



MoIN

Software

Multimedia over IP Network Solution



MoIN
Distribution



MoIN
Studio



MoIN
Streaming

Your audio. Our solution.

2wcom



MoIN

Software



The MoIN—Multimedia over IP Network—is a software solution that is able to encode, decode and transcode multiple audio channels simultaneously. Various use cases in a broadcast environment can be realized.

Handles all your AoIP functions in one solution

- High quality multi-format, multichannel audio de- /encoding
- Smart audio matrix switch: point to multipoint audio distribution, combining different audio streams to one multichannel stream and - transcoding
- High interoperability (AES67, EBU Tech 3326, Livewire+, RAVENNA, Dante, WheatNet)
- Fits in many infrastructures and use-cases: SIP, AES67, DVB TS, on-premise, cloud, ...
- Enhanced Redundancy & Backup Solutions
- Managing: Handling different channels between different networks in a synchronized manner.
- Sample rate converter (SRC) to combine different connections with different sample rates or different clocks
- Monitoring: signal level, jitter, delay, lost blocks and more
- Synchronization: The integrated audio system can handle all audio signals also based on different clocks.
- Compact Server and/or virtualization leads to very good scalability and price per channel for larger systems → Rack space savings

Very flexible and robust software design

- Pay as you grow: The number of channels is flexibly scalable
- Activation of channels or extra options is done simply via software key
- To ensure scalability and reliability the software consists of containers that run separately and isolated
- Transmission robustness mechanisms by source, Forward Error Correction, Dual Streaming, RIST, SRT and more enable a very robust connection
- The software can run on a server hardware, VM or as a container stack
- Additional hardware interfaces (AES/EBU, MADI, ASI) are realized in separate devices to be flexible with software virtualization and switching of backup servers

Use cases

- 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
- Optional: functions for audio processing – e.g. loudness, limiter



MoIN

Software



Connecting Studio, Distribution and Streaming

MoIN software can be easily adapted into broadcast eco systems as it supports all protocols for Audio over IP interoperability and is compatible with codecs/encoders from any brand. Its transcoding capabilities allow to feed distribution sources accordingly, whether DAB+, IP or satellite.

For web radio streaming it is possible to transform Livewire, AES67 or Ravenna audio signals to Icecast or

adaptive bitrate protocols like HLS. E.g. with MoIN, it's possible to receive web radio streams and provide them as MPEG-TS streams for injection into cable or satellite networks.

Stressful conditions and Wide Area Networks can be handled by robustness mechanisms as well as streaming and error correction.

Available depending on customer's needs

- The software offers three variants: MoIN Distribution, MoIN Studio and MoIN Streaming
- Configurable design: only needed features are included in the variants, but all three variants are combinable
- The number of channels is flexibly scalable
- Activation of channels or extra options is done simply via software key
- Monitoring of the audio streams



