Welcome to the SAC Experience

Live Virtual Mixing Technology

For Your Desktop Or Laptop Computer

SAC is the acronym for

Software **A**udio **C**onsole.

This program runs in Microsoft Windows and turns your Windows PC into a powerful virtual Live Mixing Console.

SAC opens new realms of live sound mixing capabilities with virtual mixing technology built around a **Hand Coded Assembly Language** core engine.

SAC brings you the power of expensive Digital Consoles with the audio quality of analog silky smooth sound that we have all grown to love, at a cost so low, it's almost impossible to believe.

Complete systems sold by:

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The look and feel of a fully controllable **Front Of House** (FOH) mixing console, coupled with 24 duplicate **Monitor** (MON) mixing consoles with digital split points from multiple locations within the FOH Input Channels or Master MON Input Channels, creates a whole new way of mixing live sound while eliminating and replacing racks of physical equipment, snake cabling and splitters.

Live Virtual Mixing has arrived. Now you can do Front Of House and 24 Monitor mixes all on your Windows PC. The Software Audio Console (SAC) opens new frontiers for the live sound industry.

Leave the large mixing consoles in the warehouse. You can now replace the FOH and 24 large scale monitor mixing consoles with a computer and have the highest quality audio and the most versatility and mixing options you could ever dream of.

Imagine having a separate monitor console for each of 24 stereo monitor mixes back to performers. No more fiddling with aux sends or matrix controls. Separate high quality mastering Eq, keying gates and compressors, separate aux sends for separate verbs on each channel of each monitor mix. It's a brand new world at your mixing fingertips.

No expensive Mic splitters are needed to split the signal 25 ways. The digital split is internal and provides an exact zero noise copy of the 72 inputs to all 25 consoles. And there are 5 tap points to select from for each Input channel, and 2 tap points from each Return channel.

All 25 consoles are 72 inputs, with built-in attenuator, phase reverse, swap LR, mono, high quality mastering 5 band para-graphic Eqs with Hi and Lo cut filters, keying gates and compressors with a bandpass filter, 6 stereo aux sendswith pan, pre and post FX patches, full 8 point surround XY panners plus a separate center and sub send, 24 stereo out assigns, mute, solo and long throw faders with -60db high resolution meters on each input channel.

Any input channel may be assigned to any or all output channels at the same time. 8 Master Output channels may be routed to any hardware output device while the remaining 16 Output channels can be used as subgroup, VCA type Faders, folding back to any of the 8 Master Faders. The Aux Sends may be internally routed as virtual or patched out to any device output, and returned from any device input, in sync, direct into the FOH mix, through 6 independent Return channels, each with complete FX patching capabilities and their own Hi Resolution Meters.

The interface design is an elegant system of linked views that allow you to see the consoles from many different perspectives for easy and fast navigation. You can setup F-Key Workspace views that give you instant recall of complex screen displays instantly without interfering with the low latency - realtime audio streaming.

You can step back and see large numbers of channels in the Full Mixer View, spread across the screen and then instantly jump into the Zoom Mixer Views or Wide Mixer View to access any one of tens of thousands of controls with the simple click of a mouse

The same views and navigation features also apply to all 24 monitor consoles, which are easily jumped to by popup menus from many places in the interface, allowing you to get there fast.

The underlying engine architecture is an entirely new - from the ground up - virtual mixing engine, based on many years of experience with the development and maturity of the SAW product line, written by Bob Lentini or RML Labs.

The focus of this new engine design is centered around the live, low latency input driven technology that forces the engine to sense and trigger precisely from live input data stream timing. This engine assembles the data, LIVE, on the fly, directly in front of the actual data being played out by the sound devices, delivering instant reaction time and the feel of a physical console, without glitching the audio data.

The design uses advanced assembly language techniques to emulate all functions of the console portion of the program. It's summing engine uses the same 64 bit integer math techniques that has won acclaim from audio critics the world over in the SAWStudio Editing system. Faders, Eq, Dynamics, Aux Sends and Returns, Meters, Echo/Delay, Reverb, etc. are all emulated DSP routines, that rival the performance of hardware based units when used on high-end computers. This design also eliminates the need for special DSP based hardware sound devices, allowing standard audio sound cards access to all of the design features.

The new engine design allows for most every program operation to be performed live, while the engine is running, without the need to stop the data stream to change device assignments, input and output routing or save sessions and manipulate Scene and Sequence data.

Because of the low latency capabilities, this engine is a perfect match for external fader packs and mixer controllers. SAC uses a complete virtual lookup table design to link incoming controller signals to virtual console and transport controls, and other internal functions of the engine. Different hardware controller information can be stored in templates (without the need to update or rewrite the program code) that can be instantly loaded into the program to change from one controller type to another, without the need to restart the program! Templates are available for a wide variety of the most popular controllers, and future templates will be made available for download, as new hardware is released.

