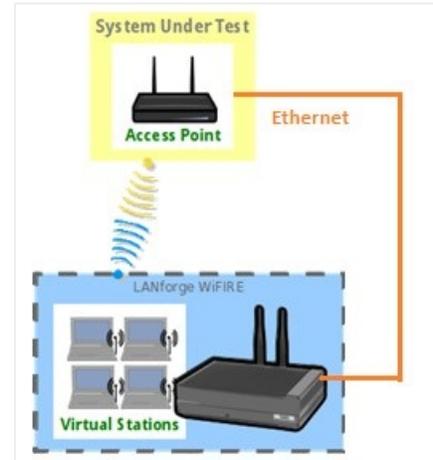


AP-Auto Test Suite Setup and basic AP client connectivity testing.

Goal: Setup AP-Auto preliminaries and run a basic client connectivity test for an AP using the LANforge CT523c or similar system. 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, a 6-radio LANforge CT523 is used to create stations and run the AP-Auto Basic Client Connectivity 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. Configure *Chamber View* for AP-Auto and Similar Tests.

- A. Click on the **Chamber View** button in the LANforge GUI to launch the *Chamber Views* screen.

LANforge Manager Version(5.3.9)

Control Reporting Tear-Off Info Plugins

Chamber View Stop All Restart Manager Refresh HELP

Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr vAP Stations DUT Profiles Traffic-Profiles Messages

Status Layer-3 L3 Endps VolP/RTP VolP/RTP Endps Armageddon WanLinks Attenuators RF-Generator File-I/O Layer-4 Generic

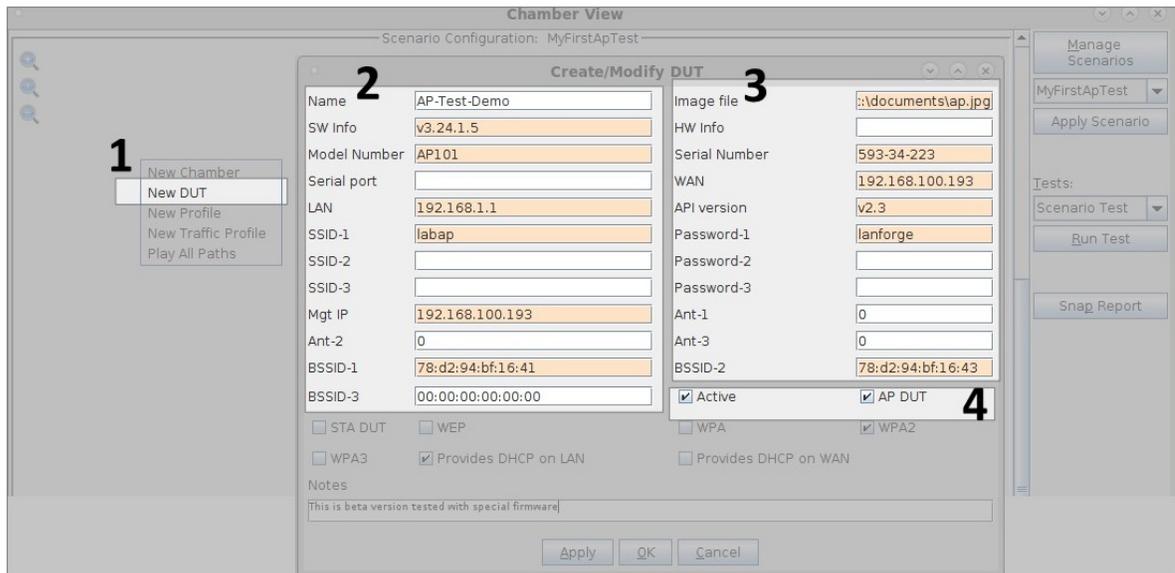
Disp: 127.0.0.1:10.0 Sniff Packets Down Clear Counters Reset Port Delete

Rpt Timer: medium (8 s) Apply VRF Display Crgate Modify Batch Modify

All Ethernet Interfaces (Ports) for all Resources.

