

Calnex Paragon - *x*



# Software Release 24x (X.10.36.xx)

## December 2016

NEW FUNCTIONALITY AND ENHANCEMENTS



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## 1 Software Release Overview

Release 24X (X.10.36) adds the following features to Paragon-X, and CAT<sup>1</sup>:

SUS (Software Upgrade Service)

New Option: Network Emulation	Enhancements to existing options	Base product enhancements
Accurate and Repeatable IP/Ethernet Network Emulation. User Choice of: <b>One from:</b> 4 Impairment Profiles (Opt. 710) 8 Impairment Profiles (Opt. 709) 16 Impairment Profiles (Opt. 708) <b>If required:</b> Extended Jitter (Opt. 711)	Calnex Analysis Tool (CAT): <ul style="list-style-type: none"> <li>Additional Remote Commands for measurement statistics</li> </ul>	Defect Fixes

 To check the current software version installed, select Help > About Paragon Remote Client on the Paragon-X GUI.

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<sup>1</sup> This release includes enhancements to the CAT. The CAT accompanies Paragon-X and is used to display/present graphical results such as Wander and Time Error and to calculate metrics such as MTIE/TDEV for further analysis.

## 2 Features and Benefits

<b>Paragon-X</b>	<b>Benefit</b>
<b>Network Emulation</b>	Emulate a network in an accurate and repeatable way. You can also fully stress-test the transport of real-time services like video and VoIP over next-gen IP platforms and networks
<b>CAT</b>	<b>Benefit</b>
<b>Additional Remote Commands for Statistics</b>	For scripted use models, access additional measurement statistics

### 3 New Options

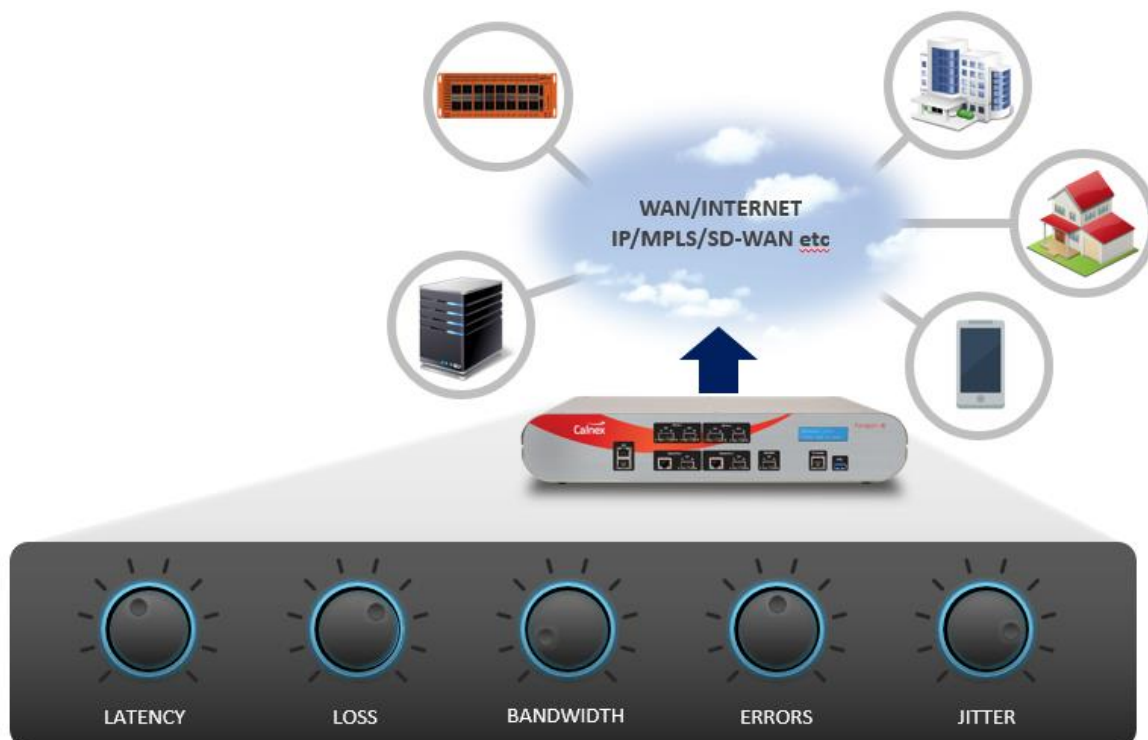
#### 3.1 Network Emulation

**IMPORTANT** – The Network Emulation options for Paragon-X require the latest version of Hardware for operation. Please consult your Calnex sales or service centre for further information regarding supporting this feature on your Paragon-X unit.

