Candela TECHNOLOGIES Network Testing and Emulation Solutions

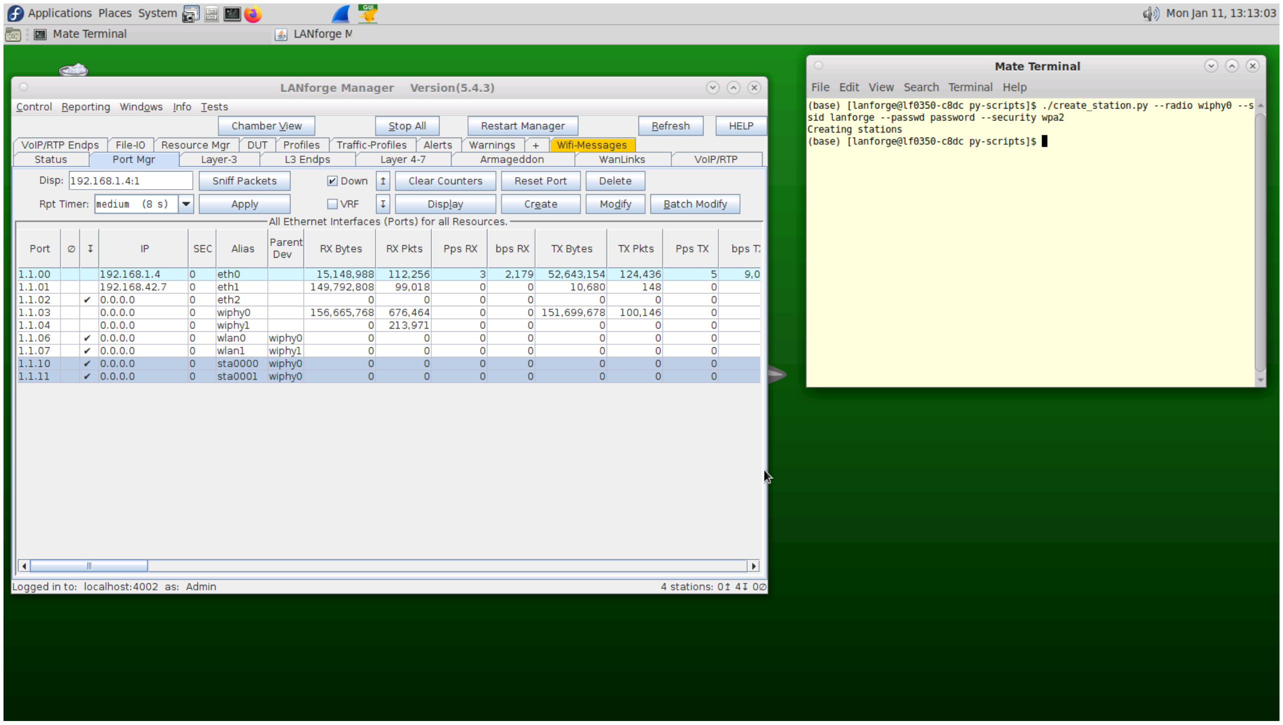
sales@candelatech.com
support@candelatech.com
+1 (360) 380-1618 [PST, GMT -8]

Getting Started with Python scripting for LANforge

Goal: After reading this, a user will know what python modules which are available to use LANforge. There are many of python modules which control LANforge. These allow the user to automate tasks. This cookbook will introduce you to six scripts to automate your systems.
After following this guide, you will understand how to:

1. How to run a script
   A. We start in the /home/lanforge/scripts/py-scripts directory on your lanforge system
   B. On a Linux system, open your terminal and navigate to the py-scripts folder. You can run any python script by typing
   ```
   python3 your_script_here.py --your_flag
   ```
   into your command line. After the script, put any flags you need in order to run your test.

2. Station Creation



Port	∅	↧	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps T:
1.1.00			192.168.1.4	0	eth0		15,148,988	112,256	3	2,179	52,643,154	124,436	5	9,0
1.1.01			192.168.42.7	0	eth1		149,792,808	99,018	0	0	10,680	148	0	
1.1.02		✓	0.0.0.0	0	eth2		0	0	0	0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		156,665,768	676,464	0	0	151,699,678	100,146	0	
1.1.04			0.0.0.0	0	wiphy1		0	213,971	0	0	0	0	0	
1.1.06		✓	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	0	
1.1.07		✓	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0	
1.1.10		✓	0.0.0.0	0	sta0000	wiphy0	0	0	0	0	0	0	0	
1.1.11		✓	0.0.0.0	0	sta0001	wiphy0	0	0	0	0	0	0	0	

```
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_station.py --radio wiphy0 --s
sid lanforge --passwd password --security wpa2
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$ █
```

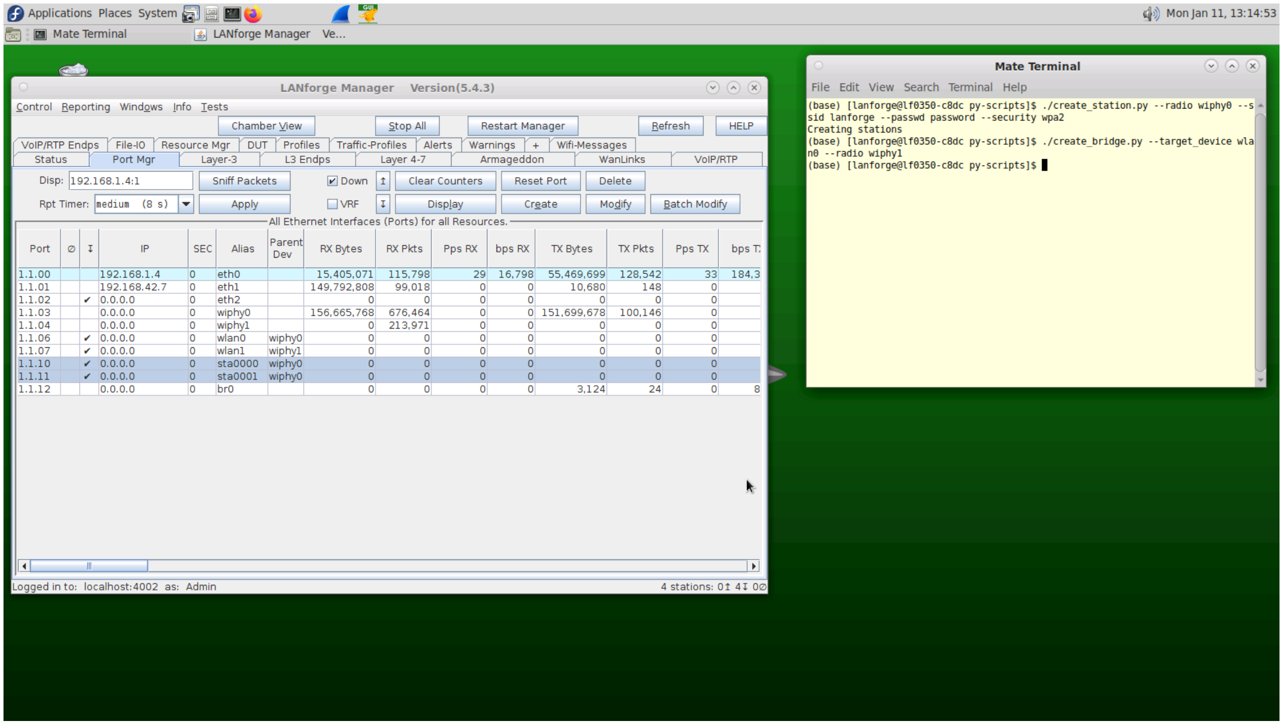
   A. The create_station.py script creates wi-fi stations from your terminal.
   B. Type
   ```
   ./create_station.py --radio wiphy0 --ssid lanforge --passwd password --security wpa2
   ```
   into your terminal, remembering to change the ssid, passwd, and security fields to match your network credentials.
   C. This will create 2 stations on your lanforge device off of your wiphy0 radio. You might need to wait 30 seconds for them to stop being phantom ports.
   D. You can specify the following flags as well:
      A. num_stations - Specify a different number of stations to create off of your antenna. The default is 2.
      B. debug - call this flag if you want detailed diagnostic information

