

WR-Z16 MODEL

Software Version 5.1: Release Notes

Safran (formerly Seven Solutions) released a software update for the WR-Z16 series. Customers can download this software update at no charge from the Safran Trusted 4D website (see [Downloading the Software Update](#)). This software update will upgrade the unit's system software to **Version 5.1**.

This update provides added benefits through new features, enhancements to existing functionality, as well as software fixes and security updates, as described in this document.

Warning: Ensure that you are using the correct file for your system to avoid complications.

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Version 5.1

Note: Old device configurations for PTP4L may not work correctly with the new slave mode, we strongly recommend setting the `servo_algorithm` parameter to "Custom" value in case there is a problem with the synchronization, using the following command on the required port and rebooting the system:

```
gpa_ctrl wptpd net/wr0/1/cfg/servo_algorithm 4 -S
```

Warning: Due to the PTP4L PTP stack migration, Synchronous Ethernet (Sync-E) is not supported in this release. We expect to support in again in further releases.

Newly released features

- ptp4l: updated to the official version V4.0.
- ptp4l: Implemented boundary clock mode, including the addition of the slave mode which was previously unavailable.
- ptp4l: developed a mechanism for stepping back in time synchronization.
- ptp4l: enhanced Kp and Ki constants for achieving more precise synchronization.
- hald: migrated GM configuration from PPSi to HALd.
- hald: implemented GM survey mode, to have the possibility to measure the synchronization quality of a GM time source.
- libgpa: introduced a metrics system and implemented raw data storage using SQLite.
- libgpa: improved `gpa_ctrl -e` tool to detect errors in libgpa parameters.
- ppsi: implemented WR survey mode, to have the possibility to measure the synchronization quality of a GM time source.
- api-rest: added new modifications to configure the new survey mode.
- api-rest: implemented a new module for accessing metrics.
- api-rest: added new module to export LLDP.
- webui: incorporated new modifications to configure the new survey mode.
- webui: added the ability to download the metrics database.
- webui: enhanced the behavior of the field contours when changing the password to make it more intuitive in case of failure.
- webui: modified browser tab to display the hostname first.
- tmgr: adapted to include to integrate the new survey mode for GM and WR time sources.
- tmgr: updated leap-second file (valid until Dec-2024).
- licd: improved the license file system for HATIs.
- tool: enhanced `wrz_flashfw` tool to allow new release names related with PoCs (example: `wr-zynq-os-v5.0a`).
- kconfig: added new modifications related to the new survey mode and metrics system.
- lldp: added new functionality to obtain crucial data from HATI devices.
- lldp: added detection and logging when a slave loses synchronization.

- log: improved logrotate rules.
- linux: enabled memory compaction algorithm in Linux to mitigate high memory segmentation.

Enhancements and fixes

The following improvements were applied and defects corrected on existing features and functions:

api-rest:

- fixed error preventing connection to the api rest when there is no internet connection.
- fixed error causing the api rest to return results about “wr10, wr11...wr15” ports that had not been queried when requesting the WR endpoint and the “wr1” interface..

collectd

- removed collectd service in the OS.

holdover:

- fixed race condition in tmgr causing occasional incorrect holdover mode detection.
- fixed incorrect holdover activation when a port that is not the active reference has a link down.

net:

- fixed bug causing odd-sized packets not to be sent correctly over WR interfaces (Known Issue from 5.0).

ppsi:

- fixed PPS indeterminism which appeared only on certain reboots..

ptp4l:

- correctly computed TLV_INNACURACY in C37.238-2017.

snmp:

- fixed net-snmp3-create-v3-user tool, which gave an error when trying to create a new user.

webui:

- added a section title to the interfaces section, which was missing.
- fixed cosmetic bug in learning counter and holdover counter in holdover section (Known Issue from 5.0).
- updated deprecated link to download leap seconds file.
- fixed error preventing login with some special characters.
- fixed typo “delay/daily” in White-Rabbit section.

Known Issues

- Switching from unicast mode to hybrid mode without resetting the "unicast_neg" and "unicast_dest" parameters to their default values may cause the hybrid mode to not work properly (from 5.1).
- PTP4L synchronization does not reach the locked state at low rates. We strongly recommend to set 1 msg/sec as the minimum rate (from 5.1).
- PTP4L process priority parameter has a wrong default value when the device is configured with the wrz_config tool, the default value should be 0 but the applied value is 15. We strongly recommend to configure PTP using the webUI rather than kconfig (from 5.1).
- In the new Web UI, the “Value Applied” text after applying changes is not properly updated until the page is refreshed (from 5.0).
- In some sections of the new Web UI, the hide button does not hide the Apply and Save buttons (from 5.0).

- The root password cannot be changed using an external authentication server (seen on previous versions).
- The Log Dump request via the new Web UI will generate the file under /opt/api-rest/*.logdump, which occupies RAM (from 5.0)
- The Config File request will generate the file under /var/www/downloads/wrz_config_z*, which occupies some RAM (from 5.0).
- In the NTP section of the new Web UI, the hide button in the NTP sources will instead hide the General configuration (from 5.0).
- Uploading files with a space in the name causes an error in the Web UI (seen on previous versions).
- Gateway and broadcast do not work properly; in hold, they are 0.0.0.0.after save and reboot (seen on previous versions).
- The `gpa_ctrl lldp` command contains outdated parameters `net/wrx/peer/1/port/timing` that are disabled and not updated by the LLDP daemon (from 5.0).
- ClockQ information is not properly reported in FR Master or GM without at least one active link in PPSi (seen on previous versions).
- Making a request to a parameter that does not exist through the REST API returns a code 200 (SUCCESS) instead of an error code (404) (from 5.0).
- An invalid configuration file entry through REST API returns error code 400 instead of 422 (from 5.0).
- In the network interfaces REST API, when an empty request is sent, the expected error code is 422, but 500 is returned (from 5.0).