Port	Pha...	Down	IP	SEC	Alias	Parent Dev	RX Bytes	RX Pkts	Pps RX	bps RX	TX Bytes	TX Pkts	Pps TX	bps TX	Cc
1.1.00			192.168.100.115	0	eth0		175,026,306	2,396,899	14	10,594	120,939,485	202,964	15	120,877	
1.1.01			192.168.1.2	0	eth1		38,128,262...	104,724...	59	31,420	985,775,12...	828,421...	2,380	28,381...	
1.1.02			0.0.0.0	0	wiphy0		0	1,546	0	0	0	0	0	0	0
1.1.03			0.0.0.0	0	wiphy1		0	1,050	0	0	0	0	0	0	0
1.1.04			0.0.0.0	0	wiphy2		960,264,44...	184,882...	605	27,852...	40,178,460...	104,816...	58	39,416...	2.2
1.1.05			0.0.0.0	0	wiphy3		37,357,777...	25,060...	0	0	0	0	0	0	0

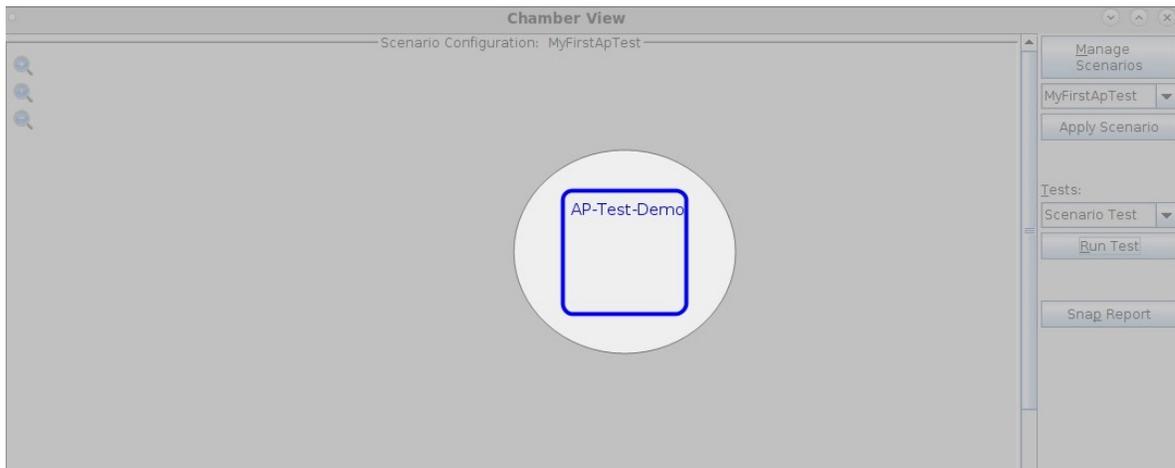
B. Configure an AP under test (DUT).



