

Table of contents

GENERAL INFORMATION 5
Introduction 5
Purpose and Scope 5
Compatibility information 5

Software UPGRADE INSTRUCTIONS 6
Prerequisites 6
Connecting the local CLI 6
View the current SW version 6
Define the software download server 6
Starting the SSD upgrade process 6
Software upgrade started from the RPD internal web page 7

Techsupport file 8
Generating a techsupport file 8
Downloading the techsupport file from RPD using the RPD internal web server 8
Copy the techsupport file from RPD to an external tftp server 8
Crashfiles 8

RELEASE HISTORY 9
RPD Software release 5.0.6 9
- *Release date 10.11.2026 ..... 9*
- *New features 9*
- *New and improved CLI commands 9*
- *TLV and Event support changes 9*
- *Other changes 10*
- *Fixed issues 10*
- *Known issues 10*

RPD Software release 4.6.14 11
- *Release date 6.3.2026 ..... 11*
- *Fixed issues 11*
- *Known issues 11*

RPD Software release 4.6.12 12
- *Release date 21.1.2026 ..... 12*
- *Fixed issues 12*
- *Known issues 12*

RPD Software release 4.6.11 13
- *Release date 16.12.2025 ..... 13*
- *Fixed issues 13*
- *Other changes 13*
- *Known issues 13*

RPD Software release 4.6.9 14
- *Release date 31.10.2025 ..... 14*
- *Other changes 14*
- *Fixed issues 14*
- *Known issues 14*

RPD Software release 4.6.7 15
- *Release date 30.9.2025 ..... 15*
- *New features 15*
- *New and improved CLI commands 15*
- *TLV and Event support changes 15*
- *Other changes 15*



- *Fixed issues* *15*
- *Known issues* *16*

RPD Software release 4.5.6 17
- *Release date 16.9.2025* *17*
- *Fixed issues* *17*
- *Known issues* *17*

RPD Software release 4.5.5 18
- *Release date 28.3.2025* *18*
- *Other changes* *18*
- *Fixed issues* *18*
- *Known issues* *18*

RPD Software release 4.5.2 19
- *Release date 28.2.2025* *19*
- *New features* *19*
- *New and improved CLI commands* *19*
- *TLV and Event support changes* *19*
- *Other changes* *20*
- *Fixed issues* *20*
- *Known issues* *21*

RPD Software release 4.4.10 22
- *Release date 10.12.2024* *22*
- *Fixed issues* *22*
- *Known issues* *22*

RPD Software release 4.4.8 23
- *Release date 7.10.2024* *23*
- *Fixed issues* *23*
- *Known issues* *23*

RPD Software release 4.4.7 24
- *Release date 5.9.2024* *24*
- *Fixed issues* *24*
- *Known issues* *24*

RPD Software release 4.4.5 25
- *Release date 6.8.2024* *25*
- *New features* *25*
- *Fixed issues* *25*
- *Known issues* *25*

RPD Software release 4.4.4 26
- *Release date 29.7.2024* *26*
- *Fixed issues* *26*
- *Known issues* *26*

RPD Software release 4.4.3 27
- *Release date 28.6.2024* *27*
- *New features* *27*
- *New and improved CLI commands* *27*
- *TLV and Event support changes* *27*
- *Other changes* *28*
- *Fixed issues* *28*
- *Known issues* *29*

RPD Software release 4.3.13 30
- *Release date 30.4.2024* *30*
- *Fixed issues* *30*
- *Known issues* *30*

RPD Software release 4.3.12 31
- *Release date 5.4.2024* *31*
- *New features* *31*
- *New and improved CLI commands* *31*



- *Fixed issues* *31*
- *Known issues* *31*

RPD Software release 4.3.11 33
- *Release date 15.3.2024* *33*
- *Fixed issues* *33*
- *Known issues* *33*

RPD Software release 4.3.10 34
- *Release date 23.2.2024* *34*
- *New features* *34*
- *New and improved CLI commands* *34*
- *TLV and Event support changes* *35*
- *Harmonic CableOS related changes* *35*
- *Other changes* *36*
- *Fixed issues* *36*
- *Known issues* *37*

RPD Software release 4.2.10 38
- *Release date 15.9.2023* *38*
- *Fixed issues* *38*
- *Known issues* *38*

RPD Software release 4.2.8 39
- *Release date 11.8.2023* *39*
- *Fixed issues* *39*

RPD Software release 4.2.6 40
- *Release date 21.6.2023* *40*
- *Fixed issues* *40*

RPD Software release 4.2.5 41
- *Release date 31.5.2023* *41*
- *New features* *41*
- *Other changes* *41*
- *TLV and Event support* *42*
- *New and improved CLI commands* *42*
- *Fixed issues* *43*
- *Known issues* *44*

RPD Software release 4.1.16 45
- *Release date 25.4.2023* *45*
- *New features* *45*
- *Known issues* *45*

RPD Software release 4.1.14 46
- *Release date 30.1.2023* *46*
- *New features* *46*
- *Fixed issues* *46*
- *Known issues* *46*

RPD Software release 4.1.13 47
- *Release date 15.12.2022* *47*
- *Fixed issues* *47*

RPD Software release 4.1.12 48
- *Release date 25.11.2022* *48*
- *New features* *48*
- *Other changes* *48*
- *TLV and Event support* *48*
- *New and improved CLI commands* *49*
- *Fixed issues* *50*
- *Known issues* *50*

RPD Software release 4.0.14 52
- *Release date 8.9.2022* *52*
- *Fixed issues* *52*



- *Known issues* *52*

RPD Software release 4.0.12 53

- *Release date 23.6.2022* *53*
- *RF-level changes on input and output signals* *53*
- *Harmonic CableOS related changes* *53*
- *Fixed issues* *53*
- *Known issues* *54*

RPD Software release 4.0.10 55

- *Release date 31.3.2022* *55*
- *New features* *55*
- *RF-level changes on input and output signals* *55*
- *New and improved CLI commands* *56*
- *TLV and Event support* *56*
- *Harmonic CableOS related changes* *56*
- *Other changes* *57*
- *Fixed issues* *57*
- *Known issues* *58*



GENERAL INFORMATION

Introduction

Teleste RPD111 and RPD112 are gen1 RPD modules installed in compatible Teleste nodes including AC9100NEO, AC9400, DAN3, DAN300 and ICON9000.

Purpose and Scope

This document describes the new features, compatibility issues, resolved issues and other known issues associated with this software release.

Compatibility information

The software is compatible with Teleste RPD modules RPD111 and RPD112. The newest software release is backwards compatible with all current and all earlier HW versions, except the conditions detailed below.

Starting at SW version 4.0.10 the Teleste RPD SW is released only for devices with CableLabs production certificates. Please contact Teleste support organization in case you have older devices without production certificates.

Software revision numbering follows some basic rules:

The revision number consists of three fields A.B.C where

A is the most significant major number,

B is minor and

C stands for build count.

Special caution with all system components must be taken when upgrading any part of the system to different major number. Minor upgrades are intended for adding new features to the product and new builds are for bug-fixes and cosmetic modifications.



SOFTWARE UPGRADE INSTRUCTIONS

As per R-PHY specifications, the RPD software can be upgraded using Secure Software Download (SSD) mechanism. The upgrade can be initiated from the RPD local CLI, from the RPD internal web page or from the CCAP Core. This section describes how to check the current software version and how to upgrade/downgrade the software via the RPD's CLI. For information how to initiate the upgrade from the CCAP Core, please check the CCAP Core user manual.

Prerequisites

Depending on the chosen transfer protocol, you will need either a TFTP or HTTP server for transferring the software image file.

Connecting the local CLI

The local CLI is available at the port 22 (SSH) at the RPD IP address. Putty program or other SSH client can be used to connect. In default configuration the local CLI can be connected from the 10GE CIN port. The IP address of 10 GE CIN port is assigned by DHCP. It is also possible to use the 1G local Ethernet port (default IP address 192.168.0.110) in case it is enabled beforehand.

The default user account for the local CLI is admin and the default password Teleste7093.

View the current SW version

To view the current software version and build date:

```
show version
```

Example:

```
R-PHY#show version
SW version: 2.0.8
Bootloader version: teleste-0.7
Bootloader version is up-to-date
R-PHY#
```

Define the software download server

To define the RPD's software download server's IP address and SSD's transport protocol:

```
ssd set server <IP_address> filename <code_file_name> transport
{http|tftp}
```

Example:

```
R-PHY#ssd set server 192.168.0.110 filename rpd-module-tst-3.0.27.bin transport
http
R-PHY#
```

Starting the SSD upgrade process

To start the SSD upgrade process:

```
ssd control start
```

NOTE! The RPD will reboot itself after the SSD process has completed.



Software upgrade started from the RPD internal web page

The RPD internal web page also contains a button to upgrade the SW. Instructions how to enable and connect the internal web server are available in the techsupport file chapter. TFTP or HTTP servers are not needed when using the web page as the upgrade file can be simply downloaded from the computer used to access the web page. Otherwise the upgrade process is similar to the one started from CLI.



TECHSUPPORT FILE

In case asking for support regarding any kind of issue with the Teleste RPD module, you need to include a techsupport file for the support request. Please follow these instructions to obtain one.

