



The Synchronization Experts.

# Release Notes

LANTIME Firmware V7.02

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## 1. Introduction

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This document describes the features of Meinberg's new firmware V7.02. Please read these release notes thoroughly before installing the V7.02 firmware, as they contain information you need to install the software onto your Meinberg system successfully.

From the 19th of February 2021, all Meinberg LANTIME timeservers (M-series, SyncFire, IMS) will be delivered with the new V7.02 firmware. The V7.02 firmware comes with numerous new features and improvements for the LANTIME family systems and their management tools. This includes, for example, various security-relevant innovations.

## 2. Software Versions

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The LTOS Firmware V7.02 consists of several software components. The essential third-party software packages included in the LTOS are listed below with their version information.

<b>Linux</b>	Linux kernel 4.14.187
<b>SSL</b>	OpenSSL 1.1.1i
<b>SSH</b>	OpenSSH 8.4P1
<b>LDAP</b>	Openldap 2.4.57
<b>NTP</b>	NTP 4.2.8p15
<b>sudo</b>	1.9.5p2

### 3. Requirements

#### 3.1. System Requirements

For the LANTIME Firmware V7.02 deployment, the following requirements are needed.

<b>Name of Firmware release</b>	Initial release Version LTOS 7.02 Build (7.02)
<b>Date of release</b>	19.02.2021
<b>System Compatibility</b>	
<b>LANTIME Systems</b>	M100
	M200
	M300
	M400
	M600
	M900
	SyncFire1100
	SyncFire1200
<b>LANTIME IMS Systems</b>	M500
	M1000
	M1000S
	M2000S
	M3000
	M3000S
	M4000
<b>Modules</b>	<sub>1</sub> CPU-C05F1
	<sub>2</sub> CPU-C15G2
	<sub>3</sub> IMS Modules
<b>Installation Requirements</b>	CPU Module RAM: min 256MB
	CPU Module Flash: min 512 MB

<sub>1</sub> When using the CPU module - CPU-C05F1, the LANTIME Firmware V6 and V7 is supported

<sub>2</sub> When using the CPU module - CPU-C15G2 (Q7), only the LANTIME Firmware V7 is supported

<sub>3</sub> All current IMS clock and I/O modules are running in systems with installed LANTIME Firmware V7.02

### 3.2. Connection Requirements

#### Cipher List

To be able to establish an **SSL/TLS connection** after updating your device, your browser must support at least one of the listed cipher suites.

To be able to establish an **SSH connection** after updating your device, your SSH client must support at least one of each of the listed cryptographic algorithms (e.g., SSH cipher, key exchange algorithm and message authentication code).

<b>WebsERVER:</b>	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
<b>SSL</b>	
<b>Cipher suites:</b>	ECDHE-ECDSA-AES256-GCM-SHA384
	ECDHE-RSA-AES256-GCM-SHA384
	ECDHE-ECDSA-CHACHA20-POLY1305
	ECDHE-RSA-CHACHA20-POLY1305
	ECDHE-ECDSA-AES128-GCM-SHA256
	ECDHE-RSA-AES128-GCM-SHA256
	ECDHE-ECDSA-AES256-SHA384
	ECDHE-RSA-AES256-SHA384
	ECDHE-ECDSA-AES128-SHA256
	ECDHE-RSA-AES128-SHA256
<b>SSH</b>	
<b>Ciphers:</b>	chacha20-poly1305@openssh.com
	aes256-gcm@openssh.com
	aes128-gcm@openssh.com
	aes256-ctr
	aes192-ctr
	aes128-ctr
<b>Key Algorithms:</b>	curve25519-sha256@libssh.org
	ecdh-sha2-nistp521
	ecdh-sha2-nistp384
	ecdh-sha2-nistp256
	diffie-hellman-group-exchange-sha256
<b>MACs</b>	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

## 4. Changes

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This chapter gives you detailed information about added or improved and removed functions of all relevant categories of Meinberg LANTIME Firmware V7.02

### 4.1. Security

Due to the increased security requirements of computer systems, partly implemented in particularly worth-protecting environments, some of the relevant security settings have changed.

- **Unsigned firmware updates**  
Are no longer displayed as a warning but as an error. It is only possible to install unsigned firmware after a configuration setting is set via the command line interface. This can solely be done by the Superuser.
- **SNMP support**  
Other authentication and encryption algorithms such as SHA224 Auth, SHA256 Auth, SHA384 Auth, SHA512 Auth, AES192 priv, AES256 priv are supported.
- **NTP Keys**  
NTP AES128CMAC keys can now be used in the Sync Fire product line.
- **Web-Interface**  
The input validation via the web interface has been improved and hardened.
- **Kernel hardening settings**  
Kernel hardening settings according to the Lynis system scanner specifications were made.
- **Programs and libraries**  
Some programs and libraries that are no longer needed have been removed

### 4.2. Webinterface

- Certificates

Subject-Alternative-Names (SAN)

It is now possible to specify multiple Subject Alternative Names (SAN) via the web interface, for Certificate Signing Requests and Self signed Certificates. The SANs are entered in the SAN field separated by a comma. See LTOS V7.02 manual chapter "Management and Configuration -> The Web Interface -> Security -> Certificates".