MoIN
Software



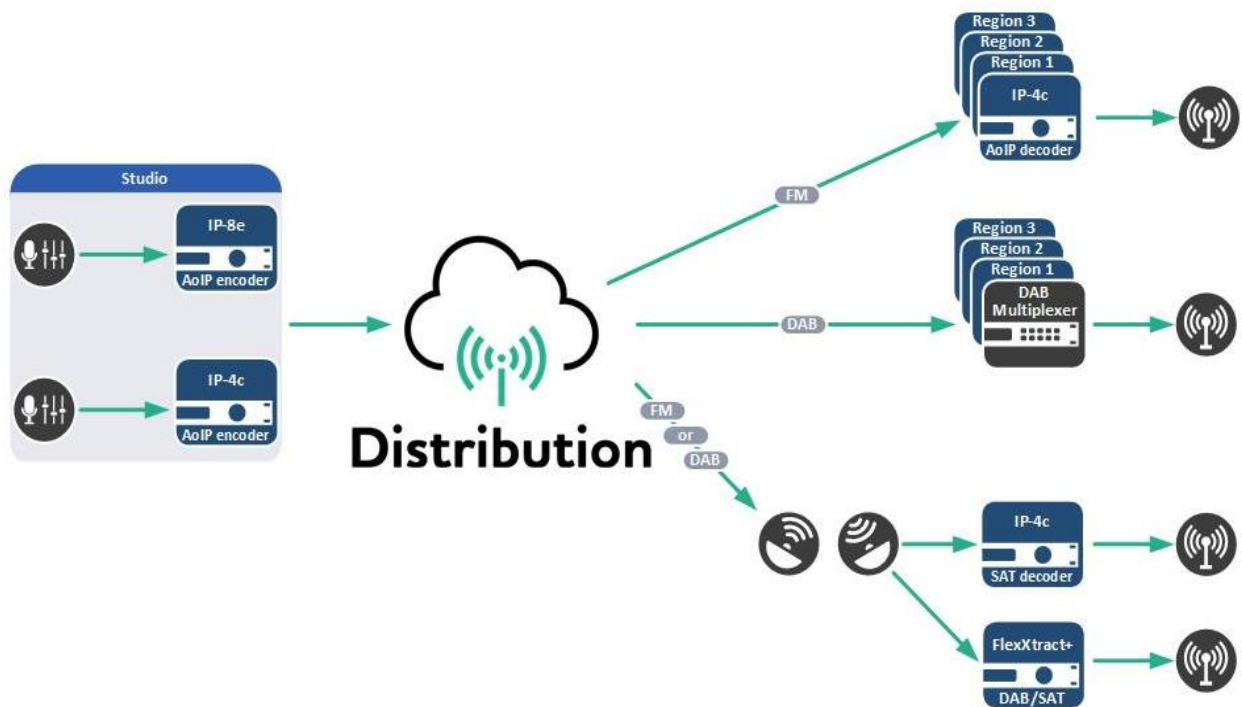
MoIN
Distribution



MoIN
Studio



MoIN
Streaming



MoIN
Distribution

MoIN Distribution is easy to adapt to any studio environment and compatible with third-party solutions. The solution can receive up to 512 channels and transcode them to feed distribution sources, such as DAB+, FM networks or content delivery network (CDN), via fiber, satellite or cable networks. The software can also receive multichannel phase-locked audio in a AES67 stream and encode it for distribution. MoIN can be combined with the hardware based products such as IP-4c or IP-8e for a perfect connection from single studios to the central software solution MoIN.



