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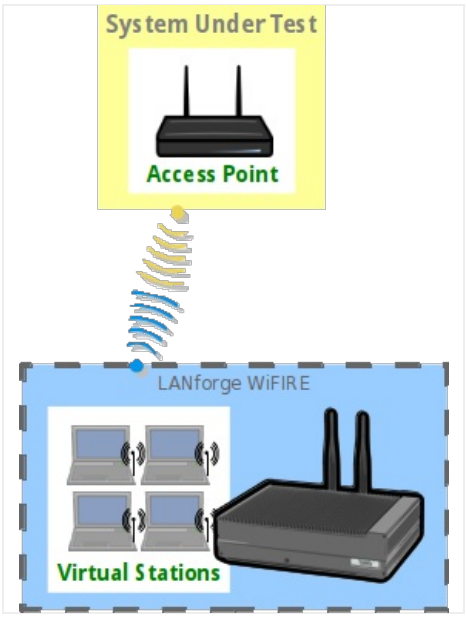
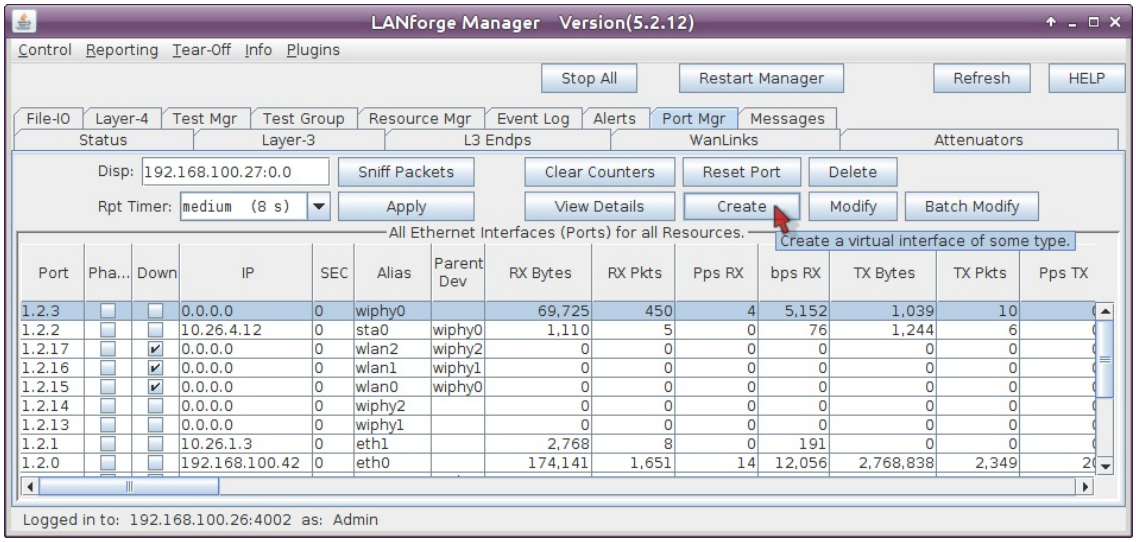
LANforge WiFi Station Reset Testing

Goal: Use the WiFi Port Reset plugin to emulate restarting of stations associated to your WiFi network.

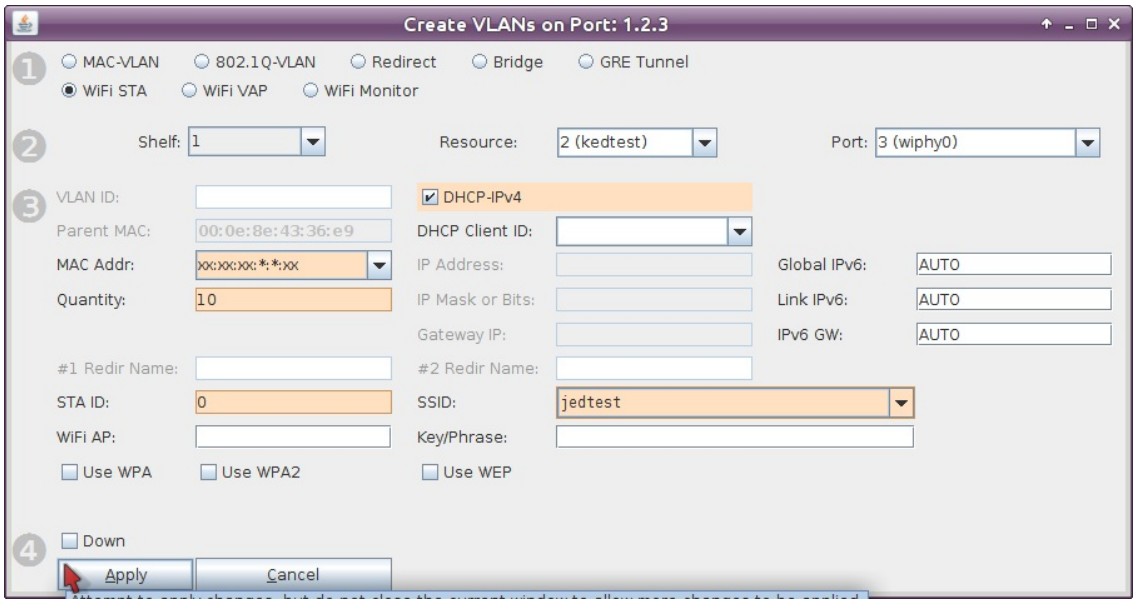
Requires LANforge 5.2.12 or later. Restarting a WiFi station exercises the whole network stack because it forces negotiation across the wired network: your AP, your DHCP server, your AP controller, and possibly your RADIUS server. Performing this test at an unusually high frequency is a challenging robustness test for your wireless topology and can expose possible race conditions when large numbers of stations reset simultaneously while passing traffic. This cookbook assumes the System Under Test is your AP and that a CT520 (or better) is emulating stations to be reset on the network.



