

Firmware Update GSR183

Relating to the critical fault in GPS183 & GNS183-UC clocks

LANTIME OS

English

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1. Background

In May 2024, a critical firmware fault was identified in GPS183 and GNS183-UC-based reference clocks where a short-circuit on the antenna line could result in a failure and subsequent permanent damage to the receiver.

While such a failure is rare and can only occur with a short-circuited antenna line, operators of affected systems are strongly urged to install the firmware update to eliminate the risk of damage arising from this fault.

All GPS183 and GNS183-UC-based reference clocks shipped by Meinberg from May 2024 onwards already include the fix and therefore do not require any action on the operator's part.

This document explains how to determine if your system is affected by the fault, and how to download and install the receiver module firmware file.

2. Identifying Affected Systems

The described fault affects the following devices manufactured between September 2023 and April 2024:

- IMS-GPS183 Reference Clock Modules for IMS LANTIME systems
- IMS-GNS183-UC Reference Clock Modules for IMS LANTIME systems
- LANTIME M150/GPS Time Servers
- LANTIME M150/GNS-UC Time Servers
- LANTIME M250/GPS Time Servers
- LANTIME M250/GNS-UC Time Servers
- LANTIME M320/GPS Time Servers
- LANTIME M320/GNS-UC Time Servers
- LANTIME M450/GPS Time Servers
- LANTIME M450/GNS-UC Time Servers

In a very small number of cases, for example where device upgrades for legacy systems have been commissioned, the following systems may also be affected:

- LANTIME M100/GPS Time Servers
- LANTIME M100/GNS-UC Time Servers
- LANTIME M200/GPS Time Servers
- LANTIME M200/GNS-UC Time Servers
- LANTIME M300/GPS Time Servers
- LANTIME M300/GNS-UC Time Servers
- LANTIME M400/GPS Time Servers
- LANTIME M400/GNS-UC Time Servers

Unaffected Systems

The following products are **not** affected:

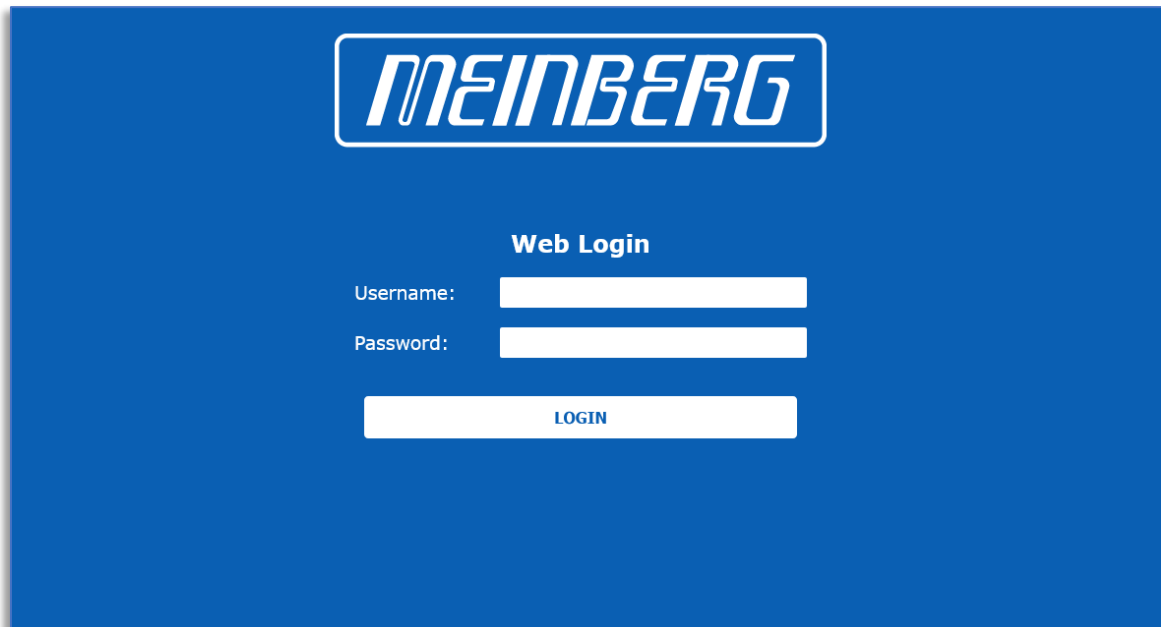


Please **do not** attempt to install this firmware update on any of the unaffected systems listed below.

