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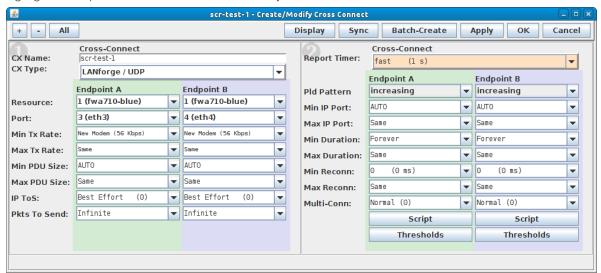Network Testing and Emulation Solutions

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.

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.

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

      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
```
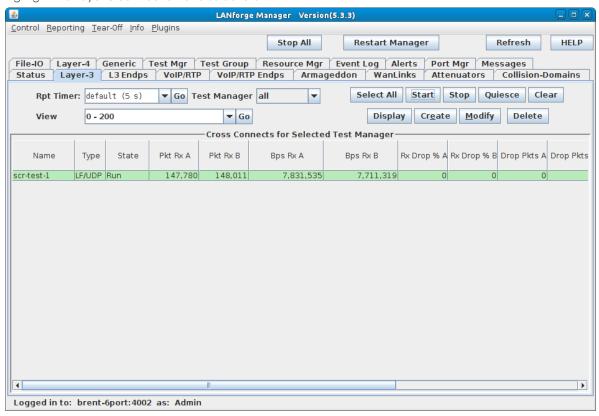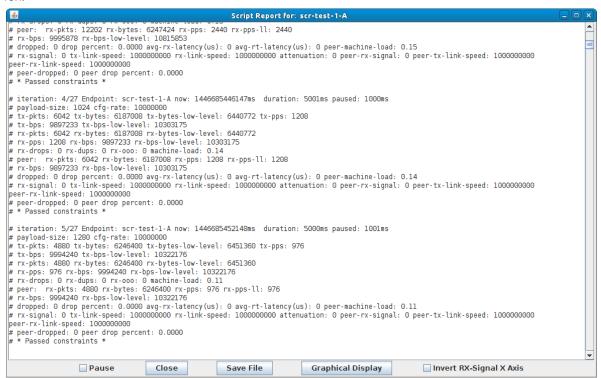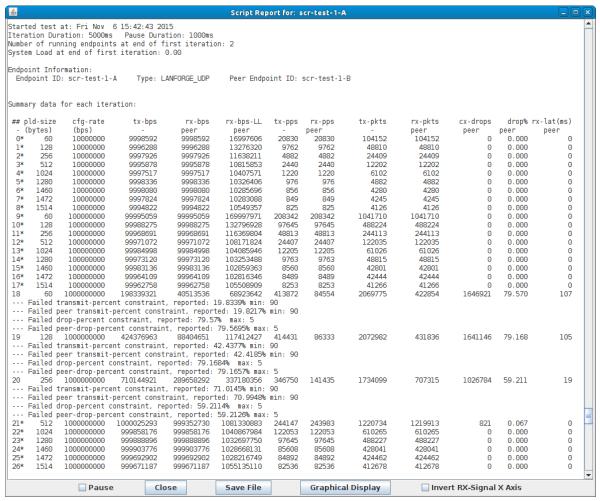
A. per iteration details

B. raw CSV data for all iterations

C. spreadsheet matrices for creating your own 3D graphs

D. system information