

## Libra II - Release Notes

Firmware Version	Release Date
2.5.5	2018-09-14
2.4.0 Limited	2017-12-20 <b>(Limited release)</b>
2.3.0 Limited	2017-09-29 <b>(Limited release)</b>
2.2.12 Limited	2016-07-20 <b>(Limited release)</b>
2.2.11 Limited	2015-09-16 <b>(Limited release)</b>
2.1.20	2018-03-01
2.1.18	2015-05-22

### Firmware Summary

Libra firmware version 2.5.5 provides a number of new features to allow seismic network operators to manage their Libra networks more reliably and efficiently. Included in the new features are firmware installer improvements, NTP time server capability, carrier frequency change utility, support for hub promotion from backup to master, transmission of time quality fields, transparent serial data support, and user interface enhancements. Additional improvements and fixes are also included that improve the usability and reliability of the instrument. See details below.

New features and improvements in this release include:

- [Compensation for GPS Satellite Constellation week number rollover](#)
- [Cygnus as Network Timing Server \(NTP\)](#)
- [Carrier Initialization \(CI\) Change Utility](#)
- [Promotion of backup hub to master hub](#)
- [Firmware installer improvement](#)
- [Packet count for streamer/receiver status displayed on the Web interface](#)
- [Support added for time quality and time error metrics for connected instruments](#)
- [Support added for SCNL channel naming information streamed from the connected instrument](#)
- [Web interface refresh](#)
- [Leica LB2 support added](#)
- [Transparent serial data on Cygnus now supported](#)

Fixes and changes addressed in this release include:

- [Fixed issue with store wrapping on Cygnus](#)
- [Fixed issue where only four TDMA slots were displayed](#)
- [Fixed issue when demoting Carina master hub to backup or slave](#)
- [Fixed Trimble GPS leap-second bug in affected units](#)
- [Fixed issue where configuration file upload did not work](#)
- [Fixed issue where active Cygnus units were dropped from network tree view](#)
- [Fixed reboot issue for instruments running limited release versions of firmware](#)
- [Fixes Web interface issues for computers running Chrome web browsers](#)
- [Fixed issue where incorrect system time was displayed in Web interface for computers configured with positive offset from UTC \(East Longitude\)](#)
- [Improved handling of UDP port configuration mismatch](#)
- [Removed support for Trident 305 on Cygnus 210](#)
- [Removed SLIP configuration option from Web interface](#)
- [Eliminated the automatic transmission of outbound 'unreachable' packets from Carina](#)
- [Added support for 32 GB stores on internal CF media for legacy configuration](#)

Limitations and workarounds in this release include:

- [Web interface does not update once SOH download completes](#)
- [Statistics for good/bad bursts may be incorrect when no data is streamed](#)
- [TDMA table does not update after deselecting "Master Hub" checkbox](#)
- [Raw packets per NP packet default value does not automatically set upon upgrade to firmware version 2.5.5.](#)
- [Occasional delay when promoting backup Hub to Master](#)
- [Some committed configurations will be reported as uncommitted on Carina/Cygnus reboot](#)
- [Trident 305 and Cygnus 205 firmware versions may not be displayed correctly on Maintenance page](#)

## System Requirements

Libra firmware version 2.5.5 can be installed on Carina hub and Cygnus remote units that are currently running any version 2.1.20 or later firmware. To upgrade a unit that is running a firmware version older than 2.1.20, please contact Nanometrics.

## New features and Improvements

### Compensation for GPS Satellite Constellation week number rollover

The original Global Positioning System (GPS) design has a limitation where the timing information from satellites uses a 10 bit (0-1023) week number that cycles every 20 years. Firmware version 2.5.5 addresses this Week Number Roll Over issue by comparing the

current week number received from the satellite with that of the onboard GPS receiver. If the week number is less than the current week number, the firmware will add 1024 to the week number on the GPS receiver. Otherwise it will continue as is until it reaches week 2048. This enhancement will ensure that Libra will retain correct GNSS timing until April 2038 when another rollover will occur.

