MediaKind RX1

Version 14.1.0.3

Release Notes

Document History
Issues of this document are listed below:

Doc issue	Author	Date	Change
1	NR	14 Mar 18	MFCP Release 10.1.0.0
2	NR	12 Jul 18	Release 10.2.0.0
3	NR	14 Aug 18	Release 10.3.0.0
4	NR	29 Aug 18	Release 10.3.0.1
5	NR	08 Oct 18	Release 10.4.0.0
6	NR	18 Jan 19	Release 10.4.0.1
7	NR	26 Feb 19	Release 10.5.0.0
8	NR	26 Mar 19	Release 10.5.0.1
9	NR	23 Apr 19	Release 10.5.0.3
10	NR	16 May 19	Release 10.5.0.4
11	NR	31 May 19	Release 10.6.0.0
12	NR	05 Jul 19	Release 10.6.10.0
13	NR	02 Aug 19	Release 10.6.11.0
14	NR	10 Aug 19	Release 10.6.12.0
15	NR	14 Oct 19	Release 10.6.12.1
16	NR	30 Mar 20	RX1 Release 11.0.4.0
17	GS	10 Jul 20	Release 12.0.0.0.0
18	GS	18 Sep 20	Release 12.0.1.0.0
19	GS	06 Oct 20	Release 0.12.2.0 (Preview)
20	GS	14 Apr 21	Release 12.0.2.1.0
21	GS	04 Jun 21	Release 13.0.0.1
22	GS	17 Jun 21	Release 13.0.0.2
23	GS	06 Jul 21	Release 13.0.0.3
24	GS	21 Jul 21	Release 13.0.0.4
25	GS	21 Jul 21	Release 13.0.0.5
26	GS	05 Aug 21	Release 13.0.0.7
27	GS	06 Sep 21	Release 13.0.1.2
28	JJM	28 Sep 21	Release 13.0.2.0
29	GS	10 Nov 21	Release 13.0.3.0
30	GS	02 Dec 21	Release 13.0.3.1
31	GS	16 Dec 21	Release 13.0.4.0
32	GS	25 Jan 22	Release 13.0.5.0
33	GS	28 Jan 22	Release 13.0.5.1
34	GS	08 Feb 22	Release 13.0.5.3
35	GS	21 Feb 22	Release 13.0.5.4
36	GS	21 Feb 22	Release 13.0.5.5
38	GS/JS	12 May 22	Release 14.0.0.1
39	HB/JS	15 Jul 22	Notes on Release 14 Hardware requirements and deprecated home page
40	GS/JS	15 Oct 22	Release 14.1.0.3
41	JS	26 Oct 22	Updates for clarification on use cases
42	JS	10 Nov 22	Fixed typing error in script name

Contents

1 Overview

These are the **Release Notes** for the **MediaKind RX1** edge device.

This document is intended to record the completed functionality along with any debug information, defects, or operational limitations for the current release of MediaKind RX1.

MediaKind RX1 is a software application designed to run on multiple platforms. Some platforms may support hardware acceleration to either reduce cost or increase performance. It is intended that the technology and development can be transferred to assist in either the DTH products or contribute to a wider MediaKind RX1 offering.

1.1 Product Hardware

The following list of hardware is currently supported by the **RX1** at this code release.

1.1.1 Current supported hardware

- ASI input into the Receiver service
- SAT demodulation
- DVB-Common Interface
- Hardware accelerated video decoder with up to 12G SDI or 2022-6 via SFP.
- Software Decode for 4:2:0 using SDI output card
- Quad 1G ethernet I/O
- Dual 10G ethernet I/O
- Dual 25G ethernet I/O with support for SMPTE ST-2110
- ASI output from the Stream Processing service

1.2 Product Documentation

For the latest **Configuration Guide** and other RX1 product literature please visit:-

https://mediakind.service-now.com/csp/

1.3.1 General Information

The code is available from MediaKind customer services.

The following sections of the security guide are not applicable for the current release of RX1

- Section 3.3 Network security
- Section 3.6 Security of system hardware
- Section 3.7 Security of origin server

1.4 Customer Services Contact Information

Please e-mail MediaKind customer services at:

support@mediakind.com

Alternatively, contact numbers for your region can be found here:

https://www.mediakind.com/services-contacts/

Note: When downloading the support package from the *Support zone*, please make sure the **maximum** option is selected. Due to the length of the file name generated for the support package, WinZip cannot be used to extract the log information. An alternative such as 7zip should be used.

2 Current release

2.1 Version 14.1.0.3 (Advance Release)

2.1.1 Overview

This version is intended to provide new features and bug fixes to the RX1.

This version of code will replace the existing code as the factory shipping code.

2.1.2 Important note on supported hardware

RX1 v14 will only run-on servers with 16GB RAM and > 120GB SSD (128 GGB SSD recommended). To verify the capability of the server, please refer to Appendix A of this document.

2.1.3 Note on uploading a bundle via the UI

When running RX1 v14.0.0.1 or older, and uploading a 14.1.0.3 bundle via the UI, an "Upload failed - Proxy error" message may be displayed. This error message is misleading, and the upload is most likely to have been successful. After seeing this message, check that the option to use the uploaded bundle is available.

Upgrades from RX1 14.1.0.3 and above are not affected.

2.1.4 Note on upgrading via USB

If upgrading via USB is necessary and upgrading via the UI is not possible, please contact Customer Support.

2.1.5 Deprecated functionality

The RX1 homepage is no longer available in RX1 version 14.x.
To visualize the RF status, please browse into the relevant receiver service.

2.1.6 New Functionality

- Support for SMPTE ST2022-7 on the IP Input of the receiver service
- Support for export of metrics via Prometheus
- Buried Key for BISS-CA

2.1.7 Fixed Defects

Id	Severity	SNOW	Summary
1423050	Blocker		Buried Keys are not supported in BISS-CA
1410806	Blocker		RX1 lost remote access after rebooting
1429548	Major	PRB221951	RX1 Solution 1.7.1.5 does not decode/decrypt services on PT2 (TS-550) after an input reassignment
1424664	Major	PRB0221833	Upgrade failure issue due to issues with customer IP settings
1416884	Major		Image overlay via SCTE triggers
1414723	Major		File read speed is not regulated. Large files are not read completely
1414413	Major		SCTE35 component is required if manual input PID selection is used in the splicer
1403531	Major		SRT Worker Launcher using old builder
1404122	Major		SRT Native Metrics: Some counters do not report correct value. Seem to stick.
1431170	Major		SRT Native Metrics: metrics names do not all match existing mk-scraper
1458262	Major		SRT Worker-launcher does not provide arguments to SMT worker
1400884	Medium	PRB0221354	Audio and Video distortion while decoding TSoIP transport stream
1408744	Medium	PRB0221510	On some units DirV5 OAD is not working at RX1 without reboot of unit or restart of the Director Service
1411102	Medium	PRB0221582	RX1 Solution 1.7.1.5/1.6.6.0 receives an OAC command to download and switch to a golden config. The RX1 gets stuck on the configuration download
1427703	Medium	PRB0221915	Video failure mode set to black, randomly outputs black/green.
1423050	Medium	PRB0222096	HEVC HD Stream issue from Haivision (Makito X4) Encoder.
1456513	Medium		No gateway set causes Solution Manager Transcode to CrashLoopBackoff. If seen in an older version, the workaround is to ensure that a gateway is set.

2.1.8 Known Defects

The following defects are known to affect this version.

Id	Severity	SNOW	Summary
1456830	Major	PRB0222188	Decoder HDSDI output flashing grey fed with 150Mbps TS containing 4x 1080p59.94 4:2:2 10-bit
1459073	Medium	PRB0222246	Three faults 1. Front panel not working 2. PSU faulty 3. Decoder failure alarm
1460817	Medium	PRB0222297	Making a change to ASI input service, impacts other ASI input services running.
1467071	Medium	PRB0222403	RX1 failed to descramble after a new config was applied
1468352	Medium	PRB0222442	Director 5, issues decrypting when set up for multi receiver service descrambling
1471136	Medium	PRB0222538	RX1 presents video glitches on independent decoder/decryption services when OAC command to 'force service selection' is sent to one of the other deco/decrypt services
1429176	Major		"Upload Failed - Proxy Error" shown on UI when importing bundle file
1474293	Major		Factory Installer does not work if bundles > 4GB

1474447	Major		Upgrade from USB does not work if bundles > 4GB
1380203	Major		Active Active (Switch on Failure) on TS Passthrough reports incorrect Current Input Status
1301053	Major		BISS-CA glitches when EMM update occurs at same time across 4 x IW
1284951	Major		Sporadic Video input failure on ST 2110 ancillary data soak test
1231746	Major		Multiple default gateway addresses can result in the unit becoming uncontactable. The front panel allows all ethernet interfaces to have a gateway address set, but it is recommended that the default gateway be set on only one ethernet interface.
1077274	Major		Unicast fails on eth1: eth1 placed into control zone on reboot
1446970	Major		Excessive OASD log messages causing rapid IW log filling/rotation
1447258	Major		Video decoding bitrate reported as 0.00 Mbps and not as 25.0 Mbps due to Service Scrambled alarm
1468958	Major		Upgrade from 14.0.1.3 to 14.1.0.0 results in incorrect alarms raised on a service that was not running and cannot be cleared
653692	Major		MPEG2 frame encoded, bottom field first stream not correctly displayed
653669	Major		Changing pid from a number to auto does not take effect until service is restarted
653687	Major		Service output is corrupted during the support package generation. When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit. The UI may also show Internal Server Error during that operation.

2.1.9 Tested Use Cases

The use cases described below have been tested to verify density.

RX1 at this release has the following maximum densities with decoder card (hardware acceleration):

- HD 4:2:2 decodes (4 receiver services) with 16 audios (audio PID) total across all four services.
- 1 UHD 4:2:2 decode with 8 audios (single service)
- HD 4:2:2 decodes (3 receiver services) with 20 audios total across the 3 services
- HD 4:2:2 or 4:2:0 decodes (3 receiver services) with SRT over IP input

RX1 at this release has the following maximum densities with software only:

- UHD 4:2:0 decode with UHD SDI output and 720p SDI output + 8 audios
- HD 4:2:0 (1 receiver service decode) with SRT over IP input
- HD 4:2:0 QSV transcode to SPTS (or MPTS output) with 5 HD transcoded services
- HD 4:2:0 QSV transcode to SD with 6 HD transcoded services
- 40 UDP to SRT services at 30Mbps per service

If any other use case or combination of services is required, please contact Product Management.

2.1.10 Supported features

2.1.10.1 Input Features

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options. Active-Standby or Active-Active input redundancy.

The satellite input option available is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS v1, BISS v2, Common Interface or Director.

After version 1.6.4.7, the cable receiver will auto-configure the list of services in the scrambling stage as they appear on the input TS. For this feature to operate correctly, a corresponding mkc config file will need to be loaded at least once after upgrading from 1.6.4.7.

In version 14.10.3 and above, the RX1 supports redundant input protection via SMPTE 2022-7.

2.1.10.2 Control Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces to set, the IGMP version being used and unit time synchronisation source.

Service selection, starting and stopping of decode and encode configurations, input tuning parameters, emergency home carrier details and software version control can be controlled via Mediakind's Director system.

2.1.10.3 Decode of 4:2:0 input streams with Software Decoding

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

Either a single service UHD or HD video decode is performed using a software decoder running on the Rx1 server. The following formats and codec are supported:

UHD Decode of one service with the following resolution

- 3840 x 2160p 8 / 10 bit, 4:2:0 (HEVC)

HD Decode of one service with the following resolution

- 1920 x 1080i 8 / 10 bit, 4:2:0 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode

- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)

Supported Passthrough

- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference using the video frame sync.

2.1.10.4 Multiple HD Transcode use case

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel.

Up to 5 HD video transcodes using a QSV transcoder running on the Rx1 server. The following formats and codec are supported:

Transcode of:

- 5x 1280 x 720p 8 / 10 bit, 4:2:0 (MPEG-2 / H.264 / HEVC)
- To 1280 x 720p, 4:2:0 (MPEG-2 / H.264)
- Along with
- To 2x SD 4:2:0 (MPEG-2 / H.264)

Other combinations of Transcodes are available, more information will be provided in the coming release notes.

Up to 3 channels (8 stereo pairs) of audio passthrough per service.

Supported Audio Passthrough:

- Dolby Digital

It is possible to select which audio service(s) is pass-ed-through by selecting them from a list provided by the incoming service information or by manually entering a PID value.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

More features and options are available on the UI but not fully qualified as part of the solution.

2.1.10.5 Multiple HD to SD Transcode use case

Up to 6 HD video to 6 SD transcodes using a QSV transcoder running on the Rx1 server. The following formats and codec are supported:

Transcode of:

- 6 x HD 720p 8 / 10 bit, 4:2:0 (MPEG-2 / H.264)
- to 6 x SD 480i 4:2:0 (MPEG-2 / H.264)

Other:

- Up to 3 x Dolby Digital audio passthrough per service.
- Closed Caption pass-through
- SCTE-35 Pass-through

More features and options are available on the UI but not fully qualified as part of the solution.

2.1.10.6 UHD to HD Transcode use case

1 UHD input from either Satellite input or IP input using a QSV transcoder running on the Rx1 server. The following formats and codec are supported:

Transcode of:

- 1x UHD 2160p 8 / 10 bit, 4:2:0 (HEVC)
- to 1 x HD 1080i or 720p 4:2:0 (HEVC/ MPEG-2 / H.264)

Other:

- Up to 3 x Dolby Digital audio passthrough per service.
- Closed Caption pass-through
- SCTE-35 Pass-through

2.1.10.7 Content ad replacement Decode use case (limited availability)

2 HD inputs from either Satellite input or IP input, splicing in a different advert for each input. The following formats and codec are supported:

Decode of:

- 2 x HD 1080i 8 / 10 bit, 4:2:0 (HEVC)
- SDI Output

The splicing feature is disabled by default and must be enabled before it can be used. See the section on "How to enable/disable Splicing" for how to do this.

2.1.10.8 Content ad replacement Transcode use case

2 HD inputs from either Satellite input or IP input using a QSV transcoder running on the Rx1 server. Splicing in a different advert for each input. The following formats and codec are supported:

Transcode of:

- 2 x HD 1080i 8 / 10 bit, 4:2:0 (HEVC)
- to 2 x HD 1080i or 720p 4:2:0 (HEVC/ MPEG-2 / H.264)
- IP Output

The splicing feature is disabled by default and must be enabled before it can be used. See the section on "How to enable/disable Splicing" for how to do this.

2.1.10.9 BISS-CA Decryption

The only supported modes for BISS-CA key pairs are:

- Self-generated key pair
- Injected key pair
- Buried key pairs

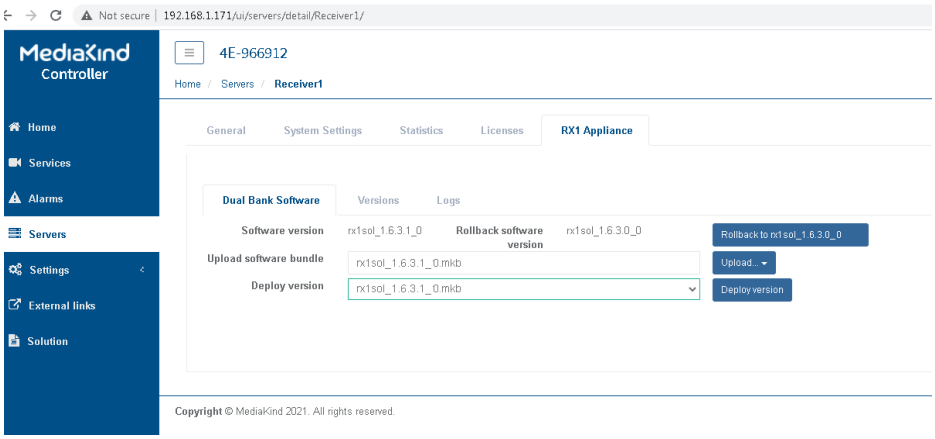
2.1.11 Upgrade and Rollback of Software from the User Interface

The Software Upgrade Bundle (.mkb file) can be upgraded or rolled back from a browser using the User Interface

1. Login onto the RX1 user interface using the username and password provided with the release
2. Browse to Servers > Little eye icon on the right > RX1 Appliance
3. In the Dual Bank tab, click on the "Upload the Software Bundle" and select a file

The option to

- "Upload and Import" allows you to upload a file and at a later point deploy it
- "Upload, Import and Deploy" allows you to upload a file and deploy it immediately
- "Rollback" allows you to roll back to the version in the other bank



2.1.12 Installation of Software via Front Panel USB (Dual Bank)

If upgrading via the UI is possible, it is simpler to use that method to upgrade.

