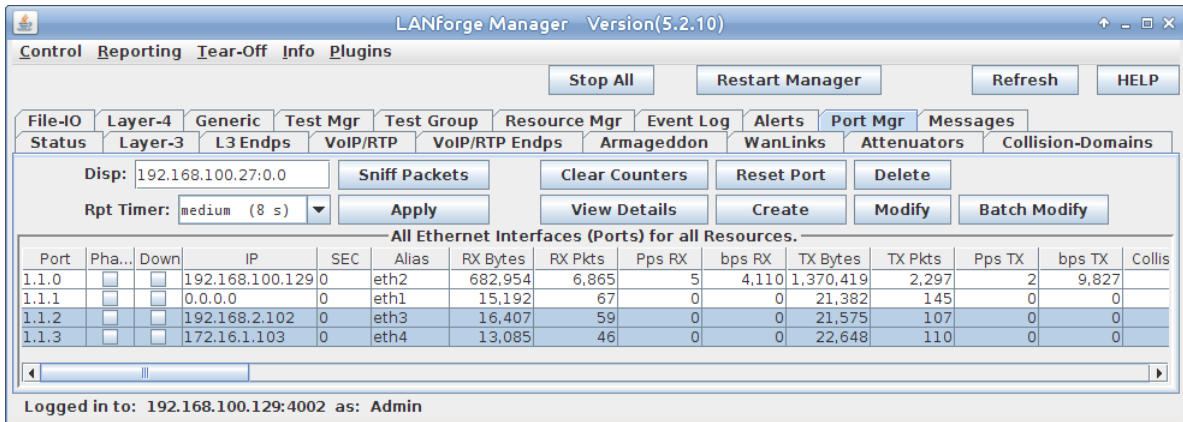
- Enable:** A list of checkboxes for various settings, including 'Set IP Info', 'Set IP6 Info', 'Set IF Down', 'Set MAC', 'Set TX Q Len', 'Set MTU', 'Set Offload', 'Set Rate Info', 'Set PROMISC', 'Set Rx-All/FCS', 'Set Bypass', 'Set Bridge Info', and 'Set CPU Mask'. There is also a 'Services' section with 'HTTP' and 'FTP' checkboxes.
- General Interface Settings:** A central panel with various fields and checkboxes. It includes 'DHCP-IPv6', 'DHCP Release', 'Down', 'Aux-Mgt', 'DNS Servers', 'Peer IP', 'IP Address', 'Global IPv6', 'IP Mask', 'Link IPv6', 'Gateway IP', 'IPv6 GW', 'Alias', 'MTU', 'MAC Addr', 'TX Q Len', 'Br Cost', 'Priority', 'Rpt Timer', 'Watchdog', and 'WiFi Bridge'.
- Port Rates:** A panel with radio buttons for '10bt-HD', '10bt-FD', '100bt-HD', '100bt-FD', '1000-FD', '10G-FD', and 'Autonegotiate'. 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...:** A panel with checkboxes for '10bt-HD', '100bt-HD', '1000-FD', '10G-FD', and 'Flow-Control'.
- Offload:** A panel with checkboxes for 'TSO Enabled', 'UFO Enabled', 'GSO Enabled', 'LRO Enabled', and 'GRO Enabled'.

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.



