

B. Select port wiphy0 and click Create

1 MAC-VLAN 802.1Q-VLAN Redirect Bridge Bond
 GRE Tunnel WiFi STA WiFi VAP WiFi Monitor WiFi Virtual Radio

2 Shelf: 1 Resource: 1 (1f0350-81e8) Port: 3 (wiphy0)

3 Quantity: 1

4 Basic Settings WiFi Settings Advanced Settings

VLAN ID:
STA ID:
Parent MAC: 04:f0:21:38:ad:b3
MAC Addr: xx:xx:xx:*:*:xx
 DHCP-IPv4 Multiple Subnets
IP Address:
IP Mask or Bits:
Gateway IP:
#1 Redir Name:
#2 Redir Name:

5 Down Apply Cancel Ready

C. Select the **Wifi STA** button, then enter **MAC**, **Quantity**, **STA ID**, and **SSID**. Select the DHCP-IPv4 checkbox:

1 MAC-VLAN 802.1Q-VLAN Redirect Bridge Bond
 GRE Tunnel WiFi STA WiFi VAP WiFi Monitor WiFi Virtual Radio

2 Shelf: 1 Resource: 1 (1f0350-81e8) Port: 3 (wiphy0)

3 Quantity: 4

4 Basic Settings WiFi Settings Advanced Settings

VLAN ID:
STA ID: 0
Parent MAC: 04:f0:21:38:ad:b3
MAC Addr: xx:xx:xx:*:*:xx
 DHCP-IPv4 Multiple Subnets
IP Address:
IP Mask or Bits:
Gateway IP:
#1 Redir Name:
#2 Redir Name:

5 Down Apply Cancel Ready

- A. In this example, all 4 virtual stations will connect to the same access point
- B. If your access point can serve DHCP, you can select the 'DHCP-IPv4' checkbox here to enable each virtual station as a DHCP client
- C. If you choose to enter IP addresses manually, the create function will increment the last octet of the IP address for each virtual station created
- D. Click **Apply** when finished

D. Verify that the virtual wireless stations are created

| Port | Pha... | Down | IP | SEC | Alias | Parent Dev | RX Bytes | RX Pkts | Pps RX | bps RX | TX Bytes | TX Pkts | Pps TX | t |
|--------|--------|-------------------------------------|-----------------|-----|--------|------------|---------------|------------|--------|--------|---------------|-----------|--------|---|
| 1.1.00 | | | 192.168.100.216 | 0 | eth0 | | 104,514,688 | 1,364,054 | 15 | 13,122 | 230,922,952 | 230,972 | 16 | |
| 1.1.01 | | | 10.1.1.7 | 0 | eth1 | | 747,276 | 4,850 | 0 | 48 | 699,364 | 4,990 | 0 | |
| 1.1.02 | | <input checked="" type="checkbox"/> | 0.0.0.0 | 0 | eth2 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1.1.03 | | | 0.0.0.0 | 0 | wiphy0 | | 8,770,822,... | 13,489,... | 37 | 73,887 | 4,797,568,... | 3,196,706 | 0 | |
| 1.1.04 | | | 0.0.0.0 | 0 | wiphy1 | | 0 | 109 | 0 | 0 | 0 | 0 | 0 | |
| 1.1.05 | | <input checked="" type="checkbox"/> | 0.0.0.0 | 0 | wlan0 | wiphy0 | 1,026 | 3 | 0 | 0 | 2,082 | 13 | 0 | |
| 1.1.06 | | <input checked="" type="checkbox"/> | 0.0.0.0 | 0 | wlan1 | wiphy1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 1.1.07 | | | 10.1.5.11 | 0 | sta0 | wiphy0 | 2,371,710,... | 1,580,197 | 0 | 35 | 2,443,823,... | 1,608,241 | 0 | |
| 1.1.10 | | | 10.1.5.8 | 0 | sta1 | wiphy0 | 2,358,154,... | 1,572,053 | 0 | 0 | 2,457,516,... | 1,616,318 | 0 | |
| 1.1.11 | | | 10.1.5.9 | 0 | sta2 | wiphy0 | 444,146 | 3,281 | 0 | 0 | 511,478 | 3,871 | 0 | |
| 1.1.13 | | | 10.1.5.10 | 0 | sta3 | wiphy0 | 442,070 | 3,263 | 0 | 35 | 511,714 | 3,861 | 0 | |