### **Cygnus as Network Timing Server (NTP)**

Firmware version 2.5.5 introduces the ability to configure the Cygnus to act as an NTP time server to provide time synchronization for other Nanometrics instruments such as Centaur, Meridian Compact PH, Meridian PH, TitanSMA, and TitanEA, for example where timing from the instrument internal GPS/GNSS receiver is not available.

### **Carrier Initialization (CI) Change Utility**

Firmware version 2.5.5 introduces a command line utility in Carina that enables the in-service change of the Libra II carrier frequency for a Carina hub and the associated Cygnus remote units. In addition to enabling faster frequency change implementation, the fully automated process provided by the "configure-remote" command significantly reduces the risk of losing communication with the remote stations and allows the user to monitor progress in realtime.

To use the Carrier Initialization Change Utility feature, all units in a single network managed by a Carina master hub must be running with firmware version 2.5.5 or later.

### **Promotion of backup hub to master hub**

A Carina modem that is configured as a backup hub can now be promoted to be the master hub without loss of TDMA. TDMA information can be transmitted from or modified by a Carina that is configured as a master hub.

### **Firmware installer improvement**

Firmware version 2.5.5 includes improvements to the firmware installer that facilitate the upgrade process.

### **Packet count for streamer/receiver status displayed on the Web interface**

The packet count for all enabled streamers and receivers is now displayed in the Detailed Status Information section of the **Health** page under Data Streaming/Receiving.

### **Support added for time quality and time error metrics for connected instruments**

To improve the state-of-health visibility of connected instruments at the central site, firmware version 2.5.5 introduces support for source instrument data packet header information such as time quality and time error metrics. This also means you are no longer

required to select the Libra compatibility mode setting in other Nanometrics instruments such as Centaur, Meridian Compact PH, Meridian PH, TitanSMA, and TitanEA.

### **Support added for SCNL channel naming information streamed from the connected instrument**

Firmware version 2.5.5 allows SCNL channel naming information to be included in data packets as specified from the source instrument rather than requiring association downstream. Note that the SCNL information contained in a data packet that originates from a field instrument overrides any binding information that may exist at a central site for the same instrument. This feature will be enabled in future releases of Centaur, Meridian Compact PH, Meridian PH, TitanSMA, and TitanEA.

### **Web interface refresh**

Firmware version 2.5.5 introduces a new Web interface that is consistent with Nanometrics branding. This new interface has several display changes and resolves significant compatibility issues that were present in the earlier versions.

### **Leica LB2 support added**

The Cygnus modem can now be configured to receive raw data or Leica LB2 data through serial port 1. Leica LB2 is a binary data format that was developed by Leica GeoSystems for use with Leica GNSS receivers.

### **Transparent serial data on Cygnus now supported**

Cygnus can now accept transparent serial data over the RS-232 interface from an external device. The data is encapsulated for transmission to Apollo Server.

## **Fixes and Changes**

### **Fixed issue with store wrapping on Cygnus**

In previous firmware versions, as the Store became full and approached the point of wrapping, the Cygnus could reboot resulting in data loss. Firmware version 2.5.5 fixes this issue.

### **Fixed issue where only four TDMA slots were displayed**

In previous firmware versions, a maximum of four TDMA slots could be displayed on the Carina Web interface, so that not all remote stations could be viewed. As of firmware version 2.5.5, the number of slots that can be displayed in the TDMA table has been increased to allow all stations in a network to be seen. Additionally, if the table is larger than the available screen space, a scroll bar appears.

### **Fixed issue when demoting Carina master hub to backup or slave**

Only one Carina master hub can exist in a Libra network. In some cases, for example if a network is reconfigured using a new Carina master hub, the existing Carina master may be

reconfigured as backup or slave hub. In previous firmware versions, demoting a Carina master to a backup or slave hub would cause the Carina to crash. Firmware version 2.5.5 fixes this issue.