1. Create WiFi stations
   A. In the **Ports** tab, select wiphy0 and click **Create**



   B. In the **Create VLANS** window, craft ten wifi stations:



A. Select WiFi STA

B. For MAC address, choose `xx:xx:xx:*:*:xx`

C. Select DHCP-IPv4

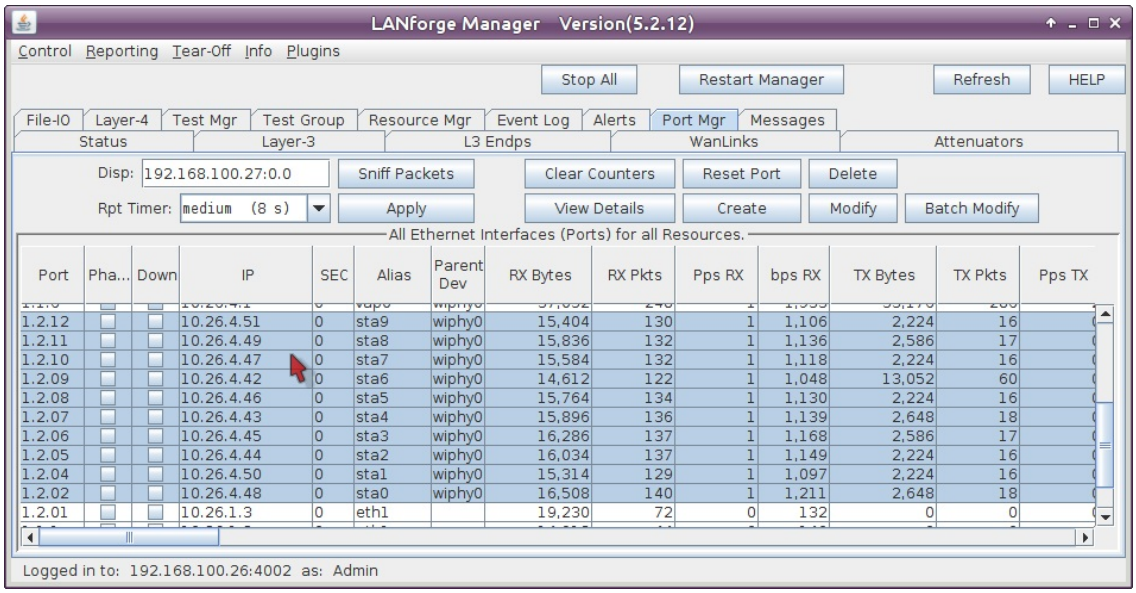
D. Enter Quantity **10**

E. Specify **0** for STA ID

F. The example SSID for this cookbook is `jedtest`

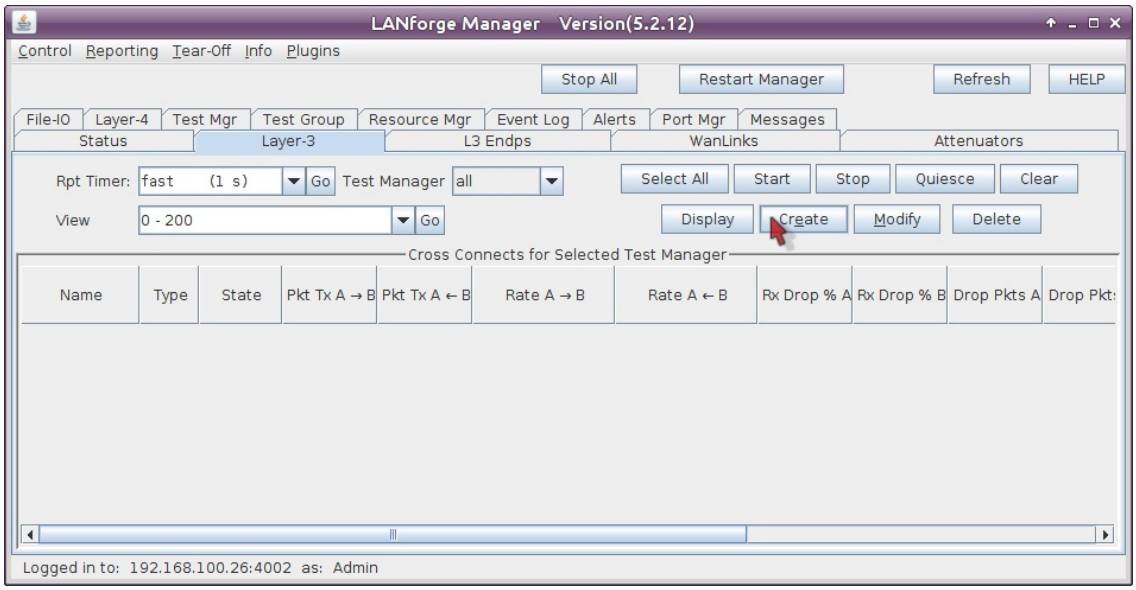
G. ...and then click **Apply**

C. You will see ten stations created:

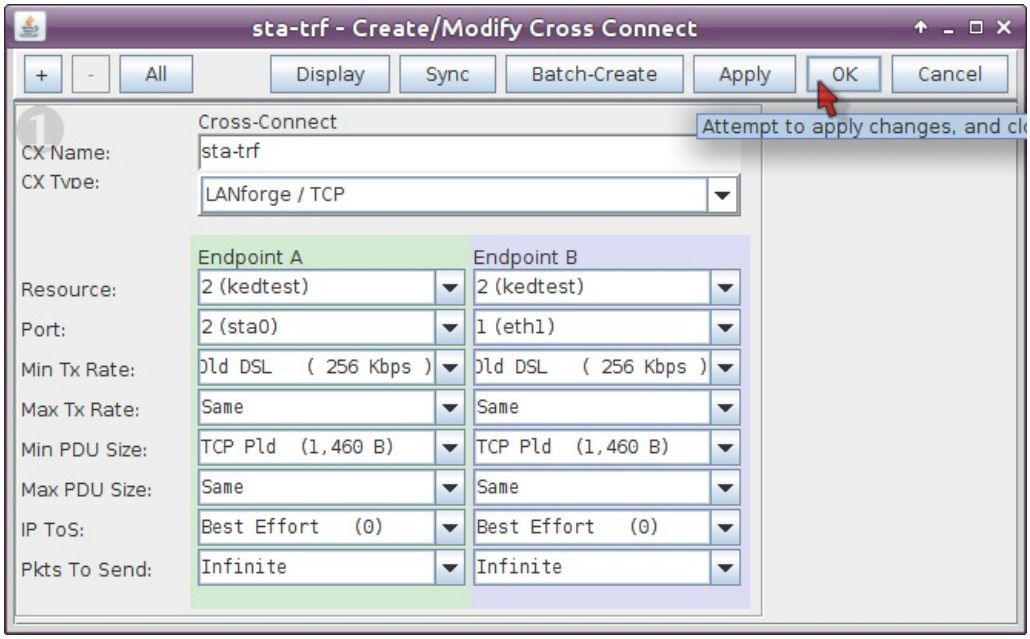


2. Create Connections to Stations

A. In the **Layer-3** tab, click **Create**

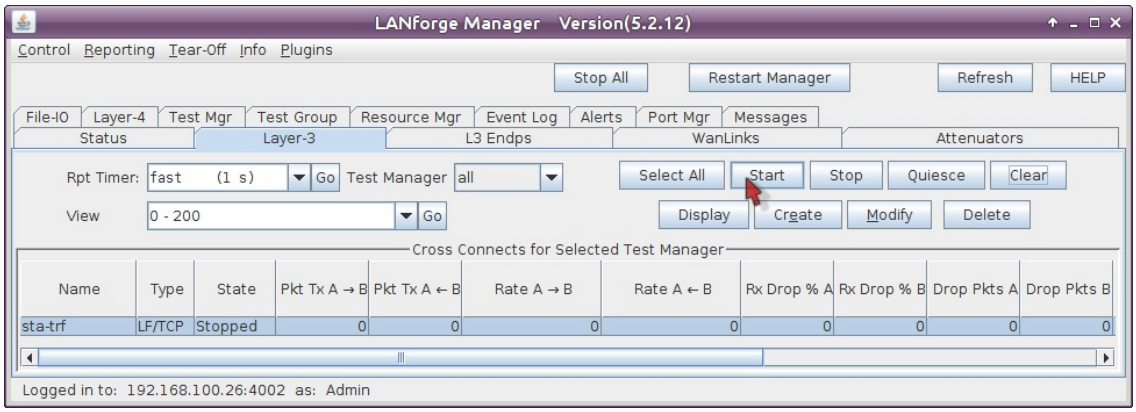


B. Create station download traffic