If upgrading via USB is necessary and upgrading via the UI is not possible, please contact Customer Support.

2.1.13 Rollback of Software via Front Panel (Dual Bank)

When a new version of code is installed on an Rx1, the old version of code and the current configuration present at the time of installation are retained on the unit. The old version of code and stored configuration can be restored to the unit by the following steps.

1. On the front panel press the **RIGHT** key and then the **DOWN** key until the following menu is displayed

   Manage Version

2. Press the **RIGHT** key and then the **DOWN** key. The display will show the following

   Switch Version

3. Press the **DOWN** key until you find the bundle you wish to deploy and press the **ENTER** key.

The bundle will automatically be installed and run. The following will be displayed during installation and will take about 4.5 minutes.

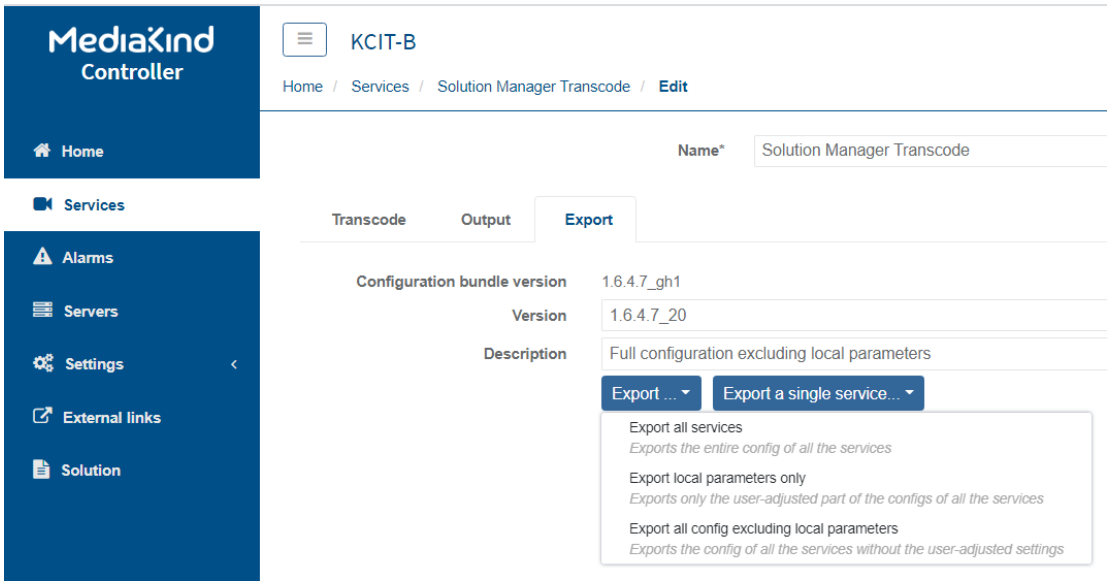
Note: Several software bundles can be stored on a unit. If a different version to the last running version is selected to be deployed, then the unit will be upgraded / downgraded to the new version rather than performing a rollback. The previous configuration will be overwritten as per a normal installation.

2.1.14 How to export configuration from the UI

The user has the option to export the configuration from the UI for the individual services. For distribution system, an additional feature was added to export all services in a single file from the UI so the full receiver configuration can be sent over the air to one or multiple receivers.

- Export all services: Exports the entire configuration of all the services
- Export local parameters only: Exports only the user-adjusted part of the configs of all the services
- Export all config excluding local parameters: Exports the config of all the services without the user adjusted settings

1. Browse to: Services > Solution Manager Transcode > Export tab



2. Enter the version of the config in the format x.x.x.x_x. This version is for tracking purposes only.

Note:

The file is saved as x.x.x.x_x.mkc and can be renamed but needs to end with the format x.x.x.x_x.mkc

For example a file saved as 1.6.4.7_20.mkc can be renamed as configuration_13April2021_1.6.4.7_20.mkc

2.1.15 License Requirements

Licenses on RX1 are ordered as Value Packs. License Value pack are Orderable codes that contain detailed numbers (tokens/licenses) shown on the user interface.

When ordering, it is clear what the unit is capable of. However, when a unit is in the field, it is difficult to know the unit capability based on what is displayed on the user interface.

The following information explains this mapping for the decode functionality.

2.1.15.1 License Requirements – Decode

There are currently 2 different types of license token used by the **Receiver Service**.
Audio tokens: These are used to enable MPEG-H audio decode.

Video tokens: These are currently used to enable all other licensed functionality.

UHD Video Decode

- 75 video tokens for a 4:2:2 UHD decode (Max 1 per RX1 chassis)
- 60 video tokens for a 4:2:0 UHD decode (Max 1 per RX1 chassis)

HD Video Decode

- 20 video tokens per 4:2:2 HD HEVC decode (Max 4 HD decodes requires 80 token)
- 16 video tokens per 4:2:2 HD MPEG-2 / H.264 decode (Max 4 HD decodes requires 64 tokens)
- 16 video tokens per 4:2:0 HD HEVC decode (Max 4 HD decodes requires 64 token)
- 12 video tokens per 4:2:0 HD MPEG-2 / H.264 decode (Max 4 HD decodes requires 48 tokens)

Audio Decode

- 5 video tokens per MPEG-H audio decode

Satellite Input

- 2 video tokens per channel for HOM, 16APSK and above (Max 4 inputs requires 8 tokens)

Director CA

- 1 video tokens per decrypted service.

2.1.15.2 License Requirements – Fixed Value Packs

- Licenses are loaded at the factory depending on the use case:
    - A la carte licenses for the relevant use case
    - Fixed license for Broadcast IRD, Cable IRD or Cable SD down-convert

2.1.16 How To Enable/Disable Splicing

The components required for the splicing system are available in the solution bundle but are not active by default.

If required, these components must be enabled.

To enable splicing, SSH into the RX1, enter username “mfeng” and password “2u4y&C”.

Execute the “enable-prisma.sh” command and then reboot.

This step will need to be repeated after upgrading the RX1 software.

To disable splicing, delete all TS Splicer, Viewing Policy Manager and Stream Conditioning services, then execute the “disable-prisma.sh” command, then reboot.

2.1.17 Splicing Operation After Software Upgrade

After upgrading from this version of RX1 to a later version, the following actions will need to be taken if using the Splicing feature:

- The Splicing feature will need to be re-enabled. See the section above on “How to Enable/Disable Splicing for how to do this.

- Advert files will be lost after an upgrade and will need to be manually replaced under /var/mediakind/tss-watchfolder.

- The stream conditioning automation will be lost and will need to be re-added under the "Resident SCTE-35 signal-based operations" panel.

2.1.18 SMPTE 2022-7

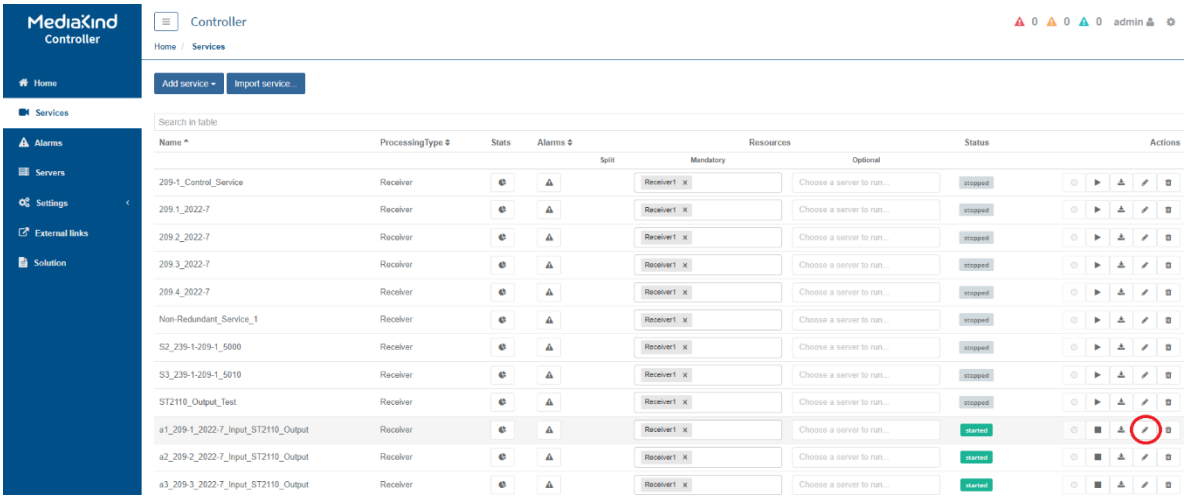
The RX1 provides the ability to protect the RX1 from IP input data loss by seamlessly switching between two incoming streams.

The streams are sent using RTP, a protocol which adds a sequence number to each packet prior to sending. This means the receiver is presented with two identical streams, sent over two paths.

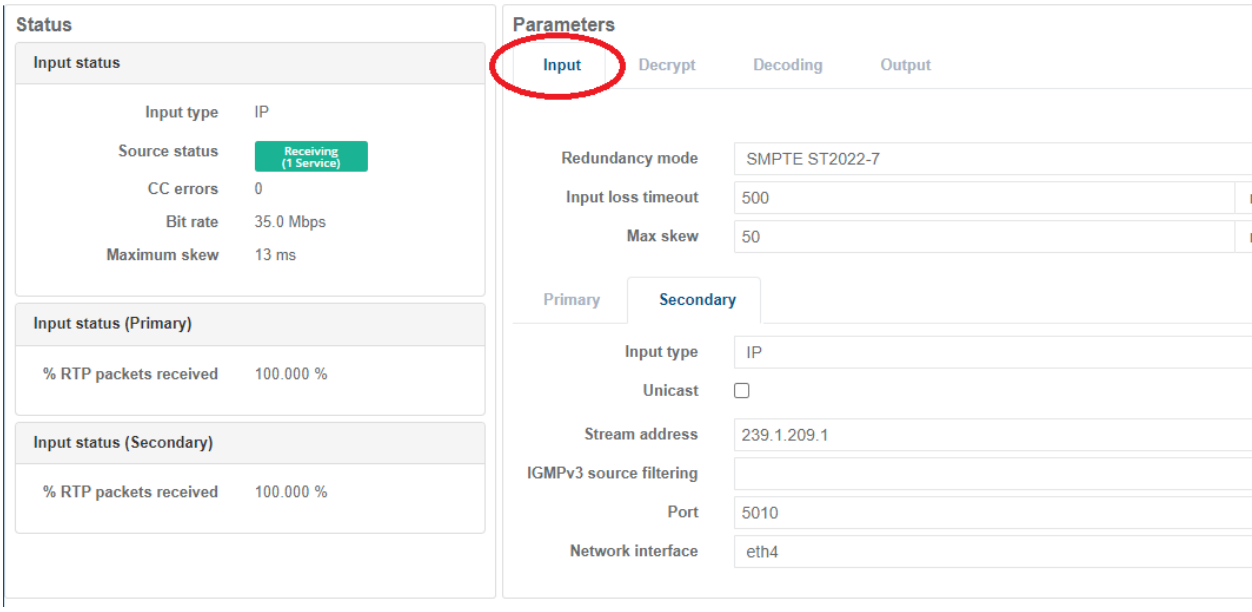
When one stream loses a packet, the receiver uses the sequence number to pick out the lost data from the other stream.

This is controlled from the input tab of the desired receiver service:

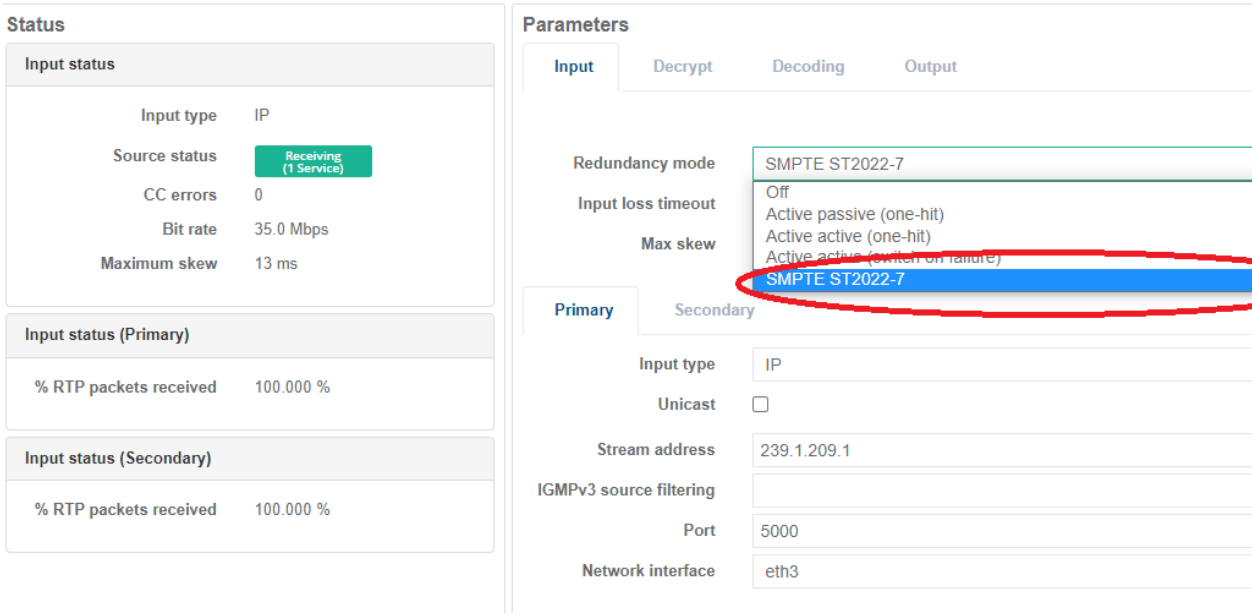
1: From the services item in the left ribbon select the edit icon for the service required:



2: Select the input pane:

