RX8000

Version 8.25.1

Customer Release Notes

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Table 1 – Revision history

Doc issue	SW version	Date	Change
116	8.20.0	14.09.2018	Update to version 8.20.0
117	8.21.0	09.11.2018	Update to version 8.21.0
118	8.21.1	14.01.2019	Update to version 8.21.1
119	8.21.2 CS	21.01.2019	Update to version 8.21.2 CS
120	8.22.0	05.02.2019	Update to version 8.22.0
121	8.23.0	05.04.2019	Update to version 8.23.0
122	8.24.0	07.10.2019	Update to version 8.24.0
123	8.24.1 CS	27.01.2020	Update to version 8.24.1 CS. Document restructure.
124	8.24.2 CS	17.03.2020	Update to version 8.24.2 CS
126	8.25.0	08.04.2020	Update to version 8.25.0
127	8.25.1	17.04.2002	Update to version 8.25.1

1. Changes to Release 8.25.1

> **NOTE:** Upgrading from older versions may require the embedded audio groups to be reconfigured.
>
> **NOTE:** Subtitles configuration may change during upgrading to this release and re-configuration may be required.

1.1. New Features

None.

1.2. MIB, OID and SNMP changes

None.

1.3. Issues Corrected

Service NOW	Summary
	RX8200 release 8.25.0 is unable to decrypt feeds that are Director 5.2 scrambled
212786	RX8200 release 8.17.0 or greater is unable to decrypt feeds that are BISS1 scrambled

1.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
212551	RX8000 does not configure audio routing on the embedded output correctly when automatically transitioning between Audio Configuration modes from PAA to AAC Multi-Channel. It is necessary to manually toggle between Audio Configuration modes to correct this.
	Can't decode scrambled services when switching from Director version 5.2 to version 5.0
210820	VITC is out by +/- 2 frames.
	S2X card does not lock when carrier returns after being dropped (multiple times). Believed to be issue when using low symbol rate below 5MSym/s.
213011	S2X card does not lock with insertion of PLS Gold Code 0
208350	After 82 or 83 days running, RX8200 fitted with DVB-S2X card (Board Type 1935) shows no TS lock alarm
	RX8200: HW ver 1.7.4 presents video glitch
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover

	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

2. Compatibility

The table below identifies what RX8000 variants are compatible with this release.

> **NOTE:** Any attempt to use this release to upgrade RX8000 variants that are not compatible with this release may cause the target RX8000 to become unresponsive.

Table 2   Supported RX8000 variants

	RX8200	RX8252	RX8305	RX8310	RX8310B	RX8315	RX8320	RX8330	RX8330C
RX8000 variants supported by this release	●			●	●	●	●	●	

2.1. Director Compatibility

2.1.1. Entitlements

RX8000 release version 8.2.0 or greater will contain security enhancements to handling Director CA. When upgrading just the RX8000 used in an existing nCC and Director system, no further actions are required.

> **NOTE:** If the RX8000 is later downgraded to a release version that does not support the Director security enhancements, then all entitlements stored in the RX8000 will be invalidated and lost.

> **NOTE:** Switching between the software Flash Banks to a version that does not support the Director security enhancements will invalidate entitlements stored in the RX8000.

2.1.2. Targeting IRDs for the Over-Air Software Download Service

When using Director to perform the Over-Air Software Download (OASD) to a population of receivers, all RX8000 variants supporting Director will accept the OASD service and so caution should be taken when targeting receiver types.

> **NOTE:** Not all RX8000 variants are compatible with the same code version. This is indicated in the Table 3 below.

Table 3 Target variants supported by this release

	RX8200	RX8252	RX8305	RX8310	RX8310B	RX8315	RX8320	RX8330	RX8330C
RX8000 variants compatible with the OASD image in this release	●			●	●	●		●	

2.1.3. Over-Air Software Download Limitations

RX8000 units already running software versions 7.1.0 up to and including 7.11.0 will not accept software updates via Director's over-air software download feature. These units must be upgraded locally using the methods described in section **5**, *How to Install This Software*.

If the target unit is a RX8200 fitted with the S16056 Multi-Standard Decoder card (Board Type 1933), it may be necessary to upgrade these units locally using the methods in section **5**, *How to Install This Software*. If the Multi-Standard Decoder card has software and firmware version 3.0 or greater installed then the target RX8200 can be upgraded using the OASD service. If the decoder card has a lesser version installed then both the unit and the decoder card must be upgraded locally.

2.2. Hardware compatibility

2.2.1. Control Interface card (ASI input) version 0.2.1 and above

This card requires software version 5.13.3 or later.

2.2.2. JPEG2000 Support

2.2.2.1. Second Generation 4:2:2 Decoder Card (Board Type 1921)

The S15148 4:2:2 Decoder card is limited to which video decoding standard it will decode and therefore it is either commissioned for MPEG2 and H.264 decode or JPEG2000 decode. It can't support both.

If the S15148 4:2:2 Decoder card has been commissioned for JPEG2000 video decode then the *RX8200 must be running version 5.13.5* because this is the only version that supports this configuration.

Where the S15148 4:2:2 Decoder card has been commissioned for MPEG2 and H.264 video decode then it is recommended to upgrade the RX8200 to the latest version supported in this release.

2.2.2.2. Third Generation 4:2:2 Decoder Card (Board Type 1933)

As of version 7.14.0 and onwards, the S16056 Multi-Standard Decoder card can support decode of JPEG2000 streams. All existing Multi-Standard Decoder cards can be licensed and updated to support JPEG2000 decoding and continue to decode MPEG2 and H.264 standards. The RX8200 will automatically activate the appropriate firmware on S16056 Multi-Standard Decoder card according to the active service selected for decode.

2.2.2.3. JPEG2000 Streams from an Ericsson AVP2000/3000 Encoder

When the RX8000 is decoding a JPEG2000 stream that has been encoded using the *Ultra Low Delay* mode setting from an Ericsson AVP2000/3000 encoder then the "422 VSync Lock" option on the RX8000 must be **enabled** and the "Frame Sync" must be **disabled**.