3. Find available networks
   A. You can find available WiFi networks on any Linux device by typing `sudo iw dev wlan0 scan | grep SSID` into your command line

B. You can also find available WiFi networks by clicking on the station you created in the previous step,

4. Associate to a specific BSSIDIf you want to connect to a specific MAC Address for your router (which is called the BSSID) you can specify that on each station, you can do that in both the GUI and in the command line.
   A. Connect via Command line
      A. Each of your scripts has an optional AP tag where you can define the MAC address of the router you want to connect to. To do so, simply append `--ap` to the end of the command line argument you are running followed by the router's MAC Address.
   B. Connect via GUI
      A. When you double click on a Station there is an AP field inside WiFi Settings. Type the MAC Address of your router in that box and everything will work assuming the MAC Address is correct.

5. Bridge Creation



Disp: 192.168.1.4:1

Rpt Timer: medium (8 s)

☑ Down

☐ VRF

All Ethernet Interfaces (Ports) for all Resources.

Port	∅	↧	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps T
1.1.00			192.168.1.4	0	eth0		15,405,071	115,798	29	16,798	55,469,699	128,542	33	184,3
1.1.01			192.168.42.7	0	eth1		149,792,808	99,018	0	0	10,680	148	0	
1.1.02		✔	0.0.0.0	0	eth2		0	0	0	0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		156,665,768	676,464	0	0	151,699,678	100,146	0	
1.1.04			0.0.0.0	0	wiphy1		0	213,971	0	0	0	0	0	
1.1.06		✔	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	0	
1.1.07		✔	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	0	
1.1.10		✔	0.0.0.0	0	sta0000	wiphy0	0	0	0	0	0	0	0	
1.1.11		✔	0.0.0.0	0	sta0001	wiphy0	0	0	0	0	0	0	0	
1.1.12			0.0.0.0	0	br0		0	0	0	0	3,124	24	0	8

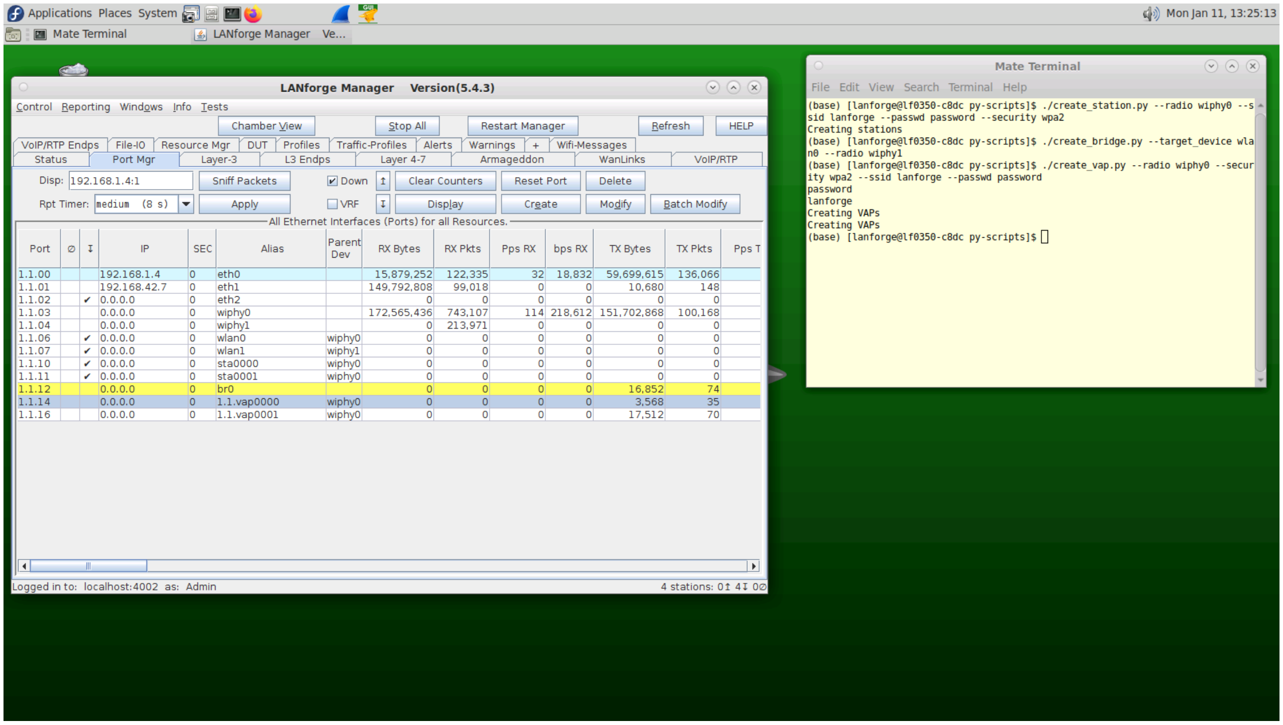
Logged in to: localhost:4002 as: Admin

4 stations: 0↥ 4↧ 0⊘

```
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_station.py --radio wiphy0 --s
sid lanforge --passwd password --security wpa2
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_bridge.py --target_device wla
n0 --radio wiphy1
(base) [lanforge@lf0350-c8dc py-scripts]$ 
```

   A. To create a bridge, you can use the create_bridge.py script in the py_scripts folder.
   B. Type
      `./create_bridge.py --target_device wlan0 --radio wiphy1`
      Into your terminal, remembering to change the ssid, passwd, and security fields to match your network credentials.
   C. create_bridge requires the following arguments:
      A. target_device - which device the bridge is going to connect
      B. radio - default is wiphy0
   D. It is not valid to add stations to a bridge, they don't work like you would expect. Bridges can have: eth ports, redirects (rdd) ports, vaps, and qvlan ports. Ports in a bridge cannot have IP addresses.