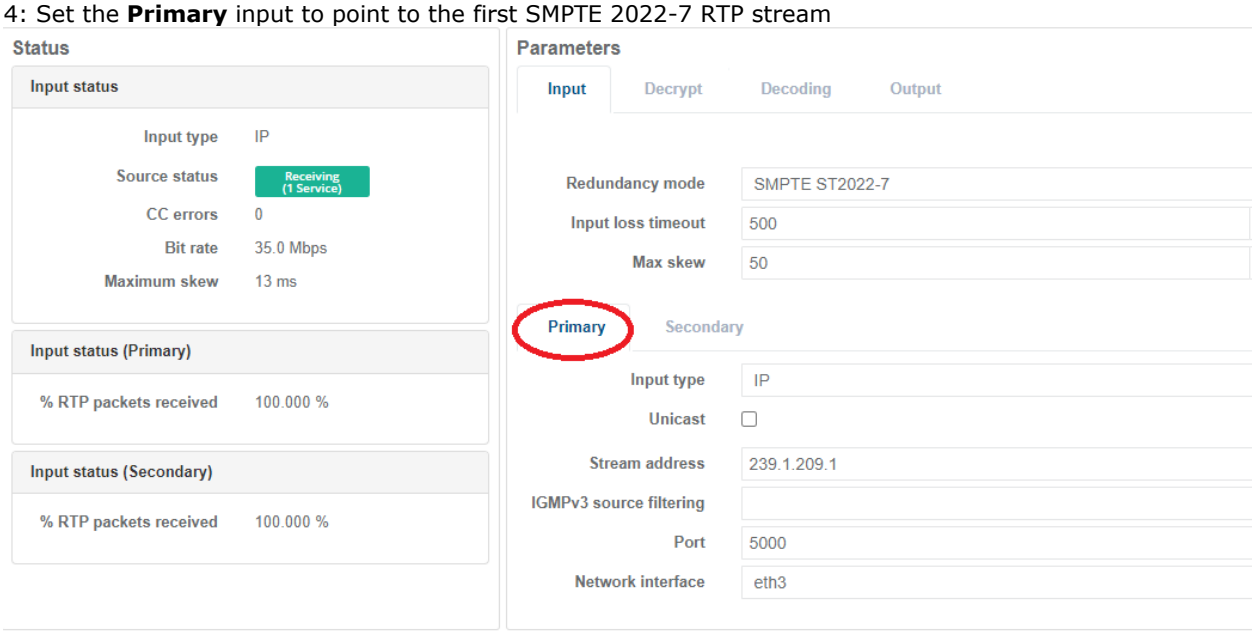


3: In the **Redundancy Mode** GUI item select SMPTE ST2022-7



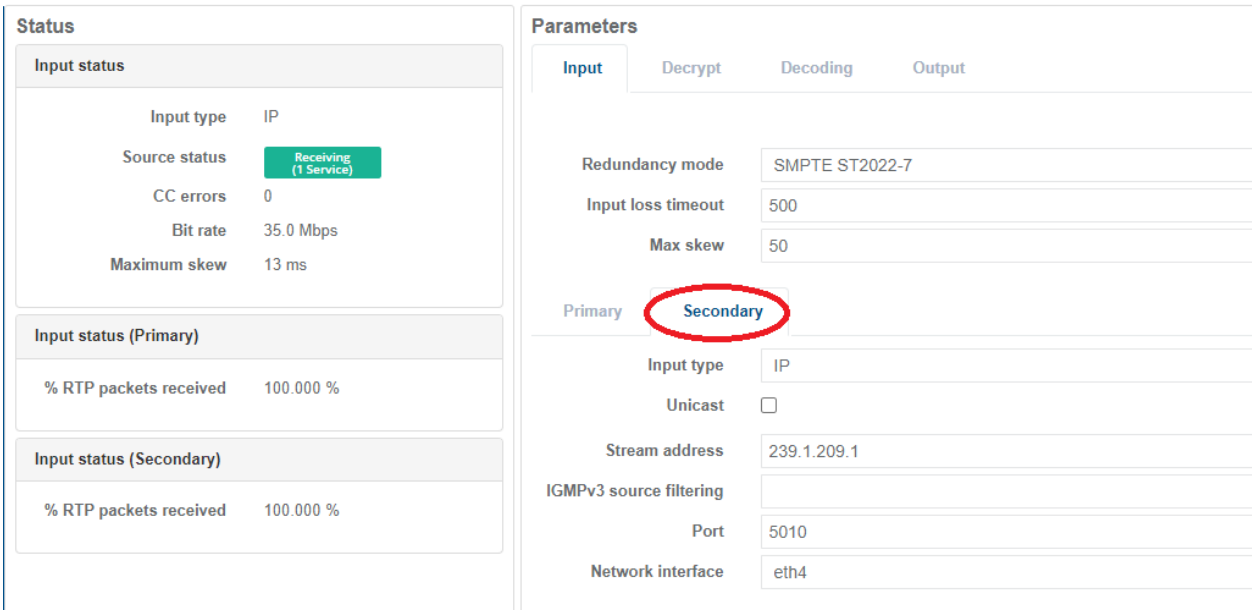
*Note: This will only function if both primary and secondary **Input types** are IP*

4: Set the **Primary** input to point to the first SMPTE 2022-7 RTP stream



In this case this is: 239.1.209.1:5000 and is presented on physical port eth3

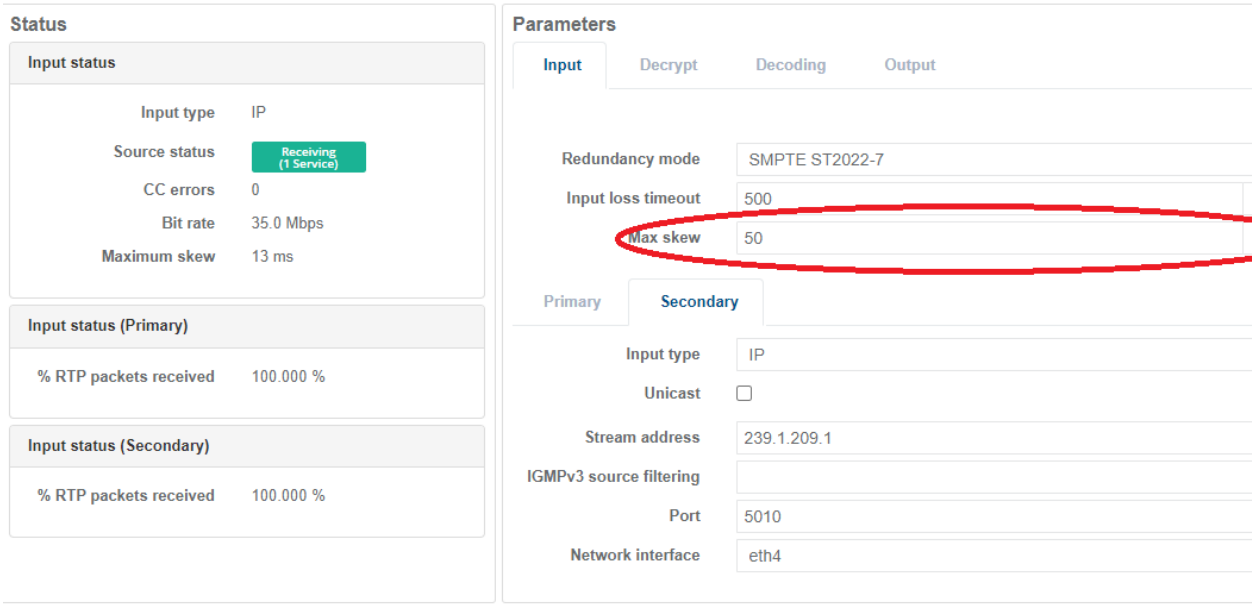
5: Set the **Secondary** input to point to the second SMPTE 2022-7 RTP stream



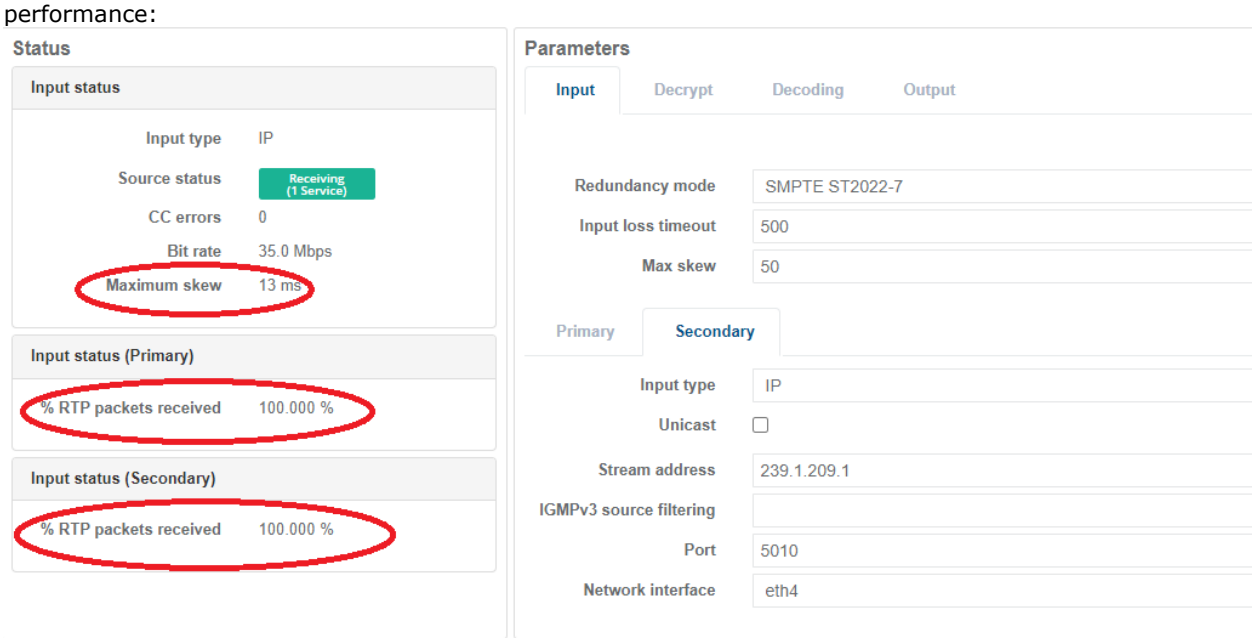
In this case this is: 239.1.209.1:5010 and is presented on physical port eth4

6: Set the **Max Skew** to the desired value depend upon the expected skew of the system.
*Note: The skew value is the **Path Differential** of the two paths, as described in SMPTE 2022-7. There are different classes for this depending upon how different the transmission paths are, e.g. two copper connections in parallel will have little skew, but one copper connection and an ATM link will have very large skew differences. The RX1 supports up to **450mS** of skew.*

***Warning: Larger skew values will increase system latency**.*



7: The following new status parameters have been added to allow the user to understand the performance:



Maximum skew shows the maximum detected skew between the 2 inputs. *Note: If this skew goes beyond the set **Max skew** redundant packets may be lost and will affect performance where primary packet loss is present.*

% RTP packets received shows (for both interfaces) the percentage of RTP packets received on either input, this can be used to check the health of both connections. *Note: If both connections are showing significant packet loss, lossless transmissions cannot be guaranteed.*

2.1.19 How To Enable/Disable Prometheus Metrics

The components required for the complete Prometheus system are available in the solution bundle but are not active by default.

If required, these components must be enabled.

To enable Prometheus metrics, SSH into the RX1, enter username "mfeng" and password "2u4y&C".

Execute the "configure_prometheus.sh enable" command, specifying the following parameters:

–username <string>: defines the username for the endpoint of the Grafana instance.
–password <string>: defines the password for the endpoint of the Grafana instance.
–remoteurl <string>: defines the URL for the endpoint of the Grafana instance.
–env <string>: defines the name of the node/machine. If not specified, the hostname is used.
–zone <string>: defines the location zone for the node/machine.

This step will need to be repeated after upgrading the RX1 software.

To disable Prometheus metrics, execute the "configure_prometheus.sh disable" command. This disables the Prometheus system so all the components are inactive but still present so it can be enabled again at a later stage.

The following commands are also available:

configure_prometheus.sh show-secret: displays the stored username and password for the Grafana endpoint.

configure_prometheus.sh update-secret: update the stored username and password for the Grafana endpoint.

–username <string>: defines the username for the endpoint of the Grafana instance.
–password <string>: defines the password for the endpoint of the Grafana instance.

configure_prometheus.sh show-remoteurl: displays the stored URL for the endpoint of the Grafana instance.

If any of the "remoteurl", "env" or "zone" parameters need to be updated after Prometheus has been enabled, Prometheus must be disabled first. Then enable Prometheus again, passing in the updated parameter values.

Please refer to the respective documentation for Prometheus and Grafana for information on usage.

2.1.19.1 Examples

To enable Prometheus using a defined username, password, and URL for Grafana-in-the-cloud. The username and password are stored in a Kubernetes secret:

```
configure_prometheus.sh enable --username myuser --password mypassword –
remoteurl https://<GRAFANA_HOST>/api/prom/push
```

To disable Prometheus and delete the secret:

```
configure_promethesus.sh disable
```

To update the secret without disabling Prometheus:

```
configure_promethesus.sh update-secret --username myuser --password mypassword
```

3 Previous releases

3.1 Version 14.0.0.1 (Major Release)

3.1.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.1.2 Important note on supported hardware

RX1 v14 will only run-on servers with 16GB RAM and > 120GB SSD (128 GGB SSD recommended). To verify the capability of the server, please refer to Appendix A of this document.

3.1.3 Deprecated functionality

The RX1 homepage is no longer available in RX1 version 14.x.
To visualize the RF status, please browse into the relevant receiver service.

3.1.4 New Functionality

- Support for sub-black and super-white uncompressed video output levels as defined in ITU-R BT.2100-2 table 9 note 9a.
- Limited availability support for splicing on the RX1. Please see the sections on "Content ad replacement" use cases described below for more details.
- HD 4:2:0 transcode to SPTS (or multiple transcodes with MPTS output)
- HD 4:2:0 TS inputs transcoded to SD encoded streams
- SRT over IP input and and output
- Demux and Remux using the Stream Processing service

RX1 at this release has the following maximum densities with hardware acceleration:

- HD 4:2:2 decodes (4 receiver services) with 16 audios (audio PID) total across all four services.
- 1 UHD 4:2:2 decode with 8 audios (single service)
- HD 4:2:2 decodes (3 receiver services) with 20 audios total across the 3 services
- UHD 4:2:0 decode with UHD SDI output and 720p SDI output + 8 audios
- HD 4:2:0 transcode to SPTS (or MPTS output) with 5 HD transcoded services
- HD 4:2:0 transcode to SD with 6 HD transcoded services
- HD 4:2:2 or 4:2:0 decodes (3 receiver services) with SRT over IP input

RX1 at this release has the following maximum densities with software encoding:

- UHD 4:2:0 decode with UHD SDI output and 720p SDI output + 8 audios
- HD 4:2:0 transcode to SPTS (or MPTS output) with 5 HD transcoded services
- HD 4:2:0 (1 receiver service) with SRT over IP input

If any other use case or combination of services is required, please contact Product Management.

3.1.5 Fixed Defects

Id	Severity	SNOW	Summary
1369827	Blocker		NMOS node label ignores label setting in config
1382098	Blocker		[v14.0.0] SMPTE ST 2110 output EBU list analysis goes out of spec after outputting 720x480 video
1380370	Blocker		[v14.0.0] ST 2110 EBU List Analysis Fails for UHD: VRX goes negative
1396383	Blocker		SRT workers not always being stopped
1402442	Blocker		MKEL not starting worker again after heartbeat message is updated
1380211	Major		RX1 Configuring secondary input/redundancy mode causing a temporary outage.
1291649	Major		Biat Warning message "WARNING: fdisk GPT support is currently new..." produced when running the biat
1394959	Major		AQSaaS: SRT failed to connect between repout and mkelin
1402086	Major		Srt server not removed from gui on deployment deletion
1396924	Major		MKEL logs spammed with "Fake SCTE20 inserted pictFieldType"
1374993	Major		mkel minidump directory never cleaned in container encoding-live-worker
1407972	Major		Service starting fails in error in case of config modification during starting
1367769	Major		'Max performance exceeded' alarms with IP input
1382173	Medium		Journalctl disk usage exceeds limit
1377045	Medium		Uncontrolled build not detected by make_installer.sh
1394360	Medium		[SRT] worker-launcher failing on pods without labels
1396537	Medium		SRT v1.2.3-46 and Controller v14.0.3.634 (IPHE v5.0.3 bundle) aren't communicating correctly to raise appropriate alarms
1365301	Medium		No discontinuity is flagged when the source wraps

3.1.6 Remaining Defects

Id	Severity	SNOW	Summary
1400884	Medium	PRB0221354	[CUSTOMER] Audio and Video distortion while decoding TSoIP transport stream
1379403	Major		Bundle switch from 13.0.5.3 to 14.0.0.0 causes Accelerator card to disappear
1393799	Major		RX1 Intermittent missing timecode when 1080p50 HEVC
1380203	Major		Active Active (Switch on Failure) on TS Passthrough reports incorrect Current Input Status
1301053	Major		BISS-CA glitches when EMM update occurs at same time across 4 x IW
1284951	Major		Sporadic Video input failure on ST 2110 ancillary data soak test
1231746	Major		Multiple default gateway addresses can result in the unit becoming uncontactable. The front panel allows all ethernet interfaces to have a gateway address set, but

			it is recommended that the default gateway be set on only one ethernet interface.
1216234	Major		RX1 unable to extract timecode when incoming TS is from an AVP/HEVC
1077274	Major		Unicast fails on eth1: eth1 placed into control zone on reboot
653690	Major		Time code in HEVC VES is not inserted in output ANC
653692	Major		MPEG2 frame encoded, bottom field first stream not correctly displayed
653669	Major		Changing pid from a number to auto does not take effect until service is restarted
653687	Major		Service output is corrupted during the support package generation. When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit. The UI may also show Internal Server Error during that operation.
1266056	Major		Blackout of more than 1 service (replicate the same transcode service 3 times) can result in an audio interruption of around one minute. If more than 1 service is blacked out (same service transcoded 3 times), we do observe an audio interruption of around 1 minute during the service selection. This issue does not occur when a single service is blacked out (same service transcoded twice)
1420726	Major		Stream Conditioning automation lost on upgrade. After an upgrade the automation will need to be re-added.
1363998	Medium		Splicer cannot start if there is no SCTE35 field in the PMT. If the input stream has not got a PMT entry for SCTE-35, the splicer will not start. No alarm will be raised.