Generating a techsupport file

To generate a techsupport file and save it to the RPD device internal memory, use the following CLI command. Please note that generating the file will take a couple of minutes.

```
tech-support-file local <filename>
```

Example:

```
R-PHY#tech-support-file local techsup-2022-09-07

Generating tech-support-file, this will take a while...
Packet capture started.
Packet capture stopped.

Tech-support-file techsup-2022-09-07.tar.gz generated

R-PHY#
```

Downloading the techsupport file from RPD using the RPD internal web server

RPD contains a built-in web server which can be used to transfer techsupport files. The server is disabled by default and can be temporarily enabled using the CLI command:

```
set http server
```

The server is disabled when the RPD reboots or can be manually disabled with:

```
clear http server
```

Once the web server is enabled, it can be connected with a web browser, for example Chrome. Please note you may need to accept the server certificate to connect it. Once connected, please locate the correct file and click it to download.

Copy the techsupport file from RPD to an external tftp server

Alternatively to web server, you may copy the techsupport file to an external tftp server. Please use the CLI command

```
file upload <server-IP> <filename>
```

Example:

```
R-PHY#file upload 172.30.22.38 techsup-2022-09-07.tar.gz
R-PHY#
```

Crashfiles

RPD may also automatically generate crashfile in case of controlled or uncontrolled reboot. The crashfiles can be located either using the built-in web server or using the CLI command `file list`. Crashfiles contain similar information than techsupport files and can be included to any support requests in case relevant to the issue.



RELEASE HISTORY

RPD Software release 5.0.6

This chapter lists the new features, fixes and other changes in SW version 5.0.6 compared to the previous release version 4.6.14.

➢ Release date 10.11.2026

➢ New features

- Support for PTP-less mode with Harmonic cOS [15912]
- SFP+ module information displayed in Teleste Commander [15946]
- TLS 1.3 support for 802.1X authentication [15884]
  Note that units manufactured until week 8, 2024 are equipped with TPM 1.2 secure storage and cannot support TLS 1.3. They remain limited to TLS 1.2.
- Possibility to keep both 10GE ports at link-active state in port-redundancy configuration [15941]

➢ New and improved CLI commands

- **configure 10gb port0 <state> port1 <state> primary <number> duallinkmode** to enable port redundancy to a mode where both 10GE ports are kept in enterhet link active state in RPD [15941]
- Fixed incorrect nbftt and wbftt prints in **show running-config** [15838]
- **set prompt "string"** to configure the command prompt used by for admin CLI [15963]
- **show downstream channel config** to show zero-bit-loaded SCs in OFDM channels [10858]
- **show downstream channel config** to show more data on NDF channels [15695]

➢ TLV and Event support changes

- TLV 100.19.1 (IpVersion) fixed to return correct values as in R-OSSI [15985]
- Support for TLV 100.24.4.6.19 (FreqOffsetPpt) [15936]
- Corrected the direction parameter in MAP pseudowire reporting [15989]
- RpdCtrl read operations corrected [16003]
- Removed incorrect sensor id 300 from the sensor list [15927]
- DAS RPD shelf now accepts downstream RF levels in range (max-level - 40dB … max-level) [15868]
  The officially supported specification is still the original range (max-level - 8 … max-level). The lower levels may have slightly lower MER with some channel lineups.



➢ Other changes

- OS update [15837]
- Added more data to techsupport file [15911, 15984]
- Performance optimizations [15922, 15867]

➢ Fixed issues

- Upstream packet loss in some configurations which use 4 OFDMA channels [15995]
- RPD stays offline after redundancy operation with Vecima vCCAP [15986]
- Annex C video channel transmit level is 1 dB too high [15948]
- Issues with CLI command **enable nbfft** [15908]
- OFDMA symbols-per-frame lower than 8 are not supported [15964]
- RPD may crash on CLI command **clear test-ofdm** [15829]
- L2TP session statistics discontinuity timer not set on channel reconfigurations [15651]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.6.14

4.6.14 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes and other changes in SW version 4.6.14 compared to the previous release version 4.6.12.

➢ Release date 6.3.2026

➢ Fixed issues

- Modifying upstream SC-QAM channel width requires restarting the channel [15907]
  The issue affects SW versions 4.6.11 and 4.6.12
- CLI command **configure authentication radius add** not functional [15900]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]
  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.6.12

4.6.12 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes and other changes in SW version 4.6.12 compared to the previous release version 4.6.11.

➢ Release date 21.1.2026

➢ Fixed issues

- Upstream SC-QAM channels are not operational when used with E6000 Core [15890]
  The issue affects only the SW version 4.6.11
  The issue may occur with other CCAP Cores as well in some special situations

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.6.11

4.6.11 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes and other changes in SW version 4.6.11 compared to the previous release version 4.6.9.

➢ Release date 16.12.2025

➢ Fixed issues

- Issues in daisy-chain data forwarding [15807]
- Upstream data transmission may be unreliable after channel reconfiguration due to CCAP Core reconnection or CIN network disconnection [15875]
- Video channels may randomly fail to start after RPD reboot or reconfiguration in case more than 4 video multicast groups used [15865]

➢ Other changes

- Video classifiers reorganized [15865]

  RPD now supports maximum of 8 multicast IP groups for video. The groups are classified using destination ethernet MAC address and L2TP session ID.

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]
- OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.6.9

4.6.9 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes and other changes in SW version 4.6.9 compared to the previous release version 4.6.7.

➢ Release date 31.10.2025

➢ Other changes

- RPD reboot is now accepted only from the principal Core [15844]
  Previous SW versions allowed RPD reboot from any connected CCAP Core including Auxiliary cores.
- Added limited payload traffic capture possibility for Teleste support [15851]

➢ Fixed issues

- CLI: set password command not functional [15858]
- Issues in PTP clock state reporting when using G.8275.1 with Harmonic CCAP Core [15848]
- Ingress cancel cannot be enabled for an odd numbered upstream SC-QAM channel unless it is enabled for the corresponding even numbered channel as well [15835]
- GCP keep-alive messages can be delayed in some situations [15854]
- Local test OFDM channels cannot be restarted [15832]
- Some video channels may randomly fail to start after RPD reboot or reconfiguration in case the same sessionID is used in multiple multicast groups and the video stream L2TP header have S-bit disabled [15849]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]
- OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.6.7

This chapter lists the new features, fixes and other changes in the SW version 4.6.7 compared to the previous release version 4.5.6.

➢ Release date 30.9.2025

➢ New features

- Initial integration and testing with Vecima vCMTS Core [15766]
- Support for G.8275.1 [15754]
- Support for SNR field in the Harmonic cOS CLI command “show cable rpd <id> counters upstream” [15719]
- Daisy-chain functionality [13777]
  Daisy-chain can now be enabled for test purposes using a RPD CLI command. Enabling daisy-chain will cause the RPD to forward traffic between the two 10GE SFP+ ports. The operation is not yet fully tested or finalized and is subject to changes in future SW versions.

➢ New and improved CLI commands

- **show sfp port** enhanced to display the SFP+ alarms, warnings and the threshold values [15683]
- Added command **clear downstream channel statistics** [15678]
- **show downstream channel statistics**: added NDF channel L2TP sequence error counter [15757]

➢ TLV and Event support changes

- TLV 73 (DsOfdmChannelPerf) now contains also the internally generated test OFDM channels [15803]
- Capability 50.20.5 (LcceChannelReachability.EndChannelIndex) fixed for OFDM channels [15694]
- Capability 50.50.1 (MaxFwdStaticPws) changed to 120. Previously it was 60. [15740]

➢ Other changes

- Added more data to techsupport file [15644]
- NDF dejitter buffer nominal threshold level set to 10 ms [15774]
  NDF dejitter buffer size (overflow threshold) set to 30 ms.
- Library updates [13583]
  Updated some internal libraries

➢ Fixed issues



- OFDM channels suffer data loss in some specific ZBL (zero bit load) configurations [15828]
- NBFFT and silent probes not working with CommScope Core [15788]
- OFDMA channel may remain in non-operational state after external error conditions when used with E6000 CCAP Core [15814]
- Underflow column in Harmonic Core CLI command **show cable rpd x:0 video-channel counters** is always active for Teleste RPD. Affects SW version 4.5.x [15787]
- Random crashes [RPD-15698]
  The earlier SW versions may suffer crashes with the reason logged as “Watchdog: Docsisapp register access error”. The crashes are rare and not reproducible but may occasionally happen in big setups in case the device user interfaces are loaded heavily.
- CLI command show upstream port 0 channel 0 ofdma mer" may sometimes fail with message "Failed to get upstream OFDMA RxMER statistics" [15699]
- CLI command **show ptp clock state** displays only an error message when the PTP GM is not configured or not connected [15786]
- In case a Harmonic aux core is removed by principal core, the static pseudowires configured by the aux core remain in the RPD internal database [15772]
  Starting this SW version, the static pesudowires are automatically forgotten by RPD after an aux core is deleted
- In some rare cases, OFDM channel may stay in erroneous state after an external error condition. RPD reboot or manual OFDM restart may be needed to recover [15756]
- Crash possibility when OFDMA channel restarted [15781]
  RPD may crash when OFDMA channel restarted either manually or through the internal error-recovery process

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.5.6

This chapter lists the fixes in SW version 4.5.6 compared to the previous release version 4.5.5.

