

Release Notes for PacketExpert™ 10GX Version 25.02.17

PacketExpert™ 10GX is a multi-functional ethernet tester that supports both Electrical and Optical interfaces, various functionalities (BERT, RFC2544, WAN Emulation, Record Playback, Multi-stream UDP/TCP Traffic Generator & Analyzer, ITU-T Y.1564) and varied port capacities 1Gbps/2.5Gbps/10Gbps suitable for comprehensive testing of wirespeed Ethernet/IP networks.

The PacketExpert™ 10GX includes two 10/1 Gbps Optical ports, and two 10/100/1000 Mbps Electrical/Optical capable ports. The 10 Gbps Optical ports can be downshifted to support 1Gbps Electrical ports, thus offering 4 Electrical / 4 Optical 1 Gbps ports for ethernet testing. Using appropriate SFPs, the 10Gbps ports can be converted to support 2.5 Gbps link speed. Additionally, it adds 4-port user-configurable TTL trigger option as an important enhancement.

In addition, the Command line Interface (CLI)/APIs support allows the users to access all the functionalities remotely using Python, C# clients and MAPS™ CLI Server architecture.

Release History

Description	Version
Bug Fixes: <ul style="list-style-type: none">➤ Fixed the Packet mode filter configuration issue for loopback ports on All Port Loopback, Bert\Loopback and MTGA	25.02.17
Enhancements: Client APIs <ul style="list-style-type: none">➤ Python 3.12 support Bug Fixes: <ul style="list-style-type: none">➤ After generating the reports, ARP and Ping stopped functioning for all applications until the test was restarted	25.01.07
Bug Fixes: <ul style="list-style-type: none">➤ Ping was not working consistently through the switch for some applications	24.12.24
Bug Fixes: All Port BERT <ul style="list-style-type: none">➤ Occasionally, when BERT was stopped, the LEDs remained active instead of switching off (displaying grey).	24.10.17
Enhancements: Record Only: <ul style="list-style-type: none">➤ Added new feature - ability to capture FCS field bytes➤ Added new feature - ability to capture FCS error frames Playback Only: <ul style="list-style-type: none">➤ Added a user option to insert the FCS field onto transmit frames. If the playback file already contains an FCS field, the user can choose to disable the insertion of the FCS field.	24.7.16

<p>Record and Playback:</p> <ul style="list-style-type: none"> ➤ Added new feature - ability to capture FCS field bytes ➤ Added new feature - ability to capture FCS error frames ➤ Added the feature - 'Playback Bandwidth Control', where user can set a rate at which playback is done instead of the default rate stored in the file (captured rate) ➤ Added a user option to insert the FCS field onto transmit frames. If the playback file already contains an FCS field, the user can choose to disable the insertion of the FCS field. 	
<p>Bug Fixes: Playback Only:</p> <ul style="list-style-type: none"> ➤ Bandwidth control feature was not working correctly for 2.5G/10G modes. GUI was not allowing to change the rate or rate units. ➤ The configured bandwidth rate was not being maintained for some combinations of burst, inter-burst durations and the playback file size. 	24.2.27
<p>Enhancements:</p> <ul style="list-style-type: none"> ➤ Removed the PXN106 license for ExpertSAM. ExpertSAM is now available as a Basic License (along with PXN100). 	24.1.9
<p>Bug Fixes: IPNetSim and IPLinkSim:</p> <ul style="list-style-type: none"> ➤ IPNetSim/IPLinkSim could not handle 64-byte packets at 100% rate, resulting in the dropping of some packets. ➤ When switching between IPNetSim and IPLinkSim applications, one or both the Tx ports stopped transmitting traffic, despite receiving Rx traffic. 	23.11.28
<p>Enhancements: IPLinkSim™:</p> <ul style="list-style-type: none"> ➤ Changed the Manual impairment usage - now, only one type of impairment can work at run time - either Manual or Automatic. For each impairment, user has to select before starting the impairments whether it is Manual or Automatic. At runtime user selected type of impairment will be introduced. If Manual is selected, user can introduce impairments at the click of a button at any time after starting IPLinkSim™ application. ➤ Separated the impairment settings for Automatic and Manual impairments. Now, the user has to select the Automatic/Manual selection first before configuring the impairments. ➤ Packet Loss Manual impairment - changed the setting. Now, user can specify the number of packets and click on the Manual button to drop the packets at run time. User can enter a single or multiple packets. Removed the Single/Burst selection. ➤ Packet Loss - removed the Single/Burst setting for Automatic impairments. Instead, added the Window based impairment, where user can specify the number of packets (min and max) to be dropped for every 'n' number of received packets, where 'n' is set by the user. ➤ Added a new statistic to indicate the number of FCS Error packets introduced. ➤ Removed Background Traffic impairment. ➤ Changed the maximum Packet Loss rate to 50% (from 100%). ➤ Changed the maximum Packet Duplication rate to 50% (from 100%). 	23.6.23

