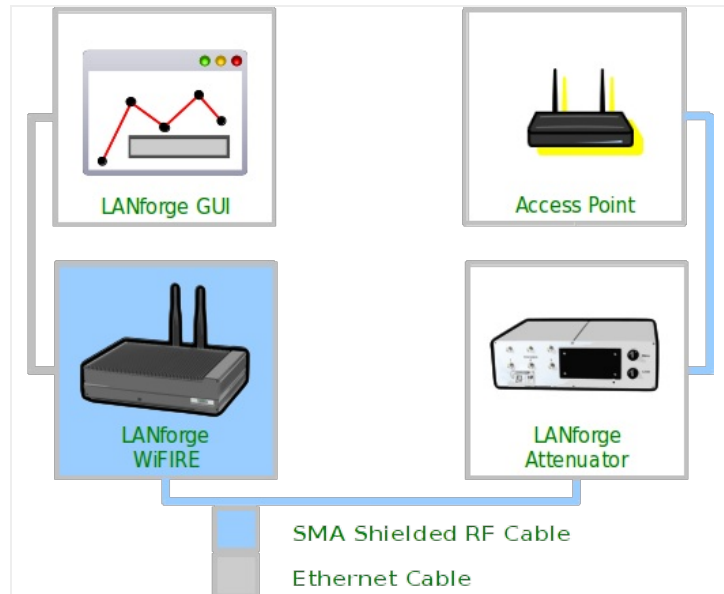


LANforge WiFi Attenuation vs PDU Size Test

Goal: Compare WiFi performance for 'download' traffic (AP to Client) as Payload Size and RF Attenuation levels change using a WiFi access point, a LANforge Attenuator and a LANforge Virtual Station. Traffic is generated by a RFC-2544 script on a Layer-3 UDP connection.

This demo consists of one WiFi access point and one CT523 LANforge WiFIRE machine connected to the LANforge Attenuator with coax SMA cables. (This is **not** over the air testing).



1. Create Layer-3 Cross Connect

A. Go to the **Layer 3** tab

LANforge Manager Version(5.3.3)

Control Reporting Tear-Off Info Plugins

Stop All Restart Manager Refresh HELP

File-IO Layer-4 Generic Test Mgr Test Group Resource Mgr Event Log Alerts Port Mgr Messages

Status Layer-3 L3 Endps VoIP/RTP VoIP/RTP Endps Armageddon WanLinks Attenuators Collision-Domains

Rpt Timer: default (5 s) Go Test Manager all Select All Start Stop Quiesce Clear

View 0 - 200 Display Create Modify Delete

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

A. Click **Create**

B. Create a cross connect with these settings:

- A. Make sure Endpoint A is **eth2** or the wired port to the AP
- B. Make sure Endpoint B is **wlan0** or the station associated with the AP
- C. Min PDU Size for both should be **AUTO**
- D. **NOTE:** These rate and PDU size settings will be manipulated by the script we setup later.

C. Verify that the connection is operational before adding a script.

2. Configure Scripting for Cross Connect

A. On the **Layer-3** tab, click **Modify**

B. In the Level 2 box, click Endpoint A **Script** button

C. The Cross Connect Script window displays with Script Type: **NONE**

D. Select Script Type: **RFC-2544** and default values appear:

The screenshot shows the 'Add/Modify Script' dialog box for the 'RFC-2544' script type. The 'Endpoint Name' is 'atten-vs-pdu-A' and the 'Script Name' is 'my-script'. The 'Group Action' is 'All'. The 'Loop Count' is 'Forever' and 'Script Iterations' are '27 (27)'. The 'Estimated Duration' is '15.75 m (15.75 m)'. The 'Script Configuration' section includes checkboxes for 'Show Dups', 'Show OOO', 'Show Attenuation', 'Hide Latency Distributions', and 'Hide Constraints'. The 'Run Duration' is '30 s (30 s)', 'Pause Duration' is '5 s (5 s)', 'Max Drop Percent' is '5% (5%)', 'Max-Tx-Underrun' is '10% (10%)', 'Max Jitter' is 'high (100 ms)', and 'Max RT Latency' is '500ms (500 ms)'. The 'Max Failed OK' is '0'. There are five list boxes for 'Rates A', 'Rates B', 'Payload Sizes A', 'Payload Sizes B', and 'Attenuations (ddB)'. The 'Attenuations (ddB)' list box is currently set to 'NONE'.