Version 5.0

Note: The Web GUI has been newly designed from scratch, including a new REST API that has been deployed as a connection to the backend. With this we intend to provide a better user experience when using and connecting with our devices, in addition to improving performance and meeting branding change requirements.

Note: Integration of the PTP4L as PTP stack used in WR-ZYNQ-OS, in order to align with other devices inside of our company and improve our system having a stack that is under constant development. Currently we have integrated this stack with our parameter system and the wrapper we currently have, trying to keep the impact of the change to a minimum.

Please be aware that your previous PTP configuration file may not work properly with the new firmware.

Note: The leap seconds system has been intensively improved, allowing hot modification, deactivation of the expiration alert and fixing issues related to the application and transmission of leap seconds.

Note: Collectd has been disabled, because it was a deprecated and unmaintained system, which also consumed a lot of system resources and sometimes caused spam in the system log.

Warning: Due to the PTP4L PTP stack migration, Synchronous Ethernet (Sync-E) is not supported in this release. We expect to support it again in further releases.

Newly released features

- api-rest: added a new API REST as user interface.
- www: improved the webui with a new design and using API REST for communication with the backend.
- ptp4l: migration from PTPd to PTP4L as PTP stack.
- ptp4l: added a new 61850-9-3 Power profile.
- ptp4l: removed support for the Telecom 8275.1 profile.
- ntp: added NTP Master functionality through fiber ports.
- tmgr: added a new parameter to disable the warnings generated when the leap seconds file expires.

Enhancements and fixes

The following improvements were applied and defects corrected on existing features and functions:

www:

- disabled gpa_json tool.

wptp:

- unit now only allow configuration of PTP mode if no license is available.

- updated license parameter description.

ppsi:

- fixed the transmission of leap second flags through the WR packets.
- fixed PPSi dying issue with several link reconnections.
- fixed an issue that caused PPSi to get stuck jumping between UNCALIBRATED state and SLAVE state under certain circumstances.

ptp4l:

- fixed the transmission of leap second flags through the PTP packets.

ntp:

- migrated from NTPd to chrony as NTP provider.
- fixed stratum configuration, can now be configured manually via UI.

tmgr:

- the leap seconds file can now be applied without restarting the device.
- updated leap-second file (valid until Jun-2024).
- removed unused timing source for GNSS.
- disabled auto mode in NTP stratum mode parameter.
- disabled copper ports to use PTP.
- disabled unsupported PTP slave mode.
- applied leap seconds functionality following the mechanism defined in the standard when leap59 or leap61 flags are detected in PTP packets coming from the master.
- fixed a cosmetic bug that showed the status of an interface as Slave when it was disabled.

collectd

- removed collectd service in the OS.

sys:

- rebranded the system prompt and LCD display (ZEN devices) information from Seven Solutions to Safran.

security:

- improved CA certificate generation with serial number randomization and change the Organization to Safran.
- reorganized HTTPs, expiration timeout and read only mode parameters to be shared between WEBUI via API REST.
- the http to https redirect is now non-cacheable.

healthingd:

- improved calculation of cpu usage and update cpu thresholds.

snmp

- fixed configuration problem that prevented to modify SNMPv3 password.
- fixed snmp traps objects description.

hald:

- fixed power supply temperature cosmetic problem, which shown a temperature when it was disconnected.

libgpa:

- fixed compatibility problems with ENUM parameters with string entries that were of numeric type.

Known Issues

- In the new Web UI, the “Value Applied” text after applying changes is not properly updated until the page is refreshed (from 5.0).
- In the holdover overview section of the new Web UI, the Time Learning label is actually counting the Time in Holdover, and vice versa (from 5.0).
- In some sections of the new Web UI, the hide button does not hide the Apply and Save buttons (from 5.0).
- The root password cannot be changed using an external authentication server (seen on previous versions).
- The Log Dump request via the new Web UI will generate the file under /opt/api-rest/*.logdump, which occupies RAM (from 5.0)
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- ClockQ information is not properly reported in FR Master or GM without at least one active link in PPSi (seen on previous versions).
- Making a request to a parameter that does not exist through the REST API returns a code 200 (SUCCESS) instead of an error code (404) (from 5.0).
- An invalid configuration file entry through REST API returns error code 400 instead of 422 (from 5.0).
- In the network interfaces REST API, when an empty request is sent, the expected error code is 422, but 500 is returned (from 5.0).
- A percentage of odd-sized ethernet frames do not reach their destination. This is a minor problem since most of our services do not use odd packets and those that do, use TCP as the communication protocol (seen on previous versions).

How to download and install the new SW

Downloading the Software Update

The latest SecureSync software update can be downloaded from the Safran Navigation & Timing website under:
<https://safran-navigation-timing.com/portal/public-downloads/latest-white-rabbit-product-update-files/>.

Installing the Software Update

Detailed instructions on how to install the new software update can be found in the **WR-Z16 User Manual**:

<https://safran-navigation-timing.com/document/wr-z16-user-manual/>

In both the new and old Web UI, you can navigate to **Management > Firmware Update**. Drag and drop or browse files to upload the update.

How to contact Safran Technical Support

Should you have any questions or comments regarding any of the above-mentioned features or fixes, please contact Technical Support:

<https://safran-navigation-timing.com/support-hub/>

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