IPNetSim™:

- Packet Loss - removed the Single/Burst setting for Automatic impairments. Instead, added the Window based impairment, where user can specify the number of packets (min and max) to be dropped for every 'n' number of received packets, where 'n' is set by the user.
- Changed the maximum Packet Loss rate to 50% (from 100%).
- Changed the maximum Packet Duplication rate to 50% (from 100%).
- In filter config, when VLAN layer was enabled, EtherType(Len/Type) field filter was getting disabled. Now, user can configure EtherType field even if VLAN layer is enabled.

Playback Only:

- Added a new feature - 'Playback Bandwidth Control', where user can set a rate at which playback is done instead of the default rate stored in the file (captured rate).

TM_ATM (Timing Measurement for Air Traffic Management):

- Added RTP Sequence number to all the Event Data Logger notifications sent to the MAPS™ Admin.

Bug Fixes:

All Port BERT, Bert/Loopback, RFC2544, ExpertSAM, Multi Stream Traffic Generator and Analyzer (MTGA):

- The minimum frame size for transmission is changed to 64 bytes (from the earlier 68 bytes).
- IP/UDP packets were not processed based on the IP total Length field/UDP length fields, causing the packets with MAC padding to be dropped because of IP/UDP checksum errors, even though the checksums were correct.

All Port Bert, Bert/Loopback:

- When BERT test traffic comes in through a switch, BERT Results showed Bit Errors roughly every 40 - 60 seconds.
- FCS Error Insertion was not working for 10/100 Mbps speeds (worked fine for 1000 Mbps).

ExpertTCP:

- ExpertTCP application was hanging while starting.
- ExpertTCP application was not working - was throwing 'Failed to load ExpertTCP application on server' message.
- Server side Interface status/details was not showing correctly.
- Sometimes, the application used to slow down, especially after finishing a test and when attempting to start a new test.
- RTT (Round Trip Time) results were inconsistent between the per stream run time results and the final results.

IPLinkSim:

- FCS Error insertion was not working when IPLinkSim™ was connected to a variable traffic source like LAN.
- The Manual Drop button was not dropping the packets sometimes.

IPNetSim:

- EtherType(Len/Type) filter was not working correctly when incoming packet had VLAN headers.
- Stacked VLAN filter was not working correctly.

<p>IPLinkSim, IPNetSim:</p> <ul style="list-style-type: none"> ➤ Logic Error Insertion - changed the maximum 'Bytes offset' range to 2043 instead of 2047 (excluding the 4 bytes FCS). <p>ExpertSAM:</p> <ul style="list-style-type: none"> ➤ Service Configuration results (color aware) - few results were not showing correct values. <p>TM_ATM (Timing Measurement for Air Traffic Management):</p> <ul style="list-style-type: none"> ➤ Channel numbers in 'wdo' notifications were not decoded properly. 	
<p>Enhancements:</p> <p>All Port BERT and BERT Loopback:</p> <ul style="list-style-type: none"> ➤ Displays warning message when multicast or broadcast source MAC address is configured. Also suggests a unicast MAC address. ➤ Min and Max Tx rate is calculated and displayed for Variable Frame Size and Fixed IFG (Traffic Generation Type: Variable rate) configuration. 	23.1.5
<p>Bugfixes</p> <p>ExpertSAM (2.5G)</p> <ul style="list-style-type: none"> ➤ Service Performance results were not updating for all streams <p>RFC2544 Single Port</p> <ul style="list-style-type: none"> ➤ Frameloss results were not exported correctly to PDF reports 	22.10.6
<p>Enhancements:</p> <p>Bert/Loopback:</p> <ul style="list-style-type: none"> ➤ Added Loopback filters, 4 filters per port <p>AllPortLoopback:</p> <ul style="list-style-type: none"> ➤ Added Loopback filters, 16 filters per port <p>Multi Stream Traffic Generator and Analyzer (MTGA):</p> <ul style="list-style-type: none"> ➤ Added Loopback filters, 16 filters per port <p>ExpertSAM:</p> <ul style="list-style-type: none"> ➤ Added multi-device support <p>Filters (IPNetSim, Record Only and PacketBroker):</p> <ul style="list-style-type: none"> ➤ Added MPLS/VLAN stack level selection in filters <p>ExpertTCP:</p> <ul style="list-style-type: none"> ➤ Now, GUI, on launch, automatically disables the PROTOCOL_BUFFER setting in the MapsConfig.ini file, so that in case user has changed it for ExpertTCP, user need not manually change it back again before launching the GUI <p>Client APIs:</p> <ul style="list-style-type: none"> ➤ Added a new method to BERT APIs→ LoadConfigResolveDestMac () (which resolves destination MAC based on destination IP, and sets it during Load Configuration process) <p>Bug Fixes:</p> <p>All Applications:</p> <ul style="list-style-type: none"> ➤ In Report Generation, if the user defined report filename had the '.' character, was missing it. Example: if the name "BL_2.5G" was given, generated report file name was "BL_2G" 	22.8.30