2.3. Software Compatibility

2.3.1. Active Video Decoder

With the latest software, the active decoder used for video decode will be dependent on the video delay settings as well as the video source type.

Table 4   Acitve Decoder determined by video source and RX Delay mode

RX Delay Mode	4:2:0 Video Source		4:2:2 Video Source	
	Base Decoder	4:2:2 Decoder Card	Base Decoder	4:2:2 Decoder Card
Compatibility	●			●
Standard	●			●
Low		●		●
Mega Low		●		●
User-Defined		●		●

When the **RX Delay Mode** is set to *Standard* or *Compatibility* then 4:2:0 video is always decoded on the RX8000 Base Decoder (motherboard). If the optional 4:2:2 Decoder card is fitted, then using any of the other **RX Delay Mode** options will force 4:2:0 video to be decoded on the 4:2:2 Decoder card. This is indicated in Table 4 above.

NOTE: If the 4:2:2 Decoder card is used, then it will not be possible to display DVB or Teletext subtitles. Aspect ratio changes and resolution conversions are also limited. Full support is only available when decoding 4:2:0 video in Standard or Compatibility delay modes.

2.3.2. Video Decode Latency

Using the 4:2:2 Decoder achieves a lower decode latency when decoding H.264 but for MPEG2 streams this lower latency is only accessible with the later generations of 4:2:2 Decoder cards:

- Third Generation 4:2:2 Decoder card (Board Type 1933)

- Fourth Generation 4:2:2 Decoder card (Board Type 1936)

For 4:2:0 video content, the *Low Delay* license may be required to take advantage of this but not the 4:2:2 *Decode* licenses.

NOTE:	When decoding MPEG2 4:2:2 video then the **RX Delay Mode** should be set to *Compatibility* mode to guarantee video decode for all buffer models.

2.3.3. Video Error Recovery Mode

The Base Decoder has a **Video Error Recovery Mode** setting that affects how the RX8000 will handle decode errors from the incoming video stream. The default setting is *NORMAL* which is equivalent to the handling behavior in previous software releases. Setting the mode to *HIGH* reduces issues with stream errors but this can also prevent streams with only marginal errors from decoding.

It is recommended to configure the **Video Error Recovery Mode** to *NORMAL* unless there are issues from incoming streams that cause a permanent failure with the Base Decoder where a reboot is the only means of recovery.

This feature does not apply to the optional 4:2:2 Decoder card.

2.3.4. Web Browser Compatibility

Since software version 8.0.0 and upward, the RX8000 can be configured to present one of two web interface modes: Dashboard View and Advanced View.

The Dashboard View feature only available when the RX8XXX/SWO/DASHBOARD license is enabled. If this license is activated the Dashboard View will be presented by default. However, in this case both modes have a button in the top right corner of the web interface to allow the user to switch between modes.

2.3.4.1. Dashboard View

A simplified view showing the most common RX8000 options on a single page that is compatible with most modern web browsers and works on their latest versions.

2.3.4.2. Advanced View

The classic web interface that has always been presented by the RX8000 and exposes all of the RX8000 options across a number of tab views. This mode is unchanged from the classic web interface and remains compatible with the browsers listed below.

Table 5   Web browsers compatible with RX8000 Advanced View

Web Browser	Supported Versions	Limitations
Microsoft Internet Explorer	6, 7 and 8	None
Chrome	30	None
Opera	17	None

| Firefox | 24 | If Firefox is used simultaneously with any other browser it can result in reduced performance and timeouts while browsing the RX8000 web interface. This does not apply to multiple tabs within one instance of Firefox. |

3. File Versions for this Release

This section documents all code versions for all modules applicable to this release.

3.1. RX8000 Modules

3.1.1. RX8000 Motherboard Application

This is the main motherboard application image.

File Name	Image Version	Director OASD Images	Director OASD Version
main.bin	8.25.1	oad_RX8000_sw_17985.pds	17985

3.1.2. S16570 Multi-Standard Decoder PLUS

This is the Fourth Generation 4:2:2 Decoder card supporting MPEG2, H.264 and HEVC decode.

File Name	Image Version	Director OASD Images	Director OASD Version
S16592.fibs (MPEG2/H.264)	FW 5.7.25236 SW 5.9.25255	N/A	N/A
S16594.fibs (HEVC)	FW 5.7.25236 SW 5.9.25255	N/A	N/A

3.1.3. S16056 Multi-Standard Decoder

This is the Third Generation 4:2:2 Decoder card supporting MPEG2, H.264, JPEG2000 and limited HEVC decode.

File Name	Image Version	Director OASD Images	Director OASD Version
S16247.fibs (MPEG2/H.264)	FW 5.7.25236 SW 5.9.25255	N/A	N/A
S16643.fibs (HEVC)	FW 5.7.25236 SW 5.9.25255	N/A	N/A
S16470.fibs (JPEG2000)	SW 3.4.20547 FW 3.2.21483	N/A	N/A

3.1.4. S15148 MPEG 2/4 4:2:2 Decoder

This is the Second Generation 4:2:2 Decoder supporting MPEG2 and H.264 decode.

File Name	Image Version	Director OASD Images	Director OASD Version
S15148.fibs (MPEG2/H.264)	FW 5.7.25210 SW 5.9.25261	N/A	N/A

3.1.5. S14993 HD Video Output

This is the HD Video Output module identified as having HW-ID 1.1 or lower. This supports SD-SDI and HD-SDI.

File Name	Image Version	Director OASD Images	Director OASD Version
S14993.fibs	1.1.1	N/A	N/A

3.1.6. S15145 3G HD Video Output

This is the 3G HD Video Output module identified as having HW-ID 1.2 or higher. This supports SD-SDI, HD-SDI and 3G-SDI.

File Name	Image Version	Director OASD Images	Director OASD Version
S15145.fibs	1.5.9	N/A	N/A

3.1.7. S60110 G703 Input Card

This is the first generation G.703 Input card module.

