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Scripted Layer-3 Test

Goal: Use RFC-2544 as a guide to create a Layer-3 connection that can run automatically through various payload sizes and rates for a specified duration.

In this example, LANforge is used to set up a scripted connection that will iterate through a user-defined list of payload sizes and transmission rates. Each iteration will run for a user-defined duration with a user-defined pause between iterations. A summary text report is generated at the conclusion of all iterations.

1. Create a Layer-3 connection. For more information see Generating Traffic to a Switched Network

2. Modify the Layer-3 connection to add the script.

   A. Highlight the Layer-3 connection and select **Modify**.

   B. Select the **Script** button on Endpoint A.

C. Select the Script Type, RFC-2544.

Add/Modify Script

Endpoint Name: scr-test-1-A   Script Type: RFC-2544

Script Name: my-script   Group Action: All

☑ Enable Script ☑ Show Reports ☐ Symmetric ☐ Loop ☐ Hide Iteration Details ☐ Hide Legend ☐ Hide CSV

Loop Count: Forever   Script Iterations: 27 (27)   Estimated Duration: 15.75 m (15.75 m)

Script Configuration

☐ Show Dups ☐ Show OOO ☐ Show Attenuation ☐ Hide Latency Distributions ☐ Hide Constraints

Run Duration: 30 s   (30 s)   Pause Duration: 5 s   (5 s)

Max Drop Percent: 5% (5%)   Max-Tx-Underrun: 10% (10%)

Max Jitter: high (100 ms)   Max RT Latency: 500ms (500 ms)

Max Failed OK: 0

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	

Show Previous Report   Sync   Apply   OK   Cancel

A. **Note**: A default set of payload sizes are set up based on RFC-2544 but, can be changed by typing over the default values.

B. **Note**: For Layer-3 UDP and TCP connections, 'payload size' refers to size of the payload being carried by the protocol and not the ethernet frame size.

3. Set up script options. For details refer to: LANforge User's Guide: Scripted Cross Connect
   A. Select **Symmetric** for the script to run both endpoints for a bi-directional traffic test.

Add/Modify Script

Endpoint Name: scr-test-1-A   Script Type: RFC-2544

Script Name: my-script   Group Action: All

☑ Enable Script ☑ Show Reports ☑ Symmetric ☐ Loop ☐ Hide Iteration Details ☐ Hide Legend ☐ Hide CSV

Loop Count: Forever   Script Iterations: 27 (27)   Estimated Duration: 15.75 m (15.75 m)

Script Configuration

☐ Show Dups ☐ Show OOO ☐ Show Attenuation ☐ Hide Latency Distributions ☐ Hide Constraints

Run Duration: 30 s (30 s)   Pause Duration: 5 s (5 s)

Max Drop Percent: 5% (5%)   Max-Tx-Underrun: 10% (10%)

Max Jitter: high (100 ms)   Max RT Latency: 500ms (500 ms)

Max Failed OK: 0

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

Show Previous Report   Sync   Apply   OK   Cancel

B. Set the **Run** and **Pause Duration**.

Add/Modify Script

Endpoint Name: scr-test-1-A   Script Type: RFC-2544

Script Name: my-script   Group Action: All

☑ Enable Script ☑ Show Reports ☑ Symmetric ☐ Loop ☐ Hide Iteration Details ☐ Hide Legend ☐ Hide CSV

Loop Count: Forever   Script Iterations: 27 (27)   Estimated Duration: 2.7 m (2.7 m)

Script Configuration

☐ Show Dups ☐ Show OOO ☐ Show Attenuation ☐ Hide Latency Distributions ☐ Hide Constraints

Run Duration: 5 s (5 s)   Pause Duration: 1 s (1 s)

Max Drop Percent: 5% (5%)   Max-Tx-Underrun: 10% (10%)

Max Jitter: high (100 ms)   Max RT Latency: 500ms (500 ms)

