Candela
TECHNOLOGIES   Network Testing and Emulation Solutions

sales@candelatech.com
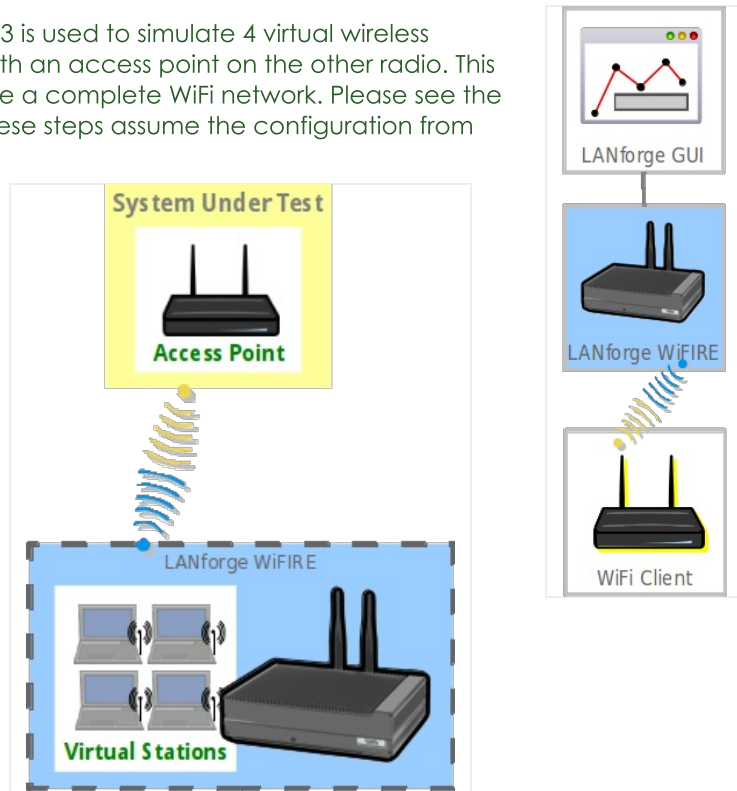support@candelatech.com
+1 (360) 380-1618 [PST, GMT -8]

Generating Traffic to saturate a particular WiFi Channel

Goal: Setup and run Wireless LAN traffic using the LANforge CT523 in order to fully saturate a WiFi channel.

In this test scenario, the LANforge CT523 is used to simulate 4 virtual wireless stations on one radio that associate with an access point on the other radio. This allows a single LANforge machine to be a complete WiFi network. Please see the Wifi Testing cookbook example first. These steps assume the configuration from that cookbook is already in place.

1. Create a virtual AP on wiphy1.

    A. Go to the Port Manager

   B. Select port wiphy1 and click Create

C. Select the **Wifi VAP** button, then enter **MAC**, **Quantity**, **STA ID**, and **SSID**. Enter IPv4 address info:

D. Configure the radio's channel (which will apply to the VAP that was just created). Select the wiphy1 interface in the Port-Mgr tab and click **Modify**. Select the channel, and optionally the country-code, and then press **Ok**. If you elect to change the country code, you must do so on all radios in your system in order for proper function.

For more information see LANforge User's Guide: Ports (Interfaces)