3.2 Version 13.0.5.6 (Customer Support Release)

3.2.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.2.2 New Functionality

Centos Security patches for April

3.2.3 Fixed Defects

There are no new defect fixes in this release

3.2.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1251148	Minor		NMOS fails to start if there is a space in the template config filename
13821128	Major		ST 2110 Audio Decoding Auto Select Behaves incorrectly when using 2110
1400884	Major	PRB0221354	Audio and Video distortion while decoding TSoIP transport stream

3.3 Version 13.0.5.5

3.3.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.3.2 New Functionality

Centos Security patches for February

3.3.3 Fixed Defects

Id	Severity	SNOW	Summary
1302316	Major	PRB0220275	[FOX IRD] Fox bcast RX1 WDKY-A receiver Input PT1 error

3.3.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1251148	Minor		NMOS fails to start if there is a space in the template config filename
13821128	Major		ST 2110 Audio Decoding Auto Select Behaves incorrectly when using 2110

3.4 Version 13.0.5.4 (General Availability Release)

3.4.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.4.2 New Functionality

Centos Security patches for February

3.4.3 Fixed Defects

Id	Severity	SNOW	Summary
1371558	Major		PTP status and alarms don't work when domainNumber is not zero

1375925	Major	PRB0221067	Capture Buffer Empty Notification when decoding ASI feed

3.4.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1251148	Minor		NMOS fails to start if there is a space in the template config filename

3.5 Version 13.0.5.3 (General Availability Release)

3.5.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.5.2 Fixed Defects

Id	Severity	SNOW	Summary
1362315	Major	220660	RX1: Ports 1 & 2 on each RX1 STOPPED decoding video

3.5.3 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1251148	Minor		NMOS fails to start if there is a space in the template config filename

3.6 Version 13.0.5.1 (General Availability Release)

3.6.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.6.2 Fixed Defects

Id	Severity	SNOW	Summary
1363905	Major		Input crashes can occasionally be seen with satellite input using this code version.

3.6.3 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1251148	Minor		NMOS fails to start if there is a space in the template config filename
1362315	Major	220660	RX1: Ports 1 & 2 on each RX1 STOPPED decoding video

3.7 Version 13.0.5.0 (General Availability Release)

3.7.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.7.2 New Features in This Release

- Support for multicast DNS (mDNS) within SMPTE ST 2110 data networks. **Note: Enabling this in SMPTE ST 2110 networks that do not support mDNS may result in memory issues within the RX1.**

3.7.3 Fixed Defects

Id	Severity	SNOW	Summary
1295552	Major	0220094	Visible artefacts on the decoded picture when 4 outputs of the same source are configured
1360793	Medium		ST 2110 audio component disappears when "Service" selection is changed

3.7.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1251148	Minor		NMOS fails to start if there is a space in the template config filename
1362315	Major	220660	RX1: Ports 1 & 2 on each MK STOPPED decoding video
1363905	Major		Input crashes can occasionally be seen with satellite input using this code version.

3.8 Version 13.0.4.0 (General Availability Release)

3.8.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.8.2 New Features in This Release

- Support for multiple network cards in one RX1 chassis.
- Update to the November security patch
- Update to the latest controller version (13.0.9.75)

3.8.3 Fixed Defects

Id	Severity	SNOW	Summary
1218666	Major	0217980	RX1: External Reference Losing Lock when both SDIs are differently configured
1299771	Medium	0220218	RX1 at version 1.6.6.0 showed Input PT1 output Failure
1302316	Major	0220275	RX1 receiver showed Input PT1 error
1298082	Major	0220176	LBand in - stops decoding after some time
1250162	Medium		When adding a Mellanox X5 card to an existing unit, interfaces are not created
1226726	Major		Director – Service 2 not decrypting and decoding program 2 as it should
1300723	Medium		CN Margin Alarm Threshold on Graphical Meter stuck at 4dB
1201878	Major		Network card settings not editable via front panel when adding new network card
1263053	Major		SMPTE352 test failing with latest Dektec SDK when 3G-B link mode is selected

3.8.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder in ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1226536	Major		API response inconsistent when no alarms are present
1295552	Medium	0220094	RFR - Visible artefacts on the decoded picture
1251148	Minor		NMOS fails to start if there is a space in the template config filename

3.9 Version 13.0.3.1 (Customer Support Release)

3.9.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.9.2 New Features in This Release

- Support for the latest security patch 'September'.

3.9.3 Fixed Defects

- There are no defect fixes in this release

3.9.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major		RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1226726	Major		Director – Service 2 not decrypting and decoding program 2 as it should
1285636	Medium	0219666	The RX1's Satellite Input card's DC output is not providing a constant voltage to the connected LNB.
1295552	Medium	0220094	RFR - Visible artefacts on the decoded picture
1298082	Major	0220176	LBand in - stops decoding after some time due to illegal stream with different SEI and PTS timing.
1300723	Medium		CN Margin Alarm Threshold on Graphical Meter stuck at 4dB
1250162	Medium		When adding a Mellanox X5 card to an existing unit, interfaces are not created
1201878	Major		Network card settings not editable via front panel when adding new network card
1299771	Medium		Bcast RX1 1.6.6.0 Input PT1 output Failure
1263053	Major		SMPTE352 test failing with latest Dektec SDK when 3G-B link mode is selected
1300711	Medium	0220234	RX1 replaced accelerator card but incoming TS is not present

3.10 Version 13.0.3.0 (General Availability Release)

3.10.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.10.2 New Features in This Release

- Support for status information within the unit's REST API.

3.10.3 Fixed Defects

Id	Severity	SNOW	Summary
1286886	Medium	0219827	RX1: Codec not updated in real time only updates when service is stopped and started.
1238962	Medium		PTP settings are lost on installer upgrade
1226726	Major		Director Internal test Service 2 not decrypting and decoding program 2 as it should
1251200	Minor		VLAN interfaces are not always sorted in input GUI
1251197	Medium		Front panel app show stuck messages when configuring IGMP setting
1280427	Minor		Homepage: Tooltips for "Services", "SFP slotx" and "Monitored service" differ from behaviour
1221434	Medium		Crash when re-starting after a reboot causing slower reboot time

3.10.4 Remaining Defects

Id	Severity	SNOW	Summary
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major		RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1226726	Major		Director – Service 2 not decrypting and decoding program 2 as it should
1285636	Medium	0219666	The RX1's Satellite Input card's DC output is not providing a constant voltage to the connected LNB.
1295552	Medium	0220094	RFR - Visible artefacts on the decoded picture
1298082	Major	0220176	LBand in - stops decoding after some time due to illegal stream with different SEI and PTS timing.
1300723	Medium		CN Margin Alarm Threshold on Graphical Meter stuck at 4dB
1250162	Medium		When adding a Mellanox X5 card to an existing unit, interfaces are not created
1201878	Major		Network card settings not editable via front panel when adding new network card
1299771	Medium		Bcast RX1 1.6.6.0 Input PT1 output Failure
1263053	Major		SMPTE352 test failing with latest Dektec SDK when 3G-B link mode is selected

1300711	Medium	0220234	RX1 replaced accelerator card but incoming TS is not present

3.11 Version 13.0.2.0 (General Availability Release)

3.11.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.11.2 New Features in This Release

- Supports new M1 platform fitted with Baseband Management Controller (BMC).

3.11.3 Fixed Defects

Id	Severity	SNOW	Summary
1283180	Major		ST 2110 SDP file invalid for data essence
1282661	Medium		Director 5 Secondary Keys not being logged
1263065	Major		Segfault in nmos_cpp_node
1283897	Medium		ST2110: If audio audio decode output channel configuration is changed, output doesn't change

3.11.4 Remaining Defects

Id	Severity	SNOW	Summary
1286886	Medium	0219827	RX1 codec not updated in real time only updates when service is stopped and started.
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1238962	Medium		PTP settings are lost on installer upgrade
1226726	Major		Director - Service 2 not decrypting and decoding program 2 as it should
1221434	Medium		Crash when re-starting after a reboot causing slower reboot time
1226726	Major		Director Internal test Service 2 not decrypting and decoding program 2 as it should
1251200	Minor		[Discovery] VLAN interfaces are not always sorted in input GUI
1251197	Medium		[Discovery] Front panel app show stuck messages when configuring IGMP setting
1280427	Minor		Homepage: Tooltips for "Services", "SFP slotx" and "Monitored service" differ from behaviour

3.12 Version 13.0.1.2 (General Availability Release)

3.12.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.12.2 New Features in This Release

- G.A. Release of SMPTE ST 2110
- G.A. Release of BISS-CA*
- G.A. Release of Phase Aligned Audio
- G.A. Release of Auto Revert

***Note: This is for new unit sale ONLY. Upgrades are not available at this stage**

3.12.3 Fixed Defects

Id	Severity	SNOW	Summary
1274252	Major	0219542	RX1 unable to load Services List
1272571	Major	0219479	RX1 stopped outputting 2nd Audio PID on all four Services. First Audio PID at 5.1 is outputting fine.
1278608	Blocker		Bundle failed to install because the firewalled service failed
1276772	Blocker		Cannot set ST 2110 network interface to eth2 (NIC renaming issue)
1251192	Medium		Unable to create a service with a hash in the name
1270038	Major		Decoded data streams (ancillary or teletext) are ignored on some SDI and all ST 2110 outputs
1269970	Major		[FOX IRD] PowerTemperatureFans: Dektec card not being monitored (startup race)
1229222	Blocker		[FOX IRD] NMOS CPP node service on and using a full CPU core
1270424	Minor		[FOX IRD] Rollback failed using front Panel (app via SSH), but succeeded using the web UI
1279078	Blocker		Installer units show uncontrolled release (12.0.1 to 13.0.1 pre release.
1279074	Blocker		Service blocked if configured for quadrant and only 1 SFP, but Link mode is hidden so it can't be changed
1255052	Major	0219137	[CUSTOMER] Fox Broadcast RX1 Input PT1 and/or PT2 losing RF Lock with known good Input. Toggling RF Input corrects issue

3.12.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1

1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1238962	Medium		PTP settings are lost on installer upgrade
1226726	Major		Director - Service 2 not decrypting and decoding program 2 as it should
1221434	Medium		Crash when re-starting after a reboot causing slower reboot time
1226726	Major		Director Internal test Service 2 not decrypting and decoding program 2 as it should
1251200	Minor		[Discovery] VLAN interfaces are not always sorted in input GUI
1251197	Medium		[Discovery] Front panel app show stuck messages when configuring IGMP setting
1280427	Minor		Homepage: Tooltips for "Services", "SFP slotx" and "Monitored service" differ from behaviour
1283066	Major		Upgrade from 12.0.1 to 13.0.1 fails due to a missing robust upgrade package

3.13 Version 13.0.0.7 (Customer Support Release)

3.13.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.13.2 New Features in This Release

- Security Patches May 2021.

3.13.3 Fixed Defects

Id	Severity	SNOW	Summary
1269764	Major		[FOX IRD] Time Sync Setting not displayed correctly on the UI

3.13.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1195711	Medium	0217913	RX1: Incorrect SDI Output assignment after rebooting
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1229222	Major		NMOS service can be on and using a full CPU core when NMOS is not active.
1255052	Major	0219137	[CUSTOMER] Fox Broadcast RX1 Input PT1 and/or PT2 losing RF Lock with known good Input. Toggling RF Input corrects issue. Note: Fix has been supplied for this issue (awaiting customer feedback)
1272571	Major	0219478	RX1 stopped outputting 2nd Audio PID on all four Services. First Audio PID at 5.1 is outputting fine.

3.14 Version 13.0.0.5

3.14.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.14.2 New Features in This Release

- There are no new features in this release.

3.14.3 Fixed Defects

Id	Severity	SNOW	Summary
1265851	Blocker	0219306	[FOX IRD] WAGA reported delayed captions during prime time on 7/11/21 during scripted prime programming

3.14.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1195711	Medium	0217913	RX1: Incorrect SDI Output assignment after rebooting
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1229222	Major		NMOS service can be on and using a full CPU core when NMOS is not active.
1255052	Major	0219137	[CUSTOMER] Fox Broadcast RX1 Input PT1 and/or PT2 losing RF Lock with known good Input. Toggling RF Input corrects issue. Note: Fix has been supplied for this issue (awaiting customer feedback)

3.15 Version 13.0.0.4

3.15.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.15.2 New Features in This Release

- There are no new features in this release.

3.15.3 Fixed Defects

Id	Severity	SNOW	Summary
#1217666	Major	0217942	[Fox] Robust upgrade falls to switch from 1.6.3.1 due to missing tuned element backup

3.15.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1195711	Medium	0217913	RX1: Incorrect SDI Output assignment after rebooting
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1229222	Major		NMOS service can be on and using a full CPU core when NMOS is not active.
1255052	Major	0219137	[CUSTOMER] Fox Broadcast RX1 Input PT1 and/or PT2 losing RF Lock with known good Input. Toggling RF Input corrects issue. Note: Fix has been supplied for this issue (awaiting customer feedback)
1265851	Blocker	0219306	[FOX IRD] WAGA reported delayed captions during prime time on 7/11/21 during scripted prime programming

3.16 Version 13.0.0.3

3.16.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.16.2 New Features in This Release

- There are no new features in this release.

3.16.3 Fixed Defects

Id	Severity	SNOW	Summary
#1217666	Major	0217942	[FOX IRD] Audio distortion issues affecting 6 units
#1260877	Blocker		[FOX IRD] Broadcast RX1 1.6.4.7/8 closed captioning is unable to be presented when new Dektec driver implemented
#1238309	Blocker	0218644	[FOX IRD] Broadcast RX1 1.6.4.7 loses lock to external reference and then recovers it spontaneously

3.16.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1195711	Medium	0217913	RX1: Incorrect SDI Output assignment after rebooting
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1229222	Major		NMOS service can be on and using a full CPU core when NMOS is not active.
1255052	Major	0219137	[CUSTOMER] Fox Broadcast RX1 Input PT1 and/or PT2 losing RF Lock with known good Input. Toggling RF Input corrects issue. Note: Fix has been supplied for this issue (awaiting customer feedback)

3.17 Version 13.0.0.2 (Customer Support Release)

3.17.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.17.2 New Features in This Release

- There are no new features in this release.

3.17.3 Fixed Defects

Id	Severity	SNOW	Summary
1246386	Major		Unit can stop decoding after a few days

3.17.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1195711	Medium	0217913	RX1: Incorrect SDI Output assignment after rebooting
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1217666	Major	0217942	Audio distortion issues affecting customer on one site only
1238309	Blocker	0218644	Broadcast RX1 using Dektec SDI output cards lose lock to external reference and then recover it spontaneously
1229222	Major		NMOS service can be on and using a full CPU core when NMOS is not active.

3.18 Version 13.0.0.1 (Customer Support Release)

3.18.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.18.2 New Features in This Release

- Support for Phase aligned audio (limited release). This offers no GUI control and requires PAA language codes to define PAA groups as defined
- Support for inputs to 'Auto revert' in the event of backup port failures.
- General Support for SMPTE ST-2110 output of baseband video, audio and data using the optional NVIDIA Mellanox MCX512A-ACAT dual port PCIe 3.0 network card and supported 25Gbe SFPs.

