SES 4 SPEECH EXTRACTION SYSTEM

The Ultimate Voice Recovery Toolkit for the Lab or Field

The **Most Powerful** Speech Extraction System
Fully Automatic or **Manual Operation** Mode
The Only Tool You Need for All Your Audio Challenges

INTELLIGENT DEVICES

SES 4 - CUTTING EDGE ADAPTIVE SIGNAL PROCESSING MADE EASY

The Right Tool for Casual Users and Experts Alike
Real Power, Real Results, All in Real Time

Designed for both law enforcement and Federal agency use, Intelligent Device's SES 4 (Speech Extraction System) is the most comprehensive and powerful set of voice extraction / enhancement tools available. Consisting of a direct-to-disk digital recorder and a shell supporting various real time modules, SES 4 is capable of extracting multiple voices from a variety of noise and real world background sounds even when the voices are buried in the noise.

Since its first release in 1995 SES has evolved to meet the ever-changing needs of law enforcement speech recovery and enhancement. SES 4 is a software only solution and is constantly growing and improving. Innovations such as Full Auto operation and the introduction of

proprietary adaptive modules have continued to define the boundaries of what is deemed possible in forensic voice recovery.

ID●EA NANO

3.65"

ID●EA

6.18"

Want all the power of SES Full Auto without a computer? Check out the IDEA stand-alone hardware product line for field use.

Utilizing innovative artificial intelligence recognition engines that operate entirely within the frequency domain, SES 4 dynamically learns and adapts, modifying its own algorithms and parameters in real time to provide dramatic speech recovery, enhancement and reconstruction performance. SES 4 uses a native floating point engine and processes the full 20 Hz - 20 kHz audio bandwidth. SES 4 also incorporates new advanced high-resolution algorithms that improve its ability to extract voice from hostile environments while generating much less digital artifacts than previously possible. The modular design of the processing engine allows the smart and manual modules to make collective decisions and then perform a one-pass processing to minimize any loss of detail or audio quality.

SES 4 - WHEN NOISE IS ALL THAT STANDS BETWEEN YOU AND YOUR CONVICTIONS

SES 4's operational speed, voice extraction capabilities and speech intelligibility exceeds that of any other existing system. It is as well suited for daily cleanup as it is for the extreme forensic voice extraction needed for difficult transcription.

Full Auto Operation

With the introduction of Full Auto mode SES 4 has become faster to use and easier to train than ever. Full Auto mode analyses the incoming audio and automatically chooses the best tools and settings for optimal voice recovery. With the use of one control you can choose the amount of noise reduction and how hard Full Auto works. The Artificial Intelligence software agents in SES Full Auto represent over 30 years of audio experience and expertise. When you use Full Auto SES automatically reduces hum, clicks, noise and other types of interference in your evidence. And for advanced users you can still manually override any Full Auto decision to better suit your needs.

Easy to Use

SES 4 uses a high level physical graphic user interface that is easy to learn, operate and understand. SES 4 is an advanced real time modular speech recovery toolkit with a master shell containing multiple DSP plug-ins. The user (or Full Auto) selects the plug-in or combination of plug-ins that best suits the task at hand. The on-screen interface emulates a physical hardware control panel, so you are not forced to use cumbersome numeric entry of complex logical flow-charting. With controls that affect the audio while you move them and displays that show what you can't hear, SES 4 helps you do in minutes what used to take hours.

Advanced Tools for Complex Problems

SES 4 supports multiple talker processing as well as environmental changes by separating up to 4 talkers in 9 scenes. It is also capable of recording either the input audio or the final processed audio to any drive connected to your computer. When SES 4 is in live input mode, the raw unprocessed audio is recorded to disk while RECORD is engaged. Note that although you will hear any processing applied to the audio while recording from live input, only the original unmodified audio is recorded to disk. This means you can apply processing to the audio being recorded if you so choose without affecting the recording in progress. When SES 4 is in disk file playback mode the processed audio is recorded to disk exactly as it is heard through your speakers.

Additional Features

- Reject mode: listen to the audio being removed by one or all modules to ensure no voice components are being removed or to isolate background noise from voice.
- Uses industry-standard WAV files - no proprietary formats.
- Multiple real time processing modules may be run in different combinations on four different talkers simultaneously.
- Extensive hands on certification courses available.
- SES 4 is multi platform and it performs identically on both Windows and Mac OS.
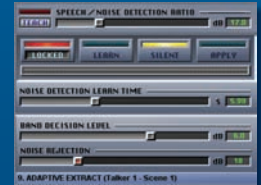- Guaranteed 3 year FREE upgrades and technical support.

MODULAR DESIGN FOR OPTIMAL RESULTS

SES 4 Standard Modules - Designed to Meet All Your Daily Challenges
They Work Hard So You Don't Have To

ADAPTIVE MODULES

Adaptive Extract

Adaptive Extract is a non-traditional proprietary module capable of extracting voice from noisy recordings. Adaptive Extract learns and detects human speech components and discards everything else. It is the ultimate tool used to detect and bring out any voice components, even when buried in the background noise. Adaptive Extract is optimized to minimize digital artifacts and to preserve maximum intelligibility, even when pushed to the extreme.

