



LANTIME Operating System v7.10.006

Release Notes

English

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Imprint / Legal Notice

Publisher

Meinberg Funkuhren GmbH & Co. KG

Registered Place of Business:

Lange Wand 9
31812 Bad Pyrmont
Germany

Telephone:

+49 (0) 52 81 – 93 09 – 0

Fax:

+49 (0) 52 81 – 93 09 – 230

Website:

<https://www.meinbergglobal.com>

Email:

info@meinberg.de

The company is registered in the “A” Register of Companies & Traders (Handelsregister A) maintained by the Local Court of Hanover (Amtsgericht Hannover) under the number:

17HRA 100322

Executive Management:

Natalie Meinberg
Daniel Boldt
Heiko Gerstung
Andre Hartmann

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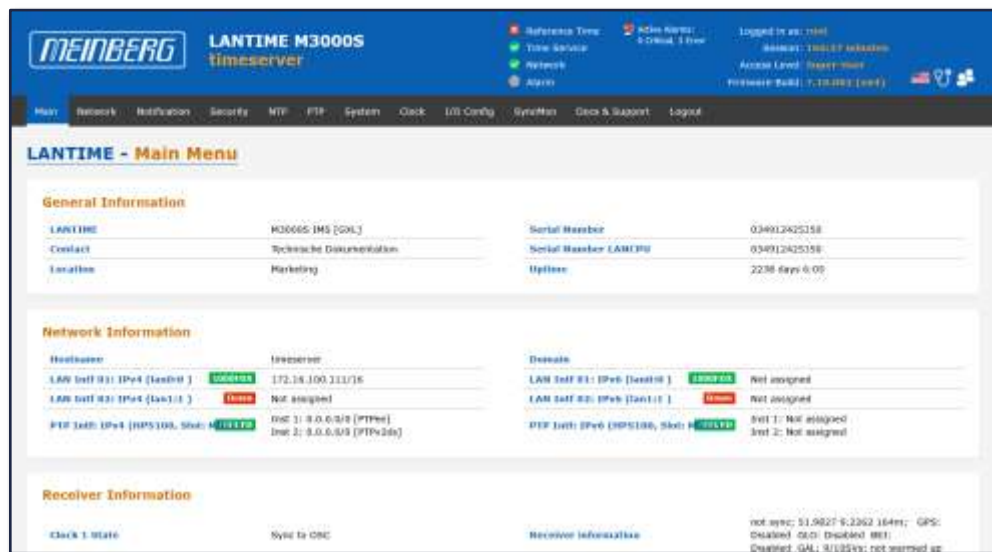
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1. Foreword



The LANTIME Operating System (LTOS) v7.10 is a Minor Release of the v7.xx branch that provides many new features and improvements for the LANTIME (including IMS LANTIME systems) and SyncFire series of Meinberg time servers.

The first public release of LTOS in this Minor Release branch is v7.10.003; v7.10.001 and v7.10.002 were provided to a selected group of testers only.

This document describes the changes & features introduced in LTOS v7.10. Features of particular significance are described first, followed by a comprehensive changelog. These Release Notes also include a list of the supported cipher suites and cryptographic algorithms that LTOS v7.10 supports for SSL/TLS and SSH connections.

LTOS v7.10 introduces many new features, in particular significant functional expansions of the LT-CLI command line environment and the LTOS REST API, in particular the ability to ensure that data acquired via the API is always up-to-date. It also introduces Lua scripting support for the LT-CLI command-line tool and a number of changes aimed at enhancing the security of the system.

You are encouraged to read these Release Notes carefully before installing this new version, as they contain information that you may need or find helpful to properly install the firmware on your Meinberg system.



2. LTOS v7.10 Branches

Previously, LTOS v7.08 introduced a new, feature-reduced branch of LTOS designated “light” alongside the fully-featured main version. This “light” version was designed for Meinberg systems with legacy system mainboards to allow older Meinberg systems to benefit from ongoing security patch and bugfix support, and also from a selection of the new features introduced for newer systems where permitted by the hardware.

However, as Meinberg continues to evolve the feature set of its systems to meet expanding industry standards, some of the oldest Meinberg systems are being pushed to their limit even with the “light” version. Accordingly, LTOS v7.10 introduces a new system of branches based on the available RAM of your Meinberg system:

2.1. x64 Branch

This is the fully-featured version of LTOS containing all new feature updates, and of course all security and bugfixes. It is intended for use with all Meinberg system mainboards based on the Intel® Atom™ E-Series processor with 2 GB of RAM. These include:

- | all IMS LANTIME systems equipped with an IMS-CPU-G15G2 module,
- | all SyncFire 1000, SyncFire 1100, SyncFire 1200, and SyncFire 1500 systems,
- | all LANTIME M150, M250, M320, and M450 systems.

The filename should show the x64 designation (e.g., **firmware-7.10.006-x64.rel**).

2.2. x32 Branch

This branch of LTOS is also fully-featured but has been modified to accommodate the reduced performance of the systems it is designed for. This branch is intended for use with all Meinberg system main boards based on the AMD Geode™ LX 800 processor with 256 MB of RAM. These include:

- | all IMS LANTIME systems equipped with an IMS-CPU-C05F1 module,
- | LANTIME M100, M200, M300, M400, M600, and M900 systems manufactured with 256 MB of RAM (typically devices manufactured in 2014 or later).