Max Failed OK: 0

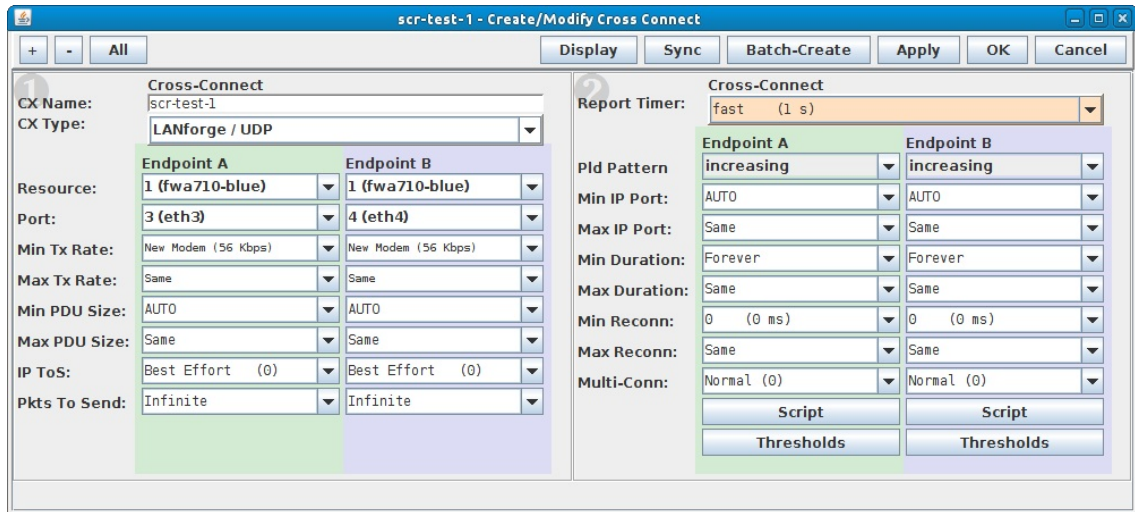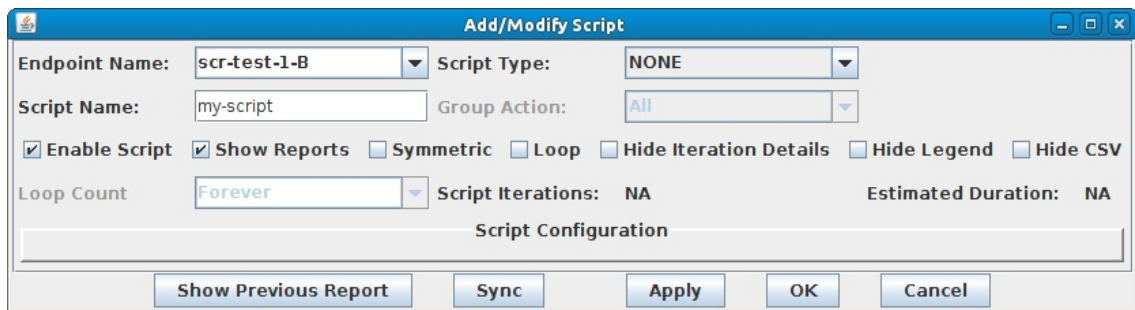| Rates A	Rates B	Payload Sizes A	Payload Sizes B	Attenuations (ddB)
bps	bps	60	60	NONE
10Mbps	10Mbps	128	128	
100Mbps	100Mbps	256	256	100
1Gbps	1Gbps	512	512	300
		1024	1024	400
		1280	1280	600
		1460	1460	800
		1472	1472	955
		1514	1514	

Show Previous Report   Sync   Apply   OK   Cancel

   A. Note the total number of **Script Iterations** and **Estimated Total Duration** to help determine how long it will take to run this script.

C. Select OK to close the Add/Modify Script window.

D. The Script Type for Endpoint B is set to NONE because Endpoint A is controlling both ends of the connection in this symmetric script example.

