

RELAY



Virtual Radio Software Suite



PROCESSING
MIXING
ROUTING

RELAY

VIRTUAL RADIO SOFTWARE

RELAY VRX

VIRTUAL RADIO MIXER



RELAY VRX8 VIRTUAL RADIO MIXER:
A COMPLETE RADIO STATION ON YOUR PC



RELAY VRX8 software with optional A__mic8 I/O. PC, microphone and headphones must be purchased separately.

THE PROMISE OF VIRTUALIZATION, FULFILLED

Computers have revolutionized broadcasting. Nearly everything traditionally done with hardware in a rack is now accomplished with software. Automation, tape decks, phone systems and codecs are gone. All have been replaced by software. The only thing not virtualized? The studio itself.

Until now. RELAY Virtual Radio applications turn PCs into powerful, professional radio studios sending broadcast-quality audio to your transmitter, streaming services, social media channels and more.

Today's powerful COTS computers run multiple apps simultaneously, saving costs associated with studio hardware. Install RELAY VPB on your playout PC and add your other broadcast apps—remote codecs, VoIP clients, instant messaging, audio processing. RELAY unifies the software production environment, allowing you to mix and

route audio to and from all your audio software and hardware devices. And because RELAY VPB works natively with AES67/RAVENNA Audio-over-IP, you can mix and route both networked and local audio.

Mixing, processing, monitoring. Even routing. With touchscreen GUIs so intuitive talent learns them in minutes. Use it for live studios, off-air production, newsrooms, podcasts, remotes and OBs. No exotic hardware needed: just install RELAY software on your PC and go on air. Or put it on a laptop, and go mobile. With RELAY you can finally do it all.

RELAY natively supports remoting your radio station. Programming can be recorded or sent live to the studio using a WAN, LAN or 4G/5G.

RELAY VRX is the world's first true Virtual Radio Mixer. Not just a screen controlling hardware in a rack — it's a real software-based broadcast mixer, with a touchscreen interface so intuitive that talent learns it in minutes. Mixing, processing, even routing, are all at your fingertips. 8-fader VRX8 shines during live radio and mobile broadcasting: great in the studio; amazing on the road. (Its brother, the 4-fader VRX4, is perfect for news booths and audio contribution.)

RELAY VRX runs on today's powerful off-the-shelf PCs and laptops, with no extra hardware required. It mixes local audio from your PC, as well as sources from your AES67/RAVENNA

network. In the background, the software supports all non-proprietary audio interface drivers: ASIO, WDM, WASAPI and MME. This means that audio from all devices on a single computer can pass through RELAY. So it can simultaneously connect to audio hardware (like your PC's sound card or A__mic8), and third-party audio software like Skype, WhatsApp, and LuciLIVE.

Add your favorite playout software, livestream app and visual radio software, and you're ready to go on air.