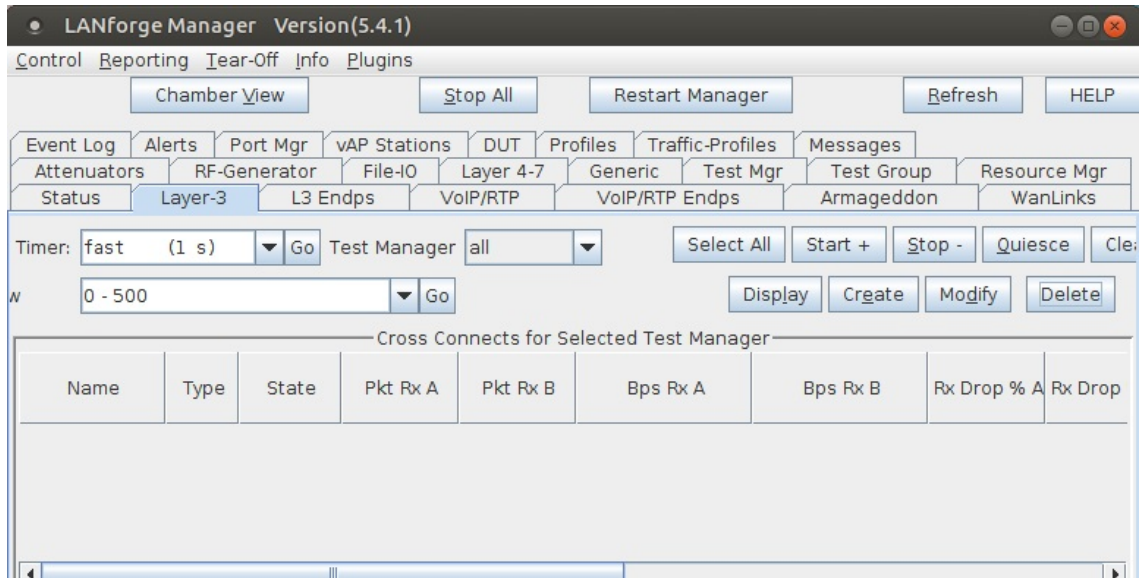
E. Scroll to the right to view each station's link quality and other interface details

| d | bps TX LL | Bytes TX LL | bps RX LL | Bytes RX... | Reset | TX-Rate | RX-Rate | Status | AP | Channel | Mode | Activity | Sig |
|---|-----------|-------------|-----------|-------------|----------|-----------|----------|------------|-------------|---------|------------|----------|--------|
| 0 | 144,706 | 238,555,... | 16,677 | 137,491,... | Complete | 1 Gbps | 1 Gbps | | | | | 0 | |
| 0 | 0 | 819,124 | 0 | 863,676 | Complete | 1 Gbps | 1 Gbps | | | | | 0 | |
| 0 | 0 | 0 | 0 | 0 | Complete | 0 bps | 0 bps | | | | | 0 | |
| 0 | 23 | 4,797,5... | 73,965 | 8,771,9... | Complete | 0 bps | 0 bps | | | 0 | 802.11a... | 1 | |
| 0 | 0 | 0 | 0 | 0 | Complete | 0 bps | 0 bps | | | 0 | 802.11a... | 0 | |
| 0 | 0 | 2,082 | 0 | 1,026 | Complete | 0 Mbps | 0 bps | NONE | Not-Ass... | 0 | 802.11a... | 1 | 0 dBm |
| 0 | 0 | 0 | 0 | 0 | Complete | 0 Mbps | 0 bps | NONE | Not-Ass... | 0 | AUTO 20 | 0 | 0 dBm |
| 0 | 0 | 2,443,8... | 0 | 2,371,7... | Complete | 6 Mbps | 351 Mbps | Authorized | 04:F0:21... | 36 | 802.11a... | 1 | -63 dB |
| 0 | 0 | 2,457,5... | 0 | 2,358,1... | Complete | 6 Mbps | 351 Mbps | Authorized | 04:F0:21... | 36 | 802.11a... | 1 | -63 dB |
| 0 | 39 | 511,964 | 34 | 444,572 | Complete | 6 Mbps | 351 Mbps | Authorized | 04:F0:21... | 36 | 802.11a... | 1 | -63 dB |
| 0 | 0 | 511,714 | 0 | 442,070 | Complete | 87.8 Mbps | 351 Mbps | Authorized | 04:F0:21... | 36 | 802.11a... | 1 | -63 dB |

