

If this is the first time use of PacketExpert<sup>TM</sup> 1G unit, then it is recommended follow all the steps explained in PacketExpert-1G-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.
- Run T1E1AppList.exe available in the C:\Program Files\GL Communications Inc\GL Hardware License Installer (or C:\Program Files\GL Communications Inc\GL Hardware License Installer) directory and confirm that the purchased MultiStream Traffic Generator/Analyzer licenses (PXE108) is listed against the hardware purchased.

🛃 Unti	tled - T1E1AppList —		×
File Ed	it View Help Utilities		
🗅 🖻	🖬   X 🖻 🖻 🎒 🤗		
Part #	Application	Serial #	^
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	1.00
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	
PXE108	MultiStream Traffic Generator/Analyzer	XXXXX	

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

License Error	×
This application requires the below license to run :	
Application Part Number : PXE108 Description: Multistream Traffic Generator and Analyzer	
for this device 17XXXX	
Please contact GL Communications to purchase License	
ок	

<u>Note:</u> Ensure that warranty license (GLSupportWarrantyLicenseInstaller.exe) is installed and also confirm that Multi-Stream Traffic Generator and Analyzer (PXE108) is listed in Warranty Application List. Refer to *PacketExpert-1G-Quick-Install-Guide*.

## **Quick Verification**

In the following test scenario, a single PacketExpert<sup>™</sup> 1G unit is used to verify 'Multi-Stream Traffic Generator/Analyzer' feature.

**'Multi-Stream Traffic Generator/Analyzer'** test scenario can be demonstrated on **1G ports** by looping back **Port 2** and **Port 3** of PacketExpert<sup>TM</sup> 1G unit using **Ethernet cables** (for Electrical Interface test). For Optical Interface test, use SFP Transceivers and LC optical cables for connecting Port 2 and Port 3.





# Multi-Stream Traffic Generator & Analyzer - 1G (PXE108) Quick Verification Guide

The test setup requires 1 PC/laptop which is connected through USB cable of the hardware unit. The following test requires PacketExpert 1G application (PXE100) and 'Multi-Stream Traffic Generator/Analyzer' application (PXE108) licenses to be installed on PC. After successful Software installation, plug in the PacketExpert 1G Hardware unit to PC as indicated below. Then connect Port2 to Port3 of the hardware unit, as shown below:



**Note:** *The above test can be setup using LC optical cables (for Optical Interface) and SFP's* 

# Step 1: Note down the IP Addresses

The IP Addresses for Ports 2 and 3 on PacketExpert<sup>™</sup> are pre-configured as listed below:

- > Port2: 192.168.1.12
- Port3: 192.168.1.13

## Step 2: Connect the cables

## Perform test between Port 2 and Port 3 (Electrical or Optical Interface) of PacketExpert<sup>TM</sup> 1G unit.

- For Electrical Interface type, directly connect Port 2 and Port 3 using Ethernet cable as shown in the image.
- For **Optical Interface** type, plug-in **SFP Transceivers** to the optical ports and connect **LC optical cable** between Port 2 and Port 3 (refer to the image below)

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



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## Step 3: Launch PacketExpert 1G Application



• Right click on the PacketExpert 1G shortcut icon PacketExpert created on the desktop and select "**Run as administrator**" to launch PacketExpert 1G application.

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 and Analyzer** from the **Applications** drop-down list as shown in the screenshot below.



#### **Step 4: Configure Interface parameters**

For 1G Electrical or Optical connections,

From the **Function Tree**, double-click on the **Interface** to invoke **Interface** pane on RHS window, select the ports from the **Port Selection** drop-down list and do the following for both Port 2 and Port 3:

- Interface Type = **Electrical** (or) **Optical** (depending on the ports connected)
- Link 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

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<u>File View System Windows H</u> elp	
Application: Multi-S	tream Traffic Generator And Analyzer
Multi-Stream Traffic Generator & Analyzer     Port 2     Interface     Source MAC Config     Stream Config     Stream 1     Stream 2     Stream 3     Stream 4     Stream 4     Stream 5     Stream 7     Stream 8     Stream 1     Stream 11     Stream 11     Stream 12     Stream 12     Stream 12     Stream Selection     Multi-Stream Traffic Generator & Analyzer Res     Port Statistics	Interface         Port Selection       Port 2         Details

• Similarly, repeat the above procedure for **Port 3** 





## Step 5: Verify Links

- Verify that the Link Status is **UP** on both ports, that is, the **Function Tree** should display Port 2 and Port 3 with green LEDs link status (refer to the screenshot). If the LED shows red, then link is down.
- If the link status is **Down**, refer to **troubleshooting** steps explained in PacketExpert<sup>™</sup> 1G Quick Install Guide.



