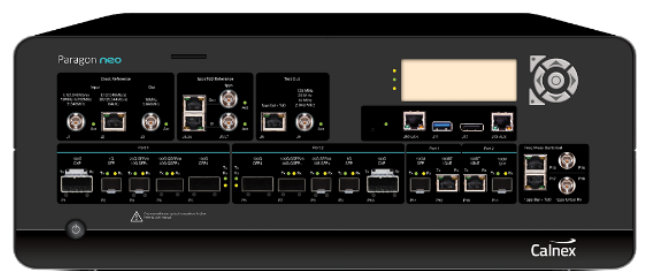


# Paragon-**neo** Drop 2.1

NEW FUNCTIONALITY AND ENHANCEMENTS

(Release 02.01.XX)




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## 1 Software Release Overview

Drop 2.1 (02.01.XX) adds the following features to Paragon-neo and CAT<sup>1</sup>:

Software Update with valid CSS  
(Customer Support Service) contract



Enhancements to existing Options	Base product enhancements
<p><b>PTP: CMRI 5G Profile</b> <b>PFV: CMRI 5G Profile</b> <b>PTP: Debug Packet Capture Improvements</b></p>	<p>Defect Fixes</p>

 To check the current software version installed, select **Help > About** on the Paragon-neo GUI.

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<sup>1</sup> This release includes enhancements to the CAT. The CAT accompanies Paragon-neo 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.

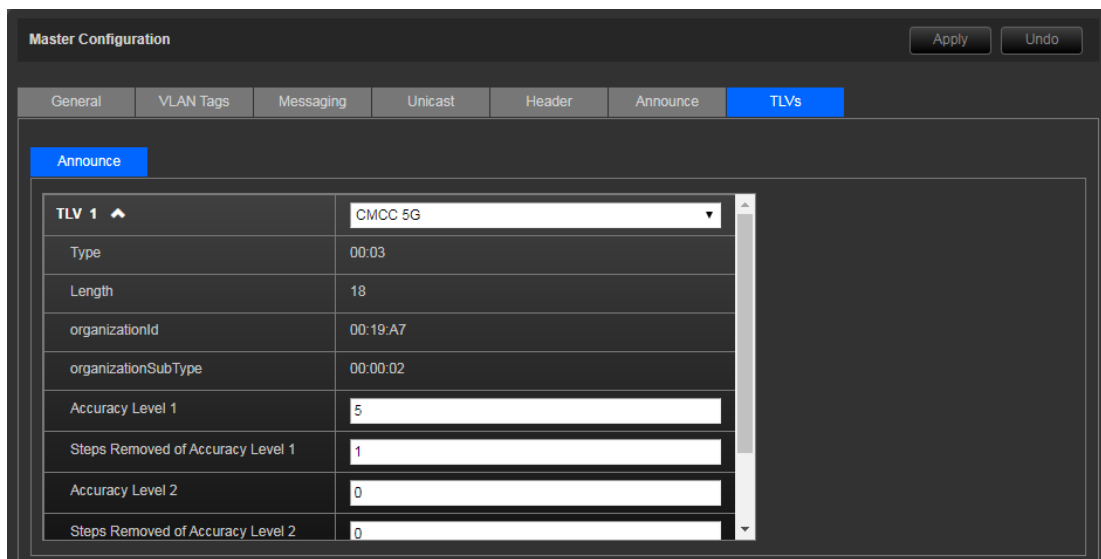
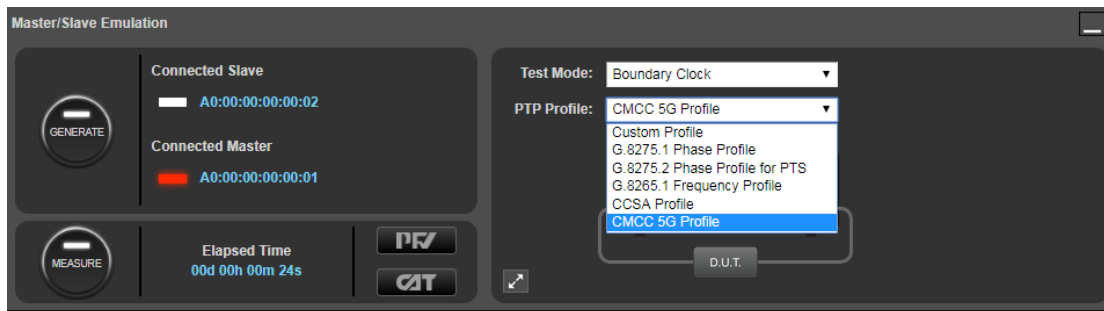
## 2 Features and Benefits

<b>Paragon-neo</b>	<b>Benefit</b>
<b>PTP CMCC 5G Profile (Requires PTP G.8275.1 option)</b>	Allows generation of PTP messages compliant to CMCC 5G profile, including Ultra-Precision TLV indicating device performance to 5G enhanced accuracy levels
<b>PFV: CMRI 5G Profile</b>	Verify captured PTP messages are compliant to CMCC 5G profile, including Ultra-Precision TLV
<b>Debug Packet Capture Improvements</b>	Allows debug packet capture to be made in a wider range of failing conditions, for better analysis of non-performing test environments

### 3 Enhancements to Existing Options

#### 3.1 PTP CMCC 5G Profile (Requires PTP G.8275.1 Option)

CMCC have defined a PTP profile to be used for 5G network deployments, including a TLV to be used to indicate Ultra-Precise synchronisation capability. To allow testing of device and system conformance/interoperability with this profile, the CMCC 5G Profile can be selected in Master/Slave configuration. Application and control of the 5G TLV can be made by selecting **Master Config** in the **Master/Slave Emulation** pane, then **TLVs** in the **Master Configuration** pane.



