

## Day 9- RFC 2889 packet ordering and sending non-bursty traffic

### Testing Challenge:

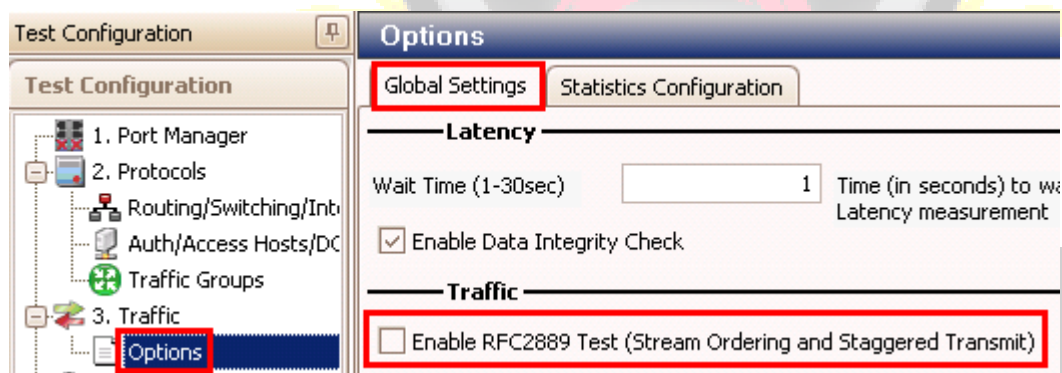
Frame Loss, Latency and Jitter are import metrics to measure data plane forwarding performance. These metrics can be affected by DUT queuing, buffer management, and the order/bursting of the transmitted traffic. The transmission of bursty vs. non-bursty traffic can make a big difference.

Test Engineers need to be able to send non-bursty traffic from the test equipment. An example of this is when the test equipment is emulating the aggregation of low-speed links and the transmission into the DUT needs to be very precise in regards to the ordering and spacing between test packets.

There is also the test case to get lowest possible latency out of DUT to showcase the DUT design. This not only requires non-bursty traffic on the Tx port, but also the ability to have non-bursty traffic among multiple flows on the same Tx to Rx ports.

### IxNetwork 5.40 Solution:

In IxNetwork 5.40, the "Enable RFC2889 Test" function under Traffic -> Option is enhanced.



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Below are 2 functions this feature provides.

1. If there are multiple Tx ports transmitting packets to the same Rx port, then streams at each Tx port will be reordered (**Stream Ordering**) to avoid them hitting same Rx port at same time. Below is required transmission order defined in RFC2889 for full mesh traffic.

Source Port	Destination Ports (in order of transmission)					
Port #1	2	3	4	5	6	2...
Port #2	3	4	5	6	1	3...
Port #3	4	5	6	1	2	4...
Port #4	5	6	1	2	3	5...
Port #5	6	1	2	3	4	6...
Port #6	1	2	3	4	5	1...

2. Automatic calculate Transmit delay (**Staggered transmit**) for Flow Groups (streams) within same Tx port to create non-bursty traffic among multiple Flow Groups when in Interleaved transmission mode.

**Example: 3 Flow Groups are configured on a Tx port**



**Bursty transmission without Staggered transmit (checkbox OFF = default)**



**Non-bursty transmit with Staggered transmit (checkbox ON)**

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These 2 functions combined together provide non-bursty traffic with one click. There are few requirements for this option to work properly.

- a. All Flow groups should have same rate and frame size setting.
- b. There should be one and only one flow grouping option checked in the Advanced Traffic Wizard.

### Conclusion:

With enhanced function provided through "Enable RFC2889 Stream Ordering and Staggered Transmit" checkbox, test engineers have flexibility to create non-bursty traffic and test the low bandwidth input device or get expected low latency result. Test engineers can also compare the behavior of the Device Under Test using bursty or non-bursty traffic.

The logo for IxNetwork, featuring the word "Ix" in a stylized pink font and "Network" in a grey font, with a large, faint background image of a racing engine and a checkered flag.

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