### **Fixed Trimble GPS leap-second bug in affected units**

Firmware version 2.5.5 resolves a leap second management deficiency that affects the very few Cygnus and Carina units that include a specific model of the internal Trimble GPS. For affected units, the leap second was applied immediately after the leap second was announced rather than on the scheduled implementation date. This caused the unit to be out of sync for the entire time between the announced date and the scheduled implementation date. Once the implementation date was reached, the deficiency was resolved.

Since the majority of Libra II Cygnus and Carina units are not affected by this issue, affected customers will be notified directly by Nanometrics for upgrade assistance.

### **Fixed issue where configuration file upload did not work**

In previous versions, uploading a previously saved configuration file did not work. Firmware version 2.5.5 fixes this issue. You can now download a configuration from one Carina or Cygnus for backup purposes, and upload it later to restore that configuration to the unit or to install that configuration into a new replacement unit.

Uploading a previously-saved configuration to a new instrument is only applicable to Cygnus remotes or Carina backup hubs, it cannot be used to configure a Carina master hub. The new "[Promote Backup Hub to Master Hub](#)" feature is the best way to quickly commission a replacement master hub.

Note that when a configuration file downloaded from one unit is uploaded to a different unit, the instrument ID that is embedded in the configuration file is automatically replaced with the ID for the new instrument.



Once you have completed the configuration upload, review all instrument settings for correctness.

Uploading configuration files should only be performed when physical access to the unit is available, such as in a lab environment. Uploading configuration files across the satellite link is not recommended

### **Fixed issue where active Cygnus units were dropped from network tree view**

In previous versions, the Carina Web interface would occasionally drop active Cygnus units from the Network Devices tree view in the left pane on the Carina Web interface main page. Firmware version 2.5.5 fixes this issue.

### **Fixed reboot issue for instruments running limited release versions of firmware**

In rare cases, instruments running limited release firmware versions 2.2.X, 2.3.X, or 2.4.X caused an unexpected reboot. Instruments running other versions of firmware were not affected. Firmware version 2.5.5 fixes this issue.

### **Fixes Web interface issues for computers running Chrome web browsers**

In previous firmware versions, some models of computers running with the latest version of Chrome did not fully support the Libra II Web interface. The following errors indicate this lack of support:

- prompts appeared at the bottom of the page instead of as a pop up
- username and password log in was unavailable
- applying changes to the TDMA table caused the Web Interface to hang
- old data was displayed after the screen was refreshed.

Firmware version 2.5.5 fixes these issues.

### **Fixed issue where incorrect system time was displayed in Web interface for computers configured with positive offset from UTC (East longitude)**

For local stations with an internal system clock configured ahead of the UTC, the Web interface would display the incorrect time. Firmware version 2.5.5 fixes this issue.

### **Improved handling of UDP port configuration mismatch**

Satellite bandwidth usage has been improved by limiting the number of overhead packets that are transmitted when a configuration mismatch occurs between the UDP ports on Cygnus and Carina units. This change improves the responsiveness of traffic over the satellite link, such as Web interface access.

### **Removed support for Trident 305 on Cygnus 210**

Cygnus 210 no longer supports connectivity to previous generation Nanometrics Trident 305 digitizers over NMX bus. As a result, this data is not displayed on the Cygnus 210 Web interface. Connectivity to Trident 305 remains for the Cygnus 205.

### **Removed SLIP configuration option from Web interface**

As of firmware version 2.5.5 you can no longer use SLIP to communicate with the Cygnus and Carina modems. As the SLIP interface was not being used, the SLIP configuration panel has been removed from the Cygnus and Carina Web interfaces.

## Eliminated the automatic transmission of outbound 'unreachable' packets from Carina

In Libra firmware version 2.1.13, the packets that could not be delivered to the destination through the Carina would cause an automatic 'error' transmission. The error, which was always transmitted to the Cygnus through the satellite network would consume bandwidth and potentially affect system performance. Firmware 2.5.5 fixes this issue.