File Name	Image Version	Director OASD Images	Director OASD Version
S15142 .bin	1.2.2	N/A	N/A

3.1.8. S15100 IP Input and S15702 IP/S2 Input Cards

This is the Dual IP Input card and the Combined IP/S2 Input card. The same software and firmware images apply to both card types.

File Name	Image Version	Director OASD Images	Director OASD Version
S15100_fw.bin	0.110	N/A	N/A
S15100_sw.bin	0.34	N/A	N/A

3.1.9. S16245 Small Form Factor IP I/O Card

This is the Small Form Factor (SFF) IP Input/Output card.

File Name	Image Version	Director OASD Images	Director OASD Version
S16245.fibs	SW 3.5.0 FW 3.26	N/A	N/A

3.1.10. S16407 DVB-S2X Input Card

This is the DVB-S2X Input card.

File Name	Image Version	Director OASD Images	Director OASD Version
S16407_1935_000.fibs	1.0.8.66006	N/A	N/A
S16407_1935_001.fibs	1.0.8.66006	N/A	N/A

3.1.11. S15183 G703 Input Card

This is the second generation G.703 Input card module.

File Name	Image Version	Director OASD Images	Director OASD Version
S15183.bin	SW 1.1.0 FW 1.4.0	N/A	N/A

3.1.12. S15441 BSkyB Descrambler Card

This is the BSkyB Descrambler card module.

File Name	Image Version	Director OASD Images	Director OASD Version
S15441.fibs	1.2.0	N/A	N/A

3.1.13. S15678 SKIT Descrambler Card

This is the Sky Italia Descrambler card module.

File Name	Image Version	Director OASD Images	Director OASD Version
S15678.fibs	1.1.0	N/A	N/A

4.   Related Documentation

4.1.   Associated Documents

The following manuals/guides are also associated with this equipment. These can be accessed by:

- Contacting the MediaKind Customer Support team
- MediaKind Service NOW portal: https://mediakind.service-now.com/csp/

Table 6   Associated documentation

Document Identity	Title
1553-FGB 101 759 Uen K	RX8000 Integrated Receiver/Decoders – Reference Guide

5. How to Install This Software

5.1. Read This First!

Before starting, ensure that the programming procedure is well understood.

NOTE:	Upgrading a product will interrupt its normal operation. Ensure that the unit is not in use before commencing any upgrade operation.

5.1.1. Note Regarding upgrade of DVB-S2X card (S16407)

Once the DVB-S2X card has finished upgrading, it will reboot itself automatically and validate the new code image as it boots up. It is important that the RX8000 is NOT REBOOTED during this time otherwise this could invalidate the new code image and the upgrade procedure will need to be repeated from the beginning.

It should not take more than 30 seconds for the DVB-S2X card to boot up and validate the new code image. The new version can be checked by referring to the SW Version listed in the Modules table found under the Device Info tab of the web interface.

Once the new Software Version change has been confirmed, it should be safe to reboot the RX8000 if desired.

5.2. Install Software with Upgrade Utility

5.2.1. Compatibility

The upgrade utility will upgrade units running v5.12 or later releases only. In case the unit is running any older SW version, please follow the manual upgrade method described in section 5.3.

5.2.2. Installation

RX8000 Unit Upgrade Utility is distributed in two forms:

1. EXE file that will install the correct Java environment on a Windows PC.
2. JAR file that can be launched on a PC running Linux or Windows.

NOTE:	The RX8000 Unit Upgrade Utility is not supported on any MacOS nor on any Virtual Machine running on a MacOS.

5.2.3. EXE File Distribution

The EXE file distribution is intended for a Windows PC only.

1. Double click the RX8000 Unit Upgrade Utility EXE file to run the installer (e.g. the file called RX8000UpgradeUtility-7.15.0.exe for version 7.15.0 distribution).

2. Setup the target installation folder then click **Next**.

3. Setup the shortcut path for the Start Menu folder then click **Next**.

4. When you are ready to proceed with the installation, click **Install**.

5. Click **Finish** when the installation has finished.

6. To launch the upgrade utility, navigate to the RX8000UpgradeUtility-X.X.X program from the Windows Start menu e.g. **Start > All Programs > Ericsson** or the shortcut path specified in step 3 above.

5.2.4. JAR File Distribution

The JAR file distribution can run on a Windows or Linux PC. The distribution has been built using **Version 8** of the Java Runtine Environment (JRE) so this is the version that needs to be pre-installed on your target PC. Running the JAR file should launch the upgrade utility.