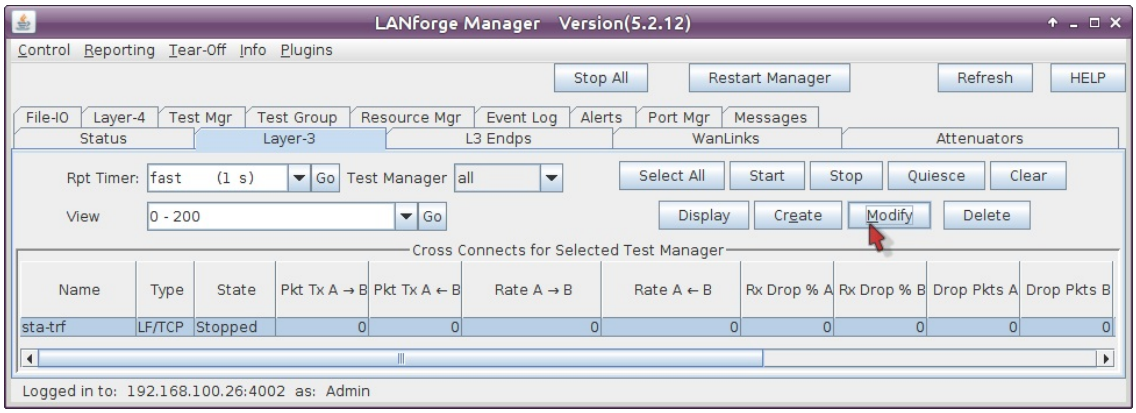
A. This example connection is named sta-trf
B. Connection Type is **LANforge / TCP**
C. This example resource is **kedtest**, where our stations live
D. The Endpoint A Port will be the station **sta0**,
E. and the Endpoint B Port will be upstream of the ap, **eth1**.
F. We'll set the Min Tx Rate for both sides to **265 Kbps**
G. and set the PDU Size to `TCP Pld (1,460 B)`.
H. ...then click **OK**

C. Test this station by selecting it and clicking **Start**

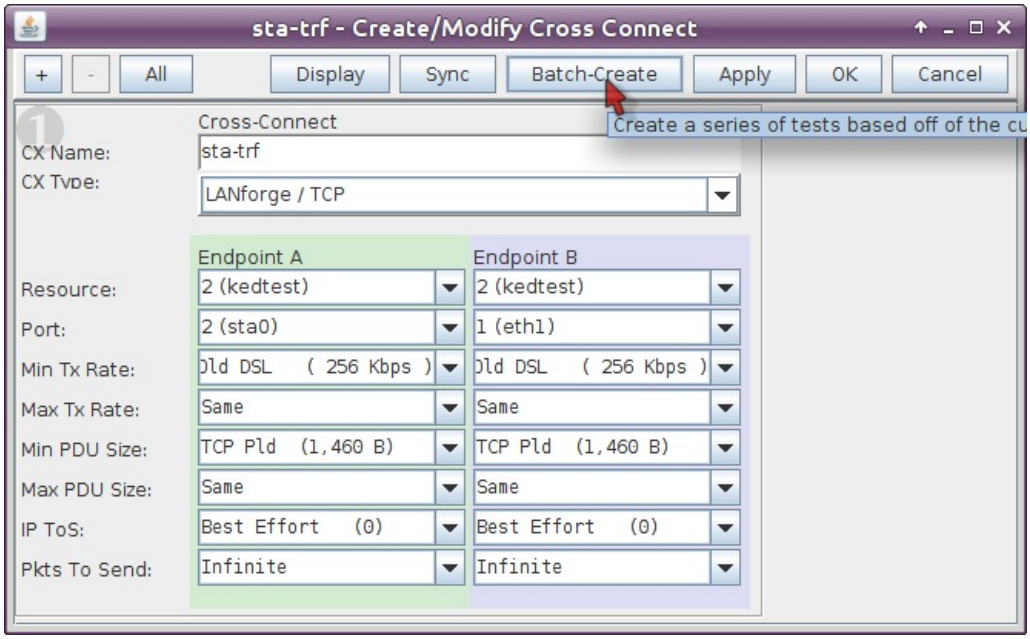


D. Click **Stop** when you are done testing the connection

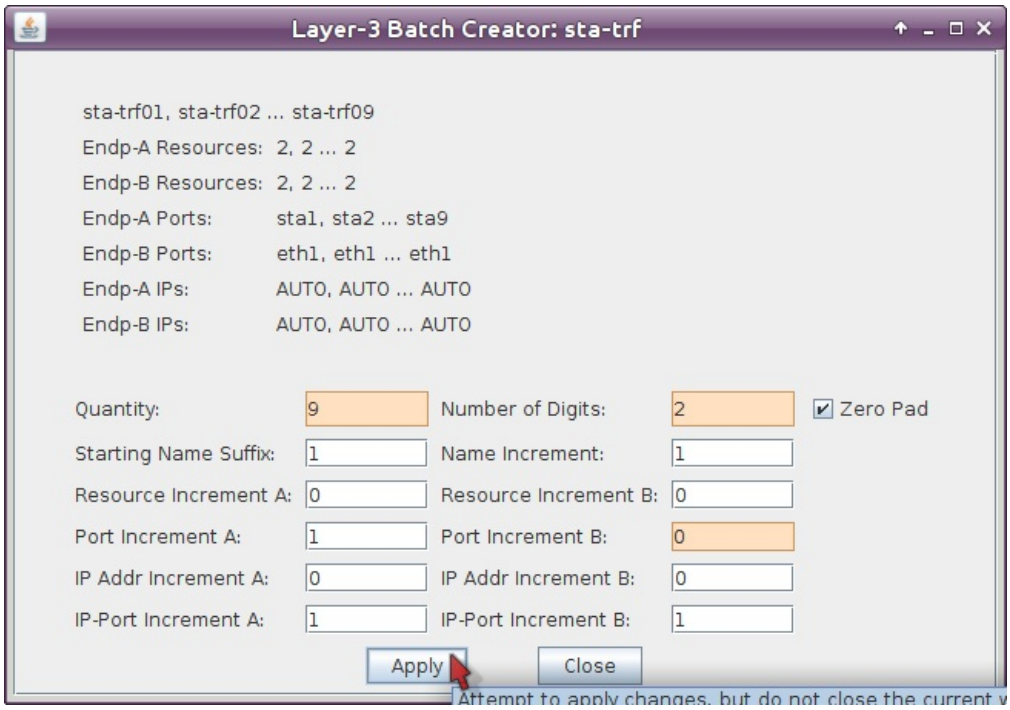
E. Click **Modify** for `sta-trf` and we will batch create nine more:



F. Click **Batch Create** in the Create-Modify Cross Connect window



G. Create nine more cross connects like this one:

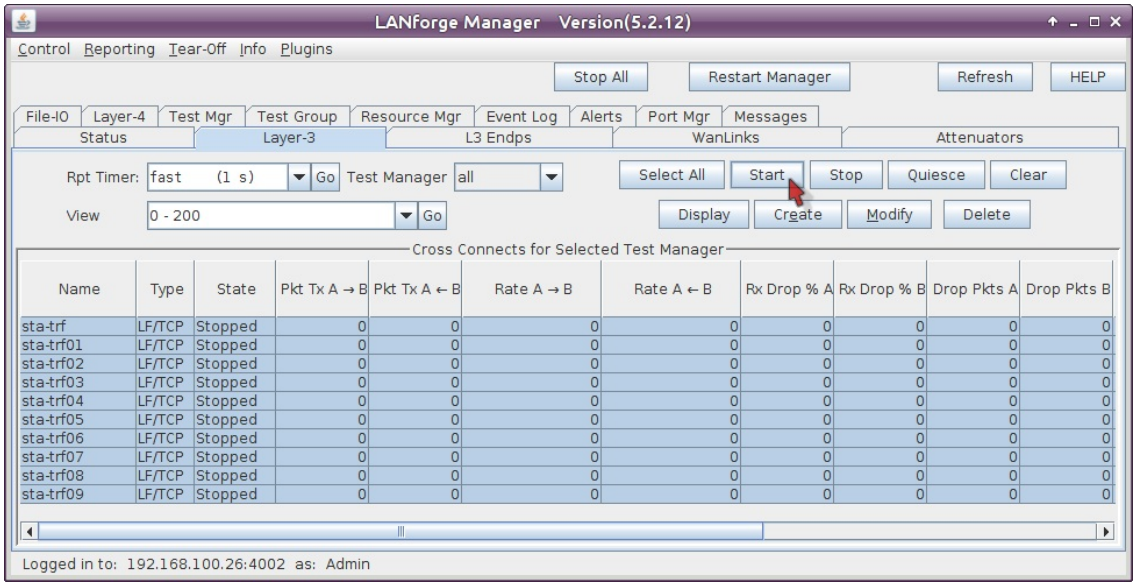


A. Set Quantity to **9**

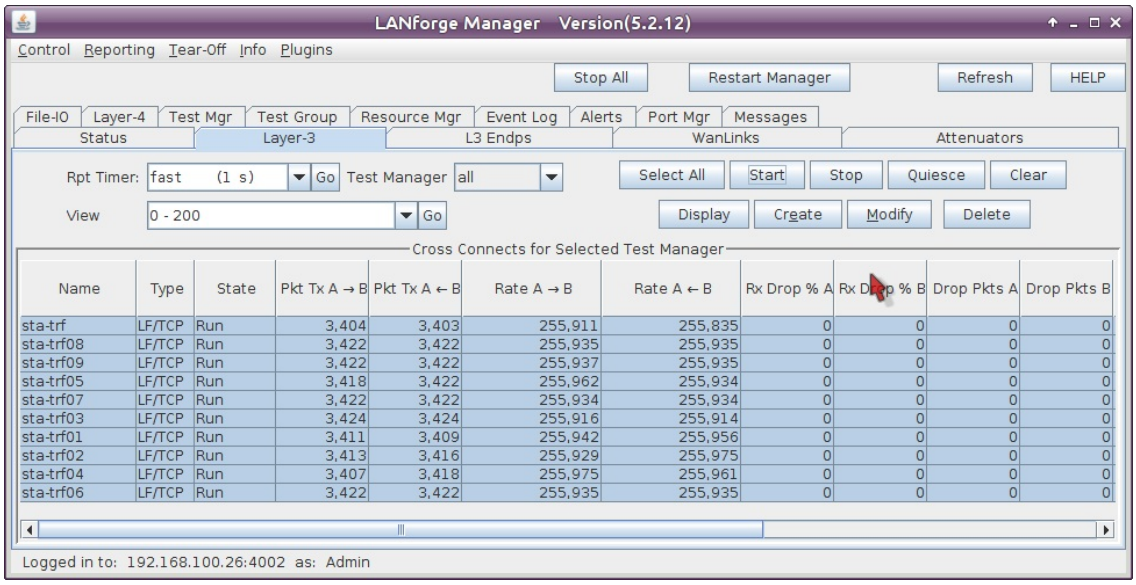
B. Set Number of Digits to **2**

C. We are not changing the B-side port, so we do not need to increment it. Set the Port Increment B to **0**

H. Select all connections and click **Start**

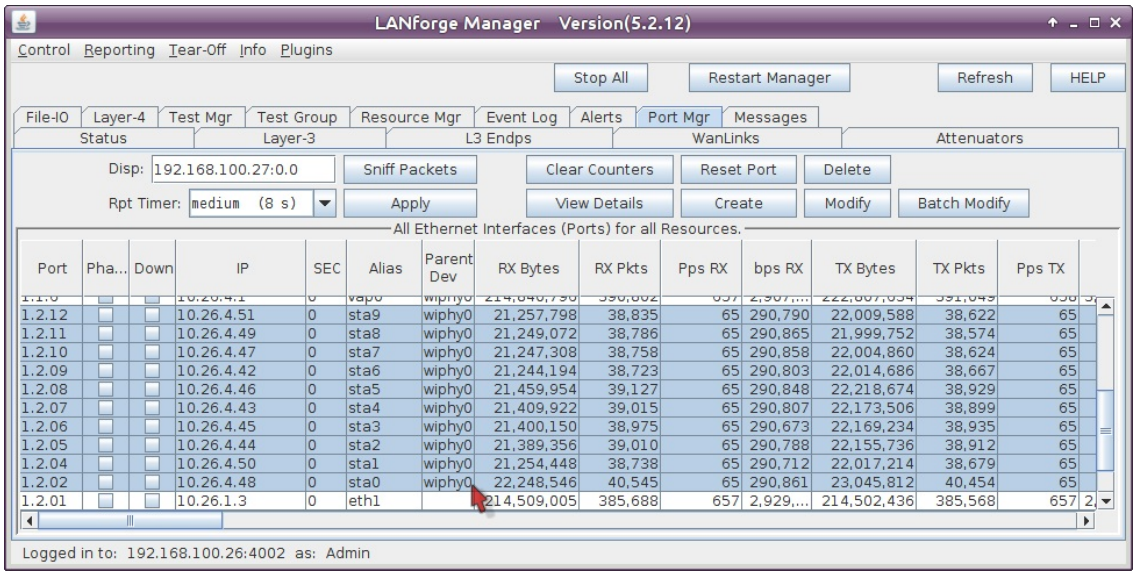


I. Connections should not show dropped packets in the __Rx Drop % A or Rx Drop % B__ columns