## **Step 6: Stream Configuration**

- From the Function Tree, double click and invoke Stream 1 under 'Stream Config' option to invoke Stream Configuration window in the RHS pane.
- All 12 streams are configured with default settings.
- Stream1 configuration settings are as follows:
- EMIX frame sizes (5 frame sizes from 106 to 1518)
- Source MAC address for all streams are the same and is configured to obtain the MAC address from the Interface Settings.
- > Destination MAC address is pre-configured.
- Layer 2 is configured with VLAN (both C-Tag and S-Tag)
- Source IP addresses is configured to obtain the IP address from the Interface Settings.
- Destination IP address is pre-configured
- Layer4 (UDP) Source port address is set to 10100 and Destination port address is set to 20100.

Stream Config					
Stream Streams 1	~	Сору			
[		Fran	ne Size		٦
Fixed  EMix					<u> </u>
Fixed Frame Size		Min Erama Siza	60	1	
512	bytes	Main France Size	2049	]	
EMix Frame Size -		Max Frame Size	2040		
	Quantity	5 🗸			
106 256 128 1024	1518				
	L	ayer - Etherne	t,VLAN,IPv4,	UDP .	]
Ethernet - O	0-21-c2-	00-0a-05 -> 1	0-11-11-11-11	-11, Len/Type( 08-00 ) 📑	J
		VLAN - C	-Tag,S-Tag	•	·
IPv/	1 - 192.1	68.1.101 -> 1	92.168.1.13	Protocol (UDP)	·
		UDP - 101	00 -> 20100	•	·
	F	<sup>p</sup> ayload - Fixe	ed Pattern, 12	-34	-
	Traffic -	Rate = 8.000	,RateUnit = F	Percentage	·

## **Step 7: Stream Selection**

- From the **Function Tree**, 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 screenshot. Total combined rate for all streams is configured for 40.00 Mbps.

Stream Selection												
Available Bandwidth 40.00 Select All Deselect All												
Selection	#	Stream Name	Frame Size	Rate (Mbps)								
Deselect	1	Stream1	EMIX	80.00								
Deselect	2	Stream2	512	80.00								
Deselect	3	Stream3	1380	80.00								
Deselect	4	Stream4	1380	80.00								
Deselect	5	Stream5	1034	80.00								
Deselect	6	Stream6	130	80.00								
Deselect	7	Stream7	1380	80.00								
Deselect	8	Stream8	512	80.00								
Deselect	9	Stream9	512	80.00								
Deselect	10	Stream 10	200	80.00								
Deselect	11	Stream11	130	80.00								
Deselect	12	Stream12	130	80.00								

GL Communications Inc.

818 West Diamond Avenue - Third Floor Gaithersburg, MD 20878

(V) 301-670-4784 (F) 301-670-9187 Web Page: http://www.gl.com/ E-Mail Address: info@gl.com



# Step 8: Verify Loopback Port Setting

- From the Function Tree, 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.