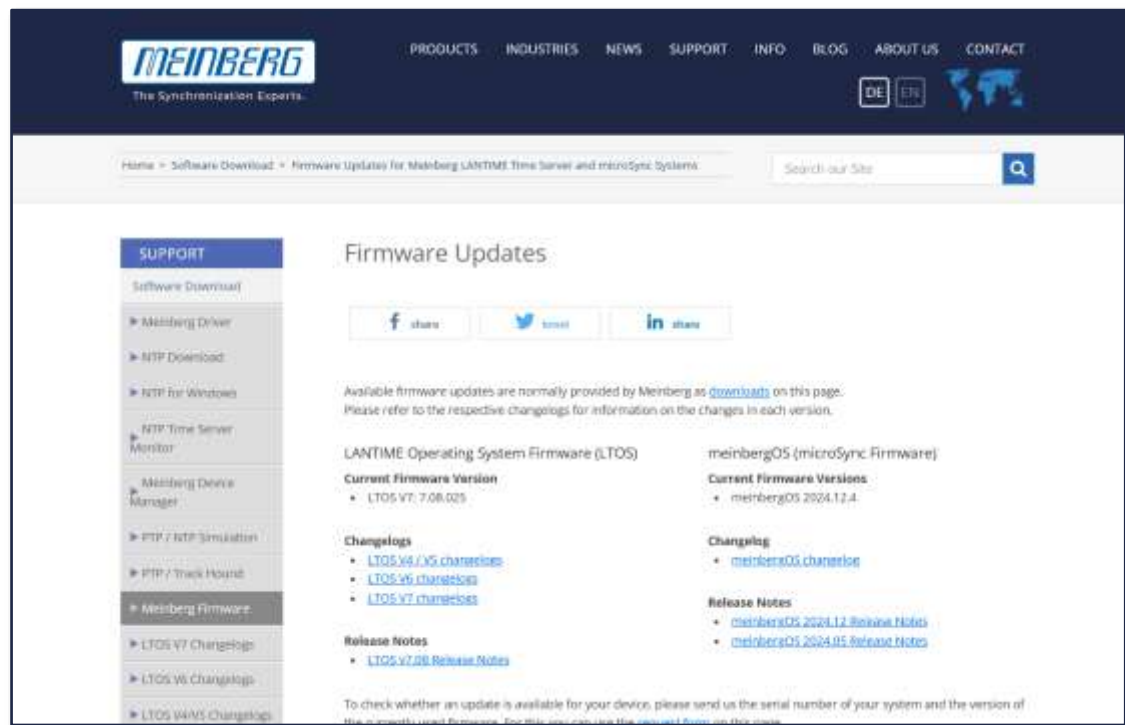
The filename should show the x32 designation (e.g., **firmware-7.10.006-x32.rel**).

2.3. Legacy Systems

At time of writing, Meinberg is making every effort to bring the latest security patches and some bugfixes (where possible) in the form of a feature-reduced version of LTOS v7.10 to legacy Meinberg systems running LTOS. These include most LANTIME M100, M200, M300, M400, M600, and M900 systems manufactured in 2013 or earlier with 128 MB of RAM.

Until Meinberg has more news to share regarding this development, we strongly urge users of these systems to ensure that their systems are updated to LTOS v7.08.025-light in order to ensure that they benefit from the most up-to-date feature set available for these systems, all available bugfixes, and the most recent security patches.

3. Updating to LTOS v7.10



The update file for your LTOS device is downloaded as a **.rel** file from the Meinberg website at <https://www.meinbergglobal.com> or via the Meinberg Customer Portal at <https://www.meinberg.support>. Please ensure that you download the correct version for your system as described in → [Section 2](#).

For more information on how to update your LTOS firmware, please refer to the **LTOS Configuration & Management Manual**.

3.1. Important Note on Updating From LTOS v7.04 or Earlier

If you are updating your LTOS device from a firmware version v7.04 or earlier, please note that your device must first be updated to LTOS v7.08.025 before you can perform an update to LTOS v7.10.



3.2. Important Note on Synchronizing Windows Devices to LTOS Time Servers via NTP

Support for incoming **Symmetric Active NTP requests** sent by the Windows *w32time* time service was previously introduced as a workaround to accommodate the default configuration of Windows devices operating as Domain Controllers. However, with the introduction of a multi-threaded NTP implementation in LTOS v7.10, ongoing support is no longer possible.

As such, support for incoming Symmetric Active requests is considered deprecated in LTOS v7.10, and has been fully removed in the x64 branch due to incompatibilities with the new multi-threaded NTP implementation. This means that LTOS devices running the x64 branch will no longer respond to NTP requests sent in Symmetric Active mode.

Because the x32 branch does not support the new multi-threaded NTP implementation and relies on the legacy single-threaded NTP implementation, LTOS devices running the x32 branch may continue to respond to Symmetric Active requests, but this behavior is considered deprecated and may be removed in a future version.

As such, Windows devices will need to have the *w32time* service reconfigured to transmit NTP requests in Normal Mode.

For more information on identifying whether your LTOS device and Windows device are affected and on configuring your Windows device to send NTP requests in Normal Mode, visit <https://www.meinbergglobal.com/english/info/ntp-w32time.htm#workaround>.



4. LTOS Patch Releases

4.1. LTOS v7.10.006

4.1.1. Full Changelog for LTOS v7.10.006

Other System Changes

- | Support added in x32 branch for LTOS systems using legacy E800 type CPU boards (*MBGID 29115*)

4.2. LTOS v7.10.005

4.2.1. Full Changelog for LTOS v7.10.005

Web Interface

- | Fixed display of Telnet service state (*MBGID 27879*)
- | Required "Current Password" field is now correctly displayed when user is prompted automatically to change their password (*MBGID 27925*)

NTP

- | NTP restrict rules with trailing comments are now correctly processed (*MBGID 27850*)
- | NTP service now responds correctly on systems with only IPv6 addresses configured (*MBGID 27854*)

LT-CLI

- | Fixed missing menu `module/ptpv2` on LANTIME M900 systems (*MBGID 27404*)
- | Fixed objects `/status/system/current-time` and `/status/system/current-time-iso` not updating properly (*MBGID 27325*)
- | Fixed partial commits not working properly (*MBGID 27371*)
- | Support for tabular output with `view` command added with `--table` and `--xtable` parameters (*MBGID 27449*)



