

IP-4c

Release Notes

Version 2.05.1

27.08.2021



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Fixed Issues

- The switchable audio device mode did not work correctly – in Analog/Digital mode it did not allow to switch the signal type for the audio inputs

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20.08.2021

New Functionality

- Cold backups
Backup input sources can now be set to “Active when needed” instead of being always active as it was the case until now.
With e. g. Icecast input sources the server connection will only be established, when the backup is really needed, meaning superior input sources did fail, thereby not unnecessarily eating up e. g. possibly limited LTE volume.
- Switchable audio device mode
If you have more than 2 channels licensed, until now the device turned into a Digital only device, meaning the audio inputs and outputs can no longer be switched to Analog mode.
For such a device you now have the option to switch to Analog/Digital mode. You will thereby reduce the useable channel count to 2, allowing to configure only two audio outputs and four encoders, but you will regain the possibility to switch the inputs and outputs to Analog mode.
- Configurable maximum payload size for Elementary Streams, increasing the number of packets per second (to e. g. reduce the latency implied by FEC usage)
- Rx (Receive) and Tx (Transmit) bitrates added to Overview page (per interface)
- Optional support for SIRC (Satellite In-Band Remote Control)
- MPEG TS encoder: selectable mode for private data insertion (ES - stream type 0x89 or UECP/RDS – stream type 0x80)
- RIST support added to SIP
- Configuration option for the stream ID added to SRT caller mode
- Configuration option for maximum reorder tolerance added to SRT input sources
- Web Login/Logout actions are now logged in the EventLog
- When the connection to the device is interrupted, a dialog will pop up

Changed functionality

- FEC encoder: setting the column port offset to 0 will now enable a row only FEC
- In RTP DualStreaming setup (without FEC), the Missed counter of the first stream was in fact the overall missed counter (after combining the two streams). This is corrected – that Missed counter will now reflect



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the missed packets of only the first stream. Instead there's a new block "Dual streaming" showing the Unrecovered/Missed counter of the combined streams.

- In RTP DualStreaming setup (without FEC), the PER (packet error rate) of the first stream was in fact the overall PER (after combining the two streams). This is corrected – that PER value will now reflect the PER of only the first stream. Instead the overall PER is now shown in the new "Dual streaming" block.
- In RTP setup with FEC, the Missed counter did not reflect the missed packets of the audio stream, but the number of packets not available after FEC correction (it was identical to the Unrecovered counter in the FEC block). This is corrected – the Missed counter will now reflect the missed packets of the audio stream (without FEC correction).
- In RTP setup with FEC, the PER did reflect the overall PER after FEC correction and not just the one of the audio stream. This is corrected – that PER value will now reflect the PER of only the audio stream. Instead the overall PER is now added to the "FEC" block.

Fixed Issues

- PTPv2 support was accidentally broken since firmware V2.03 (seldom audio dropouts)
- Livewire Routing Protocol (LWRP) was broken since firmware V2.00
- Ancillary data decoding in MP3 did not work
- PCM 24 bit elementary streams with ancillary data and FEC could cause audio distortions
- A crash could happen when using an encoder send delay for RTP streams together with PCM or Opus encoded data, which has ancillary data and/or GPIO Forwarding active
- Automatic reconnect in SRT input source caller mode, when no audio packets are received for some time
- SRT bitrate gauge did not show the current bitrate, but a mean value over the whole connection period
- PER calculation failed for SRT connections (resulting in always being 0.0% PER)
- Jitter measurement for first RTP stream in DualStreaming setup was wrong
- Elementary stream decoding may fail to start up correctly when a higher jitter is present (the dejitter buffer level is 0 and the audio buffer will not build up).
- SIP: Possible audio distortion a few seconds after the connection is established when connecting between two 2wcom 4audio devices
- SIP: Receiver reports were not shown on the Overview on callee side
- RIST info on Overview page was missing for TS/IP input sources
- RIST info on Overview page was wrong for input sources: the Requested counter did show the number of retransmitted packets and the Retransmitted counter was always 0
- SNMP node virtCslAudioDecoderInputsourcesRtpStatusFecunrecoveredcnt (OID .1.3.6.1.4.1.21529.1001.35.2.3.4.5.10.37.4096.1.23) was wrong and did not reflect the unrecoverable packets after FEC (but did reflect the number of internal FEC errors)
- MPEG TS decoder improved for high number of audio frames per PES
- MPEG TS encoder: SRT output didn't work if the entry was copied (only the first one did work)
- MPEG TS encoder: RTP output did not allow to select Ctrl interface, even if it was enabled for streaming via Services menu
- After pressing "Save" on the Ancillary Data configuration page, the embedding of ancillary data into a private TS PID did not work any more



