

# Changelog DTS 4150, DTS 4160, DTS 4210

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All notable changes to this project will be documented in this file.

The format is based on [Keep a Changelog](#), and this project adheres to [Semantic Versioning](#).

Possible log types:

- [Update instructions] for essential requirements and information about the firmware update procedure
- [Added] for new features
- [Changed] for changes in existing functionality. Improvements should appear under the 'changed' section
- [Deprecated] for once-stable features removed in upcoming releases
- [Removed] for now removed features in this release
- [Fixed] for any bug fixes
- [Security] for security related changes or vulnerabilities

## [1.27.10] - 2024-06-24

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Changed

- Communicator: Add additional size check for datatype string
- Extension: DTS 4210: Request versions.log from extension in case of firmware mismatch is detected

### Added

- PowerSupply: Add exception handling for adc data conversion

### Fixed

- dtsmenu: Fix ping command for LAN5-16 for DTS 4210
- dtsmenu: Fix routing information for LAN1-4
- Communicator: Handle space characters for datatype string
- Communicator: Allow smaller data size than the transmitted data size. Disabled corresponding tests.
- Timehandler: Fix segfault exception in case no source with highest priority is available
- GNSS: Fix leap second detection in automode for GNSS time source.
- GNSS: Fix antenna power switch configuration (3.3V/5V). Antenna power was fixed configured to 3.3V

## [1.26.17] - 2024-02-29

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Added

- dtsmenu: MIBs: Add tDOP limit as configuration parameter
- dtsmenu: MIBs: Add tAcc (internal accuracy) limit as configuration parameter
- dtsapp: Add GNSS source timeout to `gnss.act` file
- dtsapp: Log boot reason state to `dts.log` on startup
- dtsapp: Catch segfault signal and log info to `/var/log/dts.log`
- dtsapp: Add consistent exception log for all processes to `/var/log/dts.log`
- Add Mars ZX3 SoM hardware information to `/ram/mars-zx3-info.txt`

### Changed

- dtsapp unittest: Change all unittest to Catch2 Version3
- dtsapp: Improve watchdog interface handling
- SyncE: Simplify ethernet interface handling
- PTP: Handle ethernet link speed changes for ptp4l instances per LAN interface
- SNMP: Improve handling of alive notification timeout calculation

### Fixed

- checklogfile.sh: fix missing PTP7 log entry --> ptp4l6.log has not been rotated
- dtsapp: Use correct size for e1 minor device read operation and validate it
- dtsapp: Fix race condition in concurrent queue used by LogPrinter and PLL/Timehandler processes
- dtsapp: Fix double open device handles

### Security

- Disable IPv4 TCP timestamps

## [1.25.1] - 2023-11-02

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Fixed

- gitlab-ci: On firmware 1.24.7 kernel & devicetree from firmware 1.21.3 was released. Revert kernel and devicetree to firmware version 1.23.1.

## [1.24.7] - 2023-10-23

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Added

- New configuration parameter GNSS source drop for alarm 'GNSS Security Warning'
- MIBs: Add USB backup command

### Changed

- gitlab-ci: Download kernel as pre-built package
- Update GNSS security suite
- Avoid unwanted 'UDPv6.write(..) failed ...' log entries in dts.log during DTS 4210 extension firmware update

### Removed

- Removed 1Gbit half duplex mode, it is not supported by the hardware

### Fixed

- MIBs: Set correct GNSS constellation bit mask for the supported constellations by the hardware (GNSS-Module)

## [1.23.1] - 2023-08-29

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Added

- Add GNSS security suite as licensable feature
- GNSS: Add GALILEO as configuration option (available only for hardware revision 06 or higher)
- Add 122104.00 to hardware revision 0 detection

### Changed

- NTP: Update to version 4.2.8p17

### Removed

- GNSS: Removed FPM mode (Fixed position mode)

### Fixed

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- Fix permission for user 'dts' for a generated diagnostic file in /ram/ folder
- DNS: Fix internal handling of resolv.conf as a file link (rcS init script, DHCPv6 script)

- dtsmenu: Allow LAN interface selection in ping menu for DTS 4150.grandmaster
- Release all resources after shadow file read operation (may fix login issues for dts user after changing the password or a parameter in general section)

