LAYERS SOFTWARE SUITE

Layers Mix, Layers FM, and Layers Stream in an Instance

Wheatstone LAYERS

MIXING

PROCESSING

STREAMING

Wheatstone

BROADCAST AUDIO PERFECTIONISTS℠

LAYERS SOFTWARE SUITE

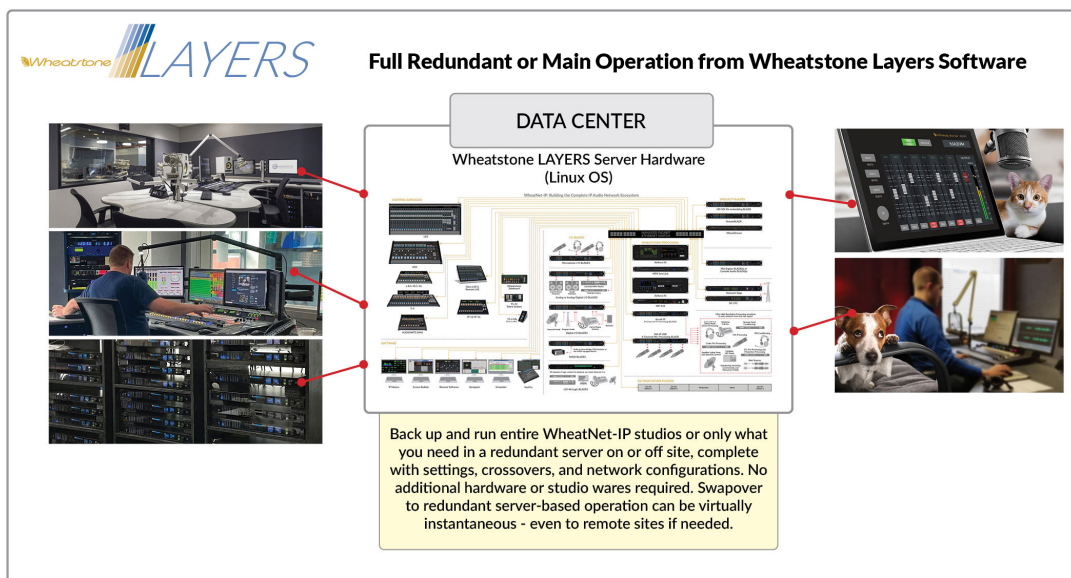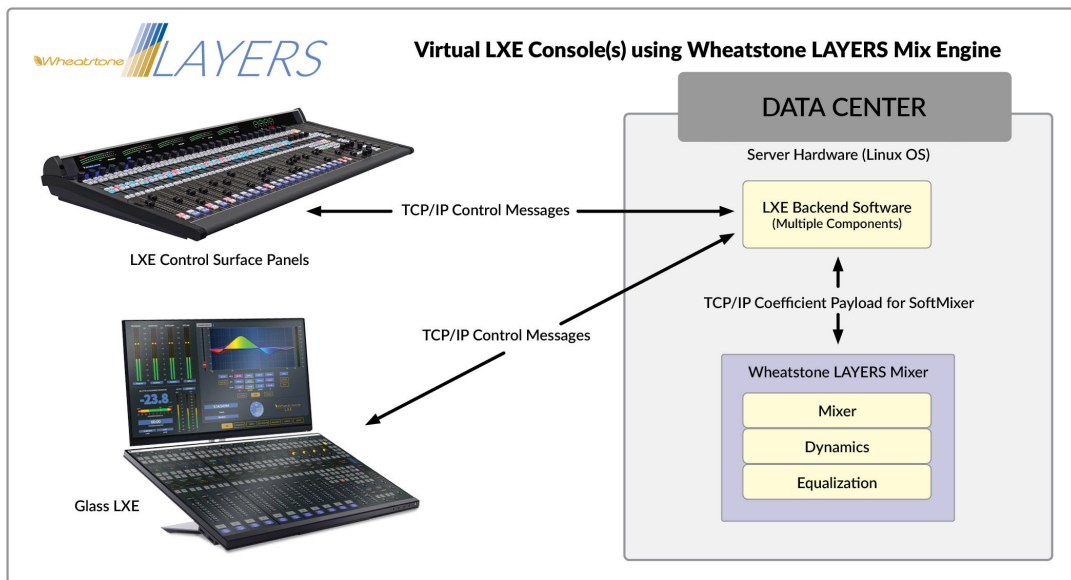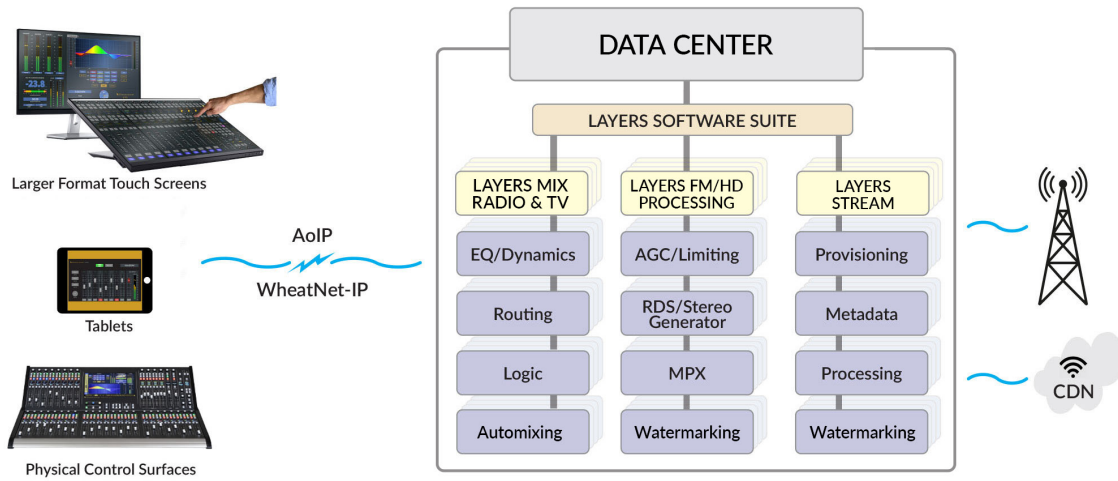## Layers Mix, Layers FM, and Layers Stream in an Instance