AllPortBert:

- ARP was not working when VLAN was enabled
- Length wise Port statistics was not showing correctly when VLAN was enabled
- Could not set the Protocol field to 1 (ICMP) in IPv4 configuration tab
- IPv6 ARP was not working (timing out) when the last 4 bytes of the Src IPv6 Address was changed (from the default 1111/2222 etc.)
- BitError seconds, Sync loss seconds were incorrect in csv reports
- Removed Instantaneous FDV (us) and Instantaneous Jitter (us) in GUI config/results, and in Reports, as it is not supported

Bert/Loopback:

- ARP was not working when VLAN was enabled
- Length wise Port statistics was not showing correctly when VLAN was enabled
- Could not set the Protocol field to 1(ICMP) in IPv4 configuration tab
- IPv6 ARP was not working (timing out) when the last 4 bytes of the Src IPv6 Address was changed (from the default 1111/2222 etc.)
- BitError seconds, Sync loss seconds were incorrect in csv reports
- Removed Instantaneous FDV (us) and Instantaneous Jitter (us) in GUI config/results, and in Reports, as it is not supported
- When test is active and Bert/Loopback is closed, application continues to send the traffic
- Port leaf node in the LHS menu tree was not working correctly in the GUI

AllPortLoopback:

- Linkspeed was not displaying correct value in case of multiple devices

RFC2544, RFC2544(Single Port):

- ARP was not working when VLAN was enabled
- Length wise Port statistics was not showing correctly when VLAN was enabled
- Could not set the Protocol field to 1(ICMP) in IPv4 configuration tab
- IPv6 ARP was not working (timing out) when the last 4 bytes of the Src IPv6 Address was changed (from the default 1111/2222 etc.)
- Throughput test was failing when the link under test's bandwidth was very low (like 100 Kbps)
- Reports
 - Frame Loss results were not aligned correctly in the reports
 - Latency graphs had different scale for East → West and West → East directions
- Application was crashing when profiles created before 21.8.19 version were opened (because of the new additions after 21.8.19 like "Use Throughput Value" in latency test)
- After test completes, the Current Running test display was still showing the last done test, instead of going blank
- Multi-device completed tests were not being updated correctly

Multi Stream Traffic Generator and Analyzer (MTGA):

- ARP was not working when VLAN was enabled
- Length wise Port statistics was not showing correctly when VLAN was enabled
- Could not set the Protocol field to 1(ICMP) in IPv4 configuration tab
- IPv6 ARP was not working (timing out) when the last 4 bytes of the Src IPv6 Address was changed (from the default 1111/2222 etc.)
- Frame Loss was not showing the correct values
- In 2.5G mode, traffic generation was not happening at all
- In 2.5G mode, per stream bandwidth setting was not working correctly
- In 2.5G mode, Interface dialog was not correctly displaying the linkspeed as 2500 Mbps
- In 2.5G mode, Max Bandwidth in the stream configuration dialog was not correctly displaying as 2500 Mbps
- The Rx filters were not working correctly when any one of the streams was configured as IP only and the rest as IP/UDP