3.18.3 Fixed Defects

Id	Severity	SNOW	Summary
1238955	Major		EHC timeout is not set by Over Air Control
1237995	Blocker		The broadcast receiver solution variant shows fatal PCIe errors
1212789	Major		Content worker can take 9 seconds to start up this effects a delay in SDI output.
1231422	Major		Installer advice for intermediate upgrades was wrong
1231362	Major		Over Air Control command to switch to a new software version is not actioned until the end of a download
1230924	Major		When loading an MKC config file from the UI the unit sometimes reports 'time-out' on the UI although the MKC is successful
1217666	Major	0217942	Occasional audio distortion reported on some units.
1209196	Medium		BISS-CA pre release feature not descrambling when 'entitlement session id' is set to 0
1225698	Blocker		BISS-CA pre release feature can glitch when processing large EMMs to extract the required session key.
1229101	Major		Cannot contact RX1Solution after being up for 72 hours (approx.)
1230926	Major		Unit may freeze for a few seconds when loading an mkc file
1252882	Medium		Test clicks on "Server" tab, but browser reports "This site can't be reached"
1180382	Medium		Failure to successfully select firmware variant and reboot

3.18.4 Remaining Defects

Id	Severity	SNOW	Summary
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed

1195711	Medium	0217913	RX1: Incorrect SDI Output assignment after rebooting
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1218666	Major	0217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present
1217666	Major	0217942	Audio distortion issues affecting customer on one site only
1238309	Blocker	0218644	Broadcast RX1 using Dektec SDI output cards lose lock to external reference and then recover it spontaneously
1229222	Major		NMOS service can be on and using a full CPU core when NMOS is not active.
1246386	Major		Unit can stop decoding after a few days

3.19 Version 12.0.2.1

3.19.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

3.19.2 New Features in This Release

- Support for VLAN tagging on both input and output IP interfaces
- Support for SMPTE ST-2110 output of baseband video, audio and data using the optional NVIDIA Mellanox MCX512A-ACAT dual port PCIe 3.0 network card and supported 25Gbe SFPs.

3.19.3 Fixed Defects

Id	Severity	SNOW	Summary
1226707	Major		Alarm icon colour does not reflect active alarms
1226233	Blocker	0218221	Output transport stream shows CC errors every few minutes, removing CAM removes cc errors
1218432	Major		AC-3 decode stereo level low when using dialog normalization
1224197	Blocker		Dolby Digital Mono - Decoder fails to decode
1228599	Major	216342	Cable rec - burst cc errors in Input demux service/packets discarded in linuxTv.ccChecking log
1229434	Major	218365	RX1 OAD Timeout Alarm and subsequent command fails
1204557	Blocker	217389	Cannot remove gateway from Eth1 via front panel

3.19.4 Remaining Defects

Id	Severity	SNOW	Summary
653697	Major		License key locking codes change if the hostname is changed
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1092368	Major		[ST2110] Occasional glitches on 4K output. On some occasions, glitches are observed on the 2110 output when in UHD modes.
1217666	Major	217942	Audio distortion issues affecting 6 units
1227661	Major		OAD config is not applied
1195711	Medium	217913	RX1: Incorrect SDI Output assignment after rebooting
1229101	Major		Cannot contact RX1Solution after being up for 72 hours (approx.)
653684	Medium		Rx1 is not compatible with NTT encoder is ultra low delay
1227145	Medium		Dolby Digital Dual Mono second channel level is attenuated.
1230926	Major		Unit may freeze for a few seconds when loading an mkc file

1218666	Major	217980	RX1 External Reference Losing Lock when both SDIs are differently configured
1226536	Major		API response inconsistent when no alarms are present

3.20 Version 0.12.2.0 (Preview Release Only)

3.20.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

Note: this is customer evaluation code version ONLY this supports VLAN tagging and SMPTE ST 2110. This code should be replaced with GA released code when available.

3.20.2 New Features in This Release

- Support for VLAN tagging on both input and output IP interfaces
- Support for SMPTE ST-2110 output of baseband video, audio and data using the optional NVIDIA Mellanox MCX512A-ACAT dual port PCIe 3.0 network card and supported 25Gbe SFPs.

3.20.3 Fixed Defects

- There are no new defect fixes in this release

3.20.4 Remaining Defects

Id	Severity	SNOW	Summary
653697	Major		License key locking codes change if the hostname is changed
653714	medium		SDI output stops when switching KVM from RX1
1126335	Major		VLAN not operating when using Commercial Rivermax License. **Please note:** A temporary license can be used while this issue is being addressed
1092368	Major		[ST2110] Occasional glitches on 4K output. On some occasions glitches are observed on the 2110 output when in UHD modes.

3.21 Version 12.0.1.0

3.21.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

*Note: This version will not **currently** be used as the factory release*.

3.21.2 Fixed Defects

Id	Severity	SNOW	Summary
1055808	Major	PRB0213957	Unable to automatically decrypt when switching between BISS and Director
1056889	Major	PRB0213971	Unit takes up to 4 minutes to recover video decode when switching between input transport streams
1077818	Major	PRB0214821	Unable to control LNB voltage and incorrect receive state on units due to incorrect turning parameters by default. Also, primary and secondary ports set to the same input port

3.21.3 Remaining Defects

Id	Severity	SNOW	Summary
653697	Major		License key locking codes change if the hostname is changed
653714	medium		SDI output stops when switching KVM from RX1

3.22 Version 12.0.0.0

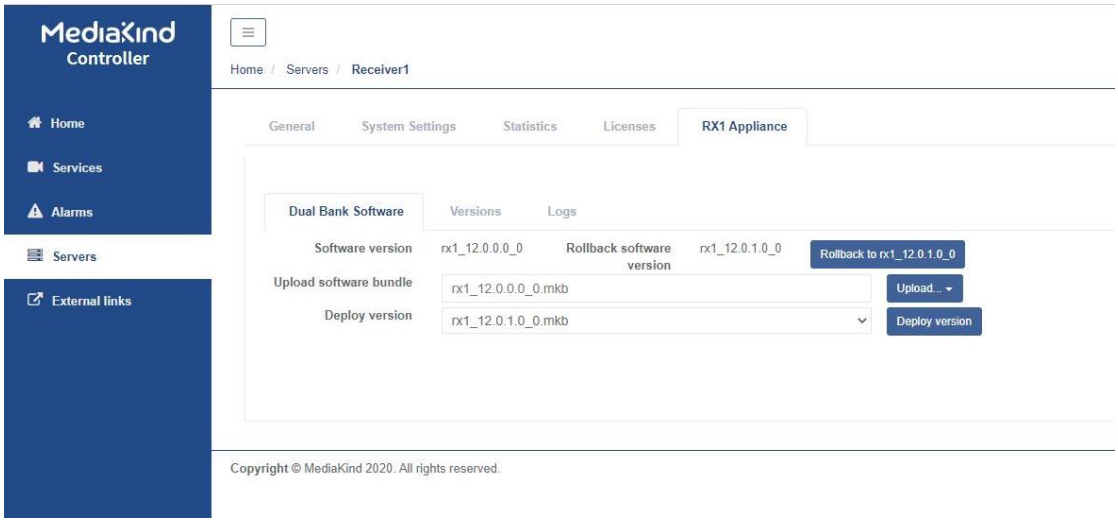
3.22.1 Overview

This software release adds new functionality and defect fixes to the RX1 as defined below

Note: This version will be used as the factory release.

3.22.2 New features in release

Support for MediaKind software bundles within the RX1. That is, the ability for the RX1 to upload, store and deploy multiple complete software release packages (stored as MediaKind bundles). This also allows the user to manage the RX1's software images via the GUI control (ssh is no longer required). This is accessed through the **RX1 Appliance** page. Also, as part of that management the unit can be 'rolled back' to any other release package contained within the unit.



The RX1 Appliance page lists the current and Rollback software version. And contains buttons which allow

- Rollback
- Upload
- Deploy

3.22.3 Fixed Defects

Id	Severity	SNOW	Summary
1031801	major	PRB0213416	Services tab: the alarm icon always remains black, even if the service has major or critical alarms.
1070506	medium		Front Panel: Pressing down from time mode menu causes exception and front panel restart
980211	major	PRB0212185	Port role configuration on eth1 reset back to default after reboot (from role control to data)
1033124	medium		Satellite tuning settings lost when changing RF input
1035813	medium		The homepage does not show the Monitored Service
1076592	major		Decode all input audio button is broken
1076601	major		Unicast input shows incorrectly on home page

1077425	major		Web interface "Add Service" drop down has a half hidden empty choice
1091015	medium		[v12] Homepage looks as if it has mis-loaded if no services are defined
1091076	medium		Front Panel: Unit displays name of last service when no services present (and after reboot)

3.22.4 Remaining Defects

Id	Severity	SNOW	Summary
653697	Major		License key locking codes change if the hostname is changed
653714	medium		SDI output stops when switching KVM from RX1
1077818	Major	PRB0214821	Unable to control LNB voltage and incorrect receive state on units due to incorrect turning parameters by default. Also, primary and secondary ports set to the same input port
1056889	Major	PRB0213971	Unit takes up to 4 minutes to recover video decode when switching between input transport streams
1055808	Major	PRB0213957	Unable to automatically decrypt when switching between BISS and Director

3.23 Version 11.0.4.0

3.23.1 Overview

This version is intended to provide new features and bug fixes to version 10.6.12.1.

3.23.2 New features in release

Director Over Air Control (OAC), service selection, starting and stopping of decode configurations, input tuning parameters, emergency home carrier details and software version control can be controlled via Mediakind's Director system.

Remote production mode locks all decodes to an external sync extracted from the incoming PCR and then aligns the start of each picture from all the separate decodes in the system. See the remote production application note for details on how to set up a system.

SMPTE 2022-6 output via SFP enables the support for 3G HD SDI over a 10G IP link. Each SFP module is capable of output 2 SDI sources. UHD can be transmitted using all 4 independent 3G outputs.

Unit identification allow the user to uniquely identify each unit in the top left hand corner of the web interface. The same id will appear on the top from of the front panel display at the

The system clock of the Rx1 can be set to be aligned to either an NTP or TDT source. All operations including logs and alarms will be synchronized to the system clock.

A satellite input search range control has been added to allow the RF input to be tuned to a source when channel frequencies are close together. The window size now allows adjustment from 2 to 10Mhz (previously fixed to 5MHz).

If there is a loss of input or the transport stream cannot be decoded the output video failure modes have increased to support the following options:

- Freeze frame
- Black still frame
- No SDI

The contents of the 'Home' page has been replaced with a status overview of all the currently running services on the unit. The new page provides an end to end overview of the resources in use, health and basic information. Quick link buttons are provided to edit the service or to display the current alarms.

3.23.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options. Active-Standby or Active-Active input redundancy.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS v1, BISS v2, Common Interface or Director.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode
- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode
- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode
- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough
- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

Multiple HD SDI outputs to a single decode (Level-A / Level-B Dual Link)

HDR to SDR conversion on the output SDI monitor port.

3.23.4 Fixed Defects

Bug #980211: Port role configuration is reset back to default after a reboot.

The ethernet port roles can be set to Data only or Control/Data. As default eth0 is set to Control/Data and eth1 is set to Data only. If the port role is changed and the unit is rebooted without any ethernet cables connected to the Rx1 then the ports are set back to the default roles.

Bug #653660: Importing a service of the same name as an existing service fails.

If a user attempts to import a service with the same ID the original service is deleted but then the Rx1 raises an exception and fails to import the new service. Attempting the import a second time does import the service.

Bug #638431: Issues receiving Satellite input.

The Search range on the Satellite demodulator was fixed to +/-5Mhz meaning if a transponder had 2 channels close in frequency the Rx1 was unable to reliably lock onto the correct service. A new parameter has been added to the Rx1 to allow the user to set the Search range from +/-2Mhz to +/-10Mhz.

Bug #652736: No audio in 12G video output

When using the 12G SDI output the audio was not correctly embedded into the output video.

Bug #65573: Intermittent PCR timebase and ETR290 errors when running unicast TS output.

When the Rx1 is configured for TS passthrough and the output IP address is set to a unicast address, there is ETR290 and PCR timebase errors in the output TS.

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #763120 EMM messages lost due to excessive input messages.

The EMMs are held in a buffer and counselled out of the MUX. If there is an interruption to the MUX output the queued messages are flooded into the Rx1 over flowing the input buffer and causing messages to be lost.

Bug #70471 Creation of support package failed and Service page continually reporting “Fetching Services Lists”

Log rotation was not working correctly causing the Rx1 hard drive to fill up. This prevents the support package creation due to lack of space and in extreme cases stops the code from writing required data, prevent the service from starting.

3.23.5 Known Defects

Bug #1005687: Picture loss to output is more than 5 seconds in Redundancy Active-Passive setup and more than 2 seconds in Redundancy Active-Active setup.

Redundancy switch times have increased beyond the original specifications.

Mode	Specification	Measured in 11.0.4.0
Active / Active	< 2 seconds	< 5 seconds
Active / Passive	< 5 seconds	<15 seconds

Bug #65540: Service output is corrupted during the support package generation.

When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.24 Version 10.6.12.1

3.24.1 Overview

This version is intended to provide a bug fix to version 10.6.12.0.

3.24.2 Bug fixes in release

Downgrades to 10.6.x.x no longer work from later planned releases.

Decode problems with low symbol rate RF inputs.

Unable to descramble BISS1 streams if the service has the Director Hardware ID set.

Insufficient licenses cause a memory leak within the Content Processing worker.

An XDMA driver crash can cause the unit to randomly reboot.

Video output freezes / stutters when the input is fed from an Ateme encoder.

3.24.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options. Active-Standby or Active-Active input redundancy.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS v1, BISS v2, Common Interface or Director.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode

- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode

- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode

- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough

- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

Multiple HD SDI outputs to a single decode (Level-A / Level-B Dual Link)

HDR to SDR conversion on the output SDI monitor port.

3.24.4 Fixed Defects

Bug #69187: Downgrades to 10.6.x.x no longer work from later planned releases.

Due to changes in later versions of the code it was no longer possible to downgrade to version 10.6.x.x.

Bug #70453: Decode problems with low symbol rate RF inputs.

When using the Satellite input option module, RF feeds with a symbol rate of less than 5 MSym/s failed to decode properly.

Bug #67972: Unable to descramble BISS1 streams if the service has the Director Hardware ID set.

If the Director ID is set to any of the available IDs, all other decryption formats (BISS or CAMs) are disabled within the Rx1.

Bug #63736: Insufficient licenses cause a memory leak within the Content Processing worker.

If the Rx1 has no licenses enabled, or is configured to use unlicensed functionality, a memory leak occurs in the Content Processor worker causing the unit to reboot.

Bug #67707: An XDMA driver crash can cause the unit to randomly reboot.

A weakness was found with the current version of XDMA driver which could cause the unit to crash and reboot.

Bug #68257: Video output freezes / stutters when the input is fed from an Ateme encoder.

The DTS values within the SEI header were incorrectly parsed, causing the decoder to discard access units.

3.24.5 Known Defects

Bug #65573: Intermittent PCR timebase and ETR290 errors when running unicast TS output.

When the Rx1 is configured for TS passthrough and the output IP address is set to a unicast address, there is ETR290 and PCR timebase errors in the output TS.

Bug #65540: Service output is corrupted during the support package generation.

When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit.

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

```
==================================================
Enabling service dkms
Installation complete
```

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.25 Version 10.6.12.0

3.25.1 Overview

This version is intended to provide a bug fix to version 10.6.11.0.

3.25.2 Bug fixes in release

If the PTS values of the Dolby-E passthrough audio is more than +/- 4ms from the associated video frame start then the audio will be dropped from the output.

3.25.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options. Active-Standby or Active-Active input redundancy.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS v1, BISS v2 or Common Interface.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode

- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode

- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode

- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough

- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

Multiple HD SDI outputs to a single decode (Level-A / Level-B Dual Link)

HDR to SDR conversion on the output SDI monitor port.

3.25.4 Fixed Defects

Bug #68119: Dolby-E passthrough output failure.

If the PTS values of the Dolby-E passthrough audio is more than +/- 4ms from the associated video frame start then the audio will be dropped from the output.

3.25.5 Known Defects

Bug #65573: Intermittent PCR timebase and ETR290 errors when running unicast TS output.

When the Rx1 is configured for TS passthrough and the output IP address is set to a unicast address, there is ETR290 and PCR timebase errors in the output TS.

Bug #65540: Service output is corrupted during the support package generation.

When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit.

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.26 Version 10.6.11.0

3.26.1 Overview

This version is intended to provide new features to version 10.6.10.0.

3.26.2 New features in release

Ability to switch between 12G and quad 3G SDI output.

If the unit is fitted with a 12G SDI SFP output in slot 1 and either a second 12G or a 3G SDI output module is fitted in slot 2, it is now possible to configure the output to either 12G or quad 3G output for UHD services.

3.26.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options. Active-Standby or Active-Active input redundancy.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS v1, BISS v2 or Common Interface.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode

- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode

- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode

- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough

- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

Multiple HD SDI outputs to a single decode (Level-A / Level-B Dual Link)

HDR to SDR conversion on the output SDI monitor port.

