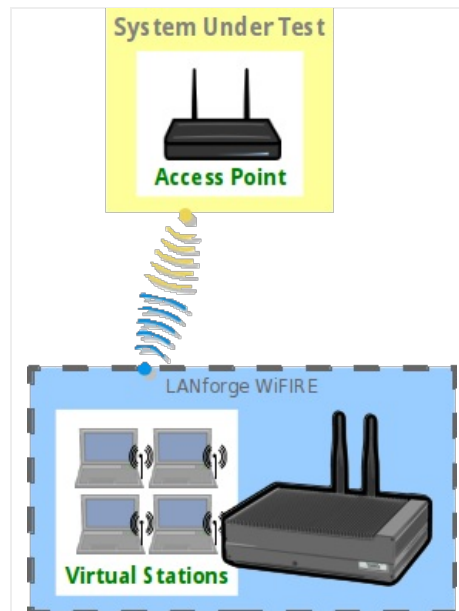


Multiple Stations with a Hunt Script

Goal: Do packet sized testing with a hunt script using multiple stations.

We will manipulate the parameters of 10 Layer 3 connections using a single hunt script. The WiFi stations will change packet size as a group by being part of a Test Group. In this scenario, we will create traffic to different upstream destinations using MAC VLANs, and the AP wired up to **eth1** of our LANforge machine. Requires a **CT-520** for only stations, or a **CT-523** if you also want a WiFi monitor station.



1. Create 10 virtual stations: in the **Port Mgr** tab, highlight radio **wiphy0** and click the Create button. In this scenario, we are using SSID jedtest.

The screenshot shows the 'Create VLANs on Port: 1.1.2' dialog box. The 'WiFi STA' option is selected under the '1' tab. The 'Shelf' is set to 1, 'Resource' to 1 (brent-523), and 'Port' to 2 (wiphy0). Under '3', 'VLAN ID' is empty, 'Parent MAC' is 00:0e:8e:4e:59:2f, 'MAC Addr' is xx:xx:xx:*:xx, and 'Quantity' is 10. The 'DHCP-IPv4' checkbox is checked. 'DHCP Client ID' is set to None. 'IP Address', 'IP Mask or Bits', 'Gateway IP', 'Global IPv6', 'Link IPv6', and 'IPv6 GW' are all set to AUTO. '#1 Redir Name' and '#2 Redir Name' are empty. 'STA ID' is 0, 'SSID' is jedtest, and 'Key/Phrase' is empty. 'WPA', 'WPA2', and 'WEP' checkboxes are unchecked. At the bottom, the 'Down' checkbox is unchecked, and there are 'Apply', 'Cancel', and 'Ready' buttons.

A. Select WiFi STA

- B. Check DHCP-IPv4
- C. Quantity: 10
- D. Station ID: 0
- E. SSID: jedtest
- F. Click **Apply** and then close the window.
- G. You should see stations `sta0 - sta9`.

For more information see [creating virtual stations](#)

2. **(Simple Method)** This method only requires setting the IP on eth1. In this scenario, our upstream network is `10.26.1.0/24`. In the **Port Mgr** tab, highlight **eth1** and click **Modify**.

eth1 (brent-523) Configure Settings

Port Status Information
 Current: LINK-UP 1000bt-FD AUTO-NEGOTIATE Flow-Control TSO GSO GRO
 Driver Info: Port Type: Ethernet Driver: e1000e(3.2.6-k) Bus: 0000:04:00.0 Cur: 2.5GT/s x1 Max: 2.5GT/s x1

Port Configurables

Enable

- ☐ Set IF Down
- ☐ Set MAC
- ☐ Set TX Q Len
- ☐ Set MTU
- ☐ Set Offload
- ☐ Set Rate Info
- ☐ Set PROMISC
- ☐ Set Rx-All/FCS
- ☐ Set Bypass
- ☐ Set Bridge Info
- ☐ Set CPU Mask