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- | Error messages from failed attempts to change a user password using **set-password** are now clearer (*MBGID 27224*)
- | The execution of the write command now no longer causes permission errors when used by super-users other than root (*MBGID 27083*)
- | The number of network ports is now correctly updated when a network module is inserted or removed (*MBGID 27840*)
- | Fixed segmentation fault and termination of LT-CLI when executing **/users/add-user** without parameters (*MBGID 27843*)
- | Segmentation fault fixed when triggering autocompletion in inputs containing a backslash (*MBGID 28362*)

REST API

- | Fixed missing endpoint **module/ptpv2** on LANTIME M900 systems (*MBGID 27404*)
- | Fixed partial commits not working properly (*MBGID 27371*)
- | API access now denied with default password (*MBGID 27657*)
- | The number of network ports is now correctly updated when a network module is inserted or removed (*MBGID 27840*)
- | A POST to **/api/users/add-user** without parameters now correctly returns HTTP 422 instead of HTTP 500 (*MBGID 27843*)

Module-Specific Changes

- | FDM: Fixed intermittent outages of remote FDM message data stream sent remotely over TCP (*MBGID 27687*)
- | PSX210: Default gateway configuration is now correctly saved on module (*MBGID 27825*)
- | LSG: Configuration changes are now correctly saved (*MBGID 27866*)

Shell

- | Access to *nano* during connection via serial terminal fixed (*MBGID 28157*)

MMS

- | Write access for objects with writable data attributes is disabled by default (*MBGID 26832*)

MRS

- | Changes to dynamically selected SyncE sources are now logged (*MBGID 27763*)



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SyncMon

- | Local_NTP_Counter fixed in x64 branch (*MBGID 27810*)

IEC 61850

- | LCCH.RedChLiv.stVal now correctly set to false when connection of redundant channel in a PRP bond is lost (*MBGID 27830*)

Other System Changes

- | CPU temperature readout fixed in x32 branch (*MBGID 27674*)
- | Fixed problem where *lan1* was not reachable after upgrade from LTOS versions prior to 7.10.001 (*MBGID 27833*)
- | MAC addresses are now correctly reassigned when PRP is disabled (*MBGID 28387*)
- | Root CA certificate bundle has been updated to the Mozilla bundle dated Nov 4 2025 (*MBGID 29166*)

4.3. LTOS v7.10.004

4.3.1. Noteworthy New Features in LTOS v7.10.004

4.3.1.1. New Synchronous Ethernet Support for IMS-PSX210

LTOS v7.10.004 introduces Synchronous Ethernet (SyncE) support for the IMS-PSX210 in addition to the 10 MHz, 2048 kHz, and PPS signal output support introduced in LTOS v7.10.001. Synchronous Ethernet allows a frequency reference to be communicated via the physical layer of the Ethernet connection connected to the IMS-PSX210, which can operate in Master or Slave mode.

The introduction of SyncE support brings the clock signal support of the IMS-PSX210 closer to parity with the established IMS-HPS100 module.

4.3.2. Full Changelog for LTOS v7.10.004

Web Server

- | Web Interface now checks during update process that SSL certificates comply with minimum 2048-bit requirement (*MBGID 25739*)

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SNMP

- | Added missing file system entries in `hrStorageTable` (MBGID 27572)
- | Fixed support for AES192 and AES256 privacy (MBGID 27647)

Module-Specific Changes

- | Synchronous Ethernet (SyncE) now supported on IMS-PSX210 modules as of module firmware 2025.10 (MBGID 16396)
- | Configuration of interface-specific gateway for `lan0` on IMS-PSX210 modules is now correctly saved when both interfaces are configured (MBGID 27819)

Shell

- | The command `make_noise` now functions correctly (MBGID 27246)

Front Panel

- | Removed obsolete options for PTP HQ filter from front panel display (MBGID 27381)

Other System Changes

- | Updated libxml2 (MBGID 27409)
- | Fixed cluster-mode communication between LTOS devices running x32 and x64 firmware versions (MBGID 27662)
- | Root CA certificate bundle has been updated to the Mozilla bundle dated Sep 9 2025 (MBGID 16307)
- | Uptime is now calculated correctly after system time is set manually (MBGID 27207)

4.4. LTOS v7.10.003

4.4.1. Full Changelog for LTOS v7.10.003

Web Interface

- | The list of modules displayed on the “**I/O Config**” page is now sorted according to slot order (MBGID 26495)
- | Re-integrated missing “**Initialize Receiver**” tab on the “**Clock**” page (MBGID 26778)



LTOS v7.10.006 Release Notes

- | Re-integrated validation of netmask inputs in Network interface configuration (*MBGID 27044*)

LT-CLI

- | Added objects to `/configuration/chassis0/slots/*/module/ptpv2/misc/` to represent missing options in the “**Misc.**” tab of Web Interface for systems with PTP support (*MBGID 22134*)
- | SyncFire systems with two clock modules no longer display an incorrect error message when launching the `lt_cli` shell regarding different features of the two clocks (*MBGID 26152*)
- | Fixed permissions issue with password changes executed in LT-CLI for superusers other than root using `set-password` (*MBGID 25661*)
- | Changes to SNMP configuration via `/configuration/security/snmp` are now correctly applied following commit (*MBGID 26565*)