6. VAP Creation



Disp: 192.168.1.4:1 ☑ Down

Rpt Timer: medium (8 s) ☐ VRF

All Ethernet Interfaces (Ports) for all Resources.

Port	∅	↧	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps T
1.1.00			192.168.1.4	0	eth0		15,879,252	122,335	32	18,832	59,699,615	136,066	
1.1.01			192.168.42.7	0	eth1		149,792,808	99,018	0	0	10,680	148	
1.1.02		✓	0.0.0.0	0	eth2		0	0	0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		172,565,436	743,107	114	218,612	151,702,868	100,168	
1.1.04			0.0.0.0	0	wiphy1		0	213,971	0	0	0	0	
1.1.06		✓	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	
1.1.07		✓	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	
1.1.10		✓	0.0.0.0	0	sta0000	wiphy0	0	0	0	0	0	0	
1.1.11		✓	0.0.0.0	0	sta0001	wiphy0	0	0	0	0	0	0	
1.1.12			0.0.0.0	0	br0		0	0	0	0	16,852	74	
1.1.14			0.0.0.0	0	1.1.vap0000	wiphy0	0	0	0	0	3,568	35	
1.1.16			0.0.0.0	0	1.1.vap0001	wiphy0	0	0	0	0	17,512	70	

Logged in to: localhost:4002 as: Admin 4 stations: 0↥ 4↧ 0∅

```
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_station.py --radio wiphy0 --s
sid lanforge --passwd password --security wpa2
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_bridge.py --target_device wla
n0 --radio wiphy1
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_vap.py --radio wiphy0 --secur
ity wpa2 --ssid lanforge --passwd password
password
lanforge
Creating VAPs
Creating VAPs
(base) [lanforge@lf0350-c8dc py-scripts]$ 
```

A. You can create a VAP from your terminal with the create_vap.py script.

B. Type

```
./create_vap.py --radio wiphy0 --security wpa2 --ssid lanforge --passwd password
```

into your terminal, remembering to change the ssid, passwd, and security fields to match your network credentials.

C. create_vap supports the following flags:
   A. num_vaps - A user defined number of VAPs to create off of your antenna
   B. upstream_port - if your ethernet cable to your router is not eth1, define it using this flag. Eth1 is the default for this flag.
   C. debug - call this flag if you want detailed diagnostic information

7. Layer-3 Cross Connect

A. In your py-scripts, there is a create_l3 script which allows you to create stations in your terminal.

B. Type

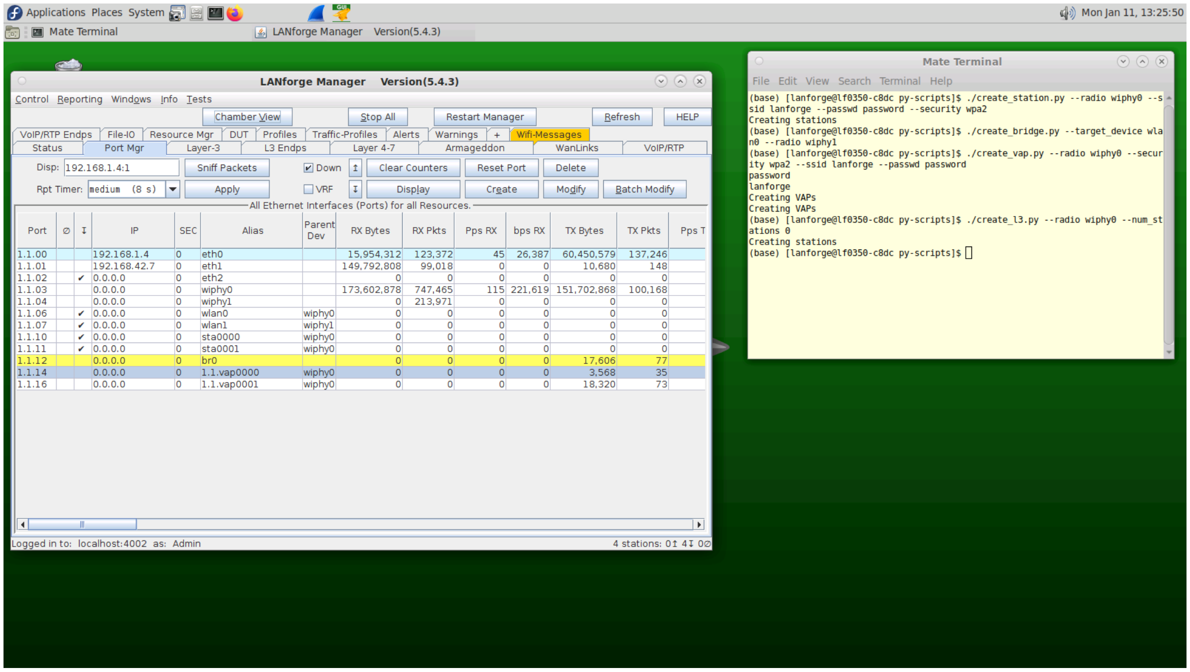
```
./create_l3.py --radio wiphy0 --num_stations 0
```

into your terminal, remembering to change the ssid, passwd, and security fields to match your network credentials.

C. This will create a layer3 cross connect between each station you already built on your lanforge device and your wiphy0 radio. You might need to wait 30 seconds for them to stop being phantom ports. If you do not specify num_stations 0 it would have created two stations by default off your specified radio. You can change which port the cross connect will be connected to with the --upstream_port option.

D. You can specify the following flags as well:
   A. num_stations - Specify a different number of stations to create off of your antenna.
   B. upstream_port - if your ethernet cable to your router is not eth1, define it using this flag. Eth1 is the default for this flag.
   C. debug - call this flag if you want to get error messages in case anything goes wrong.