## Added support for 32 GB stores on internal CF media for legacy configuration

Earlier versions of Cygnus with a 32 GB store had issues creating data logs in the Apollo server. This issue did not exist on the newer versions with an 8 GB store. Firmware version 2.5.5 fixes this issue.

## Limitations and Workarounds

### Web interface does not update once SOH download completes

When retrieving SOH data from a Cygnus or Carina modem, the Web interface does not update once the download is complete. The display status will continue to show '0% Downloading'.

**Workaround:** Use the browser status bar, typically located at the bottom of the browser to determine when the download is complete. Then click the refresh icon located at the top of the browser to restore the Web interface.

### Statistics for good/bad bursts may be incorrect when no data is streamed

A Cygnus 205 or Cygnus 210 that is not streaming any data may report incorrect SOH statistics for bursts and packets on the Web interface.

**Workaround:** Enable SOH data streaming directly from the Cygnus by opening the Configuration menu, navigating to Data Streaming and configuring the appropriate options for your system. Optionally, you can configure SOH data streaming from a digitizer such as a Centaur or TitanSMA to stream data to the central site. Once data is streaming from the Cygnus, the SOH statistics for good and bad bursts will be correct.

### TDMA table does not update after deselecting "Master Hub" checkbox

The TDMA table displayed on the **Health** page does not update when the Network Role > **Master Hub** checkbox on the Satellite page in the Satellite Network Parameters is de-selected.

**Workaround:** Press the **Apply** button to stop the Carina from acting as a master, then refresh the browser to update the TDMA table on the Web interface.

## Raw packets per NP packet default value does not automatically set upon upgrade to firmware version 2.5.5.

Firmware version 2.5.5 adds the **Raw packets per NP packet** field to the Raw TCP Receiving configuration page. Note that this new field is not added to existing Raw TCP receivers.

**Workaround:** Recreate any existing Raw TCP receivers by navigating to the **Raw TCP Receiving** configuration page and clicking the **Add** button. This will create a new TCP receiver that includes the new **Raw packets per NP packet** field. Once you have recreated the Raw TCP receiver, click **Apply** and **Commit** to save the changes.

## Occasional delay when promoting backup Hub to Master

Promoting a backup hub to master occasionally causes an interruption in TDMA distribution that lasts for several minutes. During this time, the Link Statistics display on the **Health** page will show "No Carrier" for all remotes. In some cases applying and committing an additional TDMA change reduces the delay.

**Workaround:** If this problem occurs, wait for 5 to 10 minutes for the newly promoted master hub to resume TDMA transmission. If after 30 minutes the backup hub has not taken over as master and resumed TDMA transmission, please contact Nanometrics.

## Some committed configurations will be reported as uncommitted on Carina/Cygnus reboot

Changes made to the **Communications > Serial Port 1** or **Communications > Ethernet and Satellite** configuration pages may display on the **Health** page as "Not committed" after configuration is applied and committed and the system is rebooted.

**Workaround:** Navigate to the appropriate configuration page (**Communications > Serial Port 1** or **Communications > Ethernet and Satellite**) and click the **Commit** button. Once you close the configuration window, the "Non committed" warning should no longer appear on the **Health** page.

## **Trident 305 and Cygnus 205 firmware versions may not be displayed correctly on Maintenance page**

**Maintenance** page, when using the Network devices tree on the left hand side to select between the Cygnus 205 and an attached Trident 305, the Active partition firmware version and the Inactive partition firmware version may not be accurately displayed.

**Workaround:** After switching between Cygnus 205 and Trident 305 on the Network devices tree, refresh the Web interface.

## **Supporting information for firmware version 2.5.5**

Before you begin, go to Nanometrics support site (<http://support.nanometrics.ca>) to obtain the latest firmware upgrade package (.tgz file) and download it to your computer. (Search for Libra 2.5) You can also get the latest user guide and release notes from the support site.

### **Please contact us if you have any questions or concerns:**

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