Introducing Layers Software Suite with SystemLink™ from Wheatstone. Add mixing, FM/HD processing and stream instances to any server in your rack room or off-site at an AWS or other cloud data center. Plus, now with SystemLink, you can transport linear audio and the whole MPX enchilada, including FM/HD alignment, across any high-speed link.
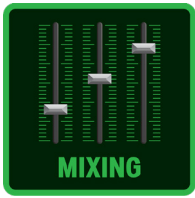

LAYERS GLASS SOFTWARE

For the laptop, tablet or other glass surface includes full-function radio and television virtual consoles with familiar buttons, knobs, and multi-touch navigation and menuing. Layers Mix handles all the mixing and processing required by the control surface, virtual or fixed, for radio and television applications.surface, virtual or fixed, for radio and television applications.

- Spin up or down streaming, FM/HD processing and mixing as needed, your server or AWS'. Pay for only the cloud services you use.

- Add to any server in your rack room or off-site at an AWS or other cloud extension of your WheatNet-IP audio network.

- Extend studio failover redundancy across multiple AWS or Google cloud data centers. No additional hardware infrastructure required.

- Centralize audio processing for all streams and FMs on-premise or offsite at cloud data centers. Finally, the best ears in your organization can set audio processing for each stream and each FM with MPX out to the transmitter.

- Consolidate mixing, processing and stream provisioning for several stations and studios into one server location for shared resources and redundancy.