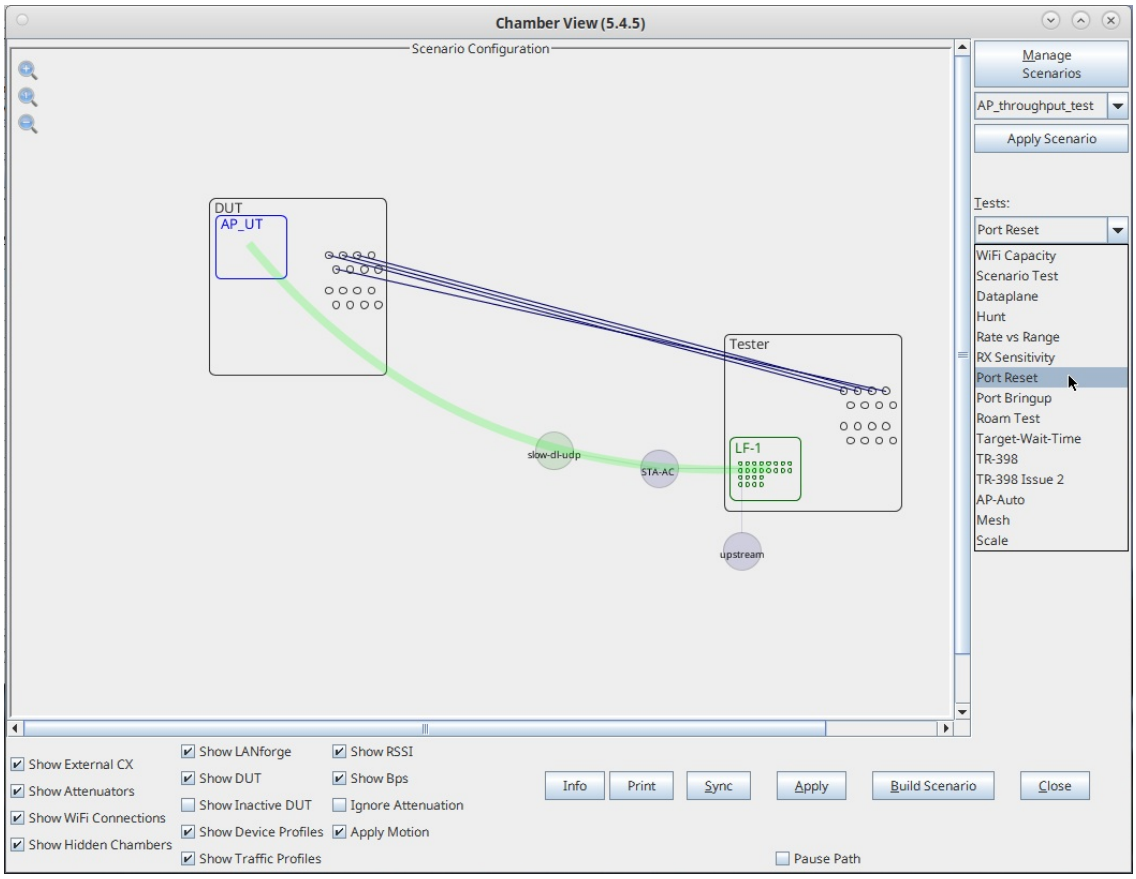


3. Configure Port Reset Script

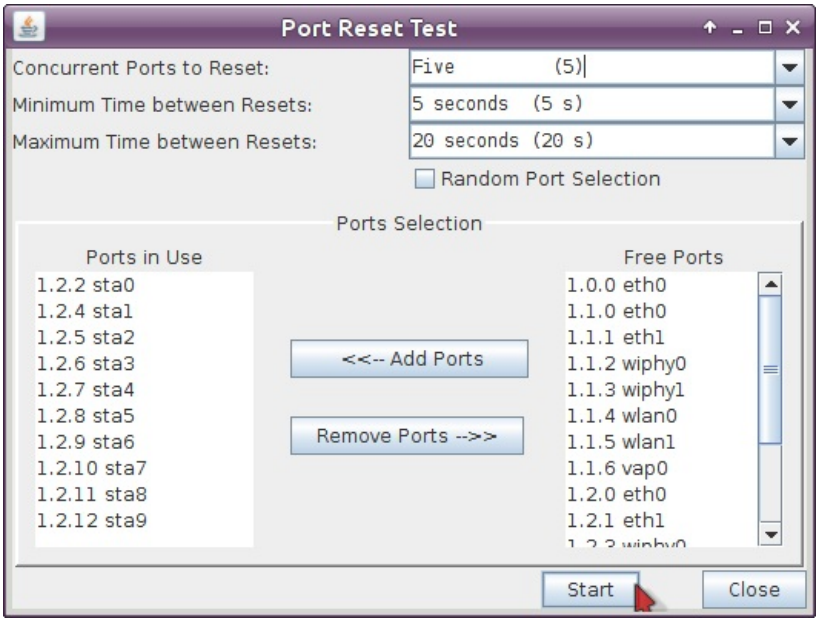
A. In the **Port Manager** tab, select stations **sta0 - sta9**



B. In the **LANforge Manager** windows, select the Chamber View→Tests→Port Reset option→Run Test



C. In the Port Reset Test window, you will see the ten ports already selected. We will configure quick resets for this test:



A. Set Concurrent Ports to Reset to **5**

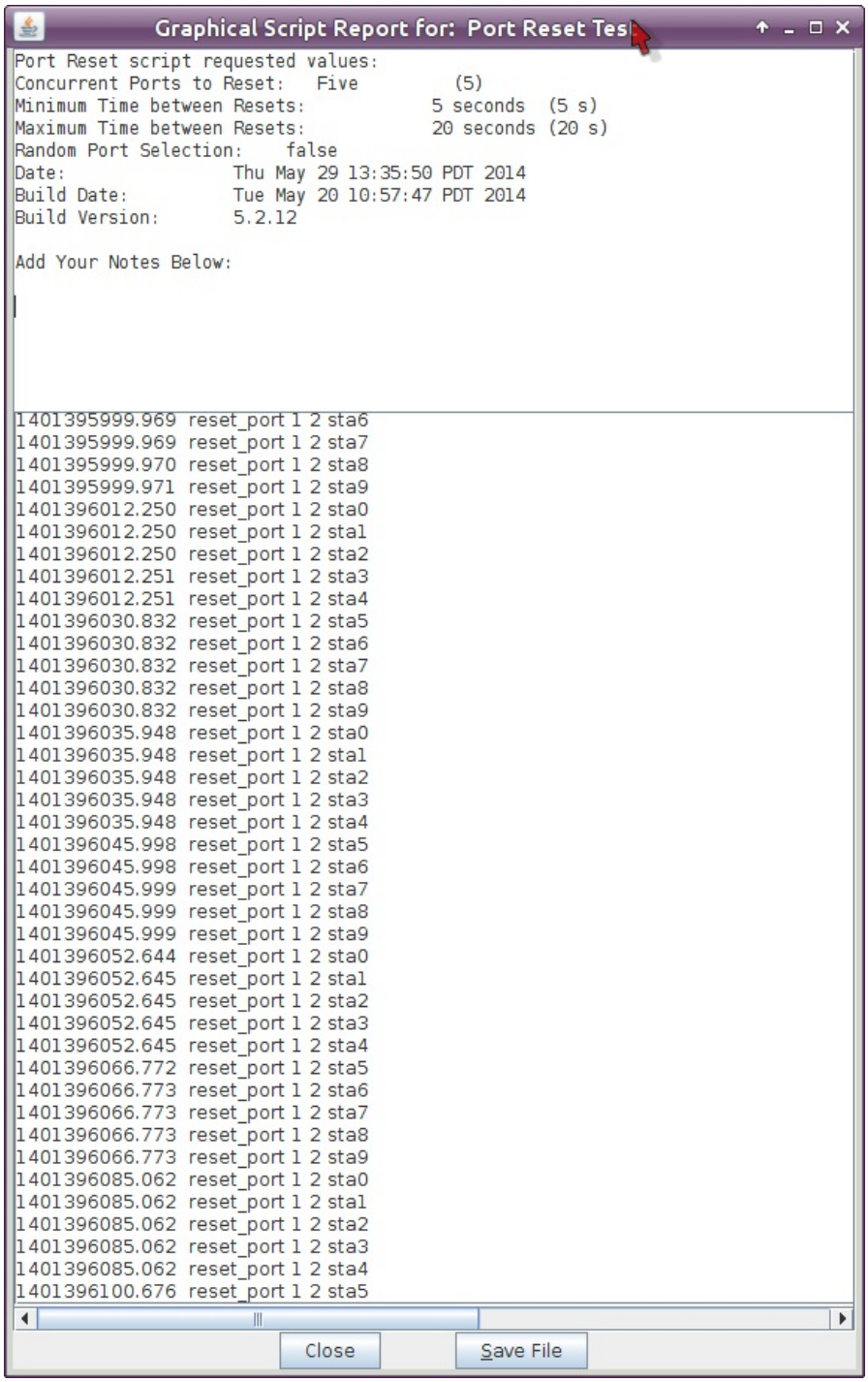
B. Set Minimum Time between Resets to **5 seconds**