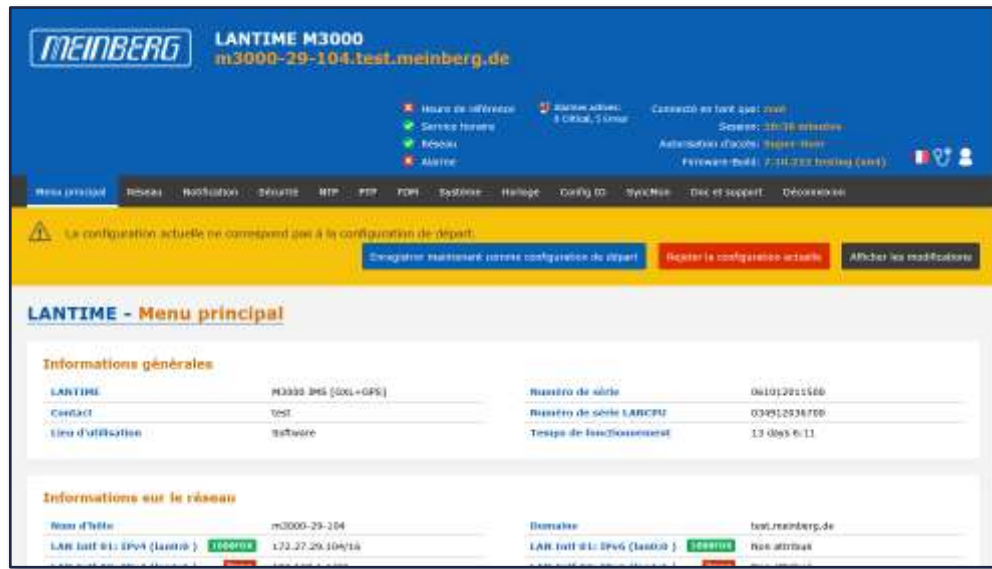
REST API

- | Added endpoints to `/api/configuration/chassis0/slots/*/module/ptpv2/misc/` to represent missing options in the “**Misc.**” tab of the Web Interface for systems with PTP support (*MBG 22134*)
- | SyncFire systems with two clock modules no longer display an incorrect error message via the root endpoint `/api` regarding different features of the two clocks (*MBGID 26152*)
- | Changes to SNMP configuration via `/api/configuration/security/snmp` are now correctly applied following commit (*MBGID 26565*)
- | User configuration changes submitted via PATCH are no longer overwritten by profile presets (*MBGID 25624*)

4.5. LTOS v7.10.002

4.5.1. Noteworthy New Features in LTOS v7.10.002

4.5.1.1. Initial Multi-Language Support for Web Interface



Early support for multi-language support for the Web Interface has been introduced in LTOS v7.10.002. While Meinberg is still refining this functionality and it is not fully implemented yet, language packs will be developed and introduced in future releases.

4.5.2. Full Changelog for LTOS v7.10.002

Web Interface

- | The option to allow password autocompletion to be disabled on the login page has been fixed (MBGID 26329)
- | IMS-PSX210 modules are now correctly displayed as such under the "I/O Config" tab (MBGID 26072)
- | Initial multi-language support for Web Interface has been introduced (MBGID 17924)

NTP

- | A basedate for the internal NTP implementation has been defined in the NTP configuration (MBGID 26339)



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PTP

- | An IMS-PSX210 module operating as a slave with an initially high offset will now correctly synchronize (*MBGID 25170*)
- | SMPTE ST 2059-2 management messages now have correct TLVs embedded on IMS-PSX210 modules (*MBGID 25962*)
- | Boundary Clock mode can now be disabled on an IMS-PSX210 module (*MBGID 20713*)
- | Fixed problem with SMPTE Next Jam mode configuration not being correctly saved with an IMS-PSX210 module (*MBGID 23723*)
- | Clock Accuracy value is now correctly adjusted following reference source changeovers (*MBGID 25786*)

REST API

- | New object **api-last-update** added to **/status/system** reporting when the API data was last updated (*MBGID 25605*)

Other System Changes

- | Leap second file updated (expires on June 28, 2026) (*MBGID 25974*)
- | Changes to redundant power supply modules are now correctly detected in LCES systems (*MBGID 26350*)
- | Previously configured IP addresses assigned via DHCP are now properly removed when DHCP is disabled (*MBGID 19156*)

Module-Specific Changes

- | The link mode for an IMS-PSX210 is now correctly displayed (*MBGID 13488*)

4.6. LTOS v7.10.001

4.6.1. Noteworthy New Features in LTOS v7.10.001

4.6.1.1. RSC Switch State Now Visible in Web Interface



The state of the redundant clock switching mechanism (RSC) in LANTIME M2000S systems, LANTIME M1000(S) systems with clock redundancy, and LANTIME M3000(S) systems equipped with an RSC module can now be viewed under the “**Switch Card**” panel of the clock page.

4.6.1.2. New Event for NTP Service Overload

If the LTOS NTP service is overloaded and unable to respond to requests to query NTP servers, LTOS will now generate a corresponding event under the category “Low System Resources” and distribute this event over the configured notification channels.

4.6.1.3. Fast Updates Function for REST API and LT-CLI

The LTOS REST API and LT-CLI command-line tool now feature a fast-updates functions that allows certain endpoints/nodes in the data structure to be updated dynamically when called rather than being updated periodically. This ensures that this data is always up-to-date when accessed by an external agent.

4.6.1.4. New Support for Fugro AtomiChron® Functionality in REST API and LT-CLI

New objects/endpoints have been added for the Fugro AtomiChron® functionality of the IMS-GXL183 module. This object allows the validity of the Fugro AtomiChron® license to be queried and the authentication status of the navigation messages to be monitored via the API or LT-CLI.

4.6.1.5. Static Routing Now Configurable via API and LT-CLI

LTOS v7.10.001 introduces the ability to add and delete static routes in the system’s network configuration via LT-CLI and via the LTOS REST API.

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4.6.1.6. TACACS+, RADIUS, and LDAP Authentication Now Configurable via LT-CLI and API

It is now possible to configure authentication with TACACS+, RADIUS, and LDAP servers via the LT-CLI or via the REST API.