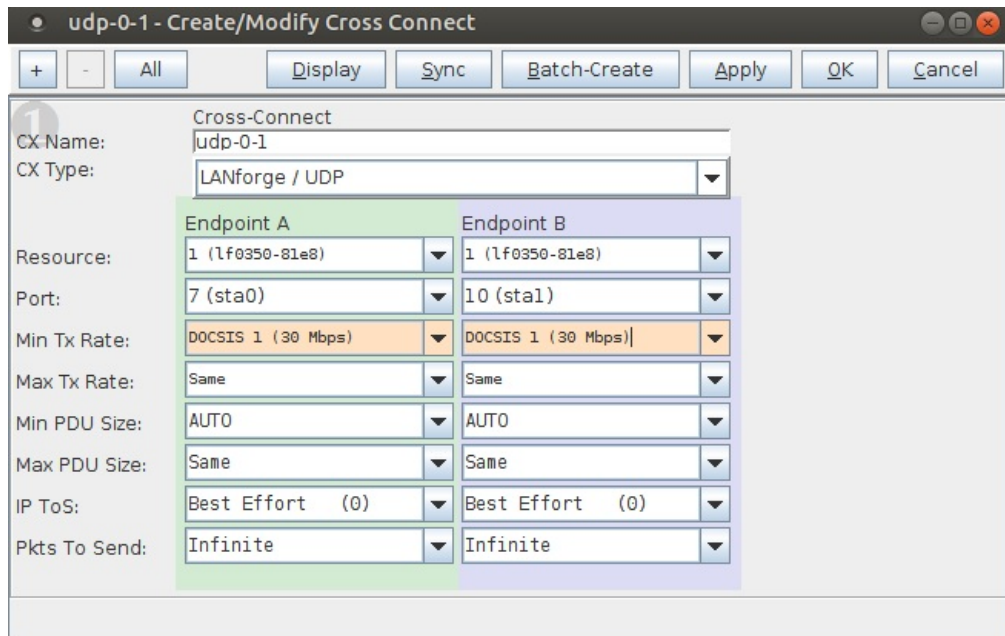
For more information see [LANforge User's Guide: Ports \(Interfaces\)](#)

2. Create Layer-3 connections between the station interfaces.

A. Go to the **Layer-3** tab and click **Create**



B. Create a station-to-station UDP speed test:



A. **Test 1:** sta0-sta1, UDP, 30Mbps

C. Create a station-to-station TCP speed test:

A. **Test 1:** sta0-sta1, TCP, 1.54Mbps bi-directional traffic

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

3. Run traffic tests concurrently, and view results.

A. This example shows little packet loss, however being that this is traffic sent wirelessly via stations, there may be interruptions due to busy channel frequencies, if needed, adjust your Tx rate accordingly.