- IMS-GPS180 Reference Clock Modules for IMS LANTIME systems
- IMS-GPS181 Reference Clock Modules for IMS LANTIME systems
- IMS-GPS182 Reference Clock Modules for IMS LANTIME systems
- IMS-GNS181-UC Reference Clock Modules for IMS LANTIME systems
- IMS-GNS180 Reference Clock Modules for IMS LANTIME systems
- IMS-GNS181 Reference Clock Modules for IMS LANTIME systems
- IMS-GNS182 Reference Clock Modules for IMS LANTIME systems
- IMS-GNS183 Reference Clock Modules for IMS LANTIME systems
- IMS-GNM181 Reference Clock Modules for IMS LANTIME systems
- IMS-GXL183 Reference Clock Modules for IMS LANTIME systems
- LANTIME M100/GNS Time Servers
- LANTIME M150/GNS Time Servers
- LANTIME M200/GNS Time Servers
- LANTIME M250/GNS Time Servers
- LANTIME M300/GNS Time Servers
- LANTIME M300/GNM Time Servers
- LANTIME M320/GNS Time Servers
- LANTIME M320/GNM Time Servers
- LANTIME M400/GNS Time Servers
- LANTIME M450/GNS Time Servers
- Any LANTIME server with a PZF or TCR receiver or no receiver at all (RDT)

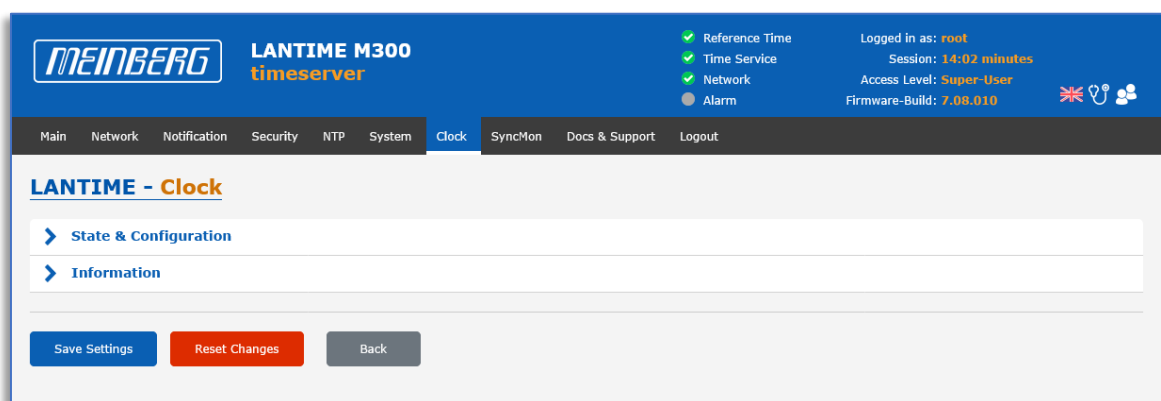
The firmware fault relates to reference clocks and time servers with a firmware version earlier than v1.11. You can identify which firmware version your (IMS) LANTIME system's reference clock has by following the procedure below:

1. Log into your LANTIME system via the Web Interface.



The image shows the MEINBERG Web Login interface. It features a blue background with the MEINBERG logo at the top. Below the logo, the text "Web Login" is centered. There are two input fields: "Username:" and "Password:". Below these fields is a white button with the text "LOGIN" in blue.

2. Select the “**Clock**” tab.



The image shows the MEINBERG LANTIME M300 timeserver web interface. The top header bar is blue and contains the MEINBERG logo, the text "LANTIME M300 timeserver", and a status section with green checkmarks for "Reference Time", "Time Service", and "Network", and a grey circle for "Alarm". The status section also displays "Logged in as: root", "Session: 14:02 minutes", "Access Level: Super-User", and "Firmware-Build: 7.08.010". Below the header bar is a navigation menu with tabs: "Main", "Network", "Notification", "Security", "NTP", "System", "Clock", "SyncMon", "Docs & Support", and "Logout". The "Clock" tab is selected. The main content area is titled "LANTIME - Clock" and contains two expandable sections: "State & Configuration" and "Information". At the bottom of the main content area are three buttons: "Save Settings", "Reset Changes", and "Back".