Image: Stream Traffic Generator & Analyzer         Image: Stream Traffic Generator & Analyzer         Image: Stream Config	ØE GL PacketExpert Eile View System Windows Help	
Image: Stream Config     Interface       Surver MAC Config     Stream Config       Stream Selection     With Stream Traffic Generator & Analyzer Results       Periodic Logging     Stream Selection       Port Statistics     Graph       Iterface     Stream Selection       Port Statistics     Stream Selection       Port Statistics     Stream Fraffic Generator & Analyzer Results       Previde Logging     Stream Selection       Prot Statistics     Stream Fraffic Generator & Development       Port Statistics     Stream Selection       Prot Statistics     Development       Prot Selection     Stream Selection       Prot Statistics     Development       Prot Selection     Development <t< th=""><th>Application: Multi-Stream</th><th>Traffic Generator And Analyzer</th></t<>	Application: Multi-Stream	Traffic Generator And Analyzer
Ar Port 3     Ort 5     Interface     Loopback Config     Port Statistics	Multi-Stream Traffic Generator & Analyzer     Port 2     Interface     Surce MAC Config     Stream Config     Stream Selection     Multi-Stream Traffic Generator & Analyzer Results     Periodic Logging     Port Statistics     Graph     FTD Graph     FTD Graph     FTD Graph     FDV Graph     FDV Graph     FDV Graph     FDV Graph     Port 3     Interface     Loopback Config     Port Statistics	Loopback  Port Selection Port 3  Promiscous Mode  Loopback Type  Smart Loopback  Layer 1  Ethernet  IP  UDP  UDP

# Step 9: 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 screenshot.

Port 2	Applying Configuration	×
Interface     Source MAC Config	Applying Configuration	
State find config		
Stream 1	32 %	
Stream 2		
Stream 3	Cancel	
Stream 4		
Stream 5		
Stream 6		
Stream 7		
Stropp 0		

## **Step 10: Verify Results and Graphs**

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

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Eile <u>V</u> iew <u>S</u> ystem <u>W</u> indows <u>H</u> elp																				
🗌 🖶 🔟 🔠 🦹 🗴 Application: Multi-Stream Traffic Generator And Analyzer																				
Multi-Stream Traffic Generator & Analyzer	Multi-:	Stream	Traffic G	enerator & a	Analyzer Re	ults														
Port 2     Interface     Interface	IR(N	٩bps),	FLR(%), I	FTD(msec),	FDV(msec)	Test Tim	e 00:00	:00	Vertica	I IIII F	TD Unit m	sec 💌	FDV Unit	nsec 💌	Activate All	DeActivat	te All			
Source MAC Config	Stre	am No	Seconds	TxFrames	RxFrames	RxBytes	FL Count	FLR	IR (Curr)	IR (Min)	IR (Max)	IR (Avg)	FTD (Curr)	FTD (Min)	FTD (Max)	FTD (Avg)	FDV (Curr)	FDV (Min)	FDV (Max)	FDV (Avg)
Stream Selection		1	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Multi-Stream Traffic Generator & Analyzer Results		2	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Periodic Logging		3	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Port Statistics		4	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Graph		5	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ETD Graph		6	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EDV Graph		6	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FLR Graph		0	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
😑 🕂 Port 3		10	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
- Interface		11	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Loopback Config		12	0	0	0	0	0	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Port Statistics					Ŭ	Ŭ	Ū	0.000	0.00	0.00	0.00	0.00	0,000	0.000	01000	0,000	0.000	0.000	0.000	0.000

• Use the Vertical button to change the view to Vertical orientation

Multi-Stream Traffic Generator & Analyzer Res	ults					
IR(Mbps), FLR(%), FTD(msec), FDV(msec)	Test Time 0	0:32:02	Vertical	FTD Unit msec 💌	FDV Unit usec 💌	Activate All DeActivate All





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 Traf	fic Generator & A	nalyzer Results										
IR(Mbps), FLR(	R(Mbps), FLR(%), FTD(msec), FDV(msec) Test Time 00:33:47 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
Stream Selec	<b>~</b>	<b>v</b>	<b>V</b>	<b>v</b>	<b>v</b>	$\checkmark$	$\checkmark$	<b>V</b>	$\checkmark$	✓	<b>V</b>	✓
Seconds	2031	2031	2031	2031	2031	2031	2031	2031	2031	2031	2031	2031
TxFrames	32 429 519	38 176 370	14 506 687	14 506 687	19 268 296	135 407 672	14 506 686	38 173 985	38 173 985	92 317 015	135 407 672	135 407 672
RxFrames	32 429 519	38 176 370	14 506 686	14 506 686	19 268 296	135 407 672	14 506 686	38 173 985	38 173 985	92 317 015	135 407 672	135 407 672
RxBytes	19 660 894 896	19 546 301 440	20 0 19 226 680	20 0 19 226 680	19 923 418 064	17 602 997 360	20 0 19 226 680	19 545 080 320	19 545 080 320	18 463 403 000	17 602 997 360	17 602 997 360
FL Count	0	0	1	1	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