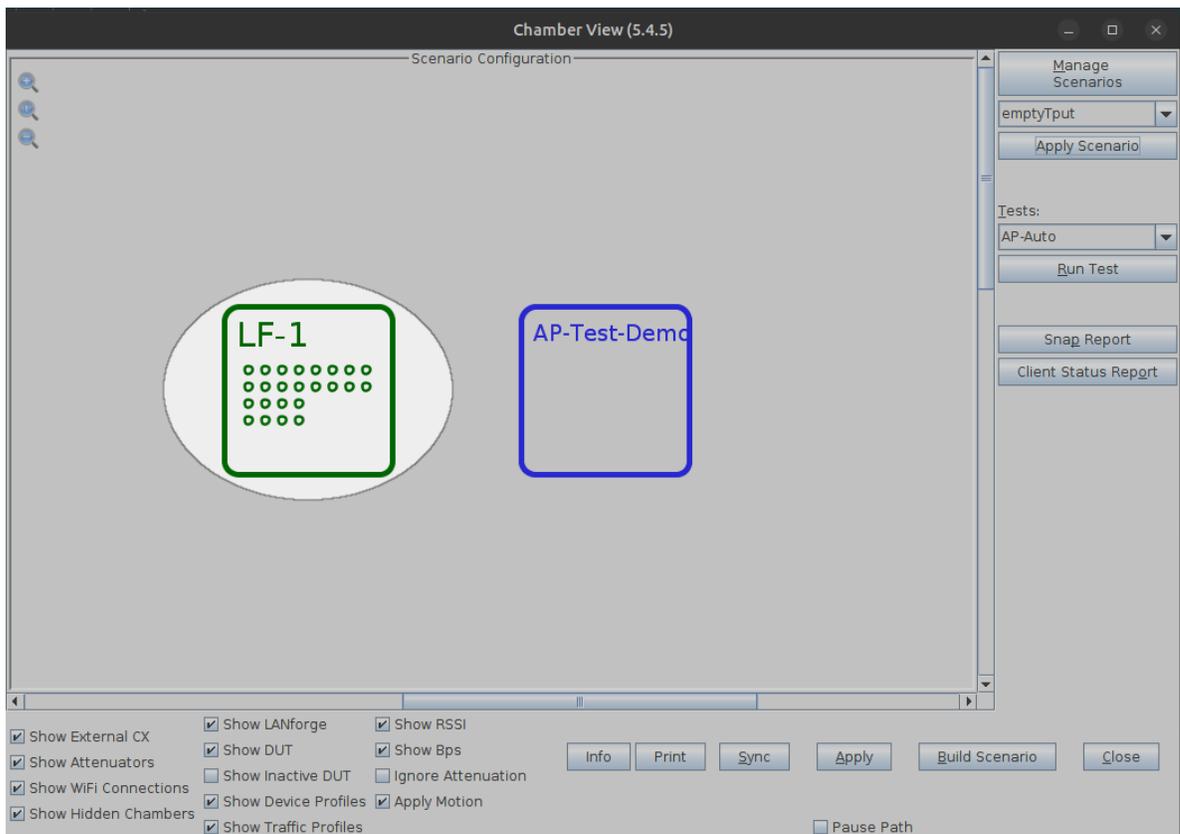
C. To configure the DUT:

- A. Right click anywhere on the canvas in *Chamber View* and select **New DUT** from the menu.
- B. Enter all the known details about the AP under test including the SSID (multiple SSIDs if the AP has multiple SSIDs), BSSID (multiple BSSIDs if the AP has multiple radios with the same SSID).
- C. If the AP has security enabled, enter the security information.
- D. Set the DUT to Active by checking the **Active** checkbox.
- E. Select the **AP DUT** checkbox to indicate that this DUT is an Access Point.

