

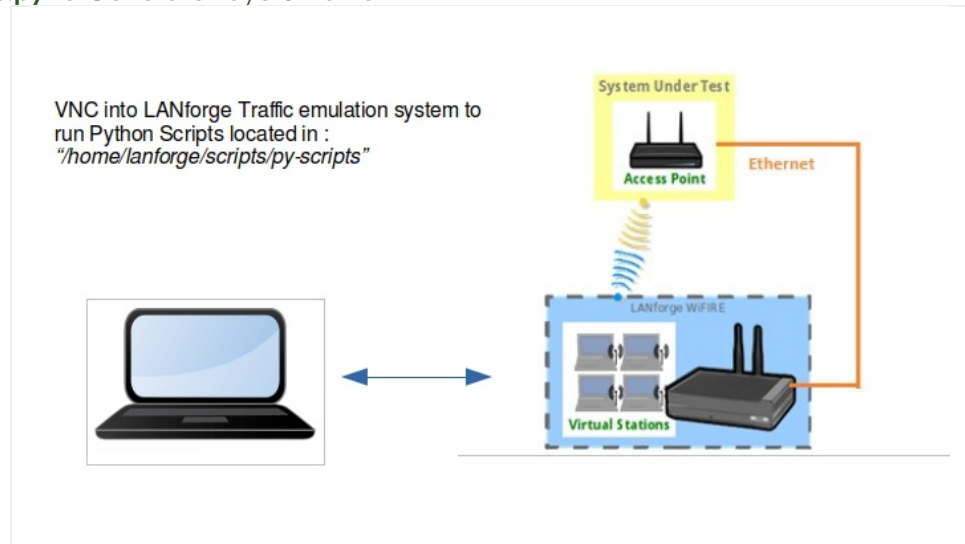
## Basic: Layer3 Traffic Generation: test\_l3.py

**Goal:** Use Python Script `test_l3.py` to Generate Layer3 Traffic

Each LANforge system has Python scripts installed at `/home/lanforge/scripts`. You can find it at `/home/lanforge/scripts/py-script/test_l3.py`

The script `test_l3.py` will:

- create stations (on multiple radios),
- create TCP and UDP cross connects
- run traffic at specified data rates for a specified time.



The traffic prioritization is configurable:

<b>BE</b>	Best Effort
<b>BK</b>	Background
<b>VI</b>	Video
<b>VO</b>	Video

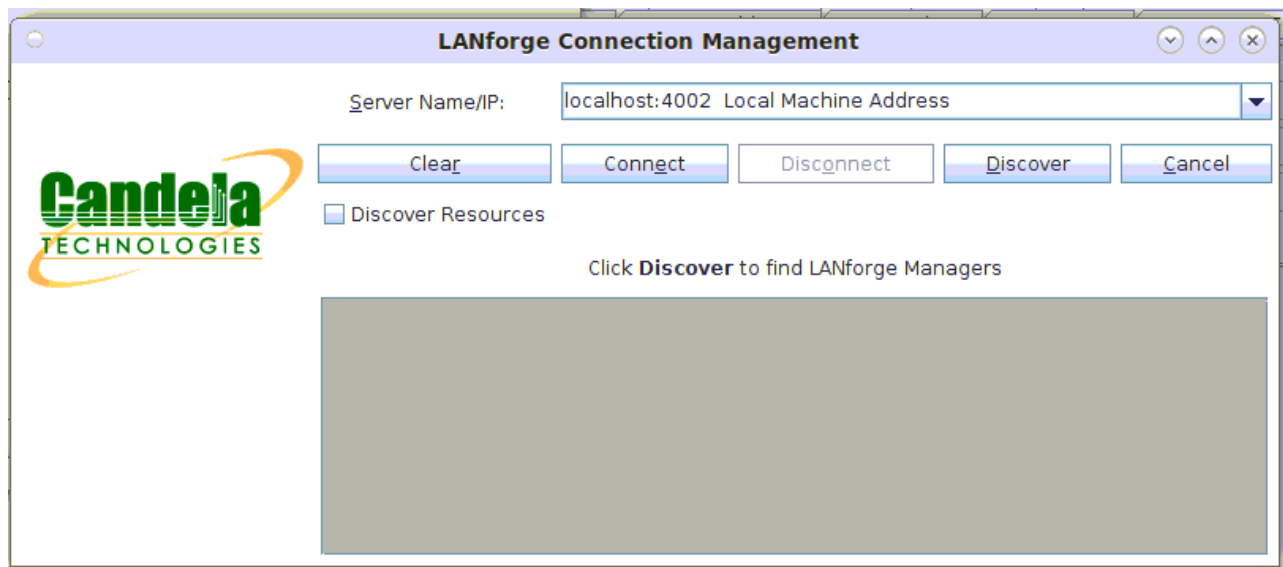
The upload and download statistics are recorded at the end of each polling interval. The script will verify whether traffic is sent and received. The script cleans up the station and connections at the end of the test. An HTML and PDF report of the results will be generated and placed in the `/home/lanforge/html-reports` directory.