ExpertSAM:

- ARP was not working when VLAN was enabled
- Length wise Port statistics was not showing correctly when VLAN was enabled
- Could not set the Protocol field to 1(ICMP) in IPv4 configuration tab
- IPv6 ARP was not working (timing out) when the last 4 bytes of the Src IPv6 Address was changed (from the default 1111/2222 etc.)
- The Rx filters were not working correctly when any one of the streams was configured as IP only and the rest as IP/UDP

Record Only:

- ARP packets were not capturing
- There was a problem with recording, if the record file path had a folder with the "." symbol
- In Filters, was not taking the equals (==) or Not equals (!=) selection for Len/Type
- When "Not Equal to" (!=) is selected for any filter, filter summary was not updated accordingly

Playback Only:

- Playback file info was going blank, when moving away from the dialog and coming back
- In 2.5G mode, the interface type was showing as Electrical, instead of Optical

IPNetSim:

- Was not able to turn off latency by entering the value of 0 in the latency configuration
- Len/Type filter was not working correctly

IPLinkSim:

- Was not able to turn off latency by entering the value of 0 in the latency configuration
- For Single Delay, entered values were not being taken properly

PacketBroker:

- Len/Type filter was not working correctly
- When multiple devices were present, Filter Group configuration GUI was not changing when device was changed

<ul style="list-style-type: none">➤ When multiple devices were present, if any device's PacketBroker test was active, was still allowing to change the application➤ When multiple devices were present, if any device's PacketBroker test was active, was still allowing to edit the filters, group, and super group configuration➤ In Filters, was not taking the equals (==) or Not equals (!=) selection for Len/Type➤ When "Not Equal to" (!=) is selected for any filter, filter summary was not updated accordingly ExpertTCP: <ul style="list-style-type: none">➤ ExpertTCP was failing to load on the server side when the PXN108 license was not installed on the server side (supposed to load when the PXN108 license was installed only on the client side)	
Bug Fixes: PacketBroker: <ul style="list-style-type: none">➤ When PacketBroker was started in presence of incoming traffic, some wrong packets were being sent out of the output ports, instead of the correct filtered packets.➤ The Interface display of the output ports was showing wrong information – was showing details which are not supported. Now, changed to display only the Link Status and Link speed, as only these details are available.	22.3.31
Bug Fixes: PacketBroker: <ul style="list-style-type: none">➤ Passthrough functionality was not working on input ports.	22.3.17
Enhancements: Record and Playback: <ul style="list-style-type: none">➤ Brought back “Record and Playback” application (along with the existing “Record Only” and “Playback Only” applications). This enables simultaneous Record and Playback on same ports.	22.2.22
Bug Fixes: Record Only: <ul style="list-style-type: none">➤ Recording to HDL file was not working in the previous release (21.8.24). Playback only: <ul style="list-style-type: none">➤ In 2.5G mode, Playback was not working when Port Mapping was enabled.	21.9.1
Enhancements: General: <ul style="list-style-type: none">➤ Added exclusive hardware access protection for all software that use the same PacketExpert™/SonetExpert™ hardware (PacketExpert, SonetExpert Channelized and SonetExpert Unchannelized software). When any of this software is already running and using the hardware, the other software displays an error on launch and quit.	21.8.24
Enhancements: IPNetSim, IPLinkSim: <ul style="list-style-type: none">➤ Added microseconds Latency configuration (in addition to the current milliseconds). RFC2544, RFC2544(Single Port): <ul style="list-style-type: none">➤ Added measured Latency display for both Store/Forward and Bit Forward methods (previously was displaying only Bit Forwarding latency value).➤ Added user option to use the Throughput test determined bandwidth for Latency test, instead of manual bandwidth configuration.	21.8.19