E. Select OK to close the Create/Modify Cross Connect window.

4. Start the Scripted Layer-3 Cross Connect.
   A. Highlight the Layer-3 connection and select Start.

B. A script report window will pop up and show the details of each iteration of the scripted connection as it is run.

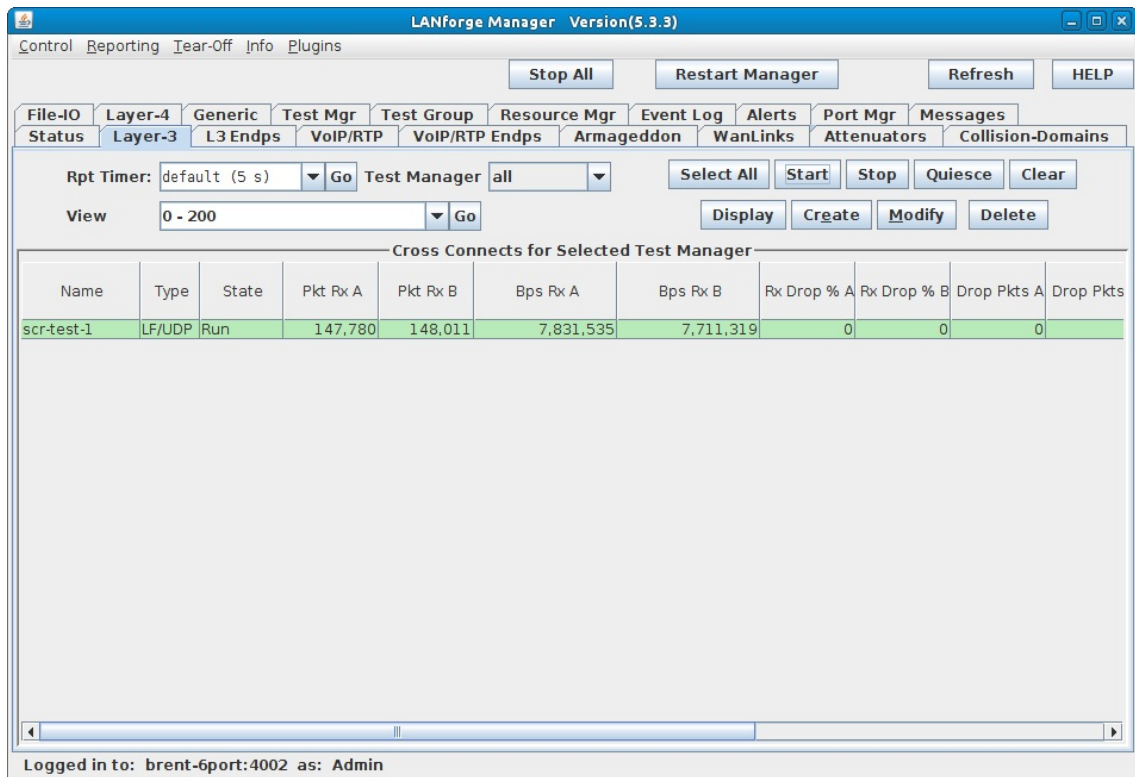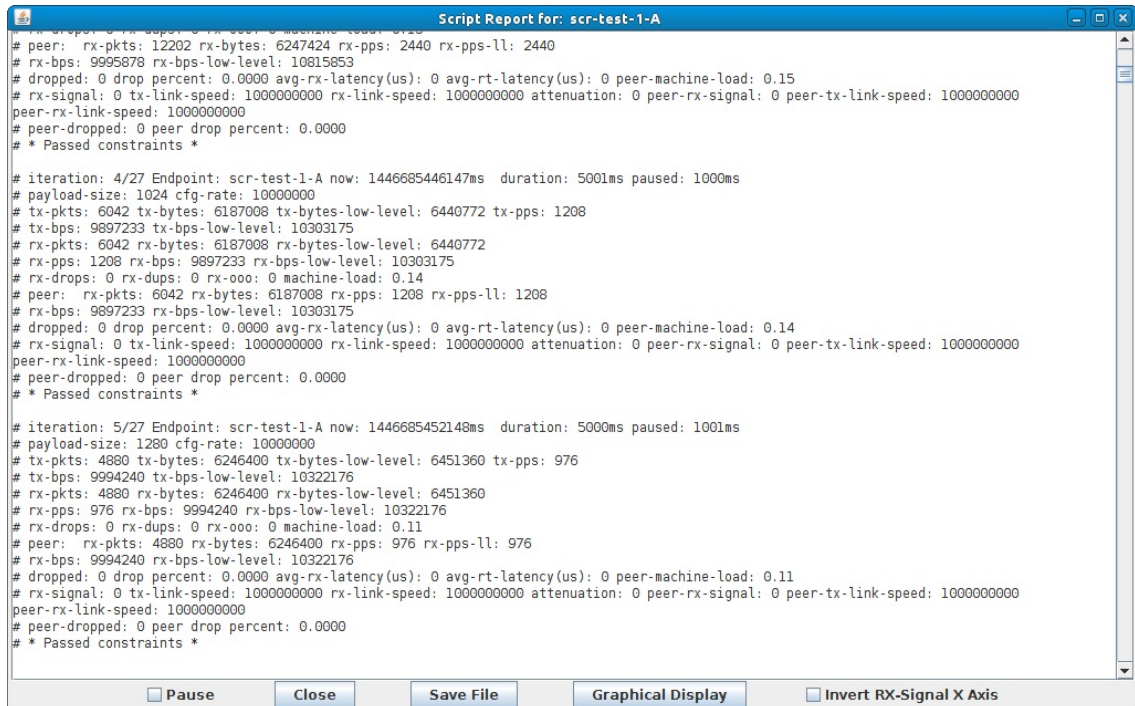C. At the conclusion of the script, the report window will display a summary of the entire scripted connection results. Full Script Report for this example:

```
Script Report for: scr-test-1-A                                                    _ □ ✕

Started test at: Fri Nov  6 15:42:43 2015
Iteration Duration: 5000ms   Pause Duration: 1000ms
Number of running endpoints at end of first iteration: 2
System Load at end of first iteration: 0.00

Endpoint Information:
  Endpoint ID: scr-test-1-A     Type: LANFORGE_UDP     Peer Endpoint ID: scr-test-1-B


Summary data for each iteration:

## pld-size   cfg-rate       tx-bps       rx-bps    rx-bps-LL   tx-pps    rx-pps      tx-pkts     rx-pkts    cx-drops    drop% rx-lat(ms)
 - (bytes)     (bps)            -           peer        peer       -       peer          -          peer      peer      peer      peer
 0*     60   10000000      9998592      9998592    16997606   20830    20830       104152      104152        0     0.000         0
 1*    128   10000000      9996288      9996288    13276320    9762     9762        48810       48810        0     0.000         0
 2*    256   10000000      9997926      9997926    11638211    4882     4882        24409       24409        0     0.000         0
 3*    512   10000000      9995878      9995878    10815853    2440     2440        12202       12202        0     0.000         0
 4*   1024   10000000      9997517      9997517    10407571    1220     1220         6102        6102        0     0.000         0
 5*   1280   10000000      9998336      9998336    10326406     976      976         4882        4882        0     0.000         0
 6*   1460   10000000      9998080      9998080    10285696     856      856         4280        4280        0     0.000         0
 7*   1472   10000000      9997824      9997824    10283088     849      849         4245        4245        0     0.000         0
 8*   1514   10000000      9994822      9994822    10549357     825      825         4126        4126        0     0.000         0
 9*     60  100000000     99995059     99995059   169997971  208342   208342      1041710     1041710        0     0.000         0
10*    128  100000000     99988275     99988275   132796928   97645    97645       488224      488224        0     0.000         0
11*    256  100000000     99968691     99968691   116369804   48813    48813       244113      244113        0     0.000         0
12*    512  100000000     99971072     99971072   108171824   24407    24407       122035      122035        0     0.000         0