#### Verify Frame Loss Graph

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



#### Verify Throughput:

• 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 Traf	fic Generator & A	Analyzer Results										
IR(Mbps), FLR(	%), FTD(msec),	FDV(msec) Te	st Time 00:38:	54 Horizon	tal FTD Unit	t msec 💌 FD	V Unit usec 🔽	Activate All	DeActivate All			
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12
Stream Selec	<b>V</b>	<b>v</b>	<b>~</b>	<b>~</b>	<b>V</b>	<b>~</b>	<b>~</b>	<b>~</b>	<b>v</b>	<b>~</b>	<b>v</b>	<b>v</b>
Seconds	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337
TxFrames	37 315 501	43 928 202	16 692 332	16 692 332	22 171 349	155 808 830	16 692 332	43 925 458	43 925 458	106 225 931	155 808 830	155 808 829
RxFrames	37 315 501	43 928 202	16 692 332	16 692 332	22 171 348	155 808 828	16 692 332	43 925 458	43 925 457	106 225 930	155 808 828	155 808 828
RxBytes	22 623 097 972	22 491 239 424	23 035 418 160	23 035 418 160	22 925 173 832	20 255 147 640	23 035 418 160	22 489 834 496	22 489 833 984	21 245 186 000	20 255 147 640	20 255 147 640
FL Count	0	0	0	0	1	2	0	0	1	1	2	1
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
IR (Curr)	80.00	80.00	80.00	80.00	79.99	80.00	80.00	80.00	79.99	80.00	80.00	80.00
IR (Min)	79.98	79.99	79.99	79.99	79.99	80.00	79.99	79.98	79.98	79.99	80.00	80.00
IR (Max)	80.01	80.00	80.00	80.00	80.00	80.01	80.00	80.00	80.00	80.00	80.01	80.01
IR (Avg)	80.00	80.00	80.00	80.00	80.00	80.00	80.00	79.99	79.99	80.00	80.00	80.00
FTD (Curr)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FTD (Min)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FTD (Max)	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
FTD (Avg)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FDV (Curr)	0.527	1.807	0.644	0.644	1.215	0.804	0.644	1.630	1.631	0.910	0.804	0.804
FDV (Min)	0.520	1.803	0.641	0.641	1.202	0.802	0.641	1.626	1.626	0.890	0.802	0.802
FDV (Max)	9.048	8.064	1.120	1.112	3.888	11.112	1.112	8.056	8.056	10.552	11.112	11.112
FDV (Avg)	0.525	1.814	0.644	0.644	1.209	0.805	0.644	1.637	1.637	0.902	0.805	0.805



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 values:

 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.

Iulti-Stream Tra	ffic Generator &	Analyzer Results										
IR (Mbps), FLR	(%), FTD(msec),	FDV(msec) Te	st Time 00:38:	54 Horizon	ntal FTD Uni	t msec 💌 FD	V Unit usec 💌	Activate All	DeActivate All			
Stream No.	1	2	3	4	5	6	7	8	9	10	11	12
Stream Selec		<b>V</b>	✓	<b>V</b>	✓	<b>v</b>	✓	✓	<b>v</b>	✓	✓	<b>V</b>
Seconds	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337
TxFrames	37 315 501	43 928 202	16 692 332	16 692 332	22 171 349	155 808 830	16 692 332	43 925 458	43 925 458	106 225 931	155 808 830	155 808 829
RxFrames	37 315 501	43 928 202	16 692 332	16 692 332	22 171 348	155 808 828	16 692 332	43 925 458	43 925 457	106 225 930	155 808 828	155 808 828
RxBytes	22 623 097 972	22 491 239 424	23 035 418 160	23 035 418 160	22 925 173 832	20 255 147 640	23 035 418 160	22 489 834 496	22 489 833 984	21 245 186 000	20 255 147 640	20 255 147 64
FL Count	0	0	0	0	1	2	0	0	1	1	2	1
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
IR (Curr)	80.00	80.00	80.00	80.00	79.99	80.00	80.00	80.00	79.99	80.00	80.00	80.00
IR (Min)	79.98	79.99	79.99	79.99	79.99	80.00	79.99	79.98	79.98	79.99	80.00	80.00
IR (Max)	80.01	80.00	80.00	80.00	80.00	80.01	80.00	80.00	80.00	80.00	80.01	80.01
IR (Avg)	80.00	80.00	80.00	80.00	80.00	80.00	80.00	79.99	79.99	80.00	80.00	80.00
FTD (Curr)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FTD (Min)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FTD (Max)	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
FTD (Avg)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FDV (Curr)	0.527	1.807	0.644	0.644	1.215	0.804	0.644	1.630	1.631	0.910	0.804	0.804
FDV (Min)	0.520	1.803	0.641	0.641	1.202	0.802	0.641	1.626	1.626	0.890	0.802	0.802
FDV (Max)	9.048	8.064	1.120	1.112	3.888	11.112	1.112	8.056	8.056	10.552	11.112	11.112
FDV (Avg)	0.525	1.814	0.644	0.644	1.209	0.805	0.644	1.637	1.637	0.902	0.805	0.805

GL Communications Inc.

818 West Diamond Avenue - Third Floor Gaithersburg, MD 20878



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 values:

 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												
IR(Mbps), FLR(%), FTD(msec), FDV(msec) Test Time 00:38:54 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
Stream Selec	<b>v</b>	<b>V</b>	~	<b>V</b>	~	<b>V</b>	<b>V</b>	<b>V</b>	~	<b>V</b>	✓	~
Seconds	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337	2337
TxFrames	37 315 501	43 928 202	16 692 332	16 692 332	22 171 349	155 808 830	16 692 332	43 925 458	43 925 458	106 225 931	155 808 830	155 808 829
RxFrames	37 315 501	43 928 202	16 692 332	16 692 332	22 171 348	155 808 828	16 692 332	43 925 458	43 925 457	106 225 930	155 808 828	155 808 828
RxBytes	22 623 097 972	22 491 239 424	23 035 418 160	23 035 418 160	22 925 173 832	20 255 147 640	23 035 418 160	22 489 834 496	22 489 833 984	21 245 186 000	20 255 147 640	20 255 147 640
FL Count	0	0	0	0	1	2	0	0	1	1	2	1
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
IR (Curr)	80.00	80.00	80.00	80.00	79.99	80.00	80.00	80.00	79.99	80.00	80.00	80.00
IR (Min)	79.98	79.99	79.99	79.99	79.99	80.00	79.99	79.98	79.98	79.99	80.00	80.00
IR (Max)	80.01	80.00	80.00	80.00	80.00	80.01	80.00	80.00	80.00	80.00	80.01	80.01
IR (Avg)	80.00	80.00	80.00	80.00	80.00	80.00	80.00	79.99	79.99	80.00	80.00	80.00
	0.014	0.010	0.012	0.012	0.012	0.012	0.012	0.010	0.012	0.010	0.012	0.012
FID (Curr)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FID (Min)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FID (Max)	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
FTD (Avg)	0.014	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013	0.013
FDV (Curr)	0.527	1.807	0.644	0.644	1.215	0.804	0.644	1.630	1.631	0.910	0.804	0.804
FDV (Min)	0.520	1.803	0.641	0.641	1.202	0.802	0.641	1.626	1.626	0.890	0.802	0.802
FDV (Max)	9.048	8.064	1.120	1.112	3.888	11.112	1.112	8.056	8.056	10.552	11.112	11.112
FDV (Avg)	0.525	1.814	0.644	0.644	1.209	0.805	0.644	1.637	1.637	0.902	0.805	0.805



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.



Click on Stop to st

to stop the running MTGA test.

This concludes 'Multi-Stream Traffic Generator and Analyzer verification'.

For technical issues contact GL Communications Inc at info@gl.com.