

RAy3 - Firmware Release Notes

Firmware for units operating in 10-24 GHz bands, not installable on units operating in 80 GHz band.

Release 2.0.22.0

2025-02-10



Warning

For security reasons, DSS-encrypted keys are no longer supported for SSH access to the CLI. Supported encryption types are RSA, ECDSA, and ED25519. After upgrading to the new firmware, it will no longer be possible to connect to the unit using a DSS-encrypted key. Therefore, it is necessary to replace such keys before upgrading the firmware.

- New features:
 - Updated display of historical data – new graphs, smoother navigation through historical values
 - For security reasons, DSS-encrypted keys are no longer supported for SSH access to the CLI
 - Security libraries updated
 - Company logo updated
- Fixed issues:
 - Slow GUI loading – fixed
 - In some cases, a long outage on one side of the link prevented the connection from being re-established – fixed
 - Saving a new SNMP community string value failed if SNMP was simultaneously activated – fixed
 - Generating a configuration file for backup purposes took a relatively long time when called via the GUI – fixed
 - The Tx power value in graphs was displayed with an incorrect decimal point (showing 10 times lower power) – fixed
 - The command `cli_cnf_set USB_WIFI=off` or `cli_cnf_set USB_WIFI_AUT=off` caused an unintended reboot of the unit – fixed
 - When connecting via the service USB interface and updating configuration parameters in the USB accessories > WiFi adapter section, access through this interface stopped working – fixed
 - The command `cli_cnf_backup_get` resulted in an error – fixed
- Known Issues
 - Firmware versions 2.x.x.0 are incompatible with firmware versions 1.x.x.0 on the wireless link due to changes in the unit serial number system. To operate the microwave link, it is essential to have the same major firmware version installed on both sides of the link.
 - When upgrading firmware from version 1.0.x.0, please read and follow the instructions in the 'Known Issues:' section for Release 1.1.1.0.

Release 2.0.20.0

2024-10-11

- New features:
 - The LSP function has been extended to include the ability to shut down Ethernet port (Link down / SFP off).
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.

- In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.19.0

2024-07-11

- New features:
 - The LSP function has been extended to include the ability to disconnect the backup port to prevent the creation of a loop.
 - Implementation of Dual channel operation - available for RAY3-11
 - Implementation of static configuration of the SyncE synchronization source
 - Set of supported Forward Security ciphers was extended.
 - The Factory settings function has been expanded to include the option to delete only historical data (errors, alarms, graphs).
- Fixed bugs:
 - The bug of displaying the modulation in the case of using an asymmetric channel and the highest ACM profile has been fixed.
 - Fixed a delay when logging into the web configuration interface
 - Fixed auto-negotiation when connecting two RAY3 units directly
 - Fixed several broken links in the Help, they were referring to the Login screen
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.15.0

2024-02-09

- New features:
 - Factory settings
 - Factory settings now does not delete SW keys
 - Added Total purge option, which deletes all user data in the unit including all logs and SW keys
 - The Tools > Maintenance > Backup screen has been simplified and made clearer
 - The LSP function has been extended by the possibility of interconnecting ETH ports when it is activated. This function is subject to further modifications - please read additional information in the user manual chapter 5.4.2.3. *Link State Propagation (LSP)*¹.
 - SFP module status extended
- Fixed bugs:
 - If the unit is overwhelmed by requests for new connections to management, these are rejected to avoid CPU congestion of the unit
 - Fixed listing of ATU tables for various FIDs
 - Fixed the formatting of the listing on the header bar when the LSP function is enabled
 - Fixed LSP behavior after bandwidth change
 - Behavior of SNMP traps "Air capacity changed" and "LSP activated" is not correct – fixed
 - The SNMP trap "LSP activated" has been expanded to include the current state of the LSP
- Known issues:

¹ <https://www.racom.eu/eng/products/m/ray3/conf.html#conf-link-rad-lsp-f>

- FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
- In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.14.0

2023-12-07

- New features:
 - Support for 2.5 Gb/s metallic SFP (2500 Base-T)
 - New Link State Propagation (LSP) functionality. LSP disables user data transmission when the link speed drops below the preset threshold.
 - Remote unit management is now accessible also via Local unit management IP using port forwarding. It is useful in situations when internal switch configuration does not enable access to the Remote unit IP (e.g. when two ETH ports are completely separated in order to serve different customers).
 - Faster ATPC reaction (better adaptation to sudden weather changes)
 - TX mute (possibility to suppress radio transmission)
 - Default WiFi channels are 5 and 9 (different for L and U unit)
- Fixed bugs:
 - Minor SW fixes and improvements (SNMP alarm)
 - Minor web interface fixes
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.11.0