Another exciting feature of the SAC mixing technology is its TCP/IP networking capabilities. You can connect up to 28 computers to the host system thru any standard Ethernet hub or switch, or wireless router. These computer remotes can be used to control almost everything within the host system and user stats can be set as FOH, Monitor or Personal user rights, which dictate what each computer can have access to. You can leave the system backstage and control FOH and Monitors from anywhere in the venue. Each performer can also tap in with a laptop computer and get access to their personal monitor console to control their own mix.

Add the power of the SAC-Link to SAWStudio Lite and Full for the amazing ability to record live multitrack performances directly internally linked on the same SAC host machine. No extra cables needed, and you can record the source dry signals from the SAC inputs directly to the MultiTrack in SAWStudio, comfortably running in the background on the same machine. One mouse click import and export commands transfer mix settings and labels and chan assignments between the two programs. And nothing beats the power and flexibility of using SAWStudio coupled with SAC as a show control multitrack playback system.

A new mixing era is upon us and it is proving to be an exciting one already. Download the User Manual and read all the details of how it works, then jump onboard with us pioneers and help usher in the new age of audio mixing technology.

SAC has arrived!

Understanding The Software

The FOH Console

The virtual console is designed as a 72 input channel, 72 output channel FOH console, with Input Source, Attenuator, Phase Reverse, Swap L/R, and Mono buttons, 5 Band Stereo EQ with additional Hi and Lo Cut filters, Keying Gate and Compressor with bandpass filter, Pre and Post FX patch points, 6 Stereo Aux Sends with Pan, 24 Stereo Output Assigns, 8 point XY Surround Pan with separate Sub and Center Chan, Solo, Mute, Stereo Pan, long throw Fader with a Stereo Hi Resolution (-60 dB) Meter on each channel.

Any input channel may be assigned to any or all output channels at the same time. 8 Master Output channels may be routed to any hardware output device while the remaining 16 Output channels can be used as subgroup, VCA type Faders, folding back to any of the 8 Master Faders. The Aux Sends may be internally routed as virtual or patched out to any device output, and returned from any device input, in sync, direct into the FOH mix, through 6 independent Return channels, each with complete FX patching capabilities and their own Hi Resolution Meters.

XY Surround panning is built in and can be assigned in any manner to up to 6 discreet outputs. The surround setup can be saved in templates making 5.1, 7.1, quad surround or any configuration available at the touch of the mouse.

The console can be displayed in different views, independently or simultaneously, allowing quick access to multiple perspectives of the current information.

The console has extensive navigation capabilities and is intimately linked to the different views. There are popup navigation menus that display labeled channels and track references, allowing instant one-click access to anywhere you need to go.

The Monitor Consoles

The FOH console inputs internally split to 24 monitor consoles, giving essentially duplicate versions of all FOH console views and allowing you to mix monitors from master faders instead of Aux Sends or Matrix knobs. This allows each monitor mix to be its own 72 channel stereo mix with its own overlayed Eq and Dynamics sections, as well as its own 6 stereo Aux Sends and Returns. Each Monitor console has 8 Master Stereo Output Channels, leaving 16 channels to be used as subgroups. The input splits can be taken from the FOH Src, Pst EQ, Pst Dyn, Pre Fader or Post Fader. Additionally, Monitor Mixer 1 can be designated as a master monitor mixer and all remaining monitor mixers can take their splits from it. Each monitor console and individual input channel can use any one of those split points independently of every other channel, opening up a brand new dimension in monitor mixing routing and control.

FX Processing

A brand new powerful SAC API (Application Programming Interface) has been developed for handling FX Plug-Ins. This interface offers one of the most direct and streamlined protocols for passing information between the application and processing plug-ins. This design also offers enhanced power and control, including automation capability, while actually increasing overall efficiency. The API is compatibile with most Native SAWStudio plugins.

The DirectX and VST protocols are seamlessly woven into the engine design, with all plug-ins of all types showing in one common effects choice window. With the current availability of numerous DirectX and VST plug-ins to choose from, you can begin FX processing immediately without waiting for future development.

Effects are hot-patchable, meaning they can be plugged in and out in real-time during playback! The engine will automatically initialize and insert the plug-in directly into the audio loop in perfect sync, without the need to stop the stream.

SAC-Link To SAWStudio Lite And Full

An incredible extra bonus is the internal SAC-Link hook to SAWStudio Lite and Full. With this link, SAWStudio can be used to do MultiTrack recording of your live performances directly internally connected to the individual input source signals patched into the SAC system. No extra cables needed, and you can record source dry signals in SAWStudio running comfortably in the background on the same SAC host machine. The extra load on the system is extremely small. There are special options in SAWStudio to import and export mix settings and chan assignments with one mouse click... you can route SAWStudio playback signals back into SAC on individual chans or you can have SAC look at the SAWStudio output tracks to pick up an entire 72 track mix on one chan. And as a powerful show control playback deck, nothing comes close to the power and versatility that SAWStudio coupled with SAC brings to the table.

It's time to let SAC change the way you work with live audio forever. Welcome to the dawn of a new era in Live Sound Mixing!

Software Audio Console is based on software written by Bob Lentini of RML Labs and is designed for use on Windows computer systems and an external hardware system for the A/D and D/A conversion process.