WAVES

DTS Neural DownMix

USER GUIDE

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Chapter 1 – Introduction

1.1 Welcome

Thank you for choosing Waves! In order to get the most out of your Waves processor, please take the time to read through this manual.

In conjunction, we also suggest you become familiar with www.wavesupport.net. There you will find an extensive answer base, the latest tech specs, detailed installation guides, new software updates, and info on your Waves product licenses. By signing up at www.wavesupport.net, you will receive personalized information on your registered products, reminders when updates are available, and more.

1.2 Product Overview

The Waves DTS Neural DownMix plugin is primarily intended for downmixing from 7.1 or 5.1 surround to stereo. DTS Neural DownMix technology effectively processes 5.1 or 7.1 surround content into a 2-channel stereo mix that accurately represents the original intent of the content creator.

Featuring the patented Active Correction technology, DTS Neural DownMix fixes common stereo processing issues, such as comb filtering and spatial inaccuracies. The result is a natural-sounding stereo mix that is spatially true to the original multichannel content.

Key use cases:
- Archiving
- Network broadcasting
- Live sports broadcasting
- Internet streaming and webcasting
- Terrestrial radio broadcasting

1.3 Concepts and Terminology

Surround channels are divided and displayed into different orders according to different standards. The DTS Neural DownMix plugin supports the following surround channels:

- 5.1 – 6 Channels: Left, Right. Center, LFE, Left Surround, Right Surround
- 7.1 – 8 Channels: Left, Right. Center, LFE, Left Side Surround, Right Side Surround, Left Surround, Right Surround

  (7.1 support is according to ITU 159 and not the 7.1 SDDS format)

The meters within the plugin display the channels according to the ITU standard, which may differ from the meter order displayed in your DAW. The plugin assures that the correct input and output channels are routed correctly.

1.4 Components

WaveShell technology enables us to split Waves processors into smaller plugins, which we call **components**. Having a choice of components for a particular processor gives you the flexibility to choose the configuration best suited to your material.

The DTS Neural DownMix plugin has three components:

- 7.1 to 5.1
- 7.1 to Stereo
- 5.1 to Stereo

1.5 Sample Rate Support

The DTS Neural DownMix plugin supports 44.1 kHz and 48 kHz sample rates.

Chapter 2 – Quick Start Guide

Launch the DTS Neural DownMix component you wish to use on the main output of the material you choose to process. The plugin will launch with default settings.

The plugin will have the same number of inputs and outputs, but the signal will be less active on the output than on the input.

Since different DAWs behave differently, you may need to create surround sub-paths to your internal buss feeds or external outputs.

Chapter 3 – Interface and Controls

3.1 Interface

7.1. to 5.1

7.1. to Stereo

5.1. to Stereo

3.2 Controls

Input section
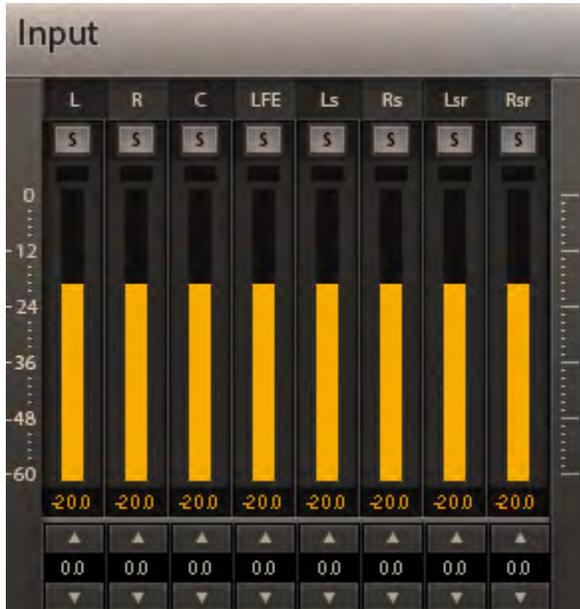
Input Meters

Indicate the level of the incoming signal.
The number of input meters is either six or
eight, depending on your chosen component.

