MoIN

Multimedia over IP Network

Professional multi-format, multi-channel multimedia over IP server (hardware, software, cloud)

Your audio. Our solution.

2wcom

MoIN – Multimedia over IP Network

Audio networks based on different protocols

- Broadcast based on EBU TECH 3326, SMPTE ST 2110
- AES67 based on RAVENNA, Livewire or Dante
- Server based on Icecast, Shoutcast, Wowza

Audio coding – fitting to your needs

High quality multi-format Audio de/encoding

- MPEG ½ layer 2, 3
- G.711, G.722, linear PCM
- Opus
- Ogg Vorbis
- MPEG 2/4 AAC LC
- MPEG 4 AAC LD/ELD
- MPEG 4 HE-AAC v1&v2
- Extended HE-AAC (xHE-AAC)
- Enhanced aptX (E-aptX)
- Optional: Bit transparent transmission of digital audio and MPX signals
- Dolby codecs

IP streaming

(Unicast, Multiple Unicast & Multicast)

Rock solid network connection even in stress conditions according to standards RFC 3550, RFC 3551, RFC 3640, RFC 2250

- Professional elementary audio IP streaming using UDP, RTP/RTCP (standardized by EBU N/ACIP Tech 3326, SMPTE ST 2110)
- TS RTP, UDP and SRT streaming
- SRT Secure Reliable Transport
- Pro MPEG FEC
- Dual streaming
- Optional: Livewire/Ravenna (SIP, SAP, RTSP, AES67, PTPv2)
- Optional: Stream4Sure: 2wcom streaming technology with different codecs/qualities and seamless switching off up to 4 streams
- HLS, Icecast source client

Backup / advanced redundancy management

- Flexible automatic switch over concept with free definition of alternative input sources as a redundancy solution in case of failures
- Playing files from internal storage or using alternative streams (Icecast / Shouthast)

Control

- Remote control with various possibilities – HTTP/S, FTP, SSH, NMS, SNMP
- Revised configuration via web user interface for easier setup
- Ember+

Special

- Energy efficient 24/7 broadcast quality
- RDS decoding (built in RDS/UECP decoder)
- Embedded auxiliary data (RBDS/RDS or PAD) and GPIO forwarding

Monitoring

- IP and MPEG parameters via SNMP
- Icecast Live Listening

Perfect audio & latency management

- ACIP compliant high audio quality and extremely low latency (PTPv2 network synchronization)

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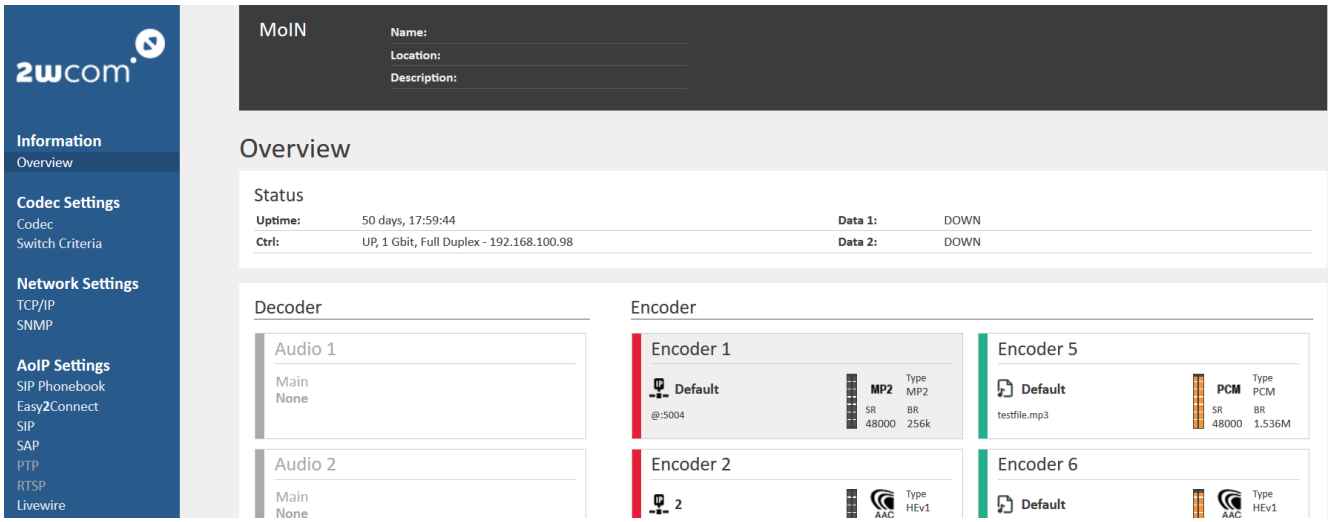