➢ Release date 16.9.2025

➢ Fixed issues

- OFDMA channel instability with vCCAP cores [15802]
  RPD may unnecessarily restart OFDMA channels every now and then when used with Harmonic or CommScope vCCAP Cores. This may in some cases also cause a full RPD reboot.

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]
- OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.5.5

4.5.5 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes and other changes in SW version 4.5.5 compared to the previous release version 4.5.2.

➢ Release date 28.3.2025

➢ Other changes

- Mitigation for CVE-2024-3596 (Blast-RADIUS) [15538]
  Please note that the used radius server needs to be upgraded to a mitigated version before upgrading RPD to this version. Radius authentication for SSH connection will not be successful when an old non-mitigated server version is used. See your radius server documentation for details. This change is included already in 4.5.2
- Removed support for some older SSH algorithms [13852]
  This may cause SSH connections to fail in case an old SSH client used. Main part of this change was included already in 4.5.2

➢ Fixed issues

- Software upgrade fails in case manufacturer CVC used [15700]
  This affects SW updates initiated from CCAP Cores sending a separate CVC (E6000, C100G) when the RPD uses an earlier 4.5.x SW version.
- Some RF-channels may remain non-functional after LCHA switchover [15692]
  This issue affects SW version 4.5.2 and all 4.4.x versions.
- Out discard error counter increases unnecessarily in OFDM channels [15696]
- Techsupport file generation may partially fail [15703]
- CLI command **show downstream channel statistics** header fixed [15682]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.5.2

This chapter lists the new features, fixes and other changes in the SW version 4.5.2 compared to the previous release version 4.4.10.

➢ Release date 28.2.2025

➢ New features

- SFP+ levels added to Teleste Commander display for all RPD nodes [15431]
- Support for Upstream Probe Capture using TLV 42 [15410]

➢ New and improved CLI commands

- **show rfm all** and **show rfm all raw** to display a wider set of RFM parameters [15430]
- **show provision ccap-core** fixed [15180]
- **tech-support-file** command now has more understandable error message in case no space to store the file [15559]
- **show downstream channel statistics** improved to include more data [15599]
  Note also the related case 15564.

➢ TLV and Event support changes

- Ethernet port indexing in TLV interface modified. Earlier the local eth port was presented as index 0. The 10GE payload ports were presented with indexes 1 and 2.
  Starting this version, the 10GE payload ports are indexed as 0 and 1. The local port is not presented as an ethernet interface at all. [15520]
- Added Teleste vendor specific TLV (21.37.15.2.2.9) UsPortIngressControlAttenuationValue [15453]
- L2TP video channel InDiscard counter is now increased by a constant value of 240 for each video de-jitter buffer underflow event. [15564]
  240 packets roughly equals the buffer nominal threshold of 50ms when using 50 Mbps datastream. InDiscard counter is increased to give better visibility for the packets lost by buffer underflow.



➢ Other changes

- The current RPD SW includes SW images for the following RFM / node platforms. The RFM is automatically upgraded when upgrading the RPD SW.
  The RFM SW update can be disabled by appending the RPD SW image name with postfix rfm-update-disabled, for example as rpd-module-4.0.10-rfm-update-disabled.bin

  DAN3: RFM SW version 1.7.8
  DAN300: RFM SW version 1.7.7
  AC9100: RFM SW version 4.11.110
  AC9400: RFM SW version 2.1.50
  ICON7900: RFM SW version 3.2.5
  DAS: RFM SW version 1.0.230
- Added more data to techsupport file [15535]
- NDF dejitter buffer threshold size changed to 2 ms in NDF mode 2. Other NDF modes still use the default threshold of 10 ms. [15602]

  NDF dejitter buffer size changed to twice the threshold value. 4 ms for mode 2 and 20 ms for other modes.
- Mitigation for CVE-2024-3596 (Blast-RADIUS) [15538]

  Please note that the used radius server must be upgraded to a mitigated version before upgrading RPD to this version. Radius authentication for SSH connection will not be successful when an old non-mitigated server version is used. See your radius server documentation for details.

➢ Fixed issues

- RPD will stop retrying CCAP Core Connections after about 300 attempts. [15548]

  In case aux core is not connectable for several hours, RPD will periodically retry and reach the limit after some hours. RPD will then not try to reconnect the aux core anymore. RPD reboot is needed to recover.
- RPD may stay in a non-operating state in case PTP time/phase is heavily wrong but the frequency is correct [15490]

  This is possible for example if the PTP GM suddenly ‘jumps’ to a different time. In such case the RPD may stay in an erroneous state for up to 20 minutes and then reboot to recover. This SW version improves the operation to detect the situation and to recover in about 3 minutes.
- Some internal CLI commands may randomly fail with message “Unable to process request” [15568]
- OFDMA channels not visible in Teleste commander channel list when used with E6k Core [15451]
- US OOB channels are always counted as allocated [14934]
- RPD may crash when connecting or disconnecting a SFP+ module [15555]
- Using RPD ethernet port redundancy feature may crash the E6000 Core. See 15520 at chapter “TLV and Event support changes” for more info [15520]
- RPD do not send GCP reply to a GCP hard-reset request [15625]
  This may cause error messages in some CCAP Cores



- Adding an OFDM channel on RPD runtime may fail when used with C100G Core. RPD reboot may be required to take the new channel into use. [15500]
- OFDMA channel may stay in erroneous state after an external error condition. RPD reboot may be needed to recover [15637]
- OFDM channel may stay in erroneous state after an external error condition. RPD reboot may be needed to recover [14941]
- Some video channels may fail to start after reconfiguration (for example reconnect to CCAP Core) in case the same sessionID is used in multiple multicast groups [15636]
  This issue happens randomly with low probability and is only detected in setups which use the same sessionID in more than one multicast group.
- RF channels remain in the 'show downstream channel configuration' list with status admin-down even after the Aux Core that has configured the channels has been disconnected [15586]
  This SW version improves the operation so that the channels are completely removed after the Aux core that has configured them has been disconnected.
- Static pseudowire modification on runtime not operating correctly [15587]
  This bug affect versions from 4.4.2 to 4.5.1

➢ Known issues

- Some RF-channels may remain non-functional after LCHA switchover [15692]
  This is a new issue affecting the RPD SW version 4.5.2 when used with Cisco cBR-8 Core. A fix will be released as a new 4.5.x build; scheduled for end of March 2025.
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.4.10

4.4.10 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.4.10 compared to the previous release version 4.4.8.

➢ Release date 10.12.2024

➢ Fixed issues

- RPD DS channels may become non-operational after a connection outage longer than 3 minutes to Harmonic CCAP Core [15613]
- DLM not operational when using with Harmonic Core [15578]
- RPD do not send a reply for GCP HardReset request made by CCAP Core [15625]
- RPD generates a crashfile also when intended reboot triggered by CCAP Core [15624]
  This unnecessary delays the reboot.

➢ Known issues

- SW upgrade from 4.4.3 (or earlier) to 4.4.4 (or later) may randomly fail [15549]
  This typically happens with lower than 5% probability. As a workaround, the upgrade can be done again for the failed units.
- Static pseudowire modifications not supported when used with CableOS principal Core [15524]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with low modulation and/or small channel-width may suffer occasional packet loss with Intel chipset based cable modems. The issue may occur when OFDM symbol-size is less than 16200 bits. This may affect for example the following configurations:
  - Channel width less than 110 MHz, QAM256, SC spacing 50 kHz
  - Channel width less than 140 MHz, QAM64, SC spacing 50 kHz
  - Channel width less than 55 MHz, QAM256, SC spacing 25 kHz

  RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers as instructed by the CLI command.



RPD Software release 4.4.8

4.4.8 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.4.8 compared to the previous release version 4.4.7.

➢ Release date 7.10.2024

➢ Fixed issues

- RPD may use incorrect RF levels when connected to Harmonic Auxiliary core [15565]

➢ Known issues

- SW upgrade from 4.4.3 (or earlier) to 4.4.4 (or later) may randomly fail [15549]
  This typically happens with lower than 5% probability. As a workaround, the upgrade can be done again for the failed units.
- Static pseudowire modifications not supported when used with CableOS principal Core [15524]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with low modulation and/or small channel-width may suffer occasional packet loss with Intel chipset based cable modems. The issue may occur when OFDM symbol-size is less than 16200 bits. This may affect for example the following configurations:
  - Channel width less than 110 MHz, QAM256, SC spacing 50 kHz
  - Channel width less than 140 MHz, QAM64, SC spacing 50 kHz
  - Channel width less than 55 MHz, QAM256, SC spacing 25 kHz

  RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers as instructed by the CLI command.



RPD Software release 4.4.7

4.4.7 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.4.7 compared to the previous release version 4.4.5.

➢ Release date 5.9.2024

➢ Fixed issues

- RPD may reject a PTP master resulting as PTP holdover state in case the PTP master sends multiple announce messages with the same sequence id at the moment when RPD is trying to establish connection [15510]
- NDF and NDR channel configuration may fail when used with CableOS [15521]
  This issue affects SW versions 4.4.3, 4.4.4 and 4.4.5.
- 802.1x retry-timeout too short for some use-cases [15536]
  802.1x retry-timeout increased from 50 seconds to 120 seconds to tolerate longer outages in the authenticator without RPD reboot
- Channel deletion after GCP timeout not always effective in IPv6 setups [15495]

➢ Known issues

- Static pseudowire modifications not supported when used with CableOS principal Core [15524]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.4.5

4.4.5 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.4.5 compared to the previous release version 4.4.4.

