



# LOAD BALANCING TEST

**PREPARED FOR**

Netgear

**PREPARED BY**

Candela India Pvt Ltd

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# EXECUTIVE SUMMARY

The Load Balancing Test is designed to check the load balancing feature of the Netgear AP. This feature uses three major tabs to test first is based on Maximum Number of Clients, second is based on Channel Load and third one based on Client Receive Signal Strength, based on which the automated script is designed.

The LOAD BALANCING Test script is basically designed to test and make sure that the AP is able to successfully admit or not admit clients based on certain user set thresholds as RSSI Threshold, Channel Utilization Threshold and Max Client Threshold and will provide clear PASS/FAIL results as the test is finished.

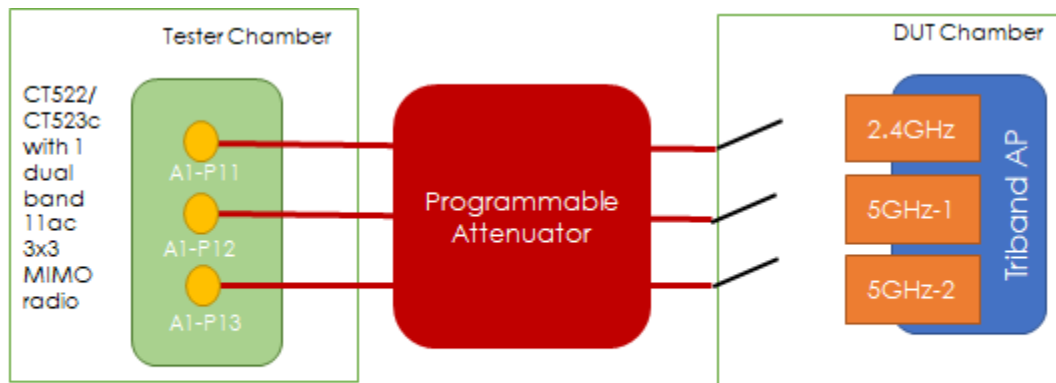
## Netgear Scripting Project:

[07-03-2021]]

# 1. Project Overview

The LOAD BALANCING Test is designed to test the Performance of the Netgear Access Point. The goal of this test is to make sure that the AP is able to successfully admit or not admit clients based on certain user set thresholds as RSSI Threshold, Channel Utilization Threshold and Max Client Threshold

# 2. Test Plan



Load Balancing/Admission Control Testbed Setup

1. Setup testbed as shown above.
2. Set the AP on fixed channels (6, 36 and 161 respectively) for the 3 radios.
3. Start test with LANforge radio programmed to channel 6. Run the three load balancing test scenarios as per test procedure and manually check that the results are correct.
4. For the manual testing part, manually set different RSSI, Channel Utilization and Client count thresholds on the AP and make sure the reported PASS/FAIL results from the test script are accurate.
5. Repeat manual testing for channel 36 and 161.