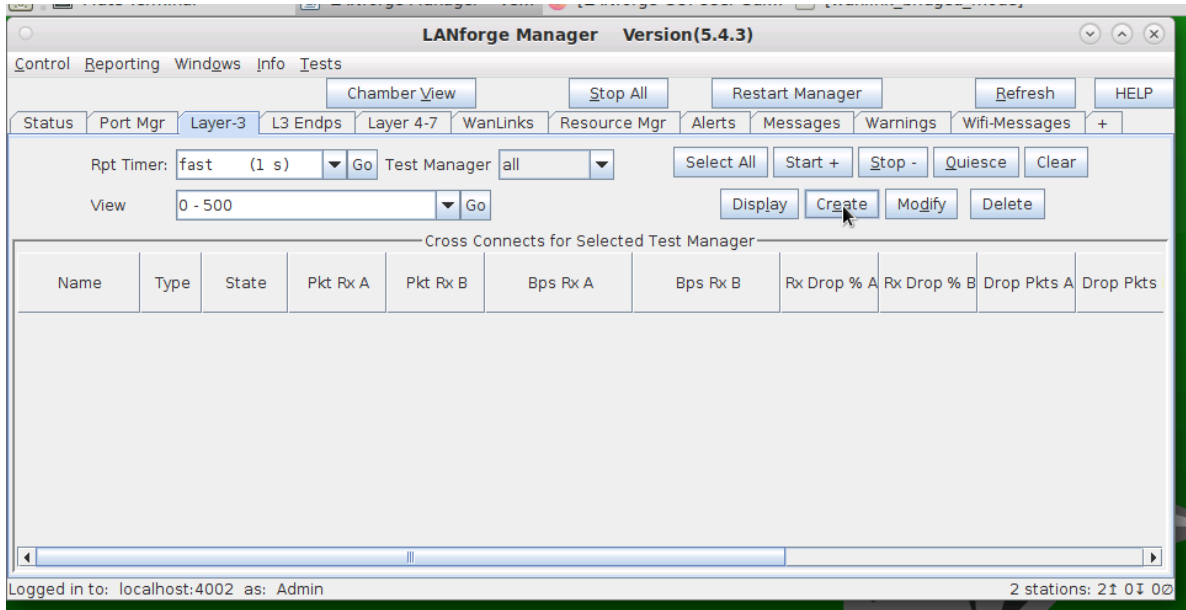
D. Verify the port configuration



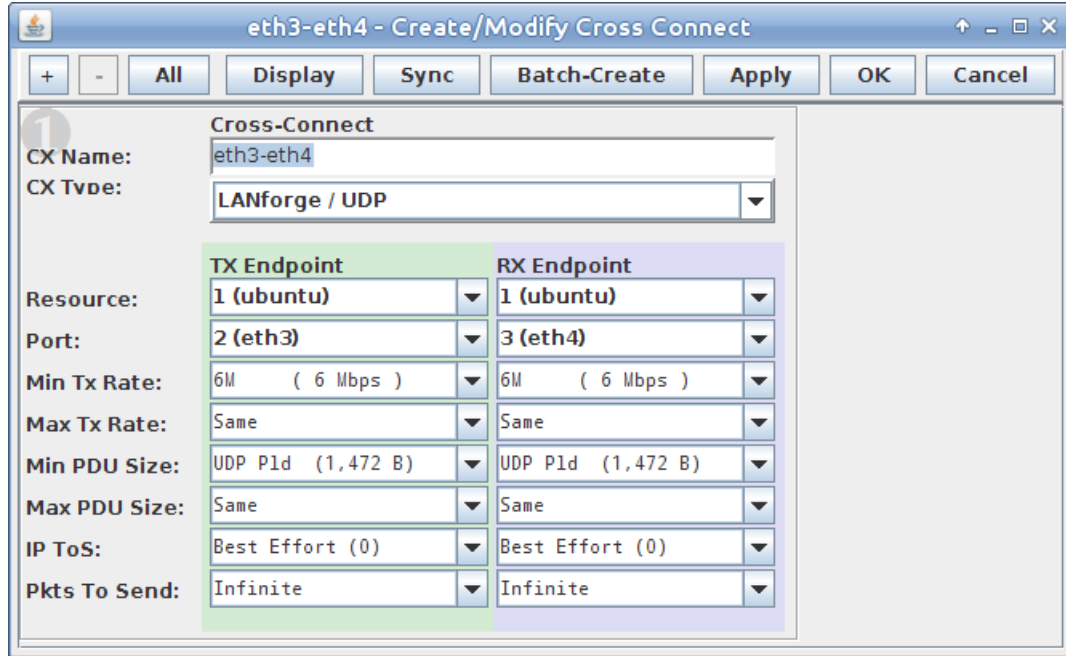
For more information see [LANforge User's Guide: Ports\(Interfaces\)](#)