- Expand the “**Information**” panel and ensure that the “**Common Information**” tab therein is selected.

GPS Clock [CLK1]:

Common Information

Receiver Information

Sensors

Name	Value
Model:	GPS183
Serial Number:	065212246330
Software Revision:	v1.13 (Standard)
Oscillator Type:	OCXO SQ
Supported Features:	Pulse Per Second, Programmable Synth., IRIG Out, Ignore Lock, Configurable Time Scale, Event Logging, IMS data, Extended Features
Number of Programmable Pulse Outputs:	3
Number of Serial Ports:	4

Affected systems can be identified as follows:

- The “**Model**” field should display “**GPS183**” or “**GNS183-UC**”. If the model is anything else, you do not need to, and should not attempt to, install this firmware.
- Affected systems will have a “**Software Revision**” of “**v1.10**” or earlier. If this field reads “**v1.11**” or better, the appropriate fix is already installed and there is **no need** to install the latest version.

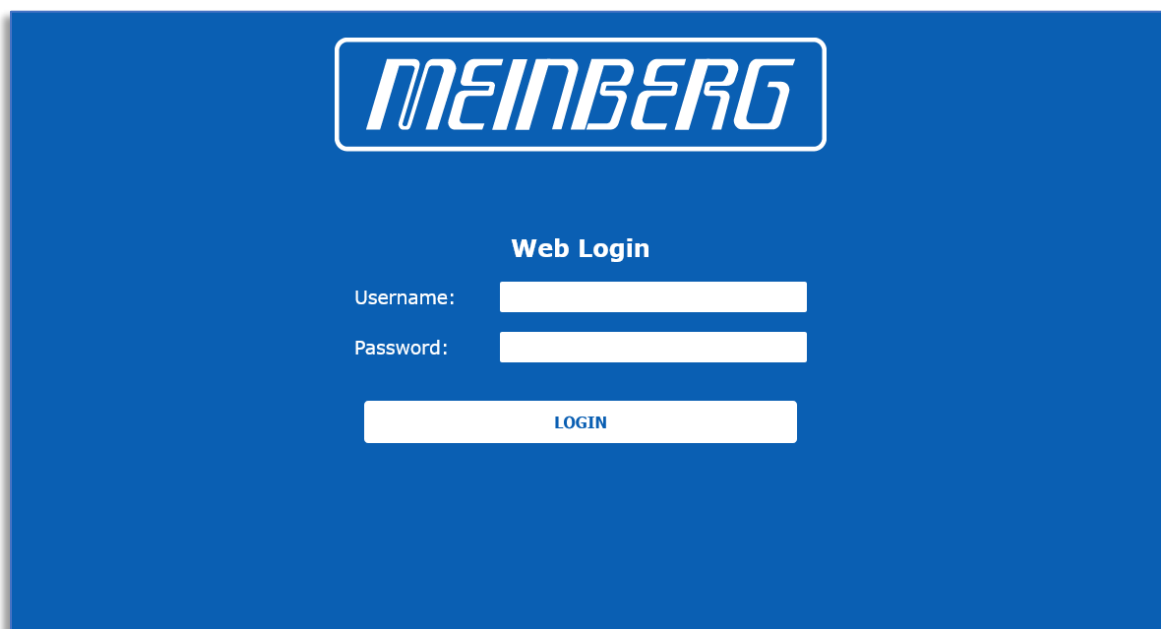
3. Installing the Firmware Update

1. Visit <https://www.meinbergglobal.com/english/sw/refclock-updates.htm> and download the firmware package (v6_v7_update_gsr183_113_20240527.rel) from there.