Advanced IP robustness functionalities

- Even to be operated in standard IP networks
- SRT Secure Reliable Transport
- Pro MPEG FEC
- Management of packet size, buffers and QoS
- Optional: Stream4Sure: 2wcom Streaming Technology with different codecs/qualities and seamless switching of up to 4 streams

Highly sophisticated monitoring and alarm concept

- Adjustable silence detection
- IP buffer and jitter check
- SNMP, alarm, source switch & event logging

Connect all known AoIP network devices

- MoIN can be used for audio routing, managing, levelling, loudness, monitoring and mixing between different protocols and environments
- The mixing and routing of different channels between different networks in synchronized manner is possible
- The integrated mixer can handle all audio signals also based on different clocks
- Audio streams can be combined to multichannel streams
- By supporting distribution services architecture (DS), the server allows for purpose-built products and services (i.e. DSLinks) to interact with one another in a decentralized manner. This architecture enables a network architect to distribute functionality between discrete computing resources
- Easy integration of third party applications

Audio matrix

- The audio inputs and audio outputs are available for IP data streams based on elementary and MPEG-TS streams via RTP and UDP
- The audio matrix functions control the routing, bridging and mixing of all audio signals
- Combining of different audio stream sources for a multichannel stream destination
- Sample rate converter (SRC) to combine different connections with different sample rates or different clocks
- Optional: functions for audio processing – e.g. loudness, limiter
- Optional: Analog, MADI or AES / EBU interfaces

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Technical details 1/2

Audio

Codecs

Standard	MPEG 1/2 Layer 2, 3 Linear PCM G.711, G.722 Opus Ogg Vorbis MPEG 2/4 AAC LC MPEG 4 AAC LD/ELD MPEG 4 HE-AAC v1&v2 Extended HE-AAC (xHE-AAC) Enhanced aptX (E-aptX) Dolby codecs
Optional:	Bit transparent transmission of AES/EBU input
Sample Rates	kHz: 16, 22,05, 24, 32, 44.1, 48 (On request: up to 192 kHz)
Sample rate converter	8:1

Interfaces

Performance

Encoder instances	Up to 512x AES/EBU, 110 Ω bal, (hardware server: connectors are depending on the chosen model)
Decoder instances	Up to 512x AES/EBU, 110 Ω bal, (hardware server: connectors are depending on the chosen model)
Data streams (in)	Up to 512
Data streams (out)	Up to 3.096

Ethernet

Data	Audio, serial data and GPIO transmission, controlling and setup functions
Connector (hardware server)	Depending on the model in use
Type (hardware server)	Depending on the model in use
Streaming protocol	EBU Tech 3326, 3368, AES 67, Ravenna, Livewire+, SMPTE ST 2110, SRT Secure Reliable Transport, RTP/RTCP/UDP, IGMP, ICMP, DHCP, HTTPS, FTPS, SNMP, NTP, PTPv2, TCP (Icecast), HLS

Serial (hardware server)

Interface	Depends on the model in use
Data	Private data, MPEG ancillary data, UECP/RDS (acc.to TR 101 154)
Transmission rate	Depends on the model in use
USB	1x USB 2.0 interface for service, configuration and firmware

Time synchronization (optional)

PTPv2	Network synchronization according to IEEE 1588-2008
1PPS	SMA connector

Internal storage (optional)

Size	7 GB (optional 1000 GB)
Type	eMMC (optional SSD)

Contact closure

Inputs (hardware server)	Depends on the model in use
Outputs (hardware server)	Depends on the model in use

Control & monitor

User interface	Integrated WebGUI

Technical details 2/2

Data	Control and setup functions, private data, MPEG ancillary data (IRT)
USB (hardware server)	Depends on the model in use
Protocols	HTTP, SNMP, UDP, RTCP, SRT Secure Reliable Transport, Ember+, FTP, ICMP, IGMP, NTP, SSH, PTPv2, TCP (Icecast)

General data (hardware server)

Power consumption	Depends on the model in use
Case dimensions	See above
Weight	See above
Material	See above
Operating temp. range	See above
Storage temp. range	See above

Power supply options

Internal power supplies	See above
Hot swap power supplies (optional – instead of internal PS)	See above
Power supply ranges (choosable)	See above