C. and Maximum Time between Resets to **20 seconds**

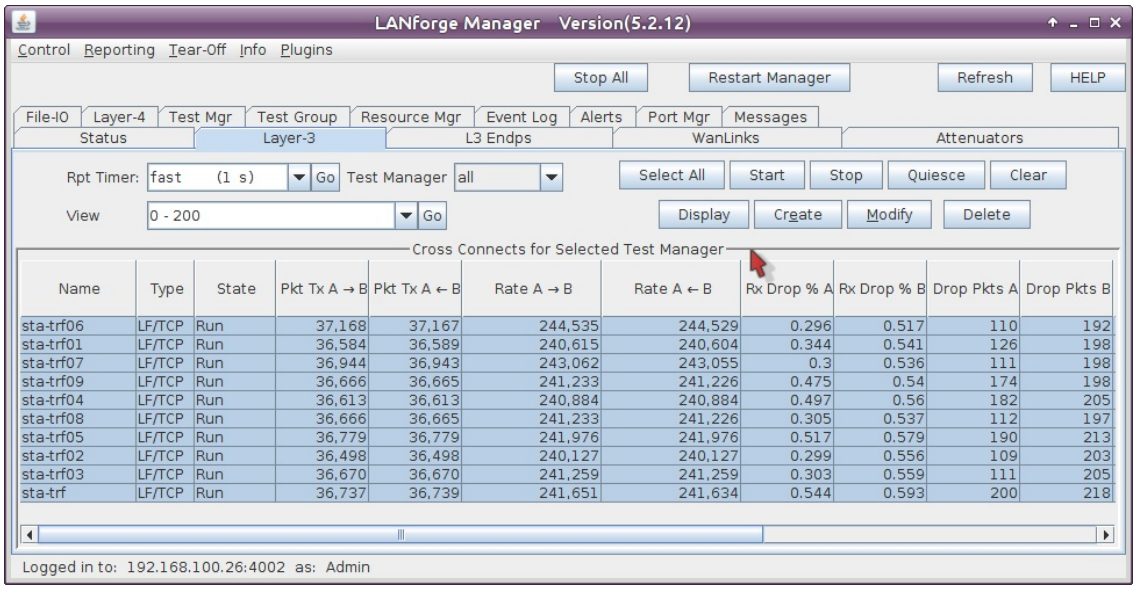
D. ...and click **Start**

4. Observe Results

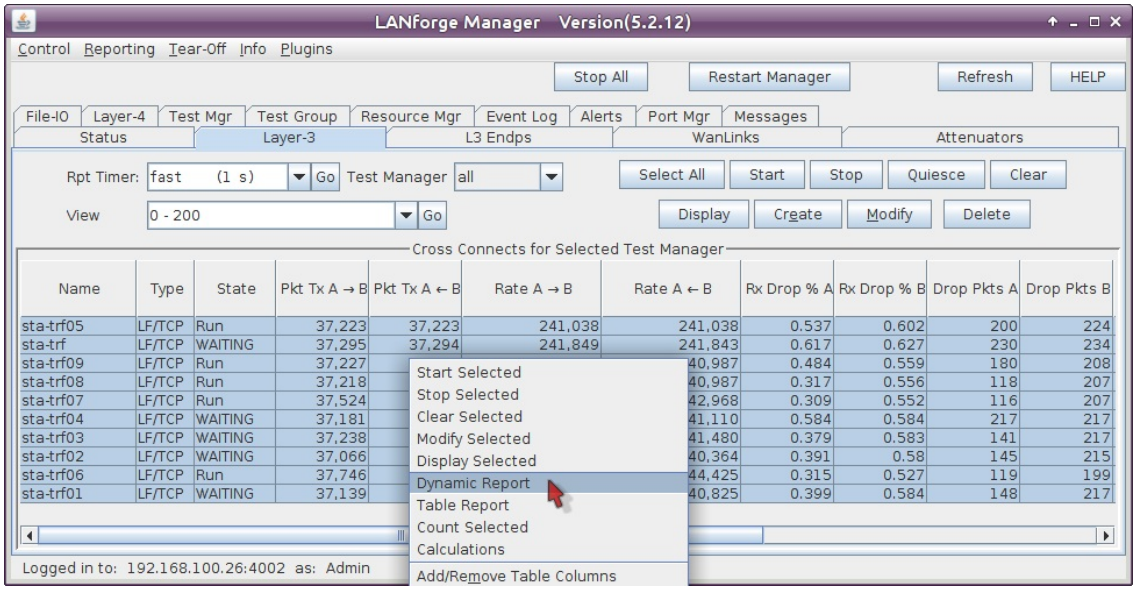
A. The Port Reset Test Results window will show the list of ports getting reset.