These options allow you to emulate a network or a network element in an accurate and repeatable way. You can also fully stress-test the transport of real-time services like video and VoIP over next-gen IP platforms and networks. Powerful fully integrated traffic filtering targets the effect of impairments on particular packets or particular types of traffic.

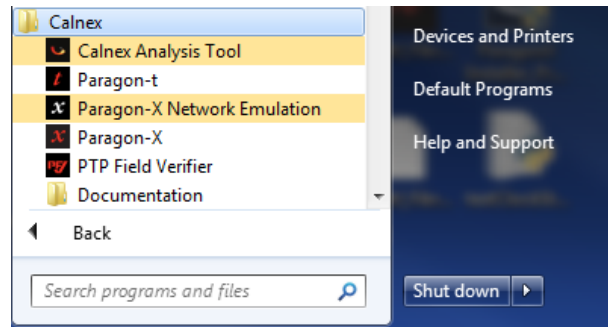
#### Key Features

- Add latency and jitter to nanoseconds accuracy and repeatability
- Introduce lost, mis-ordered, errored and repeated packets
- Capture then replay real-world network profiles based on actual traffic, and create precisely-defined network profiles
- Realistic and accurate regression, validation, proof-of-concept and customer demos
- Field-programmable architecture protects your investment
- Real-network problem replication for troubleshooting
- Real-network problem replication for troubleshooting

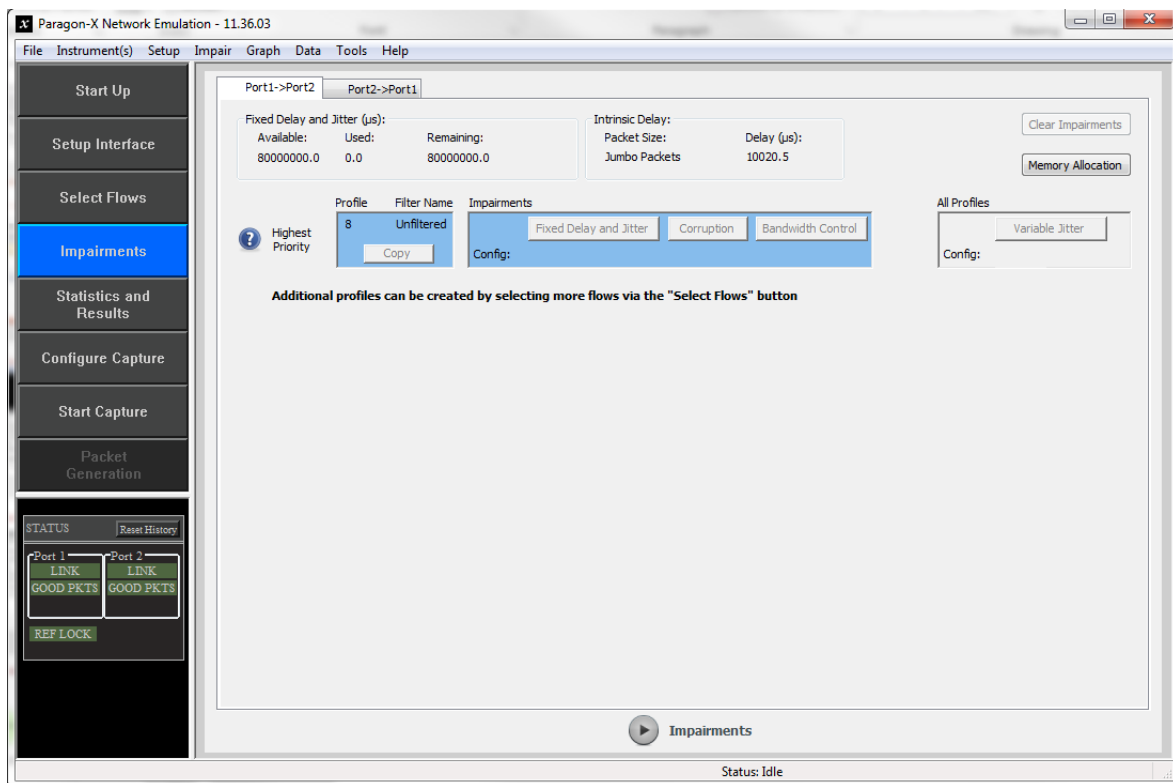


## Using the Network Emulation feature

- With this release, a new program item (Paragon-X Network Emulation) is added to the start menu:



- Selecting the Paragon-X Network Emulation program will start up the Network Emulation GUI:



- Select Start Up and Connect to the Paragon-X unit
- The Paragon-X Network Emulation feature is enabled if one of Options 710, 709 or 708 is installed
- If this feature has been enabled, the Network Emulation GUI will be operational with the Paragon-X hardware. (Note if the option is not installed, an error window will appear referring to an application mismatch)
- The Paragon-X hardware can now operate in two different modes:
  - Paragon-X mode for Ethernet Synchronisation test (SyncE, PTP...)
  - Paragon-X Network Emulation mode for the new features described

When connecting with the relevant Program to the Paragon-X Hardware, the unit will switch mode based on the GUI used (Paragon-X GUI or Network Emulation GUI)

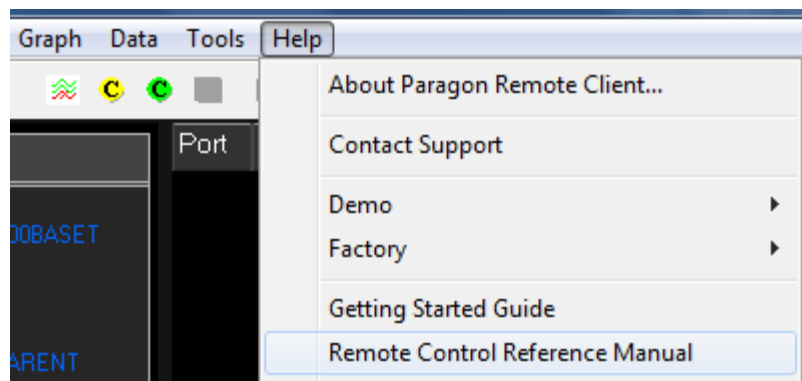
Product Specifications – Paragon-X Network Emulation	
<b>Physical interfaces supported</b>	100M Electrical.(RJ45) 1G Electrical. (RJ45), 1G Optical.(SFP) 10G Optical.(SFP+, XFP) (If Option 111 fitted)
<b>Selection of flow from multi-flow environment</b>	Automatic detection of flows and filter setup using Flow Wizard Filters: any 1 to 64 bytes within the first 256 bytes of the frame. Integrated Wireshark decode.
<b>Impairment Profiles</b>	Select at time of purchase – 4, 8 or 16 Profiles (Optional) <ul style="list-style-type: none"> <li>• 4 Profiles allows all impairments to be configured individually for up to 4 Flows (Up to 2 Bi-directional Profiles)</li> <li>• 8 Profiles allows all impairments to be configured individually for up to 8 Flows (Up to 4 Bi-directional Profiles)</li> <li>• 16 Profiles allows all impairments to be configured individually for up to 16 Flows (Up to 8 Bi-directional Profiles)</li> </ul>
<b>Packet corruption</b>	Errored packets, Lost packets, Repeated packets (1 to 10000). Mis-ordered packets (1 to 32) Corruption modes: single, burst, rate (%), ratio (xE-y), constant.
<b>Latency/Delay and PDV/Jitter</b>	(a) Step waveform profile. (b) Gamma distribution of delays. (c) Gaussian distribution of delays. (d) Apply fixed delay to the filtered packets.
<b>Maximum Delay</b>	8 seconds at 1G (100M: 80s, 10G: 0.8s)
<b>Bandwidth Control</b>	Control bandwidth throttle and buffer depth per profile Preset and user-defined bandwidths Basic mode and advanced policing and shaping mode

## 4 Enhancements to CAT

### 4.1 Remote Control Commands for Statistics Retrieval

As of this release, the ability to use remote commands to retrieve statistics from CAT has been extended to cover PTP metrics.

Commands are available for reference in the Remote Control manual, accessible from *Help->*





## **Appendix A: Software Advisory Notes**

- Port 2 link must be up (Rx connection in place to port 1 Tx) in order to allow Port 2 Tx to function in Packet Generation mode.
- Script recorder does not support manual setting of filters through 'flow filter' in Through Mode operation. This can be addressed by saving filter settings and then recalling the saved settings in your script.

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Calnex Solutions Ltd  
Oracle Campus  
Linlithgow  
West Lothian  
EH49 7LR  
United Kingdom

tel: +44 (0) 1506 671 416  
email: [info@calnexsol.com](mailto:info@calnexsol.com)

**[calnexsol.com](http://calnexsol.com)**

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