## [1.22.13] - 2023-03-17

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Added

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- Support the Mars ZX3 SoM hardware revision 7.1
- Devicetree: Add version and product string
- gitlab-ci: Firmware deployment with GitLab

### Changed

- VLAN: Allow VLAN ID 0
- dtsmenu: Improve PTP config texts
- PTP: Set default value for AnnounceTO to 0 for profile G8275.1 and G8275.2 to comply with profile specification
- PTP: Adjust default parameters for profile C37.238-2011 C37.238-2017 to comply with profile specification
- Enhanced IP validation covering 255.255.255.255 as invalid address
- Devicetree: Change PCA9555x access to Linux GPIO driver implementation
- u-boot: Update u-boot to version 2022.01
- u-boot: Replace autoboot stop with autoboot delay

### Fixed

- Correct device naming and commands in dtsbackup script
- PTP: Configuration changes were not always applied for ptp-configs 4-12 used by DTS 4210.timecenter. Issue was introduced with firmware v1.15.0

## [1.21.3] - 2022-08-24

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Changed

- PLL: DTS 4150 (G566N oscillator): Change pll regulation mode to source follow mode (slave mode)
- PTP: Set internal transmit timeout for hardware timestamping to default linuxptp value
- PLL: Stop offset correction on offset sign change
- GNSS: Improve hardware status data (UBX-MON) handling during initial synchronization

- Minor improvements for automated build and test

## Fixed

- TH: Set correct stratum on manual time set
- TH: Enable time outputs after manual time set
- Redundant-Link: Set always master state flag in single mode (standalone mode)
- PTP: Fix calculation of offsetScaledLogVariance variance used by BMCA defined in IEEE 1588 2008/2019 7.6.3.3.
- PTP: Set correct values for offsetScaledLogVariance for telecom profiles ITU-T G8275.1 and G8275.2
- SyncE: Improve ESMC packet generation to meet the target 1 packet/sec average
- SNMP: Fix "DTS Restart" trap not send during startup
- GNSS: Set GNSS state to valid after FPM (Fixed Position Mode) has been successful completed

## [1.20.2] - 2022-05-02

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

### Changed

- gitlab-ci: Changed rootfs build to detached repository
- PLL: Log all pll state changes to /var/log/pll\_trim.log
- PLL: Add offset correction value to /var/log/pll\_trim.log
- PLL: Change logging date format to YYYYMMDD instead DDMMYY for /var/log/pll\_trim.log

### Fixed

- GNSS-DCF: Fix window calculation in JitterFilter for high negative values
- dtsmenu: Update timestamp info also in the general time status info section for the GNSS-DCF source
- PLL: Discard all source data after entering holdover state
- PLL: MV197 oscillator: Set 1ppb factor to 64
- PLL: G566N oscillator: Set 1ppb factor to 3
- PLL: G566N oscillator: Adjust correction factor for slow speed to 4 and fast speed to 50
- Fix invalid network configuration for LAG static modes
- TH: Update current source alarm offset in case of a time configuration change
- TH: Update current source alarm offset after initial time set
- Allow write permission for dts user on /var/local/dts/ folder used for telegram file handling

## [1.19.17] - 2021-12-23

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This is the consolidated changelog since last official released version 1.18.10

## Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

## Added

- Display: Add LAN 4 interface information to display by clicking through options
- PTP: Add PTP unicast master table for PTP time source
- PTP: Add 37.xx power profiles without alternate Time Offset TLV
- GNSS: Add new log files for gnss in /ram/gnss.log and /ram/gnss-module-data.log
- GNSS-DCF(DCF-In): Add new timesource log files in /ram/gnss-dcf.log and /var/log/gnss-dcf.log
- GNSS-DCF(DCF-In): Add new timesource jitter filter implementation calculated with Standard Deviation over 10 samples
- Add general support and compatibility for hardware revision 06 and 07
- gitlab-ci: Added FPGA module as pipeline based linkage

## Changed

- GNSS: Improve GNSS reception during initial synchronization
- GNSS: Improve internal i2c communication to the GNSS module
- GNSS: Propagate internal GNSS module status more frequently
- GNSS-DCF(DCF-In): Improve overall timesource handling
- Extended GNSS logging in /var/log/gnss.log
- PLL: Change correction speed for DTS 4150 from 50ns/s to 100ns/s
- PLL: Reduce correction timeout for G566N oscillator from 1h (default) to 15min instead
- PLL: Improved calculations for MHDEV
- Powersupply: Changed internal adc-mux addressing from register based to GPIO based configuration
- linuxptp: Update to version 3.1.1