1. Start the LANforgeGUI if GUI not running:

To start the LANforgeGUI navigate to : `/home/lanforge/LANforgeGUI_5.4.5`

Execute : `./lfc1ient.bash`

Click the **Connect** button to connect to: `localhost:4002 Local Machine Address`



2. Where Do I Find Scripts?

Preinstalled Python Scripts Location on LANforge: `/home/lanforge/scripts/py-scripts`

Example script test\_I3.py location: `/home/lanforge/scripts/py-scripts/test_I3.py`

3. Initial Information to Gather as input to test\_I3.py script:

Note: An example of a Device Under Test is an Access Point. The DUT information is used in report generation. The DUT information may be optional.

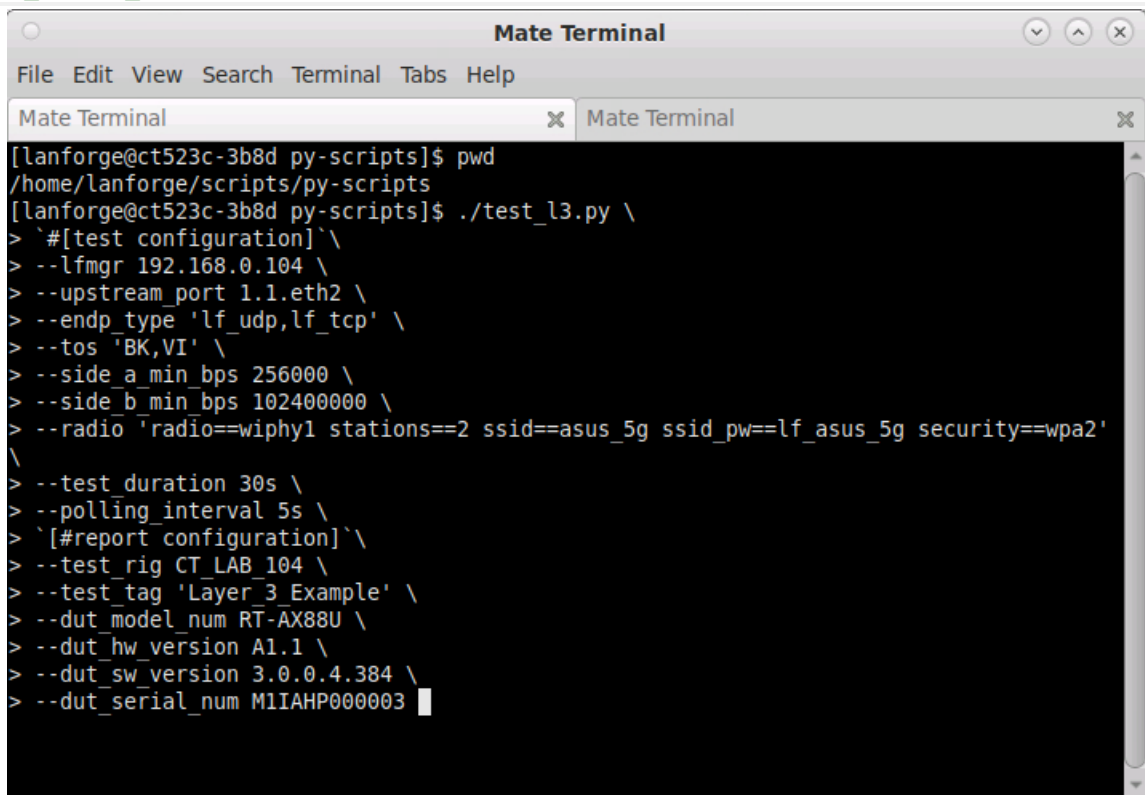
- A. The LANforge manager IP address: `--lfmgr [localhost]`
- B. The LANforge upstream port: `--upstream_port [eth port]`
- C. The LANforge end point type: `--endp_type 'lf_udp,lf_tcp'`
- D. The LANforge type of service: `--tos 'BK,VI'`
- E. The side 'a' tx bit rate (upload) `--side_a_min_bps [bits per second]`
- F. The side 'b' tx bit rate (download) `--side_b_min_bps [bits per second]`
- G. The LANforge radio information :  
`--radio 'radio==[radio] stations==[number] ssid==[ssid] ssid_pw==[password] security==[security]'`
- H. The Test Durations : `--test_duration [value]` (s - seconds, m - minutes, h - hours)
- I. The Polling Interval : `--polling_interval [value]` (s - seconds, m - minutes, h - hours)
- J. The Test Rig: `--test_rig [test system id]`
- K. The Test Tag: `--test_tag [unique test id]`
- L. The Device Under Test Model Number: `--dut_model_num [mode]`
- M. The Device Under Test Hardware Version: `--dut_hw_version [hw version]`
- N. The Device Under Test Software Version: `--dut_sw_version [sw version]`
- O. The Device Under Test Serial Number: `--dut_serial_num [serial number]`