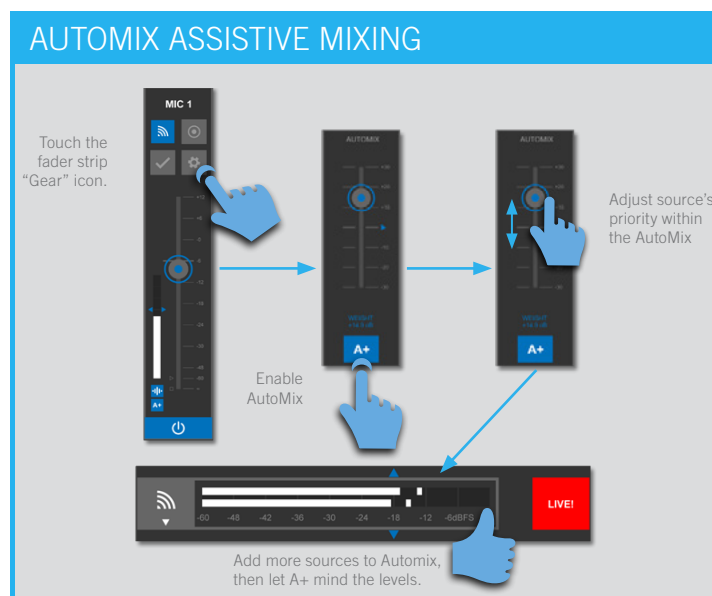
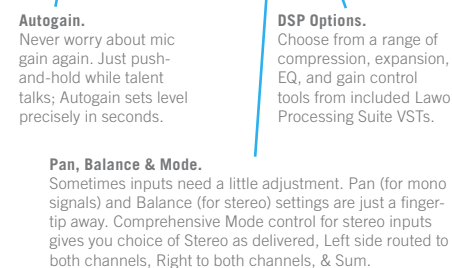
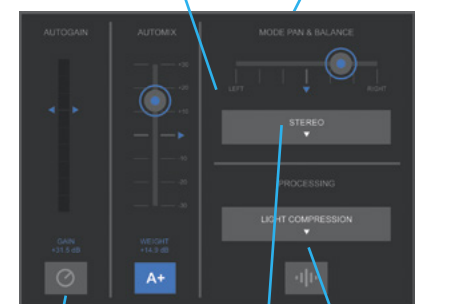
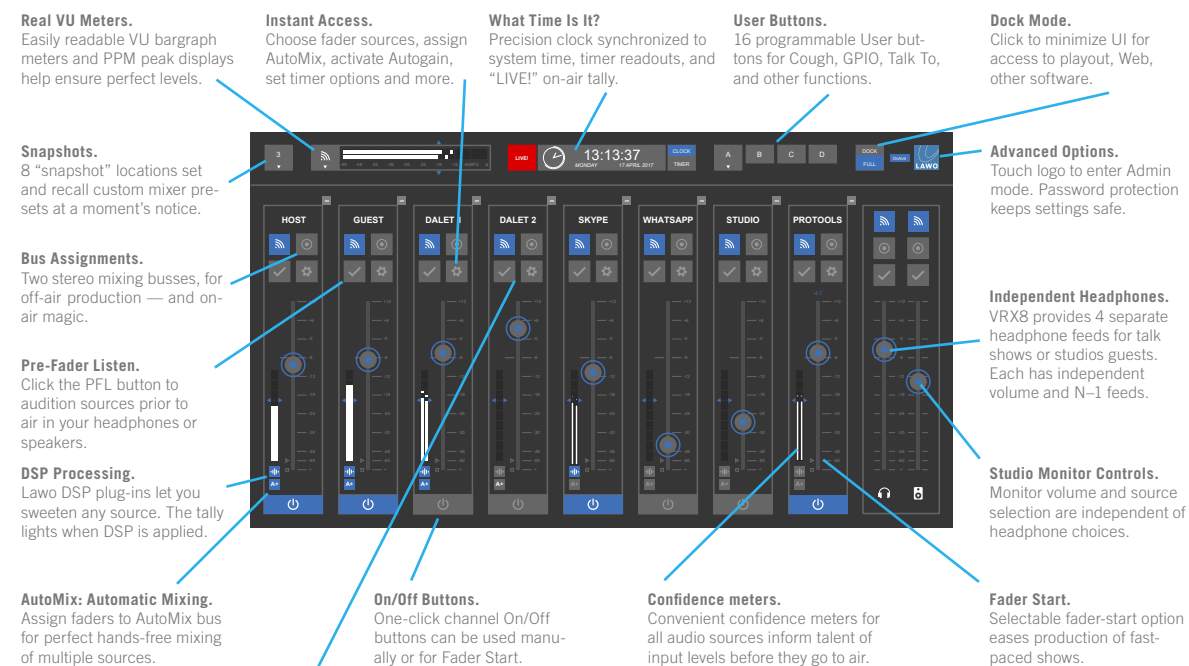
RELAY VRX

VIRTUAL RADIO MIXER

INTUITIVE TOUCHSCREEN MIXING.

Some on-screen mixers have so many colors, buttons and distractions you might think they're video games. By contrast, RELAY VRX8 was designed like something more familiar – a radio mixer. It has faders, on/off buttons, bus assignments keys and other controls right where you expect

them to be. You'll also find tools essential to today's radio production, like per-fader confidence meters and snapshot recall. There aren't any cryptic icons to guess the meaning of, or option screens to dig through. RELAY VRX8's intuitive design helps talent do what they do best: create great radio.