D. Once **OK** is clicked, check to make sure the DUT appears in *Chamber View* as shown below.



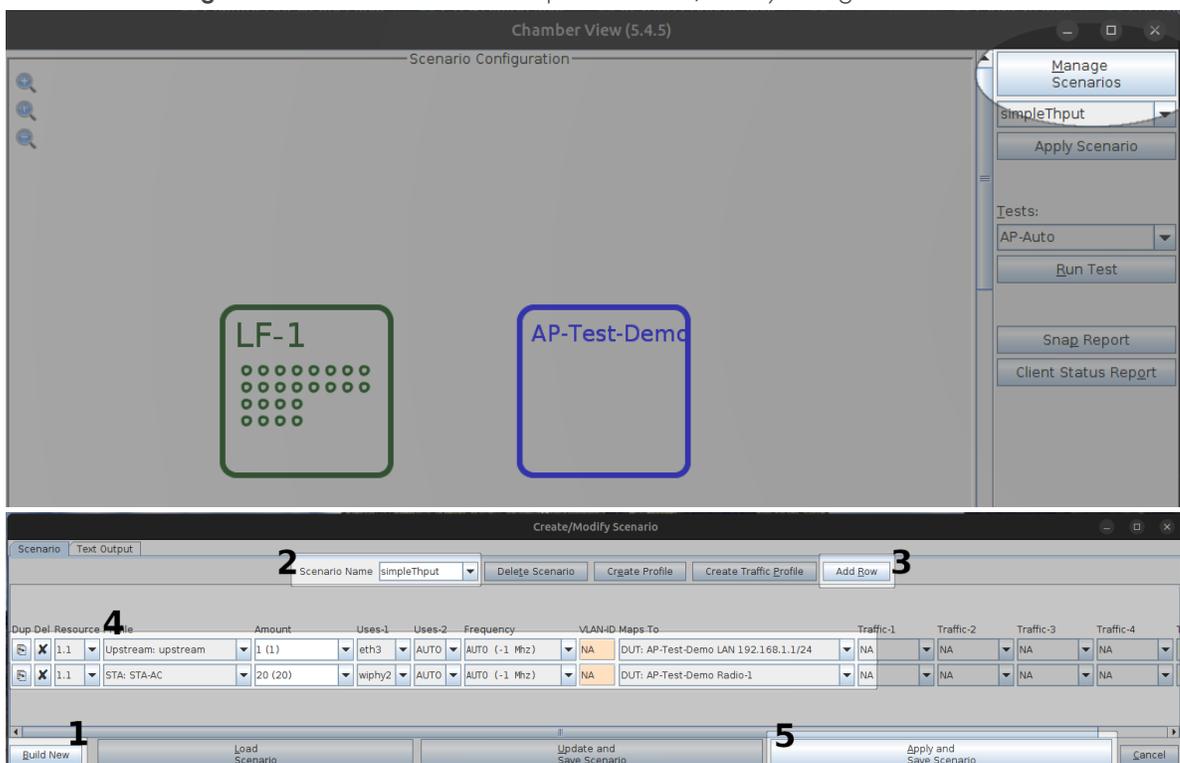
E. Select the LANforge system to be used in the test.



F. All active LANforge systems will automatically appear in *Chamber View*. Select the unit being used in the test and drag to the middle of the canvas next to the AP under test. The small circles inside the LANforge box represent the SMA connectors. The columns of circles represent the individual radios in the system. For instance, in the screenshot above LF-1 has 8 columns of circle indicating 8 radios. The first four are 4x4 radios and the next four are 2x2 radios with 2 circles each.

G. Create the test scenario

Click on the **Manage Scenarios** button and then open a *Create/Modify* dialog box.