Noise Reduction

Noise Reduction module is an inversion of the Adaptive Extract process. It learns the signature of noise and subtracts it from the recording. It can be used in automatic learn mode, or the noise signature can be edited by more advanced users to adjust performance. Unlike other subtractive filters, ID's custom algorithm minimizes digital artifacts and preserves intelligibility.
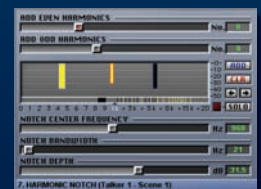
Tone Removal

Tone Removal is another proprietary ID algorithm that analyses audio and detects and classifies tone components by "purity" rather than amplitude of the tone. You can then use a slider to start removing any tones from most to least pure, using phase correct FIR narrow filters that are nearly inaudible. Hundreds of tones can be automatically found and eliminated in seconds.

TRADITIONAL MODULES

Harmonic Notch Filter

Harmonic Notch Filter is the prefect implementation of a traditional notch filter. The filter operates in the frequency domain and allows for narrow notches with no phase shift or ringing that can impact intelligibility of remaining voice. Up to 99 notches, each with up to 20 odd and even harmonics, can be set to eliminate complex buzzes, harmonically rich tones, multiple groups of tones and motor noises.
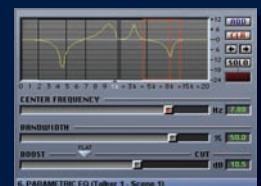
Band Limiter

Band Limiter is another perfect implementation of a common and useful tool. Unlike most bandpass filters, Band Limiter operates in the frequency domain and allows a near brick wall cut off with no phase shift or ringing. Fully controllable rejection depth combined with a visual display of components inside and outside of the band allows for surgical suppression of wind noise, mic popping and other noises.

Parametric EQ

Parametric EQ can be used to correct for and balance problems in any recording in order to enhance intelligibility. Up to 99 bands of EQ, each with complete control over frequency, width and gain, can be used to correct any simple or complex imbalance resulting from poor mic technique and placement or to clarify muddled voices.

OPTIONAL MODULES FOR SPECIFIC TASKS

SES 4 Optional Modules - Unique Solutions for Unique Problems
Choose the Right Tools for the Challenges You Face
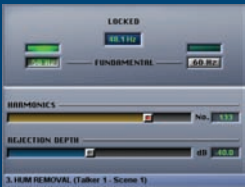
Smooth Adaptive

Smooth Adaptive is a constantly learning, constantly adapting subtractive and tone removal filter. It is ideal for changing environments and provides adaptive noise reduction without any user intervention. Set the sensitivity and depth of broadband and noise detection engines and watch the spectrogram remove unwanted components. Works as a great companion with the faster acting Adaptive Extract or to track and remove dynamic tones without introducing digital artifacts. This module alone embodies the capabilities of most other systems.
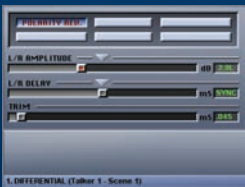
IQ Curve Match

This self-teaching module analyzes the talker's environment and automatically removes the room and recording resonances that can make speech muddy and difficult to understand. IQ analyzes the audio and automatically calculates a complex correction curve using thousands of points. IQ can also learn the signature of specific voices and optimize the audio for that voice. IQ can remove harsh echoes from interview rooms and jail cells. The proprietary algorithm in IQ makes this the perfect tool for improving intelligibility.

Hum Removal

The Hum Removal module automatically finds and follows 50 and 60 cycle hum and all the associated harmonics. You push a button, and it shows when it is locked. This module can also track and eliminate unstable hum and buzz, making it perfect for tapes made on an analog recorder with a dying battery or wow and flutter problems.
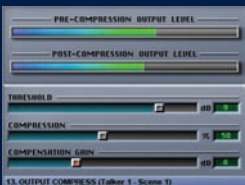
Differential

The Differential module is designed exclusively for dual mic/reference recording subtraction of audio. One of the few time domain modules, it allows easy set up and subtraction of channel A and B. Allows for time and level correction. Use the Differential module to make noise cancellation a breeze.
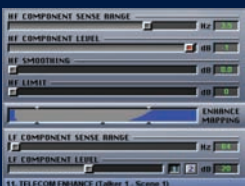
Distortion/Click Repair

This module is two modules in one. Distortion Repair uses a unique scientific distortion analysis engine to recognize and repair clipped and distorted audio even if you are working with a copy of a copy of the original distorted tape. The Click Repair automatically detects sharp transient changes as clicks and attenuates the level with minimal disruption. The sensitivity and repair amount for each module is set separately. Perfect for analog or digital transmissions where clipping, distortion and loud clicks or snaps are present.