➢ Release date 6.8.2024

➢ New features

- Support for static pseudowire modifications in channels configured by Harmonic Auxiliary Cores [15511]
  Static pseudowire modifications are now supported in all channels, except the ones configured by Harmonic principal cores.

➢ Fixed issues

- OFDMA restart may not work correctly when used with CableOS Core [15512]
  OFDMA channel may stay in a non-functional state after external error conditions

➢ Known issues

- Static pseudowire modifications not supported when used with CableOS principal Core [15524]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.4.4

4.4.4 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.4.4 compared to the previous release version 4.4.3.

➢ Release date 29.7.2024

➢ Fixed issues

- RPD may cause a short interruption to downstream data transmission after 45 days uptime when used with cBR [15508]
  This issue affects all previous SW versions
- RPD may reboot after 45 days uptime when used with E6000 [15508]
  This issue affects all previous SW versions
- RPD may stop payload data transmission and stay in a non-functioning state after 45 days uptime when used with cBR [15508]
  This issue affects only SW version 4.4.3
- Node may occasionally send false alarms (SNMP traps and RPD events) [15469]
  This issue affects all SW versions prior to 4.4.4

➢ Known issues

- OFDMA restart may not work correctly when used with CableOS Core [15512]
  OFDMA channel may stay in a non-functional state after external error conditions
- Static pseudowire modifications not supported when used with CableOS Core [15511]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.4.3

This chapter lists the new features, fixes and other changes in the SW version 4.4.3 compared to the previous release version 4.3.13.

➢ Release date 28.6.2024

➢ New features

- Automatic removal of channels configured by an Aux core after connection to the Core has been lost [15432]
  As specified in R-PHY chapter 14.11
- DAN3 SFP+ optical level shown in Teleste Commander [15158]

➢ New and improved CLI commands

- **show leds** naming conventions modified to better match the labels in the RPD module HW [15254]
- **show running-config** enhanced to display some additional settings [15211]
- **show ptp clock state** now includes also 'Time in current GM' field [15309]
- **show upstream channel configuration** now displays and takes into account US power level settings made through Teleste Vendor specific TLV [15429]
- **test event** enhanced to support event messages with multiple words [15126]
- **test provision ccap-core** to add a new CCAP core from RPD CLI [15202]

➢ TLV and Event support changes

- Teleste vendor specific TLV Optics (21.37.15.2.4) write opertion fixed [15139]
- Teleste vendor specific TLV DsPortOutputLevel (21.37.15.2.1.3) fixed in DAN300 and DAN3 [15193]
- Added Teleste vendor specific TLV dan3RpdOperationMode (21.37.15.2.100.1.2) and dan300OperationMode (21.37.15.2.100.2.2) [15110]
- Added Teleste vendor specific TLV (21.37.15.2.11) Analyzer [15057]
- Added Teleste vendor specific TLV ReturnPathTestPoint (21.37.15.2.13.8) [15315]
- PTP clock LastStateChange (100.24.2.2) was reported in wrong format making it incorrect in some systems. Modified LastStateChange to include also the changes from one master to another. [15280]



➢ Other changes

- The current RPD SW includes SW images for the following RFM / node platforms. The RFM is automatically upgraded when upgrading the RPD SW.
  The RFM SW update can be disabled by appending the RPD SW image name with postfix rfm-update-disabled, for example as rpd-module-4.0.10-rfm-update-disabled.bin

  DAN3: RFM SW version 1.7.8
  DAN300: RFM SW version 1.7.7
  AC9100: RFM SW version 4.11.11
  AC9400: RFM SW version 2.1.5
  ICON7900: RFM SW version 3.2.5
  DAS: RFM SW version 1.0.23
- Teleste Commander RPD SW update indicator modified to be green when update is in progress and grey otherwise [15157]
- Added more data to techsupport file [15344, 15445, 15425, 15086, 15462]
- Improved internal watchdog to detect situation where CCAP Core replies to GCP but fails to configure RPD [15282]

➢ Fixed issues

- Downstream RF-output flatness affected in DAN3, DAN300 and AC9400 when using a diplexer other than 65/85 MHz [15140, 15422]
- Downstream RF output has -0.25…+0.25 dB level offset depending on channel count. [13737]
  In addition to the slight offset in the absolute level, this causes that adding or removing a downstream channel may cause up to 0.5 dB change to the level of the entire channel lineup.
- Interoperability issues in some setups with Adva PTP masters [15290]
  May cause long delay before getting PTP sync to Adva PTP GM or BC
- RFM TLV for power level configuration not operational for 2nd downstream segment in AC9100 and AC9400 nodes [15323]
- Some video channels may fail to start after RPD reboot in case same the sessionID used in multiple multicast groups [15085]
  This issue happens randomly with low probability and is only detected in setups which use the same sessionID in more than one multicast group.
- PTP status TLV (100.24) display clock counters incorrectly in case 2 PTP ports configured by CCAP Core [15291]
- RPD may crash when UTSC settings modified after UTSC has been started. This may happen at least in some Sonar use cases. [15414]
- OFDMA channel may not restart after CIN interruption when used with E6000 Core [15412]
- OFDMA channel may randomly not start after RPD reboot when used with CableOS [15474]
- OFDMA channel UCD update not error-free [15397]
  OFDMA channel was restarted for UCD update even no parameter change would had strictly required that. This could have caused glitches or random packet loss for OFDMA channels in setups where CCAP Core updates UCD periodically.
- Video underflow counter does not increase when video is completely missing [15096]



- Video channel L2TP InPacket counter do not return real-time value [15443]
  InPacket counter returns a cached value which causes issues in video Cores which expect real time value to monitor stream rate over polling period.
- Locally generated test OFDM channels are not taken into account in automatic output amplifier power saving adjustments. This may cause reduced MER when using test OFDM channels [15477]
- When locally generated test-OFDM channels used, the RPD internal CLI may in rare cases become non-operational after RPD reboot. [15253]
- ResourceSet table allocation not working correctly. This may cause RPD not reaching online with some auxiliary cores which expect this feature. [15197]
- SNMP trap forwarding from RFM to Trap receiver via RPD not always working [15141]
- RPD internal WBFFT web page uses nonoptimal parameters [13716]
  This caused some roll-off and other display issues in the internal debug web page WBFFT and NBFFT displays
- Static pseudowire modifications may fail [15292, 15287, 15073]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.3.13

4.3.13 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.3.13 compared to the previous release version 4.3.12.

➢ Release date 30.4.2024

➢ Fixed issues

- DAN3 will reboot after 45 days uptime [15413]
  This issue affects all DAN3 devices with SW releases 4.3.10 , 4.3.11 or 4.3.12. The RPD will reboot after 45 days uptime. This causes about 7 minute service interruption.
- OFDMA channel may randomly shutdown when used with Casa Core [15384]
- UTSC configuration may get corrupted in case it's configured simultaneously from two Cores [15356]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.3.12

4.3.12 is a maintenance release intended to fix some specific issues and add targeted features. This chapter lists the fixes and new features in the SW version 4.3.12 compared to the previous release version 4.3.11.

➢ Release date 5.4.2024

➢ New features

- Locally inserted OFDM channel for RF testing purposes [4835]
  Possibility to define an OFDM channel for RF testing purposes locally in RPD. The channel will contain no real payload data, but it will have RF load and content to measure MER similarly to a normal OFDM channel. The channel is intended for Coax network testing purposes. The test OFDM channel can be enabled using the CLI command **set test-ofdm** or via vendor specific TLV interface (the TLV details available in a separate Teleste vendor specific TLV document).
  The test OFDM channels are persistent over reboot and can to be cleared using the CLI command **clear test-ofdm** or via the TLV interface.
- OFDMA MER and SC-QAM SNR reporting over vendor specific TLV [14678]
  The details available in a separate Teleste vendor specific TLV document.

➢ New and improved CLI commands

- **set test-ofdm <number_of_channels> <start_frequency> <spacing> <channel_width>** to add a self-generated OFDM channel for network testing purposes [4835]
  Note the command is incremental. Giving the command again will not overwrite any existing test channels but will instead add another test channel.
- **clear test-ofdm** to clear all the configured test-ofdm channels [4835]

➢ Fixed issues

- Adding multiple Auxiliary Cores with a single TLV 88.1 message not successful [15318]
- Dedicated CW tones configured by E6000 not working [15288]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM



configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.3.11

4.3.11 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the fixes in the SW version 4.3.11 compared to the previous release version 4.3.10.

➢ Release date 15.3.2024

➢ Fixed issues

- PTP status TLV (100.24) display clock status incorrectly in case 2 PTP ports configured by CCAP Core [15302]
- Adding a CCAP Core with IPv6 address using TLV 88.1 not successful [15273]
- Non-dedicated CW tones configured by E6000 sometimes not working [15285]
- Video channel delete operation requires TLV 62 to be present [15239]
  This causes video channel delete operation to be ignored with some CCAP Cores.
- Some units may boot up unreliably in hot temperature [15069]
  The previous version (4.3.10) already included the fix but it needed to be taken into use manually. This version takes the fix into use automatically as part of the SW upgrade.