### 3. How to use Script ?

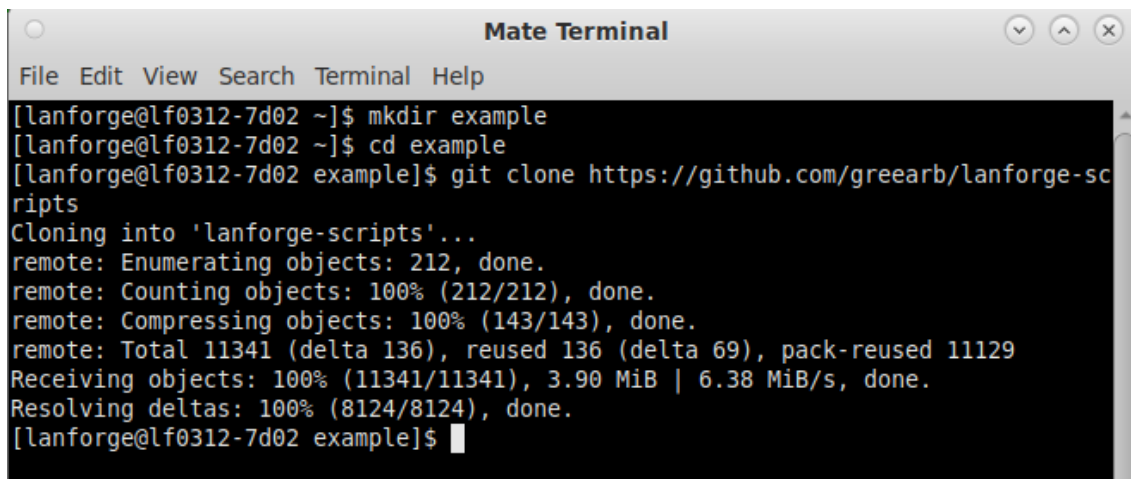
1. Create a directory to your LANforge

Eg - mkdir example

2. Change the directory

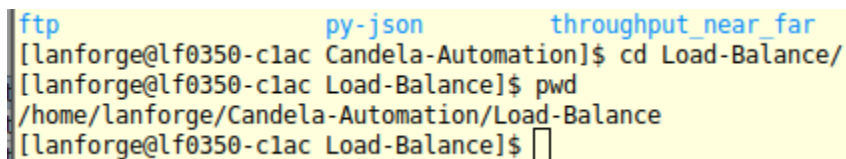
~ cd example

3. Git clone the LANforge scripts from - <https://github.com/greearb/lanforge-scripts>



```
Mate Terminal
File Edit View Search Terminal Help
[lanforge@lf0312-7d02 ~]$ mkdir example
[lanforge@lf0312-7d02 ~]$ cd example
[lanforge@lf0312-7d02 example]$ git clone https://github.com/greearb/lanforge-scripts
Cloning into 'lanforge-scripts'...
remote: Enumerating objects: 212, done.
remote: Counting objects: 100% (212/212), done.
remote: Compressing objects: 100% (143/143), done.
remote: Total 11341 (delta 136), reused 136 (delta 69), pack-reused 11129
Receiving objects: 100% (11341/11341), 3.90 MiB | 6.38 MiB/s, done.
Resolving deltas: 100% (8124/8124), done.
[lanforge@lf0312-7d02 example]$
```

4. Go to the directory where you need to execute your lf\_load.py



```
ftp      py-json      throughput_near_far
[lanforge@lf0350-clac Candela-Automation]$ cd Load-Balance/
[lanforge@lf0350-clac Load-Balance]$ pwd
/home/lanforge/Candela-Automation/Load-Balance
[lanforge@lf0350-clac Load-Balance]$
```

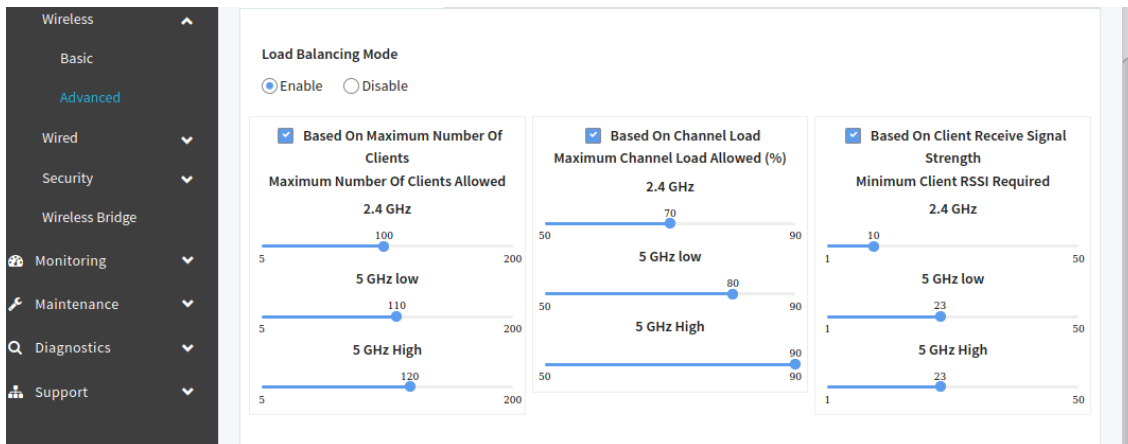
5. If lf\_load.py is not present in Load-Balance you need to copy the file to the

Directory - vim lf\_load.py

~paste the code

~ then save and exit

6. If load\_template.py not present in Load-Balance you need to copy load\_template.py there for report generation - follow same as above
7. These are the tabs available for load balancing in Netgear AP