3.26.4 Fixed Defects

None

3.26.5 Known Defects

Bug #65573: Intermittent PCR timebase and ETR290 errors when running unicast TS output.

When the Rx1 is configured for TS passthrough and the output IP address is set to a unicast address, there is ETR290 and PCR timebase errors in the output TS.

Bug #65540: Service output is corrupted during the support package generation.

When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit.

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.27 Version 10.6.10.0

3.27.1 Overview

This version is intended to provide new features and bug fixes to version 10.5.0.4.

This version will be used as the factory release.

3.27.2 New features in release

Mediakind Director CA decryption.

BISS provides fixed key encryption relying on manual distribution of the keys. Director improves on this by automatically changing the encryption key periodically and distributing them within the transport stream.

Director generates a new key periodically within tens of seconds and tight control over timing means that key changes happen seamlessly. The keys are encrypted and transmitted within the transport stream using Entitlement Control Messages (ECMs) and so multiple keys can be transmitted to encrypt more than one service. Each service will be encrypted differently and will always have a unique key and separate ECM.

The following profiles have been tested with Director CA in the current release to confirm the operational performance of the Rx1.

SPTS @ 81 Mbps containing 2160p50 HEVC @ 60Mbps

4 x SPTS @ 30 Mbps containing HD 50 HEVC @ 23.6Mbps

MPTS @ 81 Mbps containing 2 x 23.6Mbps + 2 x 8.4Mbps HD 50 HEVC

MPTS @ 81 Mbps containing 4 x HD 50 HEVC @ 16Mbps

3.27.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options. Active-Standby or Active-Active input redundancy.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS v1, BISS v2 or Common Interface.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode
- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode
- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode
- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough
- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

Multiple HD SDI outputs to a single decode (Level-A / Level-B Dual Link)

HDR to SDR conversion on the output SDI monitor port.

3.27.4 Fixed Defects

Bug #57791: No SDI output

After configuring the MKCP and applying a valid transport stream to the input, the stream was correctly decoded but no SDI output was produced.
During continuous automated testing on multiple units over a 3 month period this has been seen 5 times. This defect has only been seen during automated test and it has not been seen in the last month and could not be reproduced after concerted effort of repeated testing over the last 2 weeks.

Bug #63607: Restoring configuration for multiple 1080p decode results in frozen output video

Saving and restoring a configuration containing multiple 1080p services results in one or more of the services having a frozen video output. Stopping and starting the service recovers the output.

3.27.5 Known Defects

Bug #65573: Intermittent PCR timebase and ETR290 errors when running unicast TS output.

When the Rx1 is configured for TS passthrough and the output IP address is set to a unicast address, there is ETR290 and PCR timebase errors in the output TS.

Bug #65540: Service output is corrupted during the support package generation.

When a service package is being generated it is possible for the output SDI to display interrupts and drop video frames on a heavily loaded unit.

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

```
==================================================
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
```

Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.28 Version 10.6.0.0

3.28.1 Overview

This version is intended to provide new features and bug fixes to version 10.5.0.4.

This version will be used as the factory release.

3.28.2 New features in release

3G SDI Level-B Dual link for outputting 1080p video signals. Either as a single HD service or as part of a quad 3G 4K service.
Level B Dual-Link divides the 1080p picture into SMPTE ST 372 Dual-Link video streams and maps them into a 3Gb/s serial digital interface.

Frame sync adjustment. If Rx1 has been set to External sync with a valid reference studio clock applied to the Sync input, the playout timing of each SDI output frame can be adjusted (advanced or delayed) in single pixel increments relative to the external frame sync.

Active / Active input transport stream redundancy. Building on the Active / Passive input redundancy introduced in version 10.5.0.0 where it is possible for each service to set up a 'Primary' and 'Secondary' (backup) input.

BISS v2 mode 1 or E fixed key service level decryption.

It is possible to add multiple HD SDI outputs to a single decode up to a maximum of 4 main outputs if no other decode is currently running on the unit.

Shared output HD monitor port. It is possible to add the HD monitor port to all running HD decoded services. Each service can individually configure the port to output as required. The port will output any of the decoded services by "grabbing" the monitor for that service.

HDR to SDR conversion on the monitor port. Any HDR video content on the monitor port can be converted to SDR if required.

Transport stream output. It is possible to set up a maximum of 4 independent 'TS passthough' services, whereby an input TS coming into the Rx1 via IP, ASI or Satellite maybe routed unaltered to an IP output. It is possible to decrypt up to 15 services within the incoming TS using BISS v1, BISS v2 or CAMs if fitted.

3.28.3 Fixed Defects

Bug #60089: Upgrade fails with no error message printed.

During upgrade of one of the packages in the 10.5.x.x installation script, the ssh poll is interrupted for longer than expected closing the session and stopping the upgrade from completing. Running the installer twice or setting the ssh client keep alive timeout to 60 seconds resolves the issue.

Bug #61105 Message missing for shared services when CAM is reset

If a CAM is being used to decrypt multiple services, when the CAM reset button is pressed from within one service the user is not informed that other services will also be affected.

Bug #59798: Decode failure when applying a 4K input to a decoder set to 4 x HD

Feeding a UHD stream into a decoder where the 4xHD decodes are set to use the same input multicast causes at least one of the HD decodes to fail when the 4xHD stream is restored.

Bug #60651: Bitrate displayed on Input status is not correct for BISS or CAM encrypted TS

When decrypting an input transport stream the incoming bitrate of the stream is no longer displayed correctly.

Bug #65535: Entering a Satellite symbol rate to more than 1 decimal place may corrupt the configuration.

If Rx1 attempts to configure the satellite option module with an illegal value the configuration is rejected and the service fails to start. The satellite option module expects an integer value for symbol rate, if a symbol rate of 2.09 Msym is entered in the GUI, the value is converted to an actual value of 2089999.999999 which is rejected.

Bug #65531: Rx1 fails to start valid services if an invalid configuration is present at boot time.

If a corrupted service configuration is present on the unit at boot time, no other services can be started. All services become unresponsive appearing to neither start or fully stop.

3.28.4 Known Defects

Bug #64145: Configuring VITC to be expected on an invalid VBI line continually raises and clears an alarm.

If the Rx1 is configured to embed data on an invalid line due to the outgoing video standard an alarm is repeated raised and cleared.

Bug #63607: Restoring configuration for multiple 1080p decode results in frozen output video

Saving and restoring a configuration containing multiple 1080p services results in one or more of the services having a frozen video output. Stopping and starting the service recovers the output.

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #57791: No SDI output

After configuring the RX1 and applying a valid transport stream to the input, the stream was correctly decoded but no SDI output was produced.
During continuous automated testing on multiple units over a 3 month period this has been seen 5 times. This defect has only been seen during automated test and it has not been seen in the last month and could not be reproduced after concerted effort of repeated testing over the last 2 weeks.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

```
==================================================
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ============================
```

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.29 Version 10.5.0.4

3.29.1 Overview

This version is intended to provide bug fixing to version 10.5.0.3.

This version will be used as the factory release.

See defect #60089 in the known defect section of this document for details on how to install this version.

3.29.2 New features in release

None.

3.29.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS V1 or Common Interface.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode
- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode
- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode
- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough
- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.29.4 Fixed Defects

Bug #62950: SDI output CRC errors when decoding UHD streams.

CRC errors seen in the output video, occasionally stuttering or dropping to black.

3.29.5 Known Defects

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #60089: Upgrade fails with no error message printed.

During upgrade of one of the packages in the 10.5.x.x installation script, the ssh poll is interrupted for longer than expected closing the session and stopping the upgrade from completing. Running the installer twice or setting the ssh client keep alive timeout to 60 seconds resolves the issue.

Bug #61105 Message missing for shared services when CAM is reset

If a CAM is being used to decrypt multiple services, when the CAM reset button is pressed from within one service the user is not informed that other services will also be affected.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #57791: No SDI output

After configuring the RX1 and applying a valid transport stream to the input, the stream was correctly decoded but no SDI output was produced.
During continuous automated testing on multiple units over a 3 month period this has been seen 5 times. This defect has only been seen during automated test and it has not been seen in the last month and could not be reproduced after concerted effort of repeated testing over the last 2 weeks.

Bug #59798: Decode failure when applying a 4K input to a decoder set to 4 x HD

Feeding a UHD stream into a decoder where the 4xHD decodes are set to use the same input multicast causes at least one of the HD decodes to fail when the 4xHD stream is restored.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.30 Version 10.5.0.3

3.30.1 Overview

This version is intended to provide additional features and bug fixes to version 10.5.0.1.

This version will be used as the factory release.

See defect #60089 in the known defect section of this document for details on how to install this version.

3.30.2 New features in release

To comply with the Mediakind security policy, management traffic is disabled on Ethernet 2 as default. This includes all SSH, API and Web interface packets.

DHCP, SNMP Trap, NTP, PTP and transport stream packets are enabled on both ports as standard. Management traffic can be enabled or disabled on either network interface from the front panel or by Linux command line. Please refer to the Installation Guide for instructions.

3.30.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS V1 or Common Interface.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode
- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode
- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode
- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough
- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.30.4 Fixed Defects

Bug #59051: Alarms not cleared after issue has been resolved.

When a problem occurs and alarms are raised on the RX1, occasionally after the issues has been resolved the alarm is not always cleared.

3.30.5 Known Defects

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #60089: Upgrade fails with no error message printed.

During upgrade of one of the packages in the 10.5.x.x installation script, the ssh poll is interrupted for longer than expected closing the session and stopping the upgrade from completing. Running the installer twice or setting the ssh client keep alive timeout to 60 seconds resolves the issue.

Bug #61105 Message missing for shared services when CAM is reset

If a CAM is being used to decrypt multiple services, when the CAM reset button is pressed from within one service the user is not informed that other services will also be affected.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #57791: No SDI output

After configuring the RX1 and applying a valid transport stream to the input, the stream was correctly decoded but no SDI output was produced.
During continuous automated testing on multiple units over a 3 month period this has been seen 5 times. This defect has only been seen during automated test and it has not been seen in the last month and could not be reproduced after concerted effort of repeated testing over the last 2 weeks.

Bug #59798: Decode failure when applying a 4K input to a decoder set to 4 x HD

Feeding a UHD stream into a decoder where the 4xHD decodes are set to use the same input multicast causes at least one of the HD decodes to fail when the 4xHD stream is restored.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.31 Version 10.5.0.1

3.31.1 Overview

This version is intended to provide additional features and bug fixes to version 10.5.0.0.

This version will be used as the factory release.

See defect #60089 in the known defect section of this document for details on how to install this version.

3.31.2 New features in release

Adds support for fitment of 2 Common Interface (DVB-CI) option modules to a single RX1 chassis.

3.31.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

Service level decryption, via BISS V1 or Common Interface.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode
- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode
- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode
- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough
- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.31.4 Fixed Defects

Bug #59890: Before rebooting after running an 'Upgrade': ssh and sudo commands do not respond for a long time (approx. 20 -30 seconds)

After running the **Rx1-***X.X.X.X_X_gXXXX***.el7.x86_64_installer.sh** and before running the reboot command all ssh and sudo commands do not respond for a period of 20-30 seconds.

Bug #59641: 12G SFP not working reliably

The 12G SFP module does not reliably start output after the unit is reconfigured or a new TS input is applied.

Bug 57775: Failing CAMs are not monitored and automatically rebooted.

If a CAM crashed during normal operation the status is not currently monitored and the CAM will not automatically be restarted.

3.31.5 Known Defects

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #60089: Upgrade fails with no error message printed.

During upgrade of one of the packages in the 10.5.x.x installation script, the ssh poll is interrupted for longer than expected closing the session and stopping the upgrade from completing. Running the installer twice or setting the ssh client keep alive timeout to 60 seconds resolves the issue.

Bug #61105 Message missing for shared services when CAM is reset

If a CAM is being used to decrypt multiple services, when the CAM reset button is pressed from within one service the user is not informed that other services will also be affected.

Bug #61097 CAM assignment is not shown in all services where it is being used.

If a decode is set up to decrypt an incoming service, the service is correctly decoded. If a second decode is set to use the same incoming service, there is no indication that it has been decrypted or how it was decrypted. If the original decode is configured to either stop decrypting the incoming service or reconfigured to another incoming service, then the output from the second decode is disabled without any notification.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #57791: No SDI output

After configuring the RX1 and applying a valid transport stream to the input, the stream was correctly decoded but no SDI output was produced.
During continuous automated testing on multiple units over a 3 month period this has been seen 5 times. This defect has only been seen during automated test and it has not been seen in the last month and could not be reproduced after concerted effort of repeated testing over the last 2 weeks.

Bug #59798: Decode failure when applying a 4K input to a decoder set to 4 x HD

Feeding a UHD stream into a decoder where the 4xHD decodes are set to use the same input multicast causes at least one of the HD decodes to fail when the 4xHD stream is restored.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

3.32 Version 10.5.0.0

3.32.1 Overview

This release should not be used with the 12G SFP output.

This version is intended to provide additional functionality and bug fixes to version 10.4.0.1.

This version will be used as the factory release.

3.32.2 New features in release

Dual 10G ethernet option module. These are generic ports that can be used for either TS input or control.

Input transport stream redundancy. For each service it is possible to set up a 'Primary' and 'Secondary' (backup) input. Depending on the hardware installed, the same input options (IP, ASI or Satellite) with the same configuration parameters are available for the secondary input as the primary input.

REST API for control. Previously only supported for Alarm monitoring.

Common Interface (DVB-CI) option module providing a descrambling solution using integrated descrambling PCMCIA cards, sometimes referred to as a Conditional Access Module or CAM. The RX1 option module when fitted provides 2 PCMIA slots where CAMs can be inserted

3.32.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

TS input via Ethernet is supported as standard. Quad ASI or Sat input are available as hardware options.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode

- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode

- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode

- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough

- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.32.4 Fixed Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #45692: sshd stopped shortly after boot, making the RX1 inaccessible

The sshd interface crashes shortly after boot. This has only been seen 3 times over the last 4 months on a large pool of engineering units where the units are often rebooted many times each day. Rebooting the unit recovers the unit. Remote units can be rebooted via the web interface.

Bug #53915: Satellite input does not lock if the RF input is connected after tuning parameters are configured

If the tuning parameters are configured and saved before the RF input is present when the RF input is applied the input does not lock.

Pressing the Save button reapplies the input configuration and locks the input.

Bug #56399: BISS encrypt/decrypt issue in UHD mode

Output pictures become corrupted and break up when using BISS decryption with video bit rates of over 70Mb/s

Bug #55212: Decode output (HD & UHD) luma and chroma clipping levels out of range.

Luminance and chrominance clipping levels were incorrectly set on the output SDI.

Bug #59441: Satellite input not requesting license tokens

RX1 does not always request the use of license tokens when running higher order modulation schemes.

Bug #47925: License expire warning does not disappear when a new license is imported

A week before a time limited license expires it produces a warning to tell the operator the license is about to end. Even if a new valid license is applied to the unit the warning is not cleared.

Bug #56389: Disk filled by repeated error messages

Log rotation is not correctly working. If an error message is continually repeated the log file expands until the hard disk fills crashing the RX1.

Bug #5748: Decode failure alarm is repeatedly cleared and raised

If a corrupted input is applied to the RX1, the “Decode failure alarm” is raised every second filling up the log file.

3.32.5 Known Defects

Bug #59868: Satellite demodulator does not report correct modulation scheme when source is changed

When the RX1 is configured or the input is first applied the correct modulation scheme is reported. If the modulation scheme of the source changes without the unit being reconfigured or a loss of input, then the new modulation scheme is not correctly reported.

Bug #59890: Before rebooting after running an 'Upgrade': ssh and sudo commands do not respond for a long time (approx. 20 -30 seconds)

After running the **Rx1-***X.X.X.X_X_gXXXX***.el7.x86_64_installer.sh** and before running the reboot command all ssh and sudo commands do not respond for a period of 20-30 seconds.

Bug #59873: License key locking code changes if the server name is changed

If the user changes the server hostname then the licenses codes are also changed meaning that all existing licenses on the RX1 become invalid.

Bug #59641: 12G SFP not working reliably

The 12G SFP module does not reliably start output after the unit is reconfigured or a new TS input is applied.

