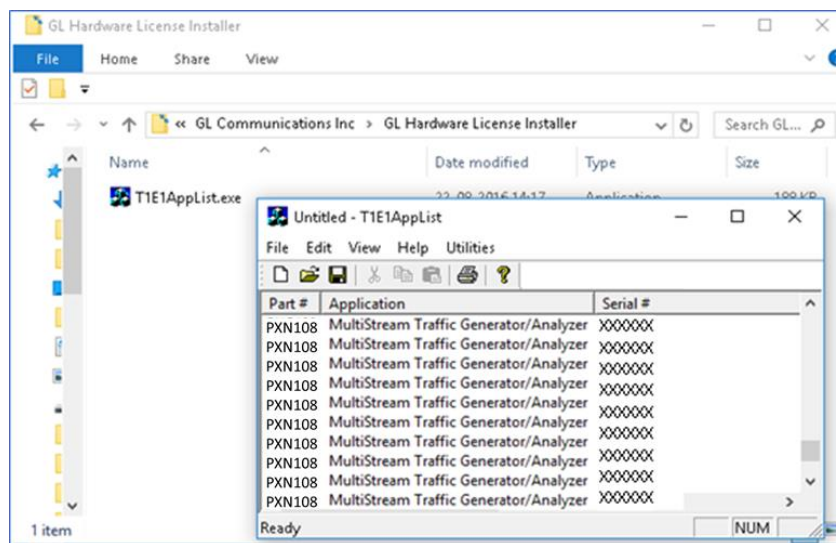


If this is your First-Time-Use of PacketExpert™ 10GX unit, then we recommend you follow all the steps explained in [PacketExpert-10GX-Quick-Install-Guide](#) before proceeding with the steps below.

### Normal Instructions – Follow these precisely

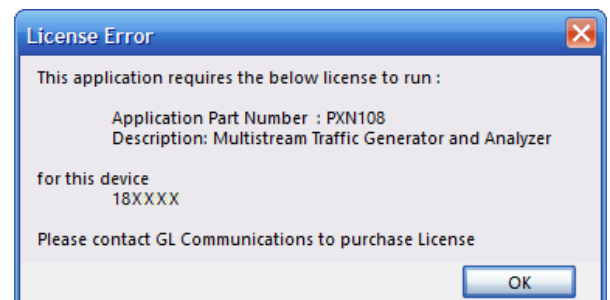
- ‘Multi-Stream Traffic Generator and Analyzer’ is an optional application and requires purchased licenses to be installed.
- Plug-in the USB installation stick (pen drive) provided with the shipment package by GL Communications.
- Execute **GLHWLicenseInstaller.exe** from the USB Installation Stick to install the optional application licenses.
- Follow onscreen instructions, the license for the purchased optional application will be installed.
- In addition, **PXN101** license installation is required to enable testing on **10G and 2.5G** ports.
- Run **AppList.exe** available in the C:\Program Files\GL Communications Inc\GL Hardware License Installer directory and confirm that the optional **MultiStream Traffic Generator/Analyzer** license (**PXN108**) is listed against the hardware purchased.

**Note:** For multi-device appliance, verify that the PXN108 optional license is listed against all the hardware devices.

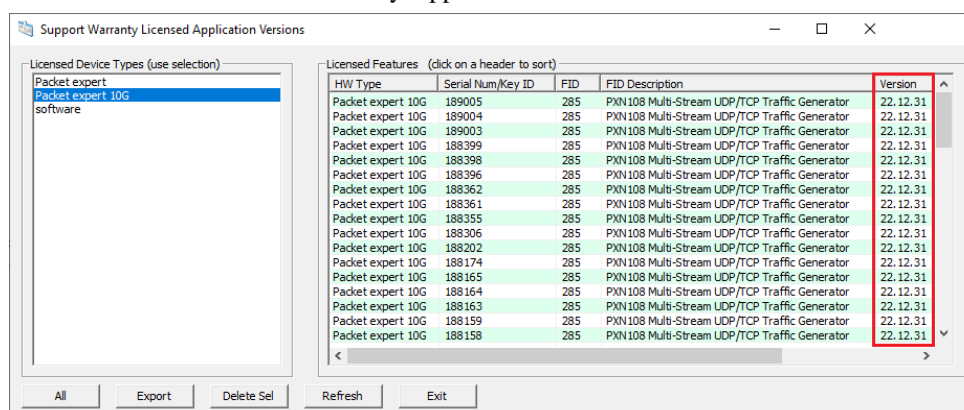


**Note:** When the application is loaded, if the following "License Error" is prompted, then you may not have installed the **Hardware licenses**. You can do so as explained in section above at any time after installing the software.

**Note:** Ensure that warranty license (**GLSupportWarrantyLicenseInstaller.exe**) is installed and also confirm that **Multi-Stream UDP/TCP Traffic Generator (PXN108)** is listed in **Warranty Application List**. Refer to [PacketExpert-10GX-Quick-Installation-Guide](#).



- For multi-device appliance, verify that the warranty licenses are installed for all the hardware devices and are listed against the respective hardware serial number in the Warranty Application List.



### Quick Verification

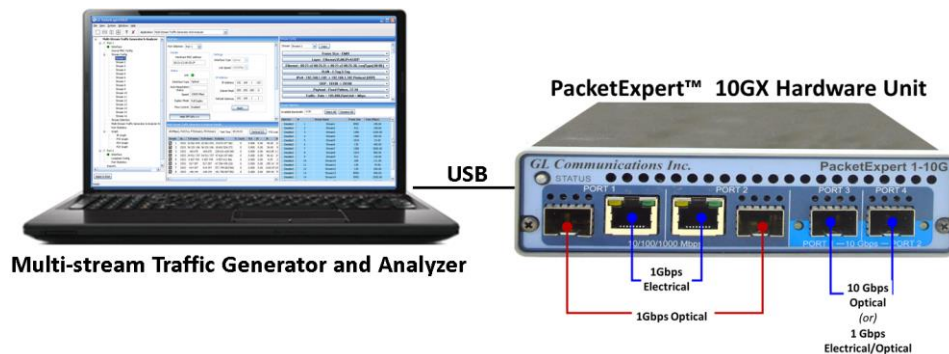
In the following test scenario, a single PacketExpert™ 10GX unit is used to verify **‘Multi-Stream Traffic Generator/Analyzer’** feature.