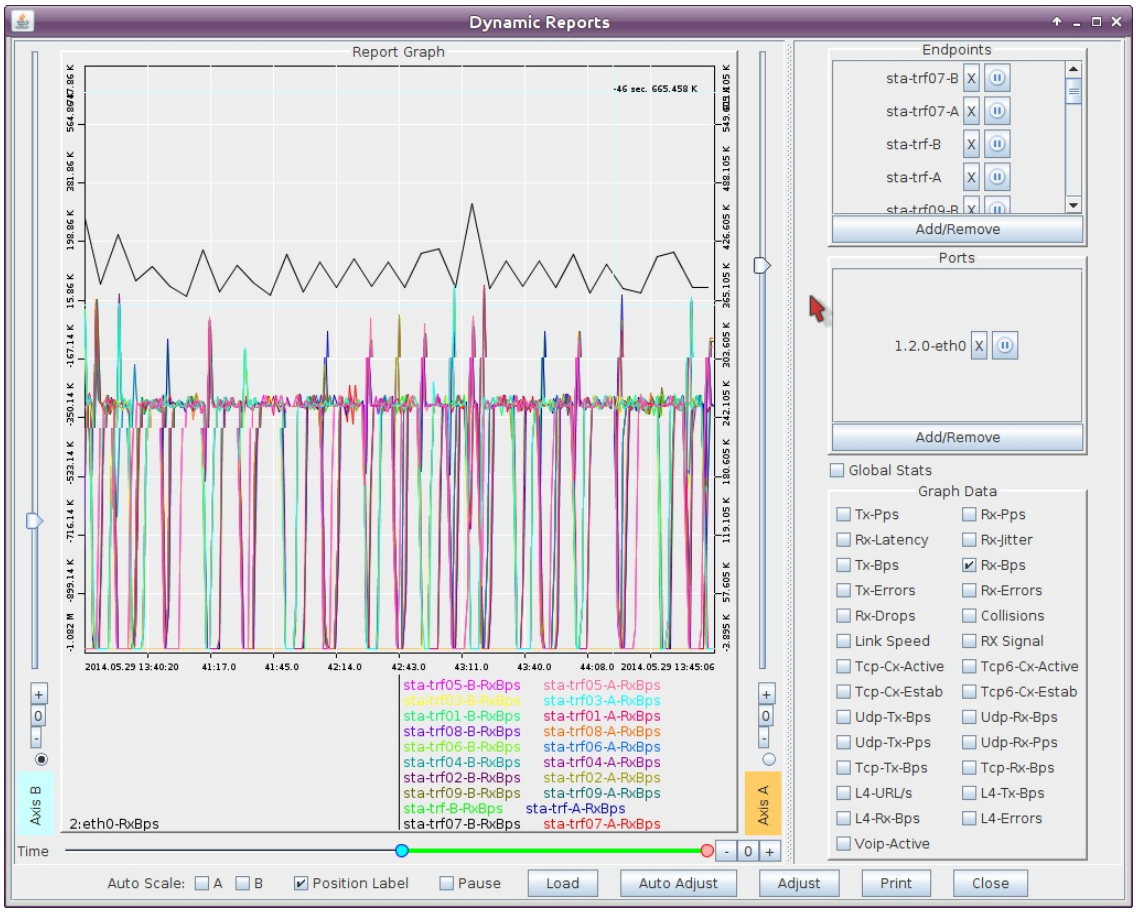
B. The Layer-3 tab will show the amount of lost and dropped packets.



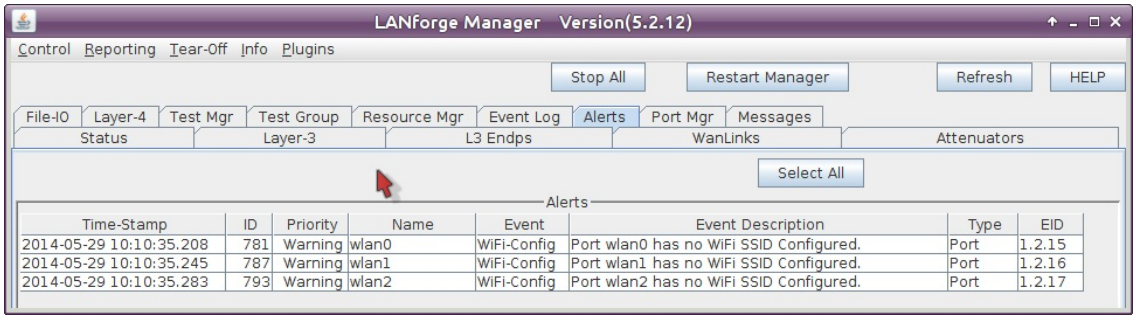
C. We can graph the throughput of the connections with the Dynamic Report menu option



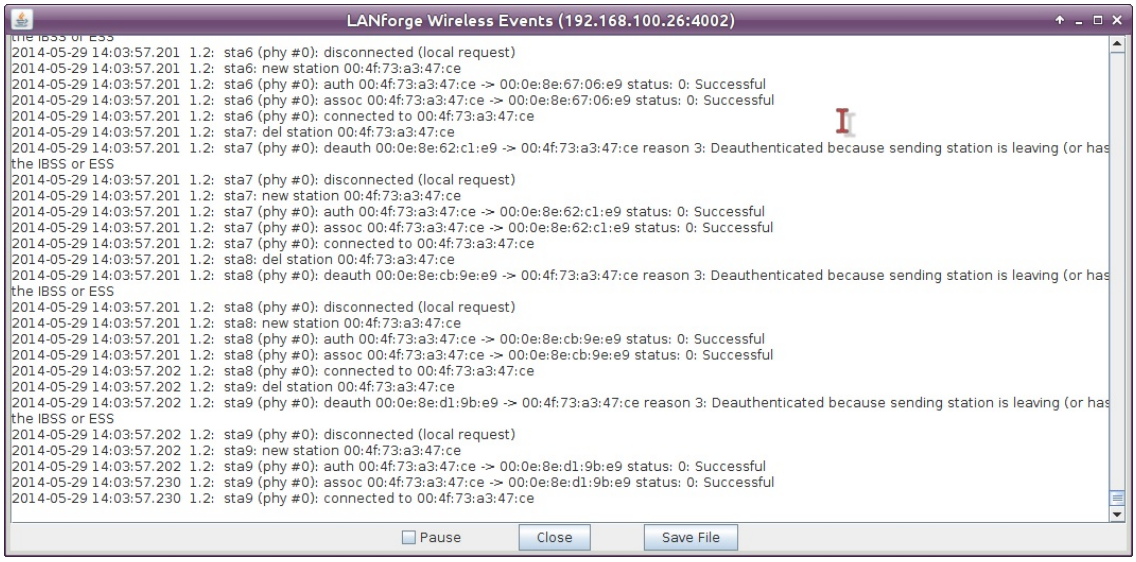
D. In the Dynamic Reports window, we are graphing the **Rx-Bps** for each connection in axis-A, and in axis-B we are graphing the Rx-Bps for the upstream port, eth1



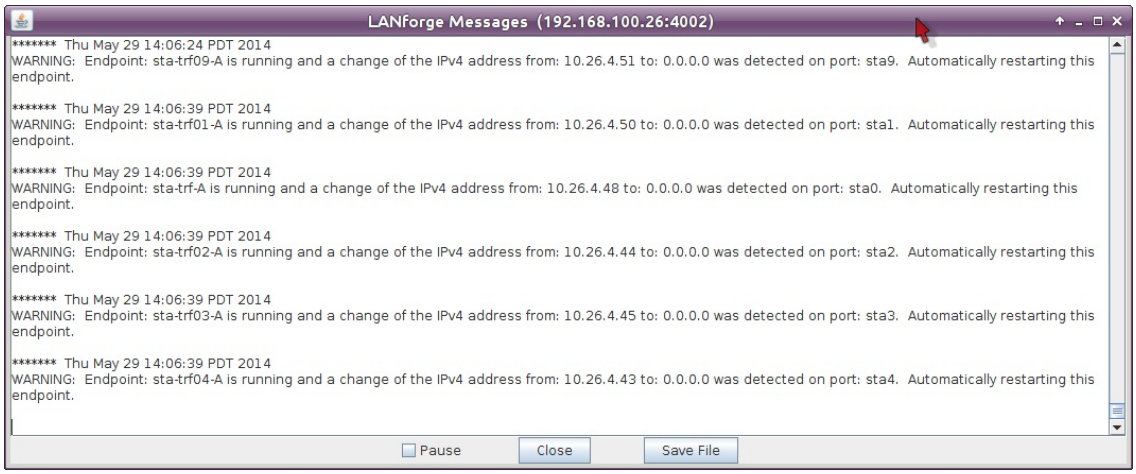
E. You will also want to watch for warnings and failures. In the Alerts tab, you will see persistent alerts. The alerts in this picture can be safely ignored:



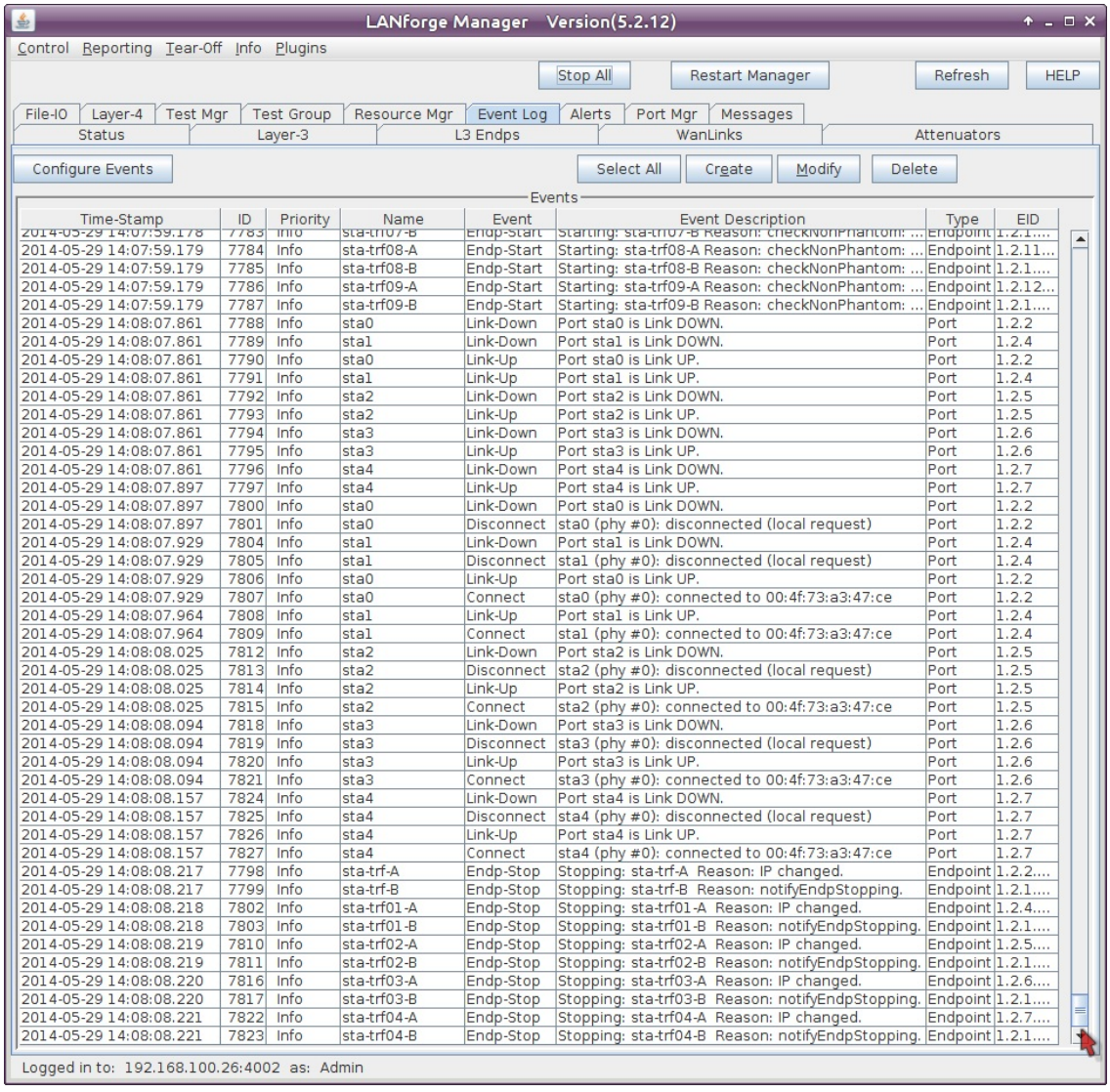
F. Check the LANforge Wireless Events window.You will see station connects and disconnects and failure notices. The messages shown in this picture are normal:



G. In the LANforge Messages window, you will see connection warnings. Connections will warn when their IP changes, and this is normal, as shown in this picture:



H. And in the Event Log tab, you can review more detailed link-up, link-down and connection events that occur with these station restarts:



I. Use these monitoring sources to check for undesirable trends:
   - Undesirable slowing trend in traffic
   - stations that do no return
   - DHCP failures or pool exhaustion
   - or uncommonly long station re-association events

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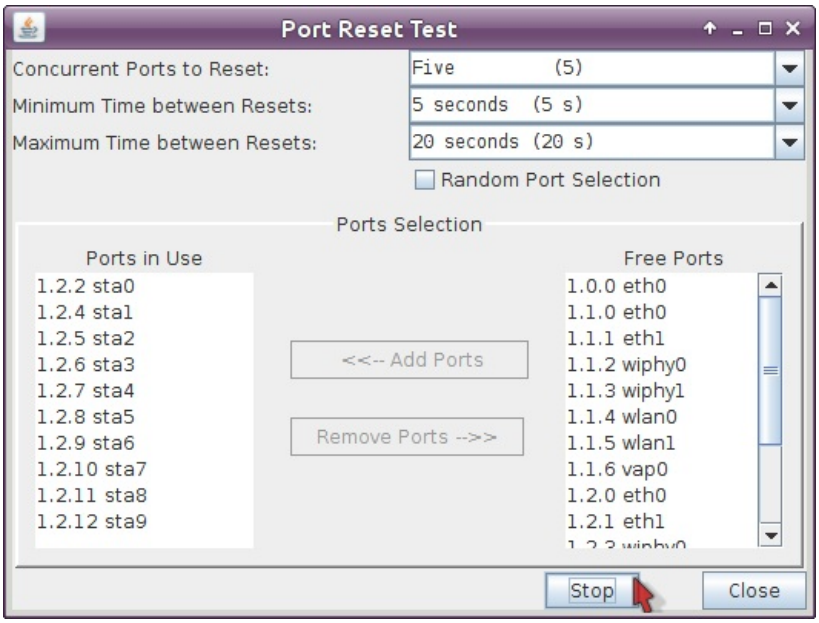
5. Halt the test when you are finished.


Port Reset Test
Concurrent Ports to Reset:
Five (5)
Minimum Time between Resets:
5 seconds (5 s)
Maximum Time between Resets:
20 seconds (20 s)
Random Port Selection
Ports Selection
Ports in Use
1.2.2 sta0
1.2.4 sta1
1.2.5 sta2
1.2.6 sta3
1.2.7 sta4
1.2.8 sta5
1.2.9 sta6
1.2.10 sta7
1.2.11 sta8
1.2.12 sta9
<<-- Add Ports
Remove Ports -->>
Free Ports
1.0.0 eth0
1.1.0 eth0
1.1.1 eth1
1.1.2 wiphy0
1.1.3 wiphy1
1.1.4 wlan0
1.1.5 wlan1
1.1.6 vap0
1.2.0 eth0
1.2.1 eth1
Stop
Close