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- Decoder Streaming Input alarm shows yellow led, even if only Main source is configured and faulty (which should result in a red led)
- Distortions on headphone output
- The audio output may stuck completely in very rare cases, which could only be recovered by rebooting the device
- Ctrl interface was not selectable for ancillary output even if enabled via Services menu
- Ctrl interface was not selectable for TS Multiplexer outputs even if enabled via Services menu
- SIP Phonebook: buttons did not work in newly added entries
- The table height of the event table on the Log page is now automatically the max. window height

Known bugs

- With PTPv2 it's still possible, that a small buffer drift does occur (around 1-2 ms per day). Currently under investigation
- Disable and enable an encoder stream (which is using SFN or external clock activated for audio output) within 10 seconds could lead into audio errors on decoder. Fixed in 2.06, workaround: reboot decoder or disable encoder for at least 10 seconds and enable it again.



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Version 2.04

07.06.2021

New Functionality

- Finally added full (optional) Stream4Sure functionality (compatible to MM01 and MM08E)
- The audio outputs can now be used as regular input sources. When used by an Encoder, you can thereby benefit from the backup switching mechanism of the audio outputs, configured on the Decoder tab of the Codec page. This is especially useful if you don't need the audio output(s) itself, but are in need for a backup mechanism for the Encoder input source(s).
- You can configure meaningful names for the audio outputs.
- Added RIST (Reliable Internet Stream Transport, <https://www.rist.tv/>) support as an alternative to the already supported SRT protocol for a more standard based (RTP and SMPTE-2022) option to reliably transport your audio while being fully interoperable with standard RTP.
We currently support the RIST Simple Profile, which in contrast to SRT already supports multicast, but on the other hand does not support encryption like SRT does.
RIST will not require a new license, but will automatically be available if you have the SRT Encoder/Decoder license.
- Added VLAN support to the Ctrl interface

Changed functionality

- n/a

Fixed Issues

- MPEG TS encoder improved for input sources with a higher jitter
- MPEG TS encoder: External PCR will be signalled as "PCR" and not as "PES Priv. Data"
- MPEG TS encoder: improved compatibility with some decoders (TS stuffing bytes handling)
- Improved transcoding from MPEG TS to MPEG TS
- FEC encoder improved for RFC3640 and RFC4598, RFC4184 (marker bit, Dolby and MPEG4 AAC). The problem could manifest on decoder side as audio buffer running empty with AAC encoding and FEC enabled.
- The device could crash when switching the RF Input for a satellite input source
- New NTP status page is OK now, even if the device has no Ravenna or SFN license
- In SFN mode, LiveListening of an audio output was distorted
- When toggling the selected TS Multiplex on the Overview page, the output table did not update correspondingly
- For a newly added TS Multiplex, the "Auto-calculate required TS bit rate" toggle switch did not work (did not show the Bit rate input field in case "Auto-calculate" was switched off)

Known bugs

- n/a



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Version 2.03

10.05.2021

Important!

- This update recommends an updated recovery system. Please update the device using the file **recovery_2.00.upd**. A reboot of the device is not necessary.

New Functionality

- Ancillary Data input and output does support now input and output via UDP, too
- A double click on a row in the Profiles, Input Sources or Encoder Outputs table will open the corresponding Edit dialog
- New Ancillary Data status page
- New Services configuration, allowing to enable/disable HTTP, HTTPS, SFTP, SNMP and Streaming Data access/usage for each network interface (including VLANs).
This does also mean, that you can now grant access to HTTP(S) or SNMP via the Data interface – that's no longer limited to the Ctrl interface.
- The Ctrl interface can now also be used for Streaming Data like input source and encoder outputs (has to be enabled via the new Services configuration)
- New TCP/IP configuration page, allowing up to 10 VLANs for Data1 and Data2. Gateways can now be configured for VLANs, too.
- Added source specific multicast configuration to Elementary Streams dialog
- Added NTP status page

Changed functionality

- Ancillary Data handling
The Ancillary Data handling setup has changed. Formerly the configuration (should DTE input be used in conjunction with an audio input / should DTE output be used to put out the Ancillary Data received via an Input Source) was done as part of the Input Source configuration dialogs.
To clean this up and to add UDP support, the configuration for the Ancillary Data handling was moved to a new Ancillary Data menu item.
- New NTP implementation (allowing up to four servers to be configured), giving higher precision
- Several packages have been updated (see OSA – Open Source Acknowledgment – on the Global page) to fix e. g. security issues