E. Your port manager will look similar to this



Disp: 192.168.1.4:1

Rpt Timer: medium (8 s)

☑ Down

□ VRF

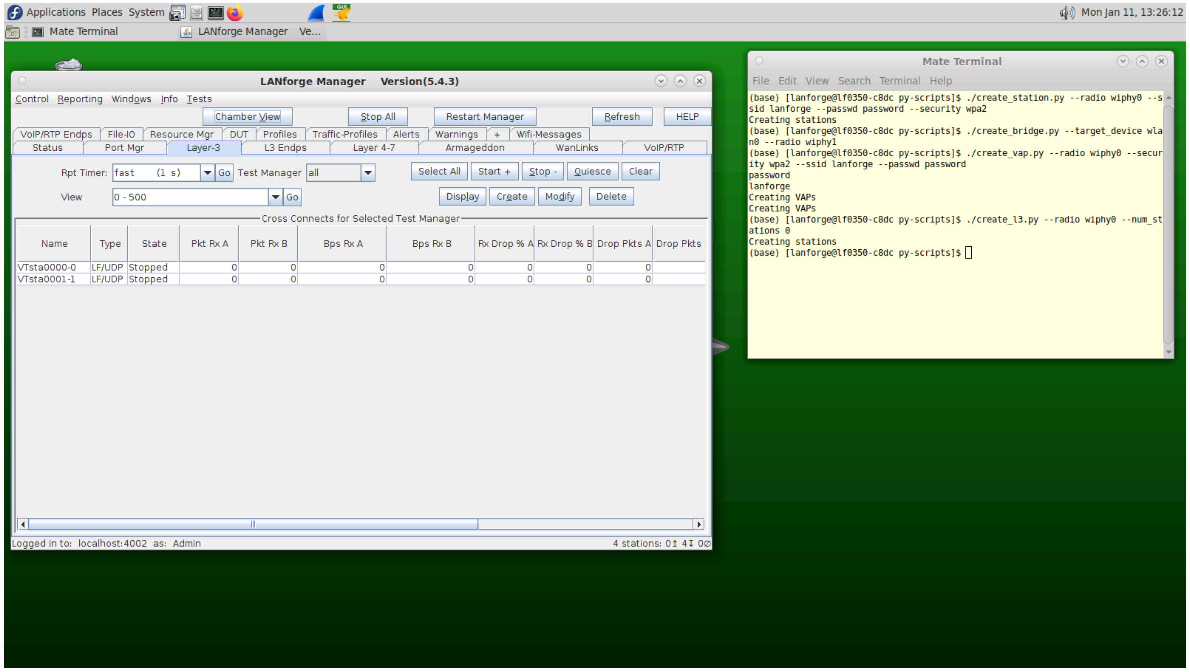
Port	⊘	↧	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps T
1.1.00			192.168.1.4	0	eth0		15,954,312	123,372	45	26,387	60,450,579	137,246	
1.1.01			192.168.42.7	0	eth1		149,792,808	99,018	0	0	10,680	148	
1.1.02		✔	0.0.0.0	0	eth2		0	0	0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		173,602,878	747,465	115	221,619	151,702,868	100,168	
1.1.04			0.0.0.0	0	wiphy1		0	213,971	0	0	0	0	
1.1.06		✔	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	
1.1.07		✔	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	
1.1.10		✔	0.0.0.0	0	sta0000	wiphy0	0	0	0	0	0	0	
1.1.11		✔	0.0.0.0	0	sta0001	wiphy0	0	0	0	0	0	0	
1.1.12			0.0.0.0	0	br0		0	0	0	0	17,606	77	
1.1.14			0.0.0.0	0	1.1.vap0000	wiphy0	0	0	0	0	3,568	35	
1.1.16			0.0.0.0	0	1.1.vap0001	wiphy0	0	0	0	0	18,320	73	

Logged in to: localhost:4002 as: Admin

4 stations: 0↕ 4↕ 0⊘

```
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_station.py --radio wiphy0 --s
sid lanforge --passwd password --security wpa2
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_bridge.py --target_device wla
n0 --radio wiphy1
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_vap.py --radio wiphy0 --secur
ity wpa2 --ssid lanforge --passwd password
password
lanforge
Creating VAPs
Creating VAPs
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_l3.py --radio wiphy0 --num_st
ations 0
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$ 
```

F. Your Layer 3 connections will look similar to this



Rpt Timer: fast (1 s) Test Manager all

View 0 - 500

Name	Type	State	Pkt Rx A	Pkt Rx B	Bps Rx A	Bps Rx B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkts
VTsta0000-0	LF/UDP	Stopped	0	0	0	0	0	0	0	
VTsta0001-1	LF/UDP	Stopped	0	0	0	0	0	0	0	

Logged in to: localhost:4002 as: Admin

4 stations: 0↕ 4↕ 0⊘

(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_station.py --radio wiphy0 --s
sid lanforge --passwd password --security wpa2
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_bridge.py --target_device wla
n0 --radio wiphy1
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_vap.py --radio wiphy0 --secur
ity wpa2 --ssid lanforge --passwd password
password
lanforge
Creating VAPs
Creating VAPs
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_l3.py --radio wiphy0 --num_st
ations 0
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$

8. Layer-4 Cross Connect

   A. In your py-scripts, there is a create_l4 script which allows you to create stations in your terminal.

   B. Type

      `./create_l4.py --radio wiphy0 --ssid lanforge --passwd password --security wpa2`

      into your terminal

   C. This will automatically create 2 stations on your Lanforge device off of your wiphy0 radio and also create a cross connect from each station to your eht1 port. You can change which port the cross connect will be connected to with the --upstream_port option.

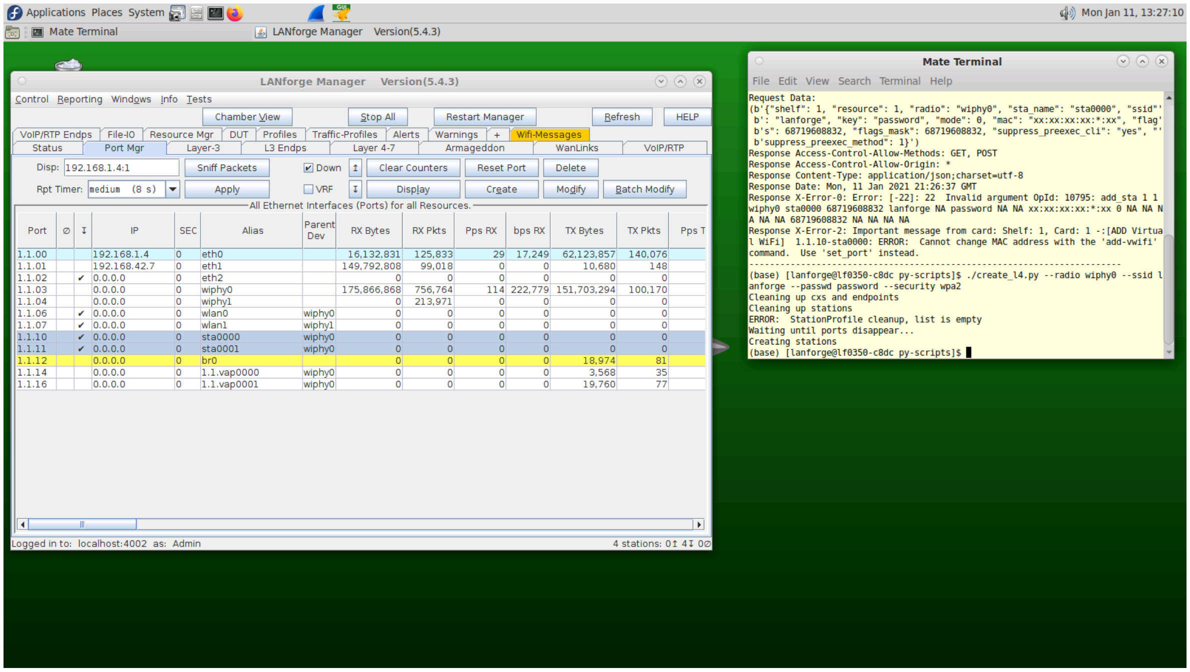
   D. You can specify the following flags as well:

      A. num_stations - Specify a different number of stations to create off of your antenna.

      B. upstream_port - if your Ethernet cable to your router is not eth1, define it using this flag. Eth1 is the default for this flag.