5.2.4.1. Quick User Guide
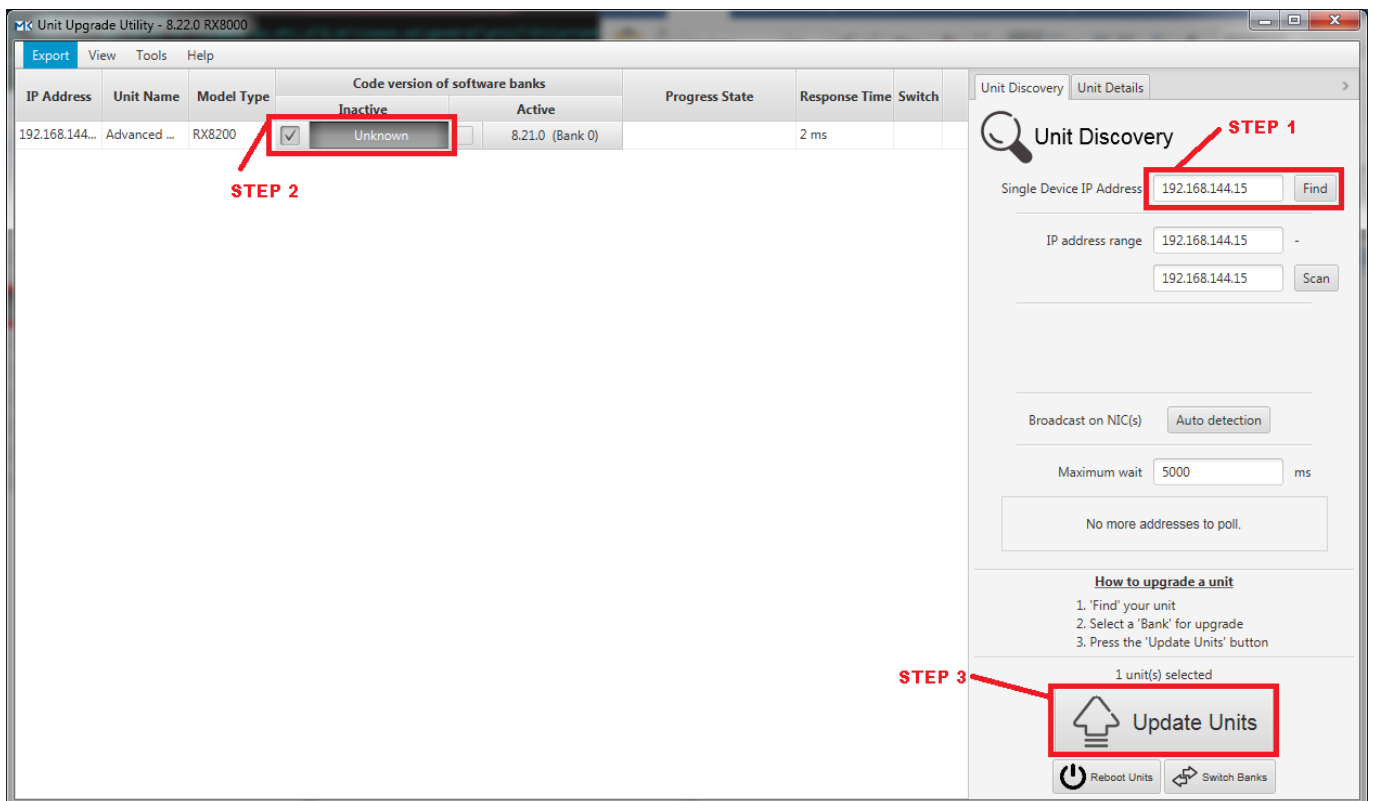
5.2.4.1.1. STEP 1 – Find Device on Network

Go to the **Unit Discovery** tab and enter the IP address of the device in the **Single Device IP Address** field then click the **Find** button.

The device should appear in the left pane with the expected **Model Type**.

5.2.4.1.2. STEP 2 – Select Bank for Upgrade

All devices discovered on the network are listed on the left pane of the Unit Upgrade Utility. Tick the **Inactive** or **Active** software bank column for the device that will be upgraded.

The selected software bank will become the active software bank after the upgrade and the device has rebooted.

> **NOTE:** By default, only the *Inactive* software bank can be selected. See *Advanced Mode* in the Configuration Options to expose the Active software bank.

5.2.4.1.3. STEP 3 – Upgrade Units

Click the large **Update Units** button at the bottom right side of the upgrade utility.
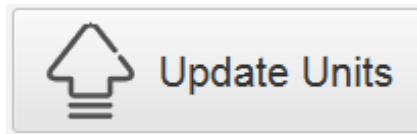
When a device is selected for upgrading, the wizard will determine what cards are installed on the device and upgrade all cards to the versions contained in the distribution package.

> **NOTE:** The Upgrade Utility does not allow the user to pick and choose which modules to upgrade. All fitted modules will be upgraded.

5.3. Install Software Manually

5.3.1. Batch File Installation

1. Connect the unit's Ethernet port to a PC containing the download image and the upgrade batch file. This can be achieved in two ways:

   a. A point to point connection (between unit and the PC) with an Ethernet crossover cable: The unit must be configured to an appropriate IP address and subnet mask such that it can be seen by the PC.

   b. The unit can be connected via a hub or local network: If the unit is connected to a hub or local network, the unit must be set-up so that it can be seen by the network.

2. The unit should now be tested for connectivity. To do this, open a DOS window on the networked PC. At the DOS prompt type:

```
ping <ip address>
```

3. If the unit is successfully connected to the network, some replies should be seen at the DOS prompt, these will be of the form:

```
reply from <ip address> bytes =32 time = nn TTl =nn
```

> **NOTE:** If no valid replies are seen then steps 1 to 3 should be repeated.

---

4. The batch file **updateallrx8000.bat** is supplied with the code package. This batch file allows the update of code to either flash bank of the RX8000 and also allows option cards to be upgraded.

5. Ensure the batch file **updateallrx8000.bat** is placed on the networked PC in the same directory as the new image file **main.bin** and any other option card software images.

6. Using a DOS window, navigate the directories until the directory with the above two files is accessible.

7. At the DOS prompt type:

```
Updateallrx8000.bat
```

8. The batch file will now prompt the user for the IP address of the unit to be upgraded. Enter the target IP address followed by the Return key.

```
===============================================================================
                    RX8000 Software Package Downloader
===============================================================================


Enter IP Address of unit: 192.168.1.12
```

9. The batch file will now prompt for the board type to be upgraded. This will be either the Mainboard code or one of the option cards installed on the unit. Enter the option number followed by the Return key.

```
Option   Description                                              Board Type
=======  ======================================================  ===========
  0.     Mainboard only                                          1900
  1.     H264 422 card (S15148) only                             1921
  2.     H264 422 card (S15148) and Mainboard                    1900, 1921
  3.     G.703 card (S15183)                                     1929
  4.     IP input card (S15100)                                  1914
  5.     SKIT descrambler card (S15678)                          1923
  6.     BSkyB descrambler card (S15441)                         1923
  7.     Update mainboard from R2D releases                      1900
  8.     HD SDI Card (S14993 - HW ID up to v1.1)                 1915
  9.     3G HD SDI Card (S15145 - HW ID from v1.2 or higher)     1915
 10.     Multi Standard Decoder card MPEG2/H.264 (S16247)        1933
 11.     Multi Standard Decoder card JPEG2000 (S16470)           1933
 12.     Small Form Factor IP card (S16245)                      1934
 13.     DVB-S2X card (S16407)                                   1935
 14.     MSD PLUS card MPEG2/H.264 (S16592)                      1936
 15.     MSD PLUS card HEVC (S16594)                             1936
 16.     Multi Standard Decoder card HEVC (S16643)               1933
```

```
Select upgrade choice (Q to quit):
```

10. If the Mainboard code has been selected, the batch file will prompt for the Bank to upload the code in to. Enter the desired Bank number followed by the Return key.

```
Enter BANK for main code 0,1:
```

NOTE: In most cases it is recommended only to upgrade the Mainboard code to bank 0; in that way bank 1 may be used as a code backup in the event of a problem and allow the unit to be recovered.