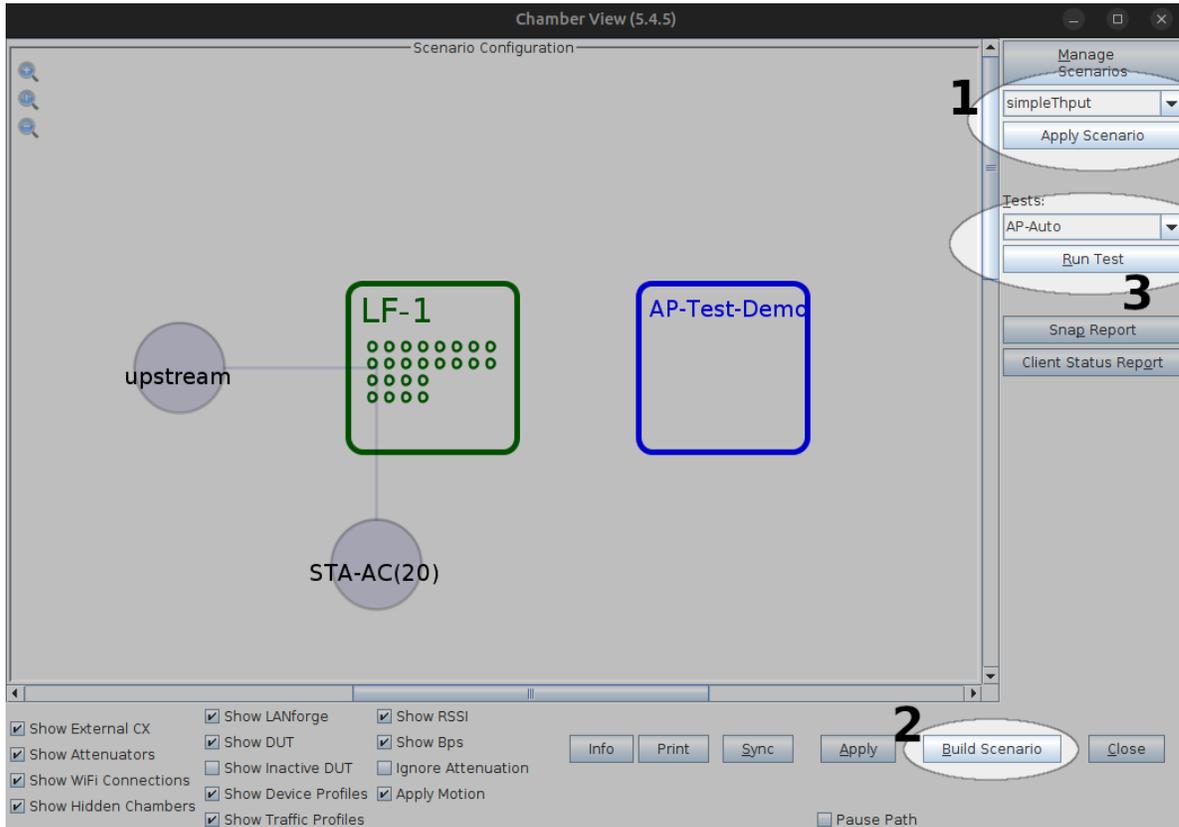


H. In the Create/Modify dialog box

- A. Click on **Build New** button to create a new scenario.
- B. Enter a scenario name e.g: 'SimpleThput' (no spaces allowed)
- C. Click **Add Row** button to add one or more rows.
- D. Add the STA profile (mapped to desired wiphyX radio and DUT). Add an upstream profile mapped to DUT LAN side (or possibly WAN side if that is more appropriate for your DUT).
- E. Choose **Apply and Save Scenario**

2. Configure *AP-Auto* settings and run Basic Client Connectivity test.

- A. Ensure that the correct scenario is chosen, then click **Build Scenario**



- B. Select the *AP-Auto* test and click **Run Test**. You will see the *AP-Auto* Test configuration window pop up. It will remember the last configuration for most fields, and you can also save and load configurations in the *Advanced Configuration* tab.

1 Open DUT

Selected DUT 2G: AP-Test-Demo asus-ax11000-2 f0:2f:74:57:db:b0 (1)

Selected DUT 5G: AP-Test-Demo asus-ax11000-5 f0:2f:74:57:db:b4 (2)