      C. debug - call this flag if you want detailed diagnostic information

E. Your port manager will look similar to this


Applications Places System
Mon Jan 11, 13:27:10
Mate Terminal
LANforge Manager Version(5.4.3)
Control Reporting Windows Info Tests
Chamber View
Stop All
Restart Manager
Refresh
HELP
VoIP/RTP Endps File-IO Resource Mgr DUT Profiles Traffic-Profiles Alerts Warnings + Wifi-Messages
Status Port Mgr Layer-3 L3 Endps Layer 4-7 Armageddon WanLinks VoIP/RTP
Sniff Packets
Clear Counters
Reset Port
Delete
Apply
Display
Create
Modify
Batch Modify
All Ethernet Interfaces (Ports) for all Resources.
File Edit View Search Terminal Help

Disp: 192.168.1.4:1 ☑ Down

Rpt Timer: medium (8 s) ☐ VRF

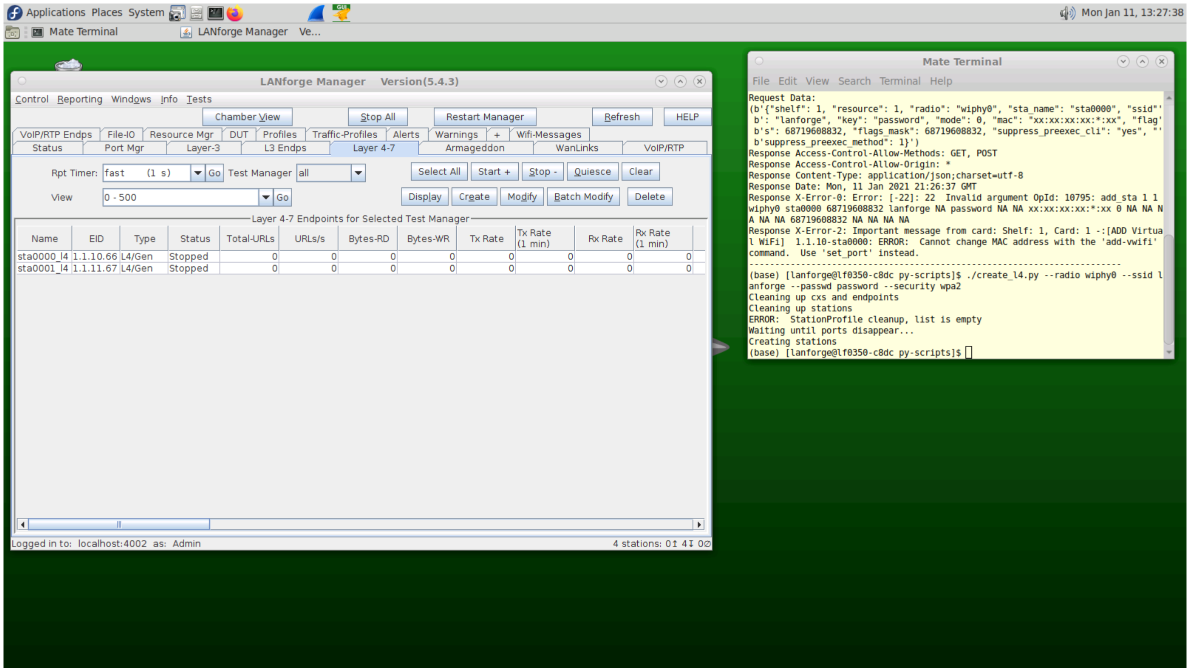
Port	⌀	↧	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps T
1.1.00			192.168.1.4	0	eth0		16,132,831	125,833	29	17,249	62,123,857	140,076	
1.1.01			192.168.42.7	0	eth1		149,792,808	99,018	0	0	10,680	148	
1.1.02		✓	0.0.0.0	0	eth2		0	0	0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		175,866,868	756,764	114	222,779	151,703,294	100,170	
1.1.04			0.0.0.0	0	wiphy1		0	213,971	0	0	0	0	
1.1.06		✓	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	0	0	
1.1.07		✓	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	0	0	
1.1.10		✓	0.0.0.0	0	sta0000	wiphy0	0	0	0	0	0	0	
1.1.11		✓	0.0.0.0	0	sta0001	wiphy0	0	0	0	0	0	0	
1.1.12			0.0.0.0	0	br0		0	0	0	0	18,974	81	
1.1.14			0.0.0.0	0	1.1.vap0000	wiphy0	0	0	0	0	3,568	35	
1.1.16			0.0.0.0	0	1.1.vap0001	wiphy0	0	0	0	0	19,760	77	

Logged in to: localhost:4002 as: Admin

4 stations: 0↕ 4↕ 0⊘

```
Request Data:
(b'{"shelf": 1, "resource": 1, "radio": "wiphy0", "sta_name": "sta0000", "ssid"'
 b': "lanforge", "key": "password", "mode": 0, "mac": "xx:xx:xx:xx:*:xx", "flag'
 b's": 68719608832, "flags_mask": 68719608832, "suppress_preexec_cli": "yes", "'
 b'suppress_preexec_method": 1}')
Response Access-Control-Allow-Methods: GET, POST
Response Access-Control-Allow-Origin: *
Response Content-Type: application/json;charset=utf-8
Response Date: Mon, 11 Jan 2021 21:26:37 GMT
Response X-Error-0: Error: [-22]: 22  Invalid argument OpId: 10795: add_sta 1 1
wiphy0 sta0000 68719608832 lanforge NA password NA NA xx:xx:xx:xx:*:xx 0 NA NA N
A NA NA 68719608832 NA NA NA NA
Response X-Error-2: Important message from card: Shelf: 1, Card: 1 -:[ADD Virtua
l WiFi]  1.1.10-sta0000: ERROR:  Cannot change MAC address with the 'add-vwifi'
command.  Use 'set_port' instead.
--------------------------------------------------------------------------------
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_l4.py --radio wiphy0 --ssid l
anforge --passwd password --security wpa2
Cleaning up cxs and endpoints
Cleaning up stations
ERROR:  StationProfile cleanup, list is empty
Waiting until ports disappear...
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$
```