2. Use the Netsmith feature to create a virtual router and configure DHCP for the AP.

A. Go to the **Status** tab, and click the Netsmith button for Resource 1.

B. Drag the existing interfaces into a more pleasing layout.

C. Right-Click in empty space and create a new Virtual Router. Just click OK, using the default configuration.

D. Drag the VAP interface into the virtual router and click **Apply** at the bottom-right of the Netsmith window..

E. Double-lick the vap0 icon (which should now be green) to bring up the **Create/Modify Connection** window.

F. Select the DHCP option, and then fill in the **Range Min** and **Range Max** values appropriately.

G. Apply Netsmith again and the configuration should be done.
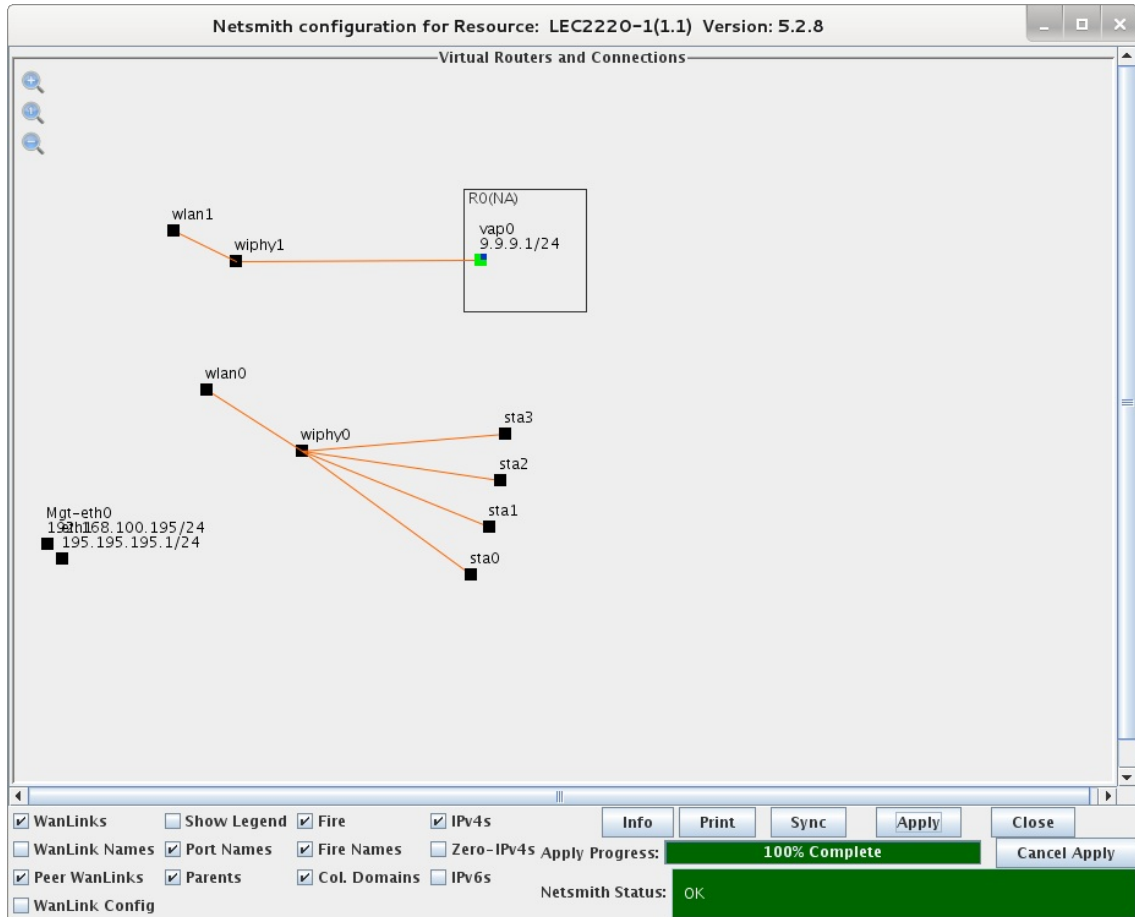
3. Use Batch-Modify to configure all of the existing WiFi stations to talk to the new AP.

A. Go to the **Port-Mgr** tab, select sta0, sta1, sta2, and sta3, and then click the **Batch Modify** button. Configure the SSID to match the AP, and then press OK

B. The station interfaces should now get DHCP addresses matching the new AP

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

A. Go to the **Layer-3** tab. If there are existing connections, stop and/or delete them, and then click Create. Give the test a name, select sta0 and sta1 for ports, set rate to 100M, and set payload size. When complete, press Apply to create the new CX.

B. Create a second UDP connection on sta2 and sta3 interfaces. Change name, change ports, and press OK.

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

5. Run traffic tests concurrently, and view results.

A. Select both CXs in the **Layer-3** tab, and click the **Start** button.

LANforge Manager   Version(5.2.8)

Control Reporting Tear-Off Info

| Stop All | Restart Manager | Refresh | HELP |

| Layer-4 | Generic | Test Mgr | Test Group | Resource Mgr | Serial Spans | PPP-Links | Event Log | Alerts | Port Mgr | Messages |
| Status | Layer-3 | L3 Endps | VoIP/RTP | VoIP/RTP Endps | Armageddon | WanLinks | Attenuators | Collision-Domains | File-IO |

Rpt Timer: fast (1 s) ▼ Go Test Manager all ▼ | Select All | Start | Stop | Quiesce | Clear |

View 0 - 200 ▼ Go | Display | Create | Modify | Delete |

Cross Connects for Selected Test Manager

Name	Type	State	Pkt Tx A->B	Pkt Tx A<-B	Rate A->B	Rate A<-B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkts B	Avg RTT	Rpt
udp-flood	LF/UDP	Run	121,181	121,731	20,849,257	20,913,330	0	0	0	0	33	
udp-flood...	LF/UDP	Run	121,536	121,171	21,031,401	20,906,182	0	0	0	0	39	

Logged in to: 192.168.100.195:4002 as: Admin

B. Go to the **Port-Mgr** tab, scroll to the right, and confirm that the Activity for this channel reports a fairly high percentage.

LANforge Manager   Version(5.2.8)

Control Reporting Tear-Off Info

| Stop All | Restart Manager | Refresh | HELP |

| Layer-4 | Generic | Test Mgr | Test Group | Resource Mgr | Serial Spans | PPP-Links | Event Log | Alerts | Port Mgr | Messages |
| Status | Layer-3 | L3 Endps | VoIP/RTP | VoIP/RTP Endps | Armageddon | WanLinks | Attenuators | Collision-Domains | File-IO |