4. Example Command for test\_I3.py:

```
./test_I3.py --lfmgr 192.168.0.103 \  
--upstream_port 1.1.eth2 \  
--endp_type 'lf_udp,lf_tcp' \  
--tos 'BK,VI' \  
--side_a_min_bps 256000 \  
--side_b_min_bps 102400000 \  
--radio 'radio==wiphy1 stations==1 ssid==asus_5g ssid_pw==lf_asus_5g security==wpa2' \  
--test_duration 30s \  

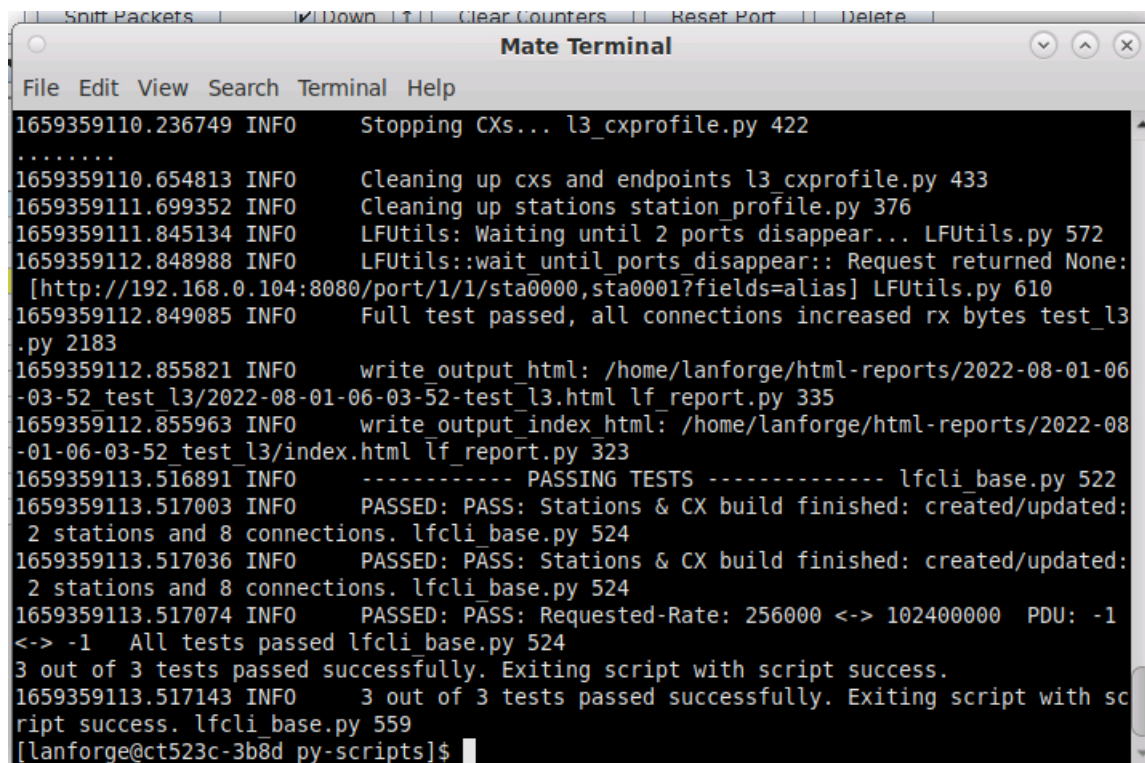
```

```
--polling_interval 5s \  
--test_rig CT_LAB_104 \  
--test_tag Layer_3_Example \  
--dut_model_num RT-AX88U \  
--dut_hw_version A1.1 \  
--dut_sw_version 3.0.0.4.384 \  
--dut_serial_num M1IAHP000003
```



```
Mate Terminal  
File Edit View Search Terminal Tabs Help  
Mate Terminal x Mate Terminal x  
[lanforge@ct523c-3b8d py-scripts]$ pwd  
/home/lanforge/scripts/py-scripts  
[lanforge@ct523c-3b8d py-scripts]$ ./test_l3.py \  
> `#[test configuration]`\  
> --lfgmr 192.168.0.104 \  
> --upstream_port 1.1.eth2 \  
> --endp_type 'lf_udp,lf_tcp' \  
> --tos 'BK,VI' \  
> --side_a_min_bps 256000 \  
> --side_b_min_bps 102400000 \  
> --radio 'radio==wiphy1 stations==2 ssid==asus_5g ssid_pw==lf_asus_5g security==wpa2'  
\  
> --test_duration 30s \  
> --polling_interval 5s \  
> `[#report configuration]`\  
> --test_rig CT_LAB_104 \  
> --test_tag 'Layer_3_Example' \  
> --dut_model_num RT-AX88U \  
> --dut_hw_version A1.1 \  
> --dut_sw_version 3.0.0.4.384 \  
> --dut_serial_num M1IAHP000003
```