8. Cli to execute the python test eg -

```
~ python3 lf_load.py --ip 192.168.208.196 --user root --pswd
Password@123xzsawq@! --host localhost --ssid loadbalance --passwd [BLANK]
--security open --radio wiphy3 --test Rssi --bands 5G_low --client 20 --client5 30
--client5h 35 --ch_threshold 90 --ch_threshold5 80 --ch_threshold5h 90--rssi2 18
--rssi5l 10 --rssi5h 10
```

Here

--ip - AP ip

--user - AP webpage login/username

--pswd - AP webpage password

--host - LANforge ip address but if you are running script inside lanforge use "localhost"

--ssid - ssid for clients

--passwd - password to connect to ssid if open security use [BLANK]

--security - security type used by ssid default open

--radio - radio at which client will be connected default wiphy3

**--upstream** - provide upstream name like eth1/eth2 by default eth1 is used

**--num\_sta** - provide number of stations you want to create

**--test** - select type of test you want to perform like

For Max client test use - Client

For Channel Utilization use - Utilization

For Rssi based test use - Rssi

By default all three test will be - Client Utilization Rssi

**--bands** - select the type of band on which you want to perform test like

For 2.4 ghz use - 2.4G

For 5 ghz low use - 5G\_low

For 5 ghz high use - 5G\_high

**--client** - option to set Threshold value for 2.4 GHz for Maximum number of client test

**--client5** - option to set Threshold value for 5 ghz low Maximum number of client test

**--client5h** - option to set Threshold value for 5 ghz high Maximum number of client test

**--ch\_threshold** - option to set Threshold value for 2.4 ghz for Channel load

**--ch\_threshold5** - option to set Threshold value for 5 ghz low for Channel load

**--ch\_threshold5h** - option to set Threshold value for 5 ghz high for Channel load

**--rssi2** - option to set Threshold value for 2.4Ghz for Rssi test

**--rssi5l** -option to set Threshold value for 5 Ghz low for Rssi test

**--rssi5h** - option to set Threshold value for 5 Ghz high for Rssi test


**--add\_attenuator** - provide the attenuator serial number.

9. After execution of script results can be seen on the html-reports directory

`~ /home/lanforge/html-reports

Pdf report and html reports can be found inside loadbalancing folder as per execution date

Screenshot of pdf report generation is shown below



# Load Balancing Test

2021-03-17-10:56:35

Test Setup Information		
	AP Name	WAC540
Device Under Test	SSID	loadbalance
	Test Duration	2:36:31

**Objective**

The LOAD BALANCING Test is designed to test the Performance of the Netgear Access Point. The goal of this test is to make sure that the AP is able to successfully admit or not admit clients based on certain user set thresholds as RSSI Threshold, Channel Utilization Threshold and Max Client Threshold

**Summary Table**

This table shows you the summary result of load balancing test as PASS or FAIL results

Summary Table			
	RSSI Threshold	Channel Utilization Threshold	Client Count Threshold
2.4Ghz Radio	PASS	FAIL	PASS
5Ghz LOW Radio	PASS	FAIL	PASS
5Ghz HIGH Radio	PASS	FAIL	FAIL

**Channel Utilization**

The Channel Utilization Test table provides you information regarding set threshold , measured channel utilization from the AP which is used to decide the PASS/ FAIL criteria, if the measured utilization is equal or within the range of 5% increase or 5% decrease of the threshold value then it's a PASS criteria else FAIL criteria.

Channel Utilization Table			
	2.4 GHZ	5GHZ LOW	5GHZ HIGH
Set Threshold Value	90	80	90
Measured Value	70	64	82

**Max Client Connect**

The max client connect Test table provides you information regarding set threshold , measured max client value from the AP which can be used to decide the PASS/ FAIL criteria, if the measured max client value is equal to threshold value it's a PASS criteria else FAIL criteria.

Max Client Connect Table			
	2.4 GHZ	5GHZ LOW	5GHZ HIGH
Set Threshold Value	20	30	35
Measured Value	20	30	32

**RSSI**

The RSSI Test table provides you information regarding set threshold , measured rssi value from the AP which can be used to decide the PASS/ FAIL criteria, if the measured rssi value is within the range of 1dbm increase or 1dbm decrease of the threshold value or is equal to threshold value it's a PASS criteria else FAIL criteria.

RSSI Table			
	2.4 GHZ	5GHZ LOW	5GHZ HIGH
Set Threshold Value	18	10	10
Measured Value	19	9	9

## 5. Contact

Visit - <https://www.candelatech.com/>

For any support related help contact - [support@candelatech.com](mailto:support@candelatech.com)