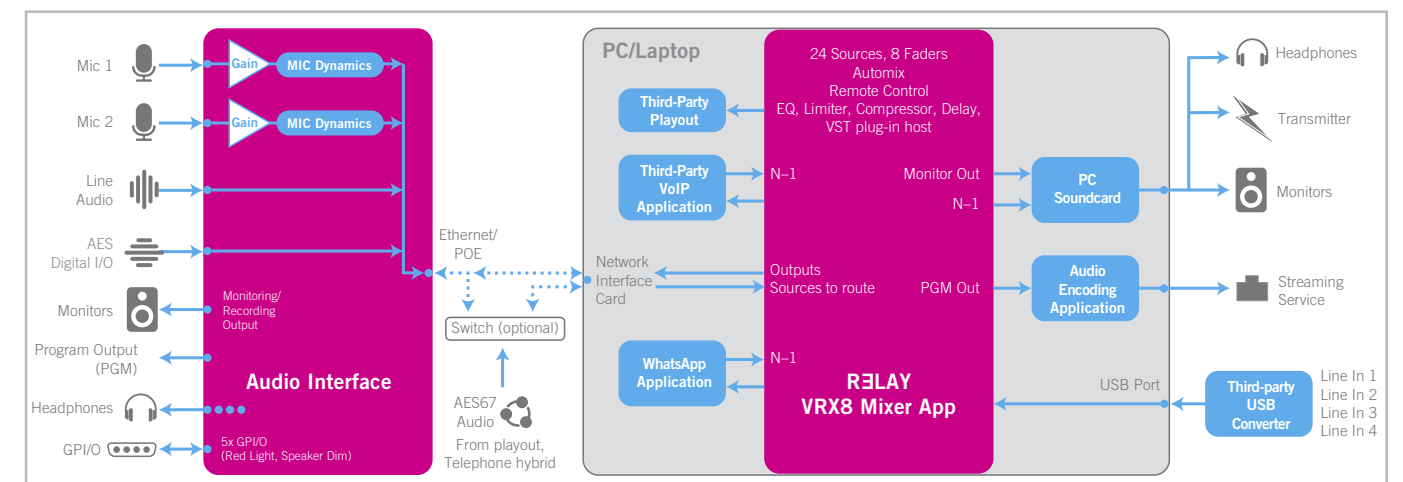
RELAY VRX

VIRTUAL RADIO MIXER

SELF-CONTAINED MIXING SOFTWARE.

RELAY VRX is a pure software solution; all mixing and conversion functions are built in. It's also "middleware", which means it "sees" any and all PC audio devices and lets you instantly start using them to create, whether they're from software (VoIP clients, remote-codec apps, social media channels, playout software),

hardware (analog & digital sources from the PC sound card), or AES67 audio streams (via PC network interface card). VRX is also a VST host, integrating with third-party plugin apps that perform EQ, dynamics processing, de-essing and more. The block diagram below is an example of how RELAY VRX works inside your PC.



RELAY VRX

VIRTUAL RADIO MIXER

RELAY VPB

VIRTUAL PATCH BAY

RELAY VRX4: THE VIRTUAL UTILITY MIXER



RELAY VRX4 software with optional A_mic8 I/O. PC must be purchased separately.

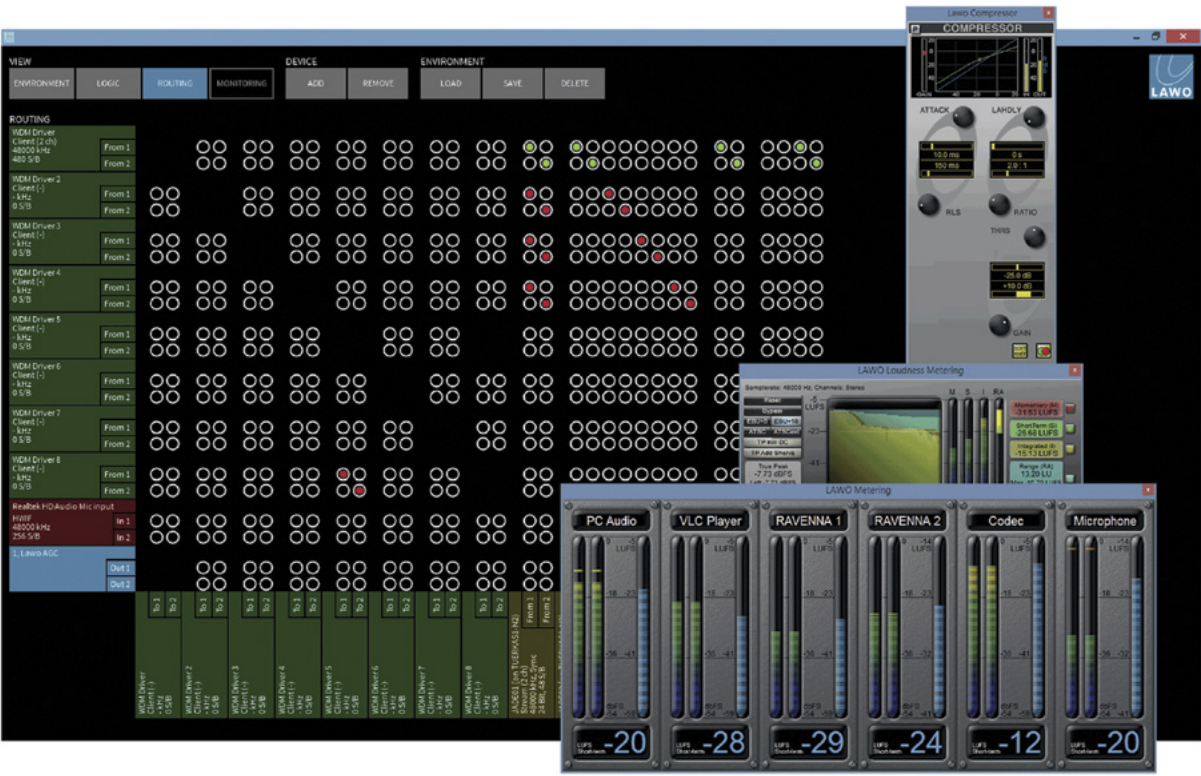
Meet RELAY VRX4, the virtual mixer for light-duty applications. VRX4 has many of the advanced features of RELAY VRX8, but is right-sized for small deployments in home studios, dubbing stations, news editing and interview bays, or any other location where a personal mixer is all you need. VRX4 users can mix up to 4 channels, mono or stereo, selected from a pool of up to 12 sources. Like VRX8, each fader features input metering, as well as talkback and “easy processing” buttons which can be configured in advance by the engineer to quickly apply EQ, compression, or other audio “sweetening”. 16 “snapshot” locations are available to save and recall favorite configurations.