**‘Multi-Stream Traffic Generator/Analyzer’** test scenario can be demonstrated on **10G ports** by directly connecting **Port 1** and **Port 2** of PacketExpert™ 10GX unit using SFP Transceivers and LC optical cables.

(Or) **‘Multi Stream Traffic Generator/Analyzer’** test scenario can be demonstrated on **1G ports** by directly connecting **Port 1** to **2** through **Ethernet cable** (for Electrical Interface test) or **SFP Transceivers and LC optical cable** (for Optical Interface test).

The test setup requires 1 PC/laptop which is connected through USB cable of the hardware unit. The following test requires PacketExpert 10GX application (PXN100) and **‘Multi-Stream Traffic Generator/Analyzer’** application (PXN108) licenses to be installed on PC. After successful Software installation, plug in the PacketExpert 10GX Hardware unit to PC as indicated in the figure below. Then connect Port1 to Port2 (1G or 10G Ports) of the hardware unit, as shown below (explained in detail in the next section):

**Note:** For 1G ports, the above test can also be setup using LC optical cables (for Optical Interface) and SFP's



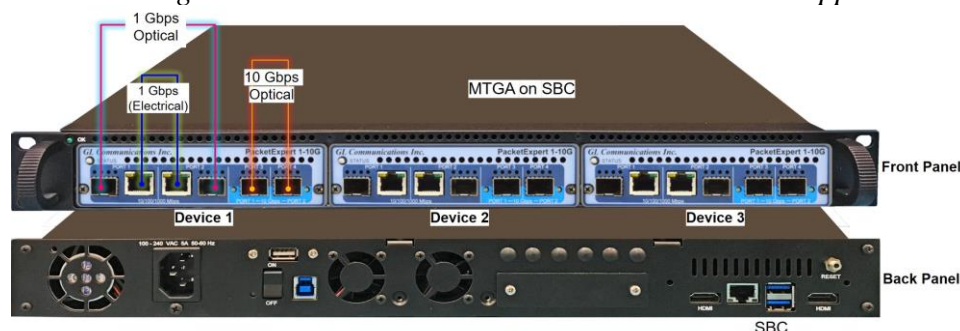
### Multi-Device Test Setup:

In the following Multi-device test scenario, the devices 1/2/3 on the PacketExpert™ 10GX rack unit is used to verify **‘Multi-Stream Traffic Generator/Analyzer’** feature.

**‘Multi-Stream Traffic Generator/Analyzer’** test scenario can be demonstrated on **10G ports** by directly connecting **Port 1** and **Port 2** of device1 on rack unit using SFP Transceivers and LC optical cables.

(Or) **‘Multi Stream Traffic Generator/Analyzer’** test scenario can be demonstrated on **1G ports** by directly connecting **Port 1** to **2** through **Ethernet cable** (for Electrical Interface test) or **SFP Transceivers and LC optical cable** (for Optical Interface test) of device1 on rack unit.

The following test requires PacketExpert 10GX application (PXN100) and **‘Multi-Stream Traffic Generator/Analyzer’** application (PXN108) licenses to be installed on the rack SBC. Similar connections should be made while testing with device2 or device3 on the PXN112G rack appliance.

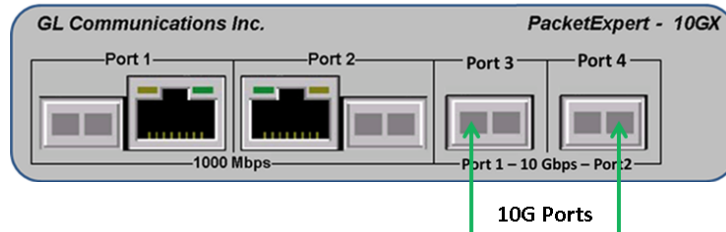


### Step1: Connect the cables

#### To Perform Test on 10G/2.5G Optical Interface

**Note:** Optical Interface Test is possible on 10G/2.5G Port 1 and Port 2.

- For 10G/2.5G Optical Interface Type, plug-in SFP Transceivers to the optical ports and connect LC optical cable to 10G/2.5G: Ports 1 & 2, (refer to figure).
- Note:** Make sure SFP is properly locked and the optical cable is properly plugged-in.

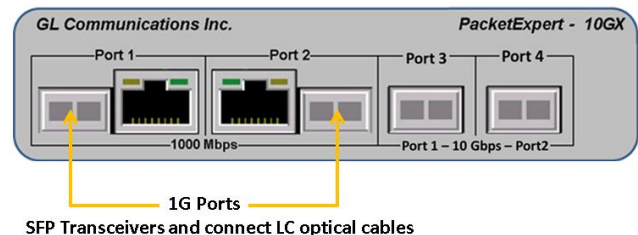
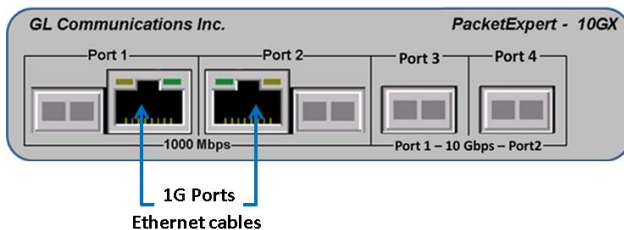


SFP Transceivers and connect LC optical cables

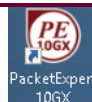
#### To Perform Test on 1G (Electrical or Optical Interface)

- For 1G Electrical Interface type, cross-connect 1G: Port 1 to 2 using Ethernet cable as shown in the figure below.
- For 1G Optical Interface type, plug-in SFP Transceivers to the optical ports and connect LC optical cable to 1G: Ports 1 & 2, (refer to figure).