F. Your Layer 4 connections will look similar to this


Applications Places System
Mon Jan 11, 13:27:38
Mate Terminal
LANforge Manager Ve...
LANforge Manager Version(5.4.3)
Control Reporting Windows Info Tests
Chamber View
Stop All
Restart Manager
Refresh
HELP
VoIP/RTP Endps File-IO Resource Mgr DUT Profiles Traffic-Profiles Alerts Warnings + Wifi-Messages
Status Port Mgr Layer-3 L3 Endps Layer 4-7 Armageddon WanLinks VoIP/RTP
Go
Select All
Start +
Stop -
Quiesce
Clear
Display
Create
Modify
Batch Modify
Delete
Layer 4-7 Endpoints for Selected Test Manager
File Edit View Search Terminal Help

Rpt Timer: fast (1 s) Test Manager all

View 0 - 500

Name	EID	Type	Status	Total-URLs	URLs/s	Bytes-RD	Bytes-WR	Tx Rate	Tx Rate (1 min)	Rx Rate	Rx Rate (1 min)
sta0000_l4	1.1.10.66	L4/Gen	Stopped	0	0	0	0	0	0	0	0
sta0001_l4	1.1.11.67	L4/Gen	Stopped	0	0	0	0	0	0	0	0

Logged in to: localhost:4002 as: Admin

4 stations: 0↕ 4↕ 0⊘

```
Request Data:
(b'{"shelf": 1, "resource": 1, "radio": "wiphy0", "sta_name": "sta0000", "ssid"'
 b': "lanforge", "key": "password", "mode": 0, "mac": "xx:xx:xx:xx:*:xx", "flag'
 b's": 68719608832, "flags_mask": 68719608832, "suppress_preexec_cli": "yes", "'
 b'suppress_preexec_method": 1}')
Response Access-Control-Allow-Methods: GET, POST
Response Access-Control-Allow-Origin: *
Response Content-Type: application/json;charset=utf-8
Response Date: Mon, 11 Jan 2021 21:26:37 GMT
Response X-Error-0: Error: [-22]: 22  Invalid argument OpId: 10795: add_sta 1 1
wiphy0 sta0000 68719608832 lanforge NA password NA NA xx:xx:xx:xx:*:xx 0 NA NA N
A NA NA 68719608832 NA NA NA NA
Response X-Error-2: Important message from card: Shelf: 1, Card: 1 -:[ADD Virtua
l WiFi]  1.1.10-sta0000: ERROR:  Cannot change MAC address with the 'add-vwifi'
command.  Use 'set_port' instead.
--------------------------------------------------------------------------------
(base) [lanforge@lf0350-c8dc py-scripts]$ ./create_l4.py --radio wiphy0 --ssid l
anforge --passwd password --security wpa2
Cleaning up cxs and endpoints
Cleaning up stations
ERROR:  StationProfile cleanup, list is empty
Waiting until ports disappear...
Creating stations
(base) [lanforge@lf0350-c8dc py-scripts]$
```

G. Your Netsmith display will look similar to this. The connections on this picture have been oriented for legibility.

9. Monitor and record an IPV4 variable time test. The purpose of this test is to detect whether your router is able to keep a steady signal when being barraged by multiple users.

   A. In the first part of this tutorial, you are going to connect various numbers of stations, record them for 1 and 10 minutes, and then save as a CSV, excel, or pickle format. A station represents a device which is connected to a network, LANforge creates representations of stations which create real traffic on your network and then records statistics on that traffic. This module determines whether your device is able to sustain a heavy load of traffic for an user defined period of time. By recording the traffic it is then possible to go back and detect where any problems occurred which allows a network manager to fix problems which could be facing your network.

B. Navigate to the py-scripts folder and type the following command into your command line

```
./test_ipv4_variable_time.py --radio wiphy0 --security wpa2 --ssid lanforge --password
password --output_format csv
```

Replace the security, ssid, and password variables with the settings for the network you are testing.This will create 2 wiphy stations by default, connect them to the network you are testing, and report the results to a CSV file.You will find a file with a timestamp within the last 5 minutes in the report_data folder in your home directory. If you are running this script from another machine using the --mgr function, you will need to define the report_file variable.

C. test_ipv4_variable_time accepts the following flags:

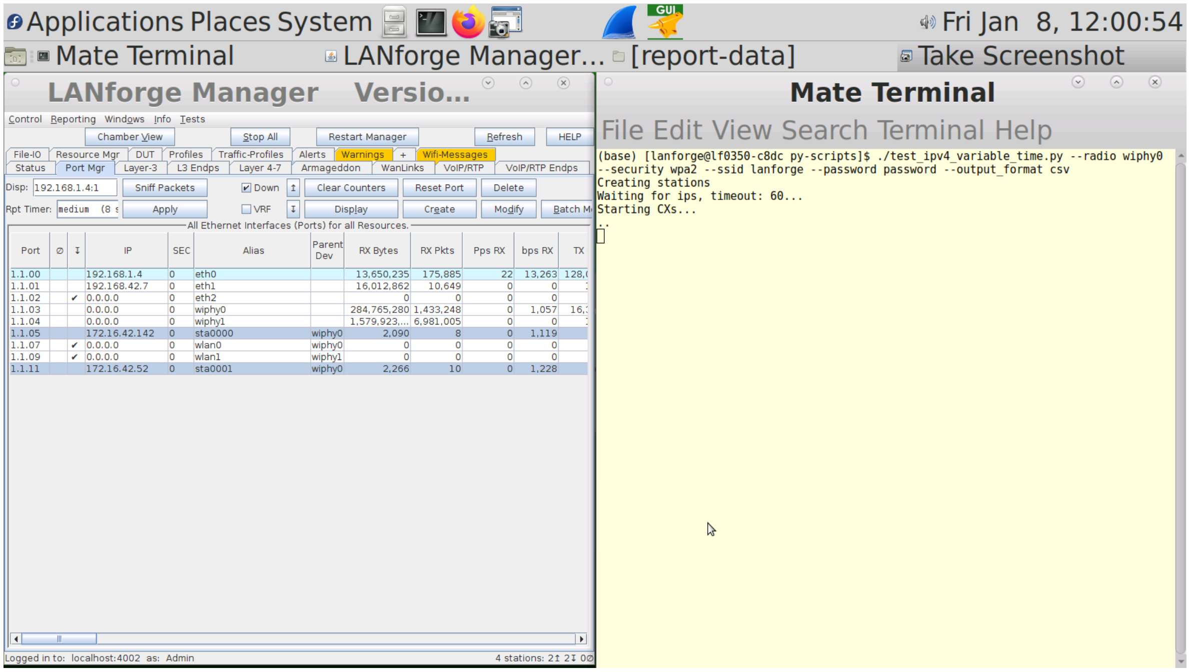
A. output_format - The format you want to save your results to