RELAY VRX8/VRX4 COMPARISON

- RELAY VRX8 FEATURES
- Mix 8 channels, mono or stereo, from a pool of 24 sources.
 - 2 stereo mixing busses: Program and Record/Conference.
 - 4 stereo Headphone outputs with separate volume controls.
 - 1 stereo Monitor output with independent volume control.
 - Bargraph VU meter can measure Program, Record/Conference bus, or Headphone output.
 - N–1 (mix minus) for up to 4 of the 24 audio sources.
 - 16 programmable User buttons give for COUGH, monitor DIM, TALK to N–1, GPIO commands, etc.
 - Input source confidence meters for each fader.
 - 8 Snapshot buttons for easy recall of commonly used setups.
 - Supports AES67/RAVENNA streams via PC NIC.
 - Supports all non-proprietary audio interface drivers: ASIO, WDM, WASAPI and MME.
 - 8 virtual GPIOs via Ember+ for software control.
 - AutoMix & AutoGain assistive mixing functions.
 - VST (Virtual Studio Technology) plugin support.

- RELAY VRX4 FEATURES
- Mix 4 channels, mono or stereo, from a pool of 12 sources.
 - 1 stereo Program mixing bus.
 - 1 stereo Headphone output with volume control.
 - 1 stereo Monitor output with independent volume control.
 - Bargraph VU Program meter switches to provide individual Headphone and Monitor volume adjustments.
 - N–1 (mix minus) for up to 4 of the 12 audio sources.
 - 16 programmable User buttons give for COUGH, monitor DIM, TALK to N–1, GPIO commands, etc.
 - Input source confidence meters for each fader.
 - 16 Snapshot buttons for easy recall of commonly used setups.
 - Supports AES67/RAVENNA streams via PC NIC.
 - Supports all non-proprietary audio interface drivers: ASIO, WDM, WASAPI and MME.
 - 8 virtual GPIOs via Ember+ for software control.

THE ROUTING ENGINE ON YOUR PC



RELAY VPB is the Swiss Army knife of PC audio handling. A PC-based audio router with mixing functionality and integrated VST audio processing engine, VPB manages all audio streams on a Windows PC and can “see” all audio hardware interfaces and audio software clients. It acts as a central routing hub to interconnect and provide unrestricted control over the routing and mixing of audio signals — a feat otherwise nearly impossible on a standard PC. RELAY VPB looks just like a patch bay; audio sources and destinations, color-coded by type, are presented in a clear matrix view. Patching inputs to outputs is done with a single mouse click.

Along with routing, RELAY VPB has mixing capabilities that allow advanced audio manipulation. You can combine multiple audio signals to create a single mix channel, controlling the volume level of each input signal as well as the summed output gain. You can construct effect or processing loops, adjusting gain at each stage of the mix. Should the need for audio processing arise, a suite of professional VST audio processing tools provides many of the same functions found in Lawo broadcast mixing consoles.

