

# Z/IPStream 9X/2

The ultimate, high-quality processing/encoding software with proprietary audio correction and sonic management



## OVERVIEW

Based on the technology found in the popular Omnia.9 audio processor, 9X/2 is not simply a streaming processor-encoder, but a complete audio management system that will actually improve the flaws found in most recorded source material – both music and voice – as well as address the specific technical challenges of Internet distribution.

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## FEATURES

- Exclusive “Undo” technology with de-clipper prevents listener fatigue by removing distortion and selectively, undoing the over-compression so common in mastering today
- Optimizes sound quality of low bitrates by removing distortion components so that they do not waste bits during encoding.
- 6-band Parametric EQ for your signature sound
- Downward Expansion (source noise reduction)
- Multiband stereo enhancer

## Additional Features

- Software only, no special cards required
- Includes Virtual Audio Cable to receive audio from other programs on the same machine
- Includes Axia Livewire® driver
- Runs as a Windows service in the background, no need to log in
- Manage from anywhere with NfRemote, locally or across the Internet
- Up to 16 fully independent stereo processors in one instance, and up to 8 instances on one machine. Pay only for what you need. Upgrades available
- Local monitor output with patch-point selection and full speaker controller
- Flexible remote control application with touch screen support, comprehensive instrumentation, and remote audio streaming of any patch-point, also includes full speaker controller
- Separately adjustable sample rate (high-quality conversion) and gain control per encoded stream
- Extremely high audio quality, efficient CPU usage and low memory footprint

## IN DEPTH

Z/IPStream 9X/2 comes with both a GUI application and a service that contain the exact same processing. During initial set-up (sound card configuration, etc.), use the GUI application. Once initial configuration is done and tested, switch over to using the Service, which you can then control with NfRemote from any computer.

Everything can be controlled with NfRemote except for which sound cards to use. Z/IPStream 9X/2 and NfRemote are standard Windows 32-bit native applications and do not use Microsoft.NET or similar.

Z/IPStream 9X/2 is primarily designed for streaming and only has one local sound card output. However, NfRemote has built-in dedicated PCM audio streaming for monitoring, so that you can monitor with low delay from any computer, for example, while adjusting the processing.

9X/2 can encode audio to MP3, AAC, HE-AAC v1/v2 h (aacPlus), MP2, and WMA. Low complexity AAC (AAC-LC), high-efficiency AAC (HE-AAC), and extended HE-AAC (xHE-AAC) are all supported. AAC has been standardized under both MPEG-2 and MPEG-4. The format most commonly used is MPEG-4 AAC-LC. Often this is called just 'AAC'. HE-AAC adds Spectral Band Replication to AAC and it is sometimes called AAC+ (sometimes seen as 'aacPlus' or 'AACplus'). There is also an HE-AAC v2 format which adds parametric stereo optimizations to HE-AAC. Sometimes this is called AAC+ v2 or Enhanced AAC+. Finally, xHE-AAC, the latest Fraunhofer codec, works well at low bitrates and therefore has more encoding power. Whereas, other codecs like AAC and MP3 sound much better for music than they do for speech, xHE-AAC sounds great for both speech and music, even at the lowest bitrates. 9X/2 can also use Windows Media codecs installed on the system, 48kbps or higher.

9X/2 can directly feed SHOUTcast-style servers (SHOUTcast, Icecast, Steamcast, etc.). The Wowza server is also supported for streaming to Flash clients. Windows Media streams can be sent to Windows Media server.

## A few words about Undo

### Undo is two stages:

First, the de-clipper removes distortion by detecting clipped edges of the waveform and resynthesizing the missing part. Unlike simpler algorithms, no distortion is ever created as the resynthesizing is performed entirely in frequency domain.

Second, the amount of short-term dynamics is detected for each of 5 frequency bands, and automatically controls the threshold and expansion ratio of 5 upwards expanders, to undo excessive compression and peak limiting.

Both techniques together result in an incredible "is that really the same recording" level of improvement. Audio quality of low bitrate codecs is also vastly improved, as a less distorted waveform is less complicated for the codec to encode (thus using fewer bits) and more dynamic, punchy sound gives the codec a place to hide the bitrate reduction artifacts.

## SPECIFICATIONS

### System requirements

- 9X/2 will run on Windows XP or newer. Minimum requirements are Core 2 Duo, 512 MB RAM

### General

- A Core i7 2600 and 4 GB RAM comfortably runs 16 stereo processors with several encoders each
- Supports multiple ASIO and WDM (Wave/Direct-Sound/Kernel Streaming) audio interfaces simultaneously. Input selection can be done on the fly
- Simultaneous MP3/AAC/aacPlus/MP2/WMA encoding, compatible with Shoutcast, Icecast, Wowza, and Windows Media server

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