B. col_names - Which columns should be saved in the output file

C. test_duration - how long you want the test to last.

D. report_file - where you want the results to be stored

D. Your port manager will look similar to this



Applications Places System
Fri Jan 8, 12:00:54
Mate Terminal
LANforge Manager...
[report-data]
Take Screenshot
LANforge Manager Versio...
Control Reporting Windows Info Tests
Chamber View
Stop All
Restart Manager
Refresh
HELP
File-IO Resource Mgr DUT Profiles Traffic-Profiles Alerts Warnings + Wifi-Messages
Status Port Mgr Layer-3 L3 Endps Layer 4-7 Armageddon WanLinks VoIP/RTP VoIP/RTP Endps
Sniff Packets
Clear Counters
Reset Port
Delete
Apply
Display
Create
Modify
Batch M
Mate Terminal
File Edit View Search Terminal Help

Disp: 192.168.1.4:1 ☑ Down

Rpt Timer: medium (8 s ☐ VRF

All Ethernet Interfaces (Ports) for all Resources.

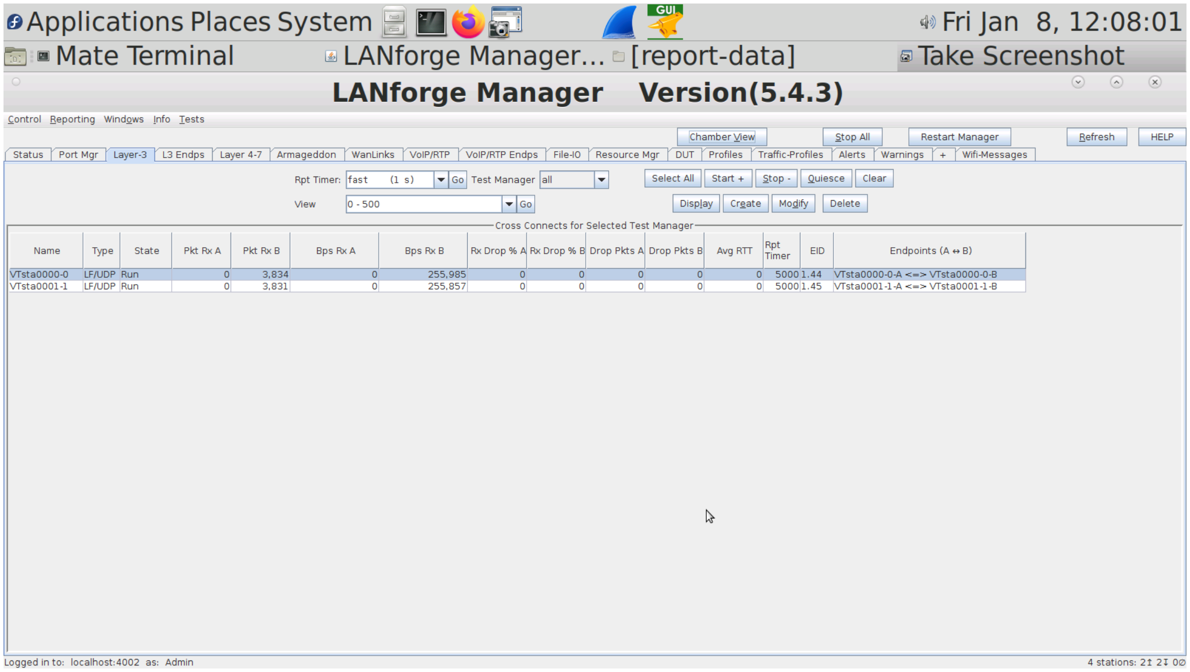
Port	∅	↧	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX
1.1.00			192.168.1.4	0	eth0		13,650,235	175,885	22	13,263	128,(
1.1.01			192.168.42.7	0	eth1		16,012,862	10,649	0	0	
1.1.02		✔	0.0.0.0	0	eth2		0	0	0	0	
1.1.03			0.0.0.0	0	wiphy0		284,765,280	1,433,248	0	1,057	16,
1.1.04			0.0.0.0	0	wiphy1		1,579,923,...	6,981,005	0	0	
1.1.05			172.16.42.142	0	sta0000	wiphy0	2,090	8	0	1,119	
1.1.07		✔	0.0.0.0	0	wlan0	wiphy0	0	0	0	0	
1.1.09		✔	0.0.0.0	0	wlan1	wiphy1	0	0	0	0	
1.1.11			172.16.42.52	0	sta0001	wiphy0	2,266	10	0	1,228	

Logged in to: localhost:4002 as: Admin

4 stations: 2↥ 2↧ 0∅

```
(base) [lanforge@lf0350-c8dc py-scripts]$ ./test_ipv4_variable_time.py --radio wiphy0
--security wpa2 --ssid lanforge --password password --output_format csv
Creating stations
Waiting for ips, timeout: 60...
Starting CXs...
..
```

E. Your Layer 3 connections will look similar to this



Applications Places System
Fri Jan 8, 12:08:01
Mate Terminal
LANforge Manager...
[report-data]
Take Screenshot
LANforge Manager Version(5.4.3)
Control Reporting Windows Info Tests
Chamber View
Stop All
Restart Manager
Refresh
HELP
Status Port Mgr Layer-3 L3 Endps Layer 4-7 Armageddon WanLinks VoIP/RTP VoIP/RTP Endps File-IO Resource Mgr DUT Profiles Traffic-Profiles Alerts Warnings + Wifi-Messages
Go
Select All
Start +
Stop -
Quiesce
Clear
Display
Create
Modify
Delete