- Replace racks of processors, PCs and mix engines. One onsite server can run multiple Layers mixing instances for several consoles throughout your facility, plus serve Layers FM audio processing instances as well as provisioning, processing and metadata for multiple streams out to the CDN provider.

- Combine the scalability of Linux and enterprise technology with the deep reliability of WheatNet-IP AoIP, mixing, processing and streaming software designed by a dedicated, broadcast-only company.

Larger Format Touch Screens

Tablets

Physical Control Surfaces

AoIP

WheatNet-IP

DATA CENTER

LAYERS SOFTWARE SUITE

LAYERS MIX RADIO & TV	LAYERS FM/HD PROCESSING	LAYERS STREAM
EQ/Dynamics	AGC/Limiting	Provisioning
Routing	RDS/Stereo Generator	Metadata
Logic	MPX	Processing
Automixing	Watermarking	Watermarking

CDN

Virtual LXE Console(s) using Wheatstone LAYERS Mix Engine

LXE Control Surface Panels

Glass LXE

TCP/IP Control Messages

TCP/IP Control Messages

DATA CENTER

Server Hardware (Linux OS)

LXE Backend Software
(Multiple Components)

TCP/IP Coefficient Payload for SoftMixer

Wheatstone LAYERS Mixer

- Mixer
- Dynamics
- Equalization

Full Redundant or Main Operation from Wheatstone Layers Software

DATA CENTER

Wheatstone LAYERS Server Hardware
(Linux OS)

Back up and run entire WheatNet-IP studios or only what you need in a redundant server on or off site, complete with settings, crossovers, and network configurations. No additional hardware or studio wares required. Swapover to redundant server-based operation can be virtually instantaneous - even to remote sites if needed.

FEATURES

LAYERS MIX

Routing • Logic • EQ/Dynamnics

Layers Mix includes full-featured mix engine and Glass virtual mixers for the laptop, tablet or touchscreen monitor.
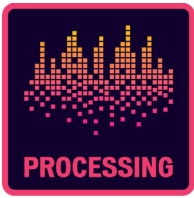
Layers Mix Engine:

- Spin up mixing instances for all your LXE or Strata glass or console surfaces and replace racks of hardware.
- As many as 20 mix engine instances in one on-premise server, saving racks of mix engines and the associated engineering, electrical and real estate space.
- Native IP audio integration with all major production automation systems (TV)
- Native IP audio integration with all major playback automation systems (radio)
- Linux based OS with touchscreen support accessible via HDMI video output
- Full screen XY controller for routing destination and source feeds
- Signal sources and destinations limited only by the size of the network
- Manage via virtualization software like VMWare or container software like Docker, on-premise on your own server or onsite by cloud provider data centers
- Works with fixed console surfaces such as LXE and Strata as well as Mix Glass for laptops, tablets and PC monitors

Layers Mix Glass for laptops, tablets and PC touchscreens

- Complete virtual console interface with familiar navigation, menuing, fader movement and controls for setting EQ curves, filtering, and other settings
- Predetermined presets ideal for television or radio workflows
- Unlimited subgroups, VCA groups, aux sends and bus, mix-minus, channel and output assigns
- Unlimited cue feeds as required
- Dynamics, including compressor, expander and gate, controlled via touchscreen
- Full parametric EQ controlled via touchscreen
- Loudness meter, phase correlation included
- Unlimited number of events that can be created, edited and recalled as snapshots of the control surface
- Prebuilt screens for metering, clocks, timers, dynamics, EQ assigns
- Easy to use scripting tools for customizing screens
- Runs on any Linux OS laptop, tablet or PC client from an on- or off-premise server or third party cloud provider
- Multi-access, multi-touch and synchronized between multiple operators sharing board duties during fast-paced, remote productions
- Real-time fader tracking and live synchronization of buttons and controls for separate operators connected over an IP connection
- All sources accessible in the WheatNet-IP audio network
- Ultimate in smart control with options like Automix for automatically reducing gain on mics nearby an addressable mic
- Control devices and trigger events anywhere in the WheatNet-IP audio networked studio.