➢ Known issues

- Adding multiple Auxiliary Cores with a single TLV 88.1 message not successful [15318]
- Dedicated CW tones configured by E6000 not working [15288]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.3.10

This chapter lists the new features, fixes and other changes in the SW version 4.3.10 compared to the previous release version 4.2.10.

➢ Release date 23.2.2024

➢ New features

- CLI login banner [14500]
  Possibility to define a CLI login banner to display a welcome message when logging into CLI.
- Techsupport generation via vendor specific TLV [14889]
  The details available in a separate Teleste vendor specific TLV document
- SSH logging timeout [14501]
  Modified SSH timeouts to allow maximum of 5 login attempts in 60 seconds. Modified failed login delay to 30 secs.
- Extended tilt range for DAN3 [15089]
  DAN3 slope can now be adjusted in range 6…23 dB.
- Option to aggregate NDR stream from both US ports [14788]
  It is now possible to combine NDR stream from us ports US0 and US1 as a one common signal on RF-domain before the NDR receiver. The stream will then be sent to the CCAP Core / engine as a single NDR L2TP stream.
  The aggregation is enabled when both the US0 and US1 ports have a NDR configuration with the same destination IP and session ID. All the NDR configuration parameters of the aggregated streams are expected to be identical.

➢ New and improved CLI commands

- **set login-banner '<message>'** , **clear login-banner** and **show login-banner** to control the login banner [14500]
- **show leds** to display the status (color) of the RPD module LEDs.
- **file upload** improved to support http [14976]
  file upload 10.11.12.13 local_path/local_file.tar.gz remote_path/remote_file.tar.gz http
- **ssd** error messages modified to more accurate describe the error situation [14227]
- **show provision gcp-conn-verification** to show the gcp reconnect settings configured by each CCAP Core [14594]
- **show provision ccap-core-identification** to show the CCAP core parameres [14594]
- **show downstream channel conf** fixed misleading tilt and Base power values when used with CableOS [14497]
- **show downstream channel conf** modified to show OFDM power offset with 0.1 dB resolution [14693]
- **show upstream port x channel x statistics** showed Early MAPs as Late and Late MAPs as Early [14992]
- **show running-config all**, added control plane MTU value which was missing [14679]



- **show reset history**, reset initiated from CCAP Core is now shown as a single line instead 2 redundant lines in older versions. Timezone added to the reset timestamp [14687]
- **show reset history** now display reset timestamp with correct timezone [14940]
- **show downstream channel configuration** and **show upstream channel configuration** improved to have two status fields: admin status and oper status. admin status indicates the commanded status and oper status the current operational status. Oper status may differ from admin status for example if the configuration is not valid or if there are no available HW resources. [14741]
- **show l2tp multicast** improved to include input packet counter [14460]
- **show downstream channel statistics** incorrect video input bitrate indicator was not working correctly for Annex B channels [10602]
- **show rfm** improved to include AC voltages [15006]

➢ TLV and Event support changes

- Vendor specific TLV to configure ipv6 enable and dot1x enable. [14980]
  These parameters can be used to speed up device reboot in case IPv6 and/or dot1x are not used.
- US WBFFT CalibrationConstantK added to sensor table indexes 800…803 [14446]
- Several fixes in Teleste vendor specific RFM AutoAlign TLV [14686, 14502, 15161]
- Added some vendor specific TLVs [14583]
  See the separate vendor specific TLV document for details
- ClockStatusLastStateChange fixed to have correct format [14898]
- Fixed negative timezones in GCP event timestamps [14938]
- Fixed RPD does not reply to RfPort TLV query if RF port selector is in use [14865]
- PTP status TLV (100.24) improved to include 2 ports when configured such by CCAP Core [14952]

➢ Harmonic CableOS related changes

- Added support for CableOS CLI command “show cable rpd ptp” [14449]
- Added support for Harmonic vendor specific TLV 21.126 [14891]
- Fix to better support CableOS CLI command video-channel counters [14548]



➢ Other changes

- The current RPD SW includes SW images for the following RFM / node platforms. The RFM is automatically upgraded when upgrading the RPD SW.
  The RFM SW update can be disabled by appending the RPD SW image name with postfix rfm-update-disabled, for example as rpd-module-4.0.10-rfm-update-disabled.bin

  DAN3: RFM SW version 1.7.5
  DAN300: RFM SW version 1.6.3
  AC9100: RFM SW version 4.11.11
  AC9400: RFM SW version 2.1.5
  ICON7900: RFM SW version 3.2.5
  DAS: RFM SW version 1.0.23

- GCP reconnect timeout behavior modified when using cBR Core [14555]

  The operation is not affected when using other CCAP Cores. The change is done to prevent spending unnecessary long times in GCP-reconnect state.
  The new operation:
  - GcpRecoveryActionDelay used as TCP socket initialisation timeout at reconnect
  - GcpReconnectTimeout used as GCP connection timeout
  - MaxGcpIdleTime defaults to 120 sec in case configured as 0 by CCAP Core
  - MaxGcpIdleTime as the TCP keepalive-timeout as well

- Added more data to techsupport file [14593, 14772]
- Capability SupportsDedicatedPwUpcRxMer changed to false as the feature is not supported [14961]

➢ Fixed issues

- OFDMA channel may fail [14986, 15026, 14591]
  OFDMA channel may become non-functional during RPD initialization or randomly during runtime. This causes the cable modems to drop to partial connection. RPD reboot is needed to recover. In rare cases RPD may also have crashed due OFDMA failures.
- PTP disturbances may cause the RPD RF output signal to corrupt. RPD reboot is needed to recover. [15143]
  This issue affects the SW versions from 4.0.1 to 4.2.15.
- Some units may boot up unreliably in hot temperature [15069]
  This may cause longer bootup time in hot temperatures. In some cases device may not boot up at all before cooled down.
  Note: uboot update is required to solve this problem. It is not performed automatically but needs to be triggered with a RPD CLI command “update bootloader” when running the SW version 4.3.10.
- Video channels may stop working during LCHA switchover [15174]
  This issue affects the SW version 4.1.16 and all 4.2 versions.
- UTSC (WBFFT) session information can be overwritten by another CCAP Core [15234]
  This may cause UTSC session to break in case multiple Cores try to access UTSC.



- Adding or deleting CCAP Cores using TLV 88.1 not operating correctly [14809, 14847, 14917]
- RPD may reboot again during reboot process with CableOS Core [15001]
- U-RF1 and U-RF-2 leds are in wrong order in DAN3 [14652]
- RADIUS user cannot download techsupport file [14078]
- Ethernet link may not recover after SFP module reconnect or replacement without RPD reboot [14087]
- Factory reset operation may not trigger in some environments [14194]
  This may cause 20 minute timeout between factory reset command and the execution.
- DeviceAlias not updated for notify messages if modified on runtime [14784]
- PTP offset values not averaged [8105]
  PTP offset values shown at CLI and TLV interfaces were raw-value without averaging. That made them somewhat random and difficult to analyse. Now fixed to have proper averaging. However, please note that the 1588 specs specifically defines the averaging mechanism for PTP offset as vendor specific. The calculation method may differ between different devices and thus the values cannot be compared between different device models.
- SNMP traps from RFM can be lost for some time during RPD reboot [10088]
- Some SNMP traps from RFM can be lost [14851]
- Current Sw Image Last Update timestamp did not honor timezone [14757]
- US SCQAM channel delete may fail to remove the channel on runtime [14890]

➢ Known issues

- Adding a CCAP Core with IPv6 address using TLV 88.1 not successful [15273]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.2.10

4.2.10 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.2.10 compared to the previous release version 4.2.8.

➢ Release date 15.9.2023

➢ Fixed issues

- Wide NDF channel may become non-functional when enabled or when another NDF channel is enabled. Channel restart needed to recover [13857]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.2.8

4.2.8 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.2.8 compared to the previous release version 4.2.6.

➢ Release date 11.8.2023

➢ Fixed issues

- RPD may crash if RFM sends multiple traps simultaneously [14843]
- Aux core delete using TLV 88.1 not successful [14808]
- Static pseudowire delete not successful [14563]
- L2TP session table read fails when used with Casa Core [14779]
- Error messages like "`GCP/RCP Communication Error:Error Code: 1;Probable Cause: GeneralError`" spamming Core logs when used with E6000 [14492]



RPD Software release 4.2.6

4.2.6 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.2.6 compared to the previous release version 4.2.5.