13*   1024  100000000     99984998     99984998   104085946   12205    12205        61026       61026        0     0.000         0
14*   1280  100000000     99973120     99973120   103253488    9763     9763        48815       48815        0     0.000         0
15*   1460  100000000     99983136     99983136   102859363    8560     8560        42801       42801        0     0.000         0
16*   1472  100000000     99964109     99964109   102816346    8489     8489        42444       42444        0     0.000         0
17*   1514  100000000     99962758     99962758   105508909    8253     8253        41266       41266        0     0.000         0
18      60 1000000000    198339321     40513536    68923642  413872    84554      2069775      422854  1646921    79.570       107
--- Failed transmit-percent constraint, reported: 19.8339% min: 90
--- Failed peer transmit-percent constraint, reported: 19.8217% min: 90
--- Failed drop-percent constraint, reported: 79.57%  max: 5
--- Failed peer-drop-percent constraint, reported: 79.5695% max: 5
19     128 1000000000    424376963     88404651   117412427  414431    86333      2072982      431836  1641146    79.168       105
--- Failed transmit-percent constraint, reported: 42.4377% min: 90
--- Failed peer transmit-percent constraint, reported: 42.4185% min: 90
--- Failed drop-percent constraint, reported: 79.1684%  max: 5
--- Failed peer-drop-percent constraint, reported: 79.1657% max: 5
20     256 1000000000    710144921    289658292   337180356  346750   141435      1734099      707315  1026784    59.211        19
--- Failed transmit-percent constraint, reported: 71.0145% min: 90
--- Failed peer transmit-percent constraint, reported: 70.9948% min: 90
--- Failed drop-percent constraint, reported: 59.2114%  max: 5
--- Failed peer-drop-percent constraint, reported: 59.2126% max: 5
21*    512 1000000000   1000025293    999352730   1081330883  244147   243983      1220734     1219913      821     0.067         0
22*   1024 1000000000    999858176    999858176   1040867984  122053   122053       610265      610265        0     0.000         0
23*   1280 1000000000    999888896    999888896   1032697750   97645    97645       488227      488227        0     0.000         0
24*   1460 1000000000    999903776    999903776   1028668131   85608    85608       428041      428041        0     0.000         0
25*   1472 1000000000    999692902    999692902   1028216749   84892    84892       424462      424462        0     0.000         0
26*   1514 1000000000    999671187    999671187   1055135110   82536    82536       412678      412678        0     0.000         0

  □ Pause        Close          Save File          Graphical Display        □ Invert RX-Signal X Axis
```

A. per iteration details

B. raw CSV data for all iterations

C. spreadsheet matrices for creating your own 3D graphs

D. system information