Bug #57791: No SDI output

After configuring the RX1 and applying a valid transport stream to the input, the stream was correctly decoded but no SDI output was produced.
During continuous automated testing on multiple units over a 3 month period this has been seen 5 times. This defect has only been seen during automated test and it has not been seen in the last month and could not be reproduced after concerted effort of repeated testing over the last 2 weeks.

Bug #59798: Decode failure when applying a 4K input to a decoder set to 4 x HD

Feeding a UHD stream into a decoder where the 4xHD decodes are set to use the same input multicast causes at least one of the HD decodes to fail when the 4xHD stream is restored.

Bug #59527: Z-bit is set on all audio channels.

The Z-bit signalled in the embedded audio output should only be set on the first channel of a stereo output.

Bug 57775: Failing CAMs are not monitored and automatically rebooted.

If a CAM crashed during normal operation the status is not currently monitored and the CAM will not automatically be restarted.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

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Reboot should be the last statement

3.33 Version 10.4.0.1

3.33.1 Overview

This version is intended to provide bug fixes to version 10.4.0.0.

This version will be used as the factory release.

3.33.2 New features in release

None

3.33.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
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Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

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HD Decode

- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode

- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough

- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
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Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.33.4 Fixed Defects

Bug #57658: Licence manger reports different locking codes after reboot when network port is set to DHCP

The license key locking code reported by the RX1 depends on the time taken for the DHCP server to assign an IP address and for the network port to connect. If the locking code changes non of the licenses installed on the RX1 are seen as valid.

3.33.5 Known Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #45692: sshd stopped shortly after boot, making the RX1 inaccessible

The sshd interface crashes shortly after boot. This has only been seen 3 times over the last 4 months on a large pool of engineering units where the units are often rebooted many times each day. Rebooting the unit recovers the unit. Remote units can be rebooted via the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

Please reboot the unit now * **********
Cleaning up
Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

Bug #53915: Satellite input does not lock if the RF input is connected after tuning parameters are configured

If the tuning parameters are configured and saved before the RF input is present when the RF input is applied the input does not lock.

Pressing the Save button reapplies the input configuration and locks the input.

3.34 Version 10.4.0.0

3.34.1 Overview

This version is intended to provide new features and bug fixes to version 10.3.0.1.

This version will be used as the factory release.

3.34.2 New features in release

Quad channel HD MPEG-2, H.264 or HEVC video decode (8 / 10 bit, 4:2:0 / 4:2:2). The following resolutions are supported

- 1920 x 1080i 25 / 29.97 fps
- 1280 x 720p 50 / 59.94 fps
- 1920 x 1080p 50 / 59.94 fps (H.264 or HEVC only)

The four decodes are totally independent and any combination of supported video codecs and frames rates can be utilised at any one time. (Note each video frame rate must be the same if the Content Processor is using an external frame sync).

Each of the four decodes can be configured with independent or common inputs.

Changing the decode or output configuration of one decode will not affect any other running decode. (Changing the input of decodes using a common input will obviously affect all decodes using the same input)

Up to 16 channels (8 stereo pairs) of Dolby Digital Plus audio passthrough.

MPEG-H audio passthrough. (MPEG-H audio will use all 16 audio channels available).

AAC-LC 2.0 / 5.1 audio decode.

Quad satellite input option. It is possible to either route a single satellite inputs to independent services or to route a single input to multiple services.

The satellite input option available for the CP is capable of DVB-S (EN300-421), DVB-S2 (EN302-307-1) and DVB-S2 extensions or DVB-S2X (EN302-307-2).

3.34.3 Features

All completed features are controlled via the graphical user interface (GUI).

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

The decode delay can be set as follows

- Low = 250ms
- Standard = 400ms
- Compatibility = 650ms

Either a single service UHD or quad HD video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card. The following formats and codec are supported:

UHD Decode
- 3840 x 2160p 8 / 10 bit, 4:2:0 and 4:2:2 (HEVC)

HD Decode
- 1920 x 1080i 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1280 x 720p 8 / 10 bit, 4:2:0 and 4:2:2 (MPEG-2 / H.264 / HEVC)
- 1920 x 1080p 8 / 10 bit, 4:2:0 and 4:2:2 (H.264 / HEVC)

Up to 16 channels (8 stereo pairs) of audio decode and passthrough.
Supported Decode
- MPEG1 LII 2.0
- AAC-LC 2.0 / 5.1
- Dolby Digital 2.0 / 5.1 (16, 20 or 24 bit audio output)
- Dolby Digital Plus 2.0 / 5.1 (16, 20 or 24 bit audio output)
- MPEG-H contribution decode.

Supported Passthrough
- LPCM
- Dolby-E
- Dolby Digital
- Dolby Digital Plus
- MPEG-H

It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from UserData/SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from UserData/SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from UserData/SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.34.4 Fixed Defects

Bug #47925: License expire warning wont disappear on new license import

If a temporary license expires and a new license is imported the no license alarm is not cleared.

Stopping the service before importing license resolves the issues.

Bug #49730: Restoring to customer backup of v10.1 did not work

When the software on the unit is downgraded to an old restore point the firmware on the accelerator card is not restored to the old version. The unit is recovered by running the installer for the required version.

Bug #50500: 12G SFP gets stuck at 1.5G clock rate when source is changed to 3G format

If the output video format is switched between 1080i or 720p (1.5G) to 1080p (3G) then the output clock rate remains at 1.5G and hence the video output is corrupted. Stopping and starting the service resolves the issue. There are no issues switches between UHD (12G) and other formats.

Bug #49547: Alarm override is not effective until service restart

When an alarms severity is changed or an alarm is masked the setting does not take effect until after the service is stopped and restarted.

Bug #50696: Second field SEI/Userdata being dropped.

Data extracted from user data or SEI of the incoming service to be inserted into the second field of a 1080i output format is not embedded into the output SDI video.

Bug #50852: Channel synchronisation issue when switching from HD -> UHD

Switching from an HD video format to a UHD format may leave the 4 3G output misaligned by a few pixels. If the outputs are played into converters such as SDI to HMDI the usually the picture is still displayed correctly, however some analysers may detect the issue.

Bug #48687: Subtitle lines missing on WFM when RX1 outputting OP47

It has been observed on RX1 when the teletext subtitle output exceeds 1 line then subsequent text is not shown.

Bug #52176: AFD - SEI Messages not being seen on output for H.264 720p50

AFD data is not inserted into the output SDI when the data is being extracted from SEI messages when the video input format is H.264 720p50

Bug #51526: Cannot set user chosen program number on GUI

Services can only be selected by name from a drop down list, it is not possible to select the service to be decode by entering the program number.

Bug #51405: CP won't boot after the configuration in the mongo database became corrupted

Power was removed from the Content Processor whilst the configuration was being updated causing the configuration in the database to be corrupt. Once the database was corrupted it was no longer possible to start the Content Processing service.

Bug #51168: Selecting Teletext for ANC data type stops video output, when no teletext component is present

While receiving a stream with a private data stream being embedded/decoded as generic ANC Ancillary data, switching the data type (on the Home/Services/ReceiverService/Edit page, data tab) to be decoded from Ancillary to Teletext and saving the configuration leads to two alarms being generated and the video output stopping:

- Input video signal lost
- Metadata input stream not available

3.34.5 Known Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #45692: sshd stopped shortly after boot, making the RX1 inaccessible

The sshd interface crashes shortly after boot. This has only been seen 3 times over the last 4 months on a large pool of engineering units where the units are often rebooted many times each day. Rebooting the unit recovers the unit. Remote units can be rebooted via the web interface.

Bug #53026: Installation logs' last stage statements are not in order

Installation logs last stage statements are not in order

==========
Enabling service dkms
Installation complete

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Finished installation
Removing temporary install directory ==========

Installation complete/finishes is same thing repeated above
Cleaning up and remove temp etc should be before installation complete statement
Reboot should be the last statement

Bug #53915: Satellite input does not lock if the RF input is connected after tuning parameters are configured

If the tuning parameters are configured and saved before the RF input is present when the RF input is applied the input does not lock.

Pressing the Save button reapplies the input configuration and locks the input.

3.35 Version 10.3.0.1

3.35.1 Overview

This version is intended to provide a critical bug fixes to version 10.3.0.0.

This version will be used as the factory release.

The release supports the following components.

- M1 server.
- Centos Version 7.4 OS
- IP input on 1G motherboard Ethernet socket.
- ASI input using Deltacast module.
- Software Demux.
- Software Audio decode.
- Hardware accelerated Video decode HD and UHD.
- VANC data processing.
- SDI output using Ericsson accelerator module.
- Web based Thumb nail
- Front panel confidence monitor
- Front panel control
- External sync input using Ericsson accelerator module.

3.35.2 New features in release

None.

3.35.3 Features

All completed features are controlled via the graphical user interface.

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

8 / 10 bit, 4:2:0 and 4:2:2 video decode is performed using a hardware decoder running on the Ericsson hardware accelerator card for the following video standards

720p, 1080i MPEG-2 / H.264 / HEVC

1080p H.264 / HEVC

UHD HEVC

Up to 16 channels (8 stereo pairs) of LPCM, Dolby Digital and Dolby-E passthrough or MPEG1 LII 2.0 or Dolby Digital 2.0 / 5.1 audio decode (16, 20 or 24 bit audio output) or a single MPEG-H contribution decode.
It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.35.4 Fixed Defects

Bug #51382: Network settings reset to 'Automatic' on upgrade.

Upgrading from an earlier version of RX1 to 10.3.0.0 resets the network port settings back to default. eth0 will be set back to ‘Automatic’ DHCP losing all ‘Manual’ configuration and potentially contact to the unit.

3.35.5 Known Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #49730: Restoring to customer backup of v10.1 did not work

When the software on the unit is downgraded to an old restore point the firmware on the accelerator card is not restored to the old version. The unit is recovered by running the installer for the required version.

Bug #48687: Subtitle lines missing on WFM when RX1 outputting OP47

It has been observed on RX1 when the teletext subtitle output exceeds 1 line then subsequent text is not shown.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #47925: License expire warning wont disappear on new license import

If a temporary license expires and a new license is imported the no license alarm is not cleared.

Stopping the service before importing license resolves the issues.

Bug #50500: 12G SFP gets stuck at 1.5G clock rate when source is changed to 3G format

If the output video format is switched between 1080i or 720p (1.5G) to 1080p (3G) then the output clock rate remains at 1.5G and hence the video output is corrupted. Stopping and starting the service resolves the issue. There are no issues switches between UHD (12G) and other formats.

Bug #49547: Alarm override is not effective until service restart

When an alarms severity is changed or an alarm is masked the setting does not take effect until after the service is stopped and restarted.

Bug #45692: sshd stopped shortly after boot, making the RX1 inaccessible

The sshd interface crashes shortly after boot. This has only been seen 3 times over the last 4 months on a large pool of engineering units where the units are often rebooted many times each day. Rebooting the unit recovers the unit. Remote units can be rebooted via the web interface.

Bug #50696: Second field SEI/Userdata being dropped.

Data extracted from user data or SEI of the incoming service to be inserted into the second field of a 1080i output format is not embedded into the output SDI video.

Bug #50160: Repeated CCs when available in video and VANC

If closed caption data is present in both user data or SEI messages and VANC data, then the caption data is inserted into the output from both sources duplicating the closed captions in the output SDI video.

Bug #50852: Channel synchronisation issue when switching from HD -> UHD

Switching from an HD video format to a UHD format may leave the 4 3G output misaligned by a few pixels. If the outputs are played into converters such as SDI to HMDI the usually the picture is still displayed correctly, however some analysers may detect the issue.

3.36 Version 10.3.0.0

3.36.1 Overview

This version is intended to provide new features and bug fixes to version 10.2.0.0.

This version will be used as the factory release.

The release supports the following components.

- M1 server.
- Centos Version 7.4 OS
- IP input on 1G motherboard Ethernet socket.
- ASI input using Deltacast module.
- Software Demux.
- Software Audio decode.
- Hardware accelerated Video decode HD and UHD.
- VANC data processing.
- SDI output using Ericsson accelerator module.
- Web based Thumb nail
- Front panel confidence monitor
- Front panel control
- External sync input using Ericsson accelerator module.

3.36.2 New features in release

Single channel of HD MPEG-2 or H.264 video decode (8 / 10 bit, 4:2:0 / 4:2:2). The following resolutions are supported

- 1920 x 1080i 25 / 29.97 fps
- 1280 x 720p 50 / 59.94 fps
- 1920 x 1080p 50 / 59.94 fps (H.264 only)

Up to 16 channels (8 stereo pairs) of Dolby Digital audio passthrough.

3.36.3 Features

All completed features are controlled via the graphical user interface.

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

8 / 10 bit, 4:2:0 and 4:2:2 video decode is performed using a hardware decoder running on the Ericsson hardware accelerator card for the following video standards

720p, 1080i MPEG-2 / H.264 / HEVC

1080p H.264 / HEVC

UHD HEVC

Up to 16 channels (8 stereo pairs) of LPCM, Dolby Digital and Dolby-E passthrough or MPEG1 LII 2.0 or Dolby Digital 2.0 / 5.1 audio decode (16, 20 or 24 bit audio output) or a single MPEG-H contribution decode.
It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.36.4 Fixed Defects

Bug #45615: Corrupted thumbnail output

Switching between interlaced video format and progressive may leave the thumbnail display with a corrupted output.

Bug #48342: No way to mask alarm(s) in RX1

There is currently no way to mask any alarms raised in RX1. This functionality is planned for release early Q4 2018.

Bug #48562: If the unit is not correctly powered down the RX1 application can fail to restart

When the database is being written to a lock is applied so that only one write can occur at a time to prevent conflicting entries corrupting the database.

If the power is pulled whilst the database is being written to, then the RX1 application may fail to restart when powered on.

If the following file is present on boot up */var/lib/mongo/mongod.lock* it has to be deleted using the following command.

"sudo rm /var/lib/mongo/mongod.lock"

Bug #48797: "Clock reference invalid" alarm not raised if no framesync present when configuration change is applied

If the frame sync is removed or an incorrect frame rate is applied a "Clock reference invalid" alarm is raised. If the RX1 configuration is changed and applied the alarm is cleared and not re-raised.

Bug #50575: GUI shows multiple audio 'not present' when in autoaudio mode and swapping between streams

Changing between different input transport streams with the service selection set to auto can cause the unit to display audio not present alarms if the services contain a different number of audio components.

Bug #50276: Installation logs are not saved on box

The logs created during a software installation are not saved and will be lost once the unit is rebooted.

Bug #49789: CC608 are broken

CC608 closed captions are not extracted from the decoded service and embedded into the output SDI.

Bug #49782: Installer: Space checking in auto-installer.sh only checks space on /var.

The installer does not check all of the disk space requires to complete a full software update.

Bug #49655: Alarm is not displayed when unsupported input decode is attempted.

If the RX1 cannot decode the incoming video service an alarm is not displayed.

3.36.5 Known Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #49730: Restoring to customer backup of v10.1 did not work

When the software on the unit is downgraded to an old restore point the firmware on the accelerator card is not restored to the old version. The unit is recovered by running the installer for the required version.

Bug #48687: Subtitle lines missing on WFM when RX1 outputting OP47

It has been observed on RX1 when the teletext subtitle output exceeds 1 line then subsequent text is not shown.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

Bug #47925: License expire warning wont disappear on new license import

If a temporary license expires and a new license is imported the no license alarm is not cleared.

Stopping the service before importing license resolves the issues.

Bug #50500: 12G SFP gets stuck at 1.5G clock rate when source is changed to 3G format

If the output video format is switched between 1080i or 720p (1.5G) to 1080p (3G) then the output clock rate remains at 1.5G and hence the video output is corrupted. Stopping and starting the service resolves the issue. There are no issues switches between UHD (12G) and other formats.

Bug #49547: Alarm override is not effective until service restart

When an alarms severity is changed or an alarm is masked the setting does not take effect until after the service is stopped and restarted.

Bug #45692: sshd stopped shortly after boot, making the RX1 inaccessible

The sshd interface crashes shortly after boot. This has only been seen 3 times over the last 4 months on a large pool of engineering units where the units are often rebooted many times each day. Rebooting the unit recovers the unit. Remote units can be rebooted via the web interface.

Bug #50696: Second field SEI/Userdata being dropped.