11. The batch file will feedback information during the upload similar to that shown below:

```
===============================================================================

making config file
adding mainboard to config
FTP transfer config to target on ip 192.168.1.12...
please wait....
Connected to 192.168.1.12.
220 RX8000 unit ready for user ...
User (192.168.1.12:(none)):
331 Password required for user tatsuper.

230 User logged in.
ftp> binary
250
ftp> Hash mark printing On  ftp: (2048 bytes/hash mark) .
ftp> hash
put main.bin app0
200 Set port to XX.XX.X.XX:XXXXX.
150 opening data connection
########################################################################
########################################################################
########################################################################
########################################################################
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226-starting update..... please wait
226-update in progress...
226 updated code...
ftp: 6359923 bytes sent in Seconds Kbytes/sec.
ftp> 2.692361.65bye
221 Closing connection ... goodbye.
Transfer complete


===============================================================================


Unit downloader completed.
Please check downloadHistory.txt before reboot!


===============================================================================
```

12. The upgrade is complete when the following information is reported in the DOS prompt:

```
226 updated code…
ftp: xxxxxxxx bytes sent in x.xx Seconds xxx.xx Kbytes/sec
```

13. If the information reported in step 12 is not seen, **do not reboot the unit**. Repeat steps 7 onwards.

14. If the information reported in step 12 is still not seen, please contact a member of Ericsson Customer Support. The text file downloadHistory.txt is created during the upgrade process and this must be sent to Ericsson Customer support with your query so that an investigation can be carried out.

15. If the DVB-S2X option card has been upgraded, then please see the **CAUTION** below.

16. If the unit has successfully upgraded i.e. the Mainboard code or any other option card other than the DVB-S2X card, it is necessary to reboot the unit for the new code to take effect. Ensure that the DVB-S2X card has finished validating its new code image before rebooting the RX8000 unit as described in step 15.

5.3.2. Caution Regarding Upgrade of DVB-S2X card (S16407)

Once the DVB-S2X card has finished upgrading, it will reboot itself automatically and validate the new code image as it boots up. It is important that the RX8000 is **NOT REBOOTED** during this time otherwise this could invalidate the new code image and the upgrade procedure will need to be repeated from the beginning.

It should not take more than 30 seconds for the DVB-S2X card to boot up and validate the new code image. The new version can be checked by referring to the **SW Version** listed in the Modules table found under the **Device Info tab** of the web interface.

Once the new software version change has been confirmed, it should be safe to reboot the RX8000 if desired.

5.4. Upgrading CI CPLD on RX8315/30

1. Ensure the RX8315 or RX8330 is connected to the network as described in section 5.3.1 above (follow step 1 to 3).

2. The batch file UpdateCamCpld.bat is provided with the code package to specifically update the CI CPLD.

3. At the DOS prompt, type the following where the IP address of the unit should be entered as the first argument for the batch file:

```
UpdateCamCpld.bat <IP Address>
```

4. The unit will now be upgraded via ftp.

5. The upgrade is complete when the following information is reported in the DOS prompt:

```
226 updated code...
ftp: xxxxxxxx bytes sent in x.xx Seconds xxx.xxKbytes/sec
```

6. If the unit has successfully upgraded, reboot the unit for the code to take effect.

6. Previous Releases

6.1. Changes to Release 8.25.0

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.1.1. New Features

6.1.1.1. BISS-CA

BISS-CA is now supported by the RX8200 IRD. The following licences are available for this feature:

- RX8XXX/SWO/BISSCA

Implementation supports:

- Buried Key pair
- Injected Key pairs (x2)
- Self-Generated Key pairs (x2)
- Single service decryption at service level (component level decryption not supported)

6.1.1.1.1. IMPORTANT: First Time Installation

- The RX8000 unit should be upgraded using the Upgrade Utility as described in section 5, *How to Install This Software*.
- Once the unit has been allowed to boot up and is running, apply the BISS-CA licence key (available from MediaKind once Customisation Serial Number provided).
- Reboot the RX8000 unit and allow to boot up.
- Wait for Buried Key pair to be generated (this can take between a few minutes to up to 30 minutes). If rebooted during this time, generation will be restarted. This is a one-time process so once the keys have been generated it won't be necessary to wait for the keys to be generated after the unit has been rebooted again.
- During this initial process, the BISS-CA Initialising alarm will be raised. It will automatically clear once BISS-CA is fully available for operation.