**Note:** Make sure SFP is properly locked and the optical cable is properly plugged-in.



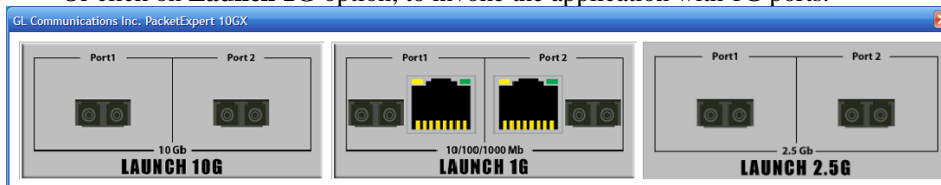
### Step 2: Launch PacketExpert 10GX Application



- Double click on the PacketExpert 10GX shortcut icon on the desktop to launch PacketExpert 10GX application as shown in the figure below.

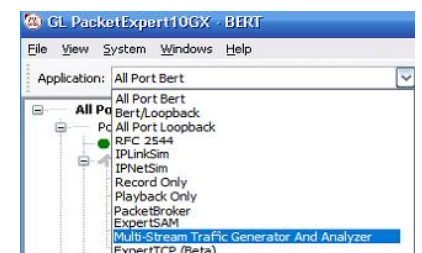
**Note:** If optional license PXN101 (license for 10G and 2.5G ports) is installed, then launch window to select 1G/2.5G/10G type testing is prompted as shown in the figure. If this license is not installed, then the application is loaded on 1G ports by default.

- Click on **Launch 10G** option, to invoke the application with 10G ports.
- Or click on **Launch 2.5G** option, to invoke the application with 2.5G ports.
- Or click on **Launch 1G** option, to invoke the application with 1G ports.

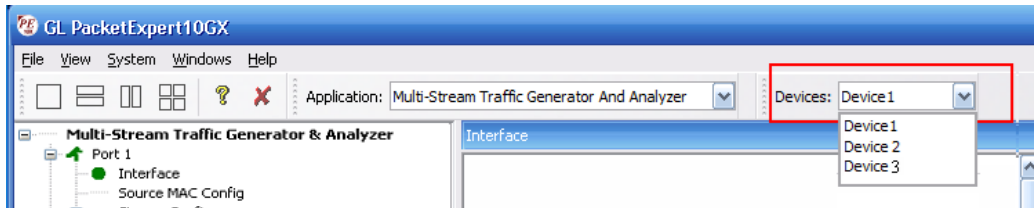


**Note:** The application may take some time to get started due to hardware and software initializations.

- By default, the PacketExpert is invoked displaying **All Port Bert** application. Load **Multi-Stream Traffic Generator/Analyzer** from the **Applications** drop-down list as shown in the figure below.



- For **multi-device (PXN112G) appliance**, select the device from the drop-down list and configure the MTGA test parameters. Refer to figure for device selection.



### Step 3: Configure Interface parameters

#### For 10G Optical connections,

- By default, for both 10G Port1 and Port2, Speed = 10000 Mbps

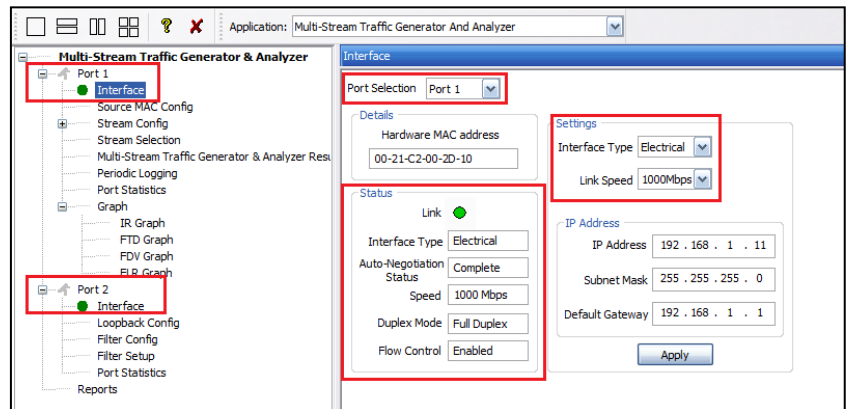
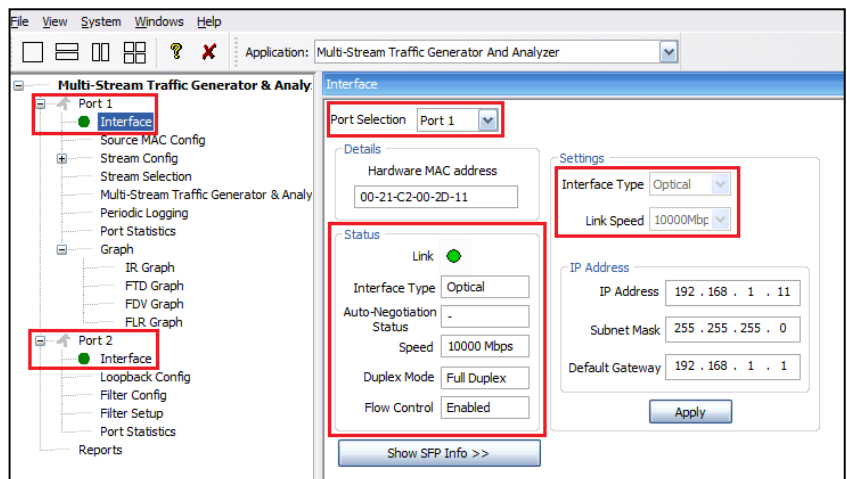
#### For 2.5G Optical connections

- By default, for both 2.5G Port1 and Port2, Speed = 2500 Mbps

#### For 1G Electrical or Optical connections,

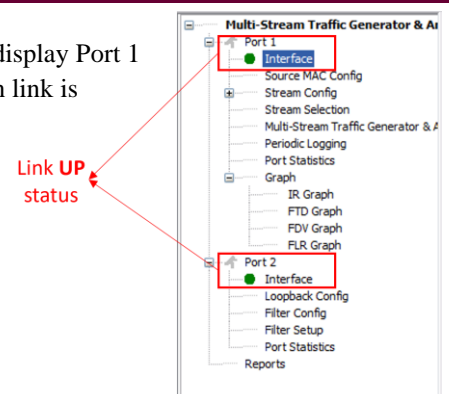
On the RHS side, in the **Interface** pane, select the ports from the **Port Selection** drop-down list and set the following for each port