Rpt Timer: fast (1 s) Test Manager all

View 0 - 500

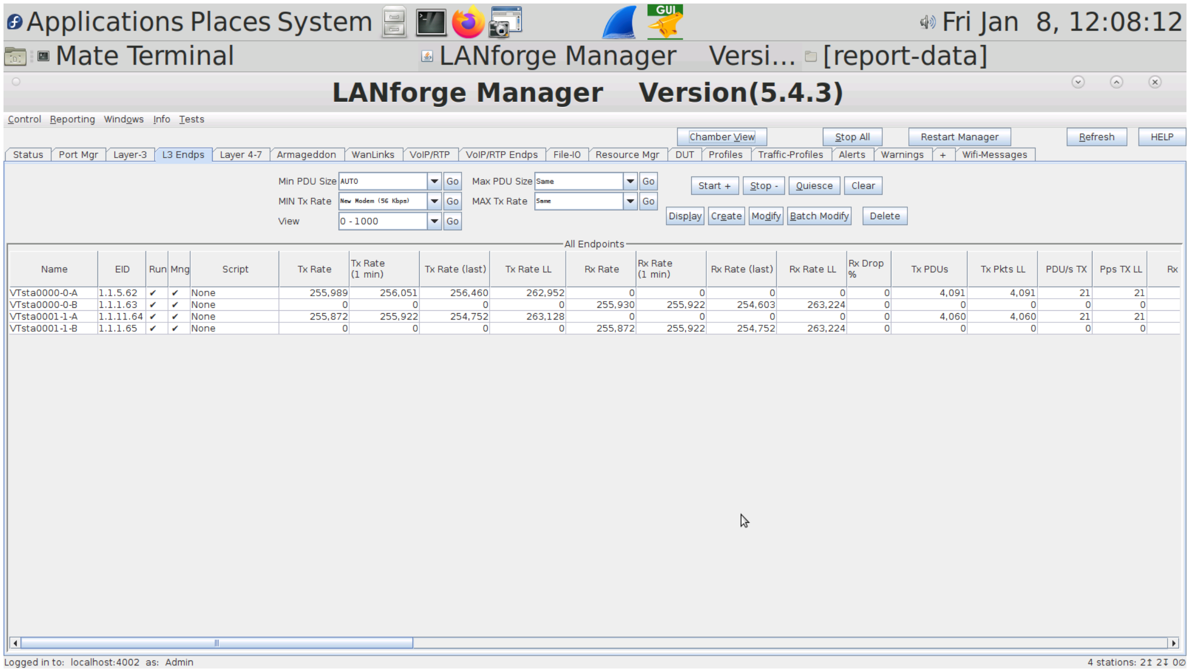
Cross Connects for Selected Test Manager

Name	Type	State	Pkt Rx A	Pkt Rx B	Bps Rx A	Bps Rx B	Rx Drop % A	Rx Drop % B	Drop Pkts A	Drop Pkts B	Avg RTT	Rpt Timer	EID	Endpoints (A ↔ B)
VTsta0000-0	LF/UDP	Run	0	3,834	0	255,985	0	0	0	0	0	5000	1.44	VTsta0000-0-A <=> VTsta0000-0-B
VTsta0001-1	LF/UDP	Run	0	3,831	0	255,857	0	0	0	0	0	5000	1.45	VTsta0001-1-A <=> VTsta0001-1-B

Logged in to: localhost:4002 as: Admin

4 stations: 2↥ 2↧ 0∅

F. Your Layer 3 endpoints will look similar to this



Min PDU Size: AUTO — Go | Max PDU Size: Same — Go
MIN Tx Rate: New Modem (56 Kbps) — Go | MAX Tx Rate: Same — Go
View: 0 - 1000 — Go

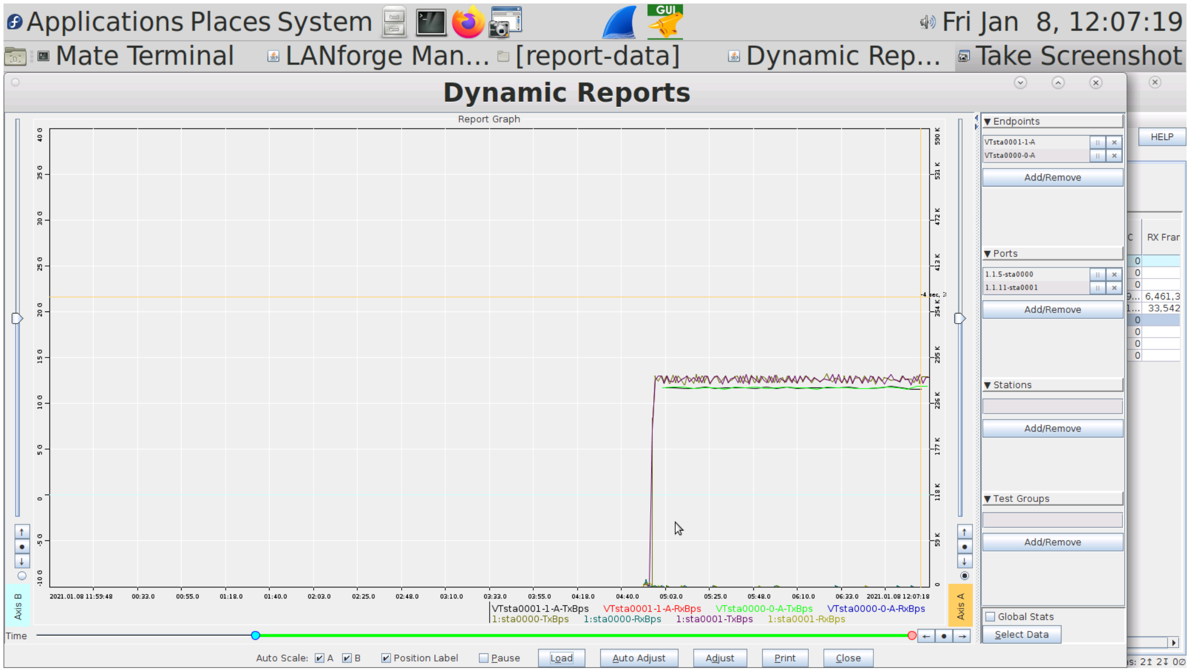
All Endpoints

Name	EID	Run	Mng	Script	Tx Rate	Tx Rate (1 min)	Tx Rate (last)	Tx Rate LL	Rx Rate	Rx Rate (1 min)	Rx Rate (last)	Rx Rate LL	Rx Drop %	Tx PDUs	Tx Pkts LL	PDU/s TX	Pps TX LL	Rx
VTsta0000-0-A	1.1.5.62	✓	✓	None	255,989	256,051	256,460	262,952	0	0	0	0	0	4,091	4,091	21	21	
VTsta0000-0-B	1.1.1.63	✓	✓	None	0	0	0	0	255,930	255,922	254,603	263,224	0	0	0	0	0	
VTsta0001-1-A	1.1.11.64	✓	✓	None	255,872	255,922	254,752	263,128	0	0	0	0	0	4,060	4,060	21	21	
VTsta0001-1-B	1.1.1.65	✓	✓	None	0	0	0	0	255,872	255,922	254,752	263,224	0	0	0	0	0	

Logged in to: localhost:4002 as: Admin

4 stations: 2↥ 2↧ 0⊘

G. You can view a dynamic report of the connectiosn creating traffic. It will look similar to this



Auto Scale: ☑ A ☑ B ☑ Position Label □ Pause

Candela Technologies, Inc., 2417 Main Street, Suite 201, Ferndale, WA 98248, USA
www.candelatech.com | sales@candelatech.com | +1.360.380.1618