Fixed Issues

- FEC Encoder now supports the maximum of 64 elementary output streams
- Encoder Outputs: it was not possible to have more than 16 encoder outputs for the same encoder (now all 64 encoder outputs can have the same encoder source)
- MPEG TS Encoder: Bit rate overhead reduced
- MPEG TS Encoder improved for ancillary data in private PID



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- MPEG TS Decoder crash fixed on special EIT tables and large SDT tables
- Deleting all payloads of a service did not work - after page reload one service is kept
- The device could crash when starting or stopping RTP output streams
- Removed obsolete MPEG TS Packetizing format from Multiplexer settings
- When deactivating encoder and decoder input sources at the same time via the web interface, the device could crash
- Wrong analogue level display in web interface in cases where the device is digital only
- Added missing interface and VLAN info to input sources and encoder output on Overview page
- Inactive SAVE button in the Livewire+ dialog after changing only the LW source
- Added audio buffer configuration for Livewire+ input source

Known bugs

- The new NTP status page does only work, if the device has the Ravenna or SFN license



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Version 2.01

10.03.2021

New Functionality

- Icecast Server Encoder Output added
In addition to the Icecast Source Client Encoder Output it's now also possible to enable an Icecast Server as an encoder output. Each Icecast Server will allow a maximum of 5 client connections.
- DSCP configuration for Elementary Stream Encoder Output added

Changed functionality

- The configuration for the usage of an external clock source (1PPS, PTP) has been changed. In former firmware versions the usage of the external clock source had to be enabled for the specific input sources (Audio Input for the audio inputs, Elementary Stream Input for the audio outputs).
As this led to some confusion, the configuration has been re-designed.
The usage of the internal or external clock source is now configured on the Audio/XLR page, as the clock source is in fact a characteristic of the audio inputs and/or audio outputs.
The new reference input selection introduced in firmware V2.00 will be (once enabled) the clock source master, therefore not allowing the selection between internal or external (1PPS, PTP) clock source.

Fixed Issues

- PSU alarms were not available (since firmware V2.00)
- Fixed a crash when changing the interface of an active SRT input source
- After device boot/reboot, some input sources may not start up correctly, when DHCP is used on the Data interfaces. The input source itself will work, but no audio is decoded / played out
- SRT input sources will now (again) be able to follow an SRT encoder, which does encode a file (this was broken in firmware V2.00)
- MPEG TS Encoder: PCR insertion improved for streams in "Low bitrate overhead" mode
- The Jitter information for the redundant part of an RTP output stream was wrong
- Improved Livewire compatibility (e. g. to Omnia One)
- The "Reset Counters" button on the Overview page did not reset the RTP output statistics for a redundant stream
- The "Reset Counters" button on the Overview page did sometimes not reset the FEC decoder status



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Version 2.00

09.02.2021

New Functionality

- Reference Input: the audio clock control does now allow to configure one of the audio inputs to act as the reference input (clock source) for the outputs (or other inputs)
- Added missing separate status information (via SNMP/Ember+) for all input sources types and all encoder output types
- Configuration of VLAN added for Livewire input sources
- Configuration of the dejitter buffer level added for Livewire input sources
- Added No Input Data alarm for streaming inputs
- SDP files can be downloaded for the output streams
- MPEG TS Encoder: allow referencing an external PCR (earlier firmware versions always used one of the audio streams for the PCR)

Fixed Issues

- PSU alarms are not available, if the device is equipped with hot swappable power supplies
- The (SAT)TS-Bitrate was no longer valid, but always displayed as 0
- TS Sync and C/N switch criteria for SAT(TS) input sources did not work
- IP input source status information was accessible using the decoder index (audio output index / decoder rank) via SNMP/Ember+. Therefore it was not possible to get IP status information, if the input source is only used for an encoder.
Now the index to use is the virtual input source index, following the visual order in the web
- Ancillary data output stopped working after switching to a backup source and didn't recover even if the main source is available again, but all input sources had to be disabled and enabled to get it working again
- DTE Ancillary input data is not routed to DTE output, if corresponding Audio Input is used as input source in the Decoder (Audio Output)
- SRT decoder was not restarted if the configured profile to use has been changed
- Activating NTP time synchronization does cause an audio glitch at synchronization time when using SRT
- Icecast Source Client encoder output did not allow to configure ports below 1024, but sometimes port 80 is used, so now every port starting with 1 is allowed
- Icecast Source Client did not work with AAC codecs
- MPEG TS Encoder: Optimized IP packet size for low bitrate
- SNMP Trap status binding delivers wrong value
- In rare cases the device may crash when changing the input source