5. Results for test\_l3.py located in /home/lanforge/html-reports:



```
Mate Terminal  
File Edit View Search Terminal Help  
1659359110.236749 INFO Stopping CXs... l3_cxprofile.py 422  
.....  
1659359110.654813 INFO Cleaning up cxs and endpoints l3_cxprofile.py 433  
1659359111.699352 INFO Cleaning up stations station_profile.py 376  
1659359111.845134 INFO LfUtils: Waiting until 2 ports disappear... LfUtils.py 572  
1659359112.848988 INFO LfUtils::wait_until_ports_disappear:: Request returned None:  
[http://192.168.0.104:8080/port/1/1/sta0000,sta0001?fields=alias] LfUtils.py 610  
1659359112.849085 INFO Full test passed, all connections increased rx bytes test_l3  
.py 2183  
1659359112.855821 INFO write_output_html: /home/lanforge/html-reports/2022-08-01-06  
-03-52 test_l3/2022-08-01-06-03-52-test_l3.html lf_report.py 335  
1659359112.855963 INFO write_output_index_html: /home/lanforge/html-reports/2022-08  
-01-06-03-52 test_l3/index.html lf_report.py 323  
1659359113.516891 INFO ----- PASSING TESTS ----- lfcli_base.py 522  
1659359113.517003 INFO PASSED: PASS: Stations & CX build finished: created/updated:  
2 stations and 8 connections. lfcli_base.py 524  
1659359113.517036 INFO PASSED: PASS: Stations & CX build finished: created/updated:  
2 stations and 8 connections. lfcli_base.py 524  
1659359113.517074 INFO PASSED: PASS: Requested-Rate: 256000 <-> 102400000 PDU: -1  
<-> -1 All tests passed lfcli_base.py 524  
3 out of 3 tests passed successfully. Exiting script with script success.  
1659359113.517143 INFO 3 out of 3 tests passed successfully. Exiting script with sc  
ript success. lfcli_base.py 559  
[lanforge@ct523c-3b8d py-scripts]$
```

6. Results for test\_l3.py is located at /home/lanforge/html-reports:

Script produces both HTML and PDF results:

- example of **HTML** output

- example of **PDF** output
- example of **kpi.csv** output

Other script options may be show by typing `./test_13.py --help`

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