Services

- ☐ HTTP
- ☐ FTP
- ☐ RADIUS

General Interface Settings

☐ Down ☐ Aux-Mgt

☐ DHCP-IPv6 ☒ DHCP Release DHCP Vendor ID: None

☒ DHCP-IPv4 **Secondary-IPs** DHCP Client ID: None

DNS Servers: BLANK Peer IP: NA

IP Address: 10.26.1.10 Global IPv6: AUTO

IP Mask: 255.255.255.0 Link IPv6: AUTO

Gateway IP: 10.26.1.1 IPv6 GW: AUTO

Alias: MTU: 1500

MAC Addr: 00:90:0b:37:2c:bd TX Q Len: 1000

Br Cost: ignore Priority: ignore

Rpt Timer: medium (8 s) Watchdog: 0

CPU Mask: NO-SET WiFi Bridge: NONE

Port Rates

- ☐ 10bt-HD
- ☐ 10bt-FD
- ☐ 100bt-HD
- ☐ 100bt-FD
- ☐ 1000-FD
- ☐ 10G-FD
- ☐ 40G-FD
- ☒ Autonegotiate

☐ Renegotiate

☐ Restart Xcvr

☐ PROMISC

☐ RX-ALL

☐ RX-FCS

☐ Bypass NOW!

☐ Bypass Power-UP

☐ Bypass Power-DOWN

☐ Bypass Disconnect

Advert Rates

- ☒ 10bt-HD
- ☒ 10bt-FD
- ☒ 100bt-HD
- ☒ 100bt-FD
- ☒ 1000-FD
- ☐ 10G-FD
- ☐ 40G-FD
- ☒ Flow-Control

Offload

- ☒ TSO Enabled
- ☐ UFO Enabled
- ☒ GSO Enabled
- ☐ LRO Enabled
- ☒ GRO Enabled

Print View Details Probe Sync Apply OK Cancel

- A. IP: 10.26.1.10
- B. IP Mask: 255.255.255.0
- C. Gateway IP: 10.26.1.1
- D. Click **OK**.

3. **(Optional Advanced Method)** Create ten MAC VLANs on the eth1. In this scenario, our upstream network is `10.26.1.0/24`. In the **Port Mgr** tab, highlight **eth1** and click **Create**.

- A. Select MAC-VLAN
- B. Quantity: 10
- C. IP: 10.26.1.11
- D. IP Mask: 255.255.255.0
- E. Gateway: 10.26.1.1
- F. Click **Apply** and close the window.
- G. You should see 10 MAC VLANs, `eth1#0 - eth1#9`.

4. Create ten Layer-3 cross connects. We will start at 10Mbps transmit on them as a reasonable start. In general hunt scripts start low and try to work their way higher. When using more stations, set a lower starting transmit rate. In the Layer-3 tab, click Create.

- A. Name: **sta-mac-0**
- B. Endpoint-A: **eth1** (if using the advanced MAC-VLAN method, set this to **eth1#0**).
- C. Endpoint-B: sta0
- D. Type: LANforge / UDP

- E. Min Tx Rate: 10Mbps (both sides)
- F. Click **Apply**. Leave the window open.

5. Create nine more stations. Click **Batch-Create**.

Layer-3 Batch Creator: sta-mac-0

sta-mac-1, sta-mac-2 ... sta-mac-9
Endp-A Resources: 1, 1 ... 1
Endp-B Resources: 1, 1 ... 1
Endp-A Ports: eth1, eth1 ... eth1
Endp-B Ports: sta1, sta2 ... sta9
Endp-A IPs: AUTO, AUTO ... AUTO
Endp-B IPs: AUTO, AUTO ... AUTO

Quantity: Number of Digits: ☐ Zero Pad

Starting Name Suffix: Name Increment:

Resource Increment A: Resource Increment B:

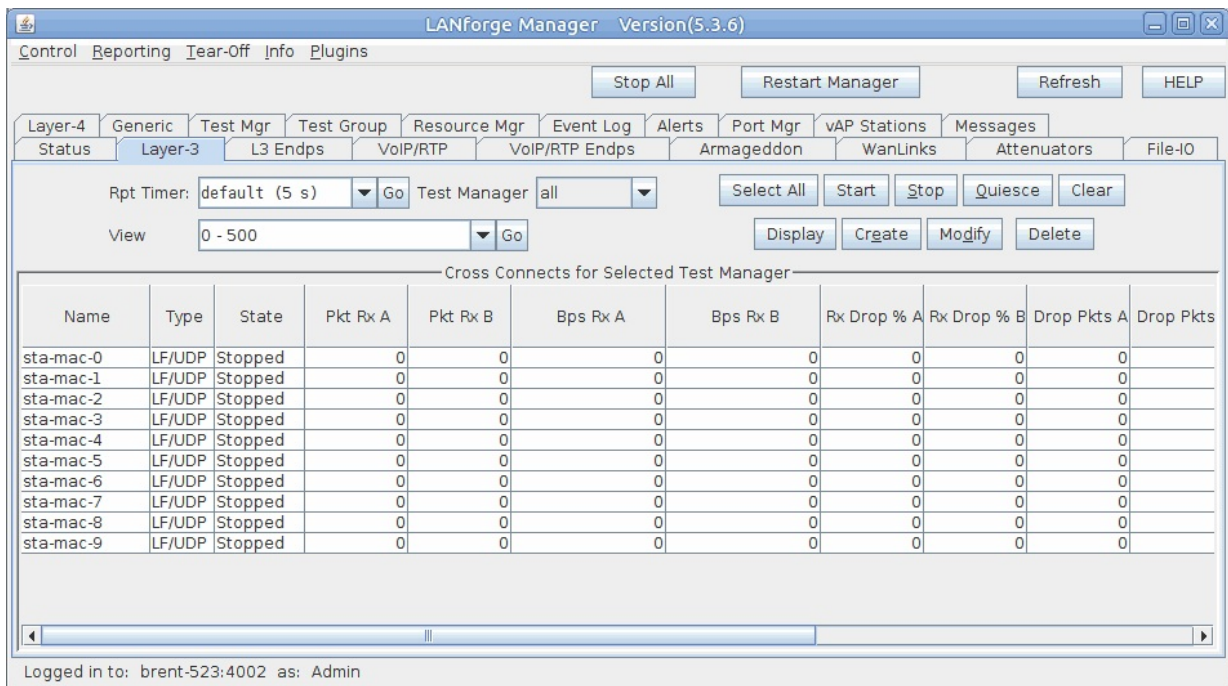
Port Increment A: Port Increment B:

IP Addr Increment A: IP Addr Increment B:

IP-Port Increment A: IP-Port Increment B:

- A. Quantity: 9
- B. Deselect **Zero Pad**.
- C. If only eth1 is used for upstream traffic, set **Port Increment A to 0**. Otherwise leave it at 1.
- D. Click **Apply** and close window.
- E. Close the Create/Modify Cross Connect window.