#### 3.2 PFV: CMCC 5G Profile

To compliment the message generation capability described in 3.1 the PFV now also includes settings for the CMCC 5G Profile, to allow pass/fail testing and highlighting of non-conformant fields for fast test and troubleshooting.

Direction	Packet	Time	Message Type	TLV			
				tlvOrganizationSubType	tlvCmcc5GAccuracyLevel1	tlvCmcc5GStepsRemovedLevel1	tlvCmcc5GAccuracyLevel2
		998	DEL-RESP				
		1201	SYNC				
		1202	FOLLOW-UP				
		1203	ANNOUNCE	00-00-02	5	1	0
		1204	DEL-REQ				
		1205	DEL-RESP				
		1206	SYNC				
		1207	FOLLOW-UP				
		1208	DEL-REQ				

### 3.3 Debug Packet Capture Improvements (Requires any PTP option)

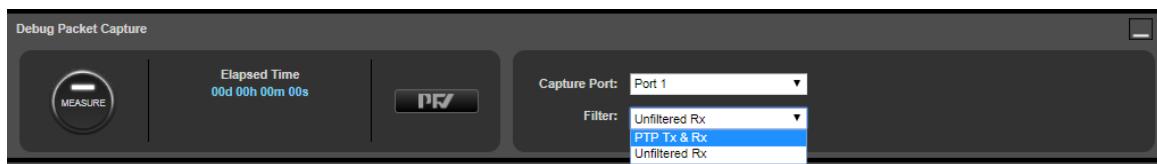
To increase the capability to debug interoperability and configuration issues with PTP that may prevent progressing to synchronization performance and conformance testing, an additional **Debug Packet Capture** app was made available in the Drop 2 release.

**Performance of the Debug feature was found to be sub-optimal in the presence of corrupted packets – the issue is resolved in this release, allowing the debug capture to be run in systems with fundamental packet errors, allowing a deeper range of analysis.**

**Further information on the debug packet capture is below.**

When expanded, users can select different ‘snapshot’ capture configurations. These allow brief captures of additional packets, rather than the filtered information used for standard timing testing.

Users can select the desired capture port, and whether to capture **PTP Tx & Rx** (all transmitted and received PTP packets) - for example to allow analysis of any misconfigurations causing issues in the event that a planned test has not initiated correctly, or **Unfiltered Rx** (all received packets) – for example to create a view of all traffic being generated by a device under test and compare to expectations.



**PTP Tx & Rx** captures can be opened and viewed by launching the **PFV** tool from the app.

**Unfiltered Rx** captures in the app are made in pcap format, so should be browsed to on the unit and opened in applications such as Wireshark for generic packet analysis.

## 4 Appendix A: Software Advisory Notes

- For very long captures with a high data usage, CAT will shut down real-time display during capture when approaching instrument available memory limit. Capture will continue, but analysis after test is completed should be made by exporting the data to a standalone PC with CAT SW installed.
- For the full list of resolved customer issues in this release, please see the Paragon-neo section on the Calnex Product FAQ page:  
<https://calnexsolutions.atlassian.net/wiki/spaces/KB/overview>
- If displaying packet data in the packet debug mode when multiple VLANs are present, only the first VLAN will be displayed in PFV, along with the PTP packet data. In future releases this will be enhanced to display all present VLANs.
- There is a known issue in this release, affecting Transparent Clock Mode T4 measurements when transmitting at relatively high packet rates. It is recommended to use the ITU-T G.8275.1 specified packet rate of 16pkt/s.
- When using automation, it is recommended to have live captures stopped before trying to access/read data via script, as there can be intermittent errors.

To Install:

Paragon-neo SW is delivered as an ISO (disk image). To upgrade the instrument, this ISO file must be written to a USB stick as an image. To do this, you will need to install an application capable of writing ISO images to USB. One such application is Win32DiskImager. This can be downloaded from <http://sourceforge.net/projects/win32diskimager/>

Once you have your application installed, run it. You should then load the Neo ISO. Using Win32DiskImager:

- Select the folder icon next to the “Image File” field
- In the “Select a disk image” dialog, select the \*.\* file filter
- Locate and open the Neo SW package installer ISO

The ISO should then be written to your USB stick:

- Select “Write”

**Once written to USB, you are ready to load on to the Paragon-neo unit.**

The instrument should be powered on BEFORE you insert the USB stick. In addition, it is not possible to upgrade unless the box is idle - make sure to stop all generation and capture.

Click **System** in the menu selection on the top right of the UI

- Click **Setup** in the left hand menu bar
- Insert the USB stick
- Click **Update**

The instrument will now begin the upgrade process. Note that updating the Paragon-neo can take up to 30 minutes. **Please do not power off while the upgrade is in process.**

You can now connect and the new software is ready to use.



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