- Select **Interface Type** = **Electrical** (or) **Optical** (depending on the ports connected)
- Speed = **1000Mbps**
- Click on the **Apply** button (this will set the Interface Type in the hardware)
- Wait for some time as the port auto-negotiates with its link partner. Verify the following:
- Auto-Negotiation status = Complete, Speed = 1000 Mbps
- Similarly, repeat the above procedure for **Port 2**



### Step 4: Verify Links

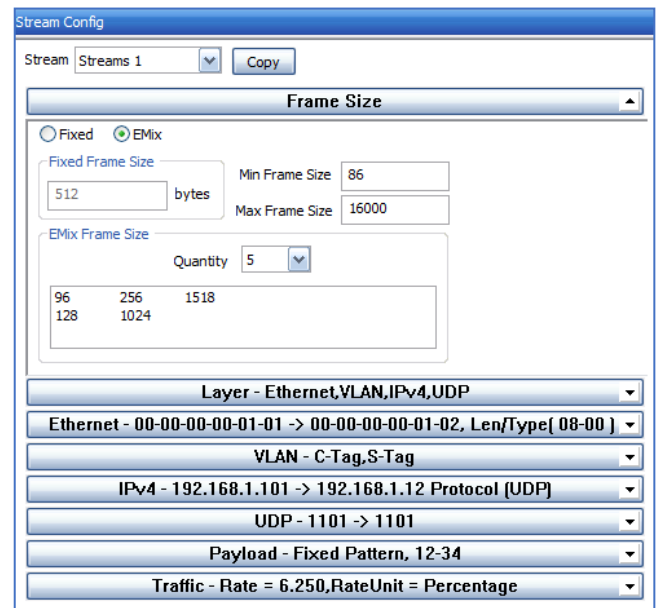
- Verify that the Link Status is **UP** on both ports, that is, the **Function Tree** should display Port 1 and Port 2 with green LEDs link status (refer to figure). If the LED shows red, then link is down.
- If the link status is **Down**, refer to **troubleshooting** steps explained in [PacketExpert™ 10GX Quick Installation Guide](#).





### Step 5: Stream Configuration

- From the Function Tree, under Port1, double click and invoke **Stream1** under '**Stream Config**' option to invoke **Stream Configuration** window in the RHS pane.
- By default, all 16 streams are configured with different set of parameters.
- Eg: Stream1 generates EMIX frame sizes (5 frame sizes from 96 to 1024), and is configured for Layer4 (UDP) with VLAN (both C-Tag and S-Tag) etc. IP streams are all configured for Source IP addresses in the range 192.168.1.101, 192.168.1.102, 192.168.1.103 etc., while the Destination IP address configured as 192.168.1.12. Source MAC addresses for all streams are the same, while destination MAC addresses are randomly configured.



**Stream Config**

Stream: Streams 1 [Copy]

**Frame Size**

☐ Fixed ☒ EMix

Fixed Frame Size: 512 bytes Min Frame Size: 86 Max Frame Size: 16000

EMix Frame Size: Quantity: 5

96 256 1518  
128 1024

Layer - Ethernet,VLAN,IP,v4,UDP

Ethernet - 00-00-00-00-01-01 -> 00-00-00-00-01-02, Len/Type( 08-00 )

VLAN - C-Tag,S-Tag

IPv4 - 192.168.1.101 -> 192.168.1.12 Protocol (UDP)

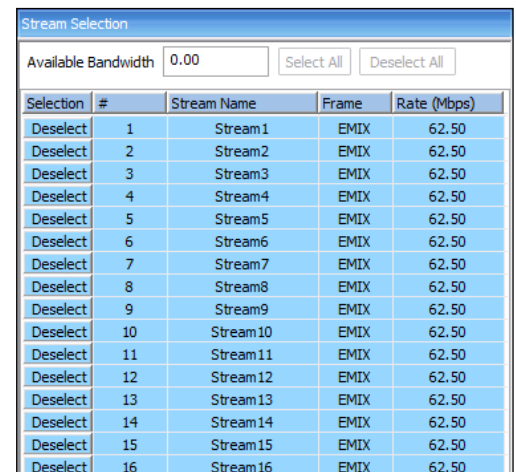
UDP - 1101 -> 1101

Payload - Fixed Pattern, 12-34

Traffic - Rate = 6.250,RateUnit = Percentage

### Step 6: Stream Selection

- From the **Function Tree**, under Port1, double click on **Stream Selection** to invoke Stream Selection window on RHS pane.
- The configured streams are displayed along with Frame Size and the Rate (Mbps) settings.
- By default, all Streams are selected. The Rate and Frame sizes are configured to test a wide range as shown in the figure.
- For 10G port, total combined rate for all streams is configured for full line rate of 62.50 Mbps (Remaining available bandwidth is 0 Mbps)
- For 1G port, total combined rate for all streams is configured for almost full line rate of 625 Mbps (Remaining available bandwidth is 0 Mbps)
- For 2.5G port, total combined rate for all streams is configured for almost full line rate of 156.25 Mbps (Remaining available bandwidth is 0 Mbps)

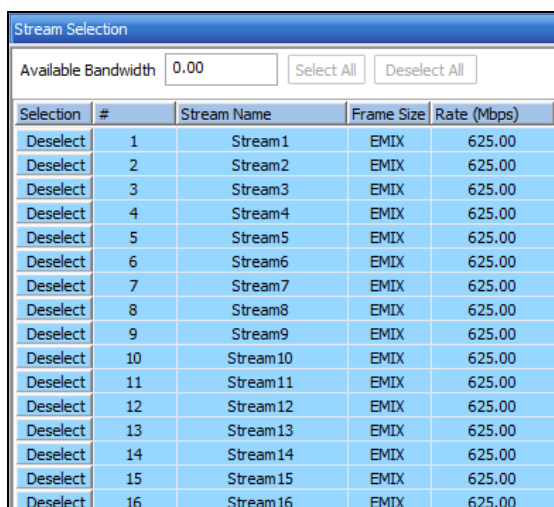


Stream Selection

Available Bandwidth: 0.00 [Select All] [Deselect All]