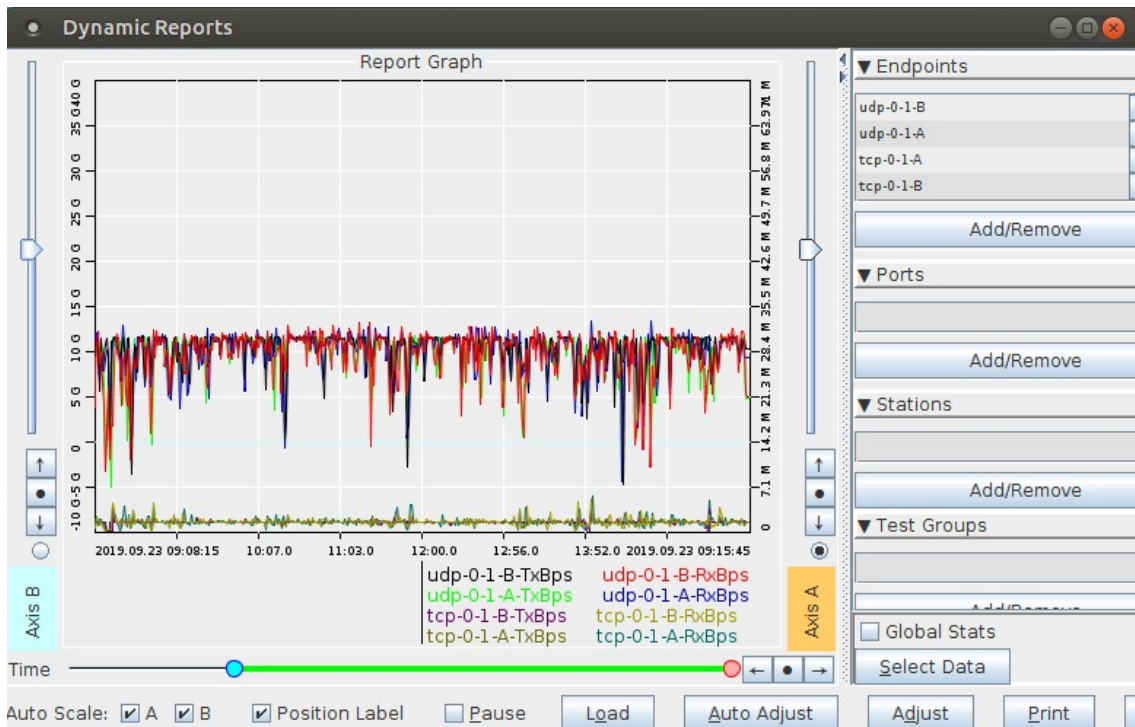
| Name | Type | State | Pkt Rx A | Pkt Rx B | Bps Rx A | Bps Rx B | Rx Drop % A | Rx Drop |
|---------|--------|-------|----------|----------|------------|------------|-------------|---------|
| tcp-0-1 | LF/TCP | Run | 22 | 23 | 1,437,232 | 1,445,531 | 4.348 | |
| udp-0-1 | LF/UDP | Run | 19,723 | 20,615 | 28,522,417 | 29,094,228 | 0 | |

B. The **Layer-3 Endpoints** tab has more detail.

The screenshot shows the LANforge Manager interface with the 'Layer-3 Endpoints' tab selected. The table below displays the data for various endpoints.

| Name | EID | Run | Mng | Script | Tx Rate | Tx Rate (1 min) | Tx Rate (last) | Tx Rate LL |
|-----------|----------|-------------------------------------|-------------------------------------|--------|------------|-----------------|----------------|------------|
| tcp-0-1-A | 1.1.7.7 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | None | 1,441,042 | 1,444,123 | 1,563,483 | 1,636,842 |
| tcp-0-1-B | 1.1.10.8 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | None | 1,483,618 | 1,493,826 | 1,565,038 | 1,648,968 |
| udp-0-1-A | 1.1.7.5 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | None | 27,559,037 | 27,565,469 | 29,943,347 | 30,596,386 |
| udp-0-1-B | 1.1.10.6 | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | None | 28,705,922 | 28,804,337 | 30,432,095 | 31,337,008 |

C. Select the cross-connects or endpoints and Right-Click → Dynamic Report on the **L3 Endp** or **Layer-3** table to view a live report of the connections.



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

For more information see [LANforge User's Guide: Reporting](#)