4.6.1.7. Network Statistics Accessible via LT-CLI and API

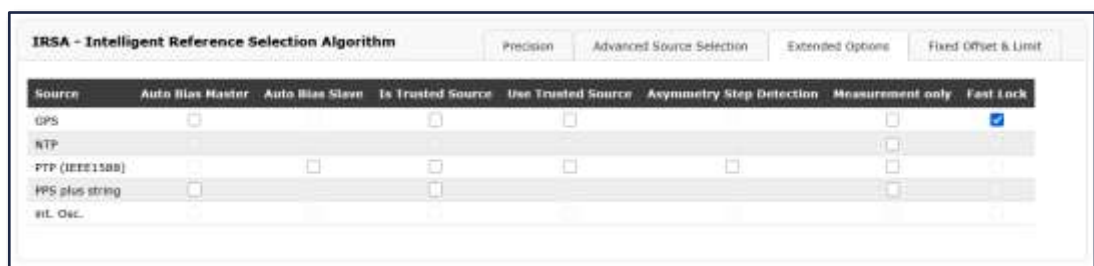
Detailed statistics for each network port are now available via LT-CLI and the REST API, for both RX and TX, including error counts for dropped packets, CRC mismatches, and frame length mismatches, as well as the volume of multicast transmissions and compressed traffic.

4.6.1.8. Support Added for Newly Enabled Outputs of IMS-PSX210



The IMS-PSX210 has been recently updated to enable the two SMA outputs to output a 10 MHz reference generated by the IMS-PSX210 module itself or the 2048 kHz or pulse-per-second references from the reference clock. LTOS v7.10.001 introduces support in the Web Interface for this functionality.

4.6.1.9. New Support for Fast Lock Feature



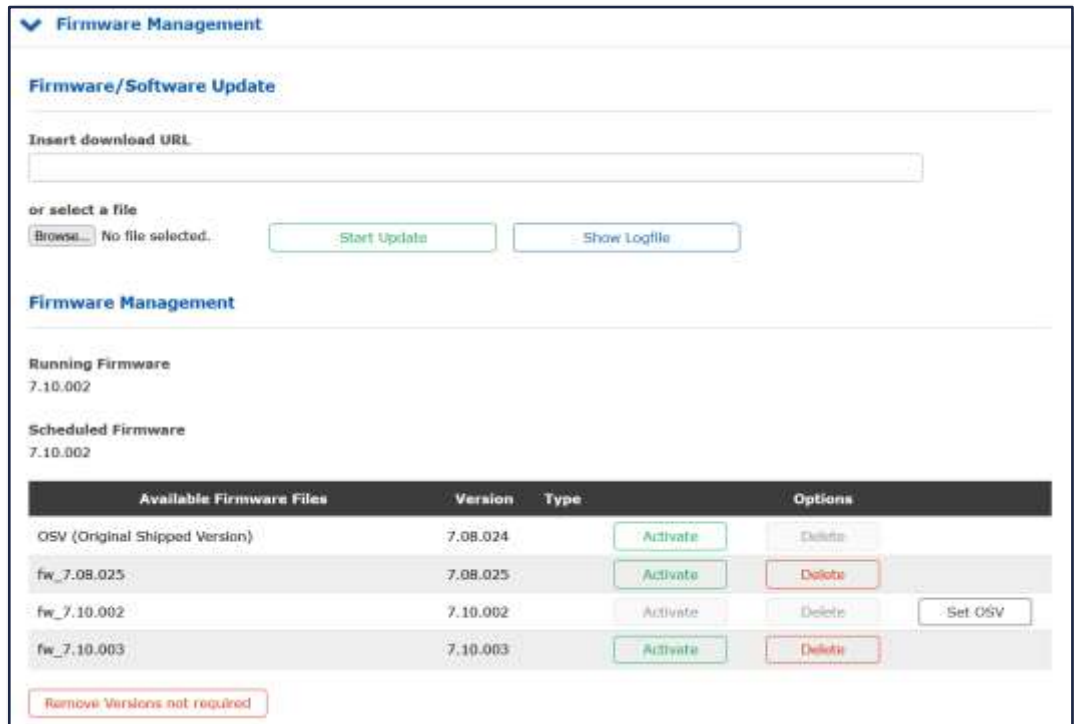
LTOS v7.10.001 introduces support for the new **Fast Lock** feature available in the GPS, GNS, and GNS-UC reference clocks.

This feature allows the reference clock to adjust its frequency more rapidly at the expense of some initial time jumps, such that a frequency lock can typically be achieved within 10 to 15 minutes. This behavior only applies to the initial adjustment of the oscillator; once the oscillator has been fully adjusted, the reference clock firmware will revert to the conventional approach of gradual adjustments.

The Fast Lock feature also requires the v2.92 firmware for the GPS180, GNS181, GNS181-UC, GPS182, and GNS182 reference clocks, or the v1.19 firmware for the GPS183, GNS183, or GNS183-UC reference clocks.

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4.6.1.10. Simplified Overview of Firmware Management Functionality



Firmware Management

Firmware/Software Update

Insert download URL

or select a file

Browse... No file selected.

Start Updates Show Logfile

Firmware Management

Running Firmware
7.10.002

Scheduled Firmware
7.10.002

Available Firmware Files	Version	Type	Options
OSV (Original Shipped Version)	7.08.024	Activate	Delete
fw_7.08.025	7.08.025	Activate	Delete
fw_7.10.002	7.10.002	Activate	Delete Set OSV
fw_7.10.003	7.10.003	Activate	Delete

Remove Versions not required

With LTOS v7.10.001, the firmware upload and firmware management functionality has been combined into a single section of the “**System**” tab of the Web Interface for a clearer overview of the available LTOS versions installed on the system.