Selection	#	Stream Name	Frame	Rate (Mbps)
Deselect	1	Stream1	EMIX	62.50
Deselect	2	Stream2	EMIX	62.50
Deselect	3	Stream3	EMIX	62.50
Deselect	4	Stream4	EMIX	62.50
Deselect	5	Stream5	EMIX	62.50
Deselect	6	Stream6	EMIX	62.50
Deselect	7	Stream7	EMIX	62.50
Deselect	8	Stream8	EMIX	62.50
Deselect	9	Stream9	EMIX	62.50
Deselect	10	Stream10	EMIX	62.50
Deselect	11	Stream11	EMIX	62.50
Deselect	12	Stream12	EMIX	62.50
Deselect	13	Stream13	EMIX	62.50
Deselect	14	Stream14	EMIX	62.50
Deselect	15	Stream15	EMIX	62.50
Deselect	16	Stream16	EMIX	62.50

For 1G



Stream Selection

Available Bandwidth: 0.00 [Select All] [Deselect All]

Selection	#	Stream Name	Frame Size	Rate (Mbps)
Deselect	1	Stream1	EMIX	625.00
Deselect	2	Stream2	EMIX	625.00
Deselect	3	Stream3	EMIX	625.00
Deselect	4	Stream4	EMIX	625.00
Deselect	5	Stream5	EMIX	625.00
Deselect	6	Stream6	EMIX	625.00
Deselect	7	Stream7	EMIX	625.00
Deselect	8	Stream8	EMIX	625.00
Deselect	9	Stream9	EMIX	625.00
Deselect	10	Stream10	EMIX	625.00
Deselect	11	Stream11	EMIX	625.00
Deselect	12	Stream12	EMIX	625.00
Deselect	13	Stream13	EMIX	625.00
Deselect	14	Stream14	EMIX	625.00
Deselect	15	Stream15	EMIX	625.00
Deselect	16	Stream16	EMIX	625.00

For 10G



Stream Selection

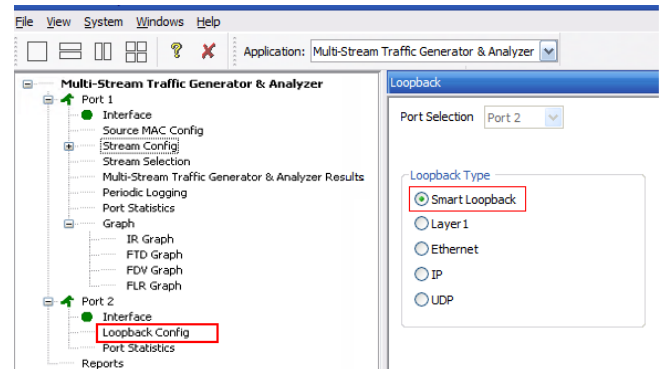
Available Bandwidth: 0.00 [Select All] [Deselect All]

Selection	#	Stream Name	Frame	Rate (Mbps)
Deselect	1	Stream1	EMIX	156.25
Deselect	2	Stream2	EMIX	156.25
Deselect	3	Stream3	EMIX	156.25
Deselect	4	Stream4	EMIX	156.25
Deselect	5	Stream5	EMIX	156.25
Deselect	6	Stream6	EMIX	156.25
Deselect	7	Stream7	EMIX	156.25
Deselect	8	Stream8	EMIX	156.25
Deselect	9	Stream9	EMIX	156.25
Deselect	10	Stream10	EMIX	156.25
Deselect	11	Stream11	EMIX	156.25
Deselect	12	Stream12	EMIX	156.25
Deselect	13	Stream13	EMIX	156.25
Deselect	14	Stream14	EMIX	156.25
Deselect	15	Stream15	EMIX	156.25
Deselect	16	Stream16	EMIX	156.25

For 2.5G

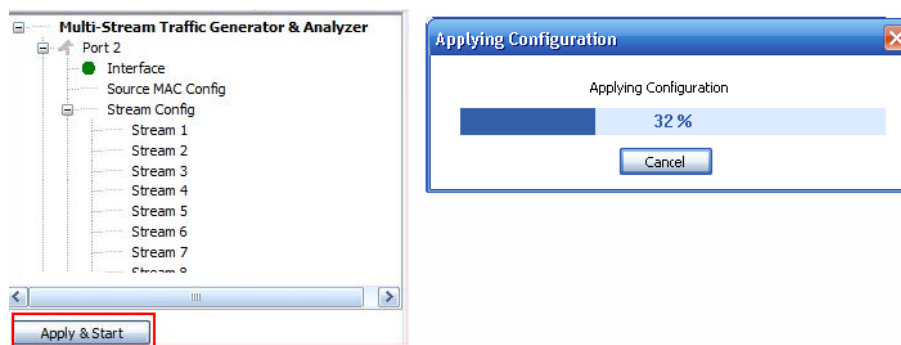
### Step 7: Verify Loopback Port Settings

- From the **Function Tree**, under Port2, double click on **Loopback Config** to invoke **Loopback Configuration** window in one of the RHS panes. Verify that 'Smart Loopback' is selected. This will make the Loopback to automatically traverse each packet's headers and swap each layer's Source and Destination Address/Port automatically.



### Step 8: Start 'Multi-Stream Traffic Generator and Analyzer'

- Click **Apply & Start** to apply all the configurations for various streams and start the 'Multi-Stream Traffic Generator/Analyzer' application. This will take some time, as the configuration needs to be downloaded to the hardware. The progress is indicated in a progress bar as shown in the figure.

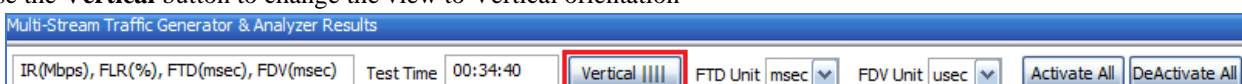


### Step 9: Verify Results and Graphs

- From the **Function Tree**, under Port1, double-click and invoke **Multi-Stream traffic generator and analyzer Results** on the RHS pane, as shown in the figure.
- Observe the **Information Rate** (Current/ Min/ Max/ Avg) which indicates the throughput rate of each stream.