6. You will see ten Layer-3 connections in the Layer-3 tab.

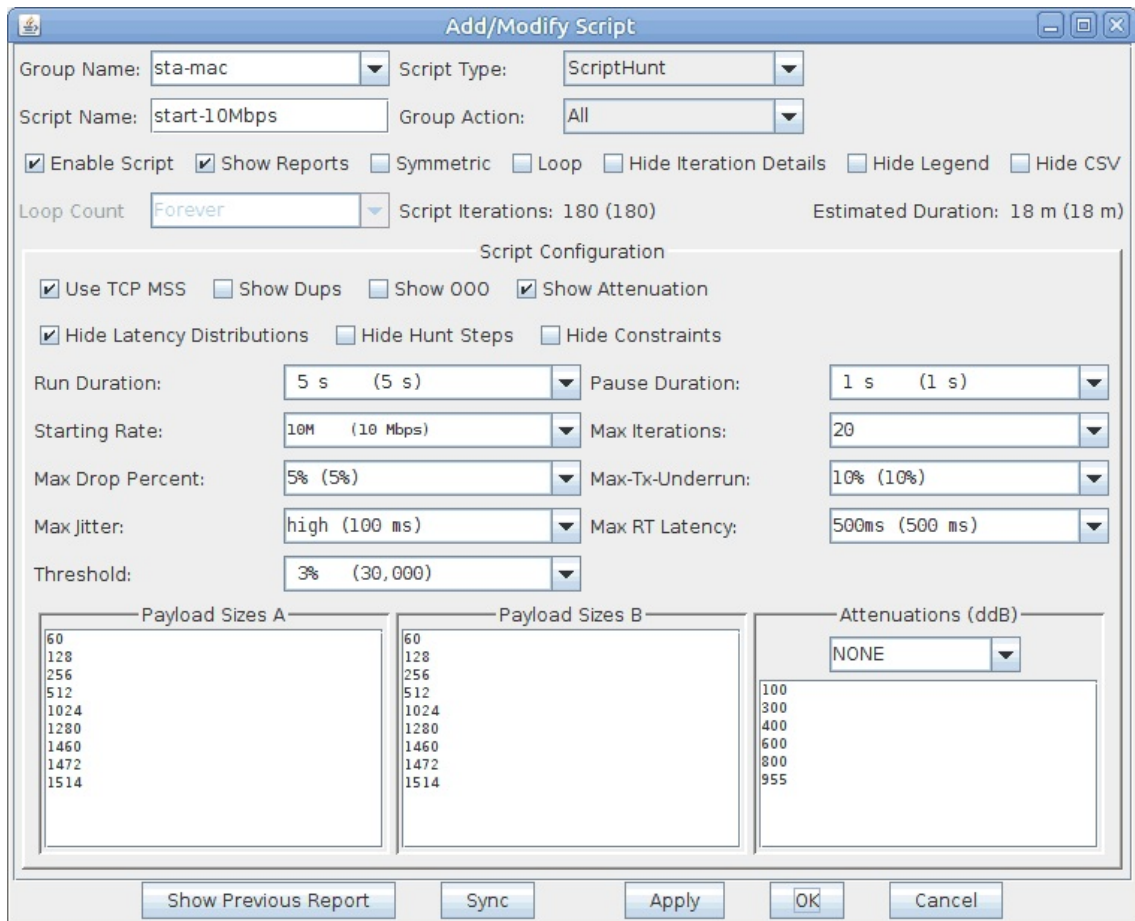


7. Create a Test Group. In the Test Group tab, click **Create**.



- A. Name: **sta-mac**
- B. Select **Config As Totals**.
- C. Highlight all the **sta-mac-x** connections and click **← Add Cx**.
- D. Click **Apply**.
- E. Click **Script**.

F. Configure the Test Group Script.



The 'Add/Modify Script' dialog box is shown. It contains the following fields and options:

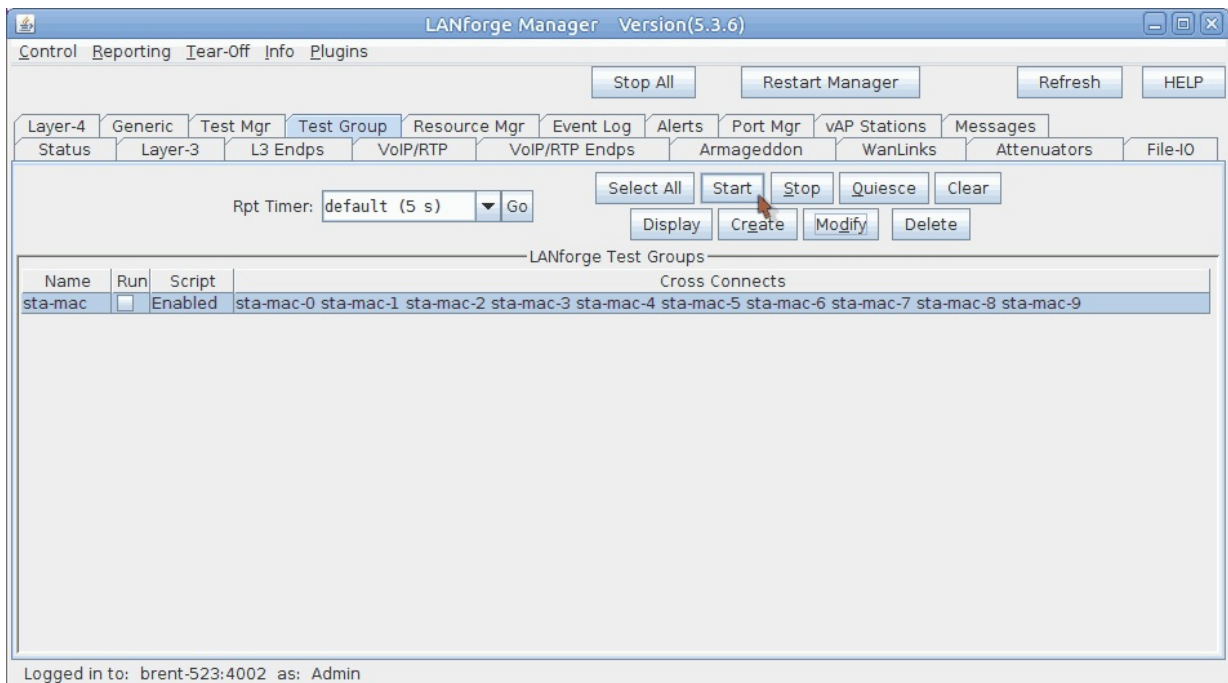
- Group Name: **sta-mac**
- Script Type: **ScriptHunt**
- Script Name: **start-10Mbps**
- Group Action: **All**
- ☒ Enable Script ☒ Show Reports ☐ Symmetric ☐ Loop ☐ Hide Iteration Details ☐ Hide Legend ☐ Hide CSV
- Loop Count: **Forever**
- Script Iterations: **180 (180)**
- Estimated Duration: **18 m (18 m)**
- Script Configuration**
 - ☒ Use TCP MSS ☐ Show Dups ☐ Show 000 ☒ Show Attenuation
 - ☒ Hide Latency Distributions ☐ Hide Hunt Steps ☐ Hide Constraints
 - Run Duration: **5 s (5 s)**
 - Pause Duration: **1 s (1 s)**
 - Starting Rate: **10M (10 Mbps)**
 - Max Iterations: **20**
 - Max Drop Percent: **5% (5%)**
 - Max-Tx-Underrun: **10% (10%)**
 - Max Jitter: **high (100 ms)**
 - Max RT Latency: **500ms (500 ms)**
 - Threshold: **3% (30,000)**
- Payload Sizes A**: 60, 128, 256, 512, 1024, 1280, 1460, 1472, 1514
- Payload Sizes B**: 60, 128, 256, 512, 1024, 1280, 1460, 1472, 1514
- Attenuations (dB)**: NONE

Buttons at the bottom: Show Previous Report, Sync, Apply, OK, Cancel.

- A. Group Name: **sta-mac**
- B. Script Type: **ScriptHunt**
- C. Script Name: **start-10Mbps**
- D. Starting Rate: **10M**
- E. Click **OK**.

G. Close the Create Test Group window.

8. Start the test. Highlight the test group and click **Start**.



The LANforge Manager interface (Version 5.3.6) is shown. The 'Test Group' tab is selected. The 'Start' button is highlighted with a mouse cursor.