2023-03-27

- New features:
 - New API for RAYTools ver. 3
 - Minor web interface improvements for the sake of uniformity with RAY3-80 (new parameter 'Max TX Power', splitting 'Current Tx Modulation' and 'Max Tx Modulation' into 2 lines on the 'Status' page, etc.)
- Fixed bugs:
 - Eliminated non-functional button for storing differential unit configuration backup
 - Minor SW fixes and improvements (MSE trap, asymmetry, modulations in rare situations, details for the sake of uniformity with RAY3-80)
 - Minor web interface fixes
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.9.0

2022-07-25

- New features:
 - Backward compatibility of Frequency tables
- Fixed bugs:
 - Frequency tables for RAY3-10
 - Minor SW fixes and improvements (mainly for RAY3-18 and RAY3-10)
 - Minor web interface fixes and improvements
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.6.0 - only for units produced between Jun 26 and July 25, 2022

2022-06-21

- New features:
 - RAY3-10, sub-band A support
 - Frequency tables (files rcinfo....) structure extended (to support RAY3-10 and all future bands)
 - New Zabbix templates v.6.0
- Fixed bugs:
 - New driver for gyro-sensor (stability improvement)
 - Radio loopback - lowering the limit for "Good quality" from 50 to 45 dB
 - Minor SW fixes and improvements (related mainly to RAY3-18)
 - Minor web interface fixes and improvements
- Known issues:
 - Before FW update to the version 2.0.6.0 it is necessary to update the unit to the FW version 2.0.3.0 and then activate the latest version of frequency tables (see menu Tools > Maintenance > Radio adaptation > Frequency tables).
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.3.0

2022-04-04

- New features:
 - Support for new USB/WiFi adapter OTH-USB/WIFI-W3
 - Diagnostic package content extended
 - Improved help (new internal structure)

- Fixed bugs:
 - Antenna Alignment Tool (/tk) - indication of ACM readiness for antenna alignment (green = ACM off, red = ACM on)
 - Minor SW fixes and improvements (related mainly to RAY3-18)
 - Minor web interface fixes and improvements
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 2.0.1.0

2021-12-03

- New features:
 - Unit serial number system is redesigned
 - RAY3-18 support
 - Power supply voltage level is checked on system boot
 - Alarm severities are renamed (Critical → Emergency, Major → Alert, Minor → Error); see menu 'Link settings / Alarms / Status'
 - Updated MIB, new Zabbix templates v.5.0
- Fixed bugs:
 - Minor SW fixes and improvements
- Known issues:
 - FW versions 2.x.x.0 are not over-the-air compatible with older FW versions 1.x.x.0 as a consequence of the serial number system redesign. It is necessary to install the same major FW version in both units forming a microwave link.
 - Changing some combinations of radio parameters on RAY3-18 link takes upto 30 seconds, leads to misleading error message "Cannot connect to peer" and the Peer configuration is not displayed. Anyhow, the configuration is updated correctly and the proper Peer configuration is displayed after click on 'Refresh' button.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 1.1.8.0

2021-11-16

- Fixed bugs:
 - New driver for gyro-sensor (stability improvement)
 - Minor SW fixes and improvements
- Known issues:
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 1.1.5.0

2021-09-23

- New features:
 - Added item "Power to be received" (for possible user input of expected strength of received signal)
 - Security libraries update (including library for GUI)
- Fixed bugs:
 - Minor internal SW fixes and improvements
 - Minor web interface fixes and improvements
- Known issues:
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 1.1.3.0

2021-01-29

- New features:
 - AES Encryption of user traffic (new menu 'Link settings / Radio / Encryption')
 - Radio loopback (new menu 'Tools / Live data / Radio loopback')
- Fixed bugs:
 - Provider Bridge switch configuration (menu 'Switch / Advanced / VTU')
 - Minor internal SW fixes and improvements
- Known issues:
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - In the case of FW upgrade from versions 1.0.x.0 please read and apply instructions from section Known issues for Release 1.1.1.0.

Release 1.1.1.0

2020-09-29

- New features:
 - Ethernet switch - Quality of Service is fully configurable (new menu 'Switch settings / QoS') => All important RAY2 switch functions are implemented
 - Security libraries update
- Fixed bugs:
 - Calculation of BER values, BER graphs
 - Minor internal SW fixes and improvements
- Known issues:
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade from versions 1.0.19.0 and earlier unit time has to be checked and manually corrected (may be wrong if time zones were used).
 - After FW upgrade from versions 1.0.16.0 and earlier it is strongly recommended to set 'FlowControl receive' for port 'Air (p9)' to value 'on' ('Show Defaults' + 'Apply' in menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic.