Multi-Stream Traffic Generator & Analyzer Results																			
IR(Mbps), FLR(%), FTD(msec), FDV(msec)										Test Time 00:34:40									
										Vertical									
										FTD Unit msec									
										FDV Unit usec									
										Activate All DeActivate All									
Stream No	Seconds	TxFrames	RxFrames	RxBytes	FL Count	FLR	IR (Curr)	IR (Min)	IR (Max)	IR (Avg)	FTD	FTD	FTD	FTD	FDV (Curr)	FDV (Min)	FDV (Max)	FDV (Avg)	
1	2083	26 066 755	26 066 755	15 751 163 282	0	0.000	62.49	62.48	62.51	62.50	0.015	0.002	0.015	0.015	0.004	0.000	12.312	0.004	
2	2083	26 066 755	26 066 755	15 754 746 722	0	0.000	62.51	62.50	62.53	62.51	0.013	0.002	0.015	0.013	4.920	0.000	12.312	4.920	
3	2083	26 066 755	26 066 755	15 754 746 722	0	0.000	62.51	62.50	62.53	62.51	0.015	0.002	0.015	0.015	0.002	0.000	6.920	0.002	
4	2083	26 066 755	26 066 755	15 754 746 722	0	0.000	62.51	62.50	62.53	62.51	0.015	0.002	0.015	0.015	0.002	0.000	6.920	0.002	
5	2083	26 066 755	26 066 755	15 754 746 722	0	0.000	62.51	62.49	62.53	62.51	0.015	0.002	0.015	0.015	0.002	0.000	6.920	0.002	
6	2083	26 066 755	26 066 755	15 754 746 722	0	0.000	62.51	62.49	62.53	62.51	0.015	0.002	0.015	0.015	0.002	0.000	6.920	0.002	
7	2083	26 064 236	26 064 236	15 750 922 880	0	0.000	62.50	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.002	0.000	6.920	0.002	
8	2083	26 064 236	26 064 236	15 750 922 880	0	0.000	62.50	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.003	0.000	6.920	0.002	
9	2083	26 064 236	26 064 236	15 750 922 880	0	0.000	62.50	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.003	0.000	6.920	0.002	
10	2083	26 064 236	26 064 236	15 750 922 880	0	0.000	62.50	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.003	0.000	6.920	0.002	
11	2083	26 064 236	26 064 235	15 750 921 362	0	0.000	62.49	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.003	0.000	6.928	0.002	
12	2083	26 064 235	26 064 235	15 750 921 362	0	0.000	62.49	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.003	0.000	6.928	0.002	
13	2083	26 064 235	26 064 235	15 750 921 362	0	0.000	62.49	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.003	0.000	6.928	0.002	
14	2083	26 064 235	26 064 235	15 750 921 362	0	0.000	62.49	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.002	0.000	6.928	0.002	
15	2083	26 064 235	26 064 235	15 750 921 362	0	0.000	62.49	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.002	0.000	6.928	0.002	
16	2083	26 064 235	26 064 235	15 750 921 362	0	0.000	62.49	62.48	62.50	62.49	0.015	0.002	0.015	0.015	0.002	0.000	6.928	0.002	

- Use the **Vertical** button to change the view to Vertical orientation



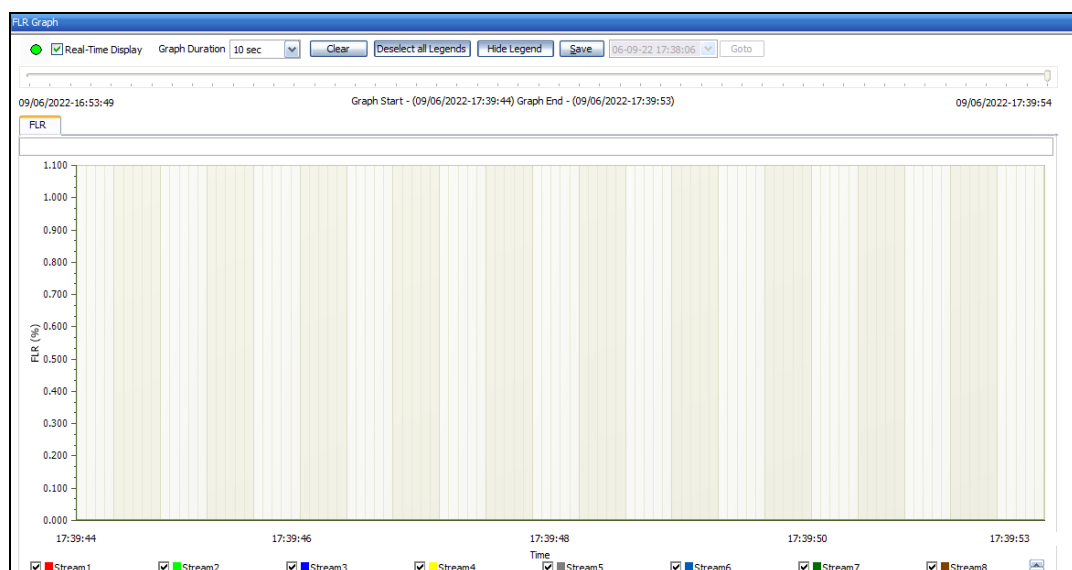
### Verify TxFrames, RxFrames and Frame Loss Count and Ratio:

- For each stream, verify that RxFrames = TxFrames, and FL Count (Frame Loss Count) and FLR (Frame Loss Ratio) = 0

Multi-Stream Traffic Generator & Analyzer Results																
IR(Mbps), FLR(%), FTD(msec), FDV(msec)	Test Time 00:38:33		Horizontal----		FTD Unit msec		FDV Unit usec		Activate All		DeActivate All					
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315	2315
TxFrames	28 970 015	28 970 015	28 970 015	28 970 015	28 970 015	28 970 015	28 967 215	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214
RxFrames	28 970 015	28 970 015	28 970 015	28 970 015	28 970 015	28 970 014	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214	28 967 214
RxBytes	17 505 494 044	17 509 477 066	17 509 477 066	17 509 477 066	17 509 477 066	17 509 475 548	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148	17 505 225 148
FL Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

### Verify Frame Loss Graph:

- From the **Function Tree**, under **Port1** → expand **Graphs**, double-click and invoke **FLR Graph** on the RHS pane. Observe the FLR (%) values show 0 for all streams.



