If this is your First-Time-Use of PacketExpert™ 1G unit, then we recommend you follow all the steps explained in PacketExpert-1G-Quick-Install-Guide before proceeding with the steps below.

**Normal Instructions – Follow these precisely**

- ‘ExpertSAM™’ 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 GL.HWLLicenseInstaller.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 (x86)\GL Communications Inc\GL Hardware License Installer (or C:\Program Files\GL Communications Inc\GL Hardware License Installer) directory and confirm that the purchased ExpertSAM licenses (PXE106) is listed against the hardware purchased.

![T1E1AppList.exe](image)

**Note:** When the application is started, 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.

**Quick Verification**

In the following test scenario, 2 units of 1G PacketExpert™ are used to verify ‘ExpertSAM’ feature.

‘ExpertSAM’ test scenario can be demonstrated on 1G ports by connecting Port 2 of PacketExpert of hardware unit-1 and Port 2 of PacketExpert of hardware unit-2 using Ethernet CAT5e cables (for Electrical Interface test) or using SFP Transceivers and LC optical cables (for Optical Interface test).
The test setup requires 2 PCs/laptops and 2 PacketExpert™ 1G units. The PacketExpert™ units are connected to PC1 and PC2 through USB cable connection. Here, PC1 is connected to PacketExpert hardware unit 1 and PC2 is connected to PacketExpert hardware unit 2. Port 2 of PacketExpert™ Unit 1 is connected to port 2 of PacketExpert unit 2 using Ethernet CAT5 cables (for Electrical Interface test), as shown below:

**Note:** The following test requires PacketExpert 1G application (PXE100) to be installed on both the PCs (PC-1 and PC-2) and ‘ExpertSAM’ application (PXE106) licenses to be installed on PC-1. After successful Software installation, plug in the PacketExpert 1G Hardware unit to PC as indicated in the figure below:

**Note:** The above test can also be setup using LC optical cables (for Optical Interface)

**Step 1: Note down the IP Address**

The IP Addresses for Ports 1 to 4 on PacketExpert™ are pre-configured as listed below:

- Port1: 192.168.1.101
- Port2: 192.168.1.102
- Port3: 192.168.1.103
- Port4: 192.168.1.104

**Note:** ExpertSAM™ can only be conducted on Port2

**Step 2: Connect the cables**

Perform test between Port 2 of PacketExpert Unit-1 and Port 2 of PacketExpert Unit-2 (Electrical or Optical Interface)

- For **Electrical Interface** type, connect Port 2 of hardware unit-1 to PC-1 and Port 2 of hardware unit-2 to PC-2 using Ethernet CAT5 cable as shown in the figure.
- For **Optical Interface** type, plug-in SFP Transceivers to the optical ports and connect LC optical cable Port 2 of hardware unit-1 to PC-1 and Port 2 of hardware unit-2 to PC-2 (refer to figure below)

**Note:** Make sure SFP is properly locked and the optical cable is properly plugged-in.
Step 3: ALL Port Loopback Application on PC-2

In this test, we are performing a loop back test between PC1 and PC2. For this, we need to run “All Port Loopback” application on PC2.

- On PC2, right-click on the PacketExpert 1G shortcut icon 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 All Port Loopback from the Applications drop-down list as shown in the figure below.
- From Function Tree, under Port 2 select Loopback.
- Verify that the Link Status is UP on Port 2, that is, the Function Tree should display Port 2 with green LED link status (refer to figure). If the LED shows red, then link is down. If the link status is not UP, refer to troubleshooting steps explained in PacketExpert™ 1G Quick Install Guide.
- On function tree click Start button and initiate the test.

Step 4: Launch ExpertSAM Application on PC-1

- On PC-1, right-click on the PacketExpert 1G shortcut icon 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 ExpertSAM from the Applications drop-down list as shown in the figure below.