FEATURES

PROCESSING

LAYERS FM

AGC/Limiting • RDS/Stereo Generator • MPX Output

Layers FM/HD Processing. Centralize processing settings across multiple markets via virtualization software like VMWare or container software like Docker, on-premise on your own server or onsite by cloud provider data centers.

Each processing instance includes:

- Multiband AGC utilizes AI for smooth transitions between commercials and programming
- Limitless clipper performs perfect peak control without generating annoying IM distortion
- Specialized bass management tools deliver accurate, articulate bass regardless of program format
- Exclusive Wheatstone Unified Processing means each stage in the processing chain intelligently interacts with the other processing stages to create a dynamic and dominant on the dial presence.
- Multipath mitigation for delivering quality programming to more radios
- Full RDS capabilities with data import from popular automation systems
- BS412 MPX Power Management assures compliance with European standards
- Intelligent stereo enhancement for a consistent stereo sound field experience
- Nielsen audio software encoder included. The PPM watermark is inserted after all multiband processing to deliver a consistent and robust watermark

- Part of the WheatNet-IP audio network, a complete AoIP ecosystem of 200+ interconnected devices and elements
- Plus, SystemLink megaplexer for linear audio and the whole MPX enchilada, including FM/HD alignment, across any high-speed link.

SystemLink Encoder:

- Accepts processed analog or digital MPX audio
- Accepts AES digital HD audio
- Accepts one analog subcarrier input
- Transports FM and HD signals over a dedicated IP path to the Decoder.
- FM and HD packets are locked in sync. HD time alignment cannot get out of sync.

SystemLink Decoder:

- Delivers analog or digital AES MPX processed FM audio
- Delivers AES digital HD audio
- Delivers one analog subcarrier output embedded in MPX signal
- Receives FM and HD signals over a dedicated IP path to the decoder
- FM and HD packets were locked in sync at the encoder. HD time alignment cannot get out of sync.

LAYERS STREAM

Provisioning • Metadata support • Audio processing

Layers Stream features key Wheatstone AoIP, audio processing and codec bandwidth optimization technology.

- Audio processing designed specifically to optimize the performance of audio codecs:
  - Five-band intelligent AGC with AI for a smooth transition between commercials and program content. iAGC uses program-derived time constants to establish tonal balance and level consistency rather than aggressive attack and release times that can interfere with codec performance.
  - Two-band final limiter is optimized for streaming and avoids the hard limiting and clipping which can interfere with codec performance
  - Stereo image management preserves an artistic stereo image while preventing over-enhancement that can skew the codec algorithm
  - Bass boost and monaural bass features for optimizing the quality of the bit stream
  - A selectable six-band parametric equalizer with peak and shelf function
  - Two stage phase rotator to correct voice asymmetry
  - High and low pass filtering can remove noise and hum to optimize codec bit performance

- Selectable AAC, Opus, and MP3 encoders and a wide range of bit rates for reaching a broad range of end user devices and players
- BS.1770-compliant loudness control manages loudness between -24 and -10 LUFS
- Cloud-ready and compatible with standard CDN and streaming platforms. Supports HLS, Icecast, RTMP, and RTP streaming protocols
- Direct a stream from anywhere in the world as a cloud instance that can be brought up in a second and torn down in a second. Pay per use.
- Lua transformation filters convert metadata input from any automation system into any required output format for transmission to the CDN server
- Nielsen audio software encoder included. The PPM watermark is inserted after the dual-band limiter of each stream for a robust, consistent signal that can be picked up by the PPM without interfering with the performance of the audio codec
- Part of the WheatNet-IP audio network, a complete AoIP ecosystem of 200+ interconnected devices and elements
- Wheatstone's streaming appliances and Layers cloud streaming software are now available with Triton Digital's streaming protocol.

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