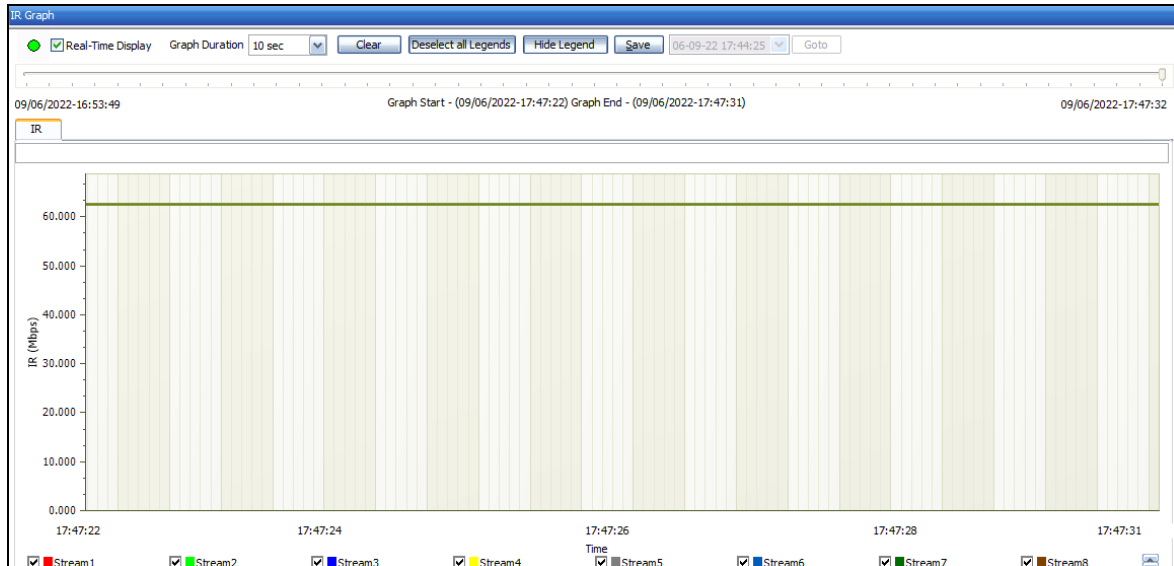
### Verify Throughput Results:

- For each stream, verify that the IR values (Information Rate values) – IR (Curr) – Information Rate (Current), IR (Min) – Information Rate (Minimum), IR (Max) – Information Rate (Maximum) and IR (Avg) - Information Rate (Average) are close to the configured values as shown below:

Multi-Stream Traffic Generator & Analyzer Results																
IR(Mbps), FLR(%), FTD(msec), FDV(msec)	Test Time 00:48:45		Horizontal----		FTD Unit msec		FDV Unit usec		Activate All		DeActivate All					
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928	2928
TxFrames	36 641 125	36 641 125	36 641 124	36 641 124	36 641 124	36 641 124	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583
RxFrames	36 641 125	36 641 124	36 641 124	36 641 124	36 641 124	36 641 124	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583	36 637 583
RxBytes	22 140 859 226 22	145 894 432 22	145 894 432 22	145 894 432 22	145 894 432 22	145 894 432 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194 22	140 519 194
FL Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IR (Curr)	62.50	62.50	62.50	62.50	62.50	62.50	62.49	62.49	62.49	62.50	62.50	62.50	62.50	62.50	62.50	62.50
IR (Min)	62.48	62.50	62.50	62.50	62.49	62.49	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48
IR (Max)	62.51	62.53	62.53	62.53	62.53	62.53	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50
IR (Avg)	62.50	62.51	62.51	62.51	62.51	62.51	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49
FTD (Curr)	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FTD (Min)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
FTD (Max)	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FTD (Avg)	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FDV (Curr)	0.004	4.921	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
FDV (Min)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FDV (Max)	12.312	12.312	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920
FDV (Avg)	0.004	4.920	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002

### Verify Throughput Graph:

- From the **Function Tree**, double-click and invoke **IR Graph** on the RHS pane. Observe the IR (Mbps) for each stream reflects the value shown in the **Results** dialog.
- In the graph dialog, uncheck all streams, and check each individual stream to view the graph for only that stream. Verify that the IR shown matches with the tabular values in the results dialog.



### Verify Latency Result:

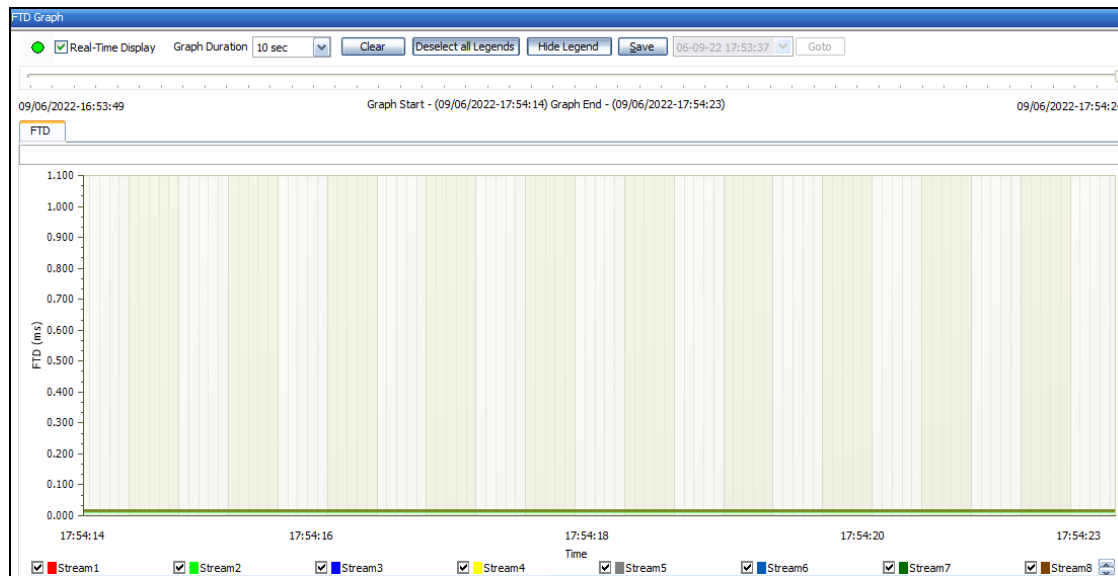
- For each stream, verify that the FTD values (Frame Transfer Delay values) – FTD (Curr) – Frame Transfer Delay (Current), FTD (Min) – Frame Transfer Delay (Minimum), FTD (Max) – Frame Transfer Delay (Maximum) and FTD (Avg) - Frame Transfer Delay (Average) are showing relevant values as shown below.