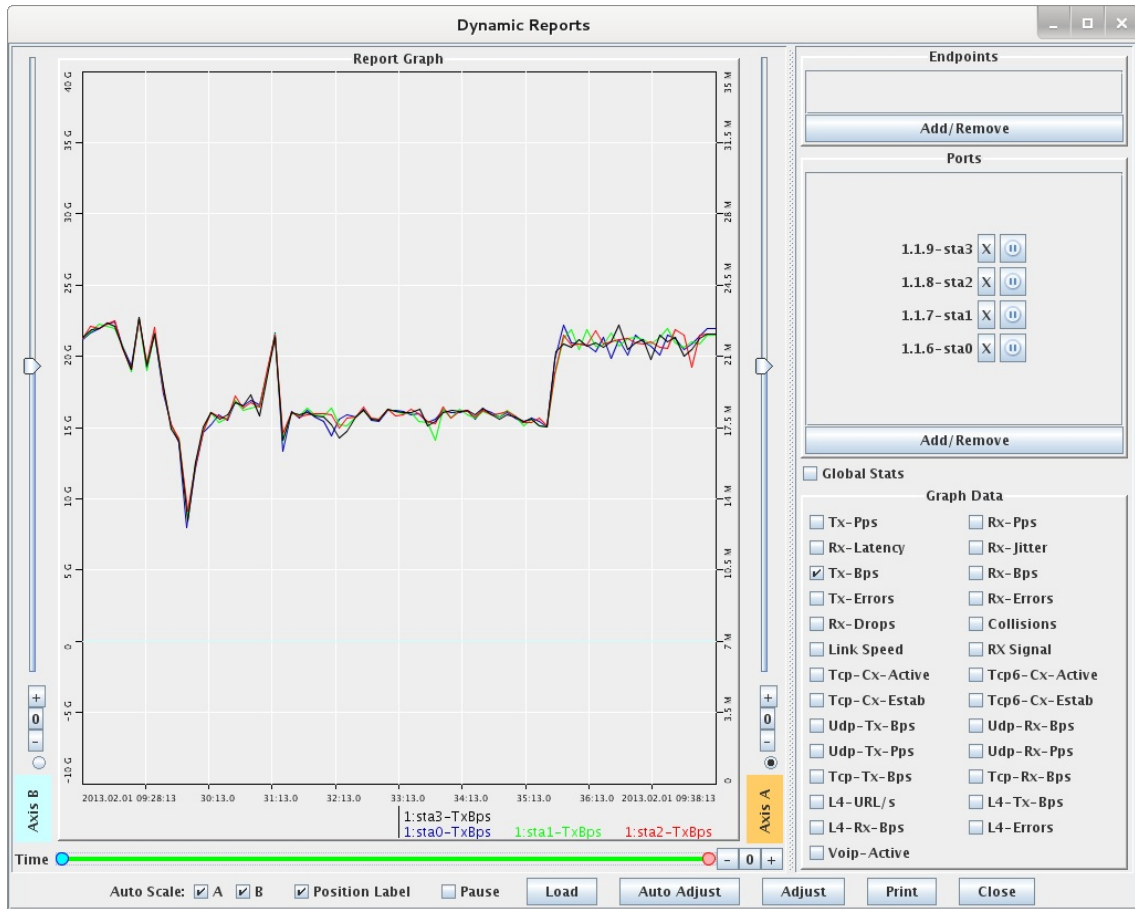Disp: 192.168.100.226:0.0 | Sniff Packets | | Clear Counters | Reset Port | Delete |

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

All Ethernet Interfaces (Ports) for all Resources.

X HB	TX Wind	bps TX LL	Bytes TX LL	bps RX LL	Bytes RX LL	Reset	Rate	Status	Activity	Signal	Noise	Crypt	Retr
0	0	180,745	108,391...	17,751	33,147,...	Complete	1 Gbps		0			0	
0	0	12	60,616	2,637	20,412,...	Complete	1 Gbps		0			0	
0	0	86,801,...	19,863,...	88,595,...	20,865,...	Complete			84.218			0	
0	0	86,627,...	7,454,9...	94,061,...	7,919,3...	Complete			84.17			0	
0	0	0	0	0	0	Complete	0.0 Mbps	NONE	84.221	0 dBm	-95 dBm	0	
0	0	0	0	0	0	Complete	0.0 Mbps	NONE	84.17	0 dBm	-95 dBm	0	
0	0	21,547,...	13,756,...	21,519,...	2,324,7...	Complete	360.0 M...	Authorized	84.224	-29 dBm	-95 dBm	0	
0	0	21,807,...	2,358,7...	21,261,...	13,568,...	Complete	360.0 M...	Authorized	84.224	-29 dBm	-95 dBm	0	
0	0	21,687,...	1,864,3...	21,328,...	1,834,6...	Complete	324.0 M...	Authorized	84.224	-29 dBm	-95 dBm	0	
0	0	21,608,...	1,859,4...	21,377,...	1,839,5...	Complete	270.0 M...	Authorized	84.224	-28 dBm	-95 dBm	0	
0	0	86,628,...	7,442,2...	85,498,...	7,346,4...	Complete	0.0 Mbps		84.169	0 dBm	-95 dBm	0	

Logged in to: 192.168.100.195:4002 as: Admin

C. Select the 4 station ports and Right-Click → Dynamic Report on the **Port-Mgr** table to view a live report of the ports.

For more information see LANforge User's Guide: Reporting