## Removed

- gitlab-ci: Removed FPGA as git submodule
- Remove dtshwtest application, it is moved to own repository

## Fixed

- dtsmenu: Fix wrong value show for internal gnss accuracy under Status->GNSS->Internal accuracy
- dtsmenu: Correct notation for GNSS-DCF time source
- dtsmenu: Set max timesource priority to 6 for DTS 4160 and DTS 4210
- dtsmenu: Allow to configure 5th source priority for DTS 4150
- dtsmenu: Show correct max page number on timeinfo page

- dtsmenu: Show same text for GNSS status parameter "internal time accuracy" as defined in snmp mibs
- dtsmenu: Show selected serial telegram for serial outputs
- PLL: Fixed max offset handling in case of time source changed
- PLL: Add check for max source deviation to oscillator intersection (offset was set to 1 instead to max)
- PLL: Fix overshoot during offset correction for DTS 4150 (osci g566n)
- TH: Fix edge case for high offset after first time set
- TH: Fix big offset alarm calculation in case a time source only provides partial nano second part only(e.g. GNSS-DCF)
- TH: Clear high offset alarm for a timesource if source is not configured
- PTP: Priority 2 parameter allows values also above 128
- GNSS: Fix sporadic GNSS timesource lost
- GNSS-DCF(DCF-In): Fix issue where GNSS-DCF(DCF-In) stops providing new samples
- GNSS-DCF(DCF-In): Do not provide a sample on second 59
- GNSS-DCF(DCF-In): Fix Alarm synch lost not set as source timeout was never reached
- GNSS-DCF(DCF-In), F-In: Apply user configuration also during startup
- LOG: Fix log rotation for file /var/log/pll\_msg.log

## [1.19.17-rc] - 2021-12-23

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### Fixed

- Fix clearing SynchLED, LED was set instead cleared
- Fix set and clear 10MHzSine mode

## [1.19.16-rc] - 2021-12-09

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### Removed

- IO-Expander: Remove PCA9555x access with Linux GPIO driver implementation (added with 1.19.14-rc)

### Fixed

- GNSS: Fix sporadic GNSS timesource lost
- Fix timecore initialization during startup

## [1.19.15-rc] - 2021-12-03

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### Added

- PTP: Enable 37.xx power profiles without alternate Time Offset TLV

## Changed

- PLL: G566N oscillator has correction timeout of 15min on default instead of 1h as all other oscillators

## [1.19.14-rc] - 2021-11-29

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### Added

- Support changes for PCB revision 07

### Changed

- IO-Expander: Change PCA9555x access to Linux GPIO driver implementation

### Removed

- Remove dtshwtest application, it is moved to own repository

### Fixed

- Fix Initial time set for DTS 4210 extension boards (bug introduced in version 1.19.8-rc)

## [1.19.13-rc] - 2021-11-23

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### Added

- PTP: Add PTP unicast master table for PTP time source
- PTP: Prepare parameter for C37.238 power profile

### Fixed

- Display: Fix display not show any text after startup on PCB rev. 06 and later
- dtsmenu: Show selected serial telegram for serial outputs
- dtsmenu: Show same text for GNSS status parameter "internal time accuracy" as defined in snmp mibs

## [1.19.12-rc] - 2021-10-12

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### Added

- dtsapp: Add support for linuxptp 3.1.1

### Changed

- linuxptp: Update to version 3.1.1

### Fixed

- GNSS-DCF: Reduce sample filling for /var/log/gnss-dcf.log
- GNSS-DCF: Remove sample outlier logging in dts.log
- GNSS-DCF: Fix Alarm synch lost not set as source timeout was never reached



## [1.19.11-rc] - 2021-10-01

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### Changed

- GNSS: Improve GNSS module reset handling by using reset-io if hardware supports it (avail. since PCB rev. 03 or higher)

### Fixed

- GNSS-DCF: In JitterFilter do not half window size in case Standard Deviation is greater then new window size
- GNSS-DCF, F-In: Apply user config also during startup

## [1.19.10-rc] - 2021-09-30

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### Added

- Display: Add LAN 4 interface information to display by clicking through options