Step 5: Configure ExpertSAM 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:

- 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 (if the connected NIC card is configured for 1000 Mbps. Else, it has to show 100 Mbps or 10 Mbps depending on the NIC card's speed)
• Verify that the **Link Status** is **UP** on Port 2, that is, the Function Tree should display Port 2 with green LED link status (refer to figure). If the LED shows red, then link is down. If the link status is not **UP**, refer to troubleshooting steps explained in PacketExpert™ 1G Quick Install Guide.

**Note:** ExpertSAM™ can only be conducted on **Port 2**

**Step 6: ExpertSAM Service and Test Configuration**

On **Function Tree**, double click and invoke **Service 1** from **Services Config**.

- Verify the default settings for Service 1.
  - Fixed Frame Size of 512 bytes
  - Layer2 = Ethernet, Layer3 = IP, and Layer4 = UDP are enabled
  - In Ethernet tab, verify the default Destination MAC Address.
  - UDP Source Port = 10100; UDP Destination Port = 20100
  - Observe Payload parameter settings
- Verify **BW Profile**, **CIR** is set to 10 Mbps, **EIR** is set to 12 Mbps and **Traffic Policing** is set to 15 Mbps as per default settings.
- Verify the default **SAC Parameter** values
  - Frame Loss Rate = 1%
  - Frame Transfer Delay = 5 msec
  - Frame Delay Variation = 5 msec

- On the **Function Tree**, double click and invoke **Service Selection** under **Test Config**
  - By default, single service (Service 1) is enabled as seen in the figure

**Step 7: Test Selection and Config**

- On the **Function Tree**, double click and invoke **Test Selection** under **Test Config**.
  - Verify the default CIR test configuration as shown in the figure.
  - **Step Load CIR** is enabled and the Rate (%) for each step level is configured. By default, **Step Duration** is set to 60 secs.
  - Scroll down & verify that **Service Performance Test** is enabled and performance test duration is set to predefined 15 minutes

- On function tree click **Start** button and initiate the test.
Step 8: Overall Status

- On the Function Tree, double click Overall Status option from Results and observe that Overall Status window is invoked on RHS.
  - Verify that all the Alarm status are green indicating no error status.
  - While the test is running, user can verify the test type, Stream No., and CIR Step No., as shown in the figure.

**Note:** Global Verdict is displayed, after completion of the test

Step 9: Overview and Service Configuration Results

- On the Function Tree, double click Overview option under Service Configuration Results and observe that Overview is invoked on RHS.
  - Verify the active Service Name (↑ indicates active service), current step (CIR or EIR) and Max IR for currently running service
  - For each Service, after completion of the test, verify the verdict is passed (✔)

- On the Function Tree, double-click and invoke Details under Service Configuration Results
  - Check the detailed test result with IR, FLR, FTD, and FDV. The verdict of each step is reported after the completion of the test.
Step 10: Service Configuration Test and Service Performance Results

- After completion of **Service Configuration test** for all the configured services, on the **Function Tree**, double click **Service Performance Results** option to invoke the results window on RHS pane.
- Verify the Test Time, which indicates the Performance test completed within the configured test duration (15 mins).
- Verify the service performance results display, which includes all **Key Performance Indicators** (KPIs) parameter results for each service - IR, FLR, FTD, FDV (Current, Minimum, Mean, & Maximum).

![Service Configuration Results Table]

- On the **Function Tree**, double click **Port Statistics** to invoke the window on RHS pane. Verify the port level statistics for both Tx and Rx as indicated in the figure below.

![Port Statistics Window]

- On the **Function Tree**, double click **Reports** to invoke the window on RHS pane.
  - Export the detailed test report to pdf or csv file format, which can be saved for further use.
  - Enter the details like **Title**, **User Comments** and **Logo** to be displayed on the report

The following figure is the sample pdf report generated for the above test conducted.

- Once export is successfully completed, report will be generated in the path as provided in **File Name**