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

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



B. Create a new Cross-Connect

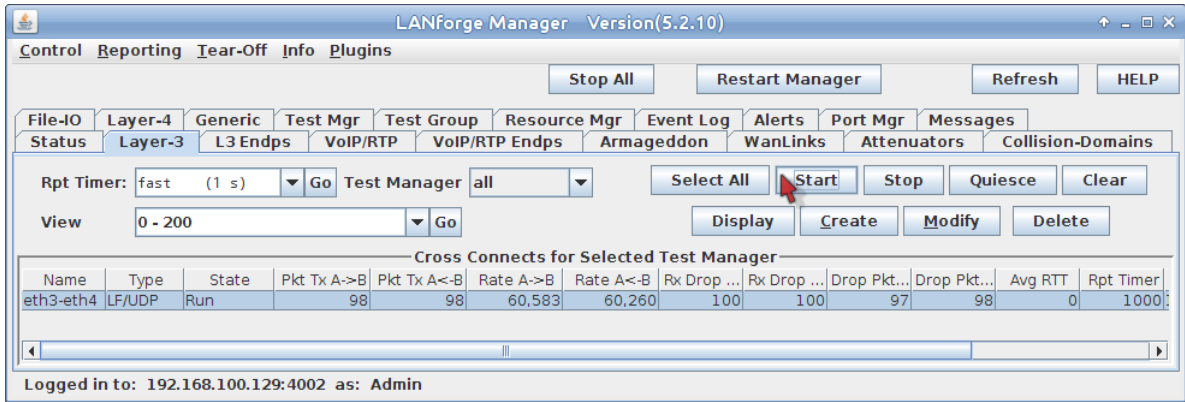


C. Verify the new Cross-Connect

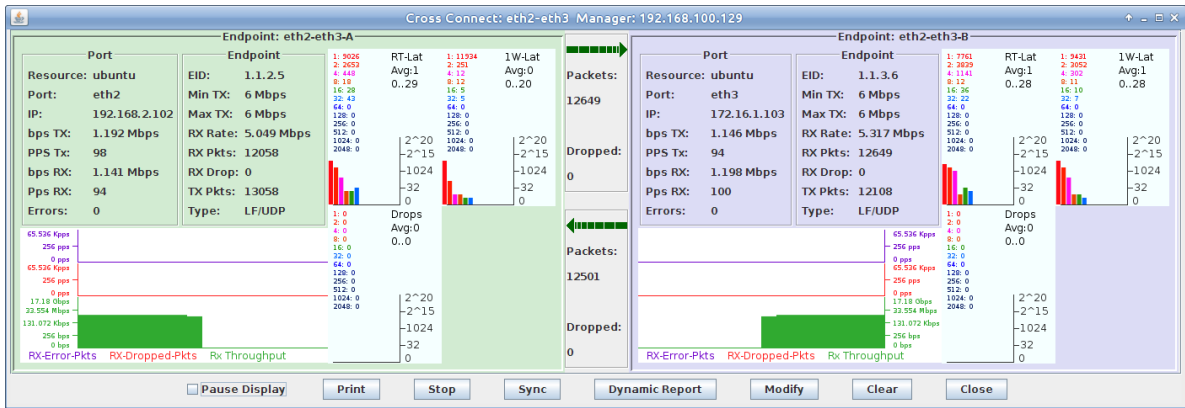
For more information see [LANforge User's Guid: Layer-3 Cross-Connects \(FIRE\)](#)

5. Run traffic and determine router throughput.

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



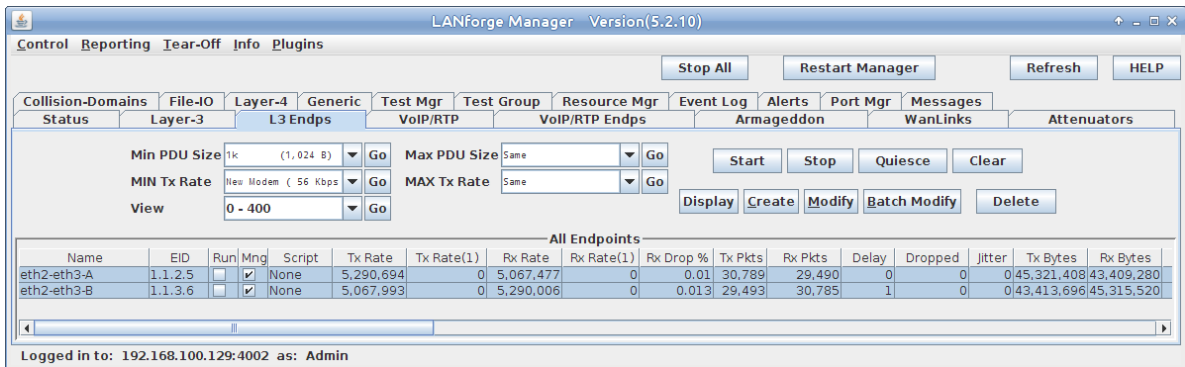
B. View the Layer-3 cross-connect display



For more information see [LANforge User's Guid: 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

The screenshot shows the LANforge Manager interface. At the top, there are tabs for Control, Reporting, Tear-Off, Info, and Plugins. Below these are several management buttons: Stop All, Restart Manager, Refresh, and HELP. The main area is divided into several sections:

- Collision-Domains**: Includes Status, Layer-3, Layer-4, Generic, Test Mgr, Test Group, Resource Mgr, Event Log, Alerts, Port Mgr, Messages, Armageddon, WanLinks, and Attenuators.
- Configuration Section**: Contains dropdown menus for Min PDU Size (1k), Max PDU Size (Same), MIN Tx Rate (New Modem ( 56 Kbps)), and MAX Tx Rate (Same). Each dropdown has a 'Go' button. There are also buttons for Start, Stop, Quiesce, and Clear.
- View Section**: A dropdown menu set to '0 - 400' with a 'Go' button. Below it are buttons for Display, Create, Modify, Batch Modify, and Delete.
- All Endpoints Table**: A table with columns for Pattern, Min PDU, Max PDU, Min Rate, Max Rate, Send-Buf, Rcv-Buf, CWND, TCP-MSS, Bursty, A/B, Elapsed, Destination Addr, and Source Addr.

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

At the bottom, it says '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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