### Changed

- GNSS-DCF: Change JitterFilter calculation to Standard Deviation

### Fixed

- GNSS-DCF: Do not provide a sample on second 59

## [1.19.9-rc] - 2021-09-13

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### Added

- GNSS-DCF(DCF-In): Add new timesource log file in /ram/gnss-dcf.log and /var/log/gnss-dcf.log
- GNSS-DCF(DCF-In): Add new timesource jitter filter implementation calculated with Standard Deviation over 10 samples

### Changed

- GNSS-DCF(DCF-In): Improve overall timsource handling

### Fixed

- TH: Fix big offset alarm calculation in case a time source only provides partial nano second part only(e.g. GNSS-DCF)

## [1.19.8-rc] - 2021-08-23

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### Fixed

- GNSS-DCF: Fix issue where GNSS-DCF(DCF-In) stops providing new samples (was still partial broken in 1.19.7)
- dtsmenu: Set max timsource priority to 6 for DTS 4160 and DTS 4210
- dtsmenu: Allow to configure 5th source priority for DTS 4150

- dtsmenu: Show correct max page number on timeinfo page
- PLL: Fix overshoot during offset correction for DTS 4150 (osci g566n)
- TH: Fix edge case for high offset after first time set

## Security

### [1.19.7-rc] - 2021-08-14

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#### Added

- gitlab-ci: Added FPGA module as pipeline based linkage

#### Changed

- Powersupply: Changed internal adc-mux addressing from register based to GPIO based configuration

#### Removed

- gitlab-ci: Removed FPGA as git submodule

#### Fixed

- GNSS-DCF: Fix issue where GNSS-DCF(DCF-In) stops providing new samples
- PLL: Add check for max source deviation to oscillator intersection (offset was set to 1 insted to max)
- PTP: Priority 2 parameter allows values also above 128
- LOG: Fix log rotation for file /var/log/pll\_msg.log

### [1.19.6-rc] - 2021-08-05

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#### Fixed

- dtsmenu: Correct notation for GNSS-DCF time source
- Clear high offset alarm for a timesource if source is not configured

### [1.19.4-rc] - 2021-07-14

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#### Added

- Changes from release 1.19.2-rc1 also applies to this release

#### Changed

- PLL: Change correction speed for DTS 4150 form 50ns/s to 100ns/s
- GNSS: Improve internal i2c communication to the GNSS module
- GNSS: Propagate internal GNSS module status more frequently

## Fixed

- PLL: Improved calculations for MHDEV
- PLL: Fixed max offset handling in case of time source changed

## [1.18.10] - 2021-05-27

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### Update instructions

- DTS 4210.timecenter: Former version has to be at or above v1.18.8

## Fixed

- Fix dts configuration restore
- Fix product branding for MBS factory
- Add missing OIDs and preferences for F-In in snmp mibs for DTS 4160.grandmaster and DTS 4210.timecenter

## [1.19.2-rc1] - 2021-05-18

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### Added

- Add general support and compatibility for pcb hardware revision 06
- Add support for NEO-M9N gnss module
- Add support for several new oscillators for testing purpose
- Add new log files for gnss in /ram/gnss.log and /ram/gnss-module-data.log

### Changed

- Improve gnss reception during initial synchronization
- Extended gnss logging in /var/log/gnss.log

## Fixed

- dtsmenu: Fix wrong value show for internal gnss accuracy under Status->GNSS->Internal accuracy

## [1.18.8] - 2021-04-13

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### Update instructions

- DTS 4210.timecenter:
  - Version 13 (V07150219.020003.010012) or earlier is installed:  
--> Please contact customer support if you have installed an earlier version then release No. 14 (V07150219.020003.010014)
  - Version 14 is installed:
    - Validate the device is running on Firmware version V07150219.020003.010014 (release No. 14, see SR-801223.14 )

- Install the patch named `dtsapp` as single-file-update as described in user-manual BE-801214  
The "dtsapp" patch is available together with the firmware release version No. 18 (V1.18.8)
  - Install the firmware release version 18 or later as described in the user manual BE-801214  
Important: Do NOT copy the patch "dtsapp" to device during this step; otherwise, the update of the images will be skipped
  - Validate firmware version after update. See SR-801223.18 or later for detailed version information
- DTS 4160.grandmaster: No restrictions, install the firmware as described in the user manual BE-801214
- DTS 4150.grandmaster: No restrictions, install the firmware as described in the user manual BE-801214