RELAY VPB works with audio hardware and software simultaneously by loading drivers for sound cards and virtual audio devices at the same time. Common driver models like ASIO, WASAPI and WDM are used to ensure maximum compatibility. All audio signals, no matter their source, can be mixed and routed as needed. VPB manages AES67/RAVENNA audio streams as well as local sources, making it easy to establish direct AoIP connections between broadcast infrastructure and PC workstations. Not only that, you can define multiple “environments” — stored routing configurations that instantly recall routing matrix configurations, effects and processing loops, and “scenes” constructed to fit varied on-air needs, with control supported via Ember+.

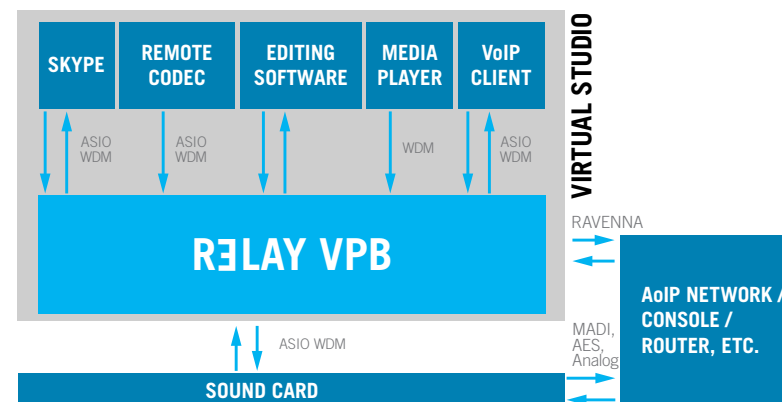
RELAY VPB fully supports virtualized platforms like VMware and cloud-based environments such as AWS and Microsoft Azure. In addition, RELAY VPB can be deployed as a gateway service, converting multicast local-area streams into point-to-point unicast streams, more applicable for wide-area connections and cloud platforms.

RELAY VPB

VIRTUAL PATCH BAY

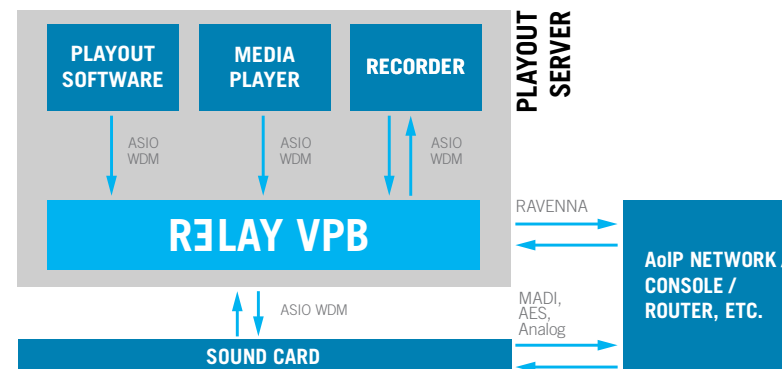
VPB: INCREDIBLY VERSATILE PATCHBAY

RELAY VPB can run either as an application (with full control via touchscreen or mouse) or as a service, allowing pre-configured audio paths and RAVENNA streams to run in the background while operators perform other tasks. RELAY VPB running on a PC connected to a studio network can also be accessed remotely. Up to 64 channels of RAVENNA audio are supported natively, and up to 8 ASIO devices are usable concurrently. Not to mention all of the standard analog and digital devices accessible via your PC's sound card (or Lawo A__line networked audio interfaces). So, what can you build with RELAY VPB? Here are a few ideas. We're sure you'll think of more.



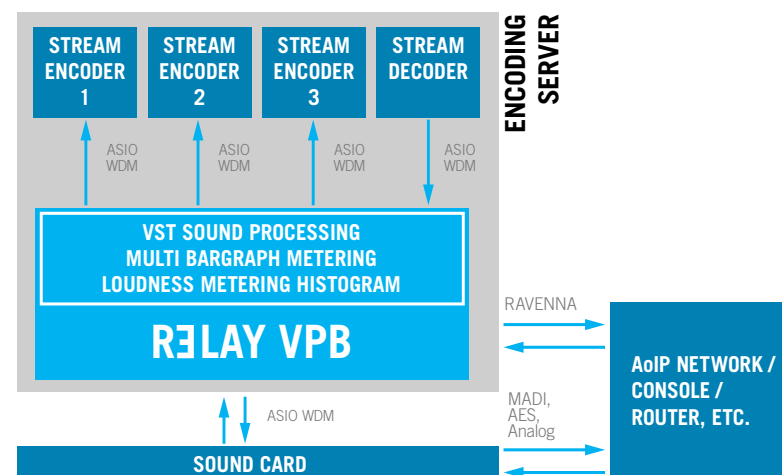
A VIRTUAL STUDIO

Run RELAY VPB on your studio's playout PC, add other broadcast apps – remote codecs, social media clients, audio processing for a Virtual Studio. Today's powerful COTS PCs can run multiple apps simultaneously, so you may only need one PC. Using RELAY VPB's Ember+ logic capabilities, these audio apps can be started automatically on demand, their outputs routed to any endpoint in your AES67/RAVENNA network.