Rates A	Rates B	Payload Sizes A	Payload Sizes B	Attenuations (ddB)
bps	bps	60	60	NONE
10Mbps	10Mbps	128	128	100
100Mbps	100Mbps	256	256	300
1Gbps	1Gbps	512	512	400
		1024	1024	600
		1280	1280	800
		1460	1460	955
		1472	1472	
		1514	1514	

A. Select **Show Attenuation**. This displays attenuation levels in the report.

B. Run Duration: **30 sec**. This is how long each iteration will run.

C. Pause Duration: **5 sec**. We give it some time to transition.

- E. Setup Pass/Fail Criteria and Iteration Steps for the script. For each Attenuation Level, the script will step through each PDU size at the desired rate. If there were multiple rates then for each Attenuation Level, the script would step through each PDU size for each rate.

- A. Max Drop Percent 20%
- B. Max Jitter 200ms
- C. Max RT Latency 1000ms
- D. Rates A: 900Mbps. This sets the client download target rate.
- E. Pld A: 64, 512, 1024, 1472
- F. Attenuator Resource: 1.1.35. You can find your attenuator resources in the **Attenuator** tab.
- G. Attenuation: 0..+50..955. This is shorthand for: Begin at zero dB attenuation, increase in 5.0dB steps, until 955 dB of attenuation. Individual dB steps could also be specified.
- H. Click **OK**

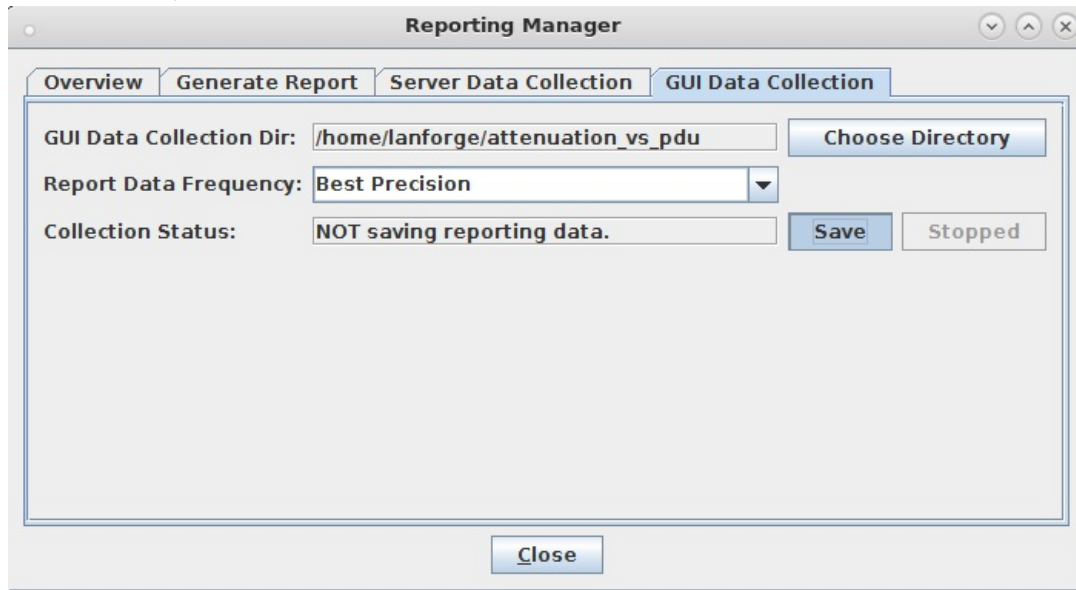
- F. On the **Create/Modify Cross Connect** window, click **OK**

3. Save Data to be able to view past results.

Name	Type	State	Pkt Rx A	Pkt Rx B	Bps Rx A	Bps Rx B	Rx Drop % A	Rx Drop % B	Drop Pkts A
atten-vs-pdu	LF/UDP	Stopped	0	0	0	0	0	0	0