MoIN
Software



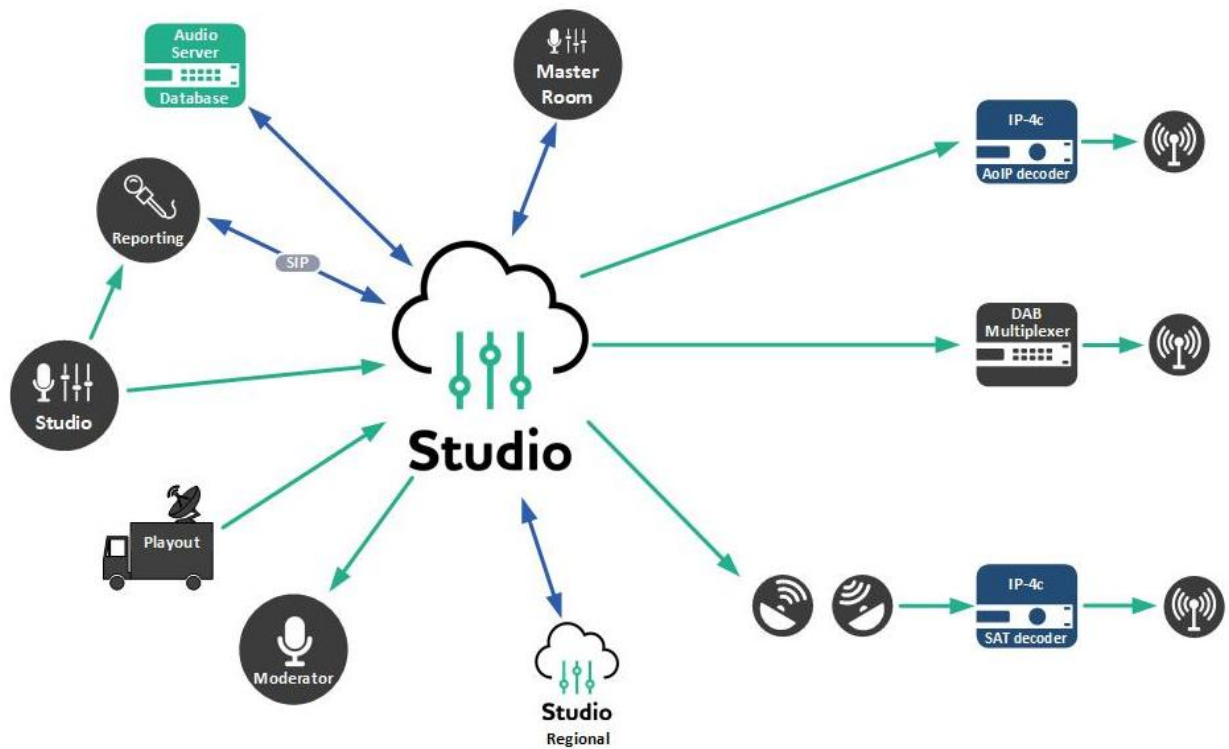
MoIN
Distribution



MoIN
Studio



MoIN
Streaming



MoIN
Studio

MoIN Studio supports all known stream formats within a studio environment. Set up of a new audio connection is done in a few seconds.

To manage their content in a WAN, regional studios can use the integrated SIP phonebook and Easy2connect feature. Communication between the main studio and remote teams is simplified, both sides can access and handle new podcasts or pre-produced content. This allows a flexible and dynamic handling of audio streams even with various locations involved in the process.



