

Day 22- Changing Tx rate and frame size on-the-fly

Testing Challenge:

One of the most frequent actions a test engineer will perform when doing functional and performance testing is to change Tx rate and frame size constantly to observe if the DUT can deliver the performance as expected.

This will stress the DUTs performance from different angles, and ensure its forwarding engine are not sensitive to particular packet size and can forward the packets at specified rate without loss or excessive latency/jitter.

Prior to IxNetwork 5.40 release, each change of Tx rate and/or frame size had to be “pushed” to the Ixia Hardware. This caused unwanted delay in test setup and results collection.

Doing these changes on-the-fly is the best, simplest, and quickest way to use this feature and test the DUT. The feature must be intuitive and be applicable to one or more Traffic Profiles as desired, with the effect of changing instantaneous on test results.

IxNetwork 5.40 Solution:

In IxNetwork 5.40 the traffic engine has been redesigned to perform on-the-fly changes of Tx rate and frame size without having to stop or re-apply the traffic. These changes are done dynamically in real-time, with the results showing immediate effect. Users can select the Traffic Profiles (flow groups) all together or only change the ones of interest.

 IxNetwork

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1. To change the Tx rate on-the-fly change, you can either;

- a. Drag the "slider bar" on top of the flow group list.
- b. Enter the desired rate in the text box next to the slider bar and hit the "set" button
- c. Enter the desired rate for the first flow group, click to highlight the rest of flow groups, and use the "Same" "Increment" or "Decrement" functions (access via right click).

	Transmit State	Tx Port	Endpoint Set	Traffic Item Name	Frame Payload	Frame Rate	Frame Size	Preamble Size
1	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
2	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
3	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
4	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
5	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
6	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
7	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 1518	Auto
8	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 1.1111	Fixed: 1518	Auto
9	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 1.1111	Fixed: 1518	Auto
10	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 1.1111	Fixed: 1518	Auto

2. To change the frame size on-the-fly, you can either;

- a. Enter the desired Frame Size on any one Flow Group
- b. Enter the desired Frame Size for the first flow group, click to highlight the rest of flow groups, and use the "Same" "Increment" or "Decrement" functions (access via right click).

	Transmit State	Tx Port	Endpoint Set	Traffic Item Name	Frame Payload	Frame Rate	Frame Size	Preamble Size
4	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 555	Auto
5	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 555	Auto
6	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 555	Auto
7	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 2	Fixed: 555	Auto
8	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: ...	Fixed: 555	Auto
9	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: ...	Fixed: 555	Auto
10	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: ...	Fixed: 555	Auto
11	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: ...	Fixed: 555	Auto
12	▶	10.200.134....	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: ...	Fixed: 1518	Auto

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3. A good practice to observe the effect of the on-the-fly changes of either is to make the interested stats page floating while making the changes. This can be done by clicking on the left corner icon on any of the stats window.

Source/Dest Endpoint Pair	Tx Frames	Rx Frames	Frames Delta	Loss %	Tx Frame Rate	Rx Frame Rate	Rx Bytes	Rx Rate (Bps)
20.3.3.2-20.3.7.2	4,609,218	4,609,218	0	0.000	6,547.500	6,547.500	1,667,033,220	2,367,916.000
20.3.3.2-20.3.8.2	4,609,218	4,609,218	0	0.000	6,547.500	6,547.500	1,667,048,310	2,374,771.000
20.3.3.2-20.3.9.2	4,609,218	4,608,784	434	0.009	6,547.500	6,547.500	1,667,681,252	2,355,660.000
20.3.3.2-20.3.10.2	4,609,218	4,609,218	0	0.000	6,547.500	6,547.500	1,669,142,840	2,382,029.000
20.3.3.2-20.3.11.2	2,560,676	2,560,676	0	0.000	3,637.500	3,637.500	926,465,886	1,336,167.000

Transmit State	Tx Port	Endpoint Set	Traffic Item Name	Frame Payload	Frame Rate	Frame Size
1	10.200.134...	EndpointSet-1	Traffic Item 1	Increment ...	Line rate: 8.8869	Fixed: 1518

Conclusion:

IxNetwork 5.40 introduced a much needed feature to allow change of Tx rate and frame size on the fly. This has made great improvement on the usability of the product and has made a test engineer's life much easier.

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Note: This feature is not available on all card types. Check the documentation or call your Ixia representative for more details.