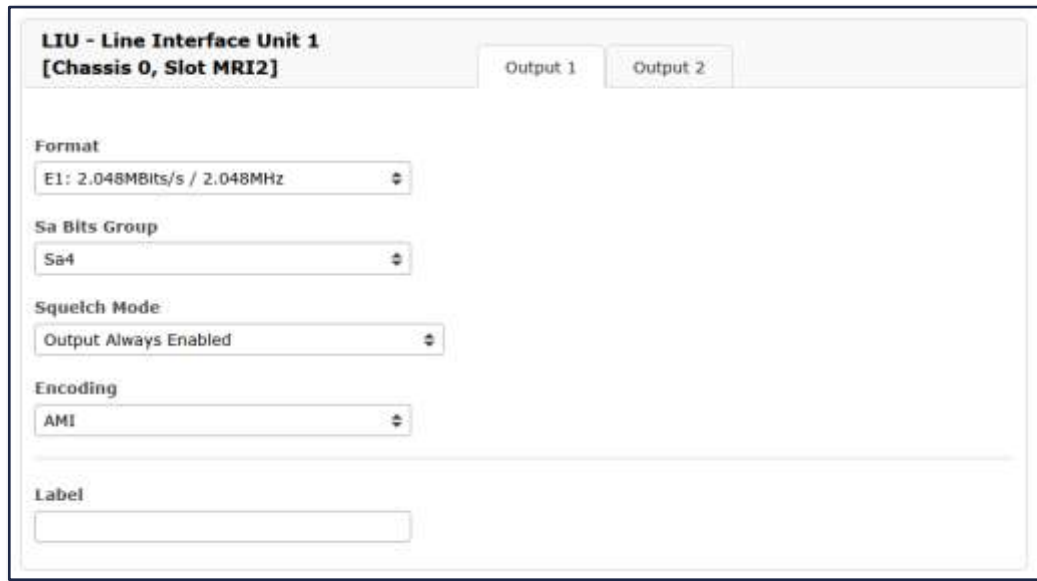
4.6.1.11. Lua Scripting Support in LT-CLI

```
[root@172.16.100.18] timeserver ~ # printf "run(\"/status/system/update-values\")\\n\\nprint(\"Current Time: \" .
. get(\"/status/system/current-time-iso\"))" > gettime.lua
[root@172.16.100.18] timeserver ~ # lt_cli gettime.lua
Current Time: 2019-09-17T11:29:17.783Z
[root@172.16.100.18] timeserver ~ #
```

LTOS v7.10.001 introduces Lua scripting support for automating tasks using LT-CLI. In its initial version, the Lua scripting functionality supports three primary functions:

- | `get(path)` for acquiring a object or object tree,
- | `set(path, value)` for setting a object or object tree,
- | `run(command, arguments)` for executing a command (global or object-specific)

4.6.1.12. Squelch Mode Support for T1/E1 Signal Output



LTOS v7.10.001 brings squelch mode support for T1 and E1 signal generation, in which signal output is disabled if synchronization is lost. This requires v4.02 of the IMS-LIU firmware to be installed on the module.

4.6.1.13. Minimum 2048-Bit Requirement for RSA SSL Certificates

As of LTOS v7.10.001, HTTPS connections require a minimum RSA key size of 2048 bits. To ensure that users who have disabled unencrypted HTTP for the Web Interface are not locked out of their systems, the firmware update process will abort if SSL is configured with a 1024-bit key so that the end user can replace the certificate with one with a suitable key size.

4.6.1.14. DSA Key Pairs No Longer Supported for SSH Connections

As of LTOS v7.10.001, DSA key pairs are no longer supported for authentication in SSH connections. RSA, ED25519, and ECDSA key pairs remain supported.

4.6.1.15. Mandatory Password Change Upon Initial Start-Up

For devices shipped with LTOS v7.10.001 or later, the set-up operator will be prompted and required to change the default password of the system's default superuser account root before any further configuration can be performed.



4.6.2. Full Changelog for LTOS v7.10.001

Web Interface

- | RSC switch state now visible in Web Interface (MBGID 13927)
- | Firmware uploads and firmware management are now combined under a single section of the “**System**” tab (MBGID 17548)
- | Common information for IMS-MRI modules shown under the “**I/O Config**” tab is now correctly displayed (MBGID 15893)
- | The link state for the second network interface of an IMS-PSX210 module is now displayed beneath the link state of the first network interface in the overview under the “**Main**” tab (MBGID 24313)

Web Server

- | 1024-bit RSA keys are no longer supported for SSL certificates (MBGID 19138, MBGID 21750)

NTP

- | The NTP service now correctly handles NTP-related processes more reliably (MBGID 17645)

PTP

- | Hostname, domain name, and name servers in the configuration user interface for IMS-HPS100 and IMS-PSX210 modules has been relocated from the interface-specific options to the module network options (MBGID 24312)

SyncMon

- | USB storage media is now correctly detected by SyncMon if already connected upon reboot of the system (MBGID 15253)
- | SyncMon log rotation now flexibly adapts the amount of storage based on previous data storage requirements (MBGID 2502)
- | Missing translations in German localization added for SyncMon user interface (MBGID 19947)

Event Management

- | New event subcategory “NTP Overload”, organized under the event type “Low System Resources” (MBGID 12330)



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- | Fixed bug which resulted in an empty email body with email notifications when distributed via certain mail server types (*MBGID 16809*)

User Management

- | Home directories of remotely authenticated superusers are now correctly loaded from startup configuration following authentication (*MBGID 20169*)
- | Devices undergoing initial setup with the default superuser account root will now prompt the user for a mandatory password change of the root account (*MBGID 1805*)

Shell

- | The command `lt_cmd alarm_led 1` now generates the correct alarm LED output for test purposes (*MBGID 24504*)
- | DSA host keys are no longer supported for SSH connections (*MBGID 19166*)