6.1.1.1.2. BISS-CA Status

BISS-CA Status can be checked in the RX8000 web interface under the ***Advanced View > CA > BISS-CA*** section.
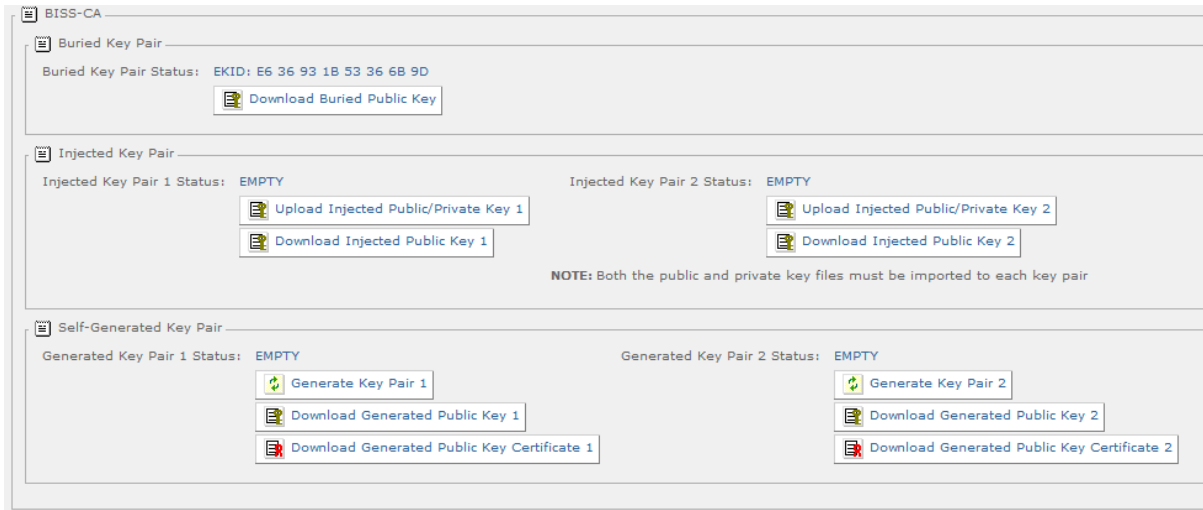
Status for each key pair (Buried Key, Injected Key or Self-Generated Keys pairs) will report one of the following states:

- **EKID: xx xx xx xx xx xx xx xx** – A valid public/private key pair is present and the Encryption Key ID of the public key is as reported

- **EMPTY** – No key pair loaded

- **GENERATING** KEY – The RX8000 is in the process of generating the public/private key pair

- **QUEUED FOR GENERATION** – A new public/private key pair has been requested, but the receiver is currently generating another public/private key pair

- **PAIR MISMATCH** – The public and private keys do not form a valid key pair. The correct complementary key must be loaded onto the unit

It is possible to determine if the RX8000 is 'entitled' to decrypt the incoming service by checking the *CA Service Status* from the web interface via the *Advanced View > CA > Service Status* section. For a service being decrypted using BISS-CA, this is reported with the following Status:

- **AUTHORISED** – The EKID recovered from the transport stream matches the EKID of one of the Key pairs stored on the RX8000

- **NOT AUTHORISED** - The EKID recovered from the transport stream **does not** match the EKID of any of the Key pairs stored on the RX8000.

For details of other CA Status states, please refer to the RX8000 Reference Guide (*section 3.11.1, General CA Status*).

6.1.1.1.3.   Importing Key Pairs

Of the three supported key pair types, only Injected Key Pairs can be imported into the unit. The keys are added using the **Upload Injected Public/Private Key 1** or **Upload Injected Public/Private Key 2** buttons.
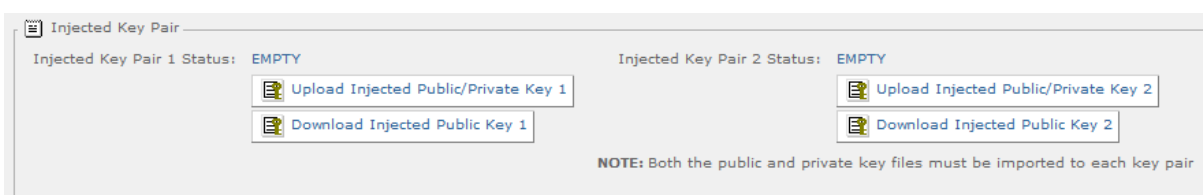
For each pair, both a public key and private key file must be loaded, but can be loaded in either order.

Two injected key pairs are supported to allow the rapid changing between headends, or for one key pair to be changed whilst the other is in use.

6.1.1.1.4. Generating Key Pairs

The unit supports two self-generated key pairs, allowing for the rapid changing between headends, or for one key pair to be changed whilst the other is in use. To generate a new key pair, the **Generate Key Pair 1** or **Generate Key Pair 2** button is used.
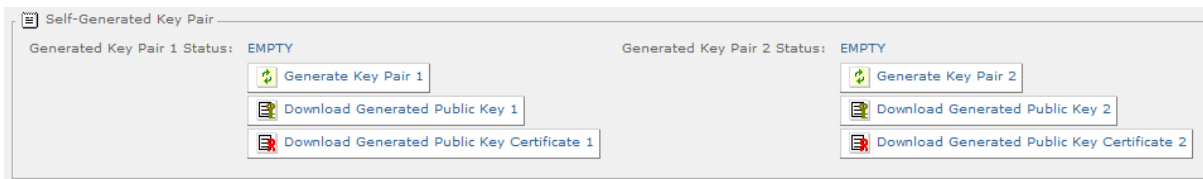
Requesting a new key pair causes any key currently stored in that slot to be immediately invalidated, but it may take several minutes (nominally 15) for a new key pair to be generated, and key pairs are generated consecutively.

6.1.1.1.5. Exporting Public Keys and Certificates

The public keys for all five slots may be downloaded. The default name of the download file is of the form RX8000-XX-XX-XX-XX-XX-XX-XX-Slot Name.pub, where XX-XX-XX-XX-XX-XX-XX represents the unique internal serial number of the unit, and Slot Name which key was requested. These details are required should MediaKind be asked to validate the source of a public key.

The Buried Key pair must be generated internally on the first boot after the BISS-CA licence is enabled. Once created, it will remain unchanged for the product's lifetime, and the public key may be downloaded using the **Download Buried Public Key** button
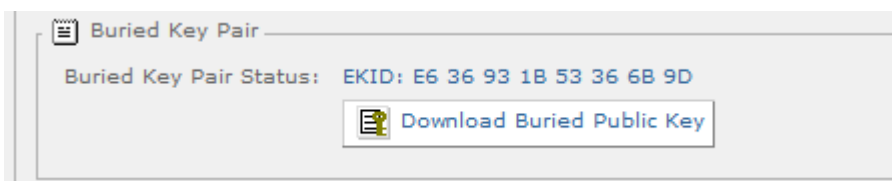
Injected public keys may similarly be downloaded using the **Download Injected Public Key 1** or **Download Injected Public Key 2** buttons as appropriate.