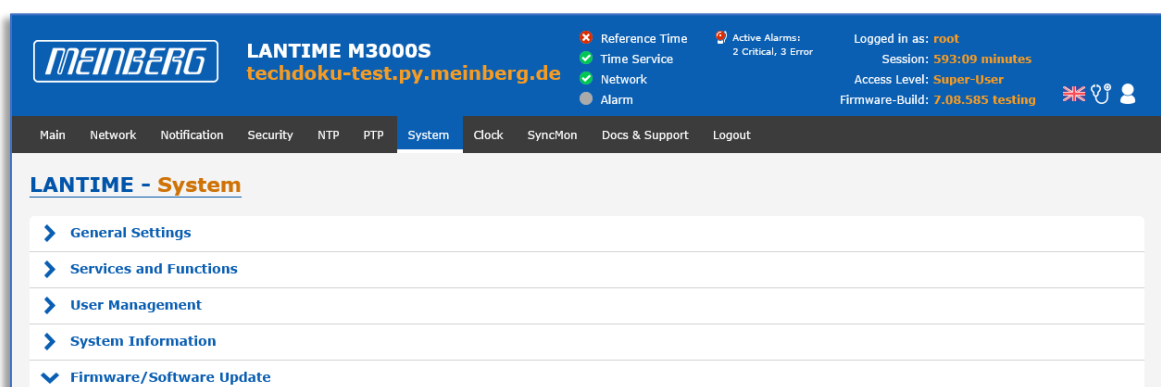


If you have multiple affected (IMS) LANTIME devices in operation, this download can of course be used for all affected devices.

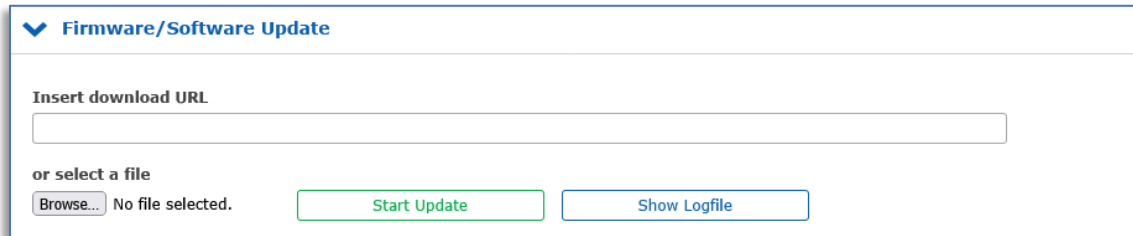
2. Log into your (IMS) LANTIME system via the Web Interface.



3. Select the "System" tab.



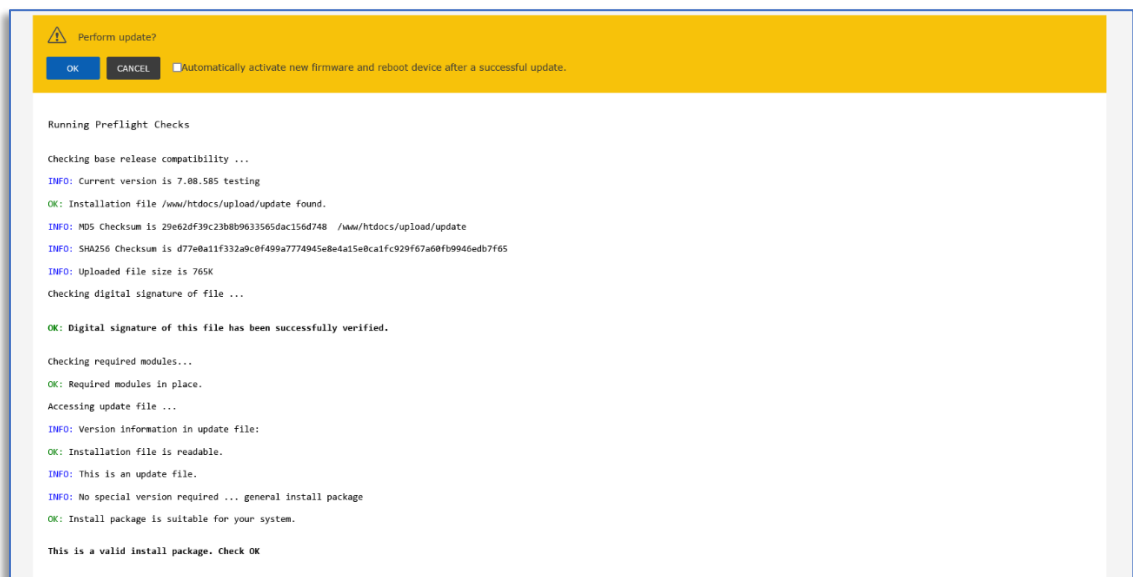
- Expand the **“Firmware/Software Update”** panel, then click on **“Browse...”** to select the module firmware update file that you have just downloaded. Once the filename is displayed between the **“Browse...”** and **“Start Update”** buttons, click on **“Start Update”** to start the installation.