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Changed behavior

- **SNMP Traps: ATTENTION** – the old SNMP traps are no longer available!
We made a move from device specific traps to general traps if applicable.
Example:
notificationVirtIp4cDeviceStatusMonitoringSilenceaudio1in (OID .1.3.6.1.4.1.21529.1001.0.7)
is now available as
notificationVirtCslMonitoringStatusAudioInputsXlrsilencedetection
(OID .1.3.6.1.4.1.21529.1001.0.1098907649)
Please note however, that in contrast to the traps the old status information, which can be polled, is still available, e.g. virtIp4cDeviceStatusMonitoringSilenceaudio1in (OID .1.3.6.1.4.1.21529.1001.35.1.23.37.57.7).
This old information is however marked as Obsolete in the SNMP MIB, as in the future only the new status information will be available
(e.g. virtCslMonitoringStatusAudioInputsXlrsilencedetection, OID .1.3.6.1.4.1.21529.1001.35.2.57.37.3.313.4096.1.1)

Known bugs

- **None**



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Version 1.31.4

11.12.2020

New Functionality

- None

Fixed Issues

- HTTPS web access to DATA1 and DATA2 disabled
- SFTP upload files cannot be saved

Known bugs

- PTP synchronization incorrect after reset (turn off, turn on)
Workaround: Reboot the device after configuring your PTP setup
- When using SAP all multicast parameters are set correctly, but the audio parameters are not used from the session description.
Workaround: setup the audio parameters manually when you configure the reception of an SAP announced stream.



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Version 1.31.3

30.11.2020

New Functionality

- None

Fixed Issues

- Fixed a routing problem when Ctrl and Data 1 or Data 2 were in the same subnet. This issue could result in the traffic being sent over the gateway instead of the subnet. Depending on the network setup this could cause unreachable devices.

Known bugs

- PTP synchronization incorrect after reset (turn off, turn on)
Workaround: Reboot the device after configuring your PTP setup
- When using SAP all multicast parameters are set correctly, but the audio parameters are not used from the session description.
Workaround: setup the audio parameters manually when you configure the reception of a SAP announced stream.



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Version 1.31.2

05.11.2020

New Functionality

- None

Fixed Issues

- Device not reachable because of wrong or missing gateway
- IP VLAN changes are not updated after configuration - only after reboot
- Redundancy stream handling in SFN mode improved
- Headphone output did not work in SFN mode
- Enhanced compatibility to some special Icecast streams

Known bugs

- None



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Version 1.31.1

05.11.2020

New Functionality

- None

Fixed Issues

- Log page shows error message about wrong localtime
- Device not reachable because of missing gateway. Has been fixed by changing DHCP metrics.
- Ravenna compatibility problems (e.g. to Lawo devices)

Known bugs

- None



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Version 1.31

28.10.2020

New Functionality

- Web Interface: Profiles are now moved to a separate tab, separated from the Input Sources

Fixed Issues

- Audio output may stop after several days or weeks (although input source(s) are still running)
- A network configuration using different gateways for the different interfaces (CTRL, DATA1, DATA2) did not work properly (policy based routing)
- Web interface is not available in seldom cases after a reboot (if DHCP is used for the CTRL interface)
- PSU failure alarm may produce false positive alarms
- "AES/EBU No signal" alarm did not work
- TS Decoder: audio decoding stops after changing demux configuration in MPTS setup
- SIP: Re-dial active connection after reboot if reconnect is enabled
- SFN mode: output disturbed in DualStreaming setup, if only redundant stream is received
- Web interface / Codec: VLAN may be set to 0 instead of right value in edit dialog
- VLAN may get set unintentionally, if interface is changed from one with VLAN to one without VLAN
- Web Interface: Overview page is empty (more or less), when logged in as user
- TS Encoder: enhanced ATSC compliance

Known bugs

- None



IP-4c Release Notes

Version 1.30

15.09.2020

New Functionality

- TS Encoder: added configuration possibility for the encoding standard (DVB/ATSC) and language codes
- On the TS Multiplexer web page, changes done are monitored now, too and the Save buttons will only get enabled when changes are present. Faulty values are not allowed to be saved.
- Added configuration possibility (on Audio XLR page) for the critical level marker threshold for the level meters on the overview page (threshold/level, at which the level will be shown as orange instead of green)
- PTPv2 support is now fully functional (provided the Ravenna license is present)
- Added support for the optional FM Dualtuner module

Fixed Issues

- SAP service behavior on DHCP changes improved; sometime SAP was not available after changing the network interface to DHCP
- RTP jitter buffer performance and accuracy improved PSU failure alarm may produce false positive alarms
- Problems with MP3 VBR decoding
- Wrong RTP timestamps for G.722 encoding
- Ancillary data output not working in case of SRT input source
- Ancillary data not working with E-aPTX and 32 kHz sample rate
- DHCP leases and TCP/IP reconfiguration improved

Known bugs

- none