Selected DUT 5G-B: NA

Upstream Port: 1.1.3 eth3

2.4Ghz Radios: 1.1.4 wiphy0

5Ghz Radios: 1.1.6 wiphy2

3 Tests to run:

Basic Client Connectivity

Multi Band Performance

Stability

Multi-Station Throughput vs Pkt Size

Estimated Test Duration: 4 m

Throughput vs Pkt Size

Capacity

Band-Steering

Long-Term

Start Skip Another Iteration Pause Cancel

- C. In the *AP-Auto Settings* Tab

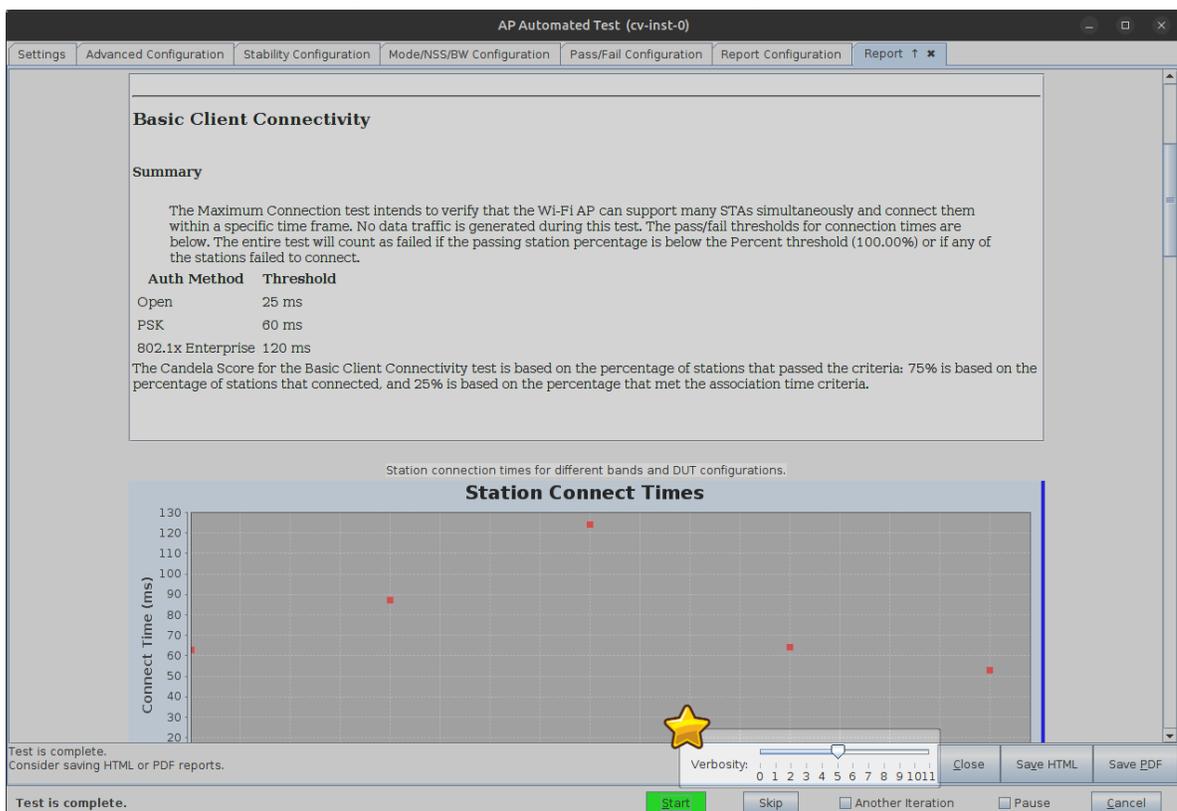
- Select the **DUT 2G** and **DUT 5G** SSIDs. This test requires that Open or PSK SSIDs are filled out. For SSIDs that are not enabled, leave as 'NA'.
- Select the LANforge radios to be used in this test. You need at least one 2.4Ghz radio and one 5Ghz radio for full functionality.
- At the bottom, select the **Basic Client Connectivity** test checkbox.

- D. Located Next to the *Settings* Tab, the *Advanced Configuration* tab lets you save and restore test configurations and also tune the behaviour of the automated tests. Station counts and skipping the single-band tests are the main options that affect this test.

The screenshot shows the 'AP Automated Test (cv-inst-0)' window with the 'Advanced Configuration' tab selected. The interface includes several sections for configuration:

- Buttons:** Show Config, Import Config, Save, Load, Delete.
- Configuration Fields:**
 - IP ToS: Best Effort (0)
 - Multi-Conn: One (1)
 - Auto-Helper:
 - 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: 5
 - 5Ghz Station Count: 10 (10)
 - Dual-Band Station Count: 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: 1h
 - 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
 - Capacity Amounts (stations): 5, 15
 - Multi-Station Throughput Options: UDP TCP Download Upload
- Status:** Test is complete.
- Buttons:** Start (highlighted in green), Skip, Another Iteration, Pause, Cancel.

- 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.



- F. Consider changing the test result verbosity level by adjusting the **Verbsity** 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 Basic Client Connectivity Report](#).

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