Enhancements: Client: <ul style="list-style-type: none">➤ Added "Record Only" and "Playback Only" APIs to Python and C# clients.	21.7.1
Bug Fixes: All Applications: <ul style="list-style-type: none">➤ SFP Info for Optical mode was not displayed if link is down. All Port Bert: <ul style="list-style-type: none">➤ SFP Info for Optical mode was not displayed. PacketBroker: <ul style="list-style-type: none">➤ When filter to TTL mapping was changed at runtime, was still generating TTL trigger signal on the previously mapped TTL output.	21.6.22
Enhancements: Client: <ul style="list-style-type: none">➤ Added IPLinkSim and IPNetSim APIs to clients. Bug Fixes: All Applications: <ul style="list-style-type: none">➤ Report generation - Logo was not included in the generated reports.➤ Port3 and Port4 were showing link down on application invoke. Record Only: <ul style="list-style-type: none">➤ During recording to file, few packets had invalid timestamp. This was causing Playback to hang when the same recorded file was played back.	21.6.1
Enhancements: All Applications: <ul style="list-style-type: none">➤ Removed the popup dialog on successful report generation. Record Only: <ul style="list-style-type: none">➤ Added the new "Split Recording" feature. IPN/IPL: <ul style="list-style-type: none">➤ Added Distributed delay (both uniform and random distributed) to Scheduler (in addition to the existing Single delay). RFC 2544: <ul style="list-style-type: none">➤ If any test fails, now results display "Test Failed" instead of the value 0 for Throughput, Latency and Back-to-Back tests in both GUI and Reports.➤ Added debug log feature - to enable detailed RFC 2544 logs to help debug in case of some problems seen with the main RFC 2544 results. Bug Fixes: PacketBroker: <ul style="list-style-type: none">➤ PacketBroker configuration file created with older versions of software was not opening correctly in the latest version. ExpertSAM: <ul style="list-style-type: none">➤ ExpertSAM GUI was crashing when invoked with multiple devices. RFC 2544: <ul style="list-style-type: none">➤ For Frame loss test, if Rx Frames > Tx frames (for example: in the case of packet duplication), a huge frame loss percentage value was reported. Now, shows 0% frame loss. Record Only: <ul style="list-style-type: none">➤ GUI was crashing when Filters were cleared.	21.3.15

<p>Enhancements:</p> <p>Client:</p> <ul style="list-style-type: none">➤ Created a new separate client for PacketExpert10GX (PXN). The client now installs in a separate folder named "PacketExpertPxnClient"➤ Added 32-bit Python client support➤ Changed the Python return value to namedtuple <p>RFC 2544, RFC 2544 (Single Port):</p> <ul style="list-style-type: none">➤ If test fails for Throughput and Back-to-Back tests, now a "Test Failed" status is updated. Earlier, there was no indication of failure <p>IPNetSim:</p> <ul style="list-style-type: none">➤ Added Distributed delay (both uniform and random distributed delay) to Scheduler (in addition to the existing Single delay) <p>Bug Fixes:</p> <p>Client:</p> <ul style="list-style-type: none">➤ When profile loaded from Python/C# clients, optical ports showed link down <p>Python client:</p> <ul style="list-style-type: none">➤ Some of the methods of the PacketBroker API class were returning false error codes➤ PacketBroker in 10G mode was not working correctly <p>RFC 2544, RFC 2544 (Single Port):</p> <ul style="list-style-type: none">➤ Frame Loss test was reporting some huge Loss percentage when there were Duplicate packets <p>Report Generation:</p> <ul style="list-style-type: none">➤ Removed the popup dialog on successful report generation (which needed user interaction to close the dialog) <p>Record Only:</p> <ul style="list-style-type: none">➤ Application was crashing when filters were cleared <p>ExpertSAM:</p> <ul style="list-style-type: none">➤ Application was crashing when ExpertSAM was invoked with multiple devices	21.1.28
<p>Enhancements:</p> <p>Python client:</p> <ul style="list-style-type: none">➤ Was creating the MapsCLIResponse.txt with socket error message on graceful disconnection by client. Removed this, and now this file is created only on abrupt disconnection➤ Made the return values of some PacketBroker API class methods to be consistent <p>Bug Fixes:</p> <p>Python client:</p> <ul style="list-style-type: none">➤ Some of the methods of the PacketBroker API class were returning false error codes	20.12.10
<p>Enhancements:</p> <p>General:</p> <ul style="list-style-type: none">➤ New software warranty license installation and checking the warranty expiry date for renewal is added.➤ The optional licensed applications require licenses to be installed to load and open the applications.➤ CLI Server License added required to be present on the server side, for all API clients (Python, C#)	20.10.30