LT-CLI

- | Relay states of IMS-REL module can now be queried via LT-CLI (*MBGID 15485*)
- | Settings relating to the outputs of an IMS-LSG180 module are now applied concurrently for all ports when applying configuration via LT-CLI (*MBGID 16839*)
- | `/status/ntp/*/leap` path values are now returned as integers instead of strings (*MBGID 20325*)
- | Time zone paths now use consistent naming for time zone definitions (*MBGID 13946*)
- | A number of properties at the path `/status/chassis0/slots/*/module/dcf77` are now more meaningfully named (*MBGID 16309*)
- | The object `data/no-antenna` at the path `/status/chassis0/slots/*/module/*/antenna` for appropriate receiver types has been changed to `/data/connected` and inverted accordingly (*MBGID 20356*)
- | Parameter enumeration for sensor readings now matches those displayed in the Web Interface (*MBGID 20440*)
- | New object `/configuration/rest-api/fast-updates` for ensuring that certain objects are updated dynamically when called (*MBGID 24521*)
- | New Fugro AtomiChron® support in LT-CLI when using a IMS-GXL183 module (*MBGID 15245*)
- | Static routes can now be created and deleted via LT-CLI (*MBGID 15936*)
- | TACACS+, RADIUS, and LDAP configuration support now possible via LT-CLI (*MBGID 21450*)
- | Network statistics now available via LT-CLI (*MBGID 25188*)
- | License details (performance level) of IMS-HPS100 modules can now be queried via LT-CLI (*MBGID 17639*)



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- | The fan cooler card of the SyncFire time server can now be controlled and queried via LT-CLI (MBGID 19105)
- | Introduced Lua scripting support (MBGID 19334)
- | Added option to format LT-CLI output as JSON (MBGID 16968)

REST API

- | Relay states of IMS-REL module can now be queried via API (MBGID 15485)
- | Failure of `/api/configuration/system/firmware/autoupdate/start-update` now correctly returns HTTP Error Code 400 instead of HTTP Error Code 200 (MBGID 15916)
- | Settings relating to the outputs of an IMS-LSG180 module are now applied concurrently for all ports when applying configuration via REST API (MBGID 16839)
- | `/status/ntp/*/leap` endpoints are now returned as integers instead of strings (MBGID 20325)
- | Time zone endpoints now use consistent naming for time zone definitions (MBGID 13946)
- | A number of properties at the endpoint `/api/status/chassis0/slots/*/module/dcf77` are now more meaningfully named (MBGID 16309)
- | The object `data/no-antenna` at the endpoint `/api/status/chassis0/slots/*/module/*/antenna` for appropriate receiver types has been changed to `/data/connected` and inverted accordingly (MBGID 20356)
- | Parameter enumeration for sensor readings now matches those displayed in the Web Interface (MBGID 20440)
- | New endpoint `/api/configuration/rest-api/fast-updates` for ensuring that certain objects are updated dynamically when called (MBGID 24521)
- | New Fugro AtomiChron® endpoints when using a IMS-GXL183 module (MBGID 15245)
- | Static routes can now be created and deleted via API (MBGID 15936)
- | TACACS+, RADIUS, and LDAP configuration support now possible via API (MBGID 21450)
- | Network statistics now available via API (MBGID 25188)
- | License details (performance level) of IMS-HPS100 modules can now be queried via the API (MBGID 17639)
- | The fan cooler card of the SyncFire time server can now be controlled and queried via the API (MBGID 19105)

Other System Changes

- | The synchronization status of RDT systems synchronized to an NMEA time string & PPS reference now no longer incorrectly shows "Sync to NTP" (MBGID 18777)
- | LLDP service restarts have been fixed (MBGID 25033)
- | Root CA certificate bundle has been updated to the Mozilla bundle dated Dec 12 2023 (MBGID 16307)



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- | The available space for the SyncMon **/data** partition is now correctly reported (*MBGID 17065*)
- | Default maximum safe CPU temperature increased from 72 °C (162 °F) to 80 °C (176 °F) (*MBGID 11739*)
- | New support for the “FastLock” feature of supported reference clocks (*MBGID 21906*)

REST API

- | IMS-FDM: FDM configuration is now correctly loaded when activating an existing configuration (*MBGID 16167*)

5. Cipher Lists

To be able to establish an **SSL/TLS connection** once your device is updated, your browser must support at least one of the listed TLS 1.2 and TLS 1.3 cipher suites under LTOS v7.10.006:

TLS 1.2	ECDHE-ECDSA-AES128-GCM-SHA256
	ECDHE-RSA-AES128-GCM-SHA256
	ECDHE-ECDSA-AES256-GCM-SHA384
	ECDHE-RSA-AES256-GCM-SHA384
	ECDHE-ECDSA-CHACHA20-POLY1305
	ECDHE-RSA-CHACHA20-POLY1305
	DHE-RSA-AES128-GCM-SHA256
	DHE-RSA-AES256-GCM-SHA384
TLS 1.3	TLS_CHACHA20_POLY1305_SHA256
	TLS_AES_256_GCM_SHA384
	TLS_AES_128_GCM_SHA256

To be able to establish an **SSH connection** once your device is updated, your SSH client must support at least one of each of the cryptographic algorithms listed below (i.e., SSH cipher, key exchange algorithm, host key algorithm, message authentication code).



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Ciphers	chacha20-poly1305@openssh.com
	aes256-gcm@openssh.com
	aes128-gcm@openssh.com
	aes192-ctr
	aes256-ctr
	aes128-ctr
Key Exchange Algorithms	curve25519-sha256@libssh.org
	ecdh-sha2-nistp512
	ecdh-sha2-nistp384
	ecdh-sha2-nistp256
	diffie-hellman-group-exchange-sha256
	kex-strict-s-v00@openssh.com
	ext-info-s
Host Key Algorithms	ssh-ed25519
	rsa-sha-512
	ecdsa-sha2-nistp521
	rsa-sha2-256
MACs	hmac-sha2-512-etm@openssh.com
	hmac-sha2-256-etm@openssh.com
	umac-128-etm@openssh.com
	hmac-sha2-512
	hmac-sha2-256
	umac-128@openssh.com

6. LTOS v7.10.006 Component Versions

LTOS v7.10.006 comprises several software components, some of which are provided by third parties. The most important first-party and third-party software packages included in LTOS v7.10.006 are listed below alongside their version numbers in each patch release. A comparison with the previous LTOS Minor Release LTOS v7.08.025 is also provided.