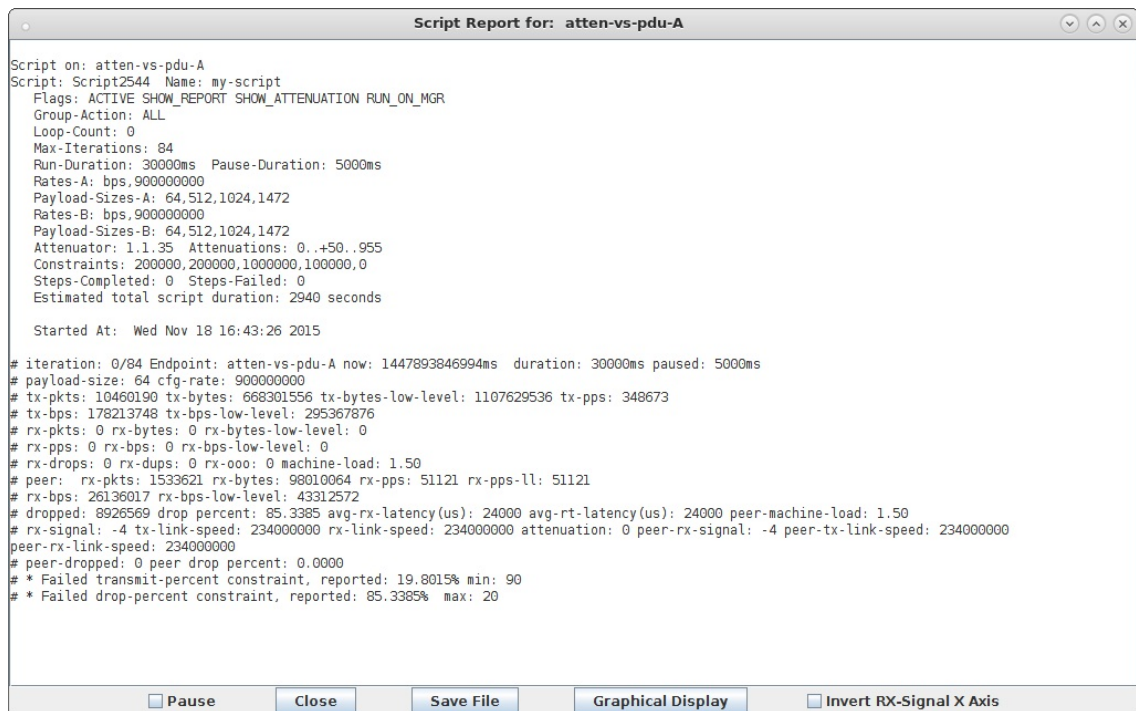
- A. Go to Reporting Menu and select Reporting Manager
- B. Select the GUI Data Collection tab

C. Choose a directory and select Save



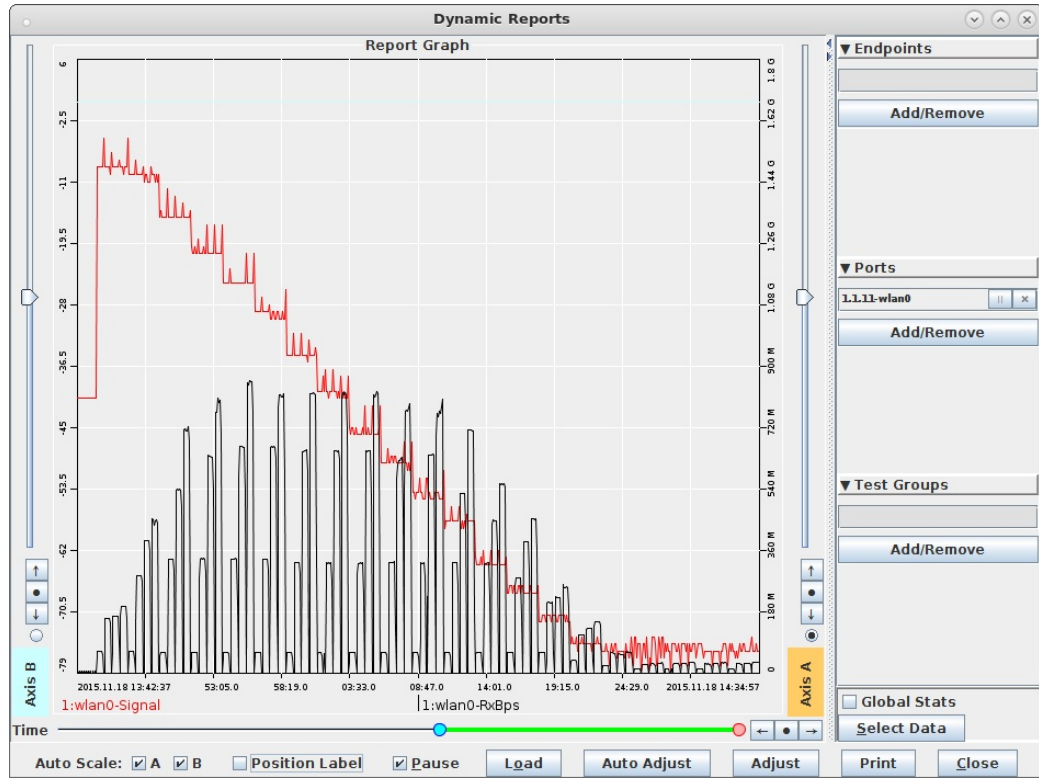
4. Run the Cross Connect and Generate a Report