Multi-Stream Traffic Generator & Analyzer Results																
IR(Mbps), FLR(%), FTD(msec), FDV(msec)																
Test Time: 00:57:25																
Horizontal----																
FTD Unit msec																
FDV Unit msec																
Activate All DeActivate All																
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447	3447
TxFrames	43 135 915	43 135 915	43 135 915	43 135 914	43 135 914	43 135 914	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745
RxFrames	43 135 915	43 135 915	43 135 914	43 135 914	43 135 914	43 135 914	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745	43 131 745
RxBytes	26 065 417 286	26 071 347 026	26 071 345 508	26 071 345 508	26 071 345 508	26 071 345 508	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966	26 065 016 966
FL Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IR (Curr)	62.50	62.52	62.50	62.50	62.50	62.50	62.49	62.49	62.49	62.49	62.50	62.50	62.50	62.50	62.50	62.50
IR (Min)	62.48	62.50	62.50	62.50	62.49	62.49	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48
IR (Max)	62.51	62.53	62.53	62.53	62.53	62.53	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50
IR (Avg)	62.50	62.51	62.51	62.51	62.51	62.51	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49
FTD (Curr)	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FTD (Min)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
FTD (Max)	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FTD (Avg)	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FDV (Curr)	0.004	4.921	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002
FDV (Min)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FDV (Max)	12.312	12.312	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.928	6.928	6.928	6.928	6.928	6.928
FDV (Avg)	0.004	4.920	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002

### Verify Latency Graph:

- From the Function Tree, double-click and invoke **FTD Graph** on the RHS pane. Observe the FTD (msec) values for each stream reflects the value shown in the Results dialog.





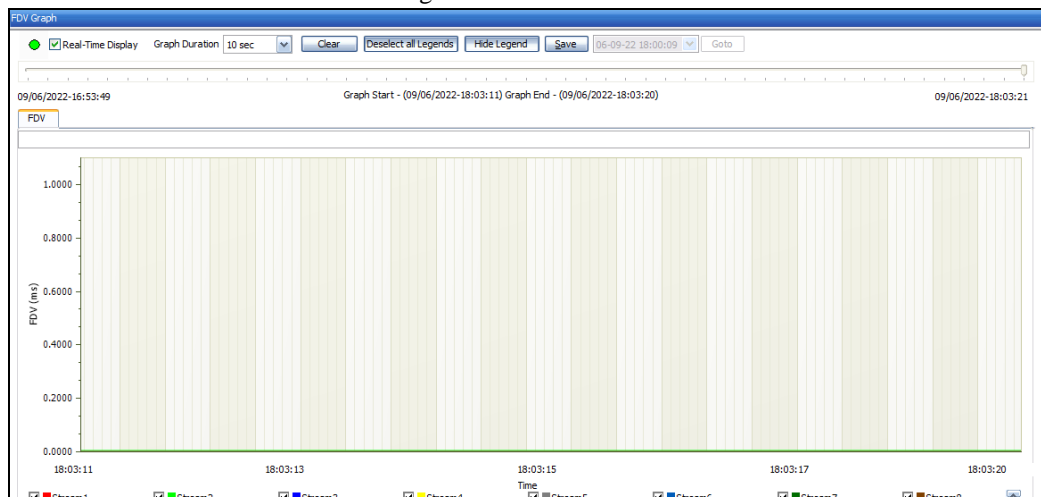
### Verify Jitter Results:

- For each stream, verify that the FDV values (Frame Delay Variation values) – FDV (Curr) – Frame Delay Variation (Current), FDV (Min) – Frame Delay Variation (Minimum), FDV (Max) – Frame Delay Variation (Maximum) and FDV (Avg) - Frame Delay Variation (Average) are showing relevant values as shown below.

Multi-Stream Traffic Generator & Analyzer Results																
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Stream Selection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Seconds	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042	3042
TxFrames	48 078 964	48 078 964	48 078 964	48 078 964	48 078 964	48 078 963	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316
RxFrames	48 078 964	48 078 964	48 078 964	48 078 964	48 078 963	48 078 963	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316	48 074 316
RxBytes	29 052 315 966	29 058 924 928	29 058 924 928	29 058 924 928	29 058 923 904	29 058 923 904	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758	29 051 869 758
FL Count	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FLR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
IR (Curr)	62.50	62.52	62.52	62.52	62.51	62.51	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49
IR (Min)	62.48	62.50	62.50	62.50	62.49	62.49	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48	62.48
IR (Max)	62.51	62.53	62.53	62.53	62.53	62.53	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50	62.50
IR (Avg)	62.50	62.51	62.51	62.51	62.51	62.51	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49	62.49
FTD (Curr)	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FTD (Min)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
FTD (Max)	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FTD (Avg)	0.015	0.013	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
FDV (Curr)	0.004	4.921	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.002
FDV (Min)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FDV (Max)	12.312	12.312	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.920	6.928	6.928	6.928	6.928	6.928	6.928
FDV (Avg)	0.004	4.920	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.002	0.002	0.002

### Verify Jitter Graph:

- From the **Function Tree**, double-click and invoke **FDV Graph** on the RHS pane. Observe the FDV (msec) values for each stream reflects the value shown in the Results dialog.



- Similarly, repeat the test for device 2 or device 3 while working with multidevice appliance