A PLAYOUT SERVER

RELAY VPB plus your playout software equals a playout server. Connect it to your mixing console or router using AES67/RAVENNA. You can run other apps, like recording or editing software at the same time — just patch their outputs through RELAY VPB to route the signals to your AoIP network. Install a hardware sound card in your server PC and run it in parallel to VPB for local monitoring, or for dual-redundant outputs.



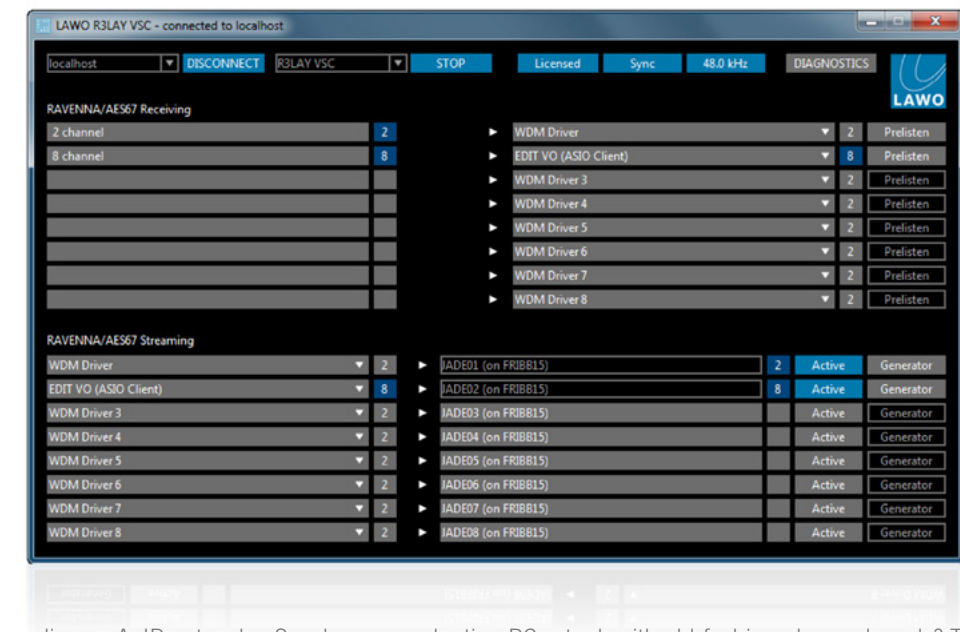
A STREAMING SERVER

Run RELAY VPB on a server to connect multiple software stream encoder instances. Incoming audio signals can be processed by plugins from the Lawo Processing Suite (or your favorite VST) before distribution to multiple encoders. RELAY VPB's extensive metering capabilities can display peak and loudness levels for all signals at once. Want to record airchecks of encoded streams? Easy: just route audio to the recorder and encoder apps simultaneously.

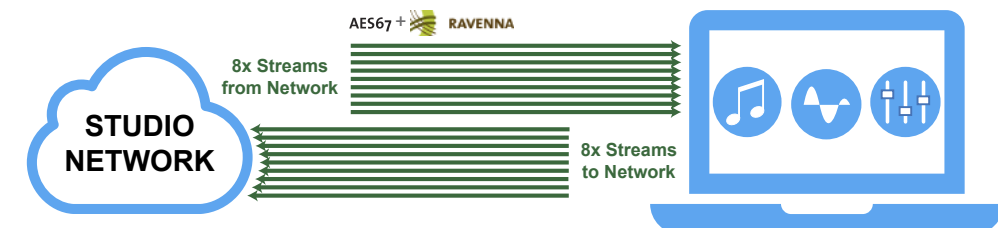
RELAY VSC

VIRTUAL SOUND CARD

VSC: THE POWERFUL VIRTUAL IP SOUND CARD FOR YOUR PC



Modern broadcasting relies on AoIP networks. So why are production PCs stuck with old-fashioned sound cards? They're expensive. They don't speak "network." They don't support multi-channel audio. It's as if they're holding your audio hostage. What to do? Virtualize with RELAY VSC to leverage the potential of IP. VSC is an 8x8 "virtual sound card" for Windows that turns your audio into clean, pristine AES67 streams. Elegant. Flexible. Cost-effective. It's time your sound card went virtual.