- **Release date 21.6.2023**

- **Fixed issues**
  - 1x1 RPD variant (RPD111) may reboot after PTP relock or other change which would require OFDMA re-initialization [14698]
  - TLV 100.2.6 return incorrect value for static pseudowires [14640]
  - OOB channel may become non-functional in case PTP disturbances during channel initialization [14717]
  - OOB channel disable and re-enable may cause the channel to become non-functional [14665]



RPD Software release 4.2.5

This chapter lists the new features, fixes and other changes in the SW version 4.2.5 compared to the previous release version 4.1.16

➢ Release date 31.5.2023

➢ New features

- LLDP Rx side support [13706]
  Identification information from the neighboring network device received via LLDP can now be shown to user via CLI command “show lldp” and via vendor specific TLV 21.37.15.3.1.
- SW update triggered by DHCP option [14094]
  SW update can now be started by including the option 'file' as in RFC951 (bootp) to the DHCPv4 response coming to RPD during the RPD bootup. The option should specify the URL where to download the image. This is the same option-field used by cable modems to specify the name of the configuration file. The format of the entry should be like the below example:
  http://172.163.230.111/folder-name/rpd-module-4.2.5.bin
  The update is performed the same way as it would be triggered from the local CLI. In case of any error, for example file not present, RPD will continue normal bootup process and not retry the SW update.
- RPD leds [13523]
  The LEDs in the RPD module are now functioning based on R-PHY specs.
- Support for CableOS CLI command show rpn verbose [13710]
- Support for overflow and underflow flags in CableOS CLI command show cable rpd video-channel counters [13449]
- Support for Decision Pending IRA [14099]

➢ Other changes

- DeviceLocation and DeviceAlias are now separate at RFM and RPD [14437]
  The alias and location are now fully separate between RFM and RPD and can be edited independently
- ToD is optional [13088]
  In case the ToD server is not reachable at bootup, RPD will continue bootup cycle without. The local time will later be received from PTP if available.
- Temperature sensor names edited to present the sensor locations better [5520]
- Default value for control plane MTU is modified to 1500. [13442, 4100]
  The MTU value will be modified to 1500 during SW upgrade in existing devices which are using the default value (2025). Any manually configured value will persist over SW upgrade.
- Added more data to techsupport file [12264, 13728, 14241, 4073]
- The current RPD SW includes SW images for the following RFM / node platforms. The RFM is automatically upgraded when upgrading the RPD SW.
  The RFM SW update can be disabled by appending the RPD SW image name with postfix rfm-update-disabled, for example as rpd-module-4.0.10-rfm-update-disabled.bin



DAN3: RFM SW version 1.5.27
DAN300: RFM SW version 1.5.11
AC9100: RFM SW version 4.11.11
AC9400: RFM SW version 2.1.5
ICON7900: RFM SW version 3.2.5
DAS: RFM SW version 1.0.23

➢ TLV and Event support

- A new vendor specific event message in case of FCS errors in Rx Ethernet frames or L2TP DEPI sequence errors in CIN interfaces [12462]
- The SNMP traps coming from RFM and converted to events now have multiple severities (Notice, Warning, Error) based on the original severity. In earlier SW versions all SNMP traps from RFM were converted to events with severity Error. [13671]
- RFM configuration through Teleste vendor specific TLV improved [14177]
- Added support to query RpdEntity and RpdSensor table by index [13665]

➢ New and improved CLI commands

- **show downstream channel statistics** improved to have the channels ordered based on the channel type and number, the 'Depi Pw Subtype' of NDF channels fixed and L2TP sessionID fixed in cases where it was erroneous. [13102]
  Fixed a problem which caused "Out Of Sequence Packets", "In Packets", and "In Discards" sometimes incorrectly show zero value. [13568]
  Added channel type column and removed DSO packets column which was redundant [13159]
- **show provision all** now include the CCAP Core 'Vendor ID' to more clearly identify the used CCAP Core [12994]
- **show temperature histogram** to show the how many hours the RPD module has been in which temperature based on the RPD module internal temperature sensor. [12890]
- **show rfm** improved to show more detailed and accurate information [13745, 14207]
- **show reset history** reformatted to better fit to standard window-width. Added command **show reset history detail** which contains all the information but the format is extra-wide [13761]
- **show downstream channel configuration** now display channel power adjustment with 0.1 dB accuracy [13654]
  CCAP owner field fixed to show the correct MAC address in some cases when it did show 00 in previous versions [13567]
- **show ptp clock state** may fail and print only an error message when uptime is larger than 25 days [14176]
- **show ptp clock state** may randomly fail and print only an error message [12449]
- **show ptp clock state** 'time in state' fixed in some situations [7692]
- **show environment chassis-status** to display if the chassis is open or closed [14217]



- **show l2tp session** now includes GroupAddr to indicate which multicast group the session is included in [13862].
  Added headings to the tables [13860]
- **show tod** modified to show more accurate information [14511]

➢ Fixed issues

- US profile change may cause data errors or short traffic interruption at the channel [13651]
- Random DS RF channels may become non-functional in case PTP disturbances during channel initialization [13834]
- Random RF channels may become non-functional in Core redundancy failover [14436]
- RPD may reboot or OFDMA channel may become non-functional after PTP relock or other change which would require OFDMA re-initialization [12282]
- Possibility for random crashes in some use cases [14534]
- UTSC (US spectrum analysis) not interoperable with cBR version 17.9.1 [14146]
- Possible CoreID conflicts when using E6000 Core with Auxiliary cores [13077]
- CW tone configuration fails when used with E6000 Core [13809]
- MaxGcpIdleTime monitoring takes into account GCP keep-alive messages only [13496]
  In case some Core would not send keep-alive messages, the earlier SW versions would treat that as MaxGcpIdleTime violation and reset connection periodically.
- Notification from static pseudowire not working [13119]
  This may have caused IoP problems with some cores.
- TLV 88 (Multicore) issues [14322, 13833]
  TLV 88 implementation had issues which may have caused IoP problems in some aux core environments
- The NodePortStatus (TLV161.1) operates only for 1st node port [14190]
- UTSC PNM pseudowire index for 2nd US port not independently configurable [14240]
- SSH login logs and event messages may not include some login attempts [11706]
- Provisioning history not working well in case multiple changes on Core list at runtime [13109]
- Techsupport file generation and upload with single command is not working [10570]
  cli command: tech-support-file tftp ip-address folder/filename
- False “Memory utilization threshold exceeded” events may be sent in some situations [12947]
- TLV 100.2 (RpdL2tpSessionInfo) read operations may fail in case a lot of sessions configured [13856]
- RFM UI may become non-responsive in case a lot of simultaneous alarms [13467]
- RFM UI show RPD timestamp in UTC instead correct timezone [13524]
- Channels which are configured to admin down mode (shutdown) are not counted as allocated. This may cause odd operation in some monitoring cores. [14252]
- RfChannel read does not work in case CcapCoreOwner is empty [13112]
  This situation can happen in some cases during handover from primary to backup Core.
- UsSpectrumCapture (TLV 41) is returned fully even Core tries to read it only partially [9937]



➢ Known issues

- Wide NDF channel may randomly become non-functional when used with C100G Core. Channel restart needed to recover [13857]
- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.



RPD Software release 4.1.16

4.1.16 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.1.16 compared to the previous release version 4.1.14.

➢ Release date 25.4.2023

➢ New features

- Support for virtual splitting and combining with CableOS [14235]
- Support for using same sessionID in multiple multicast groups [14539]

  RPD now has a link between multicast group filtering and sessionID filtering making it possible to select from which of the active multicast groups a sessionID is listened from also for video channels. DOCSIS channels have had such a link also in before releases. This change is effective with other cores than cBR-8.

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- RPD may reboot after PTP relock or other change causing OFDMA re-initialization [12282]
  OFDMA block may fail after PTP relock or other change which requires OFDMA re-initialization. In such case RPD will reboot itself to recover.
- US profile change may cause momentary data errors or short traffic interruption at the channel [13651]
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.
- The default value for control interface MTU is 2025. [4010]

  The high MTU value may cause problems in case the CIN network contains switches with MTU 1500 and the other end (CCAP Core) is also configured for higher MTU. Workaround is to use the CLI command “set control-plane mtu 1500” to change the MTU to 1500.



RPD Software release 4.1.14

4.1.14 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.1.14 compared to the previous release version 4.1.13.

➢ Release date 30.1.2023

➢ New features

- Support for GcpRecoveryActionDelay as in R-PHY [13516]
  GcpRecoveryActionDelay configures a timeout that RPD waits before attempting to reconnect after GCP connection to CCAP has interrupted.

➢ Fixed issues

- RPD may fail to get online with cBR version 17.9.1 [13832]
- RPD may unnecessarily reboot when performing RSM SO at E6000 [13812]

➢ Known issues

- R-DTI (PTP) settings cannot be modified on runtime [14174]
  RPD reboot is needed to take modified R-DTI settings into use.
- UTSC (US spectrum analysis) not interoperable with cBR version 17.9.1 [14146]
- RPD may reboot after PTP relock or other change causing OFDMA re-initialization [12282]
  OFDMA block may fail after PTP relock or other change which requires OFDMA re-initialization. In such case RPD will reboot itself to recover.
- US profile change may cause momentary data errors or short traffic interruption at the channel [13651]
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.
- The default value for control interface MTU is 2025. [4010]

  The high MTU value may cause problems in case the CIN network contains switches with MTU 1500 and the other end (CCAP Core) is also configured for higher MTU. Workaround is to use the CLI command “set control-plane mtu 1500” to change the MTU to 1500.



RPD Software release 4.1.13

4.1.13 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.1.13 compared to the previous release version 4.1.12.