Self-generated public keys may be downloaded in two forms. If **Download Generated Public Key 1** or **Download Generated Public Key 2** is used, then the format will be the same as for the buried and injected public keys, and this format may be required if the headend does not accept the alternative format.

If the first form is used, MediaKind will not be able to establish if requested if the key originated from a known and genuine receiver. If validation is required, then the **Download Generated Public Key Certificate 1** or **Download Generated Public Key Certificate 2** must be used. This format encapsulates the public key into a X.509 certificate which may be used with other certificates provided by MediaKind to establish validity.

6.1.2. MIB, OID and SNMP changes

None.

6.1.3. Issues Corrected

Service NOW	Summary
212177	SFF IP I/O Card: the green and yellow LEDs of the IP Data port will stay on even when the cable is not connected.
211975	SFF IP I/O Card: Input Stream and Port selection not saved in Preset store.
	Unable to access BISS Aston Pro CAM
317723	Rx8200 ASYNC data via PID stops outputting
	Configuration settings are now internally saved on the DVB-S2X card to improve recovery if the card resets itself
	Recovery watchdog put in place to poll the configuration settings on the DVB-S2X card and then refresh the configuration settings if it does not match the expected values pushed by the motherboard

6.1.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
212551	RX8000 does not configure audio routing on the embedded output correctly when automatically transitioning between Audio Configuration modes from PAA to AAC Multi-Channel. It is necessary to manually toggle between Audio Configuration modes to correct this.
	Can't decode scrambled services when switching from Director version 5.2 to version 5.0
210820	VITC is out by +/- 2 frames.
	S2X card does not lock when carrier returns after being dropped (multiple times). Believed to be issue when using low symbol rate below 5MSym/s.
213011	S2X card does not lock with insertion of PLS Gold Code 0
208350	After 82 or 83 days running, RX8200 fitted with DVB-S2X card (Board Type 1935) shows no TS lock alarm
	RX8200: HW ver 1.7.4 presents video glitch
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode

	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.2. Changes to Release 8.24.0

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.2.1. New Features

None.

6.2.2. MIB, OID and SNMP changes

- Rebranded to MediaKind

6.2.3. Issues Corrected

Service NOW	Summary
	Fixes for audio dropout and crashing stack overflow (DSP version 5.4.0)
	Improvements to Dolby lip-sync corrections (DSP version 5.3.0)
	PAA audio output channels are silenced unexpectedly (DSP version 5.2.0)
207689	Impossible to access some of the CA menus presented by the NEOTION CAM. Can crash unit and cause reboot.
	Unit becomes unresponsive on service switch and requires reboot to recover
	NTSC MPEG-2 @ 15 Mbps won't decode on MSD in Rx Mega Low
	Unable to descramble fixed key streams using Director
209220	Decoding trouble when RX8200 populated with 1933 or 1936 MSD card. Unit with 1921 card works fine (MP2 HD 1920x1080i 422; bottom field first)

6.2.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream

	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.3. Changes to Release 8.23.0

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.3.1. New Features

6.3.1.1. BISS2

Support for BISS2 Mode 1 and BISS2 Mode E. The following licences are available for this feature:

- RX8XXX/SWO/BISS2
- RX8XXX/SWO/BISS2/MSD

6.3.2. MIB, OID and SNMP changes

None.

6.3.3. Issues Corrected

Service NOW	Summary
207884	Difficulties to decode the Video on 4:2:2 card when BISS starts
207332	Video glitching every ~25 secs port to MK2 422 Decoder card
207332	Video glitching every ~25 secs port to HEVC decoder on MSD and MSD+ card

6.3.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
207689	Impossible to access some of the CA menus presented by the NEOTION CAM. Can crash unit and cause reboot.
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs

	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.4. Changes to Release 8.22.0

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.4.1. New Features

6.4.1.1. MediaKind Rebrand

The RX8000 user interface and Upgrade Wizard has been rebranded to use the new MediaKind logos.

6.4.2. MIB, OID and SNMP changes

6.4.2.1. RX1290 MIB compatibility mode

The RX8000 can be configured to respond to OIDs from the RX1290 MIBs. The RX8000 must first be configured to use the RX1290 MIBs and then **rebooted** for the mode change to take effect. The setting is available from the web interface under the *Advanced View > SNMP > MIB Format*.

- Whilst the RX8000 is configured to use the RX1290 MIB format, it will not respond the RX8000 MIB format.
- Whilst the RX8000 is configured to use the RX8000 MIB format (default), it will not respond the RX1290 MIB format.

The RX8000 does not fully support all of the available OIDs defined in RX1290 MIBs. A summary of the supported RX1290 MIBs are listed below, but only a subset of those may be supported:

- Control Mode
- Service ID selection
- Alarm Source status
- Video frame-sync status
- Input status, transport stream ID and network ID
- Satellite card control

6.4.3. Issues Corrected

Service Now	Summary
264469	SFF: All streams on service split fail on disabling one service on ETH1

6.4.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
207689	Impossible to access some of the CA menus presented by the NEOTION CAM. Can crash unit and cause reboot.
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs

	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.5. Changes to Release 8.21.2 CS

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.5.1. New Features

None.

6.5.2. MIB, OID and SNMP changes

None.

6.5.3. Issues Corrected

Service NOW	Summary
207745	The "Single Filter Service Slaved to Decode" tick box is dropped after the reboot

6.5.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
264469	SFF: All streams on service split fail on disabling one service on ETH1
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.6. Changes to Release 8.21.1

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.6.1. New Features

None.

6.6.2. MIB, OID and SNMP changes

None.