Release 1.0.22.0

2020-06-18

- New features:
 - Support for new USB/ETH adapter AXAGON ADE-XR
- Fixed bugs:
 - Minor internal SW fixes and improvements
- Known issues:
 - BER values and graphs show >1000x higher bit error rate than the reality is.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade from versions 1.0.19.0 and earlier time has to be checked and manually corrected (may be wrong if time zones were used).
 - After FW upgrade from versions 1.0.16.0 and earlier it is strongly recommended to set 'FlowControl receive' for port 'Air (p9)' to value 'on' ('Show Defaults' + 'Apply' in menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic.

Release 1.0.21.0

2020-04-22

- New features:
 - Added locks for more secure communication in the unit kernel
 - Kernel and watchdog monitoring and logging extended
- Fixed bugs:
 - Improved driver of internal system SPI bus (originally third-party SW piece)
 - Occasional reboots (thanks to several bug fixes and improvements in this and several previous FW versions)
- Known issues:
 - BER values and graphs show >1000x higher bit error rate than the reality is.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade from versions 1.0.19.0 and earlier time has to be checked and manually corrected (may be wrong if time zones were used).
 - After FW upgrade from versions 1.0.16.0 and earlier it is strongly recommended to set 'FlowControl receive' for port 'Air (p9)' to value 'on' ('Show Defaults' + 'Apply' in menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic.
 - If any unexpected reboot, strange behavior or other incident occurs, please immediately download Diagnostic package and contact RACOM Technical support on <https://www.racom.eu/eng/support/request.html>.

Release 1.0.20.0

2020-03-23

Notice: Time should be checked and manually corrected after FW upgrade (may be wrong if time zones were used).

- New features:

- Higher password strength (length 5-80 bytes, wider set of password characters - UTF-8)
- Improved behavior after short link disconnection
- Added watchdog monitoring and logging
- Removed features:
 - RSTP root bridge (pages 'Switch settings / Status / RSTP' and 'Switch settings / Advanced / RSTP')
- Fixed bugs:
 - Time settings and manipulation
 - ACM occasional freezing on low modulations
 - Minor web interface fixes and improvements (graph axis, Flow control, Unit S mode -> Unit '24S' compatibility, ...)
- Known issues:
 - Occasional reboots may still happen in a very small percentage of links. In such a case please download Diagnostic package and contact RACOM Technical support on <https://www.racom.eu/eng/support/request.html>.
 - BER values and graphs show >1000x higher bit error rate than the reality is.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade from versions 1.0.16.0 and older it is strongly recommended to set 'FlowControl receive' for port 'Air (p9)' to value 'on' ('Show Defaults' + 'Apply' in menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic.

Release 1.0.19.0

2020-01-23

- New features:
 - Ethernet switch - Port Based Ingress Rate Limiting (new page 'PIRL' in menu 'Switch settings / Interface')
- Fixed bugs:
 - Occasional reboots (several issues fixed, but in small percentage of links it can still happen)
 - Improved accuracy of RSS measurement on narrow channels
 - Minor internal SW fixes and improvements
 - Minor web interface fixes and improvements (including known issue with 'Link mode Eth2' value in FW 1.0.17.0)
- Known issues:
 - Occasional reboots may still happen in small percentage of links, even some fixes and changes were implemented in this and previous FW release. In such a case please update whole link to the latest FW release and apply instructions in Known issues.
 - BER values and graphs show >1000x higher bit error rate than the reality is.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade from versions 1.0.16.0 and older it is strongly recommended to set 'FlowControl receive' for port 'Air (p9)' to value 'on' ('Show Defaults' + 'Apply' in menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic.

Release 1.0.17.0

2019-11-29

- New features:

- Ethernet switch - full set of VLAN features (new page 'VLAN' in menu 'Switch settings / Advanced')
- Ethernet switch - output queues (new page 'Egress queue' in menu 'Switch settings / Interface')
- Web interface 'RX FlowControl' for port 'Air (p9)' is limited to value 'on' (no limit in CLI)
- FailSafe mode no more activated after recovery reboots
- Fixed bugs:
 - Prevention of exhausting internal memory (causes occasional reboots)
 - Minor internal SW fixes and improvements
 - Minor web interface fixes and improvements
- Known issues:
 - Occasional reboots may happen, even some fixes were implemented in this FW release. In such a case please update whole link to the latest FW release and apply instructions in Known issues.
 - BER values and graphs show >1000x higher bit error rate than the reality is.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade it is strongly recommended to set 'RX FlowControl' for port 'Air (p9)' to value 'on' ('Show Defaults' + 'Apply' in menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic.
 - Item 'Switch interface' / 'Link mode Eth2' on page 'Status' presents values from 'Link mode Eth1'.