Physical sound cards are handcuffed by PC hardware constraints. RELAY VSC is pure software and blows past those limits with a low-latency, multi-instance professional ASIO driver with sample rate conversion. It supports stereo, 8-channel, even 64-channel streams. There are also 8 stereo WDM drivers for legacy PC audio apps. Network connections carry 8 uncompressed, bi-directional audio channels — for up to 128 RAVENNA streams (64 in, 64 out). Hardware distribution amps and routers are no longer necessary. And signals originating from apps like WhatsApp, Skype, etc., are available right where you need them.

ADVANTAGES

- Eliminates expensive hardware sound cards.
- Up to 8 incoming and 8 outgoing signal connections are supported, to/from an AES67/RAVENNA stream (stereo or multi-channel) or virtual audio driver.
- 8 stereo WDM clients.
- 1 ASIO client with advanced realtime broadcast-quality sample rate conversion (can be configured for stereo, 8-channel or 64-channel operation).
- Native Windows application; all audio remains completely in the digital domain for a sound cleaner than any PC sound card.
- Preview function for inbound RAVENNA streams.
- 1kHz test tone generator for assistance in setting up outgoing RAVENNA streams.
- RELAY Service Manager application can control the driver running locally, or a remote driver installed on another networked PC.

POWERFUL AES67 NETWORK ANALYSIS



RELAY AoIP Stream Monitor is the IP-Audio information tool you’ve been waiting for: the world’s first software for the monitoring and inspection of standard AES67 audio streams. It provides complete status information for 16 user-definable AES67 streams (each of which can contain multiple audio channels). The program adheres to the ST2022-7 standard, and can monitor two redundant NICs simultaneously.

Like all RELAY products, AoIP Stream Monitor features a user-friendly, touchscreen-optimized control interface. The layout is instantly understandable; streams are assigned by clicking on one of the stream display modules and selecting from a pick list

of available AES67/RAVENNA network streams (RTSP and SDP stream addresses may also be entered manually). Once a stream is chosen, peak meters and LUFS values are instantly displayed.

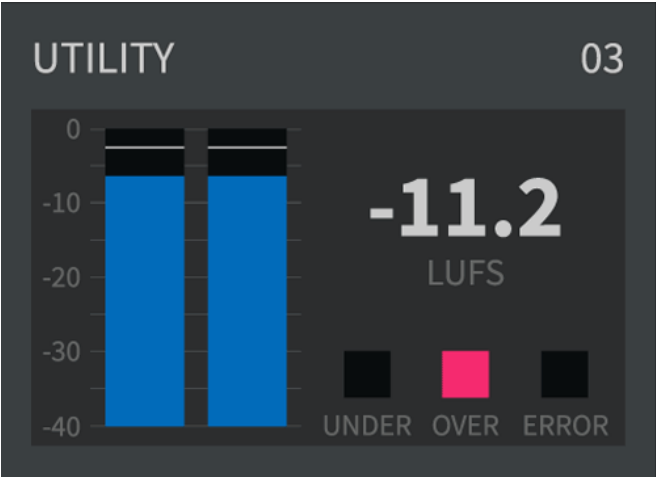
Clicking on any monitored stream allows detailed inspection of stream data in the adjacent Status, SDP, NIC1 and NIC2 tabs; a headphone icon lower right of the screen routes audio from the selected stream to the PC’s speakers or headphones. For multi-channel streams, the user may switch through the channels to listen to individual stereo or mono outputs. With detailed stream information including packet loss, jitter and stream health over time, coupled with SDP address discovery, AoIP Stream Monitor is an invaluable tool for troubleshooting AoIP network issues.

- FEATURES
- Real-time display of up to 16 networked AES67/RAVENNA AoIP streams. Each stream may contain 1 (mono), 2 (stereo) or multi-channel content.
 - VMWare compatible for deployment on virtual machines.
 - Graphical peak-level metering for all channels within a stream.
 - ITU BS1770-compliant LUFS metering.
 - Under- and Over-loudness alarms with definable thresholds.