## Changed

- DTS 4210: The firmware update for DTS 4210 extension boards are now executed in parallel. Due to the update procedure takes much less time

## Fixed

- Fix sporadic source lost/change for GNSS-DCF
- Fix alarm not set/cleared for source F-In (frequency input)
- Justify permission user dts, such as `dtsdevice.config`, log files, ... The user dts was not always authorized access the files over scp/sftp/ftp.
- Preserve Oscillator trim file during firmware update
- Improve PLL for unstable sources and/or big source offsets
- SNMP MIBs: Add missing DTS Alarm bits and precise their wording
- DTS 4210: Fix high cpu usage for DTS 4210 extension boards issued by memory leak
- DTS 4210: Improve firmware update for DTS 4210 extension boards
- `dtsmenu`: Parameter 'Alarm delay fail. hightest source prio' can now be configured
- `dtsmenu`: Precise wording for DTS Alarms

## [1.17.2] - 2021-02-04

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### Update instructions

- DTS 4210.timecenter: Do not update to this version

### Added

- Add new schema handling the firmware version. Firmware version follows now the semantic version schema.
- New OIDs in DTS-COMMON mib for semantic firmware version 1.3.6.1.4.1.13842.4.1.3.
- Enable checksum offload for AXI Ethernet MACs (LAN2 - LAN4)

## Changed

- Change firmware version schema to semantic version in dtsmenu (1-Status -> 8-product-information)
- Update also the bootlaoder (u-boot) in MBS production during firmware programming
- Do not store trim value for oscillator in case the time source is not stable enough

## Deprecated

- The OID 1.3.6.1.4.1.13842.4.1.2.6.0 for firmware is deprecated. Use the new OIDs under 1.3.6.1.4.1.13842.4.1.3 for firmware version

## Fixed

- Synchronization lost alarm is set for all time sources
- Fix GNSS timesource alarm flipping
- Fix edge case where pll regulates the wrong way after initial time set from GNSS
- First pll cycle must be more than 4 seconds long
- Avoid invalid pll correction value by verify the maximum trim value against oscillator specification
- Clear alarm for GNSS-DCF in case source is not configured
- DTS 4150: Fix unwanted log entries in dts.log in case an ntp server query failed

## [00191020.030003.020116] - 2020-10-27

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Release is for the DTS 4150.grandmaster only

## Update instructions

- DTS 4210.timecenter: Do not update to this version
- DTS 4160.grandmaster: Do not update to this version

## Added

- Add NTP as timesource for DTS 4150
- Add new feature for MBS production for product branding by ProductVersion.txt

## Changed

- Update dropbaear ssh to version 2019.78
- Update ntp to version V4.2.8p15
- Adjust PTP profiles default parameter according their standards
- Improve handling for timesources such as DCF-HQ, E1, F-IN
- Enhance command set for MBS production in u-boot
- Adjust factory defaults
- Rename timesource DCF-HQ to GNSS-DCF

## Fixed

- Fix clearing big offset alarm in case a source is not locked
- Fix special case where leap second was not always correctly detected over GNSS during startup
- Fix invalid packet loss shown in ping statistic result page

## Security

- remove hmac-sha1-96 MAC algorithm for dropbear ssh
- Add ntpq 'access control status' as configuration option to dtsmenu

## [1.15.0]

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Internal release for MBS production

## Added

- Add DTS 4150.grandmaster
- Add DTS 4160a.grandmaster I
- Add DTS 4160c.grandmaster I

## [07150219.020003.010014] - 2019-06-04

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## Added

- Add config options for Alarm "Time Source Big Offset"

## [07150219.020003.010012 / 20190327] - 2019-03-27

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SR-801223.13

## Changed

- First time synch adjustment for MBS production
- Improvements time source handling

## [07150219.020003.010012 / 20190215] - 2019-02-15

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SR-801223.12

## Added

- New feature configure multiple timesources for DTS 4210

## Changed

- Adjustments on internal pll synchronization
- Improved DCF-In as time source

## Fixed

- Bugfix Firmware update for DTS 4160b
- Bugfix SNMPv2c with IPv6
- Minor Bugfixes & Improvements