The meters have a peak hold of one second (standard
in Waves plugins). The peak indication can be cleared
by clicking on the red indication.

Additionally, a numerical display field below each meter
displays the held peak value in dBFS.
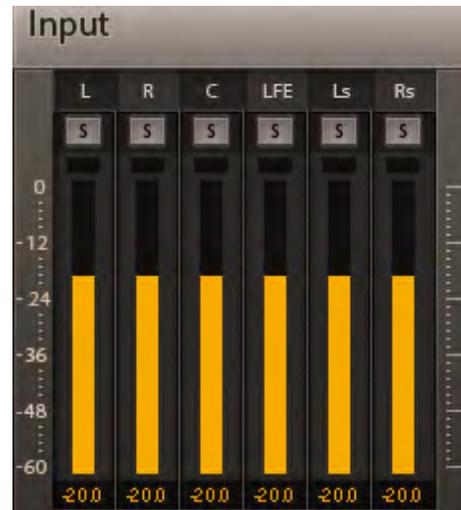
Input Trim

Trim controls are available for each input channel.
Range: 6.0 dB to infinity, in 0.5 dB increments
Default: 0 dB

Input Channel Solo

When a Solo button is enabled, it will turn yellow, and it will mute all other channels. Clicking the Solo button again will turn solo off. You can solo multiple channels by clicking on additional Solo buttons while pressing the Shift key.

Options: On/Off
Default: Off

Settings Section

7.1 to 5.1   **7.1 to Stereo / 5.1 to Stereo**

LFE Cutoff Frequency

The LFE Cutoff Frequency determines at what frequency the incoming LFE content will be rolled off. The text display field under the slider stair-steps from 0 to 160 Hz. You can click the values or move the slider to change the value.

Options: 60, 80, 100, 120, 140, 160 Hz
Default: 80 Hz

DownMix Type

The following DownMix Types can be selected by the user:

- Standard – 7.1/5.1-to-stereo encoder with full correction capabilities
- Lite – 7.1/5.1-to-stereo encoder with lower latency and partial correction capabilities
- Lt-Rt – 7.1/5.1-to-stereo time domain encoder with very
- low latency and no correction capabilities

Default: Standard

- Multi Standard – 7.1-to-5.1 encoder with full correction capabilities
- Multi Lite – 7.1-to-5.1 encoder with lower latency and partial correction capabilities
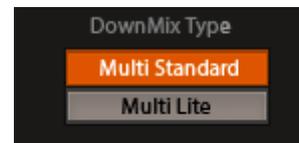
Default: Standard

Front Encoding Mode

Encoding mode for the Left and Right channels. This allows users to encode with a hard center image, or try to maintain a phantom center image throughout the encode-decode process.
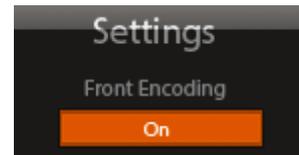
NOTE: The Front Encoding Mode parameter applies to the 7.1/5.1-to-stereo encoding types only.

Options: On/Off
Default: Standard

Output Section

Trim

Range: -9.0 dB to 9.0 dB

Default: 0 dB
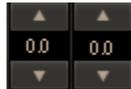
Output Channel Solo

When a Solo button is enabled, it will turn Yellow, and it will mute all other channels. Clicking the Solo button again will turn Solo off. You can solo multiple channels by clicking on additional Solo buttons while pressing the Shift key.

Options: On/Off

Default: Off

Clear Solo

When a channel is soloed, the Clear Solo button will illuminate. Pressing the Clear Solo button will deactivate ALL selected solos

Limiter

When enabling the limiter, you can specify the ceiling using the Ceiling slider.

Range: On/Off
Default: Off

Ceiling Range: 0 to -24 dBFS, in 1 dB increments
Default: 0 dBFS

Output Meters

Indicate the level of the outgoing signal. The number of output meters is either two to six, depending on your chosen component.

The meters have a peak hold of one second (standard in Waves plugins). The peak indication can be cleared by clicking on the Red indication.

Additionally, a numerical display field below each meter will display the held peaks value in dBFS.