The screenshot shows a web interface titled "Firmware/Software Update". It features a text input field labeled "Insert download URL". Below this, there is a section "or select a file" with a "Browse..." button. To the right of the "Browse..." button, it says "No file selected.". Further right are two buttons: "Start Update" (highlighted with a green border) and "Show Logfile" (highlighted with a blue border).

- You will now see the results of the 'preflight check', in which the integrity of the update file and the compatibility of your system are checked. Review the details to ensure that everything is in order.

Note that you should leave the option to automatically activate the new firmware and reboot the device unchecked on this occasion; rebooting will only unnecessarily prolong the update process.



The screenshot shows a dialog box titled "Perform update?". It has a yellow header bar with a warning icon and the title. Below the header, there are "OK" and "CANCEL" buttons. To the right of the buttons, there is a checkbox labeled "Automatically activate new firmware and reboot device after a successful update." which is currently unchecked. The main area of the dialog box contains a log of preflight checks:

```
Running Preflight Checks

Checking base release compatibility ...
INFO: Current version is 7.08.585 testing
OK: Installation file /www/htdocs/upload/update found.
INFO: MD5 Checksum is 29e62f39c23b8b9633565dac156d748 /www/htdocs/upload/update
INFO: SHA256 Checksum is d77e8a1f332a9c0f499a7774945e8e4a15e8ca1fc929f67a6fb9946edb7f65
INFO: Uploaded file size is 765K
Checking digital signature of file ...
OK: Digital signature of this file has been successfully verified.

Checking required modules...
OK: Required modules in place.
Accessing update file ...
INFO: Version information in update file:
OK: Installation file is readable.
INFO: This is an update file.
INFO: No special version required ... general install package
OK: Install package is suitable for your system.

This is a valid install package. Check OK
```

6. The firmware update process will now proceed and will normally take a little over **four minutes**. If you have a system with an LCD readout, you will see the following messages:

Step	Message	Notes
1	Update started	This will appear for around eight seconds to indicate the initialization of the process.
2	System Shutdown now completed	This will be displayed around twenty seconds to indicate that the LANTIME time service has shut down to allow the reference clock firmware to be installed. Important: This is not a prompt to shut down the system! Do not disconnect the power from the system at any time during the update process!
3	Updating...	This indicates that the firmware data is now being written to the reference clock. This process should take no more than one minute.
4	Waiting.... for refclock	This indicates that the LANTIME time service is restarting and that the system is attempting to re-establish a connection with the reference clock. After updating the reference clock firmware, the reference clock will reinitialize. On LANTIME OS systems with an LCD readout, the display should indicate the new firmware version of your reference clock during this process.

7. Once the reference clock has restarted and the Web Interface is available again, you will be asked if you wish to reboot your system. This is not necessary, as the reference clock has already been reinitialized.

8. Verify that the firmware is correctly installed by selecting the “**Clock**” tab, expanding the “**Information**” pane, and checking the “**Software Revision**” under the “**Common Information**” tab for your reference clock.

GPS Clock [CLK1]:		Common Information	Receiver Information	Sensors
Name	Value			
Model:	GPS183			
Serial Number:	065212246330			
Software Revision:	v1.13 (Standard)			
Oscillator Type:	OCXO SQ			
Supported Features:	Pulse Per Second, Programmable Synth., IRIG Out, Ignore Lock, Configurable Time Scale, Event Logging, IMS data, Extended Features			
Number of Programmable Pulse Outputs:	3			
Number of Serial Ports:	4			