Component changes are marked in **bold and underlined**.

6.1. Third-Party Components

	Application	v7.08.025	v7.10.001	v7.10.002	v7.10.003	v7.10.004	v7.10.005	v7.10.006
Operating System Kernel	Linux kernel	4.14.325	<u>6.6.93</u>	<u>6.6.100</u>	6.6.100	<u>6.6.109</u>	<u>6.6.112</u>	<u>6.6.113</u>
Linux Utilities	GNU coreutils	8.30	<u>9.6</u>	9.6	9.6	9.6	9.6	9.6
SSL/TLS Cryptography	OpenSSL	3.0.16	<u>3.4.1</u>	3.4.1	3.4.1	<u>3.4.3</u>	3.4.3	3.4.3
SSH Server/Client	OpenSSH	10.0p2	10.0p2	10.0p2	10.0p2	10.0p2	<u>10.2p1</u>	10.2p1
SSH Protocol Library	libssh	0.11.2	0.11.2	0.11.2	0.11.2	<u>0.11.3</u>	0.11.3	0.11.3
NTP Server/Client	NTP	4.2.8p18	4.2.8p18	4.2.8p18	4.2.8p18	4.2.8p18	4.2.8p18	4.2.8p18
Web Server	lighttpd	1.4.68	<u>1.4.77</u>	1.4.77	1.4.77	1.4.77	1.4.77	1.4.77
SNMP	Net-SNMP	5.9.4.pre 2	5.9.4.pre 2	5.9.4.pre 2	5.9.4.pre 2	5.9.4.pre 2	5.9.4.pre 2	5.9.4.pre 2
DHCP Client	dhclient	4.1-ESV-R16-P2	4.1-ESV-R16-P2	4.1-ESV-R16-P2	4.1-ESV-R16-P2	4.1-ESV-R16-P2	4.1-ESV-R16-P2	4.1-ESV-R16-P2
Text Editor*	GNU nano	8.2	<u>8.3</u>	8.3	8.3	8.3	8.3	8.3
LDAP Implementation	OpenLDAP	2.6.3	<u>2.6.9</u>	2.6.9	2.6.9	2.6.9	2.6.9	2.6.9
File Viewer	less	668	668	668	668	668	668	668
USB Utilities	usbutils	0.86 ¹	<u>018</u>	018	018	018	018	018
IEC 61850 Library	libiec61850	1.6.0	1.6.0	1.6.0	<u>1.6.1</u>	1.6.1	1.6.1	1.6.1
HTTP Client	cURL	8.14.0	<u>8.14.1</u>	8.14.1	8.14.1	<u>8.16.0</u>	8.16.0	8.16.0
XML Parser Library	libexpat	2.7.0	2.7.0	2.7.0	2.7.0	<u>2.7.2</u>	2.7.2	2.7.2
DNS Resolver	unbound	1.22.1	1.22.1	1.22.1	1.22.1	1.22.1	<u>1.24.1</u>	1.24.1

¹ Old version numbering scheme

6.2. First-Party Components

	Application	v7.08.025	v7.10.001	v7.10.002	v7.10.003	v7.10.004	v7.10.005	v7.10.006
LANTIME Daemon	lantimed	7.08.025	<u>7.10.001</u>	<u>7.10.002</u>	<u>7.10.003</u>	<u>7.10.004</u>	<u>7.10.005</u>	<u>7.10.006</u>
CLI Environment	lt_cli	1.12.368	<u>1.13.289</u>	<u>1.13.292</u>	<u>1.13.297</u>	1.13.297	<u>1.13.311</u>	1.13.311
PTP Stack	syn1588	1.14-217	1.14-217	1.14-217	1.14-217	1.14-217	1.14-217	1.14-217
IEC 61850 MMS Server	ltmmsd	1.53.059	1.53.052	1.53.052	1.53.052	<u>1.54.055</u>	<u>1.54.068</u>	1.54.068
IEC 61850 ICD Generator	generate_lantime_icd	1.0.8	1.0.7	1.0.7	1.0.7	1.0.7	1.0.7	1.0.7
LANTIME Command-Line Configuration Tool	lt_cmd	1.40	<u>1.41</u>	1.41	1.41	1.41	1.41	1.41

7. Document Revision History

Version	Date	Version Notes
1.0	2025-09-24	- Initial release notes for LTOS v7.10.001, v7.10.002, v7.10.003
1.1	2025-10-27	- Added release notes for LTOS v7.10.004 - Added information on cURL versions (Section 6.1) - Added information on libexpat versions (Section 6.1) - Corrected wrong date of Mozilla RootCA bundle in LTOS v7.10.001 - Added document revision history
1.11	2025-10-29	- Corrected spelling error “al” -> “all”
1.12	2025-10-30	- Added clarification that squelch mode on an IMS-LIU module requires v4.02 of the module firmware to be installed
1.13	2025-11-12	- Added information on removal of support for Symmetric Active request mode in NTP service
1.2	2025-11-25	- Updated for LTOS v7.10.005 - Added unbound to list of third-party component versions - Relocated bugfix MBGID 27404 from v7.10.004 to v7.10.005
1.21	2025-11-26	- Updated for LTOS v7.10.006 - Fixed incorrect designation of “I/O Config” tab in Changelog for LTOS v7.10.003 - Fixed formatting error in relation to “Fast Lock” entry of Changelog for LTOS v7.10.001