Output Compressor

This module automatically compresses the level fluctuations after audio clean up. It is useful when voice levels are unstable or when multiple talkers have different levels. It reduces loud peaks while enhancing the volume of softer speech. It also prevents sudden loud sections of desired voice or unwanted background noise from surprising and distracting listeners such as transcription staff or jurors.
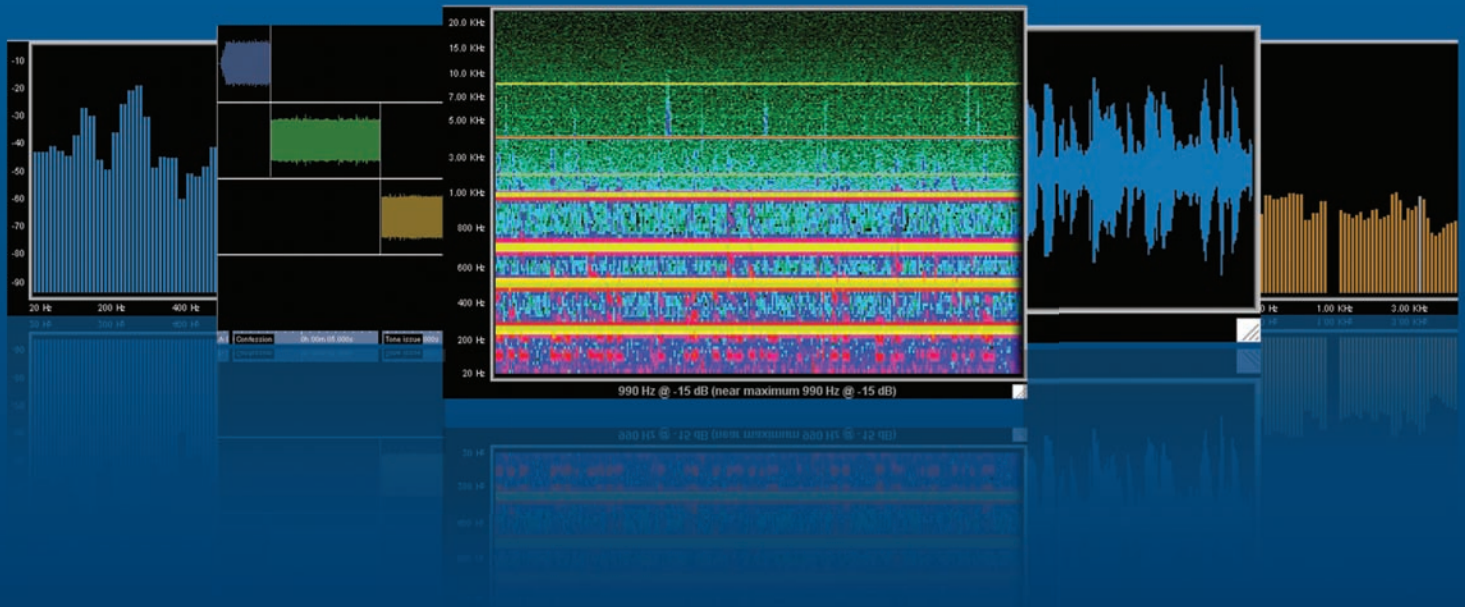
Telecom Enhance

Telecom Enhance is designed to enhance the intelligibility of band limited audio by creating artificial high frequency components. Most telephone transmission channels are band limited to 3 KHz and the missing voice components impact intelligibility. While Telcom Enhance cannot be used for audio that is being introduced into court as evidence, it can be used for intelligence gathering or to make transcription easier.

SES 4 VERSION 3 - MORE POWER, MORE FLEXIBILITY, LESS WORK

A Great Tool Breaks Out of Its Shell

Version 3.0 is the latest major (and free) upgrade for all existing SES 4 users. This major upgrade retains the same look and feel of the previous versions (no retraining necessary), but expands the capabilities of SES 4 using new pop-out display screens. You can now open almost any part of the SES 4 interface into separate and resizable windows to optimize your work environment. Work faster, see more analysis and resize as you need.

Feature highlights include:

- Improved Full Auto: still easy to use, refined for even better results.
- Individually adjust the Full Auto amount of any module for finer level of control.
- Every module updated for even better performance in both Full Auto and Manual modes.
- Detail Views: new high resolution and expandable views to analyze any problem.
- Break out almost every module and display and arrange to match your workflow.
- Save display configuration to 9 presets for rapid switching between work environments. Set up multiple workspaces for streamlined workflow.
- Repeating Scenes: reuse 99 unique scenes as many times as needed.

- Simultaneously view different effects for better overview of processing.
- Option to export output in the same sample rate and bit depth as the original file.
- Separate marker list window to name markers and rapidly jump to markers.
- Resizable input and output spectrum displays.
- Resizable Spectrograph view of audio.
- Resizable Audio Overview display allows for quick navigation and looping.
- Resizable 4 talker timeline allows for easier and more detailed separation of multiple talkers.
- Stay Current: free downloadable quarterly updates from our secure web site.