### 4.3. Miscellaneous

- Check and repair the /data partition automatically during system start
- The setting and releasing of write permission when "mounting" flash memory has been improved. These changes include better predictability of states during manual and parallel accesses.



## 5. Features

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### 5.1. Added

- Private ROOT-CA-Zertifikate

To be able to integrate the devices into own PKI solutions without much effort, it is now possible to import private ROOT CA certificates onto the LANTIME thanks to the support of LDAP. This is necessary e.g., to secure an LDAPS connection if no certificates from official certificate authorities are used. The configuration settings are described in the chapter “Configuration and Management -> The Web Interface -> System -> Authentication”, of the LTOS 7.02 manual.

- Lightweight Directory Access Protocol (LDAP)

With the release of the LANTIME Firmware V7.2, the LTOS supports Lightweight Directory Access Protocol (LDAP)

It is used for authentication and authorization as well as for querying user and address directories. This support makes it possible to maintain user accounts centrally in the directory service. So, there is no need to create local user accounts on the LANTIME devices. The configuration settings are described in the chapter “Configuration and Management -> The Web Interface -> System -> LDAP Setup”.

- SyncMon
  - Special Parameters - Monitoring instance for various parameters
  - Integration of new RAW DAC
  - Integration of IMS Slot Card Temperatures
  - Show Graphs from System Monitoring together with graphs from Nodes
  - Import of SyncMon data from microSync
  - PTP Clock-Class and Clock-Accuracy in HPS Statistics
  - Show System Monitoring by default
  - Attach other Nodes to displayed graphic

- Miscellaneous
  - Manual configuration parameter to hide the GPS position in the web interface.
  - "XMR Reference" notifications renamed to "MRS Source Reference".  
The MRS related notifications were renamed from XMR to MRS to reflect belonging to the MRS clock stuff. Only the clear text is changed and the assigned message ids as well as snmp trap ids stays unchanged.
  - Configuration parameters for system position
  - Save NTP drift file if no file exists under /mnt/flash/data/.  
Automatic saving the NTP drift file after a powerup (4:05UTC, NTP uptime min. 10 hrs)
  - Socket Kommando für das Abfragen der für das Gerät möglichen Notifications

## 5.2. Newly supported

- IMS Module SCG181  
Support of latest Studio Clock Generator output card. Card can output various Word-Clock or AES11 signals for studio applications.
- ITU-Mask violation features of ESI card  
Add quality of signal feature to ESI card. Incoming input signals can be compared to different ITU masks (G811 (PRC), G823 (SSU), G823 (SEC), G8272 (PRTC), G82721 (ePRTC)) now. The appropriate port can be switched off automatically in case a selected ITU mask is crossed to prevent processing of bad signals.
- IPv6 support syslog-ng  
The forwarding of syslog messages to external syslog servers supports IPv6 now as well.
- IMS Module VSI180  
Support of latest Video Synchronization Input Card. The VSI (Video Synchronization Input) card provides video signals to clock module as reference. It can process Black Burst (PAL), LTC (Linear Time Code) and programmable Word Clock Rates.

## 6. Known Bugs and Limitations

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There are no known bugs in this release. Please report any bugs to your Meinberg technical support team ([techsupport@meinberg.de](mailto:techsupport@meinberg.de)).

## 7. Download LANTIME Firmware V7

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To reach our download page go to:

English <https://www.meinbergglobal.com/english/sw/firmware.htm>

German <https://www.meinberg.de/german/sw/firmware.htm>

By entering the serial number of your device and your e-mail address, as well as accepting the data protection declaration, you can enter the download area of the selected firmware here and get information about the specifications of the current Meinberg LANTIME firmware.

**Please Note:**

A few devices show a message, that they will not support the update to V7.02 firmware during an update attempt. If this error message appears or you face any other problems, do not hesitate to contact your Meinberg support service.

### Meinberg Support Services

To reach our support page go to:

English <https://www.meinbergglobal.com/english/support/tech-support.htm>

German <https://www.meinberg.de/german/support/tech-support.htm>

## 8. Acknowledgment

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We want to thank everyone who has helped us to improve the security of our LANTIME-Firmware. Each reported and fixed vulnerability is a benefit for all of us. Thank you very much!