6.6.3. Issues Corrected

Service NOW	Summary
205533	RX8000: Web GUI stops working and output seems unaffected
207332	Video glitching every ~25 secs when decoding MSD/MSD+ 422 decoder card
	Closed Captions disappear after RF disruption or rain fade when using 422 decoder card

6.6.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma

264469	SFF: All streams on service split fail on disabling one service on ETH1
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
205530	DVT_MSD: +/- 20 ms variation in Dolby E PT locking/relocking/rebooting
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.7. Changes to Release 8.21.0

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.7.1. New Features

None.

6.7.2. MIB, OID and SNMP changes

None.

6.7.3. Issues Corrected

Service NOW	Summary
	DVT: IPO card status is always Down
	DVT: NDS descrambler card and CA Lite card not detected in 8.20.0
	DVT: HD-SDI lost temporarily with HQ DoCo card
206272	When using TS monitoring, missing PID switch occurs if stream is descrambled
205515	RX8200 decoding issue - Colour artefacts
205356	RX8200 with 422 decoder card will glitch when 422 decoder card MPEG code is greater than code version 4.4.
205864	Upgrade tool does not find the RX if authentication is not the default one
	DVT: SFF card does not come online intermittently (Link down)
	Russian SECAM card does not work in 8.20.0
	Comms between option card intermittent

6.7.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	SFF: All streams on service split fail on disabling one service on ETH1
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
205472	Seamless protection enabled - if ports are different speeds, the unit crashes
203192	When TTX present, VITC not working correctly
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream
	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video

	with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)

6.8. Changes to Release 8.20.0

NOTE: Upgrading from older versions may require the embedded audio groups to be reconfigured.

NOTE: Subtitles configuration may change during upgrading to this release and re-configuration may be required.

6.8.1. New Features

None.

6.8.2. MIB, OID and SNMP changes

Service NOW	Summary
	RX8000 MIB corrections for audio coding standards and IP input IGMP version

6.8.3. Issues Corrected

Service NOW	Summary
205975	RX8200 SFF IP card keeps streaming even after rebooting
206003	IP output: unicast sent out with a wrong MAC
205702	RX8200 SFF IP card incorrectly reporting IGMPv2 instead of IGMPv3, rx8200 with 1231 shows correct IGMP version
205421	Some Estonian Teletext Subtitle characters incorrectly displayed
205857	RX8200 - After unit is rebooted - descrambling fails and the secondary keys XML file need re-uploading to restore descrambling
	BIST fails when checking composite signal levels when Multiburst test pattern is active
	RX8000 MIB corrections for audio coding standards and IP input IGMP version
	Exploit: Ericsson RX8200 Advanced Modular Receiver Cross-Site Scripting
	DVT: On Dashboard IGMP version is displayed as '?' instead of '-' when not available

6.8.4. Known Remaining Problems

The following lists all recorded issues that remain with the RX8000. The majority of these issues have not been retested with the latest software so this list should not be taken as definitive.

Service NOW	Summary
205856	Frame sync on Rev 5 controller card not working for 4K quad tiled systems
	DVT: RX8200 CA Error alarm after booting, locks to inputs but cannot 'see' any services, requires reboot to recover
	SFF: All streams on service split fail on disabling one service on ETH1
	DVT: MSM packet originated from SFF output card is having incorrect header checksum causing MGP to non-function
	DVT: Decode and output stop when seamless switching is fed with two excessive jittery inputs
206272	When using TS monitoring, missing PID switch occurs if stream is descrambled
205712	RX8330 is unable to decoder AAC audio when rx8200 is working fine
205864	Upgrade tool does not find the RX if authentication is not the default one
	DVT: After packets drop (both paths) period ends, it takes 6-7 minutes for stable video decode
	SYSARCH: Sky UK SD Refresh: Splicing accuracy problems
	DVT: FEC streams do not lock in seamless protection switching mode
205356	RX8200 with 422 decoder card has glitch at certain point when 422 decoder card MPEG code is higher than certain code. i.e. 1921 is 4.4, 1933 MPEG is 3.3
205515	RX8200 decoding issue - Colour artefacts
	RX8xxx v7.23.4 Beta 2 - SD 720x576/480 and 704x576/480 decode is washed out / uses a desaturated colour reproduction on RX8330 & RX8200 ST - Chroma and Luma
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI for ITV HD service
205472	Seamless protection enabled - if ports are different speeds, the unit crashes
203192	When TTX present, VITC not working correctly
	DVT: Test pattern 'Auto' makes RX8330 crash with one particular stream

	MSD+ sometimes boots with either -33ms or +46ms when decoding 1080i29.97 video with separate PCR PID
	DVT: Director command to set 'working' BISS key breaks decode
	DVT: During excessive packet drops from both paths, unit dos not raise 'Seamless Switching Sync Failure' alarm
	DVT: Director commands working only if sent via 'Batch'
	DVT: Burnt-in Teletext subtitles and OP47 are not available on HD-SDI when Teletext Insertion is enabled for OP47(SDP)
	DVT: ECM PID is dropped after reboot in Remap mode
	DVT: OP47 Teletext occasionally missing at WFM when compared to burnt-in Teletext subs
	MSD+ sometimes decoding section of HEVC MLD test cases as pink
	DVT_RX8200: Frame sync offset difference when using Rev5 (MK5) controller card
	DVT: Service name and provider not available in output when service splitting from SFF card
	DVT: Teletexts not decoded by WFM on down-converted SD-SDI
	DVT: Pink Output on HD-SDI with HQ DoCo card
	DVT: No input lock in seamless protection mode when path1 is RTP and path2 is UDP stream
	DVT: 'Service Split Overrate' alarm does not kick in when defined output bit rate is less than that of service
	DVT: Seamless protection does not recover when source temporarily output UDP
	DVT: Selecting secondary stream switches off seamless protection
	Forcing HD to downscale to SD-SDI output introduces 1 video frame delay to A/V sync, making audio lead video (e.g. 50Hz = +40ms lip-sync error)
	MSD+ 1080p Hi422 10-bit Low Delay - stuttering decode
	DVT: Burnt-in Teletext subtitles are not available on SD-SDI when Teletext Insertion is enabled for OP47(SDP)