Data extracted from user data or SEI of the incoming service to be inserted into the second field of a 1080i output format is not embedded into the output SDI video.

Bug #50160: Repeated CCs when available in video and VANC

If closed caption data is present in both user data or SEI messages and VANC data, then the caption data is inserted into the output from both sources duplicating the closed captions in the output SDI video.

Bug #50852: Channel synchronisation issue when switching from HD -> UHD

Switching from an HD video format to a UHD format may leave the 4 3G output misaligned by a few pixels. If the outputs are played into converters such as SDI to HMDI the usually the picture is still displayed correctly, however some analysers may detect the issue.

3.37 Version 10.2.0.0

3.37.1 Overview

This version is intended to provide new features and bug fixes to version 10.1.0.0.

This version will be used as the factory release.

The release supports the following components.

- M1 server.
- Centos Version 7.4 OS
- IP input on 1G motherboard Ethernet socket.
- ASI input using Deltacast module.
- Software Demux.

- Software Audio decode.
- Hardware accelerated Video HEVC decode (HD and UHD only).
- VANC data processing.
- SDI output using Ericsson accelerator module.
- Web based Thumb nail
- Front panel confidence monitor
- Front panel control
- External sync input using Ericsson accelerator module.

3.37.2 New features in release

Dynamic range signalling. The ability to extract the information from the incoming transport stream and insert it into the output SDI or to over write the incoming information with a user defined setting.

BISS v1 mode 1 or E fixed key service level decryption.

MPEG-H contribution audio decode.
Delay modes. Delay Mode – Configures decode latency through the RX1. The following modes effect the delay between the PCR/PTS relationship and thus delays the presentation of a picture when compared to the system clock reference.

See user guide for details of the different delay modes

'Compatibility'	= 650ms
'Standard'	= 400ms
'Low'	= 250ms

Configuration of the RX1 so when the option is initially selected or when a new service is selected all associated audio components are automatically decoded and embedded into the output SDI up to the maximum of 16 audio components.

3.37.3 Features

All completed features are controlled via the graphical user interface.

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

Video decode is performed using a hardware decoder running on the Ericsson hardware accelerator card for 720p, 1080i/p and UHD HEVC 8 / 10 bit, 4:2:0 and 4:2:2 in standard delay.

Up to 16 channels (8 stereo pairs) of LPCM and Dolby-E passthrough or MPEG1 LII 2.0 or Dolby Digital 2.0 / 5.1 audio decode (16, 20 or 24 bit audio output) or MPEG-H contribution decode.
It is possible to select which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from HEVC SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from HEVC SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from HEVC SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.37.4 Fixed Defects

Bug #48228: Audio parity errors

"embedded audio parity errors" are displayed on the Tektronix WFM when playing assorted HD and UHD streams.

Bug #48425: Generic VANC data passed through has Parity errors and incorrect DC value

- RX1 DC value is offset by plus 1 (a value of 16 is output as 17)
- Tektronix WFM reports data Parity errors on the output.

Bug #41693: DD, AAC and DD+ lipsync does not meet requirements of +/- 3ms

The requirements for lipsync for RX1 currently state:

Linear PCM: +/- 2ms.
DolbyE: +/- 2ms.
Everything else: +/- 3ms

We currently have the lipsync tests set to wider tolerances than this for:
Dolby Digital: lead 3ms, lag 10ms
AAC : lead 3ms, lag 20ms
DD+ : lead 3ms, lag 10ms

Bug #38330: License Manager not starting up in a timely fashion

Occasionally the license manager can take 1 to 3 minutes to start.

Note: There is no disruption to the output video due to the 3 minute start up grace period.

Bug #46862: 'License server lost' alarm when licence server is connected

License server is operating correctly, with all the correct functionality but the following 2 alarms maybe present on the RX1.

- License server lost major Connection with license server lost service=ReceiverService;expiration= xxxx-xx-xxxxxx:xx:xxx
- License end of trial period major This is the end of trial period service=ReceiverService;expiration=xxxx-xx-xxxxxx:xx:xxx

Bug #48153: Front panel network settings are incorrect

1. Netmask setting changes in unhelpful way. e.g 255.255.064.000 gets changed to 255.255.252.000, but 255.255.192.000 is what would be expected.

2. Gateway can be on a different subnet.

3. Changing between manual and automatic can lead to the port having 2 IP addresses.

Bug #45216: Frame sync offset is out of range in general and excessive for 1080i

These are readings from the Tektronix waveform monitor for the different formats

UHD50 - 0.108 us delayed
1080i25- 3.798 us delayed
720p50 - 0.067 us delayed

UHD59 - 0.108 us delayed
1080i29- 0.822 us delayed
720p59 - 0.081 us delayed

Bug #44547: Video and audio status show default values rather than nothing when there is no input

The video and audio decoding status tabs show default values when there is no input. These should be blank until a valid input is received.

Bug #45210 Bitrate is missing on GUI for ASI input

When using an ASI input, there is no Bitrate information available in 'Input Status' or 'Stats' page.

Bug #44805: No alarm raised if the unit is fed with an unsupported video resolution

If the unit is fed with an unsupported output video resolution, then there are no alarms raised. The video status page reports the video standard being decoded, but the SDI output cannot output the decoded video and there are no alarms to indicate this.

Bug #43256: Export/Import service does not work

Exporting and reimport a service from the services page does not work correctly. The interface reports that the operation has been successful,l but the exported service has not been restored.

Bug #45350: A 'monitoring' user can reboot the server from the GUI server tab

Reboot option from GUI should only be available to admin & config groups user.

Bug #45562: In the absence of SFP modules the RX1 software stops working.

If there are no SFP modules fitted to the unit, the RX1 software fails at the point of hardware detection and configuration and the RX1 services fails to start.

3.37.5 Known Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #45615: Corrupted thumbnail output

Switching between interlaced video format and progressive may leave the thumbnail display with a corrupted output.

Bug #48342: No way to mask alarm(s) in RX1

There is currently no way to mask any alarms raised in RX1. This functionality is planned for release early Q4 2018.

Bug #48687: Subtitle lines missing on WFM when RX1 outputting OP47

It has been observed on RX1 when the teletext subtitle output exceeds 1 line then subsequent text is not shown.

Bug #48562: If the unit is not correctly powered down the RX1 application can fail to restart

When the database is being written to a lock is applied so that only one write can occur at a time to prevent conflicting entries corrupting the database.

If the power is pulled whilst the database is being written to, then the RX1 application may fail to restart when powered on.

If the following file is present on boot up */var/lib/mongo/mongod.lock* it has to be deleted using the following command.

"sudo rm /var/lib/mongo/mongod.lock"

Bug #48797: "Clock reference invalid" alarm not raised if no framesync present when configuration change is applied

If the frame sync is removed or an incorrect frame rate is applied a "Clock reference invalid" alarm is raised. If the RX1 configuration is changed and applied the alarm is cleared and not re-raised.

Bug #48073: License tokens in use shown incorrect

It can take up to a minute to show the correct number of license tokens being used on the web interface.

3.38 Version 10.1.0.0

3.38.1 Overview

This version is intended to provide new features and bug fixes to version 1.0.0.0.

This version will be used as the factory release.

The release supports the following components.

- M1 server.
- Centos Version 7.3 OS
- IP input on 1G motherboard Ethernet socket.
- ASI input using Deltacast module.
- Software Demux.
- Software Audio decode.
- Hardware accelerated Video HEVC decode (HD and UHD only).
- VANC data processing.
- SDI output using MediaKind accelerator module.
- Web based Thumb nail
- Front panel confidence monitor

- Front panel control

3.38.2 Features

All completed features are controlled via the graphical user interface.

Front panel control is available to configure the ethernet interfaces and to set the IGMP version being used.

Once the input TS stream has been selected the decoder will automatically display the service list present in the TS on the GUI.

The service to be De-Multiplexed is selected from the drop down box in the GUI.

The video resolution, frame rate, bit depth and bitrate of the video elementary stream are displayed in the GUI status panel.

The audio codec, bitrate and language are displayed in the GUI status panel

Video decode is performed using a hardware decoder running on the MediaKind hardware accelerator card for 720p, 1080i/p and UHD HEVC 8 / 10 bit, 4:2:0 and 4:2:2 in standard delay.

Up to 16 channels (8 stereo pairs) of LPCM and Dolby-E passthrough or MPEG1 LII 2.0 or Dolby Digital 2.0 / 5.1 audio decode (16, 20 or 24 bit audio output).
It is possible to selected which audio service(s) are decoded by selecting them from a list provided by the incoming service information or by manually entering a PID value.
From the decoded audio channels, it is possible to select which audios are embedded into SDI and which channel numbers they are embedded on.

AFD data extraction from HEVC SEI and embedded into SDI as SMPTE 2016. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Time code extraction from HEVC SEI and embedded into SDI as RP188, VITC1. It is possible to select the line number of which the data is inserted in SDI. Default line is 9.

Closed Caption data extraction from HEVC SEI and embedded into SDI as SMPTE 334. It is possible to select the line number of which the data is inserted in SDI. Default line is 11.

Generic VANC passthrough, extracted from PID and inserted in SDI as SMPTE 2032.

Teletext extraction from PID and inserted in SDI as either OP47 or SMPTE 2031.

The output SDI can be locked to an external clock reference, either a video frame sync or 10Mhz clock.

3.38.3 Fixed Defects

Bug #41245: Failed to decode HEVC 4k at high bitrate (100Mb/s) and low delay reliably

Unit fails to reliably decode 4K video using frames rates of 59.94 with an elementary bitrate of over 85Mb/s.

Bug #41372: Alarm not raised for all decoded audios

If 4 audios are being decoded and only 2 embedded into the SDI output. If the input is removed only alarms are raised to the audios that are being embedded into the SDI output.

Bug #40677: Alarm info is insufficient

If a unit has multiple data components being decoded and one component it is dropped from the incoming transport stream. The unit raises an alarm but does not indicate which component has been removed.

Bug #41369: Updated service name is not available in Alarms section

If the service name is changed the new name is not displayed on the alarms page of the web interface.

Bug #44154: Decode configuration reliability

When the RX1 is configured, occasionally the hardware decoder fails to configure correctly leaving the RX1 with no SDI output.

Bug #43248: Input bit rate is not being displayed

The TS input bitrate is not displayed in the status of the web interface.

Bug #42824: ASI not locked with packet size of 204 bytes

The ASI input does not lock when a transport stream is applied containing 204 byte sized packets.

Bug #42745: No SDI output when TS changes from 1080p to UHD

Changing the input TS from 1080p to UHD results in no SDI output from the RX1. Logs show that frames are being dropped with the RX1 decode chain.

Output can be restored by changing the configuration on the GUI.

Bug #42717: Unsupported to supported format, decode does not re-start

Applying an unsupported transport stream format to the RX1 correctly stops the video output of the RX1. When a supported format is reapplied to the RX1 input the output does not recover.

Bug #42330: Real (non-expiring) customer licenses do not work

Licenses generated by the factory for customers do not grant the correct permissions on the unit.

Bug #42569: Input transport stream interruptions causes large decoder latency

Inputting a transport stream with lots of errors or by dropping lots of transport stream packets over the network causes the decode latency to increase.

Bug #42668: Cannot add a service in GUI because "servers" field is empty

Removing the default service from the Servers page does not allow a user to add a new service. If the server name is removed from the default service a new server name cannot be added.

Bug #42604: IGMP setting are lost on a software upgrade

When an upgrade is performed the IGMP settings are lost and have to be re-entered.

Bug #42833: Logs are missing from the zip file extracted from the Web interface Support Zone

The zip file extracted from the “Support Zone” containing the log files and debug information does not work due to the size increasing.

3.38.4 Known Defects

Bug #44185 Decoder not outputting pictures when input appears to be good.

After making a configuration change on the RX1, approximately 0.1% of the time the decoder reports as good but there are no decoded pictures from the decoder. The only way to recover is to press the reset button on the server page.

Bug #35381: SDI output stops when switching KVM from RX1

The unit loses communication with the SDI output card and requires a reboot.
This also happens when removing the VGA connection and reapplying.

Bug #43256: Export/Import service does not work

Exporting and reimport a service from the services page does not work correctly. The interface reports that the operation has been successful but the exported service has not been restored.

Bug #45216: Frame sync offset is out of range in general and excessive for 1080i

These are readings from the Tektronix waveform monitor for the different formats

UHD50 - 0.108 us delayed
1080i25- 3.798 us delayed
720p50 - 0.067 us delayed

UHD59 - 0.108 us delayed
1080i29- 0.822 us delayed
720p59 - 0.081 us delayed

Bug #44547: Video and audio status show default values rather than nothing when there is no input

The video and audio decoding status tabs show default values when there is no input. These should be blank until a valid input is received.

Bug #45210 Bitrate is missing on GUI for ASI input

When using an ASI input, there is no Bitrate information available in 'Input Status' or 'Stats' page.

Bug #44805: No alarm raised if the unit is fed with an unsupported video resolution

If the unit is fed with an unsupported output video resolution, then there are no alarms raised. The video status page reports the video standard being decoded, but the SDI output cannot output the decoded video and there are no alarms to indicate this.

4 Appendix A: What RX1 server (M1 variant) do I have?

4.1 Background on RX1 v14 hardware requirements

RX1 v14 only runs on server variants that have:

- DDR (memory) of 16GB
- and an SSD (disk) drive greater than 120GB (128GB recommended)

The hardware capability can either be checked by a visual check of the unit or remotely using some commands on ssh.

If the unit does not have the minimum hardware requirements, the following steps need to be followed:

- Order MKP/UPH/M1/REFRESH from MediaKind
- Create an RMA for every unit to be upgraded, this will ensure the unit is sent to the correct location for being refreshed with the correct hardware.

4.2 Check what hardware variant of the M1 server

Check the sticker on the side of the unit

On the side of the unit, there should be a "side label" showing the variant of the M1 server:

4.3 Check the side label against the following list

Manufacturer Part #	Description	Side label	Side label M1 variant text
VEGA-7010-0A02ERE	2AC WITH CONFIDENCE MONITOR – 8GB – REVISED FAN – 64GB SSD	MFCP - M1	M1-2AC-CM-FAN-64G SSD-8G
VEGA-7010-0A02ERE	2AC WITH CONFIDENCE MONITOR – 8GB – REVISED FAN – 64GB SSD	MK RX1	M1-2AC-CM-FAN-64G SSD-8G
VEGA-7010-0A04ERE	2AC WITH CONFIDENCE MONITOR – 8GB – REVISED FAN – 128GB SSD	MK RX1	M1-2AC-CM-FAN-128G SSD-8G
VEGA-7010-0A0AERE	2AC WITH CONFIDENCE MONITOR – 16GB – REVISED FAN – 128GB SSD	MK RX1	M1-2AC-CM-FAN-128G SSD-16G
VEGA-7010-0A08ERE	2AC WITH CONFIDENCE MONITOR – 16GB – REVISED FAN – 128GB SSD – TPM	MK RX1	M1-2AC-CM-FAN-128G SSD-16G-TPM
VEGA-7010-0G00ERE	2AC WITH CONFIDENCE MONITOR – 16GB - REVISED FAN – 128GB SSD - TPM - BMC	MK RX1	M1-2AC-CM-FAN-128G SSD-16G-TPM-BMC

The following variants can support RX1 V14:

- M1-2AC-CM-FAN-128G-SSD-16G
- M1-2AC-CM-FAN-128G-SSD-16G-TPM
- M1-2AC-CM-FAN-128G-SSD-16G-TPM-BMC

4.4 Checking hardware capabilities remotely

ssh onto the unit (credentials to be provided separately)

4.4.1 Checking SSD disk size

Command:

```
sudo lshw -short -C disk
```

This will return the size in the description column, it should state 120GB as a minimum

```
H/W path           Device      Class      Description
=========================================================
/0/100/17/0.0.0    /dev/sda    disk       128GB SATA CV1-8B128
```

Or

Command:

```
fdisk -l | grep Disk
```

This will return:

```
Disk /dev/sda: 128.0 GB ...
```

4.4.2 Checking DDR memory size

Command:

```
free -h -si
```

This will return the size in the total column, it should be close to 16GB as a minimum

```
        Total   used   free   shared   buff/cache   available
Mem:    7.9G    2.1G   4.3G   15M      1.5G         5.5G
Swap:   0B          0B          0B
```