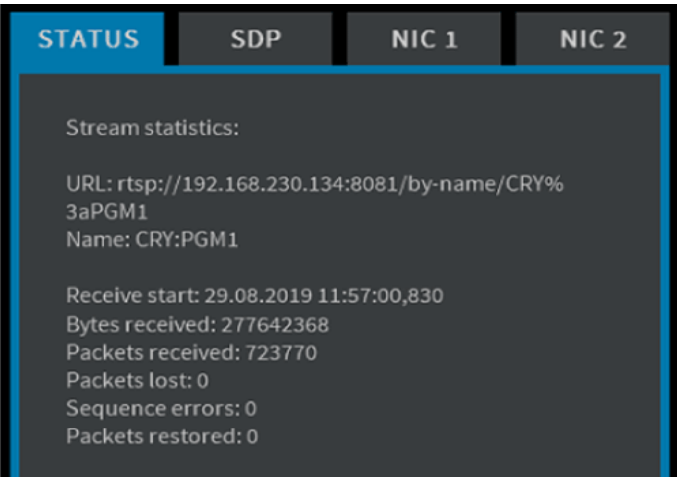
- SDP interrogator with detailed stream address information for copy/paste to other applications.
 - Comprehensive stream health monitoring with logfile output to track jitter and packet loss over time.
 - Listen to selected stream content via the PC’s sound card.
 - ST2022-7 compliant for redundant setups – software can monitor two NICs simultaneously.

KNOWLEDGE IS POWER

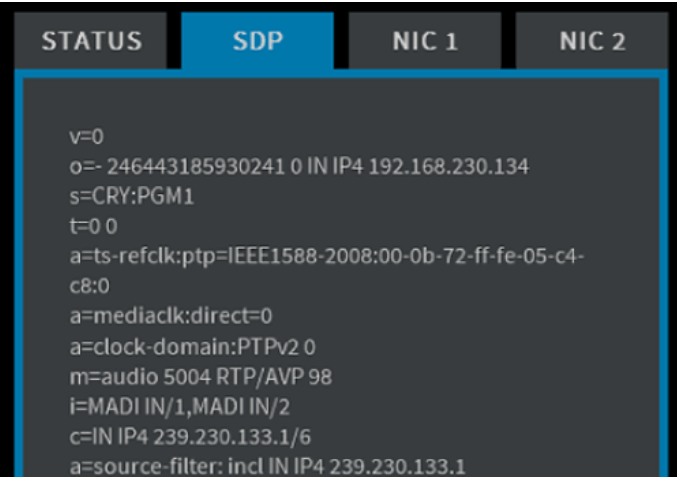
Whether you’re monitoring important program audio streams or keeping watch over the loudness of streaming content, AoIP Stream Monitor supplies in-depth, real time information to help ensure your streams are running the way they should be.



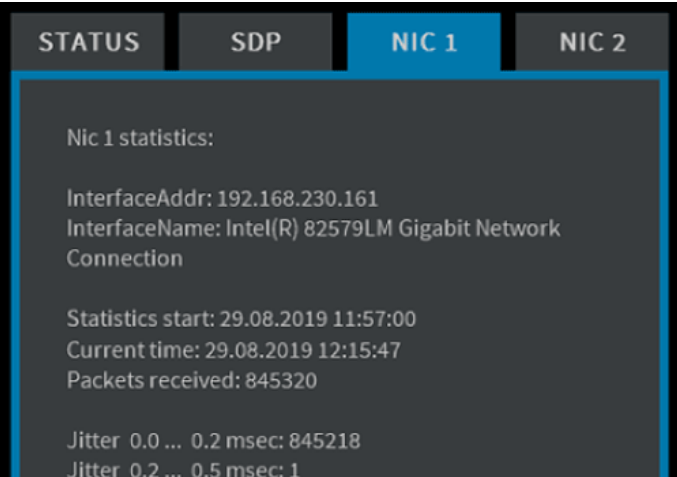
STREAM TILES display comprehensive data for up to 16 networked streams. Each features a prominent LUFS loudness display, user definable under- and over-loudness visual alerts, and stream error alarm. Realtime meter bargraphs display relative loudness for each channel in the stream; multi-channel streams (i.e., 5.1+2 content) have a bargraph corresponding to each embedded channel.



STATUS TAB gives useful stream information on the highlighted Stream Tile. Information displayed includes the stream’s RTSP address, date and time transmission began, total number of bytes and packets received, packet loss, and other notable data points.



SDP TAB gives vital information about the Stream Description Protocol, the basic transport mechanism of every AoIP stream. Up until now, you couldn’t examine this essential data, but with AoIP Stream Monitor you can get SDP information with a click. Even better, you can copy displayed details via the Windows clipboard for use in stream players, diagnostics, etc.



NIC TAB displays minute data about your PC’s network connection. Like all Lawo RELAY software applications, AoIP Stream Monitor supports the ST2022-7 standard for dual-redundant network connections, and provides a tab to monitor the status of both NICs (if equipped).

RELAY

VIRTUAL RADIO SOFTWARE

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