<ul style="list-style-type: none">➤ Added the Model Number (Hardware Board Revision number), USB Type (USB 2.0 or 3.0) and DDR module part number display to the "Device Information" screen➤ Removed Model number display from "Current Application" screen➤ 2.5G mode has been added. The existing two 10G ports, now also support 2.5G speed. Both Optical and Electrical SFPs supported. The following applications are supported in 2.5G mode, under the same license as for 10G – PXN101:<ul style="list-style-type: none">◦ Wire speed BERT◦ Smart Loopback◦ RFC 2544, RFC 2544 (Single Port)◦ Record and Playback (Optional Software)◦ ExpertSAM™ (Y.1564) (Optional Software)◦ IPNetSim™, IPLinkSim™ (Optional Software)◦ Multi-stream Traffic Generation and Analyzer (Optional Software)	
<p>New application added - RFC 2544 (Single Port):</p> <ul style="list-style-type: none">➤ This application allows RFC 2544 test to be conducted on a single port, with the remote end doing Smart Loopback. RFC 2544 test can be done on both Port1 and Port2, separately and independently. <p>Multi Stream Traffic Generator and Analyzer (MTGA):</p> <ul style="list-style-type: none">➤ Added IPv6 support. All streams can now be defined as IPv4 or IPv6 stream➤ Added new feature - "Periodic Logging". Supports periodic logging of results to a text file in CSV (Comma Separated Value) format.➤ Added IPv6 NDP (Neighbor Discovery Protocol - the IPv6 equivalent of IPv4 ARP), and ICMPv6 (Ping over IPv6) support <p>All Port Bert, Bert/Loopback, All Port Loopback, RFC 2544:</p> <ul style="list-style-type: none">➤ Added IPv6 NDP (Neighbor Discovery Protocol – the Ipv6 equivalent of Ipv4 ARP), and ICMPv6 (Ping over Ipv6) support➤ Enabled User defined IP Identification and User defined IP Header checksum options <p>All Port Bert, Bert/Loopback and RFC 2544:</p> <ul style="list-style-type: none">➤ Removed "IPv4 compatible address" and "IPv4 mapped IPV6 address" in IPv6 Address configuration. Now, only the full IPv6 address must be configured <p>IPNetSim:</p> <ul style="list-style-type: none">➤ Added new feature – “Scheduler” for IPNetSim. Allows user to introduce periodic impairments based on values defined in a text file in CSV (Comma Separated Value) format. Supports a minimum periodicity of 1 second. <p>PacketBroker:</p> <ul style="list-style-type: none">➤ Added new Filter features:<ul style="list-style-type: none">➤ Raw mode configuration is now combined within Packet mode configuration tree structure➤ Grouping one or more Filters into a group and Super Grouping one or more groups with AND / OR operators➤ Up to 12 TTL signal outputs have been added➤ "Filter to TTL mapping" or "Group to TTL mapping" or "Super Group to TTL Mapping" support has been added	

Record Only and Playback Only:

- Added multi device support for both these applications. Now, users can do Record or Playback on multiple devices simultaneously

Playback Only:

- Added a new "Port Mapping" feature. For "As Per File" playback option, user can define the Port Mapping i.e., the mapping from the port recorded in the file to user defined port. This allows users to playback the previously captured file (using Record Only), and send the traffic to where it was intended, rather than returning it back to the same port from which it was captured

Bug Fixes:

All Applications:

- For tri-speed 1G ports, whenever Auto negotiation is incomplete (e.g.: when "Forced speed" was selected or Auto negotiation was disabled), was not updating the Link Speed and displaying blank for Link Speed. Consequently, was not able to edit the Rate setting because rate is not allowed to be changed when link speed is unknown
- In GUI, when any pane's top bar was selected and dragged right or left, all GUI pane dialogs disappeared, and never came back
- 32-bit version of the application was crashing on start
- Application crash fixed Open multidevice supported application like AllPortBert. Then, open single device supported app like Record Only. Then, go back to the same earlier multidevice supported app. GUI crashed
- Multi rate SFPs (1G/10G) was not working correctly for 10G rate (was working only for 1G rate)
- SFP information display was not showing the Ethernet Compliance and Wavelength information correctly
- Ping was not working, if tried after running test with user defined IP identification

CLI Clients:

- Repeated tests done from CLI clients (Python or C#) was not working correctly for subsequent tests (second repetition onward).
- Python/C# client disconnected randomly for long duration tests.
- When multiple devices are present, if Device1 was not initialised, ARP/Ping was not working correctly for any other device
- In PacketBroker application, TTLs were not working correctly with Python client
- In PacketBroker, after loading a saved configuration file, the TTL pulse width was not getting set correctly

All Port Bert:

- Changing the interface IP Address was not automatically changing the Source IP address in the TxRx configuration

All Port Bert, Bert/Loopback, All Port Loopback, RFC 2544 and Multi Stream Traffic Generator and Analyzer (MTGA)

- Ping reply was not working properly (PacketExpert was not copying the received ICMP Request payload back to the response)

All Port Bert, Bert/Loopback and RFC 2544:

- When IP Protocol field was changed, one frame with the previous Protocol field value was being transmitted

RFC 2544, RFC 2544 (Single Port):

- Start/Stop button was not working properly (only in case of multiple devices)
- Latency results sometimes showed blank ("-") for 10/100 Mbps link speeds
- PDF Reports were not being generated correctly
- Reports were displaying units for Latency graph in "msec" instead of the actual "usec"

RFC 2544:

- IPv6 not working in 1G mode
- ARP and Ping were not working with VLAN traffic in 1G mode
- In 1G mode, 'Frame Loss' test was not running for 10 Mbps link speed, P2 --> P1 direction for two or more trials
- In 10G mode, 'Throughput' test was hanging for trial duration > 290 sec
- 10G Throughput test was showing different results for P1-->P2 and P2-->P1 directions when the number of trials was 2 or more

RFC 2544 (Single Port)

- Starting RFC 2544 test on Port2 was wrongly starting on Port3
- If test is already running on any port, was still allowing to start on a different port causing all results to go wrong
- Multidevice test was not working
- In 1G mode, for link speeds 10 Mbps or 100 Mbps, test was not running for the configured trial duration
- In 1G mode, for 'Frame Loss' test, results were not showing the correct configured bandwidths for certain min/max bandwidth combinations
- In 10G mode, after starting test, the TxRx configuration window was not disabled

IPLinkSim:

- The Manual Logic Error Insertion was inserting the manual error in the wrong direction (P1->P2 instead of the intended P2->P1). This happened only for the very first time
- In 1G mode, when link speed was changed to 10/100Mbps, the maximum Traffic Bandwidth was not correspondingly changing to the link speed value
- In 1G mode, for multiple devices, graph was showing only for one device

IPNetSim

- On adding a new filter, was allowing wrong maximum value of Latency (was allowing up to 8000 msec latency, even though not supported)
- MAC filter was not working properly
- Was crashing on selecting Stream Configuration window
- For Multiple devices, was crashing when all streams were selected on first device, and then going to

other devices

- VLAN S-tag filter was not working correctly in 1G mode
- For Multiple devices, if second or higher device was started first, graph was not showing for the first device
- Len/Type was not taking the configured value when all streams were cleared, and a new stream added
- For Multiple devices, Scheduler was not working for device 2 onwards
- In 1G mode, when link speed was changed to 10/100Mbps, the maximum Traffic Bandwidth was not correspondingly changing to the link speed value

Multi Stream Traffic Generator and Analyzer (MTGA):

- Results were periodically throwing up large Frame Loss values, and then going back to 0 (even though there was no actual frame loss happening)
- When periodic logging was enabled, application was hanging after long run. GUI was not frozen (still responds to actions), but results were frozen at the time when it hanged
- For multidevice, Device2 onwards was not working correctly
- Average Throughput i.e., IR (Average) displayed was increasing over time
- If periodic logging was enabled, and wrong path was given for the log file, application crashed
- On 1G mode, for multiple devices, crash seen when test is started on multiple devices, but stopped only on device 1
- In 1G mode, for multiple devices, crash seen when test was run 3 to 4 times
- The IR (current) value was displaying even for inactive streams in 1G mode
- In multidevice 10G mode, Ping was not working for device 2 onwards
- Changing the interface IP Address was not automatically changing the Source IP address in the Stream configuration
- On start, FTD and FDV values are showing blank instead of '0'
- Layer3/4 stream was not getting recognised in Rx, when the received Source MAC Address was different from the configured Source MAC address. Modified to ignore Rx MAC Addresses for Layer3/4 streams.