➢ Release date 15.12.2022

➢ Fixed issues

- RPD may not bootup correctly at cold temperatures [13851]
  In older SW versions, this may affect some RPD units when they are installed or powered on after long power outage at outside temperature of about -20 ºC.
- Some TLV counters may incorrectly return -1 in some cases [13836]
  The value -1 caused interop issues in some Core devices.



RPD Software release 4.1.12

This chapter lists the new features, fixes and other changes in the SW version 4.1.12 compared to the previous release version 4.0.14

➢ Release date 25.11.2022

➢ New features

- Centralized CLI password management using RADIUS [7623]
- Priority between primary and alternate GM [12509]
  The local priority field in PTP master configuration is now set according to primary / alternate status. This results as RPD choosing the primary GM in case all the other quality parameters are equal between primary and alternate GM.
- Option to download SW upgrades using the inbuilt web server [4510]
  This can be useful in an environment with no ftp/http server. The inbuilt web server can be enabled with CLI command **set http server**.
- Support for Teleste vendor specific TLV [12410]
  Teleste vendor specific TLV can be used to read and write the RFM settings.

➢ Other changes

- Support for RPD shelf product (DAS) [13037]
- DeviceLocation and DeviceAlias are now aligned between RFM and RPD [8343]
  Previously RPD and RFM had separate DeviceLocation and DeviceAlias settings. Starting from this SW version the information is shared so that setting these values either from RPD or from RFM modifies the information on both sides.
  In case both sides already have different information prior to upgrading to this SW version, the DeviceLocationDescription and DeviceAlias are concatenated from both sides and coordinates are taken from RFM side.
- The current RPD SW includes SW images for the following RFM / node platforms. The RFM is automatically upgraded when upgrading the RPD SW.
  The RFM SW update can be disabled by appending the RPD SW image name with postfix rfm-update-disabled, for example as rpd-module-4.0.10-rfm-update-disabled.bin

  DAN3: RFM SW version 1.5.11
  DAN300: RFM SW version 1.5.11
  AC9100: RFM SW version 4.11.11
  AC9400: RFM SW version 2.0.11
  ICON7900: RFM SW version 3.2.5
  DAS: RFM SW version 1.0.18

➢ TLV and Event support

- SNMP traps from RFM are now sent to CCAP Core as vendor specific event messages [11788]

- Added capability values TLV 50.50.11 SupportsDepiPspMultichanPw = true, TLV 50.50.12 SupportsUepiPws = true and TLV 50.50.13 SupportsDtpPw = false [12581]
- Modified the capability values for TLV 50.64.2.1 (MinNumSymbols25Khz) and 50.64.2.3 (MinNumSymbols50Khz) to be 6 instead of 1 in the earlier versions. These capabilities are related to OFDMA probe capture [12905]
- Removed obsolete TLV 100.15.1 InetAddressType and 100.2.1 InetAddressType [12565]
- TLV 100.8.26 VendorDate fixed from 8-byte format to the correct 6-byte format [12563]
- Fixed negative temperature values which were shown incorrectly on TLV interface [12644]
- TLV 100.8.5 IfEnet.Alias is now returned as an empty string as defined by R-OSSI. It was earlier the same as TLV 100.8.2 IfEnet.Name [11367]
- Added TLV 63.10 PlcFreq which was previously missing [13024]
- Fixed L2TP session info query which was not working properly in some cases [13017, 12977]
- Fixed TLV 61, DsRfPort, which was not returning all parameters [10307]

➢ New and improved CLI commands

- **configure authentication radius add** to add a RADIUS server
  The shared secret is asked from user during the command
- **configure authentication radius remove** to remove a RADIUS server
- **configure authentication radius enable** to enable RADIUS authentication
- **configure authentication radius clear** to disable RADIUS authentication
- **configure authentication radius** priviledge to set the minimum “shell:priv-lvl” level which is consider as an admin user
- **show authentication radius** to show the RADIUS authentication configuration and status
- **Show RFM** command enhanced to display also RFM settings such as gains and tilts [12923, 13275]
- Small fixes and additions on **show downstream channel configuration** and **show upstream channel configuration** [12553, 11125, 12827, 12552, 12281]
- Added CCAP Core MAC address to the CLI command **show provision all** [8263]
- Added the IP address of the used DHCP server to **show dhcp** [12985]
- Added RecoveryTime and PrincipalOperationalTimestamp fields and fixed some minor issues in **show reset history** [11588]
- **show provision history <Core-ID>** command to show provisioning phases of a single core. This is useful for example in case one unstable core-connection spams the command output for all cores. [8121]
- **show interface statistics** counter name “Received oversize frames” changed to “Received long frames (> 1518B)” to more clearly state it is not an error situation [12912]
- Added link status info to **show ipv4 address** and reformatted the output [8116]
- Fixed the wrong unit in nominal bitrate at command **show sfp port** [12585]



➢ Fixed issues

- Some video channels may not recover after CIN interruption [13705]
- RPD may crash in case of incoming traffic with multicast MAC destination address but unicast IP destination address [13000]
  Some CIN devices generate this kind of erroneous traffic in some conditions. The earlier RPD SW versions may suffer random crashes in such conditions.
- Random crashes when PTP connection is not active [12489]
- Random crashes during OFDMA reconfiguration [9687]
- Potential crash when disabling usoob channels [12930]
- OFDMA using only IUC13 in CableOS environments [13051]
- Errors when changing between modulation profiles in CableOS environment [13448]
  This may cause CableOS to detect the situation as lowered US SNR possibly resulting as infinite loop of modulation-profile changes.
- OFDMA channel power adjustment to negative offset not working in some environments [12397]
- SNMP traps from RFM have community public regardless the configured community setting [11474]
- Persistent pilot tones not enabled before PTP sync when rebooted because of GCP-timeout [12663]
- RPD unnecessarily joins to IGMP groups 224.0.0.107 and 224.0.1.129 [8589]
- Event message format error [12864]
- TLV response codes are not always reported correctly [11586]
- Syslog message timestamp has offset. UTC time used instead local time.[12865]

➢ Known issues

- US profile change may cause momentary data errors or short traffic interruption at the channel [13651]
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.
- The default value for control interface MTU is 2025. [4010]



The high MTU value may cause problems in case the CIN network contains switches with MTU 1500 and the other end (CCAP Core) is also configured for higher MTU. Workaround is to use the CLI command “set control-plane mtu 1500” to change the MTU to 1500.



RPD Software release 4.0.14

4.0.14 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.0.14 compared to the previous release version 4.0.12.

Starting at SW version 4.0.10 the Teleste RPD SW is released only for devices with CableLabs production certificates. Please contact Teleste support organization in case you have older devices without production certificates.

➢ Release date 8.9.2022

➢ Fixed issues

- TLV read operation for OFDM profile information causes RPD crash if the used OFDM profile contains zero-bit-loaded subcarriers [13187]
- OFDM channels may sometimes fail to initialize after RPD reboot [12862]
- US FFT values have +2 dB offset in SW versions 4.0.10 and 4.0.12 [13402]
- QAM based CW-tone which is configured as Annex-A has 1.25 dB too high powerlevel in SW versions 4.0.10 and 4.0.12 [13453]

➢ Known issues

- Luminato video-only use-case without PTP synchronization is not fully supported [12489]
  Can be used for lab testing purposes but not for field installations.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.
- The default value for control interface MTU is 2025. [4010]

  The high MTU value may cause problems in case the CIN network contains switches with MTU 1500 and the other end (CCAP Core) is also configured for higher MTU. Workaround is to use the CLI command “set control-plane mtu 1500” to change the MTU to 1500.



RPD Software release 4.0.12

4.0.12 is a maintenance release intended to fix some specific issues found in the earlier SW versions. This chapter lists the new features, fixes and other changes in the SW version 4.0.12 compared to the previous release version 4.0.10.

Starting at SW version 4.0.10 the Teleste RPD SW is released only for devices with CableLabs production certificates. Please contact Teleste support organization in case you have older devices without production certificates.

➢ Release date 23.6.2022

➢ RF-level changes on input and output signals

- OFDMA level increased by 1.25 dB [12672]

  In earlier SW versions the OFDMA signal receive levels were measured slightly inaccurate causing the OFDMA channels to be about 1.25 dB lower level than ATDMA channels configured with the same level.

- OFDM level increased by 0.4 dB [13030]

  In earlier SW versions the OFDM level was about 0.4 dB too low

- NDF power level corrected [12946]

  NDF channel output power is now the same as the output power of a 6 MHz wide QAM channel (20 dBmV at the RPD module output). This applies when both channels have zero offset and the NDF complex RMS signal magnitude is 1.414 as in the reference signal in the R-OOB. The NDF channel total output power is the same regardless of the configured NDF channelwidth.

  The NDF output level is about 4.5 dB lower than with SW 3.2.23 to fix the erroneous power level reference calculation in 3.2.23.

- NDR power level corrected [13025]

  NDR received power level is now reported to Core as about 3.5 dB lower than before. In earlier SW versions RPD had incorrectly calculated reference level causing 3.5 dB error. In case feedback-loop based NDR level adjustment, the resulting real signal level in coax plant will be 3.5 dB higher than before.