A. On the **Layer-3** tab, click **Start**, and the Script Report window will appear.



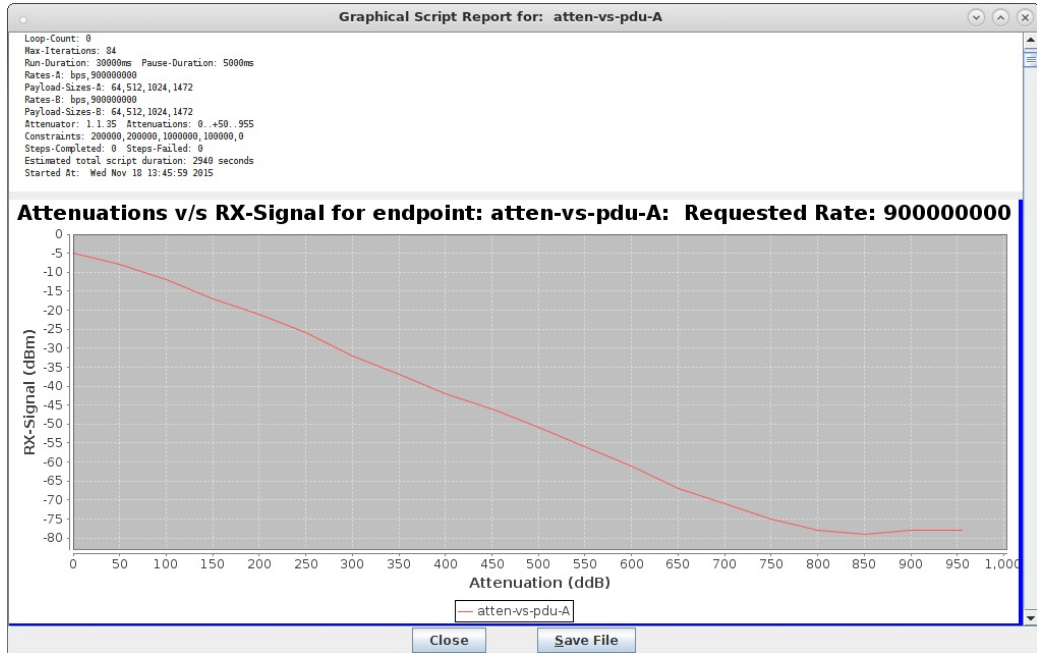
B. View the Dynamic Report

- A. While the script is running, you can view the real-time results of the running script.
- B. Right-Click on **wlan0** and select Dynamic Report
- C. Setup the Dynamic Report to view the data you are interested in.
- D. wlan0: RX Signal level shown on Axis-B and RX bps shown on Axis-A

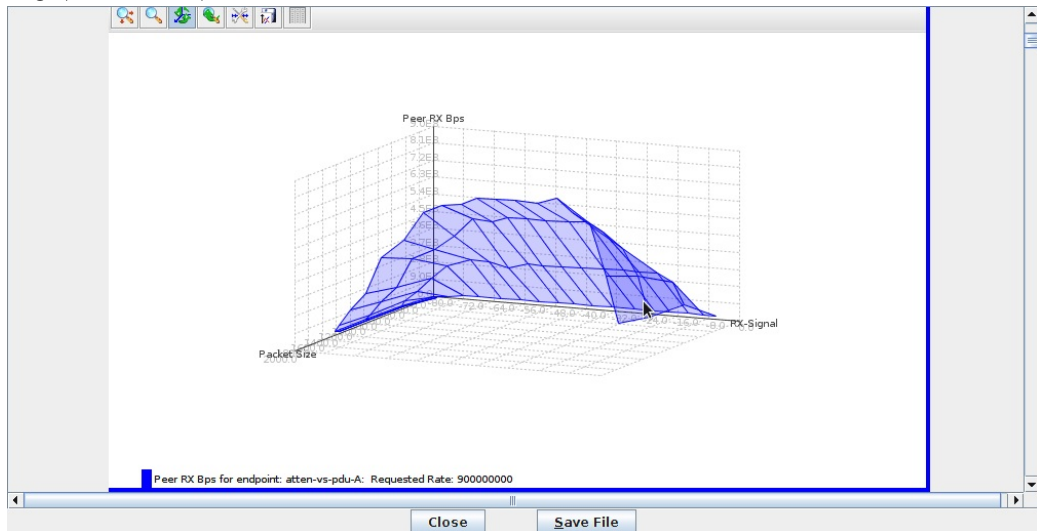


- E. To view Dynamic Report data after the test completes:
- F. Set the Reporting Manager, Generate Report to the directory containing saved data.
- G. Adjust the time scale and Load the data in the Dynamic Report window.

- C. View the graphical results of the script when it completes.
 - A. In the Script Report window, click on **Graphical Display** and a window with the graphical report will display
 - B. Scroll to the top of the window to view the graphs. Examples are shown below.
- C. Attenuation v. RX signal, endpoint A



- D. 3D graph of Peer RX Bps



- E. Click on **Save File** and your browser will appear the the HTML copy of the report.
 See also: [Full Report](#) [Raw Report Text](#)