Release 1.0.16.0

2019-11-04

- New features:
 - RC-info improved (easier channels positioning, more frequencies, improved versioning)
 - Prevention of configuration corruption by a backup file from different type of the unit
 - Status info for asymmetric bandwidths improved
 - Rx bandwidth not limited by SW key
 - Timezones improvement, extension of NTP for non-standard timezones (like 'GMT +3:30')
- Fixed bugs:
 - X-type and S-type interoperability (X can act as S)
 - Antenna alignment page (both in web interface and in RAYTools mobile application)
 - SFP module errors reporting
 - SNMP and MIB table (snmpTrapOID, FlowControl definition, new RAY3 MIB table filename on RACOM web)
 - RSTP daemon
 - 'RX FlowControl' default value for port 'Air (p9)' changed to 'on'
 - Minor web interface fixes and improvements
- Known issues:
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - After FW upgrade it is recommended to set 'RX FlowControl' for port 'Air (p9)' to value 'on' (menu 'Switch settings / Interface / Port'). It improves an utilization of Ethernet switch buffers and allows higher throughput of the link for real traffic (valid also for units with activated 'Unit S mode' for backward compatibility with RAY3-24S units).

Release 1.0.14.0

2019-07-18

Notice: Switching to this release is strongly recommended to eliminate security issues.

- New features:
 - New event "Air capacity changed" (including SNMP trap)
 - Value rxBandwidthKhz added to SNMP
 - Warning message if polarization of Local and Peer unit does not match
 - Backup files check (including refusal to restore configuration from RAY2 backup)
 - New pages 'ATU', 'STU' and 'VTU' in menu 'Switch settings / Advanced'
 - X-type and S-type interoperability (X can act as S)
 - Security libraries update
- Fixed bugs:
 - Frequency selection for asymmetric line
 - The 'ACM max TX modulation' parameter can be set differently for each unit
 - The 'ACM min TX modulation' parameter is logically linked to the other unit (the same value is required on both sides of the link)
 - Modification of port order and names on Eth switch
 - Measurement of 'Eth2 Throughput'
 - SNMP non-table items OID defined in accordance with RFC (ending '.0') - improved SolarWinds compatibility
 - Minor web interface fixes and improvements
- Known issues:
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - The page 'Antenna alignment' is not working correctly (both in web interface and in RAYTools application). Using it causes blocking of the management web interface.
 - For optimal utilisation of Ethernet switch buffers and maximal operational speed of the link for real traffic it is recommended to set 'RX FlowControl' for port 'Air (p9)' to value 'on' (menu 'Switch settings / Interface / Port').
 - X-type and S-type units interoperability requires TX and RX FlowControl parameters for port 'Air (p9)' on unit X to be set to value 'auto' (menu 'Switch settings / Interface / Port') for this FW version.
NOTE: For optimal utilization of Ethernet switch buffers during active 'Unit S mode' (backward compatibility with RAY3-24S units) it is necessary to upgrade unit to FW version 1.0.16.0 or higher.

Release 1.0.11.0

2019-04-08

Notice: RAY units originally deployed with this FW version can not be downgraded to previous FW version.

- New features:
 - CPU without HW encryption unit supported
 - Several new rc.info files added (limited output power, FCC regions etc.)
- Fixed bugs:
 - Ethernet switch buffers are better utilised now (see known issues to activate this feature).
- Known issues:
 - The 'ACM max TX modulation' and 'ACM min TX modulation' parameters needs to be set to the same value for both units within the link.
 - The differential external configuration backup ('Backup to external file / Difference') does not work correctly. The full external configuration backup ('Backup to external file / Full') works perfectly.
 - For optimal utilisation of Ethernet switch buffers and maximal operational speed of the link for real traffic it is recommended to set 'RX FlowControl' for port 'Air (p9)' to value 'on' (menu 'Switch settings / Interface / Port').

Release 1.0.8.0

2019-02-22

Notice: RAY units originally deployed with this FW version can not be downgraded to previous FW version.

- New features:
 - SFP port Autonegotiation is enabled by default
- Fixed bugs:
 - Minor web interface fixes and improvements
 - Minor fixes and accuracy improvement of RSS measurement

Release 1.0.5.0

2019-01-09

- New features:
 - Security libraries update
 - HW version RAY3-24 (MTU=10240 B) support
- Fixed bugs:
 - Minor web interface fixes and improvements

Release 1.0.4.0

2018-12-01

First official FW release