MoIN
Software



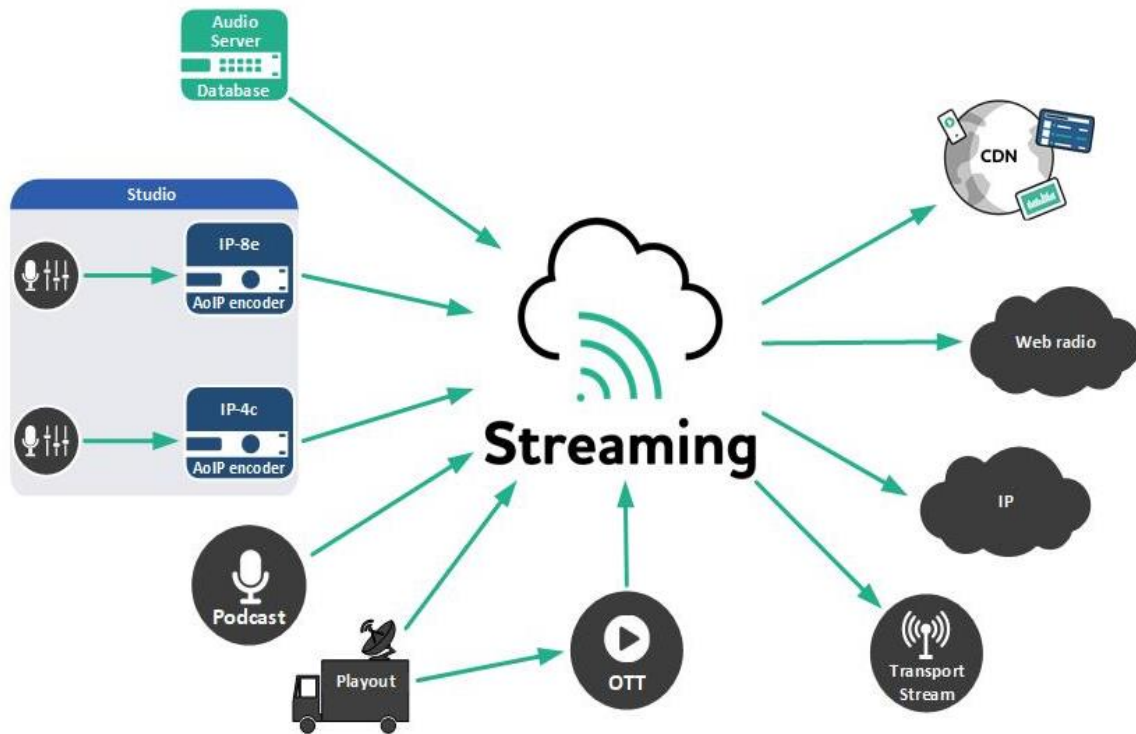
MoIN
Distribution



MoIN
Studio



MoIN
Streaming



MoIN
Streaming

Setting up an Iccast and HLS streaming service in MoIN is very easy.

MoIN Streaming provides web radio services with full 24/7/365 reliability. Any audio stream can be transcoded and used for Streaming. This makes trouble-free integration into already existing Networks possible. The usage of streaming engines like Wowza will be easy. MoIn can feed the transcoded offload directly into the cloud.

E.g. HLS streams can be decoded, monitored, reencoded into any other format or packed into a DVB-TS (Transport Stream).



Technical details 1/2



MoIN
Distribution



MoIN
Studio



MoIN
Streaming

Audio

Network protocols	EBU TECH 3326, SMPTE ST 2210, AES67, RAVENNA, LiveWire, Dante, Icecast, Shoutcast, Wowza
Algorithms	MPEG 1/2 Layer 2, 3 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) Linear PCM G.711, G.722 Opus Ogg Vorbis
Optional:	Dolby digital (DD) Dolby digital plus (DD+ on request) Bit transparent transmission of AES/EBU input
Sample Rates (kHz)	16, 22.05, 24, 32, 44.1, 48, up to 192

Data

Data	Audio and GPIO transmission, controlling and setup functions
Audio streams (in)	Up to 512
Audio streams (out)	Up to 512
UECP (RDS data)	Linked/ Synchronous to the audio

Performance

Encoder instances	Up to 512 more on request depending on hardware
Decoder instances	Up to 512 more on request depending on hardware

IP

Streaming protocols	ACIP Compliant, Unicast, Multiple Unicast & Multicast EBU Tech 3326, 3368 (SDP, SIP, SIP phonebook) AES 67/Ravenna (SAP, RTSP, PTPv2) HLS, Livewire+, RFC 3550, RFC 3551, RFC 3640, RFC 2250, TS RTP, UDP, RIST and SRT streaming, Icecast / Shoutcast, Wowza
Network protocols	IGMP, ICMP, DHCP, HTTPS, FTPS, SNMP
Transmission robustness	Pro MPEG FEC, RIST, SRT, Dual streaming, Stream4sure, Adaptive bitrate switching, Source switch concept, Management of packet size, buffers, QoS



Technical details 2/2

General data

Time synchronization

PTPv2	Network synchronization according to IEEE 1588-2008
NTP	Via UDP or TCP

Control & monitor

Control)

Protocols	HTTP/S, FTP, SSH, NMS, SNMP, Ember+, JSON
Configuration	Via web interface, SNMP or Ember+

Monitoring

IP & MPEG Parameter	via SNMP
Live Listening	via Icecast
Web interface	Silence detection, event logging, IP buffer jitter check
RDS / UECP	Realtime decoder

Alarm

SNMP Traps
Web interface
Log messages

Server dimensions

Server not included (can be chosen by customer)

Processor power (max.)	Dual CPU's, 40 Cores, 80 Threads
Memory	192GB RDIMM
SSD	500 GB+
Network	Quad-port NIC to provide, two ports for media data, two ports for software management / control 10G BASE-T ports for the above

Additional hardware interfaces (on request)

AES/EBU	Digital audio in/out
Madi	Multi channel audio digital interface
Dante	AES67 from Audinate
GPIO	Relays / contact closures