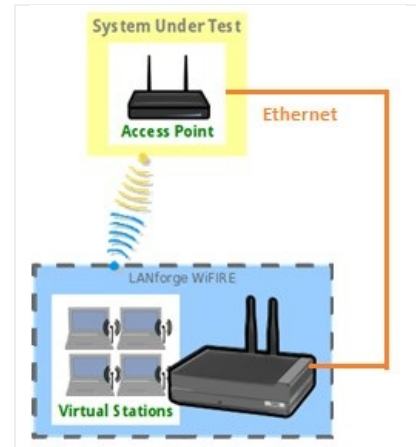


Testing AP Capacity Performance with the AP-Auto Automated Test Suite

Goal: Run an AP-Auto test for an AP using the LANforge CT523c or similar system in order to test how well the AP can handle many stations simultaneously. The AP-Auto test is similar to the TR-398 test, but is designed to be functional with a minimum amount of test equipment. A 2-radio LANforge system and DUT is all that is required to run these tests.

In this test scenario, the LANforge CT523 is used to create stations and run the Capacity test. This example assumes you have some experience with Chamber View, and that you have a LANforge system and a DUT AP. The AP and LANforge may be in chambers, but that is not required. This feature requires LANforge version 5.4.2 or higher.



1. If you haven't setup or performed AP-Auto tests on your LANforge system, please refer to the [AP-Auto Test Suite Setup](#) guide for quick setup.
2. Running the AP-Auto Capacity Test:
 - A. Open the AP-Auto Test window.

- B. In the AP-Auto Settings Tab:

- A. Select the **DUT 2G** and **DUT 5G** SSIDs. This test requires that Open or PSK SSIDs are filled out.
- B. Select the LANforge radios to be used in this test. You need at least one 2.4Ghz radio and one 5Ghz radio for full functionality.
- C. At the bottom, select the **Capacity** test checkbox.

C. Your Advanced Configuration tab should look similar to the following:

AP Automated Test (cv-inst-0)

Settings | **Advanced Configuration** | Stability Configuration | Mode/NSS/BW Configuration | Pass/Fail Configuration | Report Configuration | Report ↑ × | Report-2 ↑ ×

Show Config | Import Config

Save | DEFAULT

Load | DEFAULT

Delete | DEFAULT

IP ToS: Best Effort (0) | Multi-Conn: One (1)

☐ Skip 2.4Ghz Tests | ☐ Skip 5Ghz Tests | ☒ Skip Dual-Band Tests | ☒ Skip 5Ghz-B Tests | ☒ Skip Tri-Band Tests

☒ Use BSSID | ☒ Set Radio TxPower to Default

Loop Iterations: Single (1)

2.4Ghz Station Count: Small (32) | 5Ghz Station Count: Default (64)

Dual-Band Station Count: 10 (10) | 5Ghz-B Station Count: Default (64)

Tri-Band Station Count: Default (64)

Duration: Default (20 sec)

Long-Term Download Rate: 85% | Long-Term Upload Rate: 85%

Long-Term Duration: 3600 (1 hr) | Long-Term Graph Interval: 30 (30 sec)

Long-Term Station Count: Two (Default) (2)

Hunt Retries: Default (1) | Maximum Hunt Iterations: 100

Packet Loss Threshold: 1% (1%)

Frame Sizes: MTU

D Capacity Amounts (stations): 1, 5, 10, 20, 32

Multi-Station Throughput Options: ☐ UDP ☒ TCP ☒ Download ☐ Upload

Test is complete. Start Skip ☐ Another Iteration ☐ Pause Cancel

- D. You can change the number of stations that are brought up in each capacity trial by changing **Capacity Amounts (stations)**. None of the capacity amount values should exceed the station count of any enabled test band.
- E. When the configuration is complete, click the **Start** button (which will change to **Stop** once start is clicked) to start the test. An interactive report tab will be created and will be updated as the test runs.

AP Automated Test (cv-inst-0)

Settings | Advanced Configuration | Stability Configuration | Mode/NSS/BW Configuration | Pass/Fail Configuration | Report Configuration | **Report ↑ ×**

Capacity Details

Iter	Band	NSS	BW	Mode	Stations	UL/DL	Pkt Size	Reported	Requested	Result	Criteria
[1]	2.4Ghz	AUTO	AUTO	AUTO	1	DL	MTU	196.67 Mbps	177.00 Mbps	PASS	Auto-Calculated
[1]	2.4Ghz	AUTO	AUTO	AUTO	5	DL	MTU	178.48 Mbps	177.00 Mbps	PASS	Auto-Calculated
[1]	2.4Ghz	AUTO	AUTO	AUTO	10	DL	MTU	210.15 Mbps	177.00 Mbps	PASS	Auto-Calculated
[1]	2.4Ghz	AUTO	AUTO	AUTO	20	DL	MTU	199.23 Mbps	177.00 Mbps	PASS	Auto-Calculated
[1]	2.4Ghz	AUTO	AUTO	AUTO	32	DL	MTU	163.80 Mbps	177.00 Mbps	FAIL	Auto-Calculated
[1]	5Ghz	AUTO	AUTO	AUTO	1	DL	MTU	957.08 Mbps	861.37 Mbps	PASS	Auto-Calculated
[1]	5Ghz	AUTO	AUTO	AUTO	5	DL	MTU	80.85 Mbps	861.37 Mbps	FAIL	Auto-Calculated
[1]	5Ghz	AUTO	AUTO	AUTO	10	DL	MTU	11.53 Mbps	861.37 Mbps	FAIL	Auto-Calculated
[1]	5Ghz	AUTO	AUTO	AUTO	19	DL	MTU	5.91 Mbps	861.37 Mbps	FAIL	Auto-Calculated

Capacity Test [1] 2.4Ghz Pkt-MTU-DL: Snapshot 2.4Ghz STA: 1 5Ghz STA: 0

Port	Tx-Bps 1m	Rx-Bps 1m	Tx-Fail %	Tx Link-Rate	Rx Link-Rate	Mode	Channel	Last Cx-Time (ms)	RSSI (dBm)	AP	IP	MAC
1.1.12 wlan0	12.485 Kbps	123.179 Mbps	0	104 Mbps	289 Mbps	802.11bgn-AC 20 424	2,447	59	-38	F0:2F:74:57:D8:B0	192.168.50.151	04:f0:21:66:90:c9

Port	Tx-Bps 1m	Rx-Bps 1m	Link-Rate	IP	MAC
1.1.3 eth3	104.69 Mbps	7.001 Kbps	1 Gbps	192.168.50.42	9c:69:b4:63:16:af

Endpoint	Tx-Bps 1m	Rx-Bps 1m	TxPkts	RxPkts	Rx Latency (ms)	Round-Trip Latency (ms)	Jitter	Rx Packet Loss %	Rx OOO %

Throughput for each Station, configuration: 2.4Ghz. This indicates how fair is the AP. Station count: 1

Throughput for each Station: 2.4Ghz

Throughput for each Station: 2.4Ghz

Test is complete. Consider saving HTML or PDF reports.

Verbosity: 0 1 2 3 4 5 6 7 8 9 10 11

Test is complete. Start Skip ☐ Another Iteration ☐ Pause Cancel

- F. You can change the test result verbosity level by adjusting the **Verbosity** slider. Maximizing it will show all generated figures and data. The verbosity level also affects the length of the saved report.
- G. At the end of the test, click the **Save HTML** button to save an HTML report and generate the PDF. The PDF file will be linked from the HTML page. You can also click **Save PDF** and the browser will be directed to open the pdf file directly. Please see this [example AP-Auto Capacity Report](#).