Buttons: Stop All, Restart Manager, Refresh, HELP

Navigation tabs: Layer-4, Generic, Test Mgr, **Test Group**, Resource Mgr, Event Log, Alerts, Port Mgr, vAP Stations, Messages

Sub-tabs: Status, Layer-3, L3 Endps, VoIP/RTP, VoIP/RTP Endps, Armageddon, WanLinks, Attenuators, File-I/O

Rpt Timer: default (5 s) Go

Buttons: Select All, **Start**, Stop, Quiesce, Clear, Display, Create, Modify, Delete

Name	Run	Script	Test Group
sta-mac	☐	Enabled	sta-mac-0 sta-mac-1 sta-mac-2 sta-mac-3 sta-mac-4 sta-mac-5 sta-mac-6 sta-mac-7 sta-mac-8 sta-mac-9

Logged in to: brent-523:4002 as: Admin

9. You will see the script report window.

```
Script Report for: sta-mac Completed at: Tue Mar 28 16:14:45 PDT 2017
# iteration: 0/180 Endpoint: sta-mac now: 1490742330645ms duration: 5002ms paused: 0ms
# payload-size: 60 cfg-rate: 10000000
# tx-pkts: 104138 tx-bytes: 6248280 tx-bytes-low-level: 10622076 tx-pps: 20819
# tx-bps: 9993251 tx-bps-low-level: 16988526
# rx-pkts: 42457 rx-bytes: 62496704 rx-bytes-low-level: 64279898
# rx-pps: 8488 rx-bps: 99954745 rx-bps-low-level: 102806714
# rx-drops: 0 rx-dups: 0 rx-ooo: 0 machine-load: 0.00
# peer: rx-pkts: 79744 rx-bytes: 4784640 rx-pps: 15942
# rx-bps: 7652363 rx-bps-low-level: 13009017
# dropped: 24394 drop percent: 23.4247 avg-rx-latency(us): 68 avg-rt-latency(us): 75000 peer-machine-load: 0.00
# rx-signal: -35 tx-link-speed: 450000000 rx-link-speed: 450000000 attenuation: 100 peer-rx-signal: -35 tx-peer-link-speed: 450000000
# rx-peer-link-speed: 450000000
# peer-dropped: 27 peer drop percent: 0.0636
# * Failed drop-percent constraint, reported: 23.4247% max: 5

# iteration: 1/180 Endpoint: sta-mac now: 149074233689ms duration: 5042ms paused: 1002ms
# payload-size: 60 cfg-rate: 5000000
# tx-pkts: 52016 tx-bytes: 3120960 tx-bytes-low-level: 5305632 tx-pps: 10317
# tx-bps: 4951940 tx-bps-low-level: 8418298
# rx-pkts: 42390 rx-bytes: 62398080 rx-bytes-low-level: 64178460
# rx-pps: 8407 rx-bps: 99005284 rx-bps-low-level: 101830163
# rx-drops: 0 rx-dups: 0 rx-ooo: 0 machine-load: 0.07
# peer: rx-pkts: 51928 rx-bytes: 3115680 rx-pps: 10299
# rx-bps: 4943562 rx-bps-low-level: 8404056
# dropped: 88 drop percent: 0.1692 avg-rx-latency(us): 8 avg-rt-latency(us): 14000 peer-machine-load: 0.07
# rx-signal: -34 tx-link-speed: 450000000 rx-link-speed: 405000000 attenuation: 100 peer-rx-signal: -34 tx-peer-link-speed: 405000000
# rx-peer-link-speed: 450000000
# peer-dropped: 41 peer drop percent: 0.0966
# * Passed constraints *

# iteration: 2/180 Endpoint: sta-mac now: 1490742342693ms duration: 5002ms paused: 1002ms
# payload-size: 60 cfg-rate: 7500000
# tx-pkts: 78098 tx-bytes: 4685880 tx-bytes-low-level: 7965996 tx-pps: 15613
# tx-bps: 7494410 tx-bps-low-level: 12740497
# rx-pkts: 42457 rx-bytes: 62496704 rx-bytes-low-level: 64279898
# rx-pps: 8488 rx-bps: 99954745 rx-bps-low-level: 102806714
# rx-drops: 0 rx-dups: 0 rx-ooo: 0 machine-load: 0.07
# peer: rx-pkts: 77825 rx-bytes: 4669500 rx-pps: 15559
# rx-bps: 7468213 rx-bps-low-level: 12695962
```

10. When the test is finished, click **Graphical Report** to see graphs.