➢ Harmonic CableOS related changes

- Added support for pilot tones with CableOS [12526]
- Support for US level configuration at Node RF port with CableOS [11464]
- Fixed OFDMA channel power configuration with CableOS [12450]
- Fixed generic problem of RPD not getting online with some CableOS configurations [12906]

➢ Fixed issues

- 10GE interface transmit signal quality in DAN3 [12970]



- OFDMA performance with RP values other than 64 [12578]
- Events on AC voltage not working in DAN3 and DAN300 [11611]
- DS Channel may toggle on/off few times during bootup [12907]
  This was caused by RPD not fully respecting TLV 60.9 (MoveToOperational)
- Invalid OFDMA configuration can cause RPD boot loop [12806]
- OFDMA negative power offset towards ATDMA is not applied at boot-up [12698]
- US signal level 6 dB too low in when used with Casa or E6000 Cores [12648]

➢ Known issues

- Luminato video-only use-case without PTP synchronization is not fully supported [12489]
  Can be used for lab testing purposes but not for field installations.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
  Any interruption of video channel L2TP input stream longer than 4 consecutive L2TP frames is counted as the stream stopping and re-starting instead of a sequency error. Therefore such incidents are not visible in the sequency error counter.
- Packet loss in narrow OFDM channels [10314]

  OFDM channels with channel-width less than 100 MHz may suffer occasional packet loss with Intel chipset based cable modems. RPD will send an event message and indicate with CLI command **show downstream channel configuration** in case the used OFDM configuration is affected. The issue can be workaround by zero-bit-loading few subcarriers in the affected channel as instructed by the CLI command.
- The default value for control interface MTU is 2025. [4010]

  The high MTU value may cause problems in case the CIN network contains switches with MTU 1500 and the other end (CCAP Core) is also configured for higher MTU. Workaround is to use the CLI command “set control-plane mtu 1500” to change the MTU to 1500.



RPD Software release 4.0.10

This chapter lists the new features, fixes and other changes in the SW version 4.0.10 compared to the previous release version 3.2.23

Starting at SW version 4.0.10 the Teleste RPD SW is released only for devices with CableLabs production certificates. Please contact Teleste support organization in case you have older devices without production certificates.

➢ Release date 31.3.2022

➢ New features

- RFM SW updates included in the RPD SW image [8144]

  AC9100, DAN300, DAN3 and ICON7900 RFM SW image is now included in RPD SW image. The RFM is automatically updated as part of the SSD process.
  Please note that the RFM update is performed before the RPD update and therefore the RPD needs to be already running minimum of 4.0.10 when starting the SSD process for the RFM SW update to be performed.
  The RFM SW update can be disabled by appending the RPD SW image name with postfix rfm-update-disabled, for example as rpd-module-4.0.10-rfm-update-disabled.bin

  The RFM SW versions included in this image are:
  DAN3: 1.5.11
  DAN300: 1.5.11
  AC9100: 4.11.11
  ICON7900: 3.1.6

- Spectrum capture (UTSC) support for SID trigger modes [2665]
- Initial support for G.8275.1
  Contact Teleste support for instructions on enabling G.8275.1 for testing purposes
- Support for GCP keep-alive monitoring [9673]
- WBFFT internal web page modified to present real received US levels [6442]
  The levels shown now match the levels in the RPD module US input connector

➢ RF-level changes on input and output signals

- Annex A SC-QAM level increased by 1.25 dB [9634]

  In earlier SW versions the Annex A SC-QAM transmit level was interpreted as the channel total power. Starting 4.0.10, it is interpreted as power per 6 MHz slice as defined by CableLabs specification. This will increase the Annex A SC-QAM channel transmit level by 1.25 dB when using the same configuration as before.

- Upstream target power level decreased by 2 dB [9885]

  In earlier SW versions the device calibration data was interpreted slightly incorrectly causing the upstream receive power levels to be about 2dB higher than configured. This is now fixed and the upstream levels of ATDMA and OFDMA channels will thus decrease about 2 dB. After the adjustment the absolute levels will more accurately match the configured values.

- NDF power level corrected [9633]



In earlier SW versions the NDF level was interpreted as the channel total power. Starting 4.0.10, it is interpreted as transmit power per 6 MHz slice as defined by CableLabs specification. This will decrease transmit power for all other NDF channels than mode 7 (25.6 MHz). For example power-level for 1.28 MHz NDF channel will be 13 dB lower than before.

- NDR power level corrected [9257]

  In earlier SW versions the NDR level was interpreted incorrectly against the NDR channel width. Now fixed to be as defined by CableLabs specification. This will increase level for channels narrower than 1 MHz and decrease the level for channels wider than 1 MHz.

➢ New and improved CLI commands

- **show reset history** to show the RPD startup history [6658]
- Added received FCS error counter to 10GE ports in command **show interface statistics** [12308]
- Several cosmetic fixes and small corrections on help texts, command outputs and error messages [6184, 8112, 7970, 8501, 5453, 8843, 8593, 7968, 8761, 9778, 9739, 8116, 10751]
- **show l2tp session tunnelID sessionID** output fixed [8393]
- **set active-sw-image** command modified to more clearly select which SW to use [8114]
- Added NDF configuration to **show downstream channel configuration** [8591]
- Added NDR configuration to **show upstream channel configuration** [8528]

➢ TLV and Event support

- Added support for Event 66070522; Memory utilization threshold exceeded
- Added support for Event 66070523; Memory utilization threshold exceeded condition cleared
- Added support for Event 66070519; Successful login on local management interface port
- Event sending during GCP reconnect fixed to be specs compliant [8162]
- Fixed sensor indexing in Events [11452]
- Added support for TLV 65.11; UsScQamConfig.EqualizationCoeffEnable [9083]
- Added support for TLV 97.8.15; RpdPtpPortUnicastContractDuration [6401]
- Added support for TLV 45.1; CalibrationConstantK [7961]
- Added support for TLV 107; RpdBackupCoreStatus [6398]
- Fixed the data-format in TLV 100.21.1 (local date and time of day) [9417]
- Fixed the unit in TLV 100.18.32 & 100.18.33; MeasuredTxOutputPwr & MeasuredRxInputPwr [10165]
- Added support for AuxCoreResult Notification [9852]

➢ Harmonic CableOS related changes

- Support for Node DS level and tilt configuration with CableOS [10636]



- Support for Upstream ingress noise mitigation with CableOS [10269]
- Partial support for CableOS CLI command **show cable rpd X:Y video-channel counters** [10344]
  Note that supporting the CableOS **show cable rpd X:Y video-channel counters** CLI command with Teleste RPD may require new SW version also at CCAP Core.

➢ Other changes

- Faster bootup [8241]
  RPD bootup is optimized and the device now reaches online state about 70 seconds faster than with the previous SW version.
- PTP robustness against network jitter improved [6423, 12298]
- OS update [1237]
- RPD time initialized to midnight, Jan 1, 1970 UTC at bootup as specified by CableLabs specs [3815]
- Added new syslog messages [8106]
- Power consumption measurement accuracy enhanced [8436]
- CPU performance optimization [9536, 9520, 10308, 10836, 10432]
- Added more data to techsupport file [8638, 10322, 11280]
- SW-driver for alternative PSU-controller which may be taken into use in a future HW version [11578]
- Outdated diffie-hellman-X-sha1 SSH key exchange algorithm not supported anymore [10081]
  This may prevent SSH connection from some older SSH clients

➢ Fixed issues

- Blocking PTP traffic one-directionally in upstream-only causes PTP issues even if alternate PTP master would be available [5611]
- Downstream channels are set to oper-down without holdover-timeout in case PTP fails from time-locked to frequency-locked state [5611]
- PTP GM change event is a vendor specific event. To be modified to a Cablelabs standard event [7467]
- PTP may not lock properly at some bootups [2573, 7410]
  This may have caused incidents where RPD do not reach correct operating state after bootup and therefore will reboot again by internal watchdog.
- PTP clock selection uses Priority1 field even it should not be used with G.8275.2 [9756]
- False event Enclosure door opened condition cleared (66070514) sent at every bootup [8123]
- Techsupport file may contain only partial information [8639]
- SW update may fail on internal error on rare occasions [8390]
  In such a situation no event is sent on the SSD fail.
- Factory reset not reliably removing all techsupport files and other stored files [7618]



- DS OFDM pseudowire counters not working [9237]
- Re-configuration of wide NDF channel breaks the channel for few seconds [8830]
- PTP status query may occasionally fail resulting an error message in CLI [7578]
- OFDM status counters may sometimes show wrong values [9649]
- Event configuration allowed from Auxiliary Core. [9099]
  Fixed to allow event configuration only from Primary Core
- ASYNC video stays erroneous after input signal disturbances [9777]
- Event merging not working as specified in R-PHY [2427]
- minbasePower capability reported incorrectly as 0 [10498]
- AC voltage events not working in DAN3 & DAN300 [11611]
- GCP-reconnect total timeouts (GcpReconnectTimeout * GcpRecoveryActionRetry) smaller than 40 seconds are not working properly [12265]
- Only one DsOfdmProfile reported to TLV queries even multiple would be configured and used [10455]
- RpdSessionStats TLV show incorrect data for video pseudowires [8582]

➢ Known issues

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  Can be used for lab testing purposes but not for field installations.
- Video channel L2TP input sequency error counters not detecting long interruptions [12534]
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