Record Only:

- Record function was not working - was not capturing any traffic
- When recorded to HDL file format, some packets in between were in error.
- Start recording, stop in between, and start again. Second time, software was going into bad state and did not recover.
- GUI periodically lost focus i.e., focus was taken away from PacketExpert GUI, making it difficult to operate.
- Raw filter was crashing when filter was deleted.
- Add/Delete filters caused GUI crash.
- Filter Len/Type field was not saving correctly.
- When one filter was copied to another filter, even the name was getting copied, instead of creating a new unique name for the new filter.
- When switched from Playback Only to Record Only, and report was generated, the report showed the older Playback only settings.
- In GUI, the filter tree MAC item was not closing correctly
- 'AND' operation was not working on filters

<ul style="list-style-type: none">➤ Accepted filter count was not showing correct values in 10G mode➤ In 10G mode, for multiple devices, SFP information was not displaying for Device2 onwards➤ For Len/Type field, was not allowing to change the default '!=' to '==' <p>Playback Only:</p> <ul style="list-style-type: none">➤ GUI periodically lost focus i.e., focus was taken away from PacketExpert GUI, making it difficult to operate.➤ When NGPCAP format file was played back, the recorded timestamps were not maintained. Instead, rate was always 100%.➤ On loading Playback Only application, sometimes, the link status of one of the ports was not reflecting correctly➤ In 10G mode, on board buffer status was not showing when ran with "Repeat file" option <p>PacketBroker:</p> <ul style="list-style-type: none">➤ Raw filter was crashing when filter was deleted.➤ In GUI, the filter tree MAC item was not closing correctly➤ During filter configuration, when trying to configure MPLS Label range or VLAN Id range, application was crashing➤ During filter configuration, in basic mode, double clicking on Filter Setup pane caused application crash➤ Delete button in Filter Configuration was not working➤ For Len/Type field, was not allowing to change the default '!=' to '=='➤ Filters of previous test run were still enabled in the current run, even though they were not selected➤ In 10G mode, 1G ports (Output ports) link was not coming up➤ Filter/Group/Supergroup names were not being saved to configuration file, and while loading names would be replaced by default names➤ Enhanced Filter Summary display to be more clear <p>ExpertSAM:</p> <ul style="list-style-type: none">➤ Application was hanging when IP Address was resolved (using ARP) in MAC configuration window	
<p>Enhancements:</p> <p>General:</p> <ul style="list-style-type: none">➤ Added 100 Mbps support for Optical Interfaces (100 BASE-FX) for Port1 and Port2 (1G mode only) for all applications.➤ Added 10G license display (PXN101 license) to the System → Device Information dialog.	9.1.31
<p>Enhancements:</p> <p>General:</p> <ul style="list-style-type: none">➤ Added a new CLI server license (CXN100). This license must be present at the server side for all CLI clients (like TCL, C# and Python) to connect and run PacketExpert™.➤ CLI clients are no longer installed as part of the software installation. Instead, they have been moved to a separate client installation, that includes all clients - TCL, C# and Python.➤ Added a new optional license (PXN101) for 10G. If this license is present, the initial 1G/10G launch selection dialog pops up. Else, software is directly launched in 1G mode <p>PacketBroker:</p> <ul style="list-style-type: none">➤ Multidevice support added	9.1.7

<p>Bug Fixes:</p> <p>General:</p> <ul style="list-style-type: none">➤ Minor Bug fixes in GUI (related to multi device in multiple applications)➤ Interface configuration was not being saved correctly for all applications for multi device <p>Record Only, Record and Playback:</p> <ul style="list-style-type: none">➤ Timestamp of recorded packets was not correct	
<p>NEW RELEASE:</p> <p>Supports multiple functionalities</p> <ul style="list-style-type: none">➤ Wire speed BERT➤ Smart Loopback➤ RFC 2544➤ Record and Playback (Optional Software)➤ ExpertSAM™ (Y.1564) (Optional Software)➤ IPNetSim™, IPLinkSim™ (Optional Software— Available only in PXG100 and PXN100)➤ PacketBroker with up to 12-TTL Trigger I/O (Optional Software)➤ Multi-stream Traffic Generation and Analyzer (Optional Software)